VSH

INTEGRATED PIPING SYSTEMS

Technical manual

VSH Shurjoint

Disclaimer:

The technical data are non-binding and do not reflect the warranted characteristics of the products. They are subject to change. Please consult our General Terms and Conditions. Additional information is available upon request. It is the designer's responsibility to select products suitable for the intended purpose and to ensure that pressure ratings and performance data are not exceeded. The installation instructions should always be read and followed. The system must always be depressurized and drained before any components, whether defective or otherwise, are removed, modified or corrected.

Index

VSH Integrated Piping Systems consist of various product lines for connection technology and valve technology that together create the ultimate solution for top-quality integrated piping systems. These systems, which are suitable for both gases and liquids, are used in residential and commercial construction, industry, fire safety and shipbuilding.

VSH Integrated Piping Systems

VSH Integrated Piping Systems are known for their consistently high level of quality along with quick and simple installation and maintenance. All VSH piping systems can be seamlessly combined, allowing VSH to offer an Integrated Piping System from 6 mm to 104" in groove, press, compression and push connections that are suitable for thick- or thin-walled metal or plastic tubes.

The right technology for the right application

At VSH, we know that the right technology needs to be chosen for every application in an installation to ensure that the best connection is provided and processing is performed with maximum efficiency. Our VSH Engineering Service advises and guides you in complex projects. A system from a single manufacturer will avoid the need for compatibility discussions with different manufacturers.

VSH Fittings B.V.

VSH was founded more than 85 years ago and has an extensive history. It belongs to the leading international technology group Aalberts Industries as part of the Building Installations division. This gives VSH a healthy, solid financial basis that customers can trust and build on. It also enables VSH to stay ahead of the competition at all times when it comes to innovation and develop the best integrated piping systems for its customers both now and in the future.

VSH

1 VSH Shurjoint

VSH Shurjoint is recognized as a world leading solution for grooved piping systems. With a broad range of high quality grooved components and expertise in innovative mechanical solutions, VSH Shurjoint offers more value in the HVAC and industrial markets. Reliable connections, easy installation and safety are our top priorities

The advantages of VSH Shurjoint

- **Up to 70% reduction in installation time compared to welding and fitting**
- **Improved jobsite safety, no welding required**
- **Systems for Steel, Stainless Steel, Ductile Iron, Copper, PVC and PE piping**
- **Wide range of high quality products**
- **Sizes from 1/2" to 104"**
- **Technical support with 3D Design Modelling, cost comparisons and thermal movement analysis**
- **BIM ready**
- **Improve jobsite schedules, finish on-time, on-budget**
- **Seamless transition to other VSH Press systems**

VSH Shurjoint products have been used on numerous piping applications: heating, cooling, compressed air and sprinkler systems and form seamless transitions to other existing VSH product ranges. A complete piping system from VSH will avoid compatibility discussions with different manufacturers and will provide you with a 10 year warranty.

One supplier for all your piping systems.

2 Technical data

2.1 Areas for using VSH Shurjoint

Central heating installation

VSH Shurjoint couplings and fittings with carbon or stainless steel pipe.

Gasket:	EPDM (grade E)
Operating temperature:	-34°C to +110°C
Operating pressure:	Depending on coupling type

For heating systems, where temperatures can rise above 65°C it is recommended to use Shurjoint EHC lubricant. Shurjoint EHC Lubricant is a High Consistency Silicone based lubricant that has been developed to provide improved lubricity protection in extreme hot and cold conditions.

Chilled water installations

VSH Shurjoint couplings and fittings with carbon or stainless steel pipe.

Gasket:	EPDM (grade E)
Operating temperature:	-34°C to +110°C
Operating pressure:	Depending on coupling type

** Ethylene Propylene Diene Monomer*

Sprinkler installations

VSH Shurjoint couplings and fittings with carbon or stainless steel pipe, which are VdS, FM, UL, ULc or LPCB approved.

Gasket:	EPDM (grade Lube-E)
Operating temperature:	-34°C to +65°C
Operating pressure:	Depending on coupling type

VSH carries a special range of couplings and fittings specially designed for the fire protection market. For more information regarding VSH Shurjoint in sprinkler installations, please consult the technical manual 'VSH Fire Protection', which is available upon request or can be downloaded from our website www.vsh.eu/downloads

Compressed air installations

VSH Shurjoint couplings and fittings with carbon or stainless steel pipe.

VSH Shurjoint galvanized steel fittings with galvanized steel pipe can be used for compressed air under the following condition: If the compressed air contains oil vapour then it is required to use NBR (grade T) gaskets. For compressed air that is oil-free the EPDM (grade E) gaskets can be used.

Industrial installations

VSH Shurjoint products can be used on many industrial applications like

- Abrasive media, slurry lines
- Chemical lines
- Sea water reverse osmosis
- Water treatment
- Tunnel boring services
- Irrigation

2.2 VSH Shurjoint couplings and fittings

Approvals

VSH Shurjoint production facilities are certified to ISO 9001. Products are designed to conform and meet or exceed all applicable domestic and international standards and are listed, approved and or certified by various approval bodies and registration authorities. VSH Shurjoint is also active in industry and environmental organisations.

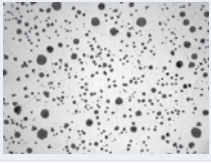
Approvals			
ANSI	ANSI American National Standards Institute	LPCB	LPCB Loss Prevention Certification Board LPS-1219
	ANSI/AWWA American Water Works Association C606 (latest edition)	NFPA	NFPA National Fire Protection Association NFPA 13
ASTM INTERNATIONAL	ASTM American Society of Testing and Materials F 1476-01 Couplings F 1548-01 Fittings F 1155 Shipbuilding	NSF CLASSIFIED UL WATER QUALITY	NSF NSF/ANSI 61 Drinking Water System Components - Health Effects NSF/ANSI 372 Drinking Water System Components - Lead Content
CNBOP-PIB	CNBOP-PIB Scientific and Research Centre for Fire Protection - National Research Institute	CE	PED Pressure Equipment Directory 97/23/EC
CANADIAN STANDARDS ASSOCIATION	CSA Canadian Standards Association B-242	c UL us LISTED	UL Underwriter's Laboratories, Inc. - UL213
FM APPROVED	FM Factory Mutual Research Corp. - Approved for Fire Protection Services	ULC	ULC Underwriter's Laboratories of Canada
IAPMO R&T	IAPMO R&T IAPMO Research and Testing, Inc.	TSUS	TSUS Technický a Skúšobný Ústav Stavebný, n. o.
LR	LLOYD Lloyd's Register Quality Assurance ISO 9001:2008	VdS	VdS VdS Schadenverhütung

Housing material

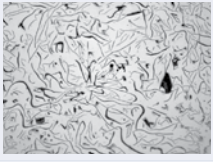
Ductile Iron

Ductile iron is an ideal material for grooved components, as it provides similar or greater strength to that of wrought or cast steel piping materials such as; forged steel flanges - ASTM A105, carbon steel valves - ASTM A216 WCB, wrought carbon steel pipe - ASTM A53 Gr. B, etc. Most VSH Shurjoint components are made of ductile iron conforming to ASTM A536 Gr. 65-45-12 and or ASTM A395 Gr. 65-45-15.

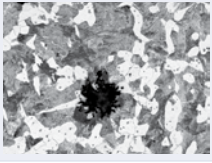
Ductile iron was first invented in the late 1940's. Superior strength was achieved by crystallizing graphite in the shape of nodules. The result was ductile iron that had tensile and yield strength properties that were equal to or greater than some steel castings. This superior strength combined with ductile irons excellent castability helped to reduce the weight and cost of many components. Because of these advantages and benefits, many components have been converted from grey iron, malleable iron and steel castings to ductile iron over the past 60 years.



DUCTILE IRON
SUPERIOR TENSILE STRENGTH WITH GOOD CASTABILITY



GRAY IRON
EXCELLENT CASTABILITY BUT 'BRITTLE' - LESS STRENGTH



MALLEABLE IRON
STRONGER THAN GRAY IRON BUT POOR CASTABILITY

International ductile iron specifications equivalent to ASTM A536 Gr. 65-45-12 and or ASTM A395 Gr. 65-45-15 are:

- SAE J434: D4512
- EN1563: EN-GJS-450-10 or EN-GJS-450-15
- JIS G5502: FCD450-10
- SABS 936/937: SG42

Specifications ductile iron ASTM A536, Grade 65-45-12 (UNS F33100)

Chemical composition*	
Carbon	3.0 - 3.9%
Silicon	2.5 - 3.0%
Manganese	0.1 - 0.4%
Phosphorus	< 0.07%
Sulfur	< 0.02%
Magnesium	0.03 - 0.05%
Chromium	< 0.1%
Physical Properties	
Tensile strength	448 MPa
Yield strength	310 MPa
Elongation	12%

*Reference only as chemical requirements are not specified in ASTM A536.

Specifications ductile iron ASTM A395, Grade 65-45-15 (UNS F33100)

Chemical composition	
Carbon	> 3.0%
Silicon	< 2.5%
Phosphorus	< 0.08%
Physical properties	
Tensile strength	448 MPa
Yield strength	310 MPa
Elongation	15%

2.3 Bolts & nuts

Carbon steel

VSH Shurjoint products use oval neck track bolts conforming to ASTM A449 or ASTM A183 Gr. 2 and heavy duty nuts to ASTM A563 Gr. B, available with UNC threads or ISO metric threads. The track bolts and nuts are electro zinc plated in a silver chromate colour. Hot-dip galvanized bolts and nuts are also available upon request.

Specifications ASTM A449, quenched and tempered steel bolts*

Chemical composition	
Carbon	0.28% - 0.55%
Manganese	> 0.60%
Phosphorus	< 0.040%
Sulfur	< 0.050%
Physical Properties	
Tensile strength	825 MPa
Yield strength	635 MPa
Elongation	14%

*Equivalent to property class 8.8 bolts per ISO 898.

Specifications ASTM A563, grade B carbon and alloy steel heavy hex nuts

Chemical composition	
Carbon	> 0.30%
Phosphorus	< 0.05%
Sulfur	< 0.06%
Physical Properties	
Tensile strength	760 MPa
Yield strength	550 MPa
Elongation	12%

Specifications ASTM A183, grade 2 carbon steel track bolts

Chemical composition (bolts)	
Carbon	< 0.55%
Phosphorus	< 0.12%
Sulfur	< 0.15%
Physical Properties	
Hardness	B69 (C32 Rockwell)

Stainless steel

Standard, the VSH Shurjoint stainless steel couplings are supplied with stainless steel track bolts and nuts, type AISI 316. Bolts and nuts type AISI 304 are also supplied. Track bolts and nuts are molybdenum disulfide (MoS_2) coated to inhibit galling.

Specifications ASTM A193, grade B8 (AISI 304) stainless steel bolts

Chemical composition	
Carbon	< 0.08%
Manganese	< 2.0%
Phosphorus	< 0.045%
Sulfur	< 0.030%
Silicon	< 1.00%
Chromium	18 - 20%
Nickel	8 - 10.5%
Physical Properties	
Tensile strength	515 MPa
Yield strength	205 MPa
Elongation	30%

Specifications ASTM A193, grade B8M (AISI 316) stainless steel bolts

Chemical composition	
Carbon	< 0.08%
Manganese,	< 2.0%
Phosphorus	< 0.045%
Sulfur	< 0.030%
Silicon	< 1.00%
Chromium	16 - 18%
Nickel	8 - 10.5%
Nickel	2 - 3%
Physical Properties	
Tensile strength	515 MPa
Yield strength	205 MPa
Elongation	30%

VHS Shurjoint coupling bolt dimensions

Pipe size		Shurjoint coupling type					
DN	mm	7705	7707 7707N	Z05	Z07 Z07N	7706	XH70-EP
25	33.7	M10 x 45	M10 x 55	-	-	-	-
32	42.4	M10 x 55	M12 x 75	M10 x 55	M10 x 55	M10 x 55	-
40	48.3	M10 x 55	M12 x 60	M10 x 55	M10 x 55	-	-
50	60.3	M10 x 55	M12 x 75	M10 x 70	M10 x 70	M10 x 55	5/8 x 2 3/4
65	73.0	M10 x 55	M12 x 75	M10 x 70	M10 x 70	M10 x 55	5/8 x 2 3/4
65	76.1	M10 x 55	M12 x 75	M10 x 70	M10 x 70	M10 x 55	-
80	88.9	M12 x 75	M12 x 75	M10 x 70	M12 x 75	M12 x 75	5/8 x 2 3/4
	108.0	M12 x 75	-	M10 x 70	-	-	-
100	114.3	M12 x 75	M16 x 90	M10 x 70	M12 x 75	M12 x 75	3/4 x 4 3/4
	133.0	M16 x 90	-	M12 x 75	-	-	-
125	139.7	M16 x 90	M16 x 90	M12 x 75	M16 x 90	M16 x 90	-
	141.3	M16 x 90	M16 x 90	M12 x 75	M16 x 90	M16 x 90	-
	159.0	M16 x 90	-	M12 x 75	M16 x 90	-	-
	165.1	M16 x 90	M20 x 120	M12 x 75	M16 x 90	M16 x 90	-
150	168.3	M16 x 90	M20 x 120	M12 x 75	M16 x 90	M16 x 90	7/8 x 5 1/2
200	219.1	M16 x 90 M20 x 120 (7705H)	M20 x 120	M16 x 135	M20 x 120	M20 x 120	1 x 5 1/2
250	273.0	M20 x 120	7/8 x 6 1/2	-	7/8 x 6 1/2	-	1 x 5 1/2
300	323.9	7/8 x 6 1/2	7/8 x 6 1/2	-	7/8 x 6 1/2	-	1 x 5 1/2
350	355.6	-	7/8 x 6 1/2	-	7/8 x 5 1/2	-	-
400	406.4	-	1 x 6 1/2	-	7/8 x 5 1/2	-	-
450	457.2	-	1 x 6 1/2	-	7/8 x 5 1/2	-	-
500	508.0	-	1 x 6 1/2	-	1 x 5 1/2	-	-
550	558.8	-	1 1/8 x 6 1/2	-	1 x 5 1/2	-	-
600	609.2	-	1 1/8 x 6 1/2	-		-	-
650	660.4	-	7/8 x 9 5/8	-		-	-
700	711.2	-	7/8 x 4	-		-	-
750	762.0	-	7/8 x 4	-		-	-
800	812.8	-	7/8 x 4	-		-	-
850	863.6	-	7/8 x 4	-		-	-
900	914.4	-	7/8 x 4	-		-	-
1000	1016.0	-	1 x 3 1/2	-		-	-
1050	1066.8	-	1 x 3 1/2	-		-	-

7721 7722	SS7 SS7X	SS8	SS8X	SS1200	S35	79
-	-	5/16 x 1 1/2	3/8 x 2 1/8	3/8 x 2 1/8	-	1/2 x 2 3/8
-	3/8 x 2 1/8	5/16 x 1 1/2	3/8 x 2 1/8	3/8 x 2 1/8	-	
-	3/8 x 2 1/8	5/16 x 1 1/2	3/8 x 2 1/8	3/8 x 2 1/8	-	1/2 x 2 3/8
M10 x 55	3/8 x 2 1/8	3/8 x 2 1/8	3/8 x 2 1/8	1/2 x 3	3/8 x 2 1/8	5/8 x 3 1/2
M12 x 75	3/8 x 2 1/8	3/8 x 2 1/8	3/8 x 2 1/8	-	-	5/8 x 3 1/2
M12 x 75	3/8 x 2 1/8	3/8 x 2 1/8	-	1/2 x 3	-	-
M12 x 75	3/8 x 2 1/8	3/8 x 2 1/8	1/2 x 3	1/2 x 3	1/2 x 3	3/4 x 4 3/4
-	-	-	-	-	-	-
M12 x 75	1/2 x 3	1/2 x 3	1/2 x 3	5/8 x 3 1/2	1/2 x 3	-
-	-	-	-	-	-	-
M16 x 90	1/2 x 3	1/2 x 3	-	-	-	-
M16 x 90	1/2 x 3	1/2 x 3	5/8 x 3 1/2	-	-	7/8 x 6 1/2
-		-	-	-	-	-
M16 x 135	1/2 x 3	1/2 x 3	5/8 x 3 1/2	-	5/8 x 3 1/2	-
M16 x 135	1/2 x 3	1/2 x 3	5/8 x 3 1/2	-	5/8 x 3 1/2	7/8 x 6 1/2
M20 x 120	5/8 x 3 1/2	5/8 x 3 1/2	3/4 x 4 3/4		3/4 x 4 3/4	3/4 x 4 3/4
-	7/8 x 6 1/2	-	-	-	3/4 x 4 3/4	7/8 x 6 1/2
-	7/8 x 6 1/2	-	-	-	3/4 x 4 3/4	1 x 6 1/2
-	7/8 x 6 1/2	-	-	-	-	1 x 6 1/2
-	5/8 x 3 1/2	-	-	-	-	1 x 6 1/2
-	5/8 x 3 1/2	-	-	-	-	-
-	3/4 x 4 3/4	-	-	-	-	-
-	3/4 x 4 3/4	-	-	-	-	-
-	3/4 x 4 3/4	-	-	-	-	-
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2.4 Gaskets

Over the past 50 years great developments have been made in synthetic elastomer technologies, allowing us to offer a full range of gasket materials for a wide variety of piping applications. VSH Shurjoint uses the finest materials available in our gaskets which are engineered and designed to meet and exceed industry standards such as ASTM D2000, AWWA C606, NSF61, IAPMO, etc. Our continual research, development and testing all serve to advance this field and to develop new and superior solutions for our changing industry. Selecting the proper gasket for the intended service application requires careful consideration of many factors to assure maximum gasket life. Those factors include temperature, fluid media and concentration, and continuity of service. The gaskets colour coding helps to identify the gasket grade and compound.

Gasket materials

EPDM

EPDM is recognised as the most water resistant rubber available today. Good for cold & hot water up to 110ºC, waste water, water with acid, deionized water and seawater. EPDM is not recommended for use with petroleum based oils and fuels, hydrocarbon solvents and aromatic hydrocarbons.

Compound	Grade	Colour code	General service recommendations	Maximum temp. range
EPDM	E	 Green stripe	Good for cold & hot water up to (+110°C). Also good for services for water with acid, water with chlorine, deionized water, seawater and waste water, dilute acids, oil-free air and many chemicals. Not recommended for petroleum oils, mineral oils, solvents and aromatic hydrocarbons	-34°C to +110°C
EPDM	E-pw	 Double green stripe	Specially compounded for cold (+30°C) and hot (+82°C) potable water services. The compound is UL classified per NSF/ANSI 61 & NSF/ANSI 372.	Max. +82°C

Warning! EPDM gaskets for water services are not recommended for steam services unless couplings or components are accessible for frequent gasket replacement. Failure to select the proper gasket and compound may result in joint leakage or failure resulting in personal and or property damage. Gaskets should never be exposed to temperatures outside their ratings.

VSH Shurjoint Grade 'E' EPDM is compounded per ASTM D2000 designation 2CA615A25B24F17Z. Peroxide curing and post curing give a higher crosslink density, which provides a higher aging resistance than required in AWWA C606.

Use VSH Shurjoint Grade ‘E-pw’ for potable water and food processing services. The Grade ‘E-pw’ is UL classified per NSF/ANSI 61 and NSF/ANSI 372 for cold (30°C) and hot (+82°C) potable water services.

Note: EPDM materials used in domestic water applications with high levels of chlorine and or chloramines should be subjected to resistance testing, as not all materials will be suitable. EPDM materials with higher saturated ethylene content and lower carbon black content are recommended for chloramine and chlorine resistance.

NBR*, BUNA-N and Nitrile

These names all represent the same copolymer of butadiene and acrylonitrile (ACN), which is inherently resistant to hydraulic fluids, lubricating oils, transmission fluids and other non-polar petroleum based products and water less than 65ºC. NBR displays poor resistance to hot water and steam.

VSH Shurjoint NBR (grade T) rubber is compounded based on ASTM D2000 designation 5BG615A14B24Z and exceeds the requirements of AWWA C606. Grade T is a general purpose compound with a medium ACN level.

Compound	Grade	Colour code	General service recommendations	Maximum temp. range
NBR	T	 Orange stripe	Good for petroleum oils, mineral oils, vegetable oils, non-aromatic hydrocarbons, many acids and water (+65°C).	-29°C to +82°C

** Nitrile Butadiene Rubber*

Silicone (VMQ*)

VSH Shurjoint Silicone (Grade L) compound features high temperature range stability and low temperature flexibility. Recommended for dry heat and air without hydrocarbons up to 177ºC. Silicone compounds are used in many food and medical applications as they do not impart odor or taste. Not recommended for hot water or steam services.

Compound	Grade	Colour code	General service recommendations	Maximum temp. range
Silicone	L	 Red Gasket	Good for dry, hot air without hydrocarbons and some high temperature chemical services. May also be used for fire protection dry systems.	-34°C to +177°C

Fluorocarbon (FKM)**

FKM is a highly fluorinated carbon backboned compound and offers excellent resistance to harsh chemical and ozone attack with a thermal stability to 149°C. VSH Shurjoint fluorocarbon (Grade O) gasket is recommended for use with oils, gasoline, hydraulic fluids, hydrocarbon solvents and extended fuels that fall outside the service parametres of grade T/NBR compounds. Not recommended for steam services.

Compound	Grade	Colour code	General service recommendations	Maximum temp. range
Fluoro-elastomer	O	 Blue stripe	Good for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons.	-7°C to +149°C

** Vinyl Methyl Silicone*
*** Fluoroelastomer*

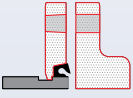
Gasket styles

Standard

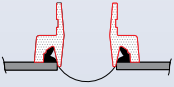
GapSeal

End Protection

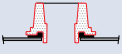
FastFit



Flange Adapter



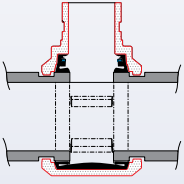
Mechanical Tee



Saddle-Let

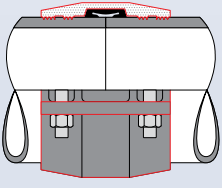
Reducing

Reducing
(2" x 1½", 2½" x 2", 3" x 2½")



Outlet Coupling

Wildcat



HDPE Pipe

Correct gasket selection is essential for the optimum performance. VSH Shurjoint grooved couplings utilize several different gasket styles, standard, GapSeal, EP (End Protection) and FF (Fast Fit). GapSeal gaskets are compatible with standard gaskets and interchangeable with each other. Other special styles are not compatible with standard or GapSeal gaskets. Always use the correct gasket style for the coupling model you selected.

Vacuum service

VSH Shurjoint standard gaskets are designed to seal well under vacuum conditions up to 254 mmHg (absolute) bar which may occur when a system is drained.
For continuous services greater than 254 mmHg (absolute), the use of GapSeal gaskets or EP (End Protection) gaskets in combination with rigid style couplings is recommended. Contact VSH for specific recommendations.

Dry pipe and freezer services

VSH recommends the use of GapSeal (Grade E) gaskets for dry pipe fire protection systems and freezer applications. The GapSeal gasket closes off the gap between the pipes or gasket cavity. This will prevent any remaining liquid from entering the cavities and freezing when the temperature drops. Rigid couplings are preferred for dry pipe, freezer and vacuum applications. Reducing couplings are not recommended for these applications.

NOTE: Do not use the VSH Shurjoint standard lubricant for dry pipe and freezer systems, instead use a petroleum free silicone based lubricant.

Lubricant

VSH Shurjoint lubricant is recommended for gasket installation to prevent the gasket from being pinched. Apply a thin coat to the gasket exterior, gasket lips and/or housing interiors. VSH Shurjoint Lubricant is available in 450 or 900 grams containers. Certified to NSF/ANSI 61.

2.5 Pressure performance data

VSH Shurjoint Couplings on carbon steel and/or stainless steel pipe

The following tables show maximum working pressures (CWP) of VSH Shurjoint ductile iron couplings and flange adapters used on both carbon steel and stainless steel pipes. VSH Shurjoint ductile iron couplings can be used in conjunction with stainless steel pipe in non-corrosive environment as the flow media does not come in direct contact with the coupling housings but rather only the gasket.

For more details on the maximum allowed working pressure for the different combinations, please refer to the 'VSH Shurjoint pressure performance charts' which are available as download on www.vsh.eu/downloads

Working pressure ratings bar (psi) for ductile iron couplings on roll grooved carbon steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
				5	1.7	0.065	20	300	35	500
25	1	33.7	1.315	10	2.80	0.109	28	400	52	750
				STD	3.40	0.13	35	500	69	1000
				5	1.65	0.07	20	300	35	500
32	1 1/4	42.4	1.660	10	2.77	0.11	28	400	52	750
				STD	3.56	0.14	35	500	69	1000
				5	1.65	0.07	20	300	35	500
40	1 1/2	48.3	1.900	10	2.77	0.11	28	400	52	750
				STD	3.68	0.15	35	500	69	1000
				5	1.65	0.07	20	300	35	500
50	2	60.3	2.375	10	2.77	0.11	28	400	52	750
				STD	3.91	0.15	35	500	69	1000
				5	2.11	0.08	20	300	35	500
	2 1/2	73.0	2.875	10	3.05	0.12	28	400	42	600
				STD	5.16	0.20	35	500	69	100

Coupling type											
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
17	250	28	400	-	-	-	-	-	-	-	-
28	400	42	600	-	-	-	-	-	-	-	-
35	500	52	750	-	-	-	-	-	-	-	-
17	250	28	400	20	300	NR	NR	-	-	-	-
28	400	42	600	24	350	20	300	-	-	-	-
35	500	52	750	35	500	20	300	-	-	-	-
17	250	28	400	20	300	NR	NR	NR	NR	NR	NR
28	400	42	600	24	350	20	300	17	250	35	500
35	500	52	750	35	500	20	300	20	300	52	750
17	250	28	400	20	300	NR	NR	NR	NR	NR	NR
28	400	42	600	24	350	20	300	17	250	35	500
35	500	52	750	35	500	20	300	20	300	52	750

Working pressure ratings bar (psi) for ductile iron couplings on roll grooved carbon steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
65	76.1 mm	76.1	3.000	5	2.11	0.08	20	300	35	500
				10	3.05	0.12	28	400	42	600
				STD	5.16	0.20	35	500	69	100
80	3	88.9	3.500	5	2.11	0.08	20	300	35	500
				10	3.05	0.12	28	400	42	600
				STD	5.49	0.22	35	500	69	100
	108 mm	108.0	4.252	5	2.11	0.08	20	300	-	-
				10	3.05	0.12	28	400	-	-
				STD	5.74	0.23	35	500	-	-
100	4	114.3	4.500	5	2.11	0.08	20	300	28	400
				10	3.05	0.12	28	400	42	600
				STD	6.02	0.24	35	500	69	1000
	133 mm	133.0	5.236	5	2.77	0.11	17	250	-	-
				10	3.40	0.13	24	350	-	-
				STD	6.55	0.26	31	450	-	-
125	139.7 mm	139.7	5.500	5	2.77	0.11	17	250	24	350
				10	3.40	0.13	24	350	35	500
				STD	6.55	0.26	31	450	69	1000
	5	141.3	5.563	5	2.77	0.11	17	250	24	350
				10	3.40	0.13	24	350	35	500
				STD	6.55	0.26	31	450	69	1000
	159 mm	159.0	6.260	5	2.77	0.11	17	250	-	-
				10	3.40	0.13	24	350	-	-
				STD	7.11	0.28	31	450	-	-
	165.1 mm	165.1	6.500	5	2.77	0.11	17	250	20	300
				10	3.40	0.13	24	350	31	450
				STD	7.11	0.28	31	450	69	1000
150	6	168.3	6.625	5	2.77	0.11	17	250	20	300
				10	3.40	0.13	24	350	31	450
				STD	7.11	0.28	31	450	69	1000

Coupling type											
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
17	250	28	400	20	300	NR	NR	NR	NR	-	-
28	400	42	600	24	350	20	300	17	250	-	-
35	500	52	750	35	500	20	300	20	300	-	-
17	250	28	400	20	300	NR	NR	NR	NR	NR	NR
28	400	42	600	24	350	20	300	17	250	35	500
35	500	52	750	35	500	20	300	20	300	52	750
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
14	200	28	400	17	250	NR	NR	NR	NR	NR	NR
28	400	42	600	20	300	20	300	17	250	35	500
35	500	52	750	35	500	20	300	20	300	52	750
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
12	175	24	350	17	250	NR	NR	NR	NR	-	-
20	300	35	500	20	300	20	300	17	250	-	-
24	350	52	750	28	400	20	300	20	300	-	-
12	175	24	350	17	250	NR	NR	NR	NR	NR	NR
20	300	35	500	20	300	20	300	17	250	31	450
24	350	52	750	28	400	20	300	20	300	52	750
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
12	175	20	300	12	175	NR	NR	NR	NR	-	-
20	300	28	400	20	300	20	300	17	250	-	-
24	350	48	700	28	400	20	300	20	300	-	-
12	175	20	300	12	175	NR	NR	NR	NR	NR	NR
20	300	28	400	20	300	20	300	17	250	31	450
24	350	48	700	28	400	20	300	20	300	52	750

Working pressure ratings bar (psi) for ductile iron couplings on roll grooved carbon steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
200	8	219.1	8.625	5	2.77	0.11	14	200	17	250
				10	3.76	0.15	17	250	24	350
				STD	8.18	0.32	20	300	55	800
250	10	273.0	10.750	5	3.40	0.13	12	175	14	200
				10	4.19	0.17	14	200	20	300
				STD	9.27	0.37	20	300	55	800
300	12	323.9	12.750	5	4.06	0.16	12	175	14	200
				10	4.57	0.18	14	200	20	300
				STD	9.53	0.38	20	300	55	800
350	14	355.6	14.000	10	6.35	0.25	-	-	-	-
				LW	7.92	0.31	-	-	17	250
				STD	9.53	0.38	-	-	20	300
400	16	406.4	16.000	10	6.35	0.25	-	-	-	-
				LW	7.92	0.31	-	-	17	250
				STD	9.53	0.38	-	-	20	300
450	18	457.2	18.000	10	6.35	0.25	-	-	-	-
				LW	7.92	0.31	-	-	17	250
				STD	9.53	0.38	-	-	20	300
500	20	508.0	20.000	10	6.35	0.25	-	-	-	-
				LW	7.92	0.31	-	-	17	250
				STD	9.53	0.38	-	-	20	300
550	22	558.8	22.000	10	6.35	0.25	-	-	-	-
				LW	7.92	0.31	-	-	17	250
				STD	9.53	0.38	-	-	20	300
600	24	609.6	24.000	10	6.35	0.25	-	-	-	-
				LW	7.92	0.31	-	-	17	250
				STD	9.53	0.38	-	-	20	300

Coupling type												
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
10	150	17	250	12	175	NR	NR	NR	NR	NR	NR
20	300	24	350	20	300	17	250	14	200	20	300
24	350	42	600	28	400	20	300	20	300	52	750
-	-	14	200	-	-	NR	NR	NR	NR	NR	NR
-	-	20	300	-	-	17	250	14	200	20	300
-	-	35	500	-	-	20	300	20	300	52	750
-	-	10	150	-	-	-	-	NR	NR	NR	NR
-	-	17	250	-	-	-	-	14	200	17	250
-	-	28	400	-	-	-	-	20	300	52	750
-	-	-	-	-	-	-	-	14	200	-	-
-	-	24	350	-	-	-	-	-	-	-	-
-	-	24	350	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	12	175	-	-
-	-	24	350	-	-	-	-	-	-	-	-
-	-	24	350	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	12	175	-	-
-	-	24	350	-	-	-	-	-	-	-	-
-	-	24	350	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	10	150	-	-
-	-	24	350	-	-	-	-	-	-	-	-
-	-	24	350	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	10	150	-	-
-	-	16	225	-	-	-	-	-	-	-	-
-	-	24	350	-	-	-	-	20	300	-	-

Working pressure ratings bar (psi) for ductile iron couplings on cut grooved carbon steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
25	1	33.7	1.315	STD	3.40	0.13	42	600	69	1000
				XS	4.55	0.18	42	600	69	1000
32	1 1/4	42.4	1.66	STD	3.56	0.14	42	600	69	1000
				XS	4.85	0.19	42	600	69	1000
40	1 1/2	48.3	1.9	STD	3.68	0.15	42	600	69	1000
				XS	5.08	0.20	42	600	69	1000
50	2	60.3	2.375	STD	3.91	0.15	42	600	69	1000
				XS	5.54	0.22	42	600	69	1000
	2 1/2	73.0	2.875	STD	5.16	0.20	42	600	69	1000
				XS	7.01	0.28	42	600	69	1000
65	76.1 mm	76.1	3.000	STD	5.16	0.20	42	600	69	1000
				XS	7.01	0.28	42	600	69	1000
80	3	88.9	3.500	STD	5.49	0.22	42	600	69	1000
				XS	7.62	0.30	42	600	69	1000
	108 mm	108.0	4.252	STD	5.74	0.23	42	600	-	-
				XS	8.08	0.32	42	600	-	-
100	4	114.3	4.500	STD	6.02	0.24	42	600	69	1000
				XS	8.56	0.34	42	600	69	1000
	133 mm	133.0	5.236	STD	6.02	0.24	31	450	-	-
				XS	8.56	0.34	31	450	-	-
125	139.7 mm	139.7	5.500	STD	6.55	0.26	31	450	69	1000
				XS	9.53	0.38	31	450	69	1000
	5	141.3	5.563	STD	6.55	0.26	31	450	69	1000
				XS	9.53	0.38	31	450	69	1000
	159 mm	159	6.260	STD	7.11	0.28	31	450	-	-
				XS	10.97	0.43	31	450	-	-
	165.1 mm	165.1	6.500	STD	7.11	0.28	31	450	69	1000
				XS	10.97	0.43	31	450	69	1000
150	6	168.3	6.625	STD	7.11	0.28	31	450	69	1000
				XS	10.97	0.43	31	450	69	1000

Coupling type												
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
42	600	52	750	-	-	-	-	-	-	-	-
42	600	52	750	-	-	-	-	-	-	-	-
42	600	52	750	35	500	20	300	-	-	-	-
42	600	52	750	35	500	20	300	-	-	-	-
42	600	52	750	35	500	20	300	20	300	52	750
42	600	52	750	35	500	20	300	20	300	52	750
42	600	52	750	35	500	20	300	20	300	52	750
42	600	52	750	35	500	20	300	20	300	52	750
42	600	52	750	35	500	20	300	20	300	-	-
42	600	52	750	35	500	20	300	20	300	-	-
42	600	52	750	35	500	20	300	20	300	52	750
42	600	52	750	35	500	20	300	20	300	52	750
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
42	600	52	750	35	500	20	300	20	300	52	750
42	600	52	750	35	500	20	300	20	300	52	750
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
31	450	52	750	28	400	20	300	20	300	-	-
31	450	52	750	28	400	20	300	20	300	-	-
31	450	52	750	28	400	20	300	20	300	52	750
31	450	52	750	28	400	20	300	20	300	52	750
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
31	450	48	700	28	400	20	300	20	300	-	-
31	450	48	700	28	400	20	300	20	300	-	-
31	450	48	700	28	400	20	300	20	300	52	750
31	450	48	700	28	400	20	300	20	300	52	750

Working pressure ratings bar (psi) for ductile iron couplings on cut grooved carbon steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
200	8	219.1	8.625	STD	8.18	0.32	31	450	55	800
				XS	12.70	0.50	31	450	55	800
250		273.0	10.750	STD	9.27	0.37	24	350	55	800
				XS	12.70	0.50	24	350	55	800
300	12	323.9	12.750	STD	9.27	0.37	24	350	55	800
				XS	12.70	0.50	24	350	55	800
350	14	355.6	14.000	STD	9.27	0.37	-	-	20	300
				XS	12.70	0.50	-	-	20	300
400	16	406.4	16.000	STD	9.27	0.37	-	-	20	300
				XS	12.70	0.50	-	-	20	300
450	18	457.2	18.000	STD	9.27	0.37	-	-	20	300
				XS	12.70	0.50	-	-	20	300
500	20	508.0	20.000	STD	9.27	0.37	-	-	20	300
				XS	12.70	0.50	-	-	20	300
550	22	558.8	22.000	STD	9.27	0.37	-	-	20	300
				XS	12.70	0.50	-	-	20	300
600	24	609.6	24.000	STD	9.27	0.37	-	-	20	300
				XS	12.70	0.50	-	-	20	300

Working pressure ratings bar (psi) stainless steel couplings on roll grooved stainless steel pipe

Pipe size					Nominal wall thickness	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch
25	1	33.7	1.315	5	1.7	0.065
				10	2.8	0.109
				40	3.4	0.133
32	1 1/4	42.4	1.660	5	1.7	0.065
				10	2.8	0.109
				40	3.6	0.140

Coupling type												
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
31	450	42	600	28	400	20	300	20	300	52	750
31	450	42	600	28	400	20	300	20	300	52	750
-	-	35	500	-	-	20	300	20	300	52	750
-	-	35	500	-	-	20	300	20	300	52	750
-	-	28	400	-	-	-	-	20	300	52	750
-	-	28	400	-	-	-	-	20	300	52	750
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	-	-	20	300	-	-

Coupling type									
SS-8		SS-8X		SS-7		SS-7X		SS-28	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
16	225	22	325	-	-	-	-	-	-
24	350	35	500	-	-	-	-	-	-
35	500	52	750	-	-	-	-	-	-
16	225	22	325	14	200	-	-	-	-
24	350	35	500	20	300	-	-	-	-
35	500	52	750	42	600	-	-	-	-

Working pressure ratings bar (psi) stainless steel couplings on roll grooved stainless steel pipe

Pipe size					Nominal wall thickness	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch
				5	1.7	0.065
40	1 1/2	48.3	1.900	10	2.8	0.109
				40	3.7	0.145
				5	1.7	0.065
50	2	60.3	2.375	10	2.8	0.109
				40	3.9	0.154
				5	2.1	0.083
	2 1/2	73.0	2.875	10	3.0	0.120
				40	5.2	0.203
				5	2.1	0.083
65	2 1/2	76.1	3.000	10	3.0	0.120
				40	5.2	0.203
				5	2.1	0.083
80	3	88.9	3.500	10	3.0	0.120
				40	5.5	0.216
				5	2.1	0.083
100	4	114.3	4.500	10	3.0	0.120
				40	6.0	0.237
				5	2.8	0.109
125	5	139.7	5.500	10	3.4	0.134
				40	6.6	0.258
				5	2.8	0.109
	5	141.3	5.563	10	3.4	0.134
				40	6.6	0.258
				5	2.8	0.109
150	6	168.3	6.625	10	3.4	0.134
				40	7.1	0.280
				5	2.8	0.109
200	8	219.1	8.625	10	3.8	0.148
				40	8.2	0.322

Coupling type									
SS-8		SS-8X		SS-7		SS-7X		SS-28	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
16	225	22	325	14	200	-	-	14	200
24	350	35	500	20	300	-	-	20	300
35	500	52	750	42	600	-	-	20	300
16	225	22	325	14	200	-	-	14	200
24	350	35	500	20	300	-	-	20	300
35	500	52	750	42	600	-	-	20	300
16	225	22	325	14	200	-	-	14	200
24	350	35	500	20	300	-	-	20	300
35	500	52	750	42	600	-	-	20	300
16	225	22	325	14	200	-	-	14	200
24	350	35	500	20	300	-	-	20	300
35	500	52	750	42	600	-	-	20	300
16	225	22	325	14	200	-	-	14	200
24	350	35	500	20	300	-	-	20	300
35	500	52	750	42	600	-	-	20	300
14	200	17	250	14	200	-	-	14	200
20	300	28	400	20	300	-	-	20	300
22	325	52	750	42	600	-	-	20	300
9	125	9	125	14	200	-	-	9	125
14	200	14	200	20	300	-	-	14	200
14	200	20	300	42	600	-	-	14	200
9	125	9	125	14	200	-	-	9	125
14	200	14	200	20	300	-	-	14	200
14	200	20	300	42	600	-	-	14	200
9	125	9	125	14	200	-	-	9	125
14	200	14	200	20	300	-	-	14	200
14	200	20	300	42	600	-	-	14	200
9	125	9	125	14	200	-	-	-	-
14	200	9	125	20	300	-	-	-	-
14	200	20	300	42	600	-	-	-	-

Working pressure ratings bar (psi) stainless steel couplings on roll grooved stainless steel pipe

Pipe size					Nominal wall thickness	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch
				5	3.4	0.134
250	10	273.0	10.750	10	4.2	0.165
				40	9.3	0.365
				5	4.0	0.156
300	12	323.9	12.750	10	4.6	0.180
				40	9.5	0.375
				5	4.0	0.156
350	14	355.6	14.000	10	4,8	0,188
				40	9.5	0.375
				5	4,2	0,165
400	16	406.4	16.000	10	4,8	0,188
				40	9.5	0.375
				5	4,2	0,165
450	18	457.2	18.000	10	4,8	0,188
				40	9.5	0.375
				5	4,8	0,188
500	20	508.0	20.000	10	5,5	0,218
				40	9.5	0.375
				5	5,5	0,218
550	22	558.8	22.000	10	6,4	0,25
				40	9.5	0.375
				5	5,5	0,218
600	24	609.6	24.000	10	6,4	0,25
				40	9.5	0.375

Coupling type										
SS-8		SS-8X		SS-7		SS-7X		SS-28	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	42	600	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	42	600	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	28	400	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	28	400	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	24	350	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	24	350	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	14	200	-	-
-	-	-	-	-	-	20	300	-	-
-	-	-	-	-	-	20	300	-	-

Working pressure ratings bar (psi) ductile iron couplings on roll grooved stainless steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
				5	1.7	0.065	17	250	22	325
25	1	33.7	1.315	10	2.8	0.109	20	300	31	450
				40	3.4	0.133	31	450	48	300
				5	1.7	0.065	17	250	22	325
32	1 1/4	42.4	1.660	10	2.8	0.109	20	300	31	450
				40	3.6	0.140	31	450	48	300
				5	1.7	0.065	17	250	22	325
40	1 1/2	48.3	1.900	10	2.8	0.109	20	300	31	450
				40	3.7	0.145	31	450	48	300
				5	1.7	0.065	17	250	22	325
50	2	60.3	2.375	10	2.8	0.109	20	300	31	450
				40	3.9	0.154	31	450	48	300
				5	2.1	0.083	17	250	22	325
	2 1/2	73.0	2.875	10	3.0	0.120	20	300	31	450
				40	5.2	0.203	31	450	48	300
				5	2.1	0.083	17	250	22	325
65	2 1/2	76.1	3.000	10	3.0	0.120	20	300	31	450
				40	5.2	0.203	31	450	48	300
				5	2.1	0.083	17	250	22	325
80	3	88.9	3.500	10	3.0	0.120	20	300	31	450
				40	5.5	0.216	31	450	48	300
				5	2.1	0.083	14	200	17	250
100	4	114.3	4.500	10	3.0	0.120	20	300	28	400
				40	6.0	0.237	31	450	48	700
				5	2.8	0.109	NR	NR	NR	NR
125	5	139.7	5.500	10	3.4	0.134	14	200	20	300
				40	6.6	0.258	20	300	42	600
				5	2.8	0.109	NR	NR	NR	NR
	5	141.3	5.563	10	3.4	0.134	14	200	20	300
				40	6.6	0.258	20	300	42	600

Coupling type												
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
17	250	20	300	-	-	-	-	-	-	-	-
20	300	35	500	-	-	-	-	-	-	-	-
31	450	48	700	-	-	-	-	-	-	-	-
17	250	20	300	17	250	NR	NR	-	-	-	-
20	300	35	500	20	300	20	300	-	-	-	-
31	450	48	700	24	350	20	300	-	-	-	-
17	250	20	300	17	250	NR	NR	12	175	NR	NR
20	300	35	500	20	300	20	300	19	275	NR	NR
31	450	48	700	24	350	20	300	19	275	28	400
17	250	20	300	17	250	NR	NR	12	175	NR	NR
20	300	35	500	20	300	20	300	19	275	NR	NR
31	450	48	700	24	350	20	300	19	275	28	400
17	250	20	300	17	250	NR	NR	12	175	NR	NR
20	300	35	500	20	300	20	300	19	275	NR	NR
31	450	48	700	24	350	20	300	19	275	28	400
17	250	20	300	17	250	NR	NR	12	175	NR	NR
20	300	35	500	20	300	20	300	19	275	NR	NR
31	450	48	700	24	350	20	300	19	275	28	400
14	200	17	250	14	200	NR	NR	12	175	NR	NR
20	300	28	400	17	250	12	175	19	275	NR	NR
31	450	48	700	20	300	20	300	19	275	20	300
NR	NR	NR	NR	NR	NR	NR	NR	12	175	NR	NR
14	200	20	300	17	250	10	150	14	200	NR	NR
20	300	42	600	20	300	17	250	19	275	17	250
NR	NR	NR	NR	NR	NR	NR	NR	12	175	NR	NR
14	200	20	300	17	250	10	150	14	200	NR	NR
20	300	42	600	20	300	17	250	19	275	17	250

Working pressure ratings bar (psi) ductile iron couplings on roll grooved stainless steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
150	6	168.3	6.625	5	2.8	0.109	NR	NR	NR	NR
				10	3.4	0.134	9	125	14	200
				40	7.1	0.280	20	300	35	500
200	8	219.1	8.625	5	2.8	0.109	NR	NR	NR	NR
				10	3.8	0.148	7	100	10	150
				40	8.2	0.322	20	300	31	450
250	10	273.0	10.750	5	3.4	0.134	NR	NR	NR	NR
				10	4.2	0.165	NR	NR	9	125
				40	9.3	0.365	14	200	28	400
300	12	323.9	12.750	5	4.0	0.156	NR	NR	NR	NR
				10	4.6	0.180	NR	NR	9	125
				40	9.5	0.375	14	200	28	400
350	14	355.6	14.000	5	4.0	0.156	-	-	-	-
				10	4,8	0,188	-	-	-	-
				40	9.5	0.375	-	-	-	-
400	16	406.4	16.000	5	4,2	0,165	-	-	-	-
				10	4,8	0,188	-	-	-	-
				40	9.5	0.375	-	-	-	-
450	18	457.2	18.000	5	4,2	0,165	-	-	-	-
				10	4,8	0,188	-	-	-	-
				40	9.5	0.375	-	-	-	-
500	20	508.0	20.000	5	4,8	0,188	-	-	-	-
				10	5,5	0,218	-	-	-	-
				40	9.5	0.375	-	-	-	-
600	24	609.6	24.000	5	5,5	0,218	-	-	-	-
				10	6,4	0,25	-	-	-	-
				40	9.5	0.375	-	-	-	-

Coupling type												
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
NR	NR	NR	NR	NR	NR	NR	NR	9	125	NR	NR
9	125	14	200	12	175	10	150	14	200	NR	NR
20	300	35	500	20	300	17	250	17	250	14	200
NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
7	100	10	150	12	175	NR	NR	NR	NR	NR	NR
20	300	28	400	20	300	14	200	14	200	10	150
-	-	NR	NR	-	-	NR	NR	NR	NR	NR	NR
-	-	7	100	-	-	NR	NR	NR	NR	NR	NR
-	-	20	300	-	-	14	200	14	200	10	150
-	-	NR	NR	-	-	-	-	NR	NR	NR	NR
-	-	7	100	-	-	-	-	NR	NR	NR	NR
-	-	17	250	-	-	-	-	14	200	10	150
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	NR	-	-	-
-	-	-	-	-	-	-	-	9	125	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	9	125	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	9	125	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	7	100	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	NR	NR	-	-
-	-	-	-	-	-	-	-	7	100	-	-

Working pressure ratings bar (psi) stainless steel couplings on cut grooved stainless steel pipe

Pipe size					Nominal wall thickness	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch
25	1	33.7	1.315	40S	3,40	0,13
				80S	4,55	0,18
32	1 1⁄4	42.4	1.660	40S	3,56	0,14
				80S	4,85	0,19
40	1 1⁄2	48.3	1.900	40S	3,68	0,15
				80S	5,08	0,20
50	2	60.3	2.375	40S	3,91	0,15
				80S	5,54	0,22
65	2 1⁄2	73.0	2.875	40S	5,16	0,20
				80S	7,01	0,28
65	76.1 mm	76.1	3.000	40S	5,16	0,20
				80S	7,01	0,28
80	3	88.9	3.500	40S	5,49	0,22
				80S	7,62	0,30
100	4	114.3	4.500	40S	6,02	0,24
				80S	8,56	0,34
125	139.7 mm	139.7	5.500	40S	6,55	0,26
				80S	9,53	0,38
125	5	141.3	5.563	40S	6,55	0,26
				80S	9,53	0,38
150	6	168.3	6.625	40S	7,11	0,28
				80S	10,97	0,43
200	8	219.1	8.625	40S	8,18	0,32
				80S	12,70	0,50
250	10	273.0	10.750	40S	9,27	0,37
				80S	12,70	0,50
300	12	323.9	12.750	40S	9,27	0,37
				80S	12,70	0,50
350	14	355.6	14.000	40S	9,27	0,37
				80S	12,70	0,50

Coupling type											
SS-8		SS-8X		SS-7		SS-7X		SS-28		SS-1200	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
35	500	52	750	-	-	-	-	-	-	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
35	500	52	750	42	600	-	-	-	-	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
35	500	52	750	42	600	-	-	20	300	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
35	500	52	750	42	600	-	-	20	300	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
35	500	52	750	42	600	-	-	20	300	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
35	500	52	750	42	600	-	-	20	300	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
35	500	52	750	42	600	-	-	20	300	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
22	325	52	750	42	600	-	-	20	300	83	1200
-	-	-	-	-	-	-	-	-	-	83	1200
14	200	52	750	42	600	-	-	14	200	-	-
-	-	-	-	-	-	-	-	-	-	-	-
14	200	52	750	42	600	-	-	14	200	-	-
-	-	-	-	-	-	-	-	-	-	-	-
14	200	20	300	42	600	-	-	14	200	-	-
-	-	-	-	-	-	-	-	-	-	-	-
14	200	20	300	42	600	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	42	600	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	42	600	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	28	400	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

Working pressure ratings bar (psi) stainless steel couplings on cut grooved stainless steel pipe

Pipe size					Nominal wall thickness	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch
400	16	406.4	16.000	40S	9,27	0,37
				80S	12,70	0,50
450	18	457.2	18.000	40S	9,27	0,37
				80S	12,70	0,50
500	20	508.0	20.000	40S	9,27	0,37
				80S	12,70	0,50
550	22	558.8	22.000	40S	9,27	0,37
				80S	12,70	0,50
600	24	609.6	24.000	40S	9,27	0,37
				80S	12,70	0,50

Working pressure ratings bar (psi) ductile iron couplings on cut grooved stainless steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
25	1	33.7	1.315	40S	3,40	0,13	42	600	52	750
				80S	4,55	0,18	42	600	52	750
32	1 1/4	42.4	1.660	40S	3,56	0,14	42	600	52	750
				80S	4,85	0,19	42	600	52	750
40	1 1/2	48.3	1.900	40S	3,68	0,15	42	600	52	750
				80S	5,08	0,20	42	600	52	750
50	2	60.3	2.375	40S	3,91	0,15	42	600	52	750
				80S	5,54	0,22	42	600	52	750
65	2 1/2	73.0	2.875	40S	5,16	0,20	42	600	52	750
				80S	7,01	0,28	42	600	52	750
65	76.1 mm	76.1	3.000	40S	5,16	0,20	42	600	52	750
				80S	7,01	0,28	42	600	52	750
80	3	88.9	3.500	40S	5,49	0,22	42	600	52	750
				80S	7,62	0,30	42	600	52	750

Coupling type												
SS-8		SS-8X		SS-7		SS-7X		SS-28		SS-1200	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
-	-	-	-	-	-	28	400	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	24	350	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	24	350	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	20	300	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	20	300	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

Coupling type											
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
42	600	52	750	-	-	-	-	-	-	-	-
42	600	52	750	-	-	-	-	-	-	-	-
42	600	52	750	35	500	20	300	-	-	-	-
42	600	52	750	35	500	20	300	-	-	-	-
42	600	52	750	35	500	20	300	20	300	28	400
42	600	52	750	35	500	20	300	20	300	28	400
42	600	52	750	35	500	20	300	20	300	28	400
42	600	52	750	35	500	20	300	20	300	28	400
42	600	52	750	35	500	20	300	20	300	28	400
42	600	52	750	35	500	20	300	20	300	28	400
42	600	52	750	35	500	20	300	20	300	28	400

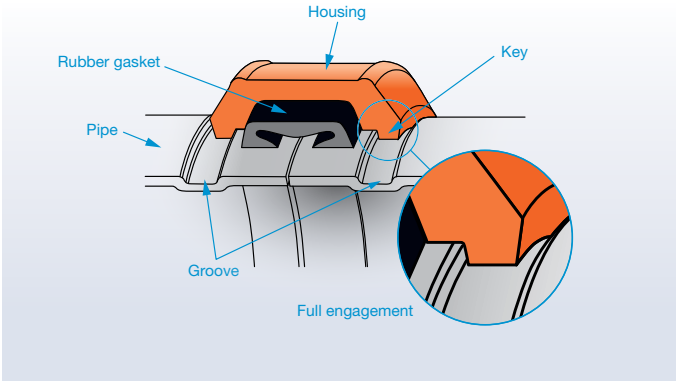
Working pressure ratings bar (psi) ductile iron couplings on cut grooved stainless steel pipe

Pipe size					Nominal wall thickness		7705		7707	
DN	inch/mm	mm	inch	Pipe sch.	mm	inch	bar	psi	bar	psi
100	4	114.3	4.500	40S	6,02	0,24	42	600	52	750
				80S	8,56	0,34	42	600	52	750
125	139.7 mm	139.7	5.500	40S	6,55	0,26	31	450	52	750
				80S	9,53	0,38	31	450	52	750
125	5	141.3	5.563	40S	6,55	0,26	31	450	52	750
				80S	9,53	0,38	31	450	52	750
150	6	168.3	6.625	40S	7,11	0,28	31	450	52	750
				80S	10,97	0,43	31	450	52	750
200	8	219.1	8.625	40S	8,18	0,32	31	450	42	600
				80S	12,70	0,50	31	450	42	600
250	10	273.0	10.750	40S	9,27	0,37	24	350	42	600
				80S	12,70	0,50	24	350	42	600
300	12	323.9	12.750	40S	9,27	0,37	24	350	42	600
				80S	12,70	0,50	24	350	42	600
350	14	355.6	14.000	40S	9,27	0,37	-	-	-	-
				80S	12,70	0,50	-	-	-	-
400	16	406.4	16.000	40S	9,27	0,37	-	-	-	-
				80S	12,70	0,50	-	-	-	-
450	18	457.2	18.000	40S	9,27	0,37	-	-	-	-
				80S	12,70	0,50	-	-	-	-
500	20	508.0	20.000	40S	9,27	0,37	-	-	-	-
				80S	12,70	0,50	-	-	-	-
550	22	558.8	22.000	40S	9,27	0,37	-	-	-	-
				80S	12,70	0,50	-	-	-	-
600	24	609.6	24.000	40S	9,27	0,37	-	-	-	-
				80S	12,70	0,50	-	-	-	-

Coupling type											
Z05		Z07		7706		G28		7041		7043	
bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
42	600	52	750	35	500	20	300	20	300	20	300
42	600	52	750	35	500	20	300	20	300	20	300
31	450	52	750	28	400	20	300	20	300	20	300
31	450	52	750	28	400	20	300	20	300	20	300
31	450	52	750	28	400	20	300	20	300	20	300
31	450	52	750	28	400	20	300	20	300	20	300
31	450	48	700	28	400	20	300	20	300	20	300
31	450	48	700	28	400	20	300	20	300	20	300
31	450	42	600	28	400	20	300	20	300	17	250
31	450	42	600	28	400	20	300	20	300	17	250
-	-	35	500	-	-	20	300	20	300	17	250
-	-	35	500	-	-	20	300	20	300	17	250
-	-	28	400	-	-	-	-	20	300	17	250
-	-	28	400	-	-	-	-	20	300	17	250
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-
-	-	NR	NR	-	-	-	-	17	250	-	-

2.6 Pipe end preparation

How to groove pipes

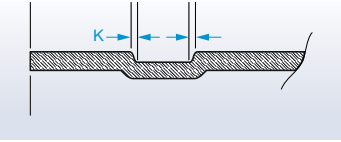


Roll and cut grooves

VSH Shurjoint grooved piping systems require the processing of a **roll or cut groove** to the pipe ends being connected. The engagement of the housing keys in the grooves is integral in providing a secure and leak-tight joint. It is essential that the grooves are properly processed for optimum joint performance.

Nominal pipe size

VSH Shurjoint couplings and fittings are identified by the nominal diameter of pipe (DN) in millimeters or size in inches. Always check the actual outside diameter (OD) of the pipe and fittings to be connected, as in some markets it is customary to refer to different OD pipes with the same nominal size.

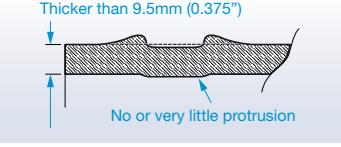


Roll groove profile

Roll grooves should be as defined as possible. To achieve optimum joint performance the 'K' dimension should be as small as possible. When processing a roll groove the machine operator should manage the feed pressure of the upper roll set so as to achieve the best possible groove profile.

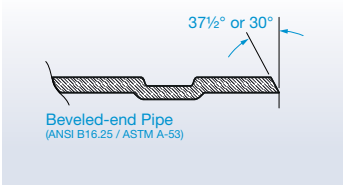
Applicable pipe wall thickness

Roll grooves are generally applicable to 9.5 mm thick or thinner wall carbon steel pipe or stainless steel pipe depending on the type of roll-grooving machine and roll set being used. Different wall thicknesses and sizes require the use of different roll sets. Contact the roll groove machine manufacturer for additional information.



Heavy wall pipe

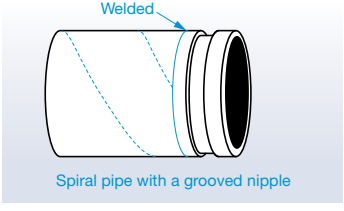
When attempting to roll-groove pipe thicker than 9.5 mm, the metal may deform and heap up on both sides of the groove rather than radially deforming and protruding on the inside of the pipe. The extra heaped metal could lead to joint failure. In such case, you should grind off any such extra metal to achieve a flat and smooth sealing surface. A rust preventative coating must be applied on the ground surface. VSH strongly recommends the processing of cut-grooves on heavy or thick wall pipe. Another possibilty is using the VSH Shurjoint Ring-Joint system.



Plain-end and beveled end pipe
While plain-end pipe is preferred, the use of beveled end pipe is acceptable providing that the wall thickness is 9.5 mm or thinner and the bevel is 37 1/2 ± 2 1/2° or 30° as specified in ANSI B16.25 and ASTM A-53 respectively.

Removing welding beads
Depending on the individual pipe and manufacturer, welding beads may remain on the surface (inside and outside) of the pipe. Always remove harmful weld beads near the pipe ends as they can cause rattling of the roll grooving machine resulting in inaccurate grooves.

Galvanized pipe
Galvanized pipe is acceptable as long as the gasket seating surface ('A', drawing page 53) is smooth and free from scale and imperfections that could affect gasket sealing. Whenever you remove welding beads or projections from the sealing surface of galvanized pipe, use caution so as to not over-grind the surface. After grinding, always apply a proper rust- prevention coating to this area.



Spiral welded pipe
Spiral welded pipe may be used as long as the weld beads are removed from the gasket seating surface. It is also acceptable and recommended to weld a grooved end nipple to the pipe end as shown. Whenever you remove weld beads or projections from the gasket seating surface, use caution so as to not over-grind the surface. After grinding, always apply a rust-prevention coating to this area.

Check pipe OD

Check to insure that the pipe to be prepared has the correct OD and wall thickness for the intended service. While VSH Shurjoint fittings are normally identified by the nominal size, always check the actual OD of the pipe and fittings to be connected, as in some markets it is customary to refer to different OD pipes with the same nominal size.

For example: The nominal size DN65 (2-1/2") is referred to 73,0 mm pipe OD in IPS and 76.1 mm pipe OD in EN, AS, BS, DIN (ISO), JIS or KS pipes.

EN - European Standard (Metric)
ISO - ISO Standard (Metric)
BS - British Standard (Metric)
DIN - German Standard (Metric)
IPS - United States Standard (Inch)

Pipe size equivalents

Size inches		Size millimeters	
Nominal	Actual	Nominal	Actual
1/2	0.840	DN15	21.3
3/4	1.050	DN20	26.7
1	1.315	DN25	33.7
1 1/4	1.660	DN32	42.4
1 1/2	1.900	DN40	48.3
2	2.375	DN50	60.3
2 1/2	2.875	-	73.0
3 OD	3.000	DN65	76.1
3	3.500	DN80	88.9
3 1/2	4.000	-	101.6
4 1/4 OD	4.250	-	108.0
4	4.500	DN100	114.3
5	5.563	-	141.3
5 1/4 OD	5.250	-	133.0
5 1/2 OD	5.500	DN125	139.7

Size inches		Size millimeters	
Nominal	Actual	Nominal	Actual
6 1/4 OD	6.250	-	159.0
6 1/2 OD	6.500	-	165.1
6	6.625	DN150	168.3
8	8.625	DN200	219.1
10	10.750	DN250	273.0
12	12.750	DN300	323.9
14	14.000	DN350	355.6
16	16.000	DN400	406.4
18	18.000	DN450	457.2
20	20.000	DN500	508.0
22	22.000	DN550	558.8
24	24.000	DN600	609.6
28	28.000	DN700	711.2
30	30.000	DN750	762.0
32	32.000	DN800	812.8
36	36.000	DN900	914.4
40	40.000	DN1000	1016.0
42	42.000	DN1050	1066.8

What pipe can be roll or cut grooved?

VSH Shurjoint grooved piping systems require a roll or cut-groove to be applied to the pipe ends being connected. The groove dimensions and configurations may vary depending on several factors including pipe material, wall thickness and desired working pressures. Roll grooving is the most common practice and can be performed in the fabrication shop or in the field or the job site. Cut grooving on the other hand is primarily performed at the factory or fabrication shop, as cut grooving machines are not as common or portable as roll grooving machines. All roll and cut grooves must meet the specifications and requirements of ANSI/AWWA C606 (latest edition) and ISO/FDIS 6182-12. For other pipe sizes not specified in ANSI/AWWA C606 (latest edition) and ISO/FDIS 6182-12, refer to the relative groove specifications shown in this manual. When grooving pipe, it is preferable to start

with plain-end pipe, although in some cases the use of beveled pipe is acceptable providing that the wall thickness is standard or thinner and the bevel is 37 1/2° ± 2 1/2° (ANSI B16.25).

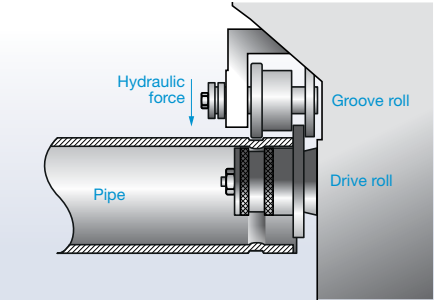
Roll and cut grooving applications

Pipe materials	Roll groove	Cut groove
Carbon steel pipe	Standard wall, Sch. 40 (10" and below), 30, 20, 10, 7, 5, BS1387 medium & light, JIS SGP	Sch. 80, 40, 30 BS1387 medium & heavy, JIS SGP
Stainless steel pipe	Sch. 40S, 20S, 10S, 5S	Sch. 80S, 40S

About roll-grooving

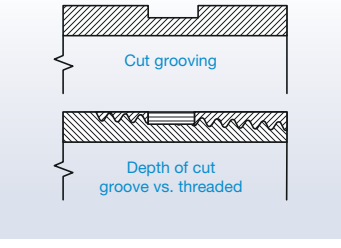
Roll grooving was first used with light or thin wall pipe, which had insufficient wall thickness for cut grooving. Today roll grooving is commonly used on standard and schedule 40 wall pipe (max. 9.5 mm thick) for sizes to 42" (DN1050) depending on the type of roll-grooving machine and roll sets used.

Roll grooving radially displaces the pipe material. Because roll grooving removes no material from the pipe itself, the integrity of the pipe remains intact when properly grooved. The inside protrusion or upset of roll groove is small and smooth at its entry and exit and thus has insignificant or negligible effect on both flow and/or line pressure. Roll grooving is limited to pipe having a hardness of HB180 or less.



To groove the pipe, the end is placed between a roll set when the roll set is compressed and rotated a groove is processed around the diameter of the pipe, recessed on the outside and protruding on the inside. Roll grooving can be processed on carbon steel and stainless steel. Care must be taken to use the correct equipment and roll sets for the piping material being grooved. Different materials can require the use of different roll sets as in the case with stainless steel and heavy wall (9.5 mm thick) carbon steel pipe. Consult your grooving machine / roll set instructions or operators manual or contact VSH for more information.

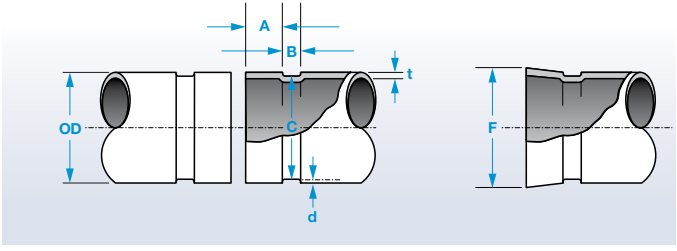
About cut-grooving



The cut grooving process actually removes material from the pipe OD to form a groove. Thus cut grooving is intended for use with standard and heavier wall pipe. Most all pipes that are designed to be threaded can be cut grooved, as the depth of a cut groove is typically less than that of a standard thread. Please refer to the minimum wall thickness shown in the published standard cut groove specifications.

Unlike roll-grooving, cut grooving produces a square cut groove in the pipe, without any protrusion on the inside of the pipe. Cut grooving is commonly used on piping components such as 90° elbows, tees, grooved-end valves, etc. It is also good practice to process a cut groove into plastic-coated or cement-lined pipe as roll grooving may damage the internal coatings or linings of such pipe.

Groove dimensions

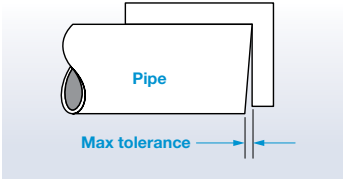


STANDARD ROLL GROOVE DIMENSIONS

Nominal size

VSH Shurjoint couplings and fittings are identified by the nominal pipe size in inches or nominal outside diameter of pipe in millimeters

OD: Pipe ends must be square cut



The maximum allowable tolerances from square ends are:
0.8 mm for sizes up to 3 1/2" (DN90),
1.2 mm for 4" thru 6" (DN100-150)
1.6 mm for 8" (DN200) and above.

Gasket seating surface ('A' dimension)

The exterior surface of the gasket seating area shall be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

Groove Width ('B' dimension)

is to be measured between vertical flanks of the groove side walls, and is determined by the width of the upper roller as it is pressed into the pipe. Visually inspect the pipe groove to insure the groove has well defined edges for the coupling keys to engage properly. If they appear to be rounded with little or no vertical lip, they should be replaced as this could lead to reduced product performance or joint failure.

Groove diameter ('C' dimension)

The groove diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

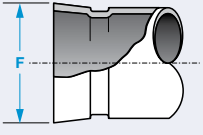
Minimum wall thickness ('t' dimension)

The 't' is the minimum allowable wall thickness that may be roll-grooved.

Groove depth ('d' dimension)

The values listed in the Groove Specification tables are for reference only.

Flare diameter ('F' dimension)



The pipe end that may flare when roll grooved shall measure within this limit when measured at the extreme end of the pipe.

Roll groove specifications

Pipe or tube			Dimensional specifications						
Nominal size	Outside diameter (OD)		Gasket seat A ±0.76	Gasket width B ±0.76	Grooved diameter C		Groove depth d (ref.)	Wall thickness t Min. allow.	Flare F Max. dia.
	Actual size	Tolerance			Actual size	Tolerance			
25	33.7	+0.41/-0.68	15.88	7.14	30.23	0/-0.38	1.70	1.8	34.5
32	42.4	+0.50/-0.60	15.88	7.14	38.99	0/-0.38	1.70	1.8	43.3
40	48.3	+0.44/-0.52	15.88	7.14	45.09	0/-0.38	1.60	1.8	49.4
50	60.3	±0.61	15.88	8.74	57.15	0/-0.38	1.60	1.8	62.2
65	73	±0.74	15.88	8.74	69.09	0/-0.46	1.98	2.3	75.2
65	76.1	±0.76	15.88	8.74	72.26	0/-0.46	1.93	2.3	77.7
80	88.9	+0.89/-0.79	15.88	8.74	84.94	0/-0.46	1.98	2.3	90.6
90	101.6	+1.02/-0.79	15.88	8.74	97.38	0/-0.51	2.11	2.3	103.4
100	108	+1.07/-0.79	15.88	8.74	103.73	0/-0.51	2.11	2.3	109.7
100	114.3	+1.14/-0.79	15.88	8.74	110.08	0/-0.51	2.11	2.3	116.2
125	133.9	+1.32/-0.79	15.88	8.74	129.13	0/-0.51	1.93	2.9	134.9
125	139.7	+1.40/-0.79	15.88	8.74	135.48	0/-0.56	2.11	2.9	141.7
125	141.3	+1.42/-0.79	15.88	8.74	137.03	0/-0.56	2.13	2.9	143.5
150	159	+1.60/-0.79	15.88	8.74	154.50	0/-0.56	2.20	2.9	161.0
150	165.1	+1.60/-0.79	15.88	8.74	160.90	0/-0.56	2.16	2.9	167.1
150	168.3	+1.60/-0.79	15.88	8.74	163.96	0/-0.56	2.16	2.9	170.7
200	219.1	+1.60/-0.79	19.05	11.91	214.40	0/-0.64	2.34	2.9	221.5
250	277.4	+1.60/-0.79	19.05	11.91	268.28	0/-0.69	2.39	3.6	275.4
300	328.2	+1.60/-0.79	19.05	11.91	318.29	0/-0.76	2.77	4.0	326.2
350	355.6	+1.60/-0.79	23.83	11.91	350.04	0/-0.76	2.77	3.96	358.14
400	406.4	+1.60/-0.79	23.83	11.91	400.84	0/-0.76	2.77	4.19	408.94
450	457.2	+1.60/-0.79	23.83	11.91	451.64	0/-0.76	2.77	4.19	461.26
500	508	+1.60/-0.79	23.83	11.91	502.44	0/-0.76	2.77	4.78	512.06
550	558.8	+1.60/-0.79	23.83	11.91	550.06	0/-0.76	4.37	4.78	563.88
600	609.6	+1.60/-0.79	23.83	12.70	600.86	0/-0.76	4.37	5.54	614.68

1. Pipe OD: Maximum allowable tolerances from square cut ends is 0.03" for sizes up to 3 1/2"; 0.045" for 4" thru 6"; and 0.060" for sizes 8" and above.
2. The gasket seating surface 'A' shall be free from deep scores. marks. or ridges that would prevent a positive seal.
3. The 'C' dimensions are average values. The groove must be of uniform depth around the entire circumference. Use a Shurjoint groove gage or rule to check the groove diameter.
4. The 't' is the minimum allowable wall thickness that may be roll-grooved.
5. The 'd' is for reference use only. The groove depth shall be determined by the groove diameter 'C'.
6. Flare Diameter: The pipe end that may flare when the groove is rolled shall be within this limit when measured at the extreme end of the pipe.

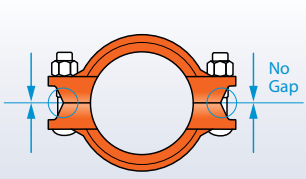
For a complete overview of all relevant roll- and cut grooving dimensions please contact VSH.

Bolts & nut torque and assembly

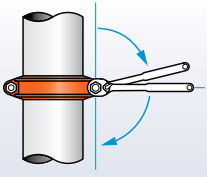
Helpful information to ensure proper assembly

Some couplings and components require the housing bolt pads to make metal-to-metal contact for correct assembly, while others require a specific bolt torque while maintaining equal bolt pad gaps. The icons and information below will help to identify those items to ensure correct assembly. Read and follow all installation instructions (chapter 2.7) for the component being installed.

Metal-to-metal contact: Tighten bolts and nuts until bolt pads make metal-to-metal contact. After metal-to-metal contact is achieved, tighten nuts by another one quarter or one half turn to make sure the bolts and nuts are snug and secure. No torque wrench is required. Excessive torque may lead to bolt or joint failure.



Metal-to-metal contact



After metal-to-metal, further tighten one quarter or half turn

If bolt pad gaps are evident after installation, disassemble and reinstall the coupling after checking the following:

- The coupling, pipe and/or fitting being connected are the correct size.
- The coupling keys are fully engaged in the pipe and/or component grooves.
- The gasket is not being pinched.
- The grooves conform to the applicable groove dimension specifications.
- The pipe end flare is within the specification tolerance.

Torque required! Bolts and nuts must always be tightened to the required torque by using a torque wrench. Normally there will be some gaps seen between the bolt pads after the bolts and nuts are fully tightened. Models that require torque tightening include 2" through 4" of Model XH-1000, all sizes of Models XH-70EP, SS-7X and 79 couplings.

Recommended bolt torque

Always use factory supplied bolts and nuts for assembly of VSH Shurjoint couplings. Shown on the next page are the general recommended torque ranges for common sizes of carbon steel bolts. Never exceed the recommended torque range by more than 25% as excessive torque can lead to joint failure, personal injury and/or property damage. Always depressurize and drain the piping system before attempting disassembly, adjustment or removal of any piping component. Follow installation instructions for correct assembly of all VSH Shurjoint components.

Bolt torque specifications

Bolt size		Torque range	
mm	**inch**	**Lbs-Ft**	**Nm**
M8	5/16” - 18	15 - 25	20 - 34
M10	3/8” - 16	30 - 40	40 - 55
M12	1/2” - 13	90 - 105	120 - 140
M16	5/8” - 11	100 - 130	135 - 175
M20	3/4” - 10	150 - 200	200 - 270
M22	7/8” - 9	180 - 220	240 - 300
M24	1” - 8	200 - 225	270 - 305
M29	1 1/8” - 7	250 - 300	340 - 400
M32	1 1/4” - 7	375 - 500	510 - 680

For stainless steel bolts, the torque is reduced by 20%

2.7 Installation guidelines

When installing VSH Shurjoint always make sure to take care in using protective gear on the building site. Safety shoes, hat and glasses should be the minimum of protection when installing VSH Shurjoint.

2.7.1 General installation steps for grooved couplings

Below you can find the different steps which need to be taken for installing grooved couplings. If, for certain models specific installation steps or requirements need to be taken, you can find them in the corresponding sections.

1. **Inspect and prepare pipe ends:** Make sure pipe ends have the right OD's and are properly roll- or cut grooved. For optimum sealing by the gasket, the exterior surface of the pipe ends must be free from any indentations, projections, roll marks or other harmful surface defects such as loose paint, scale, dirt, chips, grease and rust.

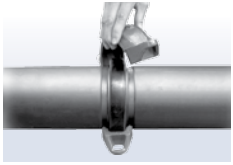
2. **Check gasket:** Verify the factory supplied gasket is correct for the intended service. The colour code identifies gasket grade

3. Lubricate gasket: To help insert pipe smoothly and mount couplings smoothly without pinching, apply a thin layer of VSH Shurjoint Lubricant to the sealing lips as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket.

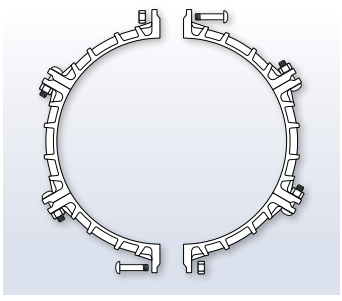
4. Install gasket: Install the gasket over one end of the pipe so that the pipe end is exposed. No part of the gasket should overhang this end of the pipe.

5. Bring the mating pipe together: Bring together and align the two pipe ends to be joined. Slide the gasket over the ends and centre it between the grooves of the pipe to be joined. No part of the gasket should protrude into the groove of either pipe.

6. Assemble coupling: For a 'swing-over' assembly loosely install one bolt and nut on one side of the coupling. For a standard assembly start with the two housings separated.



7. install coupling halves: For a 'swing-over' installation, place one of the coupling halves around the bottom side of the gasket and swing over the other coupling half into position over the top side of the gasket. For a standard installation install the coupling halves one at a time. In both cases make sure the coupling keys are engaged in the grooves.



Large diameter coupling: Large diameter couplings over 24" consist of multiple housing segments. To prepare installation, preassemble the segments loosely into two or three equal assemblies depending on sizes. Install those assemblies over the gasket in the same manner as described above

8. Insert bolt & nut: For a 'swing-over' installation, insert the remaining bolt and apply the nut hand tight. For standard installation, insert the bolts and apply the nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.

9. **Tighten nuts** alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

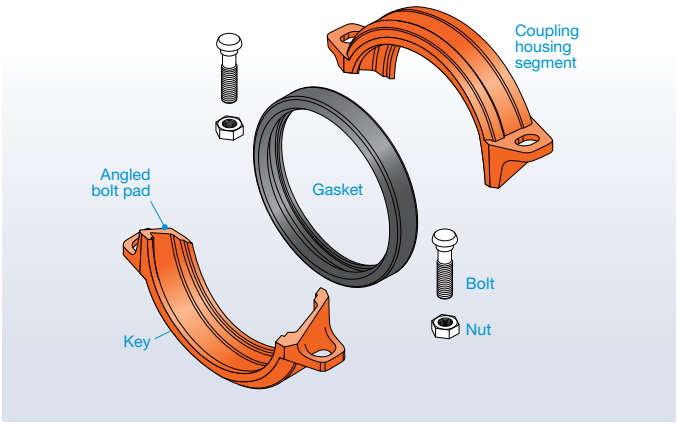
Tighten nuts. Bolts and nuts must always be tightened to the required torque by using a torque wrench. Normally there will be gaps seen between the bolt pads after the bolts and nuts are fully tightened. Bolt pad gaps should be equal on both sides of the coupling.

Caution:

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. When using a power impact wrench, excessive tightening of nuts may cause a bolt or joint failure.

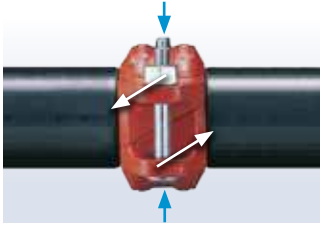
Note: Excessive torque may cause the **galling of stainless steel bolts and nuts**. Use of an anti-seize lubricant such as Loctite C5-A to lessen this problem with stainless steel bolts and nuts. The use of silicone bronze nuts is also a good option to avoid galling. Contact VSH for additional information.

2.7.2 Installing angle pad rigid coupling Z05, Z07 and Z07N



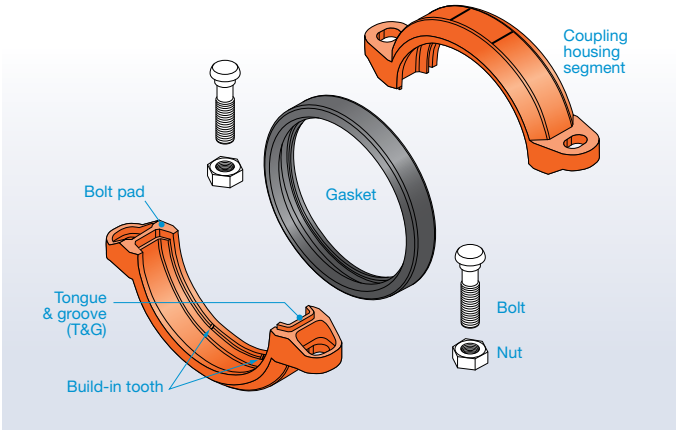
Please refer to section 2.7.1. for preliminary steps 1 to 8.

9. **Tighten nuts** alternately and equally until the bolt pads meet and make metal-to-metal contact. tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. the use of a torque wrench is not required.

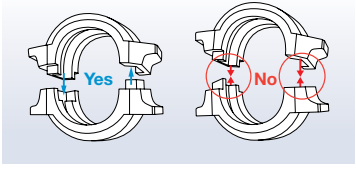


Note: As the coupling bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the pipe grooves are forced outward against the coupling keys. The bolt pads should always maintain metal-to-metal contact.

2.7.3 Installing tongue & groove coupling SS7 & SS7X



Please refer to section 2.7.1. for preliminary steps 1 to 8.



Warning!

Certain VSH Shurjoint Models (such as SS7 & SS7X) feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove mate properly. Attempting to install these couplings tongue to tongue or groove to groove will result in joint failure, property damage or serious injury.

9.  **Tighten nuts model SS7.** Bolts and nuts should always be installed so that the coupling bolt pads make metal to metal contact.

 **Tighten nuts model SS7X.** Bolts must be fastened to the requiered torque as indicated in the table below.

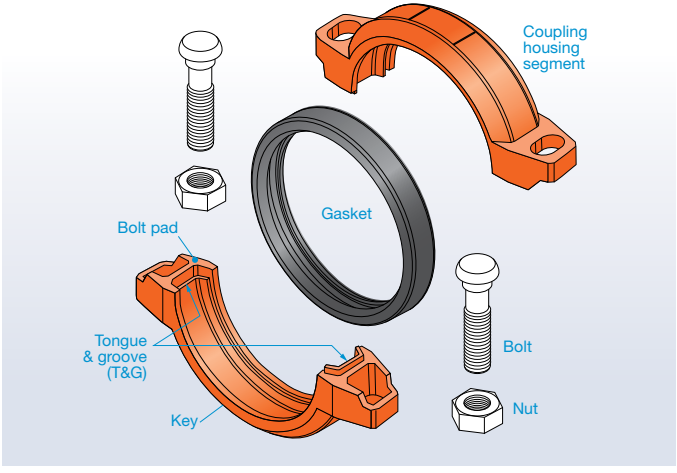
Bolt torque requirements VSH Shurjoint SS7X

Nominal size pipe OD		Required torque	
inch	mm	Lbs-Ft	Nm
10	273	105 - 175	145 - 235
12	323.9	105 - 175	145 - 235
10	267.4	105 - 175	145 - 235
12	318.5	105 - 175	145 - 235
14	355.6	105 - 175	145 - 235
16	406.4	50 - 75	68 - 100
18	457.2	50 - 75	68 - 100
20	508	65 - 150	85 - 200
22	558.8	65 - 150	85 - 200
24	609.6	65 - 150	85 - 200

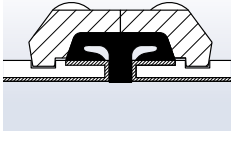
if gap between the bolt pads are larger than 1/8" (3.2 mm), disassemble and reinstall the coupling after checking the following:

- The coupling, pipe and/or fitting being connected are the correct size.
- The coupling keys are fully engaged in the pipe and/or component grooves.
- The gasket is not being pinched.
- The grooves conform to the applicable groove dimension specifications.
- The pipe end flare is within the specification tolerance.

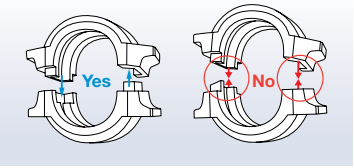
2.7.4 Installing extra heavy rigid coupling XH70EP



Please refer to section 2.7.1. for preliminary steps 1 to 8.



On model XH70EP, use the VSH Shurjoint factory supplied EP (end protection) gasket.



Warning!

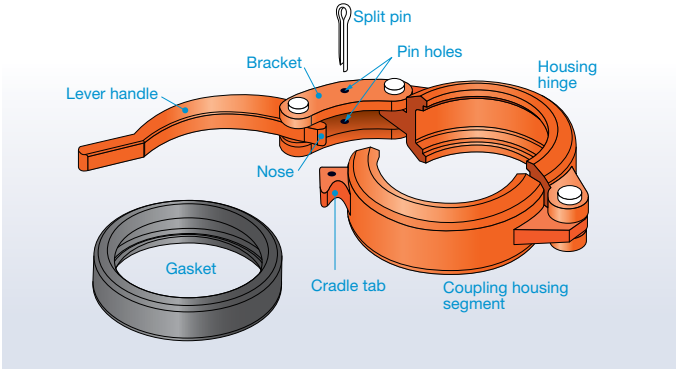
The VSH Shurjoint Model XH70EP coupling also features a tongue and groove design and mechanism. Thus the coupling must always be installed so that tongue and groove mate properly.

9. **Tighten nuts.** Bolts and nuts must be fastened to the requiered torque as indicated in the table below.

Bolt torque requirements VSH Shurjoint EX70EP

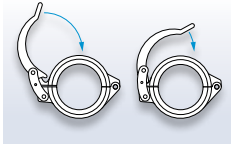
Pipe OD		Required torque	
inch	mm	Lbs-Ft	Nm
2 - 3”	60.3 - 88.9	100 - 130	135 - 175
4”	114.3	150 - 200	200 - 270
6”	168.3	180 - 220	240 - 300
8 - 12”	219.1 - 323.9	200 - 225	270 - 305

2.7.5 Installing hinged lever coupling G28



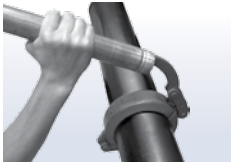
Please refer to section 2.7.1. for preliminary steps 1 to 6

7. Apply housing: Open the hinged coupling and mount it around the gasket so that the coupling keys are securely engaged into the grooves.



8. Engage housing: Squeeze the housing segments tightly and hook up the nose of the locking handle in the cradle tab of the other housing segment.

9. Close lever handle: Firmly close the lever handle and force it down until it touches the back of the housing.



Note: If the lever handle is difficult to open or close the use of a section of steel pipe as shown for increased leverage can avoid injury such as pinched fingers.

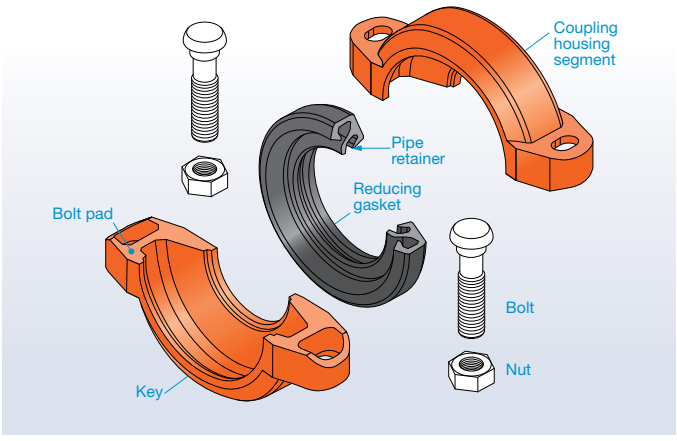
10. Insert the split pin: Insert the split pin through the hole on the bracket of the lever handle to prevent accidental opening of the coupling.

To disassemble

1. Remove the split pin: Remove the split pin by hand or with the aid of pliers.

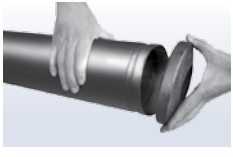
2. Lift lever handle: Lift the lever handle to open the coupling. Use a screwdriver or any other similar tool when necessary for initial leverage.

2.7.6 Installing reducing coupling 7706

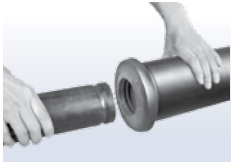


Please refer to section 2.7.1. for preliminary steps 1 to 3.

When installing reducing couplings please make sure to always mount the gasket on the larger pipe first. All other installation steps will remain as described.



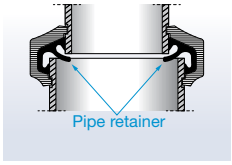
4. First mount gasket on larger pipe: Mount the larger opening of the gasket over the larger pipe end and align the two pipes to be mated. Insert the smaller pipe into the gasket. A slight twisting motion of the pipe will make for easier assembly. The gasket should not overhang the end of the pipe or the grooves of either pipe.



5. Insert smaller pipe: Bring together and align the two pipes to be mated. Insert the smaller pipe into the gasket. A slight twisting motion of the pipe will make for easier assembly. The gasket should not overhang the end of the pipe or the grooves of either pipe.

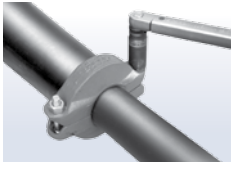
Caution:

The reducing couplings (such as model 7706) must not be used with an end cap, as the end cap may be sucked into pipe when draining the system.



Note: No metal washer is required to prevent the smaller pipe from telescoping into the larger pipe. The built-in pipe stopper (or pipe retainer) inside the gasket will help prevent immediate telescoping of the smaller pipe. Nevertheless, careful and gentle insertion of the smaller pipe is required until housings are applied and installation is completed.

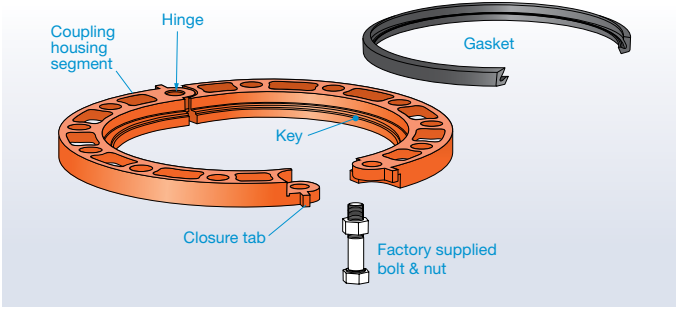
Please refer to section 2.7.1. for follow up steps 6 through 8.



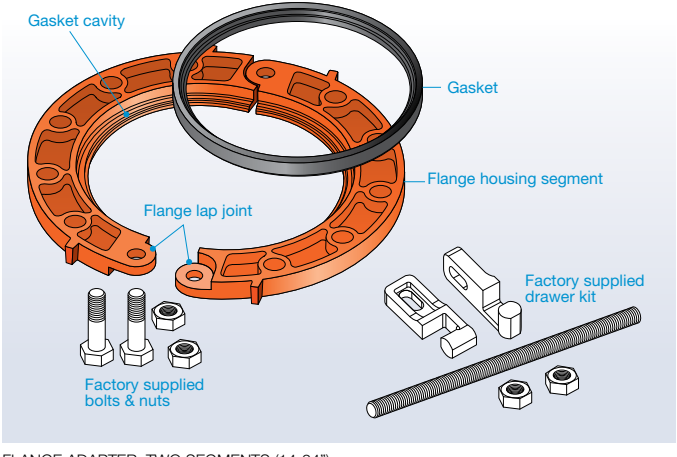
9. 

Tighten nuts: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

2.7.7 Installing grooved flange adapter 7041, 7043 & SS41S

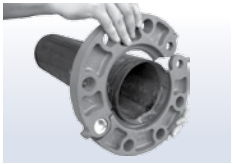


FLANGE ADAPTER, HINGED (2-12")



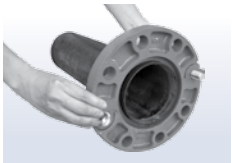
FLANGE ADAPTER, TWO SEGMENTS (14-24")

The VSH Shurjoint flange adapters are drilled to PN10/16, but are also available as ANSI Class 125/150 and Class 300.

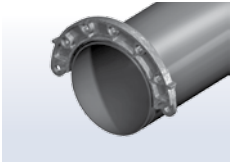


1. Mount hinged flange segments (2-12”): Fully open the hinged flange segments. Place the flange segments around the groove of the pipe end and pull together until the mating bolt holes of the ends align.

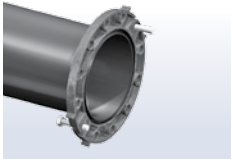
Draw flange segments (2-12”): Use a wrench, C-clamp or other similar tool to draw the closure tabs together until the mating holes are aligned.



Insert the factory supplied bolt (2-12”): Insert the VSH Shurjoint factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.

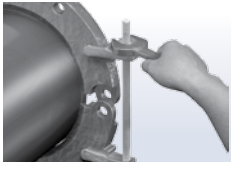


Assemble segment (14-24”): Place the half flange segment onto the pipe making sure that the key is engaged in the groove.

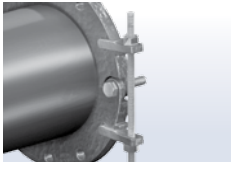


Insert the factory supplied bolt (14-24”): Apply the other half flange segment and insert the VSH Shurjoint factory supplied bolts through the mating holes at the flange lap joints and make sure that the flange is fully engaged in the pipe grooves.

Caution:
Use of any bolts other than those supplied with the flange adapter could result in a leak or joint failure.

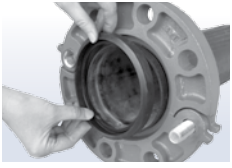


Draw flange segments (14-24”): In case it is hard to align the holes at the flange lap joints, use the factory supplied drawer kit to draw the closure tabs together until the mating holes are aligned.

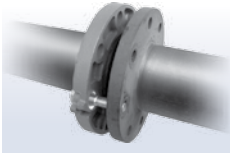


Insert the factory supplied bolt: (14-24”):
Insert the Shurjoint factory supplied bolt through the mating hole making sure that the flange is fully engaged in the pipe grooves.

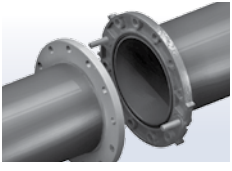
2. Check gasket grade & lubricate: Check the colour code and make sure it's the correct one for the intended service. Then apply a thin layer of VSH Shurjoint Lubricant to the sealing lip of the gasket.



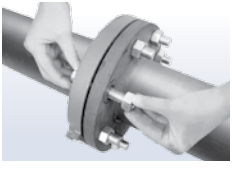
3. Install gasket: Place the gasket into the gasket cavity between the pipe OD, and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the gasket pocket.



4. Mate adjoining flange (2-12"): Insert commercial flange bolt in the hinge hole (opposite side the factory supplied bolt) and tighten the nuts of the commercial flange bolt and the factory supplied bolt.

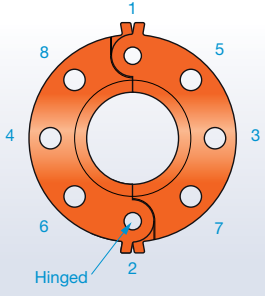


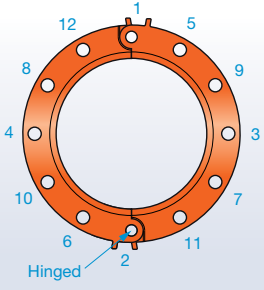
Mate adjoining flange (14-24"): Bring the adjoining flange face to face with the flange adapter and insert the two factory supplied bolts through the four bolt holes at the flange lap joints.



5. Add bolts: Add the remaining commercial flange bolts and apply nuts hand tight. All the bolts shall be inserted from one direction.

6. **Tighten nuts:** Tighten nuts alternately in the sequence of diagonally opposite pairs until the flange faces meet and make metal-to-metal contact. It is important to make flange faces contact parallel.





Required bolt torque

The tables below provides the standard torque values for proper assembly of VSH Shurjoint flange adapters. Use a torque wrench so that all the nuts are tightened equally with a same torque value.

These torque values are not the maximum values and the bolts can be torqued for above the values listed. Attaining maximum torque value is not necessary as the VSH Shurjoint flange adapters are sealed with elastic (rubber) gaskets, which require a much lower torque than that of metallic gaskets.

Bolt torque requirements 7041 (ANSI Class 125/150) & SS41

Nom. size	Bolt size		Required torque	
inch	inch	No.	Lbs-Ft	Nm
2	5/8	4	110-140	149-190
2 1/2	5/8	4	110-140	149-190
3	5/8	4	110-140	149-190
4	5/8	8	110-140	149-190
5	3/4	8	220-250	298-339
6	3/4	8	220-250	298-339
8	3/4	8	220-250	298-339
10	7/8	12	320-400	434-542
12	7/8	12	320-400	434-542
14	1	12	360-520	488-705
16	1	16	360-520	488-705
18	1 1/8	16	450-725	610-982
20	1 1/8	20	450-725	610-982
24	1 1/4	20	620-1000	841-1356

Bolt torque requirements 7041 (PN 10/16)

Nom. size	Bolt size		Required torque	
inch	inch	No.	Lbs-Ft	Nm
50	M16	4	110-140	149-190
65	M16	4	110-140	149-190
80	M16	8	110-140	149-190
100	M16	8	110-140	149-190
125	M20	8	220-250	298-339
150	M20	8	220-250	298-339
200	M20	12	220-250	298-339
250	M24	12	320-400	434-542
300	M24	12	320-400	434-542
350	M24	16	320-400	434-542
400	M27	16	360-520	488-705
450	M27	20	360-520	488-705
500	M30	20	450-725	610-982
600	M33	20	620-1000	841-1356

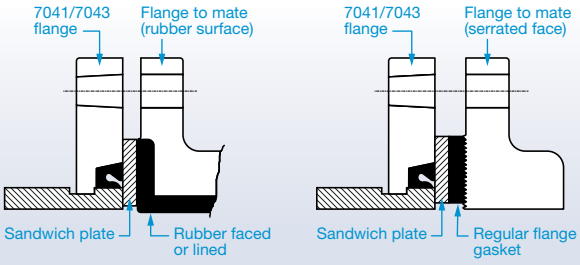
Bolt torque requirements 7043 (ANSI Class 300)

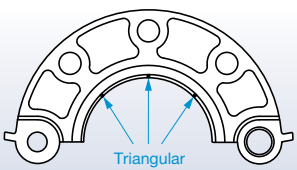
Nom. size	Bolt size		Required torque	
inch	inch	No.	Lbs-Ft	Nm
2	5/8	8	110-140	149-190
2 1/2	3/4	8	220-250	298-339
3	3/4	8	220-250	298-339
4	3/4	8	220-250	298-339
5	3/4	8	220-250	298-339
6	3/4	12	220-250	298-339
8	7/8	12	320-400	434-542
10	1	16	360-520	488-705
12	1 1/8	16	450-725	610-982

Installing a sandwich plate on models 7041 & 7043 flange adapters

Important notes

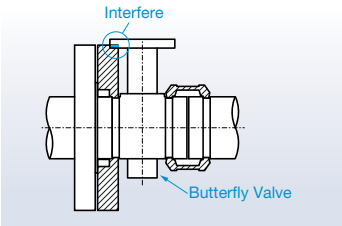
1. Models 7041 and 7043 flange adapters require a hard flat face for effective sealing. When the mating surface is not adequate as with the serrated faces of some valves or rubber-faced wafer valves, a sandwich plate (Model 49) must be used.





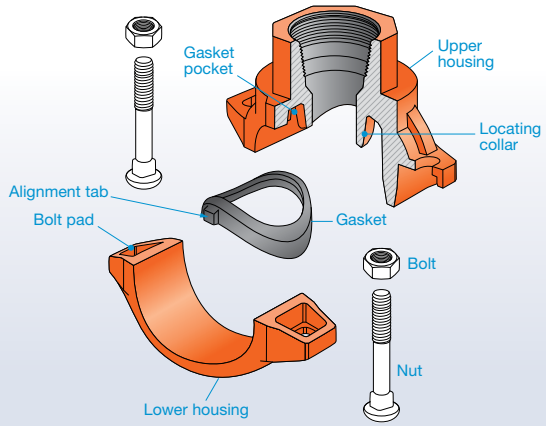
2. The Models 7041 and 7043 flange adapter has small triangular teeth inside the key shoulder to prevent the pipe from rotating. The teeth should be ground off when mating to a rubber-lined flange.

3. Models 7041 and 7043 flange adapters shall not be used as anchor points for tie-rods across non-restrained joints.

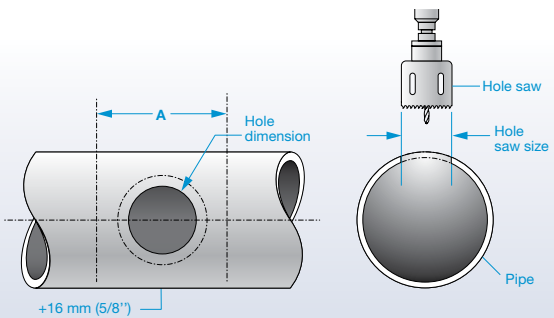


4. When assembling a models 7041 or 7043 flange adapter against a butterfly valve or ball valve, make sure that the outside diameter of the flange adapters do not interfere with the valve actuator or the mounting pad of the actuator.

2.7.8 Installing mechanical tees

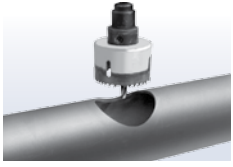


Hole-cut piping system



The hole-cut method of pipe preparation is required when installing mechanical tees, saddle-let and crosses. This method of pipe preparation requires the cutting or drilling of a specified hole size on the centerline of the pipe. Always use the correct hole saw size as shown in this handbook.

Caution:
The hole must be clearly cut and shall have a smooth edge. Never use a torch for cutting a hole as this could affect proper sealing.



1. **Hole cut:** Determine the location for the hole on the pipe. Use the correct size hole saw as specified in the table below for the required hole sizes.

2. **Remove burrs, rough edges** and clean the pipe surface within 16 mm around the hole where the gasket is to be seated. This area should be inspected to ensure a clean smooth surface, free of any indentations or projections that could affect the gasket sealing. The area within the 'A' dimension should also be inspected and must be free of dirt, scale or any imperfection that could affect seating or assembly of the fitting.

Hole sizes and 'A' surface specifications for mechanical tees

Mechanical tees run x branch		Hole dimensions				'A' surface preparation	
		Hole saw		Max diameter allowed			
inch	mm	inch	mm	inch	mm	inch	mm
2 x 1/2	50 x 15	1 1/2	38	1 5/8	41	31/2	89
2 x 3/4	50 x 20	1 1/2	38	1 5/8	41	31/2	89
2 x 1	50 x 25	1 1/2	38	1 5/8	41	31/2	89
2 x 1 1/4	50 x 32	1 3/4*	45	1 7/8*	47	4	102
2 x 1 1/2	50 x 40	1 3/4*	45	1 7/8*	47	4	102
2 1/2 x 1/2	65 x 15	1 1/2	38	1 5/8	41	3 1/2	89
2 1/2 x 3/4	65 x 20	1 1/2	38	1 5/8	41	3 1/2	89
2 1/2 x 1	65 x 25	1 1/2	38	1 5/8	41	3 1/2	89
2 1/2 x 1 1/4	65 x 32	2	51	2 1/8	54	4	102
2 1/2 x 1 1/2	65 x 40	2	51	2 1/8	54	4	102
3 x 1/2	80 x 15	1 1/2	38	1 5/8	41	3 1/2	89
3 x 3/4	80 x 20	1 1/2	38	1 5/8	41	3 1/2	89
3 x 1	80 x 25	1 1/2	38	1 5/8	41	3 1/2	89
3 x 1 1/4	80 x 32	2	51	2 1/8	54	4	102
3 x 1 1/2	80 x 40	2	51	2 1/8	54	4	102
3 x 2	80 x 50	2 1/2	64	2 1/8	67	4 1/2	114
4 x 1/2	100 x 15	1 1/2	38	1 5/8	41	3 1/2	89
4 x 3/4	100 x 20	1 1/2	38	1 5/8	41	3 1/2	89
4 x 1	100 x 25	1 1/2	38	1 5/8	41	3 1/2	89
4 x 1 1/4	100 x 32	2	51	2 1/8	54	4	102
4 x 1 1/2	100 x 40	2	51	2 1/8	54	4	102
4 x 2	100 x 50	21/2	64	2 5/8	67	4 1/2	114
4 x 2 1/2	100 x 65	23/4	70	2 7/8	73	4 3/4	121
4 x 3	100 x 80	31/2	89	3 5/8	92	5 1/2	140
5 x 2	125 x 50	21/2	64	2 5/8	67	4 1/2	114
5 x 2 1/2	125 x 65	2 3/4	70	2 7/8	73	4 3/4	121
6 x 1 1/4	150 x 32	2	51	2 1/8	54	4	102
6 x 1 1/2	150 x 40	2	51	2 1/8	54	4	102
6 x 2	150 x 50	2 1/2	64	2 5/8	67	4 1/2	114
6 x 2 1/2	150 x 65	2 3/4	70	2 7/8	73	4 3/4	121

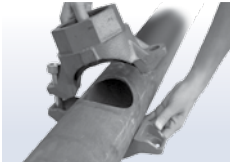
Mechanical tees run x branch		Hole dimensions				'A' surface preparation	
		Hole saw		Max diameter allowed			
inch	mm	inch	mm	inch	mm	inch	mm
6 x 3	150 x 80	31/2	89	3 5/8	92	51/2	140
6 x 4	150 x 100	4 1/2	114	4 5/8	118	6 1/2	165
8 x 2	200 x 50	2 3/4*	70	2 7/8*	73	4 3/4	121
8 x 2 1/2	200 x 65	2 3/4	70	2 7/8	73	4 3/4	121
8 x 3	200 x 80	3 1/2	89	3 5/8	92	5 1/2	140
8 x 4	200 x 100	4 1/2	114	4 5/8	118	6 1/2	165

*** Important:** Make special note of the hole saw size and maximum diameter allowed on these sizes, deviation could lead to joint failure.

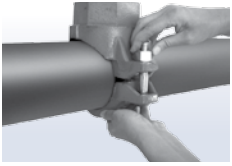
3. Check gasket grade and lubricate: Check the colour code and make sure it's the correct one for the intended service. Then, apply a thin layer of VSH Shurjoint Lubricant to the sealing lip of the gasket. The standard factory supplied gasket is grade E (EPDM - green stripe) and is basically good for water services.

4. Insert gasket: Insert the gasket into the gasket pocket of the housing.The alignment tabs on the side of the gasket should properly fit into the recesses.

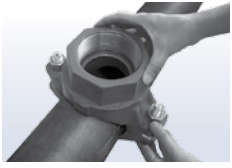
5. Prepare to assemble: Assemble the coupling housings loosely leaving one nut and bolt off to allow for a 'swing-over' installation.



6. Position upper housing: Place the upper housing on the pipe so that the locating collar engages properly into the hole. Then apply the lower housing from the opposite side of the pipe.

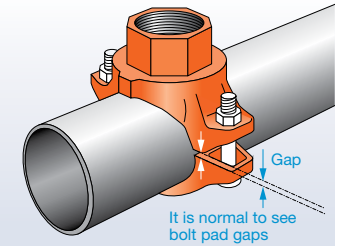


7. Insert bolt & nut: Insert the remaining bolt and apply the nut hand-tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. Check locating collar: Double check to ensure the locating collar is properly seated in the hole. This may be checked by rocking the upper housing in the hole. Also make sure that the oval neck of the bolts engages into the bolt hole of the housing.

9. **Tighten nuts:** Tighten nuts alternately and equally until the outlet housing makes metal-to-metal to the outer surface of the pipe. Gaps between bolts pads are acceptable but the gaps shall be equal on both sides. Use a torque wrench and tighten the nuts to following torque values.



Models 7721 & 7722, M21 & M22 mechanical tees					
Nominal size		Bolt size		Required torque	
inch	mm	inch	No.	lbs-Ft	Nm
2	50	3/8	2	30	40
2 1/2	65	1/2	2	50	68
3	80	1/2	2		
4	100	1/2	2		
5	125	5/8	2		
6	150	5/8	2		
8	200	3/4	2		

Caution:

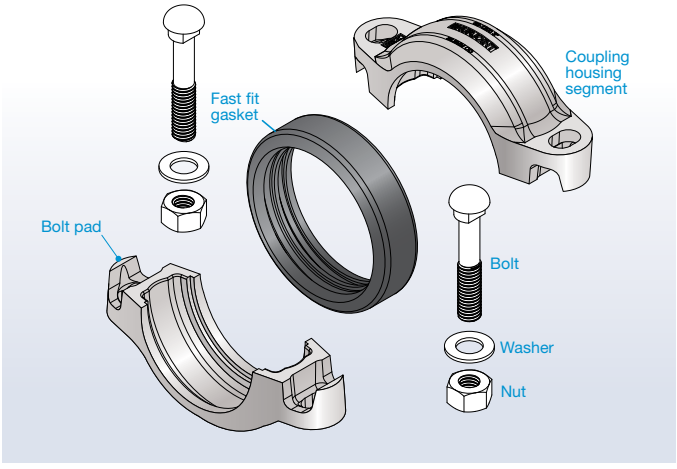
Do not exceed the above torque values by more than 25% as excessive torque could lead to bolt and/or joint failure.

Outlet flow characteristics for mechanical tees

Outlet size		Equivalent length				Outlet size		Equivalent length			
		7721 / M21		7722 / M22				7721 / M21		7722 / M22	
inch	mm	feet	metre	feet	metre	inch	mm	feet	metre	feet	metre
1	25	3	0.9	3	0.9	2 1/2	65	15	4.6	15	4.6
1 1/4	32	6	1.8	6	1.8	3	80	16	4.9	16	4.9
1 1/2	40	8	2.4	8*	2.4	4	100	17	5.2	17	5.2
2	50	9	2.7	9	2.7						

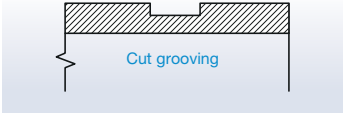
Feet and metre of Schedule 40 steel outlet pipe with a Hazen-Williams coefficient of friction value of 120.
*Equivalent length for 7721/M21 with a 1 1/2" outlet and 2" or 2 1/2" main run size is 13 feet (4 metres)

2.7.9 Installing flexible stainless steel coupling SS-1200



Please refer to section 2.7.1. for preliminary steps 1 to 3.

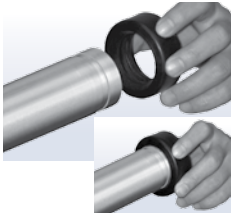
The VSH Shurjoint Model SS-1200 is designed for high pressure applications including reverse osmosis and desalination systems. The coupling is supplied standard a proprietary VSH Shurjoint Fast-Fit gasket, type 316 track bolts, washers and silicone bronze nuts. The SS-1200 performance standards are based on use with cut groove pipe ends only.



1. **Cut groove pipe ends:** Cut groove the pipe ends to be connected. The performance standards do not support use with roll-grooved pipe ends.

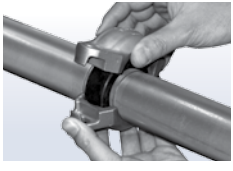
Fast-Fit

2. Check gasket: Always use the factory supplied VSH Shurjoint Fast-Fit gasket. Performance standards do not support the use of a standard gasket in the SS-1200 coupling. Use of a lubricant is usually not required. If a lubricant is used make sure to use the VSH Shurjoint or other compatible approved lubricant.

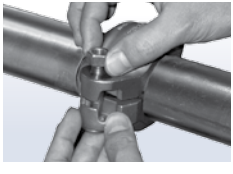


3. Mount gasket on pipe ends: Insert one pipe end into the Fast-Fit gasket, then insert the other pipe end to be connected into the other side of the gasket. The Fast-Fit gasket design allows for the direct insertion of the pipe ends into the gasket without stretching it.

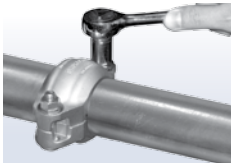
EASY, SINGLE HAND INSTALLATION



4. Install coupling halves: Place the coupling halves over the gasket and make sure that the coupling keys are engaged into the grooves.



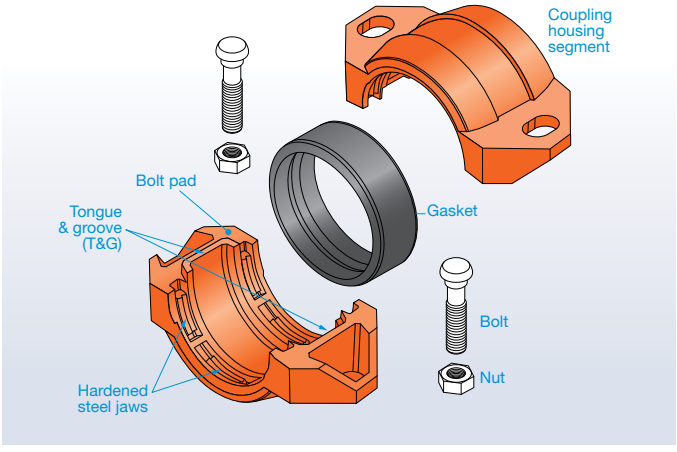
5. Insert bolt & nut: Insert the factory supplied bolt through the bolt pads. Place the washer over the bolt and assemble the silicone bronze nut (hand tight) on the bolt. The use of other bolts and nuts could lead to joint failure or galling.



6. **Tighten nuts:** Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turn to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

2.7.10 Couplings for plain-end piping systems

Installing 79 Wildcat coupling for joining carbon steel pipe



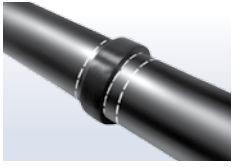
The VSH Shurjoint Model 79 Wildcat plain-end coupling is designed to mechanically join plain-end or beveled end carbon steel pipe. No grooving is required. The Model 79 Wildcat coupling is recommended for use on carbon steel pipe with a hardness less than HB150, not recommended for stainless steel, plastic, HDPE cast iron or other brittle pipe.

1. **Marking:** Use a marking pen or other marking tool and measuring tape to place marks on each pipe end, 1" from each end. This mark will be used for reference in centering the gasket during installation. A minimum of 4 marks equally spaced around the pipe are recommended.
   Add a second mark on the pipe ends at the measurements listed in the table on page 93. This mark will be used for visual inspection to make sure the pipe is inserted properly in the coupling. Make these marks parallel to the marks from the gasket centering reference marks.

2. **Check gasket:** Check the colour code and make sure it's the correct one for the intended service. The standard factory supplied gasket is grade E (EPDM - green stripe) and is basically good for water services.

3. **Lubricate gasket:** To help insert pipe smoothly and mount couplings smoothly without pinching, apply a thin layer of VSH Shurjoint Lubricant to the sealing lips of the gasket and as well as to the exterior of the gasket. Other compatible lubricants may be used so long as they are not harmful to the gasket. In systems, subject to extreme hot or cold temperatures, the use of VSH Shurjoint EHC silicone lube is recommended.

Caution:
Do not use EPDM gaskets for hydrocarbons or petroleum services as this could result in a leak or joint failure.



4. Install gasket: Place a gasket over the pipe ends and centre the gasket in between the first set inner marks. The pipe ends should always be butted against each other.

5. Mount housings: Place the housings over the gasket, ensuring it stays centered between the first set inner marks made on the pipe ends and the housings are properly centered between the second set outer marks. Also make sure that housing tongue and groove (T&G) mate correctly.

6. insert bolts & nuts: Insert the bolts and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.

7. **Tighten nuts:** Tighten nuts alternately and equally, using a torque wrench, until the required torque value is achieved. Insufficient torque can lead to pipe separation, which can cause injuries and / or property damage. For required torque values, see table on next page.

Caution:

In order to avoid injuries from the sharp machined teeth, wear gloves when handling.

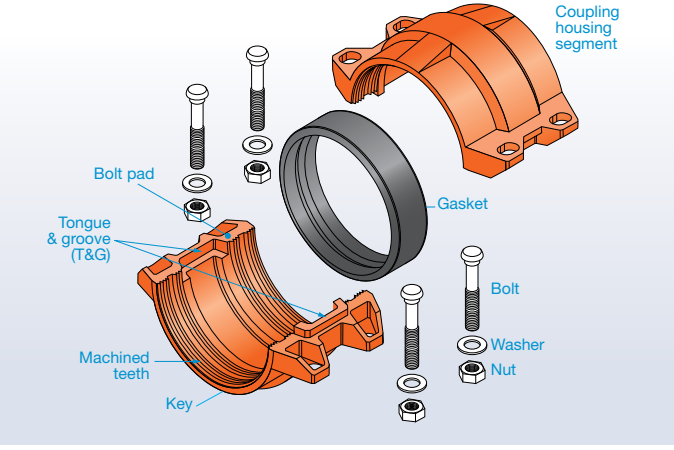
Centering mark & minimum required torque model 79 Wildcat

Size		Coupling centreing mark		Couplings bolts			
inch	mm	inch	mm	Quantity	Bolt size inch	Required bolt torque	
						Lbs-Ft	Nm
1	25	1.50	40	2	1/2 x 2 3/8	110	150
1 1/2	40	1.50	40	2	1/2 x 2 3/8	110	150
2	50	1.75	45	2	5/8 x 3 1/2	150	200
2 1/2	65	1.75	45	2	5/8 x 3 1/2	150	200
3	80	1.75	45	2	3/4 x 4 3/4	200	270
4	100	2.00	50	2	3/4 x 4 3/4	200	270
5	125	2.00	50	2	7/8 x 6 1/2	250	340
6	150	2.25	55	2	7/8 x 6 1/2	250	340
8	200	2.50	65	4	3/4 x 4 3/4	200	270
10	250	2.50	65	4	7/8 x 6 1/2	300	400
12	300	2.50	65	4	1 x 6 1/2	350	470
14	350	2.75	70	4	1 x 6 1/2	350	470
16	400	2.75	70	4	1 x 6 1/2	350	470

Caution:

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause a bolt or joint failure.

Installing model H305 coupling for joining HDPE pipe



The VSH Shurjoint HDPE series of piping components are designed to provide a fast and easy way to mechanically join HDPE (high density polyethylene) pipe. These components are designed to join HDPE pipe and fittings conforming to ASTM D2447, D3035 or F714 (metric sizes to ISO 161/1, DIN 8074 and AS 8074), at ambient temperatures with wall thickness from SDR 32.5 to 7.3. This method eliminates the need for costly heat fusion equipment, solvent joining and/or complicated adapters. VSH Shurjoint HDPE piping components are rated to the same pressure as that of the HDPE pipe they are used in conjunction with.

Working Pressure: Since the physical strength of the VSH Shurjoint HDPE couplings joint is much greater than HDPE pipe, working pressures are governed by the working pressures of the HDPE pipe, which vary depending on pipe composition, wall thickness and service temperature.

HDPE pipe

The following tables show the allowed dimensional tolerances of HDPE rigid pipe with SDR 20 at 21°C.

Pipe size/tolerances - imperial (ANSI/NPS)

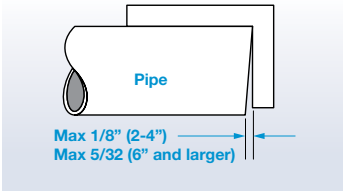
Nominal size inch	Pipe OD mm	Tolerance mm	Max. out of round tol. mm
2	60.3	± 0.406	± 1.016
3	88.9	± 0.406	± 1.016
4	114.3	± 0.508	± 1.016
6	141.3	± 0.635	± 1.270
8	168.3	± 0.762	± 1.270
10	219.1	± 0.990	± 1.905
12	273	± 1.219	± 1.905
12	323.9	± 1.448	± 1.905
14	355.6	± 1.600	± 1.905
16	406.4	± 1.830	± 1.905
18	457	± 2.060	± 1.905
20	508	± 2.290	± 1.905

Pipe size/tolerances - metric sizes (EN and others)

Pipe OD min. mm	Pipe OD max.* mm	Pipe OD min. mm	Pipe OD max.* mm
50	50.5	225	226.4
63	63.6	250	252.3
75	75.7	280	281.7
90	90.9	315	317.9
110	111.0	355	357.2
160	161.5	400	402.4
180	181.7	450	452.7
200	201.8	500	504.0

*Tolerances at ambient temperatures for pipe with SDR of 20 or lower.

Note: The VSH Shurjoint HDPE couplings are not intended for use on PVC or other material.



1. Square cut the pipe: the pipe must be cut square. The maximum allowed tolerances are 3.2 mm on pipe sizes 2" to 4" and 4.0 mm on 6" and larger sizes. Make sure that the pipe end, within 26 mm from the end, is clean and free from indentations, projections, scratches or other harmful surface defects such as scale, chips, grease, etc.

2. Marking: Use a marking pen or other marking tool and measuring tape to mark the pipe ends at the measurement listed in the following table. This mark will be used for reference in centreing the gasket during installation. A minimum of 4 marks equally spaced around the pipe are recommended.

Use a marking pen or other marking tool and measuring tape to add a second mark on the pipe ends at the measurement listed in the 'Coupling centering marks' column in the following table. This mark will be used for visual inspection to make sure the pipe is inserted properly in the coupling. Make these marks parallel to the marks from the gasket centering reference marks.

Size specifications H305

H305 - Metric sizes		
Nominal size	Gasket centering reference marks	Coupling centering reference marks
mm	mm	mm
50	22	53
63	22	53
75	22	53
90	22	53
110	22	56
160	25	59
180	25	59
200	26	64
225	26	64
250	26	67
280	26	67
315	26	67
355	37	129
400	37	129
450	37	129
500	37	131

H305 - IPS sizes					
Nominal size		Gasket centering reference marks		Coupling centering reference marks	
inch	mm	inch	mm	inch	mm
2	50	7/8	22	2 5/16	58
3	80	7/8	22	2 5/16	58
4	100	7/8	22	3	75
6	150	1	25	3	75
8	200	1 1/16	26	3 1/16	77
10	250	1 1/16	26	3 1/4	83
12	300	1 1/16	26	3 9/16	90
14	350	1 7/16	36	5 1/8	129
16	400	1 7/16	36	5 1/8	129
18	450	1 7/16	36	5 1/8	129
20	500	1 5/8	40	5 1/8	129

3. Check gasket: Check the colour code and make sure it's the correct one for the intended service. TThe standard factory supplied gasket is grade E (EPDM - green stripe) and is basically good for water services.

4. Install gasket: Place a gasket over the pipe ends and centre the gasket in between the first set marks. The pipe ends should always be butted against each other.

5. Lubricate gasket: Lubricate the back of the gasket with a **silicone based lubricant** such as VSH Shurjoint EHC Lube. Corn oil, soybean oil and glycerin and silicone can also be used on HDPE piping system.

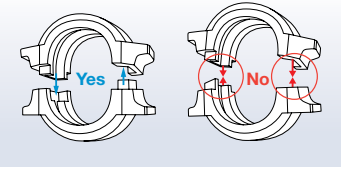
Warning!

Do not use the VSH Shurjoint standard Lubricant, which is designed for steel pipe use. Do not use hydrocarbon based oils, grease or soap based solutions as this could lead joint failure.

6. Mount housings: Place the housings over the gasket, ensure the gasket stays centreed between the first set marks made on the pipe ends and the housings are properly centreed between the second set marks. Also make sure that housing tongue and groove (T&G) mate correctly.

Caution:

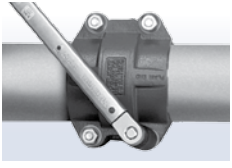
in order to avoid injuries from the sharp machined teeth, wear gloves when handling.



Warning!

The VSH Shurjoint plain-end couplings feature a tongue and groove design and mechanism. Thus the couplings must always be installed so that tongue and groove

7. Insert bolts & nuts: Insert the bolts. Install a washer onto the end of each bolt. Thread a nut onto each bolt and apply nuts hand tight. Make sure that the oval neck of the bolt engages into the bolt hole of the housing.



8. **Tighten nuts:** Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Repeated alternate tightening will reduce tightening torque considerably. Tighten nuts by another one quarter to one half turns to make sure the bolts and nuts are snug and secure. The use of a torque wrench is not required.

Large diameter HDPE Coupling

The 14" (355.6 mm) and larger model H305 HDPE Coupling contain hex bolts, washers & nuts that require special instructions for tightening. Refer to the following steps for the proper tightening sequence.

9. Insert bolts & washers: Insert a hex bolt and a washer into each side of a bolt hole in the housings. Make sure the head of each hex bolt & washer engages with the recess in the housing.

10. Insert nuts: Thread a nut onto the end of each hex bolt until the washer contacts the coupling housing.

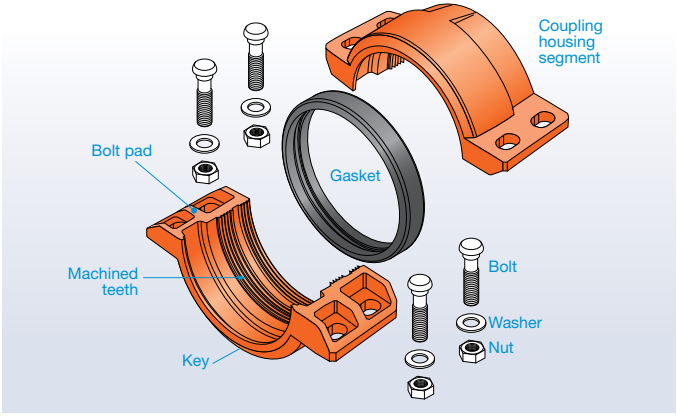
11. 

Tighten nuts: Tighten nuts alternately and equally until the bolt pads meet and make metal-to-metal contact. Tighten nuts by another one quarter to one half turns to make sure the bolts and nuts are snug and secure. Inspect the finished assembly to make sure the washers are engaged in the recesses of bolt pads in the coupling housings.

Caution:

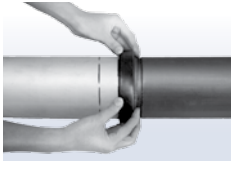
1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. Excessive tightening of nuts may cause a bolt or joint failure.

Installing transition coupling model H307 for joining HDPE pipe to IPS steel pipe



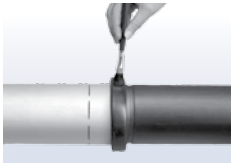
The VSH Shurjoint Model H307 transition coupling provides for a direct **transition from HDPE pipe to IPS steel pipe** of the same outside diameter. The Model H307 transition coupling must be installed with its machined teeth side on the HDPE pipe and key section side on the grooved steel pipe.

Follow the installation steps valid for either the HDPE side (how to join plain-ended pipes) or IPS steel pipe (how to install grooved couplings). Pay special attention to the following installation steps.



1. **Install gasket:** Place a gasket over the pipe ends and centre the gasket in between the mark on HDPE pipe and the groove of the IPS steel pipe. The pipe ends are preferably to be butted against each other or with a controlled space (see note).

Note: The maximum allowed space between HDPE pipe and steel pipe is 6.3 mm on pipe 2" to 4" and 7.9 mm on pipe 6" and larger.



2. Lubricate the gasket: Lubricate the back of the gasket with a silicone based lubricant.

Warning. Do not use the VSH Shurjoint standard Lubricant, which is designed for steel pipe use. Do not use hydrocarbon based oils, grease or soap based solutions as this could lead joint failure.

3. Mount housing: Place the housings over the gasket, ensuring the gasket stay centreed between the marks made on the HDPE pipe and the groove of the IPS steel pipe

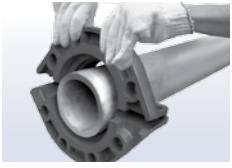
Caution

1. Uneven tightening of bolts and nuts may cause the gasket to be pinched, resulting in an immediate or delayed leak.
2. When using a power impact wrench, excessive tightening of nuts may cause a bolt or joint failure.

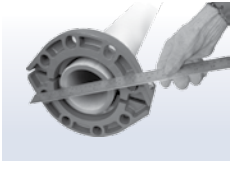
Installing the H312 HDPE Flange Adapter

The VSH Shurjoint Model H312 HDPE flange adapter provides a direct transition from HDPE pipe to PN10/16 or ANSI Class 125/150 flanged valves or other components.

When installing the HDPE flange adapter please make sure to take special attention to below installation steps.

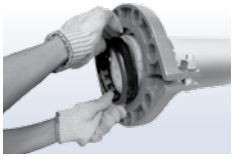


1. **Mount housing:** Place the flange housings over HDPE pipe. The flange must be assembled with its machined teeth on the HDPE pipe. The gasket cavity must face the pipe end. Insert the draw bolts into the flange adapter housings. Install a washer onto the end of each bolt. Thread a nut loosely onto the end of each draw bolt

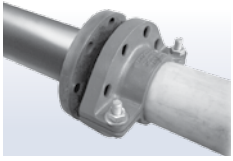


2. **Flush face:** The HDPE pipe end must be flush with the flange face. Use a ruler or other tool to verify this and, if not flush as intended, make the necessary adjustment.

3. **Tighten draw bolts:** Tighten the draw bolts and nuts alternately and equally until the housing bolt pads meet forming metal-to-metal contact. Repeated alternate tightening will reduce tightening torque considerably.



4. Install gasket: Mount the gasket into the cavity between the pipe OD and flange recess. Make sure that the bottom of the gasket (the marking side) is positioned and seated against the bottom of the flange recess.



5. Mate adjoining flange: Bring the adjoining flange face to face with the Model H312 flange.

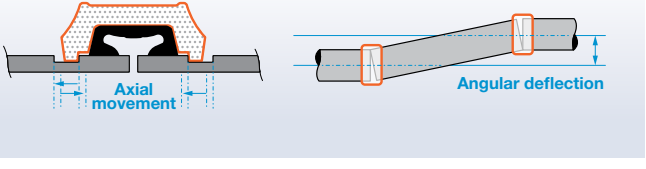
2.8 Design data rigid & flexible couplings

Grooved mechanical couplings (GMC) are available in both rigid and flexible models.

A rigid coupling is used in applications where a rigid joint is desired, similar to that of a traditional flanged, welded, and or threaded connection. To be considered rigid, a coupling would allow less than one degree of deflection or angular movement.

Flexible couplings are designed to accommodate axial displacement, rotation and a minimum one degree of angular movement. Flexible couplings are used in applications that call for curved or deflected layouts and or when systems are exposed to outside forces beyond normal static conditions, such as seismic events or where vibration and or noise attenuation are a concern.

Grooved couplings become less flexible as the pipe size increases. For sizes in excess of 18" (450 mm) couplings are very limited in their angular movement. The following table provides design data on the allowable axial movement and angular deflection for flexible couplings.



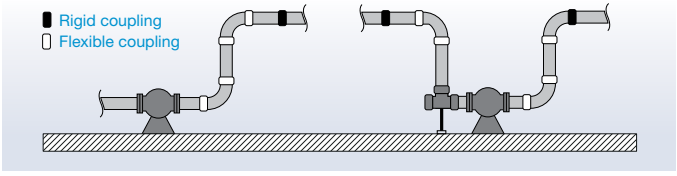
Axial movement and deflection roll and cut groove 7705, 7707 & 7707N

Size			Roll groove			Cut groove		
			Axial movement	Angular deflection		Axial movement	Angular deflection	
Inch	DN	mm	mm/ coupling	degrees	mm/m	mm/ coupling	degrees	mm/m
1	25	33,4	0 - 0,8	1,37°	24	0 - 1,6	2,74°	48
1 1/4	32	42,2	0 - 0,8	1,09°	19	0 - 1,6	2,17°	38
1 1/2	40	48,3	0 - 0,8	0,95°	17	0 - 1,6	1,90°	33
2	50	60,3	0 - 0,8	0,76°	14	0 - 1,6	1,52°	27
2 1/2	-	73	0 - 0,8	0,63°	11	0 - 1,6	1,26°	22
-	65	76,1	0 - 0,8	0,60°	1	0 - 1,6	1,20°	21
3	80	88,9	0 - 0,8	0,52°	9	0 - 1,6	1,03°	18
		101,6	0 - 0,8	0,45°	8	0 - 1,6	0,90°	16
		108	0 - 2,4	1,27°	23	0 - 4,8	2,54°	45
4	100	114,3	0 - 2,4	1,20°	21	0 - 4,8	2,40°	42
-	125	139,7	0 - 2,4	0,98°	17	0 - 4,8	1,97°	35
5		141,3	0 - 2,4	0,97°	17	0 - 4,8	1,95°	35
		159	0 - 2,4	0,86°	15	0 - 4,8	1,73°	30
		165,1	0 - 2,4	0,83°	15	0 - 4,8	1,67°	30
6	150	168,3	0 - 2,4	0,82°	14	0 - 4,8	1,63°	29
8	200	219,1	0 - 2,4	0,63°	11	0 - 4,8	1,26°	23
10	250	273	0 - 2,4	0,50°	9	0 - 4,8	1,01°	18
12	300	323,9	0 - 2,4	0,42°	8	0 - 4,8	0,85°	15
14	350	355,6	0 - 2,4	0,39°	7	0 - 4,8	0,77°	14
16	400	406,4	0 - 2,4	0,34°	6	0 - 4,8	0,68°	12
18	450	457,2	0 - 2,4	0,30°	5	0 - 4,8	0,60°	11
20	500	508	0 - 2,4	0,27°	5	0 - 4,8	0,54°	10
22	550	558,8	0 - 2,4	0,25°	4	0 - 4,8	0,49°	9
24	600	609,6	0 - 2,4	0,23°	4	0 - 4,8	0,45°	8
26	650	660,4	0 - 2,4	0,21°	4	0 - 4,8	0,42°	7

*Note: the values in the table above already include the safety factor for design purposes

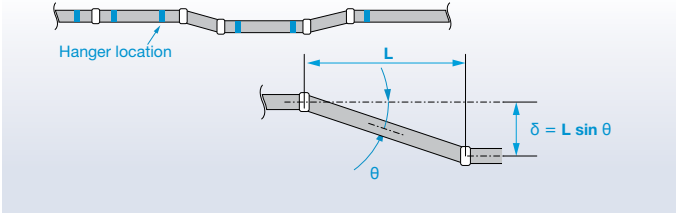
Absorption of vibration and noise

When a pump operates with frequent starts and stops, the piping system is affected by the noise and vibration of the equipment. The entire system may develop a large sway, referred to as sympathetic vibration, as a result of the frequent cycling. VSH Shurjoint flexible couplings will help reduce such vibration and noise. The system should always be properly designed with steel angle sway braces to protect the system from large sways.



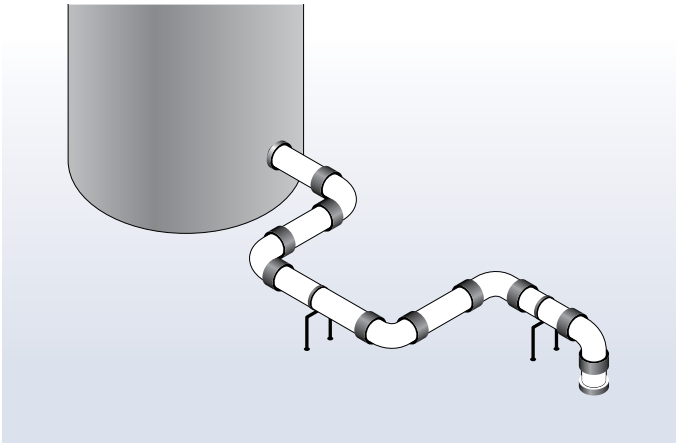
Adjustment of misalignment

When a straight run has need for a slight adjustment of alignment on the jobsite as shown in the diagram, you can accomplish this with the use of two flexible couplings. The following table shows the deflection value (θ) of the VSH Shurjoint 7705 flexible couplings.



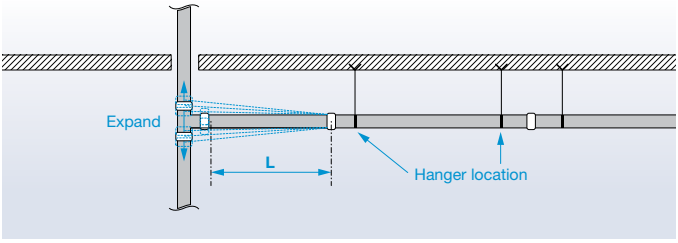
Absorption of distortion

With the use of an assembly as shown below, ground sinking or movement around a tank or reservoir can be effectively absorbed, avoiding damage to the tank, reservoir and or the piping system.



Absorption of misalignment

As shown in the diagram, each branch connection to the free riser will be subjected to serious shearing forces as pressure thrusts or thermal movement increases. By using two flexible couplings, you can solve this problem.

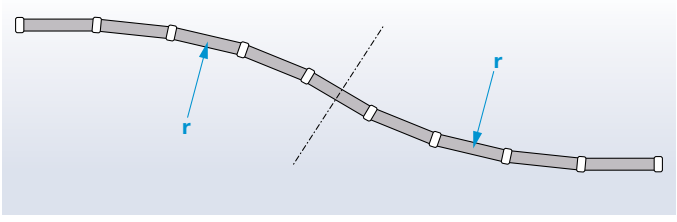


Curved layout

With VSH Shurjoint flexible couplings you can design a slowly curved layout for a system along a curved tunnel, winding road or curved building.

$$R = \frac{L}{2 \times \sin(\theta/2)}$$

(where: R is radius of curvature, L is pipe length, and θ is max. allowed deflection of a coupling)



Example: when using model 7705 100 mm (4") couplings for the layout as shown in the diagram, the max. allowed deflection (θ) of the coupling is 1.2°, and the pipe length (L) is 3 metres, the radius of curvature (R) will be 144.2 metres.

Absorption of thermal stress

Thermal stress is caused by changes in temperature, resulting in either expansion or contraction. With the use of VSH Shurjoint flexible couplings you can design your system to accommodate such movement without the need for costly expansion joints. The thermal expansion or contraction (μ) is determined by the length of pipe (L) and temperature difference (ΔT).

$$\mu = \alpha \times l \times \Delta T$$

Temperature difference ΔT (°C)	Thermal expansion (mm) Pipe length l (metres)						
	1	3	6	10	20	30	40
1	0.012	0.04	0.08	0.12	0.24	0.36	0.48
5	0.06	0.18	0.36	0.6	1.2	1.8	2.4
10	0.12	0.36	0.72	1.2	2.4	3.6	4.8
20	0.24	0.71	1.42	2.4	4.8	7.2	9.6
30	0.36	1.09	2.18	3.6	7.2	11	15
40	0.48	1.42	2.84	4.8	9.6	14	20
50	0.6	1.8	3.6	6	12	18	24
60	0.72	2.18	4.36	7.2	14	22	29
70	0.84	2.51	5.02	8.4	17	25	34
80	0.96	2.89	5.78	9.6	19	29	39

As the linear expansion coefficient for steel (α) is 1.2 x 10^{-5}, you can use the table above to determine the thermal expansion. Example:

- Pipe size: 100 mm (4")
- Max. pipe end separation (E) : 2.4 mm
- Pipe length (L): 3000 mm
- Temperature difference (ΔT) : 40°C (+5°C to +45°C)
- α= 1.2 x 10^{-5} / °C

$\mu = \alpha$ x l x ΔT = 1.2 x 10^{-5} / °C x 3000 mm x 40°C = 1.44 mm

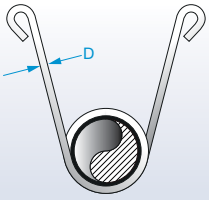
The thermal expansion of a 3 metre length of pipe (μ) is within the allowance (= max. pipe end separation) of a flexible coupling. In other words, if you use a coupling for each pipe length of 3 metres, the coupling will accommodate the thermal expansion or contraction expected to take place for a 40°C temperature change. When you calculate the necessary number of couplings (N) for an anchored system, you should place a clearance of N x E x 1/2 as a safety factor.

Whether it is thermal expansion, contraction, or a combination thereof, the system requires suitable anchor installations with properly space alignment guides and weight support devices. Where and when larger thermal movement is anticipated, you should use supplementary expansion joint(s).

2.9 Anchoring, hanging and supports

VSH Shurjoint grooved couplings are designed to hold axial thrusts 4-5 times their rated working pressure, though the strength against bending movements is less than that of steel pipe. The joint may be damaged when a bending movement greater than the allowed deflection occurs (see table on page 107).
System designers should provide anchors (main and intermediate) and pipe guides with proper spacing to protect the system from unexpected large bending movements.These illustrations are examples only, and are not intended to be used for all installations as conditions and requirements vary from job to job. Reliance on general data or information contained herein shall be at the user's sole risk and without obligation to VSH Shurjoint.
Hangers shall be designed to support five times the weight of water- filled pipe plus 250 lb (115 kgs) at each point of pipe support (NFPA 13 9.1.1.1.). The following illustrations are examples of acceptable hanger types and sizes per NFPA 13.

U-Hook sizes



Wraparound U-hook

Pipe size	D dimension	
inch	inch	mm
- 2	5/16	7.9
2 1/2 - 6	3/8	(9.5
8	1/2	12.7

Rod sizes

Adjustable swivel ring
rod tight to pipe

Pipe size	D dimension	
inch	inch	mm
- 4	3/8	9.5
5 - 8	1/2	12.7
10 - 12	5/8	15.9

Eye rod sizes

Pipe size	D dimension	
inch	inch	mm
- 4	3/8	9.5
5 - 6	1/2	12.7
10 - 12	3/4	15.1

Hangers for straight runs

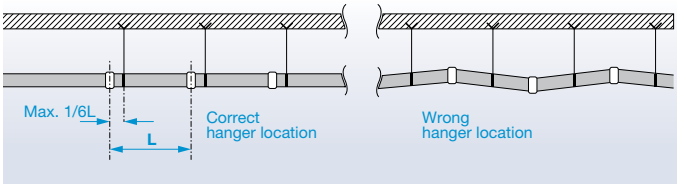
For straight runs, you can use both flexible and rigid couplings. When rigid couplings are used, the same hanger spacing as other piping methods can be applied. You can refer to the hanger spacing standards of ANSI B31.1 Power Piping Code, B31.9 Building Services Piping Code, NFPA 13 Sprinkler Systems, or Mechanical Equipment Construction Guide (Japan). See the following table.

Suggested max. span between supports (steel pipe)							
Nominal pipe size in/mm	Water service (feet/metres)				Gas or air service (feet/metres)		
	1)	2)	3)	4)	1)	2)	3)
1 / 25	7 / 2.1	9 / 2.7	12 / 3.7	6.6 / 2.0	9 / 2.7	10 / 3.0	12 / 3.7
1 1/4 / 32	7 / 2.1	11 / 3.4	12 / 3.7	6.6 / 2.0	9 / 2.7	12 / 3.7	12 / 3.7
1 1/2 / 40	7 / 2.1	12 / 3.7	15 / 4.6	6.6 / 2.0	9 / 2.7	13 / 4.0	15 / 4.6
2 / 50	10 / 3.0	13 / 4.0	15 / 4.6	6.6 / 2.0	13 / 4.0	15 / 4.6	15 / 4.6
2 1/2 / 65	11 / 3.4	15 / 4.6	15 / 4.6	6.6 / 2.0	14 / 4.3	17 / 5.2	15 / 4.6
3 / 80	12 / 3.7	16 / 4.9	15 / 4.6	6.6 / 2.0	15 / 4.6	19 / 5.8	15 / 4.6
4 / 100	14 / 4.3	18 / 5.5	15 / 4.6	6.6 / 2.0	17 / 5.2	21 / 6.4	15 / 4.6
5 / 125	16 / 4.9	20 / 6.1	15 / 4.6	6.6 / 2.0	20 / 6.1	24 / 7.3	15 / 4.6
6 / 150	17 / 5.2	21 / 6.4	15 / 4.6	10 / 3.0	21 / 6.4	26 / 7.9	15 / 4.6
8 / 200	19 / 5.8	23 / 7.0	15 / 4.6	10 / 3.0	24 / 7.3	29 / 8.8	15 / 4.6
10 / 250	19 / 5.8	25 / 7.6	15 / 4.6	10 / 3.0	24 / 7.3	33 / 10.1	15 / 4.6
12 / 300	23 / 7.0	26 / 7.9	15 / 4.6	10 / 3.0	30 / 9.1	36 / 11.0	15 / 4.6
14 / 350	23 / 7.0	26 / 7.9	15 / 4.6		30 / 9.1	37 / 11.3	15 / 4.6
16 / 400	27 / 8.2	26 / 7.9	15 / 4.6		35 / 10.7	40 / 12.2	15 / 4.6
18 / 450	27 / 8.2	27 / 8.2	15 / 4.6		35 / 10.7	43 / 13.1	15 / 4.6
20 / 500	30 / 9.1	27 / 8.2	15 / 4.6		39 / 11.9	46 / 14.0	15 / 4.6
24 / 600	32 / 9.8	26 / 7.9	15 / 4.6		42 / 12.8	50 / 15.2	15 / 4.6

1) ANSI B31.1 Power Piping Code
2) ANSI B31.9 Building Services Piping Code
3) NFPA 13 Sprinkler systems
4) Ministry of Land & Transportation of Japan: Mechanical Equipment Construction Guide

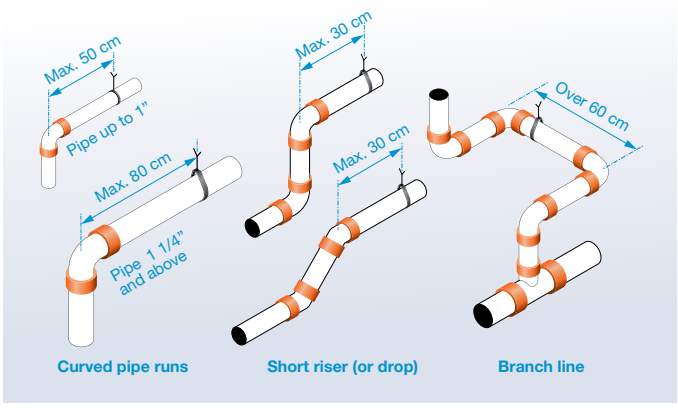
Hanger locations on straight runs where flexible couplings are used

When flexible couplings are used on straight runs, location of hangers shall be designed as close to each coupling as possible, or within a distance of less than 1/6 the span.



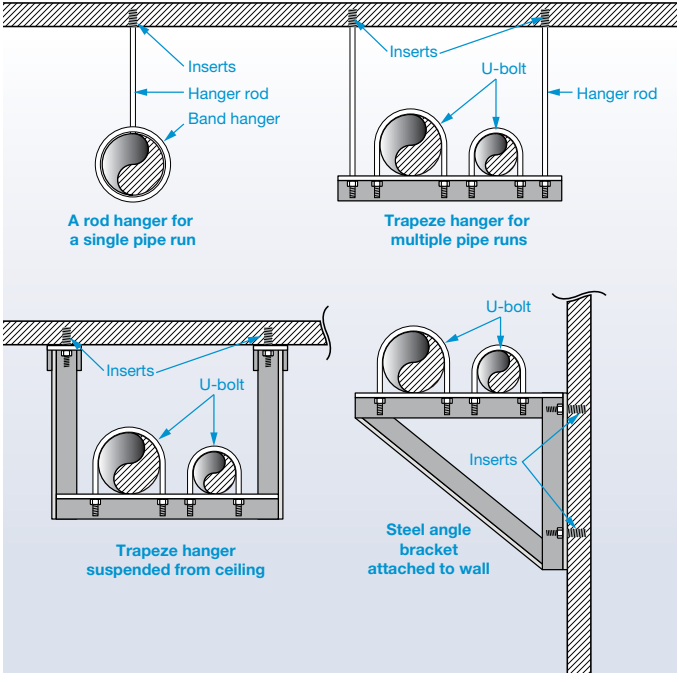
Hanger locations on curved pipe runs and branch lines

Additional hangers or supports shall be provided where runs are curved, connected to a branch line or on short risers or drops.

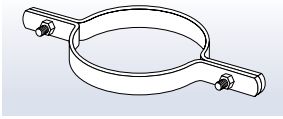


Typical designs of hangers and sway braces for pipe runs

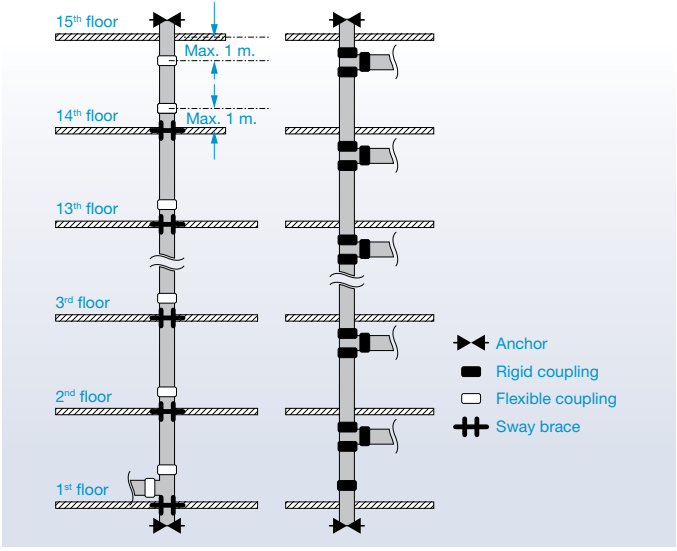
Pipe runs shall be adequately suspended by rod hangers or steel angles that are directly attached to the building structure to restrict the movement of the piping. Hangers and their components shall be ferrous. The maximum distance between hangers shall not exceed that specified in the table of previous page.



Supports for risers

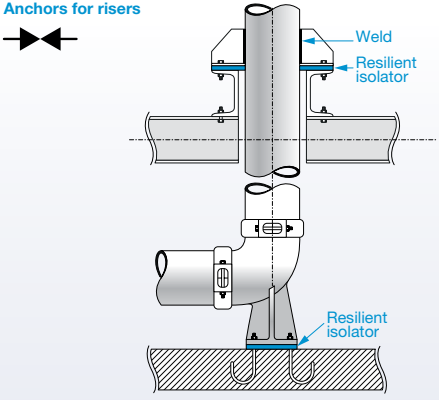


In multi-story buildings, risers shall be fixed (or anchored) at the lowest level and at the top of the riser and shall be supported by riser clamps or U-bolts at each floor level to prevent the risers from swaying. If risers are braced by the penetration floors, the number of riser clamps or U-bolts may be reduced to one at each three stories. For risers, either flexible or rigid couplings can be used as long as proper anchoring and support is provided.

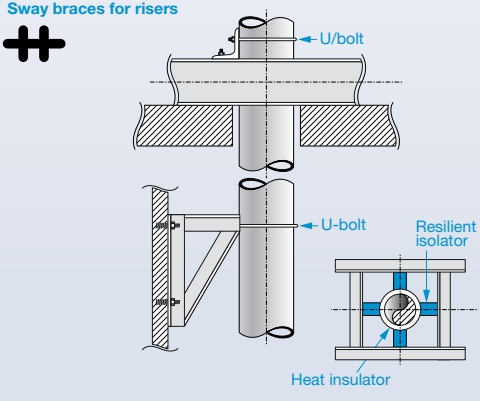


- Anchors should be sufficient to hold the weight of water-filled pipe and pressure thrusts.
- Pipe guides (sway braces) should disable lateral movement of the system.

Anchors for risers



Sway braces for risers



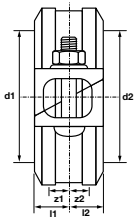
VSH

3.1 Couplings

VSH Shurjoint

Z05 Rigid coupling

(angle pad design, with E gasket)

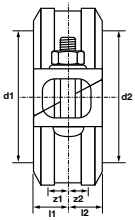


Dimension	Article No.		l1/l2	z1/z2	A.d.*
	Painted orange	Galvanized			
42.4 (DN32)	10Z050012E01	10Z050012E03	23	0.6	0-1.2
48.3 (DN40)	10Z050015E01	10Z050015E03	23	0.6	0-1.2
60.3 (DN50)	10Z050020E01	10Z050020E03	24	0.9	0-1.7
73.0	10Z050025E01	10Z050025E03	24	0.9	0-1.7
76.1 (DN65)	10Z050029E01	10Z050029E03	24	0.9	0-1.7
88.9 (DN80)	10Z050030E01	10Z050030E03	24	0.9	0-1.7
108.0	10Z050040E01	10Z050040E03	27	2.0	0-4.1
114.3 (DN100)	10Z050045E01	10Z050045E03	27	2.0	0-4.1
133.0	10Z050050E01	10Z050050E03	27	2.0	0-4.1
139.7 (DN125)	10Z050052E01	10Z050052E03	27	2.0	0-4.1
141.3	10Z050055E01	10Z050055E03	27	2.0	0-4.1
159.0	10Z050060E01	10Z050060E03	27	2.0	0-4.1
165.1	10Z050062E01	10Z050062E03	27	2.0	0-4.1
168.3 (DN150)	10Z050065E01	10Z050065E03	27	2.0	0-4.1
219.1 (DN200)	10Z050085E01	10Z050085E03	32	2.4	0-4.8

* Axial displacement. For field installation only on roll grooved pipe or cut grooved pipe. Rigid couplings do not permit expansion/contraction. For maximum allowable working pressures see chapter 2.5

Z07 Heavy duty rigid coupling

(angle pad design, with E gasket)

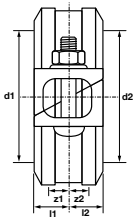


Dimension	Article No.		l1/l2	z1/z2	A.d.*
	Painted orange	Galvanized			
42.4 (DN32)	10Z070012E01	10Z070012E03	24	0.6	0-1.2
48.3 (DN40)	10Z070015E01	10Z070015E03	24	0.6	0-1.2
60.3 (DN50)	10Z070020E01	10Z070020E03	24	0.9	0-1.7
73.0	10Z070025E01	10Z070025E03	24	0.9	0-1.7
76.1 (DN65)	10Z070029E01	10Z070029E03	24	0.9	0-1.7
88.9 (DN80)	10Z070030E01	10Z070030E03	24	0.9	0-1.7
114.3 (DN100)	10Z070045E01	10Z070045E03	27	2.0	0-4.1
139.7 (DN125)	10Z070052E01	10Z070052E03	27	2.0	0-4.1
141.3	10Z070055E01	10Z070055E03	27	2.0	0-4.1
165.1	10Z070062E01	10Z070062E03	27	2.0	0-4.1
168.3 (DN150)	10Z070065E01	10Z070065E03	27	2.0	0-4.1
219.1 (DN200)	10Z070085E01	10Z070085E03	32	2.4	0-4.8
273,0 (DN250)	10Z0700A1001	10Z0700A1003	33	1.6	0-3.2
323.9 (DN300)	10Z0700A3001	10Z0700A3003	33	1.6	0-3.2

* Axial displacement. For field installation only on roll grooved pipe or cut grooved pipe. Rigid couplings do not permit expansion/contraction. For maximum allowable working pressures see chapter 2.5

Z07N Heavy duty rigid coupling

(angle pad design, with E gasket)

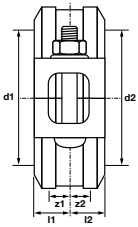


Dimension	Article No.		l1/l2	z1/z2	A.d.*
	Painted orange	Galvanized			
355.6 (DN350)	1Z07N00A4001	1Z07N00A4003	38	1.6	0-3.2
406.4 (DN400)	1Z07N00A6001	1Z07N00A6003	38	1.6	0-3.2
457.2 (DN450)	1Z07N00A8001	1Z07N00A8003	40	1.6	0-3.2
508.0 (DN500)	1Z07N00B0001	1Z07N00B0003	38	1.6	0-3.2
609.6 (DN600)	1Z07N00B4001	1Z07N00B4003	38	1.6	0-3.2

* Axial displacement. For field installation only on roll grooved pipe or cut grooved pipe. Rigid couplings do not permit expansion/contraction. For maximum allowable working pressures see chapter 2.5

7705 Flexible coupling

(with E gasket)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
33.7 (DN25)	177050010E01	177050010E03	23	0.8
42.4 (DN32)	177050012E01	177050012E03	23	0.8
48.3 (DN40)	177050015E01	177050015E03	23	0.8
60.3 (DN50)	177050020E01	177050020E03	24	0.8
73.0	177050025E01	177050025E03	24	0.8
76.1 (DN65)	177050029E01	177050029E03	24	0.8
88.9 (DN80)	177050030E01	177050030E03	24	0.8
101.6	177050035E01	177050035E03	24	0.8
108.0	177050040E01	177050040E03	26	1.6
114.3 (DN100)	177050045E01	177050045E03	26	1.6
133.0	177050050E01	177050050E03	26	1.6
139.7 (DN125)	177050052E01	177050052E03	26	1.6
141.3	177050055E01	177050055E03	26	1.6
159.0	177050060E01	177050060E03	26	1.6
165.1	177050062E01	177050062E03	27	1.6

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7705 Flexible coupling

(with E gasket)

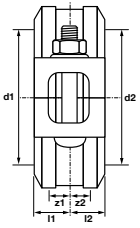
Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
168.3 (DN150)	177050065E01	177050065E03	27	1.6
219.1 (DN200)	177050085E01	177050085E03	31	1.6
219,1 (DN200)*	177050085E92	177050085E91	31	1.6
273.0 (DN250)	1770500A1001	1770500A1003	33	1.6
323.9 (DN300)	1770500A3001	1770500A3003	33	1.6

* DN200 7705H coupling is VDS approved in addiotion to cULus and FM approval

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

7707 Heavy duty flexible coupling

(with E gasket)

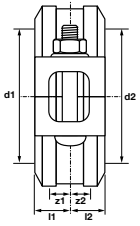


Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
33.7 (DN25)	177070010E01	177070010E03	23	0.8
42.4 (DN32)	177070012E01	177070012E03	23	0.8
48.3 (DN40)	177070015E01	177070015E03	23	0.8
60.3 (DN50)	177070020E01	177070020E03	23	0.8
73.0	177070025E01	177070025E03	24	0.8
76.1 (DN65)	177070029E01	177070029E03	24	0.8
88.9 (DN80)	177070030E01	177070030E03	24	0.8
114.3 (DN100)	177070045E01	177070045E03	26	1.6
139.7 (DN125)	177070052E01	177070052E03	27	1.6
141.3	177070055E01	177070055E03	27	1.6
165.1	177070062E01	177070062E03	27	1.6
168.3 (DN150)	177070065E01	177070065E03	27	1.6
219.1 (DN200)	177070085E01	177070085E03	31	1.6
273.0 (DN250)	1770700A1001	1770700A1003	33	1.6
323.9 (DN300)	1770700A3001	1770700A3003	33	1.6

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

7707N Flexible coupling

(with E gasket)

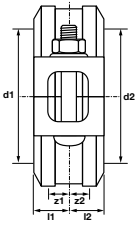


Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
355.6 (DN350)	1770N00A4001	1770N00A4003	38	1.6
406.4 (DN400)	1770N00A6001	1770N00A6003	38	1.6
457.2 (DN450)	1770N00A8001	1770N00A8003	40	1.6
508.0 (DN500)	1770N00B0001	1770N00B0003	40	1.6
558.8 (DN550)	1770N00B2001	1770N00B2003	40	1.6
609.6 (DN600)	1770N00B4001	1770N00B4003	40	1.6
660.4 (DN650)	1770N00B6001	1770N00B6003	63	1.6

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

7707L Large diameter coupling

(with E gasket)

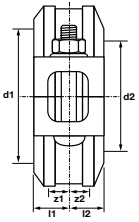


Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
711.2 (DN700)	1770700B8001	1770700B8003	63	3.2
762.0 (DN750)	1770700C0001	1770700C0003	63	3.2
812.8 (DN800)	1770700C2001	1770700C2003	63	3.2
863.6 (DN850)	1770700C4001	1770700C4003	63	3.2
914.4 (DN900)	1770700C6001	1770700C6003	63	3.2
1016.0 (DN1000)	1770700D0001	1770700D0003	69	3.2
1066.8 (DN1050)	1770700D2001	1770700D2003	69	3.2

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

7706 Reducing coupling

(with E gasket)



Dimension	Article No.		l1/l2	z1	z2
	Painted red	Galvanized			
48.3 x 42.4 (DN40 x DN32)	177061512E02	177061512E03	23	0.8	0.8
60.3 x 48.4 (DN50 x DN40)	177062015E02	177062015E03	24	0.8	0.8
73.0 x 60.3	177062520E02	177062520E03	24	0.8	0.8
76.1 x 60.3 (DN65 x DN50)	177062920E02	177062920E03	24	0.8	0.8
76.1 x 73.0	177062925E02	177062925E03	24	0.8	0.8
88.9 x 60.3 (DN80 x DN50)	177063020E02	177063020E03	24	0.8	0.8
88.9 x 73.0	177063025E02	177063025E03	24	0.8	0.8
88.9 x 76.1 (DN80 x DN65)	177063029E02	177063029E03	24	0.8	0.8
114.3 x 60.3 (DN100 x DN50)	177064520E02	177064520E03	25	1.6	0.8
114.3 x 73.0	177064525E02	177064525E03	25	1.6	0.8
114.3 x 76.1 (DN100 x DN65)	177064529E02	177064529E03	25	1.6	0.8
114.3 x 88.9 (DN100 x DN80)	177064530E02	177064530E03	26	1.6	0.8
139.7 x 114.3 (DN125 x DN100)	177065245E02	177065245E03	26	1.6	1.6
141.3 x 114.3	177065545E02	177065545E03	26	1.6	1.6

7706 Reducing coupling

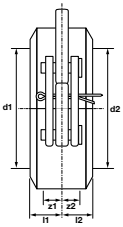
(with E gasket)

Dimension	Article No.		l1/l2	z1	z2
	Painted red	Galvanized			
165.1 x 88.9	177066230E02	177066230E03	26	1.6	0.8
165.1 x 114.3 (DN150 x DN100)	177066245E02	177066245E03	26	1.6	1.6
168.3 x 114.3 (DN150 x DN100)	177066545E02	177066545E03	26	1.6	1.6
168.3 x 165.1	177066562E02	177066562E03	27	1.6	1.6
219.1 x 165.1	177068562E02	177068562E03	28	1.6	1.6
219.1 x 168.3 (DN200 x DN150)	177068565E02	177068565E03	27	1.6	1.6

• For design data on axial displacement and angular deflection see table on page 106
• For maximum allowable working pressures see chapter 2.5

G28 Hinged lever coupling

(With E gasket)

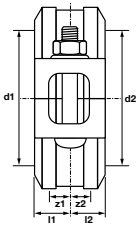


Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
42.4 (DN32)	10G280012001	10G280012003	24	0.8
48.3 (DN40)	10G280015001	10G280015003	24	0.8
60.3 (DN50)	10G280020001	10G280020003	24	0.8
73.0	10G280025001	10G280025003	24	0.8
76.1 (DN65)	10G280029001	10G280029003	24	0.8
88.9 (DN80)	10G280030001	10G280030003	24	0.8
114.3 (DN100)	10G280045001	10G280045003	26	1.6
139.7 (DN125)	10G280052001	10G280052003	26	1.6
141.3	10G280055001	10G280055003	26	1.6
165.1	10G280062001	10G280062003	26	1.6
168.3 (DN150)	10G280065001	10G280065003	26	1.6
219.1 (DN200)	10G280085001	10G280085003	31	1.6
273.0 (DN250)	10G2800A1001	10G2800A1003	33	1.6

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

XH70EP Extra heavy rigid coupling

(With end protection (EP) gasket)



Dimension	Article No. Painted black	l1/l2	z1/z2	A.d.*
60.3 (DN50)	1XH700020005	24	3.1	6.2
73.0	1XH700025005	24	3.1	6.2
88.9 (DN80)	1XH700030005	25	3.1	6.2
114.3 (DN100)	1XH700045005	27	3.2	6.4
168.3 (DN150)	1XH700065005	28	4.0	8.0
219.1 (DN200)	1XH700085005	35	3.7	7.4
273.0 (DN250)	1XH7000A1005	37	4.3	8.5
323.9 (DN300)	1XH7000A3005	37	4.3	8.5

* Axial displacement. For field installation only on roll grooved pipe or cut grooved pipe. Rigid couplings do not permit expansion/contraction. For maximum allowable working pressures see chapter 2.5

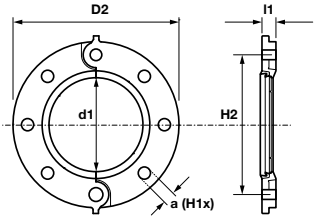
VSH

3.2 Flange Adapters

VSH Shurjoint

7041 Flange adapter - ANSI class 125/150

(2-12” hinged, 14-24” two segment, with E gasket)

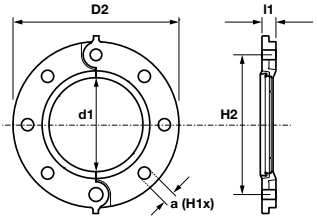


Dimension	Article No.		l1	D2	H1	H2	a
	Painted black	Galvanized					
60.3 (DN50)	1041A0020011	1041A0020003	19	152	4	121	5/8"
73.0	1041A0025011	1041A0025003	22	178	4	140	5/8"
88.9 (DN80)	1041A0030011	1041A0030003	24	191	4	152	5/8"
114.3 (DN100)	1041A0045011	1041A0045003	24	229	8	191	5/8"
141.3	1041A0055011	1041A0055003	25	254	8	216	3/4"
168.3 (DN150)	1041A0065011	1041A0065003	25	279	8	241	3/4"
219.1 (DN200)	1041A0085011	1041A0085003	29	343	8	298	3/4"
273.0 (DN250)	1041A00A1011	1041A00A1003	30	406	12	362	7/8"
323.9 (DN300)	1041A00A3011	1041A00A3003	32	483	12	432	7/8"
355.6 (DN350)	1041A00A4011	1041A00A4003	36	533	12	476	1"
406.4 (DN400)	1041A00A6011	1041A00A6003	36	597	16	540	1"
457.2 (DN450)	1041A00A8011	1041A00A8003	40	635	16	578	1 1/8"
508.0 (DN500)	1041A00B0011	1041A00B0003	44	699	20	635	1 1/8"
609.6 (DN600)	1041A00B4011	1041A00B4003	48	813	20	749	1 1/4"

For maximum allowable working pressures see chapter 2.5

7041 Flange adapter - PN10/PN16

(DN50-300 hinged, DN350-600 two segment, with E gasket)

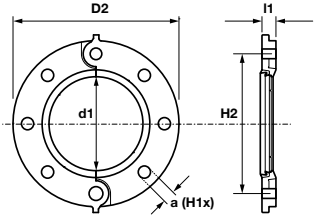


Dimension	Article No.		PN	l1/	D2	H1	H2	a
	Painted black	Galvanized						
60.3 (DN50)	1041B0020010	1041B0020006	10/16	22	165	4	125	M16
76.1 (DN65)	1041B0029010	1041B0029006	10/16	22	185	4	145	M16
88.9 (DN80)	1041B0030010	1041B0030006	10/16	24	200	8	160	M16
114.3 (DN100)	1041B0045010	1041B0045006	10/16	24	220	8	180	M16
139.7 (DN125)	1041B0052010	1041B0052006	10/16	25	250	8	210	M16
165.1	1041B0062010	1041B0062006	10/16	24	285	8	240	M20
168.3 (DN150)	1041A0065010	1041A0065006	10/16	24	285	8	240	M20
219.1 (DN200)	1041B0085010	1041B0085006	16	29	340	12	295	M20
273.0 (DN250)	1041B00A1010	1041B00A1006	16	30	405	12	355	M24
323.9 (DN300)	1041B00A3010	1041B00A3006	16	32	460	12	410	M24
355.6 (DN350)	1041B00A4010	1041B00A4003	16	36	520	16	470	M24
406.4 (DN400)	1041B00A6010	1041B00A6003	16	38	580	16	525	M27
457.2 (DN450)	1041B00A8010	1041B00A8003	16	40	640	20	585	M27
508.0 (DN500)	1041B00B0010	1041B00B0003	16	43	715	20	650	M30
609.6 (DN600)	1041B00B4010	1041B00B4003	16	48	840	20	770	M33

For maximum allowable working pressures see chapter 2.5

7043 Flange adapter - ANSI Class 300

(2-12” hinged, with E gasket)

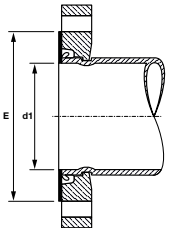


Dimension	Article No.		l1/	D2	H1	H2	a
	Painted black	Galvanized					
60.3 (DN50)	1043A0020001	1043A0020003	24	165	8	127	5/8"
73.0	1043A0025001	1043A0025003	27	191	8	149	3/4"
88.9 (DN80)	1043A0030001	1043A0030003	30	210	8	168	3/4"
114.3 (DN100)	1043A0045001	1043A0045003	33	254	8	202	3/4"
141.3	1043A0055001	1043A0055003	37	279	8	235	3/4"
168.3 (DN150)	1043A0065001	1043A0065003	38	318	12	270	3/4"
219.1 (DN200)	1043A0085001	1043A0085003	41	381	12	330	7/8"
273.0 (DN250)	1043A00A1001	1043A00A1003	48	449	16	387	1"
323.9 (DN300)	1043A00A3001	1043A00A3003	49	521	16	451	1 1/8"

For maximum allowable working pressures see chapter 2.5

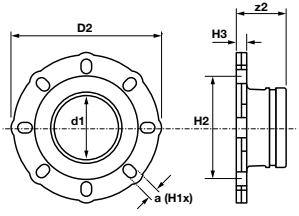
49 Sandwich plate

(steel, zinc plated)



Dimension	Article No.	E	d1
DN50	S00490020	95	54
DN65	S00490025	118	67
DN80	S00490030	130	81
DN100	S00490045	158	105
DN125	S00490055	188	128
DN150	S00490065	216	155
DN200	S00490085	271	205
DN250	S004900A1	326	258
DN300	S004900A3	381	305
DN350	S004900A4	442	342
DN400	S004900A6	506	392
DN450	S004900A8	540	443
DN500	S004900B0	597	494
DN600	S004900B4	708	596

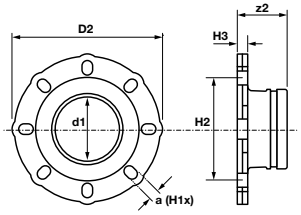
7170 Flange adapter
(ANSI Class 125/150)



Dimension	Article No.		z2	D2	H1	H2	H3	a
	Painted orange	Galvanized						
273.0 (DN250)	1170A00A1001	1170A00A1003	203	406	12	362	30	1"
323.9 (DN300)	1170A00A3001	1170A00A3003	203	483	12	432	32	1"
355.6 (DN350)	1170A00A4001	1170A00A4003	127	533	12	476	35	1 1/8"
406.4 (DN400)	1170A00A6001	1170A00A6003	127	597	16	540	37	1 1/8"
457.2 (DN450)	1170A00A8001	1170A00A8003	140	635	16	578	40	1 1/4"
508.0 (DN500)	1170A00B0001	1170A00B0003	145	699	20	635	43	1 1/4"
609.6 (DN600)	1170A00B4001	1170A00B4003	152	814	20	749	48	1 3/8"

7180 Universal flange adapter

(PN 10/16, ANSI Class 125/150, BS10E)



Dimension	Article No. Painted orange	z2	D2	H1	H2	H3	a
60.3 (DN50)	171800020001	64	165	4	114-125	16	M16
73.0	171800025001	76	185	4	127-145	16	M16
76.1 (DN65)	171800029001	76	185	4	127-145	16	M16
88.9 (DN80)	171800030001	75	200	4/8	146-160	16	M16
114.3 (DN100)	171800045001	75	225	8	175-191	16	M16
139.7 (DN125)	171800052001	75	254	8	210-216	16	M16/20
141.3	171800055001	75	254	8	210-216	22	M16/20
165.1	171800062001	75	272	8	235-241	16	M20
168.3 (DN150)	171800065001	75	272	8	240-241	16	M20
219.1 (DN200)	171800085001	102	343	8/12	290-298	22	M20

Dimension	Article No. Galvanized	z2	D2	H1	H2	H3	a
60.3 (DN50)	171800020003	64	165	4	114-125	16	M16
73.0	171800025003	76	185	4	127-145	16	M16
76.1 (DN65)	171800029003	76	185	4	127-145	16	M16
88.9 (DN80)	171800030003	75	200	4/8	146-160	16	M16
114.3 (DN100)	171800045003	75	225	8	175-191	16	M16
139.7 (DN125)	171800052003	75	254	8	210-216	16	M16/20
141.3	171800055003	75	254	8	210-216	22	M16/20

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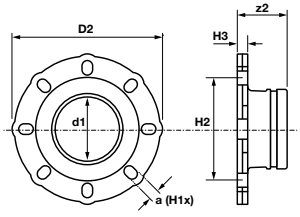
7180 Universal flange adapter

(PN 10/16, ANSI Class 125/150, BS10E)

Dimension	Article No. Galvanized	z2	D2	H1	H2	H3	a
165.1	171800062003	75	272	8	235-241	16	M20
168.3 (DN150)	171800065003	75	272	8	240-241	16	M20
219.1 (DN200)	171800085003	102	343	8/12	290-298	22	M20

7181 Universal reducing flange adapter

(PN 10/16, ANSI Class 125/150, BS10E)



Dimension	Article No. Painted orange	z2	D2	H1	H2	H3	a
88.9 x 60.3 (DN80 x 50)	171813020001	75	208	8	150-160	16	M16
114.3 x 73.0	171814525001	76	226	8	175-191	16	M16
114.3 x 76.1 (DN100 x 65)	171814529001	76	226	8	175-191	16	M16
114.3 x 88.9 (DN100 x 80)	171814530001	75	226	8	175-191	16	M16
168.3 x 114.3 (DN150 x 100)	171816545001	75	291	8	240-241	24	M20

Dimension	Article No. Galvanized	z2	D2	H1	H2	H3	a
88.9 x 60.3 (DN80 x 50)	171813020003	75	208	8	150-160	16	M16
114.3 x 73.0	171814525003	76	226	8	175-191	16	M16
114.3 x 76.1 (DN100 x 65)	171814529003	76	226	8	175-191	16	M16
114.3 x 88.9 (DN100 x 80)	171814530003	75	226	8	175-191	16	M16
168.3 x 114.3 (DN150 x 100)	171816545003	75	291	8	240-241	24	M20

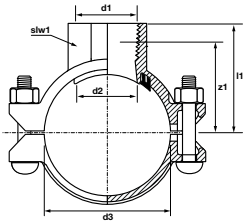
VSH

3.3 Mechanical Tees

VSH Shurjoint

7721 Mechanical tee

(ISO R7 Female outlet, with E gasket)



Max working pressure 20 bar/300 psi

Dimension	Article No. Painted red	l1	z1	d1	d2*	d3	slw1
60.3 x Rp1/2	177212005E02	64	50	21.3	38	60.3	30
60.3 x Rp3/4	177212007E02	64	50	26.9	38	60.3	36
60.3 x Rp1	177212010E02	68	51	33.7	38	60.3	44
60.3 x Rp1 1/4	177212012E02	71	53	42.4	45	60.3	55
60.3 x Rp1 1/2	177212015E02	71	53	48.3	45	60.3	60
76.1 x Rp1/2	177212505E02	71	57	21.3	38	76.1	30
76.1 x Rp3/4	177212507E02	73	59	26.9	38	76.1	36
76.1 x Rp1	177212510E02	75	58	33.7	38	76.1	44
76.1 x Rp1 1/4	177212512E02	79	61	42.4	45	76.1	55
76.1 x Rp1 1/2	177212515E02	79	61	48.3	45	76.1	60
88.9 x Rp1/2	177213005E02	81	63	21.3	38	88.9	30
88.9 x Rp3/4	177213007E02	81	62	26.9	38	88.9	36
88.9 x Rp1	177213010E02	81	64	33.7	38	88.9	44
88.9 x Rp1 1/4	177213012E02	89	71	42.4	45	88.9	55
88.9 x Rp1 1/2	177213015E02	89	71	48.3	45	88.9	60
88.9 x Rp2	177213020E02	91	72	60.3	64	88.9	73
114.3 x Rp1/2	177214505E02	94	76	21.3	38	114.3	30
114.3 x Rp3/4	177214507E02	94	75	26.9	38	114.3	36
114.3 x Rp1	177214510E02	94	77	33.7	38	114.3	44
114.3 x Rp1 1/4	177214512E02	99	81	42.4	45	114.3	55

7721 Mechanical tee

(ISO R7 Female outlet, with E gasket)

Dimension	Article No. Painted red	l1	z1	d1	d2*	d3	slw1
114.3 x Rp1 1/2	177214515E02	99	81	48.3	45	114.3	60
114.3 x Rp2	177214520E02	105	86	60.3	64	114.3	73
114.3 x Rp2 1/2	177214525E02	111	82	76.1	70	114.3	89
114.3 x Rp3	177214530E02	112	82	88.9	89	114.3	107
139.7 x Rp2	177215520E02	124	105	60.3	64	139.7	73
139.7 x Rp2 1/2	177215525E02	127	99	76.1	70	139.7	89
168.3 x Rp1/2	177216505E02	128	114	21.3	51	168.3	30
168.3 x Rp1	177216510E02	127	110	33.7	51	168.3	44
168.3 x Rp1 1/4	177216512E02	127	109	42.4	45	168.3	55
168.3 x Rp1 1/2	177216515E02	127	109	48.3	45	168.3	60
168.3 x Rp2	177216520E02	132	113	60.3	64	168.3	72
168.3 x Rp2 1/2	177216525E02	140	111	76.1	70	168.3	88
168.3 x Rp3	177216530E02	140	110	88.9	89	168.3	108
219.1 x Rp1/2	177218505E02	148	135	21.3	70	219.1	30
219.1 x Rp1	177218510E02	152	135	33.7	70	219.1	44
219.1 x Rp1 1/4	177218512E02	152	135	42.4	70	219.1	55
219.1 x Rp1 1/2	177218515E02	152	135	48.3	70	219.1	60
219.1 x Rp2	177218520E02	166	135	60.3	64	219.1	73
219.1 x Rp2 1/2	177218525E02	166	137	76.1	70	219.1	89
219.1 x Rp3	177218530E02	166	136	88.9	89	219.1	107

Dimension	Article No. Galvanized	l1	z1	d1	d2*	d3	slw1
60.3 x Rp1/2	177212005E04	64	50	21.3	38	60.3	30
60.3 x Rp3/4	177212007E04	64	50	26.9	38	60.3	36
60.3 x Rp1	177212010E04	68	51	33.7	38	60.3	44
60.3 x Rp1 1/4	177212012E04	71	53	42.4	45	60.3	55
60.3 x Rp1 1/2	177212015E04	71	53	48.3	45	60.3	60
76.1 x Rp1/2	177212505E04	71	57	21.3	38	76.1	30
76.1 x Rp3/4	177212507E04	73	59	26.9	38	76.1	36
76.1 x Rp1	177212510E04	75	58	33.7	38	76.1	44
76.1 x Rp1 1/4	177212512E04	79	61	42.4	45	76.1	55

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7721 Mechanical tee

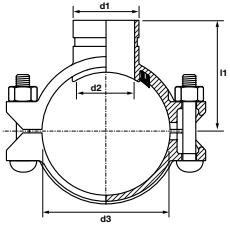
(ISO R7 Female outlet, with E gasket)

Dimension	Article No. Galvanized	l1	z1	d1	d2*	d3	slw1
76.1 x Rp1 1/2	177212515E04	79	61	48.3	45	76.1	60
88.9 x Rp1/2	177213005E04	81	63	21.3	38	88.9	30
88.9 x Rp3/4	177213007E04	81	62	26.9	38	88.9	36
88.9 x Rp1	177213010E04	81	64	33.7	38	88.9	44
88.9 x Rp1 1/4	177213012E04	89	71	42.4	45	88.9	55
88.9 x Rp1 1/2	177213015E04	89	71	48.3	45	88.9	60
88.9 x Rp2	177213020E04	91	72	60.3	64	88.9	73
114.3 x Rp1/2	177214505E04	94	76	21.3	38	114.3	30
114.3 x Rp3/4	177214507E04	94	75	26.9	38	114.3	36
114.3 x Rp1	177214510E04	94	77	33.7	38	114.3	44
114.3 x Rp1 1/4	177214512E04	99	81	42.4	45	114.3	55
114.3 x Rp1 1/2	177214515E04	99	81	48.3	45	114.3	60
114.3 x Rp2	177214520E04	105	86	60.3	64	114.3	73
114.3 x Rp2 1/2	177214525E04	111	82	76.1	70	114.3	89
114.3 x Rp3	177214530E04	112	82	88.9	89	114.3	107
139.7 x Rp2	177215520E04	124	105	60.3	64	139.7	73
139.7 x Rp2 1/2	177215525E04	127	99	76.1	70	139.7	89
168.3 x Rp1/2	177216505E04	128	114	21.3	51	168.3	30
168.3 x Rp1	177216510E04	127	110	33.7	51	168.3	44
168.3 x Rp1 1/4	177216512E04	127	109	42.4	45	168.3	55
168.3 x Rp1 1/2	177216515E04	127	109	48.3	45	168.3	60
168.3 x Rp2	177216520E04	132	113	60.3	64	168.3	72
168.3 x Rp2 1/2	177216525E04	140	111	76.1	70	168.3	88
168.3 x Rp3	177216530E04	140	110	88.9	89	168.3	108
219.1 x Rp1/2	177218505E04	148	135	21.3	70	219.1	30
219.1 x Rp1	177218510E04	152	135	33.7	70	219.1	44
219.1 x Rp1 1/4	177218512E04	152	135	42.4	70	219.1	55
219.1 x Rp1 1/2	177218515E04	152	135	48.3	70	219.1	60
219.1 x Rp2	177218520E04	166	135	60.3	64	219.1	73
219.1 x Rp2 1/2	177218525E04	166	137	76.1	70	219.1	89
219.1 x Rp3	177218530E04	166	136	88.9	89	219.1	107

* For hole cut specifications and installation instructions, please refer to the table on page 83

7722 Mechanical tee

(grooved end outlet, with E gasket)



Max working pressure 20 bar/300 psi

Dimension	Article No.		l1/z1	d1	d2	d3
	Painted red	Galvanized				
60.3 x 42.4	177222012E02	177222012E03	71	42.4	45	60.3
60.3 x 48.3	177222015E02	177222015E03	71	48.3	45	60.3
76.1 x 42.4	177222512E02	177222512E03	79	42.4	45	76.1
76.1 x 48.3	177222515E02	177222515E03	79	48.3	45	76.1
88.9 x 33.7	177223010E02	177223010E03	84	33.7	38	88.9
88.9 x 42.4	177223012E02	177223012E03	89	42.4	45	88.9
88.9 x 48.3	177223015E02	177223015E03	89	48.3	45	88.9
88.9 x 60.3	177223020E02	177223020E03	91	60.3	64	88.9
114.3 x 33.7	177224510E02	177224510E03	94	33.7	38	114.3
114.3 x 42.4	177224512E02	177224512E03	99	42.4	45	114.3
114.3 x 48.3	177224515E02	177224515E03	99	48.3	45	114.3
114.3 x 60.3	177224520E02	177224520E03	105	60.3	64	114.3
114.3 x 73.0	177224525E02	177224525E03	111	73.0	70	114.3
114.3 x 76.1	177224529E02	177224529E03	111	76.1	70	114.3
114.3 x 88.9	177224530E02	177224530E03	112	88.9	89	114.3
139.7 x 60.3	177225520E02	177225520E03	124	60.3	64	139.7
139.7 x 73.0	177225525E02	177225525E03	127	73.0	70	139.7
139.7 x 76.1	177225529E02	177225529E03	127	76.1	70	139.7

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7722 Mechanical tee

(grooved end outlet with E gasket)

Dimension	Article No.		l1/z1	d1	d2	d3
	Painted red	Galvanized				
168.3 x 42.4	177226512E02	177226512E03	127	42.4	45	168.3
168.3 x 48.3	177226515E02	177226515E03	127	48.3	45	168.3
168.3 x 60.3	177226520E02	177226520E03	132	60.3	64	168.3
168.3 x 73.0	177226525E02	177226525E03	140	73.0	70	168.3
168.3 x 76.1	177226529E02	177226529E03	140	76.1	70	168.3
168.3 x 88.9	177226530E02	177226530E03	140	88.9	89	168.3
168.3 x 114.3	177226545E02	177226545E03	140	114.3	114	168.3
219.1 x 60.3	177228520E02	177228520E03	166	60.3	64	219.1
219.1 x 73.0	177228525E02	177228525E03	166	73.0	70	219.1
219.1 x 76.1	177228529E02	177228529E03	166	76.1	70	219.1
219.1 x 88.9	177228530E02	177228530E03	166	88.9	89	219.1
219.1 x 114.3	177228545E02	177228545E03	166	114.3	114	219.1

* For hole cut specifications and installation instructions, please refer to the table on page 83

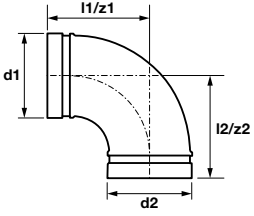
VSH

3.4 Grooved Fittings

VSH Shurjoint

7110 Elbow 90°

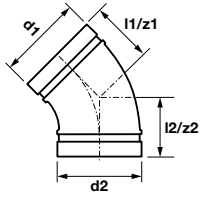
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
33.7 (DN25)	171100010001	171100010003	57	57
42.4 (DN32)	171100012001	171100012003	70	70
48.3 (DN40)	171100015001	171100015003	70	70
60.3 (DN50)	171100020001	171100020003	83	83
73.0	171100025001	171100025003	95	95
76.1 (DN65)	171100029001	171100029003	95	95
88.9 (DN80)	171100030001	171100030003	108	108
108.0	171100040001	171100040003	127	127
114.3 (DN100)	171100045001	171100045003	127	127
139.7 (DN125)	171100052001	171100052003	140	140
141.3	171100055001	171100055003	140	140
159.0	171100060001	171100060003	165	165
165.1	171100062001	171100062003	165	165
168.3 (DN150)	171100065001	171100065003	165	165
219.1 (DN200)	171100085001	171100085003	197	197
273.0	1711000A1001	1711000A1003	229	229
323.9 (DN300)	1711000A3001	1711000A3003	254	254
355.6 (DN350)	1711000A4001	1711000A4003	280	280
406.4 (DN400)	1711000A6001	1711000A6003	305	305

7111 Elbow 45°

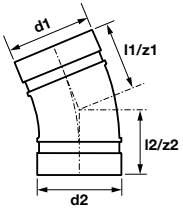
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
33.7 (DN25)	171110010001	171110010003	45	45
42.4 (DN32)	171110012001	171110012003	45	45
48.3 (DN40)	171110015001	171110015003	45	45
60.3 (DN50)	171110020001	171110020003	51	51
73.0	171110025001	171110025003	57	57
76.1 (DN65)	171110029001	171110029003	57	57
88.9 (DN80)	171110030001	171110030003	57	57
108.0	171110040001	171110040003	76	76
114.3 (DN100)	171110045001	171110045003	76	76
139.7 (DN125)	171110052001	171110052003	83	83
141.3	171110055001	171110055003	83	83
159.0	171110060001	171110060003	89	89
165.1	171110062001	171110062003	89	89
168.3 (DN150)	171110065001	171110065003	89	89
219.1 (DN200)	171110085001	171110085003	108	108
273.0	1711100A1001	1711100A1003	121	121
323.9 (DN300)	1711100A3001	1711100A3003	133	133
355.6 (DN350)	1711100A4001	1711100A4003	152	152
406.4 (DN400)	1711100A6001	1711100A6003	184	184

7112 Elbow 22 1/2°

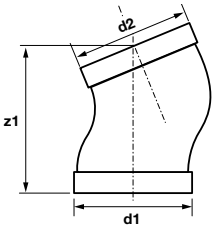
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
42.4 (DN32)	171120012001	171120012003	45	45
48.3 (DN40)	171120015004	171120015006	45	45
60.3 (DN50)	171120020004	171120020006	48	48
73.0	171120025004	171120025006	51	51
76.1 (DN65)	171120029004	171120029006	51	51
88.9 (DN80)	171120030004	171120030006	57	57
114.3 (DN100)	171120045004	171120045006	73	73
165.1	171120062004	171120062006	79	79
168.3 (DN150)	171120065004	171120065006	79	79
219.1 (DN200)	171120085004	171120085006	98	98
273.0	1711200A1001	1711200A1003	111	111
323.9 (DN300)	1711200A3001	1711200A3003	124	124

7112G Goose neck elbow 22 1/2°

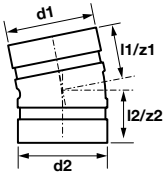
(2 x groove)



Dimension	Article No.		l1/	z1
	Painted orange	Galvanized		
48.3 (DN40)	171120015001	171120015003	95	95
60.3 (DN50)	171120020001	171120020003	95	95
73.0	171120025001	171120025003	102	102
76.1 (DN65)	171120029001	171120029003	102	102
88.9 (DN80)	171120030001	171120030003	114	114
114.3 (DN100)	171120045001	171120045003	127	127
139.7 (DN125)	171120052001	171120052003	127	127
141.3	171120055001	171120055003	127	127
165.1	171120062001	171120062003	159	159
168.3 (DN150)	171120065001	171120065003	159	159
219.1 (DN200)	171120085001	171120085003	197	197

7113 Elbow 11 1/4°

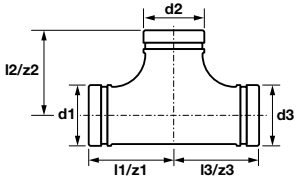
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
42.4 (DN32)	171130012001	171130012003	35	35
48.3 (DN40)	171130015001	171130015003	35	35
60.3 (DN50)	171130020001	171130020003	35	35
73.0	171130025001	171130025003	38	38
76.1 (DN65)	171130029001	171130029003	38	38
88.9 (DN80)	171130030001	171130030003	38	38
114.3 (DN100)	171130045001	171130045003	45	45
139.7 (DN125)	171130052001	171130052003	51	51
141.3	171130055001	171130055003	51	51
165.1	171130062001	171130062003	51	51
168.3 (DN150)	171130065001	171130065003	51	51
219.1 (DN200)	171130085001	171130085003	51	51
273.0 (DN250)	1711300A1001	1711300A1003	54	54
323.9 (DN300)	1711300A3001	1711300A3003	57	57

7120 Tee

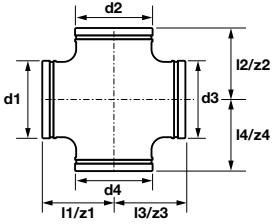
(3 x groove)



Dimension	Article No.		l1/l2/l3	z1/z2/z3
	Painted orange	Galvanized		
33.7 (DN25)	171200010001	171200010003	57	57
42.4 (DN32)	171200012001	171200012003	70	70
48.3 (DN40)	171200015001	171200015003	70	70
60.3 (DN50)	171200020001	171200025003	83	83
73.0	171200025001	171200020003	95	95
76.1 (DN65)	171200029001	171200029003	95	95
88.9 (DN80)	171200030001	171200030003	108	108
108.0	171200040001	171200040003	127	127
114.3 (DN100)	171200045001	171200045003	127	127
133.0	171200050001	171200050003	140	140
139.7 (DN125)	171200052001	171200052003	140	140
141.3	171200055001	171200055003	140	140
159.0	171200060001	171200060003	165	165
165.1	171200062001	171200062003	165	165
168.3 (DN150)	171200065001	171200065003	165	165
219.1 (DN200)	171200085001	171200085003	197	197
273.0 (DN250)	1712000A1001	1712000A1003	229	229
323.9 (DN300)	1712000A3001	1712000A3003	254	254
355.6 (DN350)	1712000A4001	1712000A4003	280	280

7135 Cross

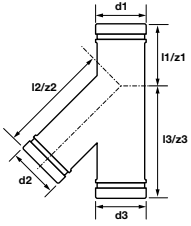
(4 x groove)



Dimension	Article No.		l1/l2/l3/l4	z1/z2/z3/z4
	Painted orange	Galvanized		
33.7 (DN25)	171350010001	171350010003	57	57
42.4 (DN32)	171350012001	171350012003	70	70
48.3 (DN40)	171350015001	171350015003	70	70
60.3 (DN50)	171350020001	171350020003	83	83
73.0	171350025001	171350025003	95	95
76.1 (DN65)	171350029001	171350029003	95	95
88.9 (DN80)	171350030001	171350030003	108	108
114.3 (DN100)	171350045001	171350045003	127	127
139.7 (DN125)	171350052001	171350052003	140	140
141.3	171350055001	171350055003	140	140
165.1	171350062001	171350062003	165	165
168.3 (DN150)	171350065001	171350065003	165	165
219.1 (DN200)	171350085001	171350085003	197	197

7130 45° Lateral

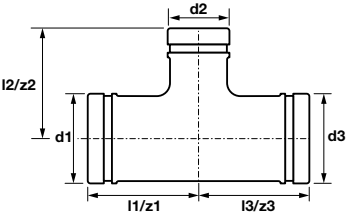
(3 x groove)



Dimension	Article No.		l1/l3/z1/z3	l1/z1
	Painted orange	Galvanized		
60.3 (DN50)	171300020001	171300020003	178	70
73.0	171300025001	171300025003	197	76
76.1 (DN65)	171300029001	171300029003	197	76
88.9 (DN80)	171300030001	171300030003	216	83
114.3 (DN100)	171300045001	171300045003	267	95
139.7 (DN125)	171300052001	171300052003	318	102
141.3	171300055001	171300055003	318	102
165.1	171300062001	171300062003	356	114
168.3 (DN150)	171300065001	171300065003	356	114
219.1 (DN200)	171300085001	171300085003	457	152
273.0 (DN250)	1713000A1001	1713000A1003	521	165
323.9 (DN300)	1713000A3001	1713000A3003	584	178

7121 Reducing tee

(3 x groove)



Dimension	Article No.		l1/l2/l3	z1/z2/z3
	Painted orange	Galvanized		
60.3 x 33.7 x 60.3	171212010001	171212010003	83	83
60.3 x 42.4 x 60.3	171212012001	171212012003	83	83
60.3 x 48.3 x 60.3	171212015001	171212015003	83	83
73.0 x 33.7 x 73.0	171212510001	171212510003	95	95
73.0 x 42.4 x 73.0	171212512001	171212512003	95	95
73.0 x 48.3 x 73.0	171212515001	171212515003	95	95
73.0 x 60.3 x 73.0	171212520001	171212520003	95	95
76.1 x 33.7 x 76.1	171212910001	171212910003	95	95
76.1 x 42.4 x 76.1	171212912001	171212912003	95	95
76.1 x 48.3 x 76.1	171212915001	171212915003	95	95
76.1 x 60.3 x 76.1	171212920001	171212920003	95	95
88.9 x 33.7 x 88.9	171213010001	171213010003	108	108
88.9 x 42.4 x 88.9	171213012001	171213012003	108	108
88.9 x 48.3 x 88.9	171213015001	171213015003	108	108
88.9 x 60.3 x 88.9	171213020001	171213020003	108	108
88.9 x 73.0 x 88.9	171213025001	171213025003	108	108
88.9 x 76.1 x 88.9	171213029001	171213029003	108	108
114.3 x 33.7 x 114.3	171214510001	171214510003	127	127
114.3 x 42.4 x 114.3	171214512001	171214512003	127	127

7121 Reducing tee

(3 x groove)

Dimension	Article No.		l1/l2/l3	z1/z2/z3
	Painted orange	Galvanized		
114.3 x 48.3 x 114.3	171214515001	171214515003	127	127
114.3 x 60.3 x 114.3	171214520001	171214520003	127	127
114.3 x 73.0 x 114.3	171214525001	171214525003	127	127
114.3 x 76.1 x 114.3	171214529001	171214529003	127	127
114.3 x 88.9 x 114.3	171214530001	171214530003	127	127
139.7 x 60.3 x 139.7	171215220001	171215220003	140	140
139.7 x 73.0 x 139.7	171215225001	171215225003	140	140
139.7 x 76.1 x 139.7	171215229001	171215229003	140	140
139.7 x 88.9 x 139.7	171215230001	171215230003	140	140
139.7 x 114.3 x 139.7	171215245001	171215245003	140	140
141.3 x 60.3 x 141.3	171215520001	171215520003	140	140
141.3 x 73.0 x 141.3	171215525001	171215525003	140	140
141.3 x 76.1 x 141.3	171215529001	171215529003	140	140
141.3 x 88.9 x 141.3	171215530001	171215530003	140	140
141.3 x 114.3 x 141.3	171215545001	171215545003	140	140
165.1 x 60.3 x 165.1	171216220001	171216220003	165	165
165.1 x 76.1 x 165.1	171216229001	171216229003	165	165
165.1 x 88.9 x 165.1	171216230001	171216230003	165	165
165.1 x 114.3 x 165.1	171216245001	171216245003	165	165
165.1 x 139.7 x 165.1	171216252001	171216252003	165	165
168.3 x 60.3 x 168.3	171216520001	171216520003	165	165
168.3 x 73.0 x 168.3	171216525001	171216525003	165	165
168.3 x 76.1 x 168.3	171216529001	171216529003	165	165
168.3 x 88.9 x 168.3	171216530001	171216530003	165	165
168.3 x 114.3 x 168.3	171216545001	171216545003	165	165
168.3 x 139.7 x 168.3	171216552001	171216552003	165	165
219.1 x 60.3 x 219.1	171218520001	171218520003	197	197
219.1 x 73.0 x 219.1	171218525001	171218525003	197	197
219.1 x 76.1 x 219.1	171218529001	171218529003	197	197
219.1 x 88.9 x 219.1	171218530001	171218530003	197	197

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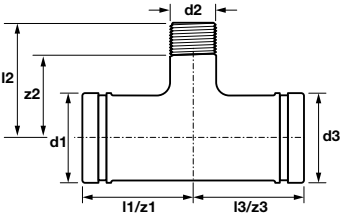
7121 Reducing tee

(3 x groove)

Dimension	Article No.		l1/l2/l3	z1/z2/z3
	Painted orange	Galvanized		
219.1 x 114.3 x 219.1	171218545001	171218545003	197	197
219.1 x 165.1 x 219.1	171218562001	171218562003	197	197
219.1 x 168.3 x 219.1	171218565001	171218565003	197	197
273 x 60.3 x 273	17121A120001	17121A120003	229	229
273 x 88.9 x 273	17121A130001	17121A130003	229	229
273 x 114.3 x 273	17121A145001	17121A145003	229	229
273 x 165.1 x 273	17121A162001	17121A162003	229	229
273 x 168.3 x 273	17121A165001	17121A165003	229	229
273 x 219.1 x 273	17121A185001	17121A185003	229	229
324 x 88.9 x 324	17121A330001	17121A330003	254	254
324 x 114.3 x 324	17121A345001	17121A345003	254	254
324 x 165.1 x 324	17121A362001	17121A362003	254	254
324 x 168.3 x 324	17121A365001	17121A365003	254	254
324 x 219.1 x 324	17121A385001	17121A385003	254	254
324 x 273 x 324	17121A3A1001	17121A3A1003	254	254

7121M Reducing tee

(groove x ISO7 male thread x groove)



Dimension	Article No.		l1/ l2/l3/z1/z3	z2
	Painted orange	Galvanized		
60.3 x R1 x 60.3	1121M2010008	1121M2010004	83	64
60.3 x R1 1/4 x 60.3	1121M2012008	1121M2012004	83	61
60.3 x R1 1/2 x 60.3	1121M2015008	1121M2015004	83	61
76.1 x R1 x 76.1	1121M2910008	1121M2910004	95	76
76.1 x R1 1/4 x 76.1	1121M2912008	1121M2912004	95	73
76.1 x R1 1/2 x 76.1	1121M2915008	1121M2915004	95	73
76.1 x R2 x 76.1	1121M2920008	1121M2920004	95	69
88.9 x R1 x 88.9	1121M3010008	1121M3010004	108	89
88.9 x R1 1/4 x 88.9	1121M3012008	1121M3012004	108	86
88.9 x R1 1/2 x 88.9	1121M3015008	1121M3015004	108	86
88.9 x R2 x 88.9	1121M3020008	1121M3020004	108	82
88.9 x R2 1/2 x 88.9	1121M3025008	1121M3025004	108	78
114.3 x R1 x 114.3	1121M4510008	1121M4510004	127	108
114.3 x R1 1/4 x 114.3	1121M4512008	1121M4512004	127	105
114.3 x R1 1/2 x 114.3	1121M4515008	1121M4515004	127	105
114.3 x R2 x 114.3	1121M4520008	1121M4520004	127	101
114.3 x R2 1/2 x 114.3	1121M4525008	1121M4525004	127	97
114.3 x R3 x 114.3	1121M4530008	1121M4530004	127	93

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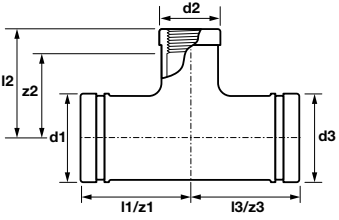
7121M Reducing tee

(groove x ISO7 male thread x groove)

Dimension	Article No.		l1/ l2/l3/z1/z3	z2
	Painted orange	Galvanized		
139.7 x R2 x 139.7	1121M5220008	1121M5220004	140	114
139.7 x R21/2 x 139.7	1121M5225008	1121M5225004	140	110
139.7 x R3 x 139.7	1121M5230008	1121M5230004	140	106
139.7 x R4 x 139.7	1121M5245008	1121M5245004	140	100
165.1 x R2 x 165.1	1121M6220008	1121M6220004	165	139
165.1 x R21/2 x 165.1	1121M6225008	1121M6225004	165	135
165.1 x R3 x 165.1	1121M6230008	1121M6230004	165	131
165.1 x R4 x 165.1	1121M6245008	1121M6245004	165	125
168.3 x R2 x 168.3	1121M6520008	1121M6520004	165	139
168.3 x R21/2 x 168.3	1121M6525008	1121M6525004	165	135
168.3 x R3 x 168.3	1121M6530008	1121M6530004	165	131
168.3 x R4 x 168.3	1121M6545008	1121M6545004	165	125
219.1 x R2 x 219.1	1121M8520008	1121M8520004	197	171
219.1 x R21/2 x 219.1	1121M8525008	1121M8525004	197	167
219.1 x R3 x 219.1	1121M8530008	1121M8530004	197	163
219.1 x R4 x 219.1	1121M8545008	1121M8545004	197	157

7121F Reducing tee

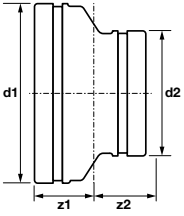
(groove x female thread x groove)



Dimension	Article No.		l1/ l2/l3/z1/z3	z2
	Painted orange	Galvanized		
60.3 x Rp1 1/2 x 60.3	1121F2015008	1121F2015003	83	72
76.1 x Rp1 x 76.1	1121F2910008	1121F2910003	95	80
76.1 x Rp1 1/4 x 76.1	1121F2912008	1121F2912003	95	78
76.1 x Rp1 1/2 x 76.1	1121F2915008	1121F2915003	95	77
76.1 x Rp2 x 76.1	1121F2920008	1121F2920003	95	75
88.9 x Rp 1/2 x 88.9	1121F3005008	1121F3005003	108	97
88.9 x Rp 3/4 x 88.9	1121F3007008	1121F3007003	108	95
88.9 x Rp1 x 88.9	1121F3010008	1121F3010003	108	93
88.9 x Rp1 1/4 x 88.9	1121F3012008	1121F3012003	108	91
88.9 x Rp1 1/2 x 88.9	1121F3015008	1121F3015003	108	90
88.9 x Rp2 x 88.9	1121F3020008	1121F3020003	108	88
88.9 x Rp2 1/2 x 88.9	1121F3025008	1121F3025003	108	85
114.3 x Rp1 1/2 x 114.3	1121F4515008	1121F4515003	127	109
114.3 x Rp2 x 114.3	1121F4520008	1121F4520003	127	107
114.3 x Rp2 1/2 x 114.3	1121F4525008	1121F4525003	127	104
139.7 x Rp2 x 139.7	1121F5220008	1121F5220003	140	120
165.1 x Rp2 x 165.1	1121F6220008	1121F6220003	165	145
168.3 x Rp2 x 168.3	1121F6520008	1121F6520003	165	145

7150 Concentric Reducer

(2 x groove)



Dimension	Article No.		l1/ l2	z1/z2
	Painted orange	Galvanized		
42.4 x 33.7	171501210001	171501210003	32	32
48.3 x 33.7	171501510001	171501510003	32	32
48.3 x 42.4	171501512001	171501512003	32	32
60.3 x 33.7	171502010001	171502010003	32	32
60.3 x 42.4	171502012001	171502012003	32	32
60.3 x 48.3	171502015001	171502015003	32	32
73.0 x 42.4	171502512001	171502512003	32	32
73.0 x 60.3	171502520001	171502520003	32	32
73.0 x 48.3	171502515001	171502515003	32	32
76.1 x 42.4	171502912001	171502912003	32	32
76.1 x 60.3	171502920001	171502920003	32	32
76.1 x 48.3	171502915001	171502915003	32	32
88.9 x 42.4	171503012001	171503012003	32	32
88.9 x 48.3	171503015001	171503015003	32	32
88.9 x 60.3	171503020001	171503020003	32	32
88.9 x 73.0	171503025001	171503025003	32	32
88.9 x 76.1	171503029001	171503029003	32	32
114.3 x 48.3	171504515001	171504515003	38	38
114.3 x 60.3	171504520001	171504520003	38	38
114.3 x 73.0	171504525001	171504525003	38	38

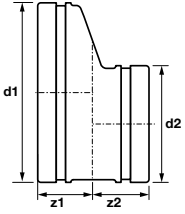
7150 Concentric Reducer

(2 x groove)

Dimension	Article No.		l1/ l2	z1/z2
	Painted orange	Galvanized		
114.3 x 76.1	171504529001	171504529003	38	38
114.3 x 88.9	171504530001	171504530003	38	38
139.7 x 88.9	171505230001	171505230003	45	45
139.7 x 114.3	171505245001	171505245003	45	45
141.3 x 88.9	171505530001	171505530003	45	45
141.3 x 114.3	171505545001	171505545003	45	45
165.1 x 60.3	171506220001	171506220003	51	51
165.1 x 76.1	171506229001	171506229003	51	51
165.1 x 88.9	171506230001	171506230003	51	51
165.1 x 114.3	171506245001	171506245003	51	51
165.1 x 139.7	171506252001	171506252003	51	51
168.3 x 60.3	171506520001	171506520003	51	51
168.3 x 73.0	171506525001	171506525003	51	51
168.3 x 76.1	171506529001	171506529003	51	51
168.3 x 88.9	171506530001	171506530003	51	51
168.3 x 114.3	171506545001	171506545003	51	51
168.3 x 139.7	171506552001	171506552003	51	51
168.3 x 141.3	171506555001	171506555003	51	51
219.1 x 88.9	171508530001	171508530003	64	64
219.1 x 114.3	171508545001	171508545003	64	64
219.1 x 165.1	171508562001	171508562003	64	64
219.1 x 168.3	171508565001	171508565003	64	64
273 x 114.3	17150A145001	17150A145003	76	76
273 x 141.3	17150A155001	17150A155003	76	76
273 x 165.1	17150A162001	17150A162003	76	76
273 x 168.3	17150A165001	17150A165003	76	76
273 x 219.1	17150A185001	17150A185003	76	76
324 x 168.3	17150A365001	17150A365003	79	79
324 x 219.1	17150A385001	17150A385003	79	79
324 x 273	17150A3A1001	17150A3A1003	79	79

7151 Eccentric Reducer

(2 x groove)



Dimension	Article No.		l1/ l2	z1/z2
	Painted orange	Galvanized		
73.0 x 60.3	171512520001	171512520003	45	45
76.1 x 60.3	171512920001	171512920003	45	45
88.9 x 60.3	171513020001	171513020003	45	45
88.9 x 73.0	171513025001	171513025003	45	45
88.9 x 76.1	171513029001	171513029003	45	45
114.3 x 60.3	171514520001	171514520003	51	51
114.3 x 73.0	171514525001	171514525003	51	51
114.3 x 76.1	171514529001	171514529003	51	51
114.3 x 88.9	171514530001	171514530003	51	51
139.7 x 88.9	171515230001	171515230003	51	51
139.7 x 114.3	171515245001	171515245003	51	51
165.1 x 60.3	171516220001	171516220003	51	51
165.1 x 88.9	171516230001	171516230003	51	51
165.1 x 114.3	171516245001	171516245003	51	51
165.1 x 139.7	171516252001	171516252003	51	51
168.3 x 60.3	171516520001	171516520003	51	51
168.3 x 88.9	171516530001	171516530003	51	51
168.3 x 114.3	171516545001	171516545003	51	51
168.3 x 139.7	171516552001	171516552003	51	51

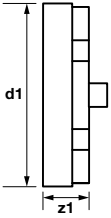
7151 Eccentric Reducer

(2 x groove)

Dimension	Article No.		l1/ l2	z1/z2
	Painted orange	Galvanized		
219.1 x 114.3	171518545001	171518545003	64	64
219.1 x 165.1	171518562001	171518562003	64	64
219.1 x 168.3	171518565001	171518565003	64	64
273 x 114.3	17151A145001	17151A145003	76	76
273 x 165.1	17151A162001	17151A162003	76	76
273 x 168.3	17151A165001	17151A165003	76	76
273 x 219.1	17151A185001	17151A185003	76	76
324 x 219.1	17151A385001	17151A385003	89	89
324 x 273.0	17151A3A1001	17151A3A1003	89	89

7160 End cap

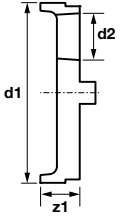
(Groove)



Dimension	Article No.		z1
	Painted red	Galvanized	
33.7(DN25)	171600010002	171600010003	22
42.4 (DN32)	171600012002	171600012003	25
48.3 (DN40)	171600015002	171600015003	25
60.3 (DN50)	171600020002	171600020003	25
73.0	171600025002	171600025003	25
76.1 (DN65)	171600029002	171600029003	25
88.9 (DN80)	171600030002	171600030003	25
108.0	171600040002	171600040003	25
114.3 (DN100)	171600045002	171600045003	25
133.0	171600050002	171600050003	25
139.7 (DN125)	171600052002	171600052003	25
141.3	171600055002	171600055003	25
159.0	171600060002	171600060003	25
165.1	171600062002	171600062003	25
168.3 (DN150)	171600065002	171600065003	25
219.1 (DN200)	171600085002	171600085003	30
273.0 (DN250)	1716000A1002	1716000A1003	30
323.9 (DN300)	1716000A3002	1716000A3003	32

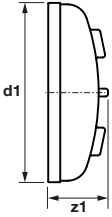
7160T Transition cap

(Groove x female thread)



Dimension	Article No.		z1	d2
	Painted red	Galvanized		
60.3 x Rp1	1160T2010002	1160T2010004	24	Rp1
76.1 x Rp1	1160T2910002	1160T2910004	24	Rp1
76.1 x Rp1 1/4	1160T2912002	1160T2912004	24	Rp1 1/4
76.1 x Rp1 1/2	1160T2915002	1160T2915004	24	Rp1 1/2
88.9 x Rp1	1160T3010002	1160T3010004	25	Rp1
88.9 x Rp1 1/4	1160T3012002	1160T3012004	25	Rp1 1/4
88.9 x Rp1 1/2	1160T3015002	1160T3015004	25	Rp1 1/2
88.9 x Rp2	1160T3020002	1160T3020004	25	Rp2
114.3 x Rp1	1160T4510002	1160T4510004	25	Rp1
114.3 x Rp1 1/4	1160T4512002	1160T4512004	25	Rp1 1/4
114.3 x Rp1 1/2	1160T4515002	1160T4515004	25	Rp1 1/2
114.3 x Rp2	1160T4520002	1160T4520004	25	Rp2
139.7 x Rp2	1160T5220002	1160T5220004	25	Rp2
165.1 x Rp2	1160T6220002	1160T6220004	25	Rp2
168.3 x Rp2	1160T6520002	1160T6520004	25	Rp2
219.1 x Rp2	1160T8520002	1160T8520002	30	Rp2

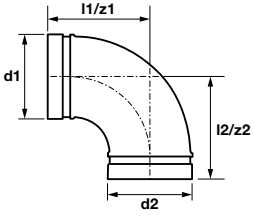
7160H Domed end cap
(groove)



Dimension	Article No.		z1
	Painted orange	Galvanized	
273.0(DN250)	1160H00A1001	1160H00A1003	76
323.9(DN300)	1160H00A3001	1160H00A3003	76
355.6(DN350)	1160H00A4001	1160H00A4003	102
406.4(DN400)	1160H00A6001	1160H00A6003	102
457.2(DN450)	1160H00A8001	1160H00A8003	127
508.0(DN500)	1160H00B0001	1160H00B0003	152
609.6(DN600)	1160H00B4001	1160H00B4003	152

7110LR Elbow 1.5D 90°

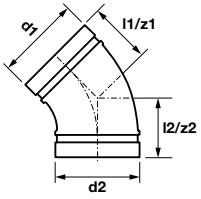
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
60.3 (DN50)	1110L0020001	1110L0020003	111	111
73.0	1110L0025001	1110L0025003	127	127
76.1 (DN65)	1110L0029001	1110L0029003	127	127
88.9 (DN80)	1110L0030001	1110L0030003	149	149
114.3 (DN100)	1110L0045001	1110L0045003	191	191
139.7(DN125)	1110L0052001	1110L0052003	241	241
141.3	1110L0055001	1110L0055003	241	241
165.1	1110L0062001	1110L0062003	273	273
168.3 (DN150)	1110L0065001	1110L0065003	273	273
219.1 (DN200)	1110L0085001	1110L0085003	362	362
273.0	1110L00A1001	1110L00A1003	438	438
323.9 (DN300)	1110L00A3001	1110L00A3003	521	521

7111LR Elbow 1.5D 45°

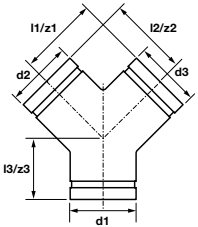
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
60.3 (DN50)	1111L0020001	1111L0020003	70	70
73.0	1111L0025001	1111L0025003	76	76
76.1 (DN65)	1111L0029001	1111L0029003	76	76
88.9 (DN80)	1111L0030001	1111L0030003	86	86
114.3 (DN100)	1111L0045001	1111L0045003	102	102
139.7(DN125)	1111L0052001	1111L0052003	127	127
141.3	1111L0055001	1111L0055003	127	127
165.1	1111L0062001	1111L0062003	140	140
168.3 (DN150)	1111L0065001	1111L0065003	140	140
219.1 (DN200)	1111L0085001	1111L0085003	184	184
273.0	1111L00A1001	1111L00A1003	216	216
323.9 (DN300)	1111L00A3001	1111L00A3003	254	254

7137 True-Y

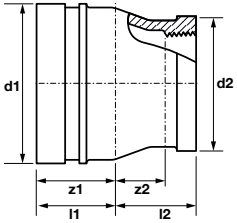
(3 x groove)



Dimension	Article No.		l1/l2/z1/z2	l3/z3
	Painted orange	Galvanized		
60.3 (DN50)	171370020001	171370020003	83	70
73.0	171370025001	171370025003	95	76
88.9 (DN80)	171370030001	171370030003	108	83
114.3 (DN100)	171370045001	171370045003	127	95
141.3	171370055001	171370055003	140	102
168.3 (DN150)	171370065001	171370065003	165	114
219.1 (DN200)	171370085001	171370085003	197	152
273.0	1713700A1001	1713700A1003	229	165
323.9 (DN300)	1713700A3001	1713700A3003	254	178

7150F Reducing socket

(groove x female thread)



Dimension	Article No.		l1/l2	z1	z2
	Painted orange	Galvanized			
48.3 x Rp1	1150F1510007	1150F1510004	32	32	17
60.3 x Rp1	1150F2010007	1150F2010004	32	32	17
60.3 x Rp1 1/4	1150F2012007	1150F2012004	32	32	15
60.3 x Rp1 1/2	1150F2015007	1150F2015004	32	32	14
76.1 x Rp1	1150F2910007	1150F2910004	32	32	17
76.1 x Rp1 1/4	1150F2912007	1150F2912004	32	32	15
76.1 x Rp1 1/2	1150F2915007	1150F2915004	32	32	14
76.1 x Rp2	1150F2920007	1150F2920004	32	32	12
88.9 x Rp1	1150F3010007	1150F3010004	32	32	17
88.9 x Rp1 1/4	1150F3012007	1150F3012004	32	32	15
88.9 x Rp1 1/2	1150F3015007	1150F3015004	32	32	14
88.9 x Rp2	1150F3020007	1150F3020004	32	32	12
88.9 x Rp2 1/2	1150F3025007	1150F3025004	32	32	9
114.3 x Rp1 1/4	1150F4512007	1150F4512004	38	38	21
114.3 x Rp1 1/2	1150F4515007	1150F4515004	38	38	20
114.3 x Rp2	1150F4520007	1150F4520004	38	38	18
114.3 x Rp2 1/2	1150F4525007	1150F4525004	38	38	15
139.7 x Rp1 1/2	1150F5215007	1150F5215004	45	45	27
165.1 x Rp1 1/2	1150F6215007	1150F6215004	51	51	33

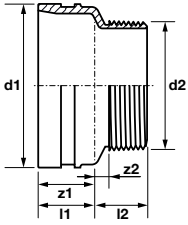
7150F Reducing socket

(groove x female thread)

Dimension	Article No.		l1/l2	z1	z2
	Painted orange	Galvanized			
165.1 x Rp2	1150F6220007	1150F6220004	51	51	31
165.1 x Rp2 1/2	1150F6225007	1150F6225004	51	51	28
165.1 x Rp4	1150F6245007	1150F6245004	51	51	23
168.3 x Rp1 1/2	1150F6515007	1150F6515004	51	51	33
168.3 x Rp2	1150F6520007	1150F6520004	51	51	31
168.3 x Rp2 1/2	1150F6525007	1150F6525004	51	51	28
168.3 x Rp4	1150F6545007	1150F6545004	51	51	23

7150M Reducing socket

(groove x male thread)



Dimension	Article No.		l1/l2/z1	z2
	Painted orange	Galvanized		
48.3 x R1	1150M1510007	1150M1510004	32	13
60.3 x R1	1150M2010007	1150M2010004	32	13
60.3 x R1 1/4	1150M2012007	1150M2012004	32	10
60.3 x R1 1/2	1150M2015007	1150M2015004	32	10
76.1 x R1	1150M2910007	1150M2910004	32	13
76.1 x R1 1/4	1150M2912007	1150M2912004	32	10
76.1 x R1 1/2	1150M2915007	1150M2915004	32	10
76.1 x R2	1150M2920007	1150M2920004	32	6
88.9 x R1	1150M3010007	1150M3010004	32	13
88.9 x R1 1/4	1150M3012007	1150M3012004	32	10
88.9 x R1 1/2	1150M3015007	1150M3015004	32	10
88.9 x R2	1150M3020007	1150M3020004	32	6
88.9 x R2 1/2	1150M3025007	1150M3025004	32	2
114.3 x R1 1/4	1150M4512007	1150M4512004	38	16
114.3 x R1 1/2	1150M4515007	1150M4515004	38	16
114.3 x R2	1150M4520007	1150M4520004	38	12
114.3 x R2 1/2	1150M4525007	1150M4525004	38	8
139.7 x R1 1/2	1150M5215007	1150M5215004	45	23
165.1 x R1 1/2	1150M6215007	1150M6215004	51	29

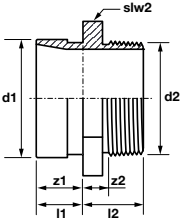
7150M Reducing socket

(groove x male thread)

Dimension	Article No.		l1/l2/z1	z2
	Painted orange	Galvanized		
165.1 x R2	1150M6220007	1150M6220004	51	25
165.1 x R2 1/2	1150M6225007	1150M6225004	51	21
165.1 x R4	1150M6245007	1150M6245004	51	11
168.3 x R1 1/2	1150M6515007	1150M6515004	51	29
168.3 x R2	1150M6520007	1150M6520004	51	25
168.3 x R2 1/2	1150M6525007	1150M6525004	51	21
168.3 x R4	1150M6545007	1150M6545004	51	11

55 Adapter nipple

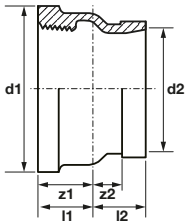
(groove x male thread)



Dimension	Article No.		l1/l2/z1	z2	slw
	Painted orange	Galvanized			
48.3 x R1 1/2	100551515007	100551515003	32	10	54
60.3 x R2	100552020007	100552020003	32	6	64
76.1 x R2 1/2	100552525007	100552525003	38	6	80
88.9 x R3	100553030007	100553030003	38	4	95

54 Adapter nipple

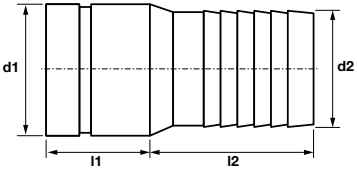
(groove x female thread)



Dimension	Article No.		l1/l2/z1	z2
	Painted orange	Galvanized		
48.3 x Rp1 1/2	100541515007	100541515004	30	12
60.3 x Rp2	100542020007	100542020004	32	12
76.1 x Rp 2 1/2	100542929007	100542929004	35	12
88.9 x Rp3	100543030007	100543030004	35	10
114.3 x Rp4	100544545007	100544545004	42	14

56 Hose nipple

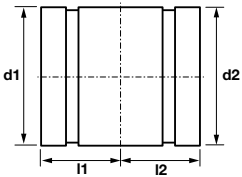
(groove x hose nipple connection)



Dimension	Article No. Uncoated	l1/l2
DN25 x 33.7	100560010001	42
DN40 x 48.3	100560015001	51
DN50 x 60.3	100560020001	59
73.0 x 73.0	100560025001	70
DN80 x 88.9	100560030001	76
DN100 x 114.3	100560045001	92
141.3 x 141.3	100560055001	124
DN150 x 168.3	100560065001	140
DN200 x 219.7	100560085001	159

57 Nipple

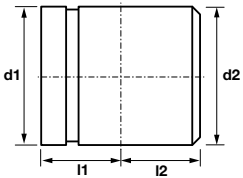
(2 x groove)



Dimension	Article No. Uncoated	l1/l2
42.4 x 42.4	100571240001	51
48.3 x 48.3	100571540001	51
60.3 x 60.3	100572040001	51
73.0 x 73.0	100572540001	51
76.1 x 76.1	100572940001	51
88.9 x 88.9	100573040001	51
114.3 x 114.3	100574560001	76
141.3 x 141.3	100575560001	76
165.1 x 165.1	100576260001	76
168.3 x 168.3	100576560001	76
219.1 x 219.1	100578560001	76
273.0 x 273.0	10057A180001	102
323.9 x 323.9	10057A380001	102

58 Nipple

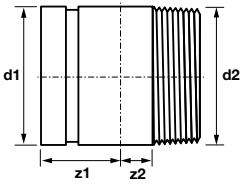
(groove x weld)



Dimension	Article No. Uncoated	l1/l2
33.7 x 33.7	100581040001	51
42.4 x 42.4	100581240001	51
48.3 x 48.3	100581540001	51
60.3 x 60.3	100582040001	51
73.0 x 73.0	100582540001	51
76.1 x 76.1	100582940001	51
88.9 x 88.9	100583040001	51
114.3 x 114.3	100584560001	76
141.3 x 141.3	100585560001	76
165.1 x 165.1	100586260001	76
168.3 x 168.3	100586560001	76
219.1 x 219.1	100588560001	76
273.0 x 273.0	10058A180001	102
323.9 x 323.9	10058A380001	102

59 Nipple

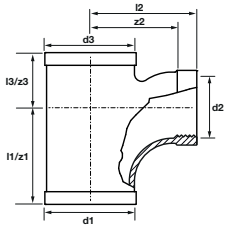
(groove x male thread)



Dimension	Article No. Uncoated	l1	l2
33.7 x R1	100591040002	51	32
42.4 x R1 1/4	100591240002	51	38
48.3 x R1 1/2	100591540002	51	38
60.3 x R2	100592040002	51	35
76.1 x R2 1/2	100592940002	51	34
88.9 x R3	100593040002	51	30
114.3 x R4	100594560002	76	26

7133 Pitcher tee

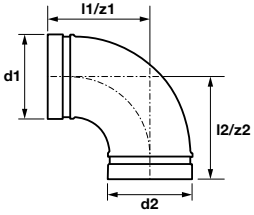
(3 x groove)



Dimension	Article No. Galvanized	l1/z1	l2	z2	l3/z3	d2
88.9 x Rp 2 1/2	171333029004	121	121	98	69	Rp2 1/2
114.3 x Rp 2 1/2	171334529004	121	133	110	69	Rp2 1/2

W110LR Elbow 90° wrought

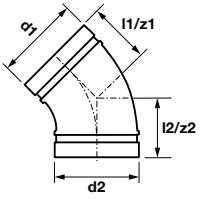
(2 x groove)



Dimension	Article No.		l1/l2/z1/z2
	Painted orange	Galvanized	
273.0 (DN250)	1W10L00A1001	1W10L00A1003	381
323.9 (DN300)	1W10L00A3001	1W10L00A3003	457
355.6 (DN350)	1W10L00A4001	1W10L00A4003	533
406.4 (DN400)	1W10L00A6001	1W10L00A6003	610
457.2 (DN450)	1W10L00A8001	1W10L00A8003	686
508.0 (DN500)	1W10L00B0001	1W10L00B0003	762
609.6 (DN600)	1W10L00B4001	1W10L00B4003	914

W111LR Elbow 45° wrought

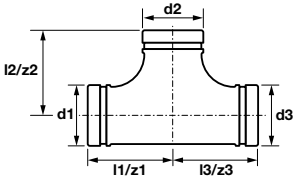
(2 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
273.0 (DN250)	1W11L00A1001	1W11L00A1003	159	159
323.9 (DN300)	1W11L00A3001	1W11L00A3003	190	190
355.6 (DN350)	1W11L00A4001	1W11L00A4003	222	222
406.4 (DN400)	1W11L00A6001	1W11L00A6003	254	254
457.2 (DN450)	1W11L00A8001	1W11L00A8003	285	285
508.0 (DN500)	1W11L00B0001	1W11L00B0003	318	318
609.6 (DN600)	1W11L00B4001	1W11L00B4003	381	381

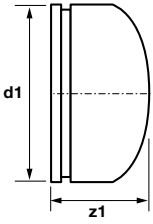
W120 Tee wrought

(3 x groove)



Dimension	Article No.		l1/l2	z1/z2
	Painted orange	Galvanized		
355.6 (DN350)	1W12000A4001	1W12000A4003	279	279
406.4 (DN400)	1W12000A6001	1W12000A6003	305	305
457.2 (DN450)	1W12000A8001	1W12000A8003	343	343
508.0 (DN500)	1W12000B0001	1W12000B0003	381	381
609.6 (DN600)	1W12000B4001	1W12000B4003	432	432

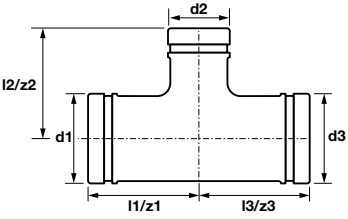
W160 Cap wrought
(groove)



Dimension	Article No.		z1
	Painted orange	Galvanized	
355.6(DN350)	1W16000A4001	1W16000A4003	165
406.4(DN400)	1W16000A6001	1W16000A6003	178
457.2(DN450)	1W16000A8001	1W16000A8003	203
508.0(DN500)	1W16000B0001	1W16000B0003	229
609.6(DN600)	1W16000B4001	1W16000B4003	267

W121 Reducing Tee wrought

(3 x groove)



Dimension	Article No.		l1/l3	l2
	Painted orange	Galvanized		
355.6 x 168.3 x 355.6	1W121A465001	1W121A465003	279	238
355.6 x 219.1 x 355.6	1W121A485001	1W121A485003	279	248
355.6 x 273.0 x 355.6	1W121A4A1001	1W121A4A1003	279	257
355.6 x 323.9 x 355.6	1W121A4A3001	1W121A4A3003	279	270
406.4 x 168.3 x 406.4	1W121A665001	1W121A665003	305	264
406.4 x 219.1 x 406.4	1W121A685001	1W121A685003	305	273
406.4 x 273.0 x 406.4	1W121A6A1001	1W121A6A1003	305	283
406.4 x 323.9 x 406.4	1W121A6A3001	1W121A6A3003	305	295
406.4 x 355.6 x 406.4	1W121A6A4001	1W121A6A4003	305	305
457.2 x 168.3 x 457.2	1W121A865001	1W121A865003	343	289
457.2 x 219.1 x 457.2	1W121A885001	1W121A885003	343	298
457.2 x 273.0 x 457.2	1W121A8A1001	1W121A8A1003	343	308
457.2 x 323.9 x 457.2	1W121A8A3001	1W121A8A3003	343	321
457.2 x 355.6 x 457.2	1W121A8A4001	1W121A8A4003	343	330
457.2 x 406.4 x 457.2	1W121A8A6001	1W121A8A6003	343	330
508.0 x 168.3 x 508.0	1W121B065001	1W121B065003	381	314
508.0 x 219.1 x 508.0	1W121B085001	1W121B085003	381	324
508.0 x 273.0 x 508.0	1W121B0A1001	1W121B0A1003	381	333

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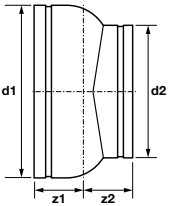
W121 Reducing Tee

(3 x groove)

Dimension	Article No.		I1/I3	I2
	Painted orange	Galvanized		
508.0 x 323.9 x 508.0	1W121B0A3001	1W121B0A3003	381	346
508.0 x 355.6 x 508.0	1W121B0A4001	1W121B0A4003	381	356
508.0 x 406.4 x 508.0	1W121B0A6001	1W121B0A6003	381	356
508.0 x 457.2 x 508.0	1W121B0A8001	1W121B0A8003	381	368
609.6 x 168.3 x 609.6	1W121B465001	1W121B465003	432	365
609.6 x 219.1 x 609.6	1W121B485001	1W121B485003	432	375
609.6 x 273.0 x 609.6	1W121B4A1001	1W121B4A1003	432	384
609.6 x 323.9 x 609.6	1W121B4A3001	1W121B4A3003	432	397
609.6 x 355.6 x 609.6	1W121B4A4001	1W121B4A4003	432	406
609.6 x 406.4 x 609.6	1W121B4A6001	1W121B4A6003	432	406
609.6 x 457.2 x 609.6	1W121B4A8001	1W121B4A8003	432	419
609.6 x 508.0 x 609.6	1W121B4B0001	1W121B4B0003	432	432

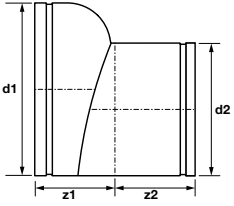
W150 Concentric reducer wrought

(2 x groove)



Dimension	Article No.		z1/z2
	Painted orange	Galvanized	
355.6 x 168.3	1W150A465001	1W150A465003	165
355.6 x 219.1	1W150A485001	1W150A485003	165
355.6 x 273.0	1W150A4A1001	1W150A4A1003	165
355.6 x 323.9	1W150A4A3001	1W150A4A3003	165
406.4 x 219.1	1W150A685001	1W150A685003	178
406.4 x 273.0	1W150A6A1001	1W150A6A1003	178
406.4 x 323.9	1W150A6A3001	1W150A6A3003	178
406.4 x 355.6	1W150A6A4001	1W150A6A4003	178
457.2 x 273.0	1W150A8A1001	1W150A8A1003	191
457.2 x 323.9	1W150A8A3001	1W150A8A3003	192
457.2 x 355.6	1W150A8A4001	1W150A8A4003	193
457.2 x 406.4	1W150A8A6001	1W150A8A6003	194
508.0 x 323.9	1W150B0A3001	1W150B0A3003	254
508.0 x 355.6	1W150B0A4001	1W150B0A4003	254
508.0 x 406.4	1W150B0A6001	1W150B0A6003	254
508.0 x 457.2	1W150B0A8001	1W150B0A8003	254
609.6 x 406.4	1W150B4A6001	1W150B4A6003	254
609.6 x 457.2	1W150B4A8001	1W150B4A8003	254
609.6 x 508.0	1W150B4B0001	1W150B4B0003	254

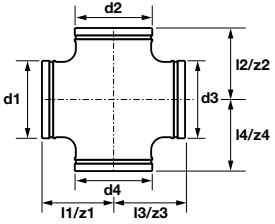
W151 Eccentric reducer wrought
(2 x groove)



Dimension	Article No.		z1/z2
	Painted orange	Galvanized	
355.6 x 168.3	1W151A465001	1W151A465003	165
355.6 x 219.1	1W151A485001	1W151A485003	165
355.6 x 273.0	1W151A4A1001	1W151A4A1003	165
355.6 x 323.9	1W151A4A3001	1W151A4A3003	165
406.4 x 219.1	1W151A685001	1W151A685003	178
406.4 x 273.0	1W151A6A1001	1W151A6A1003	178
406.4 x 323.9	1W151A6A3001	1W151A6A3003	178
406.4 x 355.6	1W151A6A4001	1W151A6A4003	178
457.2 x 273.0	1W151A8A1001	1W151A8A1003	191
457.2 x 323.9	1W151A8A3001	1W151A8A3003	192
457.2 x 355.6	1W151A8A4001	1W151A8A4003	193
457.2 x 406.4	1W151A8A6001	1W151A8A6003	194
508.0 x 323.9	1W151B0A3001	1W151B0A3003	254
508.0 x 355.6	1W151B0A4001	1W151B0A4003	254
508.0 x 406.4	1W151B0A6001	1W151B0A6003	254
508.0 x 457.2	1W151B0A8001	1W151B0A8003	254
609.6 x 406.4	1W151B4A6001	1W151B4A6003	254
609.6 x 457.2	1W151B4A8001	1W151B4A8003	254
609.6 x 508.0	1W151B4B0001	1W151B4B0003	254

W135 Cross wrought

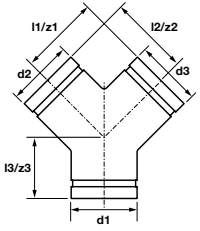
(4 x groove)



Dimension	Article No.		l1/l2/l3/l4	z1/z2/z3/z4
	Painted orange	Galvanized		
355.6 (DN350)	1W13500A4001	1W13500A4003	279	279
406.4 (DN400)	1W13500A6001	1W13500A6003	305	305
457.2 (DN450)	1W13500A8001	1W13500A8003	343	343
508.0 (DN500)	1W13500B0001	1W13500B0003	381	381
609.6 (DN600)	1W13500B4001	1W13500B4003	432	432

W137 True Y wrought

(3 x groove)



Dimension	Article No.		l1	z1	z2/z3	l2/l3
	Painted orange	Galvanized				
355.6 (DN350)	1W13700A4001	1W13700A4003	191	279	191	279
406.4 (DN400)	1W13700A6001	1W13700A6003	203	305	203	305
457.2 (DN450)	1W13700A8001	1W13700A8003	216	343	216	343
508.0 (DN500)	1W13700B0001	1W13700B0003	229	381	229	381
609.6 (DN600)	1W13700B4001	1W13700B4003	254	432	254	432

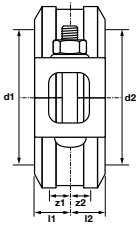
VSH

3.5 Stainless Steel Couplings

VSH Shurjoint

SS7 Rigid coupling

(tongue and groove design, with E-gasket)

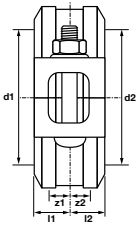


Dimension	Article No.		l1/l2	z1/z3	A.d.*
	SS 304	SS 316			
42.4 (DN32)	1SS070012001	1SS070012002	23	0.8	0-1.6
48.3 (DN40)	1SS070015001	1SS070015002	23	0.8	0-1.6
60.3 (DN50)	1SS070020001	1SS070020002	23	0.8	0-1.6
73.0	1SS070025001	1SS070025002	23	0.8	0-1.6
76.1 (DN65)	1SS070029001	1SS070029002	23	0.8	0-1.6
88.9 (DN80)	1SS070030001	1SS070030002	23	0.8	0-1.6
114.3 (DN100)	1SS070045001	1SS070045002	26	1.6	0-3.2
139.7 (DN125)	1SS070052001	1SS070052002	26	1.6	0-3.2
141.3	1SS070055001	1SS070055002	26	1.6	0-3.2
165.1	1SS070062001	1SS070062002	27	1.6	0-3.2
168.3 (DN150)	1SS070065001	1SS070065002	26	1.6	0-3.2
219.1 (DN200)	1SS070085001	1SS070085002	31	1.6	0-3.2

* Axial displacement. For field installation only on roll grooved pipe or cut grooved pipe. Rigid couplings do not permit expansion/contraction. For maximum allowable working pressures see chapter 2.5

SS7X Rigid coupling

(tongue and groove design, with E-gasket)

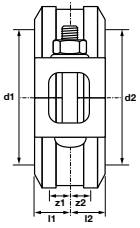


Dimension	Article No.		l1/l2	z1/z3	A.d.*
	SS 304	SS 316			
273.0(DN250)	1SS7X00A1001	1SS7X00A1002	33	1.6	0-3.2
323.9(DN300)	1SS7X00A3001	1SS7X00A3002	33	1.6	0-3.2
355.6(DN350)	1SS7X00A4001	1SS7X00A4002	32	1.6	0-3.2
406.4(DN400)	1SS7X00A6001	1SS7X00A6002	32	1.6	0-3.2
457.2(DN450)	1SS7X00A8001	1SS7X00A8002	38	1.6	0-3.2
508.0(DN500)	1SS7X00B0001	1SS7X00B0002	40	1.6	0-3.2
558.8(DN550)	1SS7X00B2001	1SS7X00B2002	40	1.6	0-3.2
609.6(DN600)	1SS7X00B4001	1SS7X00B4002	40	1.6	0-3.2

* Axial displacement. For field installation only on roll grooved pipe or cut grooved pipe. Rigid couplings do not permit expansion/contraction. For maximum allowable working pressures see chapter 2.5

SS8 Flexible coupling

(with E-gasket)

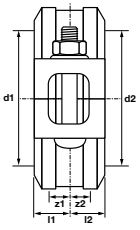


Dimension	Article No.		l1/l2	z1/z3
	SS 304	SS 316		
33.7 (DN25)	1SS080010001	1SS080010002	22	0.8
42.4 (DN32)	1SS080012001	1SS080012002	22	0.8
48.3 (DN40)	1SS080015001	1SS080015002	22	0.8
60.3 (DN50)	1SS080020001	1SS080020002	22	0.8
73.0	1SS080025001	1SS080025002	22	0.8
76.1 (DN65)	1SS080029001	1SS080029002	22	0.8
88.9 (DN80)	1SS080030001	1SS080030002	22	0.8
114.3 (DN100)	1SS080045001	1SS080045002	25	1.6
139.7 (DN125)	1SS080052001	1SS080052002	25	1.6
141.3	1SS080055001	1SS080055002	25	1.6
165.1	1SS080062001	1SS080062002	27	1.6
168.3 (DN150)	1SS080065001	1SS080065002	27	1.6
219.1 (DN200)	1SS080085001	1SS080085002	31	1.6

• For design data on axial displacement and angular deflection see table on page 106
• For maximum allowable working pressures see chapter 2.5

SS8X Heavy duty flexible coupling

(with E-gasket)

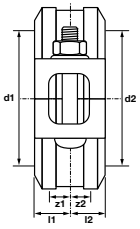


Dimension	Article No.		l1/l2	z1/z3
	SS 304	SS 316		
33.7 (DN25)	1SS8X0010001	1SS8X0010002	23	0.8
42.4 (DN32)	1SS8X0012001	1SS8X0012002	23	0.8
48.3 (DN40)	1SS8X0015001	1SS8X0015002	23	0.8
60.3 (DN50)	1SS8X0020001	1SS8X0020002	24	0.8
73.0	1SS8X0025001	1SS8X0025002	24	0.8
88.9 (DN80)	1SS8X0030001	1SS8X0030002	24	0.8
114.3 (DN100)	1SS8X0045001	1SS8X0045002	26	1.6
141.3	1SS8X0055001	1SS8X0055002	27	1.6
168.3 (DN150)	1SS8X0065001	1SS8X0065002	27	1.6
219.1 (DN200)	1SS8X0085001	1SS8X0085002	31	1.6

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

SS1200 High pressure flexible coupling

(with E-gasket)

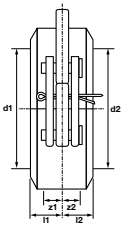


Dimension	Article No. SS 316	l1/l2	z1/z3
33.7 (DN25)	1S1200010002	23	0.8
42.4 (DN32)	1S1200012002	23	0.8
48.3 (DN40)	1S1200015002	23	0.8
60.3 (DN50)	1S1200020002	24	0.8
76.1 (DN65)	1S1200029002	25	0.8
88.9 (DN80)	1S1200030002	25	0.8
114.3 (DN100)	1S1200045002	26	1.6

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

SS28 Hinged lever coupling

(with E-gasket)



Dimension	Article No.		l1/l2	z1/z3
	SS 304	SS 316		
60,3 (DN50)	1SS280020001	1SS280020002	24	0,8
88,9 (DN80)	1SS280030001	1SS280030002	24	0,8
114,3 (DN100)	1SS280045001	1SS280045002	26	1,6
141,3	1SS280055001	1SS280055002	26	1,6
168,3 (DN150)	1SS280065001	1SS280065002	26	1,6

- For design data on axial displacement and angular deflection see table on page 106
- For maximum allowable working pressures see chapter 2.5

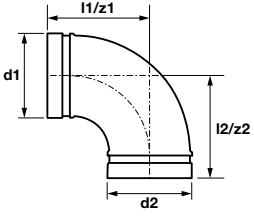
VSH

3.6 Stainless Steel Fittings and Valves

VSH Shurjoint

SS10 Elbow 90°

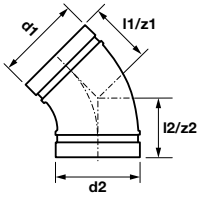
(2 x groove)



Dimension	Article No.		l1/l2	z1/z3
	SS 304	SS 316		
33.7 (DN25)	1SS100010001	1SS100010002	57	57
42.4 (DN32)	1SS100012001	1SS100012002	70	70
48.3 (DN40)	1SS100015001	1SS100015002	70	70
60.3 (DN50)	1SS100020001	1SS100020002	83	83
73.0	1SS100025001	1SS100025002	95	95
76.1 (DN65)	1SS100029001	1SS100029002	95	95
88.9 (DN80)	1SS100030001	1SS100030002	108	108
114.3 (DN100)	1SS100045001	1SS100045002	127	127
139.7 (DN125)	1SS100052001	1SS100052002	140	140
141.3	1SS100055001	1SS100055002	140	140
165.1	1SS100062001	1SS100062002	165	165
168.3 (DN150)	1SS100065001	1SS100065002	165	165
219.1 (DN200)	1SS100085001	1SS100085002	197	197
273.0	1SS1000A1001	1SS1000A1002	229	229
323.9 (DN300)	1SS1000A3001	1SS1000A3002	254	254

SS11 Elbow 45°

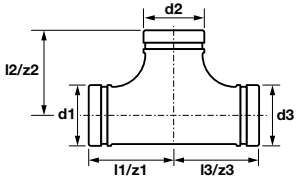
(2 x groove)



Dimension	Article No.		l1/l2	z1/z3
	SS 304	SS 316		
33.7 (DN25)	1SS110010001	1SS110010002	45	45
42.4 (DN32)	1SS110012001	1SS110012002	45	45
48.3 (DN40)	1SS110015001	1SS110015002	45	45
60.3 (DN50)	1SS110020001	1SS110020002	51	51
73.0	1SS110025001	1SS110025002	57	57
76.1 (DN65)	1SS110029001	1SS110029002	57	57
88.9 (DN80)	1SS110030001	1SS110030002	57	57
114.3 (DN100)	1SS110045001	1SS110045002	76	76
139.7 (DN125)	1SS110052001	1SS110052002	83	83
141.3	1SS110055001	1SS110055002	83	83
165.1	1SS110062001	1SS110062002	89	89
168.3 (DN150)	1SS110065001	1SS110065002	89	89
219.1 (DN200)	1SS110085001	1SS110085002	108	108
273.0	1SS1100A1001	1SS1100A1002	121	121
323.9 (DN300)	1SS1100A3001	1SS1100A3002	133	133

SS20 Tee

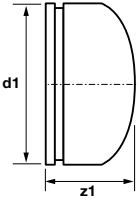
(3 x groove)



Dimension	Article No.		l1/l2	z1/z3
	SS 304	SS 316		
33.7 (DN25)	1SS200010001	1SS200010002	57	57
42.4 (DN32)	1SS200012001	1SS200012002	70	70
48.3 (DN40)	1SS200015001	1SS200015002	70	70
60.3 (DN50)	1SS200020001	1SS200020002	83	83
73.0	1SS200025001	1SS200025002	95	95
76.1 (DN65)	1SS200029001	1SS200029002	95	95
88.9 (DN80)	1SS200030001	1SS200030002	108	108
114.3 (DN100)	1SS200045001	1SS200045002	127	127
139.7 (DN125)	1SS200052001	1SS200052002	140	140
141.3	1SS200055001	1SS200055002	140	140
165.1	1SS200062001	1SS200062002	165	165
168.3 (DN150)	1SS200065001	1SS200065002	165	165
219.1 (DN200)	1SS200085001	1SS200085002	197	197
273.0	1SS2000A1001	1SS2000A1002	229	229
323.9 (DN300)	1SS2000A3001	1SS2000A3002	254	254

SS60 Cap

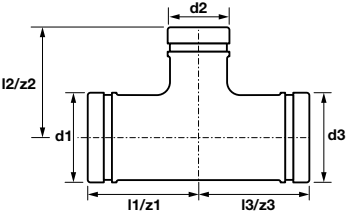
(groove)



Dimension	Article No.		z1
	SS 304	SS 316	
33.7 (DN25)	1SS600010001	1SS600010002	24
42.4 (DN32)	1SS600012001	1SS600012002	24
48.3 (DN40)	1SS600015001	1SS600015002	24
60.3 (DN50)	1SS600020001	1SS600020002	24
73.0	1SS600025001	1SS600025002	45
76.1 (DN65)	1SS600029001	1SS600029002	45
88.9 (DN80)	1SS600030001	1SS600030002	51
114.3 (DN100)	1SS600045001	1SS600045002	51
139.7 (DN125)	1SS600052001	1SS600052002	60
141.3	1SS600055001	1SS600055002	60
165.1	1SS600062001	1SS600062002	76
168.3 (DN150)	1SS600065001	1SS600065002	76
219.1 (DN200)	1SS600085001	1SS600085002	90
273.0	1SS6000A1001	1SS6000A1002	127
323.9 (DN300)	1SS6000A3001	1SS6000A3002	145

SS21 Reducing tee

(3 x groove)



Dimension	Article No.		l1/l2/l3	z1/z2/z3
	SS 304	SS 316		
42.4 x 33.7 x 42.4	1SS211210001	1SS211210002	70	70
48.3 x 33.7 x 48.3	1SS211510001	1SS211510002	83	83
48.3 x 42.4 x 48.3	1SS211512001	1SS211512002	83	83
60.3 x 33.7 x 60.3	1SS212010001	1SS212010002	83	83
60.3 x 42.4 x 60.3	1SS212012001	1SS212012002	83	83
60.3 x 48.3 x 60.3	1SS212015001	1SS212015002	83	83
73.0 x 33.7 x 73.0	1SS212510001	1SS212510002	95	95
73.0 x 42.4 x 73.0	1SS212512001	1SS212512002	95	95
73.0 x 48.3 x 73.0	1SS212515001	1SS212515002	95	95
73.0 x 60.3 x 73.0	1SS212520001	1SS212520002	95	95
76.1 x 33.7 x 76.1	1SS212910001	1SS212910002	95	95
76.1 x 42.4 x 76.1	1SS212912001	1SS212912002	95	95
76.1 x 48.3 x 76.1	1SS212915001	1SS212915002	95	95
76.1 x 60.3 x 76.1	1SS212920001	1SS212920002	95	95
88.9 x 42.4 x 88.9	1SS213012001	1SS213012002	108	108
88.9 x 48.3 x 88.9	1SS213015001	1SS213015002	108	108
88.9 x 60.3 x 88.9	1SS213020001	1SS213020002	108	108
88.9 x 73.0 x 88.9	1SS213025001	1SS213025002	108	108
88.9 x 76.1 x 88.9	1SS213029001	1SS213029002	108	108

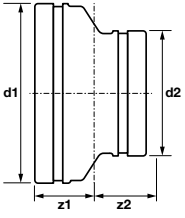
SS21 Reducing tee

(3 x groove)

Dimension	Article No.		l1/l2/l3	z1/z2/z3
	SS 304	SS 316		
114.3 x 60.3 x 114.3	1SS214520001	1SS214520002	127	127
114.3 x 73.0 x 114.3	1SS214525001	1SS214525002	127	127
114.3 x 76.1 x 114.3	1SS214529001	1SS214529002	127	127
114.3 x 88.9 x 114.3	1SS214530001	1SS214530002	127	127
139.7 x 114.3 x 139.7	1SS215245001	1SS215245002	140	140
141.3 x 114.3 x 141.3	1SS215545001	1SS215545002	140	140
165.1 x 114.3 x 165.1	1SS216245001	1SS216245002	165	165
165.1 x 139.7 x 165.1	1SS216252001	1SS216252002	165	165
168.3 x 88.9 x 168.3	1SS216530001	1SS216530002	165	165
168.3 x 114.3 x 168.3	1SS216545001	1SS216545002	165	165
219.1 x 114.3 x 219.1	1SS218545001	1SS218545002	197	197
219.1 x 168.3 x 219.1	1SS218565001	1SS218565002	197	197
273 x 168.3 x 273	1SS21A165001	1SS21A165002	229	229
273 x 219.1 x 273	1SS21A185001	1SS21A185002	229	229
324 x 219.1 x 324	1SS21A385001	1SS21A385002	254	254
324 x 273 x 324	1SS21A3A1001	1SS21A3A1002	254	254

SS50 Concentric reducer

(2 x groove)



Dimension	Article No.		l1/l2/l3	z1/z2/z3
	SS 304	SS 316		
42.4 x 33.7 x 42.4	1SS501210001	1SS501210002	32	32
48.3 x 33.7 x 48.3	1SS501510001	1SS501510002	32	32
48.3 x 42.4 x 48.3	1SS501512001	1SS501512002	32	32
60.3 x 33.7 x 60.3	1SS502010001	1SS502010002	32	32
60.3 x 42.4 x 60.3	1SS502012001	1SS502012002	32	32
60.3 x 48.3 x 60.3	1SS502015001	1SS502015002	32	32
73.0 x 33.7 x 73.0	1SS502510001	1SS502510002	32	32
73.0 x 42.4 x 73.0	1SS502512001	1SS502512002	32	32
73.0 x 48.3 x 73.0	1SS502515001	1SS502515002	32	32
73.0 x 60.3 x 73.0	1SS502520001	1SS502520002	32	32
76.1 x 33.7 x 76.1	1SS502910001	1SS502910002	32	32
76.1 x 42.4 x 76.1	1SS502912001	1SS502912002	32	32
76.1 x 48.3 x 76.1	1SS502915001	1SS502915002	32	32
76.1 x 60.3 x 76.1	1SS502920001	1SS502920002	32	32
88.9 x 42.4 x 88.9	1SS503012001	1SS503012002	32	32
88.9 x 48.3 x 88.9	1SS503015001	1SS503015002	32	32
88.9 x 60.3 x 88.9	1SS503020001	1SS503020002	32	32
88.9 x 73.0 x 88.9	1SS503025001	1SS503025002	32	32
88.9 x 76.1 x 88.9	1SS503029001	1SS503029002	32	32

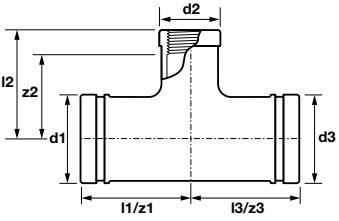
SS50 Concentric reducer

(2 x groove)

Dimension	Article No.		l1/l2/l3	z1/z2/z3
	SS 304	SS 316		
114.3 x 60.3 x 114.3	1SS504520001	1SS504520002	51	51
114.3 x 73.0 x 114.3	1SS504525001	1SS504525002	51	51
114.3 x 76.1 x 114.3	1SS504529001	1SS504529002	51	51
114.3 x 88.9 x 114.3	1SS504530001	1SS504530002	51	51
139.7 x 114.3 x 139.7	1SS505245001	1SS505245002	89	89
141.3 x 114.3 x 141.3	1SS505545001	1SS505545002	89	89
165.1 x 114.3 x 165.1	1SS506245001	1SS506245002	51	51
165.1 x 139.7 x 165.1	1SS506252001	1SS506252002	51	51
168.3 x 88.9 x 168.3	1SS506530001	1SS506530002	51	51
168.3 x 114.3 x 168.3	1SS506545001	1SS506545002	51	51
219.1 x 114.3 x 219.1	1SS508545001	1SS508545002	76	76
219.1 x 168.3 x 219.1	1SS508565001	1SS508565002	76	76
273 x 168.3 x 273	1SS50A165001	1SS50A165002	76	76
273 x 219.1 x 273	1SS50A185001	1SS50A185002	89	89
324 x 219.1 x 324	1SS50A385001	1SS50A385002	89	89
324 x 273 x 324	1SS50A3A1001	1SS50A3A1002	89	89

SS21F Reducing tee

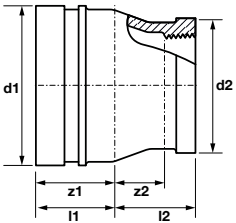
(groove x female thread x groove)



Dimension	Article No.		l1/l2/l3	z1/z2/z3
	SS 304	SS 316		
73.0 x Rp1 1/2 x 73.0	1S21F2515004	1S21F2515005	76	58
73.0 x Rp2 x 73.0	1S21F2520004	1S21F2520005	76	58
76.1 x Rp1 1/2 x 76.1	1S21F2915004	1S21F2915005	76	58
76.1 x Rp2 x 76.1	1S21F2920004	1S21F2920005	76	56
88.9 x Rp2 x 88.9	1S21F3020004	1S21F3020005	95	75
114.3 x Rp2 x 114.3	1S21F4520004	1S21F4520005	114	94

SS50F Concentric reducer

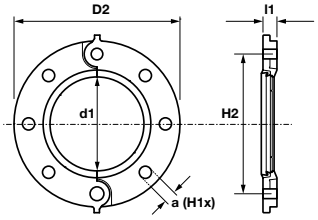
(groove x female thread)



Dimension	Article No.		l1/l2	z1	z2
	SS 304	SS 316			
73.0 x Rp2 x 73.0	1S50F2520004	1S50F2520005	45	45	25
76.1 x Rp2 x 76.1	1S50F2920004	1S50F2920005	45	45	25
88.9 x Rp2 x 88.9	1S50F3020004	1S50F3020005	45	45	25
114.3 x Rp2 x 114.3	1S50F4520004	1S50F4520005	51	51	31

SS41 Flange adapter - ANSI class 125/150

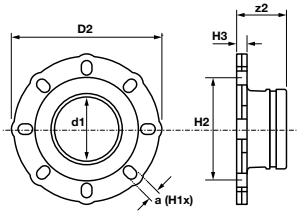
(Two segment, with E gasket)



Dimension	Article No.		l1	D2	H1	H2	a
	SS 304	SS 316					
60.3 (DN50)	1SS410020001	1SS410020002	19	152	4	121	5/8"
73.0	1SS410025001	1SS410025002	22	178	4	140	5/8"
88.9 (DN80)	1SS410030001	1SS410030002	24	191	4	152	5/8"
114.3 (DN100)	1SS410045001	1SS410045002	24	229	8	191	5/8"
168.3 (DN150)	1SS410065001	1SS410065002	25	279	8	241	3/4"
219.1 (DN200)	1SS410085001	1SS410085002	29	343	8	298	3/4"

SS80 Universal flange adapter

(PN 10/16, ANSI Class 125/150, BS10E)



Dimension	Article No. SS 304	z2	D2	H1	H2	H3	a
60.3 (DN50)	1SS800020001	64	165	4	114-125	16	M16
73.0	1SS800025001	76	185	4	127-145	16	M16
76.1 (DN65)	1SS800029001	76	185	4	127-145	16	M16
88.9 (DN80)	1SS800030001	75	200	4/8	146-160	16	M16
114.3 (DN100)	1SS800045001	75	225	8	175-191	16	M16
139.7 (DN125)	1SS800052001	75	254	8	210-216	16	M16/20
141.3	1SS800055001	75	254	8	210-216	22	M16/20
165.1	1SS800062001	75	272	8	235-241	16	M20
168.3 (DN150)	1SS800065001	75	272	8	240-241	16	M20
219.1 (DN200)	1SS800085001	102	343	8/12	290-298	22	M20
273.0 (DN250)	1SS8000A1001	100	406	12	350-362	30	M24
323.9 (DN300)	1SS8000A3001	113	483	12	400-432	32	M24

Dimension	Article No. SS 316	z2	D2	H1	H2	H3	a
60.3 (DN50)	1SS800020002	64	165	4	114-125	16	M16
73.0	1SS800025002	76	185	4	127-145	16	M16
76.1 (DN65)	1SS800029002	76	185	4	127-145	16	M16
88.9 (DN80)	1SS800030002	75	200	4/8	146-160	16	M16

>>

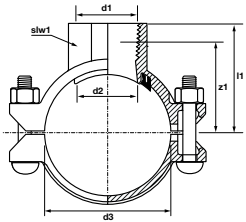
SS80 Universal flange adapter

(PN 10/16, ANSI Class 125/150, BS10E)

Dimension	Article No. SS 316	z2	D2	H1	H2	H3	a
114.3 (DN100)	1SS800045002	75	225	8	175-191	16	M16
139.7 (DN125)	1SS800052002	75	254	8	210-216	16	M16/20
141.3	1SS800055002	75	254	8	210-216	22	M16/20
165.1	1SS800062002	75	272	8	235-241	16	M20
168.3 (DN150)	1SS800065002	75	272	8	240-241	16	M20
219.1 (DN200)	1SS800085002	102	343	8/12	290-298	22	M20
273.0 (DN250)	1SS8000A1002	100	406	12	350-362	30	M24
323.9 (DN300)	1SS8000A3002	113	483	12	400-432	32	M24

SS723 Mechanical tee

(NPT female outlet, with E gasket)



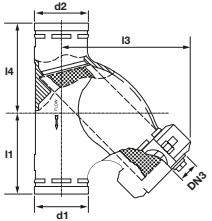
Max working pressure 20 bar/300 psi

Dimension	Article No.		l1	z1	D2	slw1
	SS 304	SS 316				
42.4 x Rp½	1S7231205003	1S7231205004	41	27	30	49
42.4 x Rp¾	1S7231207003	1S7231207004	44	29	30	49
42.4 x Rp1	1S7231210003	1S7231210004	51	34	30	49
48.3 x Rp½	1S7231505003	1S7231505004	44	30	30	49
48.3 x Rp¾	1S7231507003	1S7231507004	46	31	30	49
48.3 x Rp1	1S7231510003	1S7231510004	53	36	30	49
60.3 x Rp½	1S7232005003	1S7232005004	51	37	30	51
60.3 x Rp¾	1S7232007003	1S7232007004	53	28	30	51
60.3 x Rp1	1S7232010003	1S7232010004	60	43	30	51

***** For hole cut specifications and installation instructions, please refer to the table on page 83

SS726 Y-Strainer

(3 x groove)

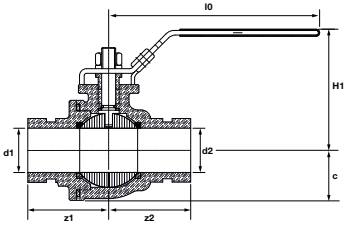


Max working pressure 20 bar/300 psi

Dimension	Article No.		l1/l2	l3	DN3
	SS 304	SS 316			
73.0	1S7260025001	1S7260025002	137	199	DN15
88.9 (DN80)	1S7260030001	1S7260030002	150	221	DN15
114.3 (DN100)	1S7260045001	1S7260045002	181	269	DN25
168.3 (DN150)	1S7260065001	1S7260065002	235	357	DN25

SJ600L Ball valve

(2 x groove)

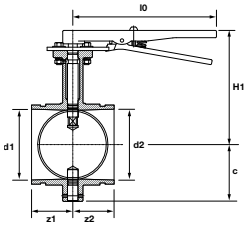


Max working pressure 42 bar/600 psi

Dimension	Article No.		z1/z2	H1	l0
	SS 304	SS 316			
48.3 (DN40)	1V6000015001	1V6000015002	70	94	193
60.3 (DN50)	1V6000020001	1V6000020002	78	105	193
73.0	1V6000025001	1V6000025002	90	110	250
88.9 (DN80)	1V6000030001	1V6000030002	107	152	250
114.3 (DN100)	1V6000045001	1V6000045002	120	167	290

SJ400L Butterfly valve with lever handle

(2 x groove)

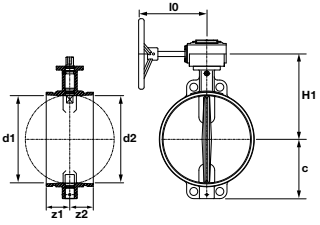


Max working pressure 20 bar/300 psi

Dimension	Article No. SS 316	z1/z2	H1	l0	c
60.3 (DN50)	1V4000020003	41	106	192	63
73.0	1V4000025003	49	111	192	68
76.1 (DN65)	1V4000029003	49	111	192	68
88.9 (DN80)	1V4000030003	49	126	192	76
114.3 (DN100)	1V4000045003	58	135	252	89
165.1	1V4000062003	74	168	252	114
168.3 (DN150)	1V4000065003	74	184	342	114
219.1 (DN200)	1V4000085003	67	208	342	140

SJ400W Butterfly valve with gear operator

(2 x groove)



Max working pressure 20 bar/300 psi

Dimension	Article No. SS 316	l1/l2	H1	l0	c
60.3 (DN50)	1V4000020004	41	106	152	63
73.0	1V4000025004	49	111	152	68
76.1 (DN65)	1V4000029004	49	111	152	68
88.9 (DN80)	1V4000030004	49	126	152	76
114.3 (DN100)	1V4000045004	58	135	152	89
165.1	1V4000062004	74	168	152	114
168.3 (DN150)	1V4000065004	74	184	152	114
219.1 (DN200)	1V4000085004	67	208	152	140

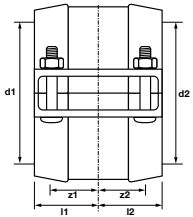
VSH

3.7 Plain-end Couplings

VSH Shurjoint

79 Coupling ‘Wildcat’ for steel pipe

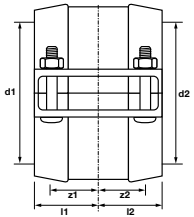
(2 x plain-end, with E gasket)



Dimension	Article No. Painted orange	l1/l2	z1/z2
33.7 (DN25)	100790010001	39	0
48.3 (DN40)	100790015001	39	0
60.3 (DN50)	100790020E01	45	0
73.0	100790025E01	45	0
88.9 (DN80)	100790030E01	45	0
114.3 (DN100)	100790045E01	51	0
141.3	100790055E01	56	0
168.3 (DN150)	100790065001	56	0
219.1 (DN200)	100790085E01	64	0
273.0 (DN250)	1007900A1E01	64	0
323.9 (DN300)	1007900A3E01	64	0
355.6 (DN350)	1007900A4E01	67	0
406.4 (DN400)	1007900A6E01	67	0

H305 Coupling for IPS sized HDPE pipe

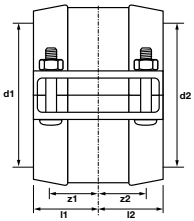
(2 x plain-end, with E gasket)



Dimension	Article No. Painted orange	l1/l2	z1/z2
60.3	1H3050020001	58	0
88.9	1H3050030001	58	0
114.3	1H3050045001	73	0
141.3	1H3050055001	59	0
168.3	1H3050065001	75	0
219.1	1H3050085001	77	0
273.0	1H30500A1001	83	0
323.9	1H30500A3001	90	0
355.6	1H30500A4001	128	0
406.4	1H30500A6001	128	0
457.2	1H30500A8001	128	0
508.0	1H30500B0001	128	0

H305 Coupling for ISO sized HDPE pipe

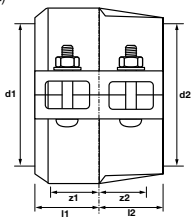
(2 x plain-end, with E gasket)



Dimension	Article No. Painted orange	l1/l2	z1/z2
63	1H3050020E01	54	0
75	1H3050025E01	54	0
90	1H3050030E01	54	0
110	1H3050045E01	56	0
125	1H3050050E01	59	0
140	1H3050052E01	59	0
160	1H3050065E01	59	0
180	1H3050070E01	59	0
200	1H3050085E01	64	0
225	1H3050090E01	64	0
250	1H30500A1E01	67	0
280	1H30500A2E01	67	0
315	1H30500A3E01	67	0
355	1H30500A4E01	128	0
400	1H30500A6E01	128	0
450	1H30500A8E01	128	0

H307 Transition coupling for IPS sized steel to HDPE pipe

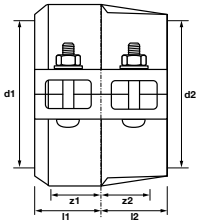
(Groove x plain-end, with E gasket)



Dimension	Article No. Painted orange	l1/l2	z1/z2
60.3	1H3070020001	40	0
88.9	1H3070030001	40	0
114.3	1H3070045001	48	0
168.3	1H3070065001	48	0
219.1	1H3070085001	54	0
273.0	1H30700A1001	64	0
323.9	1H30700A3001	64	0

H307 Transition coupling for ISO sized steel to HDPE pipe

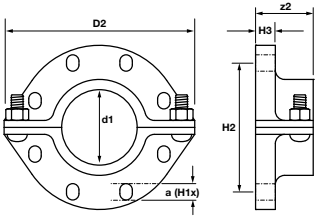
(Groove x plain-end, with E gasket)



Dimension	Article No. Painted orange	l1/l2	z1/z2
63 x 60.3	1H3070020E01	37	0
75 x 73.0	1H3070025E01	37	0
90 x 88.9	1H3070030E01	37	0
110 x 114.3	1H3070045E01	38	0
160 x 165.0	1H3070062E01	38	0
160 x 168.3	1H3070065E01	38	0
200 x 219.1	1H3070085E01	43	0
250 x 273.0	1H30700A1E01	49	0
315 x 323.9	1H30700A3E01	49	0

H312 Flange adapter for IPS sized HDPE pipe ANSI Class 125/150

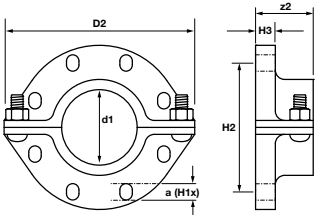
(Flange x plain-end)



Dimension	Article No. Painted orange	z2	D2	H1	H2	H3	a
88.9	1H3120030001	79	225	4	152	24	5/8
114.3	1H3120045001	79	260	8	191	24	5/8
168.3	1H3120065001	95	311	8	241	25	3/4
219.1	1H3120085001	87	375	8	298	29	3/4
273.0	1H31200A1001	108	533	12	362	30	7/8
323.9	1H31200A3001	108	610	12	432	32	7/8

H312 Flange adapter for ISO sized HDPE pipe PN10/16

(Flange x plain-end)



Dimension	Article No. Painted orange	z2	D2	H1	H2	H3	a
63 x 60.3	1H3120020E01	79	197	4	125	18	M16
90 x 88.9	1H3120030E01	79	241	8	160	24	M16
110 x 114.3	1H3120045E01	79	260	8	180	24	M16
160 x 165.0	1H3120065E01	82	330	8	240	25	M20
200 x 219.1	1H3120085E01	108	400	12	295	29	M20
250 x 273.0	1H31200A1E01	108	533	12	355	30	M24
315 x 323.9	1H31200A3E01	108	587	12	410	32	M24

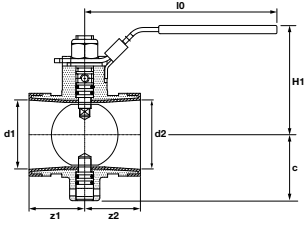
VSH

5.8 Valves

VSH Shurjoint

SJ200 Low profile butterfly valve

(2 x groove, with nitrile body liner and stainless steel disc)

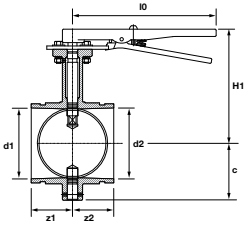


Max working pressure 16 bar/232 psi

Dimension	Article No. Black epoxy coated	z1/z2	H1	l0	c
60.3 (DN50)	1V2000020002	41	79	140	48
73.0	1V2000025002	49	93	190	54
88.9 (DN80)	1V2000030002	49	101	190	62
114.3 (DN100)	1V2000045002	58	152	274	76
168.3 (DN150)	1V2000065002	74	192	274	104
219.1 (DN200)	1V2000085002	67		274	140

SJ300N-L Butterfly valve with lever handle

(2 x groove, EPDM encapsulated disc)

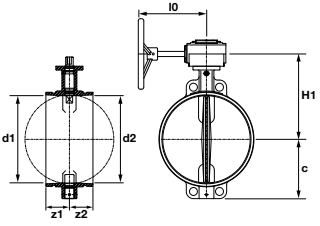


Max working pressure 20 bar/300 psi

Dimension	Article No. Black epoxy coated	z1/z2	H1	l0	c
60.3 (DN50)	1V30N0020006	41	106	192	63
73.0	1V30N0025006	49	111	192	68
76.1 (DN65)	1V30N0029006	49	111	192	68
88.9 (DN80)	1V30N0030006	49	126	192	76
114.3 (DN100)	1V30N0045006	58	135	260	89
139.7 (DN125)	1V30N0052006	74	168	260	102
141.3	1V30N0055006	74	168	260	102
165.1	1V30N0062006	74	184	260	114
168.3 (DN150)	1V30N0065006	74	184	260	114
219.1 (DN200)	1V30N0085006	67	208	260	140
273.0 (DN250)	1V30N00A1006	80	235	356	170
323.9 (DN300)	1V30N00A3006	83	260	356	205

SJ300N-W Butterfly valve with gear operator

(2 x groove, EPDM encapsulated disc)

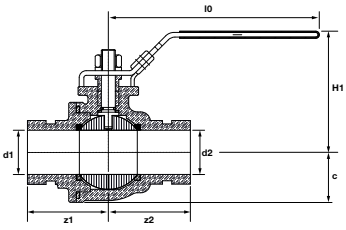


Max working pressure 20bar/300 psi

Dimension	Article No. Black epoxy coated	z1/z2	H1	l0	c
60.3 (DN50)	1V30N0020010	41	106	152	63
73.0	1V30N0025010	49	111	152	68
76.1 (DN65)	1V30N0029010	49	111	152	68
88.9 (DN80)	1V30N0030010	49	126	152	76
114.3 (DN100)	1V30N0045010	58	135	152	89
139.7 (DN125)	1V30N0052010	74	168	152	102
141.3	1V30N0055010	74	168	152	102
165.1	1V30N0062010	74	184	152	114
168.3 (DN150)	1V30N0065010	74	184	152	114
219.1 (DN200)	1V30N0085010	67	208	152	140
273.0 (DN250)	1V30N00A1010	80	235	203	170
323.9 (DN300)	1V30N00A3010	83	260	203	205
355.6 (DN350)	1V30N00A4010	89	276	242	224
406.4 (DN400)	1V30N00A6010	89	302	242	248
457.2 (DN450)	1V30N00A8010	102	350	242	283
508.0 (DN500)	1V30N00B0010	108	383	290	314
558.8 (DN550)	1V30N00B2010	118	427	290	343
609.6 (DN600)	1V30N00B4010	127	453	290	368

SJ500-L Ball valve

(2 x groove)

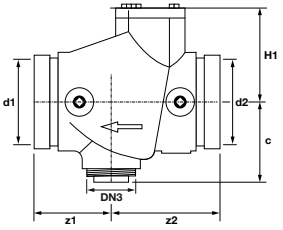


Max working pressure DN40-80: 69 bar/1000 psi
Max working pressure DN100-150: 56 bar/800psi

Dimension	Article No. (Black epoxy coated)		z1/z2	H1	l0
	Carbon steel trim	Stainless steel trim			
48.3 (DN40)	1V5000015001	1V5000015002	65	86	178
60.3 (DN50)	1V5000020001	1V5000020002	70	95	178
73.0	1V5000025001	1V5000025002	80	132	265
76.1 (DN65)	1V5000029001	1V5000029002	80	132	265
88.9 (DN80)	1V5000030001	1V5000030002	84	143	265
114.3 (DN100)	1V5000045001	1V5000045002	120	164	265
165.1	1V5000062001	1V5000062002	129	221	600
168.3 (DN150)	1V5000065001	1V5000065002	129	221	600

SJ900 Swing check valve

(2 x groove)

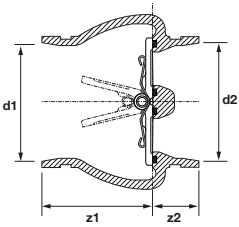


Max working pressure 20bar/300 psi

Dimension	Article No. Black epoxy coated	z1	z2	H1	c	DN3
73.0	1V9000025001	88	102	95	64	Rp1 1/4
76.1 (DN65)	1V9000029001	88	102	95	64	Rp1 1/4
88.9 (DN80)	1V9000030001	76	102	95	64	Rp1 1/4
114.3 (DN100)	1V9000045001	89	127	117	80	Rp2
139.7 (DN125)	1V9000052001	136	194	178	114	Rp2
141.3	1V9000055001	136	194	178	114	Rp2
165.1	1V9000062001	127	178	178	114	Rp2
168.3 (DN150)	1V9000065001	51	254	178	114	Rp2
219.1 (DN200)	1V9000085001	60	305	217	140	Rp2
273.0 (DN250)	1V90000A1001	254	254	273	184	Rp2
323.9 (DN300)	1V90000A3001	305	305	327	217	Rp2

SJ915 Dual disk check valve 2 1/2”-12”

(2 x groove)

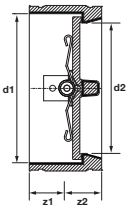


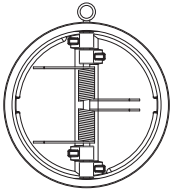
Max working pressure 20bar/300 psi

Dimension	Article No. Black epoxy coated	z1/z2
73.0	1V9150025001	63
76.1 (DN65)	1V9150029151	63
88.9 (DN80)	1V9150030001	68
114.3 (DN100)	1V9150045001	69
165.1	1V9150062001	76
168.3 (DN150)	1V9150065001	76
219.1 (DN200)	1V9150085001	86
273.0 (DN250)	1V91500A1001	99
323.9 (DN300)	1V91500A3001	104

SJ915 Dual disk check valve 14”-24”

(2 x groove)



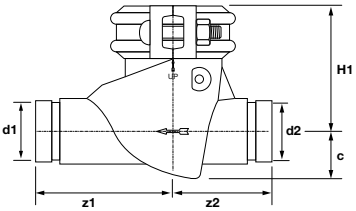


Max working pressure 20bar/300 psi

Dimension	Article No. Black epoxy coated	z1/z2
355.6(DN350)	1V91500A4001	91
406.4(DN400)	1V91500A6001	92
457.2(DN450)	1V91500A8001	100
508.0(DN500)	1V91500B0001	108
609.6(DN600)	1V91500B4001	123

SJ930 Horizontal swing check valve

(2 x groove)

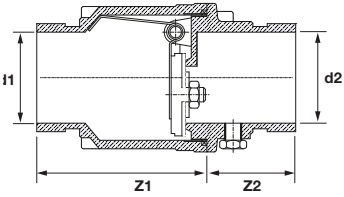


Max working pressure DN50-65: 69 bar/1000 psi
Max working pressure DN80-100: 42 bar/600psi

Dimension	Article No. Black epoxy coated	z1/z2	H1
60.3 (DN50)	1V9300020001	115	124
73.0	1V9300025001	118	140
88.9 (DN80)	1V9300030001	137	146
114.3 (DN100)	1V9300045001	153	194

BH22C Brass swing back check valve

(2 x groove, spring loaded clapper)

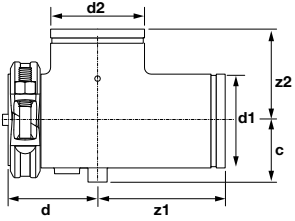


Max working pressure 17 bar/250 psi

Dimension	Article No.	z1/z2
60.3 (DN50)	1BH220020001	73
73.0	1BH220025001	83
88.9 (DN80)	1BH220030001	97
114.3 (DN100)	1BH220045001	101

725G Suction diffuser

(2 x groove)

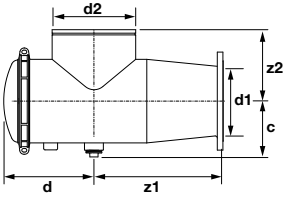


Max working pressure 20 bar/300 psi

Dimension	Article No. Painted orange	z1	z2	d
60.3 (DN50)	1V7252020E01	127	95	97
73.0	1V7252525E01	127	95	97
76.1 (DN65)	1V7252929E01	127	95	97
88.9 (DN80)	1V7253030E01	160	140	105
114.3 (DN100)	1V7254545E01	187	127	125
139.7 (DN125)	1V7255252E01	260	229	92
141.3	1V7255555E01	260	229	92
165.1	1V7256262E01	229	165	156
168.3 (DN150)	1V7256565E01	229	165	156
219.1 (DN200)	1V7258585E01	260	229	204
273.0 (DN250)	1V725A1A1E01	315	229	247
323.9 (DN300)	1V725A3A3001	392	254	276

725F Suction diffuser

(flange x groove)

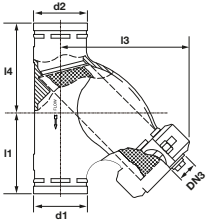


Max working pressure 20 bar/300 psi

Dimension	Article No. Painted orange		z1	z2	d
	ANSI125/150	PN10			
355.6 x 273.0	1V725A4A1001	1V725A4A1010	610	356	279
355.6 x 323.9	1V725A4A3001	1V725A4A3010	610	356	279
355.6 x 355.6	1V725A4A4001	1V725A4A4010	660	406	305
406.4 x 323.9	1V725A6A3001	1V725A6A3010	660	419	305
406.4 x 355.6	1V725A6A4001	1V725A6A4010	660	419	305
406.4 x 406.4	1V725A6A6001	1V725A6A6010	724	445	343
457.2 x 355.6	1V725A8A4001	1V725A8A4010	724	445	343
457.2 x 406.4	1V725A8A6001	1V725A8A6010	724	445	343
457.2 x 457.2	1V725A8A8001	1V725A8A8010	889	508	381
508.0 x 406.4	1V725B0A6001	1V725B0A6010	889	508	381
508.0 x 457.2	1V725B0A8001	1V725B0A8010	889	508	381
508.0 x 508.0	1V725B0B0001	1V725B0B0010	927	597	419
609.6 x 457.2	1V725B4A8001	1V725B4A8010	940	521	432
609.6 x 508.0	1V725B4B0001	1V725B4B0010	940	521	432
609.6 x 609.6	1V725B4B4001	1V725B4B4010	1105	606	495

726 Y-Strainer

(2 x groove)



Max working pressure DN50-150: 20 bar/300 psi
Max working pressure DN200: 16 bar/232 psi
Max working pressure DN250-750: 12 bar/175 psi

Dimension	Article No. Painted orange	l1/l2	l3	DN3
60.3 (DN50)	1V7260020E01	124	181	DN15
73.0	1V7260025E01	137	199	DN15
76.1 (DN65)	1V7260029E01	137	199	DN15
88.9 (DN80)	1V7260030E01	150	221	DN25
114.3 (DN100)	1V7260045E01	181	269	DN25
139.7 (DN125)	1V7260052E01	210	330	DN25
141.3	1V7260055E01	210	330	DN25
165.1	1V7260062E01	235	357	DN25
168.3 (DN150)	1V7260065E01	235	357	DN25
219.1 (DN200)	1V7260085E01	305	454	DN40
273.0 (DN250)	1V72600A1E01	343	522	DN40
323.9 (DN300)	1V72600A3E01	381	609	DN40
355.6 (DN350)	1V72600A4E01	508	760	DN40
406.4 (DN400)	1V72600A6E01	534	777	DN40
457.2 (DN450)	1V72600A8E01	616	851	DN50
508.0 (DN500)	1V72600B0E01	683	991	DN50
558.8 (DN550)	1V72600B2E01	764	1029	DN50
609.6 (DN600)	1V72600B4E01	813	1067	DN50
660.4 (DN650)	1V72600B6E01	864	1194	DN50
711.2 (DN700)	1V72600B8E01	915	1308	DN50
762.0(DN750)	1V72600C0E01	953	1422	DN50

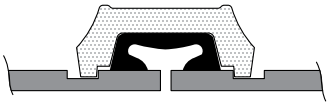
VSH

3.9 Tools and accessoires

VSH Shurjoint

Spare gaskets Standard C-style

(for couplings Z05, Z07, 7707, 7705)



Dimension	Article No.			
	EPDM (Grade E)	Nitrile (Grade T)	Silicone (Grade L)	Fluoroelastomer (Grade O)
33.7 (DN25)	SG05E0010	SG05T0010	SG05L0010	SG05V0010
42.4 (DN32)	SG05E0012	SG05T0012	SG05L0012	SG05V0012
48.3 (DN40)	SG05E0015	SG05T0015	SG05L0015	SG05V0015
60.3 (DN50)	SG05E0020	SG05T0020	SG05L0020	SG05V0020
73.0	SG05E0025	SG05T0025	SG05L0025	SG05V0025
76.1 (DN65)	SG05E0029	SG05T0029	SG05L0029	SG05V0029
88.9 (DN80)	SG05E0030	SG05T0030	SG05L0030	SG05V0030
101.6	SG05E0035	SG05T0035	SG05L0035	SG05V0035
108.0	SG05E0040	SG05T0040	SG05L0040	SG05V0040
114.3 (DN100)	SG05E0045	SG05T0045	SG05L0045	SG05V0045
133.0	SG05E0050	SG05T0050	SG05L0050	SG05V0050
139.7 (DN125)	SG05E0052	SG05T0052	SG05L0052	SG05V0052
141.3	SG05E0055	SG05T0055	SG05L0055	SG05V0055
159.0	SG05E0060	SG05T0060	SG05L0060	SG05V0060
165.1	SG05E0062	SG05T0062	SG05L0062	SG05V0062
168.3 (DN150)	SG05E0065	SG05T0065	SG05L0065	SG05V0065
219.1 (DN200)	SG05E0085	SG05T0085	SG05L0085	SG05V0085
273.0 (DN250)	SG05E00A1	SG05T00A1	SG05L00A1	SG05V00A1

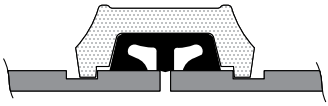
Spare gaskets Standard C-style

(for couplings Z05, Z07, 7707, 7705)

Dimension	Article No.			
	EPDM (Grade E)	Nitrile (Grade T)	Silicone (Grade L)	Fluoroelastomer (Grade O)
323.9 (DN300)	SG05E00A3	SG05T00A3	SG05L00A3	SG05V00A3
355.6 (DN350)	SG05E00A4	SG05T00A4	SG05L00A4	SG05V00A4
406.4 (DN400)	SG05E00A6	SG05T00A6	SG05L00A6	SG05V00A6
457.2 (DN450)	SG05E00A8	SG05T00A8	SG05L00A8	SG05V00A8
508.0 (DN500)	SG05E00B0	SG05T00B0	SG05L00B0	SG05V00B0
558.8 (DN550)	SG05E00B2	SG05T00B2	SG05L00B2	SG05V00B2
609.6 (DN600)	SG05E00B4	SG05T00B4	SG05L00B4	SG05V00B4

Spare gaskets Gap seal type

(for couplings Z05, Z07, 7707, 7705)



Dimension	Article No.			
	EPDM (Grade E)	Nitrile (Grade T)	Silicone (Grade L)	Fluoroelastomer (Grade O)
33.7 (DN25)	SGGSE0010	SGGST0010	SGGSL0010	SGGSV0010
42.4 (DN32)	SGGSE0012	SGGST0012	SGGSL0012	SGGSV0012
48.3 (DN40)	SGGSE0015	SGGST0015	SGGSL0015	SGGSV0015
60.3 (DN50)	SGGSE0020	SGGST0020	SGGSL0020	SGGSV0020
73.0	SGGSE0025	SGGST0025	SGGSL0025	SGGSV0025
76.1 (DN65)	SGGSE0029	SGGST0029	SGGSL0029	SGGSV0029
88.9 (DN80)	SGGSE0030	SGGST0030	SGGSL0030	SGGSV0030
101.6	SGGSE0035	SGGST0035	SGGSL0035	SGGSV0035
108.0	SGGSE0040	SGGST0040	SGGSL0040	SGGSV0040
114.3 (DN100)	SGGSE0045	SGGST0045	SGGSL0045	SGGSV0045
133.0	SGGSE0050	SGGST0050	SGGSL0050	SGGSV0050
139.7 (DN125)	SGGSE0052	SGGST0052	SGGSL0052	SGGSV0052
141.3	SGGSE0055	SGGST0055	SGGSL0055	SGGSV0055
159.0	SGGSE0060	SGGST0060	SGGSL0060	SGGSV0060
165.1	SGGSE0062	SGGST0062	SGGSL0062	SGGSV0062
168.3 (DN150)	SGGSE0065	SGGST0065	SGGSL0065	SGGSV0065
219.1 (DN200)	SGGSE0085	SGGST0085	SGGSL0085	SGGSV0085
273.0 (DN250)	SGGSE00A1	SGGST00A1	SGGSL00A1	SGGSV00A1
323.9 (DN300)	SGGSE00A3	SGGST00A3	SGGSL00A3	SGGSV00A3

Spare gaskets Gap seal type

(for couplings Z05, Z07, 7707, 7705)

Dimension	Article No.			
	EPDM (Grade E)	Nitrile (Grade T)	Silicone (Grade L)	Fluoroelastomer (Grade O)
355.6 (DN350)	SGGSE00A4	SGGST00A4	SGGSL00A4	SGGSV00A4
406.4 (DN400)	SGGSE00A6	SGGST00A6	SGGSL00A6	SGGSV00A6
457.2 (DN450)	SGGSE00A8	SGGST00A8	SGGSL00A8	SGGSV00A8
508.0 (DN500)	SGGSE00B0	SGGST00B0	SGGSL00B0	SGGSV00B0
558.8 (DN550)	SGGSE00B2	SGGST00B2	SGGSL00B2	SGGSV00B2
609.6 (DN600)	SGGSE00B4	SGGST00B4	SGGSL00B4	SGGSV00B4

G223 Lubricant

Content	Article No.	Description
450 gr.	SLB100000	Standard lubricant
900 gr.	SLB200000	Standard lubricant
270 gr.	SLB800000	EHC high temperature silicone lubricant

96 Continuity Clip

(For electrical conductivity)

Dimension	Article No.	Description
33.7-88.9 (DN25-80)	S00960010	For coupling DN25-80
114.3-168.3 (DN100-150)	S00960045	For coupling DN100-150
219.1-323.9 (DN200-300)	S00960085	For coupling DN200-300

GR600 Pipe tape

Article No.	Description
SGR600124	Pipe Tape 1-24”

VSH

VSH offers the best solutions for Integrated Piping Systems. Integrated Piping Systems consist of various product ranges for connection technology and valve technology that together create the ultimate solution for top quality integrated systems.

Connection technology

The connection technology section contains a range of intelligent products using a variety of connection technologies in both metal and plastic. These products are designed to meet all of your connection requirements.

VSH XPress	Piping systems with M-profile press fittings in four types of material: galvanized steel, copper, stainless steel and cunifer. Suitable for heating, cooling, water, gas, solar, compressed air and fire protection systems in residential and commercial buildings, shipbuilding and industry.
VSH SudoPress	Piping systems with V-profile press fittings in copper, galvanized steel and stainless steel, suitable for heating, water, gas and solar systems.
VSH MultiPress	A plastic piping system with multi-profile press fittings for applications in areas such as sanitary, gas and heating systems.
VSH PowerPress	A piping system with DW-profile press fittings specially designed for thick-walled steel pipes; suitable for heating, cooling, compressed air and sprinkler systems.
VSH Shurjoint	A piping system with grooved connectors suitable for heating, cooling, compressed air and sprinkler systems.
VSH Super	Compression fittings for potable water, gas, heating and solar systems. Suitable for steel, copper, stainless and plastic tubes.
VSH Tectite	Push fittings in copper, brass and stainless steel, suitable for potable water, heating and compressed air systems.

Valve technology

The connection technology product lines can seamlessly be combined with our valve technology products in order to create a single integrated system with consistently high quality. In this technology area, we offer various product ranges to enable you to find a suitable solution for every valve-related challenge imaginable.

VSH Fittings B.V.
Oude Amersfoortseweg 99
1212 AA Hilversum, The Netherlands
P.O. Box 498
1200 AL Hilversum, The Netherlands
Phone +31 (0)35 68 84 330
info@vsh.nl
www.vsh.eu

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