

PIPING AND FITTINGS



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1. Introduction to pipe systems

Demands on modern-day pipe systems

Pipe systems are the lifelines of modern-day infrastructures. They circulate throughout towns and cities, supplying vital utilities and disposing of waste products, around the clock.

The expansion and maintenance of pipe networks for supplying water and gas or disposing of wastewater requires high capital spending, which makes the use of dependable and durable pipe systems essential.

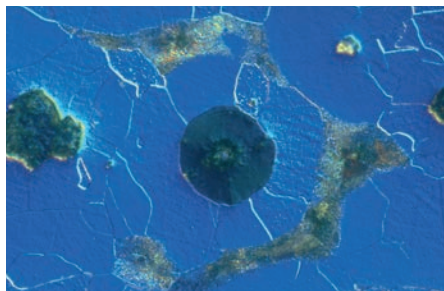
Only intelligent, systematised technologies offer network operators maximum **reliability of supply, dependability of operation and security of investment.**



Ductile cast iron

Ductile cast iron has long been in demand as a pipe material for water and gas supplies and wastewater disposal thanks to its high rigidity, long service life and good elastic properties.

vonRoll hydro is the only Swiss manufacturer of modular and perfectly coordinated complete pipe systems made from ductile cast iron, which meet all the requirements of water and gas supply and wastewater disposal.



Ductile cast iron with spheroidal graphite.
(image from a scanning electron microscope)



The pipes are manufactured using advanced centrifugal casting machines at our factory in Choindenz, Switzerland.

Introduction

In order to make full use of the exceptional properties that ductile cast-iron pipes possess, vonRoll hydro has developed and perfected a polyurethane coating. The vonRoll hydro PUR coating boasts the very highest standards of hygiene and unrivalled corrosion protection whilst ensuring the maximum possible flow through the pipe.

vonRoll hydro also manufactures fittings and valves with these same properties. This means that vonRoll hydro systems provide complete protection, meet the highest demands in terms of quality and durability, and are a sound investment. The system can be expanded using multifunctional hydrants and technologically advanced services designed to protect the network against water loss, lapses in quality and unwanted interference (ORTOMAT, vonRoll HYDROBOX, vonRoll HYDROSAFE).



Systems for supplying water and gas and disposing of wastewater.

vonRoll ductile cast-iron pipes are manufactured in accordance with stringent quality standards and tough environmental legislation using state-of-the-art technology. They comply with European standards and have been approved by Swiss accreditation bodies. (See page 1/12 for standards, certificates and approvals).

Versatility of ductile cast-iron pipe



Pitless pipe laying with vonRoll ECOPUR pipes.

Ductile cast-iron pipes with a PUR coating are usually the best solution for drinking-water pipes. Furthermore, they are often the only or most cost-effective solution for use in special applications, such as laying pipework without digging a pit, in applications with high internal pressures (such as in turbines and artificial snow machines) or with large nominal diameters, on steep mountain slopes, or for supplying extinguishing water in tunnels.

Take advantage of vonRoll hydro system expertise and enquire about the optimum solution tailored to your needs.

2. vonRoll hydro ductile cast-iron pipe systems

Types of pipe and fittings

Water and gas supplies



vonRoll ECOPUR: Centrifugally cast, mechanically stable and flexible pressure pipe made from ductile cast iron; smooth internal and external corrosion-resistant polyurethane (PUR) coating; perfectly suited to all types of soil.



vonRoll DUCPUR: Centrifugally cast, mechanically stable and flexible pressure pipe made from ductile cast iron; polyurethane (PUR) internal coating and zinc/bitumen external coating. With DUCPUR PLUS PE corrosion-protection film; also suitable for aggressive soil types.



vonRoll ROCK: vonRoll ECOPUR and vonRoll DUCPUR pressure pipes with rock-protection covering that protects against stone damage during backfilling; especially suited to rocky terrain.



vonRoll ECOFIT: Sand-cast fittings made from ductile cast iron with integral epoxy coating; perfectly suited to all types of soil.

Wastewater disposal



vonRoll GEOPUR: Centrifugally cast, mechanically stable and flexible pressure pipe made from ductile cast iron; polyurethane (PUR) internal coating and zinc/bitumen external coating. With DUCPUR PLUS PE corrosion-protection film; also suitable for aggressive soil types. Also available in full-protection version (ECOPUR).



vonRoll ROCK: vonRoll GEOPUR sewer pipes with rock-protection covering that protects against stone damage during backfilling; especially suited to rocky terrain.

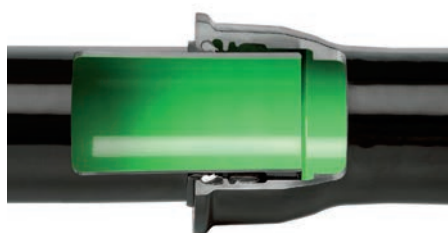
Introduction

Connections in the vonRoll hydro system

The range includes pipes and fittings with:

- Push-in sockets
- Screwed sockets or
- Flanges

The majority of pipes today are connected using push-in sockets. Screwed-socket joints with electrical bridging are used wherever a building's earthing system is connected to the water-supply pipe. Flange joints can be used to connect system components that are only available with flanged sockets or where ease of removal is essential.



Push-in socket joint



Screwed-socket joint
(electrically bridged)



Flange joint

Thrust-resisting ring



Fig. 2806

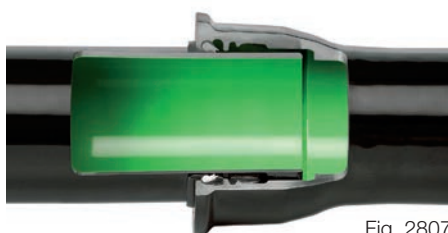


Fig. 2807

External (Fig. 2806) and internal (Fig. 2807)
vonRoll HYDROTIGHT thrust-resisting rings.

The thrust-resisting ring reliably absorbs shear, tensile and pressure forces, which can act on the pipe axially. It can be used with pipes, elbows, Y-fittings or reducers and is a space-saving, quick-to-fit, removable and mechanical connection.

vonRoll hydro recommends vonRoll HYDROTIGHT connections, which can be used with all types of pipe with push-in socket joints.

Diameters and pipe classes

Catalogue range of pipes and fittings

DN	80	100	125	150	200	250	300	350	400	500	600	700
Push-in pipe system												
Screwed pipe system												
Flanged pipe system												*

* Pipe up to DN 600

Installation lengths of the pipes: 6 metres

Pipe classes for water supplies in accordance with EN 545 and ISO 2531 standards

- Pipes with push-in sockets: C / K9
- Pipes with screwed sockets: K10 standard
- Pipes with flanges: K12 standard

Pipe class for wastewater disposal in accordance with the EN 598 standard

Pipes in other classes are available on request.

The vonRoll pipe system with push-in sockets is also available over 85 bar thanks to special design features and structurally adapted solutions.

Benefits for the user

The exceptional combination of ductile cast iron and polyurethane (PUR) materials, as well as the proven push-in connections, possess outstanding properties and offer users the following benefits.

- Long service life
- Cost-effective pipe laying
- Complete corrosion protection
- Suitable for all water types
- Fully hygienic
- High mechanical strength
- Ground movement compensation
- For use with high operating pressures
- Excellent flow-through properties
- Easy to cut to length and bore
- Reduced maintenance costs

Introduction

3. Technical specifications

Ductile cast iron

Material properties of centrifugally cast pipes and fittings

Mechanical properties	Symbol	Unit	Pipes	Fittings
Minimum tensile strength (Rm)	Rm	MPa	420	420
Yield strength	Rp 0.2	MPa	270	270
Minimum elongation at break DN 100-700	A	%	10	5
Minimum transverse compressive strength		MPa	550	550
Bursting strength		MPa	300	300
Longitudinal flexural strength		MPa	420	420
Density	ρ	kg/dm ³	7.05	7.05
Elastic modulus	E	MPa	1.7×10^5	1.7×10^5
Thermal expansion coefficient	α	1/K	10×10^{-6}	10×10^{-6}
Hardness		HB	< 230	< 250

Overview of connection types

	Push-in socket joint	Screwed-socket joint	Flange joint
Sealing system	vonRoll HYDROTIGHT	vonRoll seal	Flat seal
Connection variant	With or without thrust-resisting ring	With or without thrust-resisting ring	
Electrical conductivity of the connection system	Not electrically bridged	Electrically bridged. Not electrically bridged on request	Not electrically bridged
Displacement without thrust-resisting ring	DN 80-300 a 5° DN 350-400 a 4° DN 500-700 a 3°	DN 80-300 a 3°	No displacement possible
Displacement with thrust-resisting ring	DN 80-700 a 3°	DN 80-200 a 2°	No displacement possible

Polyurethane (PUR) coatings

The PUR coating was created by vonRoll hydro in 1972 and has undergone continuous further development ever since. Polyurethane not only protects ductile cast-iron pipes against corrosion, but also ensures that drinking water is hygienic.



Automatic polyurethane (PUR) internal coating.

In comparison with other coatings in contact with various media – such as drinking water, wastewater, demineralised water, industrial water and gas, and aggressive solutions such as sulphuric acid – the polyurethane internal pipe coating is extremely durable. The PUR external coating can be used in all types of soil.

The test report from the renowned Institute of Hygiene in Gelsenkirchen confirms that the PUR coating complies with the German Environmental Protection Agency's "Guideline for Hygienic Assessment of Organic Coatings in Contact with Drinking Water".



The PUR coating adheres exceptionally well to the cast-iron surface.

The proven PUR coating process guarantees pore-free coatings and optimum adherence to ductile cast iron. The smooth, glossy surface of the polyurethane and the larger internal diameter in comparison with other pipes increase the pipe's hydraulic capacity.

Polyurethane is used for both the internal and external coatings. The elasticity of polyurethane means that the coating remains intact even if the pipe deforms.

Specific properties of polyurethane (PUR)

Summary

Polyurethane is made from a bi-component resin. The three-dimensionally linked molecular structure increases the material's mechanical strength. Polyurethane is a solvent-free duroplastic material. It meets the EN 545, ISO 2531 and EN 598 standards

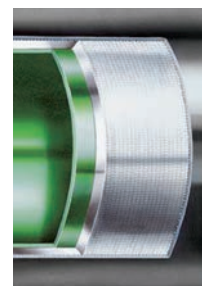
Wall thickness

Polyurethane PUR internal coating
 DN 80–150 = 1.3 mm
 DN 200–700 = 1.5 mm

Polyurethane PUR external coating (ECOPUR)
 DN 80–700 = 0.9 mm

Colour

Internal: green
 External: black



Subject to alteration without notice

Introduction

Density	1,4 – 1.5 kg/dm ³
Continuity	Uninterrupted coating without cracks
Adhesive strength	> 14 MPa (EMPA recommends: 2.5 MPa on saturated samples) The adhesive strength is tested regularly in our laboratories.
Dielectric resistance	>10 ⁸ Ωm ²
Temperature	Water: up to 40 °C (continuously); up to 80 °C (sporadically) Air: 120 °C
Impact resistance	40 Nm at 20°C
Salt spray effect	After 1000 hours: no effect
Elongation	> 10 %
Coefficient of friction	k < 0.01 mm
Chemical strength	- Acid or base with a pH of 1 to 14 - Inorganic solvents - Sulphuric acid (wastewater) - Industrial wastewater
Thermal expansion	20 x 10 ⁻⁶ 1/K
Deposits	none
Use of chlorine	The concentration of chlorine in drinking water and the limited quantity used for disinfection have no effect on the quality of the polyurethane.
Quality assurance	Contract with MPA Dortmund
Approvals for PUR	- Swiss Association for Gas and Water (SVGW) - German Technical and Scientific Association for Gas and Water (DVGW) - Swiss Federal Office of Public Health (BAG) - Complies with the German Environmental Protection Agency's "Guideline for Hygienic Assessment of Organic Coatings in Contact with Drinking Water". - Meets the requirements on hygiene specified in the DVGW worksheet W270 - Other certifications: France, Czech Republic, Poland, Hungary, etc.

Epoxy coating



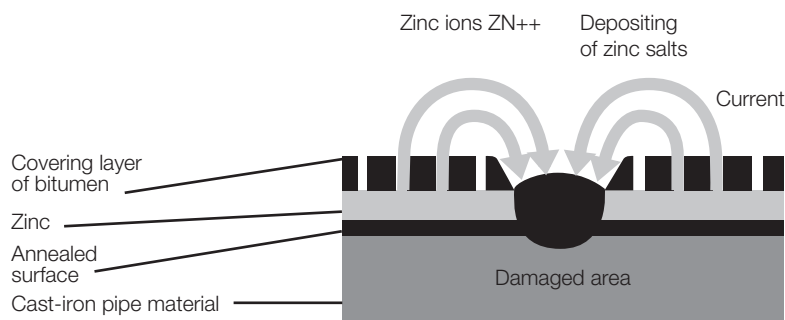
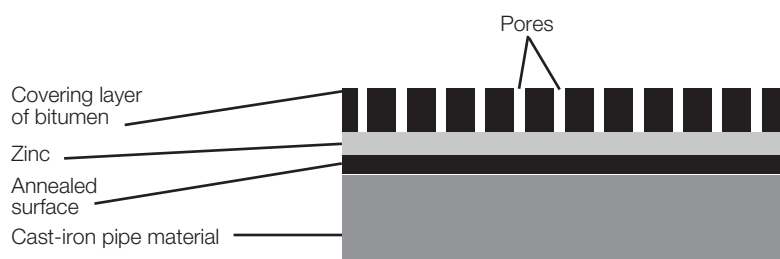
The **fittings are provided with an integral epoxy coating at least 250 µm thick**. The coating made from epoxy resin powder provides proven and pore-free corrosion protection for fittings and valves used in water and gas supplies and for wastewater disposal. The extremely smooth and pore-free epoxy internal coating offers comprehensive protection for drinking water and meets all legal requirements on hygiene in full. It prevents deposits from building up and is abrasion-resistant. The epoxy coating is an organic protective coating and its use has minimal environmental impact.

Subject to alteration without notice

Zinc-bitumen external coating

vonRoll **DUCPUR** and vonRoll **GEOPUR** pipes are provided with a **zinc-bitumen external coating**. The zinc coating is at least 220 g/m² in accordance with EN 545. The zinc coating is covered with a layer of bitumen at least 70 µm thick.

The special property of the zinc coating is its ability to **self-heal** when it suffers localised damage. A macro-element is formed where the damage has occurred, in which the cast-iron surface acts as the cathode and the zinc-covered surface of the pipe acts as the anode. The zinc ions migrate to the exposed cast-iron surface, thereby re-covering the damaged area with a layer of zinc.



Introduction

Permissible operating pressures for water and gas supplies

Without a longitudinal positive locking connection

(secured against thrusting by structural means)

For water $\leq$ specified operating pressure PFA in bar

Push-in sockets	See table "Pressures in accordance with EN 545 for push-in socket pipes and fittings" on page 7/1.4
Screwed sockets	DN 80-200 PFA 40 DN 250, 300 PFA 25

For gas $\leq$ 1 bar (corresponds to the low- to medium-pressure levels in SVGW guidelines)

With a mechanical longitudinal positive locking connection

For water $\leq$ specified operating pressure PFA in bar of the thrust-resisting ring

Push-in sockets	See table "Permissible pressures for thrust-resisting rings" on page 7/1.5
Screwed sockets	PFA 16
Flanges	The values shown in the table (PN) correspond to the hole pattern in accordance with DIN EN 1092 Part 2. These values indicate the permissible operating pressure.

For gas $\leq$ 1-5 bar (corresponds to the high-pressure level in SVGW guidelines)

For fittings with mixed push-in socket/flange connections, the nominal pressure of the flange is used.

Tightness for wastewater disposal

Requirements on the design of the system in accordance with EN 598

The ductile cast-iron pipe components must be tight under the pressures given in the table, depending on the way in which they are normally operated. The values can be used for all common operating conditions including foreseeable external loads and movements of the connections (angled, radial and axial).

Type of operation	Internal pressure in bar		External pressure in bar
	continuous	briefly	continuous
Gravity (non-pressurised)	0 bis 0.5	2	1
Positive pressure	6	9	1
Negative pressure	-0.5	-0.8	1

4. Markings

Pipes and fittings in accordance with EN 545 / EN 598

All pipes and fittings are permanently and legibly marked with at least the following information:

Manufacturer Year of manufacture Marking for ductile cast iron Nominal diameter (DN)	Cast in the socket for pipes Cast on the surface for fittings
Nominal pressure for flanges and reference to this standard	Cast on the flange
Pressure class (pipes in accordance with EN 545)	Painted on pipes

Sealing rings

For water	DN, year of manufacture, manufacturer's code, sealing ring name, EN 681-1, EPDM
For wastewater	DN, year of manufacture, manufacturer's code, sealing ring name, EN 682, NBR
For gas	DN, year of manufacture, manufacturer's code, sealing ring name, EN 682, NBR

Introduction

5. Standards

Water and gas supplies

EN 545	Pipes, fittings, accessories made from ductile cast iron and their connections for water pipes – Requirements and testing procedures
EN 681-1	Elastomer seals – Material requirements for pipe seals for use in water supply and drainage
EN 682	Elastomer seals – Material requirements for pipe seals for sealing methods in supply lines and components for gas and liquid hydrocarbons
EN 805	Water supply – Requirements on water supply systems and their components used outside buildings
EN 969	Pipes, fittings, accessories made from ductile cast iron and their connections for gas pipes – Requirements and testing procedures
EN 1092-2	Flanges and their connections, Part 2 cast-iron flanges
EN 1295-1	Structural design of underground pipes under different load conditions Part 1: General requirements
EN 1514-1	Flanges and their connections – Dimensions of seals for flanges with PN designation
ISO 2531	Ductile cast-iron pipes, fittings and accessories and their connections for use in water or gas applications
EN 15189	Polyurethane coating for pipes – Requirements and testing procedures
EN 15655	Polyurethane coating for pipes and fittings – Requirements and testing procedures
SVGW W4 guideline For planning, project planning as well as construction, operation and maintenance of drinking water supply systems outside buildings	

Wastewater disposal

EN 598	Pipes, fittings, accessories made from ductile cast iron and their connections for wastewater disposal and testing procedures
EN 681-1	Elastomer seals – Material requirements for pipe seals for use in water supply and drainage
EN 682	Elastomer seals – Material requirements for pipe seals for sealing methods in supply lines and components for gas and liquid hydrocarbons
EN 1610	Laying and testing of wastewater pipes and ducts
ISO 2531	Ductile cast-iron pipes, fittings and accessories and their connections for use in water or gas applications
SIA 190	Sewer systems; pipes, normal and special structures

Introduction

6. Certificates and approvals

Water and gas supplies

vonRoll hydro pipe systems for supplying water and gas meet **EN 545/EN 969** standards and are **DVGW** and **SVGW - certified**.



Polyurethane (PUR) meets the hygiene requirements specified in the DVGW standard W270 and KTW recommendations.

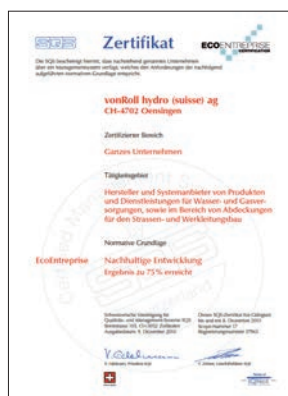


Wastewater disposal

vonRoll hydro pipe systems for disposing of wastewater are certified in accordance with **EN 598**.



Quality and environmental protection



This certification guarantees that the legal requirements regarding hygiene are met in full and that all standards and test patterns are adhered to.

The "Cassis de Dijon" principle means that once a product has been approved in one EU member state, it is automatically approved in the whole of the EU.

Introduction

7. Key/list of abbreviations

DN	Nominal diameter of the pipe
DE	Pipe external diameter in accordance with EN 545 and ISO 2531/EN 598 standards
DI	Effective calculated pipe internal diameter $DI = DE - 2e$
DM	Socket external diameter
T	Socket depth
e_G	Wall thickness of the centrifugally cast pipe made from ductile cast iron
e_{PUR1}	Wall thickness of the polyurethane internal coating
e_{PUR2}	Wall thickness of the polyurethane external jacket
e	Wall thickness of the cast-iron pipe $e = e_G + e_{PUR1} + e_{PUR2}$
e_P	Wall thickness of the vonRoll ROCK rock-protection covering
L	Installation length of the pipe
PFA	Operating pressure
PN	Nominal pressure Alphanumerical parameter for reference purposes based on the combination of mechanical and dimensional properties of a component in a pipe system It consists of the letters PN followed by a dimensionless number [EN 1333:2002, Section 2]
NOTE	All parts which have the same nominal diameter DN and which are marked with the same PN number are interchangeable.
NPK	Swiss catalogue of standards



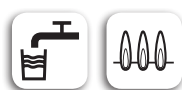
Water supply



Gas supply



Wastewater disposal



Push-in sockets

2/1.1 ECOPUR



Fig. 2817
 Fig. 2815

2/1.2 DUCPUR



Fig. 2817
 Fig. 2815

2/2.1 ROCK (ECOPUR)



Fig. 2819
 Fig. 2816

2/2.2 ROCK (DUCPUR)



Fig. 2819
 Fig. 2816

2/3.1
Fig. 2820a.90



2/3.1
Fig. 2822a.45



2/3.2
Fig. 2823a.30



2/3.2
Fig. 2824a.22



2/3.2
Fig. 2825a.11



2/3.3
Fig. 2826a.5



2/4.1
Fig. 2820.90



2/4.1
Fig. 2822.45



2/4.1
Fig. 2823.30



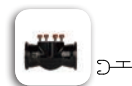
2/4.2
Fig. 2824.22



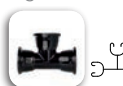
2/4.2
Fig. 2825.11



2/5.1
Fig. 2854



2/5.2
Fig. 2856



2/5.3 - 4
Fig. 2857



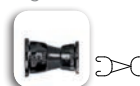
2/5.4
Fig. 2858



2/5.4
Fig. 2859



2/6.1
Fig. 2883



2/7.1
Fig. 2870



2/7.1 - 2
Fig. 2877b



2/7.2
Fig. 2888



2/7.3
Fig. 2890



2/8.1
Fig. 2805



2/8.2
Fig. 2806



2/8.2
Fig. 2808



2/8.3
Fig. 2504-1



2/8.3
Fig. 2807B



2/8.3
Fig. 2807A



2/8.4
Fig. 2810



2/8.4
Fig. 2811



2/9.1
Fig. 5468



2/10.1
Fig. 240



2/10.1
Fig. 270



2/10.1
Fig. 300-2



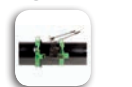
2/10.1
Fig. 310-1



2/10.2
Fig. 284, 285, 286



2/11.1
Fig. 254/1-3, 293/4-5



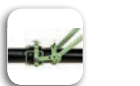
2/11.2
Fig. 255-1



2/11.2
Fig. 255-2



2/11.2 - 3
Fig. 293 / 1-6



2/11.4
Fig. 294



2/11.4
Fig. 2893



2/11.4
Fig. 2895



**Pressure pipe with push-in socket
vonRoll ECOPUR**

Pressure pipe with push-in socket vonRoll ECOPUR

Made of ductile cast iron using the centrifugal casting process with
**PUR (polyurethane) internal lining to EN 15655 und external
PUR coating to EN 15189.**

Application: For demanding corrosion conditions. Secure, long service life, minimal pressure loss thanks to hydraulically smooth surface, economic.

SVGW certification for water and gas pipelines.

Manufactured to ISO 2531 and EN 545 standards.

Pipe-class C / K9; other classes on request.

Permissible system pressure: See "permissible pressures", page 7/1.3 - 7/1.5.

Thrust-resisting rings: See 2/8.1 - 2/8.3

Deflection: see "Installation handbook for push-in joint piping".

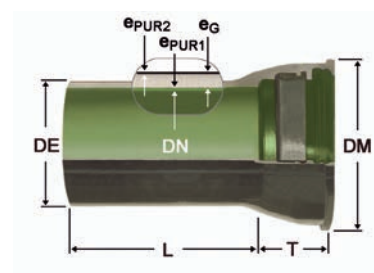
Pipes and fittings are supplied with a seal but without a thrust-resisting ring.



Pipe with double-chamber socket

DN	Pipe-class	L mm	DE mm	e _G mm	e _{PUR1} mm	e _{PUR2} mm	DM mm	T mm	weight kg/m	Item-no.	NPK
80	C100	6000	98	4.7	1.3	0.9	167	119	14.6	260024	212.178
100	C100	6000	118	4.7	1.3	0.9	188	120	17.6	260025	212.179
125	C64	6000	144	4.0	1.3	0.9	215	123	21.7	260026	212.181
150	C64	6000	170	4.0	1.3	0.9	242	126	25.9	260027	212.182
200	C64	6000	222	5.0	1.5	0.9	295	131	34.3	260028	212.183
250	C50	6000	274	4.8	1.5	0.9	352	131	47.4	260029	212.184
300	C50	6000	326	5.7	1.5	0.9	410	130	60.5	260030	212.185
350	C40	6000	378	5.3	1.5	0.9	464	135	73.4	260031	212.186
400	C40	6000	429	6.0	1.5	0.9	517	145	87.9	260032	212.187
500	K9	6000	532	7.2	1.5	0.9	630	145	120.7	260033	-

Fig. 2817

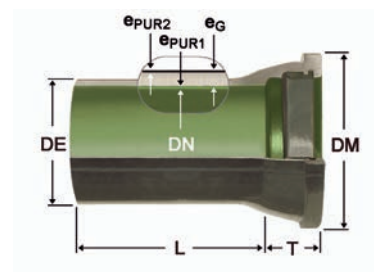


The double-chamber pipe can be fitted with internal thrust-resisting ring or external thrust-resisting ring.

Pipe with single-chamber socket

DN	Pipe-class	L mm	DE mm	e _G mm	e _{PUR1} mm	e _{PUR2} mm	DM mm	T mm	weight kg/m	Item-no.	NPK
600	K9	6000	635	8.0	1.5	0.9	750	120	158.4	260034	-
700	K9	6000	738	8.8	1.5	0.9	863	150	201.5	260035	-

Fig. 2815



Pressure pipe with push-in socket vonRoll DUCPUR

Pressure pipe with push-in socket vonRoll DUCPUR

Made of ductile cast iron using the centrifugal casting process with

PUR (polyurethane) internal lining to EN 15655, outer side zinc sprayed and coated with bitumen.

Minimal pressure loss thanks to hydraulically smooth surface, economic.

Application: Drinking water, soft and aggressive water as well as media with pH-values between 1 and 14.

SVGW certification for water and gas pipelines.

Manufactured to ISO 2531 and EN 545 standards.

Pipe-class C / K9; other classes on request.

Permissible system pressure: see "permissible pressures", page 7/1.3 - 7/1.5.

Thrust-resisting rings: See 2/8.1 - 2/8.3

Deflection: see "Installation handbook for push-in joint piping".

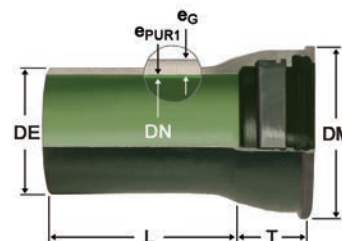
Pipes and fittings are supplied with a seal but without a thrust-resisting ring.



Pipe with double-chamber socket

DN	Pipe-class	L mm	DE mm	e _G mm	e _{PUR1} mm	DM mm	T mm	weight kg/m	Item-no.	NPK
80	C100	6000	98	4.7	1.3	167	119	14.2	260424	212.138
100	C100	6000	118	4.7	1.3	188	120	17.1	260425	212.139
125	C64	6000	144	4.0	1.3	215	123	21.1	260426	212.141
150	C64	6000	170	4.0	1.3	242	126	25.2	260427	212.142
200	C64	6000	222	5.0	1.5	295	131	33.3	260428	212.143
250	C50	6000	274	4.8	1.5	352	131	46.3	260429	212.144
300	C50	6000	326	5.7	1.5	410	130	58.3	260430	212.145
350	C40	6000	378	5.3	1.5	464	135	71.9	260431	212.146
400	C40	6000	429	6.0	1.5	517	145	86.1	260432	212.147
500	K9	6000	532	7.2	1.5	630	145	118.6	260433	-

Fig. 2817

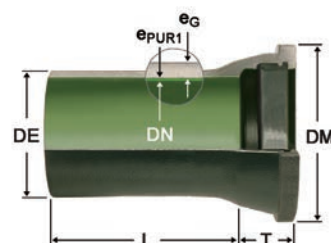


The double-chamber pipe can be fitted with internal thrust-resisting ring or external thrust-resisting ring.

Pipe with single-chamber socket

DN	Pipe-class	L mm	DE mm	e _G mm	e _{PUR1} mm	DM mm	T mm	weight kg/m	Item-no.	NPK
600	K9	6000	635	8.0	1.5	750	120	156.1	260434	-
700	K9	6000	738	8.8	1.5	863	150	198.9	260435	-

Fig. 2815



**Pressure pipe with push-in socket
vonRoll ECOPUR**

vonRoll ROCK - pressure pipes with rock-protection coating vonRoll ECOPUR

vonRoll ROCK pressure pipes with rock-protection coating. These coated cast-iron pipes are outstandingly suitable for use in rocky ground and are **protected** against damage by rocks when back-filling.

The **robust** wrap protection offers **unique performance**.

The **lightweight** under cast-iron pipes (see table) is proven to be **economical** during installation in difficult ground conditions and presents no problems when coping with the most difficult pipe-laying conditions.

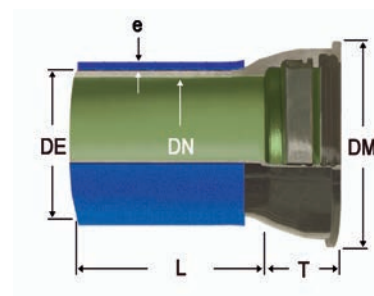
The protective coating can be removed **effortlessly** with a knife, which enables the pipes to be **shortened** to the required length or **bored** for a domestic mains connection **with ease**.



Pipe with double-chamber socket

Fig. 2819

DN	Pipe-class	L mm	DE mm	e mm	DM mm	T mm	weight kg/m	Item-no.	NPK
80	C100	6000	98	8	167	119	14.9	260116	212.178
100	C100	6000	118	8	188	120	18.0	260117	212.179
125	C64	6000	144	8	215	123	22.2	260118	212.181
150	C64	6000	170	8	242	126	26.4	260119	212.182
200	C64	6000	222	8	295	131	35.0	260120	212.183
250	C50	6000	274	8	352	131	48.3	260121	212.184
300	C50	6000	326	8	410	130	61.5	260122	212.185
350	C40	6000	378	8	464	135	74.6	260123	212.186
400	C40	6000	429	8	517	115	89.2	260124	212.187
500	K9	6000	532	8	630	115	122.4	260125	-

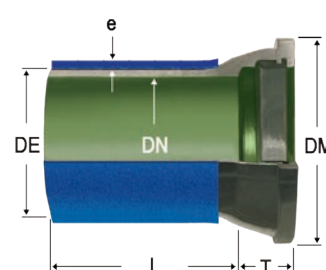


The double-chamber pipe can be fitted with internal restraint clamp or external restraint clamp.

Pipe with single-chamber socket

Fig. 2816

DN	Pipe-class	L mm	DE mm	e mm	DM mm	T mm	weight kg/m	Item-no.	NPK
600	K9	6000	635	8	750	120	160.4	260126	-
700	K9	6000	738	8	863	150	203.8	260127	-



Pressure pipe with push-in socket vonRoll DUCPUR

vonRoll ROCK - pressure pipes with rock-protection coating vonRoll DUCPUR

vonRoll ROCK pressure pipes with rock-protection coating. These coated cast-iron pipes are outstandingly suitable for use in rocky ground and are **protected** against damage by rocks when back-filling.

The **robust** wrap protection offers **unique performance**.

The **lightweight** under cast-iron pipes (see table) is proven to be **economical** during installation in difficult ground conditions and presents no problems when coping with the most difficult pipe-laying conditions.

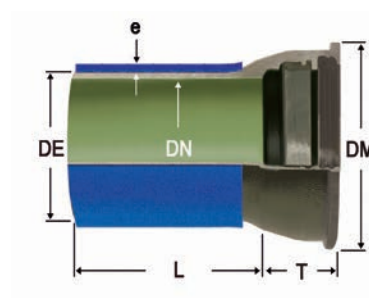
The protective coating can be removed **effortlessly** with a knife, which enables the pipes to be **shortened** to the required length or **bored** for a domestic mains connection **with ease**.



Pipe with double-chamber socket

DN	Pipe-class	L mm	DE mm	e mm	DM mm	T mm	weight kg/m	Item-no.	NPK
80	C100	6000	98	8	167	119	14.5	260520	212.138
100	C100	6000	118	8	188	120	17.5	260521	212.139
125	C64	6000	144	8	215	123	21.6	260522	212.141
150	C64	6000	170	8	242	126	25.7	260523	212.142
200	C64	6000	222	8	295	131	34.0	260524	212.143
250	C50	6000	274	8	352	131	47.2	260525	212.144
300	C50	6000	326	8	410	130	59.3	260526	212.145
350	C40	6000	378	8	464	135	73.1	260527	212.146
400	C40	6000	429	8	517	145	87.4	260528	212.147
500	K9	6000	532	8	630	145	120.3	260529	-

Fig. 2819

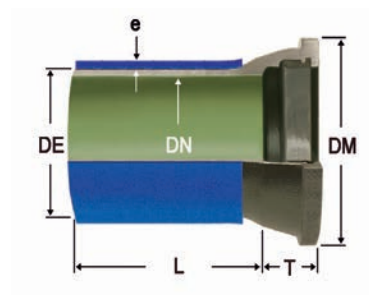


The double-chamber pipe can be fitted with internal restraint clamp or external restraint clamp.

Pipe with single-chamber socket

DN	Pipe-class	L mm	DE mm	e mm	DM mm	T mm	weight kg/m	Item-no.	NPK
600	K9	6000	635	8	750	120	158.1	260530	-
700	K9	6000	738	8	863	150	201.2	260531	-

Fig. 2816



Pressure pipe with push-in socket

Bend with push-in sockets vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

Single-chamber socket

Pipes and fittings are supplied with a seal but without a thrust-resisting ring.



90°-bend, 2 sockets (MMQ)

Fig. 2820a.90

DN	t mm	weight kg	item-no.	NPK
80	100	8.0	325011	231.318
100	125	10.2	325012	231.319
125	150	14.5	325013	231.321
150	175	19.1	325014	231.322
200	225	30.5	325015	231.323
250	280	45.7	325016	231.324
300	330	63.7	325017	231.325
350	410	140.0	325022	231.326
400	420	128.0	325018	231.327
500	520	230.0	325019	-
600	620	330.0	325020	-
700	720	486.2	325021	-



45°-bend, 2 sockets (MMK 45)

Fig. 2822a.45

DN	t mm	weight kg	item-no.	NPK
80	55	7.1	325036	231.358
100	65	8.8	325037	231.359
125	75	12.3	325038	231.361
150	85	15.9	325039	231.362
200	110	24.6	325040	231.363
250	130	35.7	325041	231.364
300	155	48.7	325042	231.365
350	175	64.9	325047	231.366
400	195	105.0	325043	231.367
500	240	139.0	325044	-
600	285	202.0	325045	-
700	330	296.0	325046	-

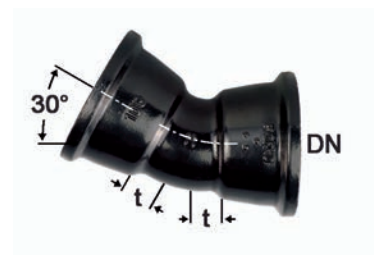


Pressure pipe with push-in socket

30°-bend, 2 sockets (MMK 30)

Fig. 2823a.30

DN	t mm	weight kg	item-no.	NPK
80	45	6.8	325062	231.378
100	50	8.3	325063	231.379
125	55	11.6	325064	231.381
150	65	14.8	325065	231.382
200	80	22.0	325066	231.383
250	95	32.0	325067	231.384
300	110	43.2	325068	231.385
350	125	54.5	325073	231.386
400	150	98.0	325069	231.387
500	185	125.0	325070	-
600	200	182.0	325071	-
700	230	254.0	325072	-



22°-bend, 2 sockets (MMK 22)

Fig. 2824a.22

DN	t mm	weight kg	item-no.	NPK
80	40	6.7	325088	231.418
100	45	8.1	325089	231.419
125	50	11.2	325090	231.421
150	55	14.2	325091	231.422
200	65	21.0	325092	231.423
250	75	30.7	325093	231.424
300	90	40.4	325094	231.425
350	100	50.7	325099	231.426
400	110	78.0	325095	231.427
500	130	111.0	325096	-
600	150	157.0	325097	-
700	180	232.0	325098	-



11°-bend, 2 sockets (MMK 11)

Fig. 2825a.11

DN	t mm	weight kg	item-no.	NPK
80	30	6.5	325114	231.438
100	35	7.8	325115	231.439
125	35	10.6	325116	231.441
150	40	13.4	325117	231.442
200	45	24.9	325118	231.443
250	50	34.2	325119	231.444
300	60	43.0	325120	231.445
350	65	44.9	325125	231.446
400	65	72.0	325121	231.447
500	75	96.0	325122	-
600	85	134.0	325123	-
700	110	200.0	325124	-



Pressure pipe with push-in joint

5°-bend, 2 sockets (MMK 5)

Fig. 2826a.5

DN	t mm	weight kg	item-no.	NPK
100	30	7.8	325139	231.459
125	35	10.6	325140	231.461
150	35	13.4	325141	231.462
200	40	24.9	325142	231.463
250	50	34.2	325143	231.464
300	55	43.0	325144	231.465
400*	65	70.0	325 224	-

* in accordance with company standard



Pressure pipe with push-in socket

Bend with socket and spigot vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

single-chamber socket

Pipes and adapter fittings are delivered with Tyton seal but without thrust-resisting ring.



90°-bend, socket and spigot (MQ)

Fig. 2820.90

DN	t mm	t ₁ mm	weight kg	item-no.	NPK
80	100	312	10.2	325000	231.118
100	125	333	11.2	325001	231.119
125	150	374	16.1	325002	231.121
150	175	419	21.5	325003	231.122
200	225	491	35.0	325004	231.123
250*)	270	610	54.4	325805	231.124
300*)	330	660	76.0	325811	231.125
400*)	420	1175	171.0	325817	231.127

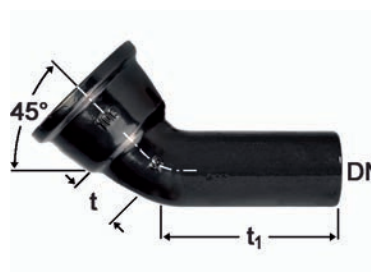
*) On request



45°-bend, socket and spigot (MK 45)

Fig. 2822.45

DN	t mm	t ₁ mm	weight kg	item-no.	NPK
80	55	265	7.7	325025	231.158
100	65	274	9.8	325026	231.159
125	75	301	13.8	325027	231.161
150	85	331	18.3	325028	231.162
200	110	374	28.5	325029	231.163
250	130	465	44.3	325803	231.164
300	150	500	60.5	325810	231.165
400	195	940	136.1	325816	231.167



30°-bend, socket and spigot (MK 30)

Fig. 2823.30

DN	t mm	t ₁ mm	weight kg	item-no.	NPK
80	45	253	7.4	325051	231.178
100	50	260	9.4	325052	231.179
125	55	283	13.1	325053	231.181
150	65	309	17.2	325054	231.182
200	80	345	26.5	325055	231.183
250	95	430	40.9	325804	231.184
300	110	450	54.9	325809	231.185
400	150	885	124.9	325815	231.187



Subject to alteration without notice

Pressure pipe with push-in socket

22°-bend, socket and spigot (MK 22)

Fig. 2824.22

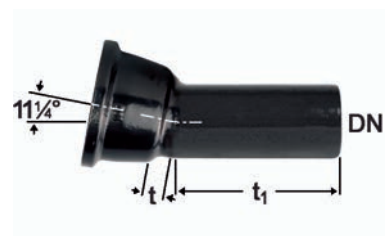
DN	t mm	t ₁ mm	weight kg	item-no.	NPK
80	40	248	7.3	325077	231.218
100	45	253	9.2	325078	231.219
125	50	274	12.7	325079	231.221
150	55	299	16.7	325080	231.222
200	65	331	25.5	325081	231.223
250	75	410	38.8	325802	231.224
300	85	430	52.0	325808	231.225
400	110	855	120.1	325814	231.227



11°-bend, socket and spigot (MK 11)

Fig. 2825.11

DN	t mm	t ₁ mm	weight kg	item-no.	NPK
80	30	240	7.1	325103	231.238
100	35	243	8.8	325104	231.239
125	35	261	12.1	325105	231.241
150	40	284	15.7	325106	231.242
200	45	311	24.0	325107	231.243
250	50	385	36.2	325801	231.244
300	55	400	47.9	325807	231.245
400	65	815	111.5	325813	231.247



Pressure pipe with push-in socket

Adapter fittings (1 branch) with push-in joints vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

Single-chamber socket (Fig. 2854 double-chamber)

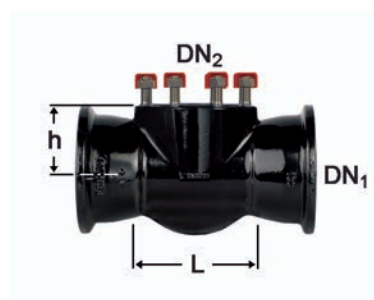
Pipes and fittings are supplied with a seal but without a thrust-resisting ring.



UNIVERSAL push-in join tee, double-chamber (UA)

Fig. 2854

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item-no.	NPK
100	50	10,16,25,40	176	100	20.0	261000	234.159
100	100	10,16	176	100	23.0	261002	234.119
125	50	10,16,25,40	173	110	24.0	261003	234.161
125	100	10,16	173	110	25.0	261005	234.241
150	50	10,16,25,40	170	120	27.0	261007	234.162
150	100	10,16	170	120	28.0	261009	234.242
200	50	10,16,25,40	148	145	38.0	261012	234.163
200	100	10,16	163	145	38.0	261014	234.243



Construction:

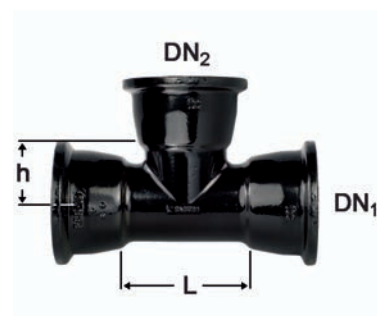
Double-chamber with oblique collar

Delivery includes the fitting with seals and studs with nuts and protective caps.

Can be fitted with internal thrust-resisting ring fig. 2807 or external thrust-resisting ring fig. 2806.

Pressure pipe with push-in socket
Tee-connector with 3 sockets (MMB)
Fig. 2856

DN ₁	DN ₂	L mm	h mm	weight kg	item-no.	NPK
80	80	170	85	11.4	325145	232.418
100	80	170	95	13.1	325149	232.519
100	100	190	95	14.1	325150	232.419
125	80	170	105	16.5	325146	232.521
125	100	195	110	17.8	325151	232.541
125	125	225	110	19.9	325152	232.421
150	80	170	120	19.9	325245	232.522
150	100	195	120	20.9	325153	232.542
150	125	255	125	29.0	325154	232.562
150	150	255	125	25.2	325155	232.422
200	80	175	145	27.2	325246	232.523
200	100	200	145	28.6	325156	232.543
200	125	255	145	31.4	325147	232.563
200	150	255	150	33.4	325157	232.583
200	200	315	155	38.2	325158	232.423
250	100	200	170	37.9	325247	232.544
250	125	200	175	39.9	355265	232.564
250	150	260	175	43.6	325148	232.584
250	200	315	180	49.3	325249	232.624
250	250	375	190	56.0	325159	232.424
300	100	205	195	47.7	325250	232.545
300	125	205	200	48.7	355266	232.565
300	150	260	200	54.3	325251	232.585
300	200	320	205	61.0	325160	232.625
300	250	430	210	80.0	325252	232.645
300	300	435	220	75.0	325161	232.425
400	150	270	270	100.0	325253	232.587
400	200	325	270	110.0	325162	232.627
400	300	440	290	130.0	325163	232.667
400	400	560	280	160.0	325164	232.427
500	100	215	295	108.4	325255	-
500	150	350	345	151.0	325173	-
500	200	425	350	166.0	325165	-
500	250	390	315	185.0	325256	-
500	300	580	350	201.0	325166	-
500	400	565	335	199.2	325257	-
500	500	680	340	244.0	325167	-
600	200	340	355	201.0	325168	-
600	300	460	365	215.0	325259	-
600	400	570	390	250.4	325169	-
600	600	800	400	355.0	325171	-
700	200	345	400	270.6	325260	-
700	400	575	430	345.2	355262	-
700	600	925	430	468.4	325264	-



Pressure pipe with push-in socket
Tee-connector with 2 sockets and a flanged branch (MMA)
Fig. 2857

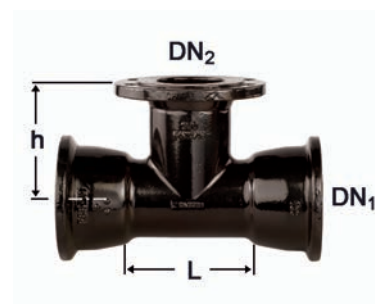
DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item-no.	NPK
80	80	10,16,25,40	170	165	12.8	325177	233.418
100	80	10,16,25,40	170	175	14.5	325178	233.519
100	100	10,16	190	180	15.8	325174	233.419
125	80	10,16,25,40	170	190	17.9	325290	233.521
125	100	10,16	195	195	19.3	325175	233.541
125	125	10,16	225	200	21.6	325176	233.421
150	80	10,16,25,40	170	205	21.3	325179	233.522
150	100	10,16	195	210	22.7	325180	233.542
150	125	10,16	255	220	30.0	325181	233.562
150	150	10,16	255	250	27.4	325182	233.422
200	80	10,16,25,40	175	235	28.6	325183	233.523
200	100	10,16	200	240	30.4	325184	233.543
200	125	10,16	255	250	32.0	325291	233.563
200	150	10,16	255	250	36.1	325185	233.583
200	200	10	315	260	42.2	325186	233.423
200	200	16	315	260	41.7	325187	-
250	100	10,16	200	270	39.7	325188	233.544
250	150	10,16	260	280	46.3	325189	233.584
250	200	10	315	290	42.9	325292	233.624
250	200	16	315	290	42.9	325380	-
250	250	10	375	300	61.0	325190	233.424
250	250	16	375	300	60.5	325191	-
300	100	10,16	205	300	50.0	325192	233.545
300	150	10,16	260	310	57.0	325193	233.585
300	200	10	320	320	65.0	325293	233.625
300	200	16	320	320	65.0	325381	-
300	250	10	430	330	74.5	325294	233.645
300	250	16	430	330	74.5	325382	-
300	300	10	435	340	83.6	325194	233.425
300	300	16	435	340	83.1	325195	-
350	100	10,16	205	330	59.3	325305	233.546
350	200	10	325	350	77.2	325306	233.626
350	200	16	325	350	77.0	325307	-
350	300	10	495	370	110.0	325308	233.666
350	300	16	495	370	110.0	325309	-
400	100	10,16	210	360	72.0	325402	233.547
400	150	10,16	270	370	81.4	325196	233.587
400	200	10	325	380	91.1	325197	233.627
400	200	16	325	380	90.6	325198	-
400	250	10	440	390	130.0	325403	233.647
400	250	16	440	390	130.0	325411	-
400	300	10	440	400	113.5	325295	233.667
400	300	16	440	400	113.5	325383	-
400	400	10	560	420	135.6	325199	233.427
400	400	16	560	420	140.6	325200	-
500	100	10,16	215	420	116.0	325201	-
500	150	10,16	275	430	141.0	325404	-
500	200	10	330	440	142.0	325202	-
500	200	16	330	440	141.0	325203	-
500	300	10	450	460	188.2	325297	-



Subject to alteration without notice

Pressure pipe with push-in socket
Tee-connector with 2 sockets and a flanged branch (MMA)
Fig. 2857

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item-no.	NPK
500	300	16	450	460	182.0	325384	-
500	400	10	565	480	199.0	325204	-
500	400	16	565	480	205.0	325205	-
500	500	10	680	500	232.0	325206	-
500	500	16	680	500	247.0	325207	-
600	100	10,16	220	480	171.0	325208	-
600	150	10,16	280	490	187.0	325405	-
600	200	10	340	500	189.0	325209	-
600	200	16	340	500	189.0	325210	-
600	250	10	395	510	221.0	325406	-
600	250	16	395	510	220.0	325412	-
600	300	10	455	520	240.0	325298	-
600	300	16	455	520	239.0	325413	-
600	400	10	570	540	258.0	325211	-
600	400	16	570	540	263.0	325212	-
600	500	10	685	560	316.0	325299	-
600	500	16	685	560	331.0	325414	-
600	600	10	800	580	340.0	325213	-
600	600	16	800	580	366.0	325214	-
700	200	10	345	525	225.0	325215	-
700	200	16	345	525	366.0	325216	-
700	400	10	575	555	286.0	325301	-
700	400	16	575	555	292.7	325385	-
700	600	10	925	585	457.0	325302	-
700	600	16	925	585	481.0	325386	-
700	700	10	925	600	381.0	325219	-
700	700	16	925	600	396.0	325220	-

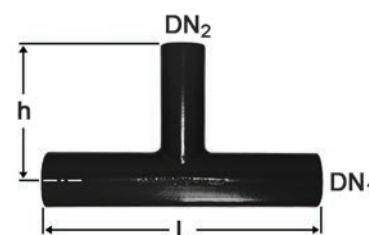

Tee-connector with 2 sockets and a screw branch
Fig. 2858

DN	G	L mm	h mm	weight kg	item-no.	NPK
100	2"	176	100	15.3	325370	234.819
125	2"	173	120	20.0	325371	234.821
150	2"	170	130	26.0	325372	234.822
200	2"	148	160	34.0	325373	234.823

Note: Fig. 2854 with 2" internal thread


Spigot Tee-connector (IT)
Fig. 2859

DN ₁	DN ₂	L mm	h mm	weight kg	item-no.	NPK
80	80	540	270	6.5	155324	234.418
100	100	550	275	14.1	155325	234.419
150	100	620	320	23.4	155326	234.542
150	150	620	320	24.3	155327	234.422
200	200	650	325	35.1	155323	234.423



Subject to alteration without notice

Pressure pipe with push-in socket

Taper with push-in joints vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

Single-chamber sockets

Pipes and fittings are supplied with a seal but without a thrust-resisting ring.



Taper with 2 sockets (MMR)

Fig. 2883

DN ₁	DN ₂	L mm	weight kg	item-no.	NPK
100	80	90	7.5	325267	236.519
125	80	140	9.9	325268	236.521
125	100	100	9.8	325269	236.541
150	80	190	12.3	325270	236.522
150	100	150	12.3	325271	236.542
150	125	100	12.6	325272	236.562
200	100	250	18.3	325273	236.543
200	125	200	18.7	325274	236.563
200	150	150	18.7	325275	236.583
250	125	300	26.3	325360	236.564
250	150	250	26.5	325276	236.584
250	200	150	25.8	325277	236.624
300	150	350	35.9	325278	236.585
300	200	250	35.7	325279	236.625
300	250	150	34.6	325280	236.645
350	200	360	47.8	325361	236.626
350	250	260	46.8	325362	236.646
350	300	160	45.1	325281	236.666
400	250	360	66.0	325363	236.647
400	300	260	64.0	325364	236.667
400	350	160	55.5	325366	-
500	300	500	95.2	325365	-
500	400	260	94.0	325282	-
600	400	460	142.0	325283	-
600	500	260	131.0	325284	-
700	600	280	180.3	325285	-



Pressure pipe with push-in socket
Add-in adapter, flange adapter (with push-in joint) vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

Single-chamber sockets

Pipes and fittings are supplied with a seal but without a thrust-resisting ring.


Slip-on sleeve with push-in sockets, (U)
Fig. 2870

DN	PN	L mm	weight kg	Item-no.	NPK
80	16	160	8.9	261050	235.718
100	16	160	10.8	261051	235.719
125	16	165	13.6	261052	235.721
150	16	165	16.7	261053	235.722
200	16	170	23.0	261054	235.723
250	16	175	31.5	261055	235.724
300	16	180	40.5	261056	235.725
350	16	185	51.0	261057	235.726
400	16	190	62.0	261058	235.727
500	16	200	90.0	261059	-
600	16	210	120.0	-	-


Flange – socket adapter, adjustable (EU)
Fig. 2877b

DN	PN bar	L mm	z mm	weight kg	item-no.	NPK
80	10,16,25,40	130	86 ± 40	9.9	325225	235.818
100	10,16	130	87 ± 40	9.1	325226	235.819
100	25,40	130	87 ± 40	10.7	325829	-
125	10,16	135	91 ± 40	12.4	325227	235.841
125	25,40	135	91 ± 40	13.2	325830	-
150	10,16	135	92 ± 40	15.2	325228	235.842
150	25	135	92 ± 40	15.9	325831	-
150	40	135	92 ± 40	18.1	325832	-
200	10	140	97 ± 40	21.3	325229	235.823
200	16	140	97 ± 40	21.8	325230	235.843
200	25	140	97 ± 40	23.0	325833	-
200	40	140	97 ± 40	26.5	325834	-
250	10	145	102 ± 40	29.8	325231	235.824
250	16	145	102 ± 40	29.8	325232	235.844
250	25	145	102 ± 40	33.7	325835	-
250	40	145	102 ± 40	40.7	325836	-
300	10	150	107 ± 40	36.2	325233	235.825
300	16	150	107 ± 40	36.2	325234	235.845
350	10	155	112 ± 40	45.5	325243	235.826
350	16	155	112 ± 40	48.5	325244	235.846
400	10	160	117 ± 40	52.1	325235	235.827
400	16	160	117 ± 40	59.0	325236	235.847



Subject to alteration without notice

Pressure pipe with push-in socket

Flange – socket adapter, adjustable (EU)

Fig. 2877b

DN	PN bar	L mm	z mm	weight kg	item-no.	NPK
500	10	170	127 ± 40	89.8	325237	-
500	16	170	127 ± 40	89.8	325238	-
600	10	180	137 ± 40	140.0	325239	-
600	16	180	137 ± 40	145.0	325240	-
700	10	190	147 ± 40	159.5	325241	-
700	16	190	147 ± 40	167.0	325242	-



z: Standard gauge for installation

Higher pressures on request

Flange – socket adapter (E)

Fig. 2888

DN	PN bar	L mm	weight kg	item-no.	NPK
80	25,40	130	11.9	-	-
80	63	130	13.4	-	-
100	25,40	130	15.2	328600	-
100	63	130	17.7	328601	-
125	25	135	19.4	328602	-
125	40	135	19.4	328603	-
125	63	135	24.3	328604	-
150	25	135	24.6	328605	-
150	40	135	24.6	328606	-
150	63	135	32.8	328607	-
200	25	140	34.7	328608	-
200	40	140	37.9	328609	-
200	63	140	53.1	328610	-
250	25	145	43.2	-	-
250	40	145	50.0	-	-
300	25	150	58.9	-	-
300	40	150	71.0	-	-
350	25	155	76.1	-	-
350	40	155	88.8	-	-
400	25	160	106.1	-	-
400	40	160	128.6	-	-
500	25	170	153.6	-	-
500	40	170	170.3	-	-
600	25	180	198.4	-	-



Higher pressures on request

Subject to alteration without notice

Pressure pipe with push-in socket

Flange – spigot adapter (F)

Fig. 2890

DN	PN bar	L mm	weight kg	item-no.	NPK
80	10,16,25,40	350	7.8	155340	237.318
100	10,16	360	9.7	155341	237.319
100	25,40	360	9.7	158611	-
100	63	360	9.7	158613	-
125	10,16	370	12.5	155342	237.341
125	25	370	12.5	158614	-
125	40	370	12.5	158615	-
125	63	370	12.5	158616	-
150	10,16	380	16.0	155343	237.342
150	25	380	16.0	158617	-
150	40	380	16.0	158618	-
150	63	380	16.0	158618	-
200	10	400	22.8	155344	237.323
200	16	400	23.0	155345	237.343
200	25	400	23.0	158620	-
200	40	400	23.0	158621	-
200	63	400	23.0	158622	-
250	10	420	32.0	155346	237.324
250	16	420	32.0	155347	237.344
300	10	440	43.0	155348	237.325
300	16	440	42.0	155349	237.345
350	10	460	52.3	155338	237.326
350	16	460	55.3	155339	237.346
400	10	480	65.0	155350	237.327
400	16	480	65.0	155351	237.347
500	10	520	95.0	155352	-
500	16	520	95.0	155353	-
600	10	560	135.0	155354	-
600	16	560	135.0	155355	-
700	10	600	183.0	155356	-
700	16	600	183.0	155357	-



HYDROTIGHT seals and thrust-resisting rings

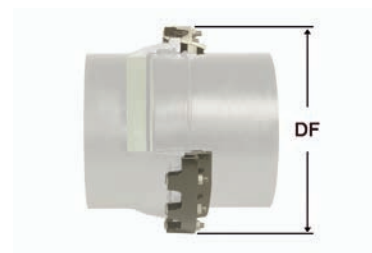
Pipes, fittings and slide gate valves can be connected to the pipe using a thrust-resisting ring (longitudinal positive locking).

Seals meet DIN 28603.

HYDROTIGHT thrust-resisting ring (external), with weld bead not electrically bridged

DN	Pipe-class	PFA bar	DF mm	Number of screws	weight kg	Item-no.	NPK
400	C40	25	595	16	47.1	201022	-
500	K9	25	710	16	58.6	201023	-
600	K9	25	833	20	92.3	262024	-
700	K9	25	962	24	145.5	262025	-

Fig. 2805



For permissible pressures for thrust-resisting rings, see page 7/1.5

External thrust-resisting ring for push-in socket joint with oblique collar

Push-in socket joint

HYDROTIGHT thrust-resisting ring (external), not electrically bridged

Fig. 2806

DN	Pipe-class	PFA bar	DF mm	Number of screws	weight kg	Item-no.	NPK
80	C100	40	235	3	4.7	262000	238.838
100	C100	40	256	3	5.1	262001	238.839
125	C64	40	287	3	5.7	262002	238.841
150	C64	40	310	4	6.9	262003	238.842
200	C64	16	325	3	8.9	262004	238.843
200	C64	40	325	6	10.1	262008	-
250	C50	16	421	4	13.9	262005	238.844
250	C50	40	421	8	15.5	262009	-
300	C50	16	479	5	19.6	262006	238.845
300	C50	40	479	10	21.6	262010	-
350	C40	16	534	5	25.5	262007	238.846
350	C40	25	534	10	27.5	262011	-
400	C40	16	595	14	39.1	262012	238.847
500	K9	10	710	16	59.0	262013	-
600	K9	10	826	24	80.0	-	-



Higher pressures on request

For permissible pressures for thrust-resisting rings, see page 7/1.5

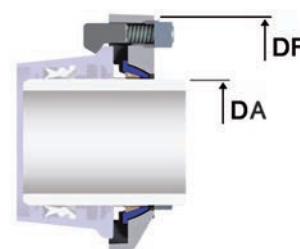
External thrust-resisting ring for push-in socket joint with oblique collar

Epoxy-coated thrust-resisting ring

Connection set for plastic pipes made from PE and PVC

Fig. 2808

DN	PFA bar	DA mm	DF mm	weight kg	item-no.	NPK
80	16	90	235	5.0	180584	238.838
100	16	110	256	5.5	180585	238.839
125	16	125	287	6.7	180586	238.841
125	16	140	287	5.9	180587	238.841
150	16	160	310	7.6	180588	238.842
200	16	200	325	13.0	180589	238.843
200	16	225	325	8.4	180590	238.843



External thrust-resisting ring for push-in socket joint with oblique collar

Subject to alteration without notice

Push-in socket joint
Seal with HYDROTIGHT thrust-resisting ring for water (internal)
Fig. 2504-1

DN	Pipe-class	PFA bar	weight kg	Item-no.	NPK
80	C100	16*	0.2	451999	238.618
100	C100	16*	0.2	452100	238.619
125	C64	16*	0.3	452101	238.621
150	C64	16*	0.3	452102	238.622
200	C64	16*	0.5	452103	238.623
250	C50	10	0.6	452104	238.624
300	C50	10	1.0	452105	238.625
350	C40	10	1.3	452106	238.626
400	C40	10	1.6	452107	238.627

* 10 bar for vonRoll ECOPUR pipes

Seal in accordance with DIN 28603


HYDROTIGHT thrust-resisting ring (internal) for double chamber, standard
Fig. 2807B

DN	Pipe-class	PFA bar	weight kg	Item-no.	NPK
80	C100	25	0.15	455450	238.518
100	C100	25	0.25	455451	238.519
125	C64	25	0.25	455452	238.521
150	C64	25	0.3	455453	238.522
200	C64	25	0.4	455454	238.523
250	C50	16	0.5	455455	238.524
300	C50	16	0.6	455456	238.525

For permissible pressures for thrust-resisting rings, see page 7/1.5.


HYDROTIGHT thrust-resisting ring (internal) for double chamber, for higher pressures (up to DN 300) and pipes with DN 350-500
Fig. 2807A

DN	Pipe-class	PFA bar	weight kg	Item-no.	NPK
80	C100	40	0.2	455440	238.518
100	C100	40	0.3	455441	238.519
125	C64	40	0.3	455442	238.521
150	C64	40	0.4	455443	238.522
200	C64	40	0.6	455444	238.523
250	C50	25	0.7	455445	238.524
300	C50	25	0.8	455446	238.525
350	C40	16	1.3	455435	238.526
400	C40	16	1.4	455447	238.527
500	K9	10	1.7	455448	-

For permissible pressures for thrust-resisting rings, see page 7/1.5.



Subject to alteration without notice

Push-in socket joint

HYDROTIGHT seal for water (EPDM)

Fig. 2810

DN	weight kg	item-no.	NPK
80	0.1	454976	238.118
100	0.1	454963	238.119
125	0.2	454964	238.121
150	0.2	454965	238.122
200	0.3	454966	238.123
250	0.5	454967	238.124
300	0.6	454968	238.125
350	0.8	454969	238.126
400	1.0	454970	238.127
500	1.6	451014	-
600	2.2	451015	-
700	3.1	451017	-



Seal for push-in socket joint for water, meets EN 681-1/in accordance with DIN 28603.

HYDROTIGHT seal for gas (NBR)

Fig. 2811

DN	weight kg	item-no.	NPK
80	0.1	454152	238.138
100	0.1	454153	238.139
125	0.2	454154	238.141
150	0.2	454155	238.142
200	0.3	454156	238.143
250	0.5	454157	238.144
300	0.6	454158	238.145
350	0.8	-	-
400	1.0	-	-
500	1.6	-	-
600	2.2	-	-
700	3.1	-	-



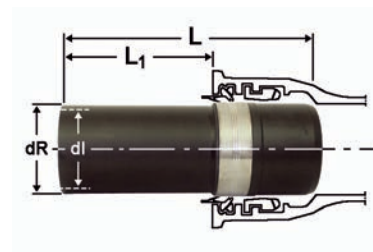
Seal for push-in socket joint for gas, meets EN 682/in accordance with DIN 28603.

Connecting pieces

PE-100 connecting piece (for use in water piping)

Fig. 5468

DN	dR mm	dI mm	L mm	L ₁ mm	weight kg	item-no.	NPK
80	90	73.6	286 ±3	170	1.5	95670	237.518
100	110	90	310 ±3	194	2.2	95671	237.519
100	125	102.2	330 ±3	214	2.6	95672	237.519
125	140	114.6	330 ±3	214	3.8	95673	237.521
150	160	130.8	354 ±5	234	4.8	95674	237.522
150	180	147.2	380 ±5	260	5.1	95675	237.522
200	200	163.6	395 ±5	270	8.0	95676	237.523
200	225	184	413 ±5	288	8.9	95677	237.523
200	250	204.6	395 ±5	270	8.6	95678	237.524



For use when making connections between slide-valves or piping components with push-in joints (double-chamber system) and plastic piping:
The push-in joint must be fitted with a thrust-resisting ring (Fig. 2807).

Accessories for push-in joint pipes

Fitting materials for push-in socket pipes

Lubricant

weight kg		item-no.	NPK
1.0	-	452522	-

Only lubricants and greases with certificate for contact with potable water must be used.

Please consult the technical data sheets of the producer and if available the national directives about the use, handling of the lubricants and greases.

Fig. 240



Neutrex T lubricant

weight g		item-no.	NPK
250	-	452533	-

Only lubricants and greases with certificate for contact with potable water must be used.

Please consult the technical data sheets of the producer and if available the national directives about the use, handling of the lubricants and greases.

Fig. 270



Scotchrap

B mm	length per roll m	weight kg	item-no.	NPK
50	30	0.5	452552	-

Fig. 300 - 2



DUCPUR PLUS corrosion-protecton film

DN	b mm	weight kg/m	item-no.	NPK
80	350	0.1	450532	281.118
100	350	0.1	450532	281.119
125	400	0.2	450533	281.121
150	500	0.2	450534	281.122
200	600	0.2	450535	281.123
250	700	0.3	450536	281.124
300	800	0.3	450537	281.125
350	800	0.3	450537	281.126
400	950	0.4	450538	281.127
500	1150	0.5	450539	-
600	1300	0.5	450540	-

Fig. 310 - 1



Accessories for push-in joint piping

Repair-set RESICOAT RS

RESICOAT RS is a ready-to-use, two-component solvent freeepoxy-repair material packed in the correct mixing ratio of 2:1.

Colour: blue



Fig. 284

Double-chamber cartridge

weight g	item-no.	NPK
100	451423	-



Dispenser

Fig. 285

weight g	item-no.	NPK
180	451224	-



Mixing tube

Fig. 286

weight g	item-no.	NPK
100	451425	-



Accessories for push-in joint piping

Complete set of pipe-laying equipment

Fig. 254 / 1-3

DN	weight kg	item-no.	NPK
400	56.8	201118	-
500	59.4	201121	-
600	62.7	201123	-
700	75.0	201125	-

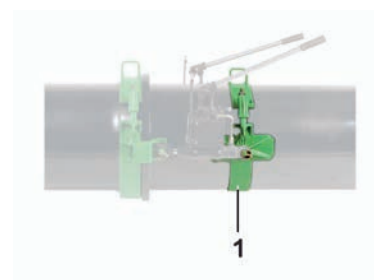
DN 300 on request



Spigot collar

Fig. 254 - 1

DN	weight kg	item-no.	NPK
400	12.6	451118	-
500	12.8	451121	-
600	14.0	451123	-
700	20.3	451125	-



Socket collar

Fig. 254 - 2

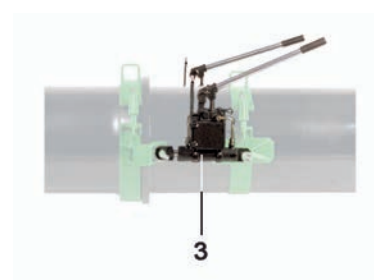
DN	weight kg	item-no.	NPK
400	15.0	451119	-
500	17.4	451122	-
600	19.5	451124	-
700	25.5	451126	-



Hydraulic unit (1 pair)

Fig. 254 - 3

DN	weight kg	item-no.	NPK
400 - 700	28.9	451120	-



Groove scraper

Fig. 293 - 4

DN	weight kg	item-no.	NPK
400	0.1	-	-
500 - 700	0.1	-	-



Checking rule

Fig. 293 - 5

DN	weight kg	item-no.	NPK
400 - 700	0.1	451048	-



Subject to alteration without notice

Accessories for push-in joint piping
Hammering accessory
Fig. 255 - 1

DN	weight kg	item-no.	NPK
80 - 100	0.7	456577	-
125 - 150	0.7	456578	-
200 - 300	0.7	456579	-
350 - 500	0.7	-	-
600 - 700	0.7	-	-


Dismantling leaf
Fig. 255 - 2

DN	No. required per operation Pcs	weight kg	item-no.	NPK
80	4	0.1	456581	-
100	5	0.1	456581	-
125	6	0.1	456581	-
150	7	0.1	456581	-
200	9	0.1	456581	-
250	12	0.1	456581	-
300	15	0.1	456581	-
350	16	0.1	456581	-
400	17	0.1	456581	-
500	20	0.1	456581	-
600	24	0.1	456581	-
700	27	0.1	456581	-


Set of assembly and laying tools, complete
Fig. 293 / 1-6

DN	weight kg	item-no.	NPK
80	18.7	201180	-
100	19.0	201181	-
125	19.2	201182	-
150	19.5	201183	-
200	20.5	201184	-
250	21.0	201185	-
300	22.5	201186	-
350	23.0	201187	-


Spigot collar
Fig. 293 - 1

DN	weight kg	item-no.	NPK
80	5.0	451180	-
100	5.5	451181	-
125	5.5	451182	-
150	5.5	451183	-
200	6.0	451184	-
250	6.0	451185	-
300	7.3	451186	-
350	7.5	451187	-

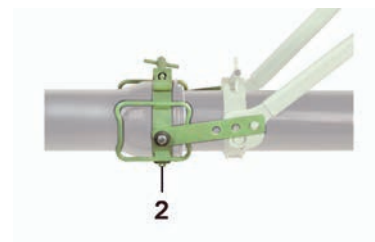


Accessories for push-in joint piping

Socket collar

Fig. 293 - 2

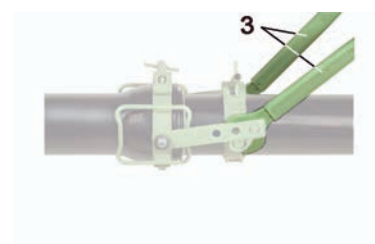
DN	weight kg	item-no.	NPK
80	5.0	451270	-
100	5.5	451271	-
125	5.7	451272	-
150	6.0	451273	-
200	6.4	451274	-
250	6.8	451275	-
300	7.1	451276	-
350	7.5	451277	-



Open-ended spanner (1 pair)

Fig. 293 - 3

DN	weight kg	item-no.	NPK
80 - 350	7.8	451106	-



Groove scraper

Fig. 293 - 4

DN	weight kg	item-no.	NPK
80 - 250	0.1	451050	-
300 - 400	0.1	451051	-



Checking rule

Fig. 293 - 5

DN	weight kg	item-no.	NPK
80 - 350	0.1	451048	-



Extensions for the installation of VS 5000 slide-valves

Fig. 293 - 6

DN	item-no.	NPK
80 - 200	451190	-



Accessories for push-in joint piping

Cordless screwdriver PIW 14.4SD

Fig. 294

weight kg		item-no.	NPK
2.10	Cordless screwdriver	451400	-
0.80	Spare battery	95938	-
0.56	Spare charger	451401	-

Technical data

14.4 Volt / 1.4-2.4 Ah

Idling speed 0-2200 rpm

Hammer 0-2500 blows/min

Torque 158 Nm

Weight - without battery pack 1.6 kg

Weight with battery pack 2.1 kg

Length 193 mm

Chuck 1/2" square

Standard scope of supply:

2x14.4 V/ 1.4 Ah NiCd flatpack battery pack

RCA 7224MB charger

ABS system case

M20 hexagonal socket-wrench insert



Plug for pressure testing

Fig. 2893

DN	L _{tot} mm	weight kg	item-no. G 1"	item-no. G 2"	NPK
80	250	4.6	452029	454130	-
100	250	5.7	452030	454131	-
125	300	9.1	452031	454132	-
150	300	12.2	452032	454133	-
200	350	20.4	452033	454134	-
250	350	31.3	452034	454135	-
300	400	44.6	452035	452190	-

Other DN on request



Cap for pressure testing

Fig. 2895

DN	L _{tot} mm	weight kg	item-no. G 1"	item-no. G 2"	NPK
80	144	5.6	202036	204110	278.138
100	145	7.2	202037	204111	278.139
125	153	10.3	202038	204112	278.141
150	161	14.0	202039	204113	278.142
200	166	21.8	202040	204114	278.143
250	171	34.0	202041	204115	278.144
300	170	45.8	202042	204116	278.145

Other DN on request



Subject to alteration without notice



Screwed sockets

3

3/1.1



Fig. 2317
Fig. 2318

3/2.1
Fig. 2320a.90



3/2.1
Fig. 2322a.45



3/2.1
Fig. 2323a.30



3/2.2
Fig. 2324a.22



3/2.2
Fig. 2325a.11



3/2.2
Fig. 2326a.5



3/3.1
Fig. 2320.90



3/3.1
Fig. 2322.45



3/3.1
Fig. 2323.30



3/3.2
Fig. 2324.22



3/3.2
Fig. 2325.11



3/3.2
Fig. 2326.5



3/4.1
Fig. 2350



3/4.1
Fig. 2353



3/4.2
Fig. 2354



3/4.2
Fig. 2356



3/4.3
Fig. 2357



3/4.3
Fig. 2377a



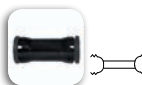
3/5.1
Fig. 2382



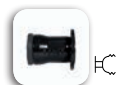
3/5.1
Fig. 2383



3/6.1
Fig. 2370



3/6.1
Fig. 2377b



3/6.2
Fig. 2389



3/6.2
Fig. 2470



3/6.2
Fig. 5571



3/7.1
Fig. 2392



3/7.1
Fig. 2393



3/7.2
Fig. 2395



3/8.1
Fig. 2306



3/9.1
Fig. 2310-1



3/9.1
Fig. 2310-2



3/9.2
Fig. 2310-3



3/9.2
Fig. 2310-4



3/9.2
Fig. 2310-G-4



3/9.3
Fig. 2310m4



3/9.3
Fig. 2311-1



3/9.4
Fig. 2398



3/9.4
Fig. 2399



3/10.1
Fig. 230



3/10.1
Fig. 2143



3/11.1
Fig. 240



3/11.1
Fig. 300-2



3/11.1
Fig. 310-1



vonRoll DUCPUR pressure pipes with screwed sockets

vonRoll DUCPUR pressure pipe with screwed socket

Centrifugally cast pressure pipe made from ductile cast iron with **PUR (polyurethane) internal coating and zinc-bitumen external coating.**

Minimal pressure losses thanks to hydraulically smooth wall, economical.

Application: Drinking water, soft and hard water, media with a pH of between 1 and 14.

SVGW approval for water and gas pipes.

Produced in accordance with ISO 2531 and EN 545 standards.

Pipe class K10.

Permissible system pressure for $\leq$ DN 200: 40 bar; for DN > 200: 25 bar.

Used with thrust-resisting ring in Fig. 2306.

Can be displaced up to 3° with thrust-resisting ring.

Version electrically bridged as standard.

Version not electrically bridged on request.

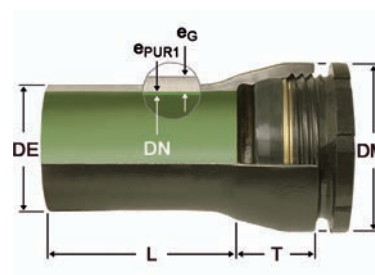
DN 350 and 400 on request.



Screwed-socket pipe

Fig. 2317

DN	L mm	DE mm	e _G mm	e _{PUR1} mm	DM mm	T mm	weight kg/m	item no.	NPK
80	6000	95	6.0	1.3	157	85	12.9	201493	211.118
100	6000	116	6.0	1.3	171	90	16.2	201497	211.119
125	6000	141	6.3	1.3	201	95	20.3	201501	211.121
150	6000	168	6.5	1.3	228	100	25.5	201504	211.122
200	6000	220	7.0	1.5	285	105	36.3	201507	211.123
250	6000	273	7.5	1.5	341	105	48.5	201510	211.124
300	6000	324	8.0	1.5	395	105	61.5	201513	211.125

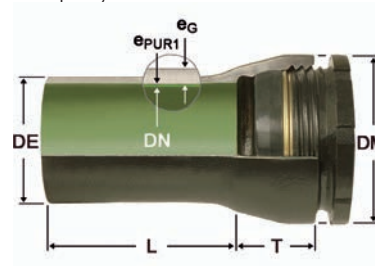


Screwed-socket pipe (short)

Fig. 2318

DN	L mm	DE mm	e _G mm	e _{PUR1} mm	DM mm	T mm	weight kg/m	item no.	NPK
40*	525	52	9.0	-	110	75	6.8	202391	227.135
50*	520	63	9.0	-	123	78	8.1	202392	227.136
65*	515	84	9.0	-	145	83	11.0	202393	227.137
80	1000	95	7.0	1.3	157	85	21.2	205353	227.158
100	1000	116	7.2	1.3	180	90	25.0	205354	227.159
125	1000	141	7.5	1.3	201	95	31.9	205355	227.161
150	1000	168	7.8	1.3	238	100	40.4	205356	227.162
200	1000	220	8.4	1.5	285	105	52.0	205357	227.163
250	1000	273	9.0	1.5	341	105	78.5	205358	227.164
300	1000	324	9.6	1.5	395	105	88.0	205359	227.165

in accordance with
company standard



* Internal and external bitumen coating

Fittings with screwed sockets

vonRoll DUCPUR elbows with screwed sockets

Ductile cast-iron fittings (EN-GJS) in accordance with DIN EN 545.

Coatings: Bitumen (external) and PUR (internal).

Standard version electrically bridged.

Version not electrically bridged on request.

Delivery includes the fitting with a set of screws (incl. seals).

DN 350 and 400 on request.



90° elbow, 2 screwed sockets (MMQ)

Fig. 2320a.90

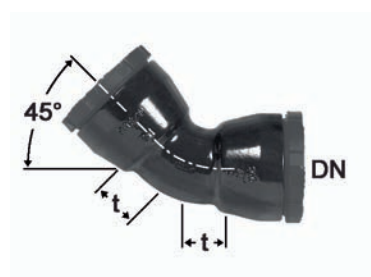
DN	t mm	weight kg	item no.	NPK
80	170	18.7	205888	221.318
100	120	14.8	205890	221.319
125	145	20.4	205891	221.321
150	170	27.0	205892	221.322
200	245	69.9	205893	221.323
250	280	95.0	205894	221.324
300	330	72.0	205895	221.325



45° elbow, 2 screwed sockets (MMK 45)

Fig. 2322a.45

DN	t mm	weight kg	item no.	NPK
80	160	18.7	205913	221.358
100	65	13.3	205914	221.359
125	75	18.5	205915	221.361
150	85	23.2	205916	221.362
200	110	65.5	205917	221.363
250	240	91.5	205918	221.364
300	275	99.5	205919	221.365



30° elbow, 2 screwed sockets (MMK 30)

Fig. 2323a.30

DN	t mm	weight kg	item no.	NPK
80	120	17.4	205937	221.378
100	130	23.7	205938	221.379
125	135	30.9	205939	221.381
150	145	40.0	205940	221.382
200	165	59.7	205941	221.383
250	185	86.5	205942	221.384
300	110	72.6	205943	221.385

in accordance with
company standard



Fittings with screwed sockets

22° elbow, 2 screwed sockets (MMK 22)

Fig. 2324a.22

DN	t mm	weight kg	item no.	NPK
80	100	16.9	205961	221.418
100	40	12.7	205962	221.419
125	50	17.4	205963	221.421
150	55	22.1	205964	221.422
200	135	57.0	205965	221.423
250	150	81.4	205966	221.424
300	165	114.8	205967	221.425



11° elbow, 2 screwed sockets (MMK 11)

Fig. 2325a.11

DN	t mm	weight kg	item no.	NPK
80	75	16.2	205993	221.438
100	30	12.3	205994	221.439
125	35	16.7	205995	221.441
150	35	20.9	205996	221.442
200	95	52.2	205997	221.443
250	50	80.5	205998	221.444
300	55	81.0	205999	221.445



5° elbow, 2 screwed sockets (MMK 5)

Fig. 2326a.5

DN	t mm	weight kg	item no.	NPK
100	75	21.0	206018	221.459
125	80	28.0	206019	221.461
150	85	35.5	206020	221.462
200	95	52.4	206021	221.463
250	105	81.0	206022	221.464
300	115	78.0	206023	221.465

in accordance with
company standard



Fittings with screwed sockets

vonRoll DUCPUR elbows with screwed sockets and spigot ends

Ductile cast-iron fittings (EN-GJS) in accordance with DIN EN 545.

Coatings: Bitumen (external) and PUR (internal).

Standard version electrically bridged.

Version not electrically bridged on request.

Delivery includes the fitting with a set of screws (incl. seals).

DN 350 and 400 on request.



90° elbow, screwed socket and spigot end (MQ)

DN	t mm	t ₁ mm	weight kg	item no.	NPK
80	102	312	10.7	205876	221.118
100	200	365	18.5	205877	221.119
125	225	395	26.3	205878	221.121
150	250	420	35.0	205879	221.122
200	300	510	56.5	205880	221.123
250	350	570	92.0	205881	221.124
300	400	635	132.0	205882	221.125

Fig. 2320.90

in accordance with
company standard

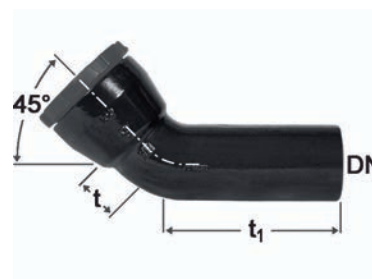


45° elbow, screwed socket and spigot end (MK 45)

DN	t mm	t ₁ mm	weight kg	item no.	NPK
80	55	265	9.7	205901	221.158
100	170	330	20.3	205902	221.159
125	190	350	25.4	205903	221.161
150	200	360	34.0	205904	221.162
200	220	430	55.0	205905	221.163
250	250	470	78.5	205906	221.164
300	275	510	116.5	205907	221.165

Fig. 2322.45

in accordance with
company standard

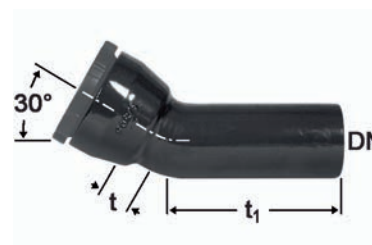


30° elbow, screwed socket and spigot end (MK 30)

DN	t mm	t ₁ mm	weight kg	item no.	NPK
80	120	280	13.1	205925	221.178
100	130	295	18.3	205926	221.179
125	135	305	23.1	205927	221.181
150	145	315	30.7	205928	221.182
200	165	375	48.0	205929	221.183
250	185	405	69.0	205930	221.184
300	200	435	44.0	205931	221.185

Fig. 2323.30

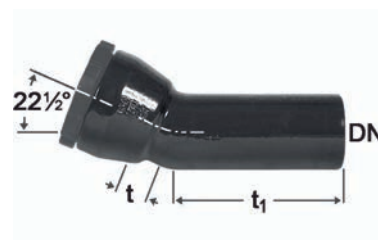
in accordance with
company standard



Fittings with screwed sockets
22° elbow, screwed socket and spigot end (MK 22)
Fig. 2324.22

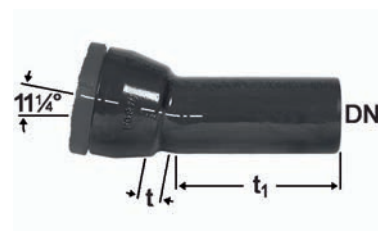
DN	t mm	t ₁ mm	weight kg	item no.	NPK
80	100	260	12.2	205949	221.218
100	105	270	16.4	205950	221.219
125	115	285	22.2	205951	221.221
150	120	290	28.9	205952	221.222
200	135	345	44.5	205953	221.223
250	150	370	67.5	205954	221.224
300	165	400	94.5	205955	221.225

in accordance with
company standard


11° elbow, screwed socket and spigot end (MK 11)
Fig. 2325.11

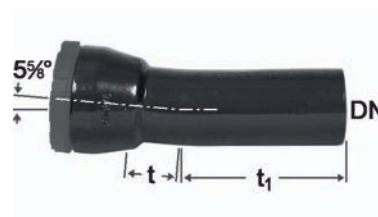
DN	t mm	t ₁ mm	weight kg	item no.	NPK
80	75	235	11.4	205973	221.238
100	75	240	15.1	205974	221.239
125	80	250	20.2	205975	221.241
150	85	255	26.2	205976	221.242
200	95	305	41.1	205977	221.243
250	103	325	57.0	205978	221.244
300	115	350	59.0	205979	221.245

in accordance with
company standard


5° elbow, screwed socket and spigot end (MK 5)
Fig. 2326.5

DN	t mm	t ₁ mm	weight kg	item no.	NPK
80	75	235	11.5	206005	221.258
100	75	240	14.8	206006	221.259
125	80	250	20.6	206007	221.261
150	85	255	26.1	206008	221.262
200	95	305	41.0	206009	221.263
250	105	325	58.2	206010	221.264
300	115	350	61.9	206011	221.265

in accordance with
company standard



Fittings with screwed sockets

Screwed sockets – vonRoll DUCPUR fittings (1 outlet)

Ductile cast-iron fittings (EN-GJS) in accordance with DIN EN 545.

Coatings: Bitumen (external) and PUR (internal).

Standard version electrically bridged.

Version not electrically bridged on request.

Delivery includes the fitting with a set of screws (incl. seals).

DN 350 and 400 on request.



T-screwed socket with socket/spigot end and screwed-socket branch (B)

DN ₁	DN ₂	L mm	A mm	h mm	weight kg	item no.	NPK
80	80	470	110	110	22.6	206029	222.118
100	100	500	120	120	23.7	206033	222.119
125	100	550	137.5	135	38.1	206037	222.241
125	125	550	137.5	140	42.0	206038	222.121
150	100	600	155	145	47.0	206042	222.242
150	150	600	155	155	55.0	206043	222.122
200	100	700	190	170	70.5	206044	222.243

Fig. 2350

in accordance with
company standard

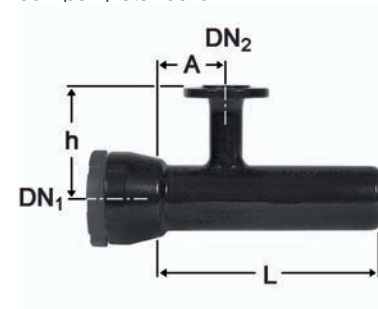


T-screwed socket with socket/spigot end and flanged branch (A)

DN ₁	DN ₂	PN bar	L mm	A mm	h mm	weight kg	item no.	NPK
80	80	10,16,25,40	470	110	180	20.9	206026	223.118
100	40	10,16,25,40	500	120	170	23.0	206063	223.139
100	100	10,16	500	120	200	27.6	206064	223.119
125	40	10,16,25,40	550	137.5	180	38.6	206065	223.141
125	100	10,16	550	137.5	210	35.9	206066	223.241
125	125	10,16	550	137.5	210	37.4	206067	223.121
150	100	10,16	600	155	225	44.6	206069	223.242
150	150	10,16	600	155	230	49.5	206070	223.122
200	100	10,16	700	190	250	67.0	206071	223.243
200	200	10	600	240	300	52.6	206072	223.123
200	200	16	700	190	250	76.2	206085	-

Fig. 2353

in accordance with
company standard



Bride percée selon DIN EN 1092
partie 2

Fittings with screwed sockets
T UNIVERSAL (UA) screwed sockets
Fig. 2354

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item no.	NPK
100	50	10,16,25,40	176	100	17.3	206094	224.159
100	80	10,16,25,40	176	100	19.1	206095	224.219
100	100	10,16	176	100	20.1	206097	224.119
125	50	10,16,25,40	173	110	22.1	206098	224.161
125	80	10,16,25,40	173	110	24.0	206099	224.221
125	100	10,16	173	110	24.7	206100	224.241
125	125	10,16	177	110	27.1	206101	224.121
150	50	10,16,25,40	170	120	25.3	206102	224.162
150	80	10,16,25,40	174	120	27.7	206103	224.222
150	100	10,16	170	120	27.8	206104	224.242
150	125	10,16	210	120	30.7	206105	224.262
150	150	10,16	210	120	33.9	206106	224.122
200	50	10,16,25,40	148	145	36.9	206107	224.163
200	80	10,16,25,40	163	145	37.1	206108	224.223
200	100	10,16	163	145	38.1	206109	224.243
200	125	10,16	283	145	41.5	206110	224.263
200	150	10,16	283	145	46.5	206111	224.283
200	200	10	283	145	49.5	206112	224.123

in accordance with
company standard



Flange in accordance with DIN EN
1092 Part 2, drilled

T-screwed socket with 3 sockets (MMB)
Fig. 2356

DN ₁	DN ₂	L mm	h mm	weight kg	item no.	NPK
80	80	220	110	25.4	206117	222.418
100	100	240	120	34.1	206119	222.419
125	100	275	135	41.7	206121	222.541
125	125	275	140	46.0	206122	222.421
150	100	310	145	52.0	206124	222.542
150	150	310	155	60.0	206125	222.422
200	100	200	145	70.0	206126	222.543
200	200	380	190	91.1	206127	222.423
250	100	200	170	107.0	206128	222.544
250	250	450	225	133.1	206130	222.424
300	300	435	220	158.0	206133	222.425



Fittings with screwed sockets

T-screwed socket with 2 sockets and flanged branch (MMA)

Fig. 2357

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item no.	NPK
80	80	10,16,25,40	220	180	23.7	206143	223.418
250	100	10,16	200	270	54.4	206147	223.544
250	250	10	450	300	125.4	206149	223.424
250	250	16	375	300	77.4	206160	-
300	100	10,16	520	300	101.3	206150	223.545
300	300	10	435	340	105.6	206152	223.425
300	300	16	435	340	126.0	206162	-



Flange in accordance with DIN EN 1092 Part 2, drilled

T-screwed socket installation loop with flanged branch

Fig. 2377a

DN ₁	DN ₂	PN bar	L mm	A mm	h mm	weight kg	item no.	NPK
80	80	10,16,25,40	215	140	190	22.7	206232	225.418
100	100	10,16	240	150	195	20.1	206235	225.419
125	100	10,16	265	160	210	25.2	206238	225.541
125	125	10,16	265	160	215	27.0	206239	225.421
150	100	10,16	260	155	225	29.3	206242	225.542
150	150	10,16	260	155	235	32.7	206243	225.422
200	100	10	295	180	270	61.6	206244	225.543
200	100	16	295	180	270	61.6	207303	-
200	150	10	295	180	270	61.7	206245	225.583
200	150	16	295	180	270	61.7	207304	-
250	100	10	295	180	295	79.7	206246	225.544
250	100	16	295	180	295	79.7	207305	-
250	150	10	295	180	295	85.7	206247	225.584
250	150	16	295	180	295	85.7	207306	-
300	100	10	295	190	325	96.8	206248	225.545
300	100	16	295	190	325	96.8	207307	-
300	150	10	295	190	325	101.8	206249	225.585
300	150	16	295	190	325	101.8	207308	-

in accordance with
company standard



Flange in accordance with DIN EN 1092 Part 2, drilled

Fittings with screwed sockets
vonRoll DUCPUR screwed-socket pipe reducers

Ductile cast-iron fittings (EN-GJS) in accordance with DIN EN 545.

Coatings: Bitumen (external) and PUR (internal).

Standard version electrically bridged.

Version not electrically bridged on request.

Delivery includes the fitting with a set of screws (incl. seals).

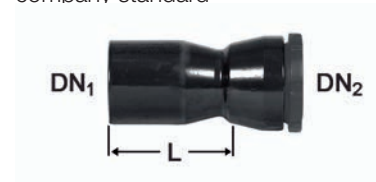
DN 350 and 400 on request.


Screwed-socket pipe reducer with socket/spigot end (R)

DN ₁	DN ₂	L mm	weight kg	item no.	NPK
100	80	240	8.2	206292	226.219
125	100	240	10.6	206297	226.241
150	100	240	11.5	206300	226.242
150	125	240	14.0	206301	226.262
200	150	240	18.1	206304	226.283
350	300	700	130.0	206319	-
400	350	700	150.0	206324	-

Fig. 2382

in accordance with
company standard


Screwed-socket pipe reducer with 2 sockets (MMR)

DN ₁	DN ₂	L mm	weight kg	item no.	NPK
125	80	140	14.7	323274	226.521
125	100	100	15.2	323275	226.541
150	100	250	25.8	323279	226.543
200	125	200	27.6	323280	226.563
200	150	150	28.2	323281	226.583
300*	200	250	50.4	323283	226.625

Fig. 2383


*** Discontinued item – only available while stocks last**

Fittings with screwed sockets

vonRoll DUCPUR installation loop, flange adapter (screwed sockets)

Ductile cast-iron fittings (EN-GJS) in accordance with DIN EN 545.

Coatings: Bitumen (external) and PUR (internal).

Standard version electrically bridged.

Version not electrically bridged on request.

Delivery includes the fitting with a set of screws (incl. seals).

DN 350 and 400 on request.



Screwed-socket loop (U)

Fig. 2370

DN	L mm	weight kg	item no.	NPK
40	155	6.4	201918	225.715
50	155	7.2	201919	225.716
65	155	9.9	201920	225.717
80	155	10.7	206184	225.718
100	155	14.0	206185	225.719
125	165	18.2	206187	225.721
150	165	23.3	206188	225.722
200	170	34.5	206189	225.723
250	180	45.5	206190	225.724
300	180	59.5	206191	225.725
350	185	84.5	206192	225.726
400	190	95.0	206193	225.727



Flange/screwed-socket piece, push-on (EU)

Fig. 2377b

DN	PN bar	L mm	z mm	weight kg	item no.	NPK
80	10,16,25,40	215	86 ± 40	10.5	206257	225.818
100	10,16	240	87 ± 40	14.4	206258	225.819
125	10,16	265	91 ± 40	19.5	206259	225.841
150	10,16	265	92 ± 40	23.9	206260	225.842
200	10	140	97 ± 40	29.2	206115	225.823
200	16	140	97 ± 40	29.2	206623	225.843
250	10	145	102 ± 40	37.5	206262	225.824
250	16	145	102 ± 40	37.5	206624	225.844
300	10	295	107 ± 40	92.5	206263	225.825
300	16	150	107 ± 40	92.5	206625	225.845
350	10	310	112 ± 40	102.0	206262	225.826
350	16	310	112 ± 40	101.0	206624	225.846
400	10	305	117 ± 40	122.0	206263	225.827
400	16	605	117 ± 40	121.0	206625	225.847



Flange in accordance with
DIN EN 1092 Part 2, drilled

z: Standard gauge for installation

Subject to alteration without notice

Fittings with screwed sockets

Screwed-socket riser

DN	L mm	weight kg	item no.	NPK
100	300	11.0	206342	227.119
125	300	14.6	206343	227.121
150	300	18.5	206344	227.122
200	350	30.0	206345	227.123

Fig. 2389

in accordance with
company standard



Bolted gland, U

DN	L mm	weight kg	item no.	NPK
500	200	107.0	-	-
600	210	145.0	-	-
700	220	190.0	-	-

Fig. 2470



Double elbow with socket and spigot end

DN	H mm	weight kg	item no.	NPK
125	200	20.5	-	858.121
125	300	23.0	-	858.122

Fig. 5571



Fittings with screwed sockets

vonRoll DUCPUR wear parts and connecting pieces for screwed-socket joints

Ductile cast-iron fittings (EN-GJS) in accordance with DIN EN 545.

Coatings: Bitumen (external) and PUR (internal).

Standard version electrically bridged.

Version not electrically bridged on request.

Delivery includes the fitting with a set of screws (incl. seals).

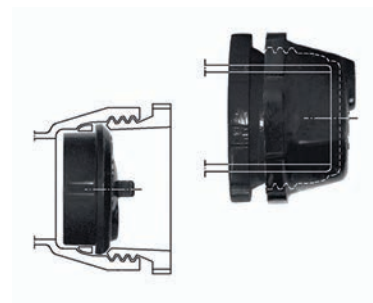


Fig. 2392

Threaded connecting piece for screwed-socket joint

DN	G	L mm	weight kg	item no.	NPK
40	1 1/4"	125	0.9	452207	227.515
50	1 1/4"	125	1.2	452208	227.516
50	1 1/2"	125	1.2	452209	227.536
65	1 1/2"	150	2.0	452210	227.537
65	2"	150	2.0	452211	227.557
80	1 1/2"	150	2.4	452212	227.538
80	2"	150	2.5	452213	227.558
100	2"	160	3.2	452215	227.559
100	3"	160	3.3	452216	227.619
125	2"	160	4.3	452217	227.561
125	3"	160	4.3	452218	227.621

in accordance with
company standard

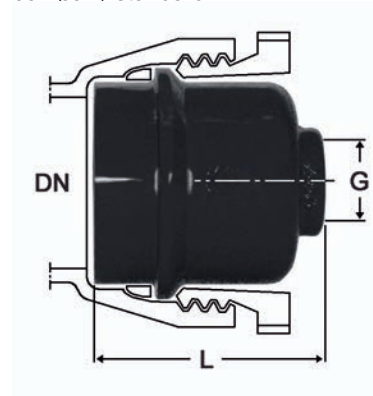


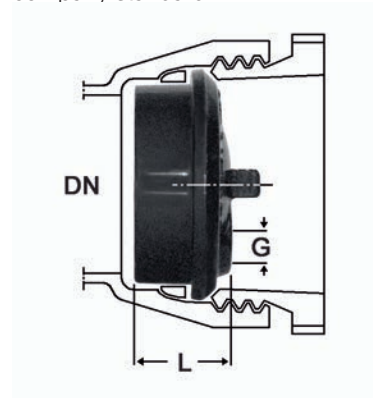
Fig. 2393

Closing plug for screwed-socket joint

DN	G	L mm	weight kg	item no.	NPK
80	1/2"	56	2.0	452222	227.718
100	1/2"	56	2.3	452223	227.719
125	1"	70	3.0	452224	227.721
150	1 1/4"	82	4.2	452225	227.722
200	2"	84	6.2	452226	227.723

Without thread on request

in accordance with
company standard

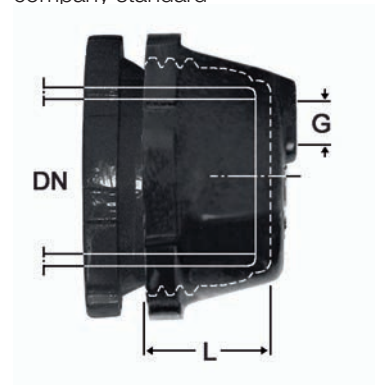


Fittings with screwed sockets
Screwed-socket sealing cap
Fig. 2395

DN	G	L mm	weight kg	item no.	NPK
40	1 1/4"	75	3.7	202231	227.815
50	1 1/4"	78	4.3	202232	227.816
65	1 1/4"	83	5.4	202233	227.817
80	1 1/4"	85	6.0	202234	227.818
100	1 1/4"	90	8.2	202235	227.819
125	1 1/2"	95	11.0	202236	227.821
150	1 1/2"	100	14.5	202237	227.822
200	2"	105	22.7	202238	227.823
250	2"	105	38.5	202239	227.824
300	2"	105	51.5	202240	227.825

Delivery with threaded ring, seal, back-up ring and contact ring
 DN 350, 400 on request

in accordance with
 company standard



Screwed-socket joint

Thrust-resisting rings

Pipes, fittings and slide gate valves can be connected to the pipe using a thrust-resisting ring.

Complete SUBA short thrust-resisting ring

Fig. 2306

DN	Clamping range mm	Tightening torque Nm	weight kg	item no.	NPK
40	51-53	75	0.82	451809	228.815
50	62-64	75	1.02	451810	228.816
65/70	82-85	75	1.42	451811	228.817
80	94-96	100	1.52	451812	228.818
100	114-116	125	1.86	451813	228.819
125	140-143	150	1.66	451814	228.821
150	166-169	180	3.04	451815	228.822
200	218-222	200	4.86	451816	228.823
250	268-273	230	9.84	451817	228.824
300	322-325	230	14.64	451818	228.825



Screwed-socket joint
Connecting pieces and seals

Short threaded ring
Fig. 2310-1

DN	weight kg	item no.	NPK
40	0.9	153000	228.235
50	1.0	153001	228.236
65	1.3	153002	228.237
80	1.4	153003	228.238
100	1.8	153004	228.239
125	2.4	153005	228.241
150	3.1	153006	228.242
200	4.7	153007	228.243
250	7.2	153008	228.244
300	9.6	153009	228.245
350	13.5	452412	228.246
400	14.5	452413	228.247


Contact ring diameter profile
Fig. 2310-2

DN	weight kg	item no.	NPK
40	0.04	452414	228.375
50	0.05	452415	228.376
65	0.09	452416	228.377
80	0.12	452417	228.378
100	0.15	452418	228.379
125	0.18	452419	228.381
150	0.22	452420	228.382
200	0.44	452421	228.383
250	0.54	452422	228.384
300	0.62	452423	228.385
350	0.76	452424	228.386
400	0.85	452425	228.387

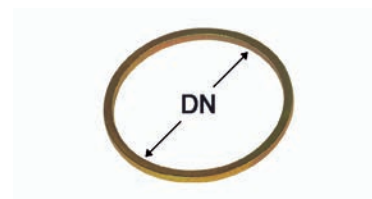


Screwed-socket joint

Back-up ring □ profile

Fig. 2310-3

DN	weight kg	item no.	NPK
40	0.05	452426	228.335
50	0.06	452427	228.336
65	0.07	452428	228.337
80	0.11	452429	228.338
100	0.13	452430	228.339
125	0.18	452431	228.341
150	0.19	452432	228.342
200	0.44	452433	228.343
250	0.70	452434	228.344
300	0.80	452435	228.345
350	0.94	452436	228.346
400	1.50	452437	228.347



Seal for water

Fig. 2310-4

DN	weight kg	item no.	NPK
40	0.1	452438	228.255
50	0.1	452439	228.256
65	0.1	452440	228.257
80	0.1	452441	228.258
100	0.2	452442	228.259
125	0.2	452443	228.261
150	0.2	452444	228.262
200	0.4	452445	228.263
250	0.5	452446	228.264
300	0.6	452447	228.265
350	0.8	452448	228.266
400	1.0	452449	228.267



Seal for gas

Fig. 2310-G-4

DN	weight kg	item no.	NPK
40	0.1	452367	228.255
50	0.1	452368	228.256
65	0.1	452369	228.257
80	0.1	452450	228.258
100	0.2	452451	228.259
125	0.2	452452	228.261
150	0.2	452453	228.262
200	0.4	452454	228.263
250	0.5	452455	228.264
300	0.6	452456	228.265



Screwed-socket joint
Sealing ring, pressed out
Fig. 2310m4

DN	weight kg	item no.	NPK
40	0.1	457285	-
50	0.1	457286	-
60	0.1	457287	-
70	0.1	457288	-
75	0.1	457289	-
80	0.1	457290	-
100	0.2	457291	-
125	0.2	457292	-
150	0.2	457293	-
175	0.3	457294	-
200	0.4	457295	-
250	0.5	457296	-
300	0.6	457297	-
350	0.8	457298	-
400	1.0	457299	-


Long threaded ring
Fig. 2311-1

DN	weight kg	item no.	NPK
80	1.4	153016	228.238
100	1.9	153017	228.239
125	2.7	153018	228.241
150	3.2	153019	228.242
200	4.5	153020	228.243
250	6.3	153021	228.244
300	8.1	153022	228.245
350	10.5	452484	228.246
400	12.7	452485	228.247



Screwed-socket joint

PE 100 transition piece

Fig. 2398

DN	d mm	weight kg	item no.	NPK
32	40	0.26	701 485 463	425.213
40	50	0.27	701 485 464	425.214
50	63	0.41	701 485 465	425.215
65(70)	75	0.71	701 485 466	425.216
80	90	1.00	701 485 467	425.217
100	110	2.27	701 485 468	425.218
125	125	2.45	701 485 470	425.219
125	140	2.14	701 485 471	425.221
150	160	3.05	701 485 474	425.222
200	200	5.56	701 485 476	425.224



On cast-iron screwed sockets – with slide ring and back-up ring

PE 100 transition piece

Fig. 2399

DN	d mm	weight kg	item no.	NPK
100	125	4.65	701 485 469	425.219
100	160	4.99	701 485 472	425.222
125	160	7.46	701 485 473	425.222
150	180	8.90	701 485 475	425.223
200	225	13.30	701 485 477	425.225



On vonRoll cast-iron screwed sockets – with slide ring and back-up ring incl. prefitted threaded ring

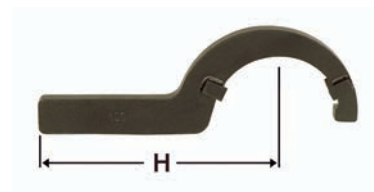
Accessories for screwed-socket pipes

Fitting aids and tools for screwed sockets

Hook spanner

Fig. 230

DN	H mm	weight kg	item no.	NPK
40	265	2.2	452510	-
50	270	2.3	452511	-
65	290	2.6	452512	-
80	305	3.3	452513	-
100	325	3.5	452514	-
125	350	3.8	452515	-
150	370	4.9	452516	-
200	420	6.5	452517	-
250	470	7.8	452518	-
300	520	13.4	452519	-
350	560	15.3	452520	-
400	600	18.8	452521	-



Wooden lifter

Fig. 2143

DN	weight kg	item no.	NPK
40-65	0.2	455229	-
80-100	0.3	455243	-
125-150	0.3	455244	-
200-300	0.4	455230	-
350-400	0.4	455245	-



Accessories for screwed-socket pipes

Fitting materials for screwed-socket pipes

Lubricant

Fig. 240

weight kg		item no.	NPK
1.0	-	452522	-

Only lubricants and greases with certificate for contact with potable water must be used.

Please consult the technical data sheets of the producer and if available the national directives about the use, handling of the lubricants and greases.



Scotchrap tape

Fig. 300 - 2

b mm	Length per roll m	weight kg	item no.	NPK
50	30	0.5	452552	-

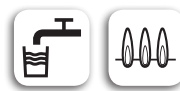


DUCPUR PLUS corrosion-protection film

Fig. 310 - 1

DN	b mm	weight kg/m	item no.	NPK
80	350	0.1	450532	281.118
100	350	0.1	450532	281.119
125	400	0.2	450533	281.121
150	500	0.2	450534	281.122
200	600	0.2	450535	281.123
250	700	0.3	450536	281.124
300	800	0.3	450537	281.125
350	800	0.3	450537	281.126
400	950	0.4	450538	281.127
500	1150	0.5	450539	-
600	1300	0.5	450540	-





Flanges

4/1.1 - 4/1.11



Fig. 2019

4/1.12



Fig. 2020

4/2.1
Fig. 2030a.90



4/2.2
Fig. 2030.90



4/2.3
Fig. 2032.45



4/2.4
Fig. 2033.30



4/2.5
Fig. 2035.22



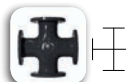
4/2.6
Fig. 2036.11



4/3.1 - 4/3.2
Fig. 2040



4/3.3
Fig. 2045



4/4.1 - 4/4.2
Fig. 2084



4/4.3
Fig. 2085



4/4.3
Fig. 2085



4/5.1
Fig. 2098



4/5.1
Fig. 2099



4/6.1
Fig. 2007.10



4/6.1
Fig. 2007.16



4/6.2
Fig. 2008.10



4/6.2
Fig. 2008.16



4/6.3
Fig. 2010.10



4/6.3
Fig. 2010.16



Pressure pipe with flange vonRoll DUCPUR

Pressure pipe with flange(s) vonRoll DUCPUR

Made of ductile cast iron using the centrifugal castig process with **PUR (polyurethan) internal lining, outer side zinc sprayed and coated with bitumen.**

Minimal pressure loss thanks to hydraulically smooth surface, economic.

Application: Drinking water, soft and aggressive water as well as media with pH-values between 1 and 14.

SVGW certification for water and gas pipelines.

Manufactured to ISO 2531 and EN 545 standards.

Pipe-class K12; flanges according to EN 1092-2 (screwed on and bonded).

PN > 16 bar on request.

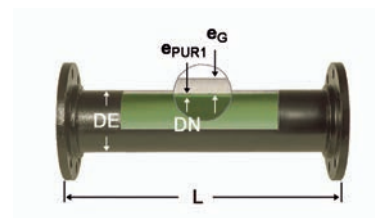
Version in vonRoll ECOPUR or with undercoat in Aluchrom on request.



Pipe with 2 threaded flanges DN 80

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PUR1} mm	weight kg	item-no.	NPK
80	10	200	98	7	1.3	10.9	453192	241.118
80	10	300	98	7	1.3	12.4	456868	241.138
80	10	400	98	7	1.3	13.9	456869	241.158
80	10	500	98	7	1.3	15.4	456870	241.178
80	10	600	98	7	1.3	16.8	453193	241.218
80	10	700	98	7	1.3	18.3	453194	241.238
80	10	800	98	7	1.3	19.8	453195	241.258
80	10	1000	98	7	1.3	22.7	453197	241.278
80	10	1500	98	7	1.3	30.1	453199	241.318
80	10	2000	98	7	1.3	37.4	453201	241.338
80	10	3000	98	7	1.3	52.1	453205	241.358
80	10	4000	98	7	1.3	66.8	453208	241.378
80	16	200	98	7	1.3	10.9	453192	245.118
80	16	300	98	7	1.3	12.4	456868	245.138
80	16	400	98	7	1.3	13.9	456869	245.158
80	16	500	98	7	1.3	15.4	456870	245.178
80	16	600	98	7	1.3	16.8	453193	245.218
80	16	700	98	7	1.3	18.3	453194	245.238
80	16	800	98	7	1.3	19.8	453195	245.258
80	16	1000	98	7	1.3	22.7	453197	245.278
80	16	1500	98	7	1.3	30.1	453199	245.318
80	16	2000	98	7	1.3	37.4	453201	245.338
80	16	3000	98	7	1.3	52.1	453205	245.358
80	16	4000	98	7	1.3	66.8	453208	245.378



Flange with boreholes according to DIN EN 1092 part 2

Overall length (L):

Tolerance without any special instruction ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 80 - 5900 mm on request

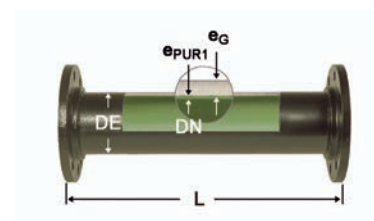
Subject to alteration without notice

**Pressure pipe with flanges
vonRoll DUCPUR**

Pipe with 2 threaded flanges DN 100

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
100	10	200	118	7.2	1.3	12.7	453209	241.119
100	10	300	118	7.2	1.3	14.5	456879	241.139
100	10	400	118	7.2	1.3	16.4	456880	241.159
100	10	500	118	7.2	1.3	18.2	456881	241.179
100	10	600	118	7.2	1.3	20.0	453210	241.219
100	10	700	118	7.2	1.3	21.9	453211	241.239
100	10	800	118	7.2	1.3	23.7	453212	241.259
100	10	1000	118	7.2	1.3	27.4	453214	241.279
100	10	1500	118	7.2	1.3	36.6	453216	241.319
100	10	2000	118	7.2	1.3	45.8	453218	241.339
100	10	3000	118	7.2	1.3	64.2	453222	241.359
100	10	4000	118	7.2	1.3	82.6	453225	241.379
100	16	200	118	7.2	1.3	12.7	453209	245.119
100	16	300	118	7.2	1.3	14.5	456879	245.139
100	16	400	118	7.2	1.3	16.4	456880	245.159
100	16	500	118	7.2	1.3	18.2	456881	245.179
100	16	600	118	7.2	1.3	20.0	453210	245.219
100	16	700	118	7.2	1.3	21.9	453211	245.239
100	16	800	118	7.2	1.3	23.7	453212	245.259
100	16	1000	118	7.2	1.3	27.4	453214	245.279
100	16	1500	118	7.2	1.3	36.6	453216	245.319
100	16	2000	118	7.2	1.3	45.8	453218	245.339
100	16	3000	118	7.2	1.3	64.2	453222	245.359
100	16	4000	118	7.2	1.3	82.6	453225	245.379



Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

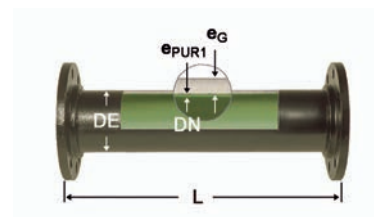
Overall length (L): 80 - 5900 mm on request

**Pressure pipe with flanges
vonRoll DUCPUR**

Pipe with 2 threaded flanges DN 125

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
125	10	200	144	7.5	1.3	16.7	453226	241.121
125	10	300	144	7.5	1.3	19.1	456891	241.141
125	10	400	144	7.5	1.3	21.4	456892	241.161
125	10	500	144	7.5	1.3	23.8	456893	241.181
125	10	600	144	7.5	1.3	26.2	453227	241.221
125	10	700	144	7.5	1.3	28.5	453228	241.241
125	10	800	144	7.5	1.3	30.9	453229	241.261
125	10	1000	144	7.5	1.3	35.6	453231	241.281
125	10	1500	144	7.5	1.3	47.4	453233	241.321
125	10	2000	144	7.5	1.3	59.2	453235	241.341
125	10	3000	144	7.5	1.3	82.8	453239	241.361
125	10	4000	144	7.5	1.3	106.4	453242	241.381
125	16	200	144	7.5	1.3	16.7	453226	245.121
125	16	300	144	7.5	1.3	19.1	456891	245.141
125	16	400	144	7.5	1.3	21.4	456892	245.161
125	16	500	144	7.5	1.3	23.8	456893	245.181
125	16	600	144	7.5	1.3	26.2	453227	245.221
125	16	700	144	7.5	1.3	28.5	453228	245.241
125	16	800	144	7.5	1.3	30.9	453229	245.261
125	16	1000	144	7.5	1.3	35.6	453231	245.281
125	16	1500	144	7.5	1.3	47.4	453233	245.321
125	16	2000	144	7.5	1.3	59.2	453235	245.341
125	16	3000	144	7.5	1.3	82.8	453239	245.361
125	16	4000	144	7.5	1.3	106.4	453242	245.381



Flang with boreholes according to
DIN EN 1092 part 2

Overall length (L):

Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 100 - 5900 mm on request

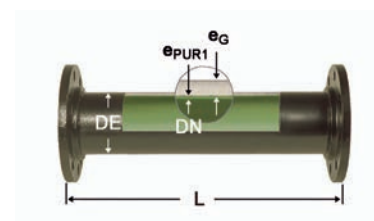
Subject to alteration without notice

**Pressure pipe with flanges
vonRoll DUCPUR**

Pipe with 2 threaded flanges DN 150

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
150	10	200	170	7.8	1.3	19.8	453243	241.122
150	10	300	170	7.8	1.3	22.7	456903	241.142
150	10	400	170	7.8	1.3	25.6	456905	241.162
150	10	500	170	7.8	1.3	28.5	456906	241.182
150	10	600	170	7.8	1.3	31.4	453244	241.222
150	10	700	170	7.8	1.3	34.3	453245	241.242
150	10	800	170	7.8	1.3	37.2	453246	241.262
150	10	1000	170	7.8	1.3	43.0	453248	241.282
150	10	1500	170	7.8	1.3	57.5	453250	241.322
150	10	2000	170	7.8	1.3	72.0	453252	241.342
150	10	3000	170	7.8	1.3	101.0	453256	241.362
150	10	4000	170	7.8	1.3	130.0	453259	241.382
150	16	200	170	7.8	1.3	19.8	453243	245.122
150	16	300	170	7.8	1.3	22.7	456903	245.142
150	16	400	170	7.8	1.3	25.6	456905	245.162
150	16	500	170	7.8	1.3	28.5	456906	245.182
150	16	600	170	7.8	1.3	31.4	453244	245.222
150	16	700	170	7.8	1.3	34.3	453245	245.242
150	16	800	170	7.8	1.3	37.2	453246	245.262
150	16	1000	170	7.8	1.3	43.0	453248	245.282
150	16	1500	170	7.8	1.3	57.5	453250	245.322
150	16	2000	170	7.8	1.3	72.0	453252	245.342
150	16	3000	170	7.8	1.3	101.0	453256	245.362
150	16	4000	170	7.8	1.3	130.0	453259	245.382



Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

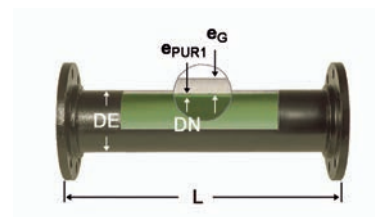
Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 100 - 5900 mm on request

**Pressure pipe with flanges
vonRoll DUCPUR**
Pipe with 2 threaded flanges DN 200
Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
200	10	200	222	8.4	1.5	29.3	453260	241.123
200	10	300	222	8.4	1.5	33.4	456915	241.143
200	10	400	222	8.4	1.5	37.5	456916	241.163
200	10	500	222	8.4	1.5	41.7	456917	241.183
200	10	600	222	8.4	1.5	45.8	453261	241.223
200	10	700	222	8.4	1.5	49.9	453262	241.243
200	10	800	222	8.4	1.5	54.0	453263	241.263
200	10	1000	222	8.4	1.5	62.3	453265	241.283
200	10	1500	222	8.4	1.5	83.0	453267	241.323
200	10	2000	222	8.4	1.5	103.6	453269	241.343
200	10	3000	222	8.4	1.5	144.9	453273	241.363
200	10	4000	222	8.4	1.5	186.2	453276	241.383
200	16	200	222	8.4	1.5	29.3	453390	245.123
200	16	300	222	8.4	1.5	33.4	-	245.143
200	16	400	222	8.4	1.5	37.5	-	245.163
200	16	500	222	8.4	1.5	41.7	-	245.183
200	16	600	222	8.4	1.5	45.8	453391	245.223
200	16	700	222	8.4	1.5	49.9	453392	245.243
200	16	800	222	8.4	1.5	54.0	453393	245.263
200	16	1000	222	8.4	1.5	62.3	453395	245.283
200	16	1500	222	8.4	1.5	83.0	453397	245.323
200	16	2000	222	8.4	1.5	103.6	453399	245.343
200	16	3000	222	8.4	1.5	144.9	453403	245.363
200	16	4000	222	8.4	1.5	186.2	453406	245.383


 Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

 Tolerance without any special instructions ± 5 mm

 Tolerance on special order ± 1 mm

Overall length (L): 150 - 5900 mm on request

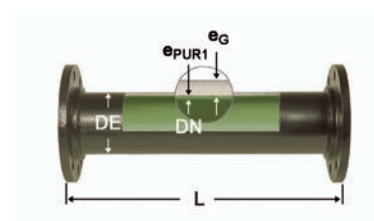
Subject to alteration without notice

**Pressure pipe with flanges
vonRoll DUCPUR**

Pipe with 2 threaded flanges DN 250

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
250	10	200	274	9	1.5	37.0	453277	241.124
250	10	300	274	9	1.5	42.4	456926	241.144
250	10	400	274	9	1.5	47.9	456928	241.164
250	10	500	274	9	1.5	53.4	456929	241.184
250	10	600	274	9	1.5	58.9	453278	241.224
250	10	700	274	9	1.5	64.4	453279	241.244
250	10	800	274	9	1.5	69.8	453280	241.264
250	10	1000	274	9	1.5	80.8	453282	241.284
250	10	1500	274	9	1.5	108.2	453284	241.324
250	10	2000	274	9	1.5	135.6	453286	241.344
250	10	3000	274	9	1.5	190.4	453290	241.364
250	10	4000	274	9	1.5	245.2	453293	241.384
250	16	200	274	9	1.5	37.0	453407	245.124
250	16	300	274	9	1.5	42.4	-	245.144
250	16	400	274	9	1.5	47.9	-	245.164
250	16	500	274	9	1.5	53.4	-	245.184
250	16	600	274	9	1.5	58.9	453408	245.224
250	16	700	274	9	1.5	64.4	453409	245.244
250	16	800	274	9	1.5	69.8	453410	245.264
250	16	1000	274	9	1.5	80.8	453414	245.284
250	16	1500	274	9	1.5	108.2	453416	245.324
250	16	2000	274	9	1.5	135.6	453420	245.344
250	16	3000	274	9	1.5	190.4	453423	245.364
250	16	4000	274	9	1.5	245.2	453424	245.384



Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

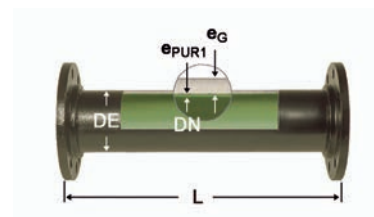
Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 150 - 5900 mm on request

**Pressure pipe with flanges
vonRoll DUCPUR**
Pipe with 2 threaded flanges DN 300
Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
300	10	200	326	9.6	1.5	47.9	453294	241.125
300	10	300	326	9.6	1.5	54.9	-	241.145
300	10	400	326	9.6	1.5	61.8	-	241.165
300	10	500	326	9.6	1.5	68.8	456936	241.185
300	10	600	326	9.6	1.5	75.8	453295	241.225
300	10	700	326	9.6	1.5	82.7	453296	241.245
300	10	800	326	9.6	1.5	89.7	453297	241.265
300	10	1000	326	9.6	1.5	103.6	453299	241.285
300	10	1500	326	9.6	1.5	138.4	453301	241.325
300	10	2000	326	9.6	1.5	173.2	453303	241.345
300	10	3000	326	9.6	1.5	242.8	453306	241.365
300	10	4000	326	9.6	1.5	312.4	453309	241.385
300	16	200	326	9.6	1.5	47.9	453424	245.125
300	16	300	326	9.6	1.5	54.9	-	245.145
300	16	400	326	9.6	1.5	61.8	-	245.165
300	16	500	326	9.6	1.5	68.8	-	245.185
300	16	600	326	9.6	1.5	75.8	453425	245.225
300	16	700	326	9.6	1.5	82.7	453426	245.245
300	16	800	326	9.6	1.5	89.7	453427	245.265
300	16	1000	326	9.6	1.5	103.6	453429	245.285
300	16	1500	326	9.6	1.5	138.4	453431	245.325
300	16	2000	326	9.6	1.5	173.2	453433	245.345
300	16	3000	326	9.6	1.5	242.8	453437	245.365
300	16	4000	326	9.6	1.5	312.4	453440	245.385


 Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

 Tolerance without any special instructions ± 5 mm

 Tolerance on special order ± 1 mm

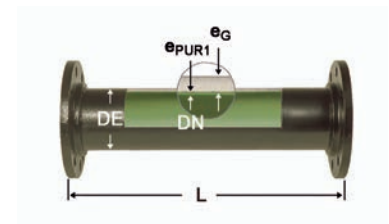
Overall length (L): 150 - 5900 mm on request

**Pressure pipe with flanges
vonRoll DUCPUR**

Pipe with 2 threaded flanges DN 350

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	NPK
350	10	200	378	10.2	1.5	61.2	241.126
350	10	300	378	10.2	1.5	69.7	241.146
350	10	400	378	10.2	1.5	78.3	241.166
350	10	500	378	10.2	1.5	86.9	241.186
350	10	600	378	10.2	1.5	95.5	241.226
350	10	700	378	10.2	1.5	104.1	241.246
350	10	800	378	10.2	1.5	112.6	241.266
350	10	1000	378	10.2	1.5	129.8	241.286
350	10	1500	378	10.2	1.5	172.7	241.326
350	10	2000	378	10.2	1.5	215.6	241.346
350	10	3000	378	10.2	1.5	301.4	241.366
350	10	4000	378	10.2	1.5	387.2	241.386
350	16	200	378	10.2	1.5	61.2	245.126
350	16	300	378	10.2	1.5	69.7	245.146
350	16	400	378	10.2	1.5	78.3	245.166
350	16	500	378	10.2	1.5	86.9	245.186
350	16	600	378	10.2	1.5	95.5	245.226
350	16	700	378	10.2	1.5	104.1	245.246
350	16	800	378	10.2	1.5	112.6	245.266
350	16	1000	378	10.2	1.5	129.8	245.286
350	16	1500	378	10.2	1.5	172.7	245.326
350	16	2000	378	10.2	1.5	215.6	245.346
350	16	3000	378	10.2	1.5	301.4	245.366
350	16	4000	378	10.2	1.5	387.2	245.386



Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

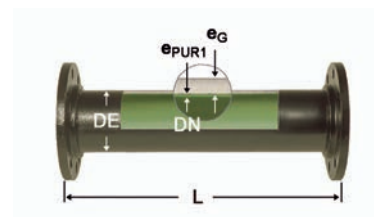
Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 200 - 5900 mm on request

**Pressure pipe with flanges
vonRoll DUCPUR**
Pipe with 2 threaded flanges DN 400
Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	NPK
400	10	200	429	10.8	1.5	70.6	241.127
400	10	300	429	10.8	1.5	80.9	241.147
400	10	400	429	10.8	1.5	91.2	241.167
400	10	500	429	10.8	1.5	101.6	241.187
400	10	600	429	10.8	1.5	111.9	241.227
400	10	700	429	10.8	1.5	122.2	241.247
400	10	800	429	10.8	1.5	132.5	241.267
400	10	1000	429	10.8	1.5	153.1	241.287
400	10	1500	429	10.8	1.5	204.7	241.327
400	10	2000	429	10.8	1.5	256.2	241.347
400	10	3000	429	10.8	1.5	359.3	241.367
400	10	4000	429	10.8	1.5	462.4	241.387
400	16	200	429	10.8	1.5	70.6	245.127
400	16	300	429	10.8	1.5	80.9	245.147
400	16	400	429	10.8	1.5	91.2	245.167
400	16	500	429	10.8	1.5	101.6	245.187
400	16	600	429	10.8	1.5	111.9	245.227
400	16	700	429	10.8	1.5	122.2	245.247
400	16	800	429	10.8	1.5	132.5	245.267
400	16	1000	429	10.8	1.5	153.1	245.287
400	16	1500	429	10.8	1.5	204.7	245.327
400	16	2000	429	10.8	1.5	256.2	245.347
400	16	3000	429	10.8	1.5	359.3	245.367
400	16	4000	429	10.8	1.5	462.4	245.387


 Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

 Tolerance without any special instructions ± 5 mm

 Tolerance on special order ± 1 mm

Overall length (L): 150 - 5900 mm on request

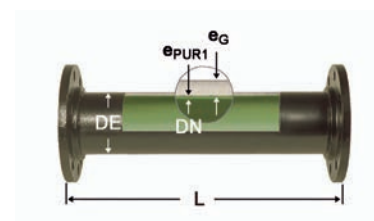
Subject to alteration without notice

**Pressure pipe with flanges
vonRoll DUCPUR**

Pipe with 2 threaded flanges DN 500

Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	NPK
500	10	200	532	12	1.5	106.4	-
500	10	300	532	12	1.5	120.6	-
500	10	400	532	12	1.5	134.8	-
500	10	500	532	12	1.5	149.1	-
500	10	600	532	12	1.5	163.3	-
500	10	700	532	12	1.5	177.5	-
500	10	800	532	12	1.5	191.7	-
500	10	1000	532	12	1.5	220.1	-
500	10	1500	532	12	1.5	291.2	-
500	10	2000	532	12	1.5	362.2	-
500	10	3000	532	12	1.5	504.3	-
500	10	4000	532	12	1.5	646.4	-
500	16	200	532	12	1.5	106.4	-
500	16	300	532	12	1.5	120.6	-
500	16	400	532	12	1.5	134.8	-
500	16	500	532	12	1.5	149.1	-
500	16	600	532	12	1.5	163.3	-
500	16	700	532	12	1.5	177.5	-
500	16	800	532	12	1.5	191.7	-
500	16	1000	532	12	1.5	220.1	-
500	16	1500	532	12	1.5	291.2	-
500	16	2000	532	12	1.5	362.2	-
500	16	3000	532	12	1.5	504.3	-
500	16	4000	532	12	1.5	646.4	-



Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

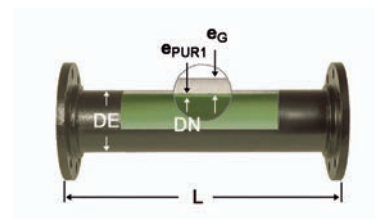
Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 200 - 5900 mm on request

**Pressure pipe with flanges
vonRoll DUCPUR**
Pipe with 2 threaded flanges DN 600
Fig. 2019

DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	NPK
600	10	200	635	13.2	1.5	137.3	-
600	10	300	635	13.2	1.5	156.0	-
600	10	400	635	13.2	1.5	174.6	-
600	10	500	635	13.2	1.5	193.3	-
600	10	600	635	13.2	1.5	211.9	-
600	10	700	635	13.2	1.5	230.6	-
600	10	800	635	13.2	1.5	249.2	-
600	10	1000	635	13.2	1.5	286.5	-
600	10	1500	635	13.2	1.5	379.8	-
600	10	2000	635	13.2	1.5	473.0	-
600	10	3000	635	13.2	1.5	659.5	-
600	10	4000	635	13.2	1.5	846.0	-
600	16	200	635	13.2	1.5	137.3	-
600	16	300	635	13.2	1.5	156.0	-
600	16	400	635	13.2	1.5	174.6	-
600	16	500	635	13.2	1.5	193.3	-
600	16	600	635	13.2	1.5	211.9	-
600	16	700	635	13.2	1.5	230.6	-
600	16	800	635	13.2	1.5	249.2	-
600	16	1000	635	13.2	1.5	286.5	-
600	16	1500	635	13.2	1.5	379.8	-
600	16	2000	635	13.2	1.5	473.0	-
600	16	3000	635	13.2	1.5	659.5	-
600	16	4000	635	13.2	1.5	846.0	-


 Flange with boreholes according to
DIN EN 1092 part 2

Overall length (L):

 Tolerance without any special instructions ± 5 mm

 Tolerance on special order ± 1 mm

Overall length (L): 200 - 5900 mm on request

Subject to alteration without notice

Pressure pipe with flanges vonRoll DUCPUR

Pipe with one threaded flange

Fig. 2020

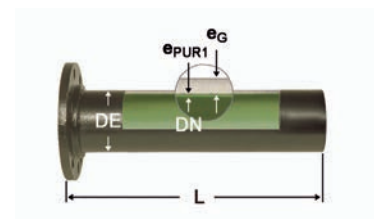
DN	PN bar	L mm	DE mm	e _G mm	e _{PIR1} mm	weight kg	item-no.	NPK
80	10	1000	98	7	1.3	18.7	453925	241.578
80	16	1000	98	7	1.3	18.7	453925	245.578
100	10	1000	118	7.2	1.3	22.9	453942	241.579
100	16	1000	118	7.2	1.3	22.9	453942	245.579
125	10	1000	144	7.5	1.3	29.6	453959	241.581
125	16	1000	144	7.5	1.3	29.6	453959	245.581
150	10	1000	170	7.8	1.3	36.0	453976	241.582
150	16	1000	170	7.8	1.3	36.0	453976	245.582
200	10	1000	222	8.4	1.5	51.8	453993	241.583
200	16	1000	222	8.4	1.5	51.8	-	245.583
250	10	1000	274	9	1.5	67.8	454010	241.584
250	16	1000	274	9	1.5	67.8	-	245.584
300	10	1000	326	9.6	1.5	86.6	454027	241.585
300	16	1000	326	9.6	1.5	86.6	-	245.585
350	10	1000	378	10.2	1.5	85.8	-	241.586
350	16	1000	378	10.2	1.5	85.8	-	245.586
400	10	1000	429	10.8	1.5	128.1	-	241.587
400	16	1000	429	10.8	1.5	128.1	-	245.587
500	10	1000	532	12	1.5	181.1	-	-
500	16	1000	532	12	1.5	181.1	-	-
600	10	1000	635	13.2	1.5	236.5	-	-
600	16	1000	635	13.2	1.5	236.5	-	-

Overall length (L):

Tolerance without any special instructions ± 5 mm

Tolerance on special order ± 1 mm

Overall length (L): 80 - 5900 mm on request



Flange with boreholes according to
DIN EN 1092 part 2

Wall flange

DN	weight kg	item-no.	NPK
80	4.0	-	278.318
100	4.5	-	278.319
125	6.0	-	278.321
150	7.0	-	278.322
200	10.5	-	278.323
250	13.0	-	278.324
300	17.0	-	278.325



Large DN on request

Subject to alteration without notice

Adapter fittings with flanges
Bends with flange vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to DIN EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

PN > 16 bar on request.


90°-bend with foot, 2 flanges (N)
Fig. 2030a.90

DN	PN bar	t mm	h mm	c mm	weight kg	item-no.	NPK
80	10	165	110	180	13.0	150022	242.418
80	16	165	110	180	13.2	150022	246.418
100	10	180	125	200	16.9	150023	242.419
100	16	180	125	200	16.9	150023	246.419
125	10	200	140	225	22.1	150024	242.421
125	16	200	140	225	22.1	150024	246.421
150	10	220	160	250	28.8	150025	242.422
150	16	220	160	250	28.8	150025	246.422
200	10	260	190	300	46.2	150026	242.423
200	16	260	190	300	45.2	150027	246.423
250	10	350	225	350	73.5	150028	242.424
250	16	350	225	350	72.5	150029	246.424
300	10	400	255	400	103.9	150030	242.425
300	16	400	255	400	102.9	150031	246.425
350	10	450	290	450	137.0	455579	242.426
350	16	450	290	450	142.0	456760	246.426
400	10	500	320	500	176.4	150032	242.427
400	16	500	320	500	186.4	150033	246.427
500	10	600	385	600	281.0	150034	-
500	16	600	385	600	311.0	150035	-
600	10	700	450	700	425.0	150036	-
600	16	700	450	700	478.0	150037	-



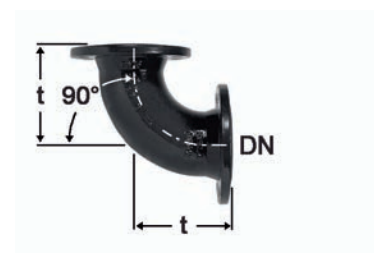
Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges

90°-bend, 2 flanges (Q)

Fig. 2030.90

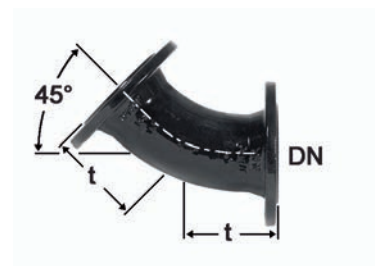
DN	PN bar	t mm	weight kg	item-no.	NPK
80	10	165	9.5	150000	242.218
80	16	165	9.7	150000	246.218
100	10	180	12.0	150001	242.219
100	16	180	12.0	150001	246.219
125	10	200	15.6	150002	242.221
125	16	200	15.6	150002	246.221
150	10	220	19.8	150003	242.222
150	16	220	19.8	150003	246.222
200	10	260	31.2	150004	242.223
200	16	260	30.2	150005	246.223
250	10	350	50.0	150006	242.224
250	16	350	49.0	150007	246.224
300	10	400	69.9	150008	242.225
300	16	400	68.9	150009	246.225
350	10	450	90.5	112133	242.226
350	16	450	96.0	112142	246.226
400	10	500	114.5	150010	242.227
400	16	500	125.5	150011	246.227
500	10	600	179.0	150012	-
500	16	600	209.0	150013	-
600	10	700	269.0	150014	-
600	16	700	322.0	150015	-
700	10	800	381.5	150016	-
700	16	800	411.5	150017	-



Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges
45°-bend, 2 flanges (FFK 45)
Fig. 2032.45

DN		t mm	weight kg	item-no.	NPK
80	10	130	9.2	150044	242.258
80	16	130	9.2	150044	246.258
100	10	140	11.3	150045	242.259
100	16	140	11.3	150045	246.259
125	10	150	14.5	150046	242.261
125	16	150	14.5	150046	246.261
150	10	160	18.4	150047	242.262
150	16	160	18.4	150047	246.262
200	10	180	27.5	150048	242.263
200	16	180	27.0	150049	246.263
250	10	350	54.5	150050	242.264
250	16	350	54.0	150051	246.264
300	10	400	77.2	150052	242.265
300	16	400	76.2	150053	246.265
350	10	298	77.0	112173	242.266
350	16	298	82.5	112182	246.266
400	10	324	94.4	150054	242.267
400	16	324	106.4	150055	246.267
500	10	375	143.5	150056	-
500	16	375	173.5	150057	-
600	10	426	210.0	150058	-
600	16	426	263.0	150059	-
700	10	478	292.5	150060	-
700	16	478	322.5	150061	-


 Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges

30°-bend, 2 flanges (FFK 30)

Fig. 2033.30

DN	PN bar	t mm	weight kg	item-no.	NPK
80	10	130	9.5	150067	242.278
80	16	130	9.5	150067	246.278
100	10	140	11.9	150068	242.279
100	16	140	11.9	150068	246.279
125	10	150	15.3	150069	242.281
125	16	150	15.3	150069	246.281
150	10	160	19.5	150070	242.282
150	16	160	19.5	150070	246.282
200	10	180	29.0	150071	242.283
200	16	180	27.5	150072	246.283
250	10	210	41.5	150073	242.284
250	16	210	40.5	150074	246.284
300	10	255	59.5	150075	242.285
300	16	255	59.0	150076	246.285
350	10	165	57.0	112273	242.286
350	16	165	62.5	112282	246.286
400	10	183	73.0	150077	242.287
400	16	183	82.5	150078	246.287
500	10	220	109.0	150079	-
500	16	220	137.0	150080	-
600	10	309	212.0	150081	-
600	16	309	257.0	150082	-
700	10	346	360.0	150083	-
700	16	346	386.0	150084	-



Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges
22°-bend, 2 flanges (FFK 22)
Fig. 2035.22

DN	PN bar	t mm	weight kg	item-no.	NPK
80	10	130	9.5	150089	242.318
80	16	130	9.5	150089	246.318
100	10	140	11.9	150090	242.319
100	16	140	11.9	150090	246.319
125	10	150	15.3	150091	242.321
125	16	150	15.3	150091	246.321
150	10	160	19.7	150092	242.322
150	16	160	19.7	150092	246.322
200	10	180	29.0	150093	242.323
200	16	180	27.5	150094	246.323
250	10	210	41.5	150095	242.324
250	16	210	41.0	150096	246.324
300	10	255	60.0	150097	242.325
300	16	255	59.0	150098	246.325
350	10	140	53.0	112543	242.326
350	16	140	58.5	112644	246.326
400	10	153	67.0	150099	242.327
400	16	153	75.5	150100	246.327
500	10	185	99.0	150101	-
500	16	185	127.0	150102	-
600	10	254	182.0	150103	-
600	16	254	227.0	150104	-
700	10	284	313.0	150105	-
700	16	284	339.0	150106	-

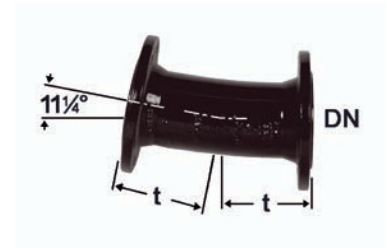

 Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges

11°-bend, 2 flanges (FFK 11)

Fig. 2036.11

DN	PN bar	t mm	weight kg	item-no.	NPK
80	10	130	9.5	150110	242.338
80	16	130	9.5	150110	246.378
100	10	140	11.9	150111	242.339
100	16	140	11.9	150111	246.379
125	10	150	15.3	150112	242.341
125	16	150	15.3	150112	246.381
150	10	160	19.0	150113	242.342
150	16	160	19.0	150113	246.382
200	10	180	26.0	150114	242.343
200	16	180	25.0	150115	246.383
250	10	210	41.5	150116	242.344
250	16	210	41.0	150117	246.384
300	10	255	60.0	150118	242.345
300	16	255	59.5	150119	246.385
350	10	105	47.5	112558	242.346
350	16	105	53.0	112653	246.386
400	10	113	58.0	150120	242.347
400	16	113	67.5	150121	246.387
500	10	135	85.0	150122	-
500	16	135	113.0	150123	-
600	10	174	157.0	150124	-
600	16	174	202.0	150125	-
700	10	194	243.0	150126	-
700	16	194	269.0	150127	-



Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges
Flanged adapter fittings (with 1 or 2 branches) vonRoll ECOFIT

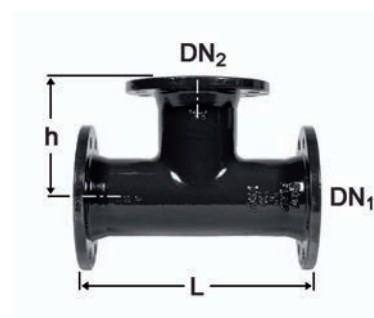
Adapter fittings made of ductile cast iron (EN-GJS) to DIN EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

PN > 16 bar on request.


Flange-Tee (T)
Fig. 2040

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item-no.	NPK
80	80	10	330	165	15.3	150132	243.118
80	80	16	330	165	15.6	150132	247.118
100	50	10	360	170	17.1	150133	243.159
100	50	16	360	170	17.1	150133	247.159
100	65	10	360	170	19.0	150134	243.179
100	65	16	360	170	19.0	150134	247.179
100	80	10	360	175	18.3	150135	243.219
100	80	16	360	175	18.4	150135	247.219
100	100	10	360	180	19.0	150136	243.119
100	100	16	360	180	19.0	150136	247.119
125	80	10	400	190	22.8	150137	243.221
125	80	16	400	190	22.8	150137	247.221
125	100	10	400	195	23.8	150138	243.241
125	100	16	400	195	23.8	150138	247.241
125	125	10	400	200	25.2	150139	243.121
125	125	16	400	200	25.2	150139	247.121
150	50	10	440	200	30.5	150140	243.162
150	50	16	440	200	30.5	150140	247.162
150	80	10	440	205	28.5	150141	243.222
150	80	16	440	205	28.5	150141	247.222
150	100	10	440	210	29.4	150142	243.242
150	100	16	440	210	29.4	150142	247.242
150	125	10	440	215	30.9	150143	243.262
150	125	16	440	215	30.9	150143	247.262
150	150	10	440	220	32.3	150144	243.122
150	150	16	440	220	32.3	150144	247.122
200	100	10	520	240	43.1	150145	243.243
200	100	16	520	240	42.6	150146	247.243
200	125	10	520	245	51.0	150147	243.263
200	125	16	520	245	51.0	150148	247.263
200	150	10	520	250	46.0	150149	243.283
200	150	16	520	250	45.5	150150	247.283
200	200	10	520	260	49.5	150151	243.123
200	200	16	520	260	48.5	150152	247.123
250	100	10	700	275	67.6	150153	243.244
250	100	16	700	275	66.6	150154	247.244
250	150	10	700	300	81.0	150155	243.284
250	150	16	700	300	80.0	150156	247.284



Flange with boreholes according to
DIN EN 1092 part 2

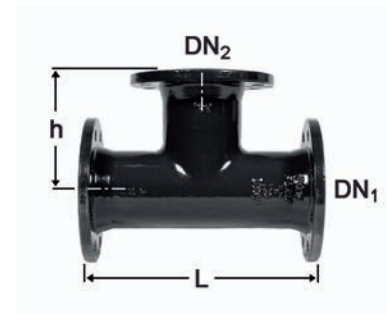
Subject to alteration without notice

Adapter fittings with flanges

Flange-Tee (T)

Fig. 2040

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item-no.	NPK
250	200	10	700	325	75.2	150157	243.324
250	200	16	700	325	74.2	150158	247.324
250	250	10	700	350	81.0	150159	243.124
250	250	16	700	350	80.0	150160	247.124
300	100	10	800	300	93.8	150161	243.245
300	100	16	800	300	92.8	150162	247.245
300	150	10	800	325	101.0	150163	243.285
300	150	16	800	325	100.0	150164	247.285
300	200	10	800	350	102.4	150165	243.325
300	200	16	800	350	101.4	150166	247.325
300	250	10	800	400	113.9	150167	243.345
300	250	16	800	400	112.9	150168	247.345
300	300	10	800	375	114.0	150169	243.125
300	300	16	800	375	113.0	150170	247.125
350	100	10	850	325	117.0	112078	243.246
350	100	16	850	325	122.0	112097	247.246
350	200	10	850	325	122.0	112079	243.326
350	200	16	850	325	128.0	112098	247.326
350	350	10	850	425	144.0	112077	243.126
350	350	16	850	425	152.0	112096	247.126
400	150	10	900	350	145.0	112584	243.287
400	150	16	900	350	155.0	112670	247.287
400	200	10	900	350	147.3	150171	243.327
400	200	16	900	350	158.3	150172	247.327
400	400	10	900	450	168.5	150173	243.127
400	400	16	900	450	185.5	150174	247.127
500	200	10	1000	400	214.5	150175	-
500	200	16	1000	400	244.5	150176	-
500	500	10	1000	500	243.6	150177	-
500	500	16	1000	500	289.6	150178	-
600	200	10	1100	450	304.0	150179	-
600	200	16	1100	450	356.0	150180	-
600	400	10	1100	550	323.0	150181	-
600	400	16	1100	550	382.0	150182	-
600	600	10	1100	550	343.0	150183	-
600	600	16	1100	550	422.0	150184	-
700	200	10	650	525	265.9	150185	-
700	200	16	650	525	295.9	150186	-
700	400	10	870	555	337.5	150187	-
700	400	16	870	555	372.5	150188	-
700	700	10	1200	585	459.0	150189	-
700	700	16	1200	585	504.0	150190	-

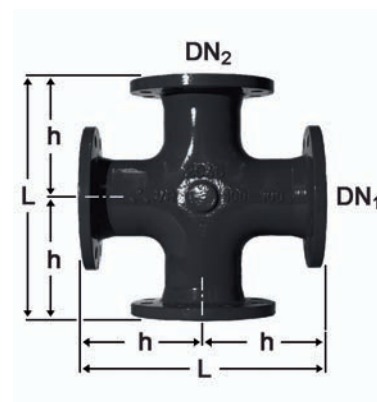


Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges
Flange-cross (TT)
Fig. 2045

DN ₁	DN ₂	PN bar	L mm	h mm	weight kg	item-no.	NPK
80	80	10	330	165	20.0	150194	243.418
80	80	16	330	165	20.0	150194	247.418
100	100	10	360	180	26.0	150195	243.419
100	100	16	360	180	26.0	150195	247.419
125	125	10	400	200	39.0	150196	243.421
125	125	16	400	200	39.0	150196	247.421
150	150	10	440	220	39.0	150197	243.422
150	150	16	440	220	39.0	150197	247.422
200	200	10	520	260	58.0	150198	243.423
200	200	16	520	260	58.0	150199	247.423
250	250	10	700	350	120.0	150200	243.424
250	250	16	700	350	120.0	150201	247.424
300	300	10	800	400	155.0	150202	243.425
300	300	16	800	400	160.0	150203	247.425
400	400	10	900	450	218.0	150204	243.427
400	400	16	900	450	225.0	150205	247.427

To works specifications



Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges

Taper with flange connectors vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

PN > 16 bar on request.

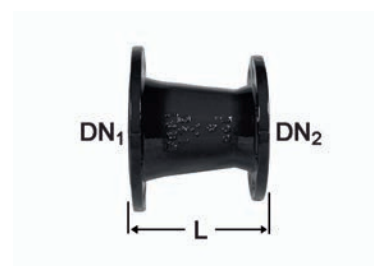


Taper with flanges (FFR)

Fig. 2084

DN ₁	DN ₂	PN bar	L mm	weight kg	item-no.	NPK
80	40	10	200	6.6	150213	244.138
80	40	16	200	6.7	150213	248.138
80	50	10	200	7.2	150214	244.158
80	50	16	200	7.3	150214	248.158
80	65	10	200	7.9	150215	244.178
80	65	16	200	8.0	150215	248.178
100	40	10	200	11.5	150216	244.139
100	40	16	200	11.5	150216	248.139
100	50	10	200	8.1	150217	244.159
100	50	16	200	8.1	150217	248.159
100	65	10	200	8.7	150218	244.179
100	65	16	200	8.7	150218	248.179
100	80	10	200	9.3	150219	244.219
100	80	16	200	9.4	150219	248.219
125	65	10	305	13.2	150220	244.181
125	65	16	305	13.2	150220	248.181
125	80	10	200	10.5	150221	244.221
125	80	16	200	10.6	150221	248.221
125	100	10	200	11.3	150222	244.241
125	100	16	200	11.3	150222	248.241
150	80	10	200	12.0	150223	244.222
150	80	16	200	12.0	150223	248.222
150	100	10	200	12.8	150224	244.242
150	100	16	200	12.8	150224	248.242
150	125	10	200	14.0	150225	244.262
150	125	16	200	14.0	150225	248.262
200	80	10	300	17.9	150226	244.223
200	80	16	300	17.7	150227	248.223
200	100	10	300	18.9	150228	244.243
200	100	16	300	18.6	150229	248.243
200	125	10	300	20.5	150230	244.263
200	125	16	300	20.0	150231	248.263
200	150	10	300	21.9	150232	244.283
200	150	16	300	21.9	150233	248.283
250	100	10	300	26.0	150236	244.244
250	100	16	300	26.0	150237	248.244
250	125	10	300	41.0	150238	244.264
250	125	16	300	40.5	150239	248.264
250	150	10	300	44.0	150240	244.284

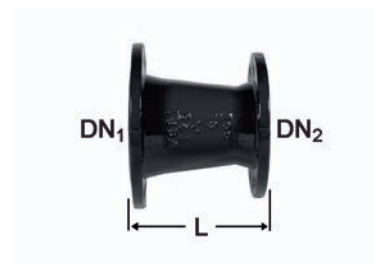
Subject to alteration without notice



Flange with boreholes according to
DIN EN 1092 part 2

Adapter fittings with flanges
Taper with flanges (FFR)
Fig. 2084

DN ₁	DN ₂	PN bar	L mm	weight kg	item-no.	NPK
250	150	16	300	43.5	150241	248.284
250	200	10	300	30.6	150242	244.324
250	200	16	300	30.1	150243	248.324
300	150	10	300	33.0	150244	244.285
300	150	16	300	32.5	150245	248.285
300	200	10	300	35.9	150246	244.325
300	200	16	300	35.4	150247	248.325
300	250	10	300	40.8	150248	244.345
300	250	16	300	39.8	150249	248.345
350	250	10	300	45.0	150252	244.346
350	250	16	300	47.5	150253	248.346
350	300	10	300	50.0	150254	244.366
350	300	16	300	52.5	150255	248.366
400	200	10	300	45.6	150256	244.327
400	200	16	300	50.5	150257	248.327
400	250	10	300	49.1	150258	244.347
400	250	16	300	54.6	150259	248.347
400	300	10	300	54.4	150276	244.367
400	300	16	300	59.4	150277	248.367
500	300	10	600	111.0	150262	-
500	300	16	600	111.0	150263	-
500	400	10	600	109.6	150266	-
500	400	16	600	130.6	150267	-
600	400	10	600	210.0	150268	-
600	400	16	600	242.0	150269	-
600	500	10	600	148.5	150270	-
600	500	16	600	189.5	150271	-
700	500	10	600	281.0	150272	-
700	500	16	600	311.0	150273	-
700	600	10	600	195.4	150274	-
700	600	16	600	236.4	150275	-


 Flange with boreholes according to
DIN EN 1092 part 2

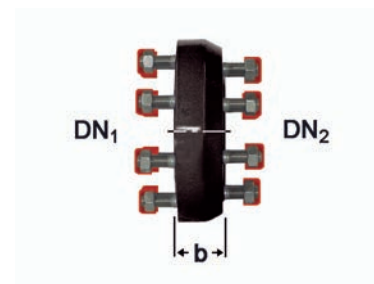
Adapter fittings with flanges

Reduction flange, stud bolts on both sides (XR) V2A

Fig. 2085

DN ₁	DN ₂	PN bar	b mm	weight kg	item-no.	NPK
80	50	10	34	8.4	212329	271.238
80	50	16	34	8.4	212329	271.238
100	50	10	40	6.3	212330	271.239
100	50	16	40	6.3	212330	271.239
100	80	10	48	9.2	212350	271.279
100	80	16	48	9.2	212350	271.279
125	80	10	40	11.0	212346	271.281
125	80	16	40	11.0	212346	271.481
125	100	10	33	11.3	212332	271.321
125	100	16	33	11.3	212332	271.521
150	100	10	33	12.6	212334	271.322
150	100	16	33	12.6	212334	271.522
150	125	10	60	21.0	212335	271.342
150	125	16	60	21.0	212335	271.542
200	150	10	39	19.6	212340	271.363
200	150	16	39	19.6	212357	271.563
250	200	10	46	32.0	-	271.384
250	200	16	46	32.0	-	271.584

Incl. flange seal typ G-ST



Flange with boreholes according to DIN EN 1092 part 2

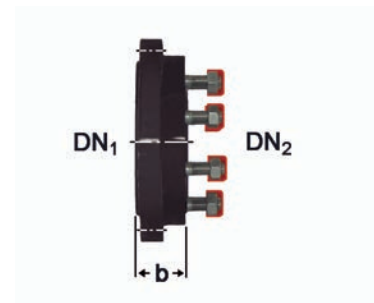
Reduction flange, stud bolts on one side (XR) V2A

Fig. 2086

DN ₁	DN ₂	PN bar	b mm	weight kg	item-no.	NPK
125	50	10	40	7.5	212331	271.241
125	50	16	40	7.5	212331	271.441
150	50	10	40	9.5	204893	271.242
150	50	16	40	9.5	204893	271.442
150	80	10	40	11.0	212347	271.282
150	80	16	40	11.0	212347	271.482
200	50	10	40	13.5	-	271.243
200	50	16	40	13.3	454899	271.443
200	100	10	40	14.0	212338	271.323
200	100	16	40	14.0	454902	271.523
200	125	10	40	15.0	454904	271.343
200	125	16	40	15.0	-	271.543

Incl. flange seal typ G-ST

Flange joint Fig. 2008 (V2A) for DN₁ must be ordered separately



Flange with boreholes according to DIN EN 1092 part 2

Dummy flanges and connecting pieces with flange connectors vonRoll ECOFIT

Adapter fittings made of ductile cast iron (EN-GJS) to EN 545 standard.

Thick epoxy-resin coating (min. 250 µm) to DIN 3476 standard.

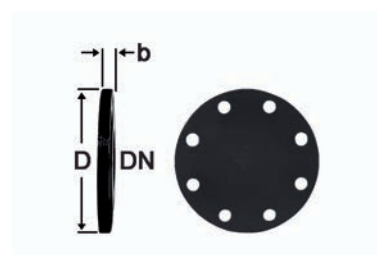
PN > 16 bar on request.



Dummy flange, flax (X)

Fig. 2098

DN	PN bar	D mm	b mm	weight kg	item-no.	NPK
40	10	150	19	2.5	150279	271.115
40	16	150	19	2.5	150279	271.115
50	10	165	19	3.0	150280	271.116
50	16	165	19	3.0	150280	271.116
65	10	185	19	4.0	150281	271.117
65	16	185	19	4.0	150281	271.117
80	10	200	19	3.6	150282	271.118
80	16	200	19	3.6	150282	271.118
100	10	220	19	4.3	150283	271.119
100	16	220	19	4.3	150283	271.119
125	10	250	19	5.6	150284	271.121
125	16	250	19	5.6	150284	271.141
150	10	285	19	7.2	150285	271.122
150	16	285	19	7.2	150285	271.142
200	10	340	20	11.0	150286	271.123
200	16	340	20	10.8	150287	271.143
250	10	400	22	16.9	150288	271.124
250	16	400	22	16.6	150289	271.144
300	10	455	24.5	26.0	150290	271.125
300	16	455	24.5	25.5	150291	271.145



Flange with boreholes according to DIN EN 1092 part 2

Option: with thread

Dummy flange, domes (X)

Fig. 2099

DN	PN bar	D mm	b mm	weight kg	item-no.	NPK
350	10	505	24.5	33.0	150292	271.126
350	16	520	26.5	37.0	150293	271.146
400	10	565	24.5	41.0	150294	271.127
400	16	580	28	49.0	150295	271.147
500	10	670	26.5	65.0	150296	-
500	16	715	31.5	85.5	150297	-
600	10	780	30	99.5	150298	-
600	16	840	36	136.0	150299	-
700	10	875	32.5	147.0	150300	-
700	16	910	39.5	179.0	150301	-



Flange with boreholes according to DIN EN 1092 part 2

Option: with thread

Subject to alteration without notice

Flange connection

Flange connection PN 10 / galvanised

Fig. 2007-10

DN	D mm	d mm	b mm	screws	nuts	weight kg	item-no.	NPK
80	142	89	4	M16x60/38	8x M16	1.5	204973	271.618
100	162	115	5	M16x60/38	8x M16	1.5	204974	271.619
125	192	141	5	M16x65/38	8x M16	1.5	204975	271.621
150	218	169	5	M20x70/46	8x M20	2.8	204976	271.622
200	273	220	6	M20x70/46	8x M20	2.9	204977	271.623
250	328	273	6	M20x80/46	12x M20	4.3	204978	271.624
300	378	324	6	M20x80/46	12x M20	4.3	204979	271.625
350	438	368	7	M20x80/46	16x M20	5.8	204980	271.626
400	489	407	7	M24x90/54	16x M24	7.0	204981	271.627
500	594	508	7	M24x90/54	20x M24	9.0	204982	-
600	695	610	7	M27x100/60	20x M27	16.1	204983	-
700	810	712	8	M27x100/60	24x M27	19.1	204985	-

Supply includes:

Screws (DIN 931), nuts (DIN 934) and washers (DIN 125B) made of galvanised steel 8.8.

Flange seal type G-ST with steel core insert made of NBR-DUO (DIN EN 1514-1) for water and gas

The tightness of fittings with flanges is only ensured by using of profile joint with steel reinforcement type G-ST.

Flange connection > PN 16 on request.



Flange connection PN 16 / galvanised

Fig. 2007-16

DN	D mm	d mm	b mm	screws	nuts	weight kg	item-no.	NPK
80	142	89	4	M16x60/38	8x M16	1.5	204973	271.618
100	162	115	5	M16x60/38	8x M16	1.5	204974	271.619
125	192	141	5	M16x65/38	8x M16	1.5	204975	271.641
150	218	169	5	M20x70/46	8x M20	2.8	204976	271.642
200	273	220	6	M20x75/46	12x M20	4.3	205005	271.643
250	329	273	6	M24x80/54	12x M24	5.2	205006	271.644
300	384	324	6	M24x80/54	12x M24	5.2	205007	271.645
350	445	368	7	M24x90/54	16x M24	6.8	205008	271.646
400	497	420	7	M27x100/60	16x M27	12.5	205009	271.647
500	618	520	7	M30x110/66	20x M30	23.1	205010	-
600	735	620	7	M33x130/78	20x M33	31.4	205011	-
700	804	712	8	M33x130/78	24x M33	37.5	205012	-

Supply includes:

Screws (DIN 931), nuts (DIN 934) and washers (DIN 125B) made of galvanised steel 8.8.

Flange seal type G-ST with steel core insert made of NBR-DUO (DIN EN 1514-1) for water and gas

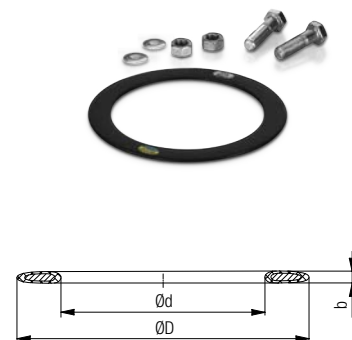
The tightness of fittings with flanges is only ensured by using of profile joint with steel reinforcement type G-ST.

Flange connection > PN 16 on request.



Flange connection
Flange connection PN 10 / V2A
Fig. 2008-10

DN	D mm	d mm	b mm	screws	nuts	weight kg	item-no.	NPK
80	142	89	4	M16x60/38	8x M16	1.5	204989	271.718
100	162	115	5	M16x60/38	8x M16	1.5	204990	271.719
125	192	141	5	M16x65/38	8x M16	1.5	204991	271.721
150	218	169	5	M20x70/46	8x M20	2.8	204992	271.722
200	273	220	6	M20x70/46	8x M20	2.9	204993	271.723
250	328	273	6	M20x80/46	12x M20	4.3	204994	271.724
300	378	324	6	M20x80/46	12x M20	4.3	204995	271.725
350	438	368	7	M20x80/46	16x M20	5.8	204996	271.726
400	489	407	7	M24x90/54	16x M24	7.0	204997	271.727
500	594	508	7	M24x90/54	20x M24	9.0	204998	-
600	695	610	7	M27x100/60	20x M27	16.1	204999	-
700	810	712	8	M27x100/60	24x M27	19.1	205000	-



Supply includes:

Screws (DIN 931), nuts (DIN 934) and washers (DIN 125B) made of V2A.

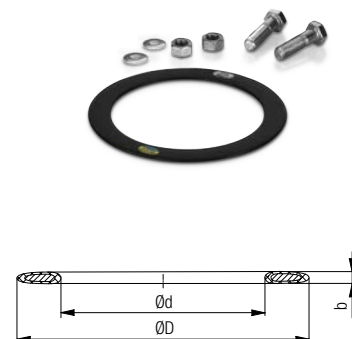
Flange seal type G-ST with steel core insert made of NBR-DUO (DIN EN 1514-1) for water and gas.

The tightness of fittings with flanges is only ensured by using of profile joint with steel reinforcement type G-ST.

Flange connection > PN 16 on request.

Flange connection PN 16 / V2A
Fig. 2008-16

DN	D mm	d mm	b mm	screws	nuts	weight kg	item-no.	NPK
80	142	89	4	M16x60/38	8x M16	1.5	204989	271.718
100	162	115	5	M16x60/38	8x M16	1.5	204990	271.719
125	192	141	5	M16x65/38	8x M16	1.5	204991	271.741
150	218	169	5	M20x70/46	8x M20	2.8	204992	271.742
200	273	220	6	M20x75/46	12x M20	4.3	205016	271.743
250	329	273	6	M24x80/54	12x M24	5.2	205017	271.744
300	384	324	6	M24x80/54	12x M24	5.2	205018	271.745
350	444	356	7	M24x90/54	16x M24	6.8	205019	271.746
400	495	407	7	M27x100/60	16x M27	12.5	205020	271.747
500	617	508	7	M30x110/66	20x M30	23.1	205021	-
600	734	610	7	M33x130/78	20x M33	31.4	205022	-
700	804	712	8	M33x130/78	24x M33	37.5	205023	-



Supply includes:

Screws (DIN 931), nuts (DIN 934) and washers (DIN 125B) made of V2A.

Flange seal type G-ST with steel core insert made of NBR-DUO (DIN EN 1514-1) for water and gas.

The tightness of fittings with flanges is only ensured by using of profile joint with steel reinforcement type G-ST.

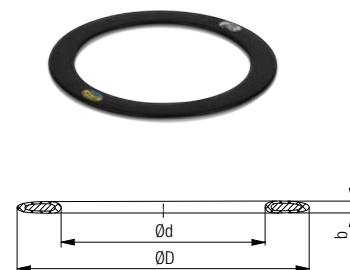
Flange connection > PN 16 on request.

Flange connection

Seal type G-St PN 10 for water and gas

Fig. 2010-10

DN	D mm	d mm	b mm	weight kg	item-no.	NPK
80	142	89	4	0.065	495891	271.818
100	162	115	5	0.084	495892	271.819
125	192	141	5	0.101	495893	271.821
150	218	169	5	0.121	495894	271.822
200	273	220	6	0.187	495895	271.823
250	328	273	6	0.255	495896	271.824
300	378	324	6	0.265	495897	271.825
350	438	368	7	0.409	495946	271.826
400	489	407	7	0.441	495943	271.827
500	594	508	7	0.845	495944	-
600	695	610	7	0.988	495945	-
700	810	712	8	-	495950	-



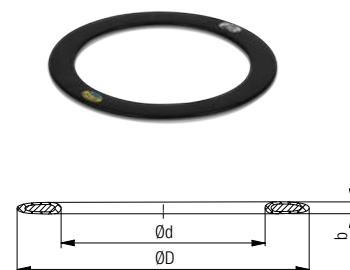
Flange seal type G-ST with steel core insert made of NBR-DUO (DIN EN 1514-1) for water and gas.

The tightness of fittings with flanges is only ensured by using of profile joint with steel reinforcement type G-ST.

Seal type G-St PN 16 for water and gas

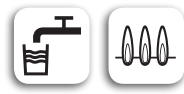
Fig. 2010-16

DN	D mm	d mm	b mm	weight kg	item-no.	NPK
80	142	89	4	0.065	495891	271.818
100	162	115	5	0.084	495892	271.819
125	192	141	5	0.101	495893	271.841
150	218	169	5	0.121	495894	271.842
200	273	220	6	0.187	495895	271.843
250	329	273	6	0.258	495896	271.844
300	384	324	6	0.276	495898	271.845
350	444	356	7	0.571	495942	271.846
400	495	407	7	0.609	495947	271.847
500	617	508	7	0.994	495948	-
600	734	610	7	1.387	495949	-
700	804	712	8	-	495951	-



Flange seal type G-ST with steel core insert made of NBR-DUO (DIN EN 1514-1) for water and gas.

The tightness of fittings with flanges is only ensured by using of profile joint with steel reinforcement type G-ST.



Tapping clamps



Tapping clamps

Tapping clamp

Special tapping fittings are often used for tapping mains piping (e.g. for domestic supplies).

Using tapping valves and tapping drills, mains piping can be tapped even when under pressure.

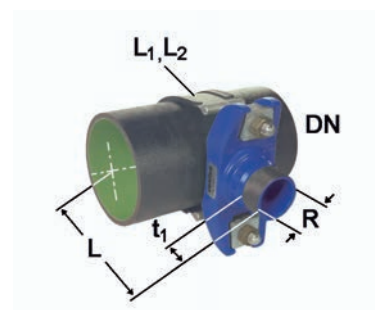


Tapping clamp 5000 with male thread

Fig. 5980

DN	R	t ₁ mm	L mm	L ₁ mm	L ₂ mm	PN bar	weight kg	NPK
65	1	18	124	375	-	16	4.1	262.117
65	1¼	20	124	375	-	16	4.1	262.137
65	1½	20	124	375	-	16	4.1	262.157
80	1	18	130	395	375	16	4.1	262.118
80	1¼	20	130	395	375	16	4.1	262.138
80	1½	20	130	395	375	16	4.1	262.158
80	2	25	130	395	375	16	4.1	262.178
100	1	18	141	440	440	16	4.2	262.119
100	1¼	20	141	440	440	16	4.2	262.139
100	1½	20	141	440	440	16	4.2	262.159
100	2	25	141	440	440	16	4.2	262.179
125	1	18	153	505	505	16	4.2	262.121
125	1¼	20	153	505	505	16	4.2	262.141
125	1½	20	153	505	505	16	4.2	262.161
125	2	25	153	505	505	16	4.2	262.181
150	1	18	167	570	570	16	4.3	262.122
150	1¼	20	167	570	570	16	4.3	262.142
150	1½	20	167	570	570	16	4.3	262.162
150	2	25	167	570	570	16	4.3	262.182
200	1	18	193	720	720	16	4.4	262.123
200	1¼	20	193	720	720	16	4.4	262.143
200	1½	20	193	720	720	16	4.4	262.163
200	2	25	193	720	720	16	4.4	262.183
250	1	18	219	890	890	16	4.5	262.124
250	1¼	20	219	890	890	16	4.5	262.144
250	1½	20	219	890	890	16	4.5	262.164
250	2	25	219	890	890	16	4.5	262.184
300	1	18	245	1040	1040	16	4.6	262.125
300	1¼	20	245	1040	1040	16	4.6	262.145
300	1½	20	245	1040	1040	16	4.6	262.165
300	2	25	245	1040	1040	16	4.6	262.185

To factory standards



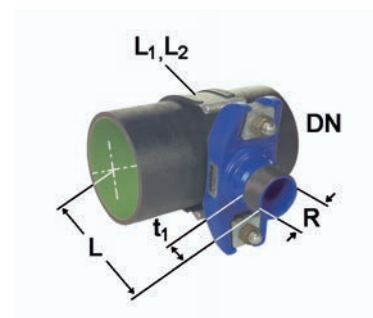
Tapping clamp

Tapping clamp 5000 with male thread

Fig. 5980

DN	R	t ₁ mm	L mm	L ₁ mm	L ₂ mm	PN bar	weight kg	NPK
350	1	18	271	1170	1170	16	4.7	262.126
350	1¼	20	271	1170	1170	16	4.7	262.146
350	1½	20	271	1170	1170	16	4.7	262.166
350	2	25	271	1170	1170	16	4.7	262.186
400	1	18	297	1345	1345	16	4.8	262.127
400	1¼	20	297	1345	1345	16	4.8	262.147
400	1½	20	297	1345	1345	16	4.8	262.167
400	2	25	297	1345	1345	16	4.8	262.187

To factory standards



L₁: clamp length for cast-iron pipes

L₂: clamp length for steel pipes

Applications

Suitable for drinking water and oil-free air, other media on request. Pressurised and vacuum operation.

Cast-iron parts with integrated thick epoxy resin coating (min. 250 µm), colour: bleu.

Just one model for mains piping made of cast iron and steel (only the clamp and connection seal are different)

Clamp and bolts made of stainless steel with rubber backing / earthing is SEV-tested.



Push-in sockets (for wastewater disposal)

6/1.1



Fig. 1817
Fig. 1815



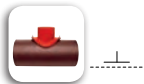
6/2.1



Fig. 1819
Fig. 1816



6/3.1
Fig. 1567



6/3.1
Fig. 1568



6/3.2
Fig. 1565



6/3.3
Fig. 1561



6/3.4
Fig. 1571



6/3.4
Fig. 1575



6/3.5
Fig. 1518



6/3.6
Fig. 1581



6/4.1
Fig. 2805



6/4.1
Fig. 2806



6/4.2
Fig. 2504-1



6/4.2
Fig. 2807B



6/4.2
Fig. 2807A



6/4.3
Fig. 2810



6/4.3
Fig. 2811



6/5.1
Fig. 5468



6/6.1
Fig. 240



6/6.1
Fig. 270



6/6.1
Fig. 300-2



6/6.1
Fig. 310-1



6/6.2
Fig. 284, 285, 286



6/7.1
Fig. 254/1-3, 293/4-5



6/7.2
Fig. 255-1



6/7.2
Fig. 255-2



6/7.2 - 3
Fig. 293/1-6



6/7.4
Fig. 294



**Sewage pipe with push-in socket
vonRoll GEOPUR**

vonRoll GEOPUR sewage pipe with push-in socket

Made of ductile cast iron using the centrifugal casting process with PUR (polyurethane) internal lining, outer side zinc sprayed and coated with bitumen.

Minimal pressure loss thanks to hydraulically smooth surface, economic.

Application: Water and wastewater as well as media with pH-values between 1 and 14.

Manufactured to EN 598 standards.

Pipe class for pressure pipes in accordance with EN 598:

Other classes available on request.

Permissible system pressure: on request.

Can be secured with longitudinal positive locking using thrust-resisting rings.

Deflection: see «Installation handbook for spigot and socket piping».

Pipes and fittings are supplied with a seal but without a thrust-resisting ring.

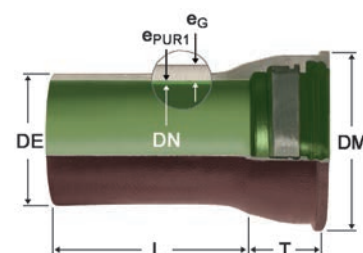
Also available with full protection.



Pipe with double-chamber socket

DN	L mm	DE mm	e _G mm	e _{PUR1} mm	DM mm	T mm	weight kg/m	item-no.
100	6000	118	4.8	1.3	188	120	14.2	260800
125	6000	144	4.8	1.3	215	123	17.5	260801
150	6000	170	4.8	1.3	242	126	20.9	260802
200	6000	222	4.9	1.5	295	131	27.8	260803
250	6000	274	5.3	1.5	352	131	37.6	260804
300	6000	326	5.6	1.5	410	130	47.2	260805
350	6000	378	6.0	1.5	464	135	58.1	260806
400	6000	429	6.3	1.5	517	145	69.5	260807
500	6000	532	7.0	1.5	630	145	95.7	260808

Fig. 1817

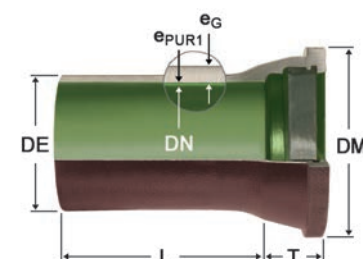


The double-chamber pipe can be fitted with internal restraint clamp or external restraint clamp.

Pipe with single-chamber socket

DN	L mm	DE mm	e _G mm	e _{PUR1} mm	DM mm	T mm	weight kg/m	item-no.
600	6000	635	7.7	1.5	750	120	125.9	260809
700	6000	738	9.6	1.5	863	150	179.6	260810

Fig. 1815



Sewage pipe with push-in socket vonRoll GEOPUR

vonRoll ROCK - sewage pipes with rock-protection coating vonRoll GEOPUR

vonRoll ROCK pressure pipes with rock-protection coating. These coated cast-iron pipes are outstandingly suitable for use in rocky ground and are **protect** against damage by rocks when back-filling.

The **robust** wrap protection offers **unique performance**.

The **lightweight** under cast-iron pipes (see table) is proven to be **economical** during installation in difficult ground conditions and presents no problems when - coping with the most difficult pipe-laying conditions.

The protective coating can **easily** be removed with a knife so that the piping can be **shortened** to the required length or can be **tapped** or a building connection without encountering any problems.

Also available with full protection.

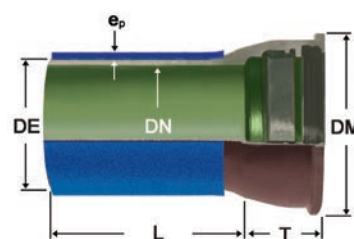


Pipe with double-chamber socket

DN	L	DE	e _p	DM	T	weight	item no.
	mm	mm	mm	mm	mm	kg/m	
100	6000	118	8	188	120	14.6	260828
125	6000	144	8	215	123	18.0	260829
150	6000	170	8	242	126	21.4	260830
200	6000	222	8	295	131	28.5	260831
250	6000	274	8	352	131	38.5	260832
300	6000	326	8	410	130	48.2	260833
350	6000	378	8	464	135	59.3	260834
400	6000	429	8	518	145	70.8	260835
500	6000	532	8	636	145	97.4	260836

The double-chamber pipe can be fitted with internal restraint clamp or external restraint clamp.

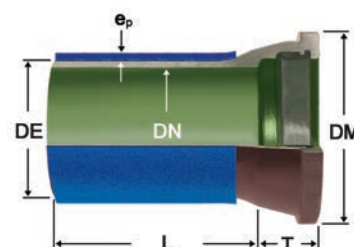
Fig. 1819



Pipe with single-chamber socket

DN	L	DE	e _p	DM	T	weight	item no.
	mm	mm	mm	mm	mm	kg/m	
600	6000	635	8	739	120	127.9	260837
700	6000	738	8	863	150	181.9	260838

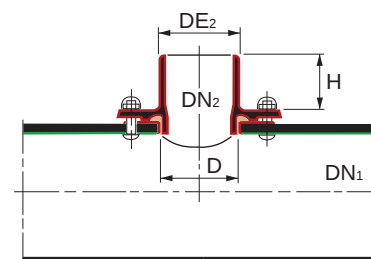
Fig. 1816



90° tapping saddle

Materials/version: Ductile cast iron, internal and external epoxy coating.
 Scope of delivery: Tapping saddle with sealing ring and fastening material.
 NBR seal (Perbunan).
 M10 stainless-steel bolts with conical PE sealing sleeves.

Fig. 1567



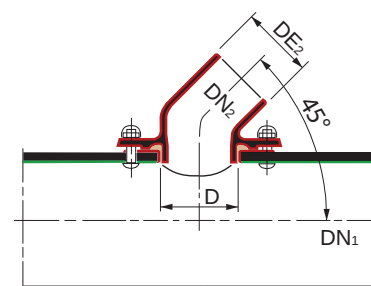
The saddle piece 90° branch with round opening ensures a tight connection between the inlet of DI or PVC/PE/PP pipe (with Fig. 1581) and the main collector vonRoll GEOPUR.

DN ₁ mm	DN ₂ mm	DE ₂ mm	D m	H mm	weight kg	item no.
250	150	170	172	100	5.9	453180
300	150	170	172	100	5.9	453187
300	200	222	232	100	12.9	453181
350 – 400	150	170	172	100	5.9	453182
350	200	222	232	100	5.9	-
400	200	222	232	100	12.0	453183
500 – 600	150	170	172	100	5.9	453188
500 – 600	200	222	232	100	11.1	453184
700	150	170	172	100	5.9	453185
700	200	222	232	100	10.5	453186

45° tapping saddle

Materials/version: Ductile cast iron, internal and external epoxy coating.
 Scope of delivery: Tapping saddle with sealing ring and fastening material.
 NBR seal (Perbunan).
 M10 stainless-steel bolts with conical PE sleeves.

Fig. 1568



The saddle piece 45° branch with round opening ensures a tight connection between the inlet of DI or PVC/PE/PP pipe (with Fig. 1581) and the main collector vonRoll GEOPUR.

DN ₁ mm	DN ₂ mm	DE ₂ mm	D m	weight kg	item no.
250	150	170	172	9.7	453174
300	150	170	172	9.7	453176

Fitting instructions:

Determine the point where you need to fit the tapping saddle and then place it on the pipe. Use chalk to mark the position and the circumference of the area to be cut out. Cut out the circular area you have marked using a round drilling machine. Remove burrs carefully and touch up damaged areas of the coating using the RESICOAT RS repair set in accordance with the instructions.
 Fit the saddle and screw it securely to the pipe.
 Tidying the cutout in the pipe and carefully touching up the coating will ensure that the tapping saddle works correctly and is sufficiently leaktight.
 Fitting time approx. 30 minutes.

Subject to alteration without notice

Fittings

45° saddle for rectangular cutout

Materials/version: Steel, internal and external epoxy coating.

Scope of delivery: 45°connecting piece, saddle retainer, screws, seal.

Fig. 1565

DN ₁	DN ₂	DE ₁ Rohr mm	DE ₂ mm	D mm	L mm	H mm	Number of retainers	weight kg	item no.
200	150	222	160	222	380	507	2	13.5	200867
200	200	222	200	278	460	557	2	18.0	200878
250	150	274	160	222	380	544	2	13.5	200115
250	200	274	200	278	460	594	2	18.0	200119
300	150	326	160	222	380	581	3	13.5	200116
300	200	326	200	278	460	631	3	18.0	200117
300	250	326	250	396	690	536	3	22.0	-
350	150	378	160	222	380	687	3	13.5	200118
350	200	378	200	278	460	597	3	18.0	200102
350	250	378	250	396	690	642	3	22.0	-
350	300	378	315	668	680	540	3	25.0	-
400	150	429	160	222	380	723	3	13.5	200103
400	200	429	200	278	460	633	3	18.0	200104
400	250	429	250	396	690	678	3	22.0	-
400	300	429	315	468	650	646	3	25.0	-
500	150	532	160	222	380	796	3	13.5	200105
500	200	532	200	278	460	776	3	18.0	200106
500	250	532	250	396	690	751	3	22.0	200109
500	300	532	315	468	650	719	3	25.0	-
600	150	635	160	222	380	869	3	13.5	200107
600	200	635	200	278	460	1199	3	18.0	200108
600	250	635	250	396	690	824	3	22.0	200121
600	300	635	315	468	650	722	3	25.0	200680
700	200	738	200	278	460	922	3	19.0	200689
700	250	738	250	396	690	827	3	23.0	-
700	300	738	315	468	650	791	3	26.0	-

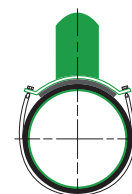
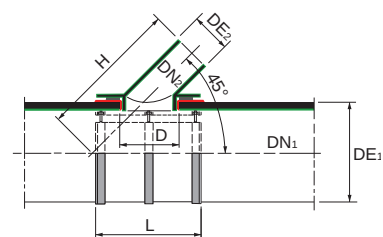
Fitting instructions:

The 45°saddle can be fitted in approx. 40 minutes.

After determining the point where you need to fit the saddle, place the rectangular seal on the pipe. Use a marker pen to mark the position of the area to be cut out along the inside of the seal and cut out the opening using an angle grinding machine with cutting disc.

Carefully deburr the cut edges and then treat them with the RESICOAT RS epoxy repair set in accordance with the instructions. Then lay the seal accurately on the cutout in the pipe and secure the saddle firmly to the pipe using the saddle retainers.

Tidying the cutout in the pipe and carefully after-treating the cut edge with epoxy will ensure that the 45° saddle works correctly and is sufficiently leaktight.



The saddle piece 45° branch with rectangular opening ensures a tight connection between the inlet of PVC/PE/PP or DI pipe (with Fig. 1581) and the main collector vonRoll GEOPUR.

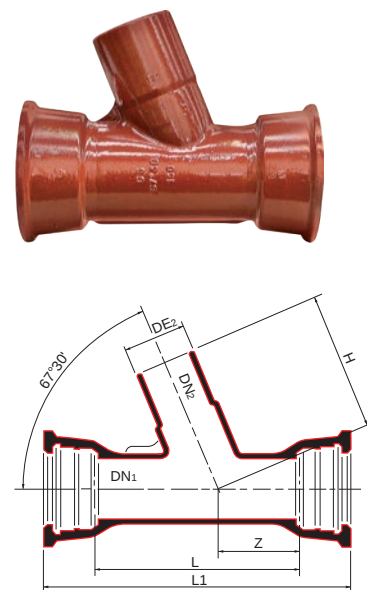
67° 30' Y-fitting with 2 push-in sockets and spigot end

Materials/version: Ductile cast iron, epoxy coating

Scope of delivery: 1 Y-fitting and 2 NBR sealing rings

Fig. 1561

DN1	DN ₂	DE ₂ mm	Z mm	L mm	L ₁ mm	H mm	weight kg	item no.
200	150	170	138	360	568	310	24.0	450232
250	150	170	112	369	565	342	54.0	450234
250	200	222	112	369	565	342	55.0	450235
300	150	170	143	467	650	380	77.0	450237
300	200	222	143	467	650	380	78.0	450238
400	250	274	150	600	815	500	95.0	450229



Fittings

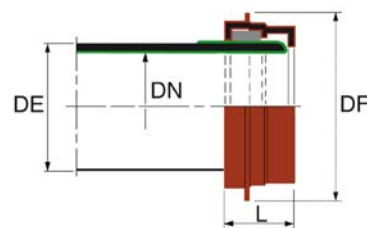
Cast-iron drain liner

Materials/version: Ductile cast iron, internal and external epoxy coating

Scope of delivery: 1 drain liner and NBR sealing ring

Whether in cast concrete, dug-out or prefabricated drains, this pipe carrier offers the most reliable drain connection.

Fig. 1571



vonRoll drain connecting pieces provide a flexible connection from a vonRoll GEOPUR sewer pipe to the drains.

DN	DE mm	L mm	DF mm	weight kg	item no.
150	170	100	260	6.0	453011
200	222	100	310	8.0	453012
250	274	110	365	10.0	453013
300	326	110	420	12.5	451014
350	378	110	475	14.5	-
400	429	110	525	16.5	453015
500	532	110	635	22.0	453016
600	635	120	740	26.5	453017
700	738	160	845	43.0	453018

Wall collar

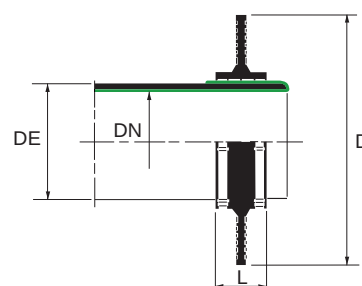
Materials/version: EPDM elastomer.

Scope of delivery: 1 wall-collar ring with stainless-steel fastening material.

Suitable to be set in concrete immediately.

Sealing effect to 30 mWS

Fig. 1575



Inflexible and cost-effective solution; quick to fit in a vertical or horizontal installation position.

DN	DE mm	D mm	L mm	Diameter range	weight kg	item no.
100	118	205	60	110 - 121	0.40	-
125	144	220	60	125 - 140	0.46	-
150	170	254	60	160 - 179	0.56	451281
200	222	300	60	200 - 224	0.70	451283
250	274	345	60	250 - 279	0.84	451284
300	326	410	60	315 - 354	1.05	451285

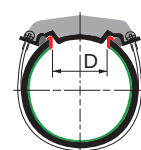
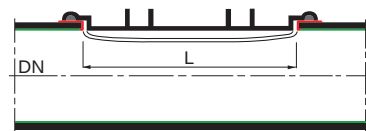
Pipe-cleaning cover for non-pressurised pipes

Materials/version: Grey cast iron, epoxy coating, NBR seal

Scope of delivery: 1 cover with sealing ring and fastening material.

Correct fitting guarantees a pressure-tight and odour-tight connection.

Fig. 1518



DN	D mm	L mm	weight kg	item no.
250	172	622	17.0	452684
300	212	662	20.0	452685
350	212	662	19.0	-
400	212	662	18.0	452686
500	212	662	17.8	452687
600	290	640	28.5	452688
700	290	640	29.5	452689

The pipe-cleaning cover enables a cleaning opening to be provided anywhere in the pipe system.
(for non-pressurised pipes only)

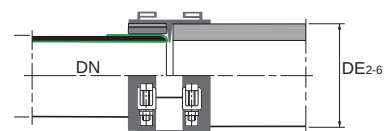
Fittings

EPDM material-bridging sleeve

Materials/version: ABS-reinforced round sleeve made from EPDM

Scope of delivery: 1 EPDM sleeve with 2 steel straps, fastening material and flat rubber bands

Fig. 1581



DN	N°	DE ₁ GGG mm	DE ₆ PVC/PE mm	item no.
150	1	170	160	452555
200	2	222	200	452556
250	2	274	250	452557
300	3	326	315	452558
400	3	429	400	452492
500	3	532	500	452494
600	3	635	630	452496

The EPDM material-bridging sleeve can be used to join pipes made from different materials and with different external diameters securely together.

The supplied 70-mm wide flat rubber bands, which are wound around the spigot end of the smaller pipe, enable the external diameter of the pipe which is to be connected to be reduced/adjusted to the available internal diameter of the sleeve.

Detailed fitting instructions are provided.

HYDROTIGHT seals and thrust-resisting rings

Pipes, fittings and slide gate valves can be connected to the pipe using a thrust-resisting ring (longitudinal positive locking).

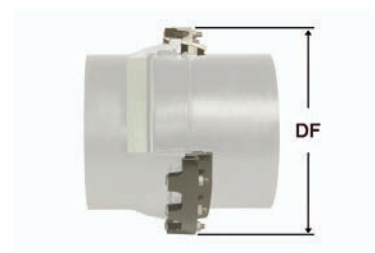
HYDROTIGHT thrust-resisting ring (external), with weld bead not electrically bridged

DN	PFA bar	DF mm	Number of screws	weight kg	item no.
400	10	595	16	47.1	201022
500	10	710	16	58.6	201023
600	10	833	20	92.3	262024
700	10	962	24	145.5	262025

For pressure pipes in accordance with EN 598
Higher pressures on request

For permissible pressures for thrust-resisting rings, see page 7/1.5

External thrust-resisting ring for push-in socket joint with oblique collar

Fig. 2805


HYDROTIGHT thrust-resisting ring (external), not electrically bridged

DN	PFA bar	DF mm	Number of screws	weight kg	item no.
80	10	235	3	4.7	262000
100	10	256	3	5.1	262001
125	10	287	3	5.7	262002
150	10	310	4	6.9	262003
200	10	325	3	8.9	262004
250	10	421	4	13.9	262005
300	10	479	5	19.6	262006
350	10	534	5	25.5	262007
400	10*	595	14	39.1	262012
500	10*	710	16	59.0	-
600	10*	826	24	80.0	-

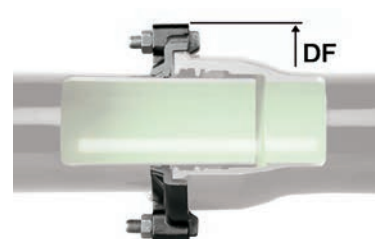
* Wall-thickness class K9

For pressure pipes in accordance with EN 598
Higher pressures on request

For permissible pressures for thrust-resisting rings, see page 7/1.5

External thrust-resisting ring for push-in socket joint with oblique collar

Epoxy-coated thrust-resisting ring

Fig. 2806


Push-in socket joint

Seal with HYDROTIGHT EPDM thrust-resisting ring (internal)

Fig. 2504-1

DN	PFA bar	weight kg	item no.
80	10	0.2	451999
100	10	0.2	452100
125	10	0.3	452101
150	10	0.3	452102
200	10	0.5	452103
250	10*	0.6	452104
300	10*	1.0	452105
350	10*	1.3	452106
400	10*	1.6	452107



* Wall-thickness class K9

For pressure pipes in accordance with EN 598

Seal in accordance with DIN 28603

HYDROTIGHT thrust-resisting ring (internal) for double chamber

Fig. 2807B

DN	PFA bar	weight kg	item no.
80	10	0.15	455450
100	10	0.25	455451
125	10	0.25	455452
150	10	0.30	455453
200	10	0.40	455454
250	10*	0.50	455455
300	10*	0.60	455456



* Wall-thickness class K9

For pressure pipes in accordance with EN 598

Higher pressures on request

For permissible pressures for thrust-resisting rings, see page 7/1.5.

HYDROTIGHT thrust-resisting ring (internal) for double chamber

Fig. 2807A

DN	PFA bar	weight kg	item no.
350	10	1.3	455435
400	10	1.4	455447
500	10*	1.7	455448



* Wall-thickness class K9

For pressure pipes in accordance with EN 598

Higher pressures on request

For permissible pressures for thrust-resisting rings, see page 7/1.5.

Subject to alteration without notice

Push-in socket joint
HYDROTIGHT EPDM seal
Fig. 2810

DN	weight kg	item no.	suissetec
80	0.1	454976	
100	0.1	454963	
125	0.2	454964	
150	0.2	454965	
200	0.3	454966	
250	0.5	454967	
300	0.6	454968	
350	0.8	454969	
400	1.0	454970	
500	1.6	451014	
600	2.2	451015	
700	3.1	451017	



Seal for push-in socket joint, meets EN 681-1/in accordance with DIN 28603.

HYDROTIGHT NBR seal
Fig. 2811

DN	weight kg	item no.	suissetec
80	0.1	454152	
100	0.1	454153	
125	0.2	454154	
150	0.2	454155	
200	0.3	454156	
250	0.5	454157	
300	0.6	454158	
350	0.8	-	
400	1.0	-	
500	1.6	-	
600	2.2	-	
700	3.1	-	



Seal for push-in socket joint, meets EN 682/in accordance with DIN 28603.

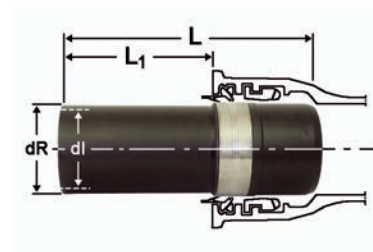
Push-in socket joint

Connecting pieces

PE 100 nozzle (for use in water pipes)

Fig. 5468

DN	dR mm	dI mm	L mm	L ₁ mm	weight kg	item no.
80	90	73.6	286 ±3	170	1.5	95670
100	110	90	310 ±3	194	2.2	95671
100	125	102.2	330 ±3	214	2.6	95672
125	140	114.6	330 ±3	214	3.8	95673
150	160	130.8	354 ±5	234	4.8	95674
150	180	147.2	380 ±5	260	5.1	95675
200	200	163.6	395 ±5	270	8.0	95676
200	225	184	413 ±5	288	8.9	95677
200	250	204.6	395 ±5	270	8.6	95678



Used in connections between slide gate valves or pipeline components with push-in socket joints (double-chamber system) and plastic pipes:

The push-in socket joint must be equipped with the thrust-resisting ring in Fig. 2807.

Accessories for push-in socket pipes

Installation material for push-in joint pipes

Lubricant

weight kg		Art.-Nr.
1.0	-	452522

Fig. 240



Neutrex T lubricant

weight g		item-no.
250	-	452533

Fig. 270



Scotchrap

B mm	length per roll m	weight kg	item-no.
50	30	0.5	452552

Fig. 300 - 2



DUCPUR PLUS corrosion-protection film

DN	b mm	weight kg/m	item-no.
80	350	0.1	450532
100	350	0.1	450532
125	400	0.2	450533
150	500	0.2	450534
200	600	0.2	450535
250	700	0.3	450536
300	800	0.3	450537
350	800	0.3	450537
400	950	0.4	450538
500	1150	0.5	450539
600	1300	0.5	450540

Fig. 310 - 1



Accessories for push-in socket pipes

Repair-set RESICOAT RS

RESICOAT RS is a ready-to-use, two-component solvent free epoxy-repair material packed in the correct mixing ratio of 2:1.

Colour: blue



Fig. 284

Double-chamber cartridge

weight g	item-no.
100	451423



Dispenser

Fig. 285

weight g	item-no.
180	451224



Mixing tube

Fig. 286

weight g	item-no.
100	451425



Accessories for push-in socket pipes

Set of assembly and laying tools, complete

Fig. 254 / 1-3

DN	weight kg	item-no.
400	56.8	201118
500	59.4	201121
600	62.7	201123
700	75.0	201125

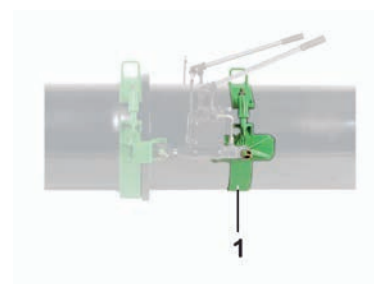
DN 300 on request



Spigot collar

Fig. 254 - 1

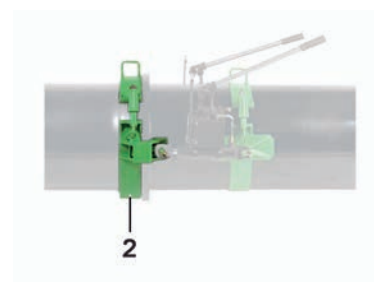
DN	weight kg	item-no.
400	12.6	451118
500	12.8	451121
600	14.0	451123
700	20.3	451125



Socket collar

Fig. 254 - 2

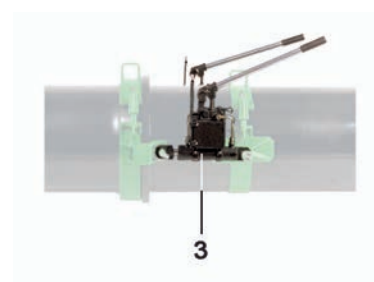
DN	weight kg	item-no.
400	15.0	451119
500	17.4	451122
600	19.5	451124
700	25.5	451126



Hydraulic unit (1 pair)

Fig. 254 - 3

DN	weight kg	item-no.
400 - 700	28.9	451120



Groover scraper

Fig. 293 - 4

DN	weight kg	item-no.
400	0.1	-
500 - 700	0.1	-



Checking rule

Fig. 293 - 5

DN	weight kg	item-no.
400 - 700	0.1	451048



Subject to alteration without notice

Accessories for push-in socket pipes

Hammering accessory

DN	weight kg	item-no.
80 - 100	0.7	456577
125 - 150	0.7	456578
200 - 300	0.7	456579
400 - 500	0.7	-
600 - 700	0.7	-

Fig. 255 - 1


Dismantling leaf

DN	Number Pcs	weight kg	item-no.
80	4	0.1	456581
100	5	0.1	456581
125	6	0.1	456581
150	7	0.1	456581
200	9	0.1	456581
250	12	0.1	456581
300	15	0.1	456581
350	16	0.1	456581
400	17	0.1	456581
500	20	0.1	456581
600	24	0.1	456581
700	27	0.1	456581

Fig. 255 - 2


Set of assembly and laying tools, complete

DN	weight kg	item-no.
80	18.7	201180
100	19.0	201181
125	19.2	201182
150	19.5	201183
200	20.5	201184
250	21.0	201185
300	22.5	201186
350	23.0	201187

Fig. 293 / 1-6


Spigot collar

DN	weight kg	item-no.
80	5.0	451180
100	5.5	451181
125	5.5	451182
150	5.5	451183
200	6.0	451184
250	6.0	451185
300	7.3	451186
350	7.5	451187

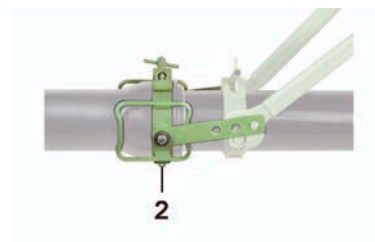
Fig. 293 - 1


Accessories for push-in socket pipes

Socket collar

Fig. 293 - 2

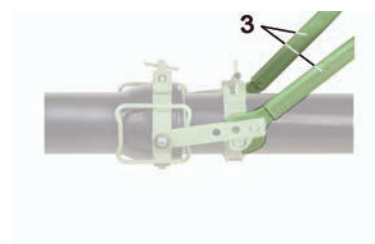
DN	weight kg	item-no.
80	5.0	451270
100	5.5	451271
125	5.7	451272
150	6.0	451273
200	6.4	451274
250	6.8	451275
300	7.1	451276
350	7.5	451277



Open-ended spanner (1 pair)

Fig. 293 - 3

DN	weight kg	item-no.
80 - 350	7.8	451106



Groove scraper

Fig. 293 - 4

DN	weight kg
80 - 250	0.1
300 - 400	0.1



Checking rule

Fig. 293 - 5

DN	weight kg	item-no.
80 - 350	0.1	451048



Extensions for the installation of VS 5000 slide-valves

Fig. 293 - 6

DN	item-no.
80 - 200	451190



Accessories for push-in socket pipes

Cordless screwdriver PIW 14.4SD

Fig. 294

weight kg		item-no.
2.10	Cordless screwdriver	451400
0.80	Spare battery	95938
0.56	Spare charger	451401

Technical data

14.4 Volt / 1.4-2.4 Ah

Idling speed 0-2200 rpm

hammer 0-2500 blows/min

Torque 158 Nm

Weight - without accu-pack 1,6 kg

Weight with accu-pack 2.1 kg

Length 193 mm

Chuck 1/2" square

Standard scope of supply:

2x14.4 V/ 1.4 Ah NiCd flatpack Accu-pack

RCA 7224MB charger

ABS system case

M20 hexagonal socket-wrench insert



Planning



7/1.1 - 12
Pressure pipes



7/2.1 - 4
Sewer pipes

Information for planners and pipe fitters

1. Bedding-in and back-filling pipe trenches

The following instructions must be followed unconditionally:

1.1 In city areas subsidence-free back-filling:

When laying vonRoll ECOPUR und vonRoll DUCPUR pipes:
Well-compacted covering material,
up to 32 mm grain (sandy gravel, gravel, fine excavated
or recycled material).
Bedding ≥ 10 cm.



1.2 Overland Full use of excavated material:

vonRoll ECOPUR pipes:
Full use of excavated material:

vonRoll DUCPUR pipes:
Homogenous covering material, such as gravel, sand or
recycled **or** material or reuse of excavated material if des
DUCPUR PLUS corrosion-protection film is used.

vonRoll DUCPUR und vonRoll ECOPUR pipes:
The finer material (grain 60 mm, individual grain size max.
100 mm) is used for bedding.
The coarser material is used for filling.
Bedding ≥ 10 cm



vonRoll ROCK with rock protection coating is used in
rocky ground, in order to protect the pipe against damages
by rocks when filling back. **vonRoll ROCK** is suitable for all
applications where sharp-edged back fill material is used

2. Anchoring the pipeline

Covering:

Before making pressure tests, every pipe is to be sufficiently covered
with soil, whereby the joints should be left free.

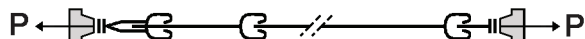
Anchors:

Before making pressure tests on non-thrust-resisting piping
(i.e. without thrust resisting rings), all bends, T-pieces and the
closures at both ends of the section to be tested should be sufficiently
anchored.

Planning Pressure pipes

Making the supports:

- Usually concrete anchors are used but, in special cases, stiffening with wedged-in profiles can also be used.
- The dimensioning of the anchors depends on the forces defined by the internal pressure and the diameter of the pipe on the one hand and on the load-carrying capacity of the ground on the other.



Adapter fittings:

Adapter fittings can be secured against changes in position using anchors.

The push-in joints remain free.

P = axial force

R = resulting force

Anchors for bends:

$$R = 2 \cdot P \cdot \sin \frac{\alpha}{2} \quad \text{in N}$$

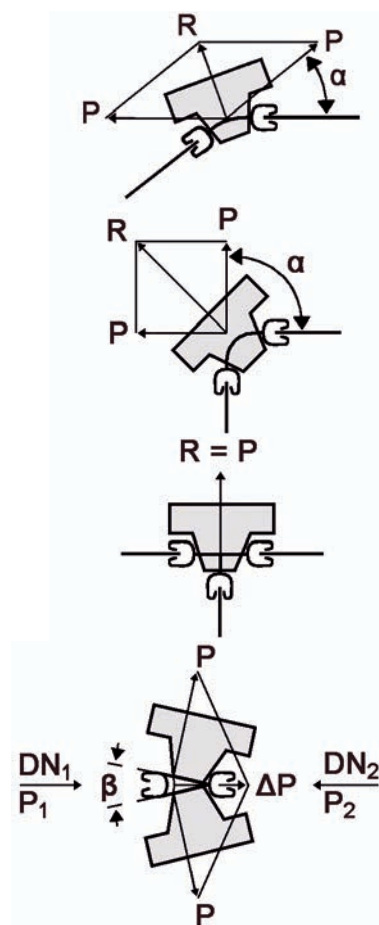
Anchors for T-pieces

$$R = P \quad \text{in N}$$

Anchors for tapers:

$$\Delta P = P_1 - P_2 \quad \text{in N}$$

$$P = \frac{\Delta P}{2 \cdot \sin \frac{\beta}{2}} \quad \text{in N}$$



Resulting forces (R) in daN (1N = 0.102 kp) at 1MPa (10 bar) internal pressure:

DN	DE mm	dummy flange T-piece	bend α 90°	bend α 45°	bend α 30°	bend α 22 1/2°	bend α 11 1/4°	bend α 5 5/8°
80	98	754	1'067	577	390	294	148	67
100	118	1'094	1'547	837	566	427	214	98
125	144	1'629	2'303	1'246	843	635	319	146
150	170	2'270	3'210	1'737	1'175	886	445	203
200	222	3'871	5'474	2'963	2'004	1'510	759	346
250	274	5'896	8'339	4'513	3'052	2'301	1'156	527
300	326	8'347	11'804	6'388	4'321	3'257	1'636	746
350	378	11'222	15'870	8'589	5'809	4'379	2'200	1'003
400	429	14'455	20'442	11'063	7'482	5'640	2'834	1'293
500	532	22'229	31'436	17'013	11'506	8'673	4'358	1'988
600	635	31'669	44'787	24'239	16'393	12'357	6'208	2'832
700	738	42'776	60'495	32'740	22'143	16'690	8'386	3'825

Subject to alteration without notice

3.1 Permissible pressures for pipes and fittings in accordance with EN 545

3.1.1 General

The highest values for PFA, PMA and PEA are defined as follows:

- **PFA:** Permissible component operating pressure
The highest hydrostatic pressure that a pipeline component can withstand in continuous operation.
- **PMA:** Highest permissible component operating pressure
The highest sporadically generated hydrostatic pressure, including pressure surge, that a pipeline component can withstand in continuous operation.
- **PEA:** Permissible site test pressure
Highest hydrostatic pressure that a recently installed pipe component can withstand for a relatively short period of time, in order to test the integrity and tightness of the pipe installed above or below ground.

Note:

This test pressure is not the same as the system test pressure (STP), which refers to the calculated pressure for the pipe. Its purpose is to ascertain the condition and tightness of the pipe.

Applicable limits, which may not permit the full use of these pressure ranges in an installed pipe, must be taken into consideration. For example:

- Operation at the PFA and PMA values given in Table 3.1.2 for socket pipes can be limited by the lower pressure range of other pipeline components, e.g. flange pieces (3.1.4), certain types of Y-fittings (3.1.2) and certain types of moveable connections.
- The water pressure test in pits with the high PEA values given in (3.1.2) can be limited due to the type and structure of the anchoring system of the pipe and/or the moveable connections.

3.1.2 Socket pipes

The highest PFA, PMA and PEA values given for socket pipes (see table), are calculated as follows:

$$a) PFA = \frac{20 \cdot e_{\min} \cdot R_m}{D \cdot S_F}$$

Where t:

$e_{\min}$	Minimum pipe wall thickness in millimetres
D	Average pipe diameter ($DE - e_{\min}$) in millimetres
R_m	Minimum tensile strength of ductile cast iron in megapascals ($R_m = 420 \text{ MPa}$)
S_F	Safety factor of 3

The maximum PFA of a pipe is equal to its class number, e.g. PFA 40 for a class 40 pipe.

- b) PMA: Same as PFA but with $S_F = 2.5$; therefore $PMA = 1.2 \cdot PFA$
- c) $PEA = PMA + 5 \text{ bar}$

Planning Pressure pipes

DN	Pipe-class	PFA	PMA	PEA
80	C100	100	120	125
100	C100	100	120	125
125	C64	64	76.8	81.8
150	C64	64	76.8	81.8
200	C64	64	76.8	81.8
250	C50	50	60	65
300	C50	50	60	65
350	C40	40	48	53
400	C40	40	48	53
500	K9	38.4	46.1	51.1
600	K9	35.7	42.9	47.9
700	K9	33.8	40.6	45.6

(Values in bar)

NOTE 1

See limits in 3.1.1

3.1.3 Flange pieces for socket joints

The maximum values of PFA, PMA and PEA, for fittings with thicknesses as specified in EN 545 8.3, are as follows:

- socketed fittings, except tees: their PFA, PMA and PEA are equal to those given in EN 545 Table A.1.
- socketed tees: their PFA, PMA and PEA may be less than those given in EN 545 Table A.1; they shall be as given by the manufacturer.
- fittings with one flange, such as double-socket tees with flanged branch, flanged spigots and flanged sockets: their PFA, PMA and PEA are limited by their flange; they are equal to those given in 3.1.4 for the corresponding PN and DN.

For fittings manufactured with thicknesses greater than those specified in EN 545 8.3, the PFA, PMA and PEA shall be determined by calculation, testing or by a combination of both and given in the manufacturer's literature.

When other limitations exist due to the joint type or to any specific design arrangement, they shall be as given by the manufacturer.

3.1.4 Flanged pipes and fittings for flange joints

Highest PFA, PMA and PEA values:

DN	PN 10			PN 16			PN 25			PN 40		
	PFA	PMA	PEA	PFA	PMA	PEA	PFA	PMA	PEA	PFA	PMA	PEA
40 bis 50	see PN 40			see PN 40			see PN 40			40	48	53
60 bis 80	see PN 16			16	20	25	see PN 40			40	48	53
100 bis 150	see PN 16			16	20	25	25	30	35	40	48	53
200 bis 600	10	12	17	16	20	25	25	30	35	40	48	53
700	10	12	17	16	20	25	25	30	35			

3.2 Permissible pressures for thrust-resisting rings

3.2.1 For pressure pipe pipeclass C / K9 (in accordance with EN 545)

DN	Pipe-class	Internal thrust-resisting ring			External thrust-resisting ring	
		Fig. 2807A PFA	Fig.2807B PFA	Fig. 2504-1 PFA	Fig. 2805 PFA	Fig. 2806*** PFA
80	C100	40	25	16*		63**
100	C100	40	25	16*		63**
125	C64	40	25	16*		63**
150	C64	40	25	16*		63**
200	C64	40	25	16*		63**
250	C50	25	16	10		40
300	C50	25	16	10		40
350	C40	16		10		25
400	C40	16		10	25	16
500	K9	10			25	10
600	K9				25	10
700	K9				25	

(Values in bar)

* for vonRoll ECOPUR pipes 10 bar

** Use K10 pipes or larger for pressures > 40 bar

*** Version 2806 with all screws

Higher pressures on request

3.2.2 For wastewater pressure pipes in accordance with EN 598

DN	Internal thrust-resisting ring			External thrust-resisting ring	
	Fig. 2807A PFA	Fig.2807B PFA	Fig. 2504-1 PFA	Fig. 2805 PFA	Fig. 2806*** PFA
80		10	10		10
100		10	10		10
125		10	10		10
150		10	10		10
200		10	10		10
250		10*	10*		10
300		10*	10*		10
350	10		10*		10
400	10		10*	10	10*
500	10*			10	10*
600				10	10*
700				10	

(Values in bar)

* Wall-thickness class K9

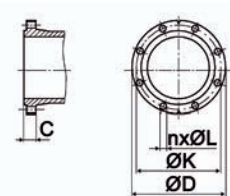
Higher pressures on request

Planning Pressure pipes

4. Table of flanges for ductile cast iron flanges in dependence of DN and PN

According to ISO 2531 (EN 1092-2): Flanges and their connection
– round flanges for pipes, fittings, adapters and accessories, sorted by
PN – Part 2: cast-iron flanges.

DN	PN	Ø D mm	Ø K mm	C mm	n Stk.	Ø L mm	bolts
40	10	150	110	19.0	4	19	M16
	16	150	110	19.0	4	19	M16
	25	150	110	19.0	4	19	M16
	40	150	110	19.0	4	19	M16
	63	170	125	28.0	4	23	M20
50	10	165	125	19.0	4	19	M16
	16	165	125	19.0	4	19	M16
	25	165	125	19.0	4	19	M16
	40	165	125	19.0	4	19	M16
	63	180	135	28.0	4	23	M20
65	10	185	145	19.0	4	19	M16
	16	185	145	19.0	4	19	M16
	25	185	145	19.0	8	19	M16
	40	185	145	19.0	8	19	M16
	63	205	160	28.0	8	23	M20
80	10	200	160	19.0	8	19	M16
	16	200	160	19.0	8	19	M16
	25	200	160	19.0	8	19	M16
	40	200	160	19.0	8	19	M16
	63	215	170	31.0	8	23	M20
100	10	220	180	19.0	8	19	M16
	16	220	180	19.0	8	19	M16
	25	235	190	19.0	8	23	M20
	40	235	190	19.0	8	23	M20
	63	250	200	33.0	8	28	M24
125	10	250	210	19.0	8	19	M16
	16	250	210	19.0	8	19	M16
	25	270	220	19.0	8	28	M24
	40	270	220	23.5	8	28	M24
	63	295	240	37.0	8	31	M27
150	10	285	240	19.0	8	23	M20
	16	285	240	19.0	8	23	M20
	25	300	250	20.0	8	28	M24
	40	300	250	26.0	8	28	M24
	63	345	280	39.0	8	34	M30
200	10	340	295	20.0	8	23	M20
	16	340	295	20.0	12	23	M20
	25	360	310	22.0	12	28	M24
	40	375	320	30.0	12	31	M27
	63	415	345	46.0	12	37	M33
250	10	400	350	22.0	12	23	M20
	16	400	355	22.0	12	28	M24
	25	425	370	24.5	12	31	M27
	40	450	385	34.5	12	34	M30
	63	470	400	50.0	12	37	M33
300	10	455	400	24.5	12	23	M20
	16	455	410	24.5	12	28	M24
	25	485	430	27.5	16	31	M27
	40	515	450	39.5	16	34	M30
	63	530	460	57.0	16	37	M33
350	10	505	460	24.5	16	23	M20
	16	520	470	26.5	16	28	M24
	25	555	490	30.0	16	34	M30
	40	580	510	44.0	16	37	M33
	63	600	525	61.0	16	41	M36
400	10	565	515	24.5	16	28	M24
	16	580	525	28.0	16	31	M27
	25	620	550	32.0	16	37	M33
	40	660	585	48.0	16	41	M36
	63	670	585	65.0	16	44	M39
500	10	670	620	26.5	20	28	M24
	16	715	650	31.5	20	34	M30
	25	730	660	36.5	20	37	M33
	40	755	670	52.0	20	44	M39
600	10	780	725	30.0	20	31	M27
	16	840	770	36.0	20	37	M33
	25	845	770	42.0	20	41	M36
	40	890	795	58.0	20	50	M45
700	10	895	840	32.5	24	31	M27
	16	910	840	39.5	24	37	M33
	25	960	875	46.5	24	44	M39

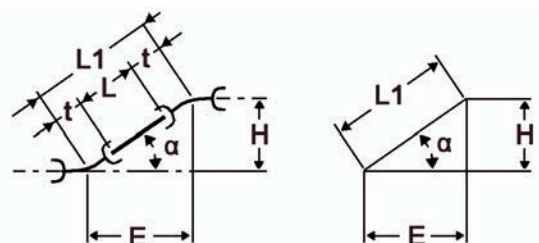


5. Tables for defining constructional dimensions

5.1 Table for defining the dimensions of two spigot/socket or threaded bends each with two sockets and a straight piece of pipe (L)

$$L = L_1 - 2t$$

The bend's constructional dimension (t) can be found in the adapter fittings table.



H mm	$\alpha = 5 \frac{5}{8}^\circ$		$\alpha = 11 \frac{1}{4}^\circ$		$\alpha = 22 \frac{1}{2}^\circ$		$\alpha = 30^\circ$		$\alpha = 45^\circ$	
	E mm	L ₁ mm	E mm	L ₁ mm	E mm	L ₁ mm	E mm	L ₁ mm	E mm	L ₁ mm
1	10.2	10.2	5.0	5.1	2.4	2.6	1.7	2	1	1.4
2	20.3	20.4	10.1	10.3	4.8	5.2	3.5	4	2	2.8
3	30.5	30.6	15.1	15.4	7.2	7.8	5.2	6	3	4.2
4	40.6	40.8	20.1	20.5	9.7	10.5	6.9	8	4	5.7
5	50.8	51.0	25.1	25.6	12.1	13.1	8.7	10	5	7.1
6	60.9	61.2	30.2	30.8	14.5	15.7	10.4	12	6	8.5
7	71.1	71.4	35.2	35.9	16.9	18.3	12.1	14	7	9.9
8	81.2	81.6	40.2	41.0	19.3	20.9	13.9	16	8	11.3
9	91.4	91.8	45.2	46.1	21.7	23.5	15.6	18	9	12.7
10	101.5	102.0	50.3	51.3	24.1	26.1	17.3	20	10	14.1
20	203.1	204.0	100.5	102.5	48.3	52.3	34.6	40	20	28.3
30	304.6	306.1	150.8	153.8	72.4	78.4	52.0	60	30	42.4
40	406.1	408.1	201.1	205.0	96.6	104.5	69.3	80	40	56.6
50	507.7	510.1	251.4	256.3	120.7	130.7	86.6	100	50	70.7
60	609.2	612.1	301.6	307.5	144.9	156.8	103.9	120	60	84.9
70	710.7	714.2	351.9	358.8	169.0	182.9	121.2	140	70	99.0
80	812.3	816.2	402.2	410.1	193.1	209.1	138.6	160	80	113.1
90	913.8	918.2	452.5	461.3	217.3	235.2	155.9	180	90	127.3
100	1015.3	1020.2	502.7	512.6	241.4	261.3	173.2	200	100	141.4
200	2030.6	2040.5	1005.5	1025.2	482.8	522.6	346.4	400	200	282.8
300	3046.0	3060.7	1508.2	1537.7	724.3	783.9	519.6	600	300	424.3
400	4061.3	4080.9	2010.9	2050.3	965.7	1045.3	692.8	800	400	565.7
500	5076.6	5101.1	2513.7	2562.9	1207.1	1306.6	866.0	1000	500	707.1
600	6091.9	6121.4	3016.4	3075.5	1448.5	1567.9	1039.2	1200	600	848.5
700	7107.2	7141.6	3519.1	3588.1	1689.9	1829.2	1212.4	1400	700	989.9
800	8122.5	8161.8	4021.9	4100.7	1931.4	2090.5	1385.6	1600	800	1131.4
900	9137.9	9182.1	4524.6	4613.2	2172.8	2351.8	1558.8	1800	900	1272.8
1000	10153.2	10202.3	5027.3	5125.8	2414.2	2613.1	1732.1	2000	1000	1414.2

Calculation example (the dimension is put together from the individual part-dimensions):
H = 1312 mm

	H mm	$\alpha = 5 \frac{5}{8}^\circ$		$\alpha = 11 \frac{1}{4}^\circ$		$\alpha = 22 \frac{1}{2}^\circ$		$\alpha = 30^\circ$		$\alpha = 45^\circ$	
		E mm	L ₁ mm	E mm	L ₁ mm	E mm	L ₁ mm	E mm	L ₁ mm	E mm	L ₁ mm
	2	20.3	20.4	10.1	10.3	4.8	5.2	3.5	4	2	2.8
+	10	101.5	102.0	50.3	51.3	24.1	26.1	17.3	20	10	14.1
+	300	3046.0	3060.7	1508.2	1537.7	724.3	783.9	519.6	600	300	424.3
+	1000	10153.2	10202.3	5027.3	5125.8	2414.2	2613.1	1732.1	2000	1000	1414.2
=	1312	13321.0	13385.4	6595.9	6725.1	3167.4	3428.3	2272.5	2624	1312	1855.4

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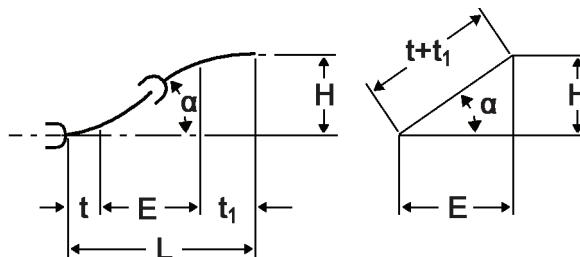
Planning Pressure pipes

5.2 Dimensions for two spigot/socket or threaded bends each with one socket

$$E = (t+t_1) \cdot \cos \alpha$$

$$H = (t+t_1) \cdot \sin \alpha$$

$$L = t+t_1+E$$

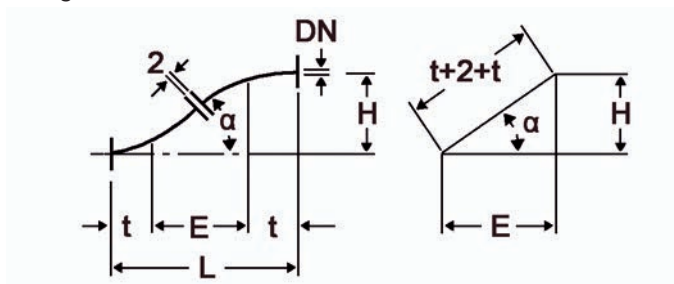


5.3 Dimensions for two connected flanged bends

$$E = 2(t+1) \cdot \cos \alpha$$

$$H = 2(t+1) \cdot \sin \alpha$$

$$L = 2t+E$$



6. Pressure tests

Guidelines for carrying out pressure tests can be found under:

W4/d

Guidelines for the planning, design, construction, operation and maintenance of drinking water supply systems outside buildings.

Available from:

Swiss Association of Gas and Water Professionals SVGW

Grütlistrasse 44

P.O. Box 658

8027 Zürich

7. Pressure losses in water mains

7.1 Introduction

The Hydraulics Laboratory at the SWISS FEDERAL INSTITUTE OF TECHNOLOGY IN LAUSANNE was commissioned by us to develop pressure-loss charts for water mains made of ductile cast iron with polyurethane (PUR) linings.

Measured roughness of the PUR surface in the pipes $k \leq 0,01$ mm (i.e. hydraulically smooth surface).

The pressure-loss calculations are based on COLEBROOK's formula.

The pressure-loss chart on the following page is valid for class K9 DUCPUR push-in joint pipes that are new or as good as new.

It is also applicable to ECOPUR push-in joint pipes of the same pipe class. The altogether 1,8 mm smaller inside diameter DI must be taken account of.

The use of the pressure-loss chart is illustrated by the following examples.

Abbreviations used in the examples:

DN = nominal diameter of the pipe
 DI = effective calculated inside diameter of the pipe in mm
 Q = flow rate in l/s
 v = average flow-speed in m/s
 h = pressure-loss in m water head 1)
 J = $\frac{h}{L}$ = pressure-loss in m water head 1)/1000 m or slope in ‰
 1) = 1 m water head = 0,0981 bar

Application example for vonRoll DUCPUR pipes

Example 1

Given: DN 200, J = 4 m/1000 m

Find: Q, v

From the pressure-loss chart for vonRoll DUCPUR-push-in joint pipes, pipe class K9

Q = 34 l/s, v = 1 m/s

Example 2

Given: Q = 100 l/s, J = 6 m/1000 m

Find: DN, v

From the pressure-loss chart for vonRoll DUCPUR-push-in joint pipes, pipe class K9

DI = 286,0 mm v = 1,56 m/s

Selected for use DN 300: Q = 121,8 l/s, v = 1,63 m/s

Example 3

Given: Q = 100 l/s, J = 4 m/1000 m

Find: DN, v

From the pressure-loss chart for vonRoll DUCPUR-push-in joint pipes, pipe class K9

DI = 313,0 mm v = 1,30 m/s

Selected for use DN 300: Q = 97,5 l/s, v = 1,30 m/s

7.2 Chart for pressure losses in water mains

Fig. 2817 and Fig. 2815; Push-in joint pipes vonRoll DUCPUR and vonRoll ECOPUR models

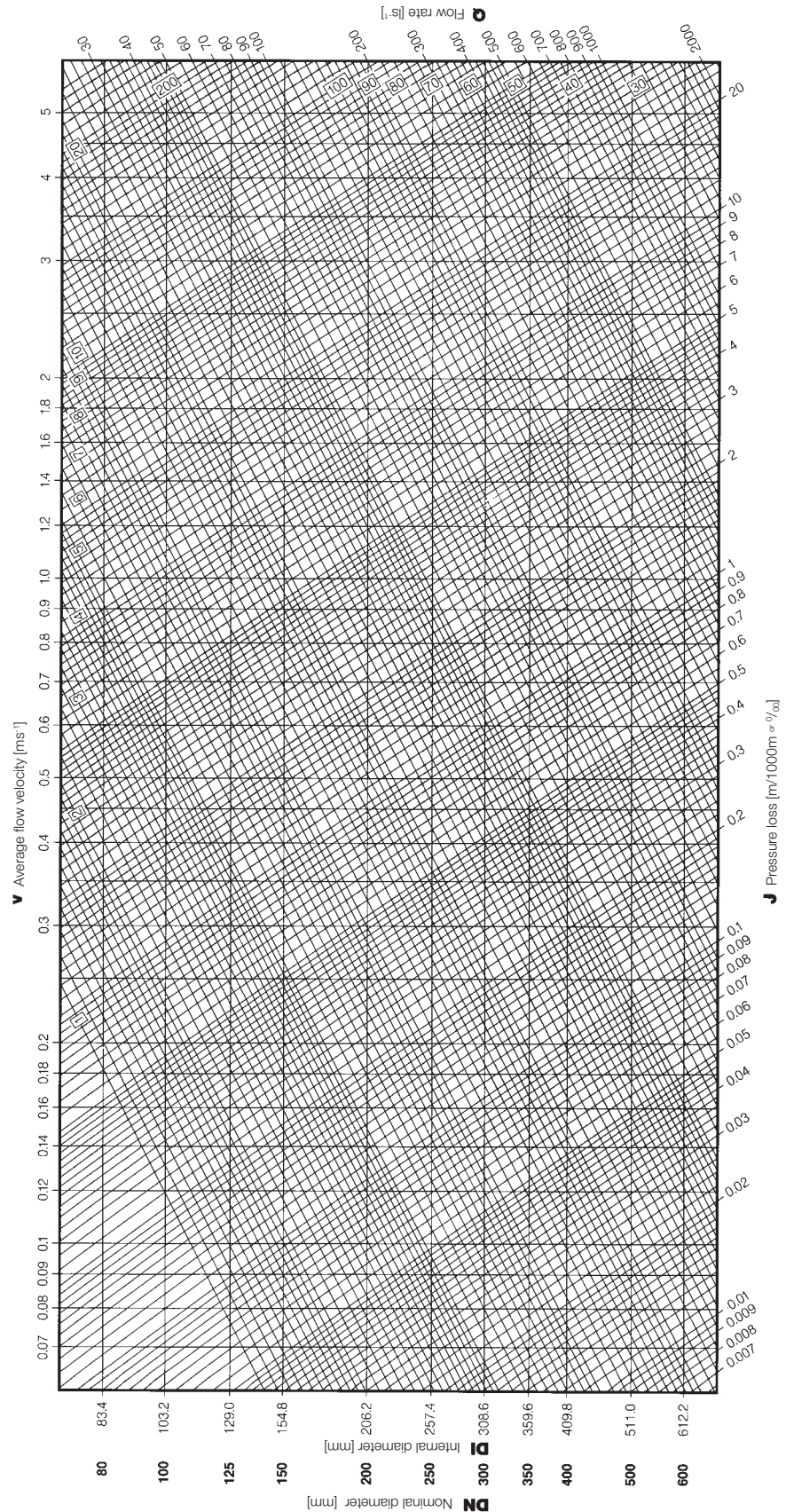
Hydraulically smooth inner surfaces

Kinematic viscosity of the fluid = $1.3 \times 10^{-6} \text{ m}^2 \text{ s}^{-1}$

vonRoll DUCPUR / vonRoll ECOPUR = centrifugally-cast pressure pipe in ductile cast iron with polyurethane internal lining Pipe class K9.

SWISS FEDERAL INSTITUTE OF TECHNOLOGY, LAUSANNE

Hydraulics laboratory



8. Planning information for stretches of pipe with longitudinal positive locking

8.1 General remarks

At bends, junctions, branch terminations and reduction fittings, forces can be encountered that have to be brought under control by the provision of concrete anchors or by using piping that takes up longitudinal forces and so transfers such forces to the surrounding ground.

The **length of pipe that has to be secured** is dependent on its nominal size and testing pressure as well as the coefficient of friction, covering thickness and ground pressure as well as the compacted trench filling.

The following forces oppose the forces caused by the internal pressure:

- for bends, junctions, end caps and reductions;
the frictional forces R between the pipe wall and the surrounding soil;
- for bends, the soil resistance force acting on the adjoining pipes should also be considered.

8.2 Coefficient of friction and ground pressure

The following parameters are defined:

Coefficient of friction

= 0.5 for non-binding sand and gravel in which there are no or very few bindings with loamy or clay-like material (soil type 2.23 according to DIN 18300).

= 0,25 for very loamy sand, sandy clay, marl, loess and clay (soil type 2.25 according to DIN 18300).

8.3 Dimensioning of pipelines that take up longitudinal forces

(Basis: DVGW brochure GW 368)

Ground pressure

= 0,05 N/mm² for very good compacted soil

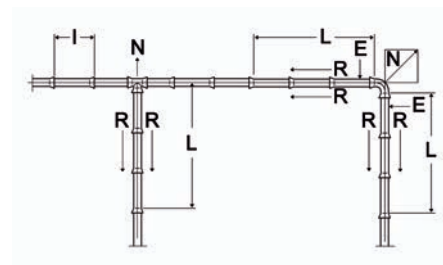
= 0,025 N/mm² for good compacted soil

Notes:

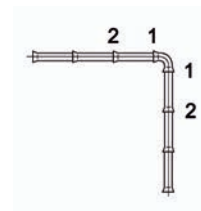
- When securing bends against „air“ the length to be secured is equivalent to that of an end-cap (dummy flange).
- When ECOPUR pipes or pipes protected with PE-film are laid, a coefficient of friction of 0,25 should always be used because of the reduced ground friction.

The following security measure are **the minimum that must be taken:**

- for bends:
2 socket joints on each side (see illustration)
- for junctions and end-caps:
2 socket joints
- for reductions:
2 socket joints on the side with the larger diameter.



N = resulting thrust
E = counteracting earth resistance
R = counteracting friction
I = length of the pipe
L = length to be secured



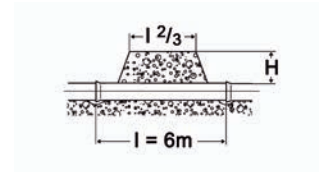
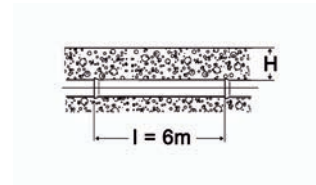
**Please ask our VID for the tables showing
„Pipe length to be secured“**

Planning Pressure pipes

8.4 Area of applicability:

In the DVGW-GW 368 rules, the general standard practice for push-in joint pipe-work is considered that involves completely filling the pipe trench even before the pressure tests. This leads to shorter pipe lengths that have to be secured against longitudinal forces.

Instead of completely filling the pipe trench before carrying out pressure tests, the pipe can be partially covered with soil over $\frac{2}{3}$ of its length.



Specifications for planners and pipe fitters

Instructions for calculating pressure losses

Dimensioning of completely filled vonRoll GEOPUR sewer pipes

(Calculation in accordance with Colebrook & White)

Required: DN nominal diameter in mm

Given: $J = 1.4\text{‰}$
 $Q = 340 \text{ l/s}$

Solution:

On the diagram, Q and J intersect at point **A**. Its position shows that a pipe of DN 600 mm is required.
The flow velocity is $V = 1.15 \text{ m/s}$.

Required: Slope (J) and flow velocity (V)

Given: DN = 300 mm
 $Q = 110 \text{ l/s}$

Solution:

On the diagram, point **B** can be found from Q. Diagonally under B, you can find the specification for $J = 4.8\text{‰}$. Vertically from B, you can find the flow velocity: $V = 1.45 \text{ m/s}$.

Dimensioning of partially filled vonRoll GEOPUR sewer pipes

(Calculation in accordance with the hydraulics laboratory at the Swiss Federal Institute of Technology in Lausanne)

The values of the effective outflow (Q) and the filling level (t) are crucial for partially filled sewer pipes.
Using the "Partial filling curves" diagram on page 7/2.3, it is easy to work out the proportional value of any nominal diameter and calculate its output.

Required: Filling level (t) and velocity (V)

Given: DN = 200 mm
 $Q_0 = 30 \text{ l/s}$
 $Q = 21 \text{ l/s}$

Flow rate ratio $Q_p = Q/Q_0 = 21/30 = 0.7$

Solution:

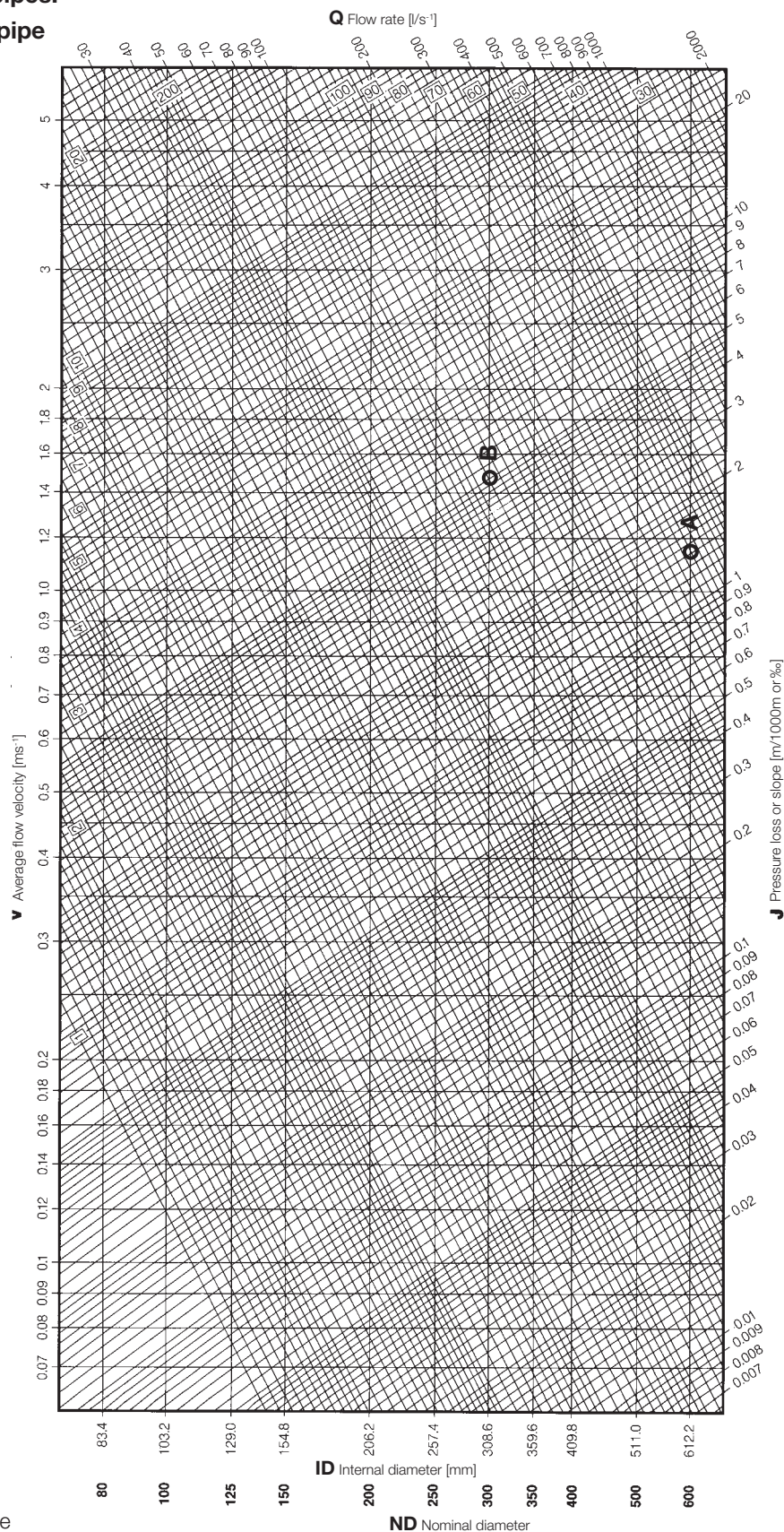
On the diagram, we can find point D from Q_p , namely
 $t/D = 0.62$ or 62%
 $t = 200 \text{ mm} \times 0.62 = 124 \text{ mm}$

When the pipes are filled completely, the velocity is 0.87 m/s.
From point E, the value $V/V_0 = 1.09$ can be read off, so
 $V = 1.0 V_0 = 1.0 \times 0.87 = 0.95 \text{ m/s}$.

Planning for sewer pipes

Pressure loss diagram for waste water pipes: Favourable values for vonRoll GEOPUR pipe

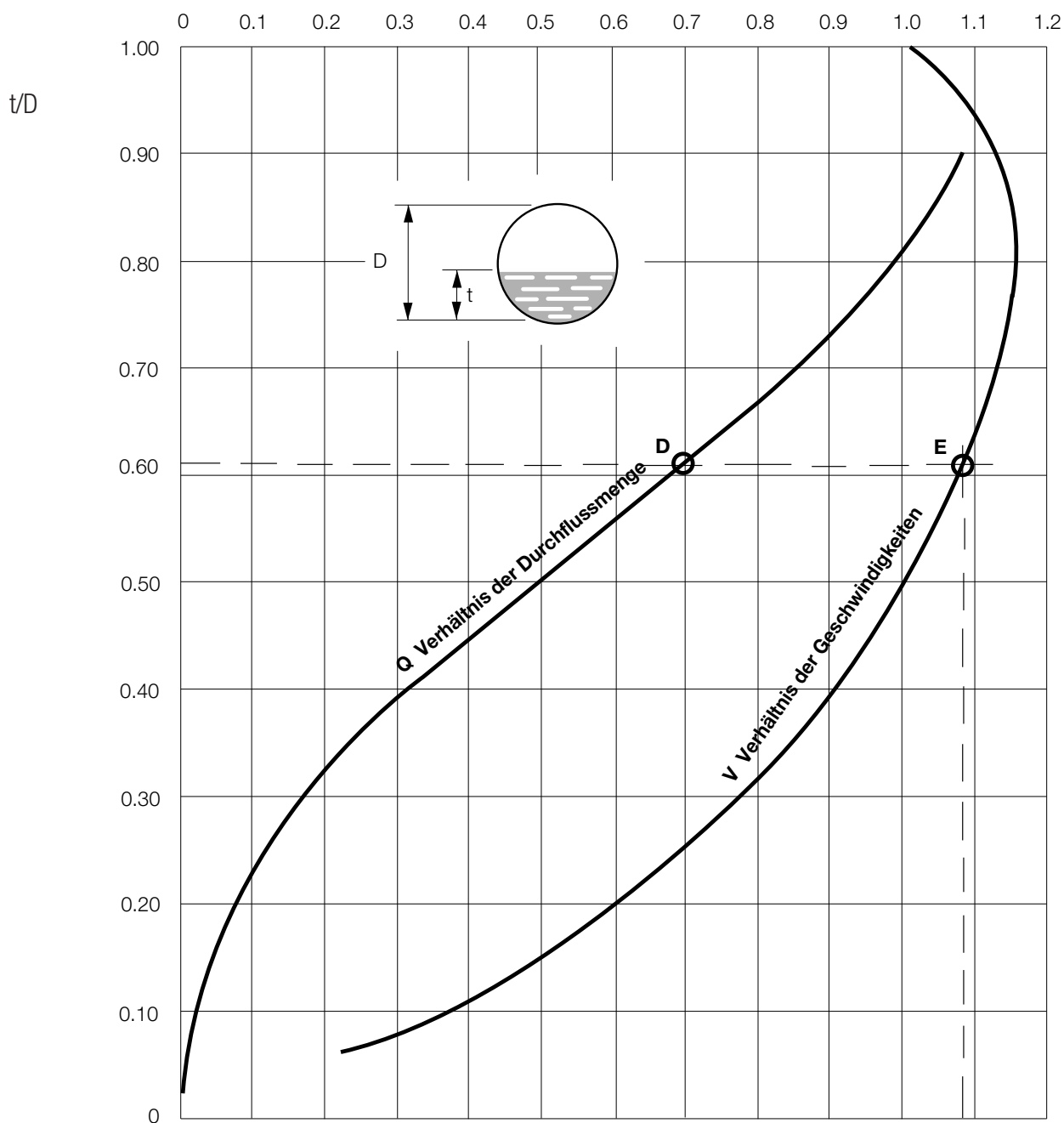
Hydraulically smooth wall, kinematic viscosity
of the liquid $1.3 \times 10^{-6} \text{ m}^2\text{s}^{-1}$



Source:
Swiss Federal Institute of Technology in Lausanne
Hydraulics laboratory

Subject to change

Partial filling curves for vonRoll GEOPUR



Ratio of the flow rate $Q_p = Q/Q_o$
Ratio of the velocities $V_p = V/V_o$

Q, V = for partial filling
 Q_o, V_o = for complete filling

Planning for sewer pipes

vonRoll GEOPUR software CD-ROM for the structural calculation of vonRoll GEOPUR sewer pipes

The vonRoll GEOPUR push-in socket pipe made from ductile cast iron has the potential to play an important role in the managed sewer networks of the future: It is pressure-resistant and leak-tight; fittings and valves are contained in the vonRoll GEOPUR system.

Today, vonRoll GEOPUR is used successfully anywhere where it is necessary to operate parts of sewer networks under pressure or to cross groundwater protection areas with a leak-tight and pressure-resistant sewer pipe.

In order to make it easier for planners to use the future-orientated vonRoll GEOPUR sewer pipe, vonRoll hydro has developed a statics software package. Thanks to the specified structural values, this software helps to determine the correct vonRoll GEOPUR **pipe class** quickly and without any problems.

The software's user interface is available in German, French and Italian.

Fitting and finishing



8/1.1 - 10
Fitting push-in sockets



8/2.1 - 4
Fitting screwed sockets



8/3.1 - 2
Fitting flanges

8/4.1 - 2
Applying DUCPUR PLUS corrosion-protection film

8/5.1 - 3
Cutting pipes to length

8/6.1 - 2
RESICOAT® RS repair set

Fitting instructions for push-in socket pipes

1. General information

Observing the following instructions will guarantee that the pipes are fitted correctly and without faults.

2. Removing the sealing caps and plugs

Sealing caps and plugs do not need to be removed until immediately before laying the pipe at the construction site.



Environmental protection:

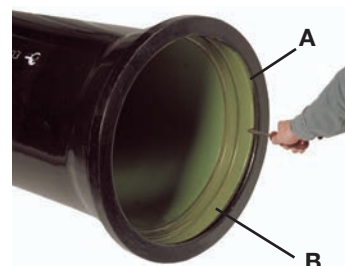
The sealing caps and plugs are designed to be disposable items. They are made from environmentally friendly plastics, (polyethylene (green) or ethylene-propylene (black)). They can be properly recycled as they can be used on the construction site as a protective intermediate layer between the pipe shaft and the bottom of the trench, or as a levelling underlayer (e.g. cement stone). If they are disposed of in a suitable incinerator, no toxic or corrosive exhaust gases are released.

3. Cleaning the push-in sockets

Check that the inner part of the push-in sockets is clean in the area around the retaining groove (A) and the sealing chamber (B). Bitumen accumulations and/or other deposits on vonRoll DUCPUR pipes can be removed using the groove scraper.

vonRoll ECOPUR pipes, fittings and slide gate valves must only be cleaned using cleaning cloths.

The use of groove scrapers is not permitted.



4. Lubricating the push-in sockets

The retaining groove (A) and the sealing chamber (B) must not be lubricated.



Single-chamber socket



Double-chamber socket

Fitting and finishing

5. Inserting the sealing rings, Fig. 2810/2811

- 5.1** The sealing ring must always be inserted.
- 5.2** The sealing ring is inserted by hand by forming it into a loop.
- 5.3** Press the remaining part of the loop down flat.
- 5.4** If it is difficult to press the loop down flat, form a second loop opposite it. The two small loops can easily be pressed flat.



5.1



5.2



5.3

The inner hard rubber edge of the sealing ring must not stick out over the centring collar

Note:

Sealing rings must be stored in a place which is protected from sunlight and moisture
They must only be inserted into the push-in sockets before fitting the pipes.
In winter, it is advantageous to store the sealing rings in a warm place as this makes it easier to fit them.

Single-chamber socket



Correct

Incorrect

Double-chamber socket



Correct

Incorrect

6. Cleaning and lubricating the spigot ends of the pipes, fittings and sockets

6.1 Cleaning

vonRoll DUCPUR pipes are cleaned using a triangular scraper. If necessary, accumulations of coating and/or other deposits can be removed from the pipe spigot ends.

vonRoll ECOPUR pipes, fittings and slide gate valves must only be cleaned using cleaning cloths and sponges.



6.2 Lubricating

The spigot end and the sealing ring used are coated evenly with lubricant all the way round.



Single-chamber socket



Double-chamber socket



7. Centring and aligning the push-in socket joint

Caution:

If the joint is fitted with an optional thrust-resisting ring, this must be attached first as shown in point 12.

- Insert the pipe into the socket with the spigot end on a round timber so that it is lying centrally on the sealing ring. In this position, the pipes centre themselves.
- The horizontal and vertical axes of the pipe elements to be fitted (pipes, fittings, valves) must form a straight line.



8. Fitting

After centring according to point 7, the pipe can be fitted in a variety of different ways.

The variants described below are suitable for push-in socket joints with or without a thrust-resisting ring.

During and after fitting, the depth of insertion must be monitored. See points 9 and 10.

8.1 Fitting with the installation device, Fig. 293 for pipes and fittings DN 80-350

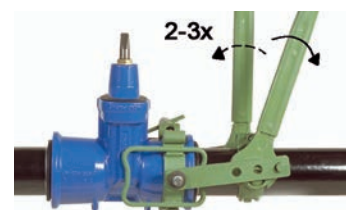
After centring, the pipeline components are put together quickly and easily with the installation device Fig. 293.

The device is operated using the open-end wrenches.



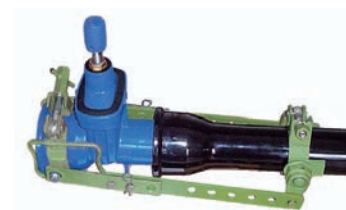
Caution:

When fitting a push-in socket joint with an internal thrust-resisting ring Fig. 2807, it is locked in place using two to three sharp movements on the open-end wrenches in the opposite direction.



8.2 Fitting with the installation device, Fig. 293 for slide gate valves DN 80-200 with spigot end

For this variant, you also need two extension plates, two bolts and two bolt retainers.

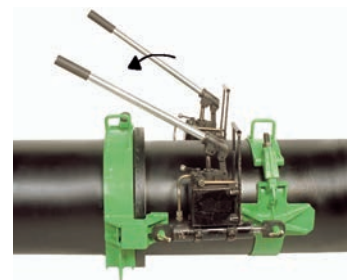


Fitting and finishing

8.3 Fitting with the installation device, Fig. 254 for pipes and fittings DN 400-700

The installation device is actuated hydraulically and is designed for fitting push-in sockets together.

Fitting push-in socket fittings and slide gate valves with the installation device, Fig. 254



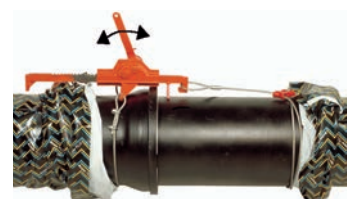
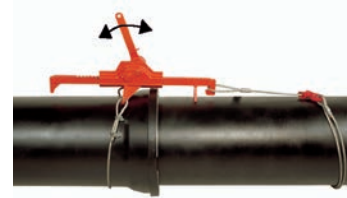
8.4 Fitting with the installation device, Fig. 252 for pipes and fittings DN 200-600

Protection of the devices against overstress using torque release on the crank.

For vonRoll ECOPUR pipes, protected cable slings must be used.

If the pipe is protected using DUCPUR PLUS corrosion protective film, fitting is carried out in the same way.

Fitting push-in socket fittings and slide gate valves with the installation device, Fig. 252 (use protected cable slings).



8.5 Fitting variants without an installation device

- Fitting with excavators and impact winches

When inserting the pipes, a square timber must be used between the pipe and the impact winch.



- Fitting with pinch bars (crowbars) for DN 80-100

Fitting for pipes, fittings (excl. elbows) and slide gate valves with push-in sockets. The pinch bar is not included in the range.



- Fitting with two chain hoists positioned opposite each other

For use in tough conditions and for large nominal diameters.



For vonRoll ECOPUR pipes, only protected cable rope slings, brackets and fabric carrying straps are permitted.

8.6 Fitting short pipes with push-in sockets DN 80-700

Fitting as shown in points 8.1-8.5.

Cutting the pipe to the desired length must be carried out as shown in "Shortening pipes".

You can prevent the short pipes from moving out of position during the plugging process as follows:

- **For DN 80-150**, by inserting an extension (e.g. cast-iron pipe, wedged timber beam, etc.) and pressing down evenly with your body weight.
- **For DN 200-700**, by constructing bracing over the crown of the short pipe.

When the fitting process is complete, the wooden supports must be removed.

9. Checks during and after fitting

During and after fitting, the depth of insertion must be monitored.

The clearance between the pipe spigot end and the base of the socket must be within the tolerance of (S) = 5-10 mm.

9.1 Push-in socket joints with double-chamber socket DN 80-700 (pipes)

Position of the silver-grey marking line for push-in socket joints:

Without thrust-resisting ring

If the edge of the pipe socket is flush with the first marking line, the pipe spigot end is positioned correctly in the socket.

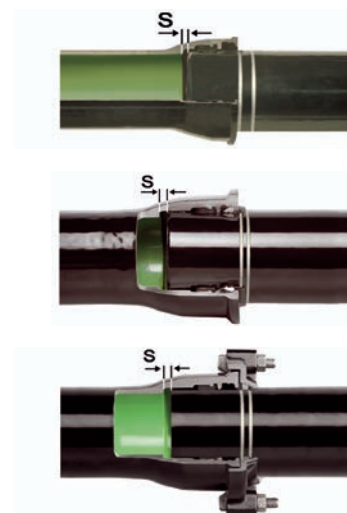
With internal thrust-resisting ring, Fig. 2807

If the edge of the rubber sleeve of the thrust-resisting ring is flush with the second marking line, the pipe spigot end is positioned correctly in the socket.

With external thrust-resisting ring, Fig. 2806 (2505/2506)

If the edge of the pipe socket is flush with the first marking line, the pipe spigot end is positioned correctly in the socket.

The thrust-resisting ring must only be fitted when the sealing ring has been checked as shown in point 10.



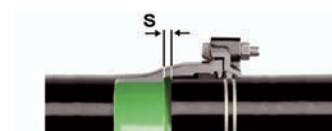
9.2 External push-in socket joints (single-chamber socket)

Pipes DN 350-700, with and without a thrust-resisting ring (Fig. 2505 while stocks last)

If the edge of the pipe socket is flush with the first marking line, the pipe spigot end is positioned correctly in the socket.

Fittings DN 80-700, with and without a thrust-resisting ring, Fig. 2806

Measure the depth of insertion and align the marking line with the spigot end as shown in point 12.2.

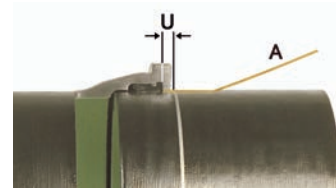


Fitting and finishing

10. Correct seating of the sealing ring

Immediately after fitting is carried out similarly to as shown in point 8, the distance (U) between the edge of the socket and the sealing ring is checked using the measuring device (A). The measurement (U) must be the same over the entire circumference.

If the measured distances (U) are not the same, the push-in socket joint must be disassembled and refitted.



11 Displacement of the joint when fitting without a thrust-resisting ring

After the fitting and checking processes are complete, the pipes may be **displaced**.

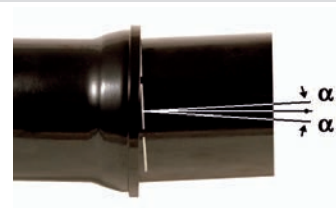
The permitted displacement angle α is:

$\leq 5^\circ$ for DN 80-300

$\leq 4^\circ$ for DN 350-400

$\leq 3^\circ$ for DN 500-700

Displacement of the joint when fitting with a thrust-resisting ring as shown in point 12.



12. Fitting external and internal thrust-resisting rings

External and internal thrust-resisting rings can also be fitted in the push-in socket joint.

The use of this thrust-resisting ring ensures a secure connection at higher operating pressures.

For permitted operating pressures, see "Specifications for planners and pipe fitters"

Thrust-resisting rings may only be used for pipes and fittings with spigot ends made from ductile cast iron.

12.1 Internal thrust-resisting rings, Fig. 2807

Prepare and insert the thrust-resisting ring as shown in points 1-6.

- Lubricate the chamber of the thrust-resisting ring with sufficient lubricant

- Form the thrust-resisting ring (C) into a loop with one hand in the centre.

Caution:

The loop must be positioned between two retaining segments.



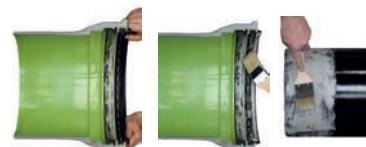
- Insert the thrust-resisting ring (C) into the chamber of the thrust-resisting ring. The number of stainless steel segments will vary depending on the size of the thrust-resisting ring.

Fit the rubber lip so that it faces outwards.



12.2 Checking for correct installation

- You must be able to turn the thrust-resisting ring by hand
- Pipe spigot ends, the sealing ring used and the thrust-resisting ring are coated evenly with assembly grease all the way round.
- Fitting and checking the push-in socket joint as shown in points 7-10.
- If necessary, the pipes can be angled by a maximum of α 3° after being fitted.

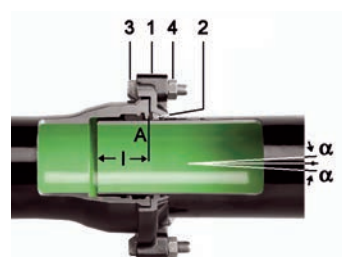


12.3 External thrust-resisting rings, Fig. 2806

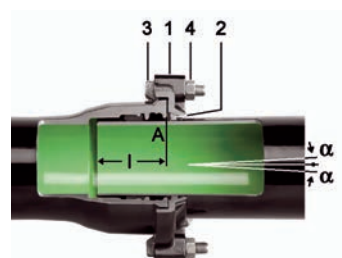
Prepare and insert the thrust-resisting ring as shown in points 1–6.

- Mark the appropriate depth of insertion (l) at (A):

Fittings (single chamber socket)		Pipes, UNI 1 and slide gate valve (double chamber socket)	
DN	l mm	DN	l mm
80	80	80	109
100	82	100	110
125	85	125	113
150	88	150	116
200	94	200	121
250	94	250	121
300	95	300	120
350	98	400	135
400	100	500	135
500	105		
600	110		
700	140		



Single chamber



Double chamber

- Slide the thrust-resisting ring (1) and the locking ring (2) onto the end of the pipe.
- Fit the pipe up to the marking (A) using the installation device, Fig. 293.

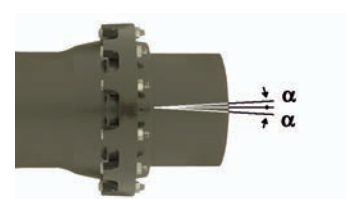
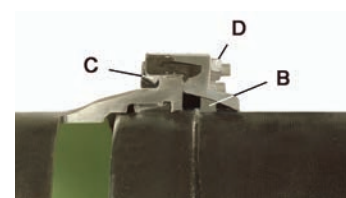
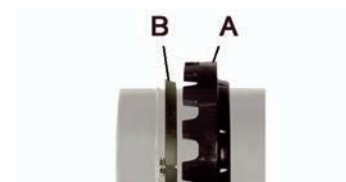
Fitting and finishing

- Push parts (1) and (2) into position (A) on the push-in socket.
- Insert the clip bolts (3) from the back of the thrust-resisting ring and tighten the nuts by hand as far as possible.
(It must be ensured that the bolt contact surfaces are in contact with the socket flange and the thrust-resisting ring.)
- Tighten the clip bolts (3) and nuts (4) to a torque of 120 Nm in a crosswise sequence.
(Using a spanner or cordless impact screwdriver, Fig. 294)
- After the fitting and checking processes are complete, the pipes may be displaced.
The maximum permitted displacement angle α is 3°.

12.4 External thrust-resisting rings, Fig. 2805, DN 400-700 for pipes with weld bead

Prepare and insert the thrust-resisting ring similarly to as shown in points 1–6.

- Slide the thrust-resisting ring (A) and the locking ring (B) onto the spigot end
- Open the thrust-resisting ring with the key and slide it over the weld bead
- Push the locking ring (B) forward as far as the socket of the pipe. Push the thrust-resisting ring over the locking ring and centre it (e.g. with two hardwood wedges).
- Insert the clip bolts (C) from the back of the thrust-resisting ring and tighten the nuts by hand as far as possible.
(It must be ensured that the contact surfaces are in contact with the socket flange and the thrust-resisting ring.)
- Tighten the clip bolt (C) and nut (D) to a torque of 120 Nm in a crosswise sequence.
(Using a spanner or cordless impact screwdriver, Fig. 294)
- After the fitting and checking processes are complete, the pipes may be displaced.
The maximum permitted displacement angle α is 3°.



13. Removing the push-in socket joint

When removing the push-in socket joint, it must be determined whether it should be removed with or without the thrust-resisting ring.

13.1 Removing the push-in socket joint without thrust-resisting ring

- Using the installation device, Fig. 293

Pull the spigot end out of the socket using open-end wrenches.

- Using the installation device, Fig. 254

Reverse the oil flow in the hydraulic devices by shifting the valve lever. By pumping the lever, the cylinder is extended and the joint is removed.

Removing push-in socket joints which were constructed a considerable time ago:

Drive the disassembly plate, Fig. 255-2, between the pipe spigot end and sealing ring using the drive heads Fig. 255-1.

Removed sealing rings must not be reused.

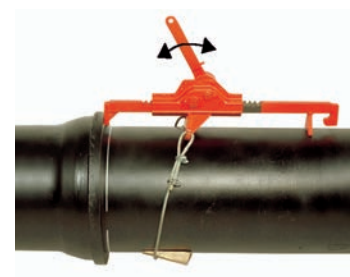


- Using the installation device, Fig. 252

Arrangement of the cable slings and winches as shown in the figure.

Removing the joint by extending the toothed rack.

In particularly difficult cases, this device can also be used for nominal diameters below DN 200.



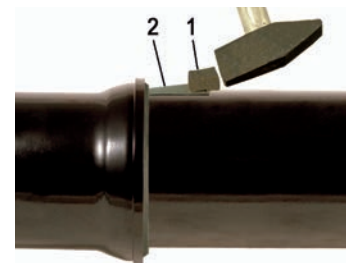
Fitting and finishing

13.2 Removing the push-in socket joint with internal thrust-resisting ring, Fig. 2807

- Using the installation device, Fig. 293, pull the pipe spigot end out until it comes into contact with the base of the socket.
- Drive the disassembly plates, Fig. 255-2 (2), between the pipe spigot end and locking ring all the way round using the drive heads Fig. 255-1 (1).

Number of disassembly plates required for removal:

DN	Quantity
80	4
100	5
125	6
150	7
200	9
250	12
300	15
400	17
500	20



Caution

Removed thrust-resisting rings may be reused if, when subjected to a visual inspection, they show no signs of damage (no broken retaining segments).

13.3 Removing the push-in socket joint with external thrust-resisting ring Fig. 2805/2806

External thrust-resisting rings must be removed in the reverse order to the fitting sequence.

Subsequent removal of the joint with the installation device as described above.

Caution:

Removed thrust-resisting rings may be reused if, when subjected to a visual inspection, they show no signs of damage.

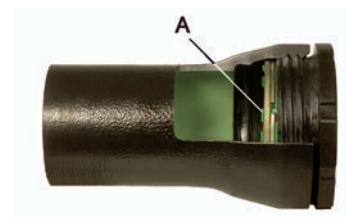
Fitting instructions for screwed socket pipes

1. General information

Observing the following instructions will guarantee that the pipes are fitted correctly and without faults.

2. Removing the sealing caps and plugs

Sealing caps (pipe spigot end) and plugs (A) do not need to be removed until immediately before laying the pipe at the construction site.

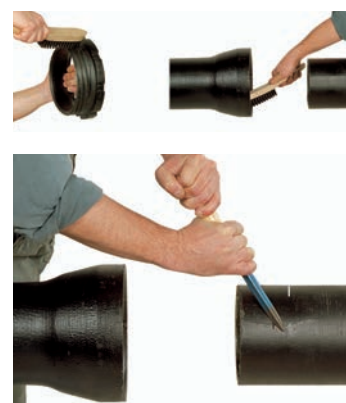


Environmental protection

The sealing caps and plugs are designed to be disposable items. They are made from environmentally friendly plastics, (polyethylene (green) or ethylene-propylene (black)). They can be properly recycled as they can be used on the construction site as a protective intermediate layer between the pipe shaft and the bottom of the trench, or as a levelling underlayer (e.g. cement stone). If they are disposed of in a suitable incinerator, no toxic or corrosive exhaust gases are released.

3. Cleaning the screwed socket, pipe spigot end and threaded ring

Check that the threaded ring, sealing chamber, spigot end and pressure-loaded area are clean, and if necessary, clean them. (Tools: Triangular scraper, scraper, wire brush, cloths, etc.)



4. Checks before fitting

Free movement of the thread: Loosen the threaded ring a few turns and screw it back into the end position.

Recommendation: After being cleaned and lubricated, the threaded screw adjusted in the factory must always be refitted in the same socket, as far as is possible.

Fitting and finishing

5. Preparation of the sealing sets – Lubricating the screwed socket, pipe spigot end and threaded ring

5.1 With electrical bridging, Fig. 2310:

- Push the short threaded ring (with 45° bevel), contact ring (dia. profile), supporting ring (□- profile) and sealing ring onto the pipe shaft in the order similar to that shown in the picture.
- Align the joint on the contact ring to the crown of the pipe.



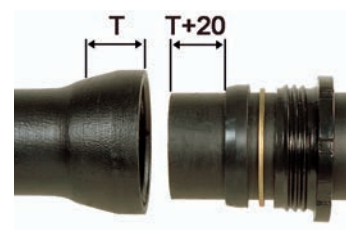
5.2 Without electrical bridging, Fig. 2311:

Push the long threaded ring, supporting ring* (□- profile) and sealing ring onto the pipe shaft in the order shown in the picture.

* for water pipes ≥ DN 200

for gas pipes for all DN

Distance between the sealing ring and spigot end: Approx. depth of the socket (T) + 20 mm.



Sealing rings must be stored in a place which is protected from sunlight and moisture (as described in "Transport and storage")

6. Centring and aligning the screwed socket joint

Inserting the pipe shaft into the socket – insert the centrally and axially aligned pipe until it comes into contact with the base of the socket.

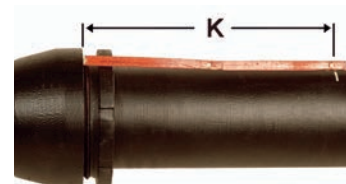
Secure the pipe against axial movements by driving in chisels.

7. Fitting

7.1 Monitor the pipe for any axial movements –

Using an oil pen, make a check mark at a pre-defined distance (K) from the socket to the pipe shaft.

Check again after the pipe has been fitted; distance (K) must not be larger under any circumstances.



7.2 Inserting the sealing ring, supporting ring, slide ring and contact ring into the socket:

Insert the sealing ring with wooden lifter as far as possible into the sealing chamber; starting at the bottom.

Push the other rings forward until they rest against the sealing ring.



Subject to change

7.3 Tightening the threaded ring –

as far as possible by hand, and then using a hammer and a hook spanner for the last stage.

Recommended hammer weight:

DN 80 – 100: 2 kg

DN 125 – 150: 3 kg

DN 200 – 250: 5 kg

DN 300 – 400: 10 kg

Use a pneumatic drive hammer (approx. weight: 75 kg): For large nominal pipe diameters, for high operating pressures, and where space is limited.

Retighten the threaded ring 24 hours after first tightening it.

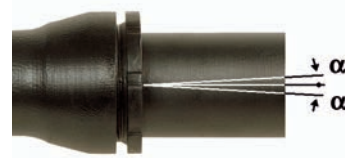
After pressure testing has been carried out, every threaded ring must be retightened.



8. Displacement of the screwed socket joint

Immediately after tightening the threaded ring, the screwed socket joint may be displaced.

The maximum permitted displacement angle α is 3°



9. Installing screwed socket fittings

9.1 All screwed socket fittings mentioned in the product component may be installed in **screwed socket pipes**.

9.2 All screwed socket fittings mentioned in the product component may also be installed in **push-in socket pipes**. However, in principle, push-in socket fittings should be used.

When installing screwed socket fittings in push-in socket pipes, proceed as follows:

- In principle, the fitting instructions for screwed socket pipes must be observed.

For push-in socket joints with no electrical bridging, the screwed socket set with long threaded ring and slide ring (Fig. 2311) must be used.

A bevel and marking line are not required on the pipe spigot end.



Note:

Measure for old grey cast iron pipes or larger pipes:

Use screwed socket sealing rings with a reduced or larger profile cross section.

Fitting and finishing

10. Thrust-resisting ring to the screwed socket joint, Fig. 2306 SUBA short

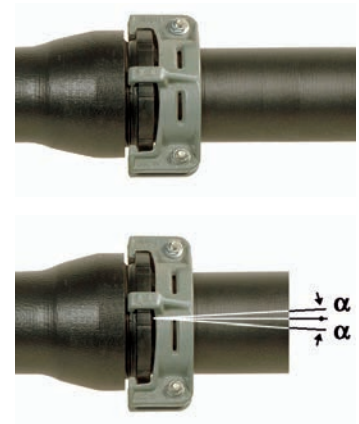
The thrust-resisting ring, Fig. 2306, can also be installed on the screwed socket joint. It ensures a secure, axial force-resistant connection.

By using this thrust-resisting ring, supports such as concrete thrust bearings for fittings become unnecessary.

The maximum permitted displacement angle α with the thrust-protected screwed socket joint is 2° .

Permissible pressures:

up to DN 200	PN 16 bar
DN 250 - 300	PN 10 bar



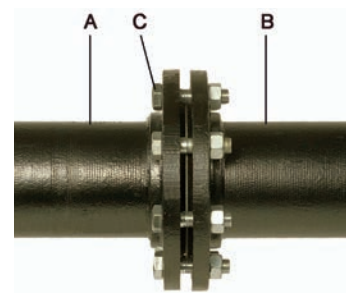
Fitting instructions for flange pipes

1. General information

Observing the following instructions will guarantee that the pipes are fitted correctly and without faults.

2. Structure of the joint

To construct a flange joint, two pipeline components with a flange (A, B) and the sealing set with seal, screws and nuts (C) are also used.



3. Cleaning the flanges

The surfaces on the sealing strip, seal and the screw holes must be cleaned and any paint residues must be removed.

4. Assembly of the joint

Recommendations for installation.

Pipes and fittings with a flange must be carefully embedded in the ground. The ground must be carefully filled in at the side of the pipe and over the crown of the pipe.

Different loads cannot be absorbed by the rigid pipe joints. Under no circumstances should the pipes and fittings be supported with stones and other materials; they must be resting on non-stony ground. The bedrock must be covered with a layer of sand, gravel or stone chippings which is 15 cm thick.

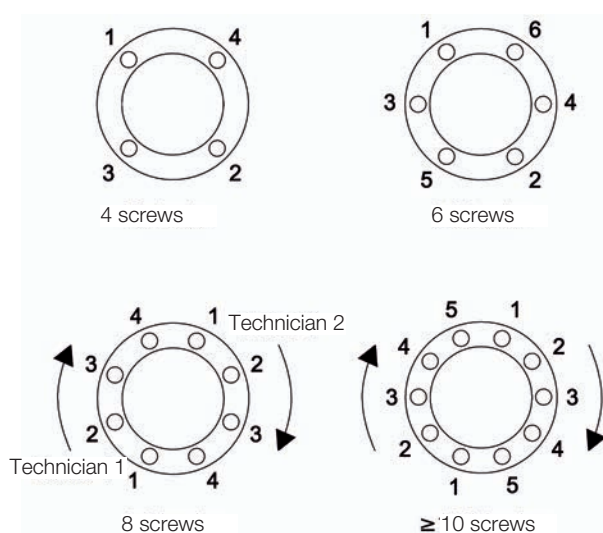
5. Arrangement of the screw holes

For arranging the screw holes with flange joints, the rule is that there are no screw holes in the flange axis perpendicular to the pipeline level.

Order for tightening the screws (in accordance with the numbering for the holes as shown in the picture).

The nuts must be tightened with a torque wrench. (The torque depends on the size and class of the screw (5.6, 8.8).

We would be happy to let you know the torque required.



Fitting and finishing

6. Tightening torques for flange joints with seal type G-St (rubber steel core)

The minimum tightening torques are to be used with a lubricated thread.

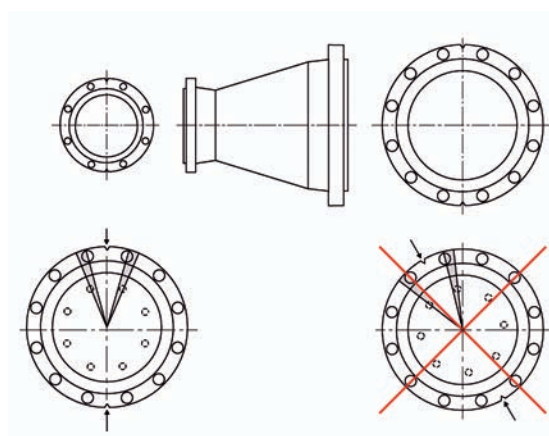
Seal with steel core				
DN	Tightening torques			
	PN 10 Nm	PN 16 Nm	PN 25 Nm	PN 40 Nm
40	40	40	40	40
50	40	40	40	40
65	40	40	40	40
80	40	40	40	40
100	40	40	60	60
125	40	40	80	80
150	60	60	80	80
200	60	60	80	120
250	60	80	120	150
300	60	80	120	150
350	60	80	150	180
400	80	120	180	300
500	80	150	180	
600	120	180	300	
700	120	180	400	

7. Note on installing flange fittings (particularly Fig. 2084)

Due to the different number of screw holes when changing flange calibre, the installed valves and fittings will be in a slanted position if installed incorrectly.
Possible degree of rotation (depending on the nominal diameter) up to 22.5°.

Caution:

The degree of rotation for large nominal diameters is hardly noticeable.



Installation instructions for ducpurPLUS corrosion-protection film

1. General remarks

DUCPUR PLUS corrosion-protection film is delivered as a film tube in handy rolls.

It is made of environment-friendly polypropylene.

DUCPUR PLUS corrosion-protection film is highly resistant.

Once laid, it exhibits a practically unlimited resistance to ageing effects.

It is used to protect cast-iron piping against the following corrosive elements:

Aggressive soils

- in acidic soils, e.g. marshy ground
- in soils with a high salt content, e.g. as a result of treating roadways against frost and snow
- around root

Formation of macro-elements

- in the case of varying corrosion potentials between the cast-iron piping and other metallic parts in contact with it, e.g. iron reinforcements.
- in the case of different electrical potentials between the cast-iron piping and other metallic parts in electrical contact with it, e.g. copper.
- in the case of inhomogeneous bedding, e.g. when trenches are filled in with various types of earth, contact between pipe surface and lumps of clay, masonry etc.

Stray currents

- near railways that run on direct current, e.g. tramways, too.
- near metallic structures that are fitted with cathodic protection devices

Our customer service division is at your disposal for:

- professional instruction on the laying of DUCPUR PLUS corrosion-protection film.
- taking soil samples.
- advice on the corrosion-protection of pipelines



2. Preparation

DUCPUR PLUS corrosion-protection film is fitted in an on-going manner as the pipes and adapter fittings are laid.

The film should be cut about 0.3 m longer than for the total pipe length required L1.

Slide the DUCPUR PLUS corrosion-protection film over the pipe (make a bellows).

Lift the pipe by hand or using lifting gear and pull the film onto the whole length of the pipe. Push-in joint should be left free.

3. Pipe connection

Prepare the piping to be laid – in or outside the trench – as shown.

Connect DN 80 – 700 push-in joint pipes using the appropriate installation appliances (Fig. 293 or Fig. 254).



Fitting and finishing

4. Seal the connection

- Grasp the DUCPUR PLUS corrosion-protection film at its topmost point and fold it into the pipe.
The fold must lie below the apex of the pipe and point downwards towards the bottom of the trench.
Tape the fold at one-meter intervals along the pipe using SCOTCHRAP adhesive tape.
Avoid pockets of air.
- First seal the DUCPUR PLUS corrosion-protection film onto the spigot-end of the pipe about 2–3 cm away from the markings.
- Pull the overlapping part of the DUCPUR PLUS corrosion-protection film over the pipe connection.
- Using SCOTCHRAP adhesive tape, fasten the film tightly around the joint (avoid voids).
- Use the SCOTCHRAP adhesive tape to both fasten the film and to seal it.
Adjust the DUCPUR PLUS corrosion-protection film to fit closely onto the pipe.
Fasten and seal the DUCPUR PLUS corrosion-protection film onto the previously laid and already sealed section of piping using 1½ turns of SCOTCHRAP adhesive tape.



5. Fill in the trench

- Embed the sealed-up section of piping in using fine material. In order to protect the DUCPUR PLUS corrosion-protection film from damage when filling in the trench, place a wooden board on the top of the pipe. The board should be removed before more coarse material is filled in.
- Fill in the trench with fine material up to 30 cm over the top of the pipe.
- Only now may the trench be completely filled with excavated or coarse material using mechanical means.

6. Repairing damage to the DUCPUR PLUS corrosion-protection film

Small, visible damage to the DUCPUR PLUS corrosion-protection film that can occur during the laying of the pipes can be repaired using SCOTCHRAP adhesive tape without incurring any problems.

Cutting pipes to length

1. Safety precautions

All instructions made by the manufacturer with the aim of guaranteeing accident prevention are to be followed.
Appropriate protective clothing and safety equipment must be used when work is carried out.

2. Marking the cutting point

Cuts must be made at right-angles to the pipe axis.
Before cutting, mark the point where the pipe is to be cut with a line around the whole circumference of the pipe.
Tip: Wrap a wide steel band with straight edges around the pipe, mark along its edge.



3. Cutting

Use an appropriate cutting tool, e.g. circular saw.



4. Round off sharp edges

4.1 Push-in joint pipe

Bevel the spigot end of the cut pipe slightly.
A hand grinder is an appropriate tool for doing this.

Execution:

The radius (R) depends on the size of the push-in joint pipe.

DN 80-150 R 5 mm DN 350,400 R 7 mm

DN 200-300 R 6 mm DN 500-700 R 8 mm

Sharp edges must be sufficiently rounded off. Otherwise they make it difficult to insert the spigot and may cause damage to the sealing rings.



4.2 Threaded pipe

Sharp edges should be rounded off using a file or hand grinder.



5. Protect cut surface against corrosion

Carefully clean all surfaces inside the shortened pipe.

Touch up the bare metal surfaces:

- for vonRoll DUCPUR pipes with a bitumen compound suitable for drinking water.
- for vonRoll ECOPUR pipes using the repair kit as described under „Repairing linings and outside coatings“.

Subject to alteration without notice

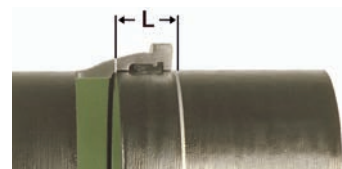
Fitting and finishing

6. Markings on push-in joint pipes

The marking lines should be transferred to the spigot-end of the shortened pipe as appropriate to the type of piping element:

6.1 Markings for push-in joint adapter fittings (single-chamber)

DN	L mm
80	80
100	82
125	85
150	88
200	94
250	94
300	95
350	98
400	100
500	105
600	110
700	140



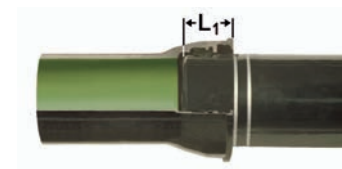
6.2 Markings for push-in joint pipes and adapter fittings such as UNI 1 / slide-valve (double-chamber) with internal thrust-resisting ring Fig. 2807

DN	L2 mm
80	126
100	127
125	130
150	133
200	138
250	138
300	137
400	149
500	149



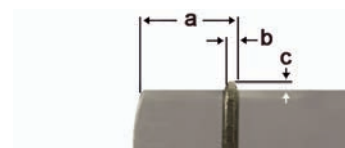
6.3 Markings for push-in joint pipes and adapter fittings such as UNI 1 / slide-valve (double-chamber) without internal thrust-resisting ring Fig. 2807

DN	L1 mm
80	109
100	110
125	113
150	116
200	121
250	121
300	120
400	135
500	135



7. Positioning welded beads

Welded beads should only be added to piping on-site only if absolutely necessary and using special welding electrodes for ductile cast iron. As a result of the heat caused by welding, both the inside and outside coatings will be damaged. These must be correctly repaired afterwards (see „Repair of linings and outside coatings“).



DN	For pipes/ fittings	a mm	b mm	c mm
400	Single chamber	125	9 +1	4 +1
400	Double chamber	143	9 +1	4 +1
500	Single chamber	125	9 +1	4 +1
500	Double chamber	155	9 +1	4 +1
600	Single chamber	135	9 +1	5 +1
700	Single chamber	155	10 +1	5 +1

RESICOAT® RS Repair Material

1. User Manual

RESICOAT® RS is a ready-to-use, two-component solvent free epoxy-repair material packed in the correct mixing ratio of 2:1. The user friendly packaging in 2-chamber cartridge enables the immediate repair of damages after quick assembling .

The repair kit consists of

- dispenser
 - double-chamber cartridge (2:1)
 - mixing tube
- Open up the frame
 - Insert the cartridge into the frame of the dispenser
 - Close the frame with a „click“
 - Twist off the plug
 - Assemble the mixing tube by a 1/4 twist
 - Move the plunger with the dispenser into the cartridge.
This pressure causes the material flow through the mixing tube, the built- in spiral elements lead to a homogenous mixture.



For further technical data please refer to the Technical Data Sheet and to the Material Safety Data Sheet.

Fitting and finishing

1. Usage

Repair of faults caused by supporting devices during the coating process. Repair of uncoated areas after sawing drilling or milling. Repair of mechanical damage caused during transportation and installation



2. Handling

The user-friendly touch-up 2-chamber cartouches ensure an exact dosage of resin/hardener components in a ratio of 2:1.

3. Cartouche with piston

In this case a mixing tube ensures the homogenizing of both constituents.
If no mixing tube is available, both components must be homogenized thoroughly.



4. Construction site

If no special pistol is available on a construction site or during on-site installation, a press out unit can be used alternatively.

5. Processing instructions

The substrate must be free from oil, dust and oxides.
Its temperature has to be 3° C minimum above the dew point of the surrounding air, but not below 5° C.
Care for a correct outcome of both components before assembling the mixing-tube. Dispose the volume of approx. 3ml.

6. Curing

Pot-life at	23° C : 15 minutes
Dust-dry at	23° C : approx. 2 hours
Fully cured at	23° C : 24 hours

7. Drinking water contact

Contact with drinking water has been certified and approved according to the UBA Guideline.

Transport and storage

Guidelines:

For the handling of pipes and adapter fittings made of ductile cast iron

The careful handling of piping components should be ensured during transport, handling and storage, as well as on site. This is, together with professional laying, one of the most important prerequisites for the perfect operation of piping networks over a period of many years.

1. Pipe-bundle / packaging

DN 80 – 300 push-in joint pipes made of ductile cast iron are delivered in bundles.

Pipes with DN > 300 are delivered as single pipes.

The wooden supports are not part of the delivery for bundled pipes.

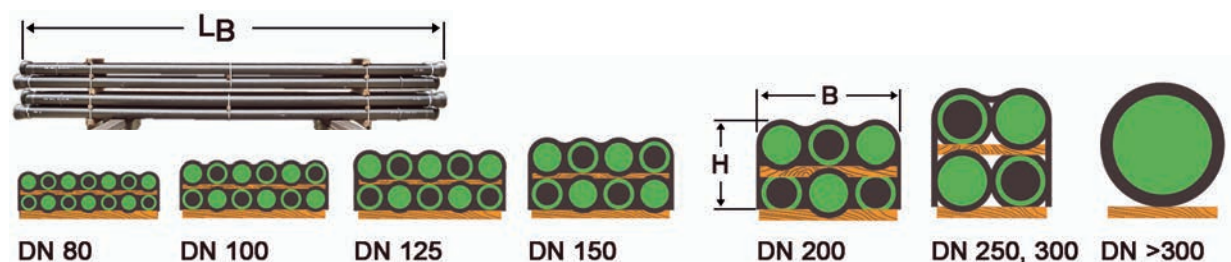
Pipe-bundles vonRoll ECOPUR are covered with a UV-protective film. This covering should only be opened when necessary and should always be closed again afterwards.

All types of external effects, mechanical damage and improper treatment are to be avoided. Out-of-place or unsuitably placed packaging elements such as steel bands, protective films, pallets etc. should be corrected.



2. Pipe bundles / permissible stacking height

Permissible stacking heights or permissible number of layers for stacked pipes for pipe classes C / K 9



DN	pipe length m	pipes per bundle	pipe length per bundle m	bundle height H cm	bundle width B cm	bundle length LB cm	weight per bundle kg	max. no. of bundles stackable
80	6	14	84	30	74	630	1200	15
100	6	12	72	35	78	630	1250	13
125	6	10	60	40	78	630	1260	12
150	6	8	48	45	77	630	1280	11
200	6	6	36	58	73	630	1315	9
250	6	4	24	67	62	635	1040	8
300	6	4	24	80	75	635	1360	7

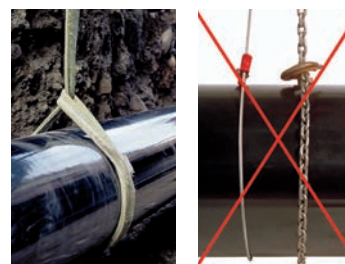
For each layer, the pipes are to be secured with wooden wedges against rolling apart.

The wooden wedges under the outside pipes are to be nailed to the bottom and intermediate wooden supports respectively.

Transport and storage

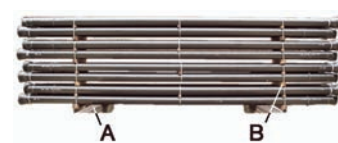
3. Loading and unloading pipes

- Wide lifting-belt slings are to be used when loading and unloading pipes.
- Individual pipes of all dimensions should be loaded and unloaded using mechanical aids using appropriate lifting gear (belts).
- Chains and unsheathed wire slings that can come into contact with the pipes may not be used.
- Under no circumstances are crane hooks to be hooked into the steel bands or in the sockets or spigot-ends of the pipes.
- Pipes should be hooked up one at a time.
- Pipes should never be dragged along the ground or rolled.



4. Storage of pipes

- Pipe bundles should be stored on two wooden supports (A), about 20x15 cm in size. Storage direct on the ground is not allowed.
- When stacked, two intermediate wooden spacers, about 5x5 cm in size (B) should be placed between each layer. The pipes are to be stored so that socket and spigot ends alternate with each other. The permissible stacking height shown in the table in section 2 should be observed.
- Cut the steel bindings using metal shears or diagonal-cutters. Chisels, crowbars, pick-axes etc. may not be used.
Chisels, crowbars, pickaxes, etc. must not be used.



5. Storage of piping components made of elastomer materials

(sealing rings, thrust-resisting rings, retaining rings)

Rubber components can be affected by the following environmental:

- oxygen	- heat	- dampness (micro-organisms)
- ozone	- light	- solvents
		- Storage under tension

Storage of elastomer seals (> 6 months)

(Recommendations according to ISO 2230, DIN 7716, EN 682)

- Temperature under 25°C, preferably 15°C; but not under -10°C.
- Keep away from light, especially light with a high proportion of UV-light (sunlight)
- Rel. Humidity under 65%
- The storage room should contain no devices that produce ozone (e.g. electric motors) or solvents, fuels or chemicals.
- Do not use any films containing softener for packing.
- The seals should be stored without tension, pressure or other deformation; they should not, for example, be hung up on any part of their circumference.

Services

vonRoll hydroservices – Technologically advanced services for water supplies

vonRoll hydroservices AG was founded in 2005 and is headquartered in Oensingen, Switzerland, with smaller branches in the Swiss towns of Giubiasco, Yverdon, Meienfeld, Hittnau and Henggart. We are a technologically advanced and industry-leading services company specialising in hydrants and network maintenance, including ongoing water-quality assurance and the prevention of water loss.

Our services:

vonRoll HYDROLIFE – Complete solution for all maintenance requirements



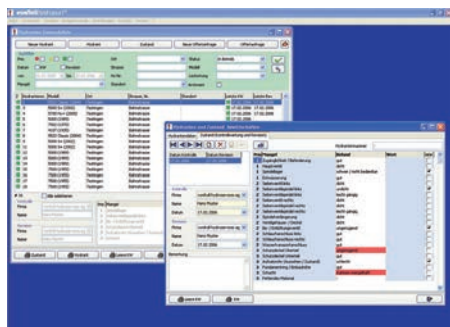
We manage, maintain and upgrade every aspect of water-supply systems over the whole of their lifecycle. From planning a system to supplying cost-effective replacement parts, we guarantee maximum operational reliability, complete cost transparency and optimum protection of your investment.

As your expert partner, we are there for you on-site and ready to provide comprehensive services. Whether you require network monitoring, water-quality checks, network management, maintenance work or system upgrades – with vonRoll HYDROLIFE, we will create a special services package tailored to your needs that is excellent value for money.

vonRoll HYDROPORT – Integrated Network Management (INM)

vonRoll HYDROPORT is the industry's leading Integrated Network Management (INM) system. Water suppliers who use INM prioritise efficiency and reliability when operating and maintaining their pipe networks.

Services



Currently over 50,000 hydrants and slide gate valves in Switzerland alone are managed by vonRoll HYDROPORT technology and the system is becoming a well-respected quality and planning standard.

vonRoll HYDROPORT offer the following unique software features:

- Round-the-clock overview of the network and its condition
- Improved operational reliability and absolute quality assurance
- Simple and transparent planning of investments and maintenance
- Budget control
- Request for a quote via the Internet
- Modular design
- Documentation for maintenance work

vonRoll HYDROSAFE with ORTOMAT – Constant network monitoring

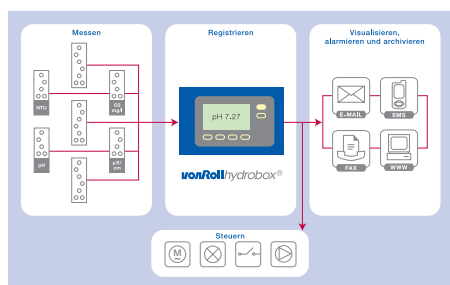


The ORTOMAT leak-detection system – developed and manufactured in Switzerland – and the vonRoll HYDROSAFE hydrant alarm system provide continuous protection against water loss and water theft.

When the alarms are triggered, an alert is sent automatically by text message or over the telephone. This means that the systems play an important role in ensuring the reliability and security of the supply at all times.

ORTOMAT and vonRoll HYDROSAFE are further developed and sold in cooperation with vonRoll hydroservices ag. vonRoll hydroservices ag currently has offices in over 40 countries and specialises in detecting leaks in gas- and water-supply networks.

vonRoll HYDROBOX – Continuous quality assurance of drinking water



vonRoll HYDROBOX is a compact monitoring station for testing the quality of drinking water online. It continuously measures all the parameters pertaining to quality and sends this data directly to the water-supply PC using advanced technology such as LAN, WLAN or GSM. The data visualisation software displays the readings on the monitor.

Quality parameters:

- Cloudiness/sediment
- Oxygen content
- Conductivity
- pH value
- Temperature
- Redox
- Chlorine, chloroxide and ozone concentration

Trace elements and compounds, such as iron, nitrate/nitrite, ammonium and carbon compounds (CSB, BSB, TOC/DOC), are detected using an integrated Spectrometer.

Overview of services

- Maintenance work on and upgrading of hydrants
- Upgrades under full network pressure
- Checking and mounting of number plates and information signs
- Measuring the flow rate of hydrants
- Checking slide gate valves
- Factory upgrading of valves
- Introduction and operation of Integrated Network Management systems (INM)
- Setup and maintenance of electromechanical actuators (Auma)
- Leak-detection
- Monitoring of drinking-water quality
- Height adjustment of manhole covers
- Checking and repairing manhole covers
- Supply of original replacement parts
- Vacuum test
- Soil analyses
- Training and instruction for system users



Price list

Brochures and miscellaneous

