JACOB

NO.1 IN PIPEWORK SYSTEMS

THE CATALOGUE



THE PDF CATALOGUE
Easy to use

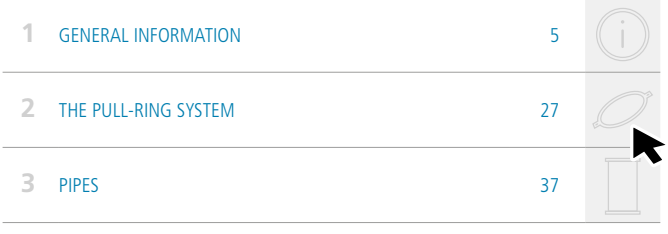
THE PDF CATALOGUE GIVES YOU A FAST ROUTE...

... to the table of contents

Just one click to the table of contents: The doorway to our range of products – your one-stop shop for modular pipe systems. Try it out!

... to our products

Quickly find your product of choice: To save you the page-turning, we have made the table of contents "clickable".
This way, you can quickly find what you are looking for.

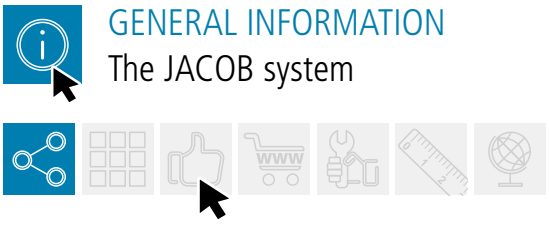


... backwards and forwards

Navigating the chapters is easy and intuitive.

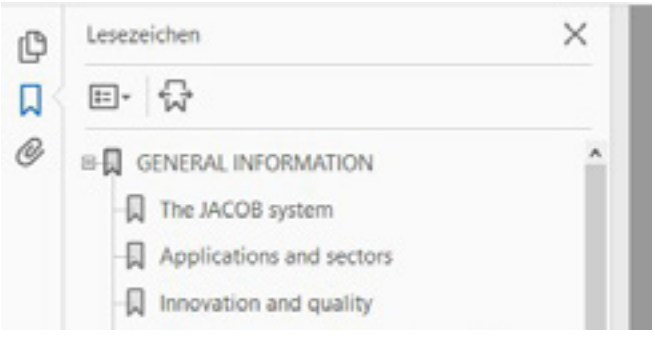
The chapter icons on every left-hand side lead you back to the table of contents.

The chapter section symbols to the right can be clicked on, allowing easy navigation within a chapter.



... using bookmarks

You can move directly to any chapter or page using the structure tree.







CONTACT US
+49 571 9558-201

EFFICIENT SALES

A warehouse with over 1 million articles ensures that our standard parts are available at any time. Within a very short time if sent by express. Thanks to our ultra-modern production processes, we also manufacture individual parts to your specification. This guarantees great planning and project reliability for your pipework system.

CUSTOMER SERVICE

Do you have any questions about planning your pipework system? Or about the right material to use? Or about the performance of particular components? No matter what you need before, during and after the purchase of a JACOB pipework system – our customer service is always on hand to help you!

A DIRECT PERSONAL LINK

Our team is available to give you their personal attention. Please don't hesitate to call us if you have any questions, criticisms or suggestions which you would like to share with us, or if you need support or would like to place an order – we will be pleased to assist you in person.

FACEBOOK

Stay up to date: Our Facebook page informs you regularly about news, trade fair appearances and much more. It's also an uncomplicated way to get in touch with us. We look forward to your posts!

YOUTUBE CHANNEL

On JACOB's YouTube channel you will find numerous videos about our products and innovations from our company. Our explanatory videos inform you quickly and easily about how our modular pipework system works and what advantages our products have.

THE INFORMATIVE WEBSITE

It's worth a visit: Have a look at our website. No matter whether you want to find out what's new or are looking for technical background knowledge on JACOB products: you will find what you're looking for on our website.

THE WEBSHOP

The JACOB online shop has it all: our online shop has all the features you are used to from large e-commerce providers. Whether you want to check availability, use the project management tool, see your ordering history or track delivery with the track & trace feature – we've never had such a user-friendly online shop before.

THE WHOLE WORLD

JACOB is proud to have such a big global team behind it. With our subsidiaries and reps, we are on the ground worldwide and so are just as globally present as you are.



NO.1 IN PIPEWORK SYSTEMS

1	GENERAL INFORMATION	5
2	THE PULL-RING SYSTEM	27
3	PIPES	37
4	THE RANGE OF PIPE BENDS	53
5	BRANCH PIECES	69
6	TRANSITION PIECES AND ADAPTERS	81
7	INSPECTION PIPE COMPONENTS	105
8	CONTROL VALVES	115
9	TWO-WAY DIVERTERS	137
10	MULTI-WAY DISTRIBUTORS	173
11	THE FLANGE RANGE	191
12	FIXING COMPONENTS AND ACCESSORIES	233
13	SILENCERS AND CYCLONES	243
14	WEAR PROTECTION LINING	253
15	SPECIAL MANUFACTURE	267

Order number key

Worldwide presence

Index

T&C on page 278, INDEX on page 286



THERE ARE THREE FACTORS WHICH ARE DECISIVE FOR JACOB'S SUCCESS: INNOVATION – QUALITY – SERVICE

Klaudine Gericke and Patrick Jacob

DEAR CUSTOMERS AND PARTNERS,

Since Friedrich Jacob founded our factory over 95 years ago, the company has stood for great products and a dedicated workforce. We are rightly proud of this. Today, there are three factors which are still decisive for JACOB's success: Innovation – Quality – Service.

It was on the basis of an **innovation** that JACOB was founded in the first place. The idea was to no longer manufacture pipework on an individual basis, but to mass-produce components to form a modular system. Even today, the company is shaped by innovations: These range from fast and reliable connections with QUICK CONNECT, hygienic transport with FOOD GRADE and reliable protection from contamination through DETECTABLE DESIGN – the advances we make are for the benefit of our customers. And we have plenty of other ideas as well!

For us, **quality** means first and foremost the quality of our products. Using the most modern production methods and perfectly coordinated materials, we ensure that our pipework systems do exactly what the name JACOB suggests. But quality for us also means the pragmatism and dependability that comes with a family run enterprise.

Our service means that we are always there for our customers. We want to make our products as accessible and easy to handle as possible – from placing an order to servicing them.
One example of this is our online shop. This not only offers all the features of a modern e-commerce shop but also has numerous convenience features that are tailored to your needs and simplify and speed up your order. Another example is our logistics centre which makes us even faster and more reliable than ever. Service for us also means being there on the ground wherever our customers need us. We are therefore have 40 agencies and five subsidiaries all over the world.

JACOB would be pleased to support you with your projects. No matter whether you order from this catalogue or from our online shop (www.jacob-shop.com): JACOB is and remains your dependable partner.



Patrick Jacob



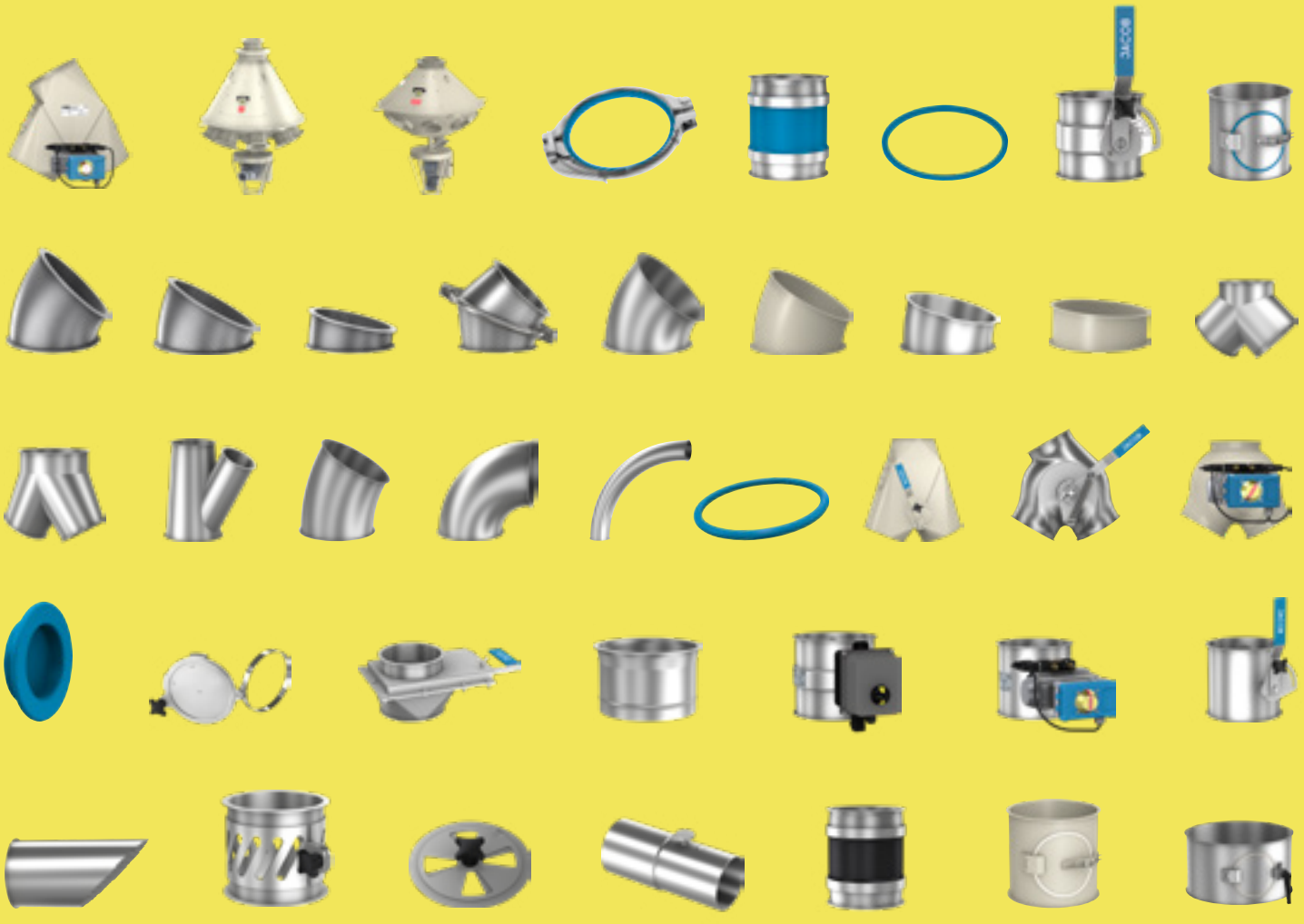
Klaudine Gericke



JACOB IS WHEN INNOVATION,
QUALITY AND SERVICE RESULT
IN A PERFECT WHOLE

GENERAL INFORMATION

The JACOB system	6
Applications and sectors	10
Innovation and quality	12
Online shop for convenient ordering	14
Materials and finishing	16
Types of connection and dimensions	20
History and international	22



JACOB DIVERSITY

- Over 8,500 unique standard products
- Diameter 60 – 1600 mm
- Wall thicknesses from 1 to 3 mm
- Stainless steel: shotblasted
- Mild steel: powder-coated or hot-dip galvanised









Explanatory video modular pipework system

THE JACOB SYSTEM

There's a system behind what JACOB does: top quality standards, an outstanding innovative spirit and an uncompromising choice of materials. Profound knowledge of the industry, customer orientation and expertise based on more than 95 years' experience. International customer support, excellent service and round-the-clock availability. The result is perfect modular pipe systems and satisfied customers throughout the world.

THE DIFFERENCE

Other pipe systems are specially produced for a project and welded together on site. JACOB has come up with a far more efficient way: Standard modular parts with lipped ends are fitted with a U-shaped seal and joined together with a pull-ring. This system is fast, tight and flexible.

THE PRINCIPLE

The pipe components have a machine-lipped end turned out at right angles. The U-shaped seal is fitted over one of these lipped ends. A pull-ring is used to join the two pipe components together. This is either attached with two bolts or – if a QUICK CONNECT pull-ring is used – in one easy movement. For special applications, JACOB also supplies its pipes with a welded flange or a loose flange connection.

RELIABILITY

Anyone who thinks that this easy connection principle is second-rate compared to welded pipe systems is mistaken. These connections can be used at differential pressures of up to 0.5 bar and form a condensation leak-proof seal, making them ideally suited for extracting oil mist. There are even special versions of JACOB pipework systems that are up to 10 bar shock explosion proof.

THE DIVERSITY

JACOB components can be used to configure even the most complex pipe systems. Our range of products comprises of 8,500 standardised parts. And if that's not enough, we are pleased to manufacture customised parts for you, which will allow you, for example, to connect our pipe system to your existing systems and machines.

FLEXIBILITY AND INSTALLATION-FRIENDLY

Our pipe system guarantees the utmost flexibility due to its modular design. Existing systems can be freely expanded and modified.

Our pull-ring system can be assembled and dismantled in a matter of seconds. This reduces downtime, saves assembly costs and enables your installations to be cleaned efficiently.

DELIVERY CAPABILITY

We currently store over 1,000,000 parts in our logistics centre. We have additional warehouses at our subsidiary companies and agencies and so offer you fast availability of €15,000,000 worth of parts throughout the world. Pipe diameters of up to DN 400 mm can normally be dispatched straight from our logistics centre in Porta Westfalica.

QUALITY

We offer you a pipe system of the very highest quality. We develop and build key elements of our machinery, such as flanging machines, ourselves in order to guarantee the outstanding leaktightness and longevity of our products. We invest continually in new production technologies, machinery and processes to expand our quality leadership on an ongoing basis.

BULK GOODS HANDLING

Gravity chute systems



DUST EXTRACTION AND EXHAUST AIR

Environmental technology



LOW PRESSURE CONVEYING

Product and air conveying



APPLICATIONS AND SECTORS

JACOB pipework systems are condensation leak-proof and the materials and workmanship are of outstanding quality. These properties make them the perfect choice for numerous applications and sectors.

The JACOB pipework system offers flexibility in use in virtually every sector, from conveying sensitive foodstuffs or pharmaceutical products, or conveying granulates in the chemical or plastics industry, right up to extracting dust or oil mist in the automotive or metal-working industry.

All sectors which involve conveying raw materials and products or extracting contaminated air will benefit from installation-friendly JACOB pipework systems. They are particularly appreciated in the following sectors due to their high quality, tightness and their flexibility:

CONVEYING BULK GOODS

Grains in any form	Food, beverage and tobacco	Chemicals, pharmaceuticals, plastics
Cereals	Spices	Polyamides
Concentrated feed	Coffee	Intermediate products
Seeds	Sugar	Pharmaceuticals
	Rice	Granulate
	Animal feed and pet food	
	Baked goods/pasta products	

DUST EXTRACTION AND EXHAUST AIR

Metal-working	Food, beverage and tobacco	Chemicals, pharmaceuticals, plastics
Degreasing systems	Dusts	Dusts
Oil mist	Fumes	Lacquers
Welding fumes		Fumes
Grind dusts		
Solvent recovery		

LOW PRESSURE CONVEYING

Recycling	Wood and paper	Chemicals	Air conditioning
Electronics	Paper	Polystyrene	Printing companies
Plastic	Wood	PU foam	Cleanrooms
Glass	Wood shavings		Cereal cooling
Paper	Pellets		Sealing air lines
	Cellulose		
	Biomass		



INNOVATIONS AND QUALITY

Innovations are our way of helping our customers to move forward – quality is a matter of course.

FOOD GRADE
EG/EC 1935/2004 plus FDA

FOOD GRADE LINE

JACOB sets standards in food safety. Our new FOOD GRADE line of products complies with both the European EC 1935/2004 regulations and the American FDA guidelines. All components that come into contact with food are made exclusively of high grade stainless steels. In addition, we use adhesive-free vulcanised U-shaped seals and ring seals: They are more resistant to chemicals, temperature and tearing than glued rings.

DETECTABLE DESIGN

THE DETECTABLE DESIGN RANGE

Foreign particles in a product are not acceptable in many sectors. Up to now, it was practically impossible to trace gaskets and seals, or even just parts of them, in the product flow. JACOB has succeeded in incorporating miniscule particles in the compound that the gaskets or seals are made of. If gaskets or seals get into the product flow, such as during maintenance work, these can now be reliably detected by metal detectors and then removed. This make the DETECTABLE DESIGN range an indispensable safety factor.

QUICK CONNECT

THE QUICK CONNECT PRINCIPLE

JACOB pipework systems take less time to install than conventional systems. Using the QUICK CONNECT pull-ring makes it even quicker, however. It only takes a few quick turns of the hand to join two sections of pipe together or to separate them again. This is a great advantage! This is particularly the case with pipe systems that require to be dismantled regularly for cleaning and maintenance.

EXPLOSION SAFETY AND ELECTROSTATIC CONTINUITY

JACOB pipework systems, if configured accordingly, are shock explosion proof to 3 or 10 bar overpressure. Particularly when conveying solids and gases that have a tendency to explode, this is an important safety factor. To ensure that this does not happen, JACOB pipework systems can be installed in such a way that they are completely electrostatically conductive.

Online shop for convenient ordering



JACOB online shop

ONLINE SHOP FOR CONVENIENT ORDERING

Unique in the sector: The JACOB online shop (www.jacob-shop.com). You have been able to shop with us for a long time – but now you enjoy the convenience that up to now only big internet traders have been able to offer.

AVAILABILITY

Our online shop is open all hours. Whenever you are working on planning an installation, whenever you are looking for a spare part and wish to order it: the entire JACOB online shop is at your disposal right round the clock.

TRANSPARENCY

Availability is shown in real time. So you can be sure that the item you have ordered really is in stock. And if the delivery is on its way, you can use the "track & trace" function any time to find out where it is and how long it will take. If you need something in a hurry, our next-day service will get it to you the following working day.

CONVENIENCE

The JACOB online shop is easy to use. Enter your contact details, manage your projects, enter your own customer item number when ordering or view your order history any time. You can also order special components by uploading your data and place express orders.

www.jacob-shop.com



MATERIALS

High-grade materials, perfect workmanship: This is the basis for the particular quality of our products.

Pipework and press-formed components in mild steel

Mainly the following materials:

- DD11 (1.0332) to DIN EN 10111
- DD11 (1.0335) to DIN EN 10111
- DD11 (1.0330) to DIN EN 10130
- DC04 (1.0338) to DIN EN 10130

Corrosion protection through powder coating, priming (spray painted) or hot-dip galvanising

Flanges and mounting brackets in structural grade carbon steel

S235JR (1.0038) to DIN EN 10025-2

Corrosion protection through powder coating, priming (spray painted) or hot-dip galvanising

Pipework and press-formed components in stainless steel

Suitable for moderate to medium corrosive environmental conditions (CRC 2 to DIN EN 1993-1-4).

Primarily for use in the food industry. Mainly the following materials:

- 1.4301 (X5CrNi18-10), AISI 304, ASTM A240, A480, A 666
- 1.4307 (X2CrNi18-9), AISI 304L, ASTM A240, A480, A 666

To restore the corrosion resistance and to create a uniform surface finish, these materials are stainless steel shotblasted as standard. Temperature-resistant to 300°C.

Available on request

Stainless steels for higher corrosive environmental conditions (CRC 3 to DIN EN 1993-1-4).

Primarily for use in the chemical and pharmaceutical industry.

- 1.4404 (X2CrNiMO17-12-2) AISI 316L, ASTM A 240
- 1.4571 (X6CrNiMoTi17-12-2), AISI 316Ti, ASTM A 240

As standard, components are pickled in a bath and passivated by storing in the open air to restore their corrosion resistance. Prices and delivery time on request. Other materials that are not explicitly mentioned can also be offered after examining their processability.



FINISHING

To prevent damage due to corrosion in mild steels, our components are protected to enable them to withstand the general ambient conditions. JACOB has different product groups to offer for this purpose for the stainless steel modular pipework system: powder-coated, spray primed or galvanised components.

Corrosion protection through powder-coating or spray priming

Powder-coating:

- Pretreatment: Thin film iron phosphate coating
- Powder coating primer from DN 60 to 630 mm
- Silk gloss, smooth polyester resin binder-based powder coating
- Its constituents comply with the Food and Drug Administration (FDA) requirements of regulation 21 CFR 175.300 for direct contact with food
- Temperature resistance: from -60°C to +120°C
- Electrostatically conductive
- Colour similar to RAL 7032 (pebble grey)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection

Priming (spray painted):

- Generally used with pipework > DN 630 mm
- Inner and outer priming
- Coating thickness: average layer thickness 45 µm
- Colour similar to RAL 7032 (pebble grey)
- Inside and outside optically covered as temporary corrosion protection

More colours:

- Choose from more than 3,000 colour and effect variations
- Final outside painting of pipe components and pressed components in a coating thickness of approx. 80 µm

Options:

- Structured coatings and high-gloss effects
- UV protection
- Inner coating free from spray mist possible at additional cost with spray priming

Costs:

Extra costs for special colour or quality outside paint topcoat (DN 60 – DN 630 mm):

1 and 1.5 mm pipework: 16%

2 mm pipework: 12%

3 mm pipework: 10%

Extra costs for special colour or quality outside paint topcoat > DN 630 mm on request.

Minimum price for final paint topcoat € 60 (fixed price), extra cost for shut-off valves, distributors and two-way valves:

DN	Shut-off valves, two-way distributors / two-way valves, non-return valves	Pipe regulators, Outlet gates
	€	€
60 to 175	23.10	39.90
200 to 300	29.90	45.60
350 to 400	36.20	52.50
from 450 upwards	45.60	62.50

Corrosion protection through hot-dip galvanisation

- Pipe components described as "galvanised" are all hot-dip galvanised
- Hot-dip galvanising to DIN EN ISO 1461
- Average layer thickness (minimum values) depends on the thickness of the steel:
  - <1.5 mm: 45 µm
  - ≥1.5 mm to ≤3 mm: 55 µm
  - ≥3 mm to ≤6 mm: 70 µm
- Temperature-resistant to 200°C
- During hot-dip galvanisation, irregularities may occur in the colour and structure of the surface

Corrosion protection through electro galvanisation

- E.g. for pull-rings, air regulators, ball joints and other accessories
- Galvanisation according to DIN EN ISO 19598 (Fe//Zn8//An//T0) colourless to iridescent colour
- Layer thickness approx. 10 µm
- Temperature-resistant to 120°C

Types of connection and dimensions

OUR CONNECTIONS AND DIMENSIONS

Our modular pipework system is distinguished by its diversity and its top quality. We have the right type of connection in our range for virtually all applications involving bulk goods conveying, air and dust exhaust extraction, and low-pressure conveying: from the JACOB pull-ring system and loose flange system to welded-on flanged pipework.

Nominal diameters and dimensions are given in millimetres.

Inside diameter **The JACOB pull-ring system**



DN (mm)	ND (inch)	Ø d with a wall thickness of S = 1 mm	S = 1.5 mm	S = 2 mm	S = 3 mm	Lip width 6 mm	QUICK CONNECT pull-ring	Pull-ring without sealant	Pull-ring with sealant	Pull ring one-part with sealant
60	**2¼**		57			■		■		
80	**3**	78	77	76		■	■	■	■	■
100	**4**	100	100	99		■	■	■	■	■
120	**5**	120	120	119	118	■	■	■	■	■
140	**5½**	136	136	135		■	■	■	■	
150	**6**	150	150	149	148	■	■	■	■	■
175	**7**	175	175	174	173	■	■	■	■	■
200	**8**	200	200	199	198	■	■	■	■	■
224	**9**	220	220	219		■	■	■	■	
250	**10**	250	250	249	248	■	■	■	■	
280	**11**	278	277	276		■	■	■	■	
300	**12**	300	300	299	298	■	■	■	■	
315	**12½**	313	312	311		■	■	■	■	
350	**14**	350	350	349	348	■	■	■	■	
400	**16**	400	399	398	396	■	■	■	■	
450	**18**	450	449	448	446	■	□	□	■	
500	**20**	500	499	498	496	■		□	■	
560	**22**		559	558	556	■		□	■	
630	**25**		629	628	626	■		□	■	
710	**28**			707	705					
800	**31½**			797	795					
900	**35½**			897	895					
1000	**39**			997	995					
1120	**44**			1117	1115					
1250	**49**			1247	1245					
1400	**55**				1398					
1600	**63**				1598					

DN = Nominal diameter
■ Standard
□ Optional, use depends on application

QUICK CONNECT

Tolerances:

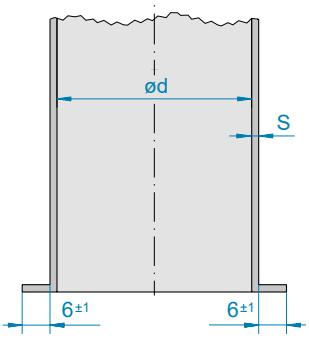
- Pipe diameter and roundness – DIN EN 10296-1
- Lengths and angles – DIN ISO 2768-1 – tolerance class V
- Excluded: Segments and transition pieces with a gradient, angle tolerance ±1°
- The wall thickness of drawn or ground partial areas may differ
- JACOB flanges similar to DIN 24154-2 (DN 120, 150, 300, 350 not included in the DIN standard)

The JACOB flange system

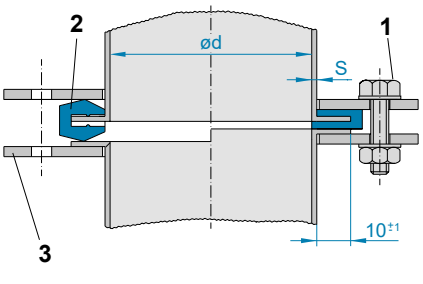


DN (mm)	ND (inch)	Lip width 6 mm	Lip width 10 mm	Loose flange	Welded flange	10 bar shock explosion proof
60	2¼	■		□	□	
80	3	■		□	□	■
100	4	■		□	□	■
120	5	■		□	□	■
140	5½	■		□	□	
150	6	■		□	□	■
175	7	■		□	□	■
200	8	■		□	□	■
224	9	■		□	□	
250	10	■		□	□	■
280	11	■		□	□	
300	12	■		□	□	■
315	12½	■		□	□	□
350	14		■	■	□	□
400	16		■	■	□	□
450	18		■	■	□	□
500	20		■	■	□	□
560	22		■	■	□	□
630	25		■	■	□	□
710	28		■	■	□	
800	31½		■	■	□	
900	35½		■	■	□	
1000	39		■	■	□	
1120	44		■	■	□	
1250	49		■	■	□	
1400	55				■	
1600	63				■	

DN = Nominal diameter
■ Standard
□ Optional, use depends on application
Price on request



JACOB pipework system with a lip for pull-ring connection



JACOB loose flange system
1 Mounting bolts
2 U-shaped seal for 10 mm lip
3 Loose flange to DIN 24154-2

S = Wall thickness
Ød = Internal diameter


PUMA

OUR FAMILY-OWNED ENTERPRISE

Our business has been in the family since it was founded in 1924. This makes JACOB particularly flexible and so is able to work in partnership and react fast to customers' needs and the demands of the market. Our company stands out with its clear values and sense of responsibility. We are conscious of the fact that JACOB owes its existence and success to its workforce. This is why we are committed to all the people who work at JACOB, in the same way that they are dedicated to the company.

OUR HISTORY

Even in the nineteen-fifties, JACOB turned its focus to the manufacture of pipework systems and developed a modular system which is distinguished by its connections using flanged lips, U-shaped seals and pull-rings. We have continued to perfect this principle right up to today and have become market leaders in our industry.

OUR EXPERTISE

The secret of JACOB's exceptional quality lies in our expertise, which we have built up over more than 65 years' experience with modular pipework systems. JACOB has a large number of in-house developed and self-built tools for accurately producing pressed components, such as drawn bends, valves and pull-rings. Added to this, we have designed and built our own machines for the lip flanging process and high-performance automated manufacturing. In tandem with our innovative development department, we are therefore able to guarantee flawless engineering and a consistently high standard of quality.



THE WHOLE WORLD

JACOB is a global company with 6 subsidiaries in Germany, France, Italy, Great Britain, the Czech Republic and the USA as well as approx. 40 representative offices. We are able to count reputable customers from all sectors of industry both in Germany and abroad among our long-standing and satisfied customers. Expanding this leading position and building on the confidence that our customers place in us is our goal.


JACOB (UK) Limited
Shropshire, UK
Lufttechnik Gransee
Gransee, Germany
Fr. JACOB Söhne
Porta Westfalica, Germany
JACOB DOSATEC SARL
Eaubonne, France
JACOB-SYSTEMS
Zlin, Czech Republik
EUROTUBI S.R.L.
Borgofranco Po, Italy
JACOB locations
JACOB subsidiaries
JACOB headquarters



JACOB PULL-RING SYSTEM: EASY TO INSTALL, MAXIMUM TIGHTNESS

THE PULL-RING SYSTEM

Technical information	28
Installation instructions	30
Pull-rings	32
U-shaped seals	33
Pull-rings with mastic sealant	34
Accessories	35

Explanatory video

PULL-RINGS






DN	QUICK CONNECT pull-ring [1]	Pull-ring without sealant [1]	Pull-ring with sealant	One-part pull-ring with sealant
60		■		
80	■	■	■	■
100	■	■	■	■
120	■	■	■	■
140	■	■	■	
150	■	■	■	■
175	■	■	■	■
200	■	■	■	■
224	■	■	■	
250	■	■	■	
280	■	■	■	
300	■	■	■	
315	■	■	■	
350	■	■	■	
400	■	■	■	
450	□	□	■	
500		□	■	
560		□	■	
630		□	■	

1) Use in conjunction with U-shaped gasket
■ Standard
□ Optional, use depends on application

Pull-rings made of mild steel are electro-galvanised in the standard quality. Stainless steel pull-rings are stainless steel shotblasted. Electrolytic polishing or ball-polishing is also available on request.

Details of leakage values for the pull-ring system with U-shaped gasket

QUICK CONNECT PULL-RINGS AND PULL-RINGS WITHOUT SEALANT

Highlights: The JACOB pull-ring system is very easy to assemble and gives the pipework system its high stability and leak-tightness due to its high-quality construction. Both pull-rings have been tested in conjunction with JACOB U-shaped seals. The air leakage per connection, measured at a differential pressure of 0.5 bar – e.g. with a diameter of 300 mm – is far below the admissible values of DIN EN 12237, class D.

Application: Up to a diameter of DN 300 mm, our pull-ring system with a U-shaped seal, if configured accordingly, is condensation leak-proof and so is ideal for applications such as extracting oil mist. As a rule, our pull-ring connections with a U-shaped seal can be used for conveying bulk goods and for ventilation systems at over-pressures of up to 50,000 Pa (500 mbar, 5,000 mm WG). Vacuum applications are possible on request, depending on the product selected.

PULL-RINGS WITH FACTORY-FITTED MASTIC SEALANT

Application: The elastic sealant in the pull-ring is EC 1935/2004 compliant and can be used in contact with food product in the temperature range between -40°C and +100°C.

This pull-ring is used for bulk goods conveyed by gravity and ventilation systems with low differential pressures and without condensates. For higher demands concerning sealing properties and the resistance of the connection, pull-rings with U-shaped seals should be preferred.

QUICK CONNECT

U-SHAPED SEALS

Our U-shaped seals combine an ideal profile with the perfect choice of materials.

The benefits:

- Tear-resistant, compliant with food regulations (FOOD GRADE) and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness through an ideal profile
- Resistant to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone (F)	Silicone (F) (D)	EPDM (F)	Viton (FKM) (F)
grey white	beige	blue	black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA	FOOD GRADE: EC 1935/2004 plus FDA	FOOD GRADE: EC 1935 / 2004 plus FDA	FOOD GRADE: EC 1935/2004 plus FDA
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Refer to the technical information at the beginning of this chapter and in the installation instructions (see next page) for more details. The temperatures given indicate the permanent temperature resistance. U-shaped seals must be tested by the user to ensure they are sufficiently resistant to the working conditions. Our team would be pleased to assist you with selecting the right U-shaped seal. We can send you samples on request.

EARTHING BRIDGES

The innovative solution from JACOB for electrostatic continuity.

Suitable for retrofitting to our pull-ring system without welding and drilling. The stainless steel earthing bridge can be used as an alternative to the earthing wire or the conductive EPDM U-shaped seal. Please observe the installation instructions.

Both versions of earthing bridge have been tested by DEKRA EXAM GmbH, a specialist unit for explosion protection.



Without contact caps



With contact caps

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable

Installation instructions for the pull-ring system

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

Pull-rings are used in conjunction with U-shaped seals to connect pipe components and pressed components with a 6 mm lip. The use of different U-shaped seal profiles enables the same pull-ring to be used with 1 to 2 mm thick pipe components and pressed components.

To meet the different requirements of every system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements.

U-shaped seals

	Profile for 1 mm wall thickness		Profile for 2 and 3 mm wall thickness
	NBR, silicone, Viton	EPDM conductive	NBR, silicone, Viton, EPDM conductive For 3 mm wall thickness, the use of U-shaped seals made of NBR or silicone is recommended. Only in conjunction with the pull-ring for 3 mm pipework.
			

Pipe component B	Wall thickness pipe component A						
	1 mm	1.5 mm	2 mm	1.5 mm	2 mm	2 mm	3 mm
1 mm	■	■	■				
1.5 mm	■	■			■		
2 mm	■			■	■		■
3 mm						■	■

Refer to page 29 for more technical information on pull-rings.

Pull-rings

QUICK CONNECT pull-ring	Pull-ring (without sealant)
	

Refer to page 28 for more technical information on pull-rings.

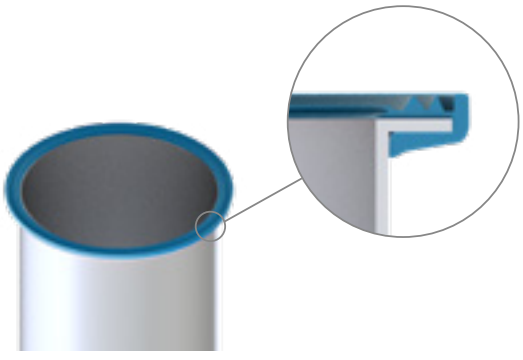
GENERAL INSTALLATION INFORMATION ON CREATING LEAK-PROOF CONNECTIONS

- Repair damaged lipped ends (align)
- Eliminate any unevenness from the lipped end
- Assemble the pipework tension-free
- Ensure when fitting the pull-ring that the U-shaped seal does not form any loops
- Support horizontal pipework roughly every 4 metres. If there are several short pipe components in the pipeline, the interval between supports should be reduced
- Attach branch pipes so that they do not generate any tension in the main pipeline
- Tighten the bolts of two-part pull-rings evenly on both sides
- Re-tighten the pull-rings after 24 hours to ensure they are as leak-proof as possible

QUICK CONNECT

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

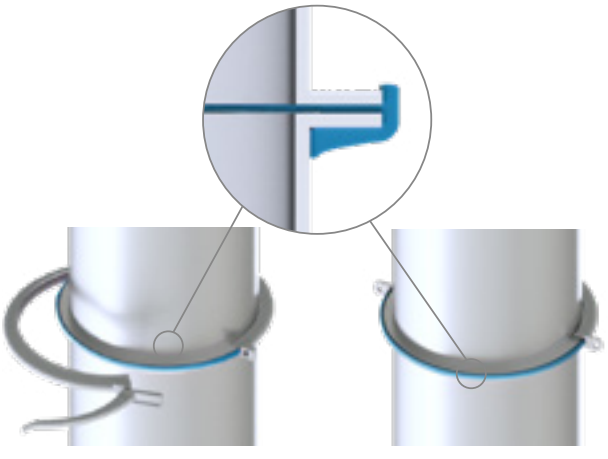
Note: To connect JACOB pipe components with a 6 mm lip. A U-shaped seal and a pull-ring are needed for each connection. You need a 6 mm hexagon cap screwdriver to mount the pull-rings.



Step 1

Attach a U-shaped seal over one of the lipped pipe ends.

- The U-shaped seal must be slightly stretched to enable it to be attached
- The profiled side must face the pipe component that is being connected



Step 2

Position the connecting pipe and slide one pull-ring half over the lipped pipe end.

QUICK CONNECT pull-ring

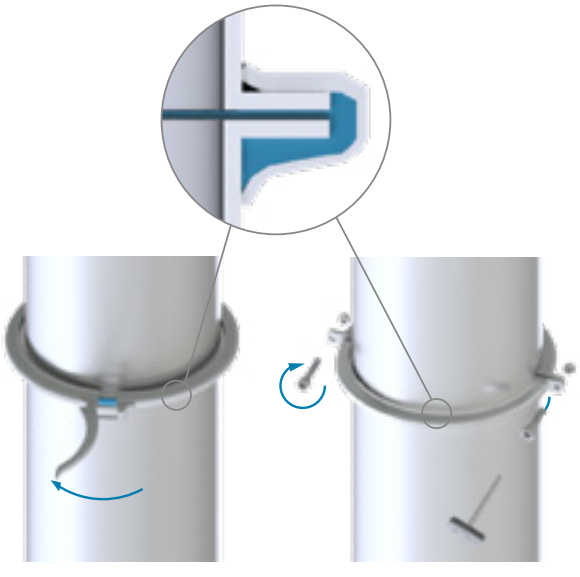
First, attach the pull-ring half without the toggle clip

Two-part pull-ring

We recommend separating the two halves of the pull-ring beforehand

Ensure that the pipe components are properly aligned and the U-shaped seal is in the right position.

Note: We recommend that when fitting horizontal pipelines where condensate occurs, any points at which the U-shaped seal is glued should be positioned on top, and the connecting points of the pull-ring halves are horizontal. This ensures the maximum possible tightness at the lowest point of the connection.



Step 3

Press the second pull-ring half onto the lipped pipe ends.

N.B.:
When closing the pull-ring, the U-shaped seal must not form any loops.

QUICK CONNECT pull-ring

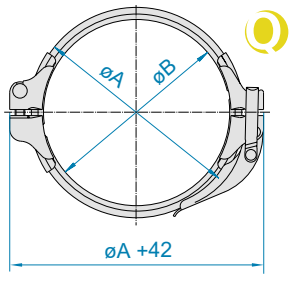
- Place the clasp over the closing hook and close the clip
- To prevent the connection from loosening accidentally (such as due to vibration) tighten the bolt with a 10 Nm torque on the mounting face

Two-part pull-ring

- Tighten the bolts evenly with a torque of 10 Nm

N.B.: A bolt tightening torque of 10 Nm is necessary for the QUICK CONNECT pull-ring, or 25 Nm for the two-part pull-ring, for shock explosion proof connection of up to 3 bar over-pressure.





QUICK CONNECT PULL-RINGS

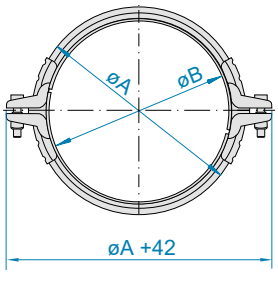
3085

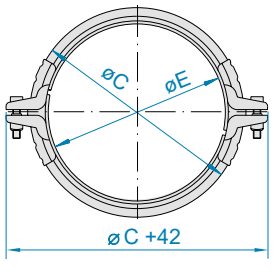
- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- Up to DN 300 mm, shock explosion proof to 3 bar
- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

DN	ØA	ØB	kg	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€
80	100	80	0.35	12082903	8,70	12083903	19,30
100	123	103	0.37	12102903	8,70	12103903	19,30
120	143	123	0.40	12122903	8,90	12123903	19,90
140	159	139	0.45	12142903	9,10	12143903	20,60
150	173	153	0.47	12152903	9,10	12153903	20,60
175	198	178	0.49	12172903	9,70	12173903	21,20
200	223	203	0.51	12202903	10,40	12203903	22,00
224	243	223	0.55	12222903	12,90	12223903	24,90
250	273	253	0.58	12252903	12,90	12253903	24,90
280	301	281	0.61	12282903	14,10	12283903	26,00
300	323	303	0.62	12302903	14,10	12303903	26,00
315	336	316	0.63	12312903	17,50	12313903	31,70
350	373	353	0.68	12352903	20,80	12353903	36,40
400	423	403	0.74	12402903	26,10	12403903	46,20
450	472	450	0.79	12452903	32,40	12453903	54,80







PULL-RINGS WITHOUT SEALANT

3060

- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- From DN 80 to 300 mm, shock explosion proof to 3 bar
- Pull-ring for 3 mm wall thickness, in conjunction with U-shaped seal made of NBR or silicone for 2 mm pipework system
- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

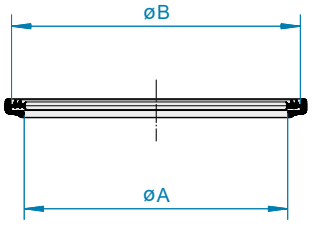
Pull-rings for 3 mm wall thickness

DN	ØA	ØB	kg	Electro-galvanised		Stainless steel		ØC	ØE	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€			Item no.	€	Item no.	€
60	81	60	0.30	12062383	6,60	12063383	18,70						
80	101	80	0.31	12082383	6,60	12083383	18,70						
100	125	104	0.33	12102383	6,60	12103383	18,70						
120	145	124	0.36	12122383	6,80	12123383	19,20	151	126	12122926	7,00	12123926	19,80
140	161	140	0.37	12142383	7,60	12143383	20,40						
150	175	154	0.39	12152383	7,60	12153383	20,40	181	156	12152926	7,80	12153926	20,90
175	200	179	0.42	12172383	9,10	12173383	22,10	206	181	12172926	9,30	12173926	22,80
200	225	204	0.45	12202383	9,80	12203383	23,00	231	206	12202926	10,30	12203926	23,60
224	245	224	0.47	12222383	10,40	12223383	25,50						
250	275	254	0.51	12252383	10,40	12253383	25,50	281	256	12252926	10,70	12253926	26,50
280	302	281	0.55	12282383	13,00	12283383	29,50						
300	325	304	0.57	12302383	13,00	12303383	29,50	331	306	12302926	13,30	12303926	30,30
315	337	316	0.58	12312383	14,40	12313383	30,10						
350	375	354	0.63	12352383	15,20	12353383	30,70	381	356	12352926	15,60	12353926	31,80
400	425	404	0.68	12402383	17,40	12403383	31,80	431	406	12402926	17,70	12403926	32,80
450	478	450	0.73	12452383	21,20	12453383	34,60						
500	524	500	0.78	12502383	25,00	12503383	36,00						
560	586	560	0.83	12562383	29,40	12563383	38,10						
630	656	632	0.90	12632383	33,40	12633383	40,20						

QUICK CONNECT

Pull-rings with a U-shaped seal, in conjunction with the pipe components indicated in the catalogue, shock explosion proof tested up to 3 bar.





U-SHAPED SEALS

3070

- For use in conjunction with JACOB pull-rings and pipework system with a 6 mm lip
- **U-shaped seals for 1 mm pipework system**, also for connecting 1 mm to 1.5 mm, 1 mm to 2 mm and 1.5 mm to 1.5 mm thick pipe components
- **U-shaped seals for 2 mm pipework system**, also for connecting 2 mm to 1.5 mm thick pipe components
- For 3 mm thick pipe components, the use of U-shaped seals made of NBR or silicone is recommended for a 2 mm pipework system
- Please also read and take into account the technical information given at the beginning of this chapter

U-shaped seals for 1 mm pipework system

DN	ØA	ØB	NBR grey		Silicone beige (F)		Silicone blue (F)(D)		EPDM black (F)		FKM reddish brown (F)	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	69	100669517	1,30	1006795109	2,20	10067951091	4,00	1006895159	2,20	100699519	8,20
80	81	93	100869517	1,40	1008795109	2,40	10087951091	4,30	1008895159	2,40	100899519	8,80
100	103	115	101069517	1,70	1010795109	2,50	10107951091	4,70	1010895159	2,50	101099519	10,10
120	123	135	101269517	1,80	1012795109	2,60	10127951091	5,10	1012895159	2,60	101299519	11,10
140	139	151	101469517	1,90	1014795109	2,80	10147951091	5,50	1014895159	2,80	101499519	12,40
150	153	165	101569517	1,90	1015795109	2,80	10157951091	5,80	1015895159	2,80	101599519	12,90
175	178	190	101769517	2,10	1017795109	3,00	10177951091	6,40	1017895159	3,00	101799519	13,30
200	203	215	102069517	2,40	1020795109	3,10	10207951091	6,80	1020895159	3,10	102099519	14,50
224	223	235	102269517	2,60	1022795109	3,60	10227951091	7,20	1022895159	3,60	102299519	17,40
250	253	265	102569517	2,60	1025795109	3,60	10257951091	7,70	1025895159	3,60	102599519	19,10
280	280	292	102869517	2,70	1028795109	3,90	10287951091	8,30	1028895159	3,90	102899519	20,90
300	303	315	103069517	2,80	1030795109	3,90	10307951091	8,80	1030895159	3,90	103099519	22,20
315	315	327	103169517	2,90	1031795109	4,30	10317951091	8,90	1031895159	4,30	103199519	23,20
350	353	365	103569517	3,10	1035795109	4,30	10357951091	9,70	1035895159	4,30	103599519	25,40
400	403	415	104069517	3,60	1040795109	4,90	10407951091	10,70	1040895159	4,90	104099519	28,20
450	450	470	104569517	4,10	1045795109	5,80	10457951091	11,60	1045895159	5,80	104599519	31,40
500	500	516	105069517	4,90	1050795109	6,20	10507951091	12,80	1050895159	6,20	105099519	34,50
560	560	578	105669517	5,90	1056795109	6,80	10567951091	14,20	1056895159	6,80	105699519	38,10
630	632	648	106369517	6,30	1063795109	7,80	10637951091	14,70	1063895159	7,80	106399519	42,70

VULCANISED AND MORE TEAR-RESISTANT QUALITY.

U-shaped seals for 2 mm pipe system, NBR and silicone also suitable for 3 mm pipe system

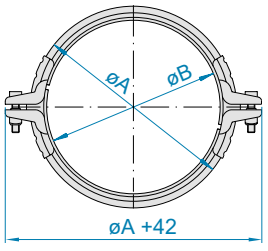
DN	ØA	ØB	NBR grey		Silicone beige (F)		Silicone blue (F)(D)		EPDM black (F)		FKM reddish brown (F)	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	81	93	100869527	1,40	1008795209	2,40	10087952091	4,30	1008895259	2,40	100893869	8,80
100	103	115	101069527	1,70	1010795209	2,50	10107952091	4,70	1010895259	2,50	101093869	10,10
120	123	135	101269527	1,80	1012795209	2,60	10127952091	5,10	1012895259	2,60	101293869	11,10
140	139	151	101469527	1,90	1014795209	2,80	10147952091	5,50	1014895259	2,80	101493869	12,40
150	153	165	101569527	1,90	1015795209	2,80	10157952091	5,80	1015895259	2,80	101593869	12,90
175	178	190	101769527	2,10	1017795209	3,00	10177952091	6,40	1017895259	3,00	101793869	13,30
200	203	215	102069527	2,40	1020795209	3,10	10207952091	6,80	1020895259	3,10	102093869	14,50
224	223	235	102269527	2,60	1022795209	3,60	10227952091	7,20	1022895259	3,60	102293869	17,40
250	253	265	102569527	2,60	1025795209	3,60	10257952091	7,70	1025895259	3,60	102593869	19,10
280	280	292	102869527	2,70	1028795209	3,90	10287952091	8,30	1028895259	3,90	102893869	20,90
300	303	315	103069527	2,80	1030795209	3,90	10307952091	8,80	1030895259	3,90	103093869	22,20
315	315	327	103169527	2,90	1031795209	4,30	10317952091	8,90	1031895259	4,30	103193869	23,20
350	353	365	103569527	3,10	1035795209	4,30	10357952091	9,70	1035895259	4,30	103593869	25,40
400	403	415	104069527	3,60	1040795209	4,90	10407952091	10,70	1040895259	4,90	104093869	28,20
450	450	470	104569527	4,10	1045795209	5,80	10457952091	11,60	1045895259	5,80	104593869	31,40
500	500	516	105069527	4,90	1050795209	6,20	10507952091	12,80	1050895259	6,20	105093869	34,50
560	560	578	105669527	5,90	1056795209	6,80	10567952091	14,20	1056895259	6,80	105693869	38,10
630	632	648	106369527	6,30	1063795209	7,80	10637952091	14,70	1063895259	7,80	106393869	42,70

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

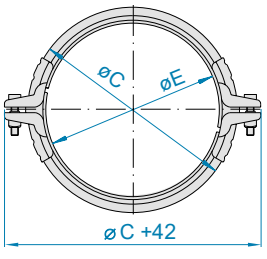
(D) DETECTABLE DESIGN
Metal-detectable

Pull-rings with mastic sealant

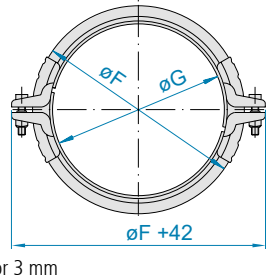




for 1 mm



for 2 mm



for 3 mm

PULL-RING WITH SEALANT

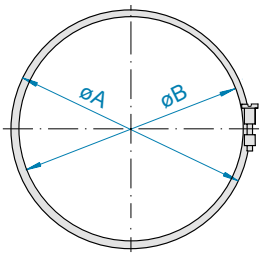
3050

- All versions electro-galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm or 2 mm thick pipe components
- Pull-rings for 2 mm also suitable for connecting 2 mm to 1.5 mm thick pipe components
- In larger diameters, pull-rings for 3 mm are used for all wall thicknesses

Pull-rings for 1, 2 and 3 mm wall thickness

DN	ØA	ØB	kg	For 1 mm pipework system		ØC	ØE	For 2 mm pipework system		ØF	ØG	For 3 mm pipework system	
				Item no.	€			Item no.	€			Item no.	€
80	99	80	0.23	11082381	5,50	100	80	11082382	5,60				
100	121	102	0.26	11102381	5,50	123	103	11102382	5,60				
120	141	122	0.28	11122381	6,20	143	123	11122382	6,60	145	124	11122383	7,20
140	157	138	0.30	11142381	6,60	159	139	11142382	7,20				
150	171	152	0.33	11152381	6,60	173	153	11152382	7,20	175	154	11152383	8,10
175			0.34	11172382	7,70	198	178	11172382	7,70	200	179	11172383	9,70
200			0.38	11202382	8,10	223	203	11202382	8,10	225	204	11202383	10,50
224			0.40	11222382	8,40	243	223	11222382	8,40	244	223	11222383	11,00
250			0.42	11252382	8,90	275	254	11252382	8,90	275	254	11252383	11,00
280			0.47	11282382	10,60	302	281	11282382	10,60				
300			0.50	11302382	10,60	325	304	11302382	10,60	325	304	11302383	14,50
315			0.53	11312383	14,80	337	316	11312383	14,80				
350			0.68	11352383	15,80			11352383	15,80	375	354	11352383	15,80
400			0.75	11402383	18,40			11402383	18,40	423	402	11402383	18,40
450			0.81	11452383	21,50			11452383	21,50	473	452	11452383	21,50
500			0.88	11502383	24,80			11502383	24,80	523	502	11502383	24,80
560			0.95					11562383	29,40	583	562	11562383	29,40
630			1.05					11632383	33,50	653	632	11632383	33,50





Product similar to picture

ONE-PART PULL-RINGS WITH SEALANT

3055

- All versions galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm thick pipe components

Pull-rings for 1 mm wall thickness

DN	ØA	ØB	kg	1 mm	
				Item no.	€
80	97	80	0.04	11082372	5,00
100	119	102	0.05	11102372	5,00
120	139	122	0.06	11122372	5,30
150	169	152	0.07	11152372	5,80
175	194	177	0.08	11172372	6,20
200	219	202	0.09	11202372	7,10



EARTHING BRIDGES WITHOUT CONTACT CAPS

1400

- Engineered by JACOB for electrostatic continuity
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 32 and 34)
- Independent of the temperature and resistance
- Recommended for use in conjunction with galvanised pipe components or stainless steel surfaces
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003792	31,30



EARTHING BRIDGES WITH CONTACT CAPS

- Engineered by JACOB for electrostatic continuity
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 32 and 34)
- Contact caps made of electrostatically conductive EPDM
- Recommended for use in conjunction with powder-coated pipe components in JACOB standard RAL 7032 (pebble grey), electrostatically conductive
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003793	36,60



ALLEN KEYS

4030

- Size 5 Allen key for assembling one-part pull-ring
- Size 6 Allen key for assembling QUICK CONNECT pull-ring, pull-ring without sealant and pull-ring with sealant

	Item no.	€
Size 5 for one-part pull-rings	10002361	3,30
Size 6 for two-part pull-rings	10002362	3,60



JACOB PIPES – THE SOUND BASIS FOR YOUR PIPEWORK SYSTEM

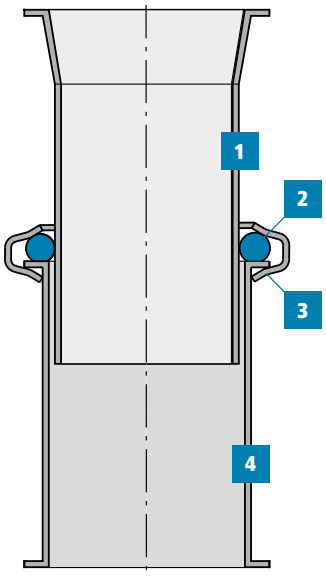
PIPES

Technical information	38
Pipes	40
Welding ends	45
Push-in pipes	46
Ring seals	49
Pipes 200 mm with spigots	49



WELDED PIPES

The cornerstone of the modular pipework system – our certification according to the DIN EN ISO 3834-3 welding quality management system and automated welding processes guarantee top serial production quality. Straight pipes are available in diameters ranging from 60 to 630 mm with a 6 mm lip in various materials with a wall thickness of 1 to 3 mm. Please refer to chapter 1, on page 20 for information on inside diameters. At your request we manufacture customised special lengths, supply pipes with flanges or produce finishes to your specification as far as technically possible – from special colours to pickled stainless steel.



1 Push-in pipe
2 Ring seal
3 Standard pull-ring (cf. chapter 2)
4 Straight pipe

PUSH-IN PIPES

The easy solution for creating special lengths on site within a modular system. Push-in pipes are available in different lengths and are fitted with a ring seal. They are inserted into a welded pipe as far as required and then fixed in place with a pull-ring. The push-in pipe should be inserted at least 50 mm into the straight pipe, and the minimum length that is bridged is 45 mm. The easiest way of creating a special length – without sawing, welding or lip flanging!

This connection is **not** shock explosion proof. Admissible over-pressure 100 mbar (1000 mm WG, 10,000 Pa).

Push-in pipes are not telescopic pipes that can be adjusted during operation. When push-in pipes are installed horizontally, support must be provided directly on the pipe before or the pipe after the push-in pipe. In vertical pipework, the pipe under the push-in pipe must be supported. Use in pipework conveying foodstuffs is not recommended. Please also read and take into account our push-in pipe installation instructions.

Push-in pipe installation instructions



RING SEALS FOR PUSH-IN PIPES

- Tear-resistant, FOOD GRADE and resistant to many aggressive chemicals thanks to vulcanisation
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone (F)	Silicone (F) (D)	EPDM (F)	Viton (FKM) (F)
grey white	beige	blue	black	red
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA	FOOD GRADE: EC 1935/2004 plus FDA	FOOD GRADE: EC 1935/2004 plus FDA	FOOD GRADE: EC 1935/2004 plus FDA
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	



PIPES WITH SPIGOTS

The ideal solution for incorporating sensors in the modular pipework system.

JACOB offers 200 mm long pipe components as standard with a 6 mm lip, made of various materials, with different spigots. Special lengths and other spigots are available on request.

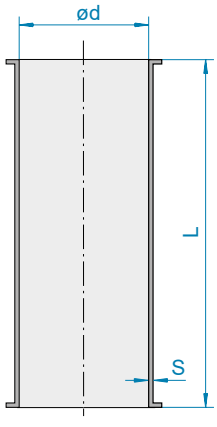
(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable

WELDED PIPES

- L = actual length
- Ø d = internal diameter of 2 mm parts
- All pipes with a 6 mm lip
- Special lengths and colours available on request
- Lengths of 2 m up to 12 m available on request





PIPES 2000 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11061010*	21,20				
80	76	1984	7.80	11081010	21,50	12081010	37,20		
100	99	1984	10.15	11101010	22,00	12101010	38,10		
120	119	1984	11.85	11121010	24,80	12121010	40,60	13121010	56,10
140	135	1984	13.15	11141010	29,70	12141010	46,80		
150	149	1984	15.05	11151010	29,30	12151010	46,10	13151010	66,60
175	174	1984	17.25	11171010	33,80	12171010	52,60	13171010	76,70
200	199	1984	19.25	11201010	37,60	12201010	58,60	13201010	86,10
224	219	1984	21.65	11221010	44,40	12221010	63,00		
250	249	1984	24.45	11251010	44,40	12251010	63,00	13251010	101,00
280	278	1984	27.40	11281010	50,70				
300	299	1984	29.05	11301010	50,70	12301010	75,20	13301010	119,00
315	313	1984	31.00	11311010	58,40				
350	349	1984	34.50	11351010	63,30	12351010	96,70	13351010	136,00
400	398	1984	39.40	11401010	91,30	12401010	136,00	13401010	178,00
450	448	1984	44.30	11451010	108,00	12451010	179,00	13451010	221,50
500	498	1984	49.30	11501010	115,00	12501010	195,00	13501010	250,50
560	558	1984	56.20			12561010	216,50	13561010	286,50
630	628	1988	64.00			12631010	245,50	13631010	322,50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

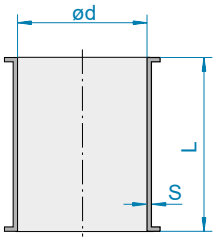
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11062010*	30,60			11063010*	68,00		
80	76	1984	7.80	11082010	31,10	12082010	53,10	11083010	81,50		
100	99	1984	10.15	11102010	31,50	12102010	53,80	11103010	82,10	12103010	135,50
120	119	1984	11.85	11122010	35,10	12122010	59,90	11123010	93,20	12123010	156,50
140	135	1984	13.15	11142010	41,80	12142010	72,20	11143010	108,50		
150	149	1984	15.05	11152010	41,50	12152010	71,00	11153010	108,50	12153010	185,00
175	174	1984	17.25	11172010	48,50	12172010	83,80	11173010	119,00	12173010	206,00
200	199	1984	19.25	11202010	55,90	12202010	95,30	11203010	132,00	12203010	245,50
224	219	1984	21.65	11222010	61,60	12222010	105,00	11223010	146,50		
250	249	1984	24.45	11252010	61,60	12252010	105,00	11253010	146,50	12253010	281,00
280	278	1984	27.40	11282010	73,40			11283010	178,00		
300	299	1984	29.05	11302010	73,40	12302010	126,00	11303010	178,00	12303010	329,00
315	313	1984	31.00	11312010	84,20			11313010	189,50		
350	349	1984	34.50	11352010	90,30			11353010	194,50	12353010	348,50
400	398	1984	39.40	11402010	119,00			11403010	246,00	12403010	403,50
450	448	1984	44.30	11452010	139,00			11453010	288,00	12453010	449,50
500	498	1984	49.30	11502010	154,00			11503010	336,50	12503010	532,50
560	558	1984	56.20			12562010	339,00			12563010	570,50
630	628	1988	64.00			12632010	381,00			12633010	623,50

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





PIPES 1000 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11061020*	13,40				
80	76	984	3.80	11081020	13,60	12081020	19,00		
100	99	984	4.95	11101020	13,80	12101020	19,30		
120	119	984	5.85	11121020	15,70	12121020	21,30	13121020	31,50
140	135	984	6.55	11141020	19,10	12141020	27,50		
150	149	984	7.25	11151020	18,90	12151020	27,00	13151020	38,80
175	174	984	8.55	11171020	20,40	12171020	28,40	13171020	42,30
200	199	984	9.45	11201020	23,00	12201020	31,20	13201020	47,60
224	219	984	10.75	11221020	25,40	12221020	34,60		
250	249	984	12.05	11251020	25,40	12251020	34,60	13251020	57,60
280	278	984	13.70	11281020	27,60				
300	299	984	14.25	11301020	27,60	12301020	39,00	13301020	62,80
315	313	984	14.40	11311020	33,00				
350	349	984	16.55	11351020	37,50	12351020	49,80	13351020	70,10
400	398	984	18.95	11401020	45,00	12401020	69,90	13401020	91,30
450	448	984	21.65	11451020	53,90	12451020	91,30	13451020	115,00
500	498	984	24.60	11501020	58,00	12501020	104,50	13501020	130,50
560	558	984	28.10			12561020	112,00	13561020	149,50
630	628	984	29.85			12631020	127,50	13631020	168,50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

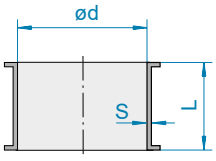
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11062020*	18,20			11063020*	38,60		
80	76	984	3.80	11082020	18,70	12082020	28,60	11083020	43,40		
100	99	984	4.95	11102020	18,80	12102020	28,90	11103020	43,70	12103020	70,30
120	119	984	5.85	11122020	19,30	12122020	29,80	11123020	49,20	12123020	83,10
140	135	984	6.55	11142020	22,80	12142020	35,00	11143020	57,00		
150	149	984	7.25	11152020	22,60	12152020	34,40	11153020	57,00	12153020	96,90
175	174	984	8.55	11172020	29,70	12172020	45,80	11173020	63,50	12173020	113,00
200	199	984	9.45	11202020	32,70	12202020	50,30	11203020	69,70	12203020	128,00
224	219	984	10.75	11222020	33,80	12222020	52,20	11223020	80,60		
250	249	984	12.05	11252020	33,80	12252020	52,20	11253020	80,60	12253020	146,00
280	278	984	13.70	11282020	39,60			11283020	95,90		
300	299	984	14.25	11302020	39,60	12302020	61,00	11303020	95,90	12303020	170,50
315	313	984	14.40	11312020	47,40			11313020	105,50		
350	349	984	16.55	11352020	52,10			11353020	113,00	12353020	186,50
400	398	984	18.95	11402020	60,90			11403020	146,00	12403020	224,50
450	448	984	21.65	11452020	72,20			11453020	159,00	12453020	241,00
500	498	984	24.60	11502020	80,30			11503020	178,50	12503020	278,00
560	558	984	28.10			12562020	182,00			12563020	316,50
630	628	984	29.85			12632020	196,00			12633020	351,00

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





PIPES 500 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11061030*	9,10				
80	76	486	1.90	11081030	9,20	12081030	10,70		
100	99	486	2.55	11101030	9,40	12101030	10,90		
120	119	486	2.90	11121030	9,90	12121030	12,70	13121030	18,70
140	135	486	3.25	11141030	12,30	12141030	15,00		
150	149	486	3.65	11151030	12,30	12151030	15,00	13151030	22,90
175	174	486	4.35	11171030	13,00	12171030	17,20	13171030	24,70
200	199	486	4.85	11201030	13,70	12201030	19,10	13201030	27,60
224	219	486	5.30	11221030	13,90	12221030	20,70		
250	249	486	5.95	11251030	13,90	12251030	20,70	13251030	32,10
280	278	486	6.80	11281030	15,70				
300	299	486	7.25	11301030	15,70	12301030	23,50	13301030	35,00
315	313	486	7.70	11311030	18,90				
350	349	486	8.45	11351030	21,90	12351030	28,00	13351030	39,20
400	398	486	9.55	11401030	25,70	12401030	37,50	13401030	50,30
450	448	486	10.75	11451030	30,70	12451030	47,20	13451030	59,50
500	498	486	12.05	11501030	32,30	12501030	54,50	13501030	70,50
560	558	486	14.10			12561030	59,80	13561030	79,50
630	628	486	15.80			12631030	67,40	13631030	90,30

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

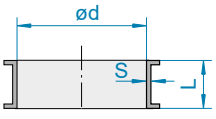
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11062030*	11,20			11063030*	22,10		
80	76	486	1.90	11082030	11,30	12082030	15,60	11083030	23,30		
100	99	486	2.55	11102030	11,70	12102030	16,00	11103030	23,50	12103030	36,80
120	119	486	2.90	11122030	12,00	12122030	16,50	11123030	27,30	12123030	42,20
140	135	486	3.25	11142030	16,00	12142030	21,90	11143030	30,90		
150	149	486	3.65	11152030	16,00	12152030	22,00	11153030	30,90	12153030	50,20
175	174	486	4.35	11172030	17,70	12172030	24,40	11173030	35,10	12173030	57,60
200	199	486	4.85	11202030	18,20	12202030	29,00	11203030	38,20	12203030	64,50
224	219	486	5.30	11222030	18,80	12222030	29,90	11223030	43,40		
250	249	486	5.95	11252030	18,80	12252030	29,90	11253030	43,40	12253030	77,50
280	278	486	6.80	11282030	22,70			11283030	51,00		
300	299	486	7.25	11302030	22,70	12302030	36,00	11303030	51,00	12303030	88,20
315	313	486	7.70	11312030	27,20			11313030	58,90		
350	349	486	8.45	11352030	28,90			11353030	62,30	12353030	98,40
400	398	486	9.55	11402030	32,80			11403030	85,80	12403030	126,50
450	448	486	10.75	11452030	39,80			11453030	90,80	12453030	146,00
500	498	486	12.05	11502030	41,90			11503030	95,20	12503030	166,50
560	558	486	14.10			12562030	103,50			12563030	193,50
630	628	486	15.80			12632030	113,50			12633030	207,00

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





PIPES 200 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11061040*	6,30				
80	76	200	0.70	11081040	6,40	12081040	6,70		
100	99	200	1.00	11101040	6,50	12101040	6,90		
120	119	200	1.20	11121040	6,90	12121040	7,60	13121040	12,50
140	135	200	1.40	11141040	8,00	12141040	9,60		
150	149	200	1.50	11151040	8,00	12151040	9,60	13151040	15,10
175	174	200	1.80	11171040	9,00	12171040	10,80	13171040	16,50
200	199	200	2.05	11201040	9,50	12201040	11,40	13201040	19,20
224	219	200	2.20	11221040	9,80	12221040	12,40		
250	249	200	2.55	11251040	9,80	12251040	12,40	13251040	21,50
280	278	200	2.90	11281040	9,90				
300	299	200	2.95	11301040	9,90	12301040	14,40	13301040	22,90
315	313	200	3.30	11311040	12,10				
350	349	200	3.70	11351040	13,10	12351040	18,80	13351040	27,20
400	398	200	4.10	11401040	15,30	12401040	21,80	13401040	29,70

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

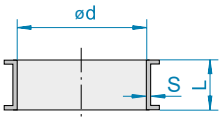
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062040*	7,70			11063040*	12,20		
80	76	200	0.70	11082040	7,80	12082040	9,40	11083040	13,20		
100	99	200	1.00	11102040	7,90	12102040	9,50	11103040	13,30	12103040	18,60
120	119	200	1.20	11122040	8,40	12122040	10,00	11123040	15,10	12123040	23,00
140	135	200	1.40	11142040	10,80	12142040	14,10	11143040	18,00		
150	149	200	1.50	11152040	10,80	12152040	14,30	11153040	18,00	12153040	27,70
175	174	200	1.80	11172040	11,80	12172040	15,50	11173040	19,90	12173040	29,30
200	199	200	2.05	11202040	12,50	12202040	16,40	11203040	21,50	12203040	32,50
224	219	200	2.20	11222040	12,90	12222040	17,00	11223040	23,70		
250	249	200	2.55	11252040	12,90	12252040	17,00	11253040	23,70	12253040	38,40
280	278	200	2.90	11282040	14,40			11283040	27,70		
300	299	200	2.95	11302040	14,40	12302040	23,10	11303040	27,70	12303040	44,00
315	313	200	3.30	11312040	17,20			11313040	29,20		
350	349	200	3.70	11352040	19,30			11353040	30,10	12353040	50,50
400	398	200	4.10	11402040	21,00			11403040	48,40	12403040	69,20

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





PIPES 50 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12	11061050*	4,40				
80	76	50	0.15	11081050	4,50	12081050	4,60		
100	99	50	0.30	11101050	4,60	12101050	4,70		
120	119	50	0.40	11121050	4,90	12121050	5,10	13121050	8,40
140	135	50	0.45	11141050	5,50	12141050	5,90		
150	149	50	0.50	11151050	5,50	12151050	5,90	13151050	10,30
175	174	50	0.55	11171050	5,90	12171050	6,20	13171050	10,90
200	199	50	0.60	11201050	6,40	12201050	6,60	13201050	11,80
224	219	50	0.65	11221050	6,60	12221050	6,90		
250	249	50	0.75	11251050	6,60	12251050	6,90	13251050	13,10
280	278	50	0.90	11281050	7,50				
300	299	50	0.90	11301050	7,50	12301050	8,20	13301050	14,40
315	313	50	1.00	11311050	9,00				

*1,5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

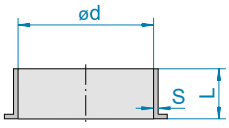
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12					11063050*	7,20		
80	76	50	0.15	11082050	5,60	12082050	6,50	11083050	7,80		
100	99	50	0.30	11102050	5,80	12102050	6,70	11103050	7,90	12103050	9,20
120	119	50	0.40	11122050	6,00	12122050	7,10	11123050	8,10	12123050	9,90
140	135	50	0.45	11142050	6,90	12142050	7,90	11143050	8,80	12143050	11,00
150	149	50	0.50	11152050	6,90	12152050	7,90	11153050	8,80	12153050	11,00
175	174	50	0.55	11172050	7,50	12172050	8,70	11173050	9,90	12173050	12,40
200	199	50	0.60	11202050	8,00	12202050	9,30	11203050	10,90	12203050	13,60
224	219	50	0.65	11222050	8,40	12222050	9,60	11223050	12,90	12223050	15,90
250	249	50	0.75	11252050	8,40	12252050	9,60	11253050	12,90	12253050	15,90
280	278	50	0.90	11282050	9,40			11283050	16,50		
300	299	50	0.90	11302050	9,40	12302050	11,50	11303050	16,50	12303050	17,00
315	313	50	1.00	11312050	11,30			11313050	17,30		

*1,5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





WELDING ENDS 55 MM, FLANGED ON ONE SIDE

1020

- Flanged on one side with a 6 mm lip
- For connection to existing pipe systems or machinery on site

Steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	2 mm steel uncoated		3 mm steel uncoated		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11060060*	4,10				
80	76	55	0.15	12080060	4,40				
100	99	55	0.35	12100060	4,50			12102060	7,90
120	119	55	0.40	12120060	4,90	13120060	7,20	12122060	8,80
140	135	55	0.45	12140060	5,60			12142060	9,30
150	149	55	0.45	12150060	5,60	13150060	7,40	12152060	9,30
175	174	55	0.55	12170060	5,90	13170060	8,30	12172060	9,80
200	199	55	0.60	12200060	6,30	13200060	8,70	12202060	10,30
224	219	55	0.70	12220060	6,50			12222060	11,40
250	249	55	0.75	12250060	6,50	13250060	9,10	12252060	11,40
280	276	55	0.80	12280060	7,80				
300	299	55	0.85	12300060	7,80	13300060	10,30	12302060	12,90
315	311	55	0.90	12310060	8,00				
350	349	55	1.05	12350060	8,20	13350060	11,10		
400	398	55	1.15	12400060	9,10	13400060	12,20		
450	448	55	1.40	12450060	10,40	13450060	13,90		
500	498	55	1.55	12500060	11,80	13500060	15,60		
560	558	55	1.70	12560060	13,10	13560060	17,40		
630	628	55	1.90	12630060	14,90	13630060	20,30		

*1.5 mm

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11061060	4,40					11063060*	6,10
80	76	55	0.15	11081060	4,50	12081060	4,60			12083060	8,60
100	99	55	0.35			12101060	4,70			12103060	9,00
120	119	55	0.40			12121060	5,10	13121060	7,40	12123060	9,70
140	135	55	0.45			12141060	5,90			12143060	10,50
150	149	55	0.45			12151060	5,90	13151060	7,60	12153060	10,50
175	174	55	0.55			12171060	6,30	13171060	8,60	12173060	12,30
200	199	55	0.60			12201060	6,60	13201060	8,90	12203060	13,80
224	219	55	0.70			12221060	6,80			12223060	15,70
250	249	55	0.75			12251060	6,80	13251060	9,30	12253060	15,70
280	276	55	0.80							12283060	17,00
300	299	55	0.85			12301060	8,30	13301060	10,70	12303060	17,00
315	311	55	0.90							12313060	17,80
350	349	55	1.05			12351060	8,70	13351060	11,40	12353060	18,70
400	398	55	1.15			12401060	9,50	13401060	12,50	12403060	20,60
450	448	55	1.40			12451060	11,00	13451060	14,40	12453060	25,40
500	498	55	1.55			12501060	12,40	13501060	16,00	12503060	29,20
560	558	55	1.70			12561060	13,80	13561060	18,10	12563060	33,10
630	628	55	1.90			12631060	15,80	13631060	20,80	12633060	36,70

*1.5 mm

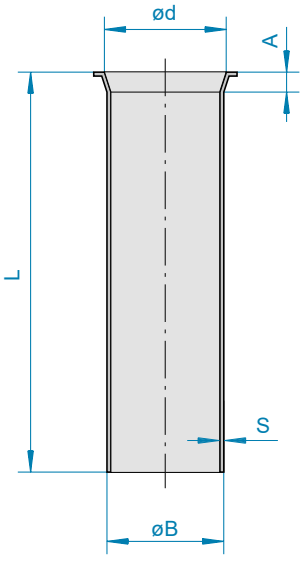
FOOD GRADE
EC 1935/2004 plus FDA compliant

PUSH-IN PIPES

Push-in pipes in 1 to 3 mm wall thickness

For combining with:
- QUICK CONNECT pull-ring or pull-ring without sealant for 1 and 2 mm pipework (page 32)
- Ring seal (page 49)





Push-in pipe installation instructions

PUSH-IN PIPES 1000 MM

1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	990	2.20			11061110	22,20
80	77	34	74	990	2.70	11081110	23,10		
100	100	34	96	990	3.50			11101110	23,30
120	120	34	116	990	4.30			11121110	26,50
140	136	34	132	990	4.60			11141110	32,90
150	150	34	146	990	5.40			11151110	32,90
175	175	34	171	990	6.20			11171110	36,90
200	200	34	196	990	7.00			11201110	40,10
224	220	34	216	990	7.60			11221110	49,60
250	250	34	246	990	8.80			11251110	49,60
280	277	34	272	990	10.00			11281110	54,50
300	300	34	296	990	10.70			11301110	54,50
315	312	34	307	990	11.30			11311110	62,70
350	350	50	346	990	12.40			11351110	67,30
400	399	50	396	990	14.20			11401110	84,60

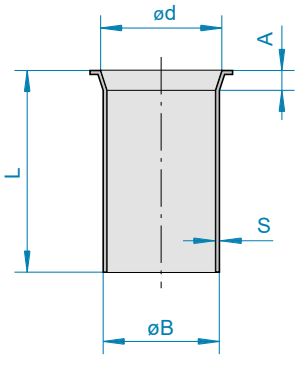
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm galvanised		1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	990	2.20	11062110	28,40			11063110	57,50		
80	77	34	74	990	2.70	11082110*	29,80	11083110	67,50				
100	100	34	96	990	3.50	11102110	30,00	11103110	68,00			12103110**	98,60
120	120	34	116	990	4.30	11122110	32,90	11123110	71,30			12123110	113,00
140	136	34	132	990	4.60	11142110	38,10	11143110	82,70				
150	150	34	146	990	5.40	11152110	38,10	11153110	82,70			12153110	130,50
175	175	34	171	990	6.20	11172110	46,60	11173110	91,60			12173110	152,00
200	200	34	196	990	7.00	11202110	50,50	11203110	105,50			12203110	169,50
224	220	34	216	990	7.60	11222110	60,90	11223110	121,50				
250	250	34	246	990	8.80	11252110	60,90	11253110	121,50			12253110	194,00
280	277	34	272	990	10.00	11282110	71,40			11283110	141,50		
300	300	34	296	990	10.70	11302110	71,40	11303110	141,50			12303110	223,50
315	312	34	307	990	11.30	11312110	82,10			11313110	155,00		
350	350	50	346	990	12.40	11352110	91,60	11353110	171,00			12353110	230,50
400	399	50	396	990	14.20	11402110	112,50	11403110	184,00			12403110	278,00

* 1 mm
** Ø B = 92 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant





PUSH-IN PIPES 500 MM

1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm powder-coated		1.5 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10			11061120	15,70		
80	77	34	74	492	1.40	11081120	16,40				
100	100	34	96	492	1.80			11101120	16,60		
120	120	34	116	492	2.10			11121120	17,60		
140	136	34	132	492	2.45			11141120	20,40		
150	150	34	146	492	2.65			11151120	20,40	13151120	35,10
175	175	34	171	492	3.10			11171120	25,10	13171120	39,60
200	200	34	196	492	3.50			11201120	25,80	13201120	45,80
224	220	34	216	492	3.90			11221120	31,20		
250	250	34	246	492	4.50			11251120	31,20	13251120	51,10
280	277	34	272	492	5.00			11281120	34,60		
300	300	34	296	492	5.40			11301120	34,60	13301120	57,10
315	312	34	307	492	5.70			11311120	39,80		
350	350	50	346	492	6.20			11351120	40,40		
400	399	50	396	492	7.20			11401120	50,20		

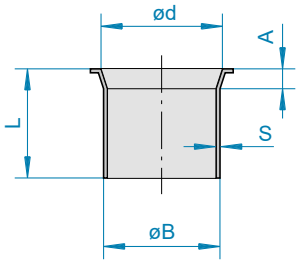
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm galvanised		1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10	11062120	18,90			11063120	31,60		
80	77	34	74	492	1.40	11082120*	19,60	11083120	36,70				
100	100	34	96	492	1.80	11102120	19,80	11103120	36,90			12103120**	52,30
120	120	34	116	492	2.10	11122120	21,20	11123120	41,10			12123120	60,50
140	136	34	132	492	2.45	11142120	23,40	11143120	45,50				
150	150	34	146	492	2.65	11152120	23,40	11153120	45,50			12153120	70,20
175	175	34	171	492	3.10	11172120	28,30	11173120	50,50			12173120	79,70
200	200	34	196	492	3.50	11202120	30,00	11203120	58,80			12203120	88,90
224	220	34	216	492	3.90	11222120	37,40	11223120	66,30				
250	250	34	246	492	4.50	11252120	37,40	11253120	66,30			12253120	105,50
280	277	34	272	492	5.00	11282120	41,90			11283120	75,30		
300	300	34	296	492	5.40	11302120	41,90	11303120	75,30			12303120	121,50
315	312	34	307	492	5.70	11312120	48,30			11313120	82,80		
350	350	50	346	492	6.20	11352120	52,50	11353120	86,40			12353120	152,00
400	399	50	396	492	7.20	11402120	64,50	11403120	89,80			12403120	173,50

* 1 mm
** Ø B = 92 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant





PUSH-IN PIPES 200 MM

1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	200	0.41			11061130	14,30
80	77	34	74	200	0.60	11081130	14,60		
100	100	34	96	200	0.75			11101130	15,00
120	120	34	116	200	0.85			11121130	15,60
140	136	34	132	200	0.95			11141130	18,20
150	150	34	146	200	1.10			11151130	18,20
175	175	34	171	200	1.30			11171130	22,20
200	200	34	196	200	1.50			11201130	25,20
224	220	34	216	200	1.55			11221130	28,40
250	250	34	246	200	1.90			11251130	28,40
280	277	34	272	200	2.10			11281130	31,70
300	300	34	296	200	2.45			11301130	31,70
315	312	34	307	200	2.50			11311130	36,50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm galvanised		1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	200	0.41	11062130	17,20			11063130	18,60		
80	77	34	74	200	0.60	11082130*	18,00	11083130	21,60				
100	100	34	96	200	0.75	11102130	18,20	11103130	21,60			12103130**	31,30
120	120	34	116	200	0.85	11122130	19,00	11123130	23,60			12123130	33,40
140	136	34	132	200	0.95	11142130	22,60	11143130	25,80				
150	150	34	146	200	1.10	11152130	22,60	11153130	25,80			12153130	40,00
175	175	34	171	200	1.30	11172130	26,20	11173130	28,50			12173130	41,50
200	200	34	196	200	1.50	11202130	28,80	11203130	32,80			12203130	45,90
224	220	34	216	200	1.55	11222130	33,60	11223130	36,50				
250	250	34	246	200	1.90	11252130	33,60	11253130	36,50			12253130	54,10
280	277	34	272	200	2.10	11282130	38,40			11283130	41,20		
300	300	34	296	200	2.45	11302130	38,40	11303130	41,20			12303130	61,50
315	312	34	307	200	2.50	11312130	44,40			11313130	45,40		

* 1 mm
** Ø B = 92 mm

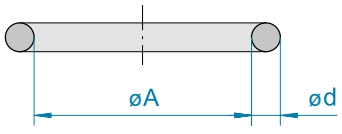
FOOD GRADE
EC 1935/2004 plus FDA compliant



RING SEALS FOR PUSH-IN PIPES

3020

- Use in conjunction with push-in pipes and QUICK CONNECT pull-ring or pull-ring without sealant
- The use of silicone ring seals is recommended with a 3 mm wall thickness



FOR USE IN CONJUNCTION WITH PUSH-IN PIPE AND PULL-RING.

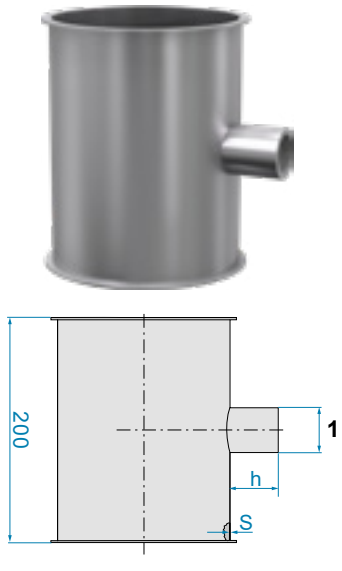
Ring seals to seal push-in pipes from 1 to 3 mm wall thickness

DN	Ø d	ØA	NBR grey		Silicone beige (F)		Silicone blue (F)(D)		EPDM black (F)		FKM reddish brown (F)	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	7	53	100661557	1,20	1006715509	3,70	10067155091	4,20	1006815559	3,70	100691559	23,40
80	9	68	100861557	1,30	1008715509	3,70	10087155091	4,80	1008815559	3,70	100891559	26,00
100	9	87	101061557	1,60	1010715509	4,00	10107155091	5,50	1010815559	4,00	101091559	26,00
120	9	106	101261557	1,80	1012715509	4,20	10127155091	6,30	1012815559	4,20	101291559	27,30
140	9	121	101461557	1,90	1014715509	4,40	10147155091	6,70	1014815559	4,40	101491559	28,30
150	9	138	101561557	1,90	1015715509	4,60	10157155091	7,20	1015815559	4,60	101591559	28,30
175	9	162	101761557	2,20	1017715509	5,00	10177155091	8,10	1017815559	5,00	101791559	29,30
200	9	186	102061557	2,50	1020715509	5,30	10207155091	8,70	1020815559	5,30	102091559	29,80
224	9	205	102261557	2,70	1022715509	5,50	10227155091	9,30	1022815559	5,50	102291559	30,50
250	9	233	102561557	2,80	1025715509	6,10	10257155091	10,40	1025815559	6,10	102591559	31,80
280	9	258	102861557	3,00	1028715509	6,50	10287155091	11,20	1028815559	6,50	102891559	33,70
300	9	281	103061557	3,30	1030715509	6,50	10307155091	11,90	1030815559	6,50	103091559	35,80
315	9	293	103161557	3,50	1031715509	6,90	10317155091	12,20	1031815559	6,90	103191559	37,30
350	9	328	103561557	3,60	1035715509	6,90	10357155091	13,40	1035815559	6,90	103591559	40,90
400	9	376	104061557	3,90	1040715509	7,40	10407155091	15,10	1040815559	7,40	104091559	46,60

PIPES 200 MM WITH SPIGOTS

1035

- For installation of sensors on site
- Spigot length
  - ½ inch: h = 34 mm
  - 1 inch: h = 43 mm
  - 1½ inch: h = 48 mm
- Special lengths and other spigots available on request



1 Spigot with inner thread

2 mm powder-coated, length 200 mm

DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110610400901*	29,80	110610400902*	33,70		
80	76	120810400901	30,30	120810400902	34,10	120810400903	43,00
100	99	121010400901	30,60	121010400902	34,30	121010400903	43,20
120	119	121210400901	31,20	121210400902	35,10	121210400903	43,80
140	136	121410400901	33,20	121410400902	37,10	121410400903	45,90
150	149	121510400901	33,20	121510400902	37,10	121510400903	45,90
175	174	121710400901	34,30	121710400902	38,20	121710400903	47,00
200	199	122010400901	35,10	122010400902	38,90	122010400903	47,70
224	220	122210400901	36,00	122210400902	39,90	122210400903	48,60
250	249	122510400901	36,00	122510400902	39,90	122510400903	48,60
280	276	122810400901	37,90	122810400902	41,80	122810400903	50,60
300	299	123010400901	37,90	123010400902	41,80	123010400903	50,60

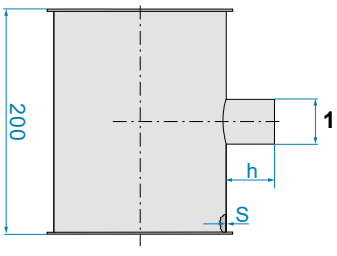
*1.5 mm

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable

Pipes with spigots





1 Spigot with inner thread

2 mm galvanised, length 200 mm

DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110620400901*	37,30	110620400902*	44,50		
80	76	120820400901	39,10	120820400902	46,20	120820400903	59,00
100	99	121020400901	39,20	121020400902	46,30	121020400903	59,10
120	119	121220400901	39,80	121220400902	46,90	121220400903	59,60
140	136	121420400901	43,80	121420400902	51,00	121420400903	63,70
150	149	121520400901	43,90	121520400902	51,10	121520400903	63,80
175	174	121720400901	45,10	121720400902	52,30	121720400903	64,90
200	199	122020400901	46,00	122020400902	53,20	122020400903	65,90
224	220	122220400901	46,60	122220400902	53,90	122220400903	66,50
250	249	122520400901	46,60	122520400902	53,90	122520400903	66,50
280	276	122820400901	52,80	122820400902	59,90	122820400903	72,50
300	299	123020400901	52,80	123020400902	59,90	123020400903	72,50

*1.5 mm

2 mm stainless steel, length 200 mm

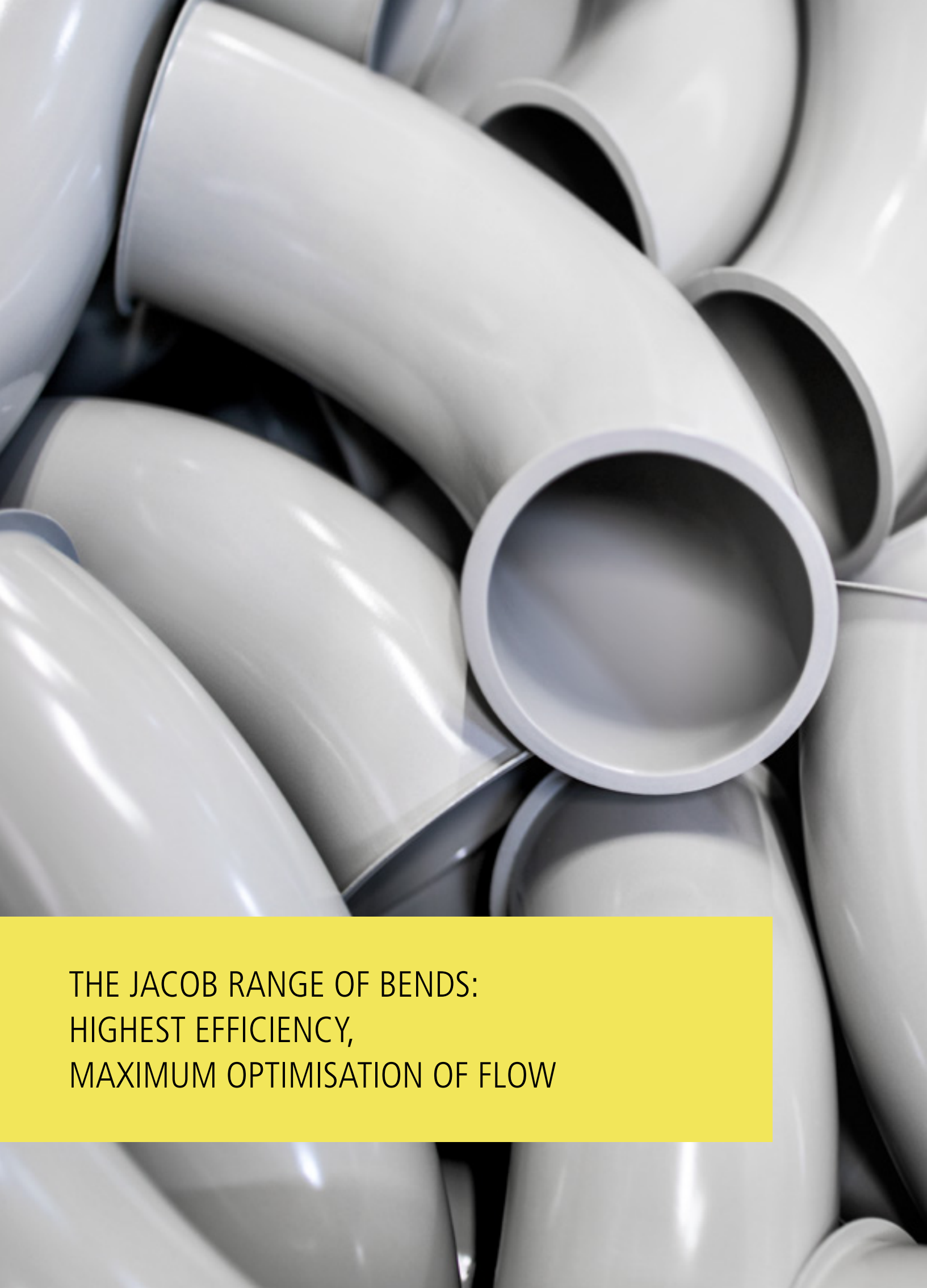
DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110630400901*	41,20	110630400902*	48,30		
80	76	120830400901	47,60	120830400902	54,70	120830400903	67,10
100	99	121030400901	47,60	121030400902	54,70	121030400903	67,10
120	119	121230400901	52,10	121230400902	59,10	121230400903	71,50
140	136	121430400901	56,90	121430400902	63,80	121430400903	76,30
150	149	121530400901	56,90	121530400902	63,80	121530400903	76,30
175	174	121730400901	58,50	121730400902	65,50	121730400903	77,90
200	199	122030400901	61,70	122030400902	68,80	122030400903	81,10
224	220	122230400901	67,50	122230400902	74,50	122230400903	86,90
250	249	122530400901	67,50	122530400902	74,50	122530400903	86,90
280	276	122830400901	73,20	122830400902	80,20	122830400903	92,60
300	299	123030400901	73,20	123030400902	80,20	123030400903	92,60

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant







THE JACOB RANGE OF BENDS: HIGHEST EFFICIENCY, MAXIMUM OPTIMISATION OF FLOW

THE RANGE OF PIPE BENDS

Technical information	54
Segments	56
Bends	60
Adjustable elbows	67
Pipe ball joints	67

SEGMENTS AND BENDS

Perfect flow properties pay off! If the product flow is ideally guided through direction-changing elements, the flow resistance, and so also the wear, are significantly reduced. This results in: energy savings, longer maintenance intervals, shorter downtimes and so lower costs. We achieve this with our innovative manufacturing technology. We produce bends from pressed half shells or pressed segments. Automated production stages, particularly during welding, ensure a uniformly high level of quality.

Maximum flexibility for planning and implementation: from bends for restricted spaces with a radius of R = 1D up to drawn bends with a large radius. All parts have a 6 mm lip and can be combined with all JACOB pipework using our pull-ring system.

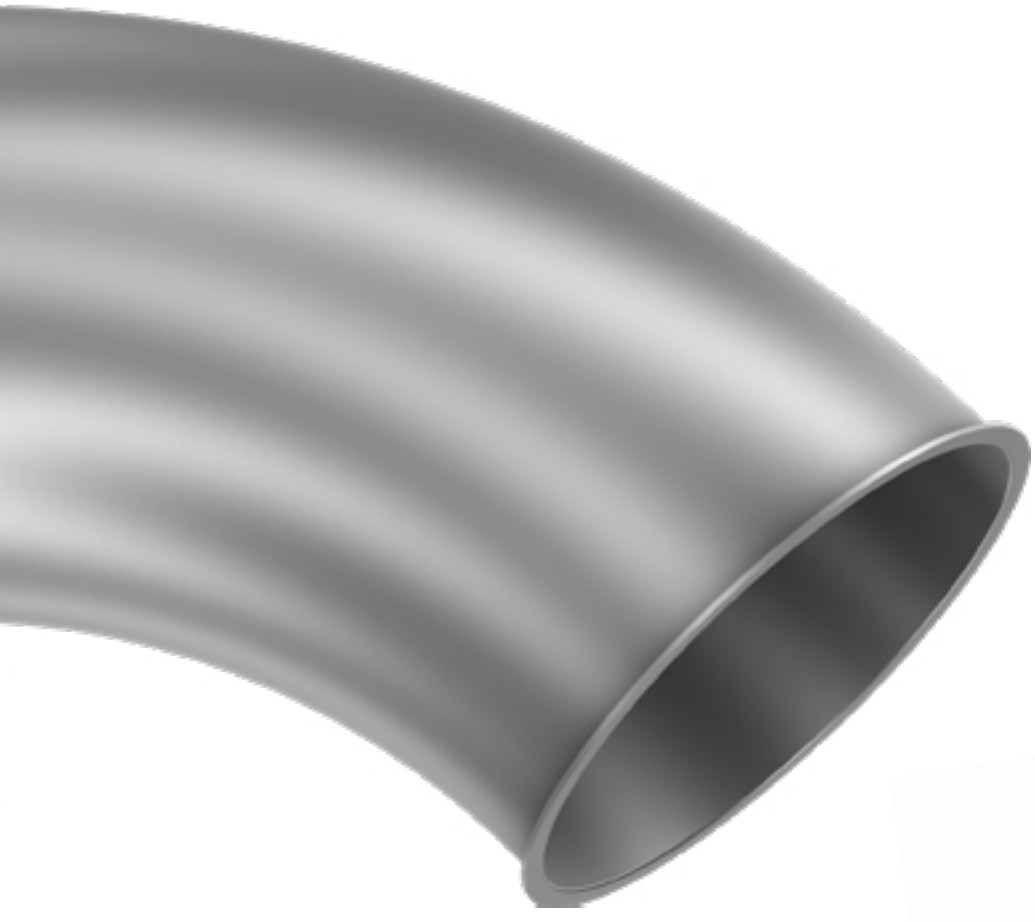
Are you looking for the right angle or radius for your application? No problem with the JACOB pipework system! Whether by using our flexible adjustable elbows and pipe ball joints or by counter-rotating two segments: a wide range of different angles can easily be achieved with parts from our standard range. We can produce special radius segment-bends on demand.

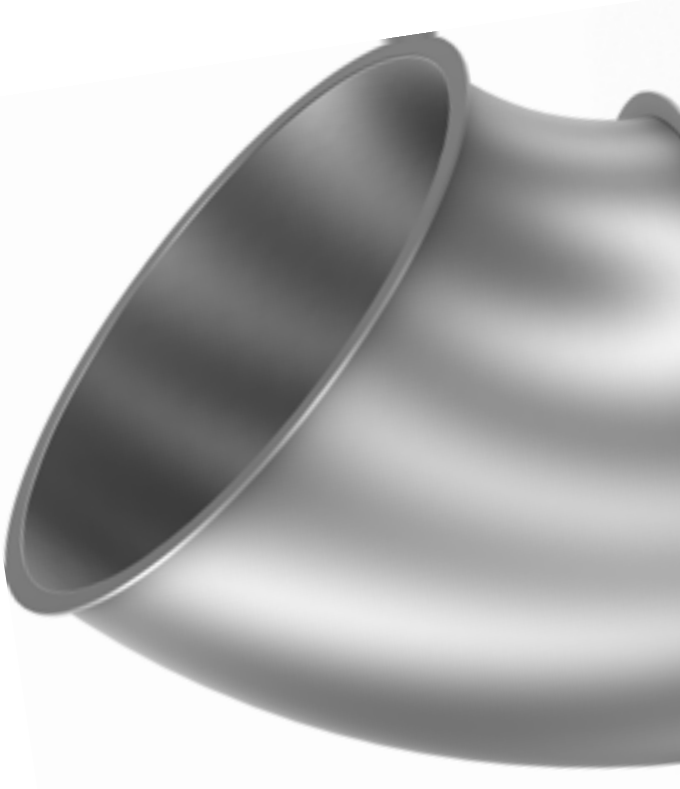
The unique JACOB flexibility makes it possible to implement numerous special requirements that our customers request: from bends with welded-on flanges to a wide range of special colours – this is no problem at all with our unique in-depth production range.

Overview of segment and bend versions

DN	Segments		Bends			
	5°	15°, 30°, 45°	R = 1D 90°	R = 2D 30°	R = 2D 90°, 60°, 45°	Long radius 15°, 30°, 45°, 60°, 90°
60	■	■	■	■	■	
80 – 120	■	■	■	■	■	■
140	■	■	■	■	■	
150 – 200	■	■	■	■	■	■
224	■	■	■	■	■	
250	■	■	■	■	■	■
280	■	■	■	■	■	
300	■	■	■	■	■	■
315	■	■	■	■	■	
350 – 400	■	■	■	■	■	
450 – 630	■	■	■	■	■	

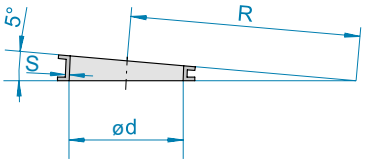
■ Lobster back version, segments/bends made up of one or more lobster back segments with a straight back
■ Pressed segment version, pressed segments and bends
■ Pressed segments and bends, bends made up of several pressed segments
■ Bends with long radius, drawn from pipes with longitudinally welded pipes











SEGMENTS 5°

1110

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11081300	5,60				
100	99	320	0.20	11101300	5,60	12101300	6,70		
120	119	360	0.25	11121300	5,80	12121300	7,30	13121300	15,40
140	135	460	0.35	11141300*	6,20				
150	149	500	0.45	11151300	6,20	12151300	8,60	13151300	17,00
175	174	560	0.55	11171300	8,80	12171300	10,80	13171300	21,00
200	199	690	0.65	11201300	9,50	12201300	11,20	13201300	22,60
224	219	560	0.70	11221300*	12,10				
250	249	635	0.75	11251300	12,10	12251300	14,80	13251300	26,00
280	276	560	0.90	11281300*	21,40				
300	299	625	0.95	11301300	19,50	12301300	21,50	13301300	30,30
315	311	600	0.95	11311300*	23,50				
350	349	350	0.80	11351300*	25,70	12351300	30,70	13351300	36,50
400	398	400	0.95	11401300*	27,90	12401300	38,50	13401300	42,10
450	448	450	1.40	11451300*	35,00	12451300	40,20	13451300	51,50
500	498	500	1.45	11501300*	40,50	12501300	45,80	13501300	54,70
560	558	560	1.60			12561300	52,10	13561300	66,40
630	628	630	2.15			12631300	62,60	13631300	77,10

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

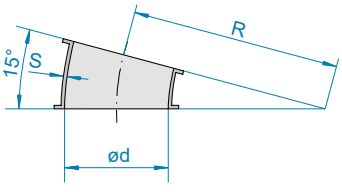
DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11082300	6,30			11083300	15,50		
100	99	320	0.20	11102300	6,30	12102300	8,10	11103300	15,50	12103300	17,30
120	119	360	0.25	11122300	6,90	12122300	9,20	11123300	17,50	12123300	19,70
140	135	460	0.35	11142300*	7,30	12142300	9,90	11143300*	18,40		
150	149	500	0.45	11152300	7,30	12152300	9,90	11153300	18,40	12153300	27,00
175	174	560	0.55	11172300	10,60	12172300	14,40	11173300	23,80	12173300	34,00
200	199	690	0.65	11202300	11,00	12202300	15,10	11203300	26,60	12203300	37,70
224	219	560	0.70	11222300*	15,10	12222300	20,60	11223300*	34,40		
250	249	635	0.75	11252300	15,10	12252300	20,60	11253300	34,60	12253300	47,70
280	276	560	0.90	11282300*	28,40			11283300*	60,90		
300	299	625	0.95	11302300	21,10	12302300	29,00	11303300	40,80	12303300	61,20
315	311	600	0.95	11312300*	30,70			11313300*	62,50		
350	349	350	0.80	11352300*	31,50			11353300	67,70	12353300	71,70
400	398	400	0.95	11402300*	35,90			11403300	75,60	12403300	90,60
450	448	450	1.40	11452300*	42,90			11453300	85,60	12453300	96,20
500	498	500	1.45	11502300*	47,40			11503300	95,60	12503300	106,50
560	558	560	1.60			12562300	62,80			12563300	125,50
630	628	630	2.15			12632300	75,10			12633300	149,00

*1.5 mm

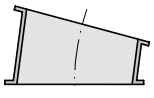
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





1 pressed segment 15°



1 lobster back segment 15°

SEGMENTS 15°

1120

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11061310*	16,00				
80	76	130	0.10	11081310	5,70				
100	99	130	0.20	11101310	5,70	12101310	6,70		
120	119	155	0.30	11121310	6,00	12121310	7,30	13121310	15,80
140	135	185	0.30	11141310*	6,40				
150	149	250	0.55	11151310	6,40	12151310	8,80	13151310	17,40
175	174	280	0.75	11171310	9,00	12171310	10,80	13171310	21,40
200	199	270	0.80	11201310	9,50	12201310	11,20	13201310	23,20
224	219	220	0.55	11221310*	12,20				
250	249	310	1.05	11251310	12,20	12251310	14,80	13251310	27,20
280	276	280	1.25	11281310*	21,50				
300	299	310	1.30	11301310	20,10	12301310	21,50	13301310	31,20
315	311	315	1.60	11311310*	23,70				
350	349	350	1.75	11351310*	26,60	12351310	30,70	13351310	40,10
400	398	400	2.35	11401310*	28,80	12401310	38,50	13401310	44,90
450	448	450	2.95	11451310*	36,00	12451310	40,20	13451310	54,50
500	498	500	3.50	11501310*	41,70	12501310	45,80	13501310	58,20
560	558	560	4.40			12561310	52,10	13561310	70,60
630	628	630	5.60			12631310	62,60	13631310	81,70

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

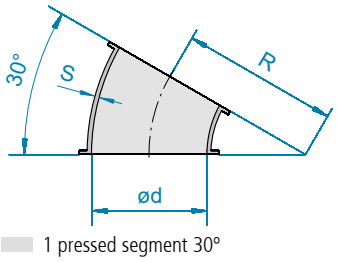
DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11062310*	17,50			11063310*	34,00		
80	76	130	0.10	11082310	6,40			11083310	15,50		
100	99	130	0.20	11102310	6,40	12102310	8,80	11103310	15,50	12103310	17,30
120	119	155	0.30	11122310	6,90	12122310	9,60	11123310	17,50	12123310	19,70
140	135	185	0.30	11142310*	7,30	12142310	9,90	11143310*	18,40		
150	149	250	0.55	11152310	7,30	12152310	9,90	11153310	18,40	12153310	27,20
175	174	280	0.75	11172310	10,60	12172310	14,40	11173310	23,80	12173310	34,40
200	199	270	0.80	11202310	11,00	12202310	15,10	11203310	26,60	12203310	38,50
224	219	220	0.55	11222310*	15,10	12222310	20,60	11223310	38,50		
250	249	310	1.05	11252310	15,10	12252310	20,60	11253310	38,50	12253310	48,90
280	276	280	1.25	11282310*	28,50			11283310*	61,60		
300	299	310	1.30	11302310	21,10	12302310	29,00	11303310	41,80	12303310	62,50
315	311	315	1.60	11312310*	30,90			11313310*	63,70		
350	349	350	1.75	11352310*	31,50			11353310	68,40	12353310	73,40
400	398	400	2.35	11402310*	37,00			11403310	76,40	12403310	92,50
450	448	450	2.95	11452310*	44,30			11453310	86,50	12453310	98,30
500	498	500	3.50	11502310*	48,60			11503310	96,50	12503310	109,50
560	558	560	4.40			12562310	62,80			12563310	128,00
630	628	630	5.60			12632310	75,10			12633310	152,50

*1.5 mm

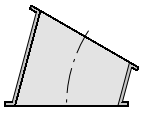
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





1 pressed segment 30°



1 lobster back segment 30°

SEGMENTS 30°

1130

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	100	0.10	11081320	6,20				
100	99	95	0.30	11101320	6,20	12101320	7,40		
120	119	110	0.40	11121320	6,50	12121320	7,70	13121320	16,80
140	135	140	0.45	11141320*	7,60				
150	149	175	0.70	11151320	7,60	12151320	9,90	13151320	17,90
175	174	208	1.05	11171320	10,30	12171320	14,30	13171320	22,10
200	199	180	1.05	11201320	10,50	12201320	14,30	13201320	23,80
224	219	195	0.95	11221320*	13,50				
250	249	230	1.55	11251320	13,50	12251320	17,50	13251320	29,60
280	276	283	2.30	11281320*	22,90				
300	299	230	1.90	11301320	21,10	12301320	23,00	13301320	35,10
315	311	315	2.95	11311320*	27,50				
350	349	350	3.30	11351320*	31,90	12351320	35,70	13351320	44,00
400	398	400	4.10	11401320*	34,60	12401320	45,20	13401320	57,10
450	448	450	5.60	11451320*	40,80	12451320	47,60	13451320	59,30
500	498	500	6.60	11501320*	46,10	12501320	51,60	13501320	67,10
560	558	560	8.50			12561320	61,50	13561320	79,00
630	628	630	10.50			12631320	70,70	13631320	91,60

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	100	0.10	11082320	6,70			11083320	16,70		
100	99	95	0.30	11102320	6,70	12102320	9,30	11103320	16,70	12103320	20,10
120	119	110	0.40	11122320	7,20	12122320	9,70	11123320	18,10	12123320	23,70
140	135	140	0.45	11142320*	8,40	12142320	11,70	11143320*	20,60		
150	149	175	0.70	11152320	8,40	12152320	11,70	11153320	20,60	12153320	30,80
175	174	208	1.05	11172320	13,40	12172320	18,40	11173320	28,30	12173320	44,10
200	199	180	1.05	11202320	13,60	12202320	18,80	11203320	29,60	12203320	46,60
224	219	195	0.95	11222320*	18,00	12222320	24,80	11223320	39,00		
250	249	230	1.55	11252320	18,00	12252320	24,80	11253320	39,00	12253320	58,40
280	276	283	2.30	11282320*	32,30			11283320*	68,00		
300	299	230	1.90	11302320	23,70	12302320	32,80	11303320	44,60	12303320	69,90
315	311	315	2.95	11312320*	35,00			11313320*	70,20		
350	349	350	3.30	11352320*	36,80			11353320	75,10	12353320	85,20
400	398	400	4.10	11402320*	42,90			11403320	87,30	12403320	109,00
450	448	450	5.60	11452320*	49,00			11453320	99,90	12453320	115,00
500	498	500	6.60	11502320*	55,30			11503320	109,00	12503320	125,00
560	558	560	8.50			12562320	73,70			12563320	147,50
630	628	630	10.50			12632320	84,70			12633320	170,50

*1.5 mm

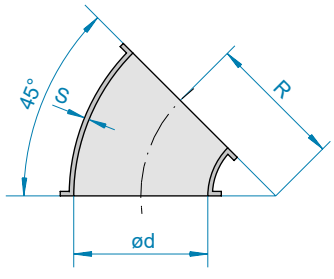
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

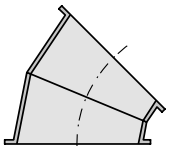
SEGMENTS 45°

1140





1 pressed segment 45°



2 lobster back segments:
2 x 22.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	80	0.15	11081330	6,70				
100	99	83	0.35	11101330	6,70	12101330	7,70		
120	119	88	0.50	11121330	7,40	12121330	8,90	13121330	17,90
140	135	112	0.50	11141330*	8,30				
150	149	150	0.90	11151330	8,30	12151330	10,90	13151330	20,30
175	174	160	1.20	11171330*	11,50	12171330	15,30	13171330	23,40
200	199	195	1.55	11201330*	12,90	12201330	17,70	13201330	27,00
224	219	155	1.10	11221330*	16,40				
250	249	195	1.95	11251330*	16,40	12251330	20,60	13251330	34,80
280	276	280	3.55	11281330*	58,10				
300	299	205	2.50	11301330*	24,40	12301330	28,20	13301330	41,50
315	311	315	4.30	11311330*	59,20				
350	349	350	4.90	11351330*	64,50	12351330	79,00	13351330	88,20
400	398	400	6.50	11401330*	74,10	12401330	88,50	13401330	109,00
450	448	450	8.15	11451330*	82,40	12451330	102,00	13451330	126,50
500	498	500	10.00	11501330*	96,60	12501330	113,00	13501330	138,50
560	558	560	12.40			12561330	137,00	13561330	168,00
630	628	630	16.10			12631330	166,50	13631330	200,50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

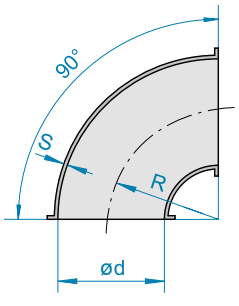
DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	80	0.15	11082330	7,30			11083330	17,70		
100	99	83	0.35	11102330	7,30	12102330	9,90	11103330	17,70	12103330	22,70
120	119	88	0.50	11122330	7,90	12122330	11,00	11123330	20,70	12123330	27,70
140	135	112	0.50	11142330*	8,60	12142330	11,90	11143330*	25,40		
150	149	150	0.90	11152330	8,60	12152330	11,90	11153330	25,40	12153330	37,60
175	174	160	1.20	11172330*	13,50	12172330	18,70	11173330*	33,00	12173330	53,30
200	199	195	1.55	11202330*	18,80	12202330	25,70	11203330*	41,40	12203330	59,00
224	219	155	1.10	11222330*	21,40	12222330	29,30	11223330*	48,00		
250	249	195	1.95	11252330*	21,40	12252330	29,30	11253330*	48,00	12253330	74,10
280	276	280	3.55	11282330*	70,10			11283330*	117,00		
300	299	205	2.50	11302330*	31,40	12302330	39,40	11303330*	62,20	12303330	102,50
315	311	315	4.30	11312330*	71,10			11313330*	120,00		
350	349	350	4.90	11352330*	77,10			11353330*	136,00	12353330	166,00
400	398	400	6.50	11402330*	86,40			11403330*	174,00	12403330	194,50
450	448	450	8.15	11452330*	95,80			11453330*	195,50	12453330	227,50
500	498	500	10.00	11502330*	113,00			11503330*	222,00	12503330	249,50
560	558	560	12.40			12562330	159,50			12563330	296,50
630	628	630	16.10			12632330	193,00			12633330	354,50

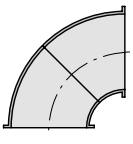
*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

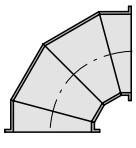
Shock explosion proof tested
up to 3 bar







2 pressed segments 45°



4 lobster back segments:
2 x 30° / 2 x 15°

BENDS R = 1D, 90°

1220

- DN 140, 224 and 300 mm R ≠ 1D

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11081339	29,20				
100	100	100	0.43	11101339	29,20				
120	120	120	1.00	11121339	36,70				
140	136	125	1.20			11141339	43,30		
150	150	150	0.92	11151339	43,30				
175	174	175	2.00			11171339	51,00		
200	200	200	2.42			11201339	51,90		
224	220	165	2.60			11221339	78,70		
250	250	250	4.00			11251339	78,70		
280	277	280	5.00			11281339	138,00		
300	300	210	5.00			11301339	96,50		
315	312	315	6.20			11311339	141,50		
350	350	350	8.00			11351339	152,50		
400	399	400	10.00			11401339	184,00		
450	449	450	13.00			11451339	197,00		
500	499	500	16.00			11501339	230,50		
560	558	560	26.00					12561339	254,50
630	628	630	23.00					12631339	298,50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		1.5 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11082339	33,20			11083339	62,40		
100	100	100	0.43	11102339	33,20			11103339	64,20		
120	120	120	1.00	11122339	40,20			11123339	73,40		
140	136	125	1.20			11142339	48,20	11143339*	112,50		
150	150	150	0.92	11152339	48,20			11153339	112,50		
175	174	175	2.00			11172339	60,00	11173339*	116,50		
200	200	200	2.42			11202339	63,00	11203339*	137,00		
224	220	165	2.60			11222339	93,20	11223339*	155,00		
250	250	250	4.00			11252339	93,20	11253339*	155,00		
280	277	280	5.00			11282339	154,00	11283339*	256,00		
300	300	210	5.00			11302339	117,00	11303339*	180,50		
315	312	315	6.20			11312339	158,00	11313339*	265,50		
350	350	350	8.00			11352339	171,00	11353339*	292,50		
400	399	400	10.00			11402339	208,00	11403339*	339,00		
450	449	450	13.00			11452339	217,50	11453339*	397,50		
500	499	500	16.00			11502339	255,00	11503339*	453,00		
560	558	560	26.00			12562339*	316,00			12563339	529,50
630	628	630	23.00			12632339*	364,00			12633339	585,50

*2 mm *1.5 mm

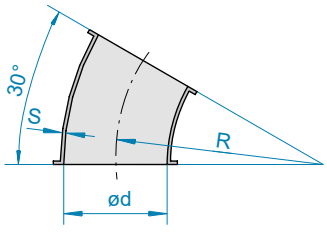
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

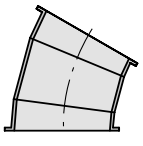
BENDS R = 2D, 30°

1230





1 pressed segment 30°



3 lobster back segments:
1 x 15° / 2 x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11061343	17,20				
80	76	160	0.35	11081343*	16,80	12081343	17,90		
100	99	200	0.60	11101343*	17,90	12101343	18,10		
120	119	240	0.80	11121343	21,10	12121343	25,80	13121343	38,40
140	135	280	1.00	11141343	27,00	12141343	32,30		
150	149	300	1.25	11151343	27,00	12151343	32,30	13151343	45,00
175	174	350	1.65	11171343	31,90	12171343	35,00	13171343	49,50
200	199	400	2.10	11201343	35,50	12201343	42,30	13201343	55,50
224	219	448	2.65	11221343	44,70	12221343	51,00		
250	249	500	3.50	11251343	44,70	12251343	51,00	13251343	71,90
280	277	560	4.40	11281343	77,70				
300	299	600	4.60	11301343	62,50	12301343	70,50	13301343	81,00
315	312	630	5.50	11311343	86,60				
350	349	700	6.35			12351343	75,60	13351343	87,90
400	398	800	8.50			12401343	89,40	13401343	98,70
450	448	900	10.70			12451343	113,00	13451343	128,50
500	498	1000	13.20			12501343	129,50	13501343	149,50
560	558	1120	15.90			12561343	154,00	13561343	181,00
630	628	1260	19.00			12631343	199,00	13631343	214,50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

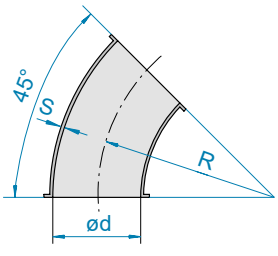
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120		11062343	18,70			11063343*	35,80		
80	76	160	0.35	11082343*	18,00	12082343	20,80	11083343	37,10		
100	99	200	0.60	11102343*	18,80	12102343	21,70	11103343	37,30	12103343	51,70
120	119	240	0.80	11122343	21,30	12122343	28,10	11123343	56,20	12123343	75,60
140	135	280	1.00	11142343	28,00	12142343	37,00	11143343	69,40	12143343	96,70
150	149	300	1.25	11152343	28,00	12152343	37,00	11153343	69,40	12153343	96,70
175	174	350	1.65	11172343	32,90	12172343	39,70	11173343*	75,10	12173343	106,00
200	199	400	2.10	11202343	40,30	12202343	48,40	11203343*	88,50	12203343	127,00
224	219	448	2.65	11222343	50,50	12222343	60,90	11223343*	113,00		
250	249	500	3.50	11252343	50,50	12252343	60,90	11253343*	113,00	12253343	153,00
280	277	560	4.40	11282343	85,10			11283343*	133,50		
300	299	600	4.60	11302343	70,50	12302343	84,50	11303343*	132,50	12303343	155,50
315	312	630	5.50	11312343	94,80			11313343*	148,50		
350	349	700	6.35			12352343	90,70			12353343	159,00
400	398	800	8.50			12402343	107,50			12403343	168,00
450	448	900	10.70	11452343	119,00					12453343	233,50
500	498	1000	13.20	11502343	142,50					12503343	264,50
560	558	1120	15.90	11562343	162,50					12563343	340,50
630	628	1260	19.00	11632343	202,00					12633343	401,50

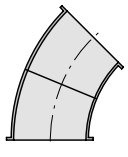
*1 mm *1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

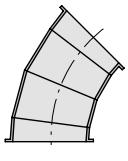
Shock explosion proof tested
up to 3 bar







2 pressed segments 22.5°



4 lobster back segments:
2 x 15° / 2 x 7.5°

BENDS R = 2D, 45°

1240

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11061344	18,50				
80	76	160	0.50	11081344*	19,30	12081344	24,20		
100	99	200	0.85	11101344*	21,30	12101344	24,40		
120	119	240	1.15	11121344	24,50	12121344	28,60	13121344	48,40
140	135	280	1.45	11141344	31,70	12141344	37,70		
150	149	300	1.80	11151344	31,70	12151344	37,70	13151344	55,50
175	174	350	2.25	11171344	36,60	12171344	42,50	13171344	61,60
200	199	400	3.00	11201344	39,90	12201344	45,80	13201344	67,40
224	219	448	3.90	11221344	53,30	12221344	64,70		
250	249	500	4.80	11251344	53,30	12251344	64,70	13251344	96,90
280	277	560	6.55	11281344	107,50				
300	299	600	7.20	11301344	92,10	12301344	102,00	13301344	125,50
315	312	630	8.15	11311344	121,00				
350	349	700	9.80			12351344	107,00	13351344	132,50
400	398	800	12.70			12401344	136,00	13401344	161,00
450	448	900	16.00			12451344	162,00	13451344	184,00
500	498	1000	19.80			12501344	183,00	13501344	216,00
560	558	1120	23.90			12561344	215,50	13561344	259,00
630	628	1260	29.60			12631344	243,50	13631344	315,00

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

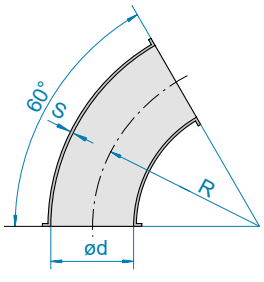
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11062344	21,60			11063344*	36,10		
80	76	160	0.50	11082344*	23,50	12082344	27,50	11083344	49,10		
100	99	200	0.85	11102344*	24,90	12102344	27,80	11103344	49,90	12103344	73,50
120	119	240	1.15	11122344	27,30	12122344	32,50	11123344	58,90	12123344	84,70
140	135	280	1.45	11142344	35,00	12142344	42,80	11143344	80,10	12143344	116,50
150	149	300	1.80	11152344	35,00	12152344	42,80	11153344*	80,10	12153344	116,50
175	174	350	2.25	11172344	40,40	12172344	48,30	11173344	92,50	12173344	137,50
200	199	400	3.00	11202344	44,90	12202344	51,80	11203344*	101,00	12203344	149,00
224	219	448	3.90	11222344	61,20	12222344	74,50	11223344*	145,00		
250	249	500	4.80	11252344	61,20	12252344	74,50	11253344*	145,00	12253344	211,00
280	277	560	6.55	11282344	119,00			11283344*	182,50		
300	299	600	7.20	11302344	101,50	12302344	122,00	11303344*	185,00	12303344	236,00
315	312	630	8.15	11312344	133,00			11313344*	202,50		
350	349	700	9.80			12352344	128,50			12353344	242,50
400	398	800	12.70			12402344	164,00			12403344	272,50
450	448	900	16.00	11452344	169,50					12453344	328,50
500	498	1000	19.80	11502344	189,50					12503344	396,00
560	558	1120	23.90	11562344	212,00					12563344	487,00
630	628	1260	29.60	11632344	261,00					12633344	579,00

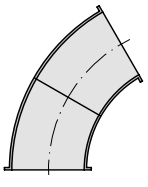
*1 mm *1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

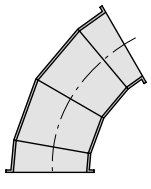
Shock explosion proof tested
up to 3 bar







2 pressed segments 30°



4 lobster back segments:
2 x 20° / 2 x 10°

BENDS R = 2D, 60°

1250

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11061346	20,20				
80	76	160	0.65	11081346*	28,40	12081346	28,60		
100	99	200	1.10	11101346*	28,80	12101346	29,00		
120	119	240	1.50	11121346	32,20	12121346	41,60	13121346	57,10
140	135	280	2.05	11141346	39,90	12141346	46,50		
150	149	300	2.40	11151346	39,90	12151346	46,50	13151346	63,20
175	174	350	3.15	11171346	44,10	12171346	51,50	13171346	69,00
200	199	400	4.10	11201346	50,20	12201346	66,20	13201346	82,90
224	219	448	5.20	11221346	93,80	12221346	105,00		
250	249	500	6.90	11251346	93,80	12251346	105,00	13251346	149,00
280	277	560	8.80	11281346	139,00				
300	299	600	9.30	11301346	123,00	12301346	142,50	13301346	171,00
315	312	630	10.80	11311346	156,00				
350	349	700	13.00	11351346	146,00	12351346	148,50	13351346	177,50
400	398	800	16.90			12401346	171,50	13401346	219,00
450	448	900	21.30			12451346	203,50	13451346	248,50
500	498	1000	26.40			12501346	234,50	13501346	280,00
560	558	1120	31.90			12561346	301,50	13561346	355,50
630	628	1260	37.90			12631346	359,50	13631346	405,50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

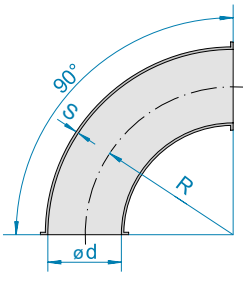
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11062346	22,70			11063346*	40,00		
80	76	160	0.65	11082346*	29,10	12082346	32,70	11083346	62,90		
100	99	200	1.10	11102346*	30,80	12102346	33,20	11103346	63,40	12103346	86,30
120	119	240	1.50	11122346	32,80	12122346	47,00	11123346	89,70	12123346	129,50
140	135	280	2.05	11142346	40,70	12142346	52,80	11143346	102,50	12143346	138,50
150	149	300	2.40	11152346	40,70	12152346	52,80	11153346	102,50	12153346	138,50
175	174	350	3.15	11172346	53,30	12172346	58,30	11173346*	111,50	12173346	155,00
200	199	400	4.10	11202346	59,60	12202346	74,80	11203346*	136,50	12203346	191,00
224	219	448	5.20	11222346	101,50	12222346	121,50	11223346*	197,50		
250	249	500	6.90	11252346	101,50	12252346	121,50	11253346*	197,50	12253346	308,50
280	277	560	8.80	11282346	152,50			11283346*	253,50		
300	299	600	9.30	11302346	144,50	12302346	169,50	11303346*	258,00	12303346	313,00
315	312	630	10.80	11312346	171,00			11313346*	283,00		
350	349	700	13.00			12352346	177,50			12353346	320,50
400	398	800	16.90			12402346	205,50			12403346	373,50
450	448	900	21.30	11452346	232,00					12453346	492,00
500	498	1000	26.40	11502346	261,00					12503346	530,50
560	558	1120	31.90	11562346	300,00					12563346	630,50
630	628	1260	37.90	11632346	328,50					12633346	740,50

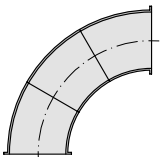
*1 mm *1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

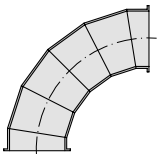
Shock explosion proof tested
up to 3 bar







3 pressed segments 30°



6 lobster back segments:
4 x 18° / 2 x 9°

BENDS R = 2D, 90°

1260

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11061349	20,50				
80	76	160	0.95	11081349*	30,30	12081349	33,80		
100	99	200	1.55	11101349*	30,90	12101349	34,40		
120	119	240	2.20	11121349	37,80	12121349	43,00	13121349	75,60
140	135	280	3.05	11141349	47,80	12141349	57,50		
150	149	300	3.50	11151349	47,80	12151349	57,50	13151349	88,90
175	174	350	4.60	11171349	51,30	12171349	64,60	13171349	93,40
200	199	400	6.10	11201349	58,10	12201349	78,20	13201349	129,50
224	219	448	7.80	11221349	117,50	12221349	138,00		
250	249	500	9.70	11251349	117,50	12251349	138,00	13251349	226,50
280	277	560	12.70	11281349	199,50				
300	299	600	13.50	11301349	169,50	12301349	190,00	13301349	265,50
315	312	630	16.30	11311349	223,50				
350	349	700	19.60			12351349	206,00	13351349	274,50
400	398	800	25.00			12401349	240,00	13401349	306,50
450	448	900	32.00			12451349	324,00	13451349	376,50
500	498	1000	39.30			12501349	366,00	13501349	440,00
560	558	1120	47.90			12561349	421,00	13561349	462,50
630	628	1260	56.90			12631349	482,50	13631349	585,50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

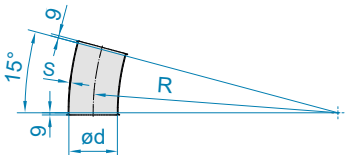
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11062349	23,50			11063349*	41,80		
80	76	160	0.95	11082349*	34,30	12082349	38,20	11083349	74,00		
100	99	200	1.55	11102349*	35,10	12102349	39,20	11103349	74,00	12103349	111,00
120	119	240	2.20	11122349	42,10	12122349	49,10	11123349	94,00	12123349	138,50
140	135	280	3.05	11142349	51,00	12142349	64,90	11143349	130,50	12143349	191,50
150	149	300	3.50	11152349	51,00	12152349	64,90	11153349	130,50	12153349	191,50
175	174	350	4.60	11172349	60,30	12172349	73,10	11173349*	146,50	12173349	213,50
200	199	400	6.10	11202349	73,20	12202349	88,20	11203349*	161,50	12203349	237,00
224	219	448	7.80	11222349	136,00	12222349	158,50	11223349*	306,00		
250	249	500	9.70	11252349	136,00	12252349	158,50	11253349*	306,00	12253349	412,50
280	277	560	12.70	11282349	219,50			11283349*	390,00		
300	299	600	13.50	11302349	212,00	12302349	226,00	11303349*	406,50	12303349	425,50
315	312	630	16.30	11312349	245,50			11313349*	435,00		
350	349	700	19.60			12352349	246,50			12353349	444,50
400	398	800	25.00			12402349	289,00			12403349	528,00
450	448	900	32.00	11452349	354,00					12453349	672,00
500	498	1000	39.30	11502349	399,50					12503349	804,50
560	558	1120	47.90	11562349	459,50					12563349	964,50
630	628	1260	56.90	11632349	516,00					12633349	1106,00

*1 mm *1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





BENDS LONG RADIUS, 15°

1262

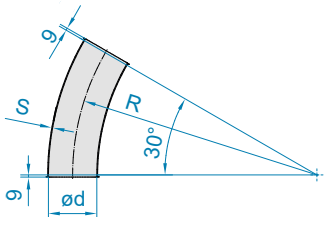
- DN 80 mm R = 6,25D
- DN 250 and 300 mm R = 4D
- DN 100, 120, 150, 175 and 200 mm R = 5D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€
80	76	500	3.40	120813511	114,50	120833511	127,00
100	99	500	4.10	121013511	146,00	121033511	190,00
120	119	600	5.70	121213511	156,00	121233511	196,00
150	149	750	13.50	131513511*	189,50	121533511	229,50
175	175	875	12.40	131713511*	293,00	121733511	374,50
200	199	1000	26.20	132013511*	307,00	132033511*	453,50
250	249	1000	32.80	132513511*	365,00	132533511*	680,50
300	299	1200	46.40	133013511*	555,50	133033511*	944,00

*3 mm





BENDS LONG RADIUS, 30°

1264

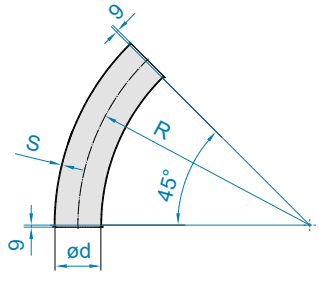
- DN 80 mm R = 6,25D
- DN 250 and 300 mm R = 4D
- DN 100, 120, 150, 175 and 200 mm R = 5D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€
80	76	500	3.40	120813531	127,00	120833531	150,50
100	99	500	4.10	121013531	164,00	121033531	217,50
120	119	600	5.70	121213531	177,50	121233531	237,50
150	149	750	13.50	131513531*	227,50	121533531	276,50
175	175	875	12.40	131713531*	350,00	121733531	458,00
200	199	1000	26.20	132013531*	363,50	132033531*	561,00
250	249	1000	32.80	132513531*	421,00	132533531*	836,00
300	299	1200	46.40	133013531*	640,00	133033531*	1161,00

*3 mm





BENDS LONG RADIUS, 45°

1266

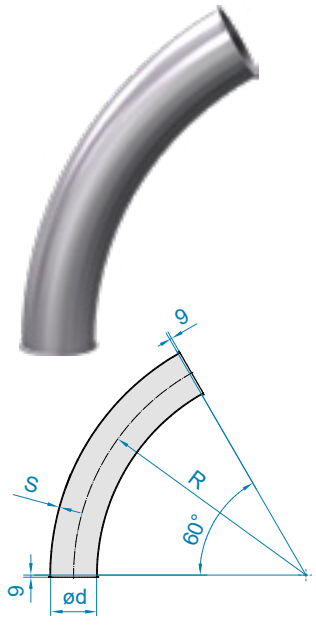
- DN 80 mm R = 6,25D
- DN 250 and 300 mm R = 4D
- DN 100, 120, 150, 175 and 200 mm R = 5D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€
80	76	500	3.40	120813541	160,50	120833541	186,00
100	99	500	4.10	121013541	188,00	121033541	257,50
120	119	600	5.70	121213541	209,00	121233541	305,50
150	149	750	13.50	131513541*	289,00	121533541	354,00
175	175	875	12.40	131713541*	439,00	121733541	596,50
200	199	1000	26.20	132013541*	453,00	132033541*	745,00
250	249	1000	32.80	132513541*	502,50	132533541*	1099,00
300	299	1200	46.40	133013541*	763,50	133033541*	1523,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant



BENDS LONG RADIUS, 60°

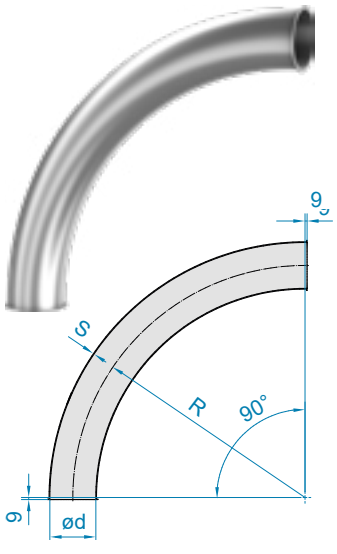
1268

- DN 80 mm R = 6,25D
- DN 250 and 300 mm R = 4D
- DN 100, 120, 150, 175 and 200 mm R = 5D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€
80	76	500	2.00	120813561	182,50	120833561	196,50
100	99	500	3.70	121013561	221,50	121033561	297,00
120	119	600	4.80	121213561	231,00	121233561	334,50
150	149	750	10.50	131513561*	334,00	121533561	404,50
175	175	875	16.40	131713561*	492,00	121733561	644,50
200	199	1000	21.30	132013561*	516,50	132033561*	928,00
250	249	1000	27.20	132513561*	536,00	132533561*	1359,00
300	299	1200	38.60	133013561*	971,50	133033561*	1909,00

*3 mm



BENDS LONG RADIUS, 90°

1270

- DN 80 mm R = 6,25D
- DN 250 and 300 mm R = 4D
- DN 100, 120, 150, 175 and 200 mm R = 5D

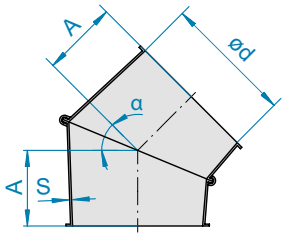
Powder-coated and stainless steel (dimensions for 2 mm pipework)

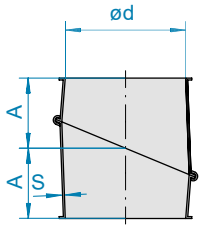
DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€
80	76	500	2.10	120813591	219,00	120833591	259,00
100	99	500	4.10	121013591	300,00	121033591	397,50
120	119	600	5.80	121213591	324,50	121233591	433,50
150	149	750	13.50	131513591*	399,00	121533591	483,50
175	175	875	18.30	131713591*	587,50	121733591	770,00
200	199	1000	23.80	132013591*	587,50	132033591*	970,00
250	249	1000	29.50	132513591*	792,50	132533591*	1419,00
300	299	1200	42.60	133013591*	1169,00	133033591*	1955,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant







ADJUSTABLE ELBOWS

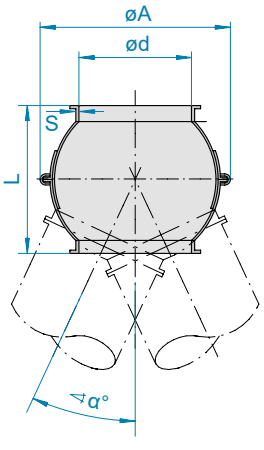
1145

- Version with galvanised pull-ring and U-shaped seal
- Pre-assembled in the factory
- 2 segments can also be adjusted by counter-rotating

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	α	kg	1.5 mm powder-coated with NBR		1.5 mm powder-coated with EPDM		1.5 mm stainless steel with silicone, blue	
					Item no.	€	Item no.	€	Item no.	€
100	100	70	55°	1.5	1110133503	39,00	1110133502	39,90	1110333501	56,40
120	120	60	45°	1.6	1112133503	40,30	1112133502	41,20	1112333501	58,40
150	150	80	45°	2.4	1115133503	43,40	1115133502	44,40	1115333501	68,50
175	175	100	45°	3.0	1117133503	50,60	1117133502	51,50	1117333501	81,00
200	200	120	45°	3.5	1120133503	53,90	1120133502	54,90	1120333501	89,70
250	250	140	45°	4.6	1125133503	63,00	1125133502	64,10	1125333501	114,00





PIPE BALL JOINTS

2125

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	ØA	α	L	kg	2 mm electro-galvanised		2 mm stainless steel	
						Item no.	€	Item no.	€
100	99	150	25°	130	1.50	12102730	68,70	12103730	137,00
120	119	150	15°	115	1.60	12122730	72,00	12123730	178,00
150	149	200	18°	160	2.35	12152730	96,70	12153730	198,00
175	174	250	25°	200	3.70	12172730	136,00	12173730	280,50
200	199	250	15°	170	3.50	12202730	144,00	12203730	291,50
250	249	300	16°	190	4.60	12252730	151,50	12253730	338,00

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable



JACOB BRANCH PIECES: ALMOST EVERYTHING AVAILABLE IN STANDARD QUALITY, EVERYTHING ELSE AT THE CUSTOMER'S REQUEST

BRANCH PIECES

Technical information	70
T-pieces	72
Forks	73
Symmetrical forks	78

BRANCH PIECES

Branch pieces turn a straightforward pipe into a complex pipework system. They are therefore key elements during planning and implementation.

To meet the particular requirements of each system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements. If this does not meet your particular needs, we also manufacture individual parts to customers' specification. This is possible due to up-to-the-minute technologies, such as fully-automated laser welding equipment, which can carry out precise customised and small-scale production as well as on an industrial scale.

We can therefore manufacture your own individual branch piece – from a wide range of special colours as well as with different flanges, special lengths and individual angles.

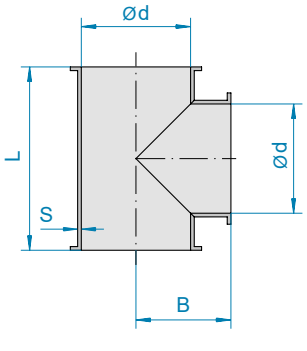
T-PIECES, FORKS AND SYMMETRICAL FORKS ACCORDING TO YOUR INDIVIDUAL DIMENSIONS

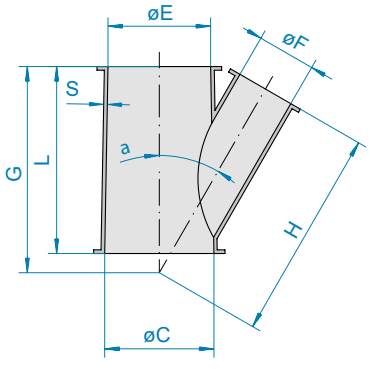
We manufacture forks, T-pieces and symmetrical forks to your specifications if you inform us of the dimensions of the material and the wall thickness you require. Prices and delivery time on request.

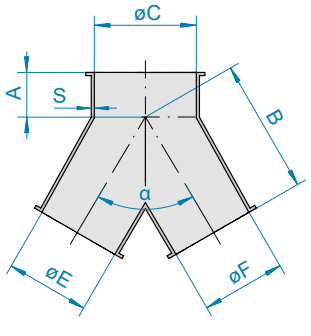






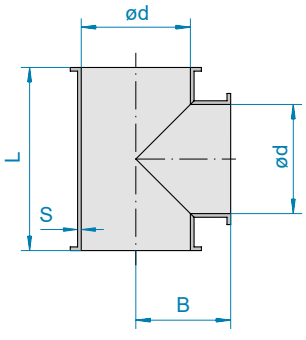












T-PIECES 90°

1070

- Other combinations of diameter and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	60	130	0.55	11061240	34,40			11062240	39,00		
80	77	70	150	0.60	11081240	34,80			11082240	39,00		
100	100	100	200	1.00	11101240	35,10			11102240	39,20		
120	120	110	220	1.20	11121240	36,50			11122240	41,40		
140	136	120	240	1.40	11141240	45,40			11142240	53,30		
150	150	125	250	1.65	11151240	45,40			11152240	53,30		
175	175	137.5	275	2.05	11171240	51,50			11172240	56,00		
200	200	150	300	2.55	11201240	54,70			11202240	68,10		
224	220	162.5	325	2.90	11221240	71,60			11222240	89,00		
250	250	175	350	3.50	11251240	71,60			11252240	89,00		
280	277	190	380	4.30	11281240	87,00			11282240	105,00		
300	300	200	400	4.70	11301240	87,00			11302240	105,00		
315	312	210	420	5.30	11311240	104,50			11312240	127,00		
350	350	275	550	8.10	11351240	120,00			11352240	135,50		
400	399	300	600	9.90	11401240	141,50			11402240	160,50		
450	449	325	650	12.75	11451240	157,50			11452240	179,00		
500	499	350	700	14.10	11501240	188,50			11502240	214,00		
560	558	380	760	22.15			12561240	208,00			12562240	235,50
630	628	415	830	26.80			12631240	235,50			12632240	262,00

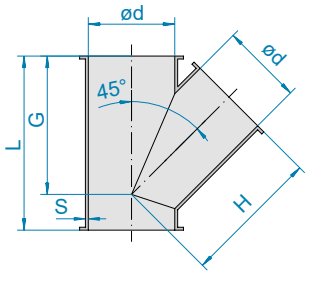
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
60	57	60	130	0.55	11063240	83,60		
80	77	70	150	0.60	11083240	83,80		
100	100	100	200	1.00	11103240	84,20	12103240	103,00
120	120	110	220	1.20	11123240	88,20	12123240	110,50
140	136	120	240	1.40	11143240	102,50		
150	150	125	250	1.65	11153240	102,50	12153240	146,50
175	175	137.5	275	2.05	11173240	144,50	12173240	191,00
200	200	150	300	2.55	11203240	153,50	12203240	205,00
224	220	162.5	325	2.90	11223240	166,50		
250	250	175	350	3.50	11253240	166,50	12253240	215,00
280	277	190	380	4.30	11283240	178,50		
300	300	200	400	4.70	11303240	178,50	12303240	262,50
315	312	210	420	5.30	11313240	196,50		
350	350	275	550	8.10	11353240	211,50	12353240	313,00
400	399	300	600	9.90	11403240	232,00	12403240	354,50
450	449	325	650	12.75	11453240	253,00	12453240	397,50
500	499	350	700	14.10	11503240	273,50	12503240	451,50
560	558	380	760	22.15			12563240	480,50
630	628	415	830	26.80			12633240	522,00

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





FORKS 45°

1050

- Other combinations of diameters available on request
- Conical forks available on request
- From DN 350 mm, dimensions for 2 mm pipework

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11061220	31,00				
80	77	123	137	160	0.75	11081220	31,20				
100	100	177	176	215	1.15	11101220	31,40				
120	120	187	185	240	1.20	11121220	33,50	12121220	38,20	13121220	56,10
140	136	216	219	280	1.60	11141220	40,60	12141220	44,90	13141220	64,20
150	150	234	231	300	2.10	11151220	40,60	12151220	44,90	13151220	64,20
175	175	269	266	340	2.20	11171220	48,00	12171220	59,50	13171220	71,20
200	200	309	306	390	4.10	11201220	59,80	12201220	68,60	13201220	75,70
224	220	334	336	420	5.70	11221220	70,20	12221220	91,30	13221220	108,00
250	250	358	352	450	5.40	11251220	70,20	12251220	91,30	13251220	108,00
280	277	400	400	500	6.90	11281220	87,10				
300	300	418	412	520	7.80	11301220	87,10	12301220	114,50	13301220	143,50
315	312	450	450	560	8.70	11311220	106,00				
350	349	498	472	615	15.00	11351220	123,00	12351220	136,00	13351220	193,00
400	398	557	533	685	17.75	11401220	155,50	12401220	186,50	13401220	270,00
450	448	662	623	800	22.80	11451220	191,50	12451220	218,50	13451220	316,50
500	498	701	674	850	27.20	11501220	225,50	12501220	239,50	13501220	350,50
560	558	789	786	950	38.00			12561220	277,00	13561220	405,00
630	628	885	890	1060	48.00			12631220	328,00	13631220	478,00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

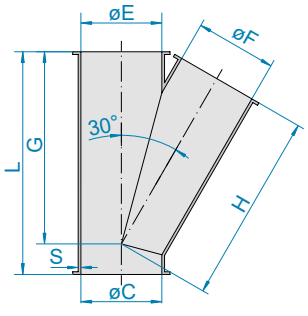
DN	Ø d	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11062220	33,40			11063220*	56,90		
80	77	123	137	160	0.75	11082220	33,40			11083220	56,90		
100	100	177	176	215	1.15	11102220	33,60	12102220	40,40	11103220	57,10	12103220	89,60
120	120	187	185	240	1.20	11122220	37,00	12122220	44,30	11123220	73,90	12123220	107,00
140	136	216	219	280	1.60	11142220	45,90	12142220	53,30	11143220	102,50	12143220	154,50
150	150	234	231	300	2.10	11152220	45,90	12152220	53,30	11153220	102,50	12153220	154,50
175	175	269	266	340	2.20	11172220	57,80	12172220	75,00	11173220	127,50	12173220	179,00
200	200	309	306	390	4.10	11202220	67,60	12202220	81,50	11203220	137,50	12203220	228,50
224	220	334	336	420	5.70	11222220	80,20	12222220	110,50	11223220	183,00	12223220	264,50
250	250	358	352	450	5.40	11252220	80,20	12252220	110,50	11253220	183,00	12253220	264,50
280	277	400	400	500	6.90	11282220	101,50			11283220*	209,50		
300	300	418	412	520	7.80	11302220	101,50	12302220	140,50	11303220	209,50	12303220	362,00
315	312	450	450	560	8.70	11312220	124,50			11313220*	221,50		
350	349	498	472	615	15.00	11352220	148,00			11353220*	233,50	12353220	433,50
400	398	557	533	685	17.75	11402220	184,00			11403220*	327,00	12403220	478,50
450	448	662	623	800	22.80	11452220	223,00			11453220*	388,50	12453220	554,50
500	498	701	674	850	27.20	11502220	261,50			11503220*	425,50	12503220	625,00
560	558	789	786	950	38.00	11562220	304,00					12563220	695,50
630	628	885	890	1060	48.00	11632220	365,50					12633220	768,50

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

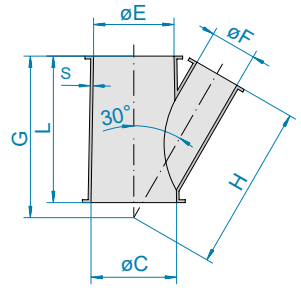
Shock explosion proof tested
up to 3 bar





Fork 30°





Conical fork 30°

FORKS 30°

1060/1080

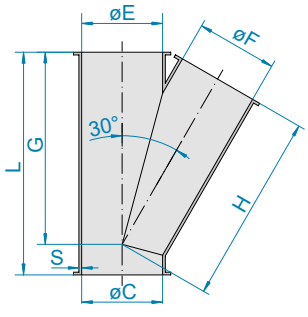
- Diameters C, E, F = nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- Other combinations of diameter, angles and wall thickness available on request

Powder-coated (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
60- 60- 60	170	170	200	0.80	11061230	33,40				
80- 60- 60	170	170	200	0.95	11081255	33,50				
80- 80- 80	209	216	240	1.32	11081230	33,60				
100- 80- 80	237	236	250	1.25	11101255	54,70				
100-100- 80	239	248	250	1.35	11101258	61,40				
100-100-100	262	248	300	1.70	11101230	33,80	12101230	37,40		
120- 80- 80	258	259	255	1.35	11121286	61,40				
120-100- 80	260	261	255	1.45	11121257	59,20				
120-100-100	267	267	290	1.75	11121255	66,00				
120-120- 80	256	258	250	1.50	11121258	63,40				
120-120-120	299	296	340	2.20	11121230	37,10	12121230	40,60	13121230	66,80
140-100-100	290	292	300	1.95	11141255	72,00				
140-120- 80	274	278	255	1.65	11141257	66,80				
140-120-100	291	293	300	2.00	11141256	68,00				
140-140- 80	275	284	255	1.70	11141258	67,30				
140-140-140	336	334	390	2.80	11141230	44,00				
150-100-100	291	294	290	2.10	11151254	64,10				
150-120-100	293	296	290	2.05	11151256	72,40				
150-120-120	323	324	340	2.45	11151255	78,20				
150-140- 80	286	292	255	1.75	11151287	70,40				
150-150- 80	282	288	250	1.85	11151258	70,10				
150-150-150	355	350	410	3.05	11151230	44,00	12151230	53,80	13151230	79,00
175-120-120	343	347	340	2.70	11171285	82,40				
175-140-120	344	348	340	2.70	11171286	88,50				
175-150- 80	302	311	250	1.90	11171258	71,50				
175-150-100	315	321	290	2.40	11171257	77,00				
175-150-120	345	349	340	2.80	11171256	85,80				
175-150-150	375	373	410	3.80	11171255	94,40				
175-175-175	392	383	450	4.00	11171230	57,90	12171230	69,60	13171230	87,40
200-140-140	387	401	390	3.60	11201285	95,70				
200-150-120	365	373	340	2.70	11201286	91,00				
200-150-150	395	396	410	5.00	11201255	96,80				
200-175-100	336	346	290	2.70	11201258	83,90				
200-175-120	366	374	340	3.10	11201257	89,00				
200-175-150	396	398	410	4.10	11201256	101,50				
200-200- 80	330	348	255	2.50	11201253	76,10				
200-200-100	348	358	300	3.00	11201254	85,20				
200-200-200	463	457	530	5.60	11201230	72,50	12201230	86,70	13201230	98,30
224-150-150	410	424	410	4.00	11221255	105,00				
224-175-140	406	423	390	4.00	11221256	103,50				
224-200-100	364	377	300	3.00	11221258	94,30				
224-200-120	384	395	340	3.30	11221257	99,40				
224-224-224	510	510	580	6.90	11221230	80,70				

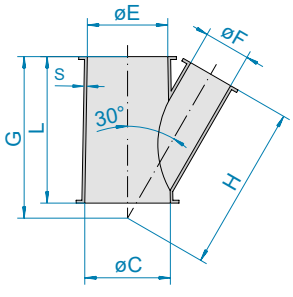
Shock explosion proof tested up to 3 bar





Fork 30°



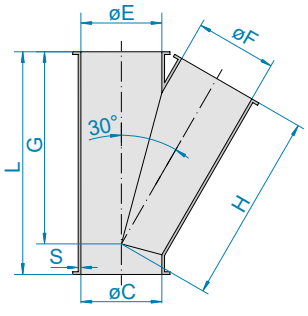


Conical fork 30°

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
250-200-150	438	446	410	4.60	11251286	114,50				
250-200-175	453	455	450	5.80	11251256	118,50				
250-200-200	503	513	530	6.10	11251255	127,00				
250-224-120	409	424	340	4.20	11251288	107,50				
250-224-140	433	455	390	4.40	11251287	113,50				
250-250- 80	374	398	255	2.90	11251253	90,40				
250-250-100	392	409	300	3.50	11251254	92,30				
250-250-250	547	544	620	8.00	11251230	80,70	12251230	98,30	13251230	141,00
280-280-280	610	610	690	10.00	11281230	100,00				
300-224-224	575	584	580	7.70	11301285	150,00				
300-250-140	475	493	390	4.90	11301288	126,00				
300-250-150	476	495	410	5.30	11301258	123,00				
300-250-175	496	505	450	5.90	11301257	127,00				
300-250-200	546	563	530	7.10	11301256	140,00				
300-250-250	587	580	620	8.70	11301255	152,50				
300-300- 80	417	448	255	3.30	11301253	97,30				
300-300-100	435	459	300	4.10	11301254	103,00				
300-300-300	640	640	720	11.25	11301230	100,00	12301230	123,00	13301230	178,00
315-315-315	690	690	780	12.70	11311230	123,00				
350-250-250	627	627	620	9.60	11351255	189,50				
350-300-150	524	546	410	6.10	11351288	177,50				
350-300-200	590	613	530	7.90	11351257	177,50				
350-300-224	619	636	580	8.90	11351286	198,50				
350-300-250	630	630	620	9.90	11351256	199,50				
350-350-350	728	717	820	14.40	11351230	147,00	12351230	178,00	13351230	260,00
400-300-250	670	677	620	10.40	11401256	207,00				
400-300-300	721	724	720	12.40	11401255	222,00				
400-350-175	583	609	450	7.40	11401288	203,00				
400-350-224	663	686	580	10.20	11401287	224,50				
400-400-400	826	825	925	18.65	11401230	191,00	12401230	221,50	13401230	323,00
450-350-300	764	774	720	14.80	11451256	239,00				
450-350-350	809	811	820	17.50	11451255	253,00				
450-400-200	676	713	530	10.70	11451258	249,50				
450-400-250	716	730	620	12.80	11451257	265,50				
450-450-450	945	930	1050	23.60	11451230	238,00	12451230	269,50	13451230	394,00
500-400-350	853	861	820	18.20	11501256	327,00				
500-400-400	909	914	925	22.70	11501255	343,00				
500-450-224	749	786	580	13.00	11501288	307,50				
500-450-300	810	827	720	17.00	11501257	304,00				
500-500-500	1038	1027	1150	28.80	11501230	284,50	12501230	298,00	13501230	433,50
560-560-560	1180	1175	1300	54.00			12561230	340,50	13561230	499,00
630-630-630	1301	1304	1430	64.00			12631230	363,00	13631230	533,50

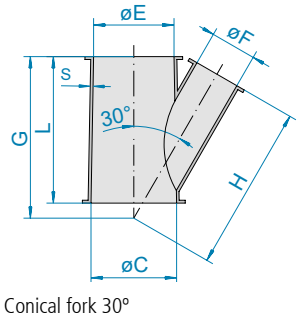
Shock explosion proof tested up to 3 bar





Fork 30°





Conical fork 30°

FORKS 30°

1060/1080

- Other combinations of diameter, angles and wall thickness available on request
- Diameters C, E , F: Nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

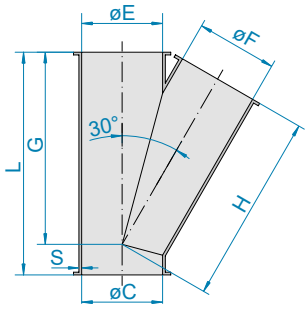
DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel (F)		2 mm stainless steel (F)	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60- 60- 60	170	170	200	0.80	11062230	37,60			11063230*	70,50		
80- 60- 60	170	170	200	0.95	11082255	39,10			11083255*	70,20		
80- 80- 80	209	216	240	1.32	11082230	39,30			11083230	70,50		
100- 80- 80	237	236	250	1.25	11102255	61,70			11103255	116,00	12103255	148,50
100-100- 80	239	248	250	1.35	11102258	68,60			11103258	121,00	12103258	151,50
100-100-100	262	248	300	1.70	11102230	39,60	12102230	45,80	11103230	70,60	12103230	115,00
120- 80- 80	258	259	255	1.35	11122286	68,60			11123286	121,00	12123286	150,50
120-100- 80	260	261	255	1.45	11122257	67,10			11123257	122,00	12123257	152,00
120-100-100	267	267	290	1.75	11122255	73,90			11123255	139,00	12123255	177,00
120-120- 80	256	258	250	1.50	11122258	70,60			11123258	127,00	12123258	160,50
120-120-120	299	296	340	2.20	11122230	43,30	12122230	49,70	11123230	88,80	12123230	132,50
140-100-100	290	292	h300	1.95	11142255	81,70			11143255	151,50	12143255	205,50
140-120- 80	274	278	255	1.65	11142257	74,70			11143257	137,00	12143257	172,50
140-120-100	291	293	300	2.00	11142256	76,80			11143256	134,50	12143256	167,50
140-140- 80	275	284	255	1.70	11142258	75,50			11143258	133,50	12143258	166,50
140-140-140	336	334	390	2.80	11142230	51,50	12142230	66,20	11143230	122,00		
150-100-100	291	294	290	2.10	11152254	78,60			11153254	142,00		
150-120-100	293	296	290	2.05	11152256	81,30			11153256	146,00	12153256	186,50
150-120-120	323	324	340	2.45	11152255	87,90			11153255	165,50	12153255	210,50
150-140- 80	286	292	255	1.75	11152287	78,50			11153287	145,00	12153287	179,50
150-150- 80	282	288	250	1.85	11152258	78,40			11153258	137,00	12153258	172,50
150-150-150	355	350	410	3.05	11152230	51,50	12152230	66,20	11153230	122,00	12153230	188,50
175-120-120	343	347	340	2.70	11172285	93,70			11173285	172,50	12173285	216,00
175-140-120	344	348	340	2.70	11172286	99,80			11173286	179,00	12173286	224,50
175-150- 80	302	311	250	1.90	11172258	80,40			11173258	145,00	12173258	183,50
175-150-100	315	321	290	2.40	11172257	86,40			11173257	157,50	12173257	199,50
175-150-120	345	349	340	2.80	11172256	96,50			11173256	172,50	12173256	219,00
175-150-150	375	373	410	3.80	11172255	106,50			11173255	199,00	12173255	254,00
175-175-175	392	383	450	4.00	11172230	64,30	12172230	81,10	11173230	145,00	12173230	233,50
200-140-140	387	401	390	3.60	11202285	110,00			11203285	205,50	12203285	255,00
200-150-120	365	373	340	2.70	11202286	104,00			11203286	187,00	12203286	233,00
200-150-150	395	396	410	5.00	11202255	110,00			11203255	205,50	12203255	261,50
200-175-100	336	346	290	2.70	11202258	94,10			11203258	168,50	12203258	214,00
200-175-120	366	374	340	3.10	11202257	100,00			11203257	183,00	12203257	233,00
200-175-150	396	398	410	4.10	11202256	115,00			11203256	205,50	12203256	261,00
200-200- 80	330	348	255	2.50	11202253	80,90			11203253	201,50	12203253	239,00
200-200-100	348	358	300	3.00	11202254	91,70			11203254	211,50	12203254	263,00
200-200-200	463	457	530	5.60	11202230	91,00	12202230	114,50	11203230	193,50	12203230	272,00
224-150-150	410	424	410	4.00	11222255	120,50			11223255	225,50	12223255	282,00
224-175-140	406	423	390	4.00	11222256	119,00			11223256	211,50	12223256	264,00
224-200-100	364	377	300	3.00	11222258	106,50			11223258	187,00	12223258	232,50
224-200-120	384	395	340	3.30	11222257	113,50			11223257	208,00	12223257	258,50
224-224-224	510	510	580	6.90	11222230	106,50	12222230	135,50	11223230	227,00		

*1.5 mm

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

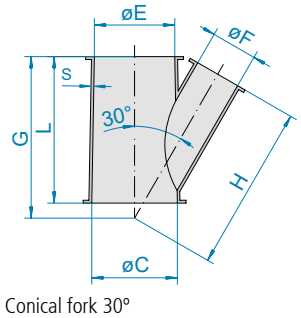
Shock explosion proof tested up to 3 bar





Fork 30°





Conical fork 30°

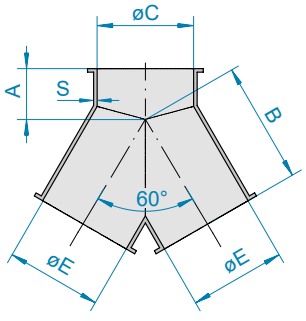
DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel (F)		2 mm stainless steel (F)	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
250-200-150	438	446	410	4.60	11252286	132,50			11253286	234,00	12253286	292,00
250-200-175	453	455	450	5.80	11252256	134,00			11253256	234,00	12253256	298,50
250-200-200	503	513	530	6.10	11252255	143,50			11253255	265,00	12253255	338,00
250-224-120	409	424	340	4.20	11252288	122,00			11253288	211,00	12253288	264,00
250-224-140	433	455	390	4.40	11252287	134,00			11253287	241,00	12253287	300,50
250-250- 80	374	398	255	2.90	11252253	96,40			11253253	206,00		
250-250-100	392	409	300	3.50	11252254	100,00			11253254	216,00	12253254	295,00
250-250-250	547	544	620	8.00	11252230	106,50	12252230	135,50	11253230	227,00	12253230	322,50
280-280-280	610	610	690	10.00	11282230	136,00			11283230*	270,50		
300-224-224	575	584	580	7.70	11302285	175,50			11303285	329,00	12303285	410,50
300-250-140	475	493	390	4.90	11302288	142,50			11303288	246,00	12303288	307,00
300-250-150	476	495	410	5.30	11302258	138,00			11303258	249,50	12303258	309,00
300-250-175	496	505	450	5.90	11302257	143,50			11303257	256,50	12303257	327,50
300-250-200	546	563	530	7.10	11302256	159,00			11303256	279,00	12303256	357,00
300-250-250	587	580	620	8.70	11302255	173,00			11303255	318,50	12303255	407,50
300-300- 80	417	448	255	3.30	11302253	101,50			11303253	209,00		
300-300-100	435	459	300	4.10	11302254	110,00			11303254	219,50	12303254	302,00
300-300-300	640	640	720	11.25	11302230	136,00	12302230	169,50	11303230	270,50	12303230	409,00
315-315-315	690	690	780	12.70	11312230	166,50			11313230*	298,00		
350-250-250	627	627	620	9.60	11352255	214,00			11353255*	395,50	12353255	505,50
350-300-150	524	546	410	6.10	11352288	209,00			11353288	370,50	12353288	463,00
350-300-200	590	613	530	7.90	11352257	200,00			11353257*	361,50	12353257	462,00
350-300-224	619	636	580	8.90	11352286	226,50			11353286*	396,00	12353286	495,00
350-300-250	630	630	620	9.90	11352256	226,00			11353256*	398,00	12353256	508,50
350-350-350	728	717	820	14.40	11352230	175,00			11353230*	317,00	12353230	534,00
400-300-250	670	677	620	10.40	11402256	233,00			11403256*	410,50	12403256	523,50
400-300-300	721	724	720	12.40	11402255	250,50			11403255*	463,50	12403255	592,50
400-350-175	583	609	450	7.40	11402288	237,50			11403288	421,50	12403288	526,00
400-350-224	663	686	580	10.20	11402287	262,00			11403287*	477,50	12403287	595,00
400-400-400	826	825	925	18.65	11402230	222,50			11403230*	354,50	12403230	569,50
450-350-300	764	774	720	14.80	11452256	269,50			11453256*	475,00	12453256	607,00
450-350-350	809	811	820	17.50	11452255	285,50			11453255*	525,50	12453255	677,50
450-400-200	676	713	530	10.70	11452258	280,00			11453258*	495,50	12453258	633,50
450-400-250	716	730	620	12.80	11452257	299,50			11453257*	540,00	12453257	690,00
450-450-450	945	930	1050	23.60	11452230	274,50			11453230*	480,50	12453230	606,00
500-400-350	853	861	820	18.20	11502256	368,00			11503256*	650,00	12503256	830,50
500-400-400	909	914	925	22.70	11502255	386,00			11503255*	718,00	12503255	919,00
500-450-224	749	786	580	13.00	11502288	361,00			11503288*	645,00	12503288	805,50
500-450-300	810	827	720	17.00	11502257	342,50			11503257*	618,00	12503257	788,00
500-500-500	1038	1027	1150	28.80	11502230	321,00			11503230*	529,50	12503230	698,50
560-560-560	1180	1175	1300	54.00	11562230	376,00					12563230	802,50
630-630-630	1301	1304	1430	64.00	11632230	412,00					12633230	853,50

*1.5 mm

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

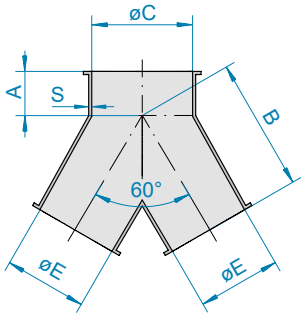
Shock explosion proof tested
up to 3 bar





Symmetrical fork 60°





Conical symmetrical fork 60°

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar

SYMMETRICAL FORKS 60°

1090/1095

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

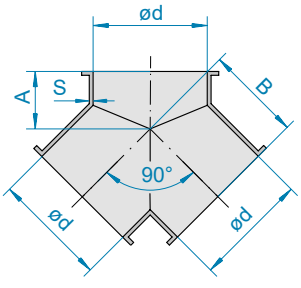
DN C - E - E	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
80- 80- 80	40	120	77	77	0.80	11081270	67,70	11082270	81,50
100- 80- 80	40	130	100	77	0.85	11101275	57,50	11102275	63,30
100-100-100	50	120	100	100	1.00	11101270	71,40	11102270	85,70
120-100-100	50	150	120	100	1.25	11121275	59,20	11122275	65,50
120-120-120	50	150	120	120	1.50	11121270	75,10	11122270	90,80
140-100-100	50	150	136	100	1.25	11141275	60,80	11142275	67,10
140-140-140	70	165	136	136	2.00	11141270	78,50	11142270	97,50
150-100-100	50	170	150	100	1.40	11151276	60,80	11152276	67,10
150-120-120	50	170	150	120	1.65	11151275	62,70	11152275	69,10
150-150-150	75	175	150	150	2.20	11151270	78,50	11152270	97,50
175-120-120	50	200	175	120	2.00	11171276	67,40	11172276	78,40
175-175-175	80	210	175	175	3.10	11171270	89,10	11172270	104,00
200-140-140	60	200	200	136	2.35	11201276	84,40	11202276	87,80
200-150-150	60	200	200	150	2.50	11201275	84,40	11202275	87,80
200-200-200	90	240	200	200	4.00	11201270	99,40	11202270	112,00
224-150-150	60	220	220	150	2.65	11221275	120,50	11222275	125,50
224-224-224	90	275	220	220	5.00	11221270	114,00	11222270	122,00
250-200-200	60	250	250	200	3.50	11251275	149,50	11252275	161,00
250-250-250	100	300	250	250	6.20	11251270	123,00	11252270	135,00
300-224-224	70	300	300	220	4.80	11301276	160,50	11302276	175,50
300-300-300	120	360	300	300	8.90	11301270	134,00	11302270	154,00
350-250-250	70	300	350	250	5.30	11351275	175,00	11352275	181,50
400-300-300	70	350	399	300	6.20	11401275	191,00	11402275	197,50
450-350-350	80	400	449	350	9.20	11451275	206,50	11452275	220,50
500-400-400	80	450	499	399	11.40	11501275	221,50	11502275	237,50

Stainless steel (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	Ø C	Ø E	kg	1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
80- 80- 80	40	120	77	77	0.80	11083270	109,00		
100- 80- 80	40	130	100	77	0.85	11103275	107,00	12103275	135,50
100-100-100	50	120	100	100	1.00	11103270	113,50	12103270	152,50
120-100-100	50	150	120	100	1.25	11123275	114,00	12123275	143,50
120-120-120	50	150	120	120	1.50	11123270	142,00	12123270	163,00
140-100-100	50	150	136	100	1.25	11143275	128,00	12143275	159,00
140-140-140	70	165	136	136	2.00	11143270	155,50	12143270	182,50
150-100-100	50	170	150	100	1.40	11153276	128,00	12153276	159,00
150-120-120	50	170	150	120	1.65	11153275	132,00	12153275	165,00
150-150-150	75	175	150	150	2.20	11153270	155,50	12153270	182,50
175-120-120	50	200	175	120	2.00	11173276	142,00	12173276	176,50
175-175-175	80	210	175	175	3.10	11173270	168,00	12173270	197,50
200-140-140	60	200	200	136	2.35	11203276	183,00	12203276	237,00
200-150-150	60	200	200	150	2.50	11203275	183,00	12203275	237,00
200-200-200	90	240	200	200	4.00	11203270	183,00	12203270	214,00
224-150-150	60	220	220	150	2.65	11223275	229,00	12223275	294,50
224-224-224	90	275	220	220	5.00	11223270	195,00	12223270	231,00
250-200-200	60	250	250	200	3.50	11253275	275,50	12253275	360,00
250-250-250	100	300	250	250	6.20	11253270	207,50	12253270	251,50
300-224-224	70	300	300	220	4.80	11303276	313,00	12303276	391,50
300-300-300	120	360	300	300	8.90	11303270	229,50	12303270	287,50
350-250-250	70	300	350	250	5.30	11353275*	349,00	12353275	451,50
400-300-300	70	350	399	300	6.20	11403275*	376,50	12403275	506,00
450-350-350	80	400	449	350	9.20	11453275*	406,50	12453275	521,50
500-400-400	80	450	499	399	11.40	11503275*	434,00	12503275	550,50

*1,5 mm





SYMMETRICAL FORKS 90°

1100

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11081260	54,10			11082260	56,20
100	100	60	100	0.85	11101260	54,10			11102260	56,20
120	120	75	110	1.10	11121260	56,30	13121260	67,50	11122260	59,70
140	136	75	120	1.30	11141260	58,40			11142260	61,80
150	150	75	125	1.45	11151260	58,40	13151260	77,00	11152260	61,80
175	175	75	140	1.75	11171260	68,50	13171260	89,70	11172260	73,20
200	200	90	170	2.50	11201260	83,40	13201260	111,50	11202260	89,00
224	220	100	190	3.00	11221260	109,00			11222260	118,00
250	250	100	200	3.50	11251260	109,00	13251260	144,50	11252260	118,00
300	300	120	220	4.40	11301260	152,00	13301260	190,00	11302260	160,50
350	350	120	250	5.65	11351260	166,50			11352260	186,50
400	399	150	270	7.00	11401260	179,00			11402260	203,00
450	449	150	300	8.45	11451260	194,50			11452260	218,00
500	499	175	325	10.20	11501260	210,00			11502260	234,50

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11083260	100,50				
100	100	60	100	0.85	11103260	100,50			12103260	132,00
120	120	75	110	1.10	11123260	105,50			12123260	138,00
140	136	75	120	1.30	11143260	111,00			12143260	143,50
150	150	75	125	1.45	11153260	111,00			12153260	143,50
175	175	75	140	1.75	11173260	131,50			12173260	169,00
200	200	90	170	2.50	11203260	162,00			12203260	205,00
224	220	100	190	3.00	11223260	207,50			12223260	267,50
250	250	100	200	3.50	11253260	207,50			12253260	337,00
300	300	120	220	4.40	11303260	297,50			12303260	387,50
350	350	120	250	5.65			11353260	332,50	12353260	431,00
400	399	150	270	7.00			11403260	359,00	12403260	463,00
450	449	150	300	8.45			11453260	395,50	12453260	498,00
500	499	175	325	10.20			11503260	433,00	12503260	533,50

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

5



JACOB TRANSITION PIECES AND ADAPTERS: CONNECTING YOUR MACHINES WITH OUR PIPEWORK SYSTEM

TRANSITION PIECES AND ADAPTERS

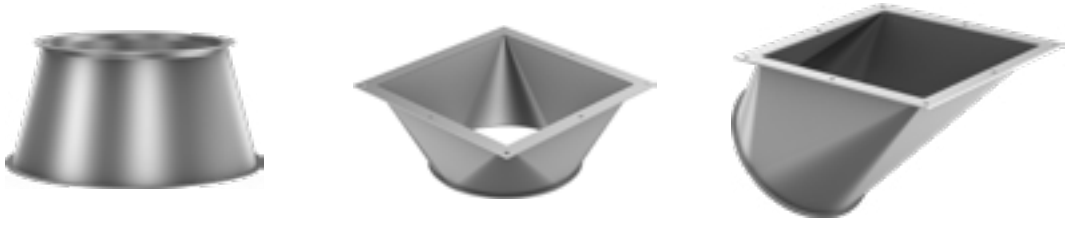
Technical information	82
Cone pieces	84
Compensators	88
Connecting flanges	88
Transition pieces and counter flanges	91
Flexible hoses and accessories	95
Bagging spouts and accessories	99
Jet caps and rain caps	100
Air outlet pipes and perforated sheet metal	102

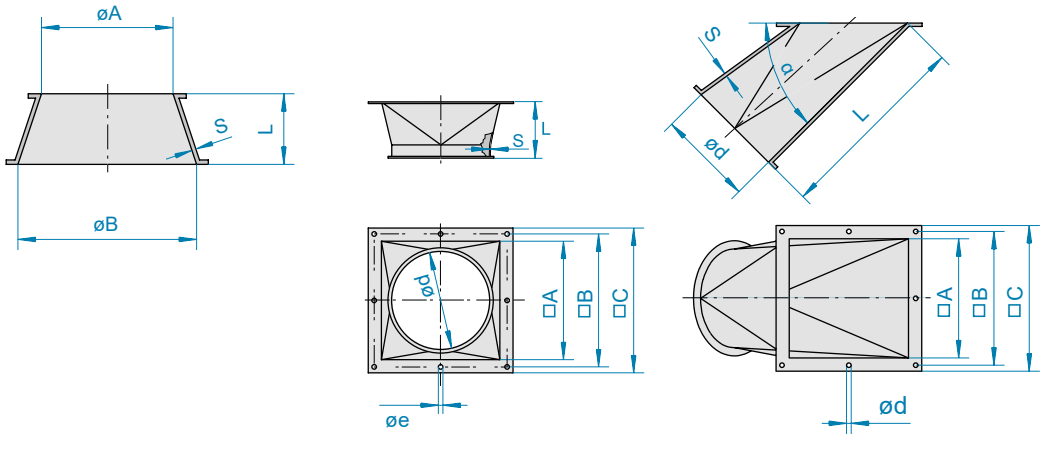
JACOB TRANSITION PIECES AND ADAPTERS

How to be well-connected: With our comprehensive range of cone pieces, transition pieces and adapters, we create the connection between your JACOB pipework system and your machinery. And since nothing is as individual as these transition pieces, we can manufacture them to your specification right from batch sizes of 1. These special components have one thing in common with all lines from this large-scale production: the same consistently high quality.

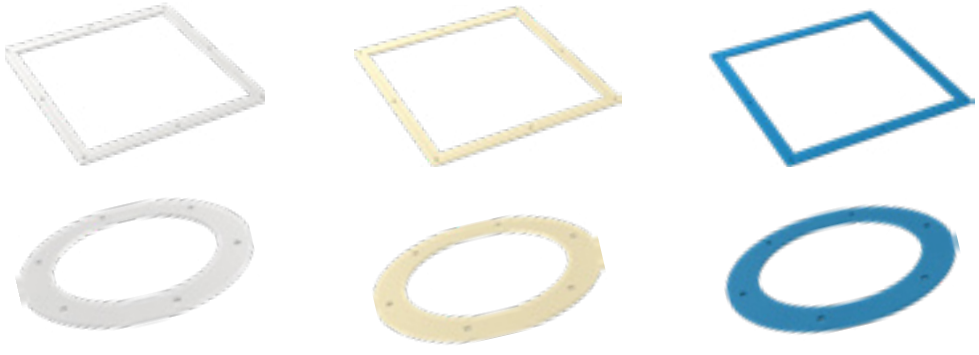
CONE PIECES AND TRANSITION PIECES TO YOUR INDIVIDUAL MEASUREMENTS

We manufacture forks, cone pieces and transition pieces to your specification if you inform us of the dimensions, of the material and the wall thickness you require. Prices and delivery time on request





FLAT GASKETS



NBR	Silicone	Silicone
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-30°C to +80°C	-30°C to +230°C	-30°C to +200°C
		metal-detectable

Our flat gaskets for connecting pipe components with welded-on flanges or transition pieces:
- More tear-proof and FOOD GRADE
- Metal-detectable (DETECTABLE DESIGN)
- Other materials available on request



COMPENSATORS

Material: Conductive EPDM, black
- Temperature resistance: -30°C to +100°C
- Admissible differential pressure: 0.1 bar
- Not suitable for contact with food
- Electrostatically conductive



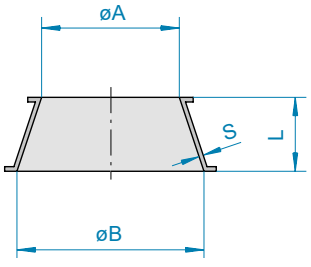
Compensator connections made of VA, material 1.4301, with press-formed connection to extruded polyurethane sleeve, opaque, 1 mm thick.
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Temperature resistance: -20°C to +90°C

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

Cone pieces





CONE PIECES

1330

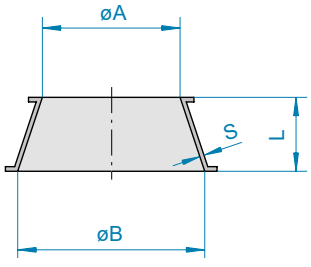
- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework

Powder-coated (dimensions for 1.5 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
60- 80	57	77	60	0.17	11001488	11,50		
60-100	57	100	100	0.25	11001492	11,70		
80-100	77	100	100	0.35	11001450	11,80		
80-120	77	120	80	0.35	11001478	13,30		
80-140	77	136	120	0.55	11001479	13,50		
80-150	77	150	140	0.65	11001489	14,30		
100-120	100	120	60	0.30	11001451	12,90		
100-140	100	136	100	0.50	11001459	14,80		
100-150	100	150	95	0.50	11001452	13,30		
100-175	100	175	120	0.70	11001464	15,00		
100-200	100	200	120	0.75	11001453	18,50		
100-250	100	250	200	1.45	11001454	21,80		
120-140	120	136	100	0.55	11001466	16,70		
120-150	120	150	150	0.85	11001455	13,70	13001455	39,30
120-175	120	175	100	0.65	11001456	15,30	13001456	40,90
120-200	120	200	120	0.80	11001457	18,90	13001457	44,00
120-250	120	250	150	1.20	11001458	19,60	13001458	45,60
140-150	136	150	100	0.60	11001467	17,10		
140-175	136	175	100	0.65	11001468	19,30		
140-200	136	200	150	1.05	11001469	21,10		
150-175	150	175	100	0.60	11001460	15,50	13001460	35,70
150-200	150	200	100	0.75	11001461	15,10	13001461	42,50
150-224	150	220	150	1.15	11001472	23,00		
150-250	150	250	150	1.10	11001462	19,60	13001462	45,60
150-300	150	300	200	1.85	11001463	25,50	13001463	52,00
175-200	175	200	100	0.80	11001465	16,40	13001465	47,40
175-224	175	220	100	0.85	11001473	22,10		
200-224	200	220	100	0.85	11001474	23,00		
200-250	200	250	120	1.10	11001470	18,90	13001470	49,40
200-300	200	300	150	1.55	11001471	24,60	13001471	52,80
224-250	220	250	100	1.00	11001476	25,20		
224-300	220	300	150	1.60	11001477	29,50		
250-280	250	277	120	1.30	11001960	27,70		
250-300	250	300	150	1.65	11001475	24,60	13001475	56,60
250-350	250	350	200	2.20	11001484	37,30	13001484	67,30
280-300	277	300	100	1.22	11001961	29,00		
300-315	300	312	100	1.30	11001962	36,80		
300-350	300	350	200	2.55	11001480	41,30	13001480	71,50
300-400	300	399	200	2.75	11001481	46,40	13001481	77,40
315-350	312	350	120	1.65	11001963	40,10		
350-400	350	399	200	2.95	11001482	52,50	13001482	83,90

Shock explosion proof tested up to 3 bar



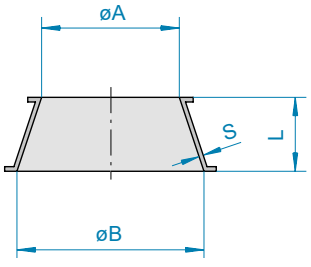


DN	ØA	Ø B	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
350-450	350	449	200	3.15	11001483	53,90	13001483	91,00
400-450	399	449	200	3.40	11001485	57,60	13001485	99,40
400-500	399	499	250	4.40	11001486	60,80	13001486	106,00
450-500	449	499	200	3.70	11001487	69,70	13001487	118,50
450-560	448	558	250	6.70	12001495*	71,80	13001495	130,50
500-560	498	558	250	7.00	12001496*	75,80	13001496	145,00
500-630	498	628	300	8.90	12001497*	83,90	13001497	165,50
560-630	558	628	300	9.50	12001498*	97,40	13001498	186,50

*2 mm

Cone pieces





CONE PIECES

1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

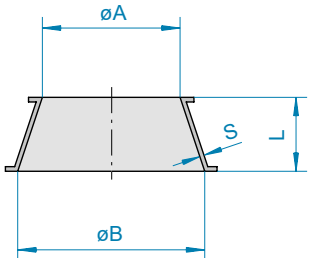
DN	ØA	ØB	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60- 80	57	77	60	0.17					11003488*	17,20		
60-100	57	100	100	0.25	11002492	13,60			11003492	17,70		
80-100	77	100	100	0.35	11002450	13,70			11003450	18,00		
80-120	77	120	80	0.35	11002478	14,60			11003478	19,20		
80-140	77	136	120	0.55	11002479	14,60			11003479	19,20		
80-150	77	150	140	0.65	11002489	16,60			11003489	20,10		
100-120	100	120	60	0.30	11002451	14,30			11003451	18,00	12003451	22,00
100-140	100	136	100	0.50	11002459	17,30			11003459	20,40		
100-150	100	150	95	0.50	11002452	15,20			11003452	21,00	12003452	30,00
100-175	100	175	120	0.70	11002464	16,80			11003464	21,70	12003464	33,70
100-200	100	200	120	0.75	11002453	20,80			11003453	24,70	12003453	35,70
100-250	100	250	200	1.45	11002454	22,20			11003454	25,30	12003454	36,90
120-140	120	136	100	0.55	11002466	19,30			11003466	22,10		
120-150	120	150	150	0.85	11002455	15,40			11003455	22,30	12003455	30,30
120-175	120	175	100	0.65	11002456	17,10			11003456	24,90	12003456	36,60
120-200	120	200	120	0.80	11002457	21,10			11003457	30,70	12003457	43,80
120-250	120	250	150	1.20	11002458	21,70			11003458	35,40	12003458	54,30
140-150	136	150	100	0.60	11002467	19,90			11003467	22,90		
140-175	136	175	100	0.65	11002468	22,60			11003468	25,70		
140-200	136	200	150	1.05	11002469	24,70			11003469	28,20		
150-175	150	175	100	0.60	11002460	17,90			11003460	22,90	12003460	31,90
150-200	150	200	100	0.75	11002461	18,40			11003461	26,00	12003461	37,80
150-224	150	220	150	1.15	11002472	28,90			11003472	33,00		
150-250	150	250	150	1.10	11002462	22,90			11003462	35,40	12003462	45,90
150-300	150	300	200	1.85	11002463	29,50			11003463	38,10	12003463	53,30
175-200	175	200	100	0.80	11002465	19,30			11003465	27,10	12003465	37,20
175-224	175	220	100	0.85	11002473	26,90			11003473	40,20		
200-224	200	220	100	0.85	11002474	27,60			11003474	33,00	12003474	45,00
200-250	200	250	120	1.10	11002470	22,80			11003470	35,40	12003470	50,90
200-300	200	300	150	1.55	11002471	29,50			11003471	44,20	12003471	68,80
224-250	220	250	100	1.00	11002476	30,30			11003476	36,30		
224-300	220	300	150	1.60	11002477	35,70			11003477	43,30	12003477	75,60
250-280	250	277	120	1.30	11002960	32,30			11003960*	47,90		
250-300	250	300	150	1.65	11002475	28,10			11003475	44,50	12003475	69,50
250-350	250	350	200	2.20	11002484	44,80			11003484	56,10	12003484	80,70
280-300	277	300	100	1.22	11002961	33,80			11003961*	49,90		
300-315	300	312	100	1.30	11002962	43,00			11003962*	58,70		
300-350	300	350	200	2.55	11002480	52,80			11003480	59,80	12003480	86,20
300-400	300	399	200	2.75	11002481	56,60			11003481	63,40	12003481	94,50

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





DN	ØA	Ø B	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
315-350	312	350	120	1.65	11002963	46,60			11003963*	60,60		
350-400	350	399	200	2.95	11002482	60,40			11003482	65,80	12003482	91,00
350-450	350	449	200	3.15	11002483	64,10			11003483	71,60	12003483	107,00
400-450	399	449	200	3.40	11002485	65,80			11003485	78,30	12003485	104,50
400-500	399	499	250	4.40	11002486	71,60			11003486	87,60	12003486	130,50
450-500	449	499	200	3.70	11002487	72,80			11003487	97,60	12003487	135,50
450-560	448	558	250	6.70			12002495	78,50			12003495	160,50
500-560	498	558	250	7.00			12002496	82,60			12003496	173,00
500-630	498	628	300	8.90			12002497	91,00			12003497	188,00
560-630	558	628	300	9.50			12002498	106,00			12003498	202,50

*1.5 mm

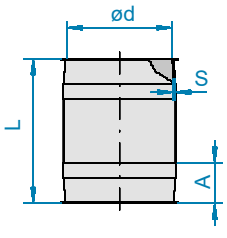
FOOD GRADE
EC 1935/2004 plus FDA compliant



Conductive EPDM, black



AU, transparent



COMPENSATORS

1348

- Please also read and take into account the technical information given at the beginning of this chapter

Powder-coated, galvanised and stainless steel

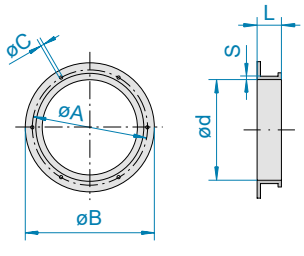
DN	Ø d	A	S	L	kg	2 mm powder-coated (EPDM, black)		2 mm galvanised (EPDM, black)		2 mm stainless steel (EPDM, black)		2 mm stainless steel (AU, transparent)	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	78	55	1	200	0.52	11081707*	46,10	11082707*	47,70	11083707*	54,30	11083171*	114,50
100	99	55	2	200	1.00	12101707	47,20	12102707	49,00	12103707	55,50	12103171	138,50
120	119	55	2	200	1.16	12121707	50,20	12122707	52,00	12123707	60,90	12123171	152,50
140	135	55	2	200	1.30	12141707	53,70	12142707	55,50	12143707	63,70	12143171	161,50
150	149	55	2	200	1.42	12151707	54,80	12152707	56,70	12153707	65,50	12153171	170,00
175	174	55	2	200	1.65	12171707	58,00	12172707	60,30	12173707	70,00	12173171	173,50
200	199	55	2	200	1.88	12201707	60,30	12202707	62,50	12203707	74,70	12203171	204,00
224	219	55	2	200	2.06	12221707	65,50	12222707	67,70	12223707	80,70	12223171	210,50
250	249	55	2	200	2.34	12251707	68,40	12252707	71,30	12253707	84,20	12253171	233,50
300	299	55	2	200	2.80	12301707	73,70	12302707	76,50	12303707	89,80	12303171	270,00

*1 mm

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.





E = No. of holes

CONNECTING FLANGES

1310

- For combining with a counter flange for connecting flanges and a flat gasket for counter flanges (see page 89)
- Not suitable for combining with flanges according to DIN 24154-2

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	ØA	Ø B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11081431	7,50		
100	100	130	150	6	6	28	0.23	11101431	7,50		
120	120	150	170	6	6	28	0.28	11121431	7,70	13121431	28,30
150	150	180	202	6	6	36	0.40	11151431	11,40	13151431	30,90
175	175	205	228	6	6	40	0.49	11171431	16,00	13171431	32,70
200	200	230	250	6	6	37	0.52	11201431	16,90	13201431	34,00
250	250	280	300	6	6	48	0.75	11251431	18,90	13251431	41,50

Galvanised and stainless steel

DN	Ø d	ØA	Ø B	C	E	L	kg	1.5 mm galvanised		1.5 mm stainless steel	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11082431	7,60	11083431	23,80
100	100	130	150	6	6	28	0.23	11102431	7,60	11103431	23,80
120	120	150	170	6	6	28	0.28	11122431	8,00	11123431	27,20
150	150	180	202	6	6	36	0.40	11152431	11,50	11153431	33,00
175	175	205	228	6	6	40	0.49	11172431	16,70	11173431	40,70
200	200	230	250	6	6	37	0.52	11202431	18,20	11203431	48,60
250	250	280	300	6	6	48	0.75	11252431	21,00	11253431	59,10

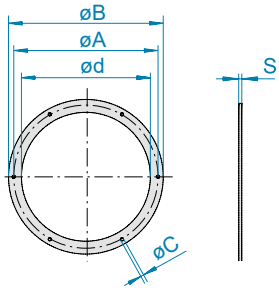
FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

COUNTER FLANGES FOR ROUND CONNECTING FLANGES

1311





E = No. of holes

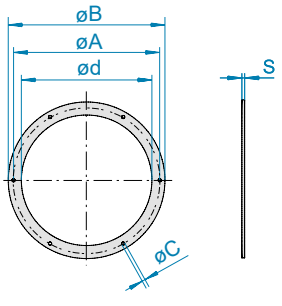
- Counter flange to match connecting flange (see page 88)
- For use in conjunction with a square flat gasket (see below)

DN	Ø d	ØA	Ø B	Ø C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301 (F)	
								Item no.	€	Item no.	€
80	82	108	122	6	6	5	0.25	10080710	5,50	10083710	19,70
100	105	130	155	6	6	5	0.40	10100710	5,90	10103710	22,10
120	125	150	175	6	6	5	0.46	10120710	6,70	10123710	23,00
150	155	180	205	6	6	5	0.55	10150710	7,30	10153710	27,60
175	180	205	230	6	6	5	0.63	10170710	7,90	10173710	29,10
200	205	230	255	6	6	5	0.71	10200710	8,80	10203710	32,50
250	255	280	305	6	6	5	0.86	10250710	11,30	10253710	37,60

FLAT GASKETS FOR COUNTER FLANGES (ROUND) FOR CONNECTING FLANGES

1312





E = No. of holes

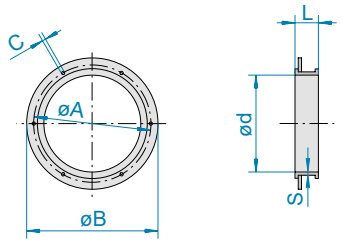
- Flat gasket to match connecting flange (page 88) and counter flange (see above)
- Please also read and take into account the technical information given at the beginning of this chapter
- Not suitable for use in combination with flanges according to DIN 24154-2

DN	Ø d	ØA	Ø B	Ø C	E	S	NBR grey white		Silicone, beige (F)		Silicone, blue (F)(D)	
							Item no.	€	Item no.	€	Item no.	€
80	78	108	122	6	6	3	10086731	9,40	10087731	10,20	1008773101	12,10
100	99	130	155	6	6	3	10106731	9,90	10107731	10,80	1010773101	14,30
120	119	150	175	6	6	3	10126731	10,60	10127731	11,20	1012773101	13,40
150	149	180	205	6	6	3	10156731	10,80	10157731	11,40	1015773101	16,80
175	174	205	230	6	6	3	10176731	11,90	10177731	12,70	1017773101	20,40
200	199	230	255	6	6	3	10206731	12,50	10207731	13,40	1020773101	23,90
250	249	280	305	6	6	3	10256731	13,50	10257731	14,60	1025773101	32,20

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable





E = No. of holes

CONNECTING FLANGE WITH LOOSE FLANGE

1315

- Loose flange acc. to DIN 24154-2
- From DN 450 mm, dimensions for 2 mm pipework
- Lipped ends for use with flange according to DIN 25154-2 and U-shaped gasket
- Up to DN 350 in conjunction with U-shaped gasket for 6 mm lip (see page 33)
- From DN 350 in conjunction with U-shaped gasket for 10 mm lip or flat gasket (see pages 230/231)

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	ØA	ØB	ØC	E	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11061432	7,50				
80	77	118	142	9.5	4	50	0.62	11081432	12,60				
100	100	139	165	9.5	4	50	0.70	11101432	13,10				
120	120	165	185	9.5	4	50	0.84	11121432	14,30				
140	136	182	212	11.5	8	50	1.06	11141432	14,80				
150	150	200	225	11.5	8	50	1.18	11151432	16,00				
175	175	219	250	11.5	8	50	1.34	11171432	17,00				
200	200	241	275	11.5	8	50	1.48	11201432	17,70				
224	220	265	295	11.5	8	50	1.65	11221432	20,40				
250	250	292	325	11.5	8	50	1.82	11251432	20,40				
280	277	332	363	11.5	8	50	2.07	11281432	23,40				
300	300	366	395	11.5	8	50	2.31	11301432	23,40			13301432	27,50
315	312	366	398	11.5	8	50	2.48	11311432	26,90				
350	350	405	436	11.5	8	50	2.93	11351432	28,30			13351432	31,40
400	399	448	485	11.5	12	50	3.57	11401432	33,80			13401432	37,60
450	448	497	535	11.5	12	50	5.52			12451432	38,80	13451432	43,40
500	498	551	585	11.5	12	50	5.98			12501432	46,30	13501432	51,70
560	558	629	665	14.0	16	50	6.73			12561432	69,00	13561432	99,50
630	628	698	735	14.0	16	50	7.86			12631432	74,80	13631432	113,50

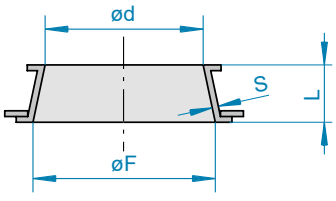
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

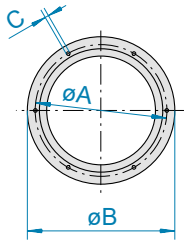
DN	Ø d	A	B	C	E	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel (F)		2 mm stainless steel (F)	
								Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11062432	7,60			11063432	23,80		
80	77	118	142	9.5	4	50	0.62	11082432	13,40			11083432	31,10		
100	100	139	165	9.5	4	50	0.70	11102432	14,00			11103432	33,80		
120	120	165	185	9.5	4	50	0.84	11122432	14,80			11123432	36,40		
140	136	182	212	11.5	8	50	1.06	11142432	15,00			11143432	39,80		
150	150	200	225	11.5	8	50	1.18	11152432	17,00			11153432	42,90		
175	175	219	250	11.5	8	50	1.34	11172432	18,50			11173432	46,40		
200	200	241	275	11.5	8	50	1.48	11202432	19,10			11203432	51,30		
224	220	265	295	11.5	8	50	1.65	11222432	21,90			11223432	62,40		
250	250	292	325	11.5	8	50	1.82	11252432	21,90			11253432	62,40		
280	277	332	363	11.5	8	50	2.07	11282432	25,00			11283432	93,40		
300	300	366	395	11.5	8	50	2.31	11302432	25,00			11303432	93,40		
315	312	366	398	11.5	8	50	2.48	11312432	28,90			11313432	97,10		
350	350	405	436	11.5	8	50	2.93	11352432	30,30			11353432	99,00		
400	399	448	485	11.5	12	50	3.57	11402432	36,00			11403432	110,50		
450	448	497	535	11.5	12	50	5.52			12452432	42,20			12453432	133,00
500	498	551	585	11.5	12	50	5.98			12502432	49,20			12503432	148,50
560	558	629	665	14.0	16	50	6.73			12562432	73,80			12563432	194,00
630	628	698	735	14.0	16	50	7.86			12632432	80,00			12633432	212,50

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

DN 350 to 630 mm with 10 mm lip. Combination with U-shaped seal for 10 mm lip (refer to page 230)







E = No. of holes

ADAPTERS WITH LOOSE FLANGE

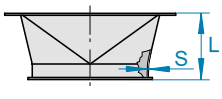
1320

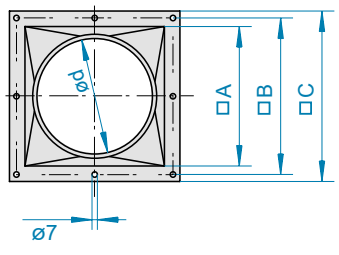
- Flange to DIN 25154-2
- Galvanised: DN 120 – 125 mm, DN 150 – 160 mm, DN 300 – 280 mm with welded-on flange
- Powder-coated and stainless steel: DN 300 – 280 with welded-on flange
- Lipped ends in conjunction with flange according to DIN 25154-2 and U-shaped seal for 6 mm lip (see page 33)

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	ØA	ØB	ØC	ØF	L	E	kg	1.5 mm powder-coated		1.5 mm galvanised		1 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
120-125	120	165	185	9,5	126	50	4	0.95	11001441	21,50	11002441	27,50	11003441	36,60
150-160	150	200	232	11,5	161	50	8	1.30	11001443	35,30	11002443	41,50	11003443	68,40
175-180	175	219	250	11,5	181	50	8	1.45	11001445	24,30	11002445	31,30	11003445	41,80
250-280	250	332	363	11,5	282	50	8	3.05	11001446	55,50	11002446	66,90	11003446	94,10
300-280	300	332	363	11,5	282	50	8	3.10	11001447	60,60	11002447	73,00	11003447	106,00
300-315	300	366	398	11,5	317	50	8	3.50	11001448	80,20	11002448	99,10	11003448	152,00







E = No. of holes

SPOUTS FROM SQUARE TO ROUND

1280

- Special models and individual flange dimensions on request
- For use in conjunction with a square flat gasket
- Lipped on one side for use with JACOB pull-ring system

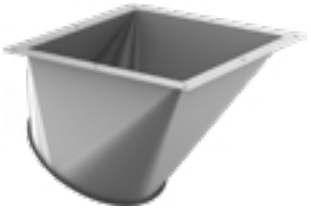
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

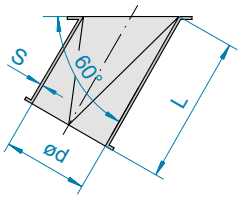
DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	8	50	0.36	11081400	16,00			11082400	16,90
100	100	120	140	160	8	60	0.45	11101400	16,00			11102400	16,90
120	120	140	164	180	8	70	0.63	11121400	17,20	13121400	40,90	11122400	18,20
150	150	180	202	220	8	85	0.90	11151400	18,10	13151400	40,90	11152400	21,40
175	175	200	225	245	8	145	1.50	11171400	36,50	13171400	57,50	11172400	38,20
200	200	250	270	290	8	115	1.80	11201400	36,60	13201400	58,50	11202400	38,20
250	250	300	325	345	8	150	2.70	11251400	71,00	13251400	105,50	11252400	75,60
300	300	350	375	395	8	210	3.90	11301400	79,60	13301400	119,00	11302400	86,40

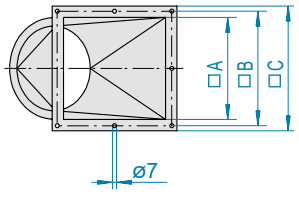
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	8	50	0.36	11083400	41,20		
100	100	120	140	160	8	60	0.45	11103400	41,20	12103400	50,60
120	120	140	164	180	8	70	0.63	11123400	43,80	12123400	68,40
150	150	180	202	220	8	85	0.90	11153400	53,50	12153400	75,40
175	175	200	225	245	8	145	1.50			12173400	93,60
200	200	250	270	290	8	115	1.80			12203400	110,50
250	250	300	325	345	8	150	2.70			12253400	157,00
300	300	350	375	395	8	210	3.90			12303400	170,00

FOOD GRADE
EC 1935/2004 plus FDA compliant







E = No. of holes

SPOUTS FROM SQUARE TO ROUND / 60°

1290

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat gasket
- Lipped on one side for use with JACOB pull-ring system

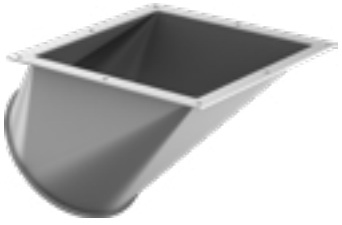
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

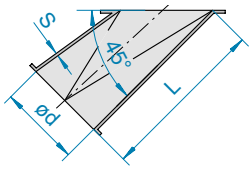
DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11081410	37,40			11082410	40,50
100	100	120	140	160	7	190	0.90	11101410	37,40			11102410	40,50
120	120	140	164	180	7	215	1.20	11121410	39,30	13121410	59,20	11122410	40,80
150	150	180	202	220	7	260	1.80	11151410	45,90	13151410	69,50	11152410	48,60
175	175	200	225	245	7	275	2.25	11171410	59,90	13171410	89,70	11172410	60,90
200	200	250	270	290	7	265	2.40	11201410	63,10	13201410	94,70	11202410	75,50
250	250	300	325	345	7	345	4.05	11251410	80,30	13251410	121,50	11252410	85,80
300	300	350	375	395	7	475	6.60	11301410	90,40	13301410	136,50	11302410	95,30

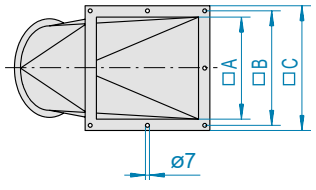
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11083410	65,40		
100	100	120	140	160	7	190	0.90	11103410	65,40	12103410	85,60
120	120	140	164	180	7	215	1.20	11123410	70,60	12123410	93,80
150	150	180	202	220	7	260	1.80	11153410	80,80	12153410	109,00
175	175	200	225	245	7	275	2.25			12173410	127,00
200	200	250	270	290	7	265	2.40			12203410	156,50
250	250	300	325	345	7	345	4.05			12253410	226,00
300	300	350	375	395	7	475	6.60			12303410	245,50

FOOD GRADE
EC 1935/2004 plus FDA compliant







E = No. of holes

SPOUTS FROM SQUARE TO ROUND/45 °

1300

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat gasket
- Lipped on one side for use with JACOB pull-ring system

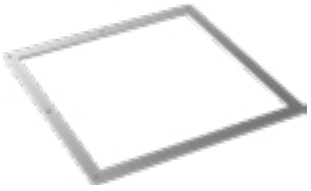
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

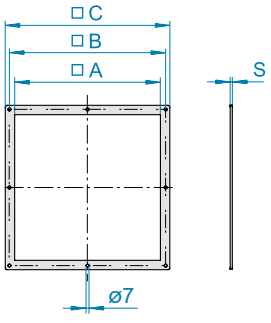
DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11081420	28,90			11082420	30,40
100	100	120	140	160	7	180	0.75	11101420	28,90			11102420	30,40
120	120	140	164	180	7	190	0.90	11121420	33,60	13121420	53,90	11122420	35,70
150	150	180	202	220	7	295	1.95	11151420	48,20	13151420	67,20	11152420	52,60
175	175	200	225	245	7	300	2.40	11171420	59,00	13171420	84,70	11172420	64,30
200	200	250	270	290	7	325	2.75	11201420	60,80	13201420	90,50	11202420	71,40
250	250	300	325	345	7	395	4.65	11251420	75,80	13251420	112,50	11252420	81,60
300	300	350	375	395	7	450	5.55	11301420	85,00	13301420	130,00	11302420	89,70

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11083420	60,80		
100	100	120	140	160	7	180	0.75	11103420	60,80	12103420	74,50
120	120	140	164	180	7	190	0.90	11123420	64,60	12123420	83,40
150	150	180	202	220	7	295	1.95	11153420	73,70	12153420	96,10
175	175	200	225	245	7	300	2.40			12173420	111,50
200	200	250	270	290	7	325	2.75			12203420	140,00
250	250	300	325	345	7	395	4.65			12253420	204,50
300	300	350	375	395	7	450	5.55			12303420	211,50

FOOD GRADE
EC 1935/2004 plus FDA compliant





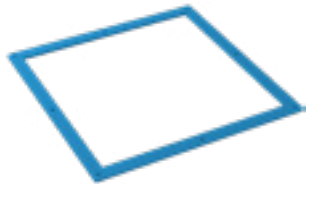
E = No. of holes

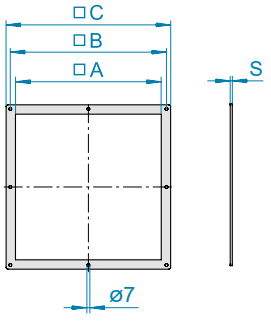
COUNTER FLANGES FOR SPOUTS FROM SQUARE TO ROUND

1301

- Counter flange to match spouts from square to round
- For use in conjunction with a square flat gasket

DN	A	B	C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301	
							Item no.	€	Item no.	€
80	100	120	140	8	5	0.38	10080714	6,60	10083714	23,60
100	120	140	160	8	5	0.44	10100714	7,20	10103714	26,40
120	140	164	180	8	5	0.50	10120714	8,10	10123714	27,60
150	180	202	220	8	5	0.63	10150714	8,70	10153714	33,00
175	200	225	245	8	5	0.79	10170714	9,40	10173714	35,00
200	250	270	290	8	5	0.85	10200714	11,40	10203714	39,00
250	300	325	345	8	5	1.14	10250714	14,80	10253714	45,10
300	350	375	395	8	5	1.30	10300714	18,20	10303714	56,30





E = No. of holes

FLAT GASKETS FOR SPOUTS FROM SQUARE TO ROUND

1302

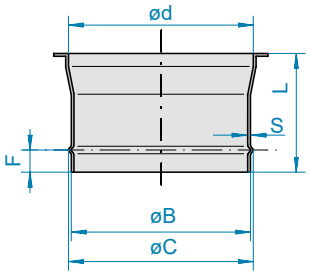
- Flat gasket to match square to round spout and counter flange for spout
- Please also read and take into account the technical information given at the beginning of this chapter

DN	A	B	C	E	S	NBR grey white		Silicone, beige		Silicone, blue	
						Item no.	€	Item no.	€	Item no.	€
80	100	120	140	8	3	10086732	10,10	10087732	10,80	1008773201	14,30
100	120	140	160	8	3	10106732	10,60	10107732	11,20	1010773201	15,40
120	140	164	180	8	3	10126732	11,00	10127732	11,60	1012773201	16,70
150	180	202	220	8	3	10156732	11,40	10157732	12,20	1015773201	22,10
175	200	225	245	8	3	10176732	12,90	10177732	13,60	1017773201	23,80
200	250	270	290	8	3	10206732	16,70	10207732	17,70	1020773201	29,70
250	300	325	345	8	3	10256732	20,80	10257732	22,20	1025773201	39,30
300	350	375	395	8	3	10306732	24,30	10307732	25,80	1030773201	44,90

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable





HOSE CONNECTIONS

1340

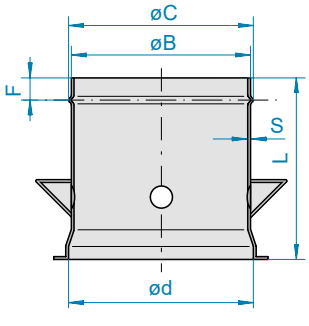
- For use in conjunction with PU hose and special hose clamp

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	Ø d	Ø B	Ø C	F	S	L	kg	1 mm powder-coated		1 mm galvanised		1 mm stainless steel	
								Item no.	€	Item no.	€	Item no.	€
60-50	57	50	51		1	80	0.20	110614990*	9,80	110624990*	12,20	110634990*	17,80
60	57	60	61		1	80	0.20	11061499 *	9,40	11062499 *	11,50	11063499 *	17,10
80	78	78	80	15	1	88	0.20	11081499	11,00	11082499	13,50	11083499	19,90
100	100	95	100	15	1	100	0.25	11101499 *	11,00	11102499 *	13,50	11103499	19,90
120	120	122	125	15	1	100	0.30	11121499	11,90	11122499	14,10	11123499	21,40
140	136	138	140	15	1	100	0.35	11141499	12,90	11142499	15,20	11143499	23,10
150	150	145	150	20	1	100	0.40	11151499 *	12,90	11152499 *	15,20	11153499	23,10
175	175	177	180	20	1	100	0.45	11171499	14,10	11172499	16,60	11173499	25,40
200	200	198	200	20	1	100	0.50	11201499	14,80	11202499	17,10	11203499	26,60
224	220	222	225	20	1	100	0.57	11221499	15,50	11222499	18,20	11223499	28,00
250	250	248	250	20	1	100	0.65	11251499	15,50	11252499	18,20	11253499	28,00
280	278	276	278	20	1	100	0.76	11281499	22,70	11282499	24,80	11283499	35,00
300	300	298	300	20	1	100	0.84	11301499	18,20	11302499	19,80	11303499	32,70
315	313	315	317	20	1	100	0.86	11311499	25,30	11312499	27,80	11313499	39,80

*1.5 mm





HOSE CONNECTIONS WITH COLLAR (CONDENSATE SEPARATOR)

1341

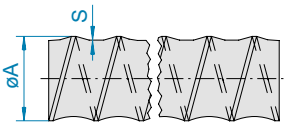
- For use with PU hose and special hose clamp
- With outlet cone and 4 drilled holes Ø d = 10 mm for the recirculation of condensate.

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø B	Ø C	F	S	L	kg	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel	
								Art.-Nr.	€	Art.-Nr.	€	Art.-Nr.	€
80	77	78	80	15	1.5	150	0.4	110814991	53,60	110824991	61,00	110834991	73,30
100	100	95	100	15	1.5	150	0.5	111014991	54,80	111024991	62,70	111034991	75,60
120	120	122	125	15	1.5	150	0.6	111214991	61,20	111224991	68,70	111234991	83,40
140	136	138	140	15	1.5	150	0.7	111414991	70,80	111424991	78,70	111434991	94,90
150	150	145	150	20	1.5	150	0.8	111514991	70,80	111524991	79,50	111534991	96,20
175	175	177	180	20	1.5	150	0.9	111714991	76,40	111724991	85,20	111734991	104,50
200	200	198	200	20	1.5	150	1.0	112014991	82,60	112024991	92,10	112034991	113,00
224	220	222	225	20	1.5	150	1.15	112214991	87,50	112224991	98,00	112234991	120,00
250	250	248	250	20	1.5	150	1.3	112514991	89,20	112524991	100,50	112534991	124,00
280	277	276	278	20	1.5	150	1.5	112814991	97,40	112824991	108,00	112834991	137,50
300	300	298	300	20	1.5	150	1.7	113014991	98,00	113024991	109,50	113034991	138,00
315	312	315	317	20	1.5	150	1.8	113114991	104,50	113124991	127,50	113134991	147,50

FOOD GRADE
EC 1935/2004 plus FDA compliant





PU HOSES

3160

- Material: Polyether polyurethane with spring steel wire
- Properties: highly abrasion resistant, oil and fuel resistant, inside largely smooth, transparent
- Temperature range: -40°C to +100°C
- Not suitable for conveying water vapour
- Suitable for short-term contact with foodstuffs without fatty substances (max. 4 hours, max. +40°C)
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Pressure resistance on request
- Bending radius: Minimum R = 1 D or larger

Lengths 1, 2, 3 and 5 m (sold by whole metres only)

DN	ØA	S	kg/m	Length 1 m		Length 2 m		Length 3 m		Length 5 m	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
50	58	0.7	0.41	10050165910	17,20	10050165920	34,50	10050165930	51,80	10050165950	86,30
60	68	0.7	0.49	10060165910	17,60	10060165920	35,40	10060165930	53,10	10060165950	88,50
80	88	0.7	0.76	10080165910	24,10	10080165920	48,30	10080165930	72,50	10080165950	121,50
100	110	0.7	0.95	10100165910	31,40	10100165920	62,80	10100165930	94,10	10100165950	157,00
120	129	0.7	1.12	10120165910	38,60	10120165920	77,30	10120165930	116,00	10120165950	193,50
140	149	0.7	1.38	10140165910	40,70	10140165920	81,60	10140165930	123,00	10140165950	204,50
150	161	0.7	1.48	10150165910	44,80	10150165920	89,70	10150165930	135,00	10150165950	224,50
175	185	0.7	1.85	10170165910	48,90	10170165920	97,90	10170165930	147,50	10170165950	245,00
200	214	0.7	2.30	10200165910	54,20	10200165920	109,00	10200165930	163,50	10200165950	271,00
224	235	0.7	2.55	10220165911	61,90	10220165921	124,50	10220165930	186,50	10220165950	309,50
250	260	0.7	3.02	10250165911	76,40	10250165920	153,50	10250165930	229,50	10250165950	382,00
280	290	0.7	3.16	10280165911	79,80	10280165921	159,50	10280165930	239,50	10280165950	399,00
300	310	0.7	3.20	10300165910	84,70	10300165920	169,50	10300165930	254,00	10300165950	423,50
315	325	0.7	3.40	10310165911	89,10	10310165920	178,50	10310165930	267,50	10310165950	445,50

Lengths 7, 9, 10 and 15 m (sold by whole metres only)

DN	ØA	S	kg/m	Length 7 m		Length 9 m		Length 10 m		Length 15 m	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
50	58	0.7	0.41	10050165970	121,50	10050165990	155,50	100501659110	173,00	100501659115	259,00
60	68	0.7	0.49	10060165970	124,50	10060165990	159,50	100601659110	177,00	100601659115	265,50
80	88	0.7	0.76	10080165970	169,50	10080165990	218,00	100801659110	242,00	100801659115	362,50
100	110	0.7	0.95	10100165970	220,50	10100165990	283,00	101001659110	314,00	101001659115	470,50
120	129	0.7	1.12	10120165970	271,00	10120165990	348,00	101201659110	386,50	101201659115	579,00
140	149	0.7	1.38	10140165970	286,00	10140165990	367,50	101401659110	408,00	101401659115	611,50
150	161	0.7	1.48	10150165970	314,50	10150165990	404,00	101501659110	448,50	101501659115	672,50
175	185	0.7	1.85	10170165970	343,50	10170165990	441,50	101701659110	489,50	101701659115	734,00
200	214	0.7	2.30	10200165970	379,00	10200165990	487,50	102001659110	541,50	102001659115	811,50
224	235	0.7	2.55	10220165970	433,50	10220165990	557,50	102201659110	618,50	102201659115	928,00
250	260	0.7	3.02	10250165970	534,50	10250165990	687,50	102501659110	763,50	102501659115	1145,00
280	290	0.7	3.16	10280165970	558,50	10280165990	718,00	102801659110	797,50	102801659115	1196,00
300	310	0.7	3.20	10300165970	592,50	10300165990	762,00	103001659110	846,50	103001659115	1270,00
315	325	0.7	3.40	10310165970	624,00	10310165990	801,50	103101659110	890,50	103101659115	1336,00

FOOD GRADE
EC 1935/2004 plus FDA compliant



SPECIAL HOSE CLAMPS

3170

- For use in conjunction with hose connections and JACOB PU hose

DN	Galvanised		Stainless steel	
	Item no.	€	Item no.	€
50	10052162	5,50	10053162	8,30
60	10062162	5,50	10063162	8,50
80	10082162	5,70	10083162	8,70
100	10102162	6,60	10103162	9,90
120	10122162	7,00	10123162	10,40
140	10142162	8,10	10143162	12,10
150	10152162	8,70	10153162	13,10
175	10172162	10,40	10173162	15,30
200	10202162	11,70	10203162	17,30
224	10222162	21,80	10223162	28,20
250	10252162	22,80	10253162	29,80
280	10282162	23,70	10283162	30,80
300	10302162	24,20	10303162	31,50
315	10312162	25,40	10313162	33,00



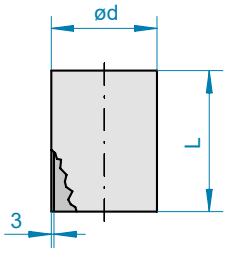
HOSE CLAMPS

3165

- For fixing flexible sleeves

DN	Stainless steel	
	Item no.	€
60	10063163	7,70
80	10083163	9,30
100	10103163	10,60
120	10123163	10,80
140	10143163	11,30
150	10153163	11,30
175	10173163	12,10
200	10203163	12,30
224	10223163	13,10
250	10253163	13,10
300	10303163	14,20





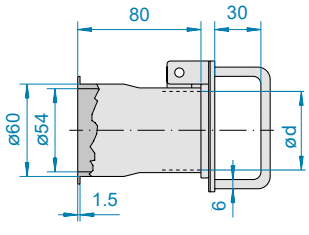
FLEXIBLE SLEEVES FOR HOSE CONNECTIONS

1345

- Material: Conductive EPDM, black
- Electrostatically conductive
- Temperature resistance: -30°C to +120°C
- Pressure resistance on request

DN	Ø d	L	kg	Conductive EPDM black	
				Item no.	€
60	60	200	0.19	100681705	45,40
80	80	200	0.21	100881705	46,40
100	100	200	0.26	101081705	47,40
120	125	200	0.32	101281705	50,50
140	140	200	0.37	101481705	53,70
150	150	200	0.40	101581705	55,90
175	175	200	0.46	101781705	60,70
200	200	200	0.53	102081705	65,10
224	225	200	0.59	102281705	69,80
250	250	200	0.66	102581705	75,20
300	300	200	0.79	103081705	84,20





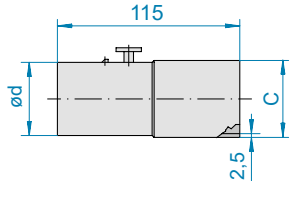
HOSE SOCKETS

3175

- With cover for hose plug
- The version with 80 mm diameter differs from the illustration

DN	Electro-galvanised		Stainless steel	
	Item no.	€	Item no.	€
60	10062860	52,90	10063860	160,50
80	10082860	122,00		





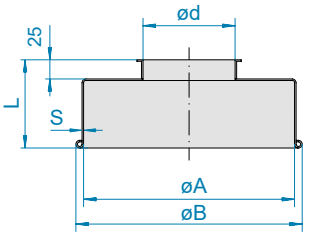
HOSE PLUGS

3180

- 45 mm and 50 mm diameters are suitable for 60 mm hose socket

DN	C	Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
45	45	100628651	31,80		
50	50	100628650	31,80	100638650	104,50
80	80	100828650	43,60		





BAGGING SPOUTS

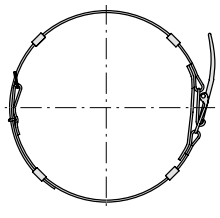
1350

- For use in conjunction with a bag clamp

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	ØA	Ø B	L	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	275	295	115	11081585	46,30	11082585	57,80	11083585	123,00
100	100	275	295	115	11101585	46,30	11102585	57,80	11103585	123,00
120	120	275	295	115	11121585	48,20	11122585	59,90	11123585	125,00
150	150	275	295	115	11151585	53,70	11152585	66,90	11153585	130,50
175	175	275	295	115	11171585	64,50	11172585	79,80	11173585	136,50
200	200	275	295	115	11201585	73,00	11202585	95,20	11203585	148,50
250	250	275	295	115	11251585	92,70	11252585	121,00	11253585	170,50
300	300	300	311	115	11301585	153,50	11302585	199,50	11303585	233,00





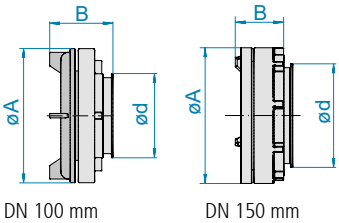
BAG CLAMPS

4010

- Made from leather for bagging spout
- Bag clamp no. 10080581 can be used for bagging spout with 80-300 mm diameter
- For attachment on site

DN min / max	Item no.	€
250-320	10080581	37,00
420-500	10080582	51,80





DN 100 mm

DN 150 mm

PNEUMATIC FILL AND VACUUM COUPLINGS

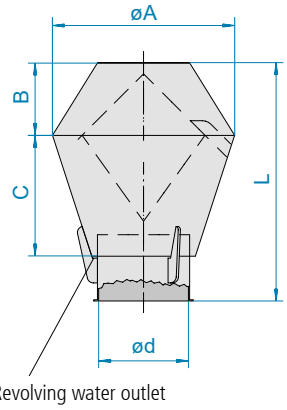
1460

- Pressure coupling aluminium
- Sealing cap plastic
- Chain galvanised steel
- With 6 mm lip for connecting to JACOB pull-ring system

DN	Ø d	ØA	B	kg	Aluminium	
					Item no.	€
100	113	182	85	1.26	10100870	40,70
150	164	215	91	3.02	10150870	187,50

FOOD GRADE
EC 1935/2004 plus FDA compliant





Revolving water outlet

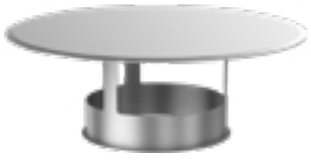
JET CAPS

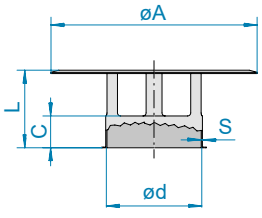
1430

- Diameters from 350 mm with welded-on flange acc. to DIN 24154-2, but without counter-flange (see chapter 11 for matching flanges)

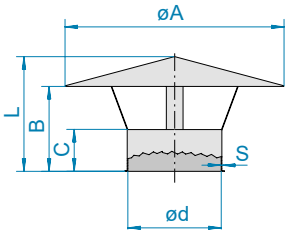
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	ØA	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
80	76	230	110	188	360	3.20	12082805	196,50	12083805	334,00
100	99	230	110	152	325	3.40	12102805	196,50	12103805	342,50
120	119	260	125	169	355	5.20	12122805	240,00	12123805	377,00
140	135	310	130	222	415	6.60	12142805	244,00	12143805	419,00
150	149	310	130	200	390	7.40	12152805	244,00	12153805	419,00
175	174	360	160	237	460	9.50	12172805	309,00	12173805	529,50
200	199	460	200	322	620	12.50	12202805	368,50	12203805	630,50
224	219	515	235	368	695	14.50	12222805	425,50	12223805	737,50
250	249	515	235	322	650	18.80	12252805	425,50	12253805	737,50
280	276	570	245	305	566	18.00	12282805	494,00	12283805	844,00
300	299	575	255	335	680	18.50	12302805	494,00	12303805	844,00
315	311	590	255	327	680	20.00	12312805	519,00	12313805	886,00
350	349	645	275	448	848	25.50	12352805	537,00	12353805	917,00
400	398	715	295	480	915	29.50	12402805	622,00	12403805	1062,00
450	448	820	320	588	1040	49.50	12452805	706,50	12453805	1245,00
500	498	870	320	588	1040	53.50	12502805	797,50	12503805	1443,00
560	558	990	372	703	1208	71.00	12562805	885,50	12563805	1650,00
630	628	1140	442	776	1434	95.00	12632805	1009,00	12633805	1877,00
710	707	1290	502	901	1627	118.00	12712805	1526,00	12713805	2530,00
800	797	1440	520	1020	1790	142.00	12802805	1755,00	12803805	3034,00





Version DN 80 to 200 mm



Version from DN 224 mm

RAIN CAPS

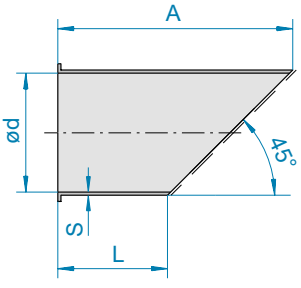
1440

- Take local building regulations into account, alternatively use a jet cap

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel		2 mm stainless steel	
							Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	180		50	92	0.60	11082850	69,30			11083850	92,80		
100	100	225		50	102	0.90	11102850	72,10			11103850	112,50		
120	120	270		50	112	1.30	11122850	75,10			11123850	132,50		
140	136	325		50	122	1.70	11142850	82,50			11143850	152,00		
150	150	325		50	127	1.80	11152850	82,50			11153850	152,00		
175	175	375		50	140	2.30	11172850	87,10			11173850	170,50		
200	200	425		50	152	2.90	11202850	93,70			11203850	191,00		
224	220	525	205	106	275	6.10	11222850	114,00			11223850	229,50		
250	250	525	205	106	275	6.40	11252850	114,00			11253850	229,50		
280	277	596	220	106	300	6.60	11282850	133,50			11283850	270,00		
300	300	625	230	156	315	6.20	11302850	133,50			11303850	270,00		
315	312	655	230	106	320	10.54	11312850	180,00			11313850	364,50		
350	350	750	300	156	395	14.70	11352850	214,00			11353850	416,50		
400	399	850	320	156	435	15.20	11402850	242,00			11403850	521,00		
450	448	950	340	150	470	22.00			12452850	264,50			12453850	662,50
500	498	1050	410	200	550	27.70			12502850	287,50			12503850	743,50
560	558	1150	435	200	590	27.00			12562850	311,00			12563850	793,50
630	628	1300	470	200	645	32.00			12632850	338,00			12633850	834,50





AIR OUTLET PIPES 45°

1450

- With bird-guard, mesh size 20 x 20 x 2 mm

Galvanised (dimensions for 1.5 mm)

DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11082880*	67,60		
100	100	300	200	1.20	11102880	67,60		
120	120	320	200	1.50	11122880	79,90		
140	136	340	200	1.90	11142880	93,70		
150	150	350	200	2.20	11152880	93,70		
175	175	375	200	2.60	11172880	103,00		
200	200	400	200	3.20	11202880	111,50		
224	220	424	200	3.70	11222880	124,50		
250	250	450	200	4.40	11252880	124,50		
280	277	480	200	5.40	11282880	147,00		
300	300	500	200	6.00	11302880	147,00		
315	312	515	200	7.20	11312880	171,00		
350	350	550	200	8.20	11352880	210,50		
400	399	600	200	10.20	11402880	252,50		
450	449	650	200	12.40	11452880	305,00		
500	499	700	200	14.90	11502880	349,50		
560	558	760	200	23.70			11562880	409,50
630	628	830	200	29.20			11632880	457,00

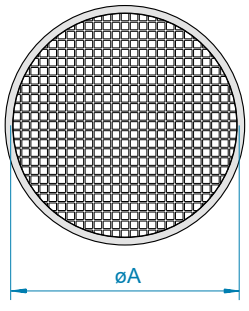
*1 mm

Stainless steel (dimensions for 1.5 mm)

DN	Ø d	A	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11083880	92,50		
100	100	300	200	1.20	11103880	92,50		
120	120	320	200	1.50	11123880	114,00		
140	136	340	200	1.90	11143880	132,00		
150	150	350	200	2.20	11153880	132,00		
175	175	375	200	2.60	11173880	144,50		
200	200	400	200	3.20	11203880	158,50		
224	220	424	200	3.70	11223880	174,50		
250	250	450	200	4.40	11253880	174,50		
280	277	480	200	5.40	11283880*	212,00		
300	300	500	200	6.00	11303880	212,00		
315	312	515	200	7.20	11313880*	239,50		
350	350	550	200	8.20	11353880	287,50		
400	399	600	200	10.20	11403880	357,00		
450	449	650	200	12.40	11453880	409,00		
500	499	700	200	14.90	11503880	473,00		
560	558	760	200	23.70			12563880	564,00
630	628	830	200	29.20			12633880	675,50

*1 mm





PERFORATED SHEET METAL

1380

- With NBR U-shaped seal for 2 mm
- 69% free space, hole size 10 x 10 mm
- NBR: Temperature resistance: -20°C to +100°C, food grade standard, in accordance with EC 1935/2004
- On request: Silicone seal, temperature resistance -60°C to +250°C
- FOOD GRADE: EC 1935/2004 plus FDA compliant

DN	ØA	kg	1 mm stainless steel	
			Item no.	€
80	92	0.01	11083716	14,70
100	114	0.05	11103716	14,70
120	134	0.05	11123716	17,20
140	150	0.05	11143716	17,80
150	164	0.10	11153716	17,80
175	189	0.10	11173716	18,90
200	214	0.11	11203716	20,60
224	238	0.11	11223716	23,90
250	264	0.11	11253716	23,90
280	294	0.13	11283716	25,60
300	314	0.14	11303716	29,10
315	326	0.15	11313716	31,90
350	364	0.15	11353716	35,40
400	414	0.15	11403716	43,20

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

DETECTABLE DESIGN
Metal-detectable



JACOB INSPECTION PIPE COMPONENTS: CLEANING AND MAINTENANCE IN NEXT TO NO TIME

INSPECTION PIPE COMPONENTS

Technical information	106
Inspection pipes	108
Cleaning pipes	109
Inspection T-pieces	110
Rubber covers	111
Plexiglass pipes	112

INSPECTION PIPE COMPONENTS

Control is better: Inspection pipe components allow you to keep an eye on the inside of your JACOB pipework system too. Special pipe components provide unhindered access and let you carry out inspections, maintenance and cleaning without having to dismantle the complete surrounding area. Like all other pipework elements, the inspection pipe components are manufactured to the same high JACOB standard of quality.

SEALS FOR INSPECTION PIPES AND RUBBER COVERS

Seals for inspection pipes





NBR	Silicone (F)	Silicone (F) (D)
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

Seals for cleaning pipes





EPDM (sponge rubber)	Foam silicone (F)	Foam silicone (F) (D)
light grey	white	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-35°C to +110°C	-60°C to +180°C	-60°C to +180°C
glued	vulcanised	vulcanised
		metal-detectable

Rubber covers for inspection T-pieces






NBR	TPE (F)	Silicone (F)	Silicone (F) (D)
dark grey	white	Silicone, translucent	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-30°C to +90°C	-30°C to +100°C	-60°C to +200°C	-60°C to +200°C
			metal-detectable

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable

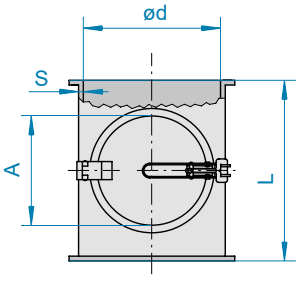




DN 80 to 315 mm



DN 350 to 400 mm



INSPECTION PIPES

2010

- Galvanised and powder-coated in standard range with NBR seal
- Stainless steel in standard range with silicone seal
- Other materials available on request
- Reinforced shock explosion proof version up to 3 bar on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11081190	41,60			11082190	49,30
100	100	115	200	1.25	11101190	41,60			11102190	49,30
120	120	115	200	1.45	11121190	43,30	13121190	66,10	11122190	51,70
140	136	115	200	1.55	11141190	45,60			11142190	55,50
150	150	115	200	1.65	11151190	45,60	13151190	69,90	11152190	55,50
175	175	115	200	1.85	11171190	47,80	13171190	70,60	11172190	57,90
200	200	115	200	2.00	11201190	49,20	13201190	73,80	11202190	59,20
224	220	115	200	2.25	11221190	51,80			11222190	64,20
250	250	115	200	2.40	11251190	51,80	13251190	76,90	11252190	64,20
280	277	115	200	2.60	11281190	54,20			11282190	66,80
300	300	115	200	2.65	11301190	54,20	13301190	78,90	11302190	66,80
315	312	115	200	2.85	11311190	62,50			11312190	76,80
350	350	115	200	3.20	11351190	69,70	13351190	92,50	11352190	85,10
400	399	115	200	3.55	11401190	74,00	13401190	100,50	11402190	92,20

Stainless steel (dimensions for 1.5 mm pipework)

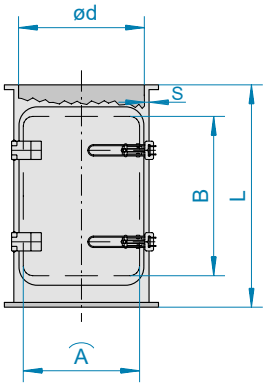
DN	Ø d	A	L	kg	1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11083190	88,60				
100	100	115	200	1.25	11103190	88,60			12103190	108,00
120	120	115	200	1.45	11123190	90,70			12123190	110,00
140	136	115	200	1.55	11143190	93,70				
150	150	115	200	1.65	11153190	93,70			12153190	115,00
175	175	115	200	1.85	11173190	97,10			12173190	119,00
200	200	115	200	2.00	11203190	102,00			12203190	126,50
224	220	115	200	2.25	11223190	109,00				
250	250	115	200	2.40	11253190	109,00			12253190	137,00
280	277	115	200	2.60			11283190	118,50		
300	300	115	200	2.65	11303190	118,50			12303190	153,50
315	312	115	200	2.85			11313190	130,50		
350	350	115	200	3.20	11353190	137,00			12353190	174,50
400	399	115	200	3.55	11403190	152,50			12403190	199,50

DETECTABLE DESIGN **AVAILABLE IN THE DETECTABLE DESIGN LINE.**

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable





CLEANING PIPES

2020

- Galvanised and powder-coated in standard range with EPDM (sponge rubber) seal
- Stainless steel with foam silicone seal
- Other materials available on request
- Not recommended for extracting exhaust air containing condensates

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€
200	200	224	350	486	4.70	11201195	130,50			11202195	158,50
224	220	224	350	486	5.20	11221195	140,00			11222195	171,50
250	250	224	350	486	5.85	11251195	140,00			11252195	171,50
280	277	224	350	486	6.60	11281195	149,00			11282195	180,00
300	300	350	350	486	7.00	11301195	149,00			11302195	180,00
315	312	350	350	486	7.35	11311195	156,00			11312195	190,00
350	350	350	350	486	8.40	11351195	157,00			11352195	193,00
400	399	350	350	486	9.10	11401195	167,00			11402195	205,50
450	448	500	350	486	11.60			12451195	178,00	12452195*	228,50
500	498	500	350	486	12.80			12501195	192,00	12502195*	245,50
560	558	500	350	486	14.30			12561195	206,00	12562195*	272,00
630	628	500	350	486	16.00			12631195	222,50	12632195*	289,50

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm stainless steel (F)		2 mm stainless steel (F)	
						Item no.	€	Item no.	€
200	200	224	350	486	4.70	11203195	244,00		
224	220	224	350	486	5.20	11223195	262,00		
250	250	224	350	486	5.85	11253195	262,00		
280	277	224	350	486	6.60	11283195	277,50		
300	300	350	350	486	7.00	11303195	277,50		
315	312	350	350	486	7.35	11313195	287,00		
350	350	350	350	486	8.40	11353195	295,00		
400	399	350	350	486	9.10	11403195	310,00		
450	448	500	350	486	11.60			12453195	331,50
500	498	500	350	486	12.80			12503195	355,50
560	558	500	350	486	14.30			12563195	381,00
630	628	500	350	486	16.00			12633195	412,50

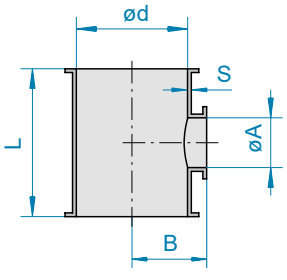
DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable





INSPECTION T-PIECES

1040

- For use in conjunction with a rubber cover
- Alternatively: Combined with a blank off cover and JACOB pull-ring
- Refer to dimension A to select the right rubber cover or blank off cover

Powder-coated (dimensions for 1.5 mm pipework)

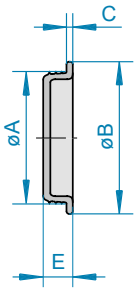
DN	Ø d	ØA	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11101200	19,60				
120	120	100	89	165	0.80	11121200	20,60			13121200	35,10
150	150	120	100	198	1.20	11151200	24,60			13151200	40,10
175	175	150	114	225	1.55	11171200	28,90	12171200	35,10	13171200	43,10
200	200	150	125	225	1.80	11201200	30,90	12201200	39,30	13201200	54,90
250	250	150	150	225	2.20	11251200	40,40	12251200	51,80	13251200	67,40
300	300	150	177	225	2.55	11301200	48,30	12301200	54,60	13301200	75,80

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	ØA	B	L	kg	1.5 mm galvanised		1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11102200	22,00	11103200	47,80	12103200	56,10
120	120	100	89	165	0.80	11122200	23,60	11123200	50,10	12123200	60,10
150	150	120	100	198	1.20	11152200	29,60	11153200	58,80	12153200	77,00
175	175	150	114	225	1.55	11172200	32,00	11173200	77,90	12173200	100,50
200	200	150	125	225	1.80	11202200	38,50	11203200	80,60	12203200	108,00
250	250	150	150	225	2.20	11252200	49,70	11253200	89,60	12253200	114,00
300	300	150	177	225	2.55	11302200	58,40	11303200	94,60	12303200	138,00

FOOD GRADE
EC 1935/2004 plus FDA compliant





RUBBER COVERS

3030

- For use in conjunction with inspection T-pieces or JACOB pipework in the appropriate diameter
- To select the right rubber cover, please refer to dimension A of the inspection T-piece
- Refer to the beginning of the chapter for more information on materials

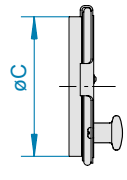
NBR and TPE

DN	ØA	ØB	C	E	kg	NBR (-30°C to +90°C)		TPE (-30°C to +100°C) (F)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10			1008520309	4,90
100	101	121	5	21	0.15	10106203	6,50	1010520309	5,10
120	121	141	5	22	0.20	10126203	7,30	1012520309	6,40
150	151	171	6	24	0.35	10156203	9,90	1015520309	6,60
175	176	197	6	29	0.45	10176203	14,80	1017520309	9,90
200	201	221	6	26	0.60	10206203	20,10	1020520309	13,00
250	251	271	7	30	0.90	10256203	28,00	1025520309	17,30
300	301	321	7	32	1.35	10306203	36,30	1030520309	24,00

Silicone

DN	ØA	ØB	C	E	kg	Silicone (-60°C to +200°C) (F)		Silicone (blue) (-60°C to +200°C) (F) (D)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10	10087203	21,80	1008720301	31,70
100	102	121	5	21	0.15	10107203	22,80	1010720301	32,80
120	123	141	5	22	0.20	10127203	25,20	1012720301	35,20
150	151	171	6	24	0.35	10157203	32,90	1015720301	43,80
175	176	197	6	25	0.45	10177203	42,40	1017720301	55,20
200	202	221	6	26	0.60	10207203	54,60	1020720301	69,30
250	252	271	7	30	0.90	10257203	84,20	1025720301	110,00
300	302	321	7	32	1.35	10307203	87,30	1030720301	115,00





ADDITIONAL RUBBER COVER LOCKS

3040

- For use in conjunction with inspection T-pieces and rubber covers

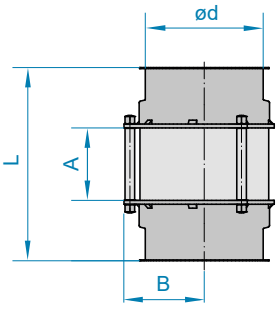
Electro-galvanised

DN	ØC	kg	2 mm electro-galvanised	Item no.	€
100	100	0.30	for inspection T-pieces DN 100 and 120 mm	11102210	21,60
120	120	0.35	for inspection T-pieces DN 150 mm	11122210	22,20
150	150	0.55	for inspection T-pieces DN 175 to 300 mm	11152210	27,60

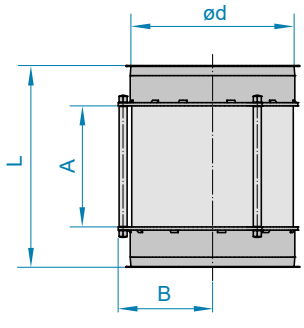
(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable





DN 80 to 150 mm



DN 175 to 250 mm

PLEXIGLASS PIPES WITH SOCKETS AND ROD SPACERS

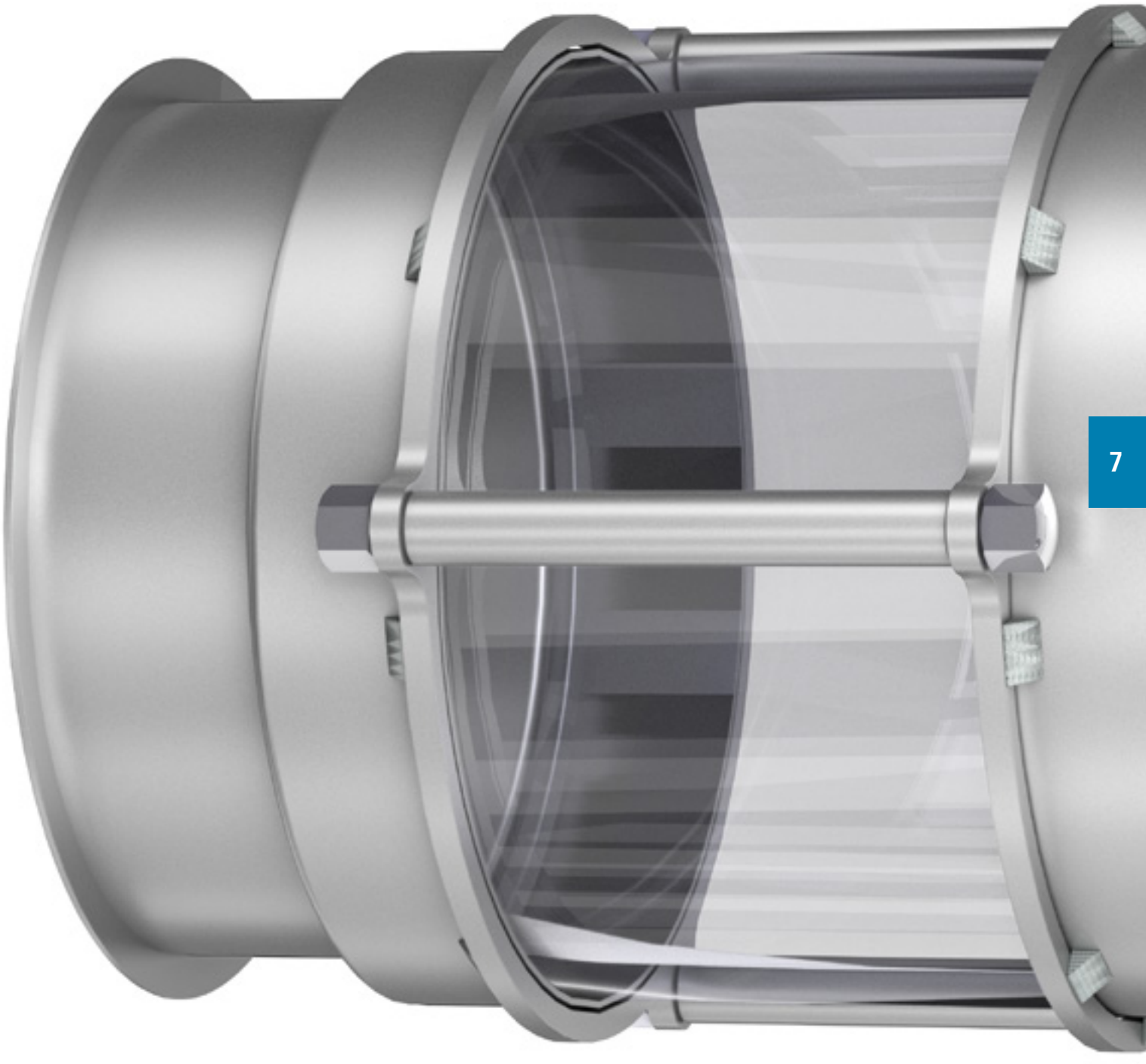
1390

- Including sockets with a lip
- NEW: with rod spacers for a stronger construction
- Temperature-resistant to 70°C
- Plexiglass pipes must not be installed in load bearing situations
- DN 60 to 150 mm and DN 200 mm made of seamless plexiglass
- DN 175 and 250 mm with glued plexiglass, foodstuff compliant in accordance with FDA

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	B	L	kg	1 mm powder-coated		1 mm electro-galvanised		1 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€
80	78	75	62	200	0.80	11081725	57,80	11082725	67,00	11083725	76,60
100	100	75	72	200	0.90	11101725	57,80	11102725	67,00	11103725	76,60
120	120	75	83	200	1.10	11121725	62,30	11122725	70,60	11123725	82,50
150	150	75	97	200	1.30	11151725	64,20	11152725	73,50	11153725	86,40
175	175	100	104	200	1.50	11171725	90,50	11172725	100,50	11173725	110,00
200	200	150	117	250	1.90	11201725	92,60	11202725	102,00	11203725	116,50
250	250	150	142	250	2.30	11251725	128,00	11252725	136,50	11253725	155,50

FOOD GRADE
EC 1935/2004 plus FDA compliant





AIR FLOW AND PRODUCT TRANSPORT TO SUIT YOUR SYSTEM: PERFECTLY REGULATED AT ALL TIMES

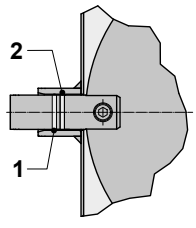
CONTROL VALVES

Technical information	116
Throttle valves	118
Throttle valves with seal	123
Adjustable blank-off covers and air bleeds	128
Non-return valves	129
Air and pipe slide gates	129
Silo / Redler outlet slide gates	133

THROTTLE VALVES

JACOB throttle valves and regulators precisely control the air flow and product transport and can be flexibly incorporated in our pull-ring system thanks to their lipped ends.

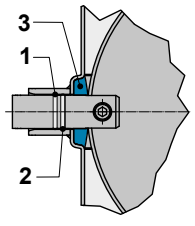
We have a wide portfolio of standard products – from manually adjustable throttle valves and pneumatic rotary actuators to electrically operated adjustable actuator. Other actuators and larger diameters are available on request. We reserve the right to alter design specifications.



Cross-section of throttle valve
without seal, valve open
1 EPDM
2 Viton

THROTTLE VALVES WITHOUT SEAL WHEN CLOSED

- Diameters of 60 – 400 mm
- Hand-operated, made of powder-coated, galvanised and stainless steel
- Pneumatically operated with a rotary actuator, and electrically operated with an electric motor, in powder-coated and stainless steel
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to discharge charges on the inner flap to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant for contact with food in accordance with EC 1935/2004 plus FDA
- Versions with a diameter over 350 mm are alternatively available with loose flanges. Refer to chapter 11 for details



Cross-section of throttle valve
with seal, valve open
1 EPDM
2 Viton
3 Silicone rubber

THROTTLE VALVES WITH SEAL WHEN CLOSED

- Diameters of 80 – 400 mm
- Hand-operated, pneumatically operated with a rotary actuator, and electrically operated with an electric motor, powder-coated and stainless steel
- Up to a diameter of 200 mm, the valve is tested as shock explosion proof externally up to 3 bar over-pressure
- Electric shock explosion proof in a closed condition in conjunction with a pneumatic rotary actuator. Compressed air connection with 5 bar minimum operating pressure
- The standard quality with an inner valve seal is made of silicone rubber
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to discharge charges on the inner flap to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant with EC 1935/2004 plus FDA for contact with food, including all parts in contact with foodstuffs and any sealing materials and glues
- Please refer to chapter 11 for information on special throttle valve versions with a seal in diameters of over 400 mm

Throttle valves with and without a seal: Shafts are sealed with O-ring seals
Throttle valves with a seal: Inner valve seal made of silicone rubber

O-ring EPDM	O-ring Viton	Valve seal made of silicone rubber
black	green	opaque
not in contact with the product	not in contact with the product	FOOD GRADE: EC 1935/2004 plus FDA compliant
-40°C to +150°C	-20°C to +200°C	-60°C to +180°C
conductive		vulcanised

FOOD GRADE
EC 1935/2004 plus FDA compliant

Special versions available – prices on request

- Housing available in various types of stainless steel, such as 1.4571
- Versions for higher temperatures on request
- Actuation possible 100 mm away from the housing for higher temperature protection
- Actuators, solenoid valves and limit switches according to customers' specifications
- Larger diameters available on request
- Versions with loose flanges or welded flanges, e.g. in accordance with DIN 24154-2
- Special colours
- Other actuators on request



ACTUATORS FOR THROTTLE VALVES

Pneumatic AIR TORQUE rotary actuators (IP 65)

Required air pressure 5 bar. Switch-over time for 90° < 3 seconds. On the rotary actuator a 5/2-way spring-return valve (1 coil) with manual air switch, with an angle push-in fitting for an 8 x 1 PU hose. Standard version closed when there is no power supply.

2 potential-free micro switches 4 to 250 V with spring-free gold contacts for SPS controls and suitable for amperages up to 5 A, solenoid and limit switches wired into limit switch. Solenoid valve and limit switch wired on terminals in a limit switch box.



Electrically operated BELIMO valve actuators (IP 42)

Overload proof, in standard version without limit switches. The valve remains under tension in the respective end position. Consumption approx. 4 watt. Switch-over time for 90° approx. 150 seconds. Valves larger than DN 300 mm without a seal and larger than DN 200 mm with a seal are not fitted with a BELIMO actuator in standard quality. Larger diameters available on request. Flexibly adjustable limit switches for switching off and remote controlling, or as a continuously adjustable actuator, are available at additional cost.



Electrically operated AIR TORQUE adjustable drives (IP 65)

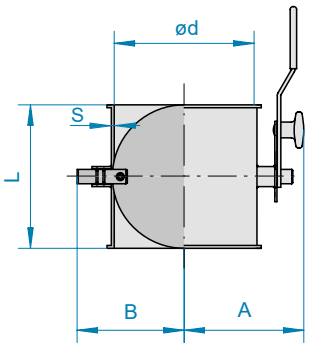
1-phase, with emergency hand operation. Switch-over time for 90° for throttle valves without a seal approx. 11-12 seconds, throttle valves with a seal approx. 12-23 seconds, 2 limit switches integrated in the actuator. Prices for additional limit switch, potentiometer or position controller on request.



ATEX

Depending on the actuator, ATEX versions in category 2/3 G/D for the surroundings of the valves are available at additional cost. Inside the valve housing, Zone 0 or 20 is admitted for versions without an inner valve seal. For versions with a seal, ATEX versions up to and including DN 300 mm are also admitted inside Zone 0 or 20, but from DN 300 mm, only Zone 20 is admitted. If Zone 0 is required, conductive EPDM seal without food quality are necessary. Dusts and gases with a minimum ignition energy < 3 mJ are not admissible. All throttle valves in ATEX version are supplied with earthing lugs as standard.





THROTTLE VALVES, HAND-OPERATED

2070

- Larger diameters available on request
- Refer to chapter 11 for version with loose flange
- For manual continuous flow regulation

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11061566	48,50		
80	77	90	74	100	0.90	11081566	50,50	11082566	67,40
100	100	101	85	100	1.10	11101566	53,40	11102566	69,30
120	120	124	103	120	1.90	11121560	64,10	11122560	80,30
140	136	132	111	140	2.20	11141560	70,90	11142560	86,30
150	150	139	118	150	2.40	11151560	70,90	11152560	86,30
175	175	152	130	175	3.00	11171560	86,60	11172560	95,50
200	200	164	143	200	3.50	11201560	94,00	11202560	104,00
224	220	174	153	200	3.90	11221560	121,50	11222560	136,00
250	250	189	168	200	4.50	11251560	121,50	11252560	136,00
280	277	203	181	200	5.00	11281560	131,00	11282560	149,50
300	300	214	193	200	5.50	11301560	133,50	11302560	152,00
315	312	220	199	200	6.50	11311560*	146,00	11312560*	167,50
350	350	239	218	200	7.50	11351560*	152,00	11352560*	173,00
400	399	264	242	200	9.00	11401560*	168,00	11402560*	192,00

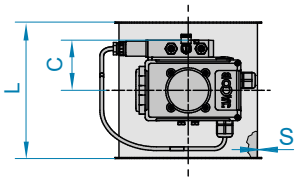
*2 mm

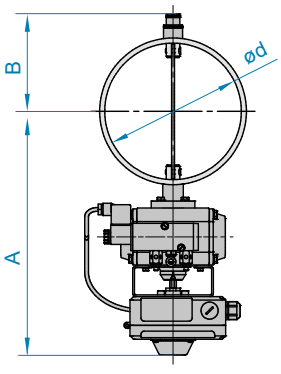
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11063566	97,70		
80	77	90	74	100	0.90	11083566	123,50		
100	100	101	85	100	1.10	11103566	123,50	12103566	131,50
120	120	124	103	120	1.90	11123560	133,50	12123560	143,00
140	136	132	111	140	2.20	11143560	154,00		
150	150	139	118	150	2.40	11153560	154,00	12153560	163,00
175	175	152	130	175	3.00	11173560	174,50	12173560	189,50
200	200	164	143	200	3.50	11203560	212,00	12203560	222,00
224	220	174	153	200	3.90	11223560	256,00		
250	250	189	168	200	4.50	11253560	256,00	12253560	271,50
280	277	203	181	200	5.00			12283560	307,00
300	300	214	193	200	5.50	11303560	290,50	12303560	307,00
315	312	220	199	200	6.50			12313560	312,00
350	350	239	218	200	7.50			11353560	312,00
400	399	264	242	200	9.00			11403560	364,50

FOOD GRADE
EC 1935/2004 plus FDA compliant







THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2095

- 5/2-way solenoid valve (1-coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC										
60	57	280	63	79	60	3.30	5662060344	550,00	6662060344	650,50
80	77	303	87	79	100	3.60	5662080344	560,50	6662080344	678,00
100	100	315	99	79	100	3.90	5662100344	560,50	6662100344	678,50
120	120	325	109	79	120	4.30	5852120344	564,00	6852120344	686,50
140	136	333	117	79	140	4.70	5852140344	571,00	6852140344	694,50
150	150	340	124	79	150	5.00	5852150344	571,00	6852150344	694,50
175	175	352	136	84	175	6.60	5852170344	591,00	6852170344	736,50
200	200	364	149	84	200	7.40	5852200344	604,00	6852200344	759,00
224	220	374	159	84	200	7.90	5852220344	633,00	6852220344	822,50
250	250	388	174	84	200	8.60	5852250344	633,00	6852250344	822,50
280	277	403	188	84	200	9.10	5852280344	646,50	6852280344	853,00
300	300	414	199	84	200	9.80	5852300344	649,00	6852300344	853,00
315	312	422	205	84	200	10.20	5852310344*	661,50	6852310344*	858,00
350	350	460	224	84	200	10.90	5852350344*	678,50	6852350344*	900,00
400	399	485	248	84	200	12.30	5852400344*	711,50	6852400344*	948,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC										
60	57	280	63	79	60	3.30	5662060345	550,00	6662060345	650,50
80	77	303	87	79	100	3.60	5662080345	560,50	6662080345	678,00
100	100	315	99	79	100	3.90	5662100345	560,50	6662100345	678,50
120	120	325	109	79	120	4.30	5852120345	564,00	6852120345	686,50
140	136	333	117	79	140	4.70	5852140345	571,00	6852140345	694,50
150	150	340	124	79	150	5.00	5852150345	571,00	6852150345	694,50
175	175	352	136	84	175	6.60	5852170345	591,00	6852170345	736,50
200	200	364	149	84	200	7.40	5852200345	604,00	6852200345	759,00
224	220	374	159	84	200	7.90	5852220345	633,00	6852220345	822,50
250	250	388	174	84	200	8.60	5852250345	633,00	6852250345	822,50
280	277	403	188	84	200	9.10	5852280345	646,50	6852280345	853,00
300	300	414	199	84	200	9.80	5852300345	649,00	6852300345	853,00
315	312	422	205	84	200	10.20	5852310345*	661,50	6852310345*	858,00
350	350	460	224	84	200	10.90	5852350345*	678,50	6852350345*	900,00
400	399	485	248	84	200	12.30	5852400345*	711,50	6852400345*	948,00

*2 mm

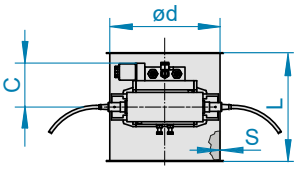
FOOD GRADE
EC 1935/2004 plus FDA compliant

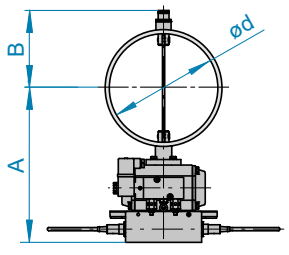


THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2095

- Switch-over time for 90°: < 3 seconds
- Designed inside with equipment category 1 G/D, outside with equipment category 3 D
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request





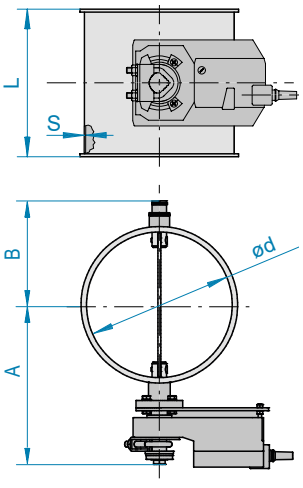
Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version										
60	57	280	63	79	60	3.30	56620603455	684,50	66620603455	785,50
80	77	303	87	79	100	3.60	56620803455	694,50	66620803455	812,50
100	100	315	99	79	100	3.90	56621003455	694,50	66621003455	813,00
120	120	325	109	79	120	4.30	58521203455	698,50	68521203455	821,00
140	136	333	117	79	140	4.70	58521403455	705,50	68521403455	829,50
150	150	340	124	79	150	5.00	58521503455	705,50	68521503455	829,50
175	175	352	136	84	175	6.60	58521703455	725,50	68521703455	871,50
200	200	364	149	84	200	7.40	58522003455	738,00	68522003455	893,50
224	220	374	159	84	200	7.90	58522203455	767,50	68522203455	957,00
250	250	388	174	84	200	8.60	58522503455	767,50	68522503455	957,00
280	277	403	188	84	200	9.10	58522803455	781,00	68522803455	988,00
300	300	414	199	84	200	9.80	58523003455	784,00	68523003455	988,00
315	312	422	205	84	200	10.20	58523103455*	796,00	68523103455*	992,50
350	350	460	224	84	200	10.90	58523503455*	813,00	68523503455*	1034,00
400	399	485	248	84	200	12.30	58524003455*	846,50	68524003455*	1084,00

*2 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant





THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

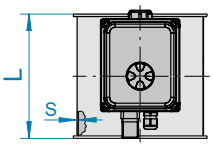
- Switch-over time for 90°: approx. 150 seconds
- Limit switch indication at additional cost
- With external control voltage 0 to 10 V DC on request

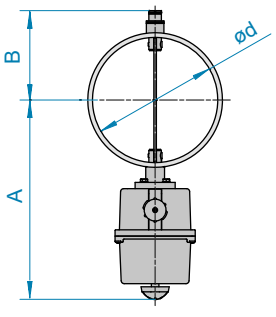
Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
						Item no.	€	Item no.	€
Valve actuator, make BELIMO, voltage 230 V AC									
60	57	145	63	60	3.60	5662060551	409,00	6662060551	529,00
80	77	166	87	100	3.90	5662080551	413,00	6662080551	553,50
100	100	179	99	100	4.20	5662100551	413,00	6662100551	554,50
120	120	189	109	120	4.60	5852120551	417,00	6852120551	561,50
140	136	197	117	140	5.00	5852140551	426,50	6852140551	574,50
150	150	204	124	150	5.20	5852150551	426,50	6852150551	574,50
175	175	216	136	175	5.60	5852170551	470,50	6852170551	648,50
200	200	229	149	200	6.40	5852200551	484,50	6852200551	671,00
224	220	239	159	200	6.80	5852220551	535,00	6852220551	724,50
250	250	254	174	200	7.40	5852250551	535,00	6852250551	724,50
280	277	403	188	200	8.10	5852280551	554,50	6852280551	774,00
300	300	277	199	200	8.70	5852300551	556,50	6852300551	774,00
Valve actuator, make BELIMO, voltage 24 V DC/AC									
60	57	145	63	60	3.60	5662060552	409,00	6662060552	529,00
80	77	166	87	100	3.90	5662080552	413,00	6662080552	553,50
100	100	179	99	100	4.20	5662100552	413,00	6662100552	554,50
120	120	189	109	120	4.60	5852120552	417,00	6852120552	561,50
140	136	197	117	140	5.00	5852140552	426,50	6852140552	574,50
150	150	204	124	150	5.20	5852150552	426,50	6852150552	574,50
175	175	216	136	175	5.60	5852170552	470,50	6852170552	648,50
200	200	229	149	200	6.40	5852200552	484,50	6852200552	671,00
224	220	239	159	200	6.80	5852220552	535,00	6852220552	724,50
250	250	254	174	200	7.40	5852250552	535,00	6852250552	724,50
280	277	403	188	200	8.10	5852280552	554,50	6852280552	774,00
300	300	277	199	200	8.70	5852300552	556,50	6852300552	774,00

FOOD GRADE
EC 1935/2004 plus FDA compliant







THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE DRIVE

2107

- Adjustable drive, make AIR TORQUE
- Including 2 limit switches
- Switch-over time for 90°: approx. 11-12 seconds
- ATEX version on request
- Larger diameters available on request

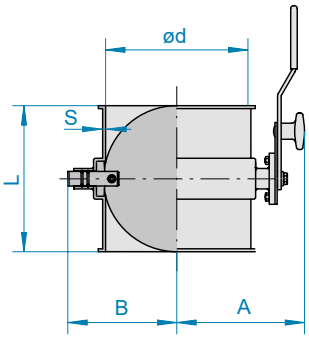
Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
						Item no.	€	Item no.	€
Adjustable actuator, make AIR TORQUE, voltage 230 V AC									
60	57	240	63	60	2.80	5662060773	591,00	6662060773	692,00
80	77	250	75	100	3.00	5662080773	592,50	6662080773	717,00
100	99	262	85	100	3.20	5662100773	592,50	6662100773	717,00
120	119	277	103	120	3.70	5852120773	596,00	6852120773	726,00
140	135	285	111	140	4.00	5852140773	605,00	6852140773	734,00
150	149	293	118	150	4.20	5852150773	605,00	6852150773	734,00
175	174	305	131	175	4.70	5852170773	626,00	6852170773	779,00
200	199	317	143	200	5.30	5852200773	639,50	6852200773	802,50
224	219	327	153	200	5.70	5852220773	671,00	6852220773	869,50
250	249	342	168	200	6.30	5852250773	671,00	6852250773	869,50
280	276	357	182	200	6.80	5852280773	684,50	6852280773	903,00
300	299	368	193	200	7.30	5852300773	687,00	6852300773	903,00
315	311	374	199	200	8.40	5852310773*	699,50	6852310773*	907,00
350	349	393	218	200	9.40	5852350773*	705,50	6852350773*	925,00
400	398	418	242	200	10.80	5852400773*	721,00	6852400773*	976,50
Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC									
60	57	240	63	60	2.80	5662060774	591,00	6662060774	692,00
80	77	250	75	100	3.00	5662080774	592,50	6662080774	717,00
100	99	262	85	100	3.20	5662100774	592,50	6662100774	717,00
120	119	277	103	120	3.70	5852120774	596,00	6852120774	726,00
140	135	285	111	140	4.00	5852140774	605,00	6852140774	734,00
150	149	293	118	150	4.20	5852150774	605,00	6852150774	734,00
175	174	305	131	175	4.70	5852170774	626,00	6852170774	779,00
200	199	317	143	200	5.30	5852200774	639,50	6852200774	802,50
224	219	327	153	200	5.70	5852220774	671,00	6852220774	869,50
250	249	342	168	200	6.30	5852250774	671,00	6852250774	869,50
280	276	357	182	200	6.80	5852280774	684,50	6852280774	903,00
300	299	368	193	200	7.30	5852300774	687,00	6852300774	903,00
315	311	374	199	200	8.40	5852310774*	699,50	6852310774*	907,00
350	349	393	218	200	9.40	5852350774*	705,50	6852350774*	925,00
400	398	418	242	200	10.80	5852400774*	721,00	6852400774*	976,50

*2 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant





THROTTLE VALVES, HAND-OPERATED

2080

- Silicone rubber seal
- Temperature resistance: -60°C to +180°C
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€
80	77	121	83	100	1.80	12081577*	113,00	12083577	203,00
100	99	133	93	100	2.20	12101577	113,00	12103577	203,00
120	119	143	103	120	2.60	12121577	117,00	12123577	216,00
140	135	151	111	140	2.90	12141577	127,50	12143577	236,00
150	149	158	116	150	3.20	12151577	127,50	12153577	236,00
175	174	170	131	175	3.90	12171577	148,50	12173577	272,50
200	199	183	143	200	4.60	12201577	164,50	12203577	297,00
224	219	193	153	200	5.10	12221577	205,00	12223577	372,50
250	249	208	168	200	5.80	12251577	205,00	12253577	372,50
280	276	222	182	200	6.40	12281577	219,00	12283577	399,00
300	299	233	193	200	7.22	12301577	224,50	12303577	408,50
315	311	272	220	200	10.50	12311577	291,50	12313577	449,00
350	349	291	239	200	12.00	12351577	333,00	12353577	485,00
400	398	316	264	200	14.20	12401577	373,50	12403577	580,50

*1.5 mm

DETECTABLE DESIGN

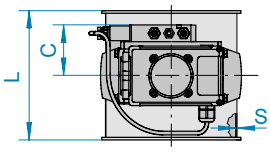
AVAILABLE IN THE DETECTABLE DESIGN LINE.

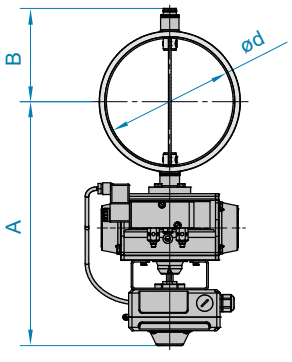
8

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2090

- 5/2-way solenoid valve (1 coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Silicone rubber seal
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

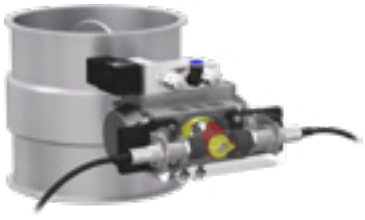
DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel	
							Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC										
80	76	303	87	79	100	3.60	5772080344	609,00	6772080344	735,50
100	99	315	99	79	100	3.90	5772100344	609,00	6772100344	735,50
120	119	325	109	79	120	4.30	5772120344	613,50	6772120344	742,00
140	135	333	117	79	140	4.70	5772140344	622,00	6772140344	754,00
150	149	340	124	79	150	5.00	5772150344	622,00	6772150344	754,00
175	174	352	136	84	175	6.60	5772170344	642,00	6772170344	800,00
200	199	385	149	84	200	7.40	5772200344	656,00	6772200344	822,50
224	219	395	159	84	200	7.90	5772220344	688,00	6772220344	889,50
250	249	410	174	84	200	8.60	5772250344	688,00	6772250344	889,50
280	276	413	188	84	200	9.60	5772280344	700,50	6772280344	910,50
300	299	439	199	84	200	9.80	5772300344	705,50	6772300344	919,50
315	311	455	220	84	200	14.10	5772310344	771,50	6772310344	961,00
350	349	474	239	84	200	18.20	5772350344	812,00	6772350344	996,50
400	399	499	264	84	200	20.70	5772400344	851,50	6772400344	1093,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC										
80	76	303	87	79	100	3.60	5772080345	609,00	6772080345	735,50
100	99	315	99	79	100	3.90	5772100345	609,00	6772100345	735,50
120	119	325	109	79	120	4.30	5772120345	613,50	6772120345	742,00
140	135	333	117	79	140	4.70	5772140345	622,00	6772140345	754,00
150	149	340	124	79	150	5.00	5772150345	622,00	6772150345	754,00
175	174	352	136	84	175	6.60	5772170345	642,00	6772170345	800,00
200	199	385	149	84	200	7.40	5772200345	656,00	6772200345	822,50
224	219	395	159	84	200	7.90	5772220345	688,00	6772220345	889,50
250	249	410	174	84	200	8.60	5772250345	688,00	6772250345	889,50
280	276	413	188	84	200	9.60	5772280345	700,50	6772280345	910,50
300	299	439	199	84	200	9.80	5772300345	705,50	6772300345	919,50
315	311	455	220	84	200	14.10	5772310345	771,50	6772310345	961,00
350	349	474	239	84	200	18.20	5772350345	812,00	6772350345	996,50
400	399	499	264	84	200	20.70	5772400345	851,50	6772400345	1093,00

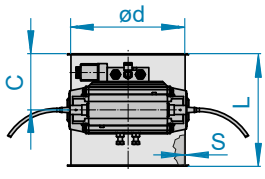
DETECTABLE DESIGN AVAILABLE IN THE DETECTABLE DESIGN LINE.

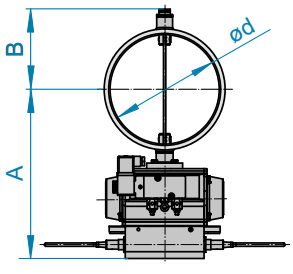
FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

DN 80 to 200 mm shock explosion proof externally up to 3 bar, and electric shock explosion proof in a closed condition. Compressed air connection with 5 bar minimum operating pressure







THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2090

- Switch-over time for 90°: < 3 seconds
- Silicone rubber seal
- Designed inside with equipment category 1 G/D, and outside with equipment category 3 D
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel	
							Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version										
80	76	303	87	79	100	3.60	57720803455	744,00	67720803455	870,50
100	99	315	99	79	100	3.90	57721003455	744,00	67721003455	870,50
120	119	325	109	79	120	4.30	57721203455	748,00	67721203455	876,00
140	135	333	117	79	140	4.70	57721403455	756,00	67721403455	889,00
150	149	340	124	79	150	5.00	57721503455	756,00	67721503455	889,00
175	174	352	136	84	175	6.60	57721703455	776,50	67721703455	934,50
200	199	385	149	84	200	7.40	57722003455	790,50	67722003455	957,00
224	219	395	159	84	200	7.90	57722203455	822,50	67722203455	1024,00
250	249	410	174	84	200	8.60	57722503455	822,50	67722503455	1024,00
280	276	413	188	84	200	9.60	57722803455	834,50	67722803455	1045,00
300	299	439	199	84	200	9.80	57723003455	840,50	67723003455	1055,00
315	311	455	220	84	200	14.10	57723103455	906,00	67723103455	1097,00
350	349	474	239	84	200	18.20	57723503455	947,00	67723503455	1132,00
400	399	499	264	84	200	20.70	57724003455	986,50	67724003455	1227,00

DETECTABLE DESIGN

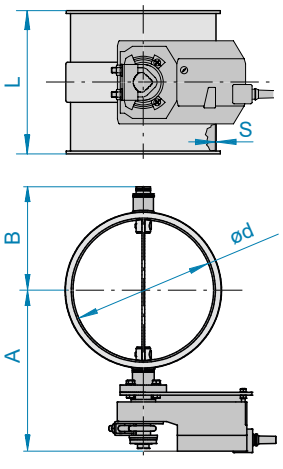
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

DN 80 to 200 mm shock explosion proof externally up to 3 bar, and electric shock explosion proof in a closed condition. Compressed air connection with 5 bar minimum operating pressure





THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2100

- Switch-over time for 90°: approx. 150 seconds
- Limit switch indication at additional cost
- With external control voltage 0 to 10 V DC on request
- Silicone rubber seal

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€
Valve actuator, make BELIMO, voltage 230 V AC									
80	76	166	86	100	3.90	5772080551	459,50	6772080551	576,00
100	99	179	98	100	4.20	5772100551	459,50	6772100551	606,00
120	119	189	108	120	4.60	5772120551	464,50	6772120551	611,50
140	135	197	116	140	5.00	5772140551	473,00	6772140551	625,00
150	149	204	123	150	5.20	5772150551	473,00	6772150551	625,00
175	174	216	135	175	5.80	5772170551	493,50	6772170551	661,00
200	199	229	148	200	6.60	5772200551	509,00	6772200551	686,00
Valve actuator, make BELIMO, voltage 24 V DC/AC									
80	76	166	86	100	3.90	5772080552	459,50	6772080552	606,00
100	99	179	98	100	4.20	5772100552	459,50	6772100552	606,00
120	119	189	108	120	4.60	5772120552	464,50	6772120552	611,50
140	135	197	116	140	5.00	5772140552	473,00	6772140552	625,00
150	149	204	123	150	5.20	5772150552	473,00	6772150552	625,00
175	174	216	135	175	5.80	5772170552	493,50	6772170552	661,00
200	199	229	148	200	6.60	5772200552	509,00	6772200552	686,00

DETECTABLE DESIGN **AVAILABLE IN THE DETECTABLE DESIGN LINE.**

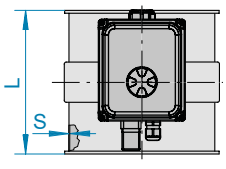
FOOD GRADE
EC 1935/2004 plus FDA compliant

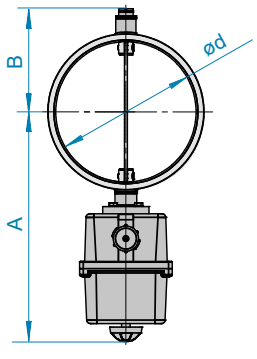
DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

- Including 2 limit switches
- Switch-over time for 90°: approx. 12-22 seconds
- ATEX version on request
- Silicone rubber seal
- Larger diameters available on request





Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€
Adjustable actuator, make AIR TORQUE, voltage 230 V AC									
80	77	256	82	100	3.40	5772080773	644,50	6772080773	778,00
100	99	267	93	100	3.70	5772100773	644,50	6772100773	778,00
120	119	277	103	120	4.10	5772120773	649,50	6772120773	785,50
140	135	285	111	140	4.50	5772140773	657,50	6772140773	797,00
150	149	293	118	150	4.80	5772150773	657,50	6772150773	797,00
175	174	305	131	175	5.40	5772170773	679,50	6772170773	846,50
200	199	317	143	200	6.20	5772200773	694,50	6772200773	869,50
224	219	327	153	200	6.60	5772220773	786,50	6772220773	999,00
250	249	342	168	200	7.30	5772250773	786,50	6772250773	999,00
280	276	356	182	200	8.00	5772280773	800,00	6772280773	1033,00
300	299	368	193	200	8.60	5772300773	805,00	6772300773	1043,00
315	311	386	220	200	11.60	5772310773	871,00	6772310773	1084,00
350	349	405	239	200	13.00	5772350773	911,50	6772350773	1120,00
400	398	430	264	200	15.00	5772400773	951,00	6772400773	1215,00
Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC									
80	77	256	82	100	3.40	5772080774	644,50	6772080774	778,00
100	99	267	93	100	3.70	5772100774	644,50	6772100774	778,00
120	119	277	103	120	4.10	5772120774	649,50	6772120774	785,50
140	135	285	111	140	4.50	5772140774	657,50	6772140774	797,00
150	149	293	118	150	4.80	5772150774	657,50	6772150774	797,00
175	174	305	131	175	5.40	5772170774	679,50	6772170774	846,50
200	199	317	143	200	6.20	5772200774	694,50	6772200774	869,50
224	219	327	153	200	6.60	5772220774	786,50	6772220774	999,00
250	249	342	168	200	7.30	5772250774	786,50	6772250774	999,00
280	276	356	182	200	8.00	5772280774	800,00	6772280774	1033,00
300	299	368	193	200	8.60	5772300774	805,00	6772300774	1043,00
315	311	386	220	200	11.60	5772310774	871,00	6772310774	1084,00
350	349	405	239	200	13.00	5772350774	911,50	6772350774	1120,00
400	398	430	264	200	15.00	5772400774	951,00	6772400774	1215,00

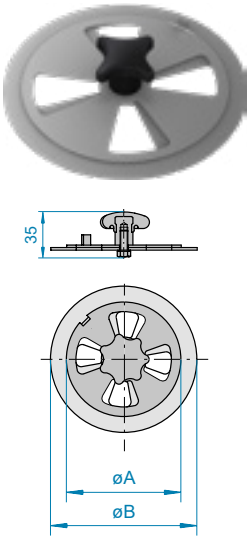
DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

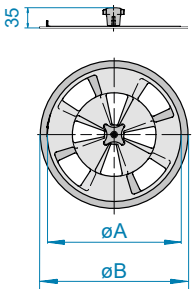
FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

Adjustable blank-off covers and air bleeds



DN 80 to 200 mm



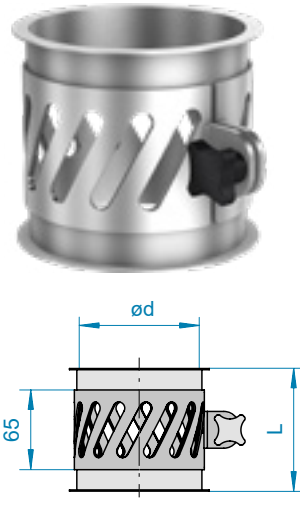
DN 224 to 300 mm

ADJUSTABLE BLANK-OFF COVERS

2030

Powder-coated and stainless steel

DN	Ø A	Ø B	kg	Opening surfaces	1.5 mm powder-coated		1.5 mm stainless steel	
				%	Item no.	€	Item no.	€
80	70	92	0.14	12	11081522	35,40	11083522	48,10
100	90	115	0.19	17	11101522	35,40	11103522	48,10
120	110	135	0.25	21	11121522	37,70	11123522	53,30
140	126	151	0.30	25	11141522	39,40	11143522	55,90
150	140	165	0.34	26	11151522	39,40	11153522	55,90
175	165	190	0.44	29	11171522	43,40	11173522	72,90
200	190	215	0.56	31	11201522	49,60	11203522	78,80
224	210	235	0.65	31	11221522	55,70	11223522	86,90
250	240	265	0.81	33	11251522	55,70	11253522	86,90
280	270	292	0.97	34	11281522	65,90	11283522	90,90
300	290	315	1.12	35	11301522	70,30	11303522	93,70



AIR BLEEDS

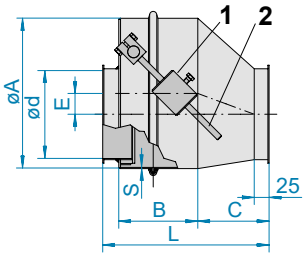
2040

Powder-coated and stainless steel

DN	Ø d	L	kg	1 mm powder-coated		1 mm stainless steel	
				Item no.	€	Item no.	€
80	78	100	0.39	11081523	64,30	11083523	74,20
100	100	100	0.47	11101523	68,80	11103523	79,40
120	120	100	0.55	11121523	73,40	11123523	84,60
140	136	100	0.61	11141523	81,60	11143523	94,00
150	150	100	0.67	11151523	81,60	11153523	94,00
175	175	100	0.76	11171523	94,40	11173523	109,50
200	200	100	0.88	11201523	103,50	11203523	119,50

FOOD GRADE
EC 1935/2004 plus FDA compliant





1 Lever arm adjustable 360°
2 Adjustable weight on lever arm

NON-RETURN VALVES

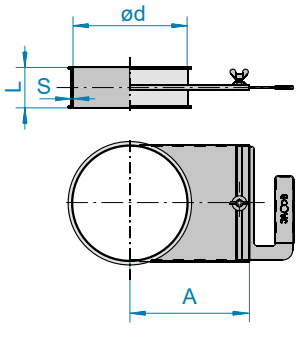
2060

- Lever arm and weights adjustable
- Inner seal NR-SBR from -40°C to +70°C
- U-shaped seal NBR from -20°C to +100°C
- FOOD GRADE version and other seals on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	ØA	B	C	E	L	kg	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
80	76	150	95	90	20	210	4.30	12081575	457,00	12083575	764,50
100	99	175	115	90	22.5	230	4.90	12101575	471,50	12103575	787,50
120	119	200	130	100	25	255	6.25	12121575	487,00	12123575	796,00
150	149	250	135	120	35	280	8.30	12151575	517,00	12153575	862,00
175	174	300	150	140	47.5	315	10.50	12171575	543,00	12173575	905,50
200	199	300	185	140	35	350	11.60	12201575	575,50	12203575	959,00
250	249	350	225	165	35	415	15.10	12251575	622,50	12253575	1047,00
300	299	450	260	195	55	480	22.70	12301575	683,50	12303575	1126,00





PIPE REGULATOR GATES

2110

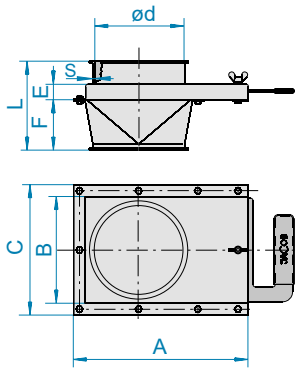
- Only for granular products
- Only for installation in inclined pipelines with the operating mechanism facing upwards

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	2 mm powder-coated		2 mm stainless steel	
					Item no.	€	Item no.	€
100	99	100	70	1.10	12101610	51,30	12103610	132,50
120	119	120	70	1.40	12121610	53,30	12123610	142,00
150	149	150	70	2.00	12151610	64,90	12153610	185,00
175	174	180	70	2.75	12171610	79,00	12173610	210,50
200	199	200	70	3.10	12201610	91,40	12203610	227,00
250	249	250	70	4.60	12251610	133,50	12253610	349,50
300	299	300	70	7.10	12301610	138,50	12303610	363,50

FOOD GRADE
EC 1935/2004 plus FDA compliant





PIPE SLIDE GATES, HAND-OPERATED

2120

- Stainless steel: Silicone slide plate seal
- Powder-coated and galvanised version: Felt seal
- Stainless steel version: temperature resistant from -60°C to +250°C and FOOD GRADE: compliant with EC 1935/2004 plus FDA

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm powder-coated		2 mm powder-coated	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11081620	141,00		
100	99	225	120	160	28	60	108	2.05			12101620	146,50
120	119	251	140	180	28	70	138	3.00			12121620	148,50
150	149	295	180	220	25	85	152	4.20			12151620	155,50
175	174	320	200	245	28	145	212	5.80			12171620	193,00
200	199	410	250	290	26	115	182	7.60			12201620	211,50
250	249	432	300	345	30	150	217	9.50			12251620	255,00
300	299	512	350	395	30	210	277	13.50			12301620	290,50

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm galvanised		2 mm galvanised	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11082620	155,50		
100	99	225	120	160	28	60	108	2.05			12102620	165,00
120	119	251	140	180	27	70	138	3.00			12122620	175,00
150	149	295	180	220	25	85	152	4.20			12152620	197,50
175	174	320	200	245	28	145	212	5.80			12172620	235,00
200	199	410	250	290	26	115	182	7.60			12202620	262,50
250	249	432	300	345	30	150	217	9.50			12252620	299,50
300	299	512	350	395	30	210	277	13.50			12302620	347,50

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm stainless steel		2 mm stainless steel	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11083620	324,00		
100	99	225	120	160	28	60	108	2.05			12103620	345,50
120	119	251	140	180	27	70	138	3.00			12123620	350,00
150	149	295	180	220	25	85	152	4.20			12153620	388,50
175	174	320	200	245	28	145	212	5.80			12173620	457,00
200	199	410	250	290	26	115	182	7.60			12203620	506,00
250	249	432	300	345	30	150	217	9.50			12253620	559,00
300	299	512	350	395	30	210	277	13.50			12303620	625,00

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

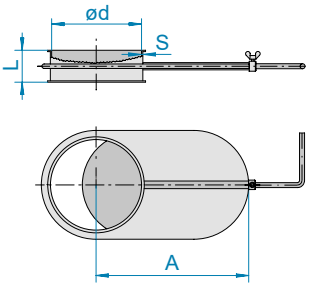
FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

AIR FLOW CONTROL GATES



- Only for air pipelines

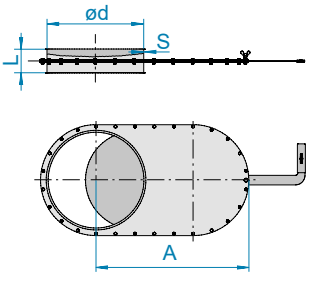


DN 80 to 300 mm

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
80	78	148	50	0.75	11081525	35,80		
100	100	175	58	1.10	11101525	35,80		
120	120	205	58	1.30	11121525	38,10		
140	136	242	70	1.70	11141525	51,70		
150	150	250	70	1.80	11151525	51,70		
175	175	290	70	2.55	11171525	91,60		
200	200	335	70	3.40	11201525	95,20		
224	220	392	70	3.90	11221525	111,50		
250	250	410	100	4.60	11251525	111,50		
300	299	485	100	7.90			12301525	124,50





DN 350 to 500 mm

Electro-galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm electro-galvanised		2 mm electro-galvanised		1.5 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	78	148	50	0.75	11082525	45,30			11083525	99,70
100	100	175	58	1.10	11102525	45,30			11103525	99,70
120	120	205	58	1.30	11122525	49,70			11123525	105,00
140	136	242	70	1.70	11142525	64,50			11143525	146,50
150	150	250	70	1.80	11152525	64,50			11153525	146,50
175	175	290	70	2.55	11172525	101,00			11173525	186,00
200	200	335	70	3.40	11202525	104,50			11203525	205,00
224	220	392	70	3.90	11222525	121,00			11223525	254,00
250	250	410	100	4.60	11252525	121,00			11253525	254,00
300	299	485	100	7.90			12302525	156,00	12303525*	290,50
350	349	560	100	15.50			12352525	263,00	12353525	474,00
400	398	636	100	18.80			12402525	315,50	12403525	562,00
450	448	710	100	22.50			12452525	379,00	12453525	680,00
500	498	795	100	28.80			12502525	425,00	12503525	769,00

* 2 mm

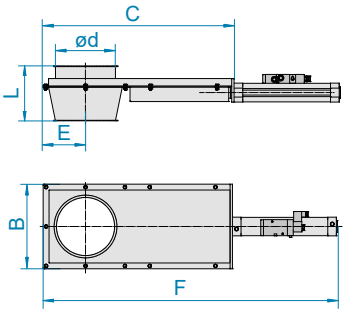
FOOD GRADE
EC 1935/2004 plus FDA compliant



PIPE SLIDE GATES, PNEUMATICALLY OPERATED

2290

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 limit switches, potential-free
- ATEX version on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- Stainless steel: Silicone slide plate seal: -60°C to +250°C
- Powder-coated version: Felt seal
- Other cylinders available on request
- Other diameters available on request



Pipe slide gates, including cylinder, powder-coated and stainless steel

DN	Ø d	B	C	E	F	L	kg	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
Control voltage 230 V AC											
100	99	165	372	80	650	104	5.90	5622100121	780,00	6622100121	1089,00
120	119	185	415	90	692	138	6.90	5622120121	809,00	6622120121	1149,00
150	149	225	505	110	782	152	9.20	5602150221	855,50	6602150221	1219,00
175	174	250	555	123	882	212	11.00	5602170221	891,50	6602170221	1284,00
200	199	295	645	148	1055	182	19.90	5602200221	962,00	6602200221	1387,00
250	249	350	780	173	1210	217	22.20	5602250221	1035,00	6602250221	1509,00
300	299	400	880	198	1360	277	28.40	5602300221	1130,00	6602300221	1592,00
Control voltage 24 V DC											
100	99	165	372	80	650	104	5.90	5622100123	780,00	6622100123	1089,00
120	119	185	415	90	692	138	6.90	5622120123	809,00	6622120123	1149,00
150	149	225	505	110	782	152	9.20	5602150223	855,50	6602150223	1219,00
175	174	250	555	123	882	212	11.00	5602170223	891,50	6602170223	1284,00
200	199	295	645	148	1055	182	19.90	5602200223	962,00	6602200223	1387,00
250	249	350	780	173	1210	217	22.20	5602250223	1035,00	6602250223	1509,00
300	299	400	880	198	1360	277	28.40	5602300223	1130,00	6602300223	1592,00

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

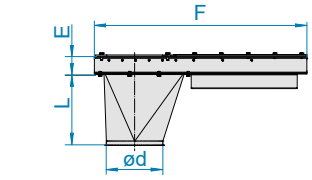
DETECTABLE DESIGN
Metal-detectable

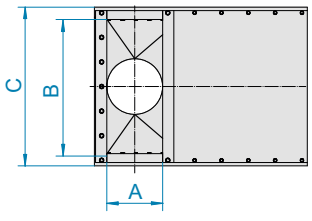


SILO (REDLER) OUTLET SLIDE GATES, PNEUMATICALLY OPERATED

2300/2305

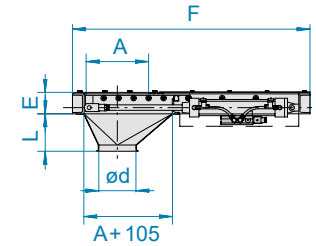
- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 limit switches, potential-free
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder coating on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- FOOD GRADE version, powder coating, ATEX version or other cylinders on request
- Other dimensions available on request

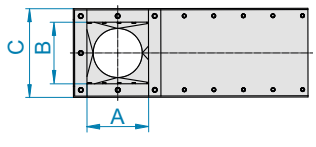




Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
Control voltage 230 V AC												
200	199	200	600	710	86	852	360	65	5710200121	1330,00	5712200121	1535,00
250	249	250	600	710	86	952	320	73	5710250121	1367,00	5712250121	1579,00
300	299	300	600	710	86	1052	270	78	5710300121	1418,00	5712300121	1642,00
Control voltage 24 V DC												
200	199	200	600	710	86	852	360	65	5710200123	1330,00	5712200123	1535,00
250	249	250	600	710	86	952	320	73	5710250123	1367,00	5712250123	1579,00
300	299	300	600	710	86	1052	270	78	5710300123	1418,00	5712300123	1642,00

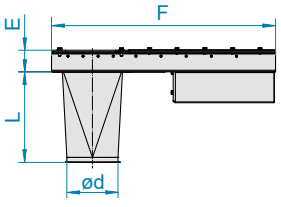


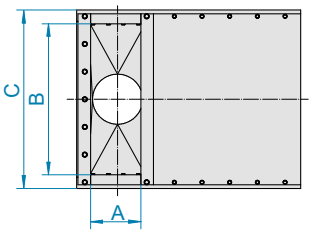


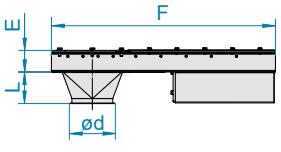
Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

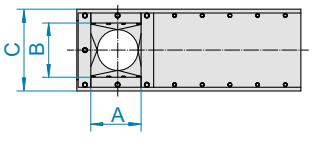
DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
Control voltage 230 V AC												
150	149	200	200	310	86	852	150	40	5760150121	1250,00	5762150121	1390,00
200	199	250	250	360	86	952	150	46	5760200121	1275,00	5762200121	1442,00
250	249	300	300	410	86	1052	150	52	5760250121	1342,00	5762250121	1505,00
Control voltage 24 V DC												
150	149	200	200	310	86	852	150	40	5760150123	1250,00	5762150123	1390,00
200	199	250	250	360	86	952	150	46	5760200123	1275,00	5762200123	1442,00
250	249	300	300	410	86	1052	150	52	5760250123	1342,00	5762250123	1505,00











SILO / REDLER OUTLET SLIDE GATES, ELECTRICALLY-OPERATED

2310/2315

- Including worm-gear motor 380/400 V, 50 Hz and 2 mechanical limit switches
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder coating on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- FOOD GRADE version, powder coating or ATEX version available on request
- Other dimensions available on request

Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
200	199	200	600	710	86	845	360	88	57102005	1751,00	57122005	1937,00
250	249	250	600	710	86	995	320	91	57102505	1766,00	57122505	1960,00
300	299	300	600	710	86	1145	270	103	57103005	1780,00	57123005	2002,00

Silo outlet slide gates, primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
150	149	200	200	304	71	932	150	54	57601505	1629,00	57621505	1769,00
200	199	250	250	354	71	1082	150	64	57602005	1661,00	57622005	1813,00
250	249	300	300	404	71	1232	150	54	57602505	1710,00	57622505	1872,00


JACOB
6
2
1
0



THE RIGHT WAY FOR YOUR PRODUCT: JACOB TWO-WAY DIVERTERS FOR EVERY APPLICATION

TWO-WAY DIVERTERS

Technical information	138
Two-way valves with inlet collar	144
Two-way valves with seal	150
Two-way distributors	156



Cross-section: Two-way valves with inlet collar 60°, symmetrical

JACOB TWO-WAY DIVERTERS

JACOB has various types of two-way diverters available to meet your requirements: From bulk goods conveying by gravity to pneumatic low pressure conveying, JACOB has just the right solution in its portfolio for distributing your product.

JACOB two-way diverters

	Two-way valves with inlet collar	Two-way valves with seal	Two-way distributors
Application	Gravity conveying bulk goods	Gravity conveying bulk goods Ventilation systems up to 0.1 bar	Gravity conveying bulk goods Ventilation systems up to 0.3 bar (version with more powerful actuator necessary from 0.1 bar upwards)
Seal	No inner flap seal	Standard range inner flap seal NBR or silicone No seal below shaft	Standard inner flap seal in NBR or silicone Standard shaft seal in silicone
Diameters and angles	DN 100 to 300 mm pressed component with lip, angle: 60° DN 350 and 400 mm from flanged pipework, angle: 50°	DN 100 to 300 mm pressed component with lip, angle: 60°	DN 100 to 300 mm with lip, angle: 60° or 45° DN 350 to 630 mm with welded flanges: Angle: 60° or 45°



Example: Two-way valves with inlet collar 60°, symmetrical, hand-operated



Example: Two-way valves with inlet collar 50°, symmetrical, construction DN > 300 mm with welded flanges, pneumatically operated with a rotary actuator

TWO-WAY VALVES WITH INLET COLLAR

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 400 mm

DN 100 to 300 mm:

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- With 6 mm lip for pull-ring connection
- Shaft seal with NBR double V-ring seal

DN > 300 mm:

- Angle between outlets 50°
- Inlet and outlets with welded flanges according to DIN 24154-2, but without counter-flange
- Shafts with ball bearings with Viton O-ring seal

Explosion protection: Version pneumatically operated with a rotary actuator: designed for ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22), control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC. Terminal box or limit switch box on request. All two-way valves in ATEX version are supplied with earthing lugs as standard.

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

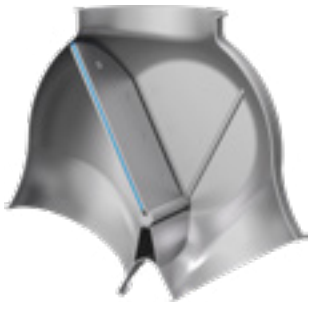
Actuation:

- Hand-operated, DN > 200 mm with additional lever lock, DN 350 and 400 mm without tension spring
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm. Installation dimensions are identical to two-way valves with a seal.

Applications: For gravity conveying of free-flowing – without backlog – non-glutinous, granular bulk goods. With powdery products, especially with over-pressure or under-pressure in the closed outlet, there could be leakages in the closed outlet. Only limited use in ventilation plants is recommended due to the absence of an inner flap seal. The product flow is by the inlet collar directing the product towards the centre of the flap, and in the outlet by covering the U-shaped inner flap towards the next pipe that follows.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 plus FDA.



Cross-section: Two-way valves with inlet collar 60°, symmetrical

TWO-WAY VALVES WITH SEAL

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 300 mm

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- On the side with formed beads to increase tightness, (except DN 175 mm)
- For hand-operated two-way valves, shaft sealing with NBR double V-ring seal
- For two-way valves with rotary actuator or cylinder: Shafts with ball bearings with Viton O-ring seal
- Two-way distributors should be used for diameters > DN 300 mm

Explosion protection: Version pneumatically operated with a rotary actuator: designed for ATEX category 1 D internally (dust zone 20), and category 3 D externally (dust zone 22), control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC. Further limit switches available on request. Without terminal box. Terminal box or limit switch box on request. All two-way valves in ATEX version are supplied with earthing lugs as standard.

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

Actuation:

- Hand-operated, with lever lock, can also be locked in intermediate position (increased seal wear is likely)
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection. Installation dimensions are identical to two-way valves with an inlet collar.

Inner flap seal:

- Powder-coated two-way valves, standard version with intermediate NBR seal on 3-part inner flap
- Stainless steel two-way valves, standard version with intermediate silicone seal on 3-part inner flap



Example: Two-way valves with seal 60°, symmetrical, pneumatically operated with a rotary actuator

Silicone	NBR
opaque	grey white
-60°C to +180°C	-30°C to +80°C
FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
Thickness: 3 or 4 mm	Thickness: 3 or 4 mm

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

Applications: For gravity conveying of free-flowing bulk goods and in ventilation plants up to 0.1 bar. There is no seal underneath the shaft, so that in the case of higher tightness requirements towards the closed outlet the two-way distributor should be used.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 plus FDA.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable



Cross-section: Two-way distributor 60° up to DN 300 mm, symmetrical



Example: Two-way distributor 60°, DN > 300 mm, symmetrical, pneumatically operated with cylinder



Example: Two-way distributor 60°, DN > 300 mm, symmetrical, pneumatically operated with cylinder and welded flanges

TWO-WAY DISTRIBUTORS

Construction: symmetrical and asymmetrical

Diameters and versions:

- DN 100 to 630 mm
- DN > 300 mm: Inlet and outlets with welded flanges according to DIN 24154-2
- Angle between outlets 45° or 60°
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Below the shaft there is a silicone seal that can be re-adjusted from outside
- Shafts with ball bearings and a silicone flat ring-seal
- From DN 250-630 mm with inspection openings on both outlets for inspection purposes

Explosion protection: Version pneumatically operated with a rotary actuator: designed for ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22), control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC. Further limit switches available on request. Without terminal box. Terminal box or limit switch box on request. All two-way distributors in ATEX version are supplied with earthing lugs as standard.

Materials: up to DN 400 mm: 2 mm powder-coated and stainless steel, from DN 450 mm: 3 mm powder-coated and stainless steel

Actuation:

- Hand-operated, DN 100-300 mm with lever lock, can also be locked in intermediate positions (increased seal wear)
- Fitted with pneumatic rotary actuator, DN 100-630 mm, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, DN 100-630 mm, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm.

Inner flap seal: 3-part straight inner flap with intermediate silicone seal.
Other seal qualities on request (e.g.: NBR or EPDM)

Silicone	NBR
opaque	grey white
-60°C to +180°C	-30°C to +80°C
FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
Thickness: 3 or 4 mm	Thickness: 3 or 4 mm

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

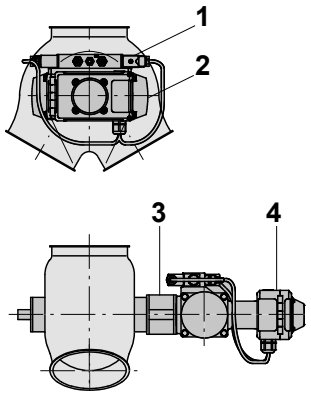
Applications: For gravity conveying of free-flowing bulk goods and ventilation plants up to 0.3 bar (if more powerful actuators are fitted). The 45° version is recommended for sensitive bulk goods or for products with bad flow properties.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 plus FDA.

Special feature: All two-way distributors have an internal valve which can be dismantled without removing the distributor from the pipeline (for cleaning or replacing the seals)

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable



1 Solenoid valve
2 Rotary actuator
3 Panel
4 Limit switch box

ACTUATORS FOR TWO-WAY DIVERTERS

Version fitted with pneumatic rotary actuator

- Rotary actuator, make AIR TORQUE, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation, in 24 V DC or in 230 V AC
- The solenoid valve is bolted directly to the actuator in accordance with Namur specification
- Complete with 2 exhaust throttles for speed adjustment and compressed air connection (angle push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: min. 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on positions via 2 potential-free micro switches with spring-free gold contacts, suitable for PLC. Switching range 4-250 V AC/DC at 0.1 A
- Solenoid valve and limit switch are wired into terminals in the limit switch box that is positioned on the actuator. Protection category IP 65
- ATEX version:
  - Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
  - Designed to comply with ATEX category 3 D externally (dust zone 22)
  - Without terminal box
  - Terminal box or limit switch box on request
  - ATEX version supplied with earthing lugs as standard

Version fitted with pneumatic cylinder

- Cylinder, make FESTO, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation; fitted to the cylinder with a hose connection and available in 24 V DC or in 230 V AC with connection sockets, IP 65
- Complete with 2 exhaust throttles for speed adjustment and a hose connection for compressed air (angle push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on position via 2 potential-free limit switches with LEDs, which are positioned on the cylinder. With 2 m free cable end. 24 V version: Switching range 12-30 V DC at 500 mA, 230 V version: Switching range 4-230 V AC/DC at 120 mA. Protection category IP 67
- Standard version without terminal box, without wiring, with protective device made of polycarbonate



Installation of the actuator in asymmetrical components

With asymmetric components, the actuation is positioned on the right-hand side as standard according to the illustration. Installation on the left-hand side is possible at no extra charge at the customer's request.



Standard: Actuator unit on right-hand side



Optional: Actuator unit on left-hand side

ACCESSORIES AND SPECIAL VERSIONS

Inspection openings

Installation of an inspection opening with a diameter of 115 mm possible for inspection purposes on all two-way valves from 150 mm upwards. Upwards of DN 250 mm, two-way distributors are fitted with two inspection openings as standard.

- Extra charge for powder-coating: € 116.00
- Extra charge for stainless steel: € 148.00





Manual cord device

For two-way valves with inlet collar, hand-operated up to DN 200 mm. The lever is available with an additionally screwed-on switch device for cord or chain operation.

- Extra charge for powder-coating: € 39.90
- Extra charge for stainless steel: € 47.20



Limit switches

Two limit switches positioned on a base plate opposite to the actuator side, with protective cover, without terminal box

Extra charge for version	Powder-coated	Stainless steel
	€	€
Siemens 3SE 5232-OHD03	135.50	157.50
Pepperl & Fuchs type NBB 5-18GM50-E2	165.00	186.00
Pepperl & Fuchs type NCB 5-18GM40-N0, ATEX Zone 21	184.00	206.00
ATEX limit switch IFM IG 513A, ATEX category 3D	239.50	261.50



Gear-motor

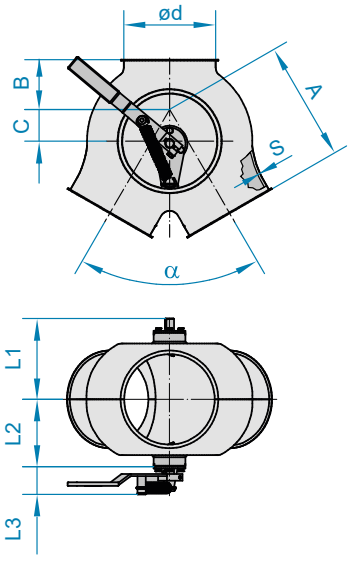
Prices for electrically-operated two-way diverters with gear-motor or cylinder and pneumatic actuators and limit switches in ex-proof version on request.

YOUR INDIVIDUAL TWO-WAY DIVERTERS

JACOB two-way diverters are available not only in a comprehensive standard range but also in a wide range of special versions:

- Electrical actuation
- Other materials
- Rotary actuators or cylinders at the customer's request
- Lining with a wide range of different wear protection materials (refer to chapter 14 for information on lined two-way valves with an inlet collar)
- Welded flanges: in JACOB standard (refer to chapter 11 for dimensions) or with customers' own dimensions. In this case, outlets and, if necessary, inlets are supplied in a longer version. Inlet and outlets can also be produced specially to match the diameter of connecting pipes
- Stainless steel in a pickled and passivated version
- Over 3,000 special colours (refer to chapter 1, Materials)
- ATEX-version: with terminal box or limit switch box, other inductive limit switches
- Viton shaft seal
- Fitting of inspection opening in small diameters on request (refer also to Technical information and accessories)
- Other inner flap seals for two-way valves with seal or two-way distributors
- More powerful actuators for use with differential pressures of up to 0.3 bar for two-way valves with seal or two-way distributors

TWO-WAY DIVERTERS
Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, HAND-OPERATED

2130

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€	Item no.	€
100	60°	135	50	41	118	88	60	12101502	138,00			12103502	329,00
120	60°	160	50	54	129	99	60	12121502	146,50			12123502	353,00
150	60°	200	80	60	146	116	60	12151502	160,50	13151502	225,50	12153502	462,00
175	60°	218	63	75	159	129	60	12171505	199,50	13171505	278,00	12173505	569,00
200	60°	265	110	70	178	148	60	12201505	250,00	13201505	324,00	12203505	646,00
250	60°	305	115	82	199	169	60	12251505	331,50	13251505	433,00	12253505	892,50
300	60°	385	145	110	225	195	60	12301502	458,00	13301502	537,00	12303502	1061,00
350	50°	520	95	185	345	300	90	12351505	891,50	13351505	1157,00	12353505	2046,00
400	50°	580	105	195	378	333	90	12401505	1030,00	13401505	1325,00	12403505	2352,00

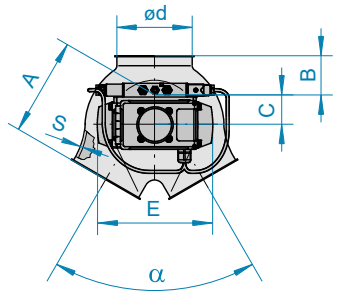


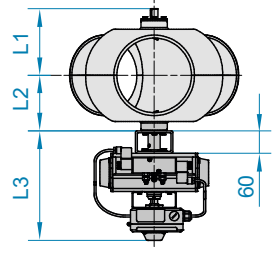
TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2150

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC														
100	60°	135	50	41	215	129	88	297	5582100244	675,50			6582100244	854,50
120	60°	160	50	54	215	129	99	297	5582120244	682,00			6582120244	876,50
150	60°	200	80	60	215	146	116	297	5582150244	683,00	5583150244	742,50	6582150244	994,00
175	60°	218	63	75	215	159	129	297	5582170144	749,00	5583170144	829,00	6582170144	1113,00
200	60°	265	110	70	290	178	148	302	5582200144	797,00	5583200144	882,00	6582200144	1187,00
250	60°	305	115	82	290	199	169	302	5582250144	882,50	5583250144	1024,00	6582250144	1417,00
300	60°	385	145	110	290	225	195	302	5582300244	991,50	5583300244	1096,00	6582300244	1568,00
350	50°	520	95	185	310	345	300	312	5582350144	1551,00	5583350144	1786,00	6582350144	2487,00
400	50°	580	105	195	310	378	333	312	5582400144	1679,00	5583400144	1944,00	6582400144	2750,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC														
100	60°	135	50	41	215	129	88	297	5582100245	675,50			6582100245	854,50
120	60°	160	50	54	215	129	99	297	5582120245	682,00			6582120245	876,50
150	60°	200	80	60	215	146	116	297	5582150245	683,00	5583150245	742,50	6582150245	994,00
175	60°	218	63	75	215	159	129	297	5582170145	749,00	5583170145	829,00	6582170145	1113,00
200	60°	265	110	70	290	178	148	302	5582200145	797,00	5583200145	882,00	6582200145	1187,00
250	60°	305	115	82	290	199	169	302	5582250145	882,50	5583250145	1024,00	6582250145	1417,00
300	60°	385	145	110	290	225	195	302	5582300245	991,50	5583300245	1096,00	6582300245	1568,00
350	50°	520	95	185	310	345	300	312	5582350145	1551,00	5583350145	1786,00	6582350145	2487,00
400	50°	580	105	195	310	378	333	312	5582400145	1679,00	5583400145	1944,00	6582400145	2750,00





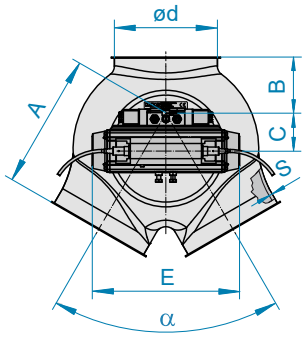
FOOD GRADE
EC 1935/2004 plus FDA compliant

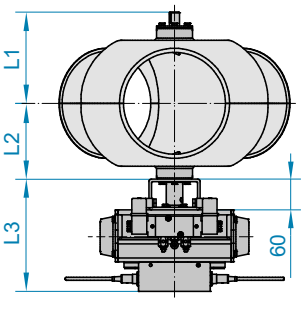


TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2150

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Please also read and take into account the technical information given at the beginning of this chapter





DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version														
100	60°	135	50	41	216	118	88	203	55821002455	843,50			65821002455	1023,00
120	60°	160	50	54	216	129	99	203	55821202455	850,00			65821202455	1045,00
150	60°	200	80	60	216	146	116	203	55821502455	851,00	55831502455	910,50	65821502455	1164,00
175	60°	218	63	75	216	159	129	203	55821701455	917,00	55831701455	997,00	65821701455	1282,00
200	60°	265	110	70	290	178	148	220	55822001455	965,50	55832001455	1051,00	65822001455	1355,00
250	60°	305	115	82	290	199	169	220	55822501455	1051,00	55832501455	1192,00	65822501455	1584,00
300	60°	385	145	110	290	225	195	220	55823002455	1161,00	55833002455	1263,00	65823002455	1736,00
350	50°	520	95	185	310	345	300	230	55823501455	1720,00	55833501455	1954,00	65823501455	2654,00
400	50°	580	105	195	310	378	333	230	55824001455	1847,00	55834001455	2112,00	65824001455	2919,00

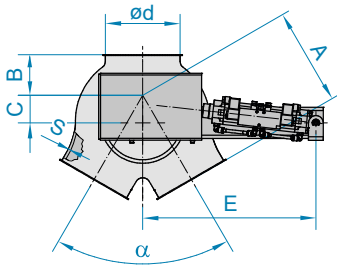
FOOD GRADE
EC 1935/2004 plus FDA compliant

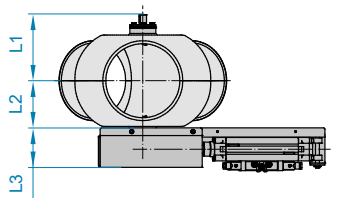


TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH CYLINDER

2155

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



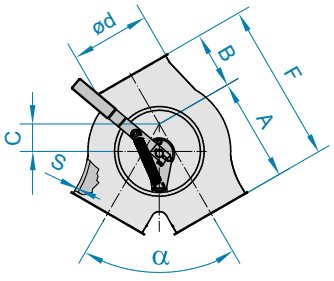


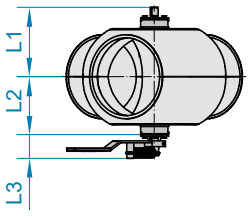
DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC														
100	60°	135	56	41	440	129	88	88	5582100221	675,50			6582100221	854,50
120	60°	160	50	54	440	129	99	88	5582120221	682,00			6582120221	876,50
150	60°	200	80	60	440	146	116	88	5582150221	683,00	5583150221	742,50	6582150221	994,00
175	60°	218	63	75	440	159	129	88	5582170121	749,00	5583170121	829,00	6582170121	1113,00
200	60°	265	110	70	470	178	148	88	5582200121	797,00	5583200121	882,00	6582200121	1187,00
250	60°	305	115	82	470	199	169	88	5582250121	882,50	5583250121	1024,00	6582250121	1417,00
300	60°	385	145	110	470	225	195	88	5582300221	991,50	5583300221	1096,00	6582300221	1568,00
350	50°	520	95	185	470	345	300	90	5582350121	1551,00	5583350121	1786,00	6582350121	2487,00
400	50°	580	105	195	470	378	333	90	5582400121	1679,00	5583400121	1944,00	6582400121	2750,00
Cylinder, make FESTO, control voltage 24 V DC														
100	60°	135	56	41	440	129	88	88	5582100223	675,50			6582100223	854,50
120	60°	160	50	54	440	129	99	88	5582120223	682,00			6582120223	876,50
150	60°	200	80	60	440	146	116	88	5582150223	683,00	5583150223	742,50	6582150223	994,00
175	60°	218	63	75	440	159	129	88	5582170123	749,00	5583170123	829,00	6582170123	1113,00
200	60°	265	110	70	470	178	148	88	5582200123	797,00	5583200123	882,00	6582200123	1187,00
250	60°	305	115	82	470	199	169	88	5582250123	882,50	5583250123	1024,00	6582250123	1417,00
300	60°	385	145	110	470	225	195	88	5582300223	991,50	5583300223	1096,00	6582300223	1568,00
350	50°	520	95	185	470	345	300	90	5582350123	1551,00	5583350123	1786,00	6582350123	2487,00
400	50°	580	105	195	470	378	333	90	5582400123	1679,00	5583400123	1944,00	6582400123	2750,00

FOOD GRADE
EC 1935/2004 plus FDA compliant

TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, HAND-OPERATED

2140





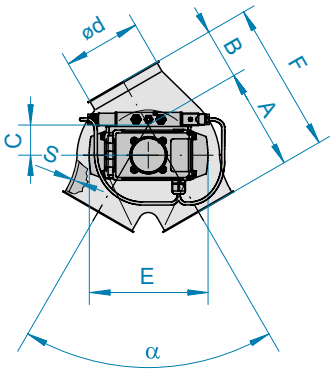
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

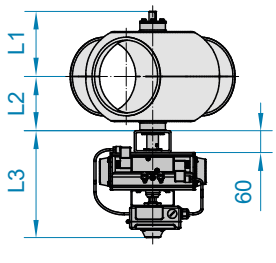
DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
100	60°	135	65	41	200	118	88	60	12101512	138,00			12103512	329,00
120	60°	160	70	54	230	129	99	60	12121512	146,50			12123512	353,00
150	60°	200	100	60	300	146	116	60	12151512	160,50	13151512	225,50	12153512	462,00
175	60°	218	90	75	308	159	129	60	12171517	199,50	13171517	278,00	12173517	569,00
200	60°	265	145	70	410	178	148	60	12201517	250,00	13201517	324,00	12203517	646,00
250	60°	305	155	82	460	199	169	60	12251517	331,50	13251517	433,00	12253517	892,50
300	60°	385	190	110	575	225	195	60	12301512	458,00	13301512	537,00	12303512	1061,00
350	50°	520	150	185	670	345	300	90	12351515	891,50	13351515	1157,00	12353515	2046,00
400	50°	580	170	195	750	378	333	90	12401515	1030,00	13401515	1325,00	12403515	2352,00

TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2160





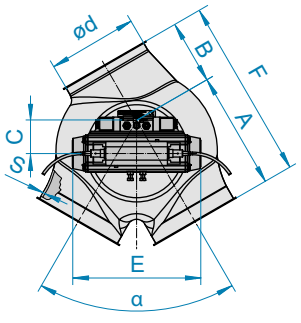


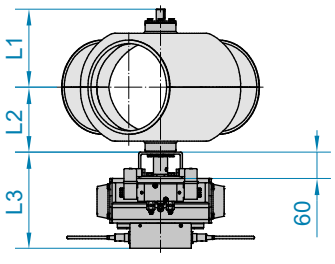
- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Standard version: Right-side mounting
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC															
100	60°	135	65	41	252	200	82	88	282	5592100244	675,50			6592100244	854,50
120	60°	160	70	54	252	230	90	99	282	5592120244	682,00			6592120244	876,50
150	60°	200	100	60	252	300	146	116	282	5592150244	683,00	5593150244	742,50	6592150244	994,00
175	60°	218	90	75	252	308	159	129	282	5592170144	749,00	5593170144	829,00	6592170144	1113,00
200	60°	265	145	70	308	410	178	148	302	5592200144	797,00	5593200144	882,00	6592200144	1187,00
250	60°	305	156	82	308	460	199	169	302	5592250144	882,50	5593250144	1024,00	6592250144	1417,00
300	60°	385	190	110	308	575	225	195	302	5592300244	991,50	5593300244	1096,00	6592300244	1568,00
350	50°	520	150	185	342	670	325	300	334	5592350144	1551,00	5593350144	1786,00	6592350144	2487,00
400	50°	580	170	195	342	750	350	333	334	5592400144	1679,00	5593400144	1944,00	6592400144	2750,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC															
100	60°	135	65	41	252	200	82	88	282	5592100245	675,50			6592100245	854,50
120	60°	160	70	54	252	230	90	99	282	5592120245	682,00			6592120245	876,50
150	60°	200	100	60	252	300	146	116	282	5592150245	683,00	5593150245	742,50	6592150245	994,00
175	60°	218	90	75	252	308	159	129	282	5592170145	749,00	5593170145	829,00	6592170145	1113,00
200	60°	265	145	70	308	410	178	148	302	5592200145	797,00	5593200145	882,00	6592200145	1187,00
250	60°	305	156	82	308	460	199	169	302	5592250145	882,50	5593250145	1024,00	6592250145	1417,00
300	60°	385	190	110	308	575	225	195	302	5592300245	991,50	5593300245	1096,00	6592300245	1568,00
350	50°	520	150	185	342	670	325	300	334	5592350145	1551,00	5593350145	1786,00	6592350145	2487,00
400	50°	580	170	195	342	750	350	333	334	5592400145	1679,00	5593400145	1944,00	6592400145	2750,00

FOOD GRADE
EC 1935/2004 plus FDA compliant







TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

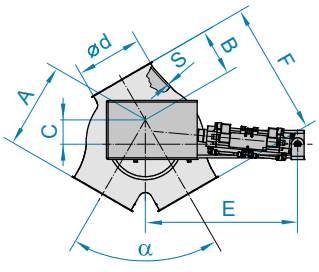
2160

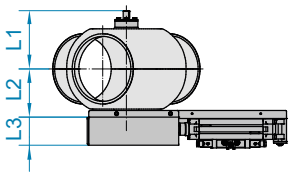
- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version															
100	60°	135	65	41	216	200	118	88	203	55921002455	843,50			65921002455	1023,00
120	60°	160	70	54	216	230	129	99	203	55921202455	850,00			65921202455	1045,00
150	60°	200	100	60	216	300	146	116	203	55921502455	851,00	55931502455	910,50	65921502455	1164,00
175	60°	218	90	75	216	308	159	129	203	55921701455	917,00	55931701455	997,00	65921701455	1282,00
200	60°	265	145	70	290	410	178	148	220	55922001455	965,50	55932001455	1051,00	65922001455	1355,00
250	60°	305	155	82	290	460	199	169	220	55922501455	1051,00	55932501455	1192,00	65922501455	1584,00
300	60°	385	190	110	290	575	225	195	220	55923002455	1161,00	55933002455	1263,00	65923002455	1736,00
350	50°	520	150	185	310	670	345	300	230	55923501455	1720,00	55933501455	1954,00	65923501455	2654,00
400	50°	580	170	195	310	750	378	333	230	55924001455	1847,00	55934001455	2112,00	65924001455	2919,00

FOOD GRADE
EC 1935/2004 plus FDA compliant







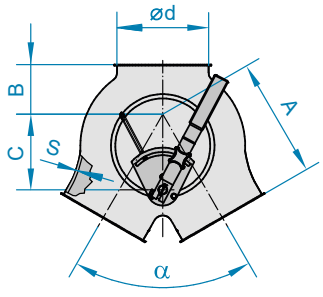
TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH CYLINDER

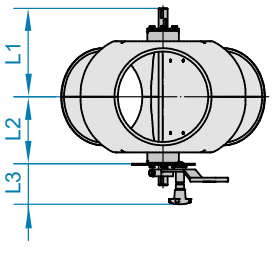
2165

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC															
100	60°	135	65	41	440	200	82	88	88	5592100221	675,50			6592100221	854,50
120	60°	160	70	54	440	230	90	99	88	5592120221	682,00			6592120221	876,50
150	60°	200	100	60	440	300	146	116	88	5592150221	683,00	5593150221	742,50	6592150221	994,00
175	60°	218	90	75	440	308	159	129	88	5592170121	749,00	5593170121	829,00	6592170121	1113,00
200	60°	265	145	70	470	410	178	148	88	5592200121	797,00	5593200121	882,00	6592200121	1187,00
250	60°	305	156	82	470	460	199	169	88	5592250121	882,50	5593250121	1024,00	6592250121	1417,00
300	60°	385	190	110	470	575	225	195	88	5592300221	991,50	5593300221	1096,00	6592300221	1568,00
350	50°	520	150	185	470	670	325	300	90	5592350121	1551,00	5593350121	1786,00	6592350121	2487,00
400	50°	580	170	195	470	750	350	333	90	5592400121	1679,00	5593400121	1944,00	6592400121	2750,00
Cylinder, make FESTO, control voltage 24 V DC															
100	60°	135	65	41	440	200	82	88	88	5592100223	675,50			6592100223	854,50
120	60°	160	70	54	440	230	90	99	88	5592120223	682,00			6592120223	876,50
150	60°	200	100	60	440	300	146	116	88	5592150223	683,00	5593150223	742,50	6592150223	994,00
175	60°	218	90	75	440	308	159	129	88	5592170123	749,00	5593170123	829,00	6592170123	1113,00
200	60°	265	145	70	470	410	178	148	88	5592200123	797,00	5593200123	882,00	6592200123	1187,00
250	60°	305	156	82	470	460	199	169	88	5592250123	882,50	5593250123	1024,00	6592250123	1417,00
300	60°	385	190	110	470	575	225	195	88	5592300223	991,50	5593300223	1096,00	6592300223	1568,00
350	50°	520	150	185	470	670	325	300	90	5592350123	1551,00	5593350123	1786,00	6592350123	2487,00
400	50°	580	170	195	470	750	350	333	90	5592400123	1679,00	5593400123	1944,00	6592400123	2750,00

FOOD GRADE
EC 1935/2004 plus FDA compliant





TWO-WAY VALVES WITH SEAL, SYMMETRICAL, HAND-OPERATED

2170

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€	Item no.	€
100	60°	135	50	87	140	88	88	12101503	312,50			121035037	471,50
120	60°	160	50	112	148	96	88	12121503	312,50			121235037	471,50
150	60°	200	80	136	168	119	88	12151503	331,00	13151503	382,50	121535037	574,50
175	60°	218	63	170	198	147	88	12171506	385,00	13171506	419,50	121735067	776,50
200	60°	265	110	167	199	150	88	12201506	385,00	13201506	419,50	122035067	776,50
250	60°	305	115	215	220	171	88	12251506	392,50	13251506	480,00	122535067	956,00
300	60°	385	145	260	264	213	88	12301503	481,00	13301503	584,50	123035037	1115,00

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

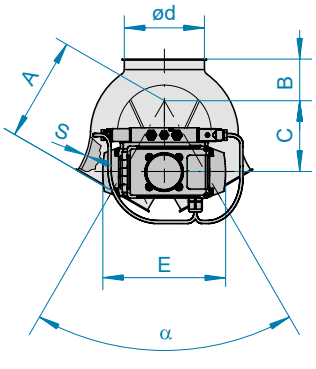
2190

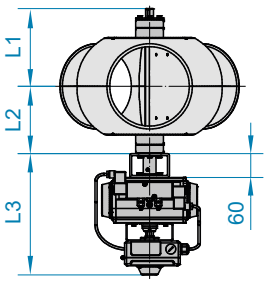
- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC														
100	60°	135	50	87	193	140	110	265	5542100244	772,00			65421002744	993,00
120	60°	160	50	112	193	148	118	265	5542120244	772,00			65421202744	993,00
150	60°	200	80	136	193	168	138	265	5542150244	789,50	5543150244	841,00	65421502744	1096,00
175	60°	218	63	170	193	198	168	265	5542170144	864,00	5543170144	905,50	65421701744	1324,00
200	60°	265	110	167	225	199	169	275	5542200144	864,00	5543200144	905,50	65422001744	1324,00
250	60°	305	115	215	225	220	190	275	5542250144	872,00	5543250144	972,50	65422501744	1498,00
300	60°	385	145	260	225	264	234	275	5542300244	955,50	5543300244	1065,00	65423002744	1655,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC														
100	60°	135	50	87	193	140	110	265	5542100245	772,00			65421002745	993,00
120	60°	160	50	112	193	148	118	265	5542120245	772,00			65421202745	993,00
150	60°	200	80	136	193	168	138	265	5542150245	789,50	5543150245	841,00	65421502745	1096,00
175	60°	218	63	170	193	198	168	265	5542170145	864,00	5543170145	905,50	65421701745	1324,00
200	60°	265	110	167	225	199	169	275	5542200145	864,00	5543200145	905,50	65422001745	1324,00
250	60°	305	115	215	225	220	190	275	5542250145	872,00	5543250145	972,50	65422501745	1498,00
300	60°	385	145	260	225	264	234	275	5542300245	955,50	5543300245	1065,00	65423002745	1655,00

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.





FOOD GRADE
EC 1935/2004 plus FDA compliant

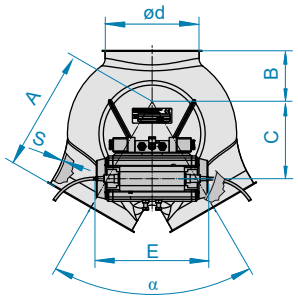
DETECTABLE DESIGN
Metal-detectable

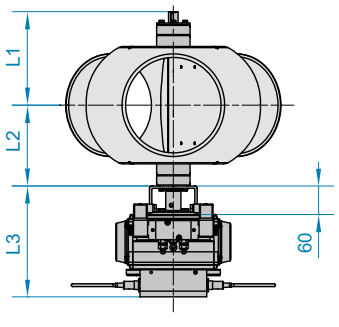


TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 D internally (dust zone 20), and category 3 D externally (dust zone 22)
- Two-way valves available on request
- Please also read and take into account the technical information given at the beginning of this chapter





DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version														
100	60°	135	50	87	210	140	110	220	55421002455	940,00			654210027455	1162,00
120	60°	160	50	112	210	148	118	220	55421202455	940,00			654212027455	1162,00
150	60°	200	80	136	210	168	138	220	55421502455	957,50	55431502455	1009,00	654215027455	1263,00
175	60°	218	63	170	210	198	168	220	55421701455	1032,00	55431701455	1074,00	654217017455	1492,00
200	60°	265	110	167	241	199	169	233	55422001455	1032,00	55432001455	1074,00	654220017455	1492,00
250	60°	305	115	215	241	220	190	233	55422501455	1041,00	55432501455	1142,00	654225017455	1666,00
300	60°	385	145	260	241	245	215	233	55423002455	1125,00	55433002455	1233,00	654230027455	1823,00

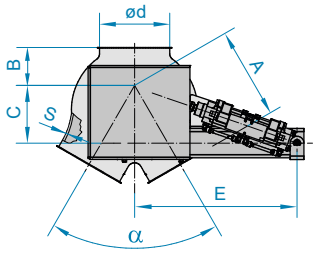
DETECTABLE DESIGN

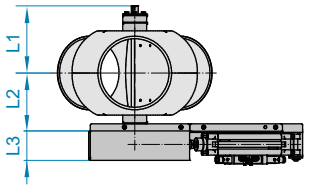
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH CYLINDER

2195

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

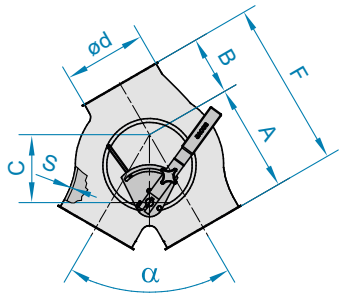
DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC														
100	60°	135	50	87	440	140	110	88	5542100221	806,50			65421002721	1028,00
120	60°	160	50	112	440	148	118	88	5542120221	806,50			65421202721	1028,00
150	60°	200	80	136	440	168	138	88	5542150221	824,00	5543150221	875,00	65421502721	1130,00
175	60°	218	63	170	440	198	168	88	5542170121	899,00	5543170121	940,00	65421701721	1359,00
200	60°	265	110	167	470	199	169	88	5542200121	899,00	5543200121	940,00	65422001721	1359,00
250	60°	305	115	215	470	220	190	88	5542250121	906,50	5543250121	1008,00	65422501721	1534,00
300	60°	385	145	260	470	264	234	88	5542300221	990,00	5543300221	1100,00	65423002721	1690,00
Cylinder, make FESTO, control voltage 24 V DC														
100	60°	135	50	87	440	140	110	88	5542100223	806,50			65421002723	1028,00
120	60°	160	50	112	440	148	118	88	5542120223	806,50			65421202723	1028,00
150	60°	200	80	136	440	168	138	88	5542150223	824,00	5543150223	875,00	65421502723	1130,00
175	60°	218	63	170	440	198	168	88	5542170123	899,00	5543170123	940,00	65421701723	1359,00
200	60°	265	110	167	470	199	169	88	5542200123	899,00	5543200123	940,00	65422001723	1359,00
250	60°	305	115	215	470	220	190	88	5542250123	906,50	5543250123	1008,00	65422501723	1534,00
300	60°	385	145	260	470	264	234	88	5542300223	990,00	5543300223	1100,00	65423002723	1690,00

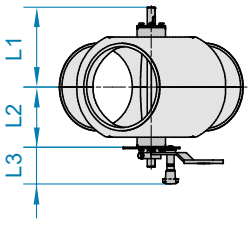
DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable





TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, HAND-OPERATED

2180

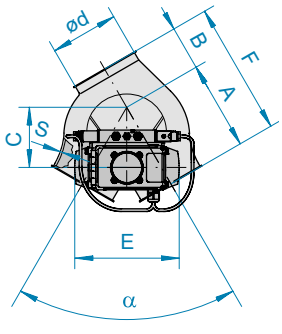
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

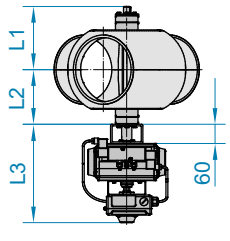
DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel (F)	
									Item no.	€	Item no.	€	Item no.	€
100	60°	135	65	87	200	140	88	88	12101513	312,50			121035137	471,50
120	60°	160	70	112	230	148	96	88	12121513	312,50			121235137	471,50
150	60°	200	100	136	300	168	119	88	12151513	331,00	13151513	382,50	121535137	574,50
175	60°	218	90	170	308	198	149	88	12171516	385,00	13171516	419,50	121735167	776,50
200	60°	265	145	167	410	199	150	88	12201516	385,00	13201516	419,50	122035167	776,50
250	60°	305	155	215	460	220	171	88	12251516	392,50	13251516	480,00	122535167	956,00
300	60°	385	190	260	575	264	197	88	12301513	481,00	13301513	584,50	123035137	1115,00

(D) DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.







TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2200

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel (F)	
										Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC															
100	60°	135	65	87	193	200	140	110	265	5552100244	772,00			65521002744	993,00
120	60°	160	70	112	193	230	148	118	265	5552120244	772,00			65521202744	993,00
150	60°	200	100	136	193	300	168	138	265	5552150244	789,50	5553150244	841,00	65521502744	1096,00
175	60°	218	90	170	193	308	198	168	275	5552170144	864,00	5553170144	905,50	65521701744	1324,00
200	60°	265	145	167	225	410	199	169	275	5552200144	864,00	5553200144	905,50	65522001744	1324,00
250	60°	305	155	215	225	460	220	190	275	5552250144	872,00	5553250144	972,50	65522501744	1498,00
300	60°	385	190	260	225	575	264	234	275	5552300244	955,50	5553300244	1065,00	65523002744	1655,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC															
100	60°	135	65	87	193	200	140	110	265	5552100245	772,00			65521002745	993,00
120	60°	160	70	112	193	230	148	118	265	5552120245	772,00			65521202745	993,00
150	60°	200	100	136	193	300	168	138	265	5552150245	789,50	5553150245	841,00	65521502745	1096,00
175	60°	218	90	170	193	308	198	168	275	5552170145	864,00	5553170145	905,50	65521701745	1324,00
200	60°	265	145	167	225	410	199	169	275	5552200145	864,00	5553200145	905,50	65522001745	1324,00
250	60°	305	155	215	225	460	220	190	275	5552250145	872,00	5553250145	972,50	65522501745	1498,00
300	60°	385	190	260	225	575	264	234	275	5552300245	955,50	5553300245	1065,00	65523002745	1655,00

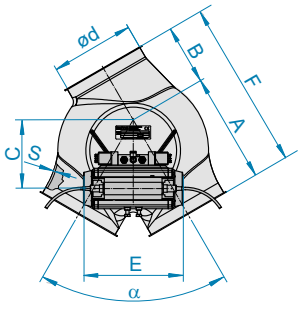
(D) DETECTABLE DESIGN

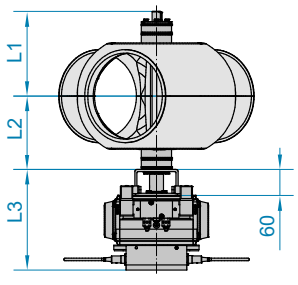
AVAILABLE IN THE DETECTABLE DESIGN LINE.

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable







TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2200

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 D internally (dust zone 20), and category 3 D externally (dust zone 22)
- Two-way valves available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version															
100	60°	135	65	87	210	200	140	110	220	55521002455	940,00			655210027455	1162,00
120	60°	160	70	112	210	230	148	118	220	55521202455	940,00			655212027455	1162,00
150	60°	200	100	136	210	300	168	138	220	55521502455	957,50	55531502455	1009,00	655215027455	1263,00
175	60°	218	90	170	210	308	198	168	220	55521701455	1032,00	55531701455	1074,00	655217017455	1492,00
200	60°	265	145	167	241	410	199	169	233	55522001455	1032,00	55532001455	1074,00	655220017455	1492,00
250	60°	305	155	215	241	460	220	190	233	55522501455	1041,00	55532501455	1142,00	655225017455	1666,00
300	60°	385	190	260	241	575	245	215	233	55523002455	1125,00	55533002455	1233,00	655230027455	1823,00

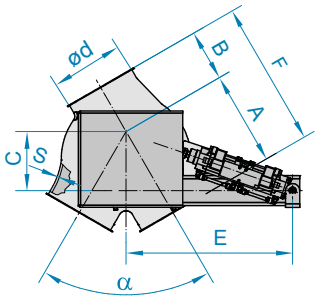
DETECTABLE DESIGN

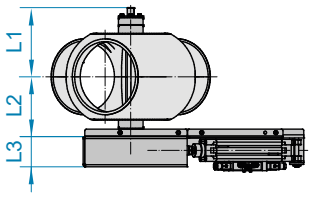
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH CYLINDER

2205

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel (F)	
										Item no.	€	Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC															
100	60°	135	65	87	440	200	140	110	88	5552100221	806,50			65521002721	1028,00
120	60°	160	70	112	440	230	148	118	88	5552120221	806,50			65521202721	1028,00
150	60°	200	100	136	440	300	168	138	88	5552150221	824,00	5553150221	875,00	65521502721	1130,00
175	60°	218	90	170	440	308	198	168	88	5552170121	899,00	5553170121	940,00	65521701721	1359,00
200	60°	265	145	167	470	410	199	169	88	5552200121	899,00	5553200121	940,00	65522001721	1359,00
250	60°	305	155	215	470	460	220	190	88	5552250121	906,50	5553250121	1008,00	65522501721	1534,00
300	60°	385	190	260	470	575	264	234	88	5552300221	990,00	5553300221	1100,00	65523002721	1690,00
Cylinder, make FESTO, control voltage 24 V DC															
100	60°	135	65	87	440	200	140	110	88	5552100223	806,50			65521002723	1028,00
120	60°	160	70	112	440	230	148	118	88	5552120223	806,50			65521202723	1028,00
150	60°	200	100	136	440	300	168	138	88	5552150223	824,00	5553150223	875,00	65521502723	1130,00
175	60°	218	90	170	440	308	198	168	88	5552170123	899,00	5553170123	940,00	65521701723	1359,00
200	60°	265	145	167	470	410	199	169	88	5552200123	899,00	5553200123	940,00	65522001723	1359,00
250	60°	305	155	215	470	460	220	190	88	5552250123	906,50	5553250123	1008,00	65522501723	1534,00
300	60°	385	190	260	470	575	264	234	88	5552300223	990,00	5553300223	1100,00	65523002723	1690,00

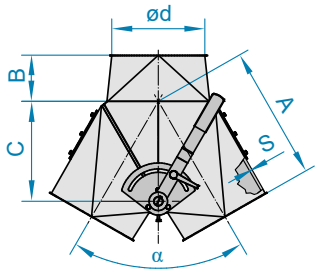
DETECTABLE DESIGN

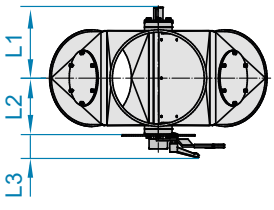
AVAILABLE IN THE DETECTABLE DESIGN LINE.

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, HAND-OPERATED

2250

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
100	60°	220	65	128	117	82	75	12101508	1045,00	12103508	1726,00
120	60°	240	70	145	127	92	75	12121508	1045,00	12123508	1726,00
150	60°	250	75	168	142	107	75	12151508	1079,00	12153508	1769,00
200	60°	300	105	218	164	132	75	12201508	1124,00	12203508	1822,00
250	60°	370	130	277	205	160	75	12251508	1159,00	12253508	1859,00
300	60°	435	150	326	230	185	75	12301508	1265,00	12303508	1947,00

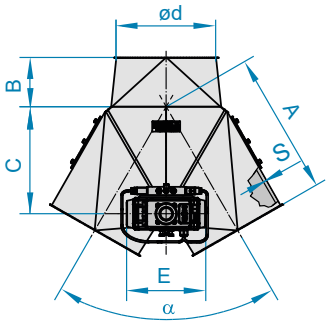
DETECTABLE DESIGN

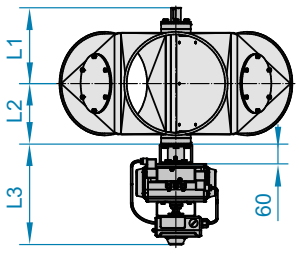
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC												
100	60°	220	65	128	193	117	82	265	5982100144	1448,00	6982100144	2112,00
120	60°	240	70	145	193	127	92	265	5982120144	1448,00	6982120144	2112,00
150	60°	250	75	168	193	142	107	302	5982150144	1480,00	6982150144	2151,00
200	60°	300	105	218	225	164	132	311	5982200144	1600,00	6982200144	2271,00
250	60°	370	130	277	271	205	160	334	5982250144	1706,00	6982250144	2381,00
300	60°	435	150	326	271	230	185	334	5982300144	1738,00	6982300144	2549,00
350	60°	500	185	377	402	255	210	354	5982350144	1995,00	6982350144	2830,00
400	60°	600	205	427	402	280	235	354	5982400144	2367,00	6982400144	3282,00
450	60°	650	225	474	486	301	261	392	5983450144*	2697,00	6983450144*	3859,00
500	60°	700	250	574	486	326	286	392	5983500144*	2943,00	6983500144*	4314,00
560	60°	800	300	592	486	437	357	392	5983560144*	3876,00	6983560144*	4990,00
630	60°	900	350	662	486	472	392	392	5983630144*	4580,00	6983630144*	5808,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC												
100	60°	220	65	128	193	117	82	265	5982100145	1448,00	6982100145	2112,00
120	60°	240	70	145	193	127	92	265	5982120145	1448,00	6982120145	2112,00
150	60°	250	75	168	193	142	107	302	5982150145	1480,00	6982150145	2151,00
200	60°	300	105	218	225	164	132	311	5982200145	1600,00	6982200145	2271,00
250	60°	370	130	277	271	205	160	334	5982250145	1706,00	6982250145	2381,00
300	60°	435	150	326	271	230	185	334	5982300145	1738,00	6982300145	2549,00
350	60°	500	185	377	402	255	210	354	5982350145	1995,00	6982350145	2830,00
400	60°	600	205	427	402	280	235	354	5982400145	2367,00	6982400145	3282,00
450	60°	650	225	474	486	301	261	392	5983450145*	2697,00	6983450145*	3859,00
500	60°	700	250	574	486	326	286	392	5983500145*	2943,00	6983500145*	4314,00
560	60°	800	300	592	486	437	357	392	5983560145*	3876,00	6983560145*	4990,00
630	60°	900	350	662	486	472	392	392	5983630145*	4580,00	6983630145*	5808,00

*3 mm

DETECTABLE DESIGN

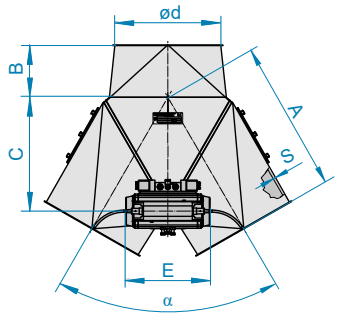
AVAILABLE IN THE DETECTABLE DESIGN LINE.

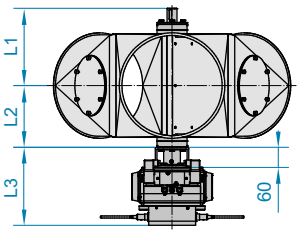
FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

9







TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version												
100	60°	220	65	128	210	117	82	220	59821001455	1616,00	69821001455	2281,00
120	60°	240	70	145	210	127	92	220	59821201455	1616,00	69821201455	2281,00
150	60°	250	75	168	245	142	107	233	59821501455	1647,00	69821501455	2320,00
200	60°	300	105	218	245	164	132	233	59822001455	1768,00	69822001455	2439,00
250	60°	370	130	277	260	205	160	245	59822501455	1874,00	69822501455	2549,00
300	60°	435	150	326	260	230	185	245	59823001455	1905,00	69823001455	2717,00
350	60°	500	185	377	345	255	210	272	59823501455	2164,00	69823501455	2999,00
400	60°	600	205	427	345	280	235	272	59824001455	2535,00	69824001455	3450,00
450	60°	650	225	474	260	450	302	302	59834501455*	2865,00	69834501455*	4027,00
500	60°	700	250	524	260	475	327	302	59835001455*	3111,00	69835001455*	4482,00
560	60°	800	300	592	260	505	357	302	59835601455*	4043,00	69835601455*	5157,00
630	60°	900	350	662	260	540	392	302	59836301455*	4748,00	69836301455*	5976,00

*3 mm

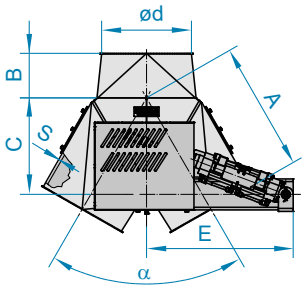
DETECTABLE DESIGN

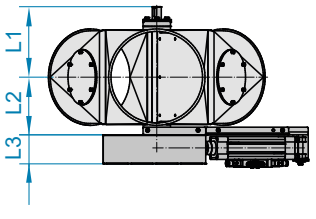
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH CYLINDER

2275

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC												
100	60°	220	65	128	440	117	82	88	5982100121	1506,00	6982100121	2169,00
120	60°	240	70	145	440	127	92	88	5982120121	1506,00	6982120121	2169,00
150	60°	250	75	168	470	142	107	88	5982150121	1536,00	6982150121	2208,00
200	60°	300	105	218	470	164	132	88	5982200121	1657,00	6982200121	2328,00
250	60°	370	130	277	470	205	160	90	5982250121	1765,00	6982250121	2437,00
300	60°	435	150	326	470	230	185	90	5982300121	1794,00	6982300121	2605,00
350	60°	500	185	377	490	255	210	110	5982350121	2060,00	6982350121	2894,00
400	60°	600	205	427	490	280	235	110	5982400121	2443,00	6982400121	3354,00
450	60°	650	225	474	540	301	261	110	5983450121*	2785,00	6983450121*	3944,00
500	60°	700	250	574	540	326	286	110	5983500121*	3037,00	6983500121*	4412,00
560	60°	800	300	592	540	437	357	110	5983560121*	3999,00	6983560121*	5101,00
630	60°	900	350	662	540	472	392	110	5983630121*	4726,00	6983630121*	5938,00
Cylinder, make FESTO, control voltage 24 V DC												
100	60°	220	65	128	440	117	82	88	5982100123	1506,00	6982100123	2169,00
120	60°	240	70	145	440	127	92	88	5982120123	1506,00	6982120123	2169,00
150	60°	250	75	168	470	142	107	88	5982150123	1536,00	6982150123	2208,00
200	60°	300	105	218	470	164	132	88	5982200123	1657,00	6982200123	2328,00
250	60°	370	130	277	470	205	160	90	5982250123	1765,00	6982250123	2437,00
300	60°	435	150	326	470	230	185	90	5982300123	1794,00	6982300123	2605,00
350	60°	500	185	377	490	255	210	110	5982350123	2116,00	6982350123	2894,00
400	60°	600	205	427	490	280	235	110	5982400123	2443,00	6982400123	3354,00
450	60°	650	225	474	540	301	261	110	5983450123*	2785,00	6983450123*	3944,00
500	60°	700	250	574	540	326	286	110	5983500123*	3037,00	6983500123*	4412,00
560	60°	800	300	592	540	437	357	110	5983560123*	3999,00	6983560123*	5101,00
630	60°	900	350	662	540	472	392	110	5983630123*	4726,00	6983630123*	5938,00

*3 mm

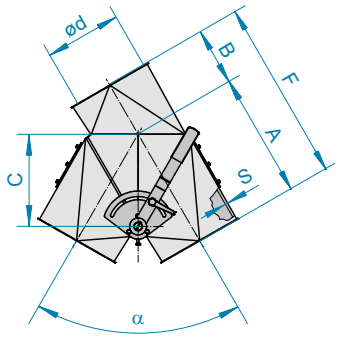
DETECTABLE DESIGN

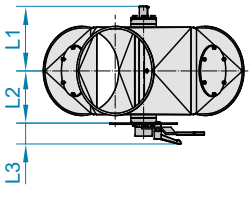
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, HAND-OPERATED

2260

- Standard version: Right-side mounting
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
100	60°	220	100	128	320	117	82	75	12101509	1045,00	12103509	1726,00
120	60°	240	110	145	350	127	92	75	12121509	1045,00	12123509	1726,00
150	60°	250	115	168	365	142	107	75	12151509	1079,00	12153509	1769,00
200	60°	300	140	218	440	164	132	75	12201509	1124,00	12203509	1822,00
250	60°	370	170	277	540	205	160	75	12251509	1159,00	12253509	1859,00
300	60°	435	200	326	635	230	185	75	12301509	1265,00	12303509	1947,00

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

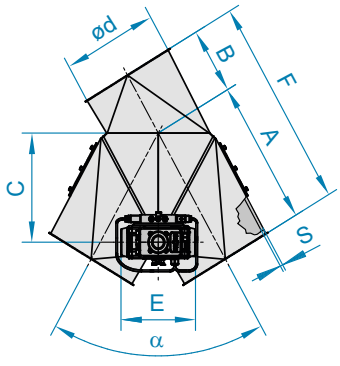
DETECTABLE DESIGN
Metal-detectable

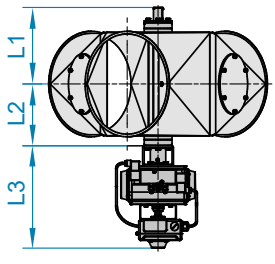


TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter





DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC													
100	60°	220	100	128	193	320	117	82	265	5992100144	1448,00	6992100144	2112,00
120	60°	240	110	145	193	350	127	92	265	5992120144	1448,00	6992120144	2112,00
150	60°	250	115	168	193	365	142	107	302	5992150144	1480,00	6992150144	2151,00
200	60°	300	140	218	225	440	164	132	311	5992200144	1600,00	6992200144	2271,00
250	60°	370	170	277	271	540	205	160	334	5992250144	1706,00	6992250144	2381,00
300	60°	435	200	326	271	635	230	185	334	5992300144	1738,00	6992300144	2549,00
350	60°	500	230	377	402	730	255	210	354	5992350144	1995,00	6992350144	2830,00
400	60°	600	250	427	402	850	280	235	354	5992400144	2367,00	6992400144	3282,00
450	60°	650	270	474	486	920	301	256	392	5993450144*	2697,00	6993450144*	3859,00
500	60°	700	300	542	486	1000	326	288	392	5993500144*	2943,00	6993500144*	4314,00
560	60°	800	350	592	486	1150	437	357	392	5993560144*	3876,00	6993560144*	4990,00
630	60°	900	400	662	486	1300	472	392	392	5993630144*	4580,00	6993630144*	5808,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC													
100	60°	220	100	128	193	320	117	82	265	5992100145	1448,00	6992100145	2112,00
120	60°	240	110	145	193	350	127	92	265	5992120145	1448,00	6992120145	2112,00
150	60°	250	115	168	193	365	142	107	302	5992150145	1480,00	6992150145	2151,00
200	60°	300	140	218	225	440	164	132	311	5992200145	1600,00	6992200145	2271,00
250	60°	370	170	277	271	540	205	160	334	5992250145	1706,00	6992250145	2381,00
300	60°	435	200	326	271	635	230	185	334	5992300145	1738,00	6992300145	2549,00
350	60°	500	230	377	402	730	255	210	354	5992350145	1995,00	6992350145	2830,00
400	60°	600	250	427	402	850	280	235	354	5992400145	2367,00	6992400145	3282,00
450	60°	650	270	474	486	920	301	256	392	5993450145*	2697,00	6993450145*	3859,00
500	60°	700	300	542	486	1000	326	288	392	5993500145*	2943,00	6993500145*	4314,00
560	60°	800	350	592	486	1150	437	357	392	5993560145*	3876,00	6993560145*	4990,00
630	60°	900	400	662	486	1300	472	392	392	5993630145*	4580,00	6993630145*	5808,00

*3 mm

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

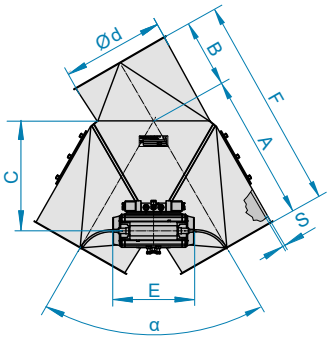
DETECTABLE DESIGN
Metal-detectable

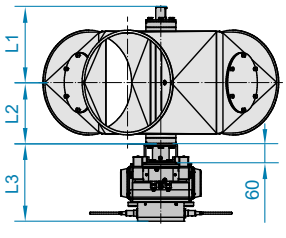


TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Shaft and inner flap with seal
- Standard version: Right-side mounting
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter





DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version													
100	60°	220	100	128	210	320	117	82	220	59921001455	1616,00	69921001455	2281,00
120	60°	240	110	145	210	350	127	92	220	59921201455	1616,00	69921201455	2281,00
150	60°	250	115	168	245	365	142	107	233	59921501455	1647,00	69921501455	2320,00
200	60°	300	140	218	245	440	164	132	233	59922001455	1768,00	69922001455	2439,00
250	60°	370	170	277	260	540	205	160	245	59922501455	1874,00	69922501455	2549,00
300	60°	435	200	326	260	635	230	185	245	59923001455	1905,00	69923001455	2717,00
350	60°	500	230	377	345	730	255	210	272	59923501455	2164,00	69923501455	2999,00
400	60°	600	250	427	345	850	280	235	272	59924001455	2535,00	69924001455	3450,00
450	60°	650	270	474	260	920	450	302	302	59934501455*	2865,00	69934501455*	4027,00
500	60°	700	300	524	260	1000	475	327	302	59935001455*	3111,00	69935001455*	4482,00
560	60°	800	350	592	260	1150	505	357	302	59935601455*	4043,00	69935601455*	5157,00
630	60°	900	400	662	260	1300	540	392	302	59936301455*	4748,00	69936301455*	5976,00

*3 mm

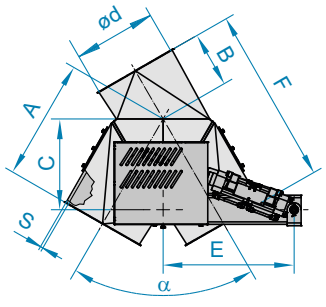
DETECTABLE DESIGN

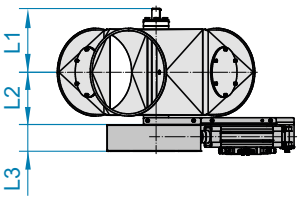
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH CYLINDER

2285

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC													
100	60°	220	100	128	440	320	117	82	88	5992100121	1506,00	6992100121	2169,00
120	60°	240	110	145	440	350	127	92	88	5992120121	1506,00	6992120121	2169,00
150	60°	250	115	168	470	365	142	107	88	5992150121	1536,00	6992150121	2208,00
200	60°	300	140	218	470	440	164	132	88	5992200121	1657,00	6992200121	2328,00
250	60°	370	170	277	470	540	205	160	90	5992250121	1765,00	6992250121	2437,00
300	60°	435	200	326	470	635	230	185	90	5992300121	1794,00	6992300121	2605,00
350	60°	500	230	377	490	730	255	210	110	5992350121	2060,00	6992350121	2894,00
400	60°	600	250	427	490	850	280	235	110	5992400121	2443,00	6992400121	3354,00
450	60°	650	270	474	540	920	301	256	110	5993450121*	2785,00	6993450121*	3944,00
500	60°	700	300	542	540	1000	326	288	110	5993500121*	3037,00	6993500121*	4412,00
560	60°	800	350	592	540	1150	437	357	110	5993560121*	3999,00	6993560121*	5101,00
630	60°	900	400	662	540	1300	472	392	110	5993630121*	4726,00	6993630121*	5938,00
Cylinder, make FESTO, control voltage 24V DC													
100	60°	220	100	128	440	320	117	82	88	5992100123	1506,00	6992100123	2169,00
120	60°	240	110	145	440	350	127	92	88	5992120123	1506,00	6992120123	2169,00
150	60°	250	115	168	470	365	142	107	88	5992150123	1536,00	6992150123	2208,00
200	60°	300	140	218	470	440	164	132	88	5992200123	1657,00	6992200123	2328,00
250	60°	370	170	277	470	540	205	160	90	5992250123	1765,00	6992250123	2437,00
300	60°	435	200	326	470	635	230	185	90	5992300123	1794,00	6992300123	2605,00
350	60°	500	230	377	490	730	255	210	110	5992350123	2060,00	6992350123	2894,00
400	60°	600	250	427	490	850	280	235	110	5992400123	2443,00	6992400123	3354,00
450	60°	650	270	474	540	920	301	256	110	5993450123*	2785,00	6993450123*	3944,00
500	60°	700	300	542	540	1000	326	288	110	5993500123*	3037,00	6993500123*	4412,00
560	60°	800	350	592	540	1150	437	357	110	5993560123*	3999,00	6993560123*	5101,00
630	60°	900	400	662	540	1300	472	392	110	5993630123*	4726,00	6993630123*	5938,00

*3 mm

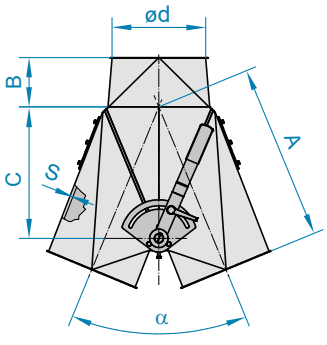
DETECTABLE DESIGN

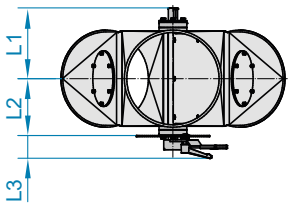
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, HAND-OPERATED

2210

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
100	45°	260	65	165	117	82	75	12101518	1144,00	12103518	1887,00
120	45°	280	70	185	127	92	75	12121518	1144,00	12123518	1887,00
150	45°	315	75	225	142	107	75	12151518	1175,00	12153518	1928,00
175	45°	350	90	255	151	119	75	12171518	1226,00	12173518	1984,00
200	45°	400	105	289	164	132	75	12201518	1226,00	12203518	1984,00
250	45°	480	130	356	205	160	75	12251518	1264,00	12253518	2024,00
300	45°	570	160	426	230	185	75	12301518	1378,00	12303518	2121,00

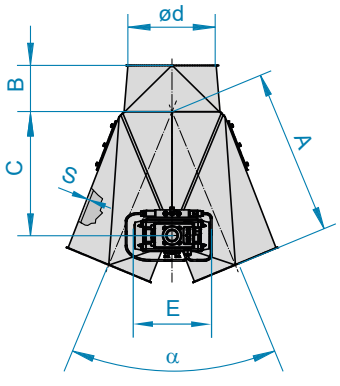
DETECTABLE DESIGN

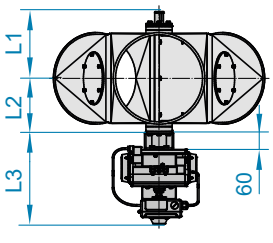
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC												
100	45°	260	65	165	193	117	82	265	5922100144	1619,00	6922100144	2342,00
120	45°	280	70	185	193	127	107	265	5922120144	1619,00	6922120144	2342,00
150	45°	315	75	225	193	142	107	265	5922150144	1646,00	6922150144	2375,00
175	45°	350	90	255	225	150	119	275	5922170144	1782,00	6922170144	2510,00
200	45°	400	105	289	225	164	132	311	5922200144	1782,00	6922200144	2510,00
250	45°	480	130	356	342	205	160	334	5922250144	1902,00	6922250144	2633,00
300	45°	570	160	426	342	230	185	334	5922300144	1929,00	6922300144	2821,00
350	45°	618	185	495	402	238	208	354	5922350144	2230,00	6922350144	3149,00
400	45°	698	205	558	402	263	233	354	5922400144	2646,00	6922400144	3649,00
450	45°	800	225	624	486	450	302	392	5923450144*	3015,00	6923450144*	4290,00
500	45°	880	250	686	486	475	327	392	5923500144*	3290,00	6923500144*	4798,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC												
100	45°	260	65	165	193	117	82	265	5922100145	1619,00	6922100145	2342,00
120	45°	280	70	185	193	127	107	265	5922120145	1619,00	6922120145	2342,00
150	45°	315	75	225	193	142	107	265	5922150145	1646,00	6922150145	2375,00
175	45°	350	90	255	225	150	119	275	5922170145	1782,00	6922170145	2510,00
200	45°	400	105	289	225	164	132	311	5922200145	1782,00	6922200145	2510,00
250	45°	480	130	356	342	205	160	334	5922250145	1902,00	6922250145	2633,00
300	45°	570	160	426	342	230	185	334	5922300145	1929,00	6922300145	2821,00
350	45°	618	185	495	402	238	208	354	5922350145	2230,00	6922350145	3149,00
400	45°	698	205	558	402	263	233	354	5922400145	2646,00	6922400145	3649,00
450	45°	800	225	624	486	450	302	392	5923450145*	3015,00	6923450145*	4290,00
500	45°	880	250	686	486	475	327	392	5923500145*	3290,00	6923500145*	4798,00

*3 mm

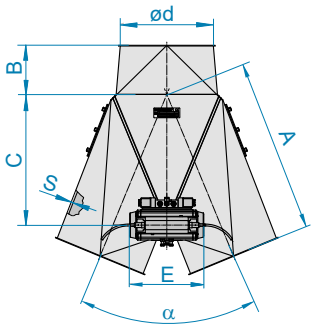
DETECTABLE DESIGN

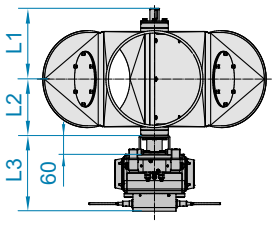
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- DN > 300 mm with welded flanges
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version												
100	45°	260	65	165	210	117	82	220	59221001455	1787,00	69221001455	2510,00
120	45°	280	70	185	210	127	92	220	59221201455	1787,00	69221201455	2510,00
150	45°	315	75	225	245	142	107	233	59221501455	1814,00	69221501455	2543,00
175	45°	350	90	255	245	151	119	233	59221701455	1950,00	69221701455	2679,00
200	45°	400	105	289	245	164	132	233	59222001455	1950,00	69222001455	2679,00
250	45°	480	130	356	260	205	160	245	59222501455	2070,00	69222501455	2802,00
300	45°	570	160	426	260	230	185	245	59223001455	2096,00	69223001455	2989,00
350	45°	618	185	495	345	238	210	272	59223501455	2399,00	69223501455	3317,00
400	45°	698	205	558	345	263	235	272	59224001455	2814,00	69224001455	3817,00
450	45°	800	225	624	260	450	302	302	59234501455*	3183,00	69234501455*	4458,00
500	45°	880	250	700	260	475	327	302	59235001455*	3458,00	69235001455*	4965,00

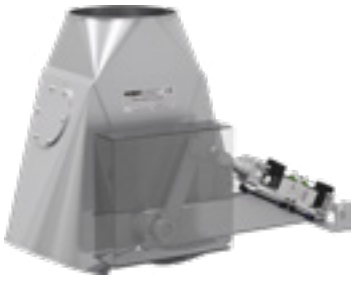
*3 mm

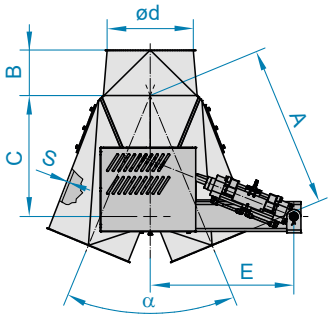
DETECTABLE DESIGN

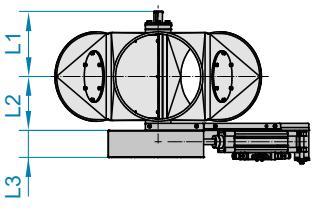
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH CYLINDER

2235

- Standard version: Right-side mounting
- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC												
100	45°	260	65	165	440	117	82	88	5922100121	1675,00	6922100121	2399,00
120	45°	280	70	185	440	127	92	88	5922120121	1675,00	6922120121	2399,00
150	45°	315	75	225	470	142	107	88	5922150121	1702,00	6922150121	2432,00
175	45°	350	90	255	470	150	119	88	5922170121	1839,00	6922170121	2567,00
200	45°	400	105	289	470	164	132	88	5922200121	1839,00	6922200121	2567,00
250	45°	480	130	356	470	205	160	90	5922250121	1960,00	6922250121	2690,00
300	45°	570	160	426	470	230	185	90	5922300121	1986,00	6922300121	2878,00
350	45°	618	185	495	490	238	208	110	5922350121	2303,00	6922350121	3252,00
400	45°	698	205	558	490	263	233	110	5922400121	2733,00	6922400121	3769,00
450	45°	800	205	624	540	450	302	110	5923450121*	3114,00	6923450121*	4434,00
500	45°	880	250	686	540	475	327	110	5923500121*	3398,00	6923500121*	4955,00
Cylinder, make FESTO, control voltage 24 V DC												
100	45°	260	65	165	440	117	82	88	5922100123	1675,00	6922100123	2399,00
120	45°	280	70	185	440	127	92	88	5922120123	1675,00	6922120123	2399,00
150	45°	315	75	225	470	142	107	88	5922150123	1702,00	6922150123	2432,00
175	45°	350	90	255	470	150	119	88	5922170123	1839,00	6922170123	2567,00
200	45°	400	105	289	470	164	132	88	5922200123	1839,00	6922200123	2567,00
250	45°	480	130	356	470	205	160	90	5922250123	1960,00	6922250123	2690,00
300	45°	570	160	426	470	230	185	90	5922300123	1986,00	6922300123	2878,00
350	45°	618	185	495	490	238	208	110	5922350123	2303,00	6922350123	3252,00
400	45°	698	205	558	490	263	233	110	5922400123	2733,00	6922400123	3769,00
450	45°	800	205	624	540	450	302	110	5923450123*	3114,00	6923450123*	4434,00
500	45°	880	250	686	540	475	327	110	5923500123*	3398,00	6923500123*	4955,00

*3 mm

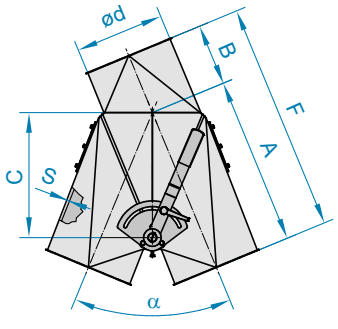
DETECTABLE DESIGN

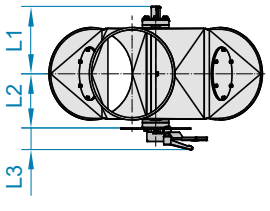
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, HAND-OPERATED

2220

- Standard version: Right-side mounting
- Shaft and inner flap with seal
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€
100	45°	260	100	165	360	117	**82**	75	12101519	1144,00	12103519	1887,00
120	45°	280	110	185	390	127	**92**	75	12121519	1144,00	12123519	1887,00
150	45°	315	115	225	430	142	**107**	75	12151519	1175,00	12153519	1928,00
175	45°	350	125	255	475	151	**119**	75	12171519	1226,00	12173519	1984,00
200	45°	400	140	289	540	164	**132**	75	12201519	1226,00	12203519	1984,00
250	45°	480	170	356	650	205	**160**	75	12251519	1264,00	12253519	2024,00
300	45°	570	210	426	780	230	**185**	75	12301519	1378,00	12303519	2121,00

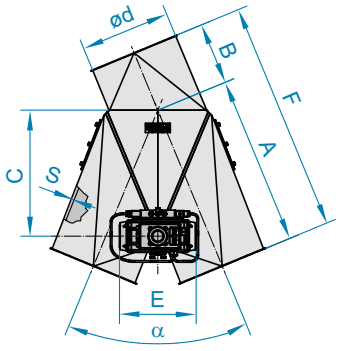
DETECTABLE DESIGN

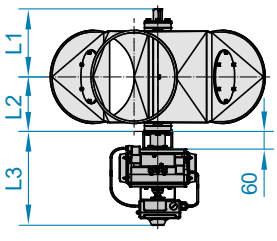
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC													
100	45°	260	100	165	193	360	117	82	265	5912100144	1619,00	6912100144	2342,00
120	45°	280	110	185	193	390	127	92	265	5912120144	1619,00	6912120144	2342,00
150	45°	315	115	225	193	430	142	107	265	5912150144	1646,00	6912150144	2375,00
175	45°	350	125	255	225	475	151	119	275	5912170144	1782,00	6912170144	2510,00
200	45°	400	140	289	225	540	164	132	311	5912200144	1782,00	6912200144	2510,00
250	45°	480	170	356	342	650	205	160	334	5912250144	1902,00	6912250144	2633,00
300	45°	570	210	426	342	780	230	185	334	5912300144	1929,00	6912300144	2821,00
350	45°	618	230	495	402	848	238	208	354	5912350144	2230,00	6912350144	3149,00
400	45°	698	250	558	402	948	263	233	354	5912400144	2646,00	6912400144	3649,00
450	45°	800	270	624	486	1070	450	302	392	5913450144*	3015,00	6913450144*	4290,00
500	45°	880	300	686	486	1180	475	327	392	5913500144*	3290,00	6913500144*	4798,00
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC													
100	45°	260	100	165	193	360	117	82	265	5912100145	1619,00	6912100145	2342,00
120	45°	280	110	185	193	390	127	92	265	5912120145	1619,00	6912120145	2342,00
150	45°	315	115	225	193	430	142	107	265	5912150145	1646,00	6912150145	2375,00
175	45°	350	125	255	225	475	150	119	275	5912170145	1782,00	6912170145	2510,00
200	45°	400	140	289	225	540	164	132	311	5912200145	1782,00	6912200145	2510,00
250	45°	480	170	356	342	650	205	160	334	5912250145	1902,00	6912250145	2633,00
300	45°	570	210	426	342	780	230	185	334	5912300145	1929,00	6912300145	2821,00
350	45°	618	230	495	402	848	238	208	354	5912350145	2230,00	6912350145	3149,00
400	45°	698	250	558	402	948	263	233	354	5912400145	2646,00	6912400145	3649,00
450	45°	800	270	624	486	1070	450	302	392	5913450145*	3015,00	6913450145*	4290,00
500	45°	880	300	686	486	1180	475	327	392	5913500145*	3290,00	6913500145*	4798,00

*3 mm

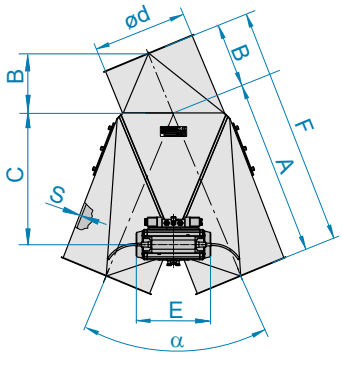
DETECTABLE DESIGN

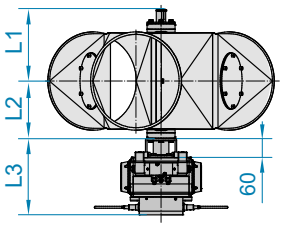
AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable







TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Standard version: Right-side mounting
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version													
100	45°	260	100	165	210	360	117	82	220	59121001455	1787,00	69121001455	2510,00
120	45°	280	110	185	210	390	127	92	220	59121201455	1787,00	69121201455	2510,00
150	45°	315	115	225	245	430	142	107	233	59121501455	1814,00	69121501455	2543,00
175	45°	350	125	255	245	475	151	119	233	59121701455	1950,00	69121701455	2679,00
200	45°	400	140	289	245	540	164	132	233	59122001455	1950,00	69122001455	2679,00
250	45°	480	170	356	260	650	205	160	245	59122501455	2070,00	69122501455	2802,00
300	45°	570	210	426	260	780	230	185	245	59123001455	2096,00	69123001455	2989,00
350	45°	618	230	495	345	848	238	210	272	59123501455	2399,00	69123501455	3317,00
400	45°	698	250	558	345	948	263	235	272	59124001455	2814,00	69124001455	3817,00
450	45°	800	270	624	260	1070	450	302	302	59134501455*	3183,00	69134501455*	4458,00
500	45°	880	300	700	260	1180	475	327	302	59135001455*	3458,00	69135001455*	4965,00

*3 mm

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

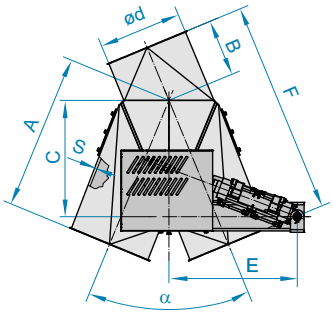
DETECTABLE DESIGN
Metal-detectable

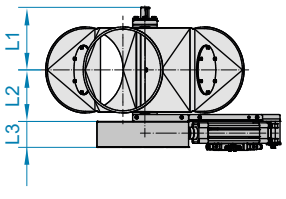


TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH CYLINDER

2245

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter





DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€
Cylinder, make FESTO, control voltage 230 V AC													
100	45°	260	100	165	440	360	117	82	88	5912100121	1675,00	6912100121	2399,00
120	45°	280	110	185	440	390	127	92	88	5912120121	1675,00	6912120121	2399,00
150	45°	315	115	225	470	430	142	107	88	5912150121	1702,00	6912150121	2432,00
175	45°	350	125	255	470	475	150	119	88	5912170121	1839,00	6912170121	2567,00
200	45°	400	140	289	470	540	164	132	88	5912200121	1839,00	6912200121	2567,00
250	45°	480	170	356	470	650	205	160	90	5912250121	1960,00	6912250121	2690,00
300	45°	570	210	426	470	780	230	185	90	5912300121	1986,00	6912300121	2878,00
350	45°	618	230	495	490	848	238	208	110	5912350121	2303,00	6912350121	3252,00
400	45°	698	250	558	490	948	263	233	110	5912400121	2733,00	6912400121	3769,00
450	45°	800	270	624	540	1070	450	302	110	5913450121*	3114,00	6913450121*	4434,00
500	45°	880	300	686	540	1180	475	327	110	5913500121*	3398,00	6913500121*	4955,00
Cylinder, make FESTO, control voltage 24 V DC													
100	45°	260	100	165	440	360	117	82	88	5912100123	1675,00	6912100123	2399,00
120	45°	280	110	185	440	390	127	92	88	5912120123	1675,00	6912120123	2399,00
150	45°	315	115	225	470	430	142	107	88	5912150123	1702,00	6912150123	2432,00
175	45°	350	125	255	470	475	150	119	88	5912170123	1839,00	6912170123	2567,00
200	45°	400	140	289	470	540	164	132	88	5912200123	1839,00	6912200123	2567,00
250	45°	480	170	356	470	650	205	160	90	5912250123	1960,00	6912250123	2690,00
300	45°	570	210	426	470	780	230	185	90	5912300123	1986,00	6912300123	2878,00
350	45°	618	230	495	490	848	238	208	110	5912350123	2303,00	6912350123	3252,00
400	45°	698	250	558	490	948	263	233	110	5912400123	2733,00	6912400123	3769,00
450	45°	800	270	624	540	1070	450	302	110	5913450123*	3114,00	6913450123*	4434,00
500	45°	880	300	686	540	1180	475	327	110	5913500123*	3398,00	6913500123*	4955,00

*3 mm

DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable



JACOB MULTI-WAY DISTRIBUTORS – FOR FLEXIBLE DISTRIBUTION OF YOUR BULK GOODS

MULTI-WAY DISTRIBUTORS

Technical information	174
Turn-head distributors	178
Double turn-head distributors	182
Turn-head distributors, dust-tight version	184
Swivel pipe switches	188

MULTI-WAY DISTRIBUTORS

JACOB multi-way distributors are the compact solution for conveying bulk goods to many different machines or silos in the course of the production process. JACOB has a range of multi-way distributors with up to 2 x 20 outlets available in its standard portfolio in order to meet a variety of requirements.



TURN-HEAD DISTRIBUTORS 45° AND 60°

Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, motor current 380-400 volt, 3-phase, 50 Hz.

2.3 rpm	1.2 rpm
DN 100 mm, 4-18 outlets	DN 100 mm, 20 outlets
DN 120 mm, 4-14 outlets	DN 120 mm, 16-20 outlets
DN 150 mm, 4-12 outlets	DN 150 mm, 14-20 outlets
DN 175 mm, 4-10 outlets	DN 175 mm, 12-20 outlets
DN 200 mm, 4-10 outlets	DN 200 mm, 12-20 outlets
	DN 250 mm, 4-16 outlets
	DN 300 mm, 4-14 outlets

Positioning with mechanical limit switches, wired on terminals in a connection box. Turn-head distributor must not be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- Deliverable in blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives

DOUBLE TURN-HEAD DISTRIBUTORS 45° AND 60°

Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through two counter-rotating turn-pipes towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear-motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, wired on terminals in a connection box. Turn-head distributor must not be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- ATEX versions on request
- Wear protection lining
- Other drives

TURN-HEAD DISTRIBUTORS 45° AND 60°, DUST-TIGHT VERSION

Versions and applications

Primed steel version. For distributing bulk goods by gravity up to a maximum of 1 bar over-pressure inside the pipework system.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Sealing of the turn-pipe outlet by means of pneumatic pressing onto outlet sleeve. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear-motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Necessary operating pressure min. 6 bar. Turn-head distributor must not be operated when transporting material.

Please indicate control voltage when ordering.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- Seals in DETECTABLE DESIGN line: Blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives
- Cover to blank off outlets that are not in use

SWIVEL PIPE SWITCHES

Versions and applications

Housing made of primed steel. Parts in contact with the products are also available in chromium-nickel steel.

For pneumatic conveying of bulk goods. Over-pressure inside the pipework system up to diameter 150 mm max. 3 bar, diameter 200 and 250 mm max. 2 bar. Necessary operating pressure min. 6 bar. Swivel pipe switch must not be operated when transporting material.

Feeding from the top through the swivel pipe towards the required outlet inside a closed casing. Sealing of swivel pipe outlet by means of pneumatic pressing-on of the telescopic pipe onto the outlet sleeve, outlets not in use pneumatically blanked off. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Please indicate control voltage when ordering.

Your individual swivel pipe switch

We have numerous versions available on request to meet the requirements of your particular system:

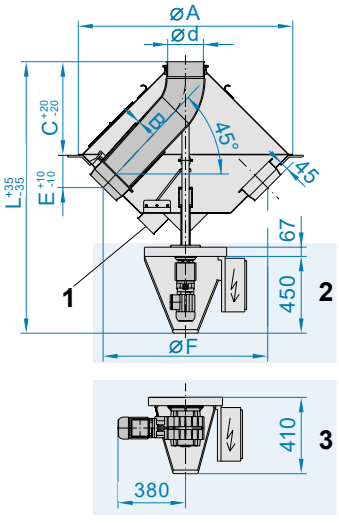
- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- ATEX versions on request
- Wear protection lining
- Other drives

For more technical information go to www.jacob-pipesystems.com



Turn-head distributors





1 Spillage outlet
2 Gear-motor 2.3 rpm
3 Gear-motor 1.2 rpm

TURN-HEAD DISTRIBUTORS 45°

2320

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5104104501	4553,00	5106104501	4738,00
120	118	800	4.0	355	155	590	1348	79	12	5104124501	4571,00	5106124501	4819,00
150	148	800	4.5	340	155	590	1333	80	25	5104154501	4642,00	5106154501	4899,00
175	173	1200	5.4	520	173	940	1576	134	45	5104174501	5156,00	5106174501	5361,00
200	198	1200	6.3	510	183	920	1568	141	65	5104204501	5240,00	5106204501	5501,00
250	248	1200	6.3	485	219	850	1540	155	100	5104254501	5858,00	5106254501	6088,00
300	298	1200	7.1	480	212	860	1538	165	150	5104304501	6382,00	5106304501	7004,00

8 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5108104501	4962,00
120	118	800	4.0	355	155	590	1348	79	12	5108124501	4996,00
150	148	1200	4.5	535	155	974	1593	129	25	5108154501	5448,00
175	173	1200	5.4	520	173	940	1576	134	45	5108174501	5624,00
200	198	1200	6.3	510	183	920	1568	141	65	5108204501	5785,00
250	248	1600	6.3	685	219	1250	1945	248	100	5108254501	7524,00
300	298	1600	7.1	680	212	1260	1940	260	150	5108304501	8917,00

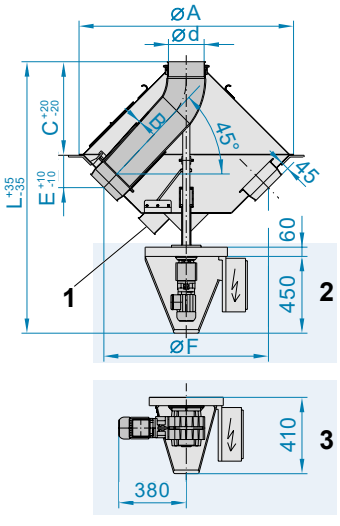
10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5110104501	5205,00
120	118	1200	4.0	550	155	974	1608	120	12	5110124501	5689,00
150	148	1200	4.5	535	155	974	1593	129	25	5110154501	5831,00
175	173	1200	5.4	520	173	940	1576	134	45	5110174501	5890,00
200	198	1200	6.3	510	183	920	1568	141	65	5110204501	6062,00
250	248	1600	6.3	685	219	1250	1945	248	100	5110254501	7807,00
300	298	1600	7.1	680	212	1260	1940	260	150	5110304501	9202,00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5112104501	5772,00
120	118	1200	4.0	550	155	974	1608	120	12	5112124501	5944,00
150	148	1200	4.5	535	155	974	1593	129	25	5112154501	6093,00
175	173	1600	5.4	720	173	1340	1980	240	45	5112174501	7873,00
200	198	1600	6.3	710	183	1320	1970	250	65	5112204501	8020,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5112254501	11248,00
300	298	2280	7.1	1010	212	1945	2205	430	150	5112304501	12973,00





1 Spillage outlet

2 Gear-motor 2.3 rpm

3 Gear-motor 1.2 rpm

14 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5114104501	6313,00
120	118	1200	4.0	550	155	974	1608	120	12	5114124501	6336,00
150	148	1600	4.5	735	155	1373	1957	230	25	5114154501	8020,00
175	173	1600	5.4	720	173	1340	1980	240	45	5114174501	8146,00
200	198	1600	6.3	710	183	1320	1970	250	65	5114204501	8311,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5114254501	11522,00
300	298	2280	7.1	1010	212	1945	2205	430	150	5114304501	13512,00

16 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5116104501	6453,00
120	118	1600	4.0	750	155	1374	1972	225	12	5116124501	7976,00
150	148	1600	4.5	735	155	1373	1957	230	25	5116154501	8224,00
175	173	1600	5.4	720	173	1340	1980	240	45	5116174501	8429,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5116204501	11398,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5116254501	11822,00

18 outlets

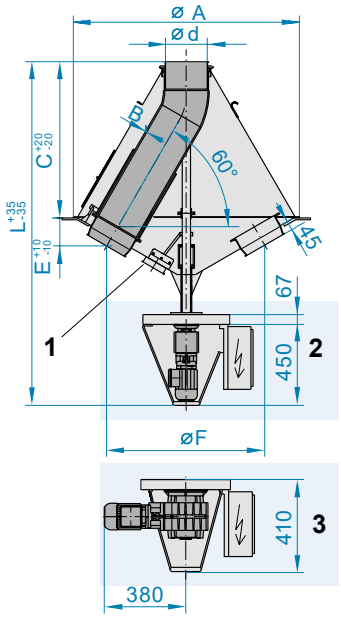
DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5118104501	6725,00
120	118	1600	4.0	750	155	1374	1972	225	12	5118124501	8394,00
150	148	1600	4.5	735	155	1373	1957	230	25	5118154501	8493,00
175	173	2280	5.4	1070	173	2022	2255	382	45	5118174501	11599,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5118204501	11650,00

20 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1600	3.6	760	138	1408	1983	220	8	5120104501	8623,00
120	118	1600	4.0	750	155	1374	1972	225	12	5120124501	8699,00
150	148	2280	4.5	1085	155	2057	2240	362	25	5120154501	11426,00
175	173	2280	5.4	1070	173	2022	2255	382	45	5120174501	11889,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5120204501	11936,00

Turn-head distributors





1 Spillage outlet
2 Gear-motor 2.3 rpm
3 Gear-motor 1.2 rpm

TURN-HEAD DISTRIBUTORS 60°

2330

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 500 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5104106001	4962,00	5106106001	4993,00
120	118	800	4.0	570	120	540	1498	84	6	5104126001	5021,00	5106126001	5110,00
150	148	800	4.5	545	125	520	1473	85	12	5104156001	5035,00	5106156001	5142,00
175	173	1200	5.4	860	130	875	1898	153	22	5104176001	5227,00	5106176001	5430,00
200	198	1200	6.3	835	135	855	1873	153	32	5104206001	5346,00	5106206001	5525,00
250	248	1200	6.3	790	150	805	1688	167	50	5104256001	6043,00	5106256001	6927,00
300	298	1200	7.1	745	160	770	1643	182	75	5104306001	7148,00	5106306001	7726,00

8 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5108106001	5276,00
120	118	800	4.0	570	120	540	1498	84	6	5108126001	5299,00
150	148	1200	4.5	880	125	910	1918	140	12	5108156001	5577,00
175	173	1200	5.4	860	130	875	1898	153	22	5108176001	5689,00
200	198	1200	6.3	835	135	855	1873	153	32	5108206001	5817,00
250	248	1600	6.3	1140	150	1205	2158	267	50	5108256001	7677,00
300	298	1600	7.1	1095	160	1170	2113	287	75	5108306001	9032,00

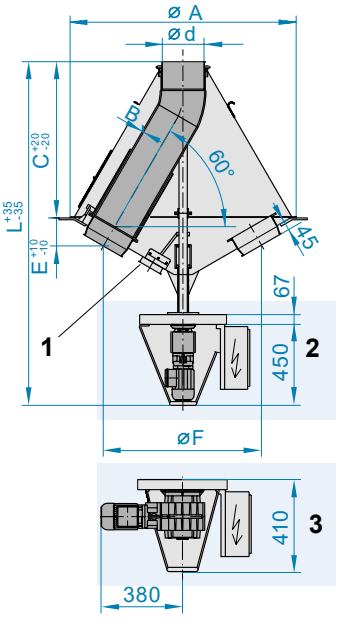
10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5110106001	5571,00
120	118	1200	4.0	905	120	930	1943	134	6	5110126001	5870,00
150	148	1200	4.5	880	125	910	1918	140	12	5110156001	5880,00
175	173	1200	5.4	860	130	875	1898	153	22	5110176001	6025,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5110206001	7697,00
250	248	1600	6.3	1140	150	1205	2158	267	50	5110256001	7853,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5110306001	11018,00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5112106001	6137,00
120	118	1200	4.0	905	120	930	1943	134	6	5112126001	6306,00
150	148	1200	4.5	880	125	910	1918	140	12	5112156001	6473,00
175	173	1600	5.4	1210	130	1275	2328	250	22	5112176001	7910,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5112206001	8102,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5112256001	11290,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5112306001	13016,00





1 Spillage outlet
2 Gear-motor 2.3 rpm
3 Gear-motor 1.2 rpm

14 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5114106001	6453,00
120	118	1200	4.0	905	120	930	1943	134	6	5114126001	6653,00
150	148	1600	4.5	1230	125	1310	2348	240	12	5114156001	8027,00
175	173	1600	5.4	1210	130	1275	2328	250	22	5114176001	8171,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5114206001	8361,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5114256001	11564,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5114306001	13566,00

16 and 18 outlets

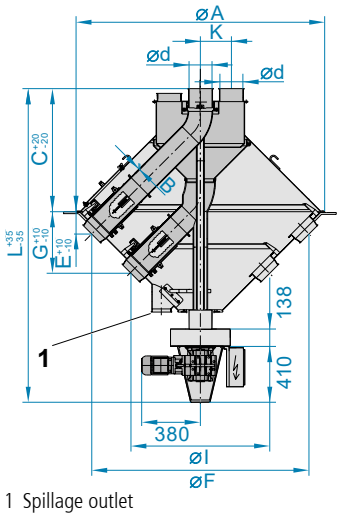
DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	16 outlets		18 outlets	
										Item no.	€	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5116106001	6688,00	5118106001	6983,00
120	118	1600	4.0	1255	120	1330	2373	235	6	5116126001	8216,00	5118126001	8429,00
150	148	1600	4.5	1230	125	1310	2348	240	12	5116156001	8294,00	5118156001	8557,00
175	173	2280	5.4	1815	130	1954	3133	405	22	5116176001	11042,00	5118176001	11650,00
200	198	2280	6.3	1790	135	1937	3108	430	32	5116206001	11447,00	5118206001	11739,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5116256001	11851,00		

20 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1600	3.6	1275	112	1350	2393	227	4	5120106001	8788,00
120	118	1600	4.0	1255	120	1330	2373	235	6	5120126001	8833,00
150	148	2280	4.5	1835	125	2019	3153	380	12	5120156001	11571,00
175	173	2280	5.4	1815	130	1954	3133	405	22	5120176001	11938,00
200	198	2280	6.3	1790	135	1937	3108	430	32	5120206001	12024,00

Double turn-head distributors





1 Spillage outlet

DOUBLE TURN-HEAD DISTRIBUTORS 45°

2340

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- Lower funnel circumference according to data sheet
- Spillage outlet DN 120 mm
- Please also read and take into account the technical information given at the beginning of this chapter

2 x 8 and 2 x 10 outlets

DN	Ø d	ØA	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 8 outlets		2 x 10 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52081245	19616,00	52101245	20127,00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52081545	19876,00	52101545	20364,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52081745	21896,00	52101745	22289,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52082045	22595,00	52102045	22953,00
250	248	2280	6.3	1110	210	1960	530	1325	290	2900	577	100	52082545	23487,00	52102545	23843,00

2 x 12 outlets

DN	Ø d	ØA	B	C	E	Ø F	G	I	K	L	kg	t/h	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52121245	20634,00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52121545	20656,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52121745	22628,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52122045	23313,00

2 x 14 and 2 x 16 outlets

DN	Ø d	ØA	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 14 outlets		2 x 16 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52141245	21144,00	52161245	21701,00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52141545	22487,00	52161545	23059,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52141745	22968,00	52161745	23416,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52142045	23668,00	52162045	24048,00

2 x 18 and 2 x 20 outlets

DN	Ø d	ØA	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 18 outlets		2 x 20 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1170	150	2075	345	1690	160	2410	532	12	52181245	23286,00	52201245	23533,00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52181545	23565,00	52201545	24069,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52181745	23868,00		

DOUBLE TURN-HEAD DISTRIBUTORS 60°

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 500 kg/m³, with a moisture content of max. 15 %
- Lower funnel circumference according to data sheet
- Spillage outlet DN 120 mm
- Please also read and take into account the technical information given at the beginning of this chapter

2 x 8 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	Item no.	€
120	118	1600	4.0	1285	115	1325	265	805	160	2420	350	6	52081260	19797,00
150	148	1600	4.5	1255	120	1310	305	680	190	2390	355	12	52081560	20056,00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52081760	22441,00
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52082060	23090,00
250	248	2280	6.3	1765	155	1890	425	1000	290	3100	597	50	52082560	24031,00

2 x 10 and 2 x 12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 10 outlets		2 x 12 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	1285	115	1325	265	805	160	2420	350	6	52101260	20406,00	52121260	20911,00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52101560	22090,00	52121560	22384,00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52101760	22840,00	52121760	23166,00
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52102060	23348,00	52122060	23789,00

2 x 14 and 2 x 16 outlets

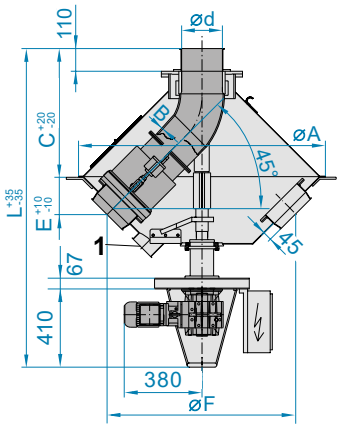
DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 14 outlets		2 x 16 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1890	115	2025	265	1505	160	3225	545	6	52141260	22612,00	52161260	23155,00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52141560	22687,00	52161560	23397,00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52141760	23594,00	52161760	23937,00

2 x 18 and 2 x 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 18 outlets		2 x 20 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1890	115	2025	265	1505	160	3225	545	6	52181260	23668,00	52201260	24159,00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52181560	23944,00	52201560	24374,00

Turn-head distributors, dust-tight version





1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 45°

2360

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54041045	10821,00	54061045	11172,00
120	118	1200	5.0	621	155	980	1595	54041245	10965,00	54061245	11219,00
150	148	1200	5.6	640	155	980	1614	54041545	11045,00	54061545	11298,00
175	173	1200	5.4	622	173	944	1596	54041745	11219,00	54061745	11404,00
200	198	1200	6.3	626	183	924	1600	54042045	11404,00	54062045	11521,00
250	248	1600	6.3	784	219	1252	1960	54042545	12201,00	54062545	12667,00
300	298	1600	7.1	817	219	1252	1993	54043045	13350,00	54063045	14516,00

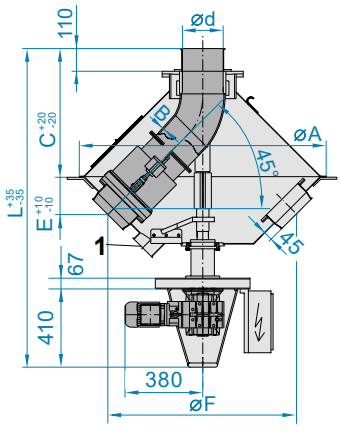
8 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54081045	11309,00
120	118	1200	5.0	621	155	980	1595	54081245	11437,00
150	148	1200	5.6	640	155	980	1614	54081545	11590,00
175	173	1200	5.4	622	173	944	1596	54081745	11655,00
200	198	1200	6.3	626	183	924	1600	54082045	11708,00
250	248	1600	6.3	784	219	1252	1960	54082545	14395,00
300	298	1600	7.1	817	219	1252	1993	54083045	15160,00

10 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54101045	11484,00
120	118	1200	5.0	621	155	980	1595	54101245	11702,00
150	148	1200	5.6	640	155	980	1614	54101545	11816,00
175	173	1200	5.4	622	173	944	1596	54101745	11886,00
200	198	1600	6.3	826	183	1324	2002	54102045	14252,00
250	248	1600	6.3	784	219	1252	1960	54102545	14705,00





1 Spillage outlet

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54121045	11779,00
120	118	1200	5.0	621	155	980	1595	54121245	11934,00
150	148	1200	5.6	640	155	980	1614	54121545	12090,00
175	173	1600	5.4	822	173	1344	1998	54121745	14567,00
200	198	1600	6.3	826	183	1324	2002	54122045	14759,00

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54141045	12043,00
120	118	1200	5.0	621	155	980	1595	54141245	12173,00
150	148	1600	5.6	840	155	1380	2016	54141545	14598,00
175	173	1600	5.4	822	173	1344	1998	54141745	14850,00

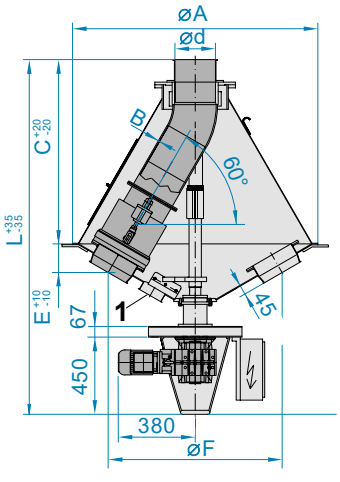
16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54161045	12306,00
120	118	1600	5.0	821	155	1380	1997	54161245	14765,00
150	148	1600	5.6	840	155	1380	2016	54161545	14912,00
175	173	1600	5.4	822	173	1344	1998	54161745	15208,00

18 and 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	843	138	1414	2019	54181045	14052,00	54201045	14276,00
120	118	1600	5.0	821	155	1380	1997	54181245	15088,00	54201245	15336,00





1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 60°

2370

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	970	112	958	1889	54041060	11158,00	54061060	11361,00
120	118	1200	5.0	946	120	932	1865	54041260	11437,00	54061260	11610,00
150	148	1200	5.6	939	125	914	1858	54041560	11466,00	54061560	11621,00
175	173	1200	5.4	910	135	880	1829	54041760	11886,00	54061760	12190,00
200	198	1200	6.3	910	140	862	1829	54042060	12034,00	54062060	12334,00
250	248	1600	6.3	1215	155	1210	2250	54042560	12505,00	54062560	12795,00
300	298	1600	7.1	1196	165	1176	2231	54043060	14678,00	54063060	15622,00

8 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54081060	11637,00
120	118	1200	5.0	946	120	932	1865	54081260	12085,00
150	148	1200	5.6	939	125	914	1858	54081560	12213,00
175	173	1200	5.4	910	135	880	1829	54081760	12526,00
200	198	1200	6.3	910	140	862	1829	54082060	12846,00
250	248	1600	6.3	1215	155	1210	2250	54082560	14777,00
300	298	1600	7.1	1196	165	1176	2231	54083060	16208,00

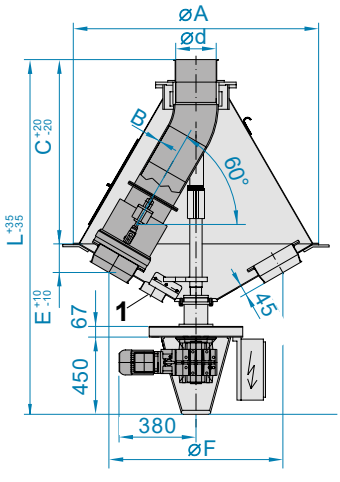
10 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54101060	12119,00
120	118	1200	5.0	946	120	932	1865	54101260	12467,00
150	148	1200	5.6	939	125	914	1858	54101560	12562,00
175	173	1200	5.4	910	135	880	1829	54101760	13042,00
200	198	1600	6.3	1256	140	1262	2291	54102060	14942,00
250	248	1600	6.3	1215	155	1210	2250	54102560	15314,00
300	298	2280	7.1	1785	165	1856	3016	54103060	18294,00

12 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54121060	12554,00
120	118	1200	5.0	946	120	932	1865	54121260	12838,00
150	148	1600	5.6	1285	125	1314	2320	54121560	14499,00
175	173	1600	5.4	1257	135	1280	2292	54121760	15227,00
200	198	1600	6.3	1256	140	1262	2291	54122060	15367,00
250	248	2280	6.3	1804	155	1890	3035	54122560	18375,00
300	298	2280	7.1	1785	165	1856	3016	54123060	19678,00





1 Spillage outlet

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54141060	13005,00
120	118	1200	5.0	946	120	932	1865	54141260	13193,00
150	148	1600	5.6	1285	125	1314	2320	54141560	14908,00
175	173	1600	5.4	1257	135	1280	2292	54141760	15503,00
200	198	2280	6.3	1845	140	1942	3076	54142060	18533,00
250	248	2280	6.3	1804	155	1890	3035	54142560	18807,00
300	298	2280	7.1	1785	165	1856	3016	54143060	20841,00

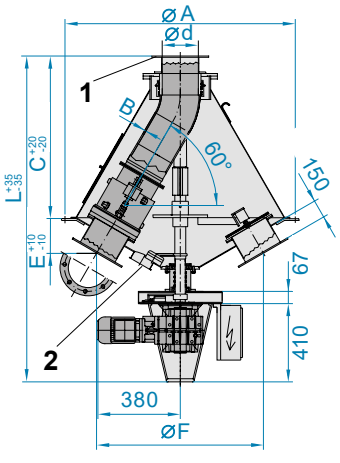
16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54161060	13279,00
120	118	1600	5.0	1293	120	1332	2328	54161260	14915,00
150	148	1600	5.6	1285	125	1314	2320	54161560	15236,00
175	173	2280	5.4	1845	135	1960	3076	54161760	18731,00
200	198	2280	6.3	1845	140	1942	3076	54162060	18888,00
250	248	2280	6.3	1804	155	1890	3035	54162560	19343,00

18 and 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	1316	112	1358	2351	54181060	14931,00	54201060	15175,00
120	118	1600	5.0	1293	120	1332	2328	54181260	15218,00	54201260	15460,00
150	148	2280	5.6	1874	125	1994	3105	54181560	18815,00	54201560	19041,00
175	173	2280	5.4	1845	135	1960	3076	54181760	18879,00	54201760	19240,00
200	198	2280	6.3	1845	140	1942	3076	54182060	18988,00	54202060	19390,00





1 Inlet and outlets with welded-on flanges according to DIN 1092-1, PN 10

2 Spillage outlet

SWIVEL PIPE SWITCHES 60°

2340

- All dimensions are approximate
- Inlet and outlets with welded-on flanges according to DIN EN 1092-1, PN 10, 10 mm thick
- Hole pattern axial-free (without counter flange)
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53040860	13409,00	53060860	14139,00
100	99	1200	8.0	970	203	1064	1889	53041060	13434,00	53061060	14174,00
120	118	1200	8.0	946	211	1038	1865	53041260	13865,00	53061260	14650,00
150	148	1200	10.0	939	216	1020	1858	53041560	14620,00	53061560	15417,00
200	197	1200	11.0	910	231	968	1829	53042060	18117,00	53062060	19089,00

8 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	8 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53080860	14904,00
100	99	1200	8.0	970	203	1064	1889	53081060	14936,00
120	118	1200	8.0	946	211	1038	1865	53081260	15482,00
150	148	1200	10.0	939	216	1020	1858	53081560	16289,00
200	197	1200	11.0	910	231	968	1829	53082060	20047,00

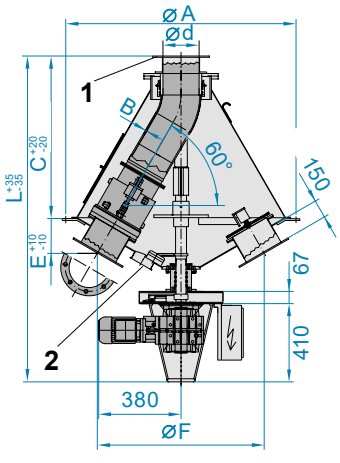
10 and 12 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	10 outlets		12 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53100860	15658,00	53120860	16410,00
100	99	1200	8.0	970	203	1064	1889	53101060	15844,00	53121060	16476,00
120	118	1200	8.0	946	211	1038	1865	53101260	16270,00	53121260	17082,00
150	148	1200	10.0	939	216	1020	1858	53101560	17119,00		
200	197	1600	11.0	1256	231	1368	2291	53102060	21017,00	53122060	22018,00

14 outlets

DN	Ø d	ØA	B	C	E	Ø F	L	14 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53140860	17167,00
100	99	1200	8.0	970	203	1064	1889	53141060	17247,00





1 Inlet and outlets with welded-on flanges according to DIN 1092-1, PN 10

2 Spillage outlet

4 and 6 outlets, product-contacting parts made of stainless steel

DN	Ø d	ØA	B	C	E	ØF	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
80	80	1200	4.5	998	193	1096	1917	63040860	15986,00	63060860	16825,00
100	99	1200	7.1	970	203	1064	1889	63041060	16043,00	63061060	16855,00
120	118	1200	9.5	946	211	1038	1865	63041260	16566,00	63061260	17459,00
150	148	1200	8.5	939	216	1020	1858	63041560	17571,00	63061560	18408,00
200	197	1200	11.0	910	231	968	1829	63042060	21656,00	63062060	22716,00

8 outlets, product-contacting parts made of stainless steel

DN	Ø d	ØA	B	C	E	ØF	L	8 outlets	
								Item no.	€
80	80	1200	4.5	998	193	1096	1917	63080860	17665,00
100	99	1200	7.1	970	203	1064	1889	63081060	17703,00
120	118	1200	9.5	946	211	1038	1865	63081260	18332,00
150	148	1200	8.5	939	216	1020	1858	63081560	19333,00
200	197	1200	11.0	910	231	968	1829	63082060	23759,00

10 and 12 outlets, product-contacting parts made of stainless steel

DN	Ø d	ØA	B	C	E	ØF	L	10 outlets		12 outlets	
								Item no.	€	Item no.	€
80	80	1200	4.5	998	193	1096	1917	63100860	18500,00	63120860	19343,00
100	99	1200	7.1	970	203	1064	1889	63101060	18550,00	63121060	19408,00
120	118	1200	9.5	946	211	1038	1865	63101260	19223,00	63121260	20115,00
150	148	1200	8.5	939	216	1020	1858	63101560	20244,00		
200	197	1600	11.0	1256	231	1368	2291	63102060	24830,00	63122060	26029,00

14 outlets, product-contacting parts made of stainless steel

DN	Ø d	ØA	B	C	E	ØF	L	14 outlets	
								Item no.	€
80	80	1200	4.5	998	193	1096	1917	63140860	20171,00
100	99	1200	7.1	970	203	1064	1889	63141060	20250,00

FOOD GRADE
EC 1935/2004 plus FDA compliant



THE WHOLE JACOB DIVERSITY – WITH LOOSE AND WELDED FLANGES

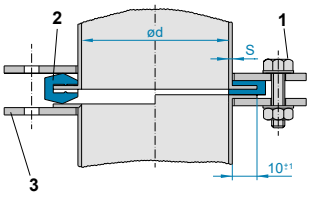
THE FLANGE RANGE

Technical information	192
Welded pipes	196
Push-in pipes and accessories	199
Segments and bends	201
Branch pieces	213
Transition pieces and adapters	220
Cleaning pipes	224
Throttle valves	226
Flanges, seals and installation kit	227

FOR LARGE DIAMETERS: FLANGES

The whole world of JACOB diversity is also available with a flange connection. Larger diameters with a high level of tightness are available in particular for large ventilation systems extracting dust, oil mist or other condensates. JACOB's range of flanges provides the ideal solution for this purpose.





JACOB loose flange system
1 Mounting bolts
2 U-shaped seal for 10 mm lip
3 Loose flange to DIN 24154-2
S = Wall thickness
Ød = Internal diameter

IMPLEMENTATION

JACOB flanged pipework is available in wall thicknesses from 1 to 3 mm. Pipe components and pressed components for loose flange connections from DN 350 to 1250 mm are provided with a 10 mm lip. The flanges are pre-fitted and are connected with a U-shaped seal and nuts and bolts. The U-shaped seal for loose flanges is fitted over one of the lipped ends. The flanges are then bolted to each other. Diameters 1400 and 1600 mm are provided with welded-on flanges in the standard version.

Mild steel:

DN 350 to 630 mm:
- Surface powder-coated, conductive, RAL 7032 (pebble grey) or galvanised
- Electrostatic continuity can be achieved through the use of the EPDM U-shaped seal or the earthing lug with earthing wire

DN 710 to 1600 mm:
- Corrosion protection: Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised
- Priming coat is not conductive
- Electrostatic continuity can be achieved through the use of earthing lugs in conjunction with earthing wire

DN 1400 to 1600 mm:
- Standard version with 3 mm wall thickness
- With welded-on flanges
- Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised

All mass-produced parts made of mild steel are delivered with earthing lugs to safeguard the loose flanges.

Stainless steel:
- DN 350 to 1250 mm:
  - Version with galvanised loose flanges
  - Alternatively: Loose flange in shotblasted stainless steel
  - Surface shotblasted
  - For diameters >DN 630 mm, surface pickled and passivated, depending on order volume
- DN 1400 to 1600 mm
  - Standard version with 3 mm wall thickness
  - With welded-on stainless steel flanges
  - All stainless steel parts >DN 1250 mm are pickled and passivated

Refer to chapter 1, Materials and finishing, for more information on materials and tolerances.
See chapter 1, types of connection and dimensions, for an overview of internal diameters.

SEALS

JACOB has U-shaped seals and ring seals in a variety of materials to obtain the best possible seal even with the loose flange system.

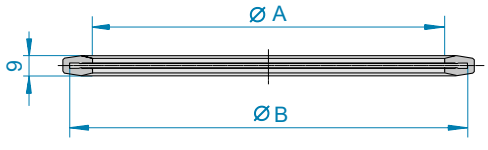
- Tear-resistant, FOOD GRADE and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness through an ideal profile
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)

U-shaped seals for loose flange system with 10 mm lip



NBR	Silicone (F)	Silicone (F) (D)	EPDM	Viton (FKM) (F)
grey white	beige	blue	black	black
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Profile for loose flange pipework with a 10 mm lip

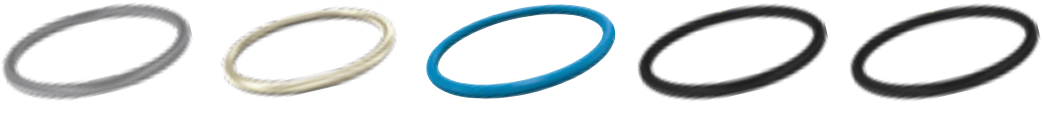


Use for 1-3 mm pipework system

For connecting:
- 2 pipe components with loose flange from > DN 350 mm with 10 mm lip
- Pipe component with a welded flange in conjunction with a pipe component with a loose flange

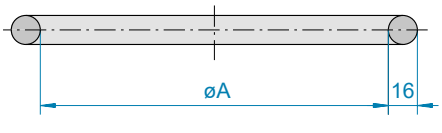
A U-shaped seal (chapter 2) must be used for pipe components with a loose flange diameter of up to 350 mm and a 6 mm lip

Ring seals for push-in pipes with a flange connection



NBR	Silicone (F)	Silicone (F) (D)	EPDM	Viton (FKM) (F)
grey white	beige	blue	black	black
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Profile diameter: 16 mm



Use for 1-3 mm pipework system

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable

Flat seals for loose flanges and welded flanges



NBR	Silicone (F)	Silicone (F) (D)	EPDM
grey white	transparent	blue	black
EC 1935/2004 up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	
-30°C to +80°C	-60°C to +230°C	-60°C to +230°C	-40°C to +100°C
Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm
from DN 1120 mm glued from segments	from DN 1120 mm glued from segments	from DN 1120 mm glued from segments	from DN 1120 mm glued from segments
		metal-detectable	electrostatically conductive

- Thickness: DN 350 to 800 mm: 3 mm, DN 900 to 1600 mm: 4 mm
- Temperatures apply for adhesive-free silicone seals up to DN 1000 mm

Seals for cleaning pipes

- In stainless steel version, door sealed with silicone seal (beige)
- Alternatively, also available in DETECTABLE DESIGN line with blue silicone seal
- In version with powder-coated or galvanised surfaces, door sealed with NBR seal



NBR	Silicone (F)	Silicone (F) (D)
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

APPLICATIONS

Use in the area of bulk goods conveying and ventilation systems at over-pressures of 50,000 Pa (500 mbar, 5000 mm WG). DN 900 to 1250 mm with loose flanges are only recommended for use in air. In the case of higher tightness requirements, we recommend welded-on flanges from diameters of 900 mm.

Pipes in 1 mm wall thickness and cleaning pipes for ventilation systems up to 100 mbar over-pressure can be used.

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable

EXPLOSION PROTECTION

Flanged pipework was tested in the following configuration up to 3 bar over-pressure:

Pipes	2 mm thick up to DN 800 mm
Segments 5°to 45°	2 mm thick up to DN 800 mm
Bends 30° to 90°	2 mm thick up to DN 800 mm
T-pieces	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Forks 30° and 45°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 630 mm
Cone pieces	2 mm thick up to DN 630 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 60°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 90°	3 mm thick up to DN 630 mm

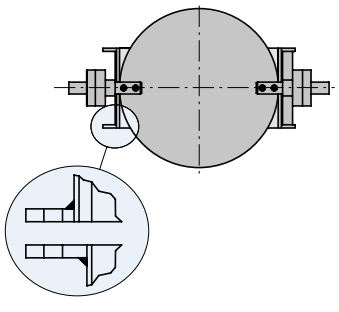
- For shock explosion proof pipe connections, bolt quality 8.8 is required
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm

Cleaning pipes are not available in a shock explosion proof version. Alternatively, inspection pipes (diameter of opening 115 mm) up to DN 630 mm pipe diameter can be delivered in a special version.

YOUR INDIVIDUAL PIPEWORK SYSTEM

We can supply your individual pipework system on request. Prices on request.

- JACOB pipework system with welded-on flanges
- Over 3,000 special colours
- Earthing lugs on request
- Additional diameters and wall thicknesses
- Stainless steel with pickled and passivated surface, including up to a diameter of 1250 mm
- Stainless steel in other steel qualities,
  e.g. 1.4571, AISI 316Ti with flanges in pickled and passivated stainless steel
- 3 mm pipes and pressed components on request, stainless steel only available with welded-on flanges



Special version: Throttle valve from DN 400 mm with glued silicone seal
– Without cross-section constriction
– Shaft with ball bearings and sealed with a Viton O-ring

THROTTLE VALVES

- Diameters: DN 350 to 1250 mm
- DN 350 to 800 mm available with loose flange according to DIN 24154-2
- From DN 900 mm, 3 mm wall thickness with welded-on flanges according to DIN 24154-2
- Shafts with ball bearings and sealed with Viton O-rings
- DN 350 and 400 mm also available with 6 mm lip, see chapter 8

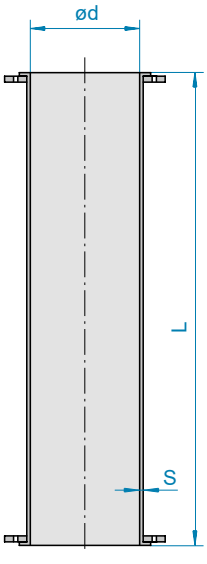
Special versions available – prices on request

- From DN 400 mm to DN 1000 mm with glued silicone inner flap seal and welded-on flanges according to DIN 24154-2, but without counter-flange (see drawing)
- Version with pneumatic or electric actuator

INSTALLATION INFORMATION

- Mounting bolts in installation kit: see page 226
- Bolt torque: M10 = 40 Nm, M 12 = 60 Nm





The pipe length and diameter DN are nominal dimensions, the actual length is indicated in L

PIPES 2000 MM

6010

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1976	40.60	21351010	90,60	22351010	125,00	21352010	129,00	22352010	193,00
400	398	1976	46.20	21401010	123,00	22401010	167,50	21402010	162,50	22402010	246,00
450	448	1976	52.10	21451010	142,00	22451010	213,00	21452010	187,50	22452010	305,00
500	498	1976	57.90	21501010	151,50	22501010	231,00	21502010	205,50	22502010	336,00
560	558	1976	64.70			22561010	260,50			22562010	403,50
630	628	1980	75.00			22631010	291,50			22632010	459,00
710	707	1980	84.00			22711010	401,50			22712010	533,00
800	797	1980	100.00			22801010	464,50			22802010	616,00
900	897	1980	108.92			229910104090	523,50			229920104090	772,00
1000	998	1980	121.14			229910104100	587,50			229920104100	916,00
1120	1118	1980	146.60			229910104112	707,50			229920104112	1080,00
1250	1248	1980	163.46			229910104125	804,00			229920104125	1216,00
1400	1398	2000	253.10			239910105140*	1429,00			239920105140*	2072,00
1600	1598	2000	288.86			239910105160*	1761,00			239920105160*	2498,00

*3 mm

Stainless steel (dimensions for 2 mm pipework)

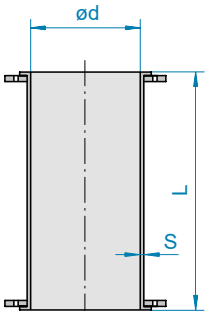
DN	Ø d	L	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1976	40.60	21353010	232,00	22353010	386,50	213530103	314,00	223530103	468,00
400	398	1976	46.20	21403010	289,00	22403010	446,50	214030103	383,50	224030103	541,00
450	448	1976	52.10	21453010	335,00	22453010	496,50	214530103	432,00	224530103	593,50
500	498	1976	57.90	21503010	387,00	22503010	583,00	215030103	484,00	225030103	680,00
560	558	1976	64.70			22563010	633,50			225630103	820,50
630	628	1980	75.00			22633010	700,00			226330103	877,00
710	707	1980	84.00			22713010	733,00			227130103	916,50
800	797	1980	100.00			22803010	869,00				
900	897	1980	108.92			229930104090	1018,00				
1000	998	1980	121.14			229930104100	1172,00				
1120	1118	1980	146.60			229930104112	1359,00				
1250	1248	1980	163.46			229930104125	1558,00				
1400	1398	2000	253.10							239930105140*	2934,00
1600	1598	2000	288.86							239930105160*	3548,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





The pipe length and diameter DN are nominal dimensions, the actual length is indicated in L

PIPES 1000 MM

6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	976	22.70	21351020	64,80	22351020	77,10	21352020	90,40	22352020	128,50
400	398	976	25.30	21401020	76,30	22401020	101,00	21402020	105,00	22402020	149,00
450	448	976	29.40	21451020	87,70	22451020	126,00	21452020	120,50	22452020	182,00
500	498	976	33.20	21501020	94,00	22501020	141,00	21502020	131,50	22502020	201,00
560	558	976	36.60			22561020	156,00			22562020	246,50
630	628	976	45.00			22631020	173,50			22632020	274,00
710	707	980	48.00			22711020	211,00			22712020	304,50
800	797	980	56.00			22801020	243,00			22802020	358,00
900	897	980	63.63			229910204090	300,00			229920204090	445,00
1000	998	980	70.77			229910204100	389,50			229920204100	589,50
1120	1118	980	90.20			229910204112	497,50			229920204112	725,00
1250	1248	980	100.53			229910204125	543,50			229920204125	794,50
1400	1398	1000	147.55			239910205140*	962,50			239920205140*	1338,00
1600	1598	1000	168.23			239910205160*	1167,00			239920205160*	1595,00

*3 mm

Stainless steel (dimensions for 2 mm pipework)

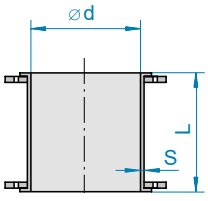
DN	Ø d	L	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	976	22.70	21353020	151,00	22353020	224,00	213530203	232,50	223530203	306,00
400	398	976	25.30	21403020	189,00	22403020	267,50	214030203	283,50	224030203	362,00
450	448	976	29.40	21453020	206,50	22453020	287,50	214530203	303,50	224530203	384,50
500	498	976	33.20	21503020	229,00	22503020	328,50	215030203	326,00	225030203	425,50
560	558	976	36.60			22563020	380,00			225630203	566,50
630	628	976	45.00			22633020	427,50			226330203	605,50
710	707	980	48.00			22713020	466,00			227130203	649,50
800	797	980	56.00			22803020	562,00				
900	897	980	63.63			229930204090	655,00				
1000	998	980	70.77			229930204100	767,00				
1120	1118	980	90.20			229930204112	897,00				
1250	1248	980	100.53			229930204125	1006,00				
1400	1398	1000	147.55							239930205140*	2021,00
1600	1598	1000	168.23							239930205160*	2383,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





The pipe length and diameter DN are nominal dimensions, the actual length is indicated in L

PIPES 500 MM

6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21351030	49,20	22351030	55,30	21352030	67,20	22352030	88,00
400	398	478	16.30	21401030	56,90	22401030	68,80	21402030	76,60	22402030	100,50
450	448	478	18.50	21451030	64,50	22451030	81,10	21452030	87,50	22452030	123,00
500	498	478	20.60	21501030	68,40	22501030	90,50	21502030	92,90	22502030	130,50
560	558	478	22.60			22561030	103,50			22562030	168,00
630	628	478	25.40			22631030	114,00			22632030	191,50
710	707	480	32.00			22711030	149,50			22712030	238,50
800	797	480	36.00			22801030	180,00			22802030	281,50
900	897	480	40.98			229910304090	220,50			229920304090	325,00
1000	998	480	45.60			229910304100	285,50			229920304100	421,00
1120	1118	480	62.00			229910304112	364,00			229920304112	521,50
1250	1248	480	69.07			229910304125	406,50			229920304125	578,00
1400	1398	500	94.78			239910305140*	718,50			239920305140*	959,00
1600	1598	500	107.92			239910305160*	853,50			239920305160*	1128,00

*3 mm

Stainless steel (dimensions for 2 mm pipework)

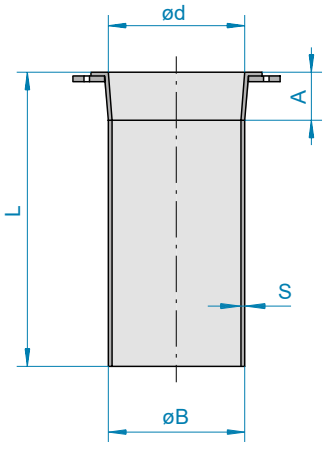
DN	Ø d	L	kg	1 mm stainless steel with galvanised loose flanges				2 mm stainless steel with stainless steel shotblasted loose flange			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21353030	99,70	22353030	136,50	213530303	182,50	223530303	218,50
400	398	478	16.30	21403030	129,50	22403030	169,50	214030303	223,50	224030303	264,00
450	448	478	18.50	21453030	138,00	22453030	192,50	214530303	235,00	224530303	290,00
500	498	478	20.60	21503030	146,00	22503030	216,50	215030303	243,00	225030303	313,50
560	558	478	22.60			22563030	256,00			225630303	443,50
630	628	478	25.40			22633030	283,50			226330303	461,50
710	707	480	32.00			22713030	323,50			227130303	507,00
800	797	480	36.00			22803030	393,00				
900	897	480	40.98			229930304090	466,50				
1000	998	480	45.60			229930304100	562,00				
1120	1118	480	62.00			229930304112	691,50				
1250	1248	480	69.07			229930304125	766,00				
1400	1398	500	94.78							239930305140*	1540,00
1600	1598	500	107.92							239930305160*	1769,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





PUSH-IN PIPES 1000 MM

6020

- For information on push-in pipe applications, see chapter 3
- One side with loose flange
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Use in conjunction with ring seal and flange for push-in pipe

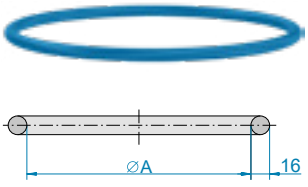
Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	350	50	345	986	18.00	21351110	80,90	22351110	94,50	21352110	111,50	22352110	139,00
400	399	50	394	986	22.00	21401110	100,50	22401110	118,00	21402110	134,50	22402110	168,50
450	448	50	444	986	29.45	21451110	120,50	22451110	135,00	21452110	150,50	22452110	214,00
500	498	50	494	986	29.40	21501110	135,50	22501110	156,50	21502110	159,50	22502110	233,50
560	558	50	554	986	32.00			22561110	182,00			22562110	255,50
630	628	50	624	986	36.00			22631110	196,50			22632110	268,00
710	707	50	703	986	42.00			22711110	218,00			22712110	312,50
800	797	100	792	986	40.00			22801110	276,50			22802110	358,00

Stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm stainless steel with galvanised loose flanges		2 mm stainless steel with galvanised loose flange	
						Item no.	€	Item no.	€
350	350	50	345	986	18.00	21353110	190,00	22353110	249,50
400	399	50	394	986	22.00	21403110	205,50	22403110	300,50
450	448	50	444	986	29.45	21453110	213,50	22453110	314,50
500	498	50	494	986	29.40	21503110	238,50	22503110	354,00
560	558	50	554	986	32.00			22563110	391,00
630	628	50	624	986	36.00			22633110	443,50
710	707	50	703	986	42.00			22713110	517,50
800	797	100	792	986	40.00			22803110	595,00

FOOD GRADE
EC 1935/2004 plus FDA compliant



RING SEALS FOR PUSH-IN PIPES WITH A FLANGE CONNECTION

6030

- Usable for 1-3 mm pipework system
- Use in conjunction with push-in pipe and flange for push-in pipe
- Protect pipework against axial displacement
- Admissible differential pressure: approx. 50 mbar
- Please also read and take into account the technical information given at the beginning of this chapter

Use for 1-3 mm pipework system

DN	ØA	kg	NBR grey		Silicone beige (F)		Silicone blue (F)(D)		EPDM black		FKM black (F)	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	327	0.34	203561177	20,40	2035711709	35,40	20357117091	45,00	2035811759	22,10	20359117978	30,30
400	373	0.38	204061177	20,40	2040711709	36,80	20407117091	47,50	2040811759	22,70	20409117989	30,30
450	421	0.42	204561177	22,80	2045711709	40,10	20457117091	51,10	2045811759	24,40	20459117910	0,50
500	468	0.48	205061177	24,20	2050711709	43,70	20507117091	56,90	2050811759	25,80	20509117911	1,50
560	524	0.54	205661177	26,30	2056711709	48,00	20567117091	62,40	2056811759	27,90	20569117912	6,00
630	591	0.60	206361177	29,20	2063711709	53,10	20637117091	69,20	2063811759	30,60	20639117914	1,00
710	666	0.69	207161177	31,50	2071711709	58,40	20717117091	76,10	2071811759	32,80	20719117915	7,00
800	761	0.78	208061177	38,70	2080711709	69,80	20807117091	88,80	2080811759	35,90	20809117916	8,00



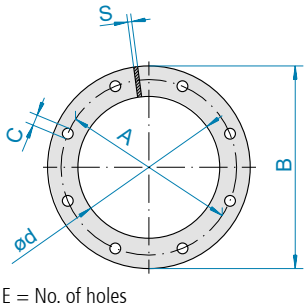
FLANGES FOR PUSH-IN PIPES

6040

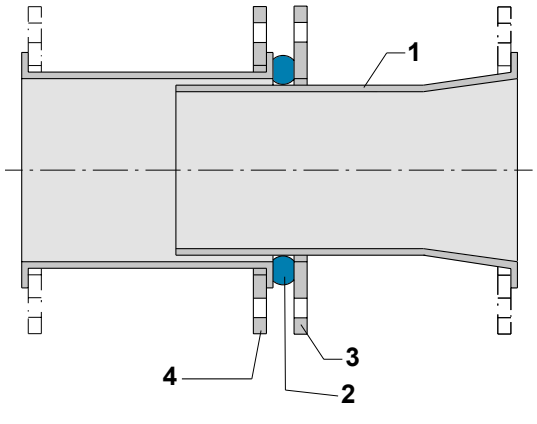
- Use in conjunction with ring seal for push-in pipe and standard pipe with loose flange
- Use 50 mm long mounting bolts

Powder-coated, galvanised and stainless steel

DN	Ø d	A	B	C	E	S	kg	Powder-coated		Galvanised		Stainless steel	
								Item no.	€	Item no.	€	Item no.	€
350	348	405	438	11.5	8	8	3.46	20351724	28,20	20352724	35,30	20353724	54,40
400	398	448	488	11.5	12	8	3.88	20401724	32,00	20402724	39,90	20403724	60,60
450	448	497	538	11.5	12	8	4.33	20451724	35,30	20452724	44,40	20453724	68,70
500	498	551	588	11.5	12	8	4.77	20501724	42,80	20502724	53,80	20503724	75,40
560	556	629	656	14	16	8	5.86	20561724	71,70	20562724	86,00	20563724	141,00
630	626	698	726	14	16	8	6.56	20631724	79,90	20632724	95,40	20633724	156,00
710	705	775	805	14	16	8	7.34	20711724	107,00	20712724	140,00	20713724	185,00
800	795	861	895	14	24	8	8.16	20801724	129,50	20802724	174,00	20803724	216,00



E = No. of holes

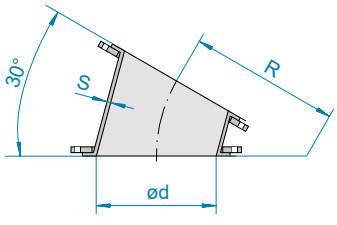


1 Push-in pipe
2 Ring seal for push-in pipe
3 Flange for push-in pipe
4 Straight pipe with loose flange

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable





SEGMENTS 30°

6100

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	438	9.40	21351320	59,20	22351320	63,00
400	398	500	11.20	21401320	65,90	22401320	76,50
450	448	563	14.40	21451320	74,80	22451320	81,50
500	498	625	17.10	21501320	82,30	22501320	87,60
560	558	700	17.00			22561320	105,50
630	628	788	26.00			22631320	117,50
710	707	888	30.00			22711320	152,00
800	797	1000	38.00			22801320	233,00
900	897	1126	43.88			229913204090	304,50
1000	998	1250	51.89			229913204100	379,00
1120	1118	1400	73.28			229913204112	492,00
1250	1248	1563	86.79			229913204125	587,00
1400	1398	1751	134.58			239913205140*	1091,00
1600	1598	2000	168.41			239913205160*	1346,00

*3 mm

Galvanised (dimensions for 2 mm pipework)

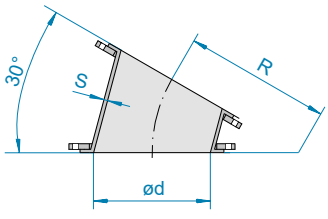
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	438	9.40	21352320	75,10	22352320	84,10
400	398	500	11.20	21402320	86,60	22402320	103,00
450	448	563	14.40	21452320	96,70	22452320	116,00
500	498	625	17.10	21502320	106,50	22502320	129,00
560	558	700	17.00			22562320	138,00
630	628	788	26.00			22632320	162,50
710	707	888	30.00			22712320	189,00
800	797	1000	38.00			22802320	299,00
900	897	1126	43.88			229923204090	418,00
1000	998	1250	51.89			229923204100	534,50
1120	1118	1400	73.28			229923204112	680,00
1250	1248	1563	86.79			229923204125	808,00
1400	1398	1751	134.58			239923205140*	1445,00
1600	1598	2000	168.41			239923205160*	1791,00

*3 mm

Shock explosion proof tested up to 3 bar

Segments and bends



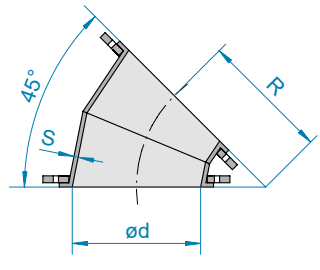


Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted	
				1.5 mm		2 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€
350	349	438	9.40	21353320	113,00	22353320	123,50	223533203	205,50
400	398	500	11.20	21403320	131,00	22403320	152,00	224033203	246,00
450	448	563	14.40	21453320	147,00	22453320	162,50	224533203	259,00
500	498	625	17.10	21503320	158,50	22503320	175,00	225033203	272,00
560	558	700	17.00			22563320	210,50	225633203	397,50
630	628	788	26.00			22633320	247,50	226333203	425,00
710	707	888	30.00			22713320	284,50	227133203	468,00
800	797	1000	38.00			22803320	351,50		
900	897	1126	43.88			229933204090	482,50		
1000	998	1250	51.89			229933204100	633,00		
1120	1118	1400	73.28			229933204112	791,00		
1250	1248	1563	86.79			229933204125	961,50		
1400	1398	1751	134.58					239933205140*	2132,00
1600	1598	2000	168.41					239933205160*	2554,00

*3 mm





2 lobster back segments 22.5°

SEGMENTS 45°

6110

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

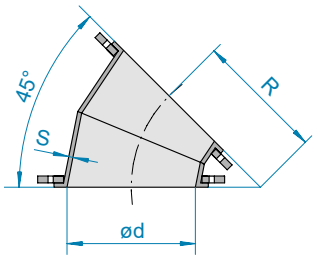
DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	11.40	21351330	91,80	22351330	106,50
400	398	400	13.30	21401330	105,50	22401330	120,00
450	448	450	16.40	21451330	117,00	22451330	136,00
500	498	500	19.00	21501330	133,50	22501330	149,50
560	558	560	21.00			22561330	181,00
630	628	630	27.00			22631330	212,50
710	707	710	34.00			22711330	242,50
800	797	800	42.00			22801330	272,00
900	897	900	51.53			229913304090	355,50
1000	998	1000	61.30			229913304100	455,50
1120	1118	1120	85.15			229913304112	587,50
1250	1248	1250	101.59			229913304125	720,00
1400	1398	1400	162.30			239913305140*	1321,00
1600	1598	1600	204.68			239913305160*	1647,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





2 lobster back segments 22.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	11.40	21352330	115,50	22352330	131,50
400	398	400	13.30	21402330	130,50	22402330	149,00
450	448	450	16.40	21452330	144,50	22452330	164,00
500	498	500	19.00	21502330	164,50	22502330	187,50
560	558	560	21.00			22562330	223,50
630	628	630	27.00			22632330	271,00
710	707	710	34.00			22712330	297,50
800	797	800	42.00			22802330	335,00
900	897	900	51.53			229923304090	469,00
1000	998	1000	61.30			229923304100	614,50
1120	1118	1120	85.15			229923304112	795,50
1250	1248	1250	101.59			229923304125	969,50
1400	1398	1400	162.30			239923305140*	1722,00
1600	1598	1600	204.68			239923305160*	2151,00

*3 mm

Stainless steel (dimensions for 2 mm pipework)

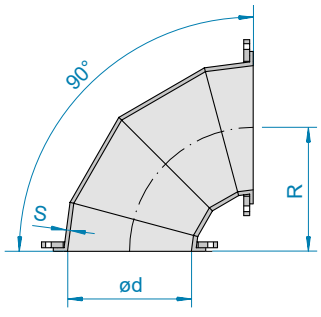
DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	11.40	21353330	174,00	22353330	204,00	213533303	255,50	223533303	285,50
400	398	400	13.30	21403330	217,00	22403330	237,50	214033303	311,50	224033303	331,50
450	448	450	16.40	21453330	242,50	22453330	274,00	214533303	339,00	224533303	371,00
500	498	500	19.00	21503330	272,00	22503330	299,00	215033303	369,00	225033303	396,00
560	558	560	21.00			22563330	360,00			225633303	547,00
630	628	630	27.00			22633330	431,00			226333303	608,50
710	707	710	34.00			22713330	457,00			227133303	641,00
800	797	800	42.00			22803330	494,00				
900	897	900	51.53			229933304090	637,50				
1000	998	1000	61.30			229933304100	830,50				
1120	1118	1120	85.15			229933304112	1053,00				
1250	1248	1250	101.59			229933304125	1298,00				
1400	1398	1400	162.30							239933305140*	2721,00
1600	1598	1600	204.68							239933305160*	3323,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





4 lobster back segments:
2 x 30° / 2 x 15°

BENDS R = 1 D, 90°

6120

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	16.00	21351339	180,00	22351339	188,50
400	398	400	20.40	21401339	215,00	22401339	224,50
450	448	450	24.40	21451339	231,00	22451339	251,00
500	498	500	24.60	21501339	267,00	22501339	278,00
560	558	560	36.00			22561339	298,50
630	628	630	46.00			22631339	344,50
710	707	710	56.00			22711339	399,00
800	797	800	66.00			22801339	481,00
900	897	900	82.77			229913394090	587,50
1000	998	1000	99.85			229913394100	754,50
1120	1118	1120	133.45			229913394112	963,00
1250	1248	1250	161.74			229913394125	1215,00
1400	1398	1400	275.38			239913395140*	2201,00
1600	1598	1600	352.37			239913395160*	2817,00

*3 mm

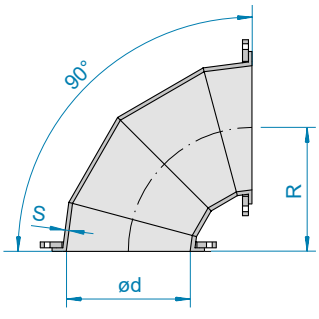
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	16.00	21352339	209,00	22352339	218,00
400	398	400	20.40	21402339	252,00	22402339	262,50
450	448	450	24.40	21452339	265,50	22452339	294,00
500	498	500	24.60	21502339	306,50	22502339	332,50
560	558	560	36.00			22562339	380,50
630	628	630	46.00			22632339	442,50
710	707	710	56.00			22712339	514,50
800	797	800	66.00			22802339	628,50
900	897	900	82.77			229923394090	783,00
1000	998	1000	99.85			229923394100	995,00
1120	1118	1120	133.45			229923394112	1278,00
1250	1248	1250	161.74			229923394125	1602,00
1400	1398	1400	275.38			239923395140*	2942,00
1600	1598	1600	352.37			239923395160*	3775,00

*3 mm

Shock explosion proof tested up to 3 bar





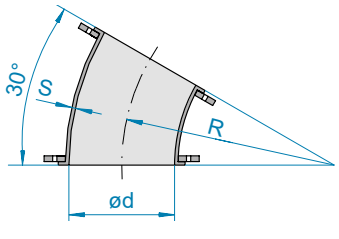
4 lobster back segments:
2 x 30° / 2 x 15°

Stainless steel (dimensions for 2 mm pipework)

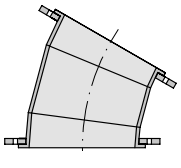
DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	16.00	21353339	330,00	22353339	345,00	213533393	412,00	223533393	426,50
400	398	400	20.40	21403339	382,50	22403339	399,00	214033393	476,50	224033393	493,50
450	448	450	24.40	21453339	444,50	22453339	465,00	214533393	541,50	224533393	562,00
500	498	500	24.60	21503339	503,00	22503339	526,50	215033393	600,50	225033393	623,50
560	558	560	36.00			22563339	592,50			225633393	779,50
630	628	630	46.00			22633339	662,00			226333393	840,00
710	707	710	56.00			22713339	769,00			227133393	952,50
800	797	800	66.00			22803339	907,50			228033393	1170,00
900	897	900	82.77			229933394090	1090,00				
1000	998	1000	99.85			229933394100	1379,00				
1120	1118	1120	133.45			229933394112	1771,00				
1250	1248	1250	161.74			229933394125	2181,00				
1400	1398	1400	275.38							239933395140*	4447,00
1600	1598	1600	352.37							239933395160*	5620,00

*3 mm





1 pressed segment 30°



3 lobster back segments:
1 x 15° / 2 x 7.5°

BENDS R = 2 D, 30°

6130

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	13.20			22351343	103,00
400	398	800	15.20			22401343	121,00
450	448	900	19.00	21451343	140,00	22451343	147,00
500	498	1000	28.00	21501343	157,50	22501343	166,00
560	558	1120	28.00			22561343	198,00
630	628	1260	34.00			22631343	245,50
710	707	1420	42.00			22711343	289,00
800	797	1600	50.50			22801343	368,00
900	897	1800	60.57			229913434090	461,50
1000	998	2000	72.45			229913434100	585,00
1120	1118	2240	99.08			229913434112	750,00
1250	1248	2500	118.94			229913434125	909,50
1400	1398	2800	194.92			239913435140*	1677,00
1600	1598	3200	247.28			239913435160*	2129,00

*3 mm

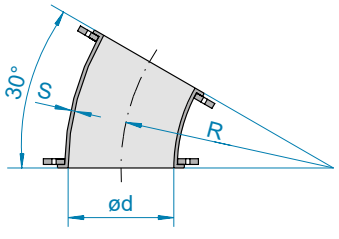
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar

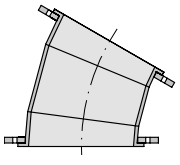
11

Segments and bends





1 pressed segment 30°



3 lobster back segments:
1 x 15° / 2 x 7.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	13.20			22352343	129,50
400	398	800	15.20			22402343	152,00
450	448	900	19.00	21452343	167,00	22452343	205,00
500	498	1000	23.00	21502343	193,50	22502343	227,00
560	558	1120	28.00			22562343	265,50
630	628	1260	34.00			22632343	329,50
710	707	1420	42.00			22712343	378,50
800	797	1600	50.50			22802343	478,50
900	897	1800	60.57			229923434090	606,50
1000	998	2000	72.45			229923434100	789,50
1120	1118	2240	99.08			229923434112	1011,00
1250	1248	2500	118.94			229923434125	1243,00
1400	1398	2800	194.92			239923435140*	2235,00
1600	1598	3200	247.28			239923435160*	2846,00

*3 mm

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	13.20			22353343	197,00	213533433	271,50	223533433	279,00
400	398	800	15.20			22403343	211,00	214033433	301,00	224033433	305,50
450	448	900	19.00	21453343	255,50	22453343	281,00	214533433	352,50	224533433	377,50
500	498	1000	23.00	21503343	284,00	22503343	314,50	215033433	381,00	225033433	411,50
560	558	1120	28.00			22563343	403,50			225633433	590,50
630	628	1260	34.00			22633343	477,50			226333433	655,50
710	707	1420	42.00			22713343	563,50			227133433	747,00
800	797	1600	50.50			22803343	654,00				
900	897	1800	60.57			229933434090	778,00				
1000	998	2000	72.45			229933434100	972,50				
1120	1118	2240	99.08			229933434112	1231,00				
1250	1248	2500	118.94			229933434125	1526,00				
1400	1398	2800	194.92							239933435140*	3165,00
1600	1598	3200	247.28							239933435160*	3935,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

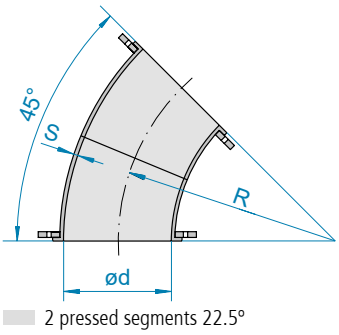
Shock explosion proof tested
up to 3 bar

BENDS R = 2 D, 45°

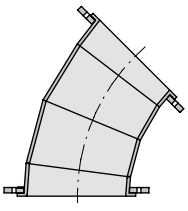
6140



- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



2 pressed segments 22.5°



4 lobster back segments: 2 x 15° / 2 x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	17.12			22351344	134,50
400	398	800	20.00			22401344	167,50
450	448	900	24.20	21451344	183,00	22451344	196,50
500	498	1000	29.50	21501344	202,50	22501344	219,50
560	558	1120	37.00			22561344	259,50
630	628	1260	39.20			22631344	290,00
710	707	1420	54.00			22711344	327,00
800	797	1600	72.76			22801344	408,50
900	897	1800	81.66			229913444090	543,50
1000	998	2000	98.48			229913444100	715,00
1120	1118	2240	131.72			229913444112	903,50
1250	1248	2500	159.59			229913444125	1102,00
1400	1398	2800	271.33			239913445140*	2067,00
1600	1598	3200	347.09			239913445160*	2666,00

*3 mm

Galvanised (dimensions for 2 mm pipework)

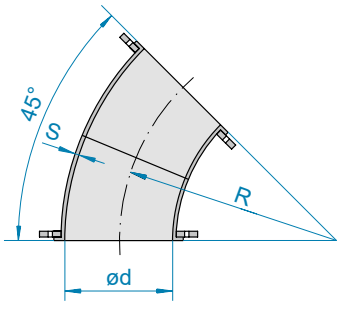
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	17.12			22352344	167,00
400	398	800	20.00			22402344	207,50
450	448	900	24.20	21452344	217,50	22452344	261,50
500	498	1000	29.50	21502344	240,00	22502344	292,00
560	558	1120	37.00			22562344	338,00
630	628	1260	39.20			22632344	379,50
710	707	1420	54.00			22712344	437,00
800	797	1600	72.76			22802344	531,00
900	897	1800	81.66			229923444090	689,00
1000	998	2000	98.48			229923444100	945,00
1120	1118	2240	131.72			229923444112	1237,00
1250	1248	2500	159.59			229923444125	1500,00
1400	1398	2800	271.33			239923445140*	2762,00
1600	1598	3200	347.09			239923445160*	3570,00

*3 mm

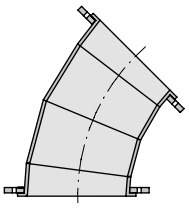
Shock explosion proof tested up to 3 bar

Segments and bends





2 pressed segments 22.5°



4 lobster back segments:
2 x 15° / 2 x 7.5°

Stainless steel (dimensions for 2 mm pipework)

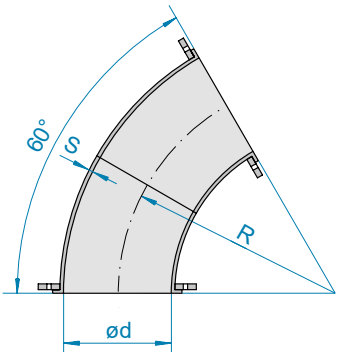
DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	17.12			22353344	280,50	213533443	319,00	223533443	362,00
400	398	800	20.00			22403344	315,50	214033443	372,50	224033443	410,00
450	448	900	24.20	21453344	340,50	22453344	375,50	214533443	437,00	224533443	472,50
500	498	1000	29.50	21503344	402,00	22503344	446,50	215033443	498,50	225033443	543,50
560	558	1120	37.00			22563344	550,00			225633443	736,50
630	628	1260	39.20			22633344	655,50			226333443	833,00
710	707	1420	54.00			22713344	772,50			227133443	956,00
800	797	1600	72.76			22803344	896,50				
900	897	1800	81.66			229933444090	1068,00				
1000	998	2000	98.48			229933444100	1335,00				
1120	1118	2240	131.72			229933444112	1666,00				
1250	1248	2500	159.59			229933444125	2038,00				
1400	1398	2800	271.33							239933445140*	4186,00
1600	1598	3200	347.09							239933445160*	5324,00

*3 mm

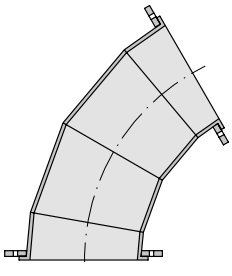
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





2 pressed segments 30°



4 lobster back segments:
2 x 20° / 2 x 10°

Shock explosion proof tested up to 3 bar

BENDS R = 2 D, 60°

6150

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	19.40			22351346	175,50
400	398	800	23.80			22401346	202,50
450	448	900	29.40	21451346	223,50	22451346	237,50
500	498	1000	36.00	21501346	259,50	22501346	270,50
560	558	1120	45.00			22561346	345,50
630	628	1260	56.00			22631346	405,50
710	707	1420	69.00			22711346	453,00
800	797	1600	84.00			22801346	543,50
900	897	1800	103.12			229913464090	702,00
1000	998	2000	124.97			229913464100	902,00
1120	1118	2240	164.95			229913464112	1151,00
1250	1248	2500	200.97			229913464125	1407,00
1400	1398	2800	349.13			239913465140*	2646,00
1600	1598	3200	448.69			239913465160*	3370,00

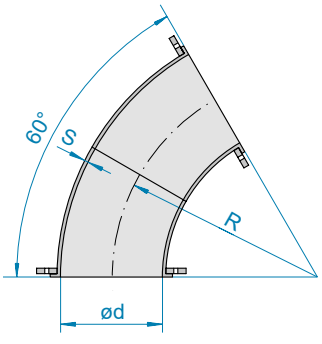
*3 mm

Galvanised (dimensions for 2 mm pipework)

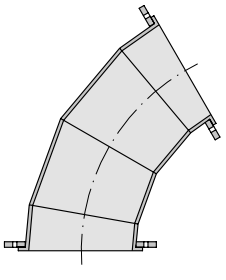
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	19.40			22352346	216,00
400	398	800	23.80			22402346	249,50
450	448	900	29.40	21452346	280,00	22452346	324,00
500	498	1000	36.00	21502346	312,50	22502346	386,00
560	558	1120	45.00			22562346	455,50
630	628	1260	56.00			22632346	528,50
710	707	1420	69.00			22712346	611,00
800	797	1600	84.00			22802346	764,00
900	897	1800	103.12			229923464090	955,50
1000	998	2000	124.97			229923464100	1243,00
1120	1118	2240	164.95			229923464112	1569,00
1250	1248	2500	200.97			229923464125	1916,00
1400	1398	2800	349.13			239923465140*	3544,00
1600	1598	3200	448.69			239923465160*	4522,00

*3 mm





2 pressed segments 30°



4 lobster back segments:
2 x 20° / 2 x 10°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	19.40			22353346	358,00	213533463	399,00	223533463	440,50
400	398	800	23.80			22403346	416,50	214033463	466,00	224033463	511,00
450	448	900	29.40	21453346	490,50	22453346	539,00	214533463	587,50	224533463	636,00
500	498	1000	36.00	21503346	531,00	22503346	581,00	215033463	628,00	225033463	677,50
560	558	1120	45.00			22563346	693,50			225633463	881,00
630	628	1260	56.00			22633346	816,50			226333463	994,00
710	707	1420	69.00			22713346	964,00			227133463	1148,00
800	797	1600	84.00			22803346	1206,00				
900	897	1800	103.12			229933464090	1436,00				
1000	998	2000	124.97			229933464100	1705,00				
1120	1118	2240	164.95			229933464112	2150,00				
1250	1248	2500	200.97			229933464125	2639,00				
1400	1398	2800	349.13							239933465140*	5322,00
1600	1598	3200	448.69							239933465160*	6706,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

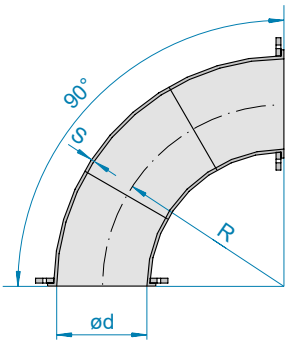
Shock explosion proof tested
up to 3 bar

BENDS R = 2 D, 90°

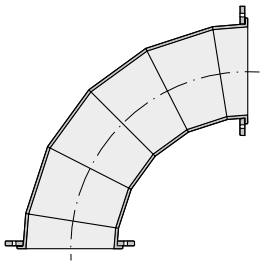
6160



- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



3 pressed segments 30°



6 lobster back segments:
4 x 18° / 2 x 9°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	25.20			22351349	233,50
400	398	800	31.80			22401349	272,00
450	448	900	41.50	21451349	341,50	22451349	358,50
500	498	1000	48.60	21501349	383,50	22501349	402,00
560	558	1120	62.00			22561349	464,50
630	628	1260	68.80			22631349	528,50
710	707	1420	94.00			22711349	624,50
800	797	1600	120.00			22801349	781,00
900	897	1800	145.24			229913494090	989,50
1000	998	2000	176.95			229913494100	1275,00
1120	1118	2240	230.14			229913494112	1617,00
1250	1248	2500	282.16			229913494125	1988,00
1400	1398	2800	501.75			239913495140*	3763,00
1600	1598	3200	648.02			239913495160*	4824,00

*3 mm

Galvanised (dimensions for 2 mm pipework)

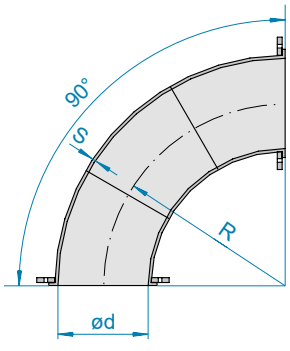
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	25.20			22352349	284,50
400	398	800	31.80			22402349	332,50
450	448	900	41.50	21452349	401,50	22452349	433,00
500	498	1000	48.60	21502349	451,00	22502349	536,00
560	558	1120	62.00			22562349	653,50
630	628	1260	68.80			22632349	728,00
710	707	1420	94.00			22712349	838,50
800	797	1600	120.00			22802349	1032,00
900	897	1800	145.24			229923494090	1310,00
1000	998	2000	176.95			229923494100	1699,00
1120	1118	2240	230.14			229923494112	2199,00
1250	1248	2500	282.16			229923494125	2699,00
1400	1398	2800	501.75			239923495140*	5054,00
1600	1598	3200	648.02			239923495160*	6485,00

*3 mm

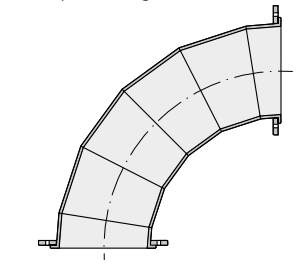
Shock explosion proof tested up to 3 bar

Segments and bends





3 pressed segments 30°



6 lobster back segments:
4 x 18° / 2 x 9°

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges			
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	25.20			22353349	482,50
400	398	800	31.80			22403349	571,00
450	448	900	41.50	21453349	671,50	22453349	719,50
500	498	1000	48.60	21503349	797,50	22503349	854,00
560	558	1120	62.00			22563349	1027,00
630	628	1260	68.80			22633349	1183,00
710	707	1420	94.00			22713349	1361,00
800	797	1600	120.00			22803349	1623,00
900	897	1800	145.24			229933494090	1997,00
1000	998	2000	176.95			229933494100	2508,00
1120	1118	2240	230.14			229933494112	3077,00
1250	1248	2500	282.16			229933494125	3794,00

*3 mm

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

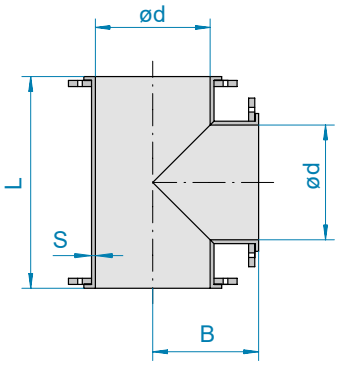
DN	Ø d	R	kg	Stainless steel with stainless steel loose flange, shotblasted			
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	26.00	213533493	551,00	223533493	564,00
400	398	800	32.00	214033493	649,50	224033493	665,50
450	448	900	41.00	214533493	768,50	224533493	816,00
500	498	1000	50.00	215033493	894,50	225033493	951,00
560	558	1120	62.00			225633493	1215,00
630	628	1260	76.00			226333493	1361,00
710	707	1420	94.00			227133493	1545,00
800	797	1600	120.00			228033493	1886,00
1400	1398	2800	501.75			239933495140*	7545,00
1600	1598	3200	648.02			239933495160*	9597,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





T-PIECES

6060

- With loose flange on all sides
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- DN 560 and 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21351240	161,00	22351240	173,00
400	398	300	600	24.00	21401240	189,00	22401240	203,00
450	448	325	650	27.20	21451240	208,50	22451240	225,50
500	498	350	700	32.20	21501240	242,50	22501240	262,00
560	558	380	760	40.00			22561240	274,00
630	628	415	830	46.40			22631240	304,50
710	707	460	910	58.00			22711240	366,00
800	797	500	1000	64.00			22801240	456,50
900	897	550	1100	77.87			229912404090	554,00
1000	998	600	1200	90.84			229912404100	664,00
1120	1118	660	1320	124.06			229912404112	827,50
1250	1248	725	1450	145.46			229912404125	997,00
1400	1398	800	1600	225.33			239912405140*	1832,00
1600	1598	900	1800	277.95			239912405160*	2233,00

*3 mm

Galvanised (dimensions for 2 mm pipework)

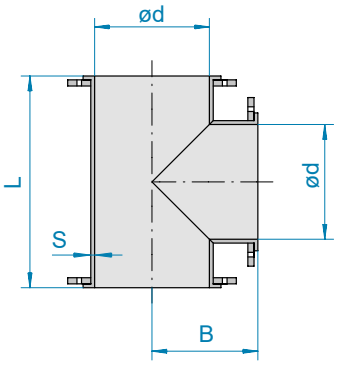
DN	Ø d	B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21352240	193,00	22352240	206,50
400	398	300	600	24.00	21402240	227,00	22402240	236,50
450	448	325	650	27.20	21452240	251,00	22452240	260,00
500	498	350	700	32.20	21502240	291,00	22502240	300,50
560	558	380	760	40.00			22562240	332,00
630	628	415	830	46.40			22632240	379,00
710	707	460	910	58.00			22712240	454,50
800	797	500	1000	64.00			22802240	535,50
900	897	550	1100	77.87			229922404090	717,00
1000	998	600	1200	90.84			229922404100	897,50
1120	1118	660	1320	124.06			229922404112	1122,00
1250	1248	725	1450	145.46			229922404125	1320,00
1400	1398	800	1600	225.33			239922405140*	2189,00
1600	1598	900	1800	277.95			239922405160*	2667,00

*3 mm

Shock explosion proof tested up to 3 bar

Branch pieces





Stainless steel (dimensions for 2 mm pipework)

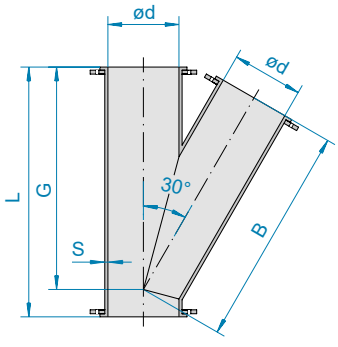
DN	Ø d	B	L	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
					1.5 mm		2 mm		1.5 mm		2 mm	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	275	550	19.80	21353240	268,50	22353240	369,50	213532403	390,50	223532403	491,50
400	398	300	600	24.00	21403240	296,50	22403240	419,00	214032403	438,00	224032403	561,00
450	448	325	650	27.20	21453240	324,00	22453240	468,00	214532403	468,50	224532403	613,00
500	498	350	700	32.20	21503240	349,00	22503240	527,00	215032403	494,00	225032403	671,50
560	558	380	760	40.00			22563240	575,00			225632403	855,00
630	628	415	830	46.40			22633240	636,50			226332403	903,50
710	707	460	910	58.00			22713240	712,50			227132403	988,50
800	797	500	1000	64.00			22803240	799,00				
900	897	550	1100	77.87			229932404090	846,50				
1000	998	600	1200	90.84			229932404100	1008,00				
1120	1118	660	1320	124.06			229932404112	1245,00				
1250	1248	725	1450	145.46			229932404125	1505,00				
1400	1398	800	1600	225.33							239932405140	*3541,00
1600	1598	900	1800	277.95							239932405160	*4209,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

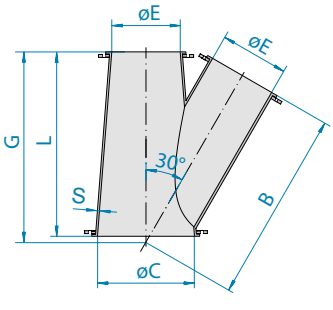
Shock explosion proof tested
up to 3 bar





Fork 30°





Conical fork 30°

FORKS AND CONICAL FORKS 30°

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 and 630 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

Powder-coated (dimensions for 2 mm pipework)

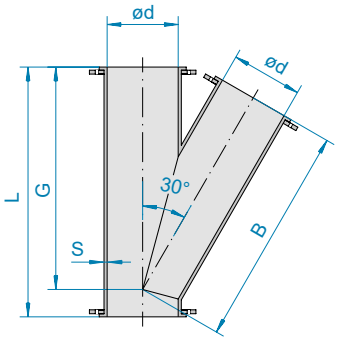
DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm powder-coated		2 mm powder-coated	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21351255	221,50	22351255	233,50
350- 350- 350	349	817			828	920	27.75	21351230	197,00	22351230	228,50
400- 300- 300		824	399	300	821	720	20.40	21401255	259,50	22401255	266,00
400- 400- 400	398	925			926	1025	38.80	21401230	247,50	22401230	278,00
450- 350- 350		911	449	350	909	920	36.40	21451255	309,00	22451255	361,00
450- 450- 450	448	1030			1045	1150	48.00	21451230	300,00	22451230	331,50
500- 400- 400		1014	499	399	1009	1025	44.00	21501255	405,50	22501255	469,00
500- 500- 500	498	1127			1138	1250	56.00	21501230	351,50	22501230	364,00
560- 400- 400		1071	558	399	1059	1025	47.60			22561255	490,50
560- 560- 560	558	1275			1280	1400	72.00			22561230	420,50
630- 450- 450		1213	628	448	1195	1150	58.80			22631255	576,00
630- 630- 630	628	1404			1401	1530	84.60			22631230	448,50
710- 500- 500		1327	707	498	1311	1250	72.00			22711255	644,00
710- 710- 710	707	1665			1660	1800	116.00			22711230	599,50
800- 560- 560		1507	797	558	1481	1400	87.00			22801255	824,00
800- 800- 800	797	1823			1818	1970	140.00			22801230	761,50
900- 900- 900	897	2030			2020	2200	165.60			229912304090	939,50
1000-1000-1000	998	2190			2205	2400	194.60			229912304100	1165,00
1120-1120-1120	1118	2480			2490	2700	258.70			229912304112	1414,00
1250-1250-1250	1248	2710			2715	2950	308.46			229912304125	1685,00
1400-1400-1400	1398	2950			2955	3200	516.12			239912305140 *	2874,00
1600-1600-1600	1598	3320			3335	3600	650.52			239912305160 *	3459,00

*3 mm

Shock explosion proof tested up to 3 bar

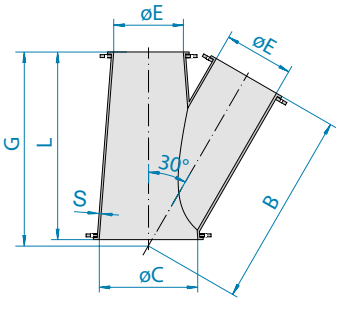
Branch pieces





Fork 30°





Conical fork 30°

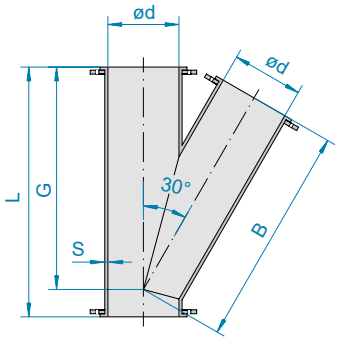
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm galvanised		2 mm galvanised	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21352255	261,50	22352255	274,50
350- 350- 350	349	817			828	920	27.75	21352230	241,50	22352230	276,00
400- 300- 300		824	399	300	821	720	20.40	21402255	305,00	22402255	313,00
400- 400- 400	398	925			926	1025	38.80	21402230	298,00	22402230	337,50
450- 350- 350		911	449	350	909	920	36.40	21452255	363,00	22452255	445,50
450- 450- 450	448	1030			1045	1150	48.00	21452230	357,50	22452230	404,00
500- 400- 400		1014	499	399	1009	1025	44.00	21502255	474,00	22502255	579,50
500- 500- 500	498	1127			1138	1250	56.00	21502230	410,00	22502230	437,50
560- 400- 400		1071	558	399	1059	1025	47.60			22562255	607,50
560- 560- 560	558	1275			1280	1400	72.00			22562230	515,00
630- 450- 450		1213	628	448	1195	1150	58.80			22632255	717,00
630- 630- 630	628	1404			1401	1530	84.60			22632230	547,00
710- 500- 500		1327	707	498	1311	1250	72.00			22712255	795,00
710- 710- 710	707	1665			1660	1800	116.00			22712230	728,00
800- 560- 560		1507	797	558	1481	1400	87.00			22802255	1076,00
800- 800- 800	797	1823			1818	1970	140.00			22802230	964,00
900- 900- 900	897	2030			2020	2200	165.60			229922304090	1339,00
1000-1000-1000	998	2190			2205	2400	194.60			229922304100	1698,00
1120-1120-1120	1118	2480			2490	2700	258.70			229922304112	2122,00
1250-1250-1250	1248	2710			2715	2950	308.46			229922304125	2529,00
1400-1400-1400	1398	2950			2955	3200	516.12			239922305140	*3878,00
1600-1600-1600	1598	3320			3335	3600	650.52			239922305160	*4720,00

*3 mm

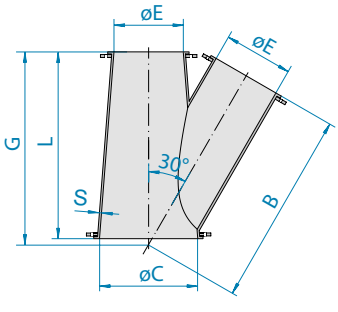
Shock explosion proof tested up to 3 bar





Fork 30°





Conical fork 30°

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	Stainless steel with galvanised loose flanges			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21353255	445,00	22353255	554,50
350- 350- 350	349	817			828	920	27.75	21353230	392,00	22353230	609,00
400- 300- 300		824	399	300	821	720	20.40	21403255	521,00	22403255	649,00
400- 400- 400	398	925			926	1025	38.80	21403230	440,00	22403230	654,50
450- 350- 350		911	449	350	909	920	36.40	21453255	612,00	22453255	769,50
450- 450- 450	448	1030			1045	1150	48.00	21453230	576,00	22453230	702,00
500- 400- 400		1014	499	399	1009	1025	44.00	21503255	817,00	22503255	1020,00
500- 500- 500	498	1127			1138	1250	56.00	21503230	634,00	22503230	803,50
560- 400- 400		1071	558	399	1059	1025	47.60			22563255	1041,00
560- 560- 560	558	1275			1280	1400	72.00			22563230	930,00
630- 450- 450		1213	628	448	1195	1150	58.80			22633255	1181,00
630- 630- 630	628	1404			1401	1530	84.60			22633230	1005,00
710- 500- 500		1327	707	498	1311	1250	72.00			22713255	1313,00
710- 710- 710	707	1665			1660	1800	116.00			22713230	1160,00
800- 560- 560		1507	797	558	1481	1400	87.00			22803255	1474,00
800- 800- 800	797	1823			1818	1970	140.00			22803230	1470,00
900- 900- 900	897	2030			2020	2200	165.60			229932304090	1807,00
1000-1000-1000	998	2190			2205	2400	194.60			229932304100	2117,00
1120-1120-1120	1118	2480			2490	2700	258.70			229932304112	2611,00
1250-1250-1250	1248	2710			2715	2950	308.46			229932304125	3122,00
1400-1400-1400	1398	2950			2955	3200	516.12			239932305140*	5835,00
1600-1600-1600	1598	3320			3335	3600	650.52			239932305160*	6927,00

*3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350-250-250		727	350	250	727	620	15.60	213532553	486,00	223532553	595,50
350-350-350	349	817			828	920	28.00	213532303	514,50	223532303	731,50
400-300-300		824	399	300	821	720	20.00	214032553	568,50	224032553	696,50
400-400-400	398	925			926	1025	39.40	214032303	581,50	224032303	796,00
450-350-350		911	449	350	909	920	38.20	214532553	742,00	224532553	900,00
450-450-450	448	1030			1045	1150	48.00	214532303	721,50	224532303	847,00
500-400-400		1014	499	399	1009	1025	44.00	215032553	960,00	225032553	1164,00
500-500-500	498	1127			1138	1250	61.00	215032303	779,00	225032303	948,00
560-400-400		1071	558	399	1059	1025	47.60			225632553	1228,00
560-560-560	558	1275			1280	1400	75.00			225632303	1211,00
630-450-450		1213	628	448	1195	1150	57.00			226332553	1366,00
630-630-630	628	1404			1401	1530	84.50	226332303*	1272,00	236332303*	1657,00
710-500-500		1327	707	498	1311	1250	72.00			227132553	1502,00
710-710-710	707	1665			1660	1800	113.00	227132303*	1434,00	237132303*	1953,00

* 2 mm * 3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

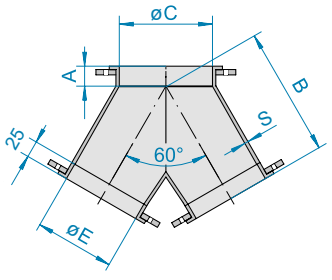
Shock explosion proof tested
up to 3 bar



SYMMETRICAL FORKS 60°

6090

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 to 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request



Powder-coated (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21351275	199,00	22351275	213,50
400- 300- 300	70	350	399	300	12.00	21401275	217,50	22401275	235,00
450- 350- 350	80	425	449	350	23.00	21451275	272,50	22451275	313,00
500- 400- 400	80	475	499	399	33.50	21501275	293,00	22501275	350,50
560- 400- 400	80	550	558	399	37.00			22561275	427,00
630- 450- 450	150	600	628	448	40.40			22631275	525,00
710- 500- 500	200	650	707	498	47.60			22711275	650,50
800- 560- 560	200	700	797	558	59.00			22801275	814,50
900- 630- 630	210	850	897	628	74.40			229912754090	1025,00
1000- 710- 710	220	930	998	707	87.96			229912754100	1237,00
1120- 800- 800	220	1040	1118	797	110.30			229912754112	1486,00
1250- 900- 900	220	1130	1248	897	128.22			229912754125	1750,00
1400-1000-1000	245	1230	1398	998	206.80			239912755140 *	2854,00
1600-1120-1120	245	1320	1598	1118	251.64			239912755160 *	3364,00

*3 mm

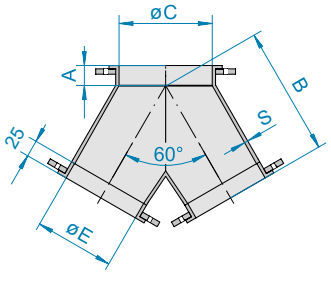
Galvanised (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21352275	221,50	22352275	229,50
400- 300- 300	70	350	399	300	12.00	21402275	242,00	22402275	249,50
450- 350- 350	80	425	449	350	23.00	21452275	291,50	22452275	338,00
500- 400- 400	80	475	499	399	33.50	21502275	323,50	22502275	384,50
560- 400- 400	80	550	558	399	37.00			22562275	476,00
630- 450- 450	150	600	628	448	40.40			22632275	593,50
710- 500- 500	200	650	707	498	47.60			22712275	745,50
800- 560- 560	200	700	797	558	59.00			22802275	945,00
900- 630- 630	210	850	897	628	74.40			229922754090	1205,00
1000- 710- 710	220	930	998	707	87.96			229922754100	1474,00
1120- 800- 800	220	1040	1118	797	110.30			229922754112	1776,00
1250- 900- 900	220	1130	1248	897	128.22			229922754125	2097,00
1400-1000-1000	245	1230	1398	998	206.80			239922755140 *	3286,00
1600-1120-1120	245	1320	1598	1118	251.64			239922755160 *	3870,00

*3 mm

Shock explosion proof tested up to 3 bar





Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with galvanised loose flanges			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21353275	406,00	22353275	509,00
400- 300- 300	70	350	399	300	12.00	21403275	442,00	22403275	539,00
450- 350- 350	80	425	449	350	23.00	21453275	511,50	22453275	623,50
500- 400- 400	80	475	499	399	33.50	21503275	563,00	22503275	697,50
560- 400- 400	80	550	558	399	37.00			22563275	802,00
630- 450- 450	150	600	628	448	40.40			22633275	930,00
710- 500- 500	200	650	707	498	47.60			22713275	1089,00
800- 560- 560	200	700	797	558	59.00			22803275	1286,00
900- 630- 630	210	850	897	628	74.40			229932754090	1608,00
1000- 710- 710	220	930	998	707	87.96			229932754100	1926,00
1120- 800- 800	220	1040	1118	797	110.30			229932754112	2297,00
1250- 900- 900	220	1130	1248	897	128.22			229932754125	2708,00
1400-1000-1000	245	1230	1398	998	206.80			239932755140 *	4359,00
1600-1120-1120	245	1320	1598	1118	251.64			239932755160 *	5087,00

*3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with stainless steel loose flange, shotblasted			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350-250-250	70	300	350	250	14.37	213532753	447,00	223532753	550,00
400-300-300	70	350	399	300	11.76	214032753	489,00	224032753	586,50
450-350-350	80	425	449	350	32.90	214532753	641,50	224532753	753,00
500-400-400	80	475	499	399	27.40	215032753	705,50	225032753	840,50
560-400-400	80	550	558	399	37.00			225632753	989,50
630-450-450	150	600	628	448	41.00			226332753	1116,00
710-500-500	200	650	707	498	47.60			227132753	1277,00

FOOD GRADE
EC 1935/2004 plus FDA compliant

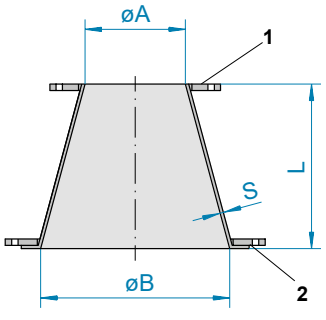
Shock explosion proof tested
up to 3 bar



CONE PIECES

6170

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 630 to 710 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges on both sides, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request



1 With welded-on flange to DIN 24154-2

2 With loose flange to DIN 24154-2

Powder-coated (dimensions for 2 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21001480	54,70	22001480	63,10
300- 400	299	398	200	7.40	21001481	60,30	22001481	69,70
350- 400	349	398	200	10.00	21001482	100,50	22001482	117,00
350- 450	349	448	200	11.20	21001483	103,00	22001483	119,00
400- 450	398	448	200	11.80	21001485	112,50	22001485	130,50
400- 500	398	498	250	13.40	21001486	123,00	22001486	142,00
450- 500	448	498	200	14.20	21001487	128,00	22001487	147,00
450- 560	448	558	250	16.60			22001495	150,50
500- 560	498	558	250	17.40			22001496	177,00
500- 630	498	628	300	19.60			22001497	196,00
560- 630	558	628	300	21.80			22001498	203,50
630- 710	628	707	300	24.40			22001499	237,50
710- 800	707	797	300	28.00			22001500	273,00
900- 800	897	799	300	31.21			229918104090	324,00
1000- 900	998	899	300	34.83			229918114100	378,00
1120-1000	1118	1000	300	44.21			229918124112	451,00
1250-1120	1248	1120	300	55.14			229918134125	521,50
1400-1250	1398	1250	400	82.34			239918145140*	942,50
1600-1400	1598	1398	400	93.58			239918155160*	1065,00

*3 mm

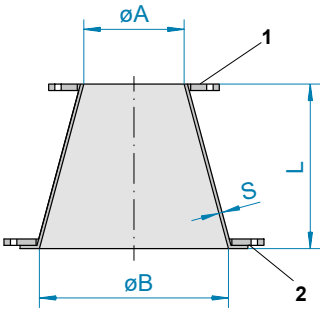
Galvanised (dimensions for 2 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21002480	67,60	22002480	77,90
300- 400	299	398	200	7.40	21002481	74,70	22002481	85,90
350- 400	349	398	200	10.00	21002482	125,50	22002482	145,00
350- 450	349	448	200	11.20	21002483	129,00	22002483	148,00
400- 450	398	448	200	11.80	21002485	140,00	22002485	160,50
400- 500	398	498	250	13.40	21002486	152,00	22002486	174,00
450- 500	448	498	200	14.20	21002487	157,50	22002487	181,00
450- 560	448	558	250	16.60			22002495	197,00
500- 560	498	558	250	17.40			22002496	233,50
500- 630	498	628	300	19.60			22002497	257,00
560- 630	558	628	300	21.80			22002498	269,00
630- 710	628	707	300	24.40			22002499	312,50
710- 800	707	797	300	28.00			22002500	355,00
900- 800	897	799	300	31.21			229928104090	409,50
1000- 900	998	899	300	34.83			229928114100	477,00
1120-1000	1118	1000	300	44.21			229928124112	573,00
1250-1120	1248	1120	300	55.14			229928134125	647,00
1400-1250	1398	1250	400	82.34			239928145140*	1119,00
1600-1400	1598	1398	400	93.58			239928155160*	1267,00

*3 mm

Shock explosion proof tested up to 3 bar





1 With welded-on stainless steel flange to DIN 24154-2

2 With loose flange to DIN 24154-2

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	ØA	ØB	L	kg	Stainless steel with galvanised loose flanges			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21003480	74,50	22003480	89,80
300- 400	299	398	200	7.40	21003481	80,90	22003481	96,90
350- 400	349	398	200	10.00	21003482	169,00	22003482	203,00
350- 450	349	448	200	11.20	21003483	177,00	22003483	211,50
400- 450	398	448	200	11.80	21003485	196,00	22003485	234,00
400- 500	398	498	250	13.40	21003486	207,00	22003486	248,00
450- 500	448	498	200	14.20	21003487	222,50	22003487	267,00
450- 560	448	558	250	16.60			22003495	287,50
500- 560	498	558	250	17.40			22003496	320,50
500- 630	498	628	300	19.60			22003497	330,00
560- 630	558	628	300	21.80			22003498	378,00
630- 710	628	707	300	24.40			22003499	443,00
710- 800	707	797	300	28.00			22003500	505,00
900- 800	897	799	300	31.21			229938104090	593,00
1000- 900	998	899	300	34.83			229938114100	692,00
1120-1000	1118	1000	300	44.21			229938124112	794,50
1250-1120	1248	1120	300	55.14			229938134125	906,00
1400-1250	1398	1250	400	82.34			239938145140*	1749,00
1600-1400	1598	1398	400	93.58			239938155160*	1941,00

*3 mm with welded-on stainless steel flange, shotblasted

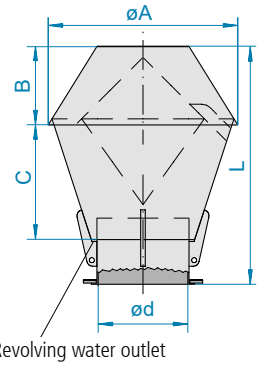
Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	ØA	ØB	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300-350	299	349	200	6.80	210034803	115,50	220034803	131,50
300-400	299	398	200	7.40	210034813	129,00	220034813	144,50
350-400	349	398	200	10.00	210034823	216,50	220034823	250,50
350-450	349	448	200	11.00	210034833	226,00	220034833	260,50
400-450	398	448	200	11.80	210034853	244,50	220034853	283,00
400-500	398	498	250	13.40	210034863	255,00	220034863	296,00
450-500	448	498	200	14.20	210034873	271,00	220034873	315,50
450-560	448	558	250	16.60			220034953	381,50
500-560	498	558	250	17.40			220034963	414,00
500-630	498	628	300	19.60			220034973	419,00
560-630	558	628	300	21.80			220034983	467,00
630-710	628	707	300	24.40			220034993	534,50

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 3 bar





Revolving water outlet

JET CAPS

1430

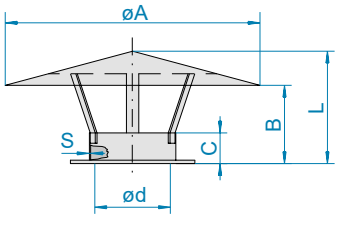
- With welded-on flange to DIN 24154-2

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	ØA	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
350	349	645	275	448	865	33.00	12352805	537,00	12353805	917,00
400	398	715	295	480	915	42.00	12402805	622,00	12403805	1062,00
450	448	820	320	588	1040	51.00	12452805	706,50	12453805	1245,00
500	498	870	320	588	1040	61.50	12502805	797,50	12503805	1443,00
560	558	990	372	703	1208	81.50	12562805	885,50	12563805	1650,00
630	628	1140	442	776	1434	112.00	12632805	1009,00	12633805	1877,00
710	707	1290	502	901	1627	138.00	12712805	1526,00	12713805	2530,00
800	797	1440	520	1020	1790	164.00	12802805	1755,00	12803805	3034,00
900	897	1550	600	1150	2150	260.00	239928055090 *	2468,00	239938055090 *	3512,00
1000	998	1800	700	1330	2400	328.00	239928055100 *	2862,00	239938055100 *	4073,00
1120	1118	1825	1120	1100	2370	421.00	239928055112 *	3134,00	239938055112 *	4544,00
1250	1248	1955	1190	1150	2470	452.00	239928055125 *	3525,00	239938055125 *	5016,00
1400	1398	2210	1250	1220	2600	500.00	239928055140 *	4590,00	239938055140 *	6529,00
1600	1598	2610	1470	1470	3140	589.00	239928055160 *	5080,00	239938055160 *	7229,00

*3 mm





RAIN CAPS

6190

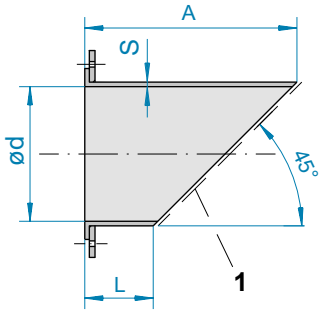
- With loose flange up to DN 1000 mm
- DN 1120 mm: 3 mm wall thickness, with welded-on flange to DIN 24154-2
- From DN 1250 mm, we recommend the use of jet caps
- Take local building regulations into account, alternatively use a jet cap

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	ØA	B	C	L	kg	2 mm galvanised		Stainless steel with galvanised loose flanges		2 mm Stainless steel with stainless steel loose flange, shotblasted	
							Item no.	€	Item no.	€	Item no.	€
350	349	750	300	150	395	23.70	22352850	233,50	22353850	435,50	223538503	476,50
400	398	850	320	150	435	16.80	22402850	264,50	22403850	543,00	224038503	590,50
450	448	950	340	150	470	25.90	22452850	289,00	22453850	686,50	224538503	734,50
500	498	1050	410	200	550	31.50	22502850	313,00	22503850	768,50	225038503	817,00
560	558	1150	435	200	590	34.00	22562850	343,00	22563850	825,50	225638503	919,00
630	628	1300	470	200	645	42.00	22632850	377,00	22633850	873,00	226338503	962,00
710	707	1400	500	250	700	52.00	22712850	423,00	22713850	1005,00	227138503	1098,00
800	797	1500	530	250	760	59.92	22802850	519,00	22803850	1208,00	228038503	1339,00
900	897	1800	550	250	793	87.20	229928504090	652,00	229938504090	1472,00		
1000	998	2000	600	250	870	103.20	229928504100	912,50	229938504100	2016,00		
1120	1118	2240	650	300	950	186.90	239928505112 *	1174,00			239938505112 *	2339,00

*3 mm





1 Bird-guard

AIR OUTLET PIPES 45°

- Bird-guard: Material thickness 2 mm, mesh size 20 x 20
- One side with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21352880	229,50		
400	399	600	200	10.80	21402880	274,50		
450	449	650	200	12.30	21452880	329,50		
500	499	700	200	10.60	21502880	375,00		
560	558	760	200	22.00			22562880	439,00
630	628	830	200	26.00			22632880	493,00
710	707	910	200	30.00			22712880	582,50
800	797	1000	200	36.00			22802880	687,00
900	897	1100	200	58.80			239928804090*	836,00
1000	998	1200	200	69.12			239928804100*	998,00
1120	1118	1320	200	90.75			239928804112*	1177,00
1250	1248	1450	200	107.40			239928804125*	1377,00
1400	1398	1600	200	117.29			239928805140*	1622,00
1600	1598	1800	200	146.03			239928805160*	1898,00

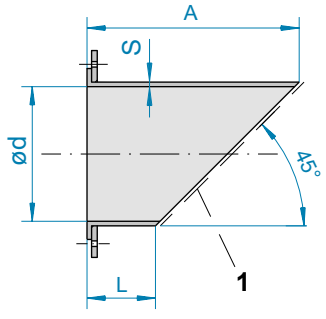
*3 mm

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	Stainless steel with galvanised loose flanges			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21353880	306,50		
400	399	600	200	10.80	21403880	378,50		
450	449	650	200	12.30	21453880	432,50		
500	499	700	200	10.60	21503880	498,00		
560	558	760	200	22.00			22563880	595,50
630	628	830	200	26.00			22633880	713,50
710	707	910	200	30.00			22713880	860,00
800	797	1000	200	36.00			22803880	1032,00
900	897	1100	200	58.80			239938804090*	1267,00
1000	998	1200	200	69.12			239938804100*	1505,00
1120	1118	1320	200	90.75			239938804112*	1766,00
1250	1248	1450	200	107.40			239938804125*	2072,00
1400	1398	1600	200	117.29			239938805140*	2605,00
1600	1598	1800	200	146.03			239938805160*	3014,00

*3 mm





1 Bird-guard
mesh size: 20 x 20 x 2 mm

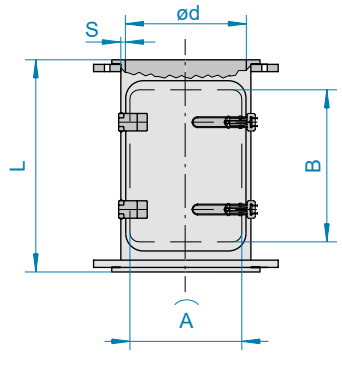
AIR OUTLET PIPES 45°

6200

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	213538803	347,50		
400	399	600	200	10.80	214038803	426,00		
450	449	650	200	12.30	214538803	481,00		
500	499	700	200	10.60	215038803	547,00		
630	628	830	200	26.00			226338803	802,50
710	707	910	200	30.00			227138803	951,50
800	797	1000	200	36.00			228038803	1164,00





CLEANING PIPES

6050

- For seals, please also read and take into account the technical information given at the beginning of this chapter
- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Not recommended for extracting exhaust air containing condensates

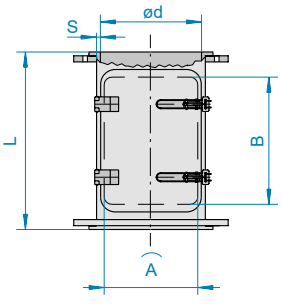
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	$\overset{\frown}{A}$	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21351195	184,50		
400	399	350	350	478	15.90	21401195	198,00		
450	448	500	350	478	20.00			22451195	212,50
500	498	500	350	478	21.60			22501195	228,50
560	558	500	350	478	25.00			22561195	250,00
630	628	500	350	478	30.00			22631195	269,00
710	707	500	350	478	34.00			22711195	318,50
800	797	500	350	478	38.00			22801195	387,00
900	897	500	350	478	41.48			229911954090	469,00
1000	998	500	350	478	46.10			229911954100	570,50
1120	1118	500	350	478	62.50			229911954112	669,50
1250	1248	500	350	478	69.57			229911954125	752,50
1400	1398	500	350	500	95.28			239911955140 *	1062,00
1600	1598	500	350	500	108.42			239911955160 *	1217,00

*3 mm

Cleaning pipes





Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21352195	231,50		
400	399	350	350	478	15.90	21402195	249,50		
450	448	500	350	478	20.00			22452195	276,00
500	498	500	350	478	21.60			22502195	296,50
560	558	500	350	478	25.00			22562195	336,00
630	628	500	350	478	30.00			22632195	367,50
710	707	500	350	478	34.00			22712195	439,00
800	797	500	350	478	38.00			22802195	536,00
900	897	500	350	478	41.48			229921954090	639,50
1000	998	500	350	478	46.10			229921954100	756,50
1120	1118	500	350	478	62.50			229921954112	866,00
1250	1248	500	350	478	69.57			229921954125	983,50
1400	1398	500	350	500	95.28			239921955140 *	1341,00
1600	1598	500	350	500	108.42			239921955160 *	1530,00

*3 mm

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Stainless steel with galvanised loose flanges			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21353195	333,00		
400	399	350	350	478	15.90	21403195	353,00		
450	448	500	350	478	20.00			22453195	378,50
500	498	500	350	478	21.60			22503195	405,50
560	558	500	350	478	25.00			22563195	444,00
630	628	500	350	478	30.00			22633195	489,00
710	707	500	350	478	34.00			22713195	583,50
800	797	500	350	478	38.00			22803195	693,00
900	897	500	350	478	41.48			229931954090	828,50
1000	998	500	350	478	46.10			229931954100	965,50
1120	1118	500	350	478	62.50			229931954112	1115,00
1250	1248	500	350	478	69.57			229931954125	1211,00
1400	1398	500	350	500	95.28			239931955140 *	2001,00
1600	1598	500	350	500	108.42			239931955160 *	2249,00

*3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

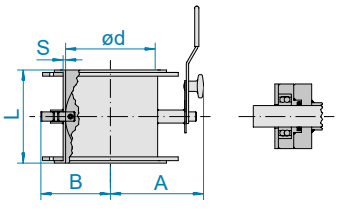
DN	Ø d	A	B	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	213531953	414,50		
400	399	350	350	478	15.60	214031953	447,50		
450	448	500	350	478	16.00			224531953	475,50
500	498	500	350	478	23.00			225031953	502,50
560	558	500	350	478	29.50			225631953	630,50
630	628	500	350	478	34.80			226331953	667,00
710	707	500	350	478	38.50			227131953	767,00

FOOD GRADE
EC 1935/2004 plus FDA compliant

DETECTABLE DESIGN
Metal-detectable

DETECTABLE DESIGN **AVAILABLE IN THE DETECTABLE DESIGN LINE.**





Additionally with ball bearings and Viton O-ring seal

THROTTLE VALVES

6180

- Special version available with glued silicone inner seal up to DN 800 mm, no cross-section constriction, prices on request
- Version with pneumatic or electric actuator
- Both sides with loose flange
- From DN 900 mm: 3 mm wall thickness, with welded-on flange to DIN 24154-2
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated, galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm galvanised	
						Item no.	€	Item no.	€
350	349	240	233	200	14.00	22351560	182,50		
400	398	265	258	200	16.20	22401560	205,00		
450	458	396	365	200	26.50	22451560	424,00		
500	498	421	391	200	29.60	22501560	470,50		
560	558	451	421	200	36.00	22561560	502,00		
630	628	486	456	200	41.00	22631560	544,00		
710	707	525	495	200	46.00	22711560	642,00		
800	797	570	540	200	52.00	22801560	777,00		
900	897	620	590	200	65.00	239915605090	*1253,00	239925605090	*1480,00
1000	998	670	640	200	83.00	239915605100	*1499,00	239925605100	*1901,00
1120	1118	810	675	200	104.00	239915605112	*2022,00	239925605112	*2392,00
1250	1248	875	740	200	123.00	239915605125	*2379,00	239925605125	*2810,00

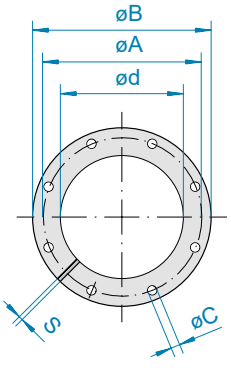
*3 mm

DN	Ø d	A	B	L	kg	Stainless steel with galvanised loose flanges		2 mm stainless steel with stainless steel loose flange, shotblasted	
								Item no.	€
350	349	240	233	200	14.00	22353560	356,00	223535603	437,50
400	398	265	258	200	16.20	22403560	412,50	224035603	507,00
450	458	396	365	200	26.50	22453560	579,00	224535603	676,00
500	498	421	391	200	29.60	22503560	663,00	225035603	760,50
560	558	451	421	200	36.00	22563560	773,50	225635603	960,50
630	628	486	456	200	41.00	22633560	887,00	226335603	1065,00
710	707	525	495	200	46.00	22713560	1015,00	227135603	1201,00
800	797	570	540	200	52.00	22803560	1219,00		
900	897	620	590	200	65.00			239935605090 *	2096,00
1000	998	670	640	200	83.00			239935605100 *	2590,00
1120	1118	810	675	200	104.00			239935605112 *	3204,00
1250	1248	875	740	200	123.00			239935605125 *	3771,00

*3 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant





E = No. of holes

FLANGES

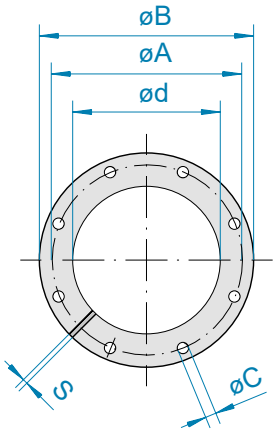
1360

- Similar to DIN 24154-2
- DN 350 mm according to DIN 24154-2, diameter 355 mm

Powder-coated and galvanised

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
60	62	102	128	9.5	4	5	0.40	10061711	5,50		
80	82	118	142	9.5	4	5	0.40	10081711	5,60	10082711	6,50
100	105	139	165	9.5	4	5	0.46	10101711	6,00	10102711	7,20
120	125	165	185	9.5	4	5	0.57	10121711	6,80	10122711	7,80
140	142	182	212	11.5	8	5	0.73	10141711	6,80	10142711	8,70
150	155	200	225	11.5	8	5	0.78	10151711	6,90	10152711	8,80
160	162	200	232	11.5	8	5	0.82	10161711	12,00	10162711	13,70
175	180	219	250	11.5	8	5	0.93	10171711	7,50	10172711	9,60
200	205	241	275	11.5	8	5	0.99	10201711	7,60	10202711	9,90
224	225	265	295	11.5	8	5	1.10	10221711	12,10	10222711	15,00
250	255	292	325	11.5	8	5	1.21	10251711	8,70	10252711	11,80
280	283	332	363	11.5	8	8	2.51	10281711	16,80	10282711	21,40
300	305	366	395	11.5	8	8	3.00	10301711	11,20	10302711	16,40
315	318	366	398	11.5	8	8	2.98	10311711	18,40	10312711	23,70
350	356	405	436	11.5	8	8	3.10	10351711	11,50	10352711	17,00
400	405	448	485	11.5	12	8	3.44	10401711	13,50	10402711	19,80
450	455	497	535	11.5	12	8	3.90	10451711	14,60	10452711	21,50
500	505	551	585	11.5	12	8	4.13	10501711	15,70	10502711	23,20
560	565	629	665	14	16	8	5.90	10561711	19,30	10562711	29,50
630	635	698	735	14	16	8	6.60	10631711	20,40	10632711	36,30
710	715	775	815	14	16	8	7.40	10711711	27,80	10712711	39,30
800	805	861	905	14	24	8	7.95	10801711	43,00	10802711	58,40
900	904	958	1004	14	24	8	9.17	109917110090	55,10	109927110090	78,10
1000	1005	1067	1105	14	24	8	10.20	109917110100	70,10	109927110100	106,00
1120	1125	1200	1245	18	32	10	16.90	109917110112	96,20	109927110112	138,50
1250	1255	1337	1375	18	32	10	18.80	109917110125	108,00	109927110125	153,50
1400	1405	1475	1525	18	32	10	21.00	109917110140	117,00	109927110140	169,50
1600	1605	1675	1725	18	40	10	23.80	109917110160	127,50	109927110160	187,50

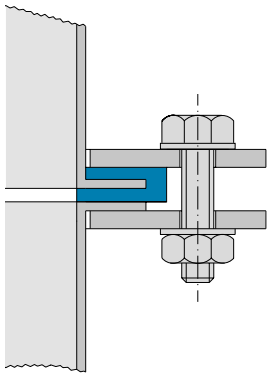




E = No. of holes

Stainless steel

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Stainless steel	
								Item no.	€
60	62	102	128	9.5	4	5	0.40	10063711	18,50
80	82	118	142	9.5	4	5	0.40	10083711	20,50
100	105	139	165	9.5	4	5	0.46	10103711	22,90
120	125	165	185	9.5	4	5	0.57	10123711	23,80
140	142	182	212	11.5	8	5	0.73	10143711	26,70
150	155	200	225	11.5	8	5	0.78	10153711	28,50
160	162	200	232	11.5	8	5	0.82	10163711	30,30
175	180	219	250	11.5	8	5	0.93	10173711	30,20
200	205	241	275	11.5	8	5	0.99	10203711	33,70
224	225	265	295	11.5	8	5	1.10	10223711	48,80
250	255	292	325	11.5	8	5	1.21	10253711	39,00
280	283	332	363	11.5	8	8	2.51	10283711	47,10
300	305	366	395	11.5	8	8	3.00	10303711	56,60
315	318	366	398	11.5	8	8	2.98	10313711	58,90
350	356	405	436	11.5	8	8	3.10	10353711	57,50
400	405	448	485	11.5	12	8	3.44	10403711	66,60
450	455	497	535	11.5	12	8	3.90	10453711	69,50
500	505	551	585	11.5	12	8	4.13	10503711	71,10
560	565	629	665	14	16	8	5.90	10563711	123,00
630	635	698	735	14	16	8	6.60	10633711	125,00
710	715	775	815	14	16	8	7.40	10713711	131,00
800	805	861	905	14	24	8	7.95	10803711	188,50
900	904	958	1004	14	24	8	9.17	109937110090	209,50
1000	1005	1067	1105	14	24	8	10.20	109937110100	232,50
1120	1125	1200	1245	18	32	10	16.90	109937110112	279,00
1250	1255	1337	1375	18	32	10	18.80	109937110125	325,00
1400	1405	1475	1525	18	32	10	21.00	109937110140	350,50
1600	1605	1675	1725	18	40	10	23.80	109937110160	360,50



INSTALLATION KIT FOR JACOB FLANGES

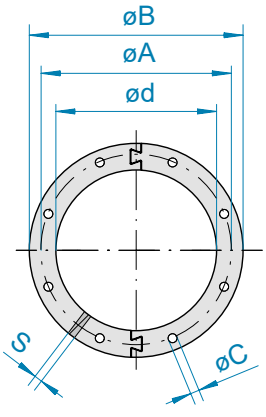
1510

- Installation kit consisting of bolts, nuts and two washers per bolt
- Quantity to match the number of holes and flange thicknesses
- Bolts in compliance with DIN EN ISO 4017 (formerly DIN 933)
- Washers in compliance with DIN EN ISO 7090 (formerly DIN 125), 2 each per bolt
- Nuts in compliance with DIN EN ISO 4032 (formerly DIN 934)

Galvanised bolts, nuts and washers

DN	Bolts	Number	Item no.	€
60- 120	M 8x30	4	10062788	1,40
140- 250	M10x35	8	10142788	3,90
280- 350	M10x40	8	10282788	4,30
400- 500	M10x40	12	10402788	5,60
560- 710	M12x45	16	10562788	7,40
800-1000	M12x45	24	10802788	10,90
1120-1400	M16x50	32	109927880112	19,90
1600	M16x50	40	109927880160	28,10





E = No. of holes

FLANGES 2-PART

1362

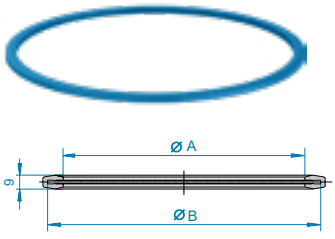
- Similar to DIN 24154-2

Powder-coated and galvanised

DN	Ø d	ØA	Ø B	Ø C	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
80	82	118	142	9.5	4	8	0.40	10081713	8,70	10082713	9,40
100	105	139	165	9.5	4	8	0.46	10101713	10,60	10102713	11,40
120	125	165	185	9.5	4	8	0.57	10121713	11,50	10122713	12,60
140	142	182	212	11.5	8	8	0.73	10141713	14,60	10142713	16,00
150	155	200	225	11.5	8	8	1.25	10151713	20,10	10152713	20,50
175	180	219	250	11.5	8	8	1.50	10171713	22,20	10172713	22,80
200	205	241	275	11.5	8	8	1.60	10201713	23,10	10202713	24,70
224	225	265	295	11.5	8	8	1.76	10221713	26,30	10222713	27,40
250	255	292	325	11.5	8	8	1.94	10251713	28,80	10252713	29,60
280	283	332	363	11.5	8	8	2.51	10281713	39,70	10282713	42,50
300	305	366	395	11.5	8	8	3.00	10301713	39,70	10302713	42,50
315	318	366	398	11.5	8	8	3.10	10311713	40,30	10312713	43,90
350	356	405	436	11.5	8	8	3.20	10351713	40,50	10352713	44,30
400	405	448	485	11.5	12	8	3.44	10401713	43,90	10402713	50,30

stainless steel

DN	Ø d	ØA	Ø B	Ø C	E	S	kg	Stainless steel	
								Item no.	€
80	82	118	142	9.5	4	8	0.40	10083713	21,20
100	105	139	165	9.5	4	8	0.46	10103713	25,60
120	125	165	185	9.5	4	8	0.57	10123713	28,50
140	142	182	212	11.5	8	8	0.73	10143713	35,90
150	155	200	225	11.5	8	8	1.25	10153713	49,50
175	180	219	250	11.5	8	8	1.50	10173713	55,40
200	205	241	275	11.5	8	8	1.60	10203713	61,20
224	225	265	295	11.5	8	8	1.76	10223713	65,60
250	255	292	325	11.5	8	8	1.94	10253713	72,90
280	283	332	363	11.5	8	8	2.51	10283713	106,50
300	305	366	395	11.5	8	8	3.00	10303713	106,50
315	318	366	398	11.5	8	8	3.10	10313713	108,00
350	356	405	436	11.5	8	8	3.20	10353713	108,50
400	405	448	485	11.5	12	8	3.44	10403713	124,50



U-SHAPED SEALS FOR 10 MM LIP FLANGE

6210

- Please also read and take into account the technical information given at the beginning of this chapter
- Profile for loose flange pipework with a 10 mm lip
- Use for 1-3 mm pipework system
- A U-shaped seal (chapter 2) must be used for pipe components with a loose flange diameter of up to 350 mm and a 6 mm lip
- For connecting:
  - 2 pipe components with loose flange from DN 350 mm with 10 mm lip
  - A pipe component with a welded flange in conjunction with a pipe component with a loose flange

NBR and silicone

DN	Ø A	Ø B	kg	NBR grey white		Silicone beige (F)		Silicone blue (F D)	
				Item no.	€	Item no.	€	Item no.	€
350	353	373	0.11	103567177	5,90	1035771709	7,90	10357717091	11,10
400	403	423	0.13	104067177	6,60	1040771709	9,00	10407717091	12,40
450	453	473	0.15	104567177	7,30	1045771709	9,80	10457717091	13,50
500	503	523	0.17	105067177	8,30	1050771709	10,70	10507717091	15,00
560	561	581	0.18	105667177	9,00	1056771709	12,00	10567717091	16,70
630	631	651	0.21	106367177	10,10	1063771709	13,20	10637717091	18,60
710	711	731	0.24	107167177	11,50	1071771709	14,70	10717717091	20,60
800	801	821	0.26	108067177	18,10	1080771709	23,40	10807717091	32,70

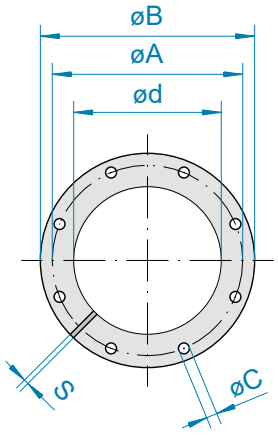
EPDM and Viton

DN	Ø A	Ø B	kg	EPDM black		Viton reddish brown (F)	
				Item no.	€	Item no.	€
350	353	373	0.11	1035871759	7,90	103597179	45,00
400	403	423	0.13	1040871759	9,00	104097179	50,90
450	453	473	0.15	1045871759	9,80	104597179	57,00
500	503	523	0.17	1050871759	10,70	105097179	62,60
560	561	581	0.18	1056871759	12,00	105697179	69,60
630	631	651	0.21	1063871759	13,20	106397179	78,30
710	711	731	0.24	1071871759	14,70	107197179	87,10
800	801	821	0.26	1080871759	23,40	108097179	96,80

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable





E = No. of holes

FLAT SEALS FOR LOOSE FLANGES AND WELDED FLANGES

- Similar to DIN 24154-2
- Please also read and take into account the technical information given at the beginning of this chapter

NBR and silicone

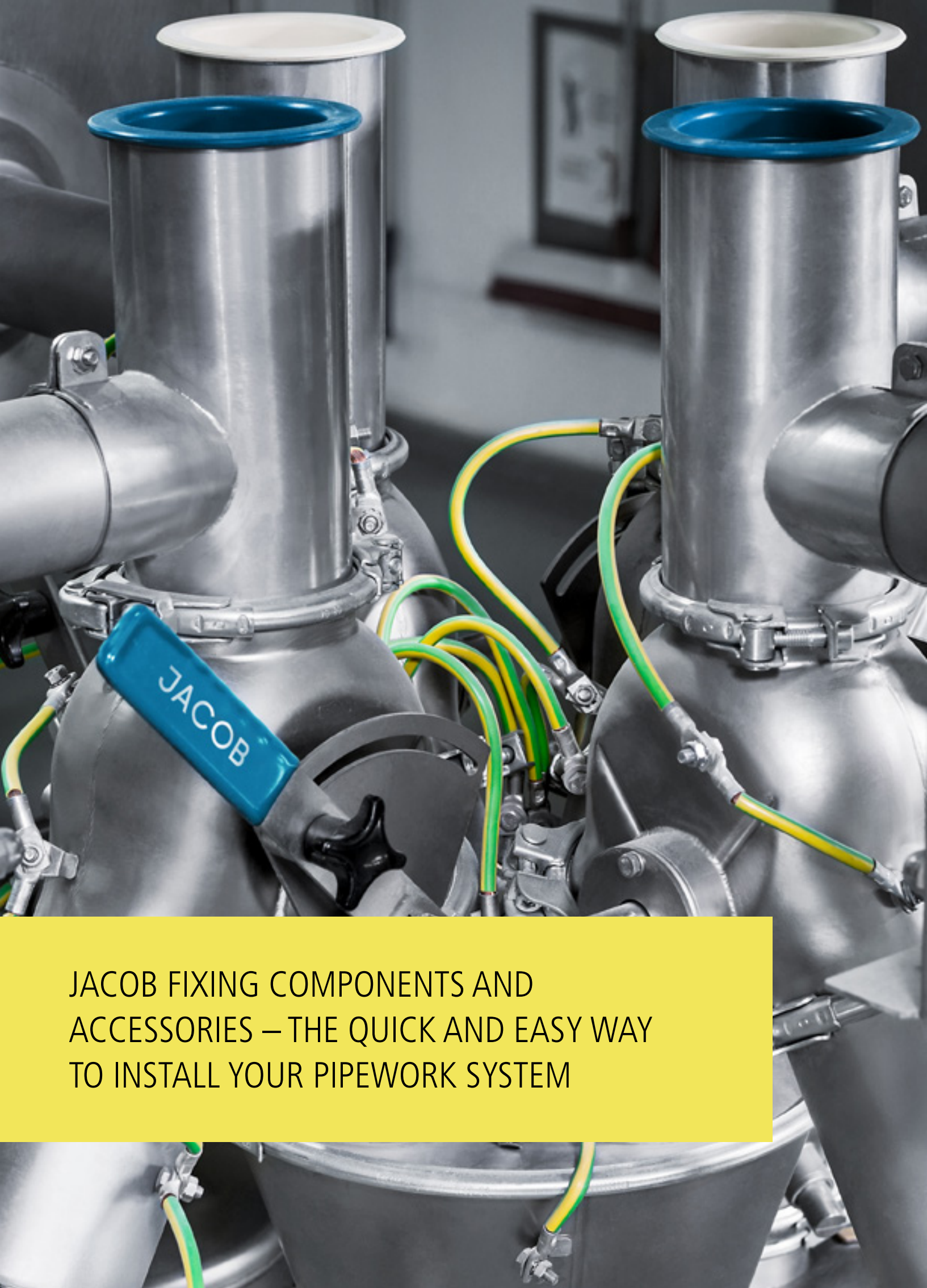
DN	Ød	ØA	ØB	ØC	E	S	kg	NBR grey white		Silicone transparent (F)		Silicone blue (F)(D)	
								Item no.	€	Item no.	€	Item no.	€
350	355	405	435	11.5	8	3	0.20	10356718	24,20	10357718	30,30	1035771801	50,50
400	400	448	484	11.5	12	3	0.24	10406718	26,50	10407718	34,80	1040771801	70,00
450	450	497	534	11.5	12	3	0.26	10456718	29,20	10457718	37,20	1045771801	76,00
500	500	551	584	11.5	12	3	0.28	10506718	33,40	10507718	43,50	1050771801	92,20
560	560	629	664	14	16	3	0.38	10566718	36,90	10567718	54,80	1056771801	117,50
630	630	698	734	14	16	3	0.42	10636718	44,70	10637718	59,70	1063771801	133,00
710	710	775	814	14	16	3	0.52	10716718	51,20	10717718	78,40	1071771801	177,00
800	800	861	904	14	24	3	0.56	10806718	63,70	10807718	112,00	1080771801	216,00
900	897	958	1004	14	24	4	1.51	10996718009	0146,00	10997718009	0172,50	10997718009001	420,50
1000	998	1067	1105	14	24	4	1.68	10996718010	0174,00	10997718010	0183,00	10997718010001	424,50
1120	1118	1200	1245	18	32	4	2.79	10996718011	2197,50	10997718011	2229,50	10997718011201	429,50
1250	1248	1337	1375	18	32	4	3.10	10996718012	5238,50	10997718012	5239,50	10997718012501	433,50
1400	1398	1475	1525	18	32	4	3.47	10996718014	0244,50	10997718014	0252,00	10997718014001	437,50
1600	1598	1675	1725	18	40	4	3.93	10996718016	0251,00	10997718016	0267,00	10997718016001	443,00

EPDM

DN	Ød	ØA	ØB	ØC	E	S	kg	EPDM black	
								Item no.	€
350	355	405	435	11.5	8	3	0.20	10358718	9,70
400	400	448	484	11.5	12	3	0.24	10408718	11,40
450	450	497	534	11.5	12	3	0.26	10458718	12,70
500	500	551	584	11.5	12	3	0.28	10508718	14,50
560	560	629	664	14	16	3	0.38	10568718	18,30
630	630	698	734	14	16	3	0.42	10638718	22,10
710	710	775	814	14	16	3	0.52	10718718	27,50
800	800	861	904	14	24	3	0.56	10808718	35,10
900	897	958	1004	14	24	4	1.51	10998718009	076,00
1000	998	1067	1105	14	24	4	1.68	10998718010	089,60
1120	1118	1200	1245	18	32	4	2.79	10998718011	2111,00
1250	1248	1337	1375	18	32	4	3.10	10998718012	5121,00
1400	1398	1475	1525	18	32	4	3.47	10998718014	0126,00
1600	1598	1675	1725	18	40	4	3.93	10998718016	0131,00

(F) FOOD GRADE
EC 1935/2004 plus FDA compliant

(D) DETECTABLE DESIGN
Metal-detectable



JACOB FIXING COMPONENTS AND ACCESSORIES – THE QUICK AND EASY WAY TO INSTALL YOUR PIPEWORK SYSTEM

FIXING COMPONENTS AND ACCESSORIES

Technical information	234
Flanging tools	236
Spray paint and paint tin	236
Earthing wires and earthing lugs	237
Pipe clamps	238
Assembly accessories	240
Blank-off cover	241

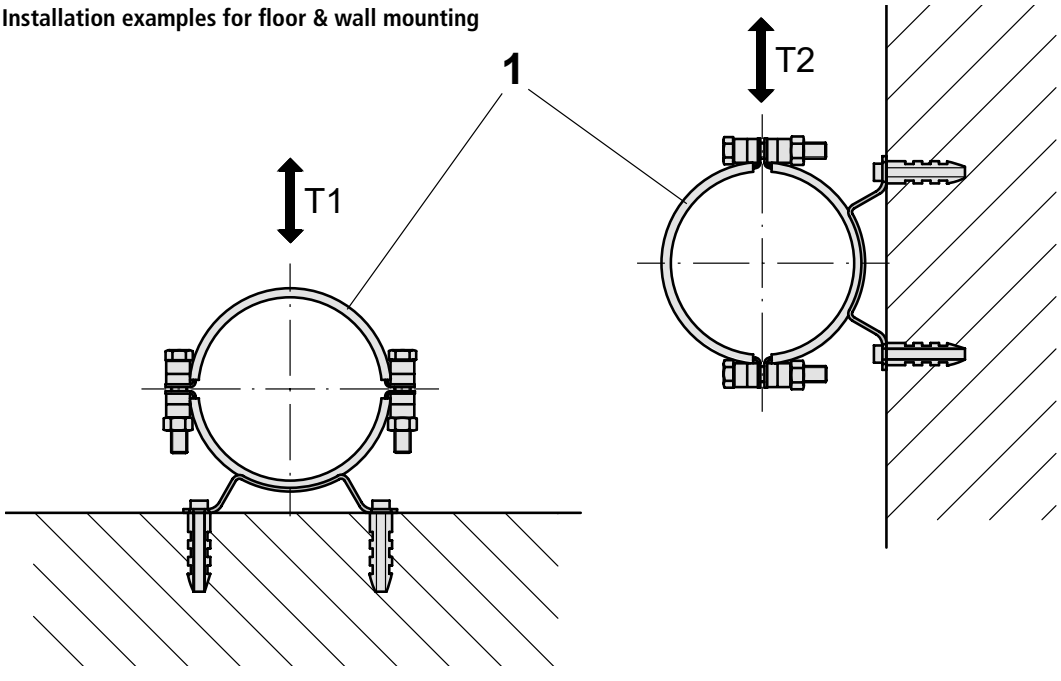
JACOB ACCESSORIES

Your pipework system entirely from one source and easily installed with our accessories, from the flanging tools for cutting exact lengths on site right up to pipe clamps.

INSTALLATION EXAMPLES OF PIPE CLAMPS FOR FLOOR AND WALL MOUNTING

Whether for floor or wall mounting – JACOB has the right pipe clamps in its range.

Installation examples for floor & wall mounting

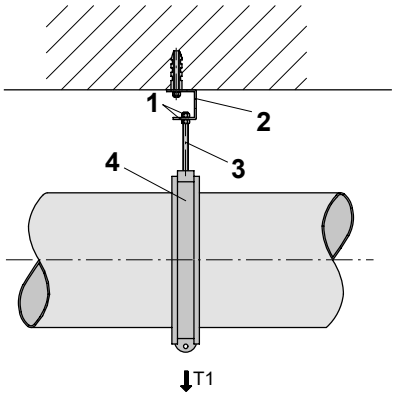


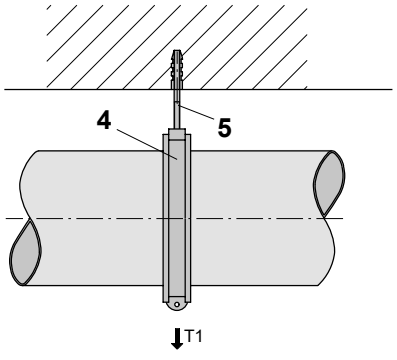
1 Pipe clamps for wall mounting with rubber insert
T1 Load with a deformation of 5 mm
T2 Load with a deformation of 10 mm

For details of loads, refer to the tables on pages 238 and 239

Installation examples for ceiling mounting

1 Hexagon nuts metric
2 Fixing clips
3 Threaded bolt metric
4 Pipe clamps for wall mounting with rubber insert
5 Hanger bolt metric
T1 Load with a deformation of 5 mm





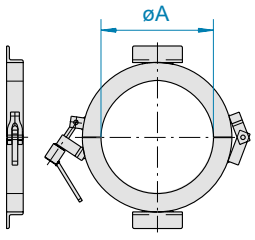
For details of loads, refer to the tables on pages 238 and 239



EARTHING WIRE

Creates electrostatic continuity through connecting two pipe components with an earthing lug using a JACOB earthing wire. Alternatively, the earthing bridge (see chapter 2) can be used to create electrostatic continuity.





Operating instructions
for flanging tools

FLANGING TOOLS

4020

- To create exact lengths on site
- Please also read and take into account our operating instructions
- From DN 80 to 175 mm only 1 angle piece welded
- From DN 200 to 400 mm 2 angle pieces welded

DN	ØA	kg	Powder-coated	
			Item no.	€
60	58	3.10	10061740	149,50
80	80	3.30	10081740	149,50
100	103	3.60	10101740	168,50
120	123	4.70	10121740	200,50
140	139	5.20	10141740	228,00
150	153	5.60	10151740	228,00
175	178	6.40	10171740	242,50
200	203	6.80	10201740	271,50
224	223	7.30	10221740	318,00
250	253	8.75	10251740	318,00
280	283	9.10	10281740	351,00
300	303	9.35	10301740	351,00
315	318	9.80	10311740	368,50
350	353	10.30	10351740	441,50
400	403	12.00	10401740	488,00
450	453	14.50	10451740	852,00
500	503	17.00	10501740	934,00



SPRAY PAINT AND PAINT TIN

4040/4050

- Spray paint for re-touching powder-coated (RAL 7032) or galvanised pipework
- 1 kg paint and paintbrush for powder-coated pipework (RAL 7032)
- N.B.: Paint is a hazardous substance – separate packaging provided!
- Non-conductive

Paint and zinc spray

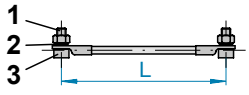
RAL 7032		Galvanised	
Item no.	€	Item no.	€
100019900	13,20	100029900	13,20



1 kg paint and paintbrush

RAL 7032	
Item no.	€
100019910	15,70





1 Hexagon nut metric M 6, A2
2 Toothed lock washer M 6.4, A2
3 Hexagon bolt metric M 6 x 16, A2

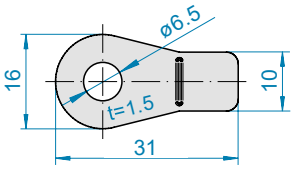
EARTHING WIRE 16 MM²

1420

- To create electrostatic continuity
- For use in conjunction with pipework with earthing lugs
- Including hexagon nut M 6, A2, toothed lock washer 6.4, A2 and hexagon bolt M 6 x 16, A2

L = 120 mm		L = 230 mm		L = 330 mm		L = 430 mm	
Item no.	€/pack of ten	Item no.	€/pack of ten	Item no.	€/pack of five	Item no.	€/pack of five
1000079510	16,20	1000079610	20,50	1000079705	19,90	1000079805	21,50





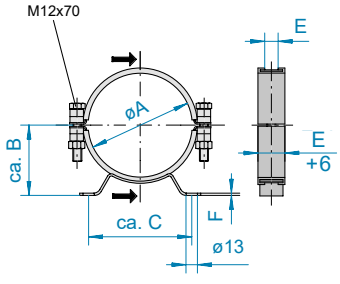
EARTHING LUGS

1415/1410

- To create electrostatic continuity in conjunction with the earthing wire
- Material 1.4301, material thickness 1.5 mm
- Available as a loose earthing lug for installation on site
- Including application through spot welding to pipework

Earthing lug, loose		Earthing lug, spot-welded	
Item no.	€/pack of ten	Item no.	€
1100379020	7,60	11003791	2,80





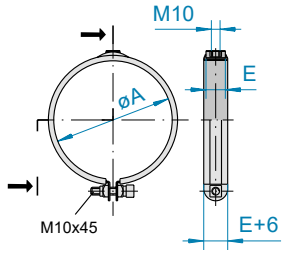
PIPE CLAMPS FOR WALL MOUNTING

3100

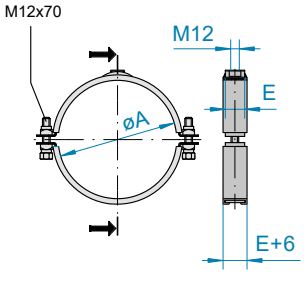
- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting

DN	ØA	B	C	E	F	Load (kN)		kg	Electro-galvanised		Stainless steel	
						T1	T2		Item no.	€	Item no.	€
60	60	50	100	20x1	2			0.20	10062780	18,70	10063780	43,10
80	80	64	138	30x2.5	3	2.0	1.0	0.70	10082780	19,80	10083780	45,30
100	102	75	138	30x2.5	3	2.5	1.0	0.80	10102780	20,60	10103780	46,60
120	123	86	138	30x2.5	3	2.5	1.0	0.85	10122780	22,00	10123780	50,60
140	139	94	138	30x2.5	3	2.5	1.0	0.85	10142780	22,20	10143780	57,70
150	153	101	148	30x2.5	3	3.0	1.2	0.95	10152780	22,80	10153780	57,70
175	178	113	148	30x2.5	3	3.0	1.2	1.00	10172780	24,50	10173780	63,80
200	203	126	148	30x2.5	3	3.0	1.2	1.05	10202780	25,10	10203780	67,60
224	223	136	148	30x2.5	3	3.0	1.2	1.10	10222780	27,00	10223780	73,80
250	253	151	230	30x2.5	3	3.0	1.2	1.25	10252780	28,80	10253780	73,80
280	280	166	230	30x2.5	3	3.0	1.2	1.40	10282780	29,50	10283780	76,50
300	303	176	230	30x2.5	3	3.0	1.2	1.40	10302780	31,40	10303780	81,20
315	315	182	230	30x2.5	3	3.0	1.2	1.40	10312780	32,70	10313780	85,20
350	353	204	260	30x3	4	3.5	1.2	1.55	10352780	47,60	10353780	100,50
400	402	228	260	30x3	4	3.5	1.2	2.10	10402780	54,10	10403780	106,00
450	452	254	300	30x3	4	4.5	1.5	2.95	10452780	61,30	10453780	131,00
500	502	279	300	30x3	4	4.5	1.5	3.05	10502780	71,00	10503780	147,00
560	562	309	350	30x3	4	5.0	1.7	4.00	10562780	79,10	10563780	165,50
630	632	344	350	30x3	4	5.0	1.7	5.00	10632780	98,70	10633780	206,50
710	712	385	350	40x4	5			5.50	10712780	114,50	10713780	336,00
800	800	450	350	40x4	5			6.50	10802780	124,00	10803780	394,00





DN 60 to 300 mm



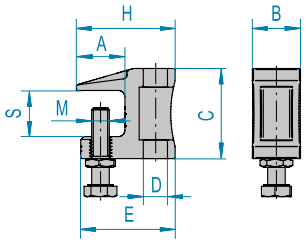
DN 315 to 800 mm

PIPE CLAMPS FOR CEILING MOUNTING

- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting

DN	ØA	E	Load (kN)	kg	Electro-galvanised		Stainless steel	
			T1		Item no.	€	Item no.	€
60	60	20x1.0		0.11	10062770	7,00	10063770	19,60
80	80	25x1.5	2.0	0.20	10082770	7,30	10083770	20,70
100	102	25x1.5	2.0	0.24	10102770	8,40	10103770	21,40
120	123	25x1.5	2.0	0.27	10122770	9,40	10123770	22,20
140	139	25x1.5	2.0	0.29	10142770	10,20	10143770	22,60
150	153	25x1.5	2.0	0.31	10152770	10,20	10153770	23,00
175	178	25x1.5	2.0	0.34	10172770	11,60	10173770	23,30
200	203	25x1.5	2.0	0.37	10202770	12,10	10203770	24,80
224	223	25x1.5	2.0	0.41	10222770	12,70	10223770	26,30
250	253	25x1.5	2.0	0.44	10252770	12,70	10253770	27,00
280	280	25x1.5	2.0	0.51	10282770	13,20	10283770	28,10
300	303	25x1.5	2.0	0.60	10302770	14,10	10303770	30,00
315	315	30x2.5	2.0	1.25	10312770	14,70	10313770	31,50
350	353	30x2.5	3.0	1.31	10352770	40,90	10353770	99,90
400	402	30x2.5	3.0	1.42	10402770	42,30	10403770	105,50
450	452	30x2.5	3.0	1.60	10452770	43,30	10453770	108,00
500	502	30x2.5	3.0	1.66	10502770	45,60	10503770	111,50
560	562	30x2.5	3.0	1.79	10562770	47,70	10563770	122,50
630	632	30x2.5	3.0	1.80	10632770	49,60	10633770	137,00
710	712	30x2.5		2.50	10712770	55,10	10713770	141,00
800	802	30x2.5		3.50	10802770	69,10	10803770	179,50





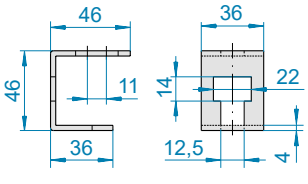
BEARING CLAMPS

3190

- For fixing pipes to steel girders (no welding or drilling required)
- Galvanised cast-iron bearing clamps (clamping width 0-20 mm)
- Bearing clamps, V2A (clamping width 0-16 mm)
- Fully equipped for the suspension of DN 60 to DN 300 pipes, size of through hole M10

S	A	B	C	D	E	H	M	Cast iron, galvanised		V2A	
								Item no.	€/pack of ten	Item no.	€
0-20	23	21	42	11	41	44	10	1008277610	24,80		
0-16	21.5	21	38	11	34	41.5	10			10083776	22,00





FIXING CLIPS

3110

- Electro galvanised
- Load 3.0 kN with a deformation of 5 mm

Item no.	€/pack of ten
1008277110	23,70



Hanger bolt metric

HANGER BOLTS METRIC

3120/3140/3150/3130

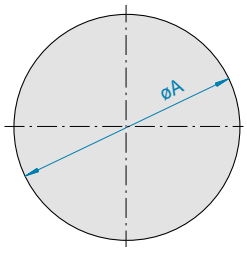
Article		Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
Threaded bolts metric 1000 mm long	M 10	10082772	2,60	10083772	6,30
	M 12	10102772	2,70	10103772	7,90
Hexagon nuts metric DIN EN ISO 4032	M 10	10082774	0,10	10083774	0,20
	M 12	10102774	0,10	10103774	0,20
Twin nuts 30 mm long	M 10	10082775	1,40	10083775	3,10
	M 12	10102775	1,60	10103775	3,30
Hanger bolts metric M 10 x 100 mm	M 10	10082773	0,70	10083773	2,10
	M 12	10102773	0,90	10103773	2,90



BLANK-OFF COVER

1370

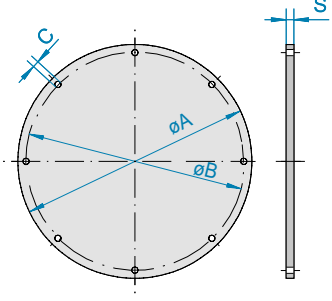
- For permanently closing off a pipe system
- For use in conjunction with U-shaped seal and pull-ring
- From DN 350 mm, also available for flange connections
- Pressure range restricted, particularly in the case of large diameters



Blank-off covers for pull ring connections

DN	ØA	kg	1.5 mm stainless steel		2 mm stainless steel	
			Item no.	€	Item no.	€
60	70	0.04	110637151	4,60		
80	92	0.05	110837151	5,90		
100	114	0.10	111037151	6,10		
120	134	0.10	111237151	6,60		
140	150	0.15	111437151	7,90		
150	164	0.15	111537151	7,90		
175	189	0.20	111737151	8,90		
200	214	0.30	112037151	10,20		
224	234	0.30	112237151	11,60		
250	264	0.45	112537151	11,60		
280	292	0.83	112837151	12,90		
300	314	0.55	113037151	12,90		
315	327	1.10	113137151	14,20		
350	364	1.60			123537151	32,10
400	414	1.50			124037151	43,00
450	464	1.50			124537151	52,10
500	514	3.25			125037151	63,60
560	574	4.05			125637151	79,60
630	644	5.15			126337151	101,00



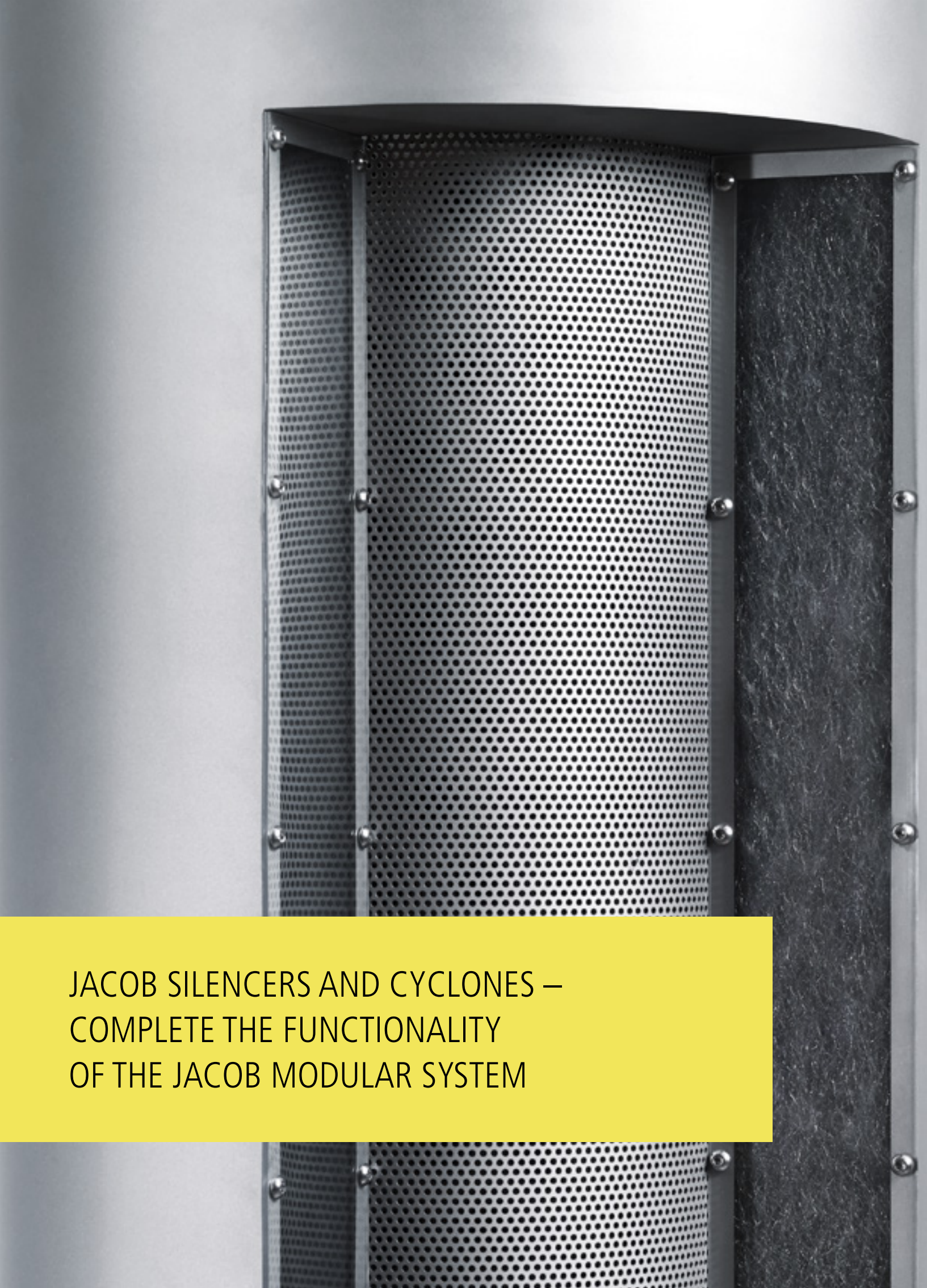


E = No. of holes

Blank-off cover for flange connections

DN	ØA	ØB	C	E	S	kg	Stainless steel	
							Item no.	€
350	435	405	11.5	8	6	7.00	20353723	113,00
400	484	448	11.5	12	6	8.70	20403723	138,00
450	534	497	11.5	12	6	10.60	20453723	166,50
500	584	551	11.5	12	6	12.70	20503723	195,50
560	664	629	14.0	16	6	16.30	20563723	250,50
630	734	698	14.0	16	6	20.00	20633723	303,00
710	814	775	14.0	16	6	24.50	20713723	367,50
800	904	861	14.0	24	6	30.30	20803723	450,50
900	1004	958	14.0	24	6	37.30	209937230090	550,50
1000	1105	1067	14.0	24	6	45.20	209937230100	661,50
1120	1245	1200	18.0	32	6	57.30	209937230112	835,50
1250	1375	1337	18.0	32	6	69.90	209937230125	1131,00
1400	1525	1475	18.0	32	6	86.00	209937230140	1236,00
1600	1725	1675	18.0	32	6	110.10	209937230160	1575,00

FOOD GRADE
EC 1935/2004 plus FDA compliant



JACOB SILENCERS AND CYCLONES – COMPLETE THE FUNCTIONALITY OF THE JACOB MODULAR SYSTEM

SILENCERS AND CYCLONES

Technical information	244
Silencers	246
Cyclones	249



SILENCERS

In pipework systems, noticeable noise cannot be avoided. To get your production systems to whisper, we offer silencers with JACOB-compatible elements in our standard range. Silencers are available in lengths of 500, 1000 and 1500 mm and in diameters of 80 to 630 mm. They are made in a variety of materials with a wall thickness of 2 mm. The ends are lipped and are alternately available with a loose flange connection from a diameter of 350 mm. The sound-absorbing material applied on the inside consists of non-inflammable mineral wool with a non-woven glass covering. As a component of the JACOB modular pipework system, the silencers are easy to disassemble and assemble for cleaning or to replace the mineral wool.

We are pleased to accommodate special customer requirements. If desired, we can also assist you in selecting the right design variant and the correct dimensions for your acoustic insulation.

The advantages for you:
- Easy to incorporate in the JACOB modular system
- Broad range of standard products with a variety of different diameters, materials and damping lengths
- Replaceable insulation through the use of our pull-ring system
- Accommodation of special customer requirements, such as special lengths
- Special colours



CYCLONES

Utilising centrifugal force, cyclones within a pipework system ensure that solid particles are separated out. Cyclones are often used in industry to recover raw materials from the production process or generally to remove solid particles before recirculating the air. The range of applications is therefore accordingly wide. Our cyclones are used in the timber, plastics and tobacco industries, for example. Our standard cyclones are available in diameters ranging from 250 to 1000 mm with lipped connections, and with diameters from 1120 to 2300 mm with welded-on flanges. For diameters up to 1250 mm, the material thickness can be 2 or 3 mm, and larger diameters are manufactured with a material thickness of 3 mm. Cyclones are available in powder-coated, galvanised or stainless steel versions. Please note that cyclones are passive components. The way they work depends on the volumetric flow, the pressure loss and the material load and particle size.

The nominal diameters refer to the diameter of the cyclone body. The size of the cyclone inlet can be dimensioned with a diameter of between 80 and 900 mm.

The volumetric flow indicated applies for a flow velocity of approx. 20-24 m/sec in the pipe system at the cyclone connection.
The separation rate and pressure loss were determined based on a material load of 1 kg/m³.

We custom-build cyclones according to your individual requirements and we also help you to select the right cyclone for the job. Further models and diameters are available on request. Please call us for further information.

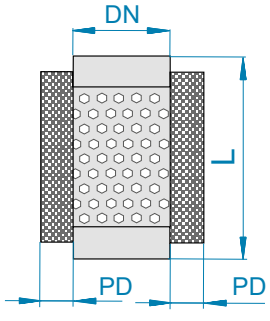
The advantages for you:
- Easy to incorporate in the JACOB modular system
- Easy maintenance through modular design
- Also available in stainless steel for contact with food
- Accommodation of special customer requirements
- Special colours
- Leg supports on request

Explanatory video about cyclones









PD = insulation thickness

SILENCERS, DAMPING LENGTH 400 MM

1470/6470

Technical data

DN	L	PD	Volumetric flow at v_{max} (m³/h)	Air speed v_{max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
80	486	100	250	15	18	32	17
100	486	100	400	15	15	34	14
120	486	100	600	15	13	35	11
140	486	100	800	15	12	36	10
150	486	100	900	15	11	37	9
175	486	100	1200	15	10	38	8
200	486	100	1700	15	9	40	7
224	486	100	2100	15	9	41	6
250	486	100	2600	15	7	42	5
300	486	100	3800	15	6	43	5
350	486	100	5100	15	5	44	4
400	486	100	6700	15	5	46	3

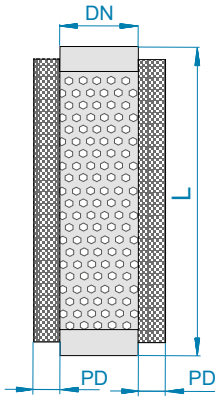
DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200805012500	322,00			4200805022500	351,00		
100	4201005012500	329,50			4201005022500	365,50		
120	4201205012500	341,50			4201205022500	381,50		
140	4201405012500	368,00			4201405022500	412,50		
150	4201505012500	387,00			4201505022500	435,00		
175	4201705012500	433,00			4201705022500	486,50		
200	4202005012500	471,50			4202005022500	531,00		
224	4202205012500	514,00			4202205022500	580,50		
250	4202505012500	552,50			4202505022500	629,00		
300	4203005012500	607,50			4203005022500	700,50		
350	4203505012500	659,50	4203505012503	723,00	4203505022500	769,00	4203505022503	846,00
400	4204005012500	721,50	4204005012503	796,50	4204005022500	846,00	4204005022503	919,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200805032500	459,50		
100	4201005032500	482,50		
120	4201205032500	502,50		
140	4201405032500	535,00		
150	4201505032500	566,00		
175	4201705032500	615,50		
200	4202005032500	669,00		
224	4202205032500	725,00		
250	4202505032500	777,50		
300	4203005032500	855,50		
350	4203505032500	930,00	4203505032503	1011,00
400	4204005032500	1014,00	4204005032503	1106,00

For more technical information go to www.jacob-pipesystems.com







PD = insulation thickness

SILENCERS, DAMPING LENGTH 900 MM

1470/6470

Technical data

DN	L	PD	Volumetric flow at v_{max} (m^3/h)	Air speed v_{max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
80	984	100	270	15	37	32	38
100	984	100	400	15	30	34	31
120	984	100	600	15	25	35	26
140	984	100	800	15	24	36	22
150	984	100	900	15	22	37	20
175	984	100	1200	15	21	38	18
200	984	100	1700	15	18	40	15
224	984	100	2100	15	17	41	14
250	984	100	2600	15	15	42	12
300	984	100	3800	15	13	43	10
350	984	100	5100	15	12	44	9
400	984	100	6700	15	11	46	8
450	984	100	8500	15	8	47	7

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200810012500	360,50			4200810022500	423,00		
100	4201010012500	371,50			4201010022500	444,50		
120	4201210012500	387,00			4201210022500	467,50		
140	4201410012500	421,50			4201410022500	510,00		
150	4201510012500	440,50			4201510022500	533,00		
175	4201710012500	497,00			4201710022500	596,00		
200	4202010012500	533,00			4202010022500	646,00		
224	4202210012500	579,00			4202210022500	698,00		
250	4202510012500	621,00			4202510022500	754,00		
300	4203010012500	684,50			4203010022500	836,50		
350	4203510012500	746,00	4203510012503	809,50	4203510022500	920,50	4203510022503	995,50
400	4204010012500	821,00	4204010012503	894,00	4204010022500	1015,00	4204010022503	1106,00
450	4204510012500	875,00	4204510012503	959,00	4204510022500	1092,00	4204510022503	1197,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200810032500	555,50		
100	4201010032500	583,00		
120	4201210032500	613,50		
140	4201410032500	656,50		
150	4201510032500	691,50		
175	4201710032500	764,00		
200	4202010032500	823,00		
224	4202210032500	883,00		
250	4202510032500	950,50		
300	4203010032500	1047,00		
350	4203510032500	1147,00	4203510032503	1227,00
400	4204010032500	1265,00	4204010032503	1355,00
450	4204510032500	1363,00	4204510032503	1468,00



SILENCERS, DAMPING LENGTH 1400 MM

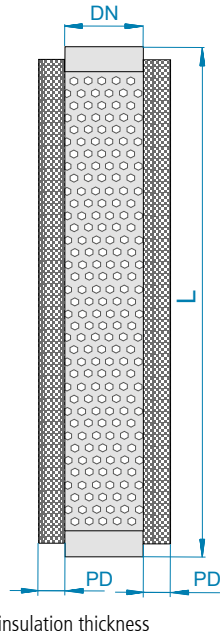
1470/6470

Technical data

DN	L	PD	Volumetric flow at v_{max} (m³/h)	Air speed v_{max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
150	1484	100	900	15	34	37	32
175	1484	100	1200	15	32	38	27
200	1484	100	1700	15	27	40	24
224	1484	100	2100	15	26	41	21
250	1484	100	2600	15	23	42	19
300	1484	100	3800	15	30	43	16
350	1484	100	5100	15	18	44	14
400	1484	100	6700	15	16	46	12
450	1484	100	8500	15	13	47	11
500	1484	100	10600	15	12	48	10
560	1484	100	13300	15	12	49	9
630	1484	100	15800	15	11	50	8



DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	4201515012500	498,50			4201515022500	629,00		
175	4201715012500	557,50			4201715022500	702,00		
200	4202015012500	598,50			4202015022500	754,00		
224	4202215012500	648,00			4202215022500	819,00		
250	4202515012500	692,50			4202515022500	875,00		
300	4203015012500	767,50			4203015022500	978,50		
350	4203515012500	836,50	4203515012503	900,00	4203515022500	1075,00	4203515022503	1152,00
400	4204015012500	913,00	4204015012503	988,00	4204015022500	1179,00	4204015022503	1269,00
450	4204515012500	974,50	4204515012503	1061,00	4204515022500	1274,00	4204515022503	1376,00
500	4205015012500	1230,00	4205015012503	1329,00	4205015022500	1732,00	4205015022503	1851,00
560	4205615012500	1274,00	4205615012503	1381,00	4205615022500	1778,00	4205615022503	1907,00
630	4206315012500	1381,00	4206315012503	1501,00	4206315022500	1956,00	4206315022503	2106,00

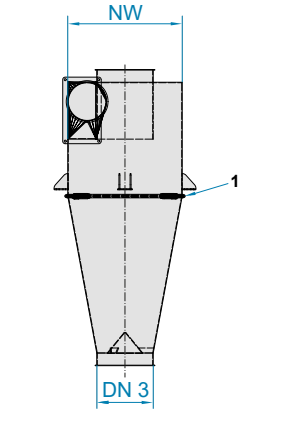


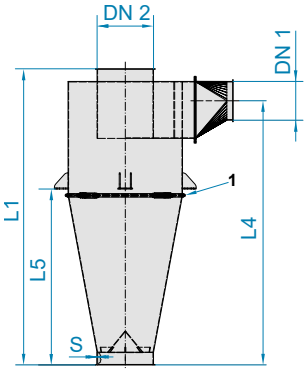
PD = insulation thickness

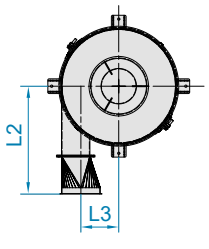
DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
150	4201515032500	823,00		
175	4201715032500	907,50		
200	4202015032500	975,50		
224	4202215032500	1054,00		
250	4202515032500	1127,00		
300	4203015032500	1252,00		
350	4203515032500	1368,00	4203515032503	1489,00
400	4204015032500	1498,00	4204015032503	1589,00
450	4204515032500	1622,00	4204515032503	1728,00
500	4205015032500	1854,00	4205015032503	2046,00
560	4205615032500	2005,00	4205615032503	2173,00
630	4206315032500	2211,00	4206315032503	2380,00

For more technical information go to www.jacob-pipesystems.com









1 Connection between top and bottom section of cyclone:
- – Pull-ring connection NW 250-630 mm
- – Welded flanges NW 710-2300 mm
- – From DN 710 mm with a domed cover

CYCLONES

1480/6480

- Please also read and take into account the technical information given at the beginning of this chapter
- Up to NW 1800 mm powder-coated
- NW 2000 and 2300 mm spray-primed

Technical data

NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m^3/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
250	80	120	120	650	262	87	560	375	407	1020	>10
300	100	150	150	800	302	102	699	475	636	1012	>10
350	120	175	175	925	347	117	814	550	865	924	>12
400	140	200	200	1050	386	131	931	625	1130	980	>12
450	150	224	224	1170	426	151	1044	695	1418	984	>13
500	175	250	250	1300	471	164	1161	775	1766	980	>13
560	200	280	280	1450	516	181	1299	865	2216	980	>14
630	224	300	300	1550	576	204	1389	895	2543	975	>15
710	250	350	350	1800	647	232	1474	1040	3462	978	>16
800	280	400	400	2050	717	262	1710	1200	4522	980	>18
900	300	450	450	2300	802	302	1949	1350	5723	980	>18
1000	350	500	500	2550	887	327	2174	1500	7065	980	>19

Inlets and outlets with 6 mm lip, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		2 mm galvanised		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
250	4202002512255	711,00	4203002512255	889,00	4202002522255	874,00	4203002522255	1067,00
300	4202003012255	799,00	4203003012255	998,00	4202003022255	982,00	4203003022255	1199,00
350	4202003512255	877,50	4203003512255	1096,00	4202003522255	1079,00	4203003522255	1316,00
400	4202004012255	902,00	4203004012255	1128,00	4202004022255	1110,00	4203004022255	1355,00
450	4202004512255	977,00	4203004512255	1220,00	4202004522255	1202,00	4203004522255	1464,00
500	4202005012255	1048,00	4203005012255	1310,00	4202005022255	1290,00	4203005022255	1571,00
560	4202005612255	1122,00	4203005612255	1403,00	4202005622255	1380,00	4203005622255	1684,00
630	4202006312255	1210,00	4203006312255	1512,00	4202006322255	1489,00	4203006322255	1815,00
710	4202007112255	1301,00	4203007112255	1629,00	4202007122255	1602,00	4203007122255	1954,00
800	4202008012255	1757,00	4203008012255	2194,00	4202008022255	2160,00	4203008022255	2633,00
900	4202009012255	1879,00	4203009012255	2346,00	4202009022255	2307,00	4203009022255	2814,00
1000	4202010012255	2341,00	4203010012255	2924,00			4203010022255	3510,00

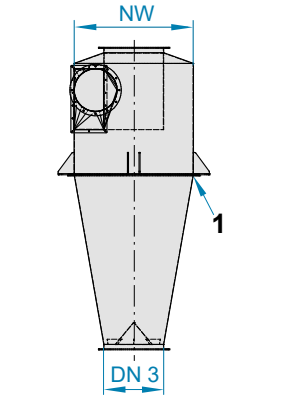
Inlets and outlets with 6 mm lip, stainless steel, shotblasted or pickled and passivated

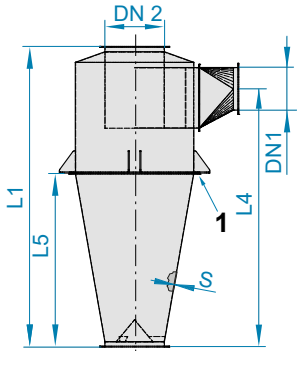
NW	2 mm 1.4301 (304) shotblasted		2 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€
250	4202002532255	1407,00	4202002542255	1759,00
300	4202003032255	1665,00	4202003042255	2087,00
350	4202003532255	1924,00	4202003542255	2407,00
400	4202004032255	2097,00	4202004042255	2622,00
450	4202004532255	2271,00	4202004542255	2839,00
500	4202005032255	2438,00	4202005042255	3046,00
560	4202005632255	2602,00	4202005642255	3252,00
630	4202006332255	2769,00	4202006342255	3460,00
710	4202007132255	2942,00	4202007142255	3676,00
800	4202008032255	3570,00	4202008042255	4463,00
900	4202009032255	4489,00	4202009042255	5611,00
1000	4202010032255	5408,00	4202010042255	6759,00

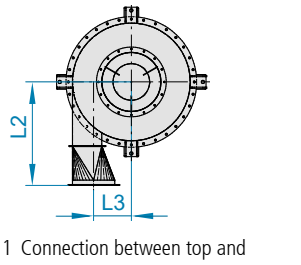
Cyclones



Product similar to picture







1 Connection between top and bottom section with JACOB flanges
- DN 1, 2 and 3 with welded flanges; flanges welded off-radius
- Dimensions of JACOB flanges see chapter 12
- From a nominal diameter of 2000 mm: three-part cyclone

Technical data

NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m^3/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
1120	400	560	560	2900	987	362	2449	1650	8862	1003	>19
1250	450	630	630	3250	1097	402	2774	1900	11216	998	>21
1400	500	710	710	3650	1217	452	3149	2130	14246	980	>22
1600	560	800	800	4100	1387	522	3569	2400	18086	980	>24
1800	630	900	900	4600	1552	587	4034	2700	22891	980	>25
2000	710	1000	1000	5100	1717	647	4493	3000	28260	980	>28
2300	800	1120	1120	5850	1967	752	5198	3450	37374	980	>29

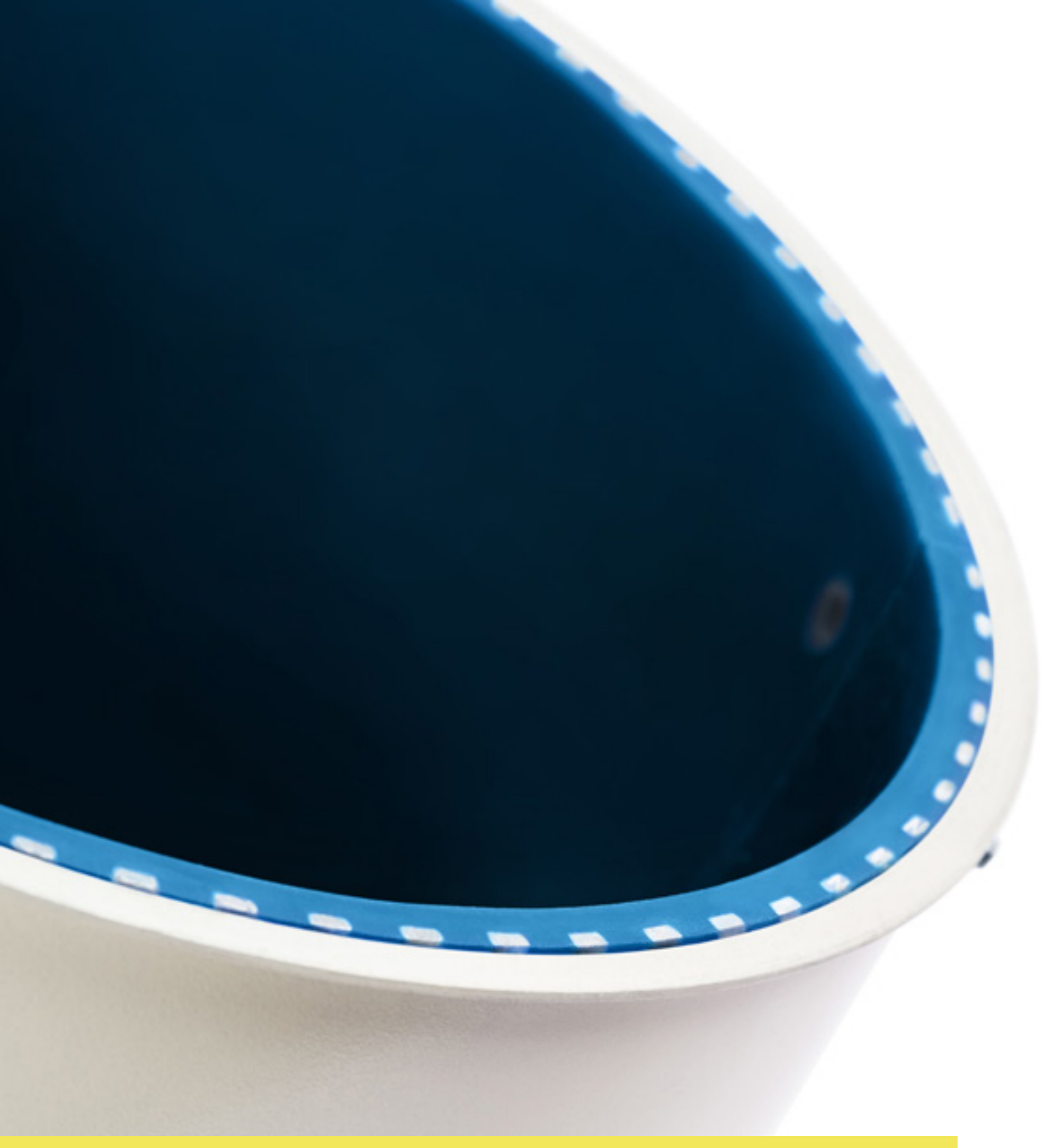
Inlets and outlets with welded-on flanges, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€
1120	4202011212255	2617,00	4203011212255	3271,00	4203011222255	3925,00
1250	4202012512255	3074,00	4203012512255	3842,00	4203012522255	4610,00
1400			4203014012255	5309,00	4203014022255	6371,00
1600			4203016012255	6212,00	4203016022255	7456,00
1800			4203018012255	6905,00	4203018022255	8285,00
2000			4203020012255	8079,00	4203020022255	9695,00
2300			4203023012255	8804,00	4203023022255	10563,00

Inlets and outlets with welded-on flanges, stainless steel, shotblasted or pickled and passivated

NW	2 mm 1.4301 (304) pickled and passivated		3 mm 1.4301 (304) pickled and passivated		2 mm 1.4571 (316Ti) pickled and passivated		3 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
1120	4202011232255	6261,00	4203011232255	7826,00	4202011242255	7826,00	4203011242255	9780,00
1250	4202012532255	7353,00	4203012532255	9193,00	4202012542255	9191,00	4203012542255	11489,00
1400			4203014032255	11814,00			4203014042255	14766,00
1600			4203016032255	12638,00			4203016042255	15794,00
1800			4203018032255	14783,00			4203018042255	18479,00
2000			4203020032255	17299,00			4203020042255	21621,00
2300			4203023032255	19895,00			4203023042255	24866,00





GREATER EFFICIENCY WITH THE JACOB WEAR PROTECTION RANGE

WEAR PROTECTION LINING

Technical information	254
Inlet pieces	256
Pipes	256
Segments	258
Forks	260
Cone pieces	260
Two-way valves with inlet collar	261
Cast-iron pipework	262
Special range hot-dip galvanised 3 mm	264

WEAR PROTECTION LINING
Technical information



DURABLE DESIGN – WEAR PROTECTION RANGE

A broad spectrum of applications in industry and agriculture causes high wear in pipework systems. In view of this, we have developed the new modular wear protection range: DURABLE DESIGN.

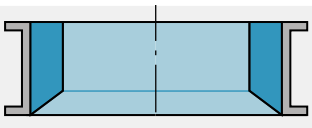
The wear protection is glued or bolted in the standard range and consists of a polyurethane base. The materials differ in their various properties. The products are combined with our modular pipework system. In the standard range,we offer diameters DN 150 mm to 350 mm with bolted wear protection and diameters DN 100 mm to 350 mm with glued wear protection. Larger diameters than 350 are generally available on request. Polyurethane offers the advantage that it has a flexible and yet wear-resistant structure. As a result, the impact energy due to deflections is absorbed in particular and thereby extends the lifetime.

DURABLE DESIGN is frequently applied in industry, e.g. for the transport of cement, lime, sand, grit, concrete or mineral wool, and in agriculture, e.g. for the transport of grain, soya, maize or barley.

We also continue to supply ceramic linings on request, a non-stick coating such as PTFE or a coating of your choice.

Cast-iron pipework and hot-galvanised or powder-coated pipework with a wall thickness of 3 mm are available as an alternative.

Our team would be pleased to assist you with selecting the right wear protection.



Thanks to the modular JACOB system, you can simply replace worn pipe components with pipe sections of the DURABLE DESIGN line. You can still use pull-rings and seals from the standard range. To ensure an optimum product flow, we have an inlet piece (see drawing) in our range with a chamfered lining which is fixed particularly securely in place. It is recommended that this piece is fitted at every place where lined pipework begins.

Version	Glued wear protection		Bolted wear protection		
Pipework diameter	DN 100 – 350 mm		DN 150 – 350 mm		
Wear protection material	PU ochre	Kryptane red	Blue Ox	Kryptane green	Rhino Hyde blue
Material thickness	6 mm	6 mm	6.5 mm	6 mm	8 mm
Expanded metal	–	–	■	■	■
Food grade	–	■	–	■	■
Temperature resistance	-20 °C to +80 °C	-20 °C to +80 °C	-20 °C to +80 °C	-20°C to +80°C	-20°C to +80°C
Shore hardness A	70	80	85	83	85
Electrostatic conductivity	–	–	–	–	■
Application	For high impact wear due to coarse products without sharp edges.	With high sliding and impact wear through fine-grained products up to 5 mm, dry and wet, at an angle of incidence of up to 30°.	Mainly for the grain and concentrated feed industry, for light to medium wear.	For high sliding and impact wear due to coarse products up to 50 mm. For a higher angle of incidence of 30 to 60°.	Recommended application: For conveying bulk goods without sharp edges with high sliding and impact wear.
Feature	Flexible use, suitable for light and medium wear.	Low friction coefficient, consequently No caking of the products and good sliding properties.	Focus on grain and concentrate feed.	Universal use, Good resistance also to coarse and sharp-edged products.	Electrically conductive and FDA certification, universal use and high quality.

DURABLE DESIGN

Your benefits with DURABLE DESIGN

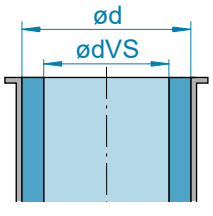
- Wear protection in a modular system
- Perfect for combining with JACOB pull-ring system
- Flexibly replaceable
- Wide product spectrum through bolting and glueing of the materials in the standard range
- Easy to assemble
- Longer lasting when conveying abrasive materials
- Choice between several materials in the standard range
- Other linings available on request

Technical data

For the wear protection range DURABLE DESIGN, JACOB uses pipe components from the modular system which are lined with different materials:

- JACOB pipework system with a lip for pull-ring connection
- Wall thicknesses 1.5 and 2 mm, further wall thicknesses on request
- Powder-coated RAL 7032 in the standard range
- Special colours, galvanised pipe components or chrome-nickel steel on request
- Bolted wear protection: DN 150 to 350 mm in the standard range, DN >350 mm on request
- Glued wear protection: DN 100 to 350 mm in the standard range, DN >350 mm on request

Product range	PU ochre 6.0 mm (glued)	Kryptane rot 6.0 mm (glued)	Blue-Ox 6.5 mm (bolted)	Kryptane green 6.0 mm (bolted)	Rhino Hyde blue 8.0 mm (bolted)
Inlet piece 50 mm	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Pipes 50 – 1000 mm	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Pipes 2000 mm	DN 100 – 350	DN 100 – 350	–	–	–
Segments 5° – 30°	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Segments 45°	DN 100 – 350	DN 100 – 350	Special segment (with straight back) DN 150 – 350	Special segment (with straight back) DN 150 – 350	Special segment (with straight back) DN 150 – 350
Bends R = 1D, 90°	DN 100 – 350	DN 100 – 350	–	–	–
Bends R = 2D, 30° – 90°	DN 100 – 350	DN 100 – 350	–	–	–
Push-in pipes 200 – 1000 mm	DN 100 – 350	DN 100 – 350	–	–	–
Forks 30° und 45°	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Symmetrical forks 60° und 90°	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Cone pieces	DN 100 – 350	DN 100 – 350	Special cone (with 50 mm connecting piece) DN 150 – 350	Special cone (with 50 mm connecting piece) DN 150 – 350	Special cone (with 50 mm connecting piece) DN 150 – 350
Connecting piece with loose flange	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Adapters with loose flange	DN 100 – 350	DN 100 – 350	–	–	–
Spouts from square to round	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Spouts from square to round 45° and 60°	DN 100 – 350	DN 100 – 350	DN 150 – 350	DN 150 – 350	DN 150 – 350
Two-way valves with inlet collar, hand-operated	–	–	DN 150 – 350	DN 150 – 350	DN 150 – 350



Internal diameter 1.5 mm pipework with wear protection lining

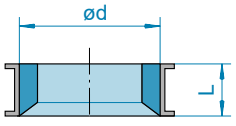
DN	Ø d	Ø dVS		
		Material thickness approx.		
		6 mm	6,5 mm	8 mm
150	150	138	137	134
200	200	188	187	184
250	250	238	237	234
300	300	288	287	284
350	350	338	337	334

Internal diameter 2 mm pipework with wear protection lining

DN	Ø d	Ø dVS		
		Material thickness approx.		
		6 mm	6,5 mm	8 mm
150	149	137	136	133
200	199	187	186	183
250	249	237	236	233
300	299	287	286	283
350	349	337	336	333

All internal diameters (dVS) are approximate dimensions





L = 50 mm

INLET PIECE WEAR PROTECTION LINING

1490

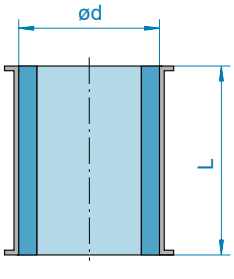
50 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121514000952	47,60	121514000951	50,70	121514000950	57,30
200	122014000952	49,90	122014000951	54,20	122014000950	62,90
250	122514000952	51,90	122514000951	57,10	122514000950	68,10
300	123014000952	55,10	123014000951	61,30	123014000950	74,40
350	123514000952	61,70	123514000951	69,00	123514000950	84,30

50 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121524000952	50,30	121524000951	53,30	121524000950	60,10
200	122024000952	53,70	122024000951	57,70	122024000950	66,60
250	122524000952	55,50	122524000951	60,80	122524000950	71,60
300	123024000952	59,50	123024000951	65,70	123024000950	78,80
350	123524000952	65,40	123524000951	72,60	123524000950	88,00





200 mm long: L = 200 mm
500 mm long: L = 486 mm
1000 mm long: L = 984 mm

PIPES – WEAR PROTECTION

1492

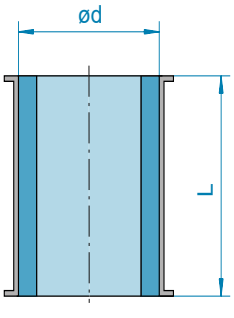
200 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510400952	70,20	121510400951	82,50	121510400950	109,50
200	122010400952	78,40	122010400951	94,80	122010400950	130,50
250	122510400952	85,60	122510400951	106,50	122510400950	151,00
300	123010400952	94,10	123010400951	119,50	123010400950	172,00
350	123510400952	106,00	123510400951	135,00	123510400950	196,50

200 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520400952	76,40	121520400951	88,70	121520400950	115,50
200	122020400952	85,00	122020400951	101,50	122020400950	137,00
250	122520400952	91,70	122520400951	113,00	122520400950	156,50
300	123020400952	106,00	123020400951	131,00	123020400950	184,00
350	123520400952	124,00	123520400951	153,00	123520400950	213,50





200 mm long: L = 200 mm
500 mm long: L = 486 mm
1000 mm long: L = 984 mm

500 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510300952	117,00	121510300951	148,00	121510300950	213,50
200	122010300952	137,50	122010300951	178,50	122010300950	266,00
250	122510300952	154,50	122510300951	206,00	122510300950	315,00
300	123010300952	173,00	123010300951	234,00	123010300950	366,00
350	123510300952	193,50	123510300951	265,00	123510300950	418,50

500 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520300952	100,00	121520300951	113,00	121520300950	138,50
200	122020300952	151,00	122020300951	191,50	122020300950	279,50
250	122520300952	167,00	122520300951	218,00	122520300950	327,50
300	123020300952	189,50	123020300951	251,00	123020300950	382,50
350	123520300952	227,50	123520300951	298,50	123520300950	452,50

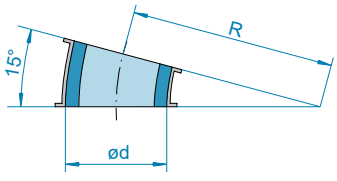
1000 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510200952	204,50	121510200951	265,50	121510200950	397,00
200	122010200952	238,50	122010200951	320,50	122010200950	496,00
250	122510200952	272,50	122510200951	374,50	122510200950	594,00
300	123010200952	308,00	123010200951	431,00	123010200950	693,50
350	123510200952	351,50	123510200951	495,00	123510200950	801,50

1000 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520200952	170,00	121520200951	201,00	121520200950	266,50
200	122020200952	264,50	122020200951	346,50	122020200950	521,50
250	122520200952	296,00	122520200951	398,50	122520200950	617,00
300	123020200952	337,00	123020200951	460,00	123020200950	723,00
350	123520200952	409,50	123520200951	552,50	123520200950	860,00





SEGMENTS – WEAR PROTECTION

1494/1496/1498/1500

5°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121513000952	56,70	121513000951	60,60	121513000950	69,00
200	690	122013000952	63,70	122013000951	70,10	122013000950	83,80
250	635	122513000952	70,00	122513000951	77,70	122513000950	93,80
300	625	123013000952	81,80	123013000951	91,20	123013000950	112,00
350	350	123513000952	92,00	123513000951	100,50	123513000950	119,00

5°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121523000952	58,60	121523000951	62,50	121523000950	70,90
200	690	122023000952	68,90	122023000951	75,20	122023000950	88,90
250	635	122523000952	77,80	122523000951	85,30	122523000950	102,00
300	625	123023000952	91,60	123023000951	101,50	123023000950	122,50
350	350	123523000952	93,20	123523000951	102,00	123523000950	120,00

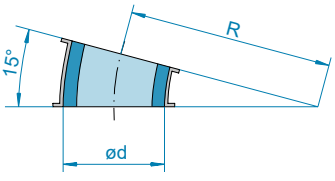
15°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	250	121513100952	73,10	121513100951	78,80	121513100950	91,40
200	270	122013100952	80,40	122013100951	89,10	122013100950	108,50
250	310	122513100952	90,20	122513100951	102,50	122513100950	130,00
300	310	123013100952	104,50	123013100951	121,50	123013100950	155,00
350	350	123513100952	124,50	123513100951	146,00	123513100950	191,50

15°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	250	121523100952	74,60	121523100951	80,50	121523100950	93,10
200	270	122023100952	85,40	122023100951	94,10	122023100950	113,50
250	310	122523100952	97,90	122523100951	111,00	122523100950	137,00
300	310	123023100952	114,50	123023100951	131,00	123023100950	165,50
350	350	123523100952	125,50	123523100951	147,00	123523100950	192,50





30°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	175	121513200952	105,00	121513200951	114,00	121513200950	132,00
200	180	122013200952	116,50	122013200951	130,00	122013200950	156,50
250	230	122513200952	131,50	122513200951	151,50	122513200950	193,50
300	230	123013200952	147,50	123013200951	174,00	123013200950	229,50
350	350	123513200952	185,00	123513200951	225,50	123513200950	311,50

30°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	175	121523200952	107,00	121523200951	116,00	121523200950	134,00
200	180	122023200952	123,00	122023200951	135,50	122023200950	163,00
250	230	122523200952	141,50	122523200951	160,50	122523200950	203,00
300	230	123023200952	160,50	123023200951	187,00	123023200950	242,50
350	350	123523200952	186,50	123523200951	227,00	123523200950	313,00

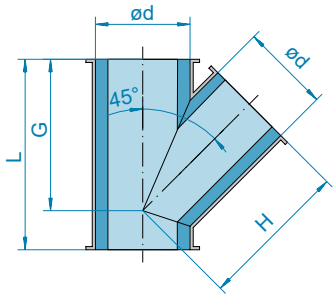
45°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121513300952	133,50	121513300951	143,00	121513300950	162,50
200	195	122013300952	152,50	122013300951	168,00	122013300950	201,00
250	195	122513300952	162,00	122513300951	181,00	122513300950	223,00
300	205	123013300952	179,00	123013300951	205,00	123013300950	258,00
350	350	123513300952	281,00	123513300951	329,50	123513300950	434,00

45°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121523300952	135,00	121523300951	144,50	121523300950	163,50
200	195	122023300952	163,00	122023300951	178,00	122023300950	211,00
250	195	122523300952	173,50	122523300951	192,50	122523300950	234,00
300	205	123023300952	194,50	123023300951	219,00	123023300950	272,50
350	350	123523300952	278,00	123523300951	327,50	123523300950	432,00





See chapter 5 for fork dimensions

FORKS – WEAR PROTECTION

1502

45°, 2 mm powder-coated

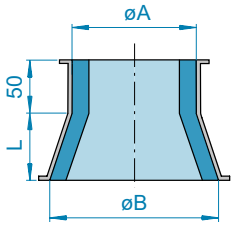
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121512200952	272,50	121512200951	310,00	121512200950	390,50
200	122012200952	345,50	122012200951	411,50	122012200950	553,00
250	122512200952	407,50	122512200951	495,50	122512200950	684,50
300	123012200952	492,00	123012200951	618,00	123012200950	889,00
350	123512200952	603,50	123512200951	787,00	123512200950	1182,00

45°, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121522200952	283,50	121522200951	321,00	121522200950	401,50
200	122022200952	362,00	122022200951	428,00	122022200950	570,00
250	122522200952	431,00	122522200951	519,50	122522200950	708,50
300	123022200952	526,00	123022200951	651,50	123022200950	922,50
350	123522200952	617,50	123522200951	801,50	123522200950	1195,00



Product similar to picture



CONE PIECES – WEAR PROTECTION

1504

2 mm powder-coated

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150-200	100	110014610952*	183,50	110014610951*	198,00	110014610950*	229,50
150-250	150	110014620952*	198,50	110014620951*	221,00	110014620950*	267,00
150-300	200	110014630952*	228,50	110014630951*	264,50	110014630950*	343,50
200-250	120	120014700952	198,00	120014700951	219,50	120014700950	266,50
200-300	150	120014710952	218,00	120014710951	249,00	120014710950	314,50
250-300	150	120014750952	221,50	120014750951	253,50	120014750950	324,00
250-350	200	120014840952	242,00	120014840951	276,50	120014840950	352,00
300-350	200	120014800952	270,50	120014800951	322,00	120014800950	431,50

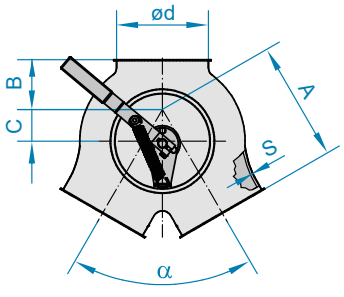
*1.5 mm

2 mm galvanised

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150-200	100	110024610952*	187,50	110024610951*	202,50	110024610950*	234,00
150-250	150	110024620952*	203,00	110024620951*	225,50	110024620950*	271,50
150-300	200	110024630952*	219,50	110024630951*	256,00	110024630950*	334,50
200-250	120	120024700952	203,00	120024700951	224,50	120024700950	271,50
200-300	150	120024710952	225,50	120024710951	255,00	120024710950	321,00
250-300	150	120024750952	226,00	120024750951	258,50	120024750950	328,00
250-350	200	120024840952	250,50	120024840951	285,50	120024840950	359,00
300-350	200	120024800952	285,50	120024800951	336,50	120024800950	446,50

*1.5 mm





Inlet and inner flap lined

Refer to chapter 9 for dimensions of two-way valve with inlet collar

TWO-WAY VALVES WITH INLET COLLAR WEAR PROTECTION LINING

1506

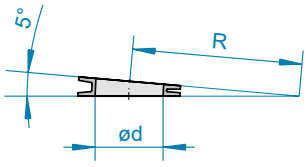
- For gravity-flow pipe systems for coarse bulk goods

Asymmetrical 60°, hand-operated, 2 mm powder-coated

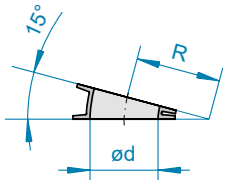
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515120952	402,00	121515120951	423,00	121515120950	467,00
200	122015170952	544,50	122015170951	582,00	122015170950	662,50
250	122515170952	681,00	122515170951	737,00	122515170950	859,50
300	123015120952	885,00	123015120951	968,00	123015120950	1145,00
350	123515150952	1469,00	123515150951	1556,00	123515150950	1744,00

Symmetrical 60°, hand-operated, 2 mm powder-coated

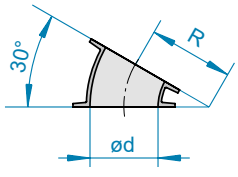
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515020952	357,50	121515020951	372,00	121515020950	403,00
200	122015050952	487,00	122015050951	509,00	122015050950	556,00
250	122515050952	641,50	122515050951	695,50	122515050950	812,00
300	123015020952	832,00	123015020951	903,00	123015020950	1054,00
350	123515050952	1436,00	123515050951	1525,00	123515050950	1715,00



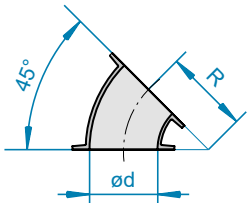
Cast-iron segment 5°



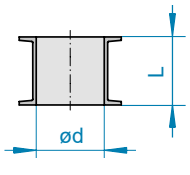
Cast-iron segment 15°



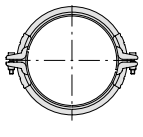
Cast-iron segment 30°

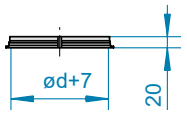


Cast-iron segment 45°

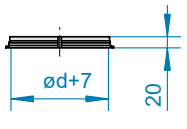


Cast-iron pipes


Pull-rings for cast-iron pipework



Angle flanges



Angle flanges, 1 cut

CAST-IRON PIPEWORK

1160/1170/1180/1190/1150/1200/7000/1210

- Cast-iron pipework made from modular spheroidal graphite cast iron
- 7.5 mm wall thickness
- Powder-coated (RAL 7032)
- Internal diameters correspond to 3 mm thick pipework
- Connection using pull-rings for cast-iron pipes with sealant
- Combination with JACOB pipework with lip using angle flanges

Cast-iron segments 5° and 15°

DN	Ø d	R	Cast-iron segments 5°		R	Cast-iron segments 15°	
			Item no.	€		Item no.	€
120	118				155	17121310	41,80
150	148	600	17151300	41,80	250	17151310	47,50
200	198	690	17201300	58,90	270	17201310	64,50
250	248	635	17251300	69,90	310	17251310	75,60
300	298	625	17301300	72,70	310	17301310	86,70

Cast-iron segments 30° and 45°

DN	Ø d	R	Cast-iron segments 30°		R	Cast-iron segments 45°	
			Item no.	€		Item no.	€
120	118	110	17121320	53,10			
150	148	175	17151320	53,10	150	17151330	58,90
200	198	180	17201320	69,90	195	17201330	86,70
250	248	230	17251320	121,50	195	17251330	135,50
300	298	230	17301320	135,50	205	17301330	144,00

Cast-iron pipes and pull-rings

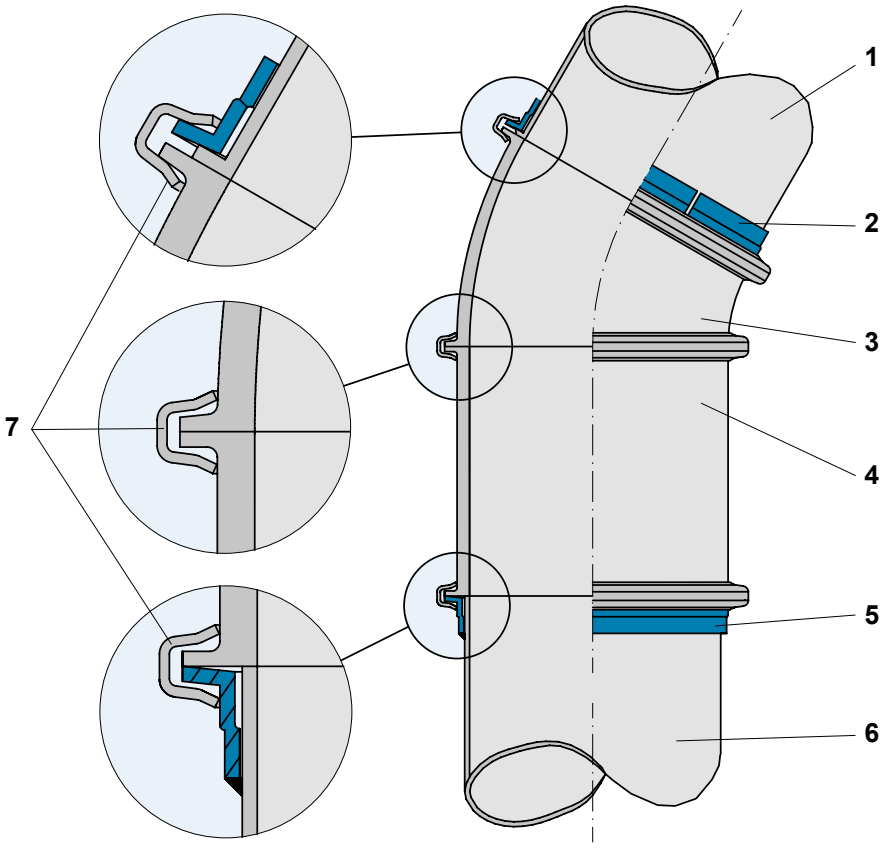
DN	Ø d	L	Cast-iron pipes		Pull-rings for cast-iron pipework, galvanised, with mastic sealant	
			Item no.	€	Item no.	€
120	118	150	17121040	69,70	17122382	10,40
150	148	150	17151040	75,20	17152382	11,90
200	198	200	17201040	135,00	17202382	12,80
250	248	250	17251040	143,50	17252382	14,80
300	298	300	17301040	188,00	17302382	16,50

Angle flanges

DN	Ø d	Angle flanges for welding-on on site		Angle flanges, 1 cut	
		Item no.	€	Item no.	€
120	118	33121705	5,50	17121705	6,90
150	148	33151705	5,90	17151705	6,90
200	198	33201705	7,70	17201705	7,80
250	248	33251705	9,80	17251705	8,20
300	298	33301705	11,10	17301705	9,10

For more technical information go to www.jacob-pipesystems.com

INCORPORATING CAST-IRON PIPE COMPONENTS INTO THE MODULAR PIPEWORK SYSTEM



1 Steel pipe with lip
2 Angle flange (1 cut)
3 Cast-iron segment
4 Cast-iron pipe
5 Angle flange welded-on
6 Steel pipe
7 Pull-rings for cast-iron pipework

- Angle flange, 1 cut, is rotated on behind the lipped end of the existing JACOB pipe component and connected to the cast-iron pipe with the pull-ring for cast-iron pipes.
- Alternatively: Use of an angle flange for welding-on on site. One pipe end without a lip is necessary to enable the angle flange to be fitted. This can be created when connecting pipes are shortened, for example.

WEAR PROTECTION LINING
Special range hot-dip galvanised 3 mm



PIPEWORK SYSTEM HOT-DIP GALVANISED 3 MM

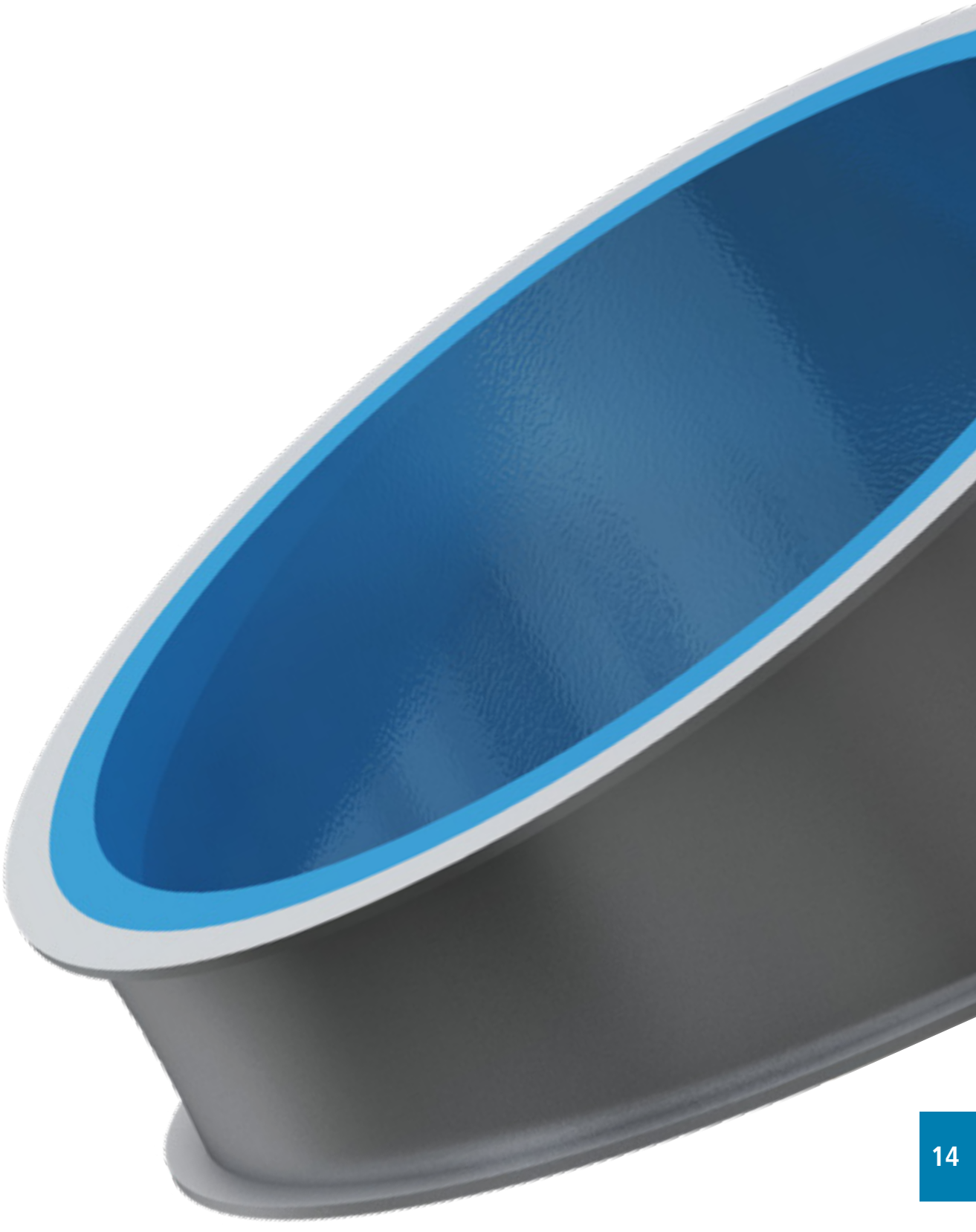
7200/7210/7220/7230/7240/7250/7260/7270/7280/7290/7300/7310/7320

The hot-dip galvanised pipework system that JACOB delivers from stock is specially designed for conveying bulk goods in outdoor areas. It is particularly suitable for conveying goods with abrasive characteristics.

The components can be mounted fast and provide a tight seal due to the use of our proven pull-ring system. The hot-dip galvanised pipe components and pressed components are available in the popular diameters DN 200, 250 and 300 mm. With a wall thickness of 3 mm, the system remains installation-friendly yet is still suitable for abrasive bulk goods, such as coarse-grained products like grains or pellets.

Please refer to chapter 2 for technical information and instructions for assembling the JACOB pull-ring system.

Hot-dip galvanised range All pipework with 6 mm lip for pull-ring system	DN 200 mm		DN 250 mm		DN 300 mm	
	Item no.	€	Item no.	€	Item no.	€
Welded pipes 2000 mm long	13202010	125,50	13252010	144,50	13302010	168,00
Welded pipes 1000 mm long	13202020	66,60	13252020	75,70	13302020	88,20
Welded pipes 500 mm long	13202030	37,50	13252030	43,80	13302030	48,70
Segments 5°	13202300	26,50	13252300	32,60	13302300	35,70
Segments 15°	13202310	26,50	13252310	32,60	13302310	35,70
Segments 30°	13202320	31,10	13252320	38,70	13302320	41,20
Segments 45°	13202330	34,30	13252330	44,70	13302330	53,00
Cone pieces 200-250	13002470	60,00				
Cone pieces 200-300	13002471	63,80				
Cone pieces 250-300			13002475	64,80		
Forks 45°	13202220	88,30	13252220	126,50	13302220	166,00
Connecting flanges with loose flange drilled according to DIN 24154-2	13202432	24,20	13252432	28,40	13302432	32,70
Spouts without a gradient from square to round	13202400	64,30	13252400	117,00	13302400	130,50
Spouts with a 45° gradient from square to round	13202420	102,50	13252420	124,50	13302420	142,50
Inspection T-pieces without a rubber cover	13202200	69,50	13252200	85,00	13302200	95,80
Two-way valves with inlet collar, symmetrical, hand-operated	13202505	436,50	13252505	547,00	13302502	659,00
Two-way valves with inlet collar, asymmetrical, hand-operated	13202517	436,50	13252517	547,00	13302512	659,00





JACOB MANUFACTURING TECHNOLOGY: TOP QUALITY CUSTOMISED PRODUCT SOLUTIONS

SPECIAL MANUFACTURE

Technical information	268
Special parts	270
Special range shock explosion proof to 10 bar	274

SPECIAL PART MANUFACTURE

JACOB manufacturing technology stands not only for top quality mass-produced standard parts but also for top quality special part manufacture. From manufacturing product variants and small-lot production right up to made-to-order production to customers' drawings: You can depend on the comprehensive expertise and many years of experience of our technicians, design engineers and production staff. We also invest in production equipment on an ongoing basis to guarantee the highest possible quality using modern technology.

Take advantage of our professional expertise, providing you with advice and solutions that are tailored to your specific product requirements. We guarantee integration and compatibility with our modular system. For you, this means: mass-produced standard products and special manufacture from a single source, which is the No. 1 for modular pipework systems.
This chapter merely shows a small selection of our manufacturing capabilities for special parts and customised solutions.
We would be pleased to fulfil your specific requests on an individual basis.

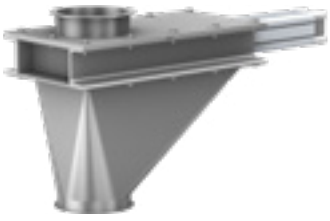
Individual product solutions: Variant manufacture, small-lot manufacture, made-to-order manufacture to customers' drawings

DISTRIBUTORS/THROTTLE VALVES	Dust-tight slide gate
	Louvre valve
	Square two-way valve
MEASUREMENT TECHNOLOGY AND ACTUATORS	Preparation and integration for measurement technology
	Actuators and limit switches
	Venturi tube
WEAR PROTECTION AND NON-STICK PROTECTION	Wear protection linings
	Baffle boxes/pipes
	Non-stick protection
ADAPTERS / SYSTEMS	Adapters for connection to the JACOB system
	Connector system with guide rings
EXHAUST AIR	Air outlets for roofs
	Air inlet / outlet hoods
	Air quality / air conditioning and ventilation
MATERIALS AND SPECIAL FINISHES	Innovative powder coating
	Special colours
	Grinding or electrolytic polishing
PIPE LENGTHS OF UP TO 12 M	









DISTRIBUTORS / THROTTLE VALVES

Dust-tight slide gate

The range of products in the valve and gate catalogue (see chapter 8) has been extended with the addition of the sealed slide gate. This slide valve is sealed to prevent dust from leaking out. It is used for floury or granular goods in gravity-flow pipe systems.



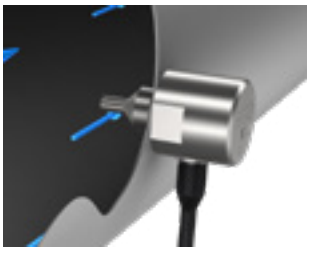
Louvre valve

The louvre valve is mostly used in pipes that carry hot air. The valve is available with either one or several louvre flaps. Louvre flaps with larger dimensions of 1000 mm or more are used in industrial halls, for example. The size of the valve required depends on the hot air flow capacity. The valve can withstand temperatures of up to 320°C.



Square two-way valves

The square two-way valve is an extension of the design-optimised two-way distributor unit (see chapter 9).
It is used in many industries, including for processing granular materials and distributing bulk goods.



MEASUREMENT TECHNOLOGY AND ACTUATORS

Preparation and integration of measurement technology

Our modular pipework system makes it possible to integrate various types of measurement technology. At the customer's request, we can prepare our modular pipework system for the integration of measurement systems, to measure pressure, temperature or flow rate, for example. We install adapters, transition pieces or other special connection systems in order to facilitate the installation of measurement devices on site. To enable our customers to integrate measurement technology in a modular system as standard, in chapter 3 we offer pipes in 200 mm lengths in a variety of materials and with various spigots.



Actuators and limit switches

With regard to automatic control technology, we offer a wide selection of tried-and-tested drives for two-way distributors and valves (see chapter 9) and for throttle valves (see chapter 8). Whether electrically or pneumatically driven: Our pipework system components can be fitted with many different brands of drive thanks to the DIN EN ISO attachment system. The same applies to a wide range of different mechanical or inductive limit switches.



Venturi tube

Pressure changes through alteration of the speed in a constricted section allow the volumetric flow to be determined. One example of use is in waste management, where other measurement methods are unsuitable due to the presence of aggressive gases.

For more technical information go to www.jacob-pipesystems.com



WEAR PROTECTION AND NON-STICK PROTECTION

Wear protection linings

Besides the JACOB wear protection range (chapter 14), we have numerous materials available in a range of thicknesses for lining our products (from DN 100 mm). Examples of these materials are PUR, Linatex, ceramic, Correx and Philan. With many materials, you have the choice between layer thicknesses of 2, 4, 6 and 8 mm. Thicker layers are possible on request. We are also happy to fulfil special requirements, such as for food grade quality, electrostatic conductivity or higher temperature resistance.



Baffle boxes/pipes

Baffle boxes can be installed to reduce the speed of abrasive or sensitive bulk goods as they fall, and so lessen their abrasive effect. This increases the lifetime of the pipework and reduces wear on the product. Typically, baffle boxes are installed just upstream of direction changes in gravity-flow downpipes.



Non-stick protection coating

The addition of a non-stick coating improves the flow properties of dry products that do not tend to flow freely. Examples of these are coffee powder varieties with a high oil content, or products used in the manufacture and recycling of car tyres. This type of coating is typically used in the food industry, mechanical engineering applications, polymer processing and the printing and paper industry. Other lining materials are available on request.



ADAPTERS / SYSTEMS

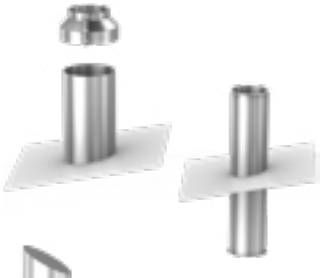
Adapters for connection to the JACOB system

Do you require special transitions or adapter connections for the JACOB pipework system? We have a wide range of adapters and transitions available as standard components. Special customer-specific solutions can also be produced if required. Please refer to chapter 6 of this catalogue for details of standardised adapters and transitions. These include connecting flanges, together with loose flanges, used as spouts for connecting square sections to round pipes, or used as single round or square flanges for connecting to machine inlets or outlets.



Connector system with internal guide rings

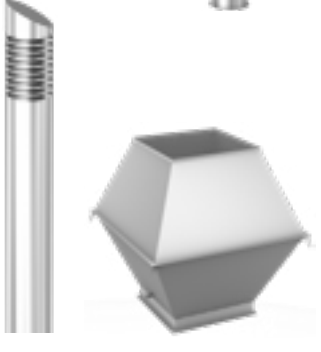
Our connector system with internal guide rings allows you to make virtually step-free transitions to the various pipe components. This is a big advantage if your product is susceptible to problematic turbulent flow at pipe transitions. It is suitable as a rule for ensuring that the product is conveyed particularly carefully and gently. The system is used in applications such as extraction pipelines in the tobacco industry or pulp industry. We would be pleased to advise you as to whether this system would be suitable as a specific solution for your particular application.



EXHAUST AIR

Air outlets for roofs

The roof air outlet is used as a connection element for on-roof exhaust components. It consists of a pipe with a circular roof sealing plate. The roof outlets are available in stainless steel and can also be surface-coated if required.



Air inlet/outlet hoods

Deflector hoods and rain hoods for industrial applications can be found in chapter 6 of this catalogue. In addition to these, however, we offer a wide spectrum of stylish and attractive design variants for heat exchange and air exchange applications. Whether you would like a striking tower and hood construction or a discreet weather protection grille for wall or on-roof installation, a square or round form, or perhaps a design-optimised outlet head – there is a wide range of options to choose from. The air inlet towers can be installed on roofs as well as at ground level.



Air quality / air conditioning and ventilation

Our source air outlets are design-oriented customised solutions for use in air-conditioning systems. In areas where the system is visible, the source air is introduced through a system of pipes. The picture shows our customised solution created for the entrance area of a hospital.



MATERIALS AND SPECIAL FINISHES

Innovative powder coating

JACOB uses an ultra-modern, automated powder-coating system in order to ensure superior and uniform product quality. The advantages of our standard powder coating (similar to RAL 7032) are:

- Electrostatically conductive
- Its constituents comply with the requirements of the Food and Drug Administration (FDA)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection
- Optimum surface quality and long service life due to three-stage pretreatment
- Temperature resistance: from -60°C to +120°C

3,000 special colours

JACOB can provide powder coatings on request in any colour from the wide RAL spectrum. In this case, the products are first coated with our standard RAL 7032 powder coating and then powder coated again in the colour of your choice. This creates a layer thickness of at least 80 µm. We also offer further special features on request. These include high-gloss effects. Also, liquid paint coatings can be provided as an alternative to powder coating, if required.

Grinding or electrolytic polishing

At our customers' request, we also offer electrolytic polishing or grinding of our stainless steel pipework. Surface roughness of 0.8 µm or less is possible.

PIPE LENGTHS

Pipe lengths of up to 12 m

We produce special pipes up to 12 m in length in diameters of DN 60-300 mm and in different materials with a wall thickness of 1-3 mm. We normally supply pipes in lengths of 6-12 m with untreated and unlipped ends. Pipes of up to 6 m in length can optionally be supplied with lipped ends for quick assembly with JACOB pull-rings. For pipes of up to 12 m in length, we also offer special connections on request.



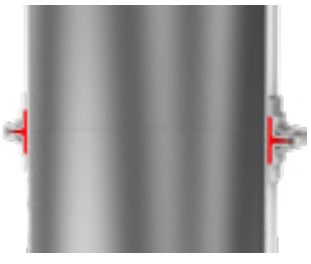
Special range shock explosion proof to 10 bar



SHOCK EXPLOSION PROOF PIPEWORK SYSTEM 10 BAR

Particularly exacting demands for up to 10 bar shock explosion resistance are met by the special range certified by DEKRA EXAM GmbH and/or the Forschungsgesellschaft für angewandte Systemsicherheit und Arbeitsmedizin (FSA) (Research Society for Applied System Security and Occupational Medicine).

We have dimension sheets available to aid your planning and design work. Test reports are available on request.



DN 80 to 300 mm
Pipework with angle flange, shock explosion proof to 10 bar:

- Pipe components DN 80, 100, 120, 150, 175, 200, 250 and 300 mm with angle flange
- Depending on the diameter, available with 2 and/or 3 mm wall thickness
- Straight pipes up to 2000 mm in length, inspection T-pieces with end cover in reinforced version, forks 30° and 45° and bends R = 2 D, 30° to 90°
- Pipe components connected with special pull-ring for angle flange
- The seal is incorporated in the pipework
- Mastic sealant approved for food use in accordance with NSF, commodities directive 2002/72/EC, temperature resistance -40°C to +90°C
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance
- Earthing lugs are spot-welded to all angle flange pipework

DN 350 to 630 mm:

DN 350 to 630 mm with welded-on special flanges for 10 bar shock explosion resistance available on request



PULL-RINGS FOR ANGLE FLANGE PIPEWORK

7010

- 10 bar shock explosion proof
- Electro galvanised
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance

Pull-rings for angle flange

DN	Pull-ring for angle flange			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32082382	11,60		
100	32102382	11,90		
120	32122382	12,70		
150			32152382	13,30
175			32172382	14,10
200			32202382	14,50
250			32252382	18,50
300			32302382	20,60



WELDED PIPES

7020

- With angle flange
- Powder-coated

DN	1996 mm long				996 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081010	73,70			32081020	47,50		
100	32101010	77,10			32101020	50,30		
120	32121010	85,20			32121020	57,70		
150	32151010	95,20	33151010	129,50	32151020	66,50	33151020	87,20
175	32171010	107,00	33171010	146,00	32171020	73,00	33171020	95,40
200	32201010	116,00	33201010	158,00	32201020	89,30	33201020	118,00
250	32251010	140,00	33251010	188,00	32251020	90,40	33251020	123,50
300	32301010	161,50	33301010	217,50	32301020	101,50	33301020	137,00

DN	498 mm long				212 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081030	35,80			32081040	30,30		
100	32101030	37,80			32101040	32,00		
120	32121030	44,40			32121040	37,20		
150	32151030	49,10	33151030	62,20	32151040	43,30	33151040	52,00
175	32171030	55,30	33171030	69,40	32171040	45,60	33171040	55,10
200	32201030	58,20	33201030	73,50	32201040	47,20	33201040	57,20
250	32251030	67,90	33251030	84,80	32251040	54,80	33251040	66,10
300	32301030	74,60	33301030	92,90	32301040	60,70	33301040	72,80

Special range shock explosion proof to 10 bar



WELDING ENDS

7030

- With angle flange
- Powder-coated

DN	60 mm long			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081060	18,00		
100	32101060	19,00		
120	32121060	21,40		
150	32151060	23,40	33151060	28,10
175	32171060	24,60	33171060	29,50
200	32201060	25,50	33201060	30,90
250	32251060	29,00	33251060	34,80
300	32301060	32,20	33301060	38,80





INSPECTION T-PIECES

7040

- With angle flange pull-ring and end cover
- Powder-coated

DN	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081200	118,00		
100	32101200	133,00		
120	32121200	148,00		
150	32151200	162,00	33151200	177,00
175	32171200	172,50	33171200	189,50
200	32201200	190,00	33201200	208,50
250	32251200	218,00	33251200	239,50
300	32301200	235,50	33301200	258,50



FORKS

7050/7052

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081230	91,90			32081220	90,20		
100	32101230	96,70			32101220	91,10		
120	32121230	109,00			32121220	105,00		
150	32151230	136,00	33151230	164,00	32151220	126,00	33151220	148,00
175	32171230	164,50	33171230	193,50	32171220	151,50	33171220	175,50
200	32201230	192,00	33201230	230,50	32201220	174,00	33201220	204,50
250	32251230	246,50	33251230	293,50	32251220	222,50	33251220	255,50
300	32301230	318,50	33301230	349,50	32301220	262,50	33301220	308,50



BENDS R = 2 D

7060/7062/7064/7066/7068

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081343	40,20			32081344	49,00		
100	32101343	43,40			32101344	52,20		
120	32121343	54,80			32121344	58,00		
150	32151343	65,40	33151343	81,70	32151344	73,50	33151344	91,90
175	32171343	71,60	33171343	90,20	32171344	81,00	33171344	101,50
200	32201343	82,00	33201343	103,00	32201344	87,40	33201344	110,00
250	32251343	94,70	33251343	119,00	32251344	114,50	33251344	144,50
300	32301343	131,00	33301343	164,50	32301344	167,00	33301344	208,50

DN	60° powder-coated				90° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081346	52,80			32081349	61,50		
100	32101346	55,60			32101349	64,80		
120	32121346	71,60			32121349	77,60		
150	32151346	81,70	33151346	102,50	32151349	98,80	33151349	124,50
175	32171346	90,90	33171346	114,00	32171349	110,00	33171349	137,00
200	32201346	107,50	33201346	135,00	32201349	128,00	33201349	159,00
250	32251346	171,00	33251346	213,50	32251349	212,50	33251349	265,50
300	32301346	216,00	33301346	269,00	32301349	317,50	33301349	396,50

General Terms and Conditions of Delivery and Payment

Last updated: April 2019

1. General Information

(1) Our deliveries, services and offers are made exclusively on the basis of these General Terms and Conditions of Delivery and Payment (in the following "T&C"); we do not recognise any terms and conditions of the Purchaser which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservations although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C.

(2) Our T&C apply to entrepreneurs (§ 14 German Civil Code – BGB), legal entities under public law and special funds under public law ("öffentlich-rechtliches Sondervermögen") only.

2. Conclusion of the Contract; Contract Documents

(1) Our offers are subject to confirmation and non-binding unless they are explicitly specified as binding. The Purchaser's order of goods is viewed as a binding offer to contract. Unless otherwise stated in the order, we are entitled to accept this offer to contract within one week of receipt. During this period the Purchaser is bound to his order. The contract is deemed to be concluded upon our confirmation (order confirmation). In case of immediate delivery, our delivery replaces the order confirmation.

(2) The Purchaser must check our order confirmation without undue delay to ensure that it is correct and complete and must inform us of any discrepancies between the order and the order confirmation without undue delay. In the event of discrepancies from his order, the discrepancies are deemed to be approved by the Purchaser if the Purchaser accepts our delivery without reservation.

(3) Performance characteristics specified in catalogues and orders such as figures, drawings etc. are to be considered an approximation only. In particular, such information represents no guarantees or assurances („Zusicherungen") and do not relieve the Purchaser from its duty to execute own tests or examinations. The tolerances stated in our catalogues and offers apply.

(4) For components manufactured according to drawings, specifications, samples, specifications and / or other documents of the Purchaser, the tolerances stated in our catalogues and offers for these components also apply.

(5) **Our salespersons are not authorised to make further agreements or give assurances which exceed the content of the written contract or these T&C.**

(6) The Purchaser is liable for the correctness, accuracy and completeness of his order data and all of his order documents, especially those relating to drawings as well as for technical data and samples. Verbal specifications, including those relating to amendments and modifications of the documentation and data provided, require written confirmation.

3. Prices; Terms of Payment

(1) Our prices are EURO prices. Unless stated otherwise in the order confirmation, our prices are FCA (pursuant to Incoterms® 2010 or in their respective version valid in time) ex our works in Porta Westfalica plus packaging costs and the then applicable value-added tax.

(2) Our prices do not include installation, commissioning and assembly costs nor packaging, freight, postage and insurance costs.

(3) We reserve the right to adjust our prices adequately in case cost increases or decreases occur which are not attributable to us, especially due to materials costs, the increase in raw or auxiliary materials prices, wages and salaries, freight or public charges, if there is an interval of more than three months between the date of conclusion of the contract and delivery or the last partial delivery. In this case, costs decreases and increases will be netted. We will produce evidence of these cost changes upon the Purchaser's request.

(4) Deliveries and services in excess of the order will be – after consultation with the Purchaser - invoiced separately.

(5) Payments are to be conducted cashless and free of charge without any deductions. Unless indicated otherwise in the order confirmation, our invoices are due and payable within 14 days after the invoice date and receipt of the invoice. In case prepayment has been agreed upon, the deadline for delivery begins to start only after receipt of the full invoice amount.

(6) Despite dissenting provisions by the Purchaser, we are entitled to offset the Purchaser's payments first with older claims due against the Purchaser; we will inform the Purchaser of any type of offsetting. In case any costs and interests have already occurred, we are entitled to offset the payment first with the costs, then the interests and the main service at last.

(7) Payments are only considered settled if we can dispose of the amount.

(8) In case of the Purchaser's default in payment, the statutory provisions are fully applicable.

(9) The Purchaser is not entitled to withhold payments based on counter-claims or offset counter-claims unless these counter-claims have been recognised by us, are undisputed or have been established by a final non-appealable court decision (res judicata). However, counter-claims of the Purchaser existing or arising under the same contract for defects or non-performance and/or unfinished or incomplete performance remain unaffected.

4. Serial Deliveries, Long-term and Call-off Contracts

(1) Unlimited contracts are subject to ordinary termination giving three months' notice prior to the end of a calendar month, unless provided otherwise.

(2) In case of call-off contracts, unless provided otherwise, binding quantities are to be notified at least 3 months prior to the delivery date by call-offs. Additional costs arising as a result of delayed call-offs or subsequent amendments to a call-off regarding time or quantity by the Purchaser will be borne by the latter.

5. Time of Delivery

(1) Unless explicitly provided otherwise, any indicated delivery times are approximate only. Any delivery deadline only starts to run if all details of execution have been clarified and both parties have mutually agreed on the conditions of the order. Any agreed delivery date will be postponed accordingly. Any change made to the scope of services will result in a corresponding extension of the delivery period once the order has been accepted.

(2) Fulfilment of our delivery obligations further requires timely and proper fulfilment of the Purchaser's obligations. The defence of non-performance remains reserved. In addition, we are entitled to postpone delivery as long as the Purchaser has failed to fulfil due payment obligations arising out of previous deliveries without justification.

(3) In case we are prevented from adhering to agreed delivery dates as a result of force majeure, labour disputes, governmental action, energy or raw material shortages, transport bottlenecks or hindrances, operational hindrances, for example due to fire, water and/or machine defects, for which we are not responsible, or other disruptions in the flow of operations either at our premises or those of suppliers or subcontractors for which we are not responsible and which can be proven to have a significant impact, we are obliged to inform the other party without undue delay ("unverzüglich"). In such cases we are entitled to extend the delivery period by the period of the event of force majeure or the disruption if we have informed the Purchaser pursuant to the above information obligation. If delivery becomes impossible as a result thereof, our obligation to supply will become null and void and claims for damages be excluded. If the Purchaser proves that subsequent performance of the contract is of no interest to him as a result of the delay, he may withdraw from the contract, any further claims being excluded. If the event of force majeure or the disruption lasts longer than three month, we may withdraw from the contract in view of any part of the contract which has not yet been performed, provided that we have informed the Purchaser pursuant to the above information obligation and have not assumed the risk of procurement ("Beschaffungsrisiko") or a delivery guarantee.

(4) Article 5 (3) applies mutatis mutandis if and to the extent that we have, prior to conclusion of the contract with the Purchaser, entered into a covering transaction which – if properly executed – would have enabled us to fulfil our contractual obligations in our relationship with the Purchaser and have not been supplied by our suppliers in conformity with the contract and/or due time with no fault on our part.

(5) In case we are in default, the Purchaser may specify an additional period for performance in writing and, if said period elapsed to no avail, withdraw from the contract. An additional period for performance is not required if we seriously and finally refuse to perform the contract or if the underlying contract is a fixed-date transaction ("Fixgeschäft") according to Section 323 para. 2 No. 2 of the German Civil Code (BGB) or Section 376 of the German Commercial Code (HGB) or if

special circumstances exist which, taking into account the interests of both parties, justify immediate withdrawal from the contract.

(6) We are liable for damages in accordance with Article 10 of these T&C only. The Purchaser's right to withdraw from the contract is governed by statutory provisions.

(7) If an acceptance inspection of the delivered goods has been agreed, the acceptance inspection has to be performed at our factory immediately after we have informed the Purchaser that the goods are ready for acceptance, unless otherwise agreed. The Purchaser will bear the costs of the acceptance inspection.

(8) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons which are attributable to the Purchaser, we will be entitled to claim compensation of any damage incurred as a result thereof, including additional expenses, if any. In these cases, we will store the goods at the Purchaser's risk and invoice the Purchaser for such storage. We are entitled to charge for the storage a flat fee of 0.1 % of the net price agreed in the contract for each completed working day ("Werktag") but not more than 5 % in total of the net price agreed in the contract. We reserve the right to assert further claims. The Purchaser reserves the right to prove that we incurred no damage or a substantially smaller damage than the foregoing flat fee.

(9) We reserve the right to make partial deliveries if and to the extent that they are reasonably acceptable for the Purchaser, also considering the Purchaser's interests.

6. Delivery and transfer of risk

(1) Unless stated otherwise in the order confirmation, deliveries are made FCA (pursuant to Incoterms® 2010 or in their respective version valid in time) ex our works in Porta Westfalica. This also applies if we have exceptionally assumed the transport costs or paid them in advance on behalf of the Purchaser.

(2) In case shipment has been agreed, the risk of incidental loss or incidental deterioration of the goods passes to the Purchaser at the time the goods have been handed over to the carrier, freight forwarder or any other third party entrusted with the execution of shipment. This also applies if shipment is performed by our own vehicles, if we have assumed the transport costs or if we have advanced the costs on behalf of the Purchaser. If delivery is delayed for reasons attributable to the Purchaser, the risk will pass to the Purchaser at the time the goods are ready for dispatch and we have notified the Purchaser thereof.

(3) Unless provided otherwise, the type of packaging will be left to our reasonable discretion. Packaging costs shall be borne by the Purchaser. The transport boxes we use as standard packaging are not designed to be stacked. Special packaging (for instance with strengthened supports to allow the transport boxes to be stacked, but no more than two high) is subject to special agreement and/or the Purchaser's request (with the submission of the order, at the latest).

(4) Provided that the Purchaser does not announce in due time how the goods shall be delivered, we will conclude a transport contract with a carrier at the Purchaser's expense. In this case the choice of the transportation route and the shipping method is at our discretion, unless provided otherwise. The Purchaser shall point out to us if transport insurance is desired; if so, transport insurance will be concluded at our reasonable discretion in favour of the Purchaser. Any costs incurred in this respect shall be borne by the Purchaser, even if we have exceptionally assumed the remaining transport costs.

(5) Transport packaging is taken back at our place of business during regular business hours.

7. Retention of Title

(1) We reserve title to the goods delivered until receipt of all payments deriving from the business relation with the Purchaser.

(2) Prior to complete payment of the secured claims, goods subject to reservation of title must neither be pledged to third parties nor assigned by way of security by the Purchaser without our explicit written consent. In the case of pledges or other third party intervention, the Purchaser must notify us immediately in writing. If we bring an action against the third party and to the extent that the action was successful and the third party is unable to reimburse us for the judicial and extra-judicial costs incurred by us, the Purchaser will be liable for such costs.

(3) If the Purchaser acts contrary to the contract – in particular delayed payment – we are entitled to rescind the contract in accordance with the statutory regulation and to reclaim the reserved goods.

(4) The Purchaser is obliged to notify us at all times of the location of the goods subject to retention of title until the reserved goods have been paid for in full.

(5) The Purchaser is entitled to resell the goods delivered within the ordinary course of business. He herewith assigns to us, however, all claims amounting to the final invoice amount (including value-added tax) of our claims which accrue from the resale vis-à-vis its customers or third parties, irrespective of whether the goods purchased have been sold again with or without further processing. After such assignment the Purchaser also remains entitled to collect this claim. Our right to collect this claim ourselves remains unaffected thereby. However, we undertake not to collect the claim provided that no bill or cheque protests are raised, the Purchaser fulfils his payment obligations out of the proceeds received, the Purchaser is not in default of payment and, in particular, no application to initiate insolvency proceedings with regard to the Purchaser's assets has been filed. If this is the case, however, we may demand that the Purchaser notifies us of the claims assigned and their debtors, provides all details necessary for their collection, delivers the relevant documents and informs the debtors (third parties) of said assignment.

(6) The processing or conversion by the Purchaser of the goods supplied subject to reservation of title is always deemed to be performed for us and on our behalf. If the goods supplied subject to reservation of title are processed with other items/materials not belonging to us, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other processed items/materials at the time of processing. In all other respects, the provisions applicable to the goods supplied subject to reservation of title also apply mutatis mutandis to the articles resulting from such processing.

(7) If the goods supplied subject to reservation of title are mixed or joined inseparably with other items/materials not belonging to us in such a way that they become major components of a uniform article, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other mixed or joined items/materials at the time of the joining or mixing. If the goods and other items/materials are joined or mixed in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us. The Purchaser will keep the jointly held property thus produced in safe custody for us. Furthermore, the same will apply to the article resulting from such joining or mixing as to the goods supplied subject to reservation of title.

(8) The Purchaser is obliged to treat the goods subject to reservation of title carefully. He is obliged to adequately insure such at his own expense, in particular against fire, water damage and theft at replacement value. The Purchaser is obliged to perform any necessary service and inspection work in good time and at its own expense.

(9) In the event of loss or damage to the goods subject to reservation of title, the Purchaser hereby assigns to us any claims to insurance payments existing in this connection in the amount of the final invoice (including value-added tax) of our claims with respect to the object of delivery by way of additional security in advance.

(10) In case of deliveries abroad, if certain measures and/or declarations by either party are necessary to ensure the effectiveness of the above mentioned reservation of title and/or certain other rights referred to in the paragraphs above, the Purchaser is obliged to inform us accordingly in writing or in text form and to take all necessary measures and/or make all necessary declarations without undue delay at its own expense. If the law of the country of import does not permit reservation of title to the delivered goods, the Purchaser is obliged to provide without undue delay ("unverzüglich") another appropriate security interest in the goods delivered or any other equivalent collateral based on equitable discretion (Section 315 German Civil Code (BGB) at its own expense.

(11) We undertake to release, at Purchaser's request, the securities due to us if the realizable value of our securities exceeds the claims to be secured by more than 10%; we reserve the right to select of the securities to be released.

8. Acquisition of Ownership through Machining, Processing or Repair of Items Provided to us

(1) If the Purchaser delivers to us an item for machining or processing or repair and if the Purchaser remains sole owner of the machined, processed or repaired item also after machining, processing or repair, it is already agreed here and now that the Purchaser assigns to us pro-rata co-ownership in a ratio of the value of our

machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of processing.

(2) If the item is mixed or joined during machining, processing or repair with items/materials belonging to us in such a way that they become essential components of a uniform article, we will acquire co-ownership of the new article in a ratio of the value of our items/materials to the value of the Purchaser's item made available at the time of joining or mixing.

(3) If joining or mixing takes place in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of joining or mixing.

(4) The provisions of Article 7 of these T&C apply mutatis mutandis to items of the Purchaser in which we have acquired co-ownership in accordance with the above provisions. For clarification: we will transfer the co-ownership we have acquired pursuant to the above terms and conditions to the Purchaser on delivery of the item in accordance with the provisions set forth in Article 7 of these T&C.

9. Warranty – Liability for Infringement of Obligations

(1) The statutory provisions apply to the rights of the Purchaser with respect to defects in quality or title (including incorrect delivery and short delivery) unless nothing to the contrary is determined in the following.

(2) If the goods are ultimately delivered to a consumer (sale of consumer goods according to § 474 BGB (German Civil Code)), the special statutory provisions in §§ 445a, 445b, 478 subs. 1 BGB (German Civil Code) remain unaffected in all cases. In all other cases, the special provisions governing recourse to the supplier do not apply.

(3) In case we have to perform a contract in accordance with drawings, specifications, specimens, figures and/or other documents supplied by the Purchaser, the latter has to bear the risk of the suitability for the intended use.

(4) If parts of the Purchaser are processed on behalf of the Purchaser, the Purchaser is obliged to examine whether the parts are suitable for the requested processing. If processing of parts sent by the Purchaser is not successful due to reasons beyond our control and responsibility, we will accept no responsibility for any damages caused. The Purchaser will still be required to pay for the costs already incurred for the processing. We will invoice the Purchaser for any necessary reworking costs.

(5) The Purchaser's right to warranty claims under this contract requires the Purchaser to duly discharge his obligations of inspection and notification of defects in accordance with Section 377 of the German Commercial Code (HGB). If the contractual relationship between us and the Purchaser constitutes a contract for work and services ("Werkvertrag"), Section 377 of the German Commercial Code (HGB) shall apply mutatis mutandis. Notices of defects have to be addressed to our Customer Service Department in writing.

(6) If an acceptance inspection or an initial specimen inspection has been agreed with the Purchaser, a complaint about defects which the Purchaser could have detected during a careful acceptance or initial specimen inspection is excluded.

(7) We must be given the opportunity to examine on site any defect complained about.

(8) If our operating and maintenance instructions are not followed, unauthorised modifications are carried out in the products and/or parts are exchanged, warranty claims for the consequences so caused are excluded. The foregoing applies also to incorrect installation or removal, poor maintenance, incorrect handling or storage, improper repairs not carried out by us, alterations as well as chemical, electrochemical or electrical influences for which we are not responsible as well as weather-induced or other natural causes.

(9) If the delivered goods or the work created is defective, the Purchaser is entitled to the statutory rights as follows:

a) We are first entitled to either remedy the defect or to supply the Purchaser with goods free of defect as we so choose or, in case a contract for work and services has been agreed upon, to produce a new work (subsequent performance ("Nacherfüllung")). The Purchaser must allow the time necessary for and give the opportunity to subsequent performance. Our right to refuse to provide subsequent performance on the conditions provided for by law remains unaffected.

b) We will bear the expenses necessary for subsequent performance, including but not limited to the cost of transport, labour, material and tolls, provided that the goods actually prove to be defective. If the Purchaser's request for defect remedy proves to be unjustified, we are entitled to claim from the Purchaser compensation of the costs incurred by us as a result of the unjustified request. If the Purchaser was aware of the defect already upon installation/assembly or if the installation/assembly was not carried out in accordance with the designated and / or intended use of the goods, we will not bear the expenses for the de-installation/disassembly of the defective product nor the expenses for its reinstallation/reassembly as part of our obligation to provide subsequent performance. This also applies if the Purchaser, prior to the installation/assembly, failed to recognize the defect by gross negligence, unless we have fraudulently concealed the defect or given a special warranty ("Garantie").

c) In the event of replacement delivery or, in case a contract for works and services has been agreed upon, new production, the Purchaser must return the defective goods to us on request.

d) We are entitled to make the subsequent performance contingent on the Purchaser paying the price agreed for the goods delivered. The Purchaser is entitled, however, to withhold an appropriate part of the price.

e) If the subsequent performance fails, the Purchaser is entitled to withdraw from the contract or to request a reduction in the agreed purchase price as he so chooses. However, there is no right of withdrawal in case of minor defects.

f) Claims of the Purchaser for compensation of damages or replacement of expenses only apply in accordance with the provisions of Article 10 of these T&C.

(10) The limitation periods are governed by Article 11 of these T&C.

10. Exclusions and Limitations of Liability

(1) Subject to the provisions of Article 10 (2), we are only liable for damages – in the case of contractual, non-contractual or other claims for damages, irrespective of the legal reason, in particular due to defects, default and impossibility, culpa in contrahendo and tort – in case of wilful intent and/or gross negligence, including wilful intent and/or gross negligence on the part of our representatives or vicarious agents. In addition, we are also liable in case of mild negligence, including mild negligence of our representatives and vicarious agents, for damages arising from the infringement of an essential contractual duty, i.e. a duty, the satisfaction of which makes the due implementation of the contract possible in the first place and which the Purchaser can therefore usually expect to be satisfied by us (cardinal duty). If and to the extent that we are not liable for wilfully infringing a duty, the liability for damages will, however, be restricted to the foreseeable, typical damage.

(2) Claims for damages arising from an injury of life or limb or health as well as claims of the Purchaser pursuant to the German Product Liability Act and the special statutory provisions governing ultimate delivery of the goods to a consumer as well as other mandatory statutory liability regulations remain unaffected by the exclusions and limitations of liability set out in Article 10 (1). The above exclusions and limitations do neither apply insofar as we have fraudulently concealed a defect or insofar as we are liable because of the assumption of a guarantee or of the risk of procurement ("Beschaffungsrisiko").

(3) Articles 10 (1) and 10 (2) also apply if the Purchaser demands replacement of useless applications instead of a claim to compensation of damages.

(4) Insofar as our liability of damages is excluded or limited, this also applies with regard to personal liability for damages of our employees, representatives and vicarious agents which is based on the same legal reason.

11. Statute of Limitations

(1) Claims of the Purchaser arising from defects in quality and title become time-barred after expiry of 12 months from delivery (hand-over) of the goods.

(2) Mandatory provisions on the statute of limitations remain unaffected. Therefore, Article 11 (1) shall not apply to claims for injury of life, limb or health, to claims based on wilful intent and gross negligence and to claims based on the assumption of a warranty or the risk of procurement ("Beschaffungsrisiko"). The longer limitation periods pursuant to Section 438 (1) No. 1 of the German Civil Code (BGB) – third party rights in rem; Sections 438 (1) Nr. 2, 634a (1) No. 2 of the German Civil Code (BGB) – constructions (Bauwerke), construction materials and

construction components as well as planning services for a construction and Sections 438 (3), 634a (3) of the German Civil Code (BGB) – fraudulent concealment remain unaffected. It the ultimate contract in the supply chain pertains to a sale of consumer goods according to § 474 of the German Civil Code (BGB) (i.e. if the goods are ultimately delivered to a consumer), the limitation periods stipulated in § 445b of the German Civil Code (BGB) remain unaffected, too.

(3) The limitation periods resulting from Articles 11 (1) and 11 (2) for claims due to defects in quality and title apply mutatis mutandis to competing contractual or non-contractual claims for damages of the Purchaser which are based on a defect to the contractual goods. If, however, in an individual case the application of the statutory limitation rules lead to an earlier statutory limitation of the competing claims, the statutory period of limitation applies to the competing claims. In any case, the statutory periods of limitation pursuant to the German Product Liability Act remain unaffected.

(4) Insofar as the limitation period for claims against us is shortened pursuant to Articles 11 (1) to 11 (3), this applies mutatis mutandis to any claims of the Purchaser against our statutory representatives, employees, authorised representatives and vicarious agents which are based on the same legal reason.

12. Right of Withdrawal - Right of Termination

(1) The Purchaser is only entitled to withdraw from the contract for a breach of duty on our part other than a defect if we can be made responsible for such breach of duty.

(2) In case a contract for works and services under which we are obliged to bring about a particular result ("Werkvertrag") or a contract for work and services under which we are obliged to supply the Purchaser with movable things to be produced or manufactured ("Werklieferungsvertrag") has been agreed upon, the Purchaser's right to freely terminate the contract according to Sections 651, 649 of the German Civil Code (BGB) is excluded.

13. Industrial property rights and Copyrights

(1) Unless provided otherwise, we are required to perform delivery free of third party industrial property rights and/or copyrights (hereinafter referred to as industrial property rights) only in the country in which the place of original delivery is located.

(2) If a third party raises legitimate claims against the Purchaser for breach of industrial property rights by goods delivered by us and used in accordance with the contract, we are liable vis-à-vis the Purchaser as follows:

We will, at our option and cost, either secure a right of use of the deliveries concerned, or modify them so as to ensure that they will not infringe upon such property rights or exchange such deliveries. In case neither option can be reasonably demanded from us, the Purchaser may cancel the contract or reduce the remuneration pursuant to the statutory provisions and Article 8 of these T&C. Our obligation to pay damages is determined by Article 10 of these T&C, the statute of limitations by Article 11 of these T&C. The above obligations apply to us only provided that the Purchaser has notified us of the claims asserted by third parties immediately in writing.

(3) Claims by the Purchaser are excluded to the extent he himself is responsible for the infringement of the industrial property right. Claims by the Purchaser are excluded in particular if the infringement of the industrial property right is caused by the Purchaser's special requirements or is caused by a use which we could not foresee or because the delivery is changed by the Purchaser or is used together with products that we did not deliver and if we are not responsible for the infringement.

14. Non-Disclosure

We reserve property rights and copyrights in figures, drawings, calculations and other documents. This also applies to written documents which are marked as "confidential". The Purchaser requires our explicit written consent before passing on such to third parties. Upon request, the Purchaser has to return these documents to us completely, including any copies which may have been made, if they are no longer needed during the ordinary course of business or if negotiations do not lead to the conclusion of a contract.

15. Communication with the Purchaser

(1) We process personal data, which we collect within the scope of deliveries, services and offers, exclusively in compliance with the applicable data protection law regulations. Information pursuant to Articles 13, 14 of the EU General Data Protection Regulation No. 2016/679 on this processing of personal data can be found at https://www.jacob-rohre.de/datenschutzhinweis/.

(2) In the event that personal data is transmitted to us, the Purchaser is obliged to inform the persons concerned in good time about the data processing by us in accordance with Article 14 of the EU General Data Protection Regulation No. 2016/679. We refrain from providing information to the person concerned.

16. Final Provisions

(1) A transfer of the contractual rights and obligations to third parties by the Purchaser is only admissible with our written approval. This does not apply if the contractual rights and obligations are transferred to an affiliated company within the meaning of Section 15 German Stock Corporation Act (AktG).

(2) Unless otherwise stated in the order confirmation, place of performance for payments and delivery is Porta Westfalica.

(3) The law of the Federal Republic of Germany shall apply to the contractual relationship. The application of the UN sales law (CISG - United Nations Convention on Contracts for the International Sale of Goods) is excluded.

(4) If the Purchaser is a merchant, legal entity under public law or a special fund under public law ("öffentlich-rechtliches Sondervermögen") as defined by German law, the place of jurisdiction for all disputes arising out of the contractual relationship including legal proceedings relating to cheques, bills of exchange and deeds shall be the venue competent at our registered office, Porta Westfalica. We are, however, also entitled to bring legal action against the Purchaser before the court having jurisdiction at its place of residence.

(5) In case of discrepancies between the German and a translated version of these T&C, the German version always prevails.

(6) Should any individual provision of these T&C or any individual provision of any other agreement be or become void or illegal, the validity of the remaining provisions or agreements is in no way affected.

Wir liefern unter Geltung unserer „Allgemeinen Lieferungs- und Zahlungsbedingungen".
(Siehe auch unter www.jacob-rohre.de oder auch auf Anforderung.)

We deliver in accordance with our 'General Terms and Conditions of Delivery and Payment'.
(Please visit also www.jacob-uk.com or also request a copy from us.)

Nous effectuons nos livraisons en tenant compte de « nos conditions générales de vente et de paiement ».
(Voir aussi sur le site www.jacob-dosatec.fr ou aussi sur demande.)

All trademarks, product names and logos are the exclusive property of their respective owners. The use of company and product names as well as trademarks in this catalogue is solely to identify the products or company concerned.

– RHINO HYDE is registered in the USA and/or other countries as a trademark of Tandem Products Inc.

– KRYPTANE and BLUE OX are registered trademarks of Argonic Inc. in the United States and/or other countries.

– FESTO is registered as a trademark of Festo AG & Co. KG in the USA and/or other countries.

– AIR TORQUE is a registered trademark of Air Torque S.P.A. in various countries.

The above-mentioned trademarks may also be protected as unregistered trademarks in the USA and/or other countries. All other brands mentioned in this catalogue are registered trademarks of their respective owners.

Allgemeine Liefer- und Zahlungsbedingungen

Stand: April 2019

1. Allgemeines – Geltungsbereich

(1) Unsere Lieferungen, Leistungen und Angebote erfolgen ausschließlich aufgrund dieser Allgemeinen Lieferungs- und Zahlungsbedingungen (nachfolgend „AGB"); entgegenstehende oder von unseren Lieferungs- und Zahlungsbedingungen abweichende Bedingungen des Bestellers erkennen wir nicht an, es sei denn, wir hätten ausdrücklich schriftlich ihrer Geltung zugestimmt. Unsere AGB gelten auch dann, wenn wir in Kenntnis entgegenstehender oder von unseren AGB abweichender Bedingungen des Bestellers die Lieferung an den Besteller vorbehaltlos ausführen.

(2) Unsere AGB gelten nur gegenüber Unternehmern (§ 14 BGB), juristischen Personen des öffentlichen Rechts und öffentlich-rechtlichen Sondervermögen.

2. Vertragsabschluss; Vertragsunterlagen

(1) Unsere Angebote sind freibleibend und unverbindlich, sofern sie nicht ausdrücklich als verbindlich gekennzeichnet sind. Die Bestellung der Ware durch den Besteller gilt als verbindliches Vertragsangebot. Sofern sich aus der Bestellung nichts anderes ergibt, sind wir berechtigt, dieses Vertragsangebot innerhalb einer Woche nach seinem Zugang bei uns anzunehmen. Während dieser Frist ist der Besteller an seine Bestellung gebunden. Der Vertrag gilt als geschlossen, wenn wir diesen bestätigt haben (Auftragsbestätigung). Sofortige Lieferung ersetzt die Auftragsbestätigung.

(2) Der Besteller hat die Richtigkeit und Vollständigkeit unserer Auftragsbestätigung unverzüglich zu überprüfen und uns Abweichungen von seiner Bestellung unverzüglich mitzuteilen. Nimmt der Besteller unsere Lieferung bei Abweichungen gegenüber seiner Bestellung vorbehaltslos an, gelten die Abweichungen als durch den Besteller genehmigt.

(3) Die in unseren Katalogen und Angeboten angegebenen Leistungsmerkmale, wie Abbildungen, Zeichnungen etc. sind nur als annähernd zu betrachten. Diese Informationen stellen insbesondere keine Garantien oder Zusicherungen dar und befreien den Besteller nicht von eigenen Prüfungen und Versuchen. Es gelten die in unseren Katalogen und Angeboten angegebenen Toleranzen.

(4) Auch bei nach Zeichnungen, Spezifikationen, Mustern, Vorgaben und / oder sonstigen Unterlagen des Bestellers gefertigten Bauteilen, gelten die in unseren Katalogen und Angeboten zu diesen Bauteilen angegebenen Toleranzen.

(5) Unsere Verkaufsangestellten sind nicht befugt, Nebenabreden zu treffen oder Zusicherungen zu geben, die über den Inhalt des schriftlichen Vertrags oder dieser AGB hinausgehen.

(6) Der Besteller haftet für die Richtigkeit, Genauigkeit und Vollständigkeit der von ihm gelieferten Bestellungsunterlagen und Bestellangaben, insbesondere in Zeichnungen sowie für technische Daten und Muster. Mündliche Angaben, auch über Änderungen sowie Ergänzungen der zur Verfügung gestellten Unterlagen und Daten bedürfen der schriftlichen Bestätigung.

3. Preise; Zahlungsbedingungen

(1) Unsere Preise sind EURO-Preise. Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, gelten unsere Preise FCA ab unserem Werk in Porta-Westfalica (gemäß Incoterms® 2010 bzw. der aktuellen Fassung) zuzüglich der Verpackungskosten und der jeweils geltenden Mehrwertsteuer.

(2) Unsere Preise schließen Aufstellungs-, Inbetriebnahme- und Montagekosten sowie Verpackung, Fracht, Porto und Versicherungskosten nicht ein.

(3) Wir behalten uns das Recht vor, unsere Preise angemessen zu ändern, wenn bei Verträgen, bei denen zwischen Abschluss des Vertrages und Lieferung oder der letzten Teillieferung mehr als drei Monate liegen, von uns nicht zu vertretende Kostenerhöhungen oder Kostensenkungen, insbesondere aufgrund von Materialkosten, der Erhöhung von Rohstoffpreisen, Hilfsstoffpreisen, Löhnen und Gehältern, Fracht oder öffentlichen Abgaben, eintreten. Dabei werden wir Kostensenkungen und Kostenerhöhungen gegeneinander saldieren. Die Änderung dieser Kosten werden wir dem Besteller auf Verlangen nachweisen.

(4) Über die Bestellung hinausgehende Lieferungen und Leistungen werden, nach Abstimmung mit dem Besteller, gesondert berechnet.

(5) Zahlungen sind unbar und ohne jeden Abzug spesenfrei zu leisten. Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, sind unsere Rechnungen innerhalb von 30 Tagen ab Rechnungsdatum und Zugang der Rechnung zur Zahlung fällig. Soweit Vorkasse vereinbart ist, beginnt die Lieferfrist erst nach Eingang des vollständigen Rechnungsbetrages zu laufen.

(6) Wir sind berechtigt, trotz anders lautender Bestimmungen des Bestellers, Zahlungen zunächst auf dessen ältere Schulden anzurechnen, und werden den Besteller über die Art der erfolgten Verrechnung informieren. Sind bereits Kosten und Zinsen entstanden, so sind wir berechtigt, die Zahlung zunächst auf die Kosten, dann auf die Zinsen und zuletzt auf die Hauptleistung anzurechnen.

(7) Eine Zahlung gilt erst dann als erfolgt, wenn wir über den Betrag verfügen können.

(8) Bei Zahlungsverzug des Bestellers gelten die gesetzlichen Regelungen in vollem Umfang.

(9) Der Besteller ist nicht berechtigt, Zahlungen wegen Gegenansprüchen zurückzuhalten oder mit Gegenansprüchen aufzurechnen, es sei denn, dass diese von uns anerkannt, unbestritten oder rechtskräftig festgestellt sind. Gegenrechte des Bestellers aus demselben Vertrag wegen Mängeln, Nichtleistung und / oder unfertiger bzw. unvollständiger Leistung bleiben hiervon unberührt.

4. Serienlieferungen, Langfrist- und Abrufverträge

(1) Unbefristete Verträge sind mit einer Frist von 3 Monaten zum Monatsende ordentlich kündbar, wenn nicht etwas anderes vereinbart ist.

(2) Bei Lieferverträgen auf Abruf sind uns, wenn nichts anderes vereinbart ist, verbindliche Mengen mindestens 3 Monate vor dem Liefertermin durch Abruf mitzuteilen. Mehrkosten, die durch einen verspäteten Abruf oder nachträgliche Änderungen des Abrufs hinsichtlich der Zeit oder Menge durch den Besteller verursacht sind, gehen zu seinen Lasten.

5. Lieferfristen

(1) Soweit nicht ausdrücklich etwas anderes vereinbart wird, sind Angaben zu Lieferzeiten nur annähernd. Eine Lieferfrist beginnt erst, wenn sämtliche Einzelheiten der Ausführung klargestellt und beide Teile über die Bedingungen des Auftrags einig sind. Vereinbarte Liefertermine werden entsprechend herausgeschoben. Jede Änderung der Leistung nach Bestellungsannahme verlängert die Lieferfrist angemessen.

(2) Die Einhaltung unserer Lieferverpflichtung setzt weiter die rechtzeitige und ordnungsgemäße Erfüllung der Verpflichtungen des Bestellers voraus. Die Einrede des nicht erfüllten Vertrages bleibt vorbehalten. Des Weiteren sind wir berechtigt, die Lieferung aufzuschieben, solange der Besteller fällige Zahlungsverpflichtungen aus vorangegangenen Lieferungen unberechtigterweise nicht erfüllt hat.

(3) Werden wir an der rechtzeitigen Lieferung durch höhere Gewalt, von uns nicht zu vertretende Arbeitskämpfe, behördliche Maßnahmen, Energie- oder Rohstoffknappheit, Transportengpässe oder -hindernisse, Betriebsbehinderungen z.B. durch Feuer, Wasser und / oder Maschinenschaden oder andere von uns nicht zu vertretende Störungen im Betriebsablauf bei uns oder unseren Vorlieferanten / Subunternehmern, die nachweislich von erheblichem Einfluss sind, gehindert, sind wir verpflichtet, den Besteller unverzüglich zu informieren. In diesen Fällen sind wir berechtigt, die Lieferzeit um die Dauer des Ereignisses der höheren Gewalt oder der Störung hinauszuschieben, soweit wir unserer obenstehenden Informationsverpflichtung nachgekommen sind. Wird die Lieferung dadurch unmöglich, so entfällt unter Ausschluss von Schadenersatz unsere Lieferpflicht. Weist der Besteller nach, dass die nachträgliche Erfüllung infolge der Verzögerung für ihn ohne Interesse ist, kann er unter Ausschluss weitergehender Ansprüche vom Vertrag zurücktreten. Dauert das Ereignis höherer Gewalt oder der Störung länger als drei Monate an, so können wir hinsichtlich des noch nicht erfüllten Teils vom Vertrag zurücktreten, wenn wir unserer vorstehenden Informationsverpflichtung nachgekommen sind und soweit wir nicht das Beschaffungsrisiko oder eine Liefergarantie übernommen haben.

(4) Ziffer 5 (3) gilt entsprechend, soweit wir vor Abschluss des Vertrages mit dem Besteller ein kongruentes Deckungsgeschäft abgeschlossen haben, das uns bei ordnungsgemäßer Durchführung die Erfüllung unserer vertraglichen Lieferpflichten gegenüber dem Besteller ermöglicht hätte, und wir von unserem Lieferanten nicht, nicht richtig und/oder nicht rechtzeitig beliefert werden und wir dies nicht zu vertreten haben.

(5) Geraten wir in Verzug, so ist der Besteller berechtigt, schriftlich eine angemessene Nachfrist zu setzen, und nach deren ergebnislosen Ablauf vom Vertrag zurückzutreten. Der Nachfristsetzung bedarf es nicht, wenn wir die Leistung ernsthaft und endgültig verweigern oder es sich bei dem zugrunde liegenden Vertrag um ein Fixgeschäft im Sinne von § 323 Abs. 2 Nr. 2 BGB oder § 376 HGB handelt oder besondere Umstände vorliegen, die unter Abwägung der beiderseitigen Interessen

den sofortigen Rücktritt rechtfertigen.

(6) Auf Schadensersatz haften wir nur nach Maßgabe der Ziffer 10 dieser AGB. Für den Rücktritt gelten die gesetzlichen Bestimmungen.

(7) Ist eine Abnahme vereinbart, hat die Abnahme bei uns unverzüglich nach gemeldeter Abnahmebereitschaft zu erfolgen, wenn nicht etwas anderes vereinbart ist. Die Kosten der Abnahme gehen zu Lasten des Bestellers.

(8) Kommt der Besteller in Annahmeverzug oder wird die Lieferung aus Gründen, die der Besteller zu vertreten hat, verzögert, sind wir berechtigt, Ersatz des daraus entstehenden Schadens einschließlich Mehraufwendungen ersetzt zu verlangen. In diesen Fällen werden wir die Produkte auf Risiko des Bestellers lagern und dem Besteller die Lagerung in Rechnung stellen. Wir sind berechtigt, für die durch die Lagerung entstehenden Kosten pauschal 0,1 % des Nettovertrags-preises pro beendetem Werktag, insgesamt aber nicht mehr als 5% des Nettovertragspreises, zu berechnen. Weitergehende Ansprüche behalten wir uns vor. Dem Besteller bleibt das Recht vorbehalten, nachzuweisen, dass uns gar kein oder ein wesentlich geringerer Schaden entstanden ist.

(9) Teillieferungen bleiben vorbehalten, soweit diese dem Besteller unter Berücksichtigung seiner Interessen zumutbar sind.

6. Lieferung und Gefahrübergang

(1) Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, erfolgt die Lieferung FCA ab unserem Werk in Porta Westfalica (gemäß Incoterms® 2010 oder der jeweils geltenden Fassung). Dies gilt auch dann, wenn wir ausnahmsweise die Transportkosten übernommen oder für den Besteller verauslagt haben.

(2) Sofern Versendung vereinbart wurde, geht die Gefahr des zufälligen Untergangs und der zufälligen Verschlechterung der Sache auf den Besteller über, wenn wir die Sache an den Spediteur, Frachtführer oder sonst zur Ausführung der Versendung bestimmten Dritten übergeben haben. Dies gilt auch dann, wenn die Lieferung durch unsere eigenen Fahrzeuge erfolgt oder wir die Transportkosten übernommen oder für den Besteller verauslagt haben. Verzögert sich Lieferung aus Gründen, dessen Ursache beim Besteller liegt, geht die Gefahr von dem Tag an auf den Besteller über, an dem die Ware versandbereit ist und wir dies dem Besteller angezeigt haben.

(3) Soweit nichts anderes vereinbart ist, steht die Verpackung in unserem pflichtgemäßen Ermessen. Die Kosten der Verpackung trägt der Besteller. Die Transportkisten unserer Standartverpackung sind nicht für eine Stapelverstauung ausgelegt. Eine besondere Verpackung (etwa eine zusätzliche Transportverstärkung, welche ein max. doppelstöckiges Stapeln der Transportkisten erlaubt) erfolgt nur nach besonderer Vereinbarung und / oder auf Wunsch des Bestellers (den dieser spätestens in seiner Bestellung anzugeben hat).

(4) Soweit der Besteller nicht rechtzeitig erklärt, wie die Versendung der Ware erfolgen soll, werden wir einen Beförderungsvertrag mit einem Spediteur auf Kosten des Bestellers schließen. In diesem Fall steht die Wahl des Transportwegs und der Versandart in unserem Ermessen, es sei denn, es wurde etwas anderes vereinbart. Soweit der Besteller eine Transportversicherung wünscht, hat er uns darauf hinzuweisen; diese wird dann durch uns nach pflichtgemäßem Ermessen zu Gunsten des Bestellers abgeschlossen. Die insoweit anfallenden Kosten trägt der Besteller, auch wenn wir ansonsten ausnahmsweise die Transportkosten übernommen haben.

(5) Transportverpackungen nehmen wir an unserem Geschäftssitz innerhalb der üblichen Geschäftszeiten zurück.

7. Eigentumsvorbehalt

(1) Wir behalten uns das Eigentum an den gelieferten Waren bis zum Eingang aller Zahlungen aus der Geschäftsverbindung mit dem Besteller vor.

(2) Die Vorbehaltsware darf vom Besteller ohne unsere ausdrückliche schriftliche Zustimmung vor vollständiger Bezahlung der gesicherten Forderungen weder an Dritte verpfändet noch zur Sicherheit übereignet werden. Bei Pfändungen oder sonstigen Eingriffen Dritter hat uns der Besteller unverzüglich schriftlich zu benachrichtigen. Soweit wir gegen den Dritten klagen, die Klage erfolgreich war und der Dritte nicht in der Lage ist, uns die gerichtlichen oder außergerichtlichen Kosten einer Klage zu erstatten, haftet der Besteller für die uns entstandenen Kosten.

(3) Bei vertragswidrigem Verhalten des Bestellers – insbesondere Zahlungsverzug – sind wir berechtigt, nach den gesetzlichen Vorschriften vom Vertrag zurückzutreten und die Vorbehaltsware heraus zu verlangen.

(4) Der Besteller ist bis zur vollständigen Bezahlung der Vorbehaltsware verpflichtet, uns jederzeit über den Standort der Vorbehaltsware informiert zu halten.

(5) Der Besteller ist berechtigt, die gelieferten Waren im ordentlichen Geschäftsgang weiter zu verkaufen; er tritt uns jedoch bereits jetzt alle Forderungen in Höhe des Faktura-Endbetrages (einschließlich MwSt.) unserer Forderungen ab, die ihm aus der Weiterveräußerung gegen seine Abnehmer oder Dritte erwachsen, und zwar unabhängig davon, ob die Kaufsache ohne oder nach Verarbeitung weiter verkauft worden ist. Zur Einziehung dieser Forderung bleibt der Besteller auch nach der Abtretung ermächtigt. Unsere Befugnis, die Forderung selbst einzuziehen, bleibt hiervon unberührt. Wir verpflichten uns jedoch, die Forderung nicht einzuziehen, solange keine Wechsel- und Scheckproteste vorkommen, der Besteller seinen Zahlungsverpflichtungen aus den vereinnahmten Erlösen nachkommt, nicht in Zahlungsverzug ist und kein Antrag auf Eröffnung des Insolvenzverfahrens über sein Vermögen gestellt ist. Ist dies aber der Fall, können wir verlangen, dass der Besteller uns die abgetretenen Forderungen und deren Schuldner bekannt gibt, alle zum Einzug erforderlichen Angaben macht, die dazugehörigen Unterlagen aushändigt und den Schuldnern (Dritten) die Abtretung mitteilt.

(6) Die Verarbeitung oder Umbildung der von uns gelieferten Vorbehaltsware durch den Besteller wird stets für uns vorgenommen. Wird die von uns gelieferte Vorbehaltsware mit anderen, uns nicht gehörenden Gegenständen / Stoffen verarbeitet, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen verarbeiteten Gegenständen / Stoffen zur Zeit der Verarbeitung. Für die durch Verarbeitung entstehende Sache gilt im Übrigen das gleiche wie für die unter Vorbehalt gelieferte Ware.

(7) Wird die von uns gelieferte Vorbehaltsware mit anderen, uns nicht gehörenden Gegenständen / Stoffen untrennbar vermischt oder dergestalt verbunden, dass sie wesentliche Bestandteile einer einheitlichen Sache werden, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen vermischten oder verbundenen Gegenständen / Stoffen zum Zeitpunkt der Verbindung oder Vermischung. Erfolgt die Verbindung oder Vermischung in der Weise, dass die Sache des Bestellers als Hauptsache anzusehen ist, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum überträgt. Der Besteller verwahrt das so entstandene Miteigentum für uns. Für die durch Verbindung oder Vermischung entstandene Sache gilt im Übrigen das Gleiche wie für die unter Vorbehalt gelieferte Ware.

(8) Der Besteller ist verpflichtet, die Vorbehaltsware pfleglich zu behandeln. Er ist verpflichtet, diese auf eigene Kosten ausreichend zum Neuwert zu versichern, insbesondere gegen Feuer, Wasserschäden und Diebstahl. Sofern Wartungs- und Inspektionsarbeiten erforderlich sind, muss der Besteller diese auf eigene Kosten rechtzeitig durchführen.

(9) Für den Fall des Untergangs oder der Beschädigung der Vorbehaltsware tritt der Besteller in diesem Zusammenhang bestehende etwaige Ansprüche auf Versicherungsleistungen in Höhe des Faktura-Endbetrages (einschließlich Mehrwertsteuer) unserer Forderungen in Ansehung des Liefergegenstandes als zusätzliche Sicherheit im Voraus an uns ab.

(10) Sind bei Lieferungen in das Ausland im Einfuhrstaat zur Wirksamkeit des vorstehend geregelten Eigentumsvorbehalts oder der in den vorangegangenen Absätzen bezeichneten sonstigen Rechte unsererseits bestimmte Maßnahmen und / oder Erklärungen durch den Besteller erforderlich, so hat der Besteller uns hierauf schriftlich oder in Textform unverzüglich hinzuweisen und diese Maßnahmen und / oder Erklärungen auf seine eigenen Kosten unverzüglich durchzuführen bzw. abzugeben. Lässt das Recht des Einfuhrstaates einen Eigentumsvorbehalt nicht zu, ist der Besteller verpflichtet, uns auf seine Kosten unverzüglich andere geeignete Sicherheiten an der gelieferten Ware oder sonstige Sicherheiten nach billigem Ermessen (§ 315 BGB) zu verschaffen.

(11) Wir verpflichten uns, die uns zustehenden Sicherheiten auf Verlangen des Bestellers insoweit freizugeben, als der realisierbare Wert unserer Sicherheiten die zu sichernden Forderungen um mehr als 10 % übersteigt; die Auswahl der freizugebenden Sicherheiten obliegt uns.

8. Eigentumserwerb durch Be- oder Verarbeitung uns zur Verfügung gestellter Gegenstände

(1) Übergibt uns der Besteller einen Gegenstand zur Be- oder Verarbeitung oder zur Reparatur und bleibt der Besteller auch nach der Be- oder Verarbeitung oder Reparatur Alleineigentümer des be- oder verarbeiteten bzw. reparierten Gegenstands, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum

im Verhältnis des Wertes unserer Be- oder Verarbeitung oder Reparatur (Faktura-Endbetrag, einschließlich MwSt.) zum Wert des zur Verfügung gestellten Gegenstandes überträgt.

(2) Wird der Gegenstand bei der Be- oder Verarbeitung oder Reparatur mit uns gehörenden Gegenständen / Stoffen vermischt oder dergestalt verbunden, dass sie wesentliche Bestandteile einer einheitlichen Sache werden, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes unserer Gegenstände / Stoffe zu dem Wert des zur Verfügung gestellten Gegenstandes des Bestellers zum Zeitpunkt der Verbindung oder Vermischung.

(3) Erfolgt die Verbindung oder Vermischung in der Weise, dass die Sache des Bestellers als Hauptsache anzusehen ist, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum im Verhältnis des Wertes unserer Be- oder Verarbeitung bzw. unserer Reparatur (Faktura-Endbetrag, einschließlich MwSt.) zum Wert des zur Verfügung gestellten Gegenstandes zum Zeitpunkt der Verbindung oder Vermischung überträgt.

(4) Für Sachen des Bestellers, an denen wir nach den vorstehenden Bedingungen Miteigentum erworben haben, gelten insoweit die Bestimmungen der Ziffer 7 dieser AGB entsprechend. Zur Klarstellung: Wir übertragen das nach den vorstehenden Bedingungen erworbene Miteigentum an den Besteller mit Lieferung der Sache gemäß den Regelungen in Ziffer 7 dieser AGB.

9. Gewährleistung – Haftung für Pflichtverletzungen

(1) Für die Rechte des Bestellers bei Sach- und Rechtsmängeln (einschließlich Falsch- und Minderlieferung) gelten die gesetzlichen Bestimmungen, wenn nachfolgend nichts anderes bestimmt ist.

(2) Bei der Endlieferung der Ware an einen Verbraucher (Verbrauchsgüterkauf im Sinne des § 474 BGB), bleiben die gesetzlichen Sondervorschriften der §§ 445a, 445b, 478 Abs. 1 BGB immer unberührt. In allen anderen Fällen, finden die Sondervorschriften zum Lieferantenregress keine Anwendung.

(3) Sofern wir nach Zeichnungen, Spezifikationen, Mustern, Vorgaben und / oder sonstigen Unterlagen des Bestellers leisten, trägt dieser das Risiko der Eignung für den vorgesehenen Verwendungszweck.

(4) Bearbeiten wir Teile des Bestellers in dessen Auftrag, ist der Besteller verpflichtet, zu prüfen, ob sich die Teile für die gewünschte Bearbeitung eignen. Führt eine Bearbeitung von Teilen, die der Besteller an uns sendet, aus Gründen, die wir nicht zu vertreten haben, nicht zum Erfolg, übernehmen wir für etwaige Schäden des Bestellers keine Haftung. Darüber hinaus sind uns die für die Bearbeitung bereits angefallenen Kosten zu ersetzen. Gegebenenfalls erforderliche Nacharbeiten werden wir dem Besteller in Rechnung stellen.

(5) Die Gewährleistungsrechte des Bestellers setzen voraus, dass dieser seinen nach § 377 HGB geschuldeten Untersuchungs- und Rügeobliegenheiten ordnungsgemäß nachgekommen ist. Handelt es sich bei dem Vertragsverhältnis zwischen uns und dem Besteller um einen Werkvertrag, findet § 377 HGB entsprechende Anwendung. Mängelrügen sind schriftlich an unsere Kundendienstleitung zu richten.

(6) Wurde mit dem Besteller eine Abnahme oder eine Erstmusterprüfung vereinbart, ist die Rüge von Mängeln ausgeschlossen, die der Besteller bei sorgfältiger Abnahme oder Erstmusterprüfung hätte feststellen können.

(7) Uns ist Gelegenheit zu geben, einen gerügten Mangel an Ort und Stelle zu überprüfen.

(8) Werden unsere Betriebs- oder Wartungsanweisungen nicht befolgt, eigenmächtige Änderungen an den Produkten vorgenommen und / oder Teile ausgewechselt, so bestehen für die daraus entstehenden Folgen keine Gewährleistungsansprüche. Dies gilt auch bei fehlerhaftem Einbau oder Aufbau, schlechter Instandhaltung, fehlerhafter Behandlung oder Lagerung, für von uns nicht ausgeführte unsachgemäße Reparaturen, Änderungen sowie von uns nicht zu vertretende chemische, elektrochemische oder elektrische Einflüsse sowie Witterungs- oder anderen Natureinflüsse.

(9) Ist die gelieferte Ware oder das hergestellte Werk mangelhaft, so stehen dem Besteller die gesetzlichen Rechte nach folgender Maßgabe zu:

a) Wir sind zunächst berechtigt, nach unserer Wahl entweder den Mangel zu beseitigen oder dem Besteller mangelfreie Ware zu liefern bzw. im Falle eines Werkvertrages ein neues Werk herzustellen (Nacherfüllung). Der Besteller hat uns hierfür die zur Nacherfüllung erforderliche Zeit und Gelegenheit zu geben. Unser Recht, die Nacherfüllung unter den gesetzlichen Voraussetzungen zu verweigern, bleibt unberührt.

b) Die zum Zweck der Nacherfüllung erforderlichen Aufwendungen, insbesondere Transport-, Wege-, Arbeits- und Materialkosten, tragen wir, wenn tatsächlich ein Mangel vorliegt. Stellt sich das Mängelbeseitigungsverlangen des Bestellers als unberechtigt heraus, können wir die hieraus entstandenen Kosten vom Besteller ersetzt verlangen. Die Nacherfüllung beinhaltet weder die Aufwendungen für den Ausbau der mangelhaften Sache noch die für den erneuten Einbau, wenn der Besteller den Mangel beim Einbau bereits kannte oder der Einbau nicht bestimmungsgemäß erfolgte. Dies gilt auch dann, wenn der Besteller den Mangel vor dem Einbau grob fahrlässig nicht erkannt hat, es sei denn wir haben den Mangel arglistig verschwiegen oder eine Garantie übernommen.

c) Im Falle der Ersatzlieferung bzw. Neuherstellung bei Werkverträgen hat uns der Besteller die mangelhafte Ware auf unser Verlangen zurückzugeben.

d) Wir sind berechtigt, die Nacherfüllung davon abhängig zu machen, dass der Besteller den für die gelieferte Ware vereinbarten Preis bezahlt. Der Besteller ist jedoch berechtigt, einen angemessen Teil des Preises zurückzuhalten.

e) Schlägt die Nacherfüllung fehl, so ist der Besteller nach seiner Wahl berechtigt, vom Vertrag zurückzutreten oder eine Minderung des vereinbarten Preises zu verlangen. Bei einem unerheblichen Mangel besteht jedoch kein Rücktrittsrecht.

f) Ansprüche des Bestellers auf Schadensersatz bzw. Ersatz vergeblicher Aufwendungen bestehen nur nach Maßgabe von Ziffer 10 dieser AGB.

(10) Für die Verjährungsfristen gilt Ziffer 11 dieser AGB.

10. Haftungsausschlüsse und –begrenzungen

(1) Vorbehaltlich der Regelung der Ziffer 10 (2) haften wir auf Schadensersatz – bei vertraglichen, außervertraglichen oder sonstigen Schadensersatzansprüchen, gleich aus welchem Rechtsgrund, insbesondere wegen Mängeln, Verzug und Unmöglichkeit, Verschulden bei Vertragsverhandlungen und Delikt – nur bei Vorsatz und / oder grober Fahrlässigkeit, ein-schließlich Vorsatz und / oder grober Fahrlässigkeit unserer Vertreter oder Erfüllungsgehilfen. Darüber hinaus haften wir auch bei einfacher Fahrlässigkeit, einschließlich einfacher Fahrlässigkeit unserer Vertreter und Erfüllungsgehilfen, für Schäden aus der Verletzung einer wesentlichen Vertragspflicht, d.h. einer Pflicht, deren Erfüllung die ordnungsgemäße Durchführung des Vertrages erst ermöglicht und auf deren Erfüllung der Besteller daher regelmäßig vertrauen darf (Kardinalpflicht). Soweit uns keine vorsätzliche Pflichtverletzung angelastet wird, ist die Schadensersatzhaftung jedoch auf den vorhersehbaren, typischerweise eintretenden Schaden begrenzt.

(2) Von den in Ziffer 10 (1) geregelten Haftungsausschlüssen und -beschränkungen unberührt bleiben Ansprüche für Schäden aus der Verletzung des Lebens, des Körpers und der Gesundheit sowie Ansprüche des Bestellers nach dem Produkthaftungsgesetz, den gesetzlichen Sondervorschriften bei Endlieferung der Ware an einen Verbraucher und anderen zwingenden gesetzlichen Haftungsregelungen. Die vorstehenden Haftungsausschlüsse bzw. -beschränkungen gelten außerdem nicht, soweit wir einen Mangel arglistig verschwiegen haben oder soweit wir aus der Übernahme einer Garantie oder wegen der Übernahme des Beschaffungsrisikos haften.

(3) Die Ziffern 10 (1) bis 10 (2) gelten auch, wenn der Besteller anstelle eines Anspruchs auf Ersatz des Schadens statt der Leistung Ersatz nutzloser Aufwendungen verlangt.

(4) Soweit die Schadensersatzhaftung uns gegenüber ausgeschlossen oder eingeschränkt ist, gilt dies auch im Hinblick auf die persönliche Schadensersatzhaftung unserer Angestellten, Arbeitnehmer, Mitarbeiter, Vertreter und Erfüllungsgehilfen, die auf demselben Rechtsgrund beruhen.

11. Verjährung

(1) Ansprüche des Bestellers aus Sach- und Rechtsmängeln verjähren innerhalb von 12 Monaten ab Ablieferung der Ware.

(2) Zwingende Verjährungsvorschriften bleiben unberührt. Die in Ziffer 11 (1) genannte Verjährungserleichterung gilt nicht für Ansprüche wegen der Verletzung von Leben, Körper oder Gesundheit, für Ansprüche aufgrund von Vorsatz und / oder grober Fahrlässigkeit und für Ansprüche aufgrund der Übernahme einer Garantie oder der Übernahme des Beschaffungsrisikos. Unberührt bleiben auch die längeren Verjährungsfristen nach § 438 Abs. 1 Nr. 1 BGB (dingliche Rechte eines Dritten), §§ 438 Abs. 1 Nr. 2, 634a Abs. 1 Nr. 2 BGB (Bauwerke, Baustoffe und Bauteile sowie Planungsleistungen für ein Bauwerk), §§ 438 Abs. 3, 634a Abs. 3

BGB (Arglist). Ist der letzte Vertrag in der Lieferkette ein Verbrauchsgüterkauf i.S.d. § 474 BGB (d.h. bei Endlieferung der Ware an einen Verbraucher), bleiben auch die Verjährungsfristen gemäß § 445b BGB unberührt.

(3) Die sich nach den Ziffern 11 (1) und 11 (2) für Ansprüche wegen Sach- und Rechtsmängeln ergebenden Verjährungsfristen gelten entsprechend für konkurrierende vertragliche und außervertragliche Schadensersatzansprüche des Bestellers, die auf einem Mangel der Vertragsware beruhen. Wenn jedoch im Einzelfall die Anwendung der gesetzlichen Verjährungsregeln zu einer früheren Verjährung der konkurrierenden Ansprüche führen sollte, gilt für die konkurrierenden Ansprüche die gesetzliche Verjährungsfrist. Die gesetzlichen Verjährungsfristen nach dem Produkthaftungsgesetz bleiben in jedem Fall unberührt.

(4) Soweit gemäß Ziffer 11 (1) bis 11 (3) die Verjährung von Ansprüchen uns gegenüber verkürzt wird, gilt diese Verkürzung entsprechend für etwaige Ansprüche des Bestellers gegen unsere gesetzlichen Vertreter, Angestellten, Mitarbeiter, Beauftragten sowie Verrichtungs- und Erfüllungsgehilfen, die auf demselben Rechtsgrund beruhen.

12. Rücktritts- / Kündigungsrechte

(1) Wegen einer Pflichtverletzung unsererseits, die nicht in einem Mangel besteht, ist der Besteller nur dann berechtigt, vom Vertrag zurückzutreten, wenn wir die Pflichtverletzung zu vertreten haben.

(2) Handelt es sich bei dem Vertrag um einen Werkvertrag oder einen Werklieferungsvertrag über bewegliche, nicht vertretbare Sachen, ist das freie Kündigungsrecht des Bestellers (§§ 651, 649 BGB) ausgeschlossen.

13. Schutz- und Urheberrechte

(1) Sofern nichts anderes vereinbart ist, sind wir verpflichtet, die Lieferung lediglich im Land des Lieferortes frei von gewerblichen Schutzrechten und Urheberrechten Dritter – nachfolgend Schutzrechte genannt – zu erbringen.

(2) Sofern ein Dritter wegen der Verletzung von Schutzrechten durch von uns erbrachte, vertragsgemäß genutzte Lieferungen gegen den Besteller berechtigte Ansprüche erhebt, haften wir gegenüber dem Besteller wie folgt: Wir werden nach unserer Wahl und auf unsere Kosten für die betreffenden Lieferungen entweder ein Nutzungsrecht erwirken, sie so ändern, dass das Schutzrecht nicht verletzt wird oder austauschen. Ist uns dies nicht zu angemessenen Bedingungen möglich, stehen dem Besteller die gesetzlichen Rücktritts- oder Minderungsrechte nach Maßgabe von Ziffer 8 dieser AGB zu. Unsere Schadensersatzpflicht richtet sich nach Ziff. 10 dieser AGB, die Verjährung nach Ziffer 11 dieser AGB. Die vorstehend genannten Verpflichtungen bestehen für uns nur, soweit der Besteller uns über die vom Dritten geltend gemachten Ansprüche unverzüglich schriftlich verständigt.

(3) Ansprüche des Bestellers bestehen nicht, soweit er selbst die Schutzrechtsverletzung zu vertreten hat. Ansprüche des Bestellers sind insbesondere ausgeschlossen, soweit die Schutzrechtsverletzung auf speziellen Vorgaben des Bestellers beruht, durch eine von uns nicht voraussehbare Anwendung oder dadurch verursacht wird, dass die Lieferung vom Besteller verändert oder zusammen mit nicht von uns gelieferten Produkten eingesetzt wird und wir die Schutzrechtsverletzung nicht zu vertreten haben.

14. Geheimhaltung

An unseren Abbildungen, Zeichnungen, Kalkulationen und sonstigen Unterlagen behalten wir uns Eigentums- und Urheberrechte vor. Dies gilt auch für solche schriftlichen Unterlagen, die als „vertraulich" bezeichnet sind. Vor ihrer Weitergabe an Dritte bedarf der Besteller unserer ausdrücklichen schriftlichen Zustimmung. Er hat auf unser Verlangen diese Unterlagen vollständig an uns, einschließlich etwaiger Kopien, zurückzugeben, wenn sie von ihm im ordnungsgemäßen Geschäftsgang nicht mehr benötigt werden oder wenn Verhandlungen nicht zum Abschluss eines Vertrages führen.

15. Kommunikation mit dem Besteller

(1) Wir verarbeiten personenbezogene Daten, die wir im Rahmen von Lieferungen, Leistungen und Angeboten erheben, ausschließlich unter Einhaltung der anwendbaren datenschutzrechtlichen Vorgaben. Informationen nach Maßgabe der Artikel 13, 14 Datenschutzgrundverordnung (EU) Nr. 2016/679 über diese Verarbeitung personenbezogener Daten sind abrufbar unter https://www.jacob-rohre.de/datenschutzhinweis/.

(2) Der Besteller ist im Fall einer Übermittlung von personenbezogenen Daten an uns verpflichtet, die betroffenen Personen rechtzeitig nach Maßgabe des Artikel 14 Datenschutzgrundverordnung (EU) Nr. 2016/679 über die Datenverarbeitung durch uns zu informieren; wir sehen von einer Information der betroffenen Person ab.

16. Schlussbestimmungen

(1) Eine Übertragung der Vertragsrechte und -pflichten auf Dritte durch den Besteller ist nur mit unserem schriftlichem Einverständnis zulässig. Dies gilt nicht, soweit die Übertragung auf ein verbundenes Unternehmen im Sinne des § 15 Aktiengesetz erfolgt.

(2) Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, ist Erfüllungsort für Lieferungen und Zahlungen unser Geschäftssitz in Porta/Westfalica.

(3) Für das Vertragsverhältnis gilt das Recht der Bundesrepublik Deutschland. Die Anwendung des UN-Kaufrechts (CISG -Convention on Contracts for the International Sale of Goods) ist ausgeschlossen.

(4) Sofern der Besteller Kaufmann, juristische Person des öffentlichen Rechts oder öffentlich-rechtliches Sondervermögen ist, ist der Gerichtsstand für alle sich aus dem Vertragsverhältnis ergebenden Streitigkeiten einschließlich Scheck-, Wechsel- und Urkundenprozessen der für unseren Firmensitz, Porta Westfalica, zuständige Gerichtsort. Wir sind jedoch berechtigt, den Käufer auch an seinem Wohnsitzgericht zu verklagen.

(5) Bei Abweichungen zwischen der deutschen und einer übersetzten Fassung dieser AGB, hat stets die deutsche Fassung Vorrang.

(6) Sollte eine Bestimmung in diesen AGB oder eine Bestimmung im Rahmen sonstiger Vereinbarungen unwirksam sein oder werden, so wird hiervon die Wirksamkeit aller sonstigen Bestimmungen oder Vereinbarungen nicht berührt.

Alle Marken, Produktbezeichnungen und Logos gehören ausschließlich den jeweiligen Inhabern. Die Verwendung von Unternehmens- und Produktbezeichnungen sowie Marken in diesem Katalog erfolgt ausschließlich zur Identifizierung der jeweiligen Produkte bzw. Unternehmen.

– RHINO HYDE ist zugunsten der Tandem Products Inc. in den USA und / oder anderen Ländern als Marke eingetragen.
– KRYPTANE und BLUE OX sind zugunsten der Argonic Inc. in den USA und / oder anderen Ländern als Marke eingetragen.
– FESTO ist zugunsten der Festo AG & Co. KG in den USA und / oder anderen Ländern als Marke eingetragen.
– AIR TORQUE ist zugunsten der Air Torque S.P.A. in verschiedenen Ländern als Marke eingetragen.

Die oben genannten Marken können auch als nicht registrierte Zeichen in den USA und / der anderen Ländern geschützt sein. Alle anderen in diesem Katalog genannten Marken sind zugunsten der jeweiligen Inhaber geschützt.

JACOB A to Z index

A

Actuators and limit switches 117, 270
Adapters 91
Adapters and transition pieces 272
Adjustable blank-off covers 128
Adjustable elbows 67
Air bleeds 128
Air flow control gates 131
Air outlet pipes with bird-guard 102
Air outlet pipes with loose flange 223, 224
Air outlets/roof air outlets 272
Angle flange 274–277
Applications 11
ATEX 117

B

Baffle boxes 271
Bag clamps 99
Bagging spouts 99
Bearing clamps 240
Bends 60–66
Bends with loose flange 204–212
Blank-off covers for flange connections 241

C

Cast-iron parts 262–263
Clamps 238–239
Cleaning pipes 109
Cleaning pipes with loose flange 224–225
Coatings 273
Compensators 83, 88
Cone pieces 82, 84–87
Cone pieces – wear protection 260
Cone pieces with loose flange 220–221
Connecting flanges 88, 90
Counter flanges for connecting flanges 89
Cover locks 111
Cyclones 244, 249–250

D

DETECTABLE DESIGN 13
Diverters 138–171
Double turn-head distributors 182–183
Dust separators 249–250

E

Earthing bridges 29, 35
Earthing lugs 237
Earthing wires 235, 237
Electrostatic continuity 13, 29, 35

F

Fill couplings 99
Fixing clips 240
Fixing components 234–241
Flanges 192, 227–229
Flanges for push-in pipes 200
Flanges/loose flange connections 192–195
Flanges/machine adapters 91–93
Flanges, separate, alternative 227–229
Flanging tools 236
Flexible sleeves for hose connections 98
FOOD GRADE EC 1935/2004 13
Forks 70, 73–77
Forks, conical 74–77
Forks, conical with loose flange 215–217
Forks – wear protection 260
Forks, with loose flange 215–217

G

Gates 129–134

H

Hanger bolts metric 240
Hexagon cap screwdriver 35
Hexagon nuts metric 228, 240
Hose clamps 97
Hose connections 95
Hose connections with collar (condensate separator) 95
Hose plugs 98
Hoses 96
Hose sockets 98
Hot-dip galvanised parts 3 mm 264

I

Inlet piece wear protection lining 256
Inspection pipes 108
Inspection T-pieces 110

J

Jet caps 100
Jet caps with flange 222

L

Louvre valve 270

N

Non-return valves 129
Non-stick protection 271

O

Outlet hoods 272

P

Paint/spray paint 236
Perforated sheet metal 103
Pipe ball joints 67
Pipe clamps 234–235, 238–239
Pipe connector system 272
Pipe regulator gates 129
Pipe slide gates 130
Pipe slide gates, pneumatically operated 132
Pipes of up to 12 m 273
Pipes – wear protection 256–257
Pipes, welded 38, 40–44, 275
Pipes with loose flange 196–198
Plexiglass pipes 112
Pull-rings 20, 28, 30–32, 34
Pull-rings for cast iron 262
Push-in pipes 38, 46–48
Push-in pipes with loose flange 199

Q

QUICK CONNECT 13

R

Rain caps 101
Rain covers with loose-type flange 222
Ring seals for push-in pipes 39, 49, 193, 200
Rubber covers 106, 111

S

Sealed/dust-tight slide gates 270
Seals 194
Seals/flat gaskets 83, 89, 94, 194, 231
Segments 54–59
Segments – wear protection 258–259
Segments with loose flange 201–203
Shock explosion proof 13
Shock explosion proof 10 bar 274
Silencers 244, 246–248
Silo/Redler outlet slide gates 133–134
Special colours 18, 273
Special manufacture 268–277
Spigots 49–50
Square flanges 94
Square two-way valve 270
Swivel pipe switches 176, 188–189
Symmetrical forks 70, 78–79
Symmetrical forks, conical 78, 218–219
Symmetrical forks, conical
with loose flange 218–219

T

Threaded bolts metric 240
Throttle valves 116–127, 195
Throttle valves with loose flange 226
T-pieces 72
T-pieces with loose flange 213–214
Transition pieces/spouts 82, 91–93
Turn-head distributors 174–176, 178–181
Turn-head distributors, dust-tight 184–187
Twin nuts 240
Two-way distributors 138, 140, 156–171
Two-way valves with inlet collar 138, 144–149
Two-way valves with inlet collar wear protection
lining 261
Two-way valves with seal 139, 150–155

U

U-shaped seals 29, 30, 33
U-shaped seals for 10 mm lip 193, 230

V

Vacuum couplings 99
Venturi tube 270

W

Wear protection lining 254–261, 271
Welded-on flanges 192–195
Welding ends 45



ORDER NUMBER KEY

PIPE COMPONENTS AND PRESSED COMPONENTS DN 60 – 800 MM

- e.g. 1 2 10 1 010 = pipe with 6 mm lip for pull-ring connection, 2 mm powder-coated, DN 100 mm, 2000 mm long



System	Material thickness	Diameter	Material	Item no.
1 = pull-ring	1 = 1 mm + 1.5 mm	08 = 80 mm	1 = powder-coated / primed	
2 = loose flange	2 = 2 mm	10 = 100 mm	2 = galvanised	
3 = slip-over flange	3 = 3 mm	12 = 120 mm	3 = stainless steel (1.4301)	
		...		

PIPE COMPONENTS AND PRESSED COMPONENTS FROM DN 900 MM

- e.g. 2 2 99 1 010 4 100 = pipe with loose flange, 2 mm powder-coated, DN 1000 mm, 2000 mm long



System	Material thick-ness	Diameter code	Material	Item no.	Flange	Diameter
2 = loose flange	2 = 2 mm	from DN 900 mm	1 = primed		4 = loose flange	090 = 900 mm
	3 = 3 mm		2 = galvanised		5 = welded flange	100 = 1000 mm
			3 = stainless steel			112 = 1120 mm
						125 = 1250 mm
						140 = 1400 mm
						160 = 1600 mm

JACOB

NO. 1 IN PIPEWORK SYSTEMS

FR. JACOB SÖHNE GMBH & CO. KG
Niedernfeldweg 14
32457 Porta Westfalica
Germany
www.jacob-rohre.de

INTERNATIONAL SALES
T +49 571 9558-201
sales@jacob-rohre.de

SALES GERMANY
T +49 571 9558-200
vertrieb@jacob-rohre.de
www.jacob-shop.com

JACOB (UK) LIMITED
Unit 2, Laundry Bank
Church Stretton SY6 6PH
United Kingdom
T +44 1694 722841
sales@jacob-uk.com

JACOB DOSATEC SARL
7, rue Louis Armand
95600 Eaubonne
France
T +33 1 39594758
infos@jacob-dosatec.fr

EUROTUBI S.R.L.
Via Marangona, 1
46020 Borgofranco Po (Mantova)
Italy
T +39 0386 41997
info@eurotubi.it

JACOB TUBING L.P.
3948 Willow Lake Blvd.
Memphis, TN 38118
USA
T +1 901 5661110
info@jacob-tubing.com

Price list valid from 01/04/2021
Version 2, issued 04/2021