

# Industrial Product Guide



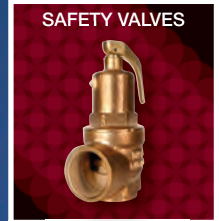
**brownall**



**CRANE** FLUID SYSTEMS



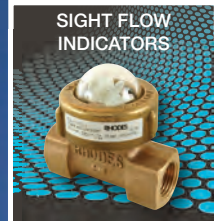
**Hattersley**



**NABIC**



**POSIFLEX**



**RHODES**



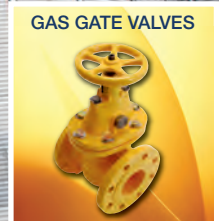
**SPERRYN**  
GAS CONTROLS



**VIKING JOHNSON**



**Wade**



**WASK**

## INDUSTRIAL PRODUCTS

### INTRODUCTION

Our Heritage	3
Brands and Products	4

### VALVES



Introduction	9
Butterfly Valves	10
Check Valves	13
Globe Valves	16
Lubricated Plug Valves	18
Strainers	27

### CRANE FLUID SYSTEMS

Introduction	29
Butterfly Valves	30
Check Valves	32
Gate Valves	36
Globe Valves	40
Strainers	44

### NABIC™

Introduction	47
Safety Valves	49

### brownall™

Introduction	61
Plant Room Valves	63



Introduction	69
Gas Gate Valves	70

### SIGHT FLOW INDICATORS



Introduction	71
Sight Flow Indicators	72

### EXPANSION JOINTS



Introduction	83
PosiSphere - Moulded Spherical	86
Maxi-Joint Wide Arch	88
Maxi-Joint Heavy Duty	90
Reducer Type Joints	94
Lightweight	96
Rubber Flanged Sound Zorbers	98
Control Units	100
Sleeve Type	104
Maxi-Span Duct Type	107
Shield and Seals	112
Pinch Valve Sleeves	113
Rubber Duck-Bill Check Valves	114
PTFE Joints	118

### PIPE COUPLINGS & JOINTS



Introduction	119
Dismantling Joints	120
Large Diameter Couplings & Flange Adaptors	130
QuickFit Couplings & Flange Adaptors	140
Shouldered Joints	146
Carlton Joints	150

### FITTINGS



Introduction	151
Compression Fittings, Valves & Accessories	152

### GAS REGULATORS



Introduction	155
Gas Regulators	156

### GENERAL INFORMATION

Flange Tables	157
Quality Assurance	167
Figure Number Index	168

## OUR HERITAGE

Crane Building Services & Utilities forms part of the Fluid Handling Group within Crane Co. founded in 1855, which is a multi-industry, New York Stock Exchange quoted company with a turnover today rapidly approaching \$3bn.

The Fluid Handling division is a global provider of industrial fluid control solutions for critical applications where engineered solutions are vital. The Fluid Handling division is Crane's largest business unit and along with Crane Building Services & Utilities, the group includes Crane ChemPharma Flow Solutions, which concentrates on the chemical and pharmaceutical market, and Crane Energy, specialists in the oil, gas and power market.

Crane Limited was founded in 1919, making malleable iron fittings and valves, and Crane Building Services & Utilities has been created as a result of Crane Ltd. acquiring Viking Johnson, Helden and WASK in 2003, and Hattersley in 2004. The most recent acquisition was Delta Fluid Products in 2008.

The name Crane speaks of who we are, what we stand for and how our customers perceive us: a company with history and tradition, but also a company that is innovative, quality-minded and one which acts with integrity and still holds to the resolution of its founder.

**Crane Co. was founded on 4th July 1855 by Richard Teller Crane who made the following resolution:**

**"I am resolved to conduct my business in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just towards employees; and to put my whole mind upon the business."**

**The essence of this resolution is the business policy of Crane Co. today.**



Richard Teller Crane



## BRANDS YOU KNOW

Crane Building Services & Utilities has leading brands serving the building services, water and gas markets. These brands are Crane Fluid Systems, Hattersley, NABIC, Brownall, Rhodes, Wade, IAT, WASK, Sperryn, Viking Johnson, PosiFlex and Helden. The recently acquired range from Delta Fluid Products are NABIC, Brownall, Wade, Sperryn, IAT and Rhodes.

## TECHNOLOGY YOU WANT

Crane Building Services & Utilities designs, manufactures and sells a range of gate, globe, check, ball, butterfly, balancing and pressure control valves and manifold systems in a range of materials including cast steel, iron, bronze, brass and DZR. The Company also manufactures pipe connections, repair and flow control products for the water sector, and fittings, valves, flow regulators and equipment for the gas industry.

## SOLUTIONS YOU NEED

Crane Building Services & Utilities provides solutions for balancing and controlling water systems in commercial buildings, connecting the same or disparate pipe materials for water distribution as well as supplying fittings and equipment for the safe transmission, control and connection of gas.



For over 100 years the Hattersley brand has been synonymous with quality, reliability and excellent service. Typical projects include hospitals, schools, industrial and commercial projects.

A variety of traditional valves, including ball, butterfly, check, gate and globe valves, as well as a range of balancing solutions for constant and variable flow systems, are available.



## FUTURE VALVE TECHNOLOGY

**CRANE**

FLUID SYSTEMS

Crane Fluid Systems has manufactured for more than 90 years a range of valves and pipe fittings for the Building Services industry, and is now developing a range of next generation balancing solutions. The product portfolio comprises a full range of traditional valves: ball, butterfly, check, gate, globe and radiator valves as well as strainers and drain cocks. There is a range of static balancing valves and flow management systems providing the ultimate in accuracy and reliability. In addition, a range of malleable iron pipe fittings and unions, which carry the BSI Kitemark and are WRAS approved. A range of bronze pipe fittings are also available.



## OUR GENIUS IS VALVES

# NABIC™

One of the UK's leading suppliers of gunmetal safety valves, NABIC has long been recognised as the industry standard for commercial and industrial hot water applications. In fact, NABIC valves are ideal for hot water supply, heating, pump relief, bypass relief, outside installation and for use with different gases and liquids.



# brownall™

The Brownall range of automatic air eliminators cover low, medium and high pressure applications and are suitable for use with water, aviation fuel, diesel and light oils. The range is complemented by three-way vent valves, offering efficient performance and reliable service combined with potential savings in time and cost by simplifying the venting system for single/multi boiler or calorifier installations.



# RHODES™

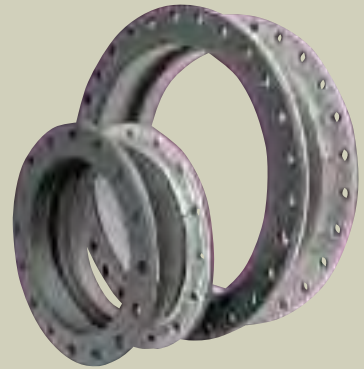
Rhodes is a market leader in the design and manufacture of sight flow indicator equipment, having produced indicators since 1951. Rhodes sight flow indicators can be found in process, petrochemical and pharmaceutical plants all over the world.





## POSIFLEX™

PosiFlex expansion joints provide relief for piping systems stress caused by thermal and mechanical vibration and/or movement, and can also be utilised to overcome problems of noise. These flexible connectors are fabricated from a wide range of rubber compounds, open or filled, single or multiple arch and are designed to accommodate the needs of individual pipe systems conveying materials as diverse as fluids, foodstuffs, chemicals or crude oil.




## VIKING JOHNSON™

Viking Johnson is a world leader in the manufacture and supply of couplings, flange adaptors, pipe repair and jointing solutions for the international water, wastewater, gas and industrial markets.

The Viking Johnson shouldered pipe jointing system can claim over 80 years of effective performance worldwide. The unique mechanical characteristics of shouldered joints offer speed and ease of installation along with proven reliability. The system consists of a comprehensive range of joints and fittings ranging from 40mm to 1250mm (1.5" to 50") in size, for use with shouldered carbon steel, (including lightweight steel), stainless steel, lined pipe and other piping materials.

The Carlton pipe joint is installed in many UK coal pits and used on methane drainage, compressed air and some water services. Approved to UK Coal Specification 596, it is a simple mechanical method of connecting pipe, which allows a high degree of flexibility at each point.



# Wade™

An extensive range of low and medium pressure, brass compression fittings, valves and accessories. The range also covers SISTEM-P and compact push in fittings, nickel plated BSP fittings, quick release couplings, air guns, recoil hoses and tubing.



# WASK™

Market leader in the supply of specialist mains and service fittings, along with pipeline equipment of the highest quality, WASK is renowned in the global gas distribution market. WASK Teeset and bagging-off equipment has become a standard in the UK gas industry and in many markets overseas.

Latest additions to the range include a robust gas gate valve and unique modular system which allows PE pipework to supply gas into single or multiple occupancy dwellings.

WASK has a reputation as a leader in producing innovative and safe gas control valves.



# SPERRYN GAS CONTROLS

Sperryn is a leading supplier of meter installation kits and emergency control valves for domestic, commercial and industrial applications. Using the latest design facilities and technologies, Sperryn regulators offer increased capacity, accuracy and lower pressure drops. Where applicable, fittings and control valves comply with the requirements of the relevant British Gas Engineering Standards.





# VALVES



For details of our full range visit  
[www.hattersley.com](http://www.hattersley.com)

For over 100 years the Hattersley brand has been synonymous with quality, reliability and excellent service. Hattersley offers a vast range of ball, butterfly, check, gate and globe valves. Where systems are designed for constant or variable flow, a range of commissioning valve solutions, is available for flow or pressure balancing.

# Fig. 970 Fully-lugged Wafer Pattern

970, 970G

## FEATURES & BENEFITS

- Available up to DN600
- Valve body fully-lugged
- Long neck for insulation
- Maintenance free
- Good control characteristics



## MATERIAL SPECIFICATION

Component	Material	Specification	
		BS EN	ASTM
Body	Ductile Iron	1563 EN-JS1040	A536 65-45-12
Shaft	Stainless Steel	10088-1 X5GNi18-10	A276 TYPE 410
Disc	Aluminium Bronze	1982 CC333G	B148-C95300
Bushes (up to 100mm)	PTFE	-	-
125mm and above	Bronze (lubricated)	-	-
O-Ring	Buna N	-	-
Liner	EPDM	-	-

## PRESSURE/TEMPERATURE RATING

PN16 from -10 up to 130°C

## TEST PRESSURES

Hydrostatic  
Body: 24 bar  
Seat: 17.6 bar

## SPECIFICATION

Conforms to BS EN 593:2009.

Fully-lugged.

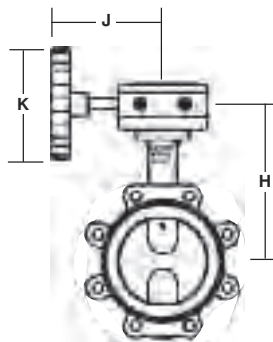
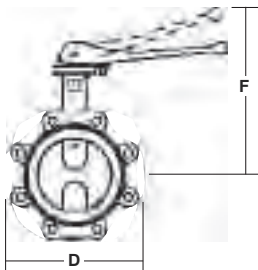
Lever or gearbox.

Valves DN250 and larger supplied as standard with fully enclosed gear operator.

Valves may be used for flow regulation.

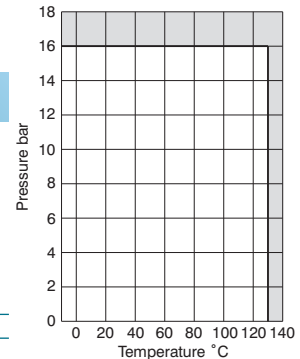
Fig 970 and 970G are suitable for Group 1 and 2 gases and Group 1 and 2 liquids as defined by the Pressure Equipment Directive 97/23/EC.

## DIMENSIONAL DRAWINGS



## DIMENSIONS & WEIGHTS

Nom Size	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A	mm	43	46	46	52	56	56	60	68	78	78	102	114	127	154
D	mm	165	185	200	220	250	285	340	405	460	520	580	640	715	840
F	mm	264	272	279	301	314	345	369	-	-	-	-	-	-	-
G	mm	250	250	250	250	250	315	315	-	-	-	-	-	-	-
H	mm	182	190	197	219	232	254	278	281	306	354	408	433	458	557
J	mm	123	123	123	123	123	123	123	228	228	228	305	305	305	305
K	mm	125	125	125	125	125	125	125	300	300	300	400	400	400	400
Shaft size A/F	mm	10	10	10	12	12	16	16	24	24	24	30	30	30	30
Weight lever	kg	4.6	5.4	7.2	8.8	12	14	20	-	-	-	-	-	-	-
Weight geared	kg	5.4	6.2	8.0	9.6	12	15	21	33	45	55	91	111	136	225



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# Fig. 971 and 971G Fully-lugged, Lever/Gearbox Operated Wafer Pattern to BS EN 593: 2009

## FEATURES & BENEFITS

- Aluminium Bronze disc
- Stainless Steel shaft
- 971 - Trigger lever, 971G - Gearbox operated
- Valves are suitable for use with flanges conforming to BS EN 1092-2 PN10 or PN16 - Sizes 65-150mm
- Sizes 200-600mm PN16 only



## MATERIAL SPECIFICATION

Component	Material
Body	Ductile Iron BS EN 1563- ENJS1040
Disc	Aluminium Bronze BS EN 1982 C333G
Liner	Nitrile Temp. -10 to 90°C
Shaft	Stainless Steel Type 410
Taper Pin	Stainless Steel Type 316
Key	Carbon Steel
O-Ring	Buna-N
Bushing	PTFE
Lever & Screw	Carbon Steel (Epoxy Paint)
Stop Plate	Carbon Steel (Zn Plated)

## PRESSURE/ TEMPERATURE RATING

PN16 from -10 up to 90°C

## TEST PRESSURES

Each valve is individually hydrostatically tested to BS EN 12266-1:2003 at the following test pressures:

Shell: 24 bar  
Seat: 17.6 bar

## SPECIFICATION

Fully-lugged.

Lever or gearbox.

Valves DN250 and larger supplied as standard with a fully enclosed gear operator.

Valves may be used for flow regulation.

Suitable for gas applications.

Fig. 971 and 971G are suitable for Group 1 and 2 gases and Group 1 and 2 liquids as defined by the Pressure Equipment Directive 97/23/EC.

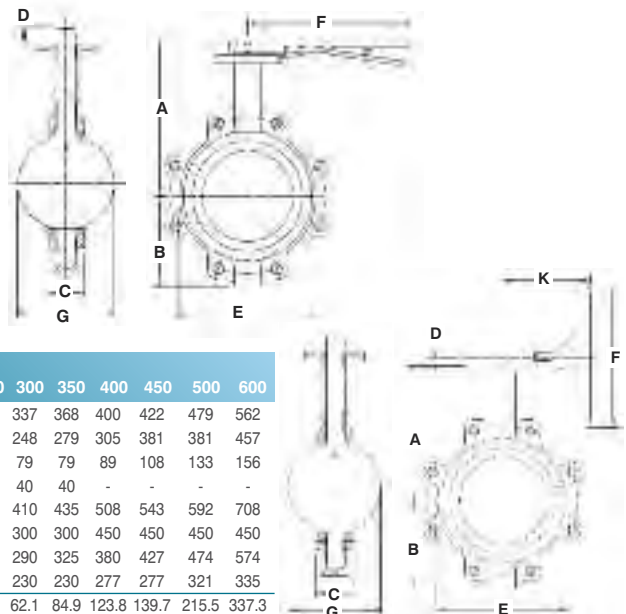
## DIMENSIONS & WEIGHTS

Fig. 971

Nom Size	mm	50	65	80	100	125	150	200
A	mm	195	207	213	232	245	257	305
B	mm	83	95	102	124	136	150	197
C	mm	44	48	48	54	57	57	63
D	mm	32	32	32	32	32	32	44
E	mm	102	121	130	171	197	219	268
F	mm	260	260	260	260	260	260	356
G	mm	32	46	64	90	111	145	193
Weight	kg	4	4.5	7.2	12.6	13.5	14.9	24.1

Fig. 971G

Nom Size	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A	mm	162	175	181	200	213	225	260	292	337	368	400	422	479	562
B	mm	83	95	102	124	136	150	197	210	248	279	305	381	381	457
C	mm	44	48	48	54	57	57	63	70	79	79	89	108	133	156
D	mm	42	42	42	42	42	42	40	40	40	-	-	-	-	-
E	mm	102	121	130	171	197	219	268	332	410	435	508	543	592	708
F	mm	150	150	150	300	300	300	300	300	300	300	450	450	450	450
G	mm	32	46	64	90	111	145	193	241	290	325	380	427	474	574
K	mm	240	240	240	240	240	240	230	230	230	230	277	277	321	335
Weight	kg	15.5	16	18.7	24.1	25	26.4	36.7	47.1	62.1	84.9	123.8	139.7	215.5	337.3



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

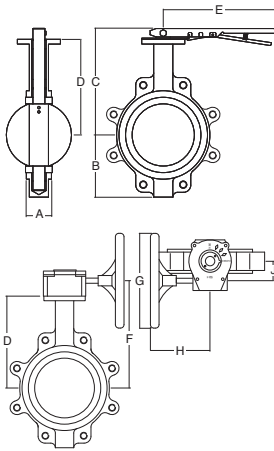
**Fig. 980ANSI**  
**Ductile Iron Fully Lugged Butterfly Valve Class 150**



**MATERIAL SPECIFICATION**

Component	Material	Specification	
		BS EN	ASTM
Body	Ductile Iron	1563 EN-JS1040	A536 65-45-12
Operating Shaft	Stainless Steel	10088-1 X12Cr13	A276 410
Disc	Al Bronze	12165 CW307G	B150 C63000
Taper pins	Stainless Steel	10088-1 X5CrNiMo17-12-2	A276 316
Bushes	EDPM		
O-Ring	Buna N		
Liner	EPDM		

**DIMENSIONAL DRAWINGS**



**PRESSURE/  
TEMPERATURE RATING**

19.65 bar from -10 to 37.8°C  
16.93 bar at 120°C

**TEST PRESSURES  
(HYDRAULIC)**

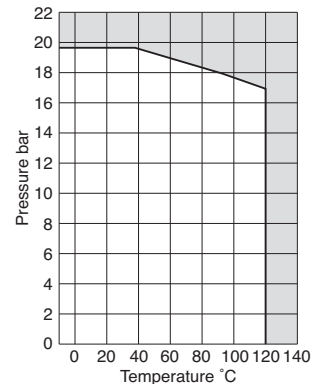
Body: 29.5 bar  
Seat: 21.6 bar

**SPECIFICATION**

Generally conforms to BS EN 593.  
Ductile Iron body epoxy coated.  
Fully lugged.  
Aluminium bronze disk.  
EPDM liner phenolic backed.  
Trigger Lever.  
Valves DN200 and larger supplied as standard with fully enclosed gear operator.  
Suitable for fitting between flanges to ANSI B16.1 Class 125 and 150.  
Valves may be used for flow regulation.

**DIMENSIONS & WEIGHTS**

Nom Size	mm	50	65	80	100	125	150	200	250	300
A	mm	44	48	48	54	57	57	63	70	79
B	mm	83	95	102	124	136	150	197	210	248
C	mm	195	207	213	232	245	257	-	-	-
D	mm	162	175	181	200	213	225	260	292	337
E	mm	260	260	260	260	260	260	-	-	-
F	mm	204	217	223	242	255	267	300	332	377
G	mm	150	150	150	150	300	300	300	300	300
H	mm	240	240	240	240	240	230	230	230	230
J	mm	60	60	60	60	60	60	80	80	80
Weight	kg	10	11	12	13	16	19	30	40	53



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

**Fig. 48**  
**Bronze - Oblique Swing Pattern**

**FEATURES & BENEFITS**

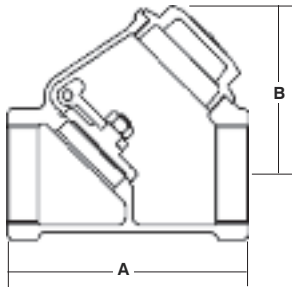
- Oblique swing pattern
- Robust and high quality bronze body
- Metal to metal seat for enhance sealing



**MATERIAL SPECIFICATION**

Component	Material	Specification BS EN	
Cap	Bronze	1982 CC491K	B62 C83600
Hinge Pin	Brass	12164 CW603N	B16-C36000
Hinge	Bronze	1982 CC491K	B62 C83600
Hinge Pin Plug	Brass	12164 CW617N	B124 Alloy 2
Disc	Bronze	1982 CC491K	B62 C83600
Disc Nut	Brass	12164 CW603N	B16-C36000
Body	Bronze	1982 CC491K	B62 C83600

**DIMENSIONAL DRAWINGS**



**DIMENSIONS & WEIGHTS**

Nom Size	in	1/2	3/4	1	1 1/4	1 1/2	2
A	mm	60	70	86.4	96	116	136
B	mm	45	50	58	68	75	94
Weight	kg	0.28	0.42	0.62	1.0	1.4	2.1

**PRESSURE/  
TEMPERATURE RATING**

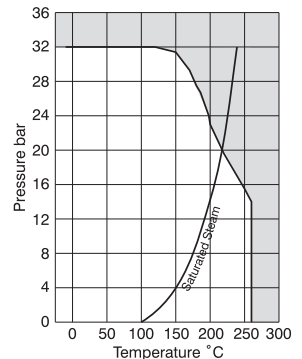
BS5154 PN32 Series A  
14 bar at 260°C  
32 bar from -10 to 120°C

**TEST PRESSURES  
(HYDRAULIC)**

Shell: 48 bar  
Seat: 35.2 bar

**SPECIFICATION**

Oblique swing pattern.  
Threaded cover.  
Metal to metal seat.  
Ends threaded internal  
BS EN 10266 (ISO 7).  
Suitable for mounting in horizontal  
and vertical pipe (with vertical  
flow upwards).



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Fig. 850 Cast Iron - Wafer Pattern

### FEATURES & BENEFITS

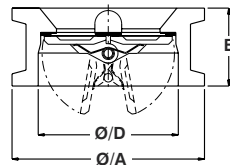
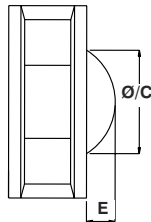
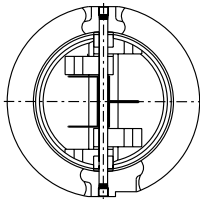
- Double door wafer pattern with spring assisted closure
- Elastomer seat vulcanised to the body casting to ensure extended seal life
- Suitable for mounting in horizontal and vertical pipelines
- Ideal for fitting between flanges to BS EN 1092-2



### MATERIAL SPECIFICATION

Component	Material	Specification BS EN
Body	Cast Iron	BS1452 GR220
Seat	EPDM	-
Disc	Gunmetal	BS1400 LG2
Shaft	Stainless Steel	BS970 BS970 304 S12
Spring	Stainless Steel	BS970 BS970 304 S12
Washer	Stainless Steel	-
Seal	EPDM	-
Setscrew	Stainless Steel	-
Stop Pin	Stainless Steel	BS970 304 S12
Bushing	Teflon	-

### DIMENSIONAL DRAWINGS



### PRESSURE/ TEMPERATURE RATING

16 bar up to 120°C

### TEST PRESSURES (HYDRAULIC)

Shell: 24 bar

Seat: 17.6 bar

### SPECIFICATION

Face-to-face in accordance with BS 5155 (long pattern) ISO 5752 (long pattern).

Suitable for fitting between flanges to BS 4504 PN10/16, ANSI B16.1 Class 125 and BS 10 Table D/E.

Sizes 250mm and above are fitted with an eyebolt.

### DIMENSIONS & WEIGHTS

Nom Size	mm	65	80	100	125	150	200	250	300	350	400	450	500	600
A	mm	118	140	158	188	212	268	325	375	430	475	528	580	690
B	mm	45	64	64	70	76	89	114	114	127	140	150	152	178
C	mm	59	69	90	110	136	185	225	278	331	381	430	475	575
D	mm	84	100	115	135	160	210	256	306	356	406	460	510	610
E	mm	13.7	15.7	25.2	33.7	43.2	61.2	71.7	96.7	121.7	146.7	155	175	195
Weight	kg	3	4	5	6	9	13	23	31	48	62	86	104	181

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Fig. 850  
Cast Iron - Wafer Pattern

**FEATURES & BENEFITS**

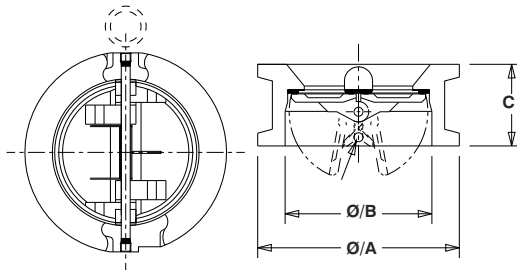
- Double door wafer pattern with spring assisted closure
- Elastomer seat vulcanised to the body casting to ensure extended seal life
- Suitable for mounting in horizontal and vertical pipelines
- Ideal for fitting between flanges to BS EN 1092-2



**MATERIAL SPECIFICATION**

Component	Specification BS EN
Body	A536 65-45-12
Plate	B584 C83600
Spring	SUS 316
Hinge Pin	SUS 304
Stop Pin	SUS 304
Retainer	A105
Body Bearing	SUS 304
Plate Bearing	SUS 304
Eye Bolt	A105
Seat	EPDM

**DIMENSIONAL DRAWINGS**



**PRESSURE/  
TEMPERATURE  
RATING**

25 bar up to 120°C

**TEST PRESSURES  
(HYDRAULIC)**

Shell: 37.5 bar  
Seat: 27.5 bar

**SPECIFICATION**

Face-to-face in accordance with BS 5155 (long pattern) ISO 5752 (long pattern).

Suitable for fitting between flanges to BS 4504 PN10/16, ANSI B16.1 Class 125 and BS 10 Table D/E.

Sizes 150mm and above are fitted with an eyebolt.

**DIMENSIONS & WEIGHTS**

Nom Size	DN	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A	mm	86	105	124	137	168	194	222	276	340	400	457	507	565	625	731
B	mm	60	60	73	89	114	141	168	219	273	324	356	406	457	508	610
C	mm	43	54	54	57	64	70	76	95	108	143	184	191	203	213	222
Weight	kg	1.8	2.5	3.5	4.5	8	10	13	28	45	68	95	132	147	202	265

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

**Fig. 5**  
**Bronze**

**FEATURES & BENEFITS**

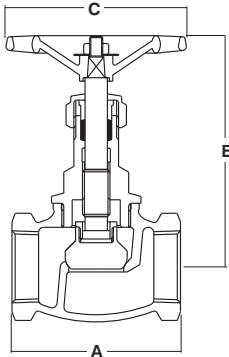
- High quality bronze body with robust spherical shape
- Rising stem and screwed bonnet
- Assures accurate flow regulation/control
- Suitable for high pressures up to 32 bar



**MATERIAL SPECIFICATION**

Component	Material	Specification	
		BS EN	ASTM
Body	Cast Bronze	1982 CC491K	B62 C83600
Disc (1/2" to 1")	Brass	12165 CW617N	B124 C37700
Disc (1 1/4" to 2")	Bronze	1982 CC491K	B62 C83600
Stem	Brass	12164 CW617N	B455 C38000
Bonnet	Bronze	1982 CC491K	B62 C83600
Stem Packing	Teflon	PTFE	-
Packing	PTFE	-	-
Handwheel	Aluminium	-	-
Gland Nut	Brass	12164 CW614N	B455 C38500
Lock Nut	Brass	12164 CW614N	B455 C38500

**DIMENSIONAL DRAWINGS**



**DIMENSIONS & WEIGHTS**

Nom Size	in	1/2	3/4	1	1 1/4	1 1/2	2
A	mm	60	74	86	99	109	130
B (open)	mm	92	108	118	137	162	166
C	mm	70	76	82	94	101	119
Weight	kg	0.4	0.5	0.9	1.4	1.7	2.7

**PRESSURE/TEMPERATURE RATING**

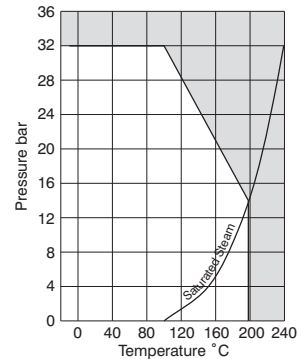
BS 5154 PN32 Series B  
14 bar at 198°C  
32 bar from -10 to 100°C

**TEST PRESSURES (PNEUMATIC)**

Body: 6 bar  
Seat: 6 bar

**SPECIFICATION**

Rising stem.  
Screwed bonnet.  
Available with NPT threads to ASTM B1.20.1.  
Taper threaded BS EN 10226 (ISO 7-1) formerly BS 21.  
BS 5154.  
Bronze Body.



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



Fig. 731  
Cast Iron

**FEATURES & BENEFITS**

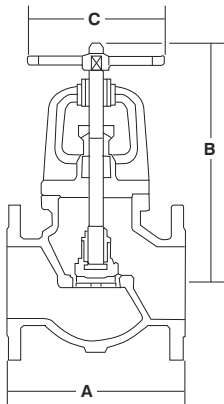
- Valve body is made of high grade cast iron and has integral flanges
- Supplied with asbestos free gland packing and gaskets
- Outside screw pattern with rising stem
- Ideal for use on more active media where fluid might have an adverse effect on thread



**MATERIAL SPECIFICATION**

Component	Material	Specification	
		BS EN	ASTM
Handwheel	Cast Iron	1561 EN-JL1030	A126 CIB
Yoke Bush	Bronze	1982 CC491K	B62 C83600
Stem	Brass	12164 CW603R	B16 C36000
Gland Flange	Ductile Iron	1563 EN-JS1030	A536 65-45-12
Gland Follower	Bronze	1982 CC491K	B62 C83600
Gland Packing	Graphite	-	-
Bonnet	Cast Iron	1561 EN-JL1040	A126 CIB
Bonnet Gasket	Graphite	-	-
Disc Stem Nut	Bronze	1982 CC491K	B62 C83600
Disc	Bronze	1982 CC491K	B584 C83600
Body Seat Ring	Bronze	1982 CC491K	B584 C83600
Body	Cast Iron	1561 EN-JL1040	A126 CIB

**DIMENSIONAL DRAWINGS**



**DIMENSIONS & WEIGHTS**

Nom Size	mm	50	65	80	100	125	150	200	250	300
A	mm	203	216	241	292	330	356	495	622	698
B (open)	mm	259	300	318	402	419	479	537	640	733
C	mm	178	178	200	254	300	300	348	400	457
Weight	kg	16	21	26	44	62	83	141	221	295

**PRESSURE/TEMPERATURE RATING**

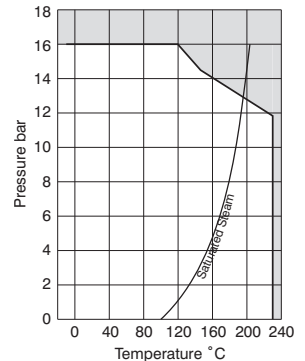
16 bar from -10 to 120°C  
11.8 bar at 230°C

**TEST PRESSURES (HYDRAULIC)**

Body: 24 bar  
Seat: 17.6 bar

**SPECIFICATION**

BS EN 13789:2010.  
Face-to-face dimensions BS EN 588-1 basic series 10.  
Cast iron body and bonnet.  
Outside screw, rising stem.  
Bronze trim.  
Sizes DN125 to DN300 have a centre guided disc.  
Handwheel operated.  
Flanged to BS EN 1092-2 PN16.  
Also available flanged BS 5152 ANSI 125 figure 731 ANSI.



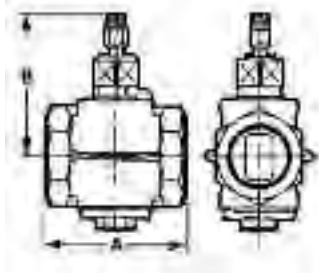
Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Fig. 170M (Screwed), 171M (Flanged) Cast Iron HNH-Milliken - Short Pattern, Reduced Bore

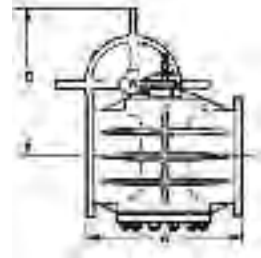
### FEATURES & BENEFITS

- Sealing compound effects a completely leak tight seal
- When open - presents a straight through passage in line with pipeline
- Stops flow after 90° turn

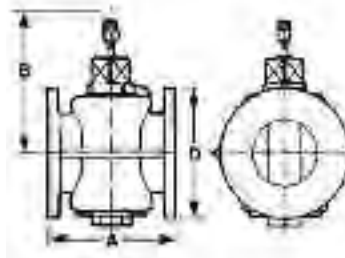
### DIMENSIONAL DRAWINGS



170M - Sizes 1" to 4"



171MG\* - Sizes 6" to 24"  
supplied with fully enclosed gearing



171M - Sizes 1" to 8"

### DIMENSIONS & WEIGHTS

#### Dimensions 170M and 171M

Nom Size	mm in	25	32	40	50	65	80	100	125	150	200
A (170M)	mm	92	102	111	152	165	187	225	-	-	-
A (171M)	mm	102	111	118	178	190	203	225	254	267	292
	in	4	4 <sup>3</sup> / <sub>8</sub>	4 <sup>5</sup> / <sub>8</sub>	7	7 <sup>1</sup> / <sub>2</sub>	8	9	10	10 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>2</sub>
B	mm	103	108	119	127	197	206	254	270	298	327
D Flanged ANSI 125	in	4 <sup>1</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>	5	6	7	7 <sup>1</sup> / <sub>2</sub>	9	10	11	13 <sup>1</sup> / <sub>2</sub>
Wrench (screwed)		G	G	J	J	L	L	O	-	-	-
Wrench (flanged)		G/C	G/C	J/C	J	L	L	O	P	P	Q
Weight (screwed)	kg	1.7	1.9	2.4	4.3	6.6	10	21	-	-	-
Weight (flanged)	kg	2.9	4.2	5.0	8.2	11	17	24	44	57	77

### DETAILS OF TAPPED HOLES

The close proximity of the flange to the body does not allow room for all bolt holes to be drilled through. These holes are drilled and tapped as follows:

Valve size	Tapped
125mm	M16
150 to 200mm	M20
250 to 300mm	M24

#### Dimensions 171MG (with gear unit)

Nom Size	mm in	150	200	250	300	400	450	500	600
		6	8	10	12	16	18	20	24
A	mm	267	292	330	356	762	864	914	1067
B	mm	380	473	532	576	738	802	843	914
D Flanged ANSI 125	in	11	13 <sup>1</sup> / <sub>2</sub>	16	19	23 <sup>1</sup> / <sub>2</sub>	25	27 <sup>1</sup> / <sub>2</sub>	32
Weight	kg	71	95	163	224	558	625	1190	1610

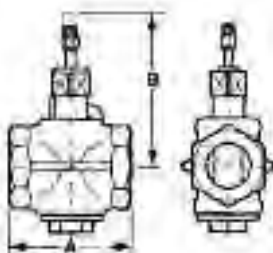
Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Fig. 200M (Screwed), 201M (Flanged) Cast Iron HNH-Milliken - Short Pattern, Full Bore

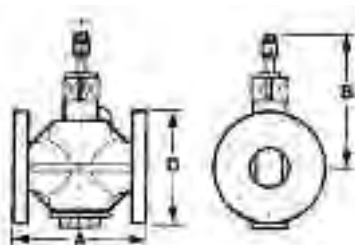
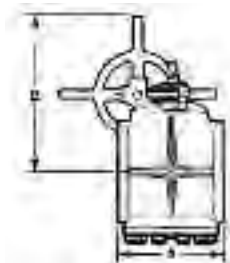
### FEATURES & BENEFITS

- Sealing compound effects a completely leak tight seal
- When open - presents a straight through passage in line with pipeline
- Stops flow after 90° turn

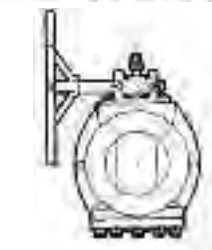
### DIMENSIONAL DRAWINGS



200M - Sizes 1/2" to 3"



201M - Sizes 1" to 8"  
Sizes 5", 6" and 8" have bolted bottom cover



201M - Sizes 5" to 8"

### DIMENSIONS & WEIGHTS

#### Dimensions 200M and 201M

Nom Size	mm	15	20	25	32	40	50	65	80	100	125	150
	in	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
A (200M)	mm	81	88	106	111	117	152	165	187	-	-	-
A (201M)	mm	-	-	121	111	117	178	190	203	229	254	267
	in	-	-	4 3/4	4 3/8	4 5/8	7	7 1/2	8	9	10	10 1/2
B	mm	-	-	108	124	127	197	206	254	270	299	327
D Flanged PN16	mm	-	-	115	140	150	165	185	200	220	250	285
D Flanged ANSI 125	in	-	-	4 1/4	4 5/8	5	6	7	7 1/2	9	10	11
Wrench		G	G	G	J	J	L	L	O	P	P	Q
Weight (200M)	kg	0.8	1.2	2.1	2.6	3.1	6.0	8.8	14	31	-	-
Weight (201M)	kg	2.7	2.7	3.9	4.6	5.7	10	13	19	39	58	77

#### Dimensions 201MG (with gear unit)

Nom Size	mm	125	150	200
	in	5	6	8
A	mm	254	267	292
	in	10	10 1/2	11 1/2
B	mm	381	473	533
D Flanged PN16	mm	250	285	340
D Flanged ANSI 125	in	10	11	13 1/4
Weight	kg	72	95	167

### DETAILS OF TAPPED HOLES

The close proximity of the flange to the body does not allow room for all bolt holes to be drilled through. These holes are drilled and tapped as follows:

Valve size	Tapped
100 and 125mm	M16
150 to 200mm	M20

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

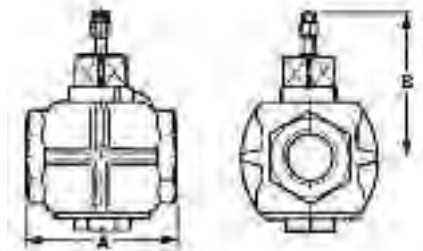
## Fig. 200R (Screwed), 201R (Flanged) Cast Iron HNH-Milliken Plug Valves - Round Port, Full Bore

### FEATURES & BENEFITS

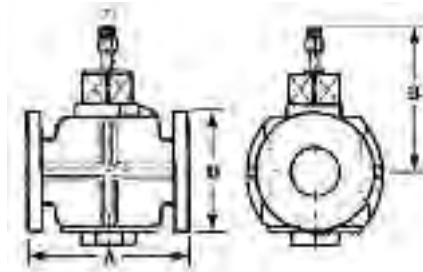
- Sealing compound effects a completely leak tight seal
- When open - presents a straight through passage in line with pipeline
- Stops flow after 90° turn



### DIMENSIONAL DRAWINGS



200R - Sizes 1", 1½" and 2" only



201R - Sizes 1¼" to 4"  
4" size has bolted bottom cover

### DIMENSIONS & WEIGHTS

#### Dimensions 200R and 201R

Nom Size	mm in	25	32	40	50	65	80	100
		1	1¼	1½	2	2½	3	4
A (200R)	mm	106	-	140	190	-	-	-
A (201R)	mm	-	127	133	190	222	244	324
	in	5	5¼	7½	8¾	9⅝	12¾	-
B	mm	114	124	140	206	216	245	286
D Flanged ANSI 125 Wrench	in	4¼	4⅝	5	6	7	7½	9
		J	J	L	O	O	P	Q
Weight (200R)	kg	1.9	3.6	4.9	12	19	25	60
Weight (201R)	kg	3.8	5.8	7.5	17	23	30	61

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

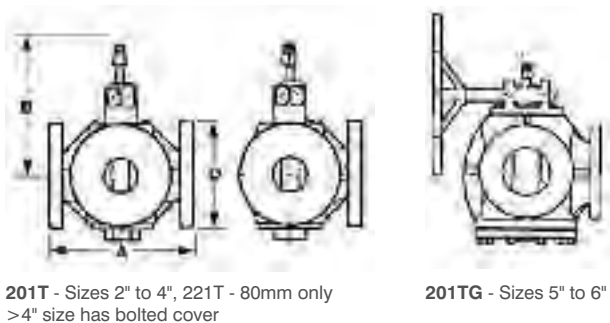
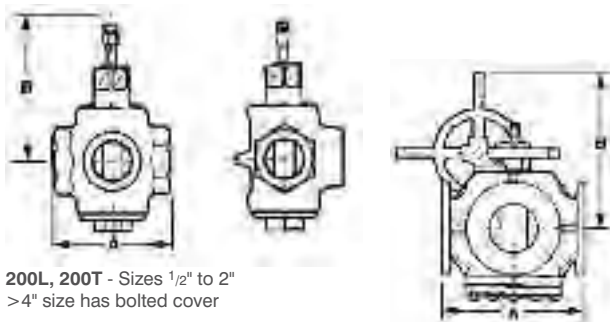
## Fig. 200L/T, 201T, 201TG, 221T Cast Iron HNH-Milliken Plug Valves - 3 Way Pattern L-Port & T-Port

### FEATURES & BENEFITS

- Sealing compound effects a completely leak tight seal
- When open - presents a straight through passage in line with pipeline
- Stops flow after 90° turn



### DIMENSIONAL DRAWINGS



### DIMENSIONS & WEIGHTS

#### Dimensions (wrench operated)

Nom Size	mm in	15 1/2	20 3/4	25 1	32 1 1/4	40 1 1/2	50 2	65 2 1/2	80 3	100 4
A (200L/T)	mm	99	99	108	127	140	162	-	-	-
A (201T/221T)	mm	-	-	-	-	-	216	248	267	324
	in	-	-	-	-	-	8 1/2	9 3/4	10 1/2	12 3/4
B	mm	108	108	118	133	133	206	222	257	302
Flanged PN16	mm	-	-	-	-	-	165	185	200	220
D Flanged ANSI 125	in	-	-	-	-	-	6	7	7 1/2	9
Wrench		G	G	J	J	L	L	O	P	Q
Weight (screwed)	kg	1.7	1.6	2.5	3.8	5.2	8.4	15	29	51
Weight (flanged)	kg	-	-	-	-	-	13	24	39	82

#### Dimensions (with gear unit)

Nom Size	mm in	125 5	150 6
A	mm	387	406
	in	15 1/4	16
B	mm	476	521
D Flanged PN16	mm	250	285
D Flanged ANSI 125	in	10	11
Weight	kg	125	151

### VALVE IDENTIFICATION

Ends	Operation	Fig No
<b>Non-transflow</b>		
Screwed	Wrench	200L
Screwed	Wrench	200T
Flanged	Wrench	201T
Flanged	Geared	201TG
<b>Transflow</b>		
Flanged	Wrench	221T

Transflow pattern valves allow reduced flow through the ports during rotation of the plug from one position to another.

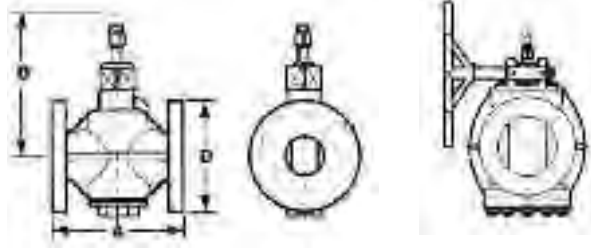
Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Fig. 401M (Flanged) Cast Iron HNH-Milliken Plug Valves - Regular Pattern, Full Bore

### FEATURES & BENEFITS

- Sealing compound effects a completely leak tight seal
- When open - presents a straight through passage in line with pipeline
- Stops flow after 90° turn

### DIMENSIONAL DRAWINGS



401M - Sizes 2" to 4"

401MG - Sizes 5" to 6"

### DIMENSIONS & WEIGHTS

#### Dimensions 401M

Nom Size	mm in	15 1/2	20 3/4	25 1	32 1 1/4	40 1 1/2	50 2	65 2 1/2	80 3	100 4
A (401M)	mm	-	-	-	-	-	216	241	283	305
	in	-	-	-	-	-	8 1/2	9 1/2	11 1/8	12
B	mm	102	105	108	124	127	187	206	254	270
D Flanged ANSI 250	in	-	-	4 7/8	5 1/4	6 1/8	6 1/2	7 1/2	8 1/4	10
Wrench		G	G	G	J	J	L	L	O	P
Weight (401M)	kg	3.0	3.7	5.0	5.6	7.0	15	17	28	51

#### Dimensions 401MG (with gear unit)

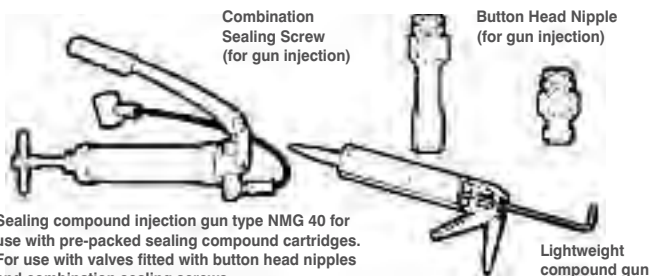
Nom Size	mm in	125 5	150 6
A	mm	381	403
	in	15	15 7/8
B	mm	381	473
D Flanged ANSI 250	in	11	12 1/2
Weight	kg	92	120

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# Servicing Instructions

## HNH-Milliken Parallel Plug Valves

### Positive isolation with minimum maintenance



Sealing compound injection gun type NMG 40 for use with pre-packed sealing compound cartridges. For use with valves fitted with button head nipples and combination sealing screws.

#### Injection of Compound

When the combination screw has reached its limit (screwed fully down) this indicates that the valve needs recharging with sealing compound.

When using the lightweight compound gun, remove the combination screw, partially fill the compound reservoir in the plug, replace the combination screw, and screw down. This operation may need repeating several times. When using the NMG 40 high pressure gun, attach the nozzle to the injection nipple and give several steady strokes of the lever.

VALVES MUST EITHER BE FULLY OPEN OR FULLY CLOSED WHILST THEY ARE BEING CHARGED.

#### Indication of Full Charging

The first indication of the valve becoming fully charged is an increase in the effort required to rotate the combination screw, or with the high pressure gun injection an increase in the effort required on the lever.

The effort required to operate the valve should have increased from the initial operation prior to injection of sealing compound.

#### Method of injection

Where the number of valves to be charged is small, ie. 12-15 valves, especially if they are in the smaller sizes, lightweight gun injection can be successfully used. For larger quantities use of the NMG40 high pressure gun is recommended.

#### Valve Leakage

Leakage through the valve indicates that the valve requires injection of sealing compound or that it needs opening and closing a minimum of three times to distribute the compound evenly.

#### Operating Torque

Should a valve become jammed or unusually stiff to operate, this can generally be cured by the injection of sealing compound. If this is ineffective, it will be necessary to dismantle the valve, clean the components and recharge with sealing compound.

#### Servicing

Advice is available from the Hattersley Service Department in connection with all aspects of operation, lubrication and maintenance.

## SEALING

In service sealing compound should be used for each individual medium to affect good isolation. Our recommendations for sealing compounds are the result of considerable research. If there is any doubt as to the suitability of a particular compound for a given service, test should be carried out in a new clean valve. This is the only way to conduct such tests. Laboratory tests using a beaker of line fluid and immersing a stick of compound have proved misleading. Where samples of fluid can be supplied, together with details of temperature and pressure, and if known frequency of operation, we will carry out specific tests and give our recommendations based upon the results.

## CONSTRUCTION

Only five major parts are involved when dismantling ie. body, parallel plug, PTFE thrust ring, bottom cover and plug support spring.

## OPERATION

Care must be taken particularly with geared valves that the plug is eased off the body stop after operation to ensure the plug is free to float.

## ROUTINE MAINTENANCE

Valves are despatched by Hattersley charged with sealing compound. A compound identification tag states clearly that the valve has been assembled and tested with a universal compound. The user is advised to follow the chart overleaf for specific applications. When injecting additional sealing compound, care should be taken to ensure that it is of the correct type. Where the service permits, the valve should be partially or fully operated once to ensure free operation and to determine the effort required.

For infrequently operated valves maintenance merely consists of two or three turns of the combination screw or, if gun injection, several strokes of the lever, and opening and closing the valve a minimum of three times to distribute the compound evenly around the plug at three monthly intervals. It is difficult to be specific how often the valve should be recharged with sealing compound, since this is determined by the frequency of operation, type of service, pressure and temperature.

No.	Temperature Range	Colour of Compound	Colour of Box Label	Availability	Do NOT use for	Cleaning Solvent
18*	32° to 450°F 0° to 230°C	Black	Buff	Bulk	Water or Strong Chemicals	Water Trichloroethane
44	-40° to 284°F -40° to 140°C	Black	Green Prepacked Cartridges	Tubes, Bulk and Strong Chemicals	Strong Chemicals Trichloroethane	Trichloroethane
74	-31° to 500°F -34° to 260°C	Grey	Apple Green	Bulk and Prepacked Cartridges	Nitrating Acids Steam, HTHW	Paraffin Hot Water
90**	-20° to 375°F -30° to 190°C	White	White	Bulk and Prepacked Cartridges	Solvents	Acetone

\* Not suitable for gun injection \*\* UK WFBS Listed

## Sealing Compound Recommendations

\* Refer to Technical Department

Service	Sealing Compound	Service	Sealing Compound	Service	Sealing Compound
Acetone/Acetate	74	Chloride of Lime	90,74	Ferrous Chloride (Pure)	90,74
Acetone	74	Chocolate	No compound	Fish Oil	44
Air	90,74	Chrome Alum	90,74	Fuel JP4	44
Alcohols	74	Chrome Tanning Liquor	90,74	Fuel Oil	44
Alkaline Solutions	74	Coal Gas	44	Furlural	44
Ammonia Anhydrous	74	Coal Gas Condensate	90,44	Gases	*
Ammonia (Gas)	74	Coal/Petroleum Mixed Gas		Gas (Manufactured)	90,44
Ammonia (Liquid)	74	Condensate	90,44	Gas (Natural)	90,44
Ammoniacal Copper Hydroxide	74	Coal Tar	18	Gas Oil	44
Ammonium Hydroxide	74	Coal Tar Oils	74	Gasoline	44
Amyl Alcohol (Pure)	74	Coal Tar Solvents	44	Glucose	90
Aniline Dyes	74	Coal Washers	90,74	Glycerine (Glycerol)	90,74
Anthraccine Oil	74	Coconut Oil	90,74	Grain Alcohols (Ethyl Alcohol)	74
Aromatic Hydrocarbons	44	Coke Oven Gas	90,74	Grease	44,74
Aromatic Solvents	44	Condensate	90	Gypsum (Calcium Sulphate)	90
Asphalt	18,74	Corn Oil	90,74	Helium Gas	90,44
Asphalt Emulsions	18,74	Corn Syrup (Glucose)	90	Heptane	44
Barium Hydroxide	74	Cotton Seed Oil	90,74	Heavy Oil (Coke Plant)	44
Beet Sugar Liquors	90	Creosote	44,18	Hexane	44
Benzene	44	Cumene	44	Hydraulic Fluid (Haughtosafe 271)	44
Benzyl Alcohol	74	Cutting Oil	44	Hydraulic Oil	44
Bocarbonate of Soda	74	Cyanide Solutions	90,74	Hydrocarbons (Aromatic)	44
Bitumen	18,74	Denatured Alcohol	74	Hydrogen Gas	90,44
Blast Furnace Gas	90,74	Dextrine	90	Kerosene	44
Boiler Blow Down	90	Diesel Fuel	44	Ketones (Not Acetone)	44,74
Borax	90	Distillate Petroleum	44	Lard	90
Brake Fluid	74	Disinfectant Solution	90	Latex	*
Bunker Fuel	161	Enamel (see Paint)		Light Naphthas	44
Butadiene	44	Epsom Salts	90	Light Oil	44,74
Butane (Gas or Liquid)	44	Ethane Gas	44	Linseed Oil	90,74
Butanol	74	Ethanalamine	74,44	Liquid Petroleum Gas (LPG)	44
Butyl Alcohol	74	Ether, Petroleum	44	Lubricating Oil	44
Calcium Chloride Solution	90,74	Ethers	44	Lye Solutions (Alkalies)	74
Calcium Hydroxide (Lime Water)	90,74	Ethyl Acetate	44	Magnesium Hydroxide	90
Calcium Sulphate	90,74	Ethyl Alcohol (Ethanol)	74	Maltose (Malt Syrup)	90
Cane Sugar Liquors	90	Ethyl Benzene	44	Manufactured Gas	90,44
Carbolic Acid (Phenol Sol.)	74	Ethyl Chloride Gas or Liquid	44	Methane Gas	90,44
Carbonate of Soda	74	Ethylene	44,18	Methyl Alcohol (Methanol)	74
Carbon Bisulphide	44	Ethylene Dichloride (Dry)	44,74	Methyl Bromide	74
Carbon Dioxide	90,74	Ethylene Gas	44,18	Methyl Chloride, Gas or Liquid	44
Carbon Monoxide Gas	90,74	Ethylene Glyco/Water Sol. (50% Antifreeze)	90,74	Methylated Spirits	74
Carburetted Water Gas	44,74	Ethylene Glycol	74	Milk of Lime	90,74
Caster Oil	74			Mineral Oil	44
Caustic Potash	74			Mineral Spirits	44
Caustic Soda	74			Molasses	90
Cellulose Acetate Solutions	74			Monothanolomine	74,44
Cellulose Nitrate	74				
Cement (Dry)	90,74				
Cement Slurries	90,74				



## Sealing Compound Recommendations

\* Refer to Technical Department

Service	Sealing Compound	Service	Sealing Compound	Service	Sealing Compound
Naptha	44	Sewage	90,44	Water (Cold)	90
Naptha Vapours	44	Sewage Gas	90,44	Water (Cold, Domestic)	90
Naphthalene	44,74	Shell Cornea	44	Water (Hot, Heating)	90
Natural Gas	90,44	Shell Garia "A"	44	Water/Gas	90,74
Nitrobenzene	44	Shell Turbine Oil	44	Water Softener Salts	90,74
Nitrogen Gas	90,44	Shellac in Alcohol	74	Wax Emulsions	90,74
		Shock Absorber Oil (Mineral)	*	Waxes	44,74
Oil Gas Mixture	44	Sludge and Sewage	90,44	White Spirit	44
Oil (Petroleum)	44	Soap Solutions	90,74	Wood Alcohol (Methyl Alcohol)	74
Oil Tar	18,74	Soda Liquor (Paper Industry)	74	Wort, Beer	90
Oil Water Mixtures	90,44	Sodium Carbonate (Soda Ash)	74	Xylol (Xylene)	44
		Sodium Cyanide Solution	90,74		
Paints		Sodium Hydroxide			
- Alcohol Solvent Base	74	(up to 50% Conc.)	74		
- Hydrocarbon Solvent Base	44	Sodium Metasilicate	74		
- Varnish	44	Sodium Nitrate	90		
- Water Based	90	Sodium Phosphate (Tri-basic)	90,74		
- White Spirit Based	44	Sodium Silicate	74		
Paraffin	44	Sodium Sulphate	90,74		
Paraffin Wax	90,44	Soluble Oil	90,74		
Pentane	44	Solvent Naphtha	17,44		
Petrolatum (Petroleum Jelly)	44,74	Starch Solutions	90		
Petroleum Gas	90,44	Sugar Solutions	90		
Petroleum Ether	44	Sulphur (Liquid)	44,18,74		
Phthalic Anhydride	74	Sulphur Dioxide	74		
Pine Resin	90,74	Sulphur Trioxide	74		
Pitch	18,74	Synthetic Resins	*		
Polyester Resin Solvent	*	Synthetic Tannins	*		
Polyisobutylene	44				
Polyvinyl Acetate Emulsion	*	Tanning Liquors	90,74		
Potash (Potassium Carbonate)	90,74	Tar	18,74		
Potassium Cyanide Liquor	90,74	Tar Oil (Creosote)	44,18		
Potassium Sulphate	90	Teepol	90		
Producer Gas	90,44	Tempering Oil	44,18		
Propane (Gas or Liquid)	90,44	Tetraethyl Lead	44		
Propylene	44	Toluene (Toluol)	44		
Pyridine	*	Triethanolamine	74		
		Trimethylamine	44,74		
Quenching Oil	44,18	Trisodium Phosphate	90,74		
		Turpentine	44		
Rapeseed Oil	90,44,74	Tallow	90		
Road Tars	18,74				
Rosin (Fine Resin)	*	Vacuum Service	90,44		
Rubber Latex	*	Varnish (See Paints)			
Rubber Solvent	*	Vegetable Oils	90,74		
		Vegetable Oils and Water	90,74		
		Vegetable Tannins	90,74		
		Vinyl Chloride Monomer	74		

## Cast Iron HNH-Milliken Plug Valves Operating and Test Pressures

Flanged	Sizes	Pressure/Temperature Rating	
		Hot	Cold
BS EN 1092-2 PN16	All	11.2 bar at 250°C	16 bar from -10 to 120°C
ANSI B16.1 Class 125	1/2 to 12"	125lb/in <sup>2</sup> at 450°F	200lb/in <sup>2</sup> from -20 to 150°F
ANSI B16.1 Class 125	14 to 24"	100lb/in <sup>2</sup> at 353°F	150lb/in <sup>2</sup> from -20 to 150°F
BS1560 Class 125	15 to 300mm	8.6 bar at 230°C	13.8 bar from -10 to 65°C
BS1560 Class 125	350 to 600mm	6.9 bar at 180°C	10.3 bar from -10 to 65°C
ANSI B16.1 Class 250	1/2 to 12"	250lb/in <sup>2</sup> at 450°F	500lb/in <sup>2</sup> from -20 to 150°F
ANSI B16.1 Class 250	14 to 24"	200lb/in <sup>2</sup> at 406°F	300lb/in <sup>2</sup> from -20 to 150°F
BS1560 Class 250	15 to 300mm	17.2 bar at 230°C	34.5 bar from -10 to 65°C
BS1560 Class 250	350 to 600mm	14.1 bar at 200°C	20.7 bar from -10 to 65°C

Screwed	Sizes	Pressure/Temperature Rating	
		Hot	Cold
PN16	All	10.8 bar at 260°C (157lb/in <sup>2</sup> at 500°F)	16 bar from -10 to 120°C (232lb/in <sup>2</sup> from -23 to 248°F)
Class 250	All	17.5 bar at 260°C (253lb/in <sup>2</sup> at 500°F)	34.5 bar from -10 to 120°C (500lb/in <sup>2</sup> from -23 to 248°F)

### Hydrostatic Test Pressures

Fig. No	End Connection	Pressure Rating	Nominal Size	Body Test bar lbf/in <sup>2</sup>		Seat Test bar lbf/in <sup>2</sup>	
200M	Screwed	PN16	DN15 (1/2") to DN80 (3")	24.0	348	17.6	255
200R			DN25 (1") to DN50 (2")				
200L/T			DN15 (1/2") to DN50 (2")				
171MG	Flanged	PN16	DN150 (6") to DN600 (24")				
201M	Flanged	PN16	DN25 (1") to DN200 (8")	24.0	348	17.6	255
201R			DN32 (1 1/4") to DN100 (4")				
201T			DN50 (2") to DN150 (6")				
221T			DN80 (3")				
205M							
401M	Flanged	ANSI 250	DN50 (2") to DN150 (6")	51.7	750	34.5	500

Note 1: All valves 1/2" to 1 1/2" inclusive are pneumatically tested to:  
 Body: 6 to 7 bar  
 Seat: 6 to 7 bar

### VALVE PRESSURE/TEMPERATURE RATING

The pressure/temperature ratings given apply to the valve only.

The maximum temperature at which a valve may operate depends upon the sealing compound with which the valve is filled.

However, should the sealing compound have an operating temperature different to that of the valve the lower temperature must apply.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

**Fig. 807/907**  
**Bronze Y-Type**



**FEATURES & BENEFITS**

- Robust and high quality bronze body
- Streamlined flow contours minimise pressure drop
- Compact design with short face to face
- Perforated stainless steel screen
- Captive asbestos-free non-stick gasket
- Comprehensive flow characteristics available



**MATERIAL SPECIFICATION**

Component	Material	Specification	
		BS EN	ASTM
Body	Bronze	1982 CC491K	B62
Screen	Stainless Steel	10088-1 X10CrNi18-10	AISI 304
Gasket	Asbestos Free (non-stick)	-	-
Cap	Bronze	1982 CC491K	B62

**PRESSURE/TEMPERATURE RATING**

PN32  
14 bar at 198°C  
32 bar from -10 to 100°C  
Note: Fig. 907 restricted to 135°C

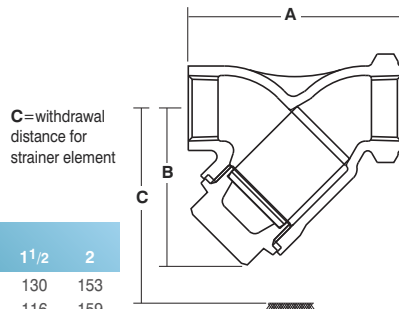
**TEST PRESSURES (HYDRAULIC)**

Shell: 6 bar air

**SPECIFICATION**

Standard screen has 0.75mm diameter holes.  
Screwed cap.  
Ends threaded to BS EN 10266 (BS21 ISO R7).  
Figure 907 supplied complete with two Figure 631 test points and plugs.

**DIMENSIONAL DRAWINGS**

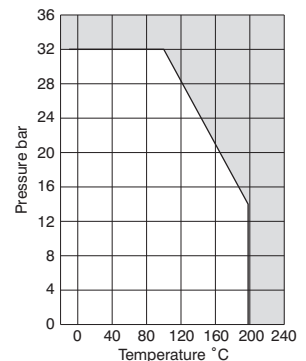


**DIMENSIONS & WEIGHTS**

Nom Size	in	1/2	3/4	1	1 1/4	1 1/2	2
A	mm	68	80	95	115	130	153
B	mm	49	64	89	97	116	159
C	mm	65	90	115	135	165	235
k Factor		3.3	4.2	3.6	3.2	3.3	3.5
Weight	kg	0.4	0.5	0.9	1.5	1.8	3.3

**SCREEN DATA**

Nom Size	in	1/2	3/4	1	1 1/4	1 1/2	2
Holes Dia	mm	0.75	0.75	0.75	0.75	0.75	0.75
Holes cm <sup>2</sup>		50	50	50	50	50	50
Free Flow Area	cm <sup>2</sup>	22.6	22.6	22.6	22.6	22.6	22.6
Element Area	cm <sup>2</sup>	24.6	36	68.5	107.1	143.1	255
Free Flow Area	cm <sup>2</sup>	5.5	8.1	15.5	24.2	32.3	57.6
% Nominal Bore		434	284	305	305	283	284



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# Fig. 811/911 Ductile Iron Y-Type

## FEATURES & BENEFITS

- High strength ductile iron construction
- Streamlined flow contours minimise pressure drop
- Asbestos-free non-stick gasket
- Suitable for saturated steam service
- Comprehensive flow characteristics available



## MATERIAL SPECIFICATION

Component	Material	Specification	
		BS EN	ASTM
Body	Ductile Iron	1561 EN JS1050	-
Cover	Ductile Iron	1561 EN JS1050	-
Screen	Stainless Steel	SS 304	AISI 304
Gasket	Teflon/Graphite	-	-
Plug	Ductile Iron	1561 EN JS1050	-

## PRESSURE/ TEMPERATURE RATING

PN25  
21.5 bar at 220°C  
25 bar from -10 to 120°C  
Note: 911 restricted to 180°C

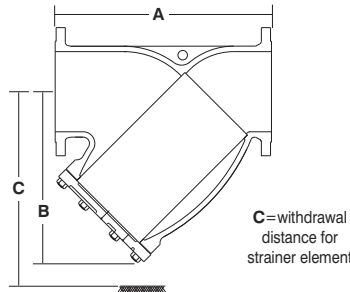
## TEST PRESSURES (HYDRAULIC)

Shell: 37.5 bar

## SPECIFICATION

Bolted cover.  
Figure 911 supplied complete with two figure 631 valve controlled test points.  
All other sizes flanged to BS EN 1092-2 PN25.

## DIMENSIONAL DRAWINGS

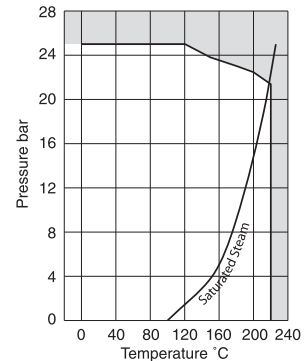


## DIMENSIONS & WEIGHTS

Nom Size	mm	50	65	80	100	125	150	200	250	300
A	mm	230	273	295	352	416	470	573	660	770
B	mm	146	174	198	232	285	305	401	473	554
C	mm	178	216	248	300	373	450	621	703	834
Cover Plug	in	1/2	1	1	1	1 1/4	1 1/2	1 1/2	2	2
Weight	kg	10.5	14.9	19.2	32.4	48	64.5	106	175	251
Flow	kv	59	93	136	229	363	499	817	1361	1928

## SCREEN DATA

Nom Size	mm	50	65	80	100	125	150	200	250	300
Hole Dia	mm	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Free Flow Area/cm <sup>2</sup>	%	33	33	33	40	40	40	40	40	40



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Hattersley Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# VALVES



Crane Fluid Systems offers a full range of traditional ball, butterfly, check, gate and globe valves along with a range of static and dynamic balancing valves as well as flow management modules. Widely specified in the industrial and HVAC markets with proven product quality and reliability.

For details of our full range visit  
[www.cranefs.com](http://www.cranefs.com)

**CRANE**<sup>®</sup>

FLUID SYSTEMS

## F614, F624, F628



### Fully-Lugged Lever Operated Butterfly Valves to BS EN 593: 2009

#### Key Features

- Aluminium Bronze discs
- Stainless steel shaft
- Trigger lever
- Valves are suitable for use with flanges conforming to BS EN 1092-2 PN10 or PN16

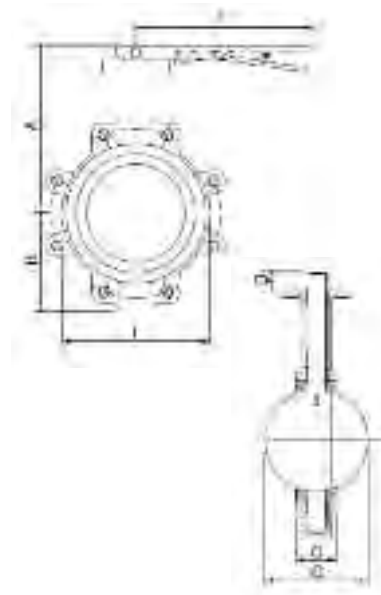
#### Materials

PART	MATERIAL
Body	Ductile Iron ASTM A536 (Epoxy Paint)
Disc	Aluminium Bronze
Liner (F614)	Nitrile Temp. -10 to 90°C
Liner (F624)	EPDM (WRAS approved) Temp. -10 to 100°C
Liner (F628)	EPDM (High Temperature) Temp. -10 to 130°C
Shaft	Stainless Steel Type 410
Taper Pin	Stainless Steel Type 316
Key	Carbon Steel
O-Ring	Buna-N
Bushing	PTFE
Lever & Screw	Carbon Steel (Epoxy Paint)
Stop Plate	Carbon Steel (Zn Plated)



F614

#### Dimensional Drawing



#### Dimensions & Weights

SIZE (mm)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
50	4	195	83	44	32	102	260	32
65	4.5	207	95	48	32	121	260	46
80	7.2	213	102	48	32	130	260	64
100	12.6	232	124	54	32	171	260	90
125	13.5	245	136	57	32	197	260	111
150	14.9	257	150	57	32	219	260	145
200	24.1	305	197	63	44	268	356	193

#### Pressure/Temperature Ratings

	F614	F624	F628
TEMPERATURE (°C)	-10 to 90	-10 to 100	-10 to 130
PRESSURE (BAR)	16	16	16

**Pressure Rating:** PN16

**End Connection:** Lugged

**Operator:** Trigger lever

#### Specification:

F614 - Suitable for Group 1 and 2 gases and Group 1 and 2 liquids as defined by the Pressure Equipment Directive 97/23/EC.

F624 - Suitable for Group 2 liquids only as defined by the Pressure Equipment Directive 97/23/EC and these valves are WRAS Approved.

F628 - Suitable for Group 1 and 2 gases and Group 1 and 2 liquids as defined by the Pressure Equipment Directive 97/23/EC.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## F615, F625, F629

### Fully-Lugged Gearbox Operated Butterfly Valves to BS EN 593: 2009

#### Key Features

- Aluminium Bronze disc
- Stainless steel shaft
- Gearbox operated
- Valves are suitable for use with flanges conforming to BS EN 1092-2 PN10 or PN16 - Sizes 65-200mm
- BS EN 1092-2 PN16 flanges only - Sizes 250-600mm PN16 only

#### Materials

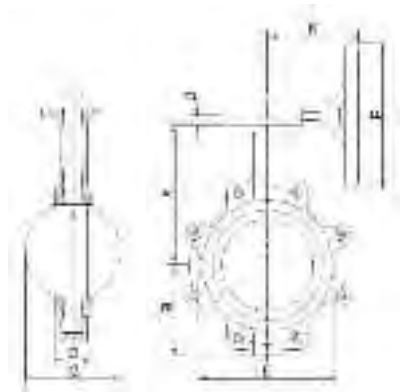
PART	MATERIAL
Body	Ductile Iron ASTM A536 (Epoxy Paint)
Disc	Aluminium Bronze
Liner (F615)	Nitrile Temp. -10 to 90°C
Liner (F625)	EPDM (WRAS approved) Temp. -10 to 100°C
Liner (F629)	EPDM (High Temperature) Temp. -10 to 130°C
Shaft	Stainless Steel Type 410
Taper Pin	Stainless Steel Type 316
Key	Carbon Steel
O-Ring	Buna-N
Bushing	PTFE



#### Dimensions & Weights

SIZE (mm)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	K (mm)
50	15.5	162	83	44	42	102	150	32	240
65	16	175	95	48	42	121	150	46	240
80	18.7	181	102	48	42	130	150	64	240
100	24.1	200	124	54	42	171	150	90	240
125	25	213	136	57	42	197	300	111	240
150	26.4	225	150	57	42	219	300	145	240
200	36.7	260	197	63	40	268	300	193	230
250	47.1	292	210	70	40	332	300	241	230
300	62.1	337	248	79	40	410	300	290	230
350	84.9	368	279	79	40	435	300	325	230
400	123.8	400	305	89	-	508	450	380	277
450	139.7	422	381	108	-	543	450	427	277
500	215.5	479	381	133	-	592	450	474	321
600	337.3	562	457	156	-	708	450	574	335

#### Dimensional Drawing



#### Pressure/Temperature Ratings

	F615	F625	F629
TEMPERATURE (°C)	-10 to 90	-10 to 100	-10 to 130
PRESSURE (BAR)	16	16	16

**Pressure Rating:** PN16

**End Connection:** Lugged

**Operator:** Gearbox

#### Specification:

F615 - Suitable for Group 1 and 2 gases and Group 1 and 2 liquids as defined by the Pressure Equipment Directive 97/23/EC.

F625 - Suitable for Group 2 liquids only as defined by the Pressure Equipment Directive 97/23/EC and these valves are WRAS Approved.

F629 - Suitable for Group 1 and 2 gases and Group 1 and 2 liquids as defined by the Pressure Equipment Directive 97/23/EC.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## D142

### Bronze Swing Check Valve

Check valves permit flow in one direction only, and close automatically if flow reverses. They are entirely automatic in action, depending upon pressure and velocity of flow within the line to perform their functions of opening and closing. The Crane D142 bronze check valve is of the swing variety.



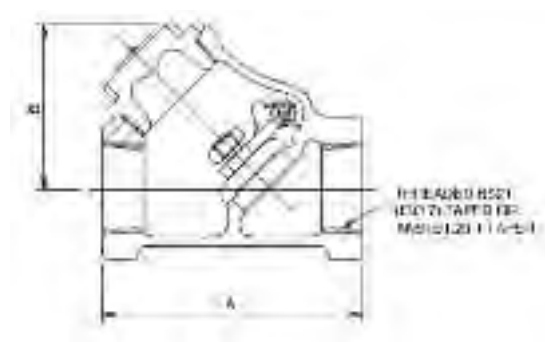
#### Materials

PART	MATERIAL
Body	Bronze BS EN 1982 CC491K
Cap	Bronze BS EN 1982 CC491K
Cap	Brass BS EN 12164 CW721R
Disc	Bronze BS EN 1982 CC491K
Disc	Brass BS EN 12164 CW614N
Disc	Brass BS EN 12164 CW614N
Hinge Nut	Brass BS 2874 CZ121
Hinge Pin/Plug	Stainless Steel
Hinge	Bronze BS EN 1982 CC491K
Drive Pin	Steel - Electro Brassed
ID Plate	Aluminium

#### Dimensions & Weights

SIZE (inch)	WEIGHT (kg)	A (mm)	B (mm)
1/4	0.26	54	37
3/8	0.25	54	37
1/2	0.39	62	43
3/4	0.62	76	52
1	1.07	94	65
1 1/4	1.65	110	76
1 1/2	2.56	126	89
2	4.05	152	108
2 1/2	6.4	186	134
3	9.3	218	160

#### Dimensional Drawing



**Pressure Rating:** PN32

**End Connection:** BS21 Taper

**Operator:** Swing Check, screwed in cap. Can be mounted vertically as long as flow is upwards.

#### Specification:

Valves are manufactured in accordance with BS5154 for Series A ratings.

Design is of the Y-Pattern having flat regrindable swing disk and integral regrindable body seat. The disk is retained on the hinge by a locked nut and is free to swivel. The hinge pin is retained by an external threaded plug.

Valves having ANSI threads also generally conform to MSS SP-80.

This valve is not suitable for use on group 1 gasses or unstable fluids, as defined by the Pressure Equipment Directive 97/23/EC.

Temperature operating range: -10 to 260°C.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



## FM455

### Ductile Iron Wafer Check Valve

Check valves permit flow in one direction only, and close automatically if flow reverses. They are entirely automatic in operation, depending upon pressure and velocity of flow within the pipeline to perform their opening and closing functions.

The FM455 is a Double Door wafer pattern valve, spring loaded to assist closing, and with an EPDM seat for quiet operation.

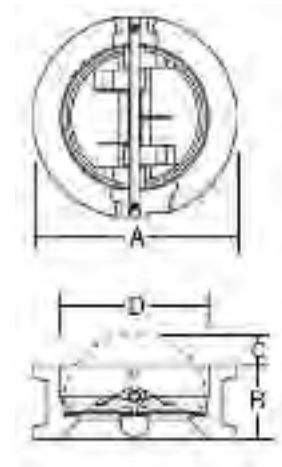


FM455

### Materials

PART	MATERIAL
Body	Ductile Iron - BS EN 1561 EN-JL1030
Discs	Stainless Steel SS316
Shaft	Stainless Steel 10088-1 X10CrNi8-10
Stop Pin	Stainless Steel 10088-1 X10CrNi8-10
Seat	EPDM
Springs	Stainless Steel 10088-1 X10CrNi8-10

### Dimensional Drawing



### Dimensions & Weights

SIZE (mm)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)	D (mm)
50	2.5	105	54	8	60
65	3.5	124	54	14	73
80	4.5	137	57	16	89
100	8.0	168	64	25	114
125	10.0	194	70	34	141
150	13.0	222	76	43	168
200	28.0	276	95	61	219
250	45.0	340	108	80	273
300	68.0	400	143	102	324

### Pressure/Temperature Ratings

TEMPERATURE (°C)	-10 to 120
PRESSURE (BAR)	25

### Specification:

Face to Face dimensions conform to BS EN 558-1. Suitable for fitting between flanges conforming to BS EN 1092-2 PN25 Suitable for mounting in horizontal and vertical pipelines.

When installed in vertical pipelines the flow must be in an upward direction.

This valve is suitable for use on group 2 liquids only as defined by the pressure equipment directive and 97/23/EC.

Temperature operating range: -10 to 120°C.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# 147XU

**Cast Steel • Bolted Cap • Flanged**

## Key Features

- Swing check valves prevent reversal of flow through the pipeline
- Can be installed in horizontal or vertical, upward flow piping
- Offer low resistance to flow and are particularly suited to low velocity service
- Seat ring is seal welded to eliminate leak paths

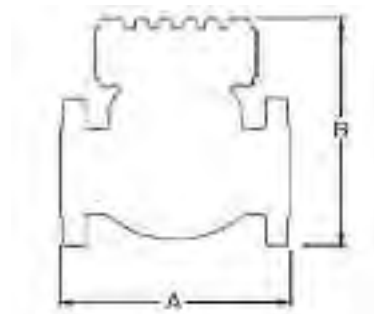
## Materials

PART	MATERIAL
Body	A216 WCB
Cap	A216 WCB
Seat Ring	Hardfaced
Disc	13% CR Overlay
Hinge	WCB
Pins, Hinge	410 SS
Disc Washer	Steel
Cap Screw	A307 Gr. B
Cap Gasket	Soft Iron
Cap Studs	A193 Gr. B7
Cap Nuts	A194 Gr. 2H
ID Tags	SS
ID Pins	Steel



147XU

## Dimensional Drawing



## Dimensions & Weights

SIZE (inch)	WEIGHT (lbs)	A (inches)	B Valve Open (inches)
2	33	8.00	6.75
2½	57	8.50	7.12
3	59	9.50	7.38
4	93	11.50	8.50
6	165	14.00	10.25
8	275	19.50	11.88
10	440	24.50	13.88
12	680	27.50	15.75
14	950	31.00	17.75
16	1225	34.00	19.00
18	1700	38.50	21.25
20	1850	38.50	23.58
24	2900	51.00	26.75

## Industry Standards

<b>STEEL VALVES</b>	ANSI B16.34
<b>FACE-TO-FACE/END-TO-END</b>	ANSI B16.10
<b>FLANGE DIMENSIONS</b>	ANSI B16.5
<b>TESTING</b>	API 598
<b>ACCEPTANCE</b>	API RP591

**Size Range:** 2 - 24 inches

## Pressure Temperature Rating:

Carbon Steel  
ASTM A216 Grade WCB  
285 psi @ -20°F to 100°F

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# 159XU

## Cast Steel • Bolted Cap • Flanged

### Key Features

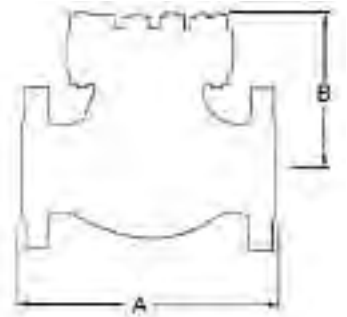
- Swing check valves prevent reversal of flow through the pipeline
- Can be installed in horizontal or vertical, upward flow piping
- Offer low resistance to flow and are particularly suited to low velocity service
- Seat ring is seal welded to eliminate leak paths

### Materials

PART	MATERIAL
Body	A216 WCB
Bonnet	A216 WCB
Seat Ring	Hardfaced
Disc	13% CR Overlay
Hinge	WCB
Pins, Hinge	410 SS
Cap Screw	A307 Gr. B
Cap Gasket	Spiral Wound
Cap Studs	A193 Gr. B7
Cap Nuts	A194 Gr. 2H
ID Tags	SS
ID Pins	Steel



### Dimensional Drawing



### Dimensions & Weights

SIZE (inch)	WEIGHT (lbs)	A (inches)	B Valve Open (inches)
2	46	10.50	6.75
2 <sup>1</sup> / <sub>2</sub>	66	11.50	7.38
3	86	12.50	8.50
4	154	14.00	9.25
6	276	17.50	11.88
8	420	21.00	13.38
10	640	24.50	13.88
12	1000	28.00	16.62
14	1550	33.00	18.88
16	1700	34.00	20.50
18	2200	38.50	23.62
20	2800	44.00	26.38
24	3650	53.00	29.62

### Industry Standards

STEEL VALVES	ANSI B16.34
FACE-TO-FACE/END-TO-END	ANSI B16.10
FLANGE DIMENSIONS	ANSI B16.5
TESTING	API 598
ACCEPTANCE	API RP591

**Size Range:** 2 - 24 inches

### Pressure Temperature Rating:

Carbon Steel  
 ASTM A216 Grade WCB  
 740 psi @ -20°F to 100°F

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## 47XU-F

**Cast Steel • Outside Screw & Yoke • Flexible Wedge Disc • Flanged**

### Key Features

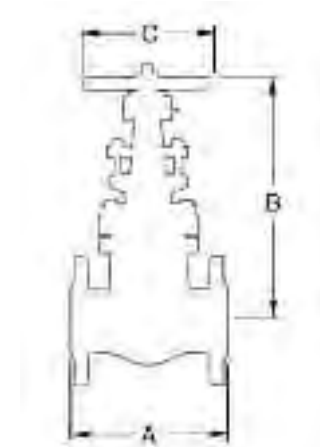
- Efficient stop valves with flow in either direction
- Commonly used where a minimum pressure drop is important
- Flexible wedge compensates for deformation of body due to pipe stress
- Seat ring is seal welded to eliminate leak paths

### Materials

PART	MATERIAL
Body	A216 WCB
Bonnet	A216 WCB
Seat Rings	Hardfaced
Disc	CA-15 or 13% CR Overlay
Stem	410 SS
Packing	Graphite
Bonnet Gasket	Soft Iron
Back Seat	410 SS
Yoke Sleeve	D2 Ni-Resist
Retaining Nut	Malleable or Steel
Gland	Steel
Gland Flange	Steel
Eye Bolt	Steel
Eye Bolt Nuts	Steel
Pins	Steel
Bonnet Studs	A193 Gr. B7
Bonnet Nuts	A194 Gr. 2H
Handwheel	Malleable, Ductile or Steel
Handwheel Nut	Ductile or Steel
ID Tags	SS
ID Pins	Steel
Spacer	Steel
Grease Fittings	Steel



**Dimensional Drawing**



### Dimensions & Weights

SIZE (inch)	WEIGHT (lbs)	A (inches)	B Valve Open (inches)	C (inches)
2	46	7.00	16.50	8.00
2½	70	7.50	18.00	8.00
3	76	8.00	21.00	9.00
4	110	9.00	23.00	10.00
6	175	10.50	31.00	12.00
8	310	11.50	39.00	14.00
10	455	13.00	46.75	16.00
12	650	14.00	55.00	18.00
14	860	15.00	60.50	20.00
16	1120	16.00	68.50	20.00
18	1400	17.00	77.50	23.62
20	2125	18.00	84.00	23.62
24	3120	20.00	99.00	28.35

### Industry Standards

<b>STEEL VALVES</b>	ANSI B16.34
<b>FACE-TO-FACE/END-TO-END</b>	ANSI B16.10
<b>FLANGE DIMENSIONS</b>	ANSI B16.5
<b>BASIC DESIGN</b>	API 600
<b>TESTING</b>	API 598
<b>ACCEPTANCE</b>	API RP591

**Size Range:** 2 - 24 inches

**Pressure Temperature Rating:**

Carbon Steel  
ASTM A216 Grade WCB  
285 psi @ -20°F to 100°F

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## 33XU-F

### Cast Steel • Outside Screw & Yoke • Flexible Wedge Disc • Flanged

#### Key Features

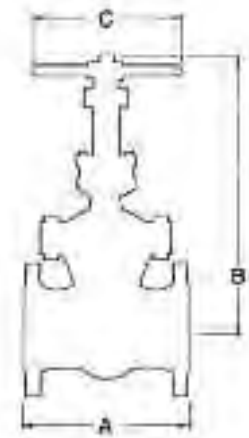
- Efficient stop valves with flow in either direction
- Commonly used where a minimum pressure drop is important
- Flexible wedge compensates for deformation of body due to pipe stress
- Seat ring is seal welded to eliminate leak paths

#### Materials

PART	MATERIAL
Body	A216 WCB
Bonnet	A216 WCB
Seat Rings	Hardfaced
Disc	CA-15 or 13% CR Overlay
Stem	410 SS
Packing	Graphite
Bonnet Gasket	Spiral Wound
Back Seat	410 SS
Yoke Sleeve	D2 Ni-Resist
Retaining Nut	Malleable or Steel
Disc Washer	Carbon Steel
Gland	Steel
Gland Flange	Steel
Eye Bolt	Steel
Eye Bolt Nuts	Steel
Pins	Steel
Bonnet Studs	A193 Gr. B7
Bonnet Nuts	A194 Gr. 2H
Handwheel	Malleable, Ductile or Steel
Handwheel Nut	Ductile or Steel
ID Tags	SS
ID Pins	Steel
Spacer	Steel
Grease Fittings	Steel



#### Dimensional Drawing



#### Dimensions & Weights

SIZE (inch)	WEIGHT (lbs)	A (inches)	B Valve Open (inches)	C (inches)
2	74	8.50	16.00	8.00
2 1/2	80	9.50	19.00	8.00
3	108	11.12	22.00	9.00
4	165	12.00	25.00	10.00
6	320	15.88	32.75	14.00
8	500	16.50	40.00	16.00
10	760	18.00	49.50	18.00
12	1020	19.75	57.50	20.00
14	1380	30.00	64.50	20.00
16	1960	33.00	71.50	24.00
18	2450	36.00	78.50	23.62
20	3890	39.00	86.50	28.35
24	6292	45.00	104.00	35.43

#### Industry Standards

STEEL VALVES	ANSI B16.34
FACE-TO-FACE/END-TO-END	ANSI B16.10
FLANGE DIMENSIONS	ANSI B16.5
BASIC DESIGN	API 600
TESTING	API 598
ACCEPTANCE	API RP591

**Size Range:** 2 - 24 inches

#### Pressure Temperature Rating:

Carbon Steel  
ASTM A216 Grade WCB  
740 psi @ -20°F to 100°F

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# FM63

## Cast Iron

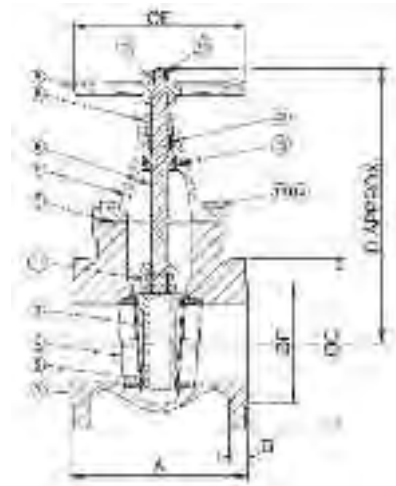
Crane cast iron gate valves offer the ultimate in dependable service wherever minimum pressure drop is important. Each valve is manufactured in accordance with BS EN 1171: 2002 and hydrostatically tested to BS EN 12266-1: 2003.

### Materials

NO.	DESCRIPTION	MATERIAL	MATERIAL SPEC
1	Body	Grey Iron	BS EN 1561 GJL-250
2	Bonnet	Grey Iron	BS EN 1561 GJL-250
3	Disc	Grey Iron	BS EN 1561 GJL-250
4	Body Seat Ring	Bronze	BS EN 1982 (CC491K)
5	Disc Seat Ring	Bronze	BS EN 1982 CC491K)
6	Stem	Stainless Steel	BS 970:410S21
7	Gasket	Graphite	Graphite (Asbestos Free)
8	Gland Packing Nut	Stainless Steel	BS 970:304S31
9	Handwheel	Grey Iron	BS EN 1561 EN-GJL-250
10	Stem Retaining Ring	Stainless Steel	BS 970:304S31
11	Disc Stem Nut	Bronze	BS EN 1982 (CC491K)
12	Packing Ring	Graphite	Graphite (Asbestos Free)
13	Body/Bonnet Bolt	Steel	BS 3692 GR 8.8
14	Body/Bonnet Nut	Steel	BS 3692 GR 8
15	Handwheel Retaining Nut	Steel	BS 4190 GR 4
16	Handwheel Washer	Steel	BS 4320
17	Body ID Plate (Not Shown)	Aluminium	-



**Dimensional Drawing**



### Dimensions & Weights

SIZE (mm)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
65	18.7	190	20	185	262	190	118
80	23.9	203	22	200	286	190	132
100	37.6	229	24	220	356	220	156
125	50.7	254	26	250	426	300	184
150	63.8	267	26	285	463	300	211
200	104.3	292	30	340	578	350	266
250	194.5	330	32	405	773	406	319
300	275.5	356	32	460	860	457	370

### Pressure/Temperature Ratings

<b>TEMPERATURE (°C)</b>	-10 to 120	200
<b>PRESSURE (BAR)</b>	16	12.8

Intermediate pressure ratings shall be determined by interpolation.

All dimensions are nominal. Please note size 50mm is also available, please refer to the website.

**Pressure Rating:** PN16

**End Connection:**

Flanged BS EN 1092-2: PN16

**Pressure/Temperature Operating**

**Range:** -10 to 120°C at 16 bar, 200°C at 12.8 bar

**Specification:**

Wedge Disk, Non-Rising Stem, Inside Screw, Hand Wheel Operated. This valve is not suitable for use on group 1 gases or unstable fluids, as defined by the Pressure Equipment Directive 97/23/EC.

**Available Options:**

Flanges undrilled, P139 Stem Adaptor.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## F58

### Cast Iron

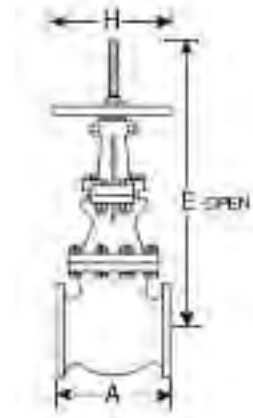
Crane cast iron gate valves offer the ultimate in dependable service wherever minimum pressure drop is important.

#### Materials

PART	MATERIAL	SIZES
Body	Cast Iron BS EN 1561 GJL-250	All
Bonnet	Cast Iron BS EN 1561 GJL-250	All
Disc	Cast Iron BS EN 1561 GJL-250	All
Stem	13% Cr.Steel BS970 Pt.1 410S21 or 431S29	All
Body Seat Ring	Bronze BS EN 1982 CC491K	All
Disc Ring	Bronze BS EN 1982 CC491K	All
Yokesleeve	Bronze BS EN 1982 CC491K	All
Yokesleeve Nut	Ductile Iron ASTM A536 65-45-12	2, 3, 5, 8 & 10
Yokesleeve Nut	Cast Iron BS EN 1561 GJL-250	2½, 4, 6 & 12
Yokesleeve Retaining Nut	Ductile Iron ASTM A536 65-45-12	2, 3 & 5
Yokesleeve Retaining Nut	Cast Iron BS EN 1561 GJL-250	2½, 4, 6 & 12
Disc Stem Nut	Bronze BS EN 1982 CC491K	All
Gland	Cast Iron BS EN 1561 GJL-250	All
Packing	Asbestos Free	All
Gasket	Asbestos Free	All
Yoke	Cast Iron BS EN 1561 GJL-250	8, 10 & 12
Hand Wheel	Malleable Iron BS EN 1562 GJMB-300-6	All



#### Dimensional Drawing



#### Dimensions & Weights

SIZE (inch)	WEIGHT (kg)	A (mm)	B (mm)	H (mm)
2	17	178	365	152
2½	20	190	448	152
3	28	203	481	203
4	38	229	622	229
5	56	254	672	254
6	60	267	835	254
8	112	292	989	305
10	185	330	1208	356
12	242	356	1469	406

#### Pressure/Temperature Ratings

TEMPERATURE (°C)	-10 to 65	230
PRESSURE (BAR)	13.8	8.6

Intermediate pressure ratings shall be determined by interpolation.

**Pressure Rating:** Class 125

**End Connection:** ANSI Class 125

**Operator:** Hand Wheel.

Gate valves are best for services that require infrequent valve operation, and where the disc is kept either fully opened or fully closed. They are not practical for throttling.

#### Available Options:

Flanges Undrilled. P50 Locking Device.

#### Specification:

Valves are manufactured in accordance with BS 5150: 1990. End flanges conform to BS 1560 section 3.2/ANSI B16.1 Class 125 with flat face and are normally supplied drilled.

Wedge Disc, Rising Stem, Outside Screw and Yoke.

This valve is not suitable for use on group 1 gases or unstable fluids, as defined by the Pressure Equipment Directive 97/23/EC. Temperature operating range: -10 to 230°C.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# D15

## Bronze Globe Valve



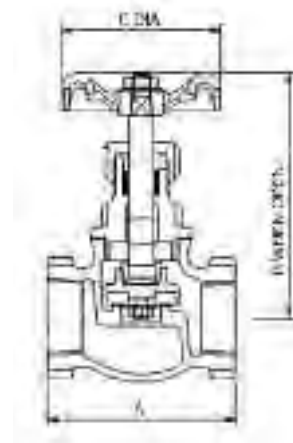
The Crane D15 Bronze Globe Valve is highly efficient for throttling service. \*Sizes 2 1/2" and 3" are rated at PN25. This valve carries the British Standards Institution kitemark - your assurance of exacting quality.

### Materials

PART	MATERIAL	SIZES
Body	Bronze BS EN 1982 CC491K	All
Bonnet	Bronze BS EN 1982 CC491K	All
Disc Stem Ring	Brass BS EN 12163 CW721R	All
Disc	PTFE (25% Glass Filled)	All
Disc Holder	Bronze BS EN 1982 CC491K	1 1/4 - 3
Disc Holder	Brass BS EN 12165 CW617N	1/4 - 1
Disc Retaining Nut	Brass BS EN 12164 CW614N	1/4 - 2
Disc Retaining Nut	Bronze BS EN 1982 CC491K	2 1/2 & 3
Washer	Brass BS EN 12164 CW614N	1/4 - 2 only
Stem	Brass BS EN 12163 CW721R	1/4 - 2
Stem	Manganese Bronze	2 1/2 & 3
Gland	Brass BS EN 12164 CW614N	All
Packing	Asbestos Free	All
Packing Nut	Brass BS EN 12164 CW614N	1/4 - 2
Packing Nut	Bronze BS EN 1982 CC491K	2 1/2 - 3
Hand Wheel	Aluminium	1/4 - 2 1/2
Hand Wheel	Malleable Iron BS EN 1562 GJMB-300-6	3 only
Hand Wheel Nut	Brass BS EN 12164 CW614N	All
ID Plate	Aluminium	All
Gasket	Asbestos Free	2 1/2 only
Gasket	Stainless Steel	3 only



### Dimensional Drawing



### Dimensions & Weights

SIZE (inch)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)
1/4	0.4	52	100	52
3/8	0.39	52	100	52
1/2	0.54	62	101	52
3/4	0.65	74	115	52
1	0.81	90	125	70
1 1/4	1.55	100	150	70
1 1/2	2.01	115	159	92
2	3.08	136	191	103
2 1/2	6.1	166	220	121
3	10.5	190	255	152

### Pressure/Temperature Ratings

<b>TEMPERATURE (°C)</b>	-10 to 100	198
<b>PRESSURE (BAR)</b>	32	14

Intermediate pressure ratings shall be determined by interpolation.

### Pressure Rating: PN32

### EU End Connection:

Taper threaded to BS EN 10226-2 (ISO 7-1) formerly BS 21.

### US End Connection:

ANSI B1.20.1 (please add suffix AT to denote American Thread)

### Operator: Hand Wheel

### Specification:

Valves are manufactured in accordance with BS 5154: 1991 series B, PN32 for sizes 1/4" to 2" and PN25 for sizes 2 1/2" and 3"

Sizes 1/4" to 3" Taper threaded to BS EN 10226-2 (ISO 7-1) formerly BS 21 BSI Kitemarked. Design incorporates a disc holder retained on stem by a threaded ring; body seat is integral of the semi-crown type.

This valve is not suitable for use on group 1 gasses or unstable fluids, as defined by the Pressure Equipment Directive 97/23/EC.

Temperature operating range: -10 to 198°C.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



## FM369

### Cast Iron Globe Valve

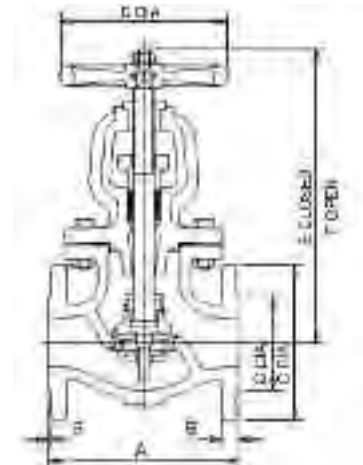
Crane cast iron globe valves are highly efficient for throttling because seat and disc designs provide flow characteristics with proportionate relationships between valve lift and flow rate.

#### Materials

PART	MATERIAL	SIZE
Body	Cast Iron BS EN 1561 GJL-250	All
Bonnet	Cast Iron BS EN 1561 GJL-250	All
Disc Guide Pin	Brass BS EN 12164 CW721R	125 - 150
Gland	Brass BS EN 12164 CW614N	All
Gland Flange	Malleable Iron BS EN 1562 GJMB-300-6	All
Gasket	Asbestos Free	All
Disc Stem Ring	Brass BS EN 12164 CW721R	All
Lockwasher	Brass BS EN 1652	All
Disc	Bronze BS EN 1982 CC491K	All
Body Seat Ring	Bronze BS EN 1982 CC491K	All
Stem	Brass BS EN 12164 CW721R	All
Packing	Asbestos Free	All
Yoke Bushing	Brass BS EN 12164 CW721R	All
Hand Wheel	Malleable Iron BS EN 1562 GJMB-300-6	All



#### Dimensional Drawing



#### Dimensions & Weights

SIZE (mm)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
50	24.2	203	20	165	203	310	335	102
65	29	216	20	185	203	330	356	122
80	36.9	241	22	200	229	362	392	138
100	56	292	24	220	254	416	446	158
125	72.3	330	26	250	305	457	489	188
150	98.8	356	26	285	305	476	516	212

#### Pressure/Temperature Ratings

TEMPERATURE (°C)	-10 to 100	220
PRESSURE (BAR)	16	12.1

Intermediate pressure ratings shall be determined by interpolation.

**Pressure Rating:** PN16

**End Connection:**

Flanged BS EN 1092-2 PN16

**Operator:** Hand Wheel

**Available Options:**

Flanges Undrilled

#### Specification:

Valves are manufactured in accordance with BS EN 13789:2010.

End flanges conform to BS EN 1092-2 PN16 with raised face.

Valves are normally supplied drilled.

This valve is not suitable for use on group 1 gasses or unstable fluids, as defined by the Pressure Equipment Directive 97/23/EC.

Temperature operating range: -10 to 220°C.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# 143XU

## Cast Steel • Outside Screw & Yoke • Bolted Bonnet

### Key Features

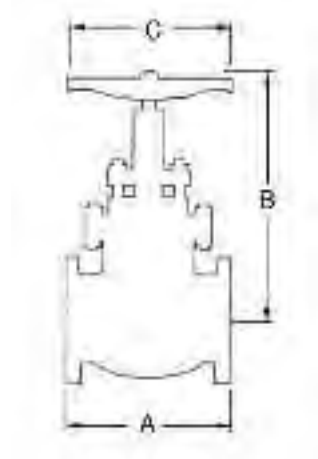
- Ideal for throttling service
- Flow characteristics permit accurate and repeatable flow control
- Seat ring is seal welded to eliminate leak paths

### Materials

PART	MATERIAL
Body	A216 WCB
Bonnet	A216 WCB
Seat Rings	Hardfaced
Disc	13% CR Overlay
Stem	410 SS
Packing	Graphite
Bonnet Gasket	Soft Iron
Back Seat	410 SS
Disc Stem Nut	410 SS
Disc Washer	Carbon Steel
Gland	410 SS
Gland Flange	WCB
Eye Bolt	Steel
Eye Bolt Nuts	A563 Gr. A or O
Pins	-
Bonnet Studs	A193 Gr. B7
Bonnet Nuts	A194 Gr. 2H
Handwheel	WCB
Handwheel Nut	A194 Gr. 2H
ID Tags	SS
ID Pins	Steel



### Dimensional Drawing



### Dimensions & Weights

SIZE (inch)	WEIGHT (lbs)	A (inches)	B Valve Open (inches)	C (inches)
2	53	8.00	14.00	8.00
2½	70	8.50	15.00	8.00
3	90	9.50	17.00	10.00
4	143	11.50	20.00	12.00
6	246	16.50	24.00	16.00
8	392	19.50	25.00	16.00
10	605	24.50	29.00	20.00
12	900	27.50	38.00	20.00

### Industry Standards

<b>STEEL VALVES</b>	ANSI B16.34
<b>FACE-TO-FACE/END-TO-END</b>	ANSI B16.10
<b>FLANGE DIMENSIONS</b>	ANSI B16.5
<b>TESTING</b>	API 598
<b>ACCEPTANCE</b>	API RP591

**Size Range:** 2 - 12 inches

### Pressure Temperature Rating:

Carbon Steel  
ASTM A216 Grade WCB  
285 psi @ -20°F to 100°F

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# 151XU

## Cast Steel • Outside Screw & Yoke • Bolted Bonnet

### Key Features

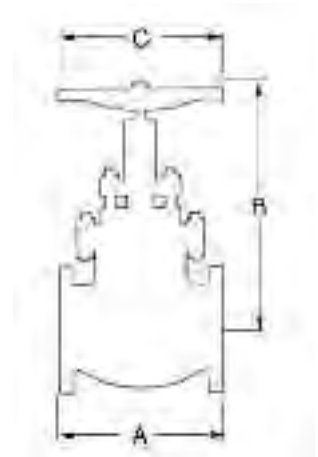
- Ideal for throttling service
- Flow characteristics permit accurate and repeatable flow control
- Seat ring is seal welded to eliminate leak paths

### Materials

PART	MATERIAL
Body	A216 WCB
Bonnet	A216 WCB
Seat Rings	Hardfaced
Disc	13% CR Overlay
Stem	410 SS
Packing	Graphite
Bonnet Gasket	Spiral Wound
Back Seat	410 SS
Disc Stem Nut	410 SS
Disc Washer	Carbon Steel
Gland	410 SS
Gland Flange	WCB
Eye Bolt	Steel
Eye Bolt Nuts	A563 Gr. A or O
Pins	-
Bonnet Studs	A193 Gr. B7
Bonnet Nuts	A194 Gr. 2H
Handwheel	WCB
Handwheel Nut	A194 Gr. 2H
ID Tags	SS
ID Pins	Steel



151XU  
Dimensional Drawing



### Dimensions & Weights

SIZE (inch)	WEIGHT (lbs)	A (inches)	B Valve Open (inches)	C (inches)
2	75	10.50	16.75	8.00
2½	99	11.50	18.00	10.00
3	132	12.50	21.00	10.00
4	209	14.00	23.00	14.00
6	440	17.50	36.00	18.00
8	693	22.00	39.00	24.00
10	1008	24.50	41.00	24.00
12	1100	28.00	48.00	24.00

### Industry Standards

STEEL VALVES	ANSI B16.34
FACE-TO-FACE/END-TO-END	ANSI B16.10
FLANGE DIMENSIONS	ANSI B16.5
TESTING	API 598
ACCEPTANCE	API RP591

**Size Range:** 2 - 12 inches

**Pressure Temperature Rating:**

Carbon Steel  
ASTM A216 Grade WCB  
740 psi @ -20°F to 100°F

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# D297

## Bronze Strainer



Scale and dirt in piping systems cause endless trouble and frequently serious damage to pipeline equipment. Installation of Crane strainers will help eliminate the problems caused by foreign matter within piping systems.

The Crane D297 features: perforated stainless steel screen, robust design, low flow resistance, high quality materials, WRAS approved.



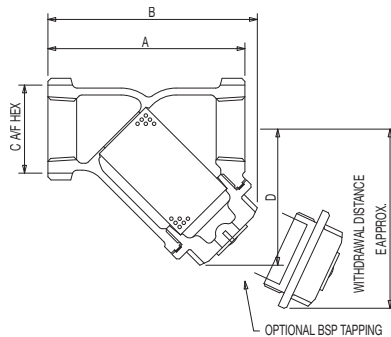
### Materials

PART	MATERIAL	SIZES
Body	Bronze BS EN 1982 CC491K	All
Cap	Bronze BS EN 1982 CC491K	All
Gasket	Asbestos Free (WRAS)	All
ID Plate	Aluminium	All
Pin	Steel - Electro Brassed	All
Screen	Stainless Steel Type 304	All

### Dimensions & Weights

SIZE (inch)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
1/2	0.38	71	79	30	51	61
3/4	0.63	86	96	38	64	77
1	0.96	101	110	47	72	92
1 1/4	1.81	134	144	56	100	128
1 1/2	2.43	148	157	65	109	139
2	4.13	176	183	79	126	160

### Dimensional Drawing



### Pressure/Temperature Ratings

<b>TEMPERATURE (°C)</b>	-10 to 100	200
<b>PRESSURE (BAR)</b>	32	14

Intermediate pressure ratings shall be determined by interpolation

### Pressure Rating: PN32

**EU End Connection:** Taper threaded to BS EN 10226-2 (ISO 7-1) formerly BS 21

**US End Connection:** ANSI B1.20.1 (please add suffix AT to denote American Thread)

### Specification:

Strainers fitted with stainless steel perforated strainer element with 0.75mm diameter holes.

Screens fitted into Crane Strainers conform to the high standards of materials and workmanship associated with all Crane products.

This strainer is not suitable for use on group 1 gasses or unstable fluids, as defined by the Pressure Equipment Directive 97/23/EC.

Temperature operating range: -10 to 200°C.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## FM278

### Ductile Iron Strainer

Scale and dirt in piping systems causes endless trouble and frequent serious damage to pipeline equipment. Installation of Crane strainers will help eliminate the problems caused by foreign matter with piping systems.

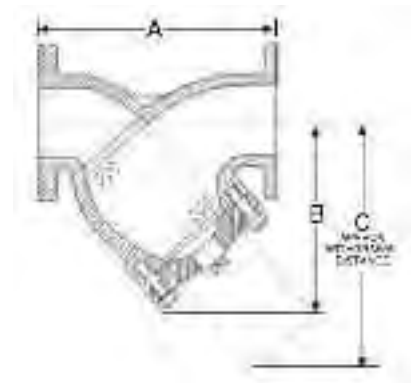
The FM278 offers the integrity of manufacture, quality and reliability which are the hallmarks of Crane products.

#### Materials

PART	MATERIAL
Body	Ductile Iron - BS EN 1563 EN GJS 500/7
Cap	Ductile Iron - BS EN 1563 EN GJS 500/7
Gasket	Asbestos Free
Plug	Ductile Iron - BS EN 1563 EN GJS 500/7
Screen	304 Stainless Steel



#### Dimensional Drawing



#### Dimensions & Weights

SIZE (mm)	WEIGHT (kg)	A (mm)	B (mm)	C (mm)
50	12.0	230	146	193
65	25.0	273	174	272
80	33.0	295	198	272
100	43.0	352	232	330
125	73.0	416	285	406
150	97.0	470	305	457
200	164.0	543	401	577
250	270.0	660	473	696
300	400.0	770	554	828

#### Pressure/Temperature Ratings

TEMPERATURE °C	-10 to 120
PRESSURE (BAR)	25

**Pressure Rating:** PN25

**End Connection:** Flanged to BS EN 1092-2 PN25

#### Specification:

Flanges conform to BS EN 1092-2 PN25 Section 3.2 table 11 with raised face. Strainers are supplied with a stainless steel perforated strainer element having 1.6mm diameter holes.

This product is suitable for use on Group 2 liquids only, as defined by the Pressure equipment Directive 97/23/EC.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



Project: Kettleby Foods, Melton Mowbray  
Specification: Crane Fluid Systems Isolation Valves

# SAFETY VALVES

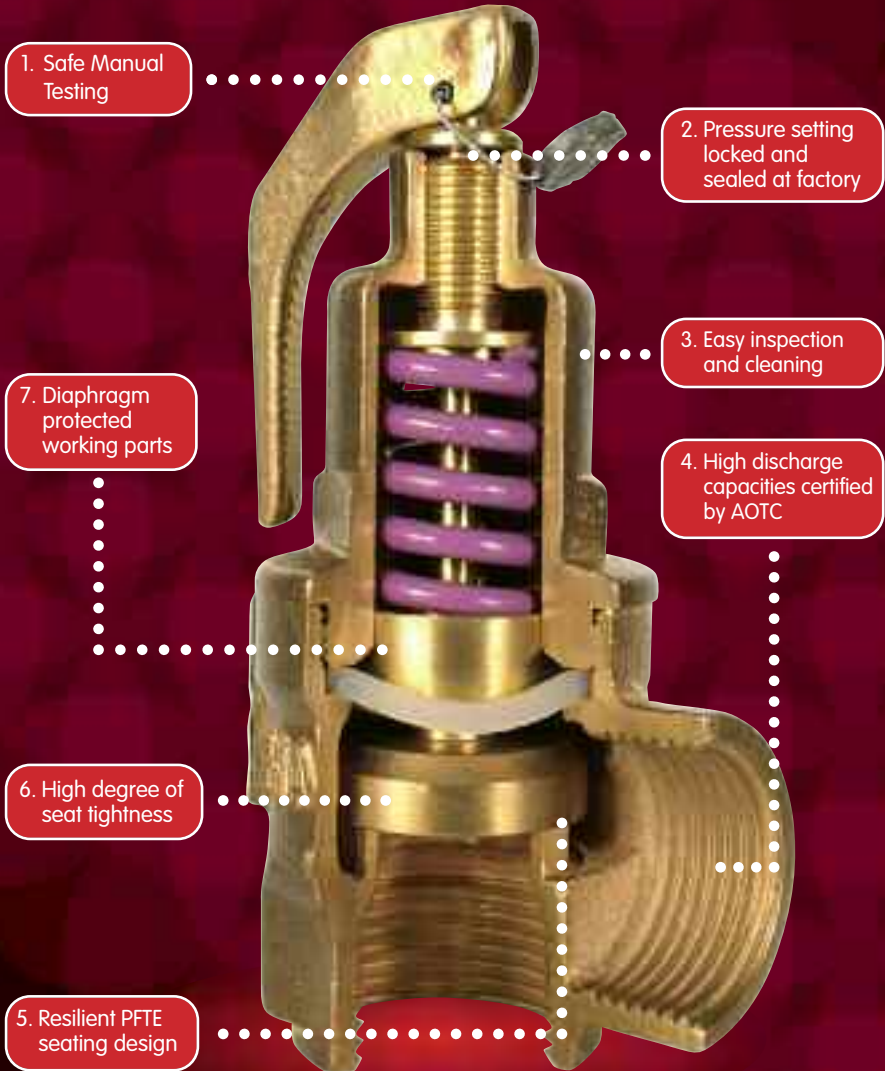


NABIC offers a complete range of gunmetal safety and pressure relief valves. NABIC has long been recognised as the industry standard for commercial and industrial hot water applications. In fact, NABIC valves are ideal for hot water supply, heating, pump relief, bypass relief, outside installation and for use with difficult gases and liquids.

For details of our full range visit  
[www.nabic.co.uk](http://www.nabic.co.uk)

# NABIC<sup>TM</sup>

Designed and tested to the latest British Standards with third party certified discharge capacities, NABIC valves are manufactured under an ISO 9001 quality assurance system. Every valve is tested after assembly and again before despatch to ensure high product quality is maintained.



1. Safe Manual Testing

2. Pressure setting locked and sealed at factory

3. Easy inspection and cleaning

4. High discharge capacities certified by AOTC

7. Diaphragm protected working parts

6. High degree of seat tightness

5. Resilient PTFE seating design



# NABIC™

## Fig. 542 Safety Relief Valve

The figure 542 Safety Valve is an extremely versatile valve, suitable for use on hot water, steam or air. Although designed primarily for the protection of hot water boilers, its wide range of applications makes it an ideal valve for stocking as a general purpose safety valve. They are ideal for pump relief, bypass relief, outside installations and on cold water mains to protect from PRV failure.

### Features & Benefits

- Resilient PTFE seating design
- High degree of seat tightness
- Suitable for hot water, steam and air
- Diaphragm protected working parts
- Safe manual testing
- Easy inspection and cleaning
- Pressure setting locked and sealed
- Designed and tested to BS 6759
- Capacities certified by AOTC
- UKWFBS listed
- Padlock available
- Body material - Gunmetal
- WRAS approved

### Pressure/Temperature Ratings

**MAX SET PRESSURE** 10.5 Bar

**MAX TEMPERATURE** 195°C

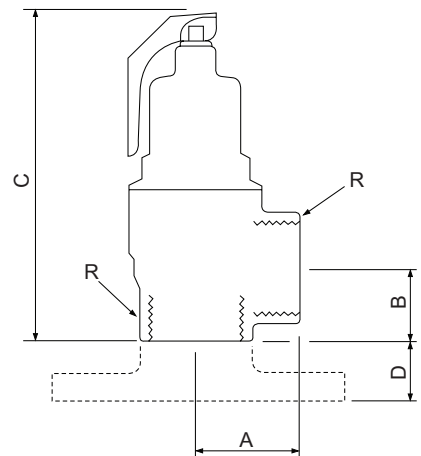
### Dimensions

SIZE DN	R BSP	A (mm)	B (mm)	C (mm)	D (mm)
15	1/2	30	23	113	-
20	3/4	34	23	118	-
25	1	39	27	132	-
32	1 1/4	46	33	153	27
40	1 1/2	54	38	198	27
50	2	64	46	236	27
65	2 1/2	76	55	275	28
80	3	90	65	335	31



Fig. 542

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 542L Pressure Relief Valve

NABIC Pressure Relief Valves are intended for use where pressure tightness is required on the discharge side of the valve. They are ideal for pump relief, bypass relief and on outside installations.

### Features & Benefits

- Resilient PTFE seating design
- High degree of seat tightness
- Suitable liquids and gases
- Top guided working parts
- Pressure tight on discharge side
- Designed and tested to BS 6759
- Flanged inlets available
- Body material - Gunmetal



Fig. 542L

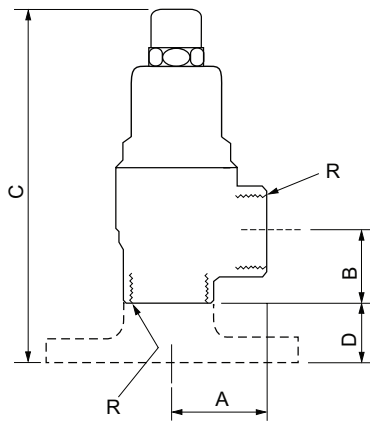
### Pressure/Temperature Ratings

MAX SET PRESSURE	10.5 Bar
MAX TEMPERATURE	195°C

### Dimensions

SIZE DN	R BSP	A (mm)	B (mm)	C (mm)	D (mm)
15	1/2	30	23	113	-
20	3/4	34	23	118	-
25	1	39	27	132	-
32	1 1/4	46	33	180	27
40	1 1/2	54	38	224	26
50	2	64	46	263	27
65	2 1/2	76	55	303	28
80	3	90	65	366	31

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 500T Combined Pressure and Temperature Relief Valve

The figure 500T Combined Pressure and Temperature Relief Valve has been designed for use on unvented hot water supply systems, where protection against excess temperature is required in addition to pressure protection. Pressure and temperature elements of the valve operate independently, thereby providing dual safety protection in the one valve.

### Features & Benefits

- Resilient soft seating design
- High discharge capacity
- Powerful thermostat
- Dual safety protection
- Diaphragm protected working parts
- Safe manual testing
- Easy inspection and cleaning
- Pressure setting locked and sealed
- Designed and tested to BS 6759
- Body material - Gunmetal

### Pressure/Temperature Ratings

MAX SET PRESSURE	12.5 Bar
MAX TEMPERATURE	95°C
MAX WORKING TEMPERATURE	75°C

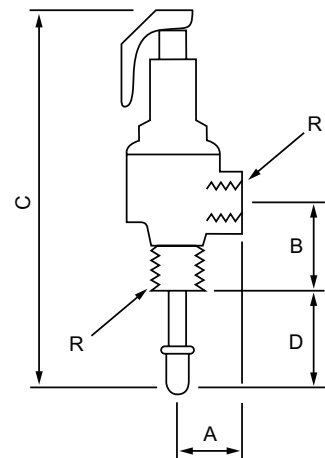
### Dimensions

SIZE DN	R BSP	A (mm)	B (mm)	C (mm)	D (mm)
15	3/4	34	48	230	81
20	1	39	47	240	81
25	1 1/4	45	56	260	81
32	1 1/2	54	62	350	127
40	2	64	71	400	127
50	2 1/2	76	82	430	127



Fig. 500T

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 500 High Lift Safety Valve

This valve has been designed primarily for use on unvented hot water heating systems, where a high capacity, emergency steam relief capability is required. High capacity and resilient PTFE seating, also make it ideal for steam, air and inert gas applications.

### Features & Benefits

- Resilient PTFE seating design
- High degree of seat tightness
- Suitable for hot water, steam and air
- High discharge capacity
- Diaphragm protected working parts
- Safe manual testing
- Easy inspection and cleaning
- Pressure setting locked and sealed
- Designed and tested to BS 6759
- Capacities certified by AOTC
- WRAS approved
- UKWFBS listed
- Padlock available
- Body material - Gunmetal

### Pressure/Temperature Ratings

<b>MAX SET PRESSURE</b>	<b>12.5 Bar</b>
<b>MAX TEMPERATURE</b>	<b>195°C</b>

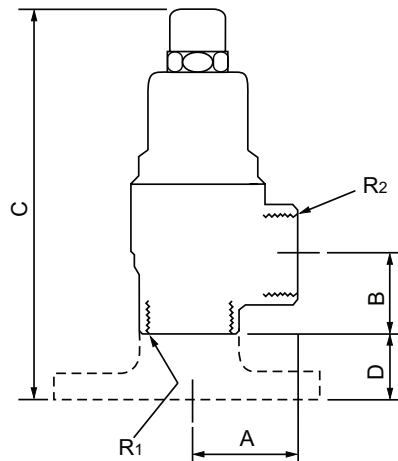
### Dimensions

SIZE DN	R1 BSP	R2 BSP	A (mm)	B (mm)	C (mm)	D (mm)
10	3/8	1/2	26	21	101	-
15	1/2	3/4	33	20	120	-
20	3/4	1	39	24	134	28
25	1	1 1/4	45	30	155	30
32	1 1/4	1 1/2	54	36	201	30
40	1 1/2	2	64	41	241	32
50	2	2 1/2	76	47	267	36
65	2 1/2	3	90	60	330	36



Fig. 500

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 500L Pressure Relief Valve

NABIC Pressure Relief Valves are intended for use where pressure tightness is required on the discharge side of the valve. They are ideal for pump relief, bypass relief, outside installations, and on cold water mains to protect from PRV failure.

### Features & Benefits

- Resilient PTFE seating design
- High degree of seat tightness
- Suitable for liquids and gases
- Top guided working parts
- Pressure tight on discharge side
- Designed and tested to BS 6759
- Flanged inlets available
- Body material - Gunmetal

### Pressure/Temperature Ratings

MAX SET PRESSURE 12.5 Bar

MAX TEMPERATURE 195°C

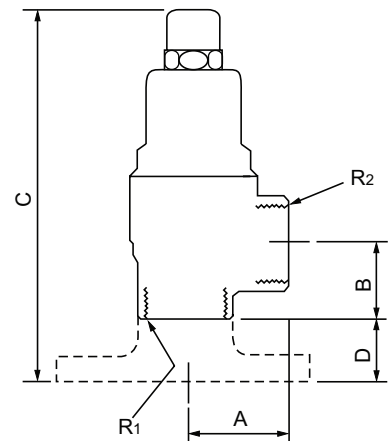
### Dimensions

SIZE DN	R1 BSP	R2 BSP	A (mm)	B (mm)	C (mm)	D (mm)
10	3/8	1/2	26	21	101	-
15	1/2	3/4	33	20	120	-
20	3/4	1	39	24	162	28
25	1	1 1/4	45	30	185	30
32	1 1/4	1 1/2	54	36	229	28
40	1 1/2	2	64	41	273	32
50	2	2 1/2	76	47	303	36
65	2 1/2	3	90	60	366	36



Fig. 500L

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 500SS Pressure Relief Valve

This version of the figure 500 has been produced for applications where the properties of stainless steel are required for the service fluid being used but the working environment does not necessitate a full stainless steel valve. It can be supplied with a test lever or as a sealed dome version to suit customer requirements.

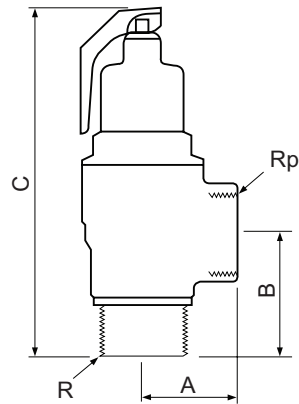
### Features & Benefits

- Resilient PTFE seating design
- High degree of seat tightness
- Easy inspection and cleaning
- Top guided working parts
- Pressure setting locked and sealed
- Designed and tested to BS 6759
- Capacities certified by AOTC
- Wetted parts - Stainless steel
- Body material - Gunmetal



Fig. 500SS

### Dimensional Drawing



### Pressure/Temperature Ratings

MAX SET PRESSURE	12.5 Bar
MAX TEMPERATURE	195°C

### Dimensions

SIZE DN	R BSP	Rp BSP	A (mm)	B (mm)	C (mm)
15	3/4	3/4	34	46	141
20	1	1	39	54	159
25	1 1/4	1 1/4	46	63	183
32	1 1/2	1 1/2	54	68	228
40	2	2	64	81	271
50	2 1/2	2 1/2	76	95	315
65	3	3	90	110	380

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 520 Double Spring Safety Valve

The figure 520 High Lift Safety Valve has been designed and tested to BS 6759. Based on the proven design of figure 500 Safety Valve, the high capacity and resilient PTFE seating make figure 520 ideal for steam, hot water, air and inert gas applications.

### Features & Benefits

- Resilient PTFE seating design
- High degree of seat tightness
- Suitable for hot water, steam and air
- High discharge capacity
- Diaphragm protected working parts
- Safe manual testing
- Easy inspection and cleaning
- Pressure setting locked and sealed
- Designed and tested to BS 6759
- Separate outlets reduce effects of backpressure
- Body material - Gunmetal

### Pressure/Temperature Ratings

MAX SET PRESSURE 12.5 Bar

MAX TEMPERATURE 195°C

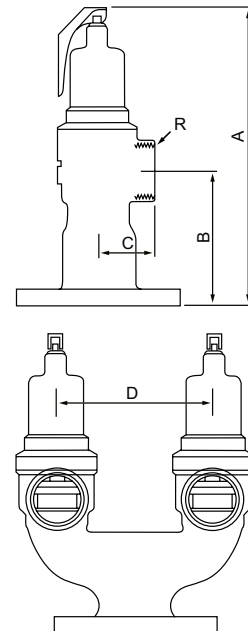
### Dimensions

SIZE DN	R BSP	A (mm)	B (mm)	C (mm)	D (mm)
65	2	350	152	64	175
80	2 1/2	390	166	76	195
100	3	480	205	90	210



Fig. 520

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 255 Reduced Pressure Zone Anti-Pollution Valves

The RPZ Anti-Pollution valve is a type BA safety device used to prevent contamination of drinking water through siphoning or backflow up to class 4 fluid category. They are particularly suitable for industrial and commercial applications and can also be used for supplies to buildings within the scope of the water regulations.

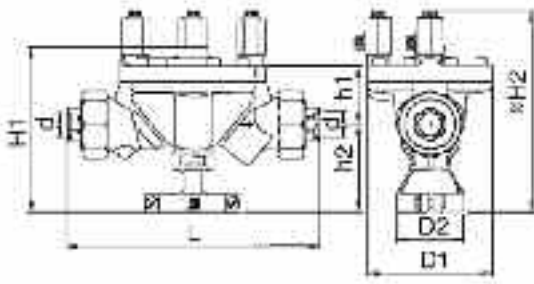
### Features & Benefits

- Manufactured in accordance with EN 1717
- Risk of legionella is reduced as water storage is not required
- Bolted cover is removable and gives unrestricted access to the internal components
- A compact version of figure 255 Anti-Pollution Valve is available in two sizes, DN10 and DN15
- Complete with three test sample points for checking pressure and a drain water connection
- Body material - Gunmetal
- Check valves - Plastic
- Seals - EPDM
- A flanged version is also available



Fig. 255

### Dimensional Drawing



### Pressure/Temperature Ratings

MAX SET PRESSURE	10 Bar
MAX TEMPERATURE	60°C
MIN WORKING PRESSURE	1 Bar

### Dimensions

	SIZE	UNITS	DN15	DN20	DN25	DN32	DN40	DN50
CONNECTION	d		Rp 1/2"	Rp 3/4"	Rp 1"	Rp 1 1/4"	Rp 1 1/2"	Rp 2"
LENGTH	L	mm	210	210	216	285	287	297
HEIGHT	H1	mm	137	137	137	188	188	188
HEIGHT	H2	mm	166	166	166	214	214	214
HEIGHT	h1	mm	48.5	48.5	48.5	73	73	73
HEIGHT	h2	mm	72.5	72.5	72.5	96	96	96
WIDTH	D1	mm	103	103	103	148	148	148
DRAIN	D2	mm	50	50	50	75	75	75
Kv - VALUE		m <sup>3</sup> /h	3.05	4.90	7.88	16.1	29.5	33.2

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



# NABIC™

## Fig. 256A & 256B Pipe Interrupter



Fig. 256A

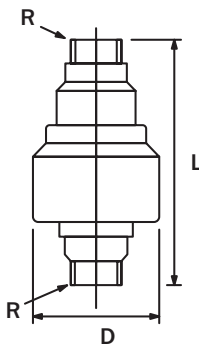
The figure 256A is classified as a DC type suitable for protecting up to fluid category 5. Incorporating ventilation ports that are totally unrestricted and permanent, water is guided past these air vents using a venturi type nozzle. As they are constantly open to atmosphere, this stops siphonage and allows the escape of water in the event of backflow.

The figure 256B is classified as a DB type suitable for protecting up to fluid category 4. This device has a moving element which seals the ventilation gaps during normal flow conditions. When negative pressures occur on the inlet side which could cause siphonage, the membrane retracts seals the flow ports and simultaneously vents the outlet side of the pipe interrupter.



Fig. 256B

### Dimensional Drawing



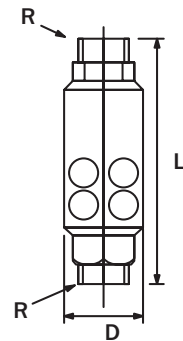
### Dimensions 256A

SIZE DN	R BSP	L	D	Kv
10	3/8	83.5	30	0.33
15S	1/2	83	30	0.33
15	1/2	91	43.5	0.9
20	3/4	88	43.5	1.14

### Features & Benefits

- Fig. 256A is WRAS approved for use with potable water
- A special DN15'S' version of Fig. 256A is available for low flow conditions
- Body material - Brass
- Fig. 256A Venturi nozzle - Plastic
- Fig. 256B Internals - Plastic
- Fig. 256A O-Ring seals - EPDM
- Fig. 256B Membrane - Silicon rubber

### Dimensional Drawing



### Dimensions 256B

SIZE DN	R BSP	L	D	Kv
10M	3/8	89	29	0.26
15M	1/2	89	29	0.26
20M	3/4	89	29	0.61
15F	1/2	82	29	0.26
20F	3/4	68	29	1.61

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 503 Three Way Vent Valve

The figure 503 Three Way Valve has been designed for use on vented hot water systems, to ensure there is a permanent connection from the boiler or calorifier to atmosphere. Fitting a figure 503 allows the use of a single common vent pipe, and permits continued operation of the system whilst maintenance is carried out on an individual unit.

### Features & Benefits

- Boiler connection permanently open
- Minimum water loss on changeover
- Inline servicing
- Dezincification resistant materials
- Cassette construction
- Body material - Gunmetal



Fig. 503

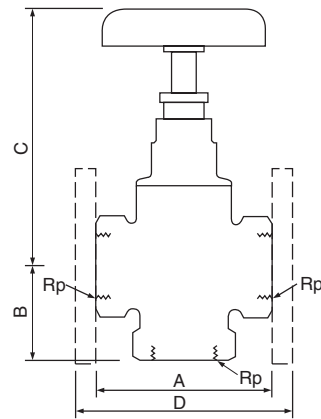
### Pressure/Temperature Ratings

MAX SET PRESSURE	7 Bar
MAX TEMPERATURE	93°C

### Dimensions

SIZE DN	Rp BSP	A (mm)	B (mm)	C (mm)	D (mm)
20	3/4	70	38	92	-
25	1	84	48	145	-
32	1 1/4	98	65	150	-
40	1 1/2	114	72	170	-
50	2	140	78	190	-
63	2 1/2	170	114	220	180

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 175 Three Way Vent Cock

The figure 175 Three Way Vent Cock has been designed for use on vented hot water systems, to ensure there is a permanent connection from the boiler or calorifier to atmosphere. Fitting a figure 175 allows the use of a single common vent pipe, and permits continued operation of the system whilst maintenance is carried out on an individual unit.

### Features & Benefits

- Boiler connection permanently open
- No water loss on changeover
- Ninety degree operation
- Dezincification resistant materials
- Body material - Gunmetal



Fig. 175

### Pressure/Temperature Ratings

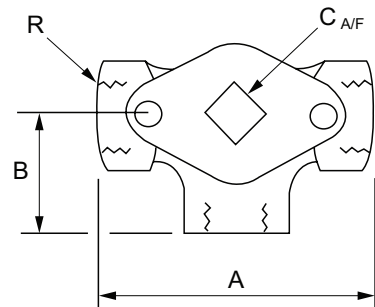
MAX SET PRESSURE 7 Bar

MAX TEMPERATURE 100°C

### Dimensions and Weights

SIZE DN	R BSP	A (mm)	B (mm)	C (mm)	WEIGHT (kg)
20	3/4	95	38	15	1.4
25	1	108	46	18	2.0
32	1 1/4	127	59	22	3.2
40	1 1/2	146	67	27	4.8
50	2	165	78	38	8.2
65	2 1/2	181	89	44	11.3
65Flg	-	205	89	44	16

### Dimensional Drawing



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# NABIC™

## Fig. 568 & 568SS Anti-Vacuum Valve

Figure 568 Anti-Vacuum Valves are used to protect drying cylinders, calorifiers and tankers from collapse due to internal vacuum. They are also used on steam systems, to assist condensate drainage and to prevent suction of contents from vats. Vacuum valves are normally fitted vertically at the top of the vessel or pipeline being protected. Horizontal revolving cylinders however should have a figure 568 fitted at each end, diametrically opposite one another.

### Features & Benefits

- PTFE or Viton to metal seating design which provides excellent seat tightness
- Fig. 568 is WRAS approved for use on potable water
- The strengthened body complete with taper thread ensures a tight seal between the vessel and valve
- Body material - 568 - Gunmetal
- Body material - 568SS - Stainless steel

### Air (l/sec)

VACUUM PRESSURE mbar	DN15	DN20	DN25	DN32	DN40	DN50
250	2	5	10	21	32	52
500	3	9	17	32	53	71

Note: To assist selection, reference should be made to BS 853 clause 10.7

### Pressure/Temperature Ratings

MAX SET PRESSURE	13.5 Bar
MAX TEMPERATURE	195°C

### Dimensions

SIZE DN	R BSP	A (mm)	B (mm)	C (mm)
15	1/2	23	35	24
20	3/4	25	36	30
25	1	27	39	36
32	1 1/4	33	43	46
40	1 1/2	39	53	52
50	2	37	57	65

Note: Flow areas available on request.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

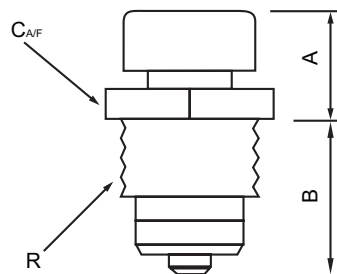


Fig. 568



Fig. 568SS

### Dimensional Drawing



# PLANT ROOM VALVES



With a proven track record for high quality, Brownall offers an exclusive range of Automatic Air Eliminators (AAE) covering low, medium and high pressure applications, complemented by the three-way vent valves and vent cocks for boilers. Offering efficient performance, the Brownall range removes inevitable and potentially dangerous air trapped in the system. Air eliminators are suitable for use with water, glycol, aviation fuel, diesel and light oils.

For details of our full range visit  
[www.brownall.com](http://www.brownall.com)

**brownall**<sup>TM</sup>

# Plant Room Valves

## Automatic Air Eliminators and Boiler Vent Valves

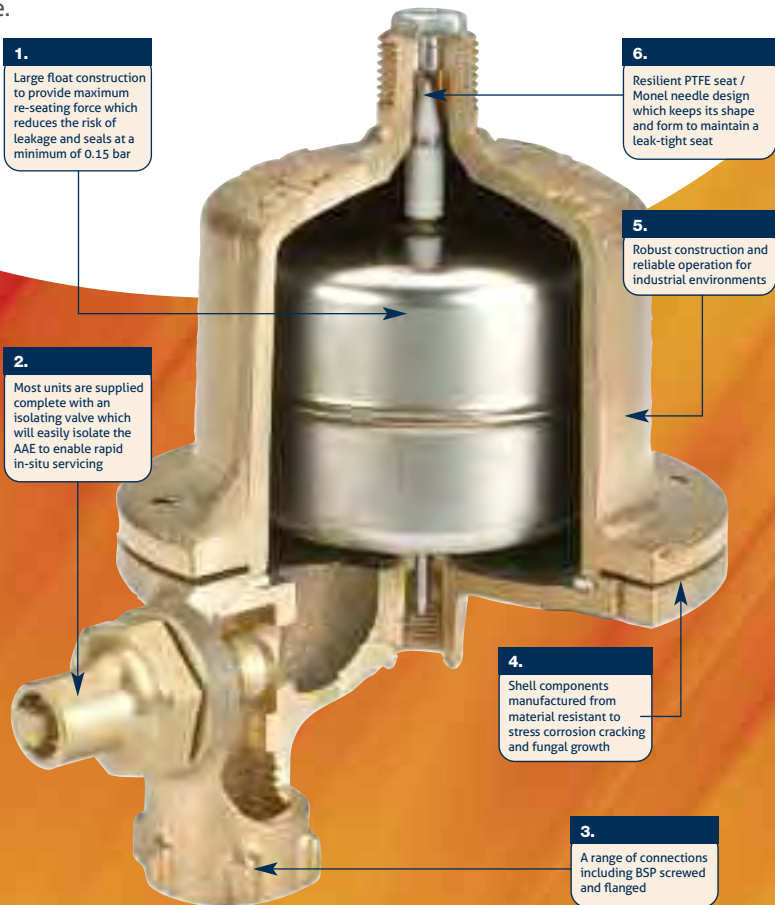
With a proven track record for high quality, Brownall offers an exclusive range of Automatic Air Eliminators (AAE) covering low, medium and high pressure applications, complemented by the three-way vent valves and vent cocks for boilers.

Offering efficient performance, the Brownall range removes inevitable and potentially dangerous air trapped in the system. Air eliminators are suitable for use with water, glycol, aviation fuel, diesel and light oils.

Installed at the highest point of the fluid carrying system, the trapped air will enter the float chamber of the air eliminator. This reduces the float buoyancy and allows air to escape through the outlet orifice.

To complement the AAE, the univent and vent cocks are installed to provide a direct connection from the boiler to the atmosphere. Designed to simplify the venting process, for single or multi point boiler and calorifier installations, the range offers savings in time and costs. Bronze body parts enable the range to operate in high-turbulence aerated hot water, which can be a very corrosive environment.

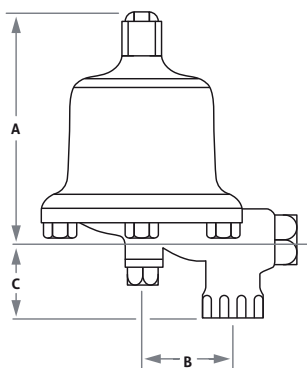
All the above make Brownall the number one choice with professional building services, consulting engineers and specifying authorities.



## Automatic Air Eliminators

Type	Part No.	Details
Type A	AE-A	Vertical Inlet. Available Special Order
Type B	AE-B	Vertical Inlet with Integral Lockshield Isolating Valve
Type C	AE-C	Vertical Inlet with Integral Lockshield Isolating Valve & Check Valve
Type D	AE-D	Side Inlet Available Special Order
Type MPHW	AE-MPHW-015	Vertical Inlet with Integral Lockshield Isolating Valve
Type HPHW	AE-HPHW-F	BST'F' Vertical Inlet with Integral Lockshield Isolating Valve
Type HPHW	AE-HPHW-H	BST'H' Vertical Inlet with Integral Lockshield Isolating Valve
Type HPHW	AE-HPHW-16	PN16 Vertical Inlet with Integral Lockshield Isolating Valve
Type HPHW	AE-HPHW-150	Class 150 vertical inlet with Integral Lockshield Isolating Valve

## Standard Pressure Applications - Type A, B, C and D



Type	A	B	C	Weight kg
A	102	43	35	1.25
B	102	43	35	1.28
C	108	43	35	1.28

### Technical Data

<b>Connections</b>	Inlet: BS EN 10226-1:2004 – Rp 1/2 (Female) Outlet: BS EN ISO 228-1:2003 – G 3/8 (Male)
<b>Pressure Rating</b>	Up to 10 bar (150 lbf/in <sup>2</sup> ) Non-Shock
<b>Temp Rating</b>	Up to 93°C (200°F)
<b>Recommended Min. Working Pressure</b>	0.15bar (5ft effective head)

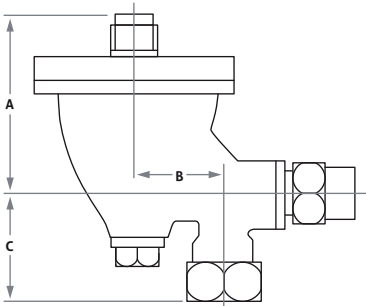
### Materials of Construction

<b>Body and Dome</b>	Bronze (Gunmetal)
<b>Spindle and Seating</b>	Stainless Steel
<b>Valve</b>	PTFE Needle
<b>Float</b>	Stainless Steel



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## AAE - Medium Pressure



Type	A	B	C	Weight kg
MPHW	108	43	41	2.4

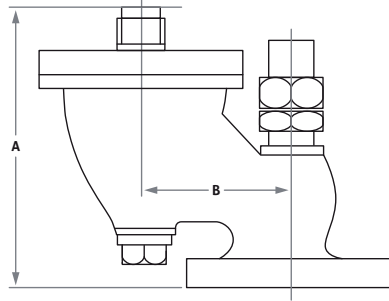
### Technical Data

<b>Connections</b>	Inlet: BS EN 10226-1:2004 – Rp 1/2 (Female) Outlet: BS EN ISO 228-1:2003 – G 3/8 (Male)
<b>Pressure Rating</b>	Up to 7 bar (100 lbf/in <sup>2</sup> )
<b>Temp Rating</b>	Up to 149°C (300°F)
<b>Recommended Min. Working Pressure</b>	0.15bar (5ft effective head)

### Materials of Construction

<b>Body and Dome</b>	Bronze (Gunmetal)
<b>Spindle and Seating</b>	Stainless Steel
<b>Valve</b>	Monel
<b>Float</b>	Nickel Alloy, Silver Brazed

## AAE - High Pressure



Type	A	B	Weight kg
BST 'F'	152	83	3.85
BST 'H'	152	83	3.85
PN16	152	83	3.85
Class 150	152	83	3.85

### Technical Data

<b>Connections:</b>	Inlet: BS 10 Table F or H 1/2 (Flanged) Can be supplied drilled to PN16 or ANSI Class 150 Outlet: BS EN ISO 228-1:2003 – G 3/8 (Male)
<b>Pressure Rating</b>	HPHW/F 10.5 bar (150 ibf/in <sup>2</sup> ) HPHW/H 17 bar (250 ibf/in <sup>2</sup> )
<b>Temp Rating</b>	HPHW/F 182°C (360°F) HPHW/H 204°C (400°F)
<b>Recommended Min. Working Pressure</b>	0.15bar (5ft effective head)

### Materials of Construction

<b>Body and Dome</b>	Bronze (Gunmetal)
<b>Spindle and Seating</b>	Stainless Steel
<b>Valve</b>	Monel
<b>Float</b>	Nickel Alloy, Silver Brazed

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## Service Kits (Float Assembly) Types A, B (AE-SP-ABD) and C (AE-SP-C)

Types B and C Automatic Air Eliminators are manufactured with in-built isolating valves which, when closed, allow the dome to be removed and the float assembly replaced, allowing rapid in-situ servicing.

Type A and D require an additional isolating valve on the inlet, to isolate it from the system prior to removing the float assembly.

AE-SP-BC isolator kit available for types B & C air eliminators.  
AE-SP-MPHW Service kit is available for types MHPW and HPHW air eliminators.

Service kits comprise of a float assembly (inc. needle and spindle), seat, washer and retaining screws.



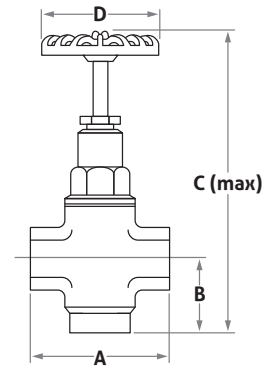
*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## Fig. 1688 Three-way Univent

Figure 1688, Three-way Univent is designed for use on vented hot water systems to ensure that there is always a direct connection from the boiler/calorifier to the atmosphere. Made from body materials resistant to stress corrosion cracking, it can be used for single or multi-boiler installations.

In-line servicing, using Univent replacement cartridges, allows valve maintenance to be carried out without disturbing the pipework.

The Univent can be opened and closed using the integral hand wheel. To close the drain port and open the vent, turn the handwheel clockwise to its full travel. Turn the handwheel anti-clockwise to open the drain and close the vent.



### Technical Data

**Max pressure:** 7 bar

**Max temperature:** 93°C

**Connections:** BS EN 10226-1:2004 – Rp (Female)

### Materials:

**Body:** Bronze (Gunmetal)

**Head:** Bronze (Gunmetal)

**Trim:** Brass

**Spindle:** Brass bar

**Renewable Seat:** EPDM

Nominal Size	Product Code	A	B	C (max)	D	Weight kg
25mm (1")	UV-1688-025D	96	47	200	89	1.83
32mm (1¼")	UV-1688-032D	118	63	237	102	2.93
40mm (1½")	UV-1688-040D	144	74	269	127	4.39
50mm (2")	UV-1688-050D	160	79	283	152	6.10
65mm (2½")	UV-1688-065D	190	115	395	200	14.25

## Univent Replacement Cartridge (Fig. 1688 only)

Replacement cartridges for the Three-way Univent valve allow rapid in-situ servicing.

Size	Product Code
25mm (1")	UV-SP-1688-025
32mm (1¼")	UV-SP-1688-032
40mm (1½")	UV-SP-1688-040
50mm (2")	UV-SP-1688-050
65mm (2½")	UV-SP-1688-065



*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## Fig. 1988 Three-way Vent Cocks

Figure 1988 is resistant to stress corrosion cracking and used on single, multi-boiler or calorifier installations. Fitting a Three-way Vent Cock ensures a constant connection from the boiler or calorifier to the atmosphere.

Levers are available as an optional extra.

### Technical Data

**Max pressure:** 7 bar

**Max temperature:** 93°C

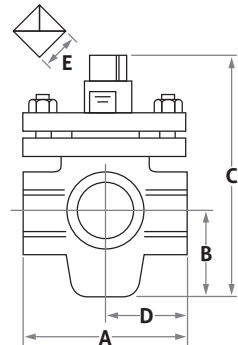
**Connections:** BS EN 10226-1:2004 – Rp (Female)

### Materials

**Body:** Bronze (Gunmetal)

**Plug:** Bronze (Gunmetal)

**Gland:** Bronze (Gunmetal)



### Valve Levers

Normal Size	Product Code	A	B	C	D	E
25mm (1")	VCN-LA-025	90	43	132	45	18
32mm (1 1/4")	VCN-LA-032	122	48	155	56	20
40mm (1 1/2")	VCN-LC-040	143	57	177	68	25
50mm (2")	VCN-LC-050	165	66	204	80	36

Size	Product Code
25mm (1")	VC-LA-025
32mm (1 1/4")	VC-LA-032
40mm (1 1/2")	VC-LC-040
50mm (2")	VC-LC-050

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

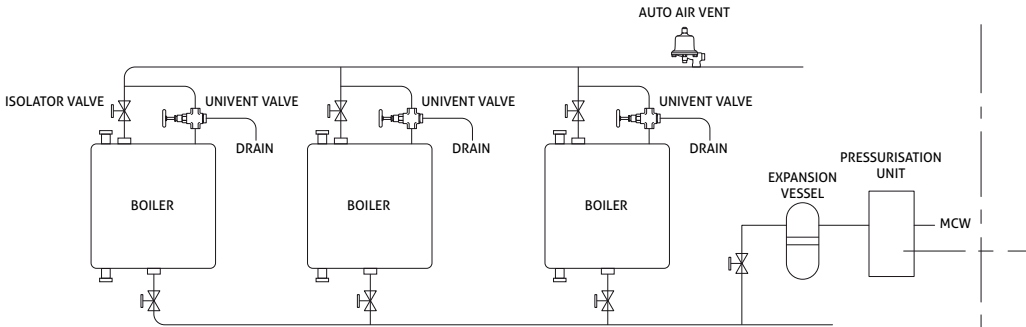
# Typical Multi-Boiler System incorporating Brownall Univents/Vent Cocks Fig. 1688/1988

The use of screw-down valves for multi-boiler hot water installations can allow the use of a single vent pipe to serve any number of boilers. No boiler in the system can be left in an unvented condition irrespective of the selected settings of the valves. At all times the vent valve ensures a full bore exit from the boiler to atmosphere.

In operation, clockwise turning of the handwheel closes the drain and opens the vent. Anti-clockwise

rotation of the handwheel opens the drain and closes the vent.

**Note:** The diagram shown is schematic and is not intended as a guide to the installation of the vent valves. It is essential that vent valves are fitted in accordance with the manufacturer's recommendations and comply with Health and Safety regulations etc.



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# GAS GATE VALVES



Market leader in the supply of specialist mains and service fittings, along with pipeline equipment of the highest quality, WASK is renowned in the global gas distribution market. WASK Teeset and bagging-off equipment has become a standard in the UK gas industry and in many markets overseas. Latest additions to the range include a robust gas gate valve and unique modular system which allows PE pipework to supply gas into single or multiple occupancy dwellings. WASK has a reputation as a leader in producing innovative and safe gas control valves.

For details of our full range visit  
[www.wask-uk.com](http://www.wask-uk.com)

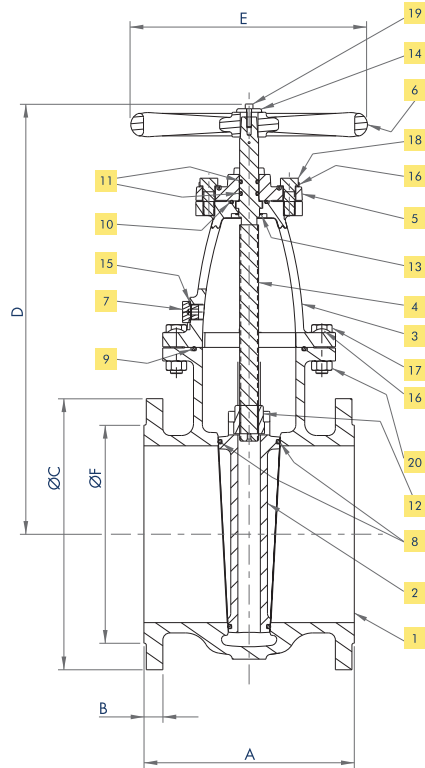
## Gas Gate Valves

### Key Features

- Full bore, wedge gate valve with double o-ring seals; suitable for use with under-pressure drilling equipment
- Available in the following sizes: DN50, DN80, DN100, DN150, DN200, DN250 and DN300
- Flanged outlets are drilled to BS EN 1092-2 PN16
- Temperature Rating: -20°C to 60°C
- MOP: 7 bar
- Entirely maintenance free
- Double block and bleed facility with screwed plug in bonnet
- Non-rising, anti blow-out stem with non-adjustable seals
- Suitable for above and below-ground use and available with handwheel, indicator, false cap or bare shaft end



No.	Part	Material
1	Body	Cast Iron BS EN 1561 GJL-250
2	Disc	Cast Iron BS EN 1561 GJL-250
3	Bonnet	Cast Iron BS EN 1561 GJL-250
4	Stem	Mild Steel BS 970 230M07
5	Seal Housing	Cast Iron BS EN 1561 GJL-250
6	Hand Wheel	Malleable Iron BS EN 1562 GJMB 300-6
7	Bleed Screw	Mild Steel BS 970 230M07
8	Disc Seals	Nitrile Rubber BS EN 682
9	Lower Bonnet Seal	Nitrile Rubber BS EN 682
10	Upper Bonnet Seal	Nitrile Rubber BS EN 682
11	Stem Seals	Nitrile Rubber BS EN 682
12	Disc Stem Nut	Bronze BS EN 1982 CC49IK
13	Stem Retaining Clip	Spring Steel
14	Thick Washer	DIN 7349 Steel - Zinc Plated
15	Bleed Screw Seal	Dowty Type BSP Seal
16	Tab Washer	DIN 432 Steel - Zinc Plated
17	Lower Bonnet Flange Bolt	High Tensile Steel to BS 3692 Gr 8.8
18	Upper Bonnet Flange Bolt	High Tensile Steel to BS 3692 Gr 8.8
19	Hand Wheel Bolt	High Tensile Steel to BS 3692 Gr 8.8
20	Flange Nuts	High Tensile Steel to BS 3692 Gr 8.8



### GIS/V7-1 2007 Approved No TC/002/009

Size	Weight (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
50mm	15.4	178	20	165	264	140	99
80mm	22	203	22	200	310	152	138
100mm	31.4	229	24	220	359	203	156
150mm	47	267	26	285	462	229	212
200mm	85	292	26	340	587	305	268
250mm	146	330	28	395	697	356	320
300mm	188	356	28	445	730	406	370

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# SIGHT FLOW INDICATORS



Rhodes sight flow indicators are found in process, petrochemical and pharmaceutical plants all over the world. Established in 1951 and manufactured in the UK, in St Helens, the comprehensive range of sight glasses is complemented by a customised design service for bespoke products. All Rhodes products are PED and CE marked where appropriate.

For details of our full range visit  
[www.rhodesflow.com](http://www.rhodesflow.com)

# RHODES™

## STRAIGHT THROUGH SIGHT FLOW INDICATOR WITH SPINNER/BALL

### FEATURES & BENEFITS

A low cost, all stainless steel sight flow indicator available as a straight through indicator with spout (Figure 233) or fitted with a flap and scaleplate to give an indication of flow rate (Figure 234).

### DIMENSIONS

SIZE (mm)	LENGTH (mm)	WEIGHT (kg)
15	70	1.2
20	70	1.2
25	90	2.2
40	110	4.1
50	130	7.2

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	ASTM A351 CF8M
Covers	ASTM A351 CF8M
Glass	Toughened Soda Lime or Borosilicate Glass
Gaskets	PTFE
Nuts and through Bolt	Stainless Steel 316
Flap (Figure 234 only)	Stainless Steel 316
Scaleplate (Figure 234 only)	Stainless Steel 316

### CONVERSION OF FLAP POSITION TO APPROXIMATE FLOW RATE (L/MIN, WATER)

SIZE (mm)	SCALE READING									
	1	2	3	4	5	6	7	8	9	10
15	2.6	3.7	4.4	4.7	5.1	5.6	6.3	8.1	8.7	11.0
20	2.6	3.7	4.4	4.7	5.1	5.6	6.3	8.1	8.7	11.0
25	3.0	5.0	6.5	8.0	9.5	11	13	16.0	20.0	26.0
40	10	13	16	18	20	23	25	31.0	37.0	42.0
50	15	20	24	27	30	35	40	56.0	70.0	109.0

STANDARD END CONNECTIONS: BSP Taper // BSP Parallel // NPT // Socket Weld

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



FIG. 233



FIG. 234

### MAXIMUM RATINGS

FIGURE	PRESSURE (BARG)	TEMP. (°C)
233	10	200
234	10	200



## STRAIGHT THROUGH SIGHT FLOW INDICATOR WITH SPINNER/BALL

### FEATURES & BENEFITS

A low cost, 'entry level' sight flow indicator with either a high sensitivity spinner or ball operating from 0.7 l/min (water). The nitrile seals and nylon spinner or PTFE ball give excellent chemical resistance which is further enhanced in the stainless steel version by the use of borosilicate glass as standard.

These compact sight flow indicators are used extensively in plant protection applications to show coolant or lubrication flow to pumps, compressors and engines. As an added advantage the series 400s can be used in any orientation, apart from the 'ball type', which needs to be in the horizontal plane.

### DIMENSIONS

SIZE	LENGTH (mm)	WEIGHT (kg)	FLOWRATE (L/H, WATER)	
			Minimum	Maximum
8	76	0.5	30	200
10	76	0.5	50	450
15	76	0.6	60	600
20	83	0.6	120	1600
25	89	1.1	300	1600

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body (choice)	Gunmetal BS EN 1982 CB491K Stainless Steel ASTM A351 CF8M
Cover Rings	Gunmetal - Brass BS 2872 CZ122 Stainless Steel - Nickel Plated Brass BS 2872 CZ122
Glass	Gunmetal - Soda Lime BS 3463 Stainless Steel - Borosilicate DIN7080
Gaskets	Nitrile O-Ring BS 128
Spinner and Mounting Pin	Stainless Steel 316
Spinner Ball	Nylon PTFE

### MAXIMUM RATINGS

	PRESSURE (BARG)	TEMP. (°C)
Gunmetal	7	100
Stainless Steel	16	100

STANDARD END CONNECTIONS: BSP Taper // BSP Parallel // NPT

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



FIG. 400 - SPINNER TYPE



FIG. 400B - BALL TYPE

## STRAIGHT THROUGH SIGHT FLOW INDICATOR WITH SPINNER

### FEATURES & BENEFITS

This double sided indicator is suitable for mounting in a horizontal or vertical position. Operating over a wide flow range it extends the duties of the smaller figure 400 into larger applications and to higher temperatures. It is available with flanged or screwed end connections and with a variety of material options. The stainless steel spinner and mounting pin give excellent corrosion resistance.

### DIMENSIONS

SIZE (mm)	LENGTH (mm)	WEIGHT (kg)	FLOWRATE (L/MIN, WATER)	
			Minimum	Maximum
<b>SCREWED</b>				
8	89	1.5	5.3	7.5
10	89	1.5	5.3	7.5
15	97	1.5	9.0	18.0
20	111	1.5	15.8	41.3
25	127	3.0	20.3	73.3
40	191	5.0	45	165
50	184	8.5	90	293
<b>FLANGED</b>				
20	159	5.5	15.8	41.3
25	178	6.0	20.3	73.3
40	203	8.0	45	165
50	222	11.5	90	293
80	292	28.0	225	660
100	343	41.0	360	1173

Note: Length shown refers to ANSI 150 only, other lengths for alternative flanges available upon request.

### MAXIMUM WORKING PRESSURES\* (BARG) FROM FULL VACUUM

SIZE (mm)	CAST IRON	GUNMETAL	CARBON STEEL	STAINLESS STEEL
8	13.8	17.2	17.2	17.2
10	13.8	17.2	17.2	17.2
15	13.8	17.2	19.7	19.7
20	13.8	14.1	14.1	14.1
25	13.8	17.2	29.9	20.7
40	13.8	17.2	20.3	20.3
50	13.8	14.8	14.8	14.8
80	13.8	14.3	14.3	14.3
100	9.6	9.6	9.6	9.6

\*At ambient temperature. Maximum pressure may be reduced by flange rating or by elevated temperatures. Please request further information if required.

**OPTIONS:** All Stainless Construction // Mica Discs // B7 Bolting // 'Boro' Glass // PTFE Gaskets

**STANDARD END CONNECTIONS:** BSP Taper // BSP Parallel // NPT // Socket Weld // ANSI 150RF // ANSI 300RF // BS10 Table D  
BS10 Table E // ANSI 150FF // BS4504 PN16 // BS4504 PN25 // Other end connections available upon request

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



FIG. 408

### MATERIALS OF CONSTRUCTION\*

ITEM	MATERIAL
Body (choice)	Cast Iron BS EN 1561 or Gunmetal BS EN 1982 CB491K or Carbon Steel ASTM A216 WCB or Stainless Steel ASTM A351 CF8M
Covers	Powder Coated <b>Mild Steel BS EN 10025 S355J2G3</b>
Glass	<b>Toughened Soda Lime BS 3463</b> or Borosilicate Glass DIN 7080
Gaskets	<b>Nickel Reinforced Graphite</b> or PTFE
Nuts and through Bolts	Steel Grade 8 & 8.8 BS 3692 or Stainless Steel (***) or Bolts to ASTM A193 Gr B7 and Nuts to ASTM A194 Gr 2H
Spinner and Mounting Pin	Stainless Steel

\* Where a choice exists, the standard material is shown in bold.

\*\* Materials supplied in 'All Stainless' version.

### TEMPERATURE RATINGS

	MAX (°C)
Cast Iron	180
Gunmetal	200
Carbon Steel	250
Stainless Steel	250

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - GUNMETAL

### FEATURES & BENEFITS

Figures 901/902 general purpose indicators used by equipment manufacturers and process plant users, employs Rhodes' unique patented 'flow fingers' to provide flow indication. The flow fingers provide positive indication of clear and murky liquids even under slow, steady flow conditions.

Figure 902 is fitted with a flow switch.



FIG. 901 - WITH FLOW FINGERS

### DIMENSIONS

SCREWED (mm)	LENGTH (mm)	WEIGHT (kg)
15	90	0.9
20	90	0.9
25	110	1.7
40	130	3.1
50	170	5.8

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Gunmetal BS EN 1982 CB491K
Covers	Mild Steel BS EN 10025 S355J2G3
Flow Fingers	Glass Filled Nylon
Glass	<b>Toughened Soda Lime BS 3463</b> or Borosilicate Glass DIN 7080
Gaskets	<b>Nickel Reinforced Graphite</b> or PTFE
Fasteners	Steel Grade 8 & 8.8 BS 3692

\*Where a choice exists, the standard material is shown in bold.

### MAXIMUM RATINGS

FIGURE	PRESSURE (BARG)	TEMP. (°C)
901	16	170
902	16	120

**SERIES END CONNECTIONS:** Screwed BSPT, BSPP, NPT

Note: Model 901, 902, 903 and 904 not available with flanged ends.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - GUNMETAL

### FEATURES & BENEFITS

The Figure 903 series is a two-sided flow indicator featuring an integral spout that produces a jetting action for turbulent flow, thereby improving the viewing of clear liquids. The large viewing area allows the flow, colour and condition of the liquid to be observed and hence provides a check on product quality and consistency. It is suitable for both vertical and horizontal installation. The inclusion of a spout allows it to be used as a drip indicator to show valve leaks, distillation or similar conditions.

The Figure 904 series incorporates a pivoted internal flap, which, by its position in relation to a graduated scaleplate, indicates any changes in the rate of flow of a liquid in a pipeline, from a trickle to full flow conditions. The internal stainless steel flap is electropolished to improve viewing in murky liquids. This series is suitable for both horizontal and vertical upward flows. A variety of materials are available as standard.

### DIMENSIONS

SCREWED (mm)	LENGTH (mm)	WEIGHT (kg)
15	90	0.9
20	90	0.9
25	110	1.7
40	130	3.1
50	170	5.8

### MATERIALS OF CONSTRUCTION - 903

ITEM	MATERIAL
Body	Gunmetal BS EN 1982 CB491K
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	<b>Toughened Soda Lime BS 3463</b> or Borosilicate Glass DIN 7080
Gaskets	<b>Nickel Reinforced Graphite</b> or PTFE
Fasteners	Steel Grade 8 & 8.8 BS 3692

### FLOW INFORMATION (L/MIN, WATER)

SIZE (mm)	SCALE READING ON 904									
	1	2	3	4	5	6	7	8	9	10
15/20	3	4	5	7	8	9	10	14	20	25
25	5	7	9	10	13	15	18	21	28	40
40	10	14	19	22	27	30	36	44	63	76
50	15	23	29	35	41	40	59	79	118	195

**SERIES END CONNECTIONS:** Screwed BSPT, BSPP, NPT

Note: Model 901, 902, 903 and 904 not available with flanged ends.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



FIG. 903 - WITH INTEGRAL SPOUT



FIG. 904 - WITH FLAP & SCALEPLATE

### MATERIALS OF CONSTRUCTION - 904

As the 903 but with:

ITEM	MATERIAL
Flap	316 Stainless Steel
Scaleplate	316 Stainless Steel

### MAXIMUM RATINGS

FIGURE	PRESSURE (BARG)	TEMP. (°C)
903	16	200
904	16	200

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - CAST IRON

### FEATURES & BENEFITS

These two-sided flow indicators feature an integral spout that produces a jetting action for turbulent flow, thereby improving the viewing of clear liquids. The large viewing area allows the flow, colour and condition of the liquid to be observed and hence provides a check on product quality and consistency.

The indicators are suitable for both vertical and horizontal installation. The inclusion of a spout allows them to be used as drip indicators to show valve leaks, distillation or similar conditions. A variety of materials are available as standard.



FIG. 913 - WITH INTEGRAL SPOUT

### DIMENSIONS

FLANGED (mm)	LENGTH (mm)	WEIGHT (kg)
20	140	3.0
25	140	3.5
40	180	6.5
50	220	10.5
80	260	20.5
100	310	35.5

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Cast Iron BS EN 1561
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	Toughened Soda Lime BS 3463
Gaskets	Nickel Reinforced Graphite
Fasteners	Steel Grade 8 & 8.8 BS 3692

### RATINGS

MAX PRESSURE (BARG)	MIN TEMP. (°C)	MAX TEMP. (°C)
16	-10	180

OPTIONS: Mica Discs // Borosilicate Glass to DIN7080 // PTFE Gaskets

SERIES END CONNECTIONS: ANSI 150FF // BS10 Table D, E, F // BS4504 PN16 // PN25 // PN40

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - CAST IRON

### FEATURES & BENEFITS

This option of flow indicator incorporates a pivoted internal flap, which, by its position in relation to a graduated scaleplate, indicates any changes in the rate of flow of a liquid in a pipeline, from a trickle to full flow conditions.

The internal stainless steel flap is electropolished to improve viewing in murky liquids. The indicators are suitable for both horizontal and vertical upward flows. A variety of materials are available as standard.

### DIMENSIONS

FLANGED (mm)	LENGTH (mm)	WEIGHT (kg)
20	140	3.0
25	140	3.5
40	180	6.5
50	220	10.5
80	260	20.5
100	310	35.5



FIG. 914 - WITH FLAP & SCALEPLATE

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Cast Iron BS EN 1561
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	Toughened Soda Lime BS 3463
Gaskets	Nickel Reinforced Graphite
Fasteners	Steel Grade 8 & 8.8 BS 3692
Flap	316 Stainless Steel
Scaleplate	316 Stainless Steel

### FLOW INFORMATION (L/MIN, WATER)

SIZE (mm)	SCALE READING ON 914									
	1	2	3	4	5	6	7	8	9	10
15/20	3	4	5	7	8	9	10	14	20	25
25	5	7	9	10	13	15	18	21	28	40
40	10	14	19	22	27	30	36	44	63	76
50	15	23	23	35	41	46	59	79	118	195
80	82	95	95	123	139	159	187	229	296	350
100	91	118	145	168	200	255	302	370	560	700

### RATINGS

MAX PRESSURE (BARG)	MIN TEMP. (°C)	MAX TEMP. (°C)
16	-10	180

OPTIONS: Mica Discs // Borosilicate Glass to DIN7080 // PTFE Gaskets

STANDARD END CONNECTIONS: ANSI 150FF // BS10 Table D, E, F // BS4504 PN16 // PN25 // PN40

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - CARBON STEEL

### FEATURES & BENEFITS

The Figure 923 series is a two-sided flow indicator featuring an integral spout that produces a jetting action for turbulent flow, thereby improving the viewing of clear liquids. The large viewing area allows the flow, colour and condition of the liquid to be observed and hence provides a check on product quality and consistency.

It is suitable for both vertical and horizontal installation. The inclusion of a spout allows it to be used as a drip indicator to show valve leaks, distillation or similar conditions.



FIG. 923 - WITH INTEGRAL SPOUT

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Carbon Steel ASTM A216 WCB
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	Toughened Soda Lime BS 3463
Gaskets	Nickel Reinforced Graphite
Fasteners	Steel Grade 8 & 8.8 BS 3692

### DIMENSIONS

SIZE	LENGTH	WEIGHT
(mm)	(mm)	(kg)
SCREWED		
15	90	0.9
20	90	0.9
25	110	1.7
40	130	3.1
50	170	5.8
FLANGED		
20	140	3.0
25	140	3.5
40	180	6.5
50	220	10.5
80	260	20.5
100	310	35.5
150	406	76

### RATINGS

PRESSURE (BARG)	MIN TEMP. (°C)	MAX TEMP. (°C)
Full Vacuum to 25	-30	250

\*At ambient temperature. Maximum pressure may be reduced by flange rating or by elevated temperatures. Please request further information if required.

OPTIONS: Mica Discs // Borosilicate Glass to DIN7080 // PTFE Gaskets

SERIES END CONNECTIONS: SCREWED: BSPT // BSPP // NPT // SOCKET WELD // BUTT WELD FLANGED: ANSI 150RF // ANSI 300RF // BS10 Table D, E, F // BS4504 PN16 // PN25 // PN40

Other end connections available on request.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - CARBON STEEL

### FEATURES & BENEFITS

The Figure 924 series incorporates a pivoted internal flap, which, by its position in relation to a graduated scaleplate, indicates any changes in the rate of flow of a liquid in a pipeline, from a trickle to full flow conditions.

The internal stainless steel flap is electropolished to improve viewing in murky liquids. This series is suitable for both horizontal and vertical upward flows.



FIG. 924 - WITH FLAP & SCALEPLATE

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Carbon Steel ASTM A216 WCB
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	Toughened Soda Lime BS 3463
Gaskets	Nickel Reinforced Graphite
Fasteners	Steel Grade 8 & 8.8 BS 3692
Flap	316 Stainless Steel
Scaleplate	316 Stainless Steel

### FLOW INFORMATION (L/MIN, WATER)

SIZE (mm)	SCALE READING ON 924									
	1	2	3	4	5	6	7	8	9	10
15/20	3	4	5	7	8	9	10	14	20	25
25	5	7	9	10	13	15	16	20	26	35
40	9	13	17	20	24	27	32	39	57	70
50	13	20	26	31	37	43	52	70	106	150
80	77	91	104	118	132	148	175	206	250	300
100	84	113	138	161	190	240	283	340	500	630

### DIMENSIONS

SIZE	LENGTH	WEIGHT
(mm)	(mm)	(kg)
SCREWED		
15	90	0.9
20	90	0.9
25	110	1.7
40	130	3.1
50	170	5.8
FLANGED		
20	140	3.0
25	140	3.5
40	180	6.5
50	220	10.5
80	260	20.5
100	310	35.5
150	406	76

### RATINGS

PRESSURE (BARG)	MIN TEMP. (°C)	MAX TEMP. (°C)
Full Vacuum to 25	-30	250

\*At ambient temperature. Maximum pressure may be reduced by flange rating or by elevated temperatures. Please request further information if required.

OPTIONS: Mica Discs // Borosilicate Glass to DIN7080 // PTFE Gaskets

SERIES END CONNECTIONS: SCREWED: BSPT // BSPP // NPT // SOCKET WELD // BUTT WELD FLANGED: ANSI 150RF // ANSI 300RF // BS10 Table D, E, F // BS4504 PN16 // PN25 // PN40

Other end connections available on request.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## STRAIGHT THROUGH SIGHT FLOW INDICATORS - STAINLESS STEEL

### FEATURES & BENEFITS

The Figure 933 series is a two-sided flow indicator featuring an integral spout that produces a jetting action for turbulent flow, thereby improving the viewing of clear liquids. The large viewing area allows the flow, colour and condition of the liquid to be observed and hence provides a check on product quality and consistency.

It is suitable for both vertical and horizontal installation. The inclusion of a spout allows it to be used as a drip indicator to show valve leaks, distillation or similar conditions.



FIG. 933 - WITH INTEGRAL SPOUT

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Stainless Steel ASTM A351 CF8M
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	Toughened Soda Lime BS 3463
Gaskets	Nickel Reinforced Graphite
Fasteners	Steel Grade 8 & 8.8 BS 3692

### DIMENSIONS

SIZE	LENGTH	WEIGHT
(mm)	(mm)	(kg)
SCREWED		
15	90	0.9
20	90	0.9
25	110	1.7
40	130	3.1
50	170	5.8
FLANGED		
20	140	3.0
25	140	3.5
40	180	6.5
50	220	10.5
80	260	20.5
100	310	35.5
150	406	76

### RATINGS

PRESSURE (BARG)	MIN TEMP. (°C)	MAX TEMP. (°C)
Full Vacuum to 25	-30	250

\*At ambient temperature. Maximum pressure may be reduced by flange rating or by elevated temperatures. Please request further information if required.

**OPTIONS:** Mica Discs // Borosilicate Glass to DIN7080 // PTFE Gaskets

**SERIES END CONNECTIONS:** SCREWED: BSPT // BSPP // NPT // SOCKET WELD // BUTT WELD **FLANGED:** ANSI 150RF // ANSI 300RF // BS10 Table D, E, F // BS4504 PN16 // PN25 // PN40

Other end connections available on request.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STRAIGHT THROUGH SIGHT FLOW INDICATORS - STAINLESS STEEL

### FEATURES & BENEFITS

The Figure 934 series incorporates a pivoted internal flap, which, by its position in relation to a graduated scaleplate, indicates any changes in the rate of flow of a liquid in a pipeline, from a trickle to full flow conditions.

The internal stainless steel flap is electropolished to improve viewing in murky liquids. This series is suitable for both horizontal and vertical upward flows.



FIG. 934 - WITH FLAP & SCALEPLATE

### MATERIALS OF CONSTRUCTION

ITEM	MATERIAL
Body	Stainless Steel ASTM A351 CF8M
Covers	Mild Steel BS EN 10025 S355J2G3
Glass	Toughened Soda Lime BS 3463
Gaskets	Nickel Reinforced Graphite
Fasteners	Steel Grade 8 & 8.8 BS 3692
Flap	316 Stainless Steel
Scaleplate	316 Stainless Steel

### FLOW INFORMATION (L/MIN, WATER)

SIZE (mm)	SCALE READING ON 934									
	1	2	3	4	5	6	7	8	9	10
15/20	3	4	5	7	8	9	10	14	20	25
25	5	7	9	10	13	15	16	20	26	35
40	9	13	17	20	24	27	32	39	57	70
50	13	20	26	31	37	43	52	70	106	150
80	77	91	104	118	132	148	175	206	250	300
100	84	113	138	161	190	240	283	340	500	630

### DIMENSIONS

SIZE (mm)	LENGTH (mm)	WEIGHT (kg)
SCREWED		
15	90	0.9
20	90	0.9
25	110	1.7
40	130	3.1
50	170	5.8
FLANGED		
20	140	3.0
25	140	3.5
40	180	6.5
50	220	10.5
80	260	20.5
100	310	35.5
150	406	76

### RATINGS

PRESSURE (BARG)	MIN TEMP. (°C)	MAX TEMP. (°C)
Full Vacuum to 25	-30	250

\*At ambient temperature. Maximum pressure may be reduced by flange rating or by elevated temperatures. Please request further information if required.

OPTIONS: Mica Discs // Borosilicate Glass to DIN7080 // PTFE Gaskets

SERIES END CONNECTIONS: **SCREWED:** BSPT // BSPP // NPT // SOCKET WELD // BUTT WELD **FLANGED:** ANSI 150RF // ANSI 300RF // BS10 Table D, E, F // BS4504 PN16 // PN25 // PN40

Other end connections available on request.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# EXPANSION JOINTS



PosiFlex offers a range of elastomeric expansion joints, which are flexible connectors made of natural or synthetic elastomer and have metallic reinforcements where necessary. They provide stress relief for piping systems, caused by thermal and mechanical vibration and/or movement, and can reduce noise. They are suitable for both pressure and vacuum systems and are generally used above ground.

For details of our full range visit  
[www.posiflex.co.uk](http://www.posiflex.co.uk)

# Advantages of PosiFlex Expansion Joints

## Compensate for Axial Movements

Expansion and contraction movements, due to thermal changes or hydraulic surge effects, are compensated for by PosiFlex elastomeric expansion joints within a pipe system.

## Compensate for Lateral, Torsion and Angular Movements

Pumps, compressors, fans, piping and related equipment move out of alignment due to wear, load stresses, relaxation and settling of supporting foundations. PosiFlex elastomeric expansion joints compensate for lateral, torsion and angular movements, preventing damage to equipment.

## Corrosion/Erosion Resistant

PosiFlex elastomeric expansion joints do not corrode, the continuous flexing of the rubber does not permit scale to form. Unlike metal joints, which are susceptible to corrosion and erosion.

A wide range of natural, synthetic and special purpose elastomers and fabrics can be used in the PosiFlex expansion joint construction to meet a wide range of pressure/temperature conditions, corrosive attack, abrasion and erosion. Teflon liners offer good resistance to corrosive and chemical attack.

## Shock Resistant

PosiFlex expansion joints are constructed mainly of synthetic elastomers which have natural 'shock-absorbing' properties. This provides protection against shock from excessive hydraulic surge, water hammer or pump cavitation from mechanical equipment, for example cooling towers, condensers and pipelines.



## Maintenance Free

Unlike metal joints, which often require periodic replacement of the mating flange gaskets, PosiFlex elastomeric expansion joints, being gasket-free, are virtually maintenance free over their entire service life.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# Customer Benefits

## Vibration and Sound Absorption

PosiFlex elastomeric expansion joints dampen and insulate against the transmission of vibration and sound.

This insulation is particularly important in air-conditioning and heating installations where piping-conducted noise can be transmitted throughout an entire building, and in piping systems where pump noises would ordinarily pass through equipment and pipelines.

Unlike metal joints, PosiFlex elastomeric expansion joints are not subject to failure from vibration fatigue.

## Minimal Dimensions

PosiFlex elastomeric expansion joints are compact and often require less space than metal joints of the same ID. The outside diameter of a PosiFlex expansion joint is often smaller than that of a comparable metal joint.

PosiFlex multi-arch expansion joints have a smaller space requirement than pipe loops.

## Ease of Installation

Because of their lightweight and extreme flexibility, PosiFlex expansion joints do not require special handling equipment and are easy to install. The rubber flanged design eliminates the need for gaskets, saving both cost and installation time.

PosiFlex expansion joints do not have to be precompressed at the job site, as is sometimes necessary with metal expansion joints.

## Greater Recovery from Movement

When a metal joint is fully compressed, it assumes a permanent set. A PosiFlex elastomeric expansion joint continues to return to its original form.

## Freedom from Embrittlement

Failure of metal and polymeric joints is primarily due to continuous flexing which eventually results in fracture at the point of embrittlement. In PosiFlex elastomeric expansion joints, this same flexing keeps the rubber 'alive' and reduces flex cracking.

## Eliminates Electrolysis

Since PosiFlex elastomeric expansion joints have full-face rubber flanges, no metal-to-metal contact is made through the joint, consequently electrolytic action is interrupted and its corrosive effects reduced.

## Economy

PosiFlex elastomeric expansion joints are a low cost alternative to mechanical compensation systems. This economy is realised in space, ease of installation, labour and maintenance. This eliminates the need for related support equipment necessary for expansion loops or metal joints.

PosiFlex expansion joints cause little or no pressure drop in piping systems (as would a loop), meaning that piping and pumping systems do not have to be 'upsized'.



*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STYLE 1010, 1020, 1030

### Features & Benefits

- Superior noise and vibration control
- Most economical flexible connector
- Precision moulded spherical flowing arch design
- Multiple plies of tyre cord reinforcement tube and cover standard elastomer EPDM, Buna-N (Nitrile) available on request
- Plated steel floating flanges avoids the problematic hooked or interlocking split flange design
- High tensile aircraft cable is embedded in the raised face rubber ends to prevent pull out and avoids the sharp cutting edge of solid steel rings
- Safe industry standard proven design utilising the same beaded cable technology established in the tyre industry
- No gaskets required
- Standard drillings PN16, ANSI and PN10 available on request
- Compensates for minor misalignment and offset while Providing easy access to piping and equipment
- Control units available on request



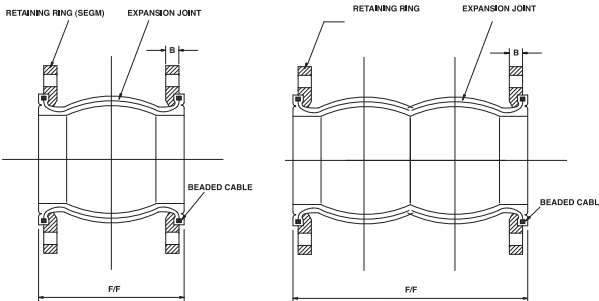
STYLE POSISPHERE 1010



STYLE POSISPHERE 1020

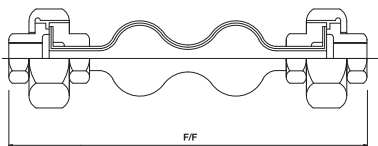


STYLE POSISPHERE 1030



STYLE POSISPHERE 1010

STYLE POSISPHERE 1020



STYLE POSISPHERE 1030

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1010, 1020, 1030

SIZE DN (mm)	LENGTH F/F (mm)	FLANGE TH. (B) (mm)	MOVEMENTS					MAX Pressure (Bar g)	VACUUM Rating (Bar g)	GROSS WEIGHT (kg)
			COMP (mm)	EXT. (mm)	LATERAL (mm)	ANGULAR (degree)	TORSIONAL (degree)			
Style PosiSphere – 1010 – Single Sphere with Floating Flanges										
50	150	22	16	10	10	22	3.1	15.5	-1	4
65	150	24	16	10	10	17	3.0	15.5	1	6
80	150	25	22	13	13	19	2.9	15.5	-1	6.5
100	150	25	22	13	13	14	2.7	15.5	-1	8
125	150	30	22	13	13	12	2.6	15.5	-1	10
150	150	33	22	13	13	11.5	2.4	15.5	-1	12
200	150	33	32	19	19	11	2.2	15.5	-1	17
250	200	33	32	19	19	9	2.1	15.5	-1	25
300	200	33	32	19	19	7	2.0	15.5	-1	38
350	200	40	32	19	19	6	1.8	10	-0.7	51
400	200	43	32	19	19	5.5	1.4	8.6	-0.7	66
450	200	44	32	19	19	5	1.0	8.6	-0.5	70
500	200	44	32	19	19	4.3	0.8	8.6	-0.5	81
600	250	51	38	19	25	3.6	0.7	7.6	-0.5	116
Style PosiSphere – 1020 – Double Sphere with Floating Flanges										
50	178	22	50	29	32	68	9.5	15.5	-1	4
65	178	24	50	29	32	53	7.5	15.5	-1	6
80	178	25	50	29	32	44	6.2	15.5	-1	7
100	228	25	64	35	44	40	5.6	15.5	-1	9
125	228	30	64	35	44	32	4.5	15.5	-1	11
150	228	33	64	35	44	26	3.6	15.5	-1	14
200	330	33	64	35	44	20	2.8	15.5	-1	20
250	330	33	64	35	44	16	2.2	15.5	-0.5	30
300	330	33	64	35	44	13	1.8	15.5	-0.5	43
350	349	40	64	35	44	12	1.7	10	-0.5	51
Style PosiSphere – 1030 – Double Sphere with Union Ends										
19	200	N/A	22	6	22	32	4.8	10	-1	1
25	200	N/A	22	6	22	25	3.7	10	-1	1.5
32	200	N/A	22	6	22	20	3.0	10	-1	2
40	200	N/A	22	6	22	17	2.5	10	-1	2.5
50	200	N/A	22	6	22	13	2.0	10	-1	3.5

## Specifications

- Maximum operating temperature of 121°C for EPDM, 99°C for Nitrile at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes are supplied with an open arch.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements.
- Flange drilling as per specification of selected flange table.
- Gross weights include flanges or union ends.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1015 & 1015T

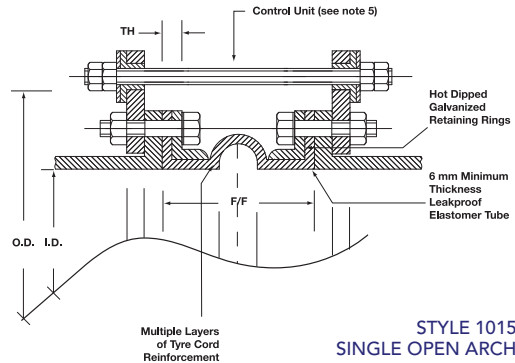
### Style 1015

#### Features & Benefits

- Wide flowing arch design
- Exceptional all directional movement capability
- Virtually eliminates sediment build up
- Higher pressure rating than conventional expansion joints
- Excellent chemical and abrasion resistance
- Full vacuum rating (-1 Bar g) in all sizes
- 121°C continuous services standard, 204°C available
- Filled arch design available
- Standard drillings Include ANSI/AWWA
- Hot dipped galvanised retaining rings standard
- Wide variety of tube and cover elastomers available including pure gum rubber, EPDM, neoprene, butyl, nitrile, Viton®, food grade and more
- Absorbs noise, vibration and shock
- Compensates for minor misalignment and offset
- Low stiffness and deflection forces
- Integrally flanged design, no gaskets required
- Simple to install, lightweight and high strength
- Easy access



STYLE 1015



STYLE 1015  
SINGLE OPEN ARCH

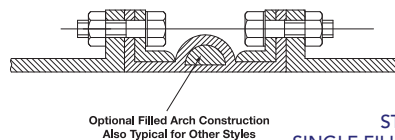
### Style 1015T

#### Features & Benefits

- Superior chemical resistance even at higher temperatures and pressures
- Wide flowing arch design
- Exceptional all directional movement
- Integrally flanged design, no gaskets required
- Liner made of 100% Virgin DuPont Teflon®
- Ideal for food, pharmaceutical, chemical and ultra pure water applications



STYLE 1015T



STYLE 1015  
SINGLE FILLED ARCH

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



# STYLE 1015 & 1015T

SIZE DN (mm)	LENGTH F/F (mm)	MAX PRESSURE (Bar g)	VACUUM RATING (Bar g)	FLANGES - 125/150 LB					MOVEMENTS					SPRING RATE			GROSS WEIGHT (kg)
				OD (mm)	BC (mm)	HOLES (mm)	HOLE (mm)	TH. (mm)	COMP. (mm)	EXT. (mm)	LATERAL (mm)	ANGULAR (degree)	TORSIONAL (degree)	COMP. (N/mm)	EXT. (N/mm)	LATERAL (N/mm)	
25	150	14	-1	108	79	4	16	21	32	13	13	50	4.4	35	48	64	1.8
40	150	14	-1	127	98	4	16	21	32	13	13	44	4.1	36	51	64	2.3
50	150	14	-1	152	121	4	19	21	45	19	19	39	4.0	37	48	64	2.5
65	150	14	-1	178	140	4	19	21	45	19	19	33	3.8	48	60	67	3.4
80	150	14	-1	191	152	4	19	21	45	19	19	28	3.7	56	71	75	3.9
100	150	14	-1	229	191	8	19	21	45	19	19	22	3.6	76	99	83	4.5
125	150	14	-1	254	216	8	22	21	45	19	19	18	3.4	93	123	99	5.7
150	150	14	-1	279	241	8	22	21	45	19	25	15	3.2	114	147	110	7.5
200	150	13	-1	343	298	8	22	22	45	19	25	12	3.1	126	163	134	10
250	200	13	-1	406	362	12	25	22	45	19	25	17	3.0	158	206	143	16
300	200	13	-1	483	432	12	25	22	51	19	25	14	2.9	165	218	170	20
350	200	9	-1	533	476	12	29	24	51	23	30	12	2.8	177	228	198	25
400	200	8	-1	597	540	16	29	24	51	23	30	11	2.7	189	245	230	29
450	200	8	-1	635	578	16	32	25	51	23	30	10	2.6	213	275	254	32
500	200	8	-1	699	635	20	32	25	51	23	30	9	2.5	240	306	283	37
600	250	7.5	-1	813	749	20	35	29	58	26	30	8	2.4	283	369	304	46
750	250	7.5	-1	984	914	28	35	29	58	26	30	7	2.3	357	466	384	64
900	250	6.5	-1	1168	1086	32	41	29	58	26	30	6	2.2	436	569	469	86
1000	300	6	-1	1289	1200	36	41	29	58	26	30	5.1	2.2	472	609	502	102
1050	300	6	-1	1346	1257	36	41	29	58	26	30	4.8	2.1	496	640	527	107
1200	300	6	-1	1511	1422	44	41	29	58	26	30	4.2	2.0	555	727	597	132
1350	300	6	-1	1683	1594	44	51	29	58	26	30	3.8	1.9	674	879	725	159
1500	300	6	-1	1854	1759	52	51	29	58	26	30	3.6	1.8	739	974	803	191
1650	300	6	-1	2032	1930	52	51	29	58	26	30	3.3	1.7	859	1120	923	209
1800	300	6	-1	2197	2096	60	51	29	58	26	30	3	1.6	965	1258	1037	241
1950	300	6	-1	2362	2261	64	54	29	58	26	30	2.6	1.5	1050	1374	1151	264
2100	300	6	-1	2534	2426	64	57	29	58	26	30	2.3	1.4	1137	1517	1296	286
2250	300	5	-1	2705	2591	68	60	29	58	26	30	2.1	1.3	1190	1610	1416	389
2400	300	5	-1	2877	2756	68	64	29	58	26	30	2	1.2	1252	1768	1587	455
2550	300	4	-1	3048	2908	72	67	35	58	26	30	1.8	1.0	1331	1874	1686	484
2700	300	4	-1	3219	3067	72	67	35	58	26	30	1.7	0.9	1409	1982	1785	511
2850	300	4	-1	3391	3219	76	75	35	58	26	30	1.6	0.8	1487	2092	1885	539

## Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1015-1 and ININ 1015-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures.
- Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Retaining rings are typically L-shaped and can be flat depending on internal reinforcements.
- Standard 125/150 lb. drilling includes 25-600mm with ANSI B16.1 Class 125 lb./B16.5 Class 150 lb., 750-1500mm with ANSI B16.1 Class 125 lb./B16.47 series A, Class 150 lb., 1800-3600mm with ANSI B16.1 Class 125 lb./AWWA C297 Class B.
- Gross weights include retaining rings.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1101, 1102, 1103 & 1104

### Style 1101

**Features & Benefits**

- Single (1) Arch

### Style 1102

**Features & Benefits**

- Double the movement with  $\frac{1}{2}$  the spring rate

### Style 1103

**Features & Benefits**

- Triple the movement with  $\frac{1}{3}$  the spring rate

### Style 1104

**Features & Benefits**

- Quadruple the movement with  $\frac{1}{4}$  the spring rate



STYLE 1101



STYLE 1102

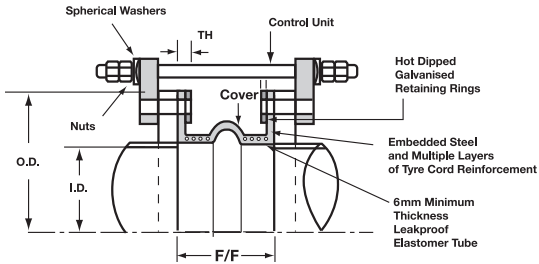


STYLE 1103



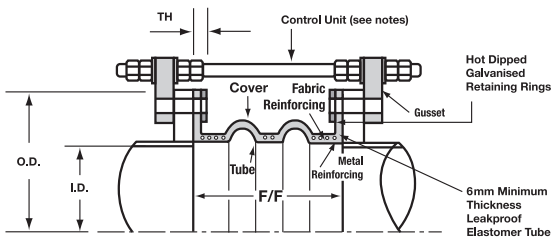
STYLE 1104

Control Unit Style SW/B



STYLE 1101 SINGLE (1) OPEN ARCH

Control Unit Style W/W



STYLE 1102 DOUBLE (2) OPEN ARCH

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1101, 1102, 1103 &amp; 1104

SIZE DN (mm)	STYLE 1101		STYLE 1102		STYLE 1103		STYLE 1104		FLANGE TH. (mm)	STYLE 1101 MOVEMENTS						STYLE 1101 SPRING RATE		
	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)		PRESSURE (Bar g)	COMP. (mm)	EXT. (mm)	LATERAL (mm)	ANGULAR (mm)	TORSIO NAL (degree)	COMP. (N/mm)	EXT. (N/mm)	LATERAL (N/mm)
50	150	3.2	250	5.5	350	7.3	450	9.1	22	15	44	22	25	39	4.0	47	60	79
65	150	3.6	250	6.4	350	8.6	450	10.5	22	15	44	22	25	33	3.8	60	74	84
80	150	4.0	250	7.7	350	10.0	450	12.3	22	15	44	22	25	28	3.7	70	89	95
100	150	6.4	250	9.5	350	12.7	450	15.9	22	15	44	22	25	22	3.6	96	124	103
125	150	7.7	250	10.9	350	15.0	450	18.6	22	15	44	22	25	18	3.4	117	154	124
150	150	9.1	250	13.2	350	21.8	450	28.0	22	15	44	22	25	15	3.2	144	184	138
200	150	13	250	19	350	26	450	33	22	15	44	22	25	12	3.1	173	203	168
250	200	18	300	24	400	31	500	38	22	15	57	29	32	17	3.0	175	205	145
300	200	26	300	31	400	41	500	50	22	15	57	29	32	14	2.9	177	219	170
350	200	30	300	42	400	55	500	67	25	15	57	29	32	12	2.8	189	228	200
400	200	36	300	50	400	65	500	81	25	11	57	29	32	11	2.7	201	243	231
450	200	41	300	54	400	71	500	89	25	11	57	29	32	10	2.6	214	275	254
500	200	46	300	65	400	86	500	106	25	9	57	29	32	9	2.5	252	306	284
600	250	55	375	75	500	96	600	116	29	9	64	32	38	8	2.4	303	368	305
750	250	78	375	102	500	129	600	159	29	7.5	64	32	38	7	2.3	382	466	383
900	250	100	375	138	500	176	600	213	29	6.5	64	32	38	6	2.2	466	569	469
1000	300	126	400	164	550	203	650	242	29	6.2	64	32	38	5.0	2.2	505	608	503
1050	300	132	400	172	550	213	650	255	29	6.2	64	32	38	4.8	2.1	530	639	529
1200	300	155	400	204	550	252	650	300	32	6.2	64	32	38	4.2	2.0	593	726	597
1350	300	184	400	248	550	309	650	369	32	6	64	32	38	3.8	1.9	721	879	725
1500	300	227	400	294	550	364	650	434	32	6	64	32	38	3.6	1.8	791	973	802
1650	300	264	400	340	550	422	650	504	32	6	64	32	38	3.3	1.7	919	1118	922
1800	300	295	400	375	550	463	650	550	32	6	64	32	38	3	1.6	1033	1257	1036
1950	300	325	400	495	550	620	650	745	32	6	64	32	38	2.6	1.5	1124	1374	1150
2100	300	355	400	608	550	767	650	922	32	6	64	32	38	2.3	1.4	1216	1517	1295
2250	300	400	400	670	550	840	650	1011	32	5.5	64	32	38	2.1	1.3	1272	1610	1414
2400	300	459	400	720	550	901	650	1083	32	5.5	64	32	38	2	1.2	1339	1768	1587
2550	350	488	400	765	550	957	650	1151	35	4.1	64	32	38	1.6	0.8	1422	1878	1687
2700	350	516	400	809	550	1014	650	1219	35	4.1	64	32	38	1.5	0.7	1506	1988	1785
2850	350	545	400	854	550	1070	650	1286	35	4.1	64	32	38	1.4	0.6	1590	2098	1884

## Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1100-1, 1200-1 and ININ 1100-1, 1200-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Style 1101, 1202, 1203 and 1204 are designed for full vacuum (-1 Bar g) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations. Style 1102, 1103 and 1104 sizes 50-600mm are designed for (-0.5 Bar g) and sizes 750-3600 mm are designed for (-0.33 Bar g).
- Technical data shown above reflects Style 1101 single arch design, additional arches typically increases movement and decreases spring rates proportionately. Contact the factory for full details including availability of larger sizes, higher pressure and temperature ratings, as well as additional arches.
- Series 1100 and 1200 will replace Styles 1025, 1050 and 1075.
- Flange drilling as per specification of selected Flange table.
- Self-Guiding control units may be required on multiple arch joints to prevent squirm depending on diameter, number of arches, and operating pressures. Contact PosiFlex for full details.
- Gross weights include retaining rings.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1200, 1202, 1203 & 1204

### Style 1200

**Features & Benefits**

- Additional embedded steel reinforcement enables the Series 1200 to handle full vacuum (-1 Bar g) for multiple arch joints in all sizes offered



STYLE 1200

### Style 1202

**Features & Benefits**

- Double the movement with  $\frac{1}{2}$  the spring rate



STYLE 1202

### Style 1203

**Features & Benefits**

- Triple the movement with  $\frac{1}{3}$  the spring rate



STYLE 1203

### Style 1204

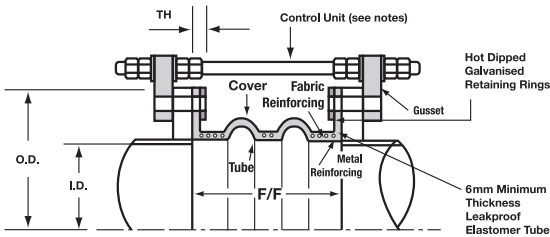
**Features & Benefits**

- Quadruple the movement with  $\frac{1}{4}$  the spring rate



STYLE 1204

Control Unit Style W/W



STYLE 1202 DOUBLE (2) OPEN ARCH

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1200, 1202, 1203 &amp; 1204

SIZE DN (mm)	STYLE 1202		STYLE 1203		STYLE 1204		FLANGE TH. (mm)
	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)	LENGTH (F/F) (mm)	WEIGHT (kg)	
50	250	5.5	350	7.3	450	9.1	22
65	250	6.4	350	8.6	450	10.5	22
80	250	7.7	350	10.0	450	12.3	22
100	250	9.5	350	12.7	450	15.9	22
125	250	10.9	350	15.0	450	18.6	22
150	250	13.2	350	21.8	450	28.0	22
200	250	19	350	26	450	33	22
250	300	24	400	31	500	38	22
300	300	31	400	41	500	50	22
350	300	42	400	55	500	67	25
400	300	50	400	65	500	81	25
450	300	54	400	71	500	89	25
500	300	65	400	86	500	106	25
600	375	75	500	96	600	116	29
750	375	102	500	129	600	159	29
900	375	138	500	176	600	213	29
1000	400	164	550	203	650	242	29
1050	400	172	550	213	650	255	29
1200	400	204	550	252	650	300	32
1350	400	248	550	309	650	369	32
1500	400	294	550	364	650	434	32
1650	400	340	550	422	650	504	32
1800	400	375	550	463	650	550	32
1950	400	495	550	620	650	745	32
2100	400	608	550	767	650	922	32
2250	400	670	550	840	650	1011	32
2400	400	720	550	901	650	1083	32
2550	400	765	550	957	650	1151	35
2700	400	809	550	1014	650	1219	35
2850	400	854	550	1070	650	1286	35

## Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1100-1, 1200-1 and ININ 1100-1, 1200-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Style 1101, 1202, 1203 and 1204 are designed for full vacuum (-1 Bar g) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations. Style 1102, 1103 and 1104 sizes 50-600mm are designed for (-0.5 Bar g) and sizes 750-3600 mm are designed for (-0.33 Bar g).
- Technical data shown above reflects Style 1101 single arch design, additional arches typically increases movement and decreases spring rates proportionately. Contact the factory for full details including availability of larger sizes, higher pressure and temperature ratings, as well as additional arches.
- Series 1100 and 1200 will replace Styles 1025, 1050 and 1075.
- Flange drilling as per specification of selected Flange table.
- Self-Guiding control units may be required on multiple arch joints to prevent squirm depending on diameter, number of arches, and operating pressures. Contact PosiFlex for full details.
- Gross weights include retaining rings.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1101CR & 1101ER

### Features & Benefits

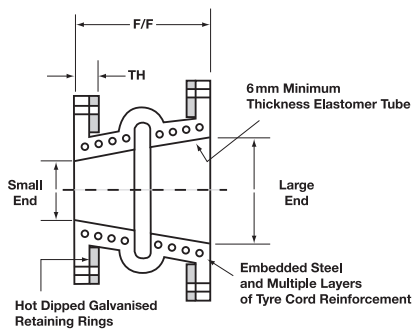
- An economic and space saving way to combine a reducing pipe fitting with an expansion joint
- Available in concentric, eccentric or custom offset arrangements
- Versatile hand-built construction
- Standard or custom face-to-face dimensions
- Excellent all directional movement capability
- Absorbs noise, vibration and shock
- Multiple plies of tyre cord reinforcement and a wide variety of tube and cover elastomers available
- 121°C continuous services standard, 204°C available
- Standard drillings include: ANSI/AWWA, DIN and PN
- Integral flange design, no gaskets required



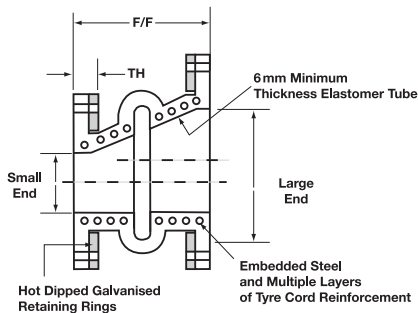
STYLE 1101CR  
CONCENTRIC REDUCER



STYLE 1101ER  
ECCENTRIC REDUCER



STYLE 1101CR  
CONCENTRIC REDUCER



STYLE 1101ER  
ECCENTRIC REDUCER

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1101CR &amp; 1101ER

LARGE END DN	SMALL END DN	CONCENTRIC SHORTEST LENGTH (F/F)	ECCENTRIC SHORTEST LENGTH (F/F)	LARGE END FLANGE TH. (mm)	MOVEMENTS						GROSS WEIGHT (kg)
					MAX PRESSURE (Bar g)	COMP (mm)	EXT. (mm)	LATERAL (mm)	ANGULAR (degrees)	TORSIONAL (degrees)	
50	25	150	150	22	12	13	6	13	16	3.1	2.7
65	25	160	160	22	12	13	6	13	14	3.0	3.2
80	25	150	150	22	12	13	6	13	12.5	2.9	3.6
100	50	150	150	22	12	13	6	13	9.5	2.7	4.5
125	50	150	200	22	10	13	6	13	6.3	2.6	7
150	80	150	200	22	10	13	6	13	6.1	2.4	8
200	100	150	200	22	10	19	10	13	6.0	2.2	9
250	150	200	200	22	10	19	10	13	5.8	2.1	16
300	150	200	250	22	10	19	10	13	5.2	2.0	19
350	200	200	250	25	7	19	10	13	3.9	1.8	25
400	250	200	250	25	5	19	10	13	3.3	1.4	29
450	300	200	250	25	5	19	10	13	2.6	1.0	33

## Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for Neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC 1101CR/ER and ININ 1101CR/ER.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Contact PosiFlex for full details including availability of larger sizes, higher pressure and temperature ratings, as well as additional arches. All sizes are designed for (-0.5 Bar g) vacuum, full vacuum (-1 Bar g) designs available.
- Gross weights include retaining rings.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 1100LW & 1101LW

### Style 1100LW & 1101LW

#### Features & Benefits

- Extremely flexible design with minimum stiffness and deflection forces
- 121°C with (2 Bar g) and (-0.33 Bar g) service standard
- Versatile hand-built construction allows PosiFlex to work with the system requirements to develop an optimal and cost-effective solution, including non-standard face-to-face dimensions, no arch, single or multiple arch designs in straight or reducing arrangements
- Standard drillings Include: ANSI/AWWA, DIN and PN
- Integral flange design, no gaskets required
- Ideal flex connector for fans, blowers and other industrial OEM equipment
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset while providing easy access to piping and equipment



STYLE 1100LW



STYLE 1101LW

### Style 1100LW

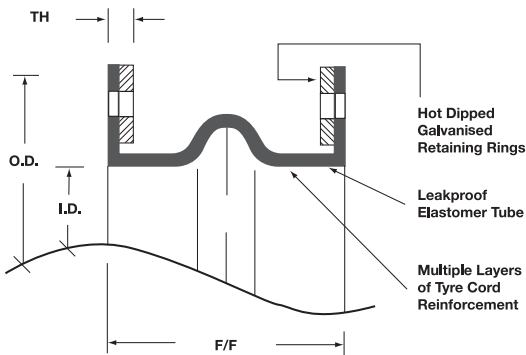
#### Features & Benefits

- No arch

### Style 1101LW

#### Features & Benefits

- Single (1) arch



STYLE 1101LW

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## STYLE 1100LW & 1101LW

SIZE DN (mm)	LENGTH F/F (mm)	FLANGE TH. (mm)	COMP. (mm)	STYLE 1101LW MOVEMENTS				STYLE 1101LW SPRING RATE			GROSS WEIGHT (kg)
				EXT. (mm)	LATERAL (mm)	ANGULAR (degree)	TORSIONAL (degree)	COMP. (N/mm)	EXT. (N/mm)	LATERAL (N/mm)	
25	150	16	50	25	25	43	5.0	4	5	6	4
65	150	16	50	25	25	36	4.0	5	6	7	5
80	150	16	50	25	25	31	4.0	6	7	8	6
100	150	16	50	25	25	24	4.0	8	10	9	7
125	150	16	50	25	25	20	4.0	9	12	10	8
150	150	16	50	25	32	17	4.0	11	15	11	9
200	150	16	50	25	32	13	3.0	13	16	13	13
250	150	16	50	25	32	19	3.0	16	21	14	18
300	150	16	57	25	32	15	3.0	17	22	17	23
350	150	16	57	29	35	13	3.0	18	23	23	25
400	150	16	57	29	35	12	3.0	19	25	23	36
450	150	16	57	29	35	11	3.0	21	27	25	40
500	150	16	64	29	35	10	3.0	22	31	28	47
600	200	16	64	32	35	9	3.0	28	37	30	59
700	200	16	64	32	35	8	3.0	36	47	38	79
900	200	16	64	32	35	7	2.0	44	57	47	107

Note: Style 1100LW length dimensions as per 1101LW. For movement /spring rate details contact PosiFlex.

### Specifications

1. Technical data shown above reflect the single arch design, additional arches typically increase movements and decrease spring rates proportionately. Contact the factory for full details including availability of larger sizes, higher pressure and temperature ratings.
2. All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
3. Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
4. All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
5. For full product specifications and installation instructions, see SPEC 1101LW-1 and ININ 1101LW-1.
6. WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
7. Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
8. Style 1101LW will replace Style 2000.
9. Flange drilling as per specification of selected flange table.
10. Gross weights include retaining rings.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE A15-90

### Features & Benefits

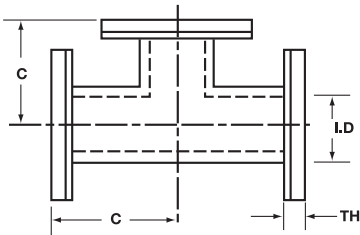
- The capacity of a flexible connector to absorb noise and vibration is directly proportional to its flexible length; this original design pre-dates the spherical connector and is still preferred by many design engineers and is considered the ultimate in noise and vibration control
- 121°C continuous services standard, 204°C available
- Standard drillings include ANSI/AWWA, DIN and PN
- Versatile hand-built construction, available as reducers both concentric and eccentric, as well as elbows and tees; elbows in long or short radius to ANSI dimensions
- Excellent chemical and abrasion resistance
- Wide variety of tube and cover elastomers available
- Integrally flanged design, no gaskets required
- Style A15 -TF = Tee Pieces
- Style A15-45 = 45° Elbow
- For elbows, tee pieces and reducers dimensions please contact PosiFlex



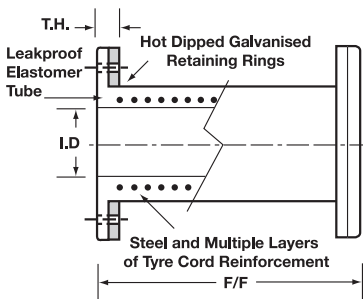
STYLE A15-90



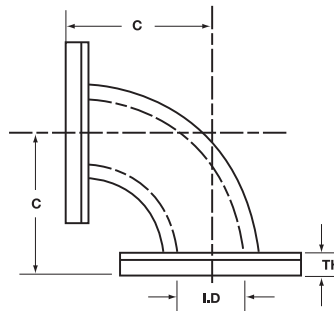
STYLE A15



STYLE A15 - TEE



STYLE A15 - STRAIGHT



STYLE A15 - ELBOW

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE A15-90

SIZE DN (mm)	LENGTH F/F (mm)	MAX PRESSURE (Bar g)	FLANGE TH. (mm)	MOVEMENTS			GROSS WEIGHT (kg)
				EXT. (mm)	COMP. (mm)	LATERAL (mm)	
25	300	10	22	6	6	6	2.5
32	300	10	22	6	6	6	2.5
40	300	10	22	6	6	6	3
50	300	10	25	6	6	6	3
65	300	10	25	6	10	10	4.5
80	450	10	29	6	10	10	7
100	450	10	29	6	13	13	9
125	600	10	29	6	13	13	13
150	600	10	29	6	13	13	15
200	600	10	29	6	13	13	21
250	600	10	29	6	13	13	25
300	600	10	29	6	13	13	36
350	600	10	29	6	13	13	47
400	600	9	29	6	13	13	55
450	600	7	29	6	13	13	68
500	600	7	29	6	13	13	80
600	600	7	29	6	13	13	114

## Specifications

- All parts listed are designed for (-1 Bar g) (full vacuum) and have a maximum test at (-0.9 Bar g) due to facility altitude and equipment limitations.
- Maximum operating temperature of 121°C for EPDM, butyl and Viton®; 107°C for neoprene; 99°C for nitrile; 82°C for pure gum rubber; 149°C for EPDM and butyl in air services at (1.7 Bar g) maximum; higher pressure and temperature ratings available.
- All sizes can be supplied with a filled arch reducing their movements by 50% and increasing the spring rates fourfold. Expansion joints with ANSI/AWWA flanges have lengths (F/F) in nominal inch conversions unless otherwise agreed.
- For full product specifications and installation instructions, see SPEC A15-1 and ININ A15-1.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precautions should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Movements are non-concurrent. Contact PosiFlex for concurrent movements, and for sizes not shown up to 3600mm DN.
- Contact PosiFlex for full details including availability of larger sizes, higher pressure and temperature ratings. All sizes are designed for (-0.5 Bar g) vacuum, full vacuum (-1 Bar g) designs available.
- Flange drilling as per specification of selected flange table.
- Gross weights include retaining rings.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## To suit 1010, 1015, 1100 & 1200

### Features & Benefits

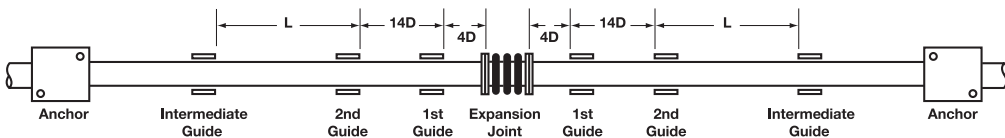
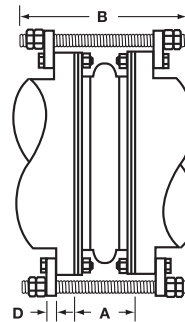
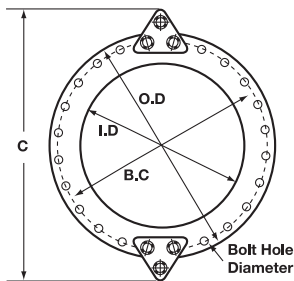
- Rubber joints that are easily pulled-back to allow clearance and easy access to an adjacent valve
- Protects expansion joints from over-expansion and over-compression
- High tensile galvanised steel rods standard, stainless steel and other materials available
- Galvanised gusset plates standard, stainless steel and other materials available
- Rubber Grommets isolate vibration and are standard on sizes 25-500 mm DN.
- Internal nuts or compression sleeves available and Prevent over-compression
- Spherical washers available and prevent binding while minimising lateral forces
- Double nuts are used to lock limit points and allow for field adjustment
- Standard drillings Include ANSI/AWWA, DIN and PN
- Universal tied/self-guiding control units available and prevent squirming on longer expansion joints
- Hinges are available and allow for angular movement in one dimension
- Gimbles are available and allow for angular movement in two dimensions
- D1101DJ can be made to suit site specifications



CONTROL UNIT

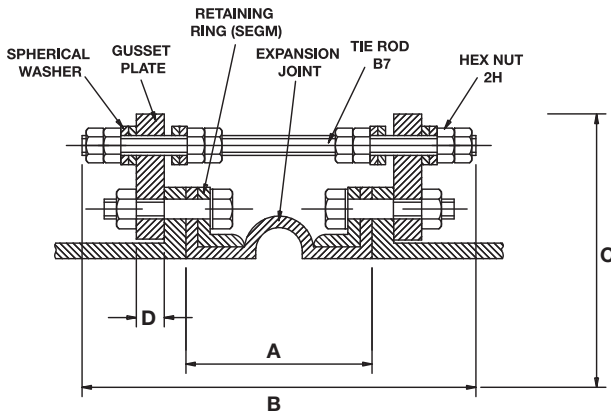


STYLE 1101DJ  
DISMANTLING JOINT WITH TURNBUCKLES

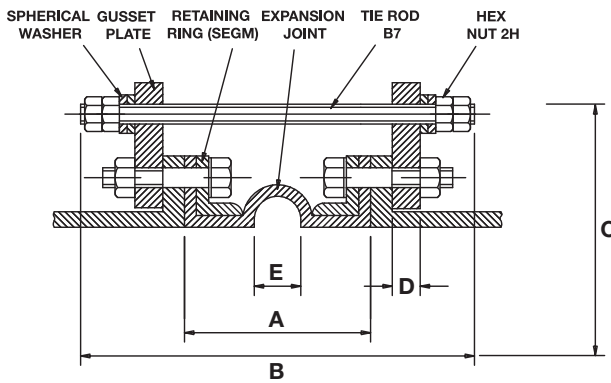


Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

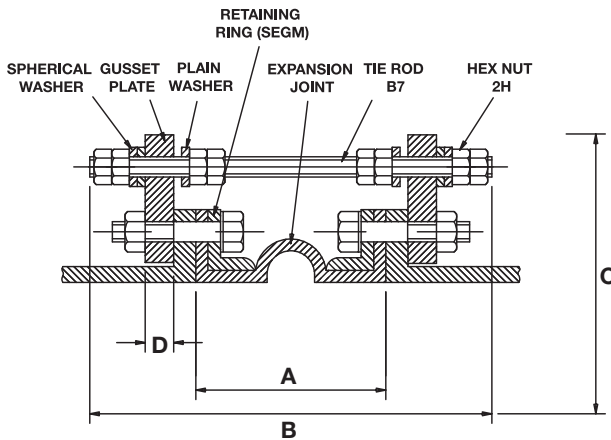
To suit 1010, 1015, 1100 & 1200



STYLE SW/SW  
Outer Spherical Washer, Inner Spherical Washer



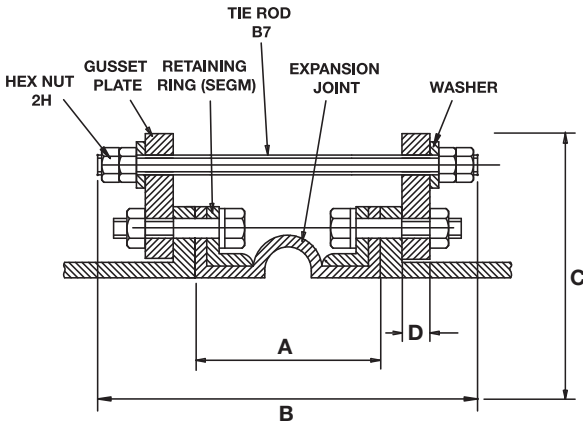
STYLE SW/B  
Outer Spherical Washer, Inner Bare



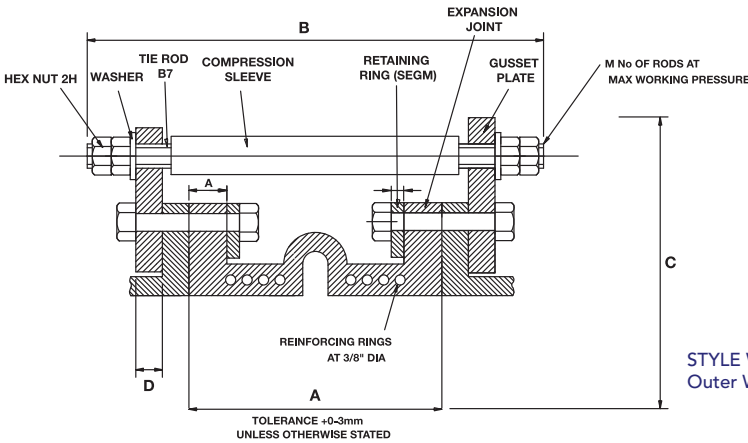
STYLE SW/W  
Outer Spherical Washer, Inner Washer

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

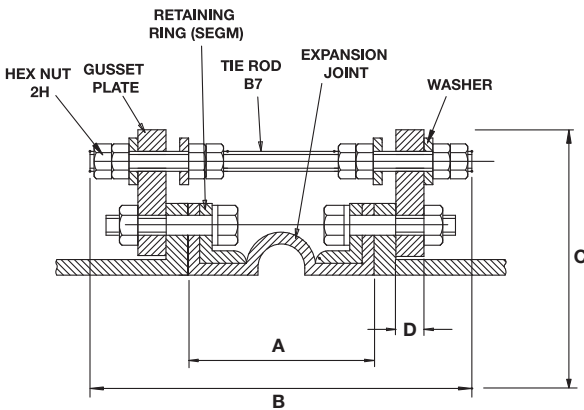
To suit 1010, 1015, 1100 & 1200



STYLE W/B  
Outer Washer, Inner Bare



STYLE W/CS  
Outer Washer, Inner Compression Sleeve



STYLE W/W  
Outer Washer, Inner Washer

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## To suit 1010, 1015, 1100 & 1200

PIPE SIZE DN (mm)	STANDARD LENGTH (F/F) A (mm)	MAX CONTROL UNIT LENGTH B	MAX CONTROL UNIT DIA. C	MAX GUSSET TH. D (J mm)	2 ROD SET MAX PRESSURE (Bar g)	3 ROD SET MAX PRESSURE (Bar g)	4 ROD SET MAX PRESSURE (Bar g)	5 ROD SET MAX PRESSURE (Bar g)	6 ROD SET MAX PRESSURE (Bar g)	7 ROD SET MAX PRESSURE (Bar g)	8 ROD SET MAX PRESSURE (Bar g)	9 ROD SET MAX PRESSURE (Bar g)	20 ROD SET MAX PRESSURE (Bar g)
25	150	381	191	10	15.5	-	-	-	-	-	-	-	-
40	150	381	216	10	15.5	-	-	-	-	-	-	-	-
50	150	381	235	10	15.5	-	-	-	-	-	-	-	-
65	150	381	260	10	15.5	-	-	-	-	-	-	-	-
80	150	381	273	10	15.5	-	-	-	-	-	-	-	-
100	150	381	311	10	15.5	-	-	-	-	-	-	-	-
125	150	381	362	13	15.5	-	-	-	-	-	-	-	-
150	150	381	387	13	15.5	-	-	-	-	-	-	-	-
200	150	381	489	13	15.5	-	-	-	-	-	-	-	-
250	200	457	578	19	15.5	-	-	-	-	-	-	-	-
300	200	457	629	19	13.1	15.5	-	-	-	-	-	-	-
350	200	457	641	19	9.0	13.4	15.5	-	-	-	-	-	-
400	200	457	718	19	7.6	11.4	15.2	-	-	-	-	-	-
450	200	457	757	19	6.1	9.2	12.3	-	-	-	-	-	-
500	200	457	816	19	5.1	7.7	10.2	-	-	-	-	-	-
600	250	610	953	25	4.8	7.2	9.5	-	-	-	-	-	-
750	250	610	1118	32	3.6	5.4	7.2	-	-	-	-	-	-
900	250	686	1334	38	4.6	6.9	9.2	-	-	-	-	-	-
1000	300	686	1461	38	3.7	5.5	7.3	-	-	-	-	-	-
1050	300	686	1505	38	3.3	5.0	6.2	-	-	-	-	-	-
1200	300	686	1670	44	3.9	5.8	7.7	-	-	-	-	-	-
1350	300	813	1899	44	3.3	5.0	6.6	8.3	-	-	-	-	-
1500	300	813	2064	44	2.8	4.1	5.5	6.9	-	-	-	-	-
1650	300	813	2235	48	2.3	3.5	4.7	5.9	-	-	-	-	-
1800	300	813	2400	48	1.9	2.9	3.9	4.8	5.9	-	-	-	-
1950	300	813	2585	51	1.7	2.5	3.3	4.1	5.1	5.8	-	-	-
2100	300	813	2762	57	1.4	2.1	2.8	3.4	4.1	4.8	5.5	-	-
2250	300	813	2991	64	1.4	2.1	2.8	3.4	4.1	4.8	5.5	-	-
2400	300	813	3150	64	1.1	1.7	2.2	2.7	3.3	3.9	4.4	5.0	5.5
2550	300	813	3327	64	1.03	1.59	2.07	2.62	3.10	3.66	4.14	4.69	5.17
2700	300	813	3505	64	0.90	1.38	1.79	2.28	2.69	3.17	3.59	4.07	4.48
2850	300	813	3658	64	0.85	1.28	1.7	2.13	2.55	3.0	3.4	3.83	4.25

Note: This table is to be used as a guide only.

### Specifications

- Maximum control unit lengths and diameters, as well as gusset thickness, are meant to assist in determining adequate clearance and mating hardware selection. The values are maximum values and are based on mild steel design. Dimensions will change when using high tensile steel and with different arrangements. Contact PosiFlex and request a specific submittal drawing for your job.
- Expansion joints should be installed between anchors. Anchors should be located at changes in pipe direction and guides should be spaced according to industry standards. Piping must be supported so the Expansion joints do not carry any pipe weight. Contact PosiFlex for more details.
- WARNING: Control units (sold separately) must be used when piping is not properly anchored. Number of rods is dependent upon maximum field test pressures. Expansion joints may operate in pipelines carrying fluids at elevated temperatures and pressures, so precaution should be taken to ensure proper installation and regular inspection. Care is required to protect personnel in the event of leakage or splash. Adequate floor drains are always recommended.
- Outer and inner control unit gaps are set to a maximum of half the allowable movements, equal on each side so that the sum does not exceed the allowable movement in any one direction.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

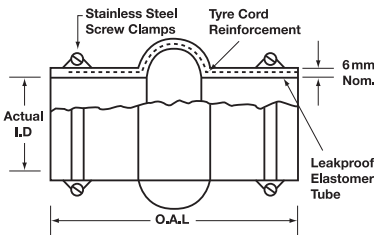
## STYLE 1081, 1082 & 1083

### Features & Benefits

- Economical slip-on design eliminates the need for mating flanges and hardware
- Extremely lightweight and flexible
- Large all directional movement capability with low stiffness and deflection forces
- EPDM and multiple plies of tyre cord reinforcements standard, with a wide variety of other tube and cover elastomers available
- 121°C continuous service standard, 204°C available
- More than (3) arches as well as reducers and offset arrangements available
- No gaskets required
- Stainless steel screw clamps are not supplied with the joints



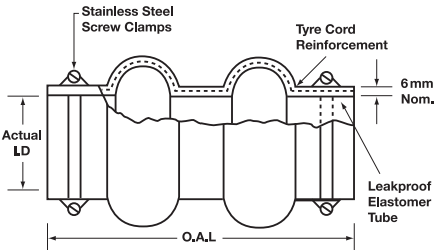
STYLE 1081  
SINGLE (1) ARCH



STYLE 1081 SINGLE (1) ARCH



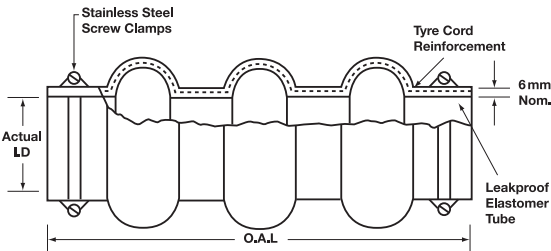
STYLE 1082  
DOUBLE (2) ARCH



STYLE 1082 DOUBLE (2) ARCH



STYLE 1083  
TRIPLE (3) ARCH



STYLE 1083 TRIPLE (3) ARCH

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## STYLE 1081, 1082 &amp; 1083

SIZE PIPE (DN)	ACTUAL ID (mm)	MAX PRESSURE (Bar g)	VACUUM (Bar g)	MAX TEMP (°C)	STYLE 1081				STYLE 1082				STYLE 1083			
					OVERALL LENGTH	COMP (mm)	EXT. (mm)	LATERAL (mm)	OVERALL LENGTH	COMP (mm)	EXT. (mm)	LATERAL (mm)	OVERALL LENGTH	COMP (mm)	EXT. (mm)	LATERAL (mm)
40	49	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
50	60	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
65	73	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
80	89	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
100	114	6.2	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
125	141	3.5	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
150	168	3.5	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
200	219	2.4	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
250	273	2.5	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57
300	324	2.4	-0.5	121	200	45	19	19	300	90	38	38	350	135	57	57

## Specifications

1. Expansion joints are sized to slip over schedule 40 pipe. Other ID dimensions are available.
2. Movements are non-concurrent movements. Contact PosiFlex for concurrent movements, and for sizes not shown up to 2400mm DN.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

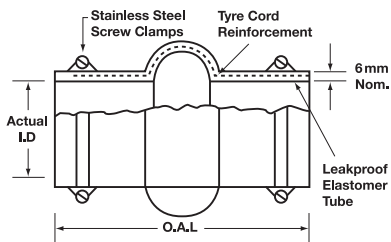
## STYLE 1080, 1086, 1087 & 1091

### Features & Benefits

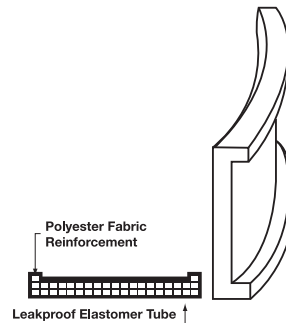
- Versatile hand-built construction allows general rubber to work with the system requirements to develop an optimal and cost-effective solution
- 121°C continuous service standard, 204°C available
- The no arch style 1080 typically incorporates wire reinforcement for higher pressure and vacuum ratings, while the no arch style 1086 has no wire and is designed for ducting applications operating within  $\pm 35$  KPa
- The single or multiple arch style 1087 is also designed for ducting applications operating within  $\pm 35$  KPa as well as requiring significant all directional movement and/or low deflection forces
- The unique beaded ends on the fully molded style 1091 prevent the sleeve from being pulled out from under the clamps, making this design ideal for vibrating bin activators as well as other Industrial OEM Equipment
- Economical slip-on design eliminates the need for mating flanges and hardware
- Dimensions on application



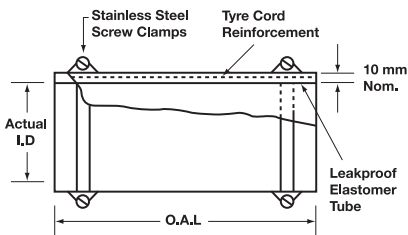
STYLE 1081LW



STYLE 1087  
SINGLE OR MULTIPLE ARCH



STYLE 1091  
BEADED ENDLESS BELT  
AVAILABLE IN 100MM AND 125MM  
WIDTH BEAD IS 6MM WIDE



STYLE 1080 & 1086  
NO ARCH

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# STYLE 1092 & 1097

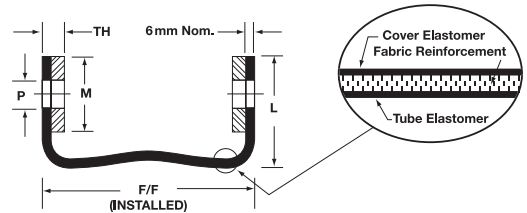
## Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Up to 204°C and ±35 KPa continuous service
- Standard face-to-face dimensions of style 1092 include 80, 100, 150, 200 and 300mm with molded flanges
- Custom face-to-face dimensions with style 1097
- No gaskets required
- Wide variety of tube and cover elastomers available
- Excellent chemical and abrasion resistance

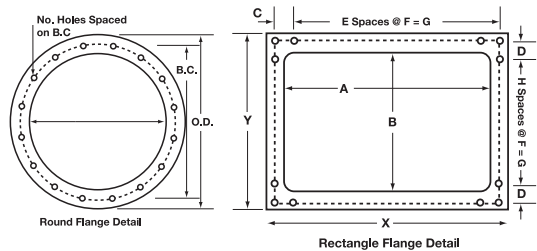


STYLE 1092 & 1097

1092 – MOLDED FLANGE, FIXED FACE DESIGN				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES		
		COMP (mm)	EXT. (mm)	LATERAL (mm)
80	13	25	13	13
100	13	25	13	13
150	13	50	13	25
200	13	80	13	50
300	13	100	19	80



1097 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP	EXT.	LATERAL
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



## Specifications

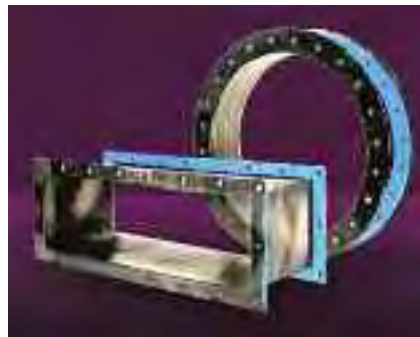
1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# STYLE 1093

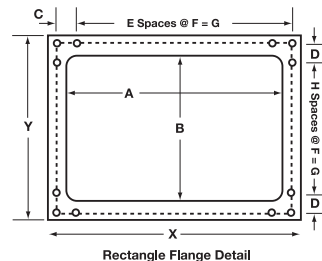
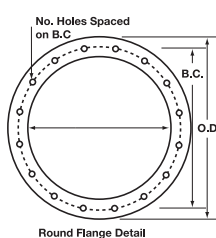
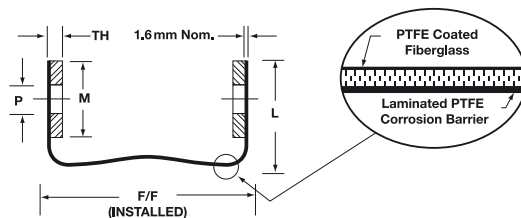
## Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Up to 305°C and ±35 KPa Continuous Service
- Laminated fluoroplastic PTFE corrosion barrier
- Superior chemical resistance
- Zero porosity in wet and dry service
- Heat form and sealed to any size and arrangement



STYLE 1093

1093 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



## Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# STYLE 1094

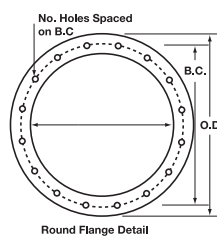
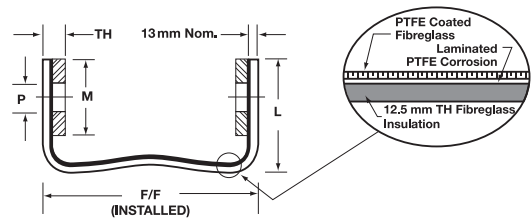
## Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Up to 538°C and ±21 KPa continuous service
- 13mm thick laminated fibreglass insulation layer
- Laminated fluoroplastic PTFE corrosion barrier
- Heat form and sealed to any size and arrangement

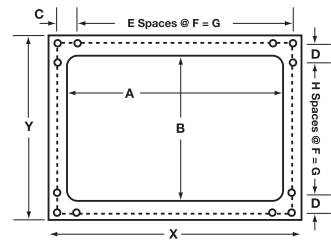


STYLE 1094

1094 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F + (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25 </td <td>100</td>	100



Round Flange Detail



Rectangle Flange Detail

## Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# STYLE 1095

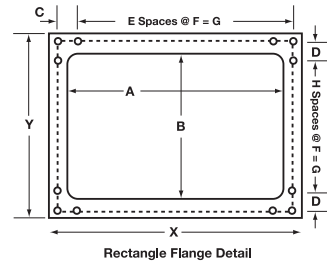
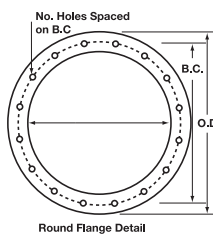
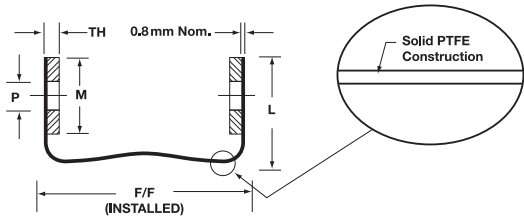
## Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Cycle life in the millions
- Up to 260°C and ±21 KPa continuous service
- Ultimate chemical resistance
- No fibreglass component to fatigue
- Solid fluoroplastic PTFE construction
- Heat form and sealed to any size and arrangement



STYLE 1095

1095 – MOLDED FLANGE, VERSATILE FACE-TO-FACE CONSTRUCTION				
INSTALLED LENGTHS (mm)	MFD F/F+ (mm)	MOVEMENT CAPABILITIES (mm)		
		COMP. (mm)	EXT. (mm)	LATERAL (mm)
80-150	13	50	13	25
151-225	19	80	19	50
226-300	25	100	25	80
301-400	25	125	25	100



## Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# STYLE 1098

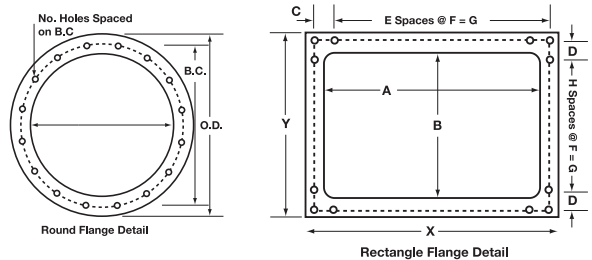
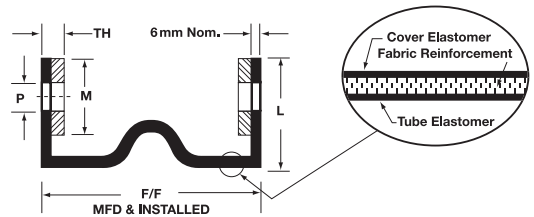
## Features & Benefits

- Round and rectangular designs in all styles
- Exceptional all directional movement capability
- Absorbs system noise, vibration and shock
- Compensates for minor misalignment and offset
- Integrally flanged design
- Low stiffness and deflection forces
- Simple to install, lightweight and high strength
- Provides easy access to ducting and equipment
- Carbon steel, stainless steel, or hot dipped galvanised backing rings available for easy bolting to mating flanges
- Versatile hand-built construction allows general rubber to work with the system requirements to develop an optimal and cost-effective solution
- Single or multiple arch style 1098 is designed for round or rectangular ducting systems operating within 204°C and ±35 KPa as well as requiring significant all directional movement and/or low deflection forces
- No gaskets required
- Wide variety of tube and cover elastomers available
- Excellent chemical and abrasion resistance



STYLE 1098

**1098 MANDREL MADE CONSTRUCTION**  
 Dimensions and movements tailored for exceptional performance. Single or multiple arches as well as reducers available.



## Specifications

1. Extension movement capabilities can be increased with additional pre-compression during installation.
2. Anchors should be used to resist the pressure thrust force and isolate the thermal movements between expansion joints.
3. For vacuum or large pre-compressed applications, a set-back may be required to keep the expansion joint from protruding into the gas stream or touching the flow liner/baffle.
4. Retaining rings/backing bars of 8mm thickness standard. Suggested bolt spacing at 100mm centres max.
5. Flange gaskets suitable for the system temperature and fluid media should be used to ensure a full seal on all fluoroplastic styles. (Style 1093, 1094 and 1095).
6. For full product specification and installation instructions, see SPEC 1092-1093-1094-1095-1097-1098 and ININ 1092-1093-1094-1095-1097-1098.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STYLE TSS, EPS & LPS

### Style TSS Teflon Spray Shield

#### Features & Benefits

- Safely deflects harmful spray-out if leakage occurs at flanges, valves or expansion joints
- Solid fluoroplastic PTFE construction offers superior chemical resistance and 204°C service
- Simple to install, lightweight and high strength

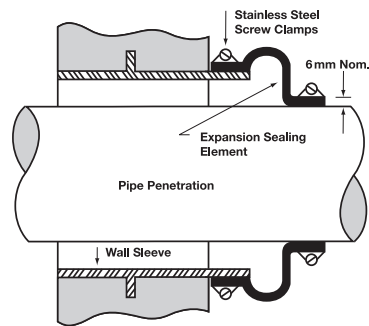


STYLE TSS

### Style EPS Expansion Penetration Seal

#### Features & Benefits

- Seals pipes through walls, floors and casings with Excellent all directional movement capability and low deflection forces
- Absorbs noise, vibration, pipe misalignment, thermal movements, ground settlement and seismic displacements
- Sealing pressure 275 KPa and 121°C service
- Versatile flanged or slip-on designs
- Custom designs available for larger movements, higher pressure and/or higher service temperature
- Wide variety of sealing elements and hardware available

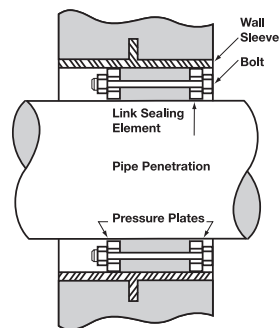


STYLE EPS

### Style LPS Link Penetration Seal

#### Features & Benefits

- Seals pipes through walls, floors and casings
- Sealing pressure 137 KPa and 121°C service
- Seals around any round or radius penetration
- Wide variety of sealing elements, pressure plates, and hardware available
- Absorbs noise, vibration and minor misalignment
- Simple to install, most cost-effective solution



STYLE LPS

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## STYLE PVS

---

### Features & Benefits

- The sleeve of a pinch valve has no obstruction or working parts to block or break down. This means long trouble-free service and greater reduction in valve maintenance time
- Pinch valve sleeves can be made in a variety of materials that are corrosion resistant and can handle a range of fluids
- Installed pinch valves will completely stop water hammer in piping and other vibrations.
- Pinch valves can accommodate extreme temperatures as low as -40°C
- Typical applications include chemical, conveying, food, mining, painting, pharmaceutical, power, water and wastewater
- Available in a variety of elastomers, including pure gum rubber, neoprene, chlorobutyl, Buna-N, hypalon, EPDM and Viton®.



*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STYLE 4100 SLIP-ON TYPE

### Features & Benefits

- Eliminates backflow and seals around entrapped solids
- 25mm to 2438mm (1" to 96") DN.
- Rugged all elastomer construction is a full variety of materials
- Maintenance free operation with no mechanical components that can corrode or freeze
- Lower head loss than conventional check valves
- Will open with as little as 25mm WC. Drop tight at 30psi over 18.3m WC.
- Quiet operation, no slamming
- Non-plugging
- Provides corrosion and abrasion resistance
- Versatile construction for a wide range of applications
- Can be designed to slip over any smooth or corrugated pipe
- No flanges needed for installation
- Special sizes available
- Slip-on and seals to OD of pipe using two clamp bands



STYLE 4100

### Typical Applications

#### Storm Water Outfall/Overflow

The FlexValve® Duck-Bill Style 4100 check valves provide quiet, maintenance free operation with an added benefit of low opening pressure, thereby eliminating standing water; a major health concern.

#### Submerged Outfall Diffuser

The FlexValve® Duck-Bill Style 4100 check valves will eliminate marine fouling and backflow intrusion with the added benefit of higher jet velocities even at low flow rates, providing a more uniform port discharge distribution. The versatile construction and our creative design team can adapt the FlexValve® Duck-Bill style check valves to multiple applications including: water mixing systems, overflow vents, anti-siphon devices, coarse bubble diffusers, floor drains, sparging devices or even, when needed, to increase back pressure in a pipeline.

### Elastomers Available

Pure gum rubber, neoprene, EPDM, Buna-N (Nitrile), chlorobutyl and Viton®.

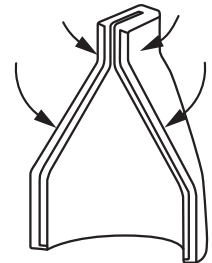
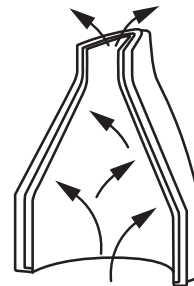
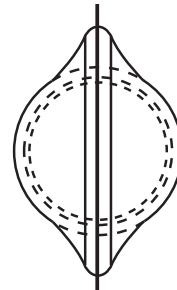
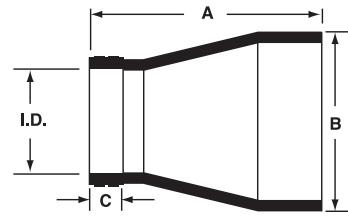
### Quality & Testing

Manufactured in the modern ISO-9001:2000 certified production unit in Tucson, Arizona, they have tested the FlexValve® Duck-Bill style check valves have been tested for minimum opening pressure and maximum back pressure.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STYLE 4100 SLIP-ON TYPE

PIPE SIZE (mm)	ID (mm)	LENGTH A (mm)	BILL WIDTH B (mm)	CUFF LENGTH C (mm)
25	33	76	38	25
40	49	152	76	25
50	60	152	102	25
65	73	203	127	25
80	89	203	140	38
100	114	305	178	38
125	141	394	229	51
150	168	406	267	51
200	219	419	330	51
250	273	546	432	76
300	324	673	521	114
350	350	660	559	102
410	410	660	686	127
450	450	762	737	152
500	500	838	838	203
600	600	991	940	203
750	750	1067	1270	229
900	900	1245	1594	254
1050	1050	1372	1803	254
1200	1200	1499	1981	254
1370	1370	1753	2464	254
1500	1500	1880	2464	356
1829	1829	2413	2921	406
2100	2100	2413	2921	406
2438	2438	2565	3023	406



The FlexValve® 4100 check valve opens with line pressure to allow the process media to flow through...

...reverse pressure seals the valve closed, even on solids, to prevent backflow into the process line.

SIZE	25	40	50	65	80	100	125	150	200	250	300	350	410	450	500	600	750	900	1050	1200	1370	1500	1829	2000	2100	2438
ID (mm)	33	49	60	73	89	114	141	168	219	273	324	350	410	450	500	600	750	900	1050	1200	1370	1500	1829	2000	2100	2438
A (mm)	76	152	152	203	229	305	394	457	419	546	673	660	660	762	838	991	1067	1245	1372	1499	1753	1880	2413	2413	2413	2565
B (mm)	38	76	102	127	140	178	229	267	330	432	521	559	686	737	838	940	1270	1549	1803	1981	2464	2464	2921	2921	2921	3023
C (mm)	25	25	25	25	38	38	51	51	51	76"	114	102	127	152	203	203	229	254	254	254	254	356	406	406	406	406
WEIGHT (kg)	0.2	0.3	0.5	0.7	1.4	1.8	2.7	5.4	6.4	9.1	14.5	18.1	21.8	31.8	44.5	56.7	102.1	260.8	362.9	464.9	612.3	762	1202	1505.9	1769	2041.2

Dimensions are for clearance purpose only. Actual product dimensions may vary based upon specific application requirements. IDs in the table are based on carbon steel pipe OD.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## STYLE 4200 FLANGE TYPE

### Features & Benefits

- Eliminates backflow and seals around entrapped solids
- 25mm to 2438mm (1" to 96") DN.
- Rugged all elastomer construction is a full variety of materials
- Maintenance free operation with no mechanical components that can corrode or freeze
- Lower head loss than conventional check valves
- Will open with as little as 25mm WC. Drop tight at 30psi over 18.3m WC.
- Quiet opening, no slamming
- Non-plugging
- Provides corrosion and abrasion resistance
- Versatile construction for a wide range of applications
- Standard flange drillings include: ANSI and BS EN-DIN1092 PN16
- Full faced internal elastometric flange ensures a complete seal while a need for gaskets
- Retaining rings available in galvanised, 304 stainless steel and 316 stainless steel



STYLE 4200

### Typical Applications

#### Storm Water Outfall/Overflow

The FlexValve® Duck-Bill Style 4200 check valves provide quiet, maintenance free operation and with the added benefit of low opening pressure, thereby eliminating standing water, which is a major health concern.

#### Submerged Outfall Diffuser

The FlexValve® Duck-Bill Style 4200 check valves will eliminate marine fouling and backflow intrusion with the added benefit of higher jet velocities even at low flow rates, providing a more uniform port discharge distribution.

The versatile construction and our creative design team can adapt the FlexValve® Duck-Bill Style check valves to multiple applications including: water mixing systems, overflow vents, anti-siphon devices, coarse bubble diffusers, floor drains, sparging devices or even, when needed, to increase back pressure in a pipeline.

### Elastomers Available

Pure gum rubber, neoprene, EPDM, Buna-N (Nitrile), chlorobutyl and Viton®.

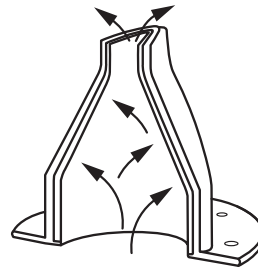
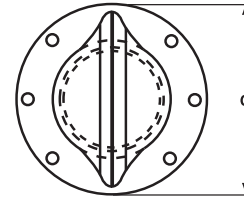
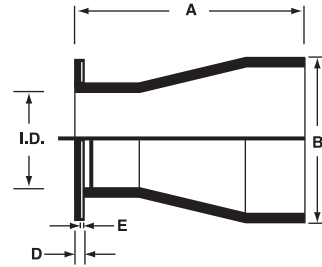
### Quality and Testing

Manufactured in the modern ISO-9001:2000 certified production unit in Tucson, Arizona, they have tested the FlexValve® Duck-Bill style check valves have been tested for minimum opening pressure and maximum back pressure.

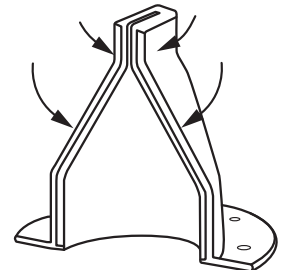
*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## STYLE 4200 FLANGE TYPE

PIPE SIZE ID (mm)	LENGTH A (mm)	BILL WIDTH B (mm)
25	152	38
40	152	76
50	152	102
65	203	127
80	229	140
100	305	178
125	394	229
150	406	267
200	419	330
250	546	432
300	673	521
350	660	559
410	660	686
450	762	737
500	838	838
600	991	940
750	1067	1270
900	1245	1549
1050	1372	1803
1200	1499	1981
1370	1753	2464
1500	1880	2464
1829	2413	2921
2100	2413	2921
2438	2565	3023



The FlexValve® 4200 check valve opens with line pressure to allow the process media to flow through...



...reverse pressure seals the valve closed, even on solids, to prevent backflow into the process line.

SIZE	25	40	50	60	80	100	125	150	200	250	300	350	410	450	500	600	750	900	1194	1200	1370	1500	1829	2000	2100	2438
A (mm)	76	152	152	203	229	305	394	406	419	546	673	660	660	762	813	991	1219	1372	1473	1626	1829	1930	1930	2464	2464	2565
B (mm)	38	76	102	127	140	178	229	267	330	432	521	559	686	737	838	940	1270	1549	1803	1981	2464	2464	2464	2921	2921	3023
C (mm)	108	127	152	178	191	229	254	279	343	406	483	533	597	635	699	813	984	1168	1346	1511	1683	1854	2032	2197	2534	2877
D (mm)	23	23	23	23	23	23	23	23	23	23	23	23	25	25	25	29	29	29	29	29	29	29	29	32	32	32
E (mm)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
WEIGHT (kg)	0,68	1	1	2	2	3	4	5	9	11	19	23	29	39	52	66	118	283	411	522	703	862	1061	1331	1996	2885

Dimensions are for clearance purpose only. Actual product dimensions may vary based upon specific application requirements.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## PTFE SINGLE, DOUBLE, TREBLE, QUADRUPLE & 5 ARCH

### Features & Benefits

- Contour-moulded expansion joints are manufactured from seamless PTFE (Polytetrafluoroethylene). The use of carefully manufactured, wrapped PTFE tubes, with a controlled wall thickness ensures maximum hoop strength in the finished bellows and gives excellent pressure/vacuum with temperature performance, without losing adequate flexibility.
- Expansion joints have pressure ratings high enough to handle most applications. As the pipe size gets larger, both the bellows thickness and the strength of the reinforcing rings are increased to compensate for the change in internal forces. This permits the same high pressure rating for larger sizes as for smaller ones, retaining the same safety-factor 4:1.
- Expansion joints can also be inserted with PTFE protective one-end flared tubes for applications where abrasive solids are part of the fluid: a high velocity is met; materials that might settle out in the convolutions are transported. The flared end of the protective tube is clamped in the upstream flow-direction.
- Sizes are available to suit all site specifications.



PTFE JOINTS

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# PIPE COUPLINGS & JOINTS



Viking Johnson is a world leader in the manufacture and supply of couplings, flange adaptors, pipe repair and jointing solutions for the international water, wastewater, gas and industrial markets. The product portfolio is extensive, with many thousands of individual items to choose from and of course bespoke solutions can be manufactured to customers' specific requirements. Industrial applications include oil-based and petroleum products, chemicals, sewage and general industrial processing.

For details of our full range visit  
[www.vikingjohnson.com](http://www.vikingjohnson.com)



**VIKING JOHNSON™**

## Developed for Complete Versatility

The Dismantling Joint range was developed to provide greater versatility for the designer at the planning stage and the engineer in the installation stage of flanged pipework systems and to allow for simple maintenance programmes.

### Allows for Adjustment

The Dismantling Joints are double flanged fittings that accommodate up to 100mm (4") longitudinal adjustment and can be locked at the required length with the tie bars supplied. Not only does this system allow for fast, easy maintenance of valves, pumps or meters, it simplifies future pipe work modifications and reduces downtime when changes need to be made.

### Easy to Install

The installation is also straightforward using just a spanner and torque wrench to tighten the high tensile steel or stainless steel tie bars. With fewer tie bars than flange holes and the tie bars acting as flange jointing bolts the process is speeded up but still offers a secure, rigid, fully end load resistant system with a pressure rating equal to that of the flange.

### The Range

A comprehensive range is available from DN40 (1½") to DN2400 (80") with virtually any flange drilling or pressure rating supplied, although larger sizes and custom made Dismantling Joints can be designed and built on request.



#### Flanged Pipe Materials



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## Product Design Benefits

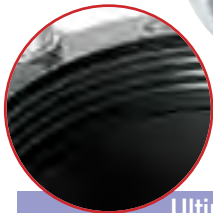
## Full Flange Sealing

For applications where a full-face flange is required, ie. wafer and butterfly valves, the flange of the spigot piece provides a full flange sealing area.



## Excellent Corrosion Protection

The flange adaptor and flange spigot are coated with WRAS approved Rilsan Nylon 11 providing excellent protection from transport, storage, site and corrosion damage. The tie bars are Zn3 Zinc Plated as standard with other coatings, grades and finishes available on request. The nuts and bolts are Sheraplex coated to WIS-4-52-03, offering long-term protection against corrosion.



## Ultimate Sealing Capability

The gasket is compressed independently of the tie bars with the sealing capability secured as soon as the fasteners reach required torque.

## Simple to Fit

Harnessing is accommodated within the bolt circle, eliminating other complex anchoring systems and reducing space requirements.



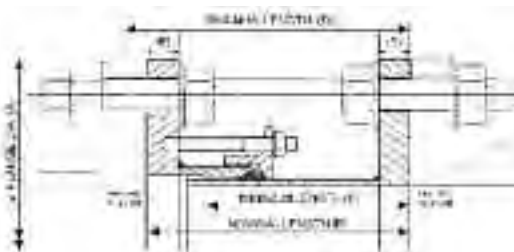
## Customer Benefits

- Viking Johnson's Dismantling Joints are particularly suitable for simplifying the installation and removal of isolation valves, control valves, check valves, non-return valves, flow metering valves, pump sets, pressure reducing valves, flanged pipe and fittings.
- The simplicity and versatility of the fittings make them suitable for many applications including pumping stations, water treatment works, sewage treatment works, plant rooms, meter chambers, power generation equipment and gas distribution stations.
- Viking Johnson fittings are supplied as standard with EPDM gaskets which are suitable for potable water, drainage and sewage applications, however, a full range of specialist gasket materials resistant to various chemical compositions are available. For further details consult the marketing department or review the Technical Design Data document online at [www.vikingjohnson.com](http://www.vikingjohnson.com).

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

Specifications

Dismantling Joints DN40 to DN300 (PN2.5\*, 6\*, 10, 16, 25, 40, 64\*)



Flange Details				Flange to Flange Details				Tie Rod Details				Flange Adaptor Method of Construction Cast / Fabricated	
Nom	Drilling	Flange Thickness		Flange OD (mm)	Nom. Length (mm)	Min. Length (mm)	Max. Length (mm)	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel Class 70 Yield 450N/mm <sup>2</sup>		
		Flange Adaptor E (mm)	Spigot E (mm)						No.	Total Weight of DJ (kg)	No.		Total Weight of DJ (kg)
40	PN10,16,25,40	18	18	150	187	167	207	M16 x 300	4	7.8	4	7.8	Fabricated
50	PN10,16,25,40	17	18	165	194	175	213	M16 x 300	4	8.2	4	8.2	Cast
65	PN10,16	17	18	185	194	175	213	M16 x 300	4	9.4	4	9.3	Cast
80	PN10,16,25,40	17	18	200	194	175	213	M16 x 300	4	10.4	4	10.4	Cast
100	PN10,16	17	18	220	194	175	213	M16 x 300	4	11.6	4	11.6	Cast
100	PN25,40	25	25	235	194	174	214	M20 x 320	4	19.2	4	19.2	Fabricated
125	PN10,16	17	18	250	194	175	213	M16 x 300	4	13.5	4	13.5	Cast
125	PN25,40	25	25	270	194	174	214	M24 x 330	4	26.2	4	26.2	Fabricated
150	PN10,16	17	18	285	194	175	213	M20 x 310	4	17.7	4	17.7	Cast
150	PN25	25	25	300	194	174	214	M24 x 330	4	28.9	4	28.9	Fabricated
150	PN40	25	25	300	194	174	214	M24 x 330	4	28.8	4	28.8	Fabricated
200	PN10	20	18	340	194	175	213	M20 x 310	4	24.3	4	24.3	Cast
200	PN16	20	18	340	194	175	213	M20 x 310	4	24.1	4	24.1	Cast
200	PN25	25	25	360	194	174	214	M24 x 340	4	37.5	4	37.5	Fabricated
200	PN40	25	25	375	194	174	214	M27 x 350	4	42.6	4	42.6	Fabricated
250	PN10	19	18	395	194	175	213	M20 x 310	4	29.6	4	29.6	Cast
250	PN16	19	18	405	194	175	213	M24 x 330	4	32.8	4	32.8	Cast
250	PN25	25	25	425	194	174	214	M27 x 350	4	49.1	4	49.1	Fabricated
250	PN40	25	25	450	194	174	214	M30 x 370	4	57.9	4	57.9	Fabricated
300	PN10	19	18	445	194	175	213	M20 x 310	4	36.2	4	36.2	Cast
300	PN16	19	18	460	194	175	213	M24 x 330	4	40.0	4	40.0	Cast
300	PN25	25	25	485	194	174	214	M27 x 350	4	57.1	4	57.1	Fabricated
300	PN40	25	25	515	194	174	214	M30 x 380	4	69.8	4	69.8	Fabricated

Materials & Relevant Standards

Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

Cast Flange Adaptor

Body - Ductile Iron to BS EN 1563:1997:Symbol EN-GJS-450-10

End Rings - Ductile Iron to BS EN 1563:1997:Symbol EN-GJS-450-10

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings - Rolled Steel to BS EN 10025-2:2004 Grade S275

Flanged Spigot

Flange - Steel to BS EN 10025:2004 Grade S275

Spigot - Up to and including 165.1mm - Steel to BS 10225:2004  
Over 165.1mm Steel to BS 10216-1:2002

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

Tie Rods

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450 N/mm<sup>2</sup>)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

End Ring - Rilsan Nylon 11

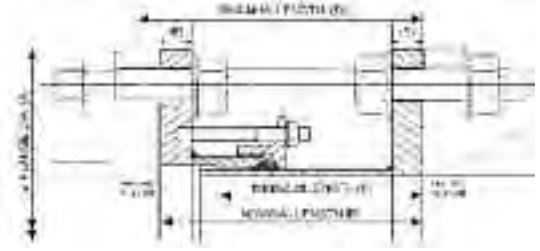
FA Studs & Nuts - Sherplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

\*More information available on request.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Dismantling Joints DN350 to DN2400 (PN10)



Flange Details				Flange to Flange Details			Tie Rod Details						
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4892 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel			
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	Class 70 Yield 450N/mm <sup>2</sup>		Class 50 Yield 210N/mm <sup>2</sup>	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN10	18	505	295	270	320	M20 x 430	4	57.7	4	57.7		
400	PN10	18	565	295	270	320	M24 x 440	4	68.9	4	68.9		
450	PN10	23	615	300	275	325	M24 x 450	5	87.2	5	87.2		
500	PN10	23	670	300	275	325	M24 x 460	5	97.1	5	97.1		
550	PN10	23	730	300	275	325	M27 x 470	5	112.0	5	112.0		
600	PN10	23	780	300	275	325	M27 x 470	5	120.0	5	120.0		
650	PN10	23	835	300	275	325	M27 x 480	6	132.0	6	132.0		
700	PN10	23	895	300	275	325	M27 x 480	6	146.0	6	146.0		
800	PN10	23	1015	300	275	325	M30 x 500	6	167.0	8	175.0		
900	PN10	25	1115	307	277	337	M30 x 520	7	211.0	14	239.0		
1000	PN10	25	1230	307	277	337	M33 x 530	7	246.0	14	281.0		
1100	PN10	25	1340	307	277	337	M33 x 540	8	276.0	16	316.0		
1200	PN10	38	1455	320	290	350	M36 x 570	8	414.0	16	465.0		
1300	PN10	38	1575	320	290	350	M39 x 590	8	475.0	16	539.0		
1400	PN10	38	1675	320	290	350	M39 x 600	9	509.0	12	533.0		
1500	PN10	38	1785	320	290	350	M39 x 610	9	606.0	12	631.0		
1600	PN10	38	1915	320	290	350	M45 x 630	10	731.0	20	851.0		
1800	PN10	38	2115	320	290	350	M45 x 650	11	829.0	22	964.0		
2000	PN10	38	2325	440	390	490	M45 x 810	12	997.0	24	1,149.0		
2200	PN10	38	2550	440	390	490	M52 x 840	13	1,699.0			52	2,500.0
2400	PN10	60	2760	462	412	512	M52 x 880	14	1,878.0			56	2,754.0

### Materials & Relevant Standards

#### Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

#### Fabricated Flange Adaptor

**Body** - Rolled Steel to BS EN 10025-2:2004 Grade S275

**End Rings** - Rolled Steel to BS EN 10025-2:2004 Grade S275 or

Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section

#### Flanged Spigot

**Flange** - Steel to BS EN 10025:2004 Grade S275

**Spigot** - Steel to BS 10216-1:2002 or Rolled Steel to

BS EN 10025-2:2004 Grade S275

#### Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

#### Tie Rods

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

u.t.i. M48 – 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)

M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)

#### Bolts/Nuts/Washers

**Bolts** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - BS 1449:Part 2:1983 Grade 304S15

#### Coatings (Others available on request)

**Centre Sleeve** - Rilsan Nylon 11

**End Ring** - Rilsan Nylon 11

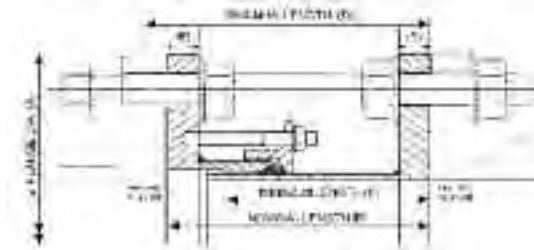
**FA Studs & Nuts** - Sheraplex to WIS 4-52-03

**Tie Rods** - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Specifications

Dismantling Joints DN350 to DN2400 (PN16)



Flange Details		Flange to Flange Details					Tie Rod Details						
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel			
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN16	18	520	295	270	320	M24 x 450	4	63.4	4	63.4		
400	PN16	18	580	295	270	320	M27 x 460	4	75.2	4	75.2		
450	PN16	23	640	300	275	325	M27 x 470	5	99.0	5	99.0		
500	PN16	23	715	300	275	325	M30 x 480	5	121.0	5	121.0		
550	PN16	23	775	300	275	325	M30 x 490	5	134.0	5	134.0		
600	PN16	23	840	300	275	325	M33 x 500	5	154.0	5	154.0		
650	PN16	23	860	300	275	325	M33 x 510	6	153.0	6	153.0		
700	PN16	23	910	300	275	325	M33 x 520	6	162.0	6	162.0		
750	PN16	23	970	300	275	325	M33 x 530	6	177.0	8	187.0		
800	PN16	23	1025	300	275	325	M36 x 540	6	184.0	8	196.0		
900	PN16	25	1125	307	277	337	M36 x 570	7	232.0	14	277.0		
1000	PN16	25	1255	307	277	337	M39 x 590	7	282.0	14	339.0		
1100	PN16	38	1355	320	290	350	M39 x 610	8	406.0	16	471.0		
1200	PN16	38	1485	320	290	350	M45 x 640	8	505.0	16	601.0		
1300	PN16	38	1585	320	290	350	M45 x 650	8	533.0	16	631.0		
1400	PN16	38	1685	320	290	350	M45 x 660	9	583.0	18	694.0		
1500	PN16	38	1820	320	290	350	M52 x 690	9	760.0			36.0	1,238.0
1600	PN16	38	1930	320	290	350	M52 x 710	10	850.0			40.0	1,391.0
1800	PN16	38	2130	320	290	350	M52 x 730	11	962.0			44.0	1,568.0
2000	PN16	60	2345	462	412	512	M56 x 930	12	1,662.0			48.0	2,577.0
2200	PN16	60	2555	462	412	512	M56 x 950	13	1,871.0			52.0	2,878.0
2400	PN16	60	2765	462	412	512	M56 x 980	28	2,461.0			56.0	3,201.0

Materials & Relevant Standards

Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

Fabricated Flange Adaptor

Body - Rolled Steel to BS EN 10025-2:2004 Grade S275

End Rings/Sleeve - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section

Flanged Spigot

Flange - Steel to BS EN 10025:2004 Grade S275

Spigot - Steel to BS 10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

Tie Rods

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

u.t.i. M48 - 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)

M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)

Bolts/Nuts/Washers

Bolts - Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts - Steel to BS 4190:2001 Grade 4

Washers - BS 1449:Part 2:1983 Grade 304S15

Coatings (Others available on request)

Centre Sleeve - Rilsan Nylon 11

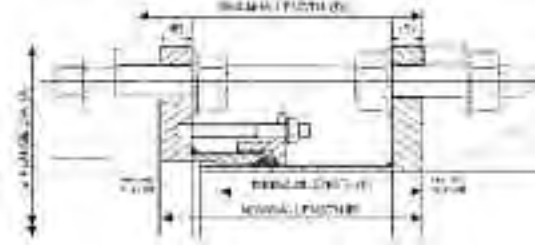
End Ring - Rilsan Nylon 11

FA Studs & Nuts - Sheraplex to WIS 4-52-03

Tie Rods - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Dismantling Joints DN350 to DN1800 (PN25)



Flange Details				Flange to Flange Details			Tie Rod Details						
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel			
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	Class 70 Yield 450N/mm <sup>2</sup>		Class 50 Yield 210N/mm <sup>2</sup>	
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN25	25	555	302	277	327	M30 x 480	4	91.1	4	91.1		
400	PN25	25	620	302	277	327	M33 x 490	4	109.0	4	109.0		
450	PN25	25	670	302	277	327	M33 x 500	5	122.0	5	122.0		
500	PN25	25	730	302	277	327	M33 x 510	5	137.0	5	137.0		
550	PN25	25	785	302	277	327	M36 x 530	5	155.0	5	155.0		
600	PN25	25	845	302	277	327	M36 x 540	5	170.0	10	202.0		
650	PN25	25	895	307	277	337	M36 x 550	6	199.0	8	211.0		
700	PN25	25	960	302	277	327	M39 x 570	6	212.0	8	227.0		
800	PN25	25	1085	307	277	337	M45 x 630	6	279.0	8	302.0		
900	PN25	25	1185	307	277	337	M45 x 630	7	317.0	14	394.0		
1000	PN25	38	1320	320	290	350	M52 x 660	7	520.0			28	880.0
1200	PN25	38	1530	320	290	350	M52 x 690	8	637.0			32	1,061.0
1400	PN25	60	1755	462	412	512	M56 x 890	9	1,181.0			36	1,845.0
1600	PN25	60	1975	462	412	512	M56 x 920	10	1,514.0			40	2,272.0
1800	PN25	60	2185	462	412	512	M64 x 970	11	1,855.0			44	2,819.0

## Materials &amp; Relevant Standards

**Flange Drilling**

BS EN 1092-1 (formerly BS 4504), ISO 7005

**Fabricated Flange Adaptor**

**Body** - Rolled Steel to BS EN 10025-2:2004 Grade S275

**End Rings/Sleeve** - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section

**Flanged Spigot**

**Flange** - Steel to BS EN 10025:2004 Grade S275

**Spigot** - Steel to BS 10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275

**Gaskets**

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

**Tie Rods**

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

u.t.i. M48 - 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)

M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)

**Bolts/Nuts/Washers**

**Bolts** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - BS 1449:Part 2:1983 Grade 304S15

**Coatings (Others available on request)**

**Centre Sleeve** - Rilsan Nylon 11

**End Ring** - Rilsan Nylon 11

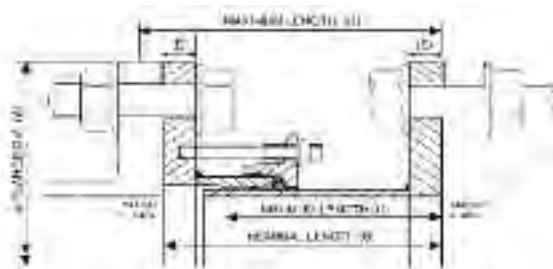
**FA Studs & Nuts** - Sheraplex to WIS 4-52-03

**Tie Rods** - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Specifications

## Dismantling Joints DN350 to DN1600 (PN40)



Flange Details				Flange to Flange Details			Tie Rod Details						
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (mm)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel			
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		Class 70 Yield 450N/mm <sup>2</sup>		Class 50 Yield 210N/mm <sup>2</sup>			
								No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
350	PN40	25	580	307	277	337	M33 x 520	4	111.0	4	111.0		
400	PN40	25	660	307	277	337	M36 x 540	4	138.0	4	138.0		
450	PN40	25	685	307	277	337	M36 x 550	5	148.0	5	148.0		
500	PN40	25	755	307	277	337	M39 x 570	5	178.0	10	218.0		
550	PN40	38	835	320	290	350	M45 x 600	5	289.0	5	289.0		
600	PN40	38	890	320	290	350	M45 x 620	5	313.0	10	373.0		
650	PN40	38	945	320	290	350	M45 x 630	6	350.0	8	374.0		
700	PN40	38	995	320	290	350	M45 x 640	6	375.0	8	399.0		
800	PN40	38	1140	320	290	350	M52 x 680	6	479.0			24	795.0
900	PN40	38	1250	320	290	350	M52 x 700	7	570.0			28	945.0
1000	PN40	38	1360	320	290	350	M52 x 720	14	770.0			28	1,025.0
1200	PN40	38	1575	320	290	350	M56 x 780	16	998.0	Note 1		32	
1400	PN40	60	1795	462	412	512	M56 x 980	18	1,734.0	Note 1		Note 1	
1600	PN40	60	2025	462	412	512	M64 x 975	20	2,198.0	Note 1		Note 1	

Note 1: Stainless steel tie rods can not accommodate this working pressure so not available.

### Materials & Relevant Standards

#### Flange Drilling

BS EN 1092-1 (formerly BS 4504), ISO 7005

#### Fabricated Flange Adaptor

**Body** - Rolled Steel to BS EN 10025-2:2004 Grade S275

**End Rings/Sleeve** - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section

#### Flanged Spigot

**Flange** - Steel to BS EN 10025:2004 Grade S275

**Spigot** - Steel to BS 10216-1:2002 or Rolled Steel to BS EN10025-2:2004 Grade S275

#### Gaskets

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

#### Tie Rods

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

u.t.i. M48 - 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)

M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)

#### Bolts/Nuts/Washers

**Bolts** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - BS 1449:Part 2:1983 Grade 304S15

#### Coatings (Others available on request)

**Centre Sleeve** - Rilsan Nylon 11

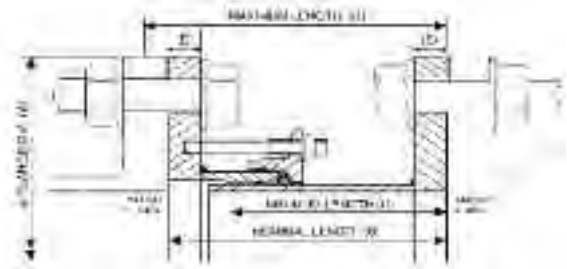
**End Ring** - Rilsan Nylon 11

**FA Studs & Nuts** - Sheraplex to WIS 4-52-03

**Tie Rods** - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Dismantling Joints 4" to 40" (Class D)



Flange Details				Flange to Flange Details			Tie Rod Details				
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (inch)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel Class 70 Yield 450N/mm <sup>2</sup>	
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
4"	Class D	18	229	187	167	207	5/8" x 11 1/2"	4	14.2	4	14.2
6"	Class D	18	279	187	167	207	3/4" x 12"	4	19.7	4	19.7
8"	Class D	18	343	187	167	207	3/4" x 12"	4	27.5	4	27.5
10"	Class D	18	406	187	167	207	7/8" x 12"	4	35.4	4	35.4
12"	Class D	18	483	187	167	207	7/8" x 12 1/2"	4	48.3	4	48.3
14"	Class D	18	533	295	270	320	1" x 17 1/2"	4	69.3	4	69.3
16"	Class D	18	597	295	270	320	1" x 17 1/2"	4	79.7	4	79.7
18"	Class D	23	635	300	275	325	1 1/8" x 18 1/2"	4	98.3	4	98.3
20"	Class D	23	698	300	275	325	1 1/8" x 18 1/2"	5	115.0	5	115.0
24"	Class D	23	813	300	275	325	1 1/4" x 19"	5	143.0	5	143.0
28"	Class D	23	927	300	275	325	1 1/4" x 19"	7	176.0	7	176.0
30"	Class D	23	984	300	275	325	1 1/4" x 19"	7	189.0	7	189.0
32"	Class D	23	1060	300	275	325	1 1/2" x 20"	7	218.0	7	218.0
36"	Class D	25	1168	307	277	337	1 1/2" x 20 1/2"	8	278.0	8	278.0
40"	Class D	25	1289	307	277	337	1 1/2" x 20 1/2"	9	320.0	9	320.0

## Materials &amp; Relevant Standards

**Flange Drilling**

AWWA C207 Drilling

**Fabricated Flange Adaptor****Body** - Rolled Steel to BS EN 10025-2:2004 Grade S275**End Rings/Sleeve** - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section**Flanged Spigot****Flange** - Steel to BS EN 10025:1993 Grade S275**Spigot** - Steel to BS 10216-1:2002 or Rolled Steel to BS EN 10025-2:2004 Grade S275**Gaskets**

BS EN 681-1 1996 Type WA WRAS Listed

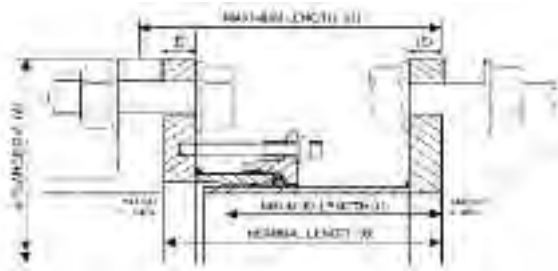
Other materials available on request

**Tie Rods**H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)u.t.i. M48 - 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)**Bolts/Nuts/Washers****Bolts** - Steel to BS EN ISO 898-1:2009 Property Class 4.8**Nuts** - Steel to BS 4190:2001 Grade 4**Washers** - BS 1449:Part 2:1983 Grade 304S15**Coatings (Others available on request)****Centre Sleeve** - Rilsan Nylon 11**End Ring** - Rilsan Nylon 11**FA Studs & Nuts** - Sheraplex to WIS 4-52-03**Tie Rods** - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Specifications

Dismantling Joints 3" to 40" (ANSI 150)



Flange Details		Flange to Flange Details					Tie Rod Details				
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (inch)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel Class 70 Yield 450N/mm <sup>2</sup>	
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
3"	ANSI 150	25	190	194	174	214	5/8" x 12 1/2"	4	14.0	4	14.0
4"	ANSI 150	25	229	194	174	214	5/8" x 12 1/2"	4	17.4	4	17.4
6"	ANSI 150	25	279	194	174	214	3/4" x 13"	4	23.8	4	23.8
8"	ANSI 150	25	343	194	174	214	3/4" x 13"	4	33.3	4	33.3
10"	ANSI 150	25	406	194	174	214	7/8" x 13 1/2"	4	43.0	4	43.0
12"	ANSI 150	25	483	194	174	214	7/8" x 13 1/2"	4	59.1	4	59.1
14"	ANSI 150	25	533	302	277	327	1" x 19"	4	82.8	4	82.8
16"	ANSI 150	25	597	302	277	327	1" x 19"	4	95.8	4	95.8
18"	ANSI 150	25	635	302	277	327	1 1/8" x 19"	4	103.0	4	103.0
20"	ANSI 150	25	698	302	277	327	1 1/8" x 19 1/2"	5	121.0	10	140.0
24"	ANSI 150	25	813	302	277	327	1 1/4" x 20 1/2"	5	151.0	10	177.0
28"	ANSI 150	25	927	302	277	327	1 1/4" x 22"	7	187.0	14	225.0
30"	ANSI 150	25	984	302	277	327	1 1/4" x 22 1/2"	7	202.0	14	240.0
32"	ANSI 150	25	1060	302	277	327	1 1/2" x 23"	7	225.0	14	277.0
36"	ANSI 150	25	1168	307	277	337	1 1/2" x 24 1/2"	8	291.0	16	361.0
40"	ANSI 150	38	1289	320	290	350	1 1/2" x 25"	9	441.0	18	520.0

Materials & Relevant Standards

**Flange Drilling**

ASME / ANSI B16.5 (uti 24") & ASME / ANSI B16.47 (26" & over)

**Fabricated Flange Adaptor**

**Body** - Rolled Steel to BS EN 10025-2:2004 Grade S275

**End Rings/Sleeve** - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section

**Flanged Spigot**

**Flange** - Steel to BS EN 10025:1993 Grade S275

**Spigot** - Steel to BS 10216-1:2002 or Rolled Steel to BS EN10025-2:2004 Grade S275

**Gaskets**

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

**Tie Rods**

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

u.t.i. M48 - 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)

M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)

**Bolts/Nuts/Washers**

**Bolts** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - BS 1449:Part 2:1983 Grade 304S15

**Coatings (Others available on request)**

**Centre Sleeve** - Rilsan Nylon 11

**End Ring** - Rilsan Nylon 11

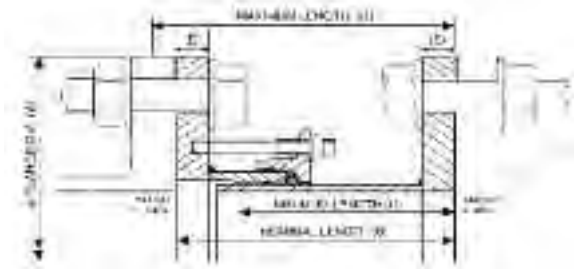
**FA Studs & Nuts** - Sheraplex to WIS 4-52-03

**Tie Rods** - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## Dismantling Joints 3" to 40" (ANSI 300)



Flange Details				Flange to Flange Details			Tie Rod Details				
Nom	Drilling	Flange Thickness	Flange OD	Nom. Length	Min. Length	Max. Length	Tie Rod Dia x Length (inch)	H.T Zinc Plated Steel H.T Steel BS4882 Grade MB7 Yield 725N/mm <sup>2</sup>		Stainless Steel Class 70 Yield 450N/mm <sup>2</sup>	
		E (mm)	A (mm)	B (mm)	C (mm)	D (mm)		No.	Total Weight of DJ (kg)	No.	Total Weight of DJ (kg)
3"	ANSI 300	25	210	194	174	214	3/4" x 13"	4	19.3	4	19.3
4"	ANSI 300	25	254	194	174	214	3/4" x 13"	4	26.2	4	26.2
6"	ANSI 300	25	318	194	174	214	3/4" x 13 1/2"	4	32.1	4	32.1
8"	ANSI 300	25	381	194	174	214	7/8" x 14 1/2"	4	43.1	4	43.1
10"	ANSI 300	25	444	194	174	214	1" x 15"	4	63.0	8	72.1
12"	ANSI 300	25	521	194	174	214	1 1/8" x 16"	4	74.1	8	86.4
14"	ANSI 300	25	584	307	277	337	1 1/8" x 20 1/2"	5	117.0	10	137.0
16"	ANSI 300	25	648	307	277	337	1 1/4" x 21 1/2"	5	138.0	10	161.0
18"	ANSI 300	38	711	320	290	350	1 1/4" x 22"	6	220.0	12	252.0
20"	ANSI 300	38	775	320	290	350	1 1/4" x 22 1/2"	8	262.0	12	284.0
24"	ANSI 300	38	914	320	290	350	1 1/2" x 23 1/2"	8	359.0	12	393.0
28"	ANSI 300	38	1035	320	290	350	1 5/8" x 25"	14	510.0	14	510.0
30"	ANSI 300	38	1092	320	290	350	1 3/4" x 26"	14	577.0	14	577.0
32"	ANSI 300	38	1149	320	290	350	1 7/8" x 26 1/2"	14	646.0	14	646.0
36"	ANSI 300	38	1270	320	290	350	2" x 28"	16	786.0	16	786.0
40"	ANSI 300	60	1238	462	412	512	1 5/8" x 33 1/2"	16	844.0	32	1,027.0

## Materials &amp; Relevant Standards

**Flange Drilling**

ASME / ANSI B16.5 (uti 24") & ASME / ANSI B16.47 (26" & over)

**Fabricated Flange Adaptor**

**Body** - Rolled Steel to BS EN 10025-2:2004 Grade S275

**End Rings/Sleeve** - Rolled Steel to BS EN 10025-2:2004 Grade S275 or Rolled Steel to BS EN 10025-2:2004 Grade S355 depending on section

**Flanged Spigot**

**Flange** - Steel to BS EN 10025:1993 Grade S275

**Spigot** - Steel to BS 10216-1:2002 or Rolled Steel to BS EN10025-2:2004 Grade S275

**Gaskets**

BS EN 681-1 1996 Type WA WRAS Listed

Other materials available on request

**Tie Rods**

H.T. Steel BS EN 10269:1999+A1:2006 NAME 42CrMo4 Yield 725N/mm<sup>2</sup> (formerly MB7/B7)

u.t.i. M48 - 2" Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 70 (450N/mm<sup>2</sup>)

M52 and 2 1/4" and above Stainless Steel to BS EN 3506-1:2009 Grade A2/A4 Property Class 50 (210N/mm<sup>2</sup>)

**Bolts/Nuts/Washers**

**Bolts** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - BS 1449:Part 2:1983 Grade 304S15

**Coatings (Others available on request)**

**Centre Sleeve** - Rilsan Nylon 11

**End Ring** - Rilsan Nylon 11

**FA Studs & Nuts** - Sheraplex to WIS 4-52-03

**Tie Rods** - Zn3 zinc coated

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# Robust, Reliable, Proven Solution for New Lay Pipes

## Customer Specifications

The dedicated range is designed for use with new-lay pipes, and other specified situations where the pipe material and nominal sizes are known in advance. Customers can choose from Viking Johnson's standard range or have them custom made to suit a range of diameters and working pressures. This flexibility makes Viking Johnson the natural choice for most major pipeline projects.



## Design Liaison

Viking Johnson has worked with clients, consultants and contractors all over the world, assisting in the selection of the product most appropriate to each individual project. Such assistance can include detailed design co-operation with specifying engineers, site visits to aid successful installation, specially designed products to suit project requirements, proof testing in our comprehensive in-house test facility and handling of the extensive documentation and inspection requirements often associated with large projects.

## Designed for Flexibility

For pipeline design and installation engineers, the Viking Johnson large diameter couplings are extremely versatile. Each coupling sleeve is internally barrelled, allowing greater angular deflection. Ideal when accommodating misaligned pipes.

## Product Capability

Large diameter couplings and flange adaptors are available in a wide range of sizes to suit virtually any customer requirement. Products can be supplied to suit all standard and non standard pipe diameters from DN350 and DN5000. Stepped couplings join pipes of different external diameters and flange adaptors can be supplied with flanges drilled to any national or international standard, or to customers' own specification with a pressure up to PN100.

## Approvals

All products are designed and manufactured under quality management systems certified to ISO 9001 and conform to the American Water Works Association's specification AWWA/ANSI C219 for bolted couplings.

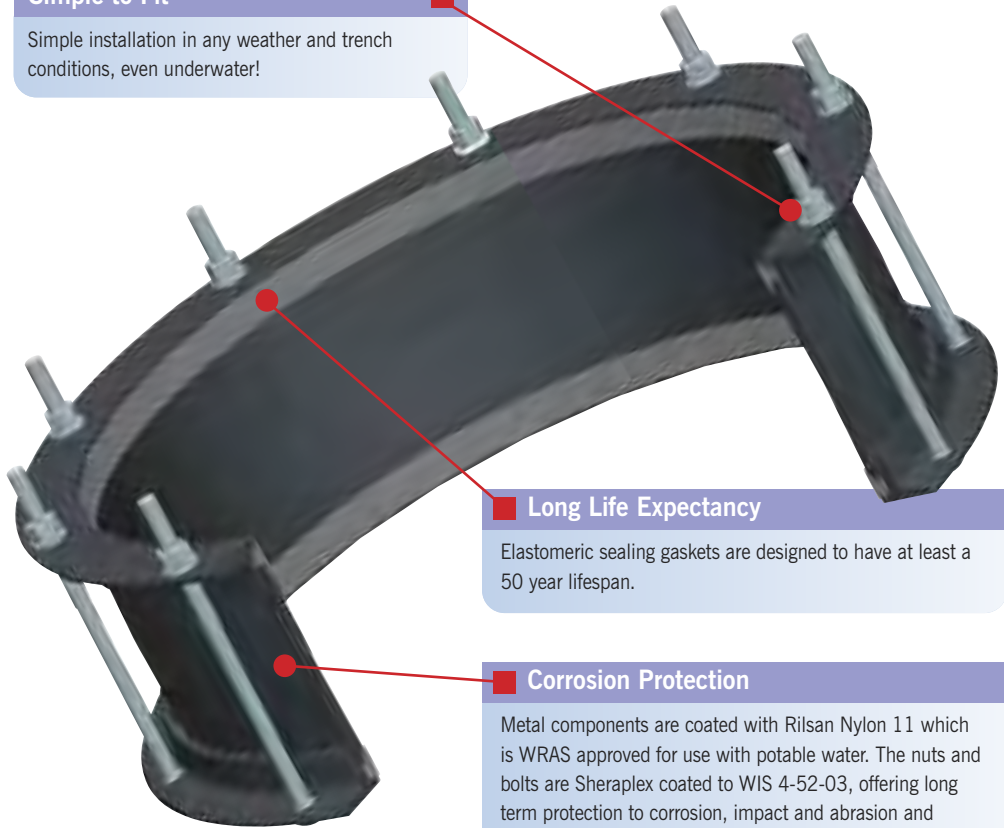
## Pipe Materials



*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

**Simple to Fit**

Simple installation in any weather and trench conditions, even underwater!



**Long Life Expectancy**

Elastomeric sealing gaskets are designed to have at least a 50 year lifespan.

**Corrosion Protection**

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection to corrosion, impact and abrasion and therefore ensures continued reliable performance.

**Customer Benefits**

- Couplings can absorb up to 10mm expansion and contraction, flange adaptors up to 5mm which allows for movement on bridge crossings, in chambers and pump stations. Often eliminates the need for special expansion joints.
- Couplings can offer up to 6° of angular deflection, flange adaptors 3°, to allow for the connection of misaligned pipes; take up ground settlement at structures; lay pipes to large radius bends.
- Flange adaptors are often used to permit dismantling of valves in flanged pipe systems.
- The standard finish for all Viking Johnson products is black Rilsan Nylon 11, which is highly resistant to impact, corrosion, abrasion and chemical attack. However, other coatings such as shopcoat, hot dip galvanising, zinc spray and epoxy coating can be supplied as required.
- Viking Johnson fittings are supplied as standard with EPDM gaskets which are suitable for potable water, drainage and sewage applications, however, a full range of specialist gasket materials resistant to various chemical compositions are available. For further details consult the marketing department or review the Technical Design Data document online at [www.vikingjohnson.com](http://www.vikingjohnson.com).

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# Couplings OD355.6 - 738

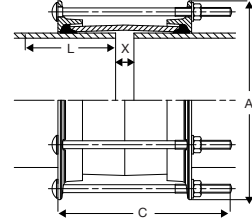
Viking Johnson manufacture couplings to any pipe OD and working pressure, with those tabled being the more popular products.

Pressure - Working Pressure = As Noted in table (Test Pressure = 1.5 x W.P.)

Notes - L02 / YF2 / A2E / A2H / XSXG = Section names for large diameter dedicated coupling products

ODs - If the product required is not in the table contact Viking Johnson who can provide relevant information

Dedicated Couplings DO NOT resist end load - adequate restraint must be provided.



Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		Coupling Section Type	No. Bolts	Bolt Dia x Length (mm)	Working Pressure (bar)	Dimensions (mm)		Min. Setting Gap (mm) X	Max. Setting Gap (mm) X	Gasket No.	Weight (kg)
		+	-					Diameter A	Overall Length C				
355.6	Steel	1.6	1.6	L02	6	M12 x 235	23.2	446	243	25	50	J51LS	19.6
355.6	uPVC	1.6	1.6	L02	6	M12 x 235	23.2	446	243	25	50	J51LS	19.6
358.6	Coated Steel	1.6	1.6	L02	6	M12 x 235	23.0	450	243	25	50	J51LS	19.7
378	DI	2.7	3.5	L02	8	M12 x 235	29.2	469	243	25	50	J52LS	21.1
406.4	Steel	1.6	1.6	L02	8	M12 x 235	27.2	497	243	25	50	J53LS	22.4
406.4	uPVC	1.6	1.6	L02	8	M12 x 235	27.2	497	243	25	50	J53LS	22.4
408.4	Coated Steel	1.6	1.6	L02	8	M12 x 235	27.0	499	243	25	50	J53LS	22.5
409.4	Coated Steel	1.6	1.6	L02	8	M12 x 235	27.0	500	243	25	50	J53LS	22.6
429	DI	2.8	4	L02	8	M12 x 235	25.8	520	243	25	50	J54LS	23.6
457	Steel	1.6	1.6	L02	8	M12 x 235	24.2	548	243	25	50	J55LS	24.9
457	uPVC	1.6	1.6	L02	8	M12 x 235	24.2	548	243	25	50	J55LS	24.9
460	Coated Steel	1.6	1.6	L02	8	M12 x 235	24.1	551	243	25	50	J55LS	25.0
480	DI	2.9	4	L02	8	M12 x 235	23.1	571	243	25	50	J56LS	26.0
480	DI	2.9	4	L02	10	M12 x 235	28.9	571	243	25	50	J56LS	26.5
508	Steel	1.6	1.6	L02	10	M12 x 235	27.4	598	243	25	50	J57LS	27.8
508	uPVC	1.6	1.6	L02	10	M12 x 235	27.4	598	243	25	50	J57LS	27.8
511	Coated Steel	1.6	1.6	L02	10	M12 x 235	27.2	602	243	25	50	J57LS	27.9
532	DI	3	4	L02	10	M12 x 235	26.1	624	243	25	50	J58LS	29.0
559	Steel	1.6	1.6	L02	10	M12 x 235	24.9	649	243	25	50	J59LS	30.2
559	uPVC	1.6	1.6	L02	10	M12 x 235	24.9	649	243	25	50	J59LS	30.2
610	Steel	1.6	1.6	L02	10	M12 x 235	22.9	700	243	25	50	J60LS	32.7
610	uPVC	1.9	1.6	L02	10	M12 x 235	22.9	700	243	25	50	J60LS	32.7
613	Coated Steel	1.6	1.6	L02	10	M12 x 235	22.8	703	243	25	50	J60LS	32.8
635	DI	3.2	4.5	L02	10	M12 x 235	22.0	726	243	25	50	J61LS	33.9
635	DI	3.2	4.5	L02	12	M12 x 235	25.2	726	243	25	50	J61LS	34.3
660	Steel	1.6	1.6	L02	12	M12 x 235	24.3	751	243	25	50	J61LS	35.5
711	Steel	1.6	1.6	L02	12	M12 x 235	22.6	802	243	25	50	J63LS	37.9
714	Coated Steel	1.6	1.6	L02	12	M12 x 235	22.4	805	243	25	50	J63LS	38.1
738	DI	3.4	4.5	L02	12	M12 x 235	21.7	830	243	25	50	J63LS	39.3

## Materials & Relevant Standards

### Centre Sleeve/End Rings

Steel to BS EN 10025-2:2004 Grade S275JR

### Bolts/Nuts/Washers

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

### Coatings

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

### Gaskets: L02/L03/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

### Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Couplings OD738 - 2032

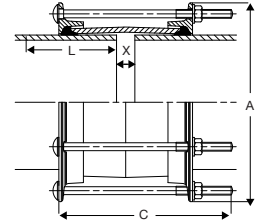
Viking Johnson manufacture couplings to any pipe OD and working pressure, with those tabled being the more popular products.

Pressure - Working Pressure = As Noted in table (Test Pressure = 1.5 x W.P)

Notes - L02 / YF2 / A2E / A2H / XSXG = Section names for large diameter dedicated coupling products

ODs - If the product required is not in the table contact Viking Johnson who can provide relevant information

Dedicated Couplings DO NOT resist end load - adequate restraint must be provided.



Pipe OD (mm)	Pipe Material	Tolerance for Distance (mm) L		Coupling Section Type	No. Bolts	Bolt Dia x Length (mm)	Working Pressure (bar)	Dimensions (mm)		Min. Setting Gap (mm) X	Max. Setting Gap (mm) X	Gasket Mould No.	Weight (kg)
		+	-					Diameter A	Overall Length C				
738	DI	3.4	4.5	YF2	10	M16 x 265	28.2	849	276	38	76	J63LS	69.3
762	Steel	1.6	1.6	L02	12	M12 x 235	21.0	852	243	25	50	J64LS	40.4
813	Steel	1.6	1.6	L02	14	M12 x 235	19.8	903	243	25	50	J65LS	43.3
816	Coated Steel	1.6	1.6	L02	14	M12 x 235	19.7	906	243	25	50	J65LS	43.4
842	DI	1	4.5	L02	14	M12 x 235	18.9	931	243	25	50	J65LS	44.6
842	DI	1	4.5	YF2	12	M16 x 265	25.0	950	276	38	76	J65LS	78.7
842	DI	1	4.5	A2E	14	M16 x 265	29.1	965	276	38	76	J65LS	103.4
864	Steel	1.6	1.6	L02	14	M12 x 235	17.9	955	243	25	50	J66LS	45.7
914	Steel	1.6	1.6	L02	14	M12 x 235	16.0	1005	243	25	50	J67LS	48.2
916	Coated Steel	1.6	1.6	L02	14	M12 x 235	16.0	1007	243	25	50	J67LS	48.3
945	DI	1	5	YF2	12	M16 x 265	22.0	1054	276	38	76	J70LS	87.5
945	DI	1	5	A2E	14	M16 x 265	25.9	1069	276	38	76	J70LS	115.0
1016	Steel	1.6	1.6	YF2	14	M16 x 265	19.6	1125	276	38	76	J71LS	94.3
1019	Coated Steel	1.6	1.6	YF2	14	M16 x 265	19.4	1129	276	38	76	J71LS	94.6
1048	DI	1	5	YF2	14	M16 x 265	18.4	1156	276	38	76	J71LS	96.9
1048	DI	1	5	A2E	16	M16 x 265	26.8	1171	276	38	76	J71LS	127.1
1067	Steel	1.6	1.6	YF2	14	M16 x 265	17.7	1177	276	38	76	J72LS	98.6
1118	Steel	1.6	1.6	YF2	14	M16 x 265	16.2	1227	276	38	76	J73LS	102.9
1152	DI	1	6	A2E	16	M16 x 265	24.4	1275	276	38	76	J121M	138.7
1219	Steel	1.6	1.6	A2E	16	M16 x 265	23.0	1343	276	38	76	J121M	146.3
1222	Coated Steel	1.6	1.6	A2E	16	M16 x 265	23.0	1347	276	38	76	J121M	146.6
1255	DI	1	6	A2E	18	M16 x 265	25.2	1378	276	38	76	J122M	151.0
1422	Steel	1.6	3	A2E	20	M16 x 265	24.5	1546	276	38	76	J125M	170.5
1462	DI	1	7	A2E	20	M16 x 265	23.8	1585	276	38	76	J125M	174.8
1620	Steel	3	3	A2E	24	M16 x 265	20.3	1745	276	38	76	J127M	192.4
1626	Coated Steel	3	3	A2E	24	M16 x 265	20.2	1751	276	38	76	J127M	194.2
1668	DI	1	7	A2E	24	M16 x 265	19.2	1791	276	38	76	J128M	199.4
1829	Steel	3	3	A2E	24	M16 x 265	16.0	1954	276	38	76	J130M	217.5
2032	Steel	3	3	XSXG	36	M16 x 400	22.1	2167	411	57	114	J186H	418.6

### Materials & Relevant Standards

#### Centre Sleeve/End Rings

Steel to BS EN 10025-2:2004 Grade S275JR

#### Bolts/Nuts/Washers

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

#### Coatings

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

#### Gaskets: L02/L03/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

#### Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## Specifications

### Stepped Couplings OD355.6 - 1220

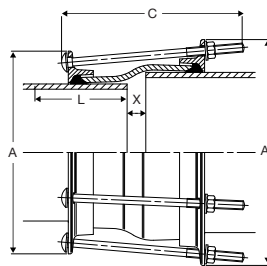
Viking Johnson manufacture couplings to any pipe OD and working pressure, with those tabled being the more popular products.

**Pressure** - Working Pressure = As Noted in table  
(Test Pressure = 1.5 x W.P.)

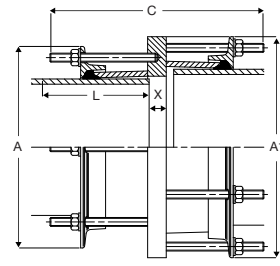
**Notes** - L02 / YF2 / A2E / A2H / XSXG = Section names for large diameter dedicated coupling products

**ODs** - If the product required is not in the table contact Viking Johnson who can provide relevant information

**Dedicated Couplings DO NOT resist end load - adequate restraint must be provided.**



Expanded Sleeve Stepped Couplings



Stepped Coupling with Make Up Ring

Pipe OD (mm)	Material 1	Pipe		Material 2	Tolerance for Distance (mm) L		Coupling Section Type	No. Bolts	Bolt Dia x Length (mm)	Working Pressure (bar)	Dimensions (mm)			Setting Gap (mm) X		Gasket Mould No.	Weight (kg)	
		Tolerance for Distance (mm) L	Tolerance for Distance (mm) L		Dia. A	Dia. A1					Overall Length C	Min.	Max.					
														+	-			
355.6	378	Steel	1.6	1.6	DI	2.7	3.5	L02	8	M12 x 235	29.2	446	469	243	25	50	J51LS / J52LS	20.7
406.4	429	Steel	1.6	1.6	DI	2.8	4	L02	8	M12 x 235	25.7	497	520	243	25	50	J53LS / J54LS	23.1
457	480	Steel	1.6	1.6	DI	2.9	4	L02	8	M12 x 235	23.1	548	571	243	25	50	J55LS / J56LS	25.6
480	508	DI	2.9	4	Steel	1.6	1.6	L02	10	M12 x 235	27.3	571	598	243	25	50	J56LS / J57LS	27.3
508	532	Steel	1.6	1.6	DI	3	4	L02	10	M12 x 235	26.1	598	624	243	25	50	J57LS / J58LS	28.6
610	635	Steel	1.6	1.6	DI	3.2	4.5	L02	10	M12 x 235	22.0	700	726	243	25	50	J60LS / J61LS	33.6
711	738	Steel	1.6	1.6	DI	3.4	4.5	L02	12	M12 x 235	21.7	802	830	243	25	50	J63LS / J63LS	39.0
738	747	DI	3.4	4.5	Cast Iron CD	3.3	3.3	L02	12	M12 x 235	21.3	830	839	243	25	50	J63LS / J63LS	39.4
738	755	DI	3.4	4.5	Cast Iron AB	3.3	3.3	L02	12	M12 x 235	21.2	830	847	243	25	50	J63LS / J65LS	39.9
813	842	Steel	1.6	1.6	DI	1	4.5	L02	14	M12 x 235	18.8	903	931	243	25	50	J65LS / J65LS	44.4
826	842	Cast Iron CD	3.3	3.3	DI	1	4.5	L02	14	M12 x 235	18.8	918	931	243	25	50	J65LS / J65LS	44.3
842	886	DI	1	4.5	Cast Iron AB	3.3	3.3	L03 (LONG SLEEVE)	14	M12 x 340	17.0	931	978	348	25	150	J65LS / J66LS	62.7
906	945	Cast Iron CD	3.3	3.3	DI	1	5	YF2	12	M16 x 265	22.0	1017	1054	276	38	76	J67LS / J70LS	86.5
914	945	Steel	1.6	1.6	DI	1	5	YF2	12	M16 x 265	22.0	1024	1054	276	38	76	J67LS / J70LS	86.5
945	964	DI	1	5	Cast Iron AB	3.3	3.3	YF2	12	M16 x 265	21.6	1054	1075	276	38	76	J70LS / J70LS	88.3
1016	1048	Steel	1.6	1.6	DI	1	5	YF2	14	M16 x 265	18.3	1125	1156	276	38	76	J71LS / J71LS	95.9
1121	1152	Cast Iron AB	3.3	3.3	DI	1	6	A2E	16	M16 x 265	24.3	1247	1275	276	38	76	J120M / J121M	137.6
1220	1255	Steel	1.6	1.6	DI	1	6	A2E	18	M16 x 265	25.2	1344	1378	276	38	76	J120M / J132M	150.1

## Materials & Relevant Standards

### Centre Sleeve/End Rings

Steel to BS EN 10025-2:2004 Grade S275JR

### Bolts/Nuts/Washers

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

### Coatings

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

### Gaskets: L02/L03/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

### Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# Flange Adaptors OD355.6 - 457

If the product required is not in the table contact Viking Johnson who can provide relevant information

**Pressure** - In accordance with rating for flange drilling

**Notes** - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FAS, ensure Pipe OD/Flange Nominal Size/Flange Drilling are ALL specified L02/YF2/A2E flange adaptors are supplied unfitted

**ODs** - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products

**Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided.**

### Key to End Ring Notching

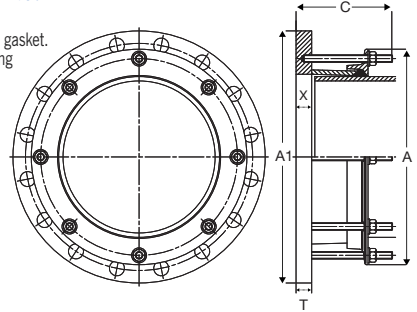
**Tie Rods** - Certain pipe ODs and flange drilling require the notching of end rings to accommodate tie rods - see table for details

**None** - Standard product without notches - Tie rods will clash with end ring

**Not Required** - Tie rods clear end ring - Notching not required

**X Notches** - End ring notched to accommodate "X" no. tie rods

The number of notches stated assumes the use of high tensile strength tie rods.  
Min yield = 725 N/mm<sup>2</sup>



Pipe OD (mm)	Pipe Material	Tolerance or Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		No. of Notches in End Ring if Required	No. Bolts	Bolt Dia. x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Dia. (mm)	Setting Gap (mm) X		Gasket Mould No.	Weight (kg)
		+	-		Min.	Max.													
355.6	Steel	1.6	1.6	L02	350	PN10	4	8	M12 x 140	446	505	148	18	16	23	25	50	J51LS	22.8
355.6	uPVC	1.6	1.6	L02	350	PN10	4	8	M12 x 140	446	505	148	18	16	23	25	50	J51LS	22.8
355.6	Steel	1.6	1.6	L02	350	PN16	4	8	M12 x 140	446	520	148	18	16	28	25	50	J51LS	24.1
355.6	uPVC	1.6	1.6	L02	350	PN16	4	8	M12 x 140	446	520	148	18	16	28	25	50	J51LS	24.1
355.6	Steel	1.6	1.6	L02	350	PN25	-	8	M12 x 140	446	555	155	25	16	34	25	50	J51LS	34.4
358.6	Coated Steel	1.6	1.6	L02	350	PN16	4	8	M12 x 140	450	520	148	18	16	28	25	50	J51LS	23.9
378	DI	2.7	3.5	L02	350	PN10	8	8	M12 x 140	469	505	148	18	16	23	25	50	J52LS	21.3
378	DI	2.7	3.5	L02	350	PN16	8	8	M12 x 140	469	520	148	18	16	28	25	50	J52LS	22.5
378	DI	2.7	3.5	L02	350	PN25	8	8	M12 x 140	469	555	155	25	16	34	25	50	J52LS	32.2
406.4	Steel	1.6	1.6	L02	400	PN10	4	8	M12 x 140	497	565	148	18	16	28	25	50	J53LS	26.3
406.4	uPVC	1.6	1.6	L02	400	PN10	4	8	M12 x 140	497	565	148	18	16	28	25	50	J53LS	26.3
406.4	Steel	1.6	1.6	L02	400	PN16	4	8	M12 x 140	497	580	148	18	16	31	25	50	J53LS	27.9
406.4	uPVC	1.6	1.6	L02	400	PN16	4	8	M12 x 140	497	580	148	18	16	31	25	50	J53LS	27.9
406.4	Steel	1.6	1.6	L02	400	PN25	-	8	M12 x 140	497	620	155	25	16	37	25	50	J53LS	40.7
409.4	Coated Steel	1.6	1.6	L02	400	PN16	4	8	M12 x 140	500	580	148	18	16	31	25	50	J53LS	27.7
429	DI	2.8	4	L02	400	PN10	8	8	M12 x 140	520	565	148	18	16	28	25	50	J54LS	24.5
429	DI	2.8	4	L02	400	PN16	8	8	M12 x 140	520	580	148	18	16	31	25	50	J54LS	26.2
429	DI	2.8	4	L02	400	PN25	8	8	M12 x 140	520	620	155	25	16	37	25	50	J54LS	38.2
451	PVC	1.6	1.6	L02	450	PN16	-	10	M12 x 140	541	640	155	25	20	31	25	50	J55LS	45.2
451	Hep30	0	1	L02	450	PN16	-	10	M12 x 140	541	640	155	25	20	31	25	50	J55LS	45.2
457	Steel	1.6	1.6	L02	450	PN10	5	10	M12 x 140	548	615	153	23	20	28	25	50	J55LS	33.5
457	uPVC	1.6	1.6	L02	450	PN10	5	10	M12 x 140	548	615	153	23	20	28	25	50	J55LS	33.5
457	Steel	1.6	1.6	L02	450	PN16	-	10	M12 x 140	548	640	153	23	20	31	25	50	J55LS	37.5
457	uPVC	1.6	1.6	L02	450	PN16	-	10	M12 x 140	548	640	153	23	20	31	25	50	J55LS	37.5
457	Steel	1.6	1.6	L02	450	PN25	-	10	M12 x 140	548	670	155	25	20	37	25	50	J55LS	44.4

## Materials & Relevant Standards

### Flange/End Ring

Steel to BS EN 10025-2:2004 Grade S275JR

### Bolts/Nuts/Washers

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

### Coatings

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

### Gaskets: L02/L03/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

### Gaskets: A2E/A2H/XSXG

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# Flange Adaptors OD450 - 711

If the product required is not in the table contact Viking Johnson who can provide relevant information

**Pressure** - In accordance with rating for flange drilling

**Notes** - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FAs, ensure Pipe OD/Flange Nominal Size/Flange Drilling are ALL specified L02/YF2/A2E flange adaptors are supplied unfitted

**ODs** - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided.

### Key to End Ring Notching

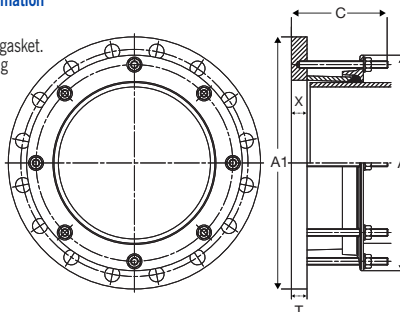
**Tied Rods** - Certain pipe ODs and flange drilling require the notching of end rings to accommodate tie rods - see table for details

**None** - Standard product without notches - Tie rods will clash with end ring

**Not Required** - Tie rods clear end ring - Notching not required

**X Notches** - End ring notched to accommodate "X" no. tie rods

The number of notches stated assumes the use of high tensile strength tie rods.  
Min yield = 725 N/mm<sup>2</sup>



Pipe OD (mm)	Pipe Material	Tolerance or Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		No. of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Dia. (mm)	Setting Gap (mm) X		Gasket Mould No.	Weight (kg)
		+	-		Nominal	Drilling										Min.	Max.		
460	Coated Steel	1.6	1.6	L02	450	PN16	5	10	M12 x 140	551	640	153	23	20	31	25	50	J55LS	37.2
480	DI	2.9	4	L02	450	PN10	10	10	M12 x 140	571	615	153	23	20	28	25	50	J56LS	30.7
480	DI	2.9	4	L02	450	PN16	10	10	M12 x 140	571	640	153	23	20	31	25	50	J56LS	34.7
480	DI	2.9	4	L02	450	PN25	10	10	M12 x 140	571	670	155	25	20	37	25	50	J56LS	41.4
500	Metric PVC	1.6	1.6	L02	500	PN16	-	10	M12 x 140	590	715	155	25	20	34	25	50	J57LS	49.3
508	Steel	1.6	1.6	L02	500	PN10	5	10	M12 x 140	598	670	153	23	20	28	25	50	J57LS	37.7
508	uPVC	1.6	1.6	L02	500	PN10	5	10	M12 x 140	598	670	153	23	20	28	25	50	J57LS	37.7
508	Steel	1.6	1.6	L02	500	PN16	-	10	M12 x 140	598	715	153	23	20	34	25	50	J57LS	45.5
508	uPVC	1.6	1.6	L02	500	PN16	-	10	M12 x 140	598	715	153	23	20	34	25	50	J57LS	45.5
508	Steel	1.6	1.6	L02	500	PN25	-	10	M12 x 140	598	730	155	25	20	37	25	50	J57LS	50.9
511	Coated Steel	1.6	1.6	L02	500	PN10	5	10	M12 x 140	602	670	153	23	20	28	25	50	J57LS	37.3
511	Coated Steel	1.6	1.6	L02	500	PN16	-	10	M12 x 140	602	715	153	23	20	34	25	50	J57LS	45.1
532	DI	3	4	L02	500	PN10	10	10	M12 x 140	624	670	153	23	20	28	25	50	J58LS	34.3
532	DI	3	4	L02	500	PN16	10	10	M12 x 140	624	715	153	23	20	34	25	50	J58LS	42.2
532	DI	3	4	L02	500	PN25	10	10	M12 x 140	624	730	155	25	20	37	25	50	J58LS	47.4
610	Steel	1.6	1.6	L02	600	PN10	5	10	M12 x 140	700	780	153	23	20	31	25	50	J60LS	45.9
610	uPVC	1.9	1.6	L02	600	PN10	5	10	M12 x 140	700	780	153	23	20	31	25	50	J60LS	45.9
610	Steel	1.6	1.6	L02	600	PN16	-	10	M12 x 140	700	840	153	23	20	37	25	50	J60LS	58.5
610	uPVC	1.9	1.6	L02	600	PN16	-	10	M12 x 140	700	840	153	23	20	37	25	50	J60LS	58.5
610	Steel	1.6	1.6	L02	600	PN25	-	10	M12 x 140	700	845	155	25	20	40	25	50	J60LS	62.7
613	Coated Steel	1.6	1.6	L02	600	PN16	-	10	M12 x 140	703	840	153	23	20	37	25	50	J60LS	58.0
635	DI	3.2	4.5	L02	600	PN10	10	10	M12 x 140	726	780	153	23	20	31	25	50	J61LS	41.6
635	DI	3.2	4.5	L02	600	PN16	-	10	M12 x 140	726	840	153	23	20	37	25	50	J61LS	54.5
635	DI	3.2	4.5	L02	600	PN25	10	10	M12 x 140	726	845	155	25	20	40	25	50	J61LS	58.3
711	Steel	1.6	1.6	L02	700	PN10	-	12	M12 x 140	802	895	153	23	24	31	25	50	J63LS	56.1

## Materials & Relevant Standards

### Flange/End Ring

Steel to BS EN 10025-2:2004 Grade S275JR

### Bolts/Nuts/Washers

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

### Coatings

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

### Gaskets: L02/L03/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

### Gaskets: A2E/A2H/XSXX

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



## Flange Adaptors OD711 - 1048

If the product required is not in the table contact Viking Johnson who can provide relevant information

**Pressure** - In accordance with rating for flange drilling

**Notes** - The prices for these products DO NOT include flange connecting bolts and flange gasket. When ordering Dedicated FAs, ensure Pipe OD/Flange Nominal Size/Flange Drilling are ALL specified L02/YF2/A2E flange adaptors are supplied unfitted

**ODs** - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided.

### Key to End Ring Notching

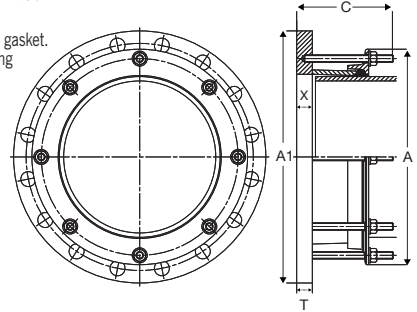
**Tie Rods** - Certain pipe ODs and flange drilling require the notching of end rings to accommodate tie rods - see table for details

**None** - Standard product without notches - Tie rods will clash with end ring

**Not Required** - Tie rods clear end ring - Notching not required

**X Notches** - End ring notched to accommodate "X" no. tie rods

The number of notches stated assumes the use of high tensile strength tie rods.  
Min yield = 725 N/mm<sup>2</sup>



Pipe OD (mm)	Pipe Material	Tolerance or Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		No. of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Holes Dia. (mm)	Setting Gap (mm) X		Gasket Mould No.	Weight (kg)
		+	-		Min.	Max.													
711	Steel	1.6	1.6	L02	700	PN16	6	12	M12 x 140	802	910	153	23	24	37	25	50	J63LS	58.5
711	Steel	1.6	1.6	L02	700	PN25	-	12	M12 x 140	802	960	155	25	24	43	25	50	J63LS	74.2
714	Coated Steel	1.6	1.6	L02	700	PN16	6	12	M12 x 140	805	910	153	23	24	37	25	50	J63LS	58.0
738	DI	3.4	4.5	L02	700	PN10	12	12	M12 x 140	830	895	153	23	24	31	25	50	J63LS	50.8
738	DI	3.4	4.5	L02	700	PN16	12	12	M12 x 140	830	910	153	23	24	37	25	50	J63LS	53.1
738	DI	3.4	4.5	YF2	700	PN25	12	12	M16 x 160	830	960	169	25	24	43	32	76	J63LS	83.5
813	Steel	1.6	1.6	L02	800	PN10	-	12	M12 x 140	903	1015	153	23	24	34	25	50	J65LS	68.2
813	Steel	1.6	1.6	L02	800	PN16	-	12	M12 x 140	903	1025	153	23	24	40	25	50	J65LS	69.6
813	Steel	1.6	1.6	YF2	800	PN25	-	12	M16 x 160	922	1085	169	25	24	49	32	76	J65LS	106.5
816	Coated Steel	1.6	1.6	L02	800	PN16	6	12	M12 x 140	906	1025	153	23	24	40	25	50	J65LS	68.9
842	DI	1	4.5	L02	800	PN10	12	12	M12 x 40	931	1015	153	23	24	34	25	50	J65LS	62.2
842	DI	1	4.5	L02	800	PN16	12	12	M12 x 140	931	1025	153	23	24	40	25	50	J65LS	63.4
842	DI	1	4.5	YF2	800	PN25	12	12	M16 x 160	950	1085	169	25	24	49	32	76	J65LS	100.0
914	Steel	1.6	1.6	L02	900	PN10	-	14	M12 x 140	1005	1115	155	25	28	34	25	50	J67LS	79.8
914	Steel	1.6	1.6	L02	900	PN16	7	14	M12 x 140	1005	1125	155	25	28	40	25	50	J67LS	81.3
914	Steel	1.6	1.6	A2E	900	PN25	7	14	M16 x 160	1038	1185	182	38	28	49	32	76	J117M	168.6
916	Coated Steel	1.6	1.6	L02	900	PN16	7	14	M12 x 140	1007	1125	155	25	28	40	25	50	J67LS	80.8
945	DI	1	5	YF2	900	PN10	14	14	M16 x 160	1054	1115	169	25	28	34	32	76	J70LS	89.3
945	DI	1	5	YF2	900	PN16	14	14	M16 x 160	1054	1125	169	25	28	40	32	76	J70LS	90.8
945	DI	1	5	A2E	900	PN25	14	14	M16 x 160	1069	1185	182	38	28	49	32	76	J118M	156.1
1016	Steel	1.6	1.6	YF2	1000	PN10	7	14	M16 x 160	1125	1230	169	25	28	37	32	76	J71LS	112.4
1016	Steel	1.6	1.6	YF2	1000	PN16	7	14	M16 x 160	1125	1255	169	25	28	43	32	76	J71LS	119.8
1016	Steel	1.6	1.6	A2E	1000	PN25	-	14	M16 x 160	1140	1320	182	38	28	56	32	76	J119M	202.2
1019	Coated Steel	1.6	1.6	YF2	1000	PN16	7	14	M16 x 160	1129	1255	169	25	28	43	32	76	J71LS	118.9
1048	DI	1	5	YF2	1000	PN10	14	14	M16 x 160	1156	1230	169	25	28	37	32	76	J71LS	102.9

## Materials & Relevant Standards

### Flange/End Ring

Steel to BS EN 10025-2:2004 Grade S275JR

### Bolts/Nuts/Washers

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

### Coatings

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

### Gaskets: L02/L03/YF2/YF3

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

### Gaskets: A2E/A2H/XSXC

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Specifications

# Flange Adaptors OD1048 - 1663

If the product required is not in the table contact Viking Johnson who can provide relevant information

**Pressure** - In accordance with rating for flange drilling

**Notes** - The prices for these products DO NOT include flange connecting bolts and flange gasket.  
When ordering Dedicated FAs, ensure Pipe OD/Flange Nominal Size/Flange Drilling are ALL specified L02/YF2/A2E flange adaptors are supplied unfitted

**ODs** - Viking Johnson manufacture flange adaptors to any pipe OD and flange drilling, with those tabled being the more popular products

Dedicated Flange Adaptors DO NOT resist end load - adequate restraint must be provided.

**Key to End Ring Notching**

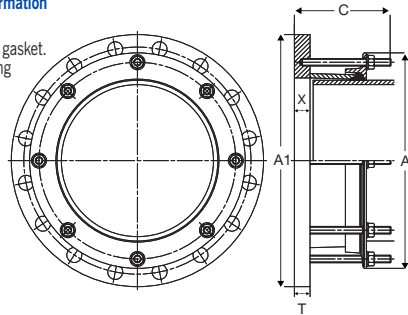
**Tied Rods** - Certain pipe ODs and flange drilling require the notching of end rings to accommodate tie rods - see table for details

**None** - Standard product without notches - Tie rods will clash with end ring

**Not Required** - Tie rods clear end ring - Notching not required

**X Notches** - End ring notched to accommodate "X" no. tie rods

The number of notches stated assumes the use of high tensile strength tie rods.  
Min yield = 725 N/mm<sup>2</sup>



Pipe OD (mm)	Pipe Material	Tolerance or Distance (mm) L		FA Section Type	Flange Details BS EN 1092-1		No. of Notches in End Ring if Required	No. Bolts	Bolt Dia x Length (mm)	Dimensions Diameter (mm) A	Flange OD A1	Overall Length C	Flange Thickness T	Flange Holes No.	Flange Dia. (mm)	Setting Gap (mm) X		Gasket Mould No.	Weight (kg)
		+	-		Nominal	Drilling										Min.	Max.		
1048	DI	1	5	YF2	1000	PN16	14	14	M16 x 160	1156	1255	169	25	28	43	32	76	J71LS	110.4
1048	DI	1	5	A2E	1000	PN25	14	14	M16 x 160	1171	1320	182	38	28	56	32	76	J119M	188.3
1118	Steel	1.6	1.6	YF2	1100	PN10	-	16	M16 x 160	1227	1340	169	25	32	37	32	76	J73LS	126.0
1118	Steel	1.6	1.6	YF2	1100	PN16	8	16	M16 x 160	1227	1355	169	25	32	43	32	76	J73LS	129.8
1118	Steel	1.6	1.6	A2E	1100	PN25	-	16	M16 x 160	1242	1420	182	38	32	56	32	76	J120M	218.1
1121	Coated Steel	1.6	1.6	YF2	1100	PN16	8	16	M16 x 160	1231	1355	169	25	32	43	32	76	J73LS	128.7
1152	DI	1	6	A2E	1100	PN10	16	16	M16 x 160	1275	1340	182	38	32	37	32	76	J121M	162.6
1152	DI	1	6	A2E	1100	PN16	16	16	M16 x 160	1275	1355	182	38	32	43	32	76	J121M	168.0
1152	DI	1	6	A2E	1100	PN25	16	16	M16 x 160	1275	1420	182	38	32	56	32	76	J121M	201.6
1219	Steel	1.6	1.6	YF2	1200	PN10	-	16	M16 x 160	1329	1455	169	25	32	40	32	76	J74LS	141.8
1219	Steel	1.6	1.6	A2E	1200	PN16	8	16	M16 x 160	1343	1485	182	38	32	49	32	76	J121M	217.4
1219	Steel	1.6	1.6	A2E	1200	PN25	-	16	M16 x 160	1343	1530	182	38	32	56	32	76	J121M	243.5
1222	Coated Steel	1.6	1.6	A2E	1200	PN16	8	16	M16 x 160	1347	1485	182	38	32	49	32	76	J121M	215.8
1255	DI	1	6	A2E	1200	PN10	16	16	M16 x 160	1378	1455	182	38	32	40	32	76	J122M	183.0
1255	DI	1	6	A2E	1200	PN16	16	16	M16 x 160	1378	1485	182	38	32	49	32	76	J122M	197.6
1255	DI	1	6	A2E	1200	PN25	16	16	M16 x 160	1378	1530	182	38	32	56	32	76	J122M	224.8
1422	Steel	1.6	3	A2E	1400	PN10	9	18	M16 x 160	1546	1675	182	38	36	43	32	76	J125M	245.5
1422	Steel	1.6	3	A2E	1400	PN16	9	18	M16 x 160	1546	1685	182	38	36	49	32	76	J125M	248.7
1426	Coated Steel	1.6	3	A2E	1400	PN16	9	18	M16 x 160	1550	1685	182	38	36	49	32	76	J125M	246.1
1462	DI	1	7	A2E	1400	PN10	18	18	M16 x 160	1585	1675	182	38	36	43	32	76	J125M	220.1
1462	DI	1	7	A2E	1400	PN16	18	18	M16 x 160	1585	1685	182	38	36	49	32	76	J125M	223.3
1620	Steel	3	3	A2E	1600	PN10	-	20	M16 x 160	1745	1915	182	38	40	49	32	76	J127M	309.3
1620	Steel	3	3	A2E	1600	PN16	-	20	M16 x 160	1745	1930	182	38	40	56	32	76	J127M	315.9
1626	Coated Steel	3	3	A2E	1600	PN16	-	20	M16 x 160	1751	1930	182	38	40	56	32	76	J127M	311.3
1668	DI	1	7	A2E	1600	PN10	20	20	M16 x 160	1791	1915	182	38	40	49	32	76	J128M	275.2
1668	DI	1	7	A2E	1600	PN16	20	20	M16 x 160	1791	1930	182	38	40	56	32	76	J128M	281.3

## Materials & Relevant Standards

**Flange/End Ring**

Steel to BS EN 10025-2:2004 Grade S275JR

**Bolts/Nuts/Washers**

**Bolts/Studs** - Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts** - Steel to BS 4190:2001 Grade 4

**Washers** - Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

**Coatings**

**Body, Flange & End Ring** - Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Nuts & Bolts** - Sheraplex coated to WIS 4-52-03

**Gaskets: L02/L03/YF2/YF3**

Rubber 80 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

**Gaskets: A2E/A2H/XSXG**

Rubber 70 IRHD Moulded Compound to BS EN 681-1:1996 Type WA,WC,WG or BS EN 682:2002, Type G (other materials available on request)

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



Photo by Alan Murray-Rust

Project: Hatfield Colliery  
Specification: Viking Johnson Shouldered Joints

Technical Helpline: 01462 443322  
E: [info@vikingjohnson.com](mailto:info@vikingjohnson.com) W: [www.vikingjohnson.com](http://www.vikingjohnson.com)



# Dedicated Couplings & Flange Adaptors

The QuickFit coupling range is designed to connect plain ended pipes with similar outside diameters. The full range includes couplings and flange adaptors to suit pipes with nominal sizes between DN50 (2") and DN300 (12"). One fitting can accommodate PVC, coated and uncoated steel pipe and ductile iron pipe as well.

## New Lay and High Pressure Applications

The QuickFit range is ideal for new lay schemes as the fittings are pre-assembled with close tolerance to allow for quick installation. They are also suitable for high pressure applications – DN50 to DN125 are available up to 46 bar, DN150 to DN300 to 29 bar as standard. Higher pressures are available as fabricated specials.

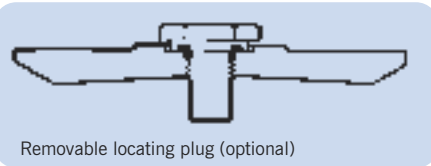
## Close Tolerance

QuickFit is a dedicated product offering a narrow tolerance on pipe outside diameter.

## Transferring the End Load

QuickFit flange adaptors are not end load-bearing products and in the event that the application requires restraining, tie rods are required to transfer the end load forces to an anchor flange on the pipe. The design of QuickFit flange adaptors is such that there is sufficient clearance to allow the tie rods to pass over the end ring without the need for notching. This means that one product can be offered for both flexible and tied configurations, thus reducing stock holding.

QuickFit couplings are available with removable locating plugs, to prevent coupling creep on above ground pipelines caused by repeated pipe movement from temperature variation, continuous vibrations and movement. The removable locating plug (optional) ensures the coupling can slide fully over the pipe ends for quick and simple installation. Once installed they engage between the pipe ends to prevent the coupling moving beyond fixed limits.



## Pipe Materials



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Product Design Benefits

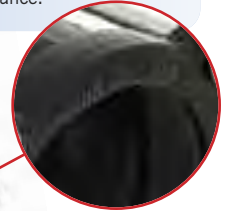
Simple to Fit

Captive, non-rotating bolt heads require a single spanner/torque wrench. Installation is simple, with one bolt size (M12) and one bolt torque (55-65Nm) for the majority of pipe materials.



Excellent Corrosion Protection

Metal components are coated with Rilsan Nylon 11 which is WRAS approved for use with potable water. The nuts and bolts are Sheraplex coated to WIS 4-52-03, offering long term protection against corrosion, impact and abrasion to ensure continued reliable performance.

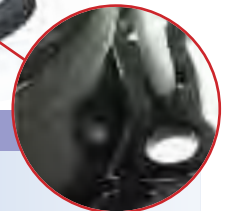


Quick by Name...

All QuickFit products are pre-assembled allowing quick and efficient installation, even in the most difficult of conditions without the need for on-site dismantling.

Flexible Fit

QuickFit flange adaptors are supplied as standard with flanges drilled to BS EN 1092 PN10 and PN16. Other options are available - see Specification page for details of fabricated products available.



Customer Benefits

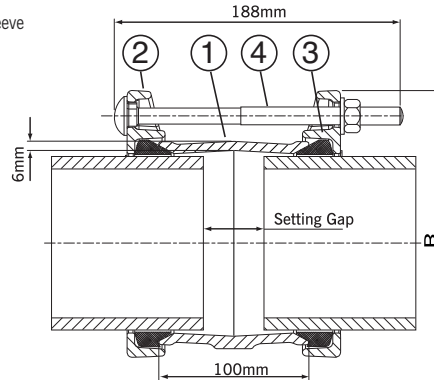
- QuickFit products accommodate angular deflection between pipes. This makes installation easy and allows pipeline movement, such as ground settlement. Long radius curves can also be accommodated, avoiding the need for special fittings with couplings up to 6° and flange adaptors to 3°.
- QuickFit couplings are capable of accommodating 10mm of expansion/contraction per fitting, flange adaptors 5mm. This reduces the need for supplementary expansion joints or bellows.
- All cast QuickFit flange adaptors are supplied as standard with an extended sealing face, and are suitable for use with wafer style (butterfly) valves.
- Fabricated flange adaptors can be supplied with either an extended sealing face or clear bore option.
- Viking Johnson fittings are supplied as standard with EPDM gaskets which are suitable for potable water, drainage and sewage applications, however, a full range of specialist gasket materials resistant to various chemical compositions are available. For further details consult the marketing department or review the Technical Design Data document online at [www.vikingjohnson.com](http://www.vikingjohnson.com).

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

# QuickFit Couplings

- Bolt size** - M12 x 180mm CDX
- Setting gap** - Recommended - 20mm  
Max - 40mm
- Bolt torque** - 55-65Nm

- 1 = Centre Sleeve
- 2 = End Ring
- 3 = Gasket
- 4 = Bolts



Size Range (mm)		Working Pressure (mm)	End Ring OD B (mm)	Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)
Min	Max					
47.9	51.3	46.6	136.0	2-M12 x 180	12477/41	2.22
59.5	63.3	46.6	148.0	2-M12 x 180	12477/1	2.51
75.3	79.1	46.6	164.0	2-M12 x 180	12477/5	2.89
88.1	91.9	46.6	177.0	4-M12 x 180	12477/7	3.81
95.8	100.2	46.6	185.0	4-M12 x 180	12477/10	4.00
107.2	111.0	46.6	196.0	4-M12 x 180	12477/12	4.26
113.5	120.2	46.6	205.0	4-M12 x 180	12477/15	4.48
138.9	142.7	44	228.0	4-M12 x 180	12477/19	5.02
158.2	162.0	38.8	254.0	4-M12 x 180	12477/21	6.32
167.5	172.3	36.9	264.0	4-M12 x 180	12477/24	6.59
192.9	196.7	32.2	292.0	4-M12 x 180	12477/26	8.06
218.3	224.4	35.8	319.0	4-M12 x 180	12477/29	8.89
272.2	276.5	34.8	372.0	6-M12 x 180	12477/34	11.15
323.1	328.6	29.5	424.0	6-M12 x 180	12477/37	12.76

Test pressure = 1.5 x working pressure.

## Materials & Relevant Standards

### Centre Sleeve and End Rings

Ductile Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

### Gaskets

**Standard** - EPDM to BS EN 681-1, TYPE WA, WC Nitrile to BS EN 682:2002, Type G Other grades are available - contact Viking Johnson for details

### Tee Bolts/Bolts

**Standard** - Steel to BS EN ISO 898-1:2009 property class 4.8

**Option** - Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

### Nuts/Washers

**Nuts - Standard** - Steel to BS EN 20898-2:1994 property class 8

**Option** - Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

**Washers** - Stainless Steel to BS 1449:Part 2:1983 grade 304S15

### Coatings

Centre sleeve and end rings coated with Standard Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Other coatings available** - Scotchkote, Primer, Galvanised.

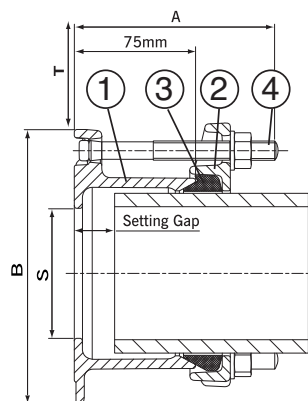
Tee bolts, CDX bolts and nuts coated with Standard Sheraplex to WIS 4-52-03

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

## QuickFit Flange Adaptors Standard Cast

**Bolt size** - M12 x 115mm Tee Bolt  
**Setting gap** - Recommended - 25mm  
 Max - 45mm  
**Bolt torque** - 55-65Nm  
**Max working** - In accordance with flange rating pressure

1 = Body  
 2 = End Ring  
 3 = Gasket  
 4 = Bolts



Size Range (mm)		Flange Detail (mm)		Overall Length A (mm)	S Bore S (mm)	Flange Drilling	Bolt Size No.-Dia x Length	Gasket Mould No.	Weight (kg)
Min	Max	Flange OD (B)	Flange Thickness (T)						
59.5	63.3	161.0	17.0	125.0	50.0	50 PN10, 16, 25, 40	2-M12 x 115	12477/1	2.28
75.3	79.1	181.0	17.0	125.0	65.0	65 PN10,16	2-M12 x 115	12477/5	2.66
88.1	91.9	196.0	17.0	126.0	80.0	80 PN10, 16, 25, 40	4-M12 x 115	12477/7	3.48
95.8	100.2	196.0	17.0	126.0	80.0	80 PN10, 16, 25, 40	4-M12 x 115	12477/10	3.59
107.2	111.0	216.0	17.0	126.0	100.0	100 PN10, 16	4-M12 x 115	12477/12	3.91
113.5	120.2	216.0	17.0	126.0	100.0	100 PN10, 16	4-M12 x 115	12477/15	4.03
138.9	142.7	246.0	17.0	126.0	125.0	125 PN10, 16	4-M12 x 115	12477/19	4.71
158.2	162.0	284.0	17.0	126.0	150.0	150 PN10, 16	4-M12 x 115	12477/21	5.76
167.5	172.3	284.0	17.0	126.0	150.0	150 PN10, 16	4-M12 x 115	12477/24	5.87
192.9	196.7	339.0	20.0	126.0	199.0	200 PN10, 16	4-M12 x 115	12477/26	8.43
218.3	224.4	339.0	20.0	126.0	200.0	200 PN10, 16	4-M12 x 115	12477/29	8.49
272.2	276.5	405.0	20.0	129.0	250.0	250 PN10, 16	6-M12 x 115	12477/34	11.38
323.1	328.6	455.0	20.0	129.0	300.0	300 PN10, 16	6-M12 x 115	12477/37	13.04

Test pressure = 1.5 x working pressure.

### Tied Flange Adaptor

The design of the new QuickFit flange adaptor is such that there is sufficient clearance to allow tie rods (used to restrain them) to pass over without the need for notching.

## Materials & Relevant Standards

### Flange Adaptor Body and End Rings

Ductile Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

### Gaskets

**Standard** - EPDM to BS EN 681-1, TYPE WA, WC Nitrile to BS EN 682:2002, Type G Other grades are available - contact Viking Johnson for details

### Tee Bolts/Bolts

**Standard** - Steel to BS EN ISO 898-1:2009 property class 4.8

**Option** - Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

### Nuts/Washers

**Nuts - Standard** - Steel to BS EN 20898-2:1994 property class 8

**Option** - Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

**Washers** - Stainless Steel to BS 1449:Part 2:1983 grade 304S15

### Coatings

Centre sleeve and end rings coated with Standard Rilsan Nylon 11 to WIS 4-52-01 Part 1

**Other coatings available** - Scotchkote, Primer, Galvanised.

Tee bolts, CDX bolts and nuts coated with Standard Sheraplex to WIS 4-52-03

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Specifications

## QuickFit Flange Adaptors Fabricated (Common Drillings)

### QuickFit Flange Drilling Capabilities - Other common drillings.

OD	Flange Details Nom (inch)	ASME/ANSI B16.1/ASME B16.5 Class							
		125		150		250		300	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	2	✓	✗	✓	✗	✓	✓	✗	✗
075.3 - 079.1	2.5	✓	✓	✓	✓	✓	✓	✗	✗
088.1 - 091.9	3	✓	✓	✓	✓	✓	✓	✗	✗
095.8 - 100.2	3	✓	✗	✓	✗	✓	✓	✗	✗
107.2 - 111.0	4	✓	✓	✓	✓	✓	✓	✗	✗
113.5 - 120.2	4	✓	✓	✓	✓	✓	✓	✗	✗
138.9 - 142.7	5	✓	✓	✓	✓	✓	✓	✗	✗
158.2 - 162.0	6	✓	✓	✓	✓	✓	✓	✗	✗
167.5 - 172.3	6	✓	✓	✓	✓	✓	✓	✗	✗
192.2 - 196.7	8	✓	✓	✓	✓	✗	✗	✗	✗
218.3 - 224.4	8	✓	✓	✓	✓	✓	✓	✗	✗
272.2 - 276.5	10	✓	✓	✓	✓	✗	✗	✗	✗
323.1 - 328.6	12	✓	✓	✓	✓	✗	✗	✗	✗

Y/N ✓ = Can make QFFA with this drilling  
✗ = Cannot make QFFA with this drilling

Tied? ✓ = Can offer as tied FA – notching not required  
✗ = Cannot offer as tied FA – bolts clash with end ring – cannot notch

OD	Flange Details Nom (inch)	AWWA C207 Class							
		B		D		E		F	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
107.2 - 111.0	4	✓	✓	✓	✓	✓	✓	✓	✓
113.5 - 120.2	4	✓	✓	✓	✓	✓	✓	✓	✓
138.9 - 142.7	5	✓	✓	✓	✓	✓	✓	✓	✓
158.2 - 162.0	6	✓	✓	✓	✓	✓	✓	✓	✓
167.5 - 172.3	6	✓	✓	✓	✓	✓	✓	✓	✓
192.2 - 196.7	8	✓	✓	✓	✓	✓	✓	✓	✓
218.3 - 224.4	8	✓	✓	✓	✓	✓	✓	✓	✓
272.2 - 276.5	10	✓	✓	✓	✓	✓	✓	✗	✗
323.1 - 328.6	12	✓	✓	✓	✓	✓	✓	✗	✗

### Materials & Relevant Standards

#### Flange

Steel to BS EN 10025-2:2004 Grade S275JR

#### Sleeve

Steel Tube to BS EN 10216-1:2004:Grade P265TRI  
or Steel Tube to BS EN 10217-1:2002 or Steel  
BS EN 10025-2:2004 Grade S275JR

#### Tee Bolts/Bolts

**Standard** - Steel to BS EN ISO 898-1:2009  
property class 4.8

**Option** - Stainless Steel to BS EN ISO 3506-1:2009  
grade A4 property class 50

#### Nuts/Washers

**Nuts - Standard** - Steel to BS EN 20898-2:1994  
property class 8

**Option** - Stainless Steel to BS EN ISO  
3506-2:2009 grade A4 property class 80

**Washers** - Stainless Steel to BS 1449:Part 2:1983  
grade 304S15

#### End Rings

Ductile Iron to BS EN 1563:1997 Symbol  
EN GJS-450-10

#### Gaskets

**Standard** - EPDM to BS EN 681-1, TYPE WA,  
WC Nitrile to BS EN 682:2002, Type G  
Other grades are available - contact Viking Johnson.

OD	Flange Details Nom (mm)	AS2129 Table							
		A		C		D		E	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	50	✓	✗	✓	✗	✓	✗	✓	✗
075.3 - 079.1	65	✓	✗	✓	✗	✓	✗	✓	✗
088.1 - 091.9	80	✓	✗	✓	✗	✓	✗	✓	✗
095.8 - 100.2	80	✓	✗	✓	✗	✓	✗	✓	✗
107.2 - 111.0	100	✓	✓	✓	✓	✓	✓	✓	✓
113.5 - 120.2	100	✓	✗	✓	✗	✓	✗	✓	✗
138.9 - 142.7	125	✓	✓	✓	✓	✓	✓	✓	✓
158.2 - 162.0	150	✓	✓	✓	✓	✓	✓	✓	✓
167.5 - 172.3	150	✓	✗	✓	✗	✓	✗	✓	✗
192.2 - 196.7	200	✓	✓	✓	✓	✓	✓	✓	✓
218.3 - 224.4	200	✓	✗	✓	✗	✓	✗	✓	✗
272.2 - 276.5	250	✗	✗	✗	✗	✗	✗	✓	✓
323.1 - 328.6	300	✗	✗	✓	✓	✓	✓	✓	✗

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

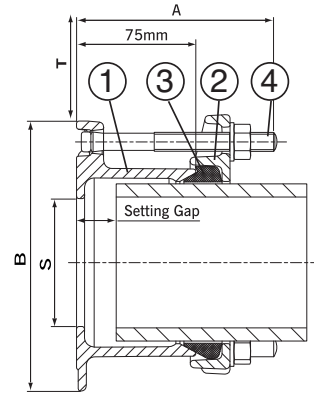


## QuickFit Flange Adaptors Fabricated (Standard Drillings)

### New QuickFit Flange Drilling Capabilities - Standard drillings.

OD	Flange Details Nom (mm)	BS EN 1092											
		PN2.5		PN6		PN10		PN16		PN25		PN40	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	50	✓	X	✓	X								
075.3 - 079.1	65	✓	X	✓	X					✓	✓	✓	✓
088.1 - 091.9	80	✓	X	✓	X								
095.8 - 100.2	80	✓	X	✓	X								
107.2 - 111.0	100	✓	✓	✓	✓					✓	✓	✓	✓
113.5 - 120.2	100	✓	X	✓	X					✓	✓	✓	✓
138.9 - 142.7	125	✓	X	✓	X					✓	✓	✓	✓
158.2 - 162.0	150	✓	X	✓	X					✓	✓	X	X
167.5 - 172.3	150	✓	X	✓	X					✓	✓	X	X
192.2 - 196.7	200	✓	✓	✓	✓					✓	✓	X	X
218.3 - 224.4	200	✓	X	✓	X					✓	✓	X	X
272.2 - 276.5	250	✓	X	✓	X					✓	✓	X	X
323.1 - 328.6	300	✓	X	✓	X					X	X	X	X

Denotes standard cast product, please refer to page 143 for full details.



- 1 = Body
- 2 = End Ring
- 3 = Gasket
- 4 = Bolts

Y/N ✓ = Can make QFFA with this drilling  
X = Cannot make QFFA with this drilling

Tied? ✓ = Can offer as tied FA – notching not required  
X = Cannot offer as tied FA – bolts clash with end ring – cannot notch

OD	Flange Details Nom (mm)	BS 10:1962 Table											
		A		B		E		F		H		J	
		Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?	Y/N	Tied?
059.5 - 063.3	2	✓	X	✓	X	✓	X	✓	✓	✓	✓	X	X
075.3 - 079.1	2.5	✓	X	✓	X	✓	X	✓	✓	✓	✓	X	X
088.1 - 091.9	3	✓	X	✓	X	✓	X	✓	✓	✓	✓	X	X
095.8 - 100.2	3	✓	X	✓	X	✓	X	✓	✓	✓	✓	X	X
107.2 - 111.0	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X
113.5 - 120.2	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X
138.9 - 142.7	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X
158.2 - 162.0	6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X
167.5 - 172.3	6	✓	X	✓	X	✓	X	✓	✓	✓	✓	X	X
192.2 - 196.7	8	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	X
218.3 - 224.4	8	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	X
272.2 - 276.5	10	X	X	X	X	✓	✓	✓	✓	✓	✓	X	X
323.1 - 328.6	12	X	X	✓	✓	✓	✓	X	X	✓	✓	X	X

### Materials & Relevant Standards

#### Flange

Steel to BS EN 10025-2:2004 Grade S275JR

#### Sleeve

Steel Tube to BS EN 10216-1:2004 Grade P265TRI or

Steel Tube to BS EN 10217-1:2002 or

Steel BS EN 10025-2:2004 Grade S275JR

#### Tee Bolts/Bolts

**Standard** - Steel to BS EN ISO 898-1:2009 property class 4.8

**Option** - Stainless Steel to BS EN ISO 3506-1:2009 grade A4 property class 50

#### Nuts/Washers

**Nuts - Standard** - Steel to BS EN 20898-2:1994 property class 8

**Option** - Stainless Steel to BS EN ISO 3506-2:2009 grade A4 property class 80

**Washers** - Stainless Steel to BS 1449:Part 2:1983 grade 304S15

#### End Rings

Ductile Iron to BS EN 1563:1997 Symbol EN GJS-450-10

#### Gaskets

**Standard** - EPDM to BS EN 681-1, TYPE WA, WC Nitrile to BS EN 682:2002, Type G. Other grades are available - contact Viking Johnson.

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

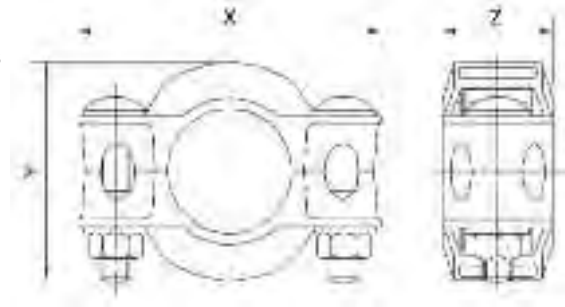
Specifications

# SM48

The unique mechanical characteristics of shouldered joints offer speed and ease of installation along with proven reliability.

## Features & Benefits

- Malleable joint caters for 40mm
- Allowance for controlled pipe movement: expansion, contraction, angular deflection – essential for varying operating conditions and to accommodate differing pipework levels
- A torque wrench is required for fitting. Please refer to the fitting instructions for minimum torque ratings
- Approved to British Coal Specification 296 Part 1: 596 & MAS 320
- Ideal applications include mining, industrial, water, shipping, petrochemical and building service industries
- Joints have end load bearing capability



Style No.	Shoulder Dia.	Number of Parts	Gasket Mould No.	Bolts No-Dia_Lg	Bolt Type	Working Pressure bar	Approx Weight kg	Overall Dimensions		
								X	Y	Z
SM48	54	2	396	2- 1/2" x 2 1/2"	CDX	41.5	1.1	122	87	44.5

### Gasket Grades Available

Grade	Compound	Temperature Range
E	EPDM Ethylene Propylene Diene Monomer	-35-85°C (wet heat) -35-80°C (dry heat)
T	Nitrile	-20-80°C
V	Polychloroprene (Neoprene)	-30-90°C

## Materials & Relevant Standards

### Housing

Ductile Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

### Gasket

Rubber – Grade to suit service

### Bolts

Steel to BS EN ISO 898-1:2009 Property Class 4.8

### Nuts

Steel to BS 4190:2001 Grade 4

### Washers

Steel to BS EN 10083:PT:1:1991 Grade C22E

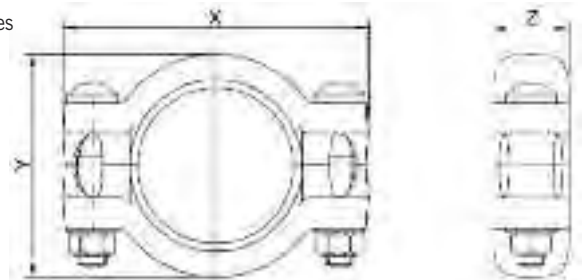
*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## SF60, 76, 89, 114, 168

The unique mechanical characteristics of shouldered joints offer speed and ease of installation along with proven reliability.

### Features & Benefits

- Allowance for controlled pipe movement: expansion, contraction, angular deflection – essential for varying operating conditions and to accommodate differing pipework levels
- A torque wrench is required for fitting. Please refer to the fitting instructions for minimum torque ratings
- Approved to British Coal Specification 296 Part 1: 596 & MAS 320
- Ideal applications include mining, industrial, water, shipping, petrochemical and building service industries
- Joints have end load bearing capability



Style No.	Shoulder Dia.	Number of Parts	Gasket Mould No.	Bolts No-Dia_Lg	Bolt Type	Working Pressure bar	Approx Weight kg	Overall Dimensions		
								X	Y	Z
SF60	66.5	2	109	2- 5/8" x 3 1/2"	CDX	117.0	1.7	149	100	49
SF76	82.5	2	134	2- 5/8" x 3 1/2"	CDX	117.0	2.1	169	118	49
SF89	97	2	145	2- 5/8" x 3 1/2"	CDX	117.0	2.5	183	133	51
SF-HP114	122	2	144	2- 3/4" x 4 3/4"	CDX	117.0	4.5	227	166	56
SF168	177.8	2	651	2- 7/8" x 5 1/2"	CDX	100.0	11.0	324	228	63

### Gasket Grades Available

Grade	Compound	Temperature Range
E	EPDM Ethylene Propylene Diene Monomer	-35-85°C (wet heat) -35-80°C (dry heat)
T	Nitrile	-20-80°C
V	Polychloroprene (Neoprene)	-30-90°C

### Materials & Relevant Standards

#### Housing

Ductile Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

#### Gasket

Rubber – Grade to suit service

#### Bolts

Steel to BS EN ISO 898-1:2009 Property Class 4.8

#### Nuts

Steel to BS 4190:2001 Grade 4

#### Washers

Steel to BS EN 10083:PT.1:1991 Grade C22E

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

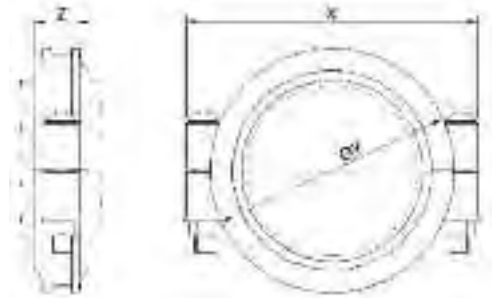
Specifications

SR219, 273, 324, 406

The unique mechanical characteristics of shouldered joints offer speed and ease of installation along with proven reliability.

Features & Benefits

- 2 part rolled steel shouldered joint caters for sizes 100-400mm
- Allowance for controlled pipe movement: expansion, contraction, angular deflection – essential for varying operating conditions and to accommodate differing pipework levels
- A torque wrench is required for fitting. Please refer to the fitting instructions for minimum torque ratings
- Approved to British Coal Specification 296 Part 1: 596 & MAS 320
- Ideal applications include mining, industrial, water, shipping, petrochemical and building service industries
- Joints have end load bearing capability



Style No.	Shoulder Dia.	Number of Parts	Gasket Mould No.	Bolts No-Dia_Lg	Bolt Type	Working Pressure bar	Approx Weight kg	Overall Dimensions		
								X	Y	Z
SR219	231.8	2	495	2- 3/4" x 5 1/2"	DDX	27.6	9.2	353	292	63.5
SR273	285.8	2	481	2- 3/4" x 5 1/2"	DDX	27.6	10.7	410	346	63.5
SR324	336.6	2	640	2- 3/4" x 5 1/2"	DDX	27.6	12.2	462	397	63.5
SR406	419.1	2	830	2- 1" x 7"	DDX	27.6	20.0	572	495	76

Gasket Grades Available

Grade	Compound	Temperature Range
E	EPDM Ethylene Propylene Diene Monomer	-35-85°C (wet heat) -35-80°C (dry heat)
T	Nitrile	-20-80°C
V	Polychloroprene (Neoprene)	-30-90°C

Materials & Relevant Standards

Housing

Steel to BS EN 10025-2:2004 Grade S275JR

Lugs

Steel to BS EN 10025-2:2004 Grade S275JR

Gasket

Rubber to BS EN 681-1:1996 Grade to suit service

Bolts

Steel to BS EN ISO 898-1:2009 Property Class 4.8

Nuts

Steel to BS 4190:2001 Grade 4

Washers

Steel to BS EN 10083:PT:1:1991 Grade C22E

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

**SR419, 457, 470, 508, 521, 559, 571, 610, 622, 724 & 775**

The unique mechanical characteristics of shouldered joints offer speed and ease of installation along with proven reliability.

**Features & Benefits**

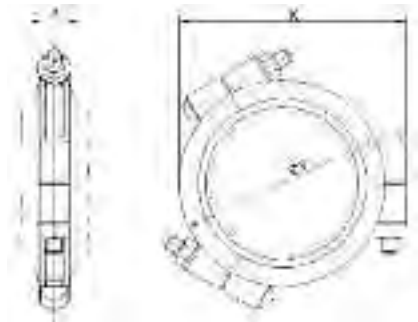
- 3 part rolled steel shouldered joints cater for sizes 400-1250mm
- Allowance for controlled pipe movement: expansion, contraction, angular deflection – essential for varying operating conditions and to accommodate differing pipework levels
- A torque wrench is required for fitting. Please refer to the fitting instructions for minimum torque ratings
- Approved to British Coal Specification 296 Part 1: 596 & MAS 320
- Ideal applications include mining, industrial, water, shipping, petrochemical and building service industries
- Larger sizes can be manufactured for bespoke site specification
- Joints have end load bearing capability



Style No.	Shoulder Dia.	Number of Parts	Gasket Mould No.	Bolts No-Dia_Lg	Bolt Type	Working Pressure bar	Approx Weight kg	Overall Dimensions		
								X	Y	Z
SR419	431.8	3	502	3- 1" x 7"	DDX	15.5	22.6	546	508	76
SR457	469.9	3	672	3- 1" x 7"	DDX	14.5	24.0	585	546	76
SR470	482.6	3	360	3- 1" x 7"	DDX	13.8	24.5	598	559	76
SR508	520.7	3	614	3- 1" x 7"	DDX	13.0	25.9	636	597	76
SR521	533.4	3	591	3- 1" x 7"	DDX	12.1	26.4	649	610	76
SR559	571.5	3	617	3- 1" x 7"	DDX	11.5	27.8	689	648	76
SR571	584.2	3	617	3- 1" x 7"	DDX	11.0	28.3	702	660	76
SR610	622.3	3	1673	3- 1" x 7"	DDX	10.5	29.9	739	699	76
SR622	635	3	553	3- 1" x 7"	DDX	10.3	30.4	752	711	76
SR724	736.6	3	567	3- 1" x 7"	DDX	7.0	34.4	854	813	76
SR775	787.4	3	567	3- 1" x 7"	DDX	7.0	36.3	904	864	76

**Gasket Grades Available**

Grade	Compound	Temperature Range
E	EPDM Ethylene Propylene Diene Monomer	-35-85°C (wet heat) -35-80°C (dry heat)
T	Nitrile	-20-80°C
V	Polychloroprene (Neoprene)	-30-90°C

**Materials & Relevant Standards****Housing**

Steel to BS EN 0025-2:2004 Grade S275JR

**Lugs**

Steel to BS EN 10025-2:2004 Grade S275JR

**Gasket**

Rubber to BS EN 681-1:1996 Grade to suit service

**Bolts**

Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts**

Steel to BS 4190:2001 Grade 4

**Washers**

Steel to BS EN 10083:PT:1:1991 Grade C22E

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

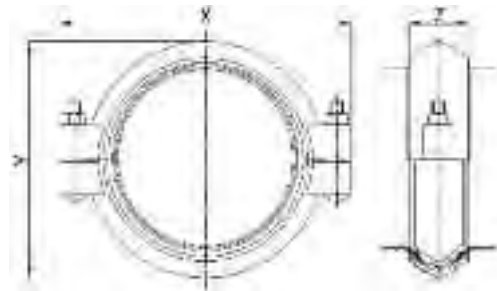
Specifications

## Lightweight Carlton Joints

The Carlton pipe joint has historically been used by British Coal for use on methane drainage, compressed air and some water services. It is a simple mechanical method of connecting pipe allowing a high degree of flexibility at each point.

### Features & Benefits

- Carlton joints mechanically lock the belled pipe ends together securely and safely. They cannot blow apart under pressure
- Up to 10% angularity can be obtained depending upon size
- Deflection is possible allowing pipes to be laid on rough and uneven surfaces
- A low pressure joint suited for methane drainage, compressed air, pumped water and suction systems
- Ideal for colliery and mining applications
- Proven joint reliability
- Gasket material: (L) Neoprene



Pipe Size		UK Coal Vocab	Gasket Mould No.	Bolts No-Dia_Lg	Bolt Type	Working Pressure bar	Approx Weight kg	Angularity Degrees	Overall Dimensions		
Nom	Dia.								X	Y	Z
100	114.3	2864	1107	2- 3/4" x 4 3/4"	CDX	15	4.19	8	235	174	73
150	168.3	2865	1107	2- 3/4" x 4 3/4"	CDX	15	6.23	7	301	232	82
200	219.1	2866	1106/1107	2- 3/4" x 4 3/4"	CDX	12	9.68	7	369	294	83
250	273	2867	1106	2- 7/8" x 6 1/2"	CDX	10	15.2	6	439	356	87.5
300	323.9	2868	1106	2- 7/8" x 6 1/2"	CDX	7	26	10	526	442	133
350	355.6	2869	977	2- 1" x 6 1/2"	CDX	7	35.5	10	579	492	159
400	406.4	2870	1342	2- 1" x 6 1/2"	CDX	5	42.9	8	629	540	160.5

### Materials & Relevant Standards

**Housing**

Steel to BS EN 10025-2:2004 Grade S275JR

**Ferrule**

Malleable Cast Iron to BS EN 1562:1997 Symbol EN-GJMB-350-10 or Ductile Iron to BS EN 1563:1997 Symbol EN-GJS-450-10 or Steel to BS EN 10025-2:2004 Grade S275JR

**Lugs**

Steel to BS EN 10025-2:2004 Grade S275JR

**Gasket**

Red Neoprene IRHD 70

**Bolts**

Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts**

Steel to BS 4190:2001 Grade 4

**Washers**

Stainless Steel to BS 1449:Part 2:1983 Grade 304S15

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

# FITTINGS



Wade is the UK's best known brand of low and medium pressure brass compression fittings, valves and accessories. The Wade range is known for its safety and reliability and includes thousands of products designed for use in a wide variety of industries.

For details of our full range visit  
[www.wadefittings.com](http://www.wadefittings.com)

# Wade™

## Compression Fittings

Wade compression fittings consistently produce cost-effective, reliable leak-tight joints. They can be found in general use throughout the following industries: hydraulic, pneumatic, automotive, locomotive, LPG, oil and gas, power generation, air conditioning, heating and ventilation, and also for applications where there is the need for the added safety provided by an engineered fitting.

Fittings, depending on Ferule type, are suitable for use with copper, brass, Bundy, nylon, polythene and PVC coated tube and are available in metric 4mm-18mm and imperial 1/8"-1" with thread options in API/NPT, BSPT, BSPP and metric forms.



## SISTEM-P Push-In Fittings

Wade 'SISTEM-P' Push-In Fittings, designed for quick coupling release of the tube, are manufactured using the latest technology for use on a variety of tubing including nylon and polyurethane. Utilising lightweight, high strength materials, the fittings are nickel plated to protect against corrosion, making them particularly suitable for food and chemical applications.

Special oil resistant, nitrile rubber O-Ring seals are used for prolonged life, and create a 'bubble tight' seal which is particularly suitable for low pressure circuits. Once the tube is inserted into the fitting, it is automatically sealed and locked in position with a unique security grip.



## Nickel Plated Brass BSP Fittings

A comprehensive range of male and female adaptors with both BSP parallel and taper threads and a maximum pressure rating of 60 bar.



*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



### Silencers and Restrictors

Noise reduction fittings for general compressed air use. Fittings can cope with a temperature range of 0°C to 70°C and a maximum pressure of 12 bar if bronze or brass, or 6 bar if plastic.



### Quick Release Couplings

The Wade range of pneumatic quick release couplings offers quality, reliable connections for a variety of applications including compressed air and water. The range is available in all the major European interchanges, which means that all the different flow rate requirements are covered.



### Ball Valves

Light, compact and easy to install and operate, Wade ball valves are available from 1/4" to 4" and have a working temperature range from -20°C to 150°C. There are pressure ratings up to 40 bar, with ISO 7/1 and 228 threads and British Gas Approved options available. Short and long thread versions and female x female and male x female versions are offered.



### Air Valves

With a size range of 1/4"-1", Wade air safety relief valves are available on an ex-stock basis with either atmospheric or side outlet discharge – sealed leakproof tops or lift testing gear. The valves are primarily used on 'Compressed Air' systems, compressor sets and pressure vessels.

The entire safety valve range is PED approved and CE marked. Features include a soft valve washer for 'bubble tight' seal, valve washers to suit air and inert gases, and brass construction with stainless steel springs. These are high performance valves with a pressure range of 0.5 bar to 27.6 bar.



Wade also offers air guns, tubing and assembly tools. For more information, contact us.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



Photo by Muba

Project: Shell, Stanlow  
Specification: Wade Compression Fittings

# GAS REGULATORS



Sperryn is a leading supplier of meter installation kits and emergency control valves for domestic, commercial and industrial applications. Using the latest design facilities and technologies, Sperryn regulators offer increased capacity, accuracy and lower pressure drops. Where applicable, fittings and control valves comply with the requirements of the relevant British Gas Engineering Standards.

For details of our full range visit  
[www.sperryn.co.uk](http://www.sperryn.co.uk)

**SPERRYN**  
**GAS CONTROLS** 

## G1000

### Features

- The G1000 is a reliable regulator suited to a variety of applications. Suitable for manufactured, natural and LP gases
- The G1000 can be used on metering installations, commercial/ industrial installations or OEM applications on burner or boiler trains
- Available in both straight and dedicated angled pattern orientation
- Gives a high degree of accuracy across good capacities with a low-pressure loss



### Pressure

Maximum inlet pressure  
350 mbar (5 psig)

Maximum outlet pressure  
150 mbar (2.15 psig)

### Connections

The G1000 is supplied with BS21 (ISO 7), NPT threads or, in the case of the 3" & 4" regulators, PN16 flanges. Other threads and connections may be available on request.

### Operating Conditions

Maximum operating temperature 60°C  
Minimum operating temperature -20°C

### Regulator Sizes

1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 3" and 4"

### Control

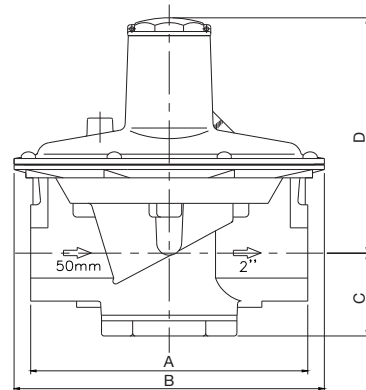
A comprehensive range of springs are available, and the pressure is easily adjusted by turning the loading spring adjuster under the top cover. Unless requested the unit is set and sealed with wire.

### Performance

Performance characteristics are available on request.

### Quality

Sperryn are approved to ISO 9001 and are committed to Total Quality Assurance. As part of Sperryn's continuous development policy, information given is subject to change and may have been updated. Please call for confirmation of data.



### Dimensions

Size	A (mm)	B (mm)	C (mm)	D (mm)	Approx. Weight (kg)
1/2"	126	132	35	124	1.0
3/4" & 1" C	104	88	31	85	0.9
3/4" & 1"	126	132	35	124	1.0
1 1/4"	154	166	46	163	1.5
1 1/2"	154	166	46	163	1.5
2"	200	224	60	175	3.0
3"	312	380	84	372	20.0
4"	368	450	135	600	36.0

### Materials

Name	Material
Body and Top Cover	Aluminium Alloy
Valve Bob, Diaphragm Plate, Valve Spindle	Acetal, Aluminium, Brass and Mild Steel
Diaphragms, Valve Seat, O-Rings	Nitrile Rubber (Buna-N)
Spring	Carbon Steel

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*

## FLANGE TABLES

This information is extracted from the following European, British and American standards:

- BS EN 1092 Circular flanges for pipes, valves, fittings and accessories, PN designated Part 1 Steel flanges.
- Part 2 Cast iron flanges.
- BS 4504 Flanges and bolting for pipes, valves, and fittings metric series (for copper alloy flanges only).
- ANSI B16.1 Cast Iron pipe flanges and flanged fittings.
- ANSI B16.5 Steel pipe flanges and flanged fittings.
- ANSI B16.24 Bronze flanges and flanged fittings BS10 Flanges and bolting for pipes, valves and fittings.

Notes:

1. Raised joint faces are applicable to BS EN 1092-1, BS EN 1092-2, BS10 ANSI table H steel, and classes 150 to 1500 inclusive.
2. ANSI Class 125 refers to cast iron only.
3. ANSI 600, 900, 1500 flange thickness does not include raised face.
4. Dimensions for flanges to BS EN 1092 are given in millimetres only. Dimensions for ANSI and BS 10 flanges are shown in inches with the metric equivalent (to nearest whole millimetre) in brackets.

### Nominal Size 15mm (1/2")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3)	Thickness of flange			
									Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	80	55	4	M10	11	38	40	2	12 (1)	-	12	-
PN10	95	65	4	M12	14	46	45	2	14 (1)	-	16	14
PN16	95	65	4	M12	14	46	45	2	14 (1)	6 (2)	16	14
PN25	95	65	4	M12	14	46	45	2	16 (1)	8 (2)	16	14
PN40	95	65	4	M12	14	46	45	2	-	9 (2)	16	16
PN64	105	75	4	M12	14	-	45	2	-	-	20	-
<b>ANSI</b>												
Class 125/150	3 1/2 (89)	2 3/8 (60)	4	1/2 (13)	5/8 (16)	-	1 3/8 (35)	1/16 (2)	-	5/16 (8)	7/16 (11)	-
Class 300	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	5/8 (16)	-	1 3/8 (35)	1/16 (2)	-	1/2 (13)	1/2 (13)	-
Class 600	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	5/8 (16)	-	1 3/8 (35)	1/4 (6)	-	-	9/16 (14)	-
Class 900	4 3/4 (121)	3 1/4 (83)	4	3/4 (19)	7/8 (22)	-	1 3/8 (35)	1/4 (6)	-	-	7/8 (22)	-
Class 1500	4 3/4 (121)	3 1/4 (83)	4	3/4 (19)	7/8 (22)	-	1 3/8 (35)	1/4 (6)	-	-	7/8 (22)	-
<b>BS 10</b>												
Table A	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	-	-
Table D	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table E	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table F	3 3/4 (95)	2 5/8 (67)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table H	4 1/2 (114)	3 1/4 (83)	4	5/8 (16)	1 1/16 (17)	-	2 1/4 (57)	1/16 (2)	5/8 (16)	3/8 (10)	1/2 (13)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504

(3) Copper alloy flanges are always flat-faced

Nominal Size 20mm (3/4")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3)	Thickness of flange			
									Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	90	65	4	M10	11	48	50	2	14 (1)	-	14	-
PN10	105	75	4	M12	14	56	58	2	16 (1)	-	18	16
PN16	105	75	4	M12	14	56	58	2	16 (1)	6 (2)	18	16
PN25	105	75	4	M12	14	56	58	2	18 (1)	8 (2)	18	16
PN40	105	75	4	M12	14	56	58	2	-	9 (2)	18	18
PN64	130	90	4	M16	18	-	58	2	-	-	22	-
PN100	130	90	4	M16	18	-	58	2	-	-	22	-

ANSI

Class 125/150	3 <sup>7</sup> / <sub>8</sub> (98)	2 <sup>3</sup> / <sub>4</sub> (70)	4	1/2 (13)	5/8 (16)	-	1 <sup>11</sup> / <sub>16</sub> (43)	1/16 (2)	-	1 <sup>11</sup> / <sub>32</sub> (9)	9/16 (14)	-
Class 300	4 <sup>5</sup> / <sub>8</sub> (117)	3 <sup>1</sup> / <sub>4</sub> (83)	4	5/8 (16)	3/4 (19)	-	1 <sup>11</sup> / <sub>16</sub> (43)	1/16 (2)	-	1 <sup>7</sup> / <sub>32</sub> (13)	5/8 (16)	-
Class 600	4 <sup>5</sup> / <sub>8</sub> (117)	3 <sup>1</sup> / <sub>4</sub> (83)	4	5/8 (16)	3/4 (19)	-	1 <sup>11</sup> / <sub>16</sub> (43)	1/4 (6)	-	-	5/8 (16)	-
Class 900	5 <sup>1</sup> / <sub>8</sub> (130)	3 <sup>1</sup> / <sub>2</sub> (89)	4	3/4 (19)	7/8 (22)	-	1 <sup>11</sup> / <sub>16</sub> (43)	1/4 (6)	-	-	1 (25)	-
Class 1500	5 <sup>1</sup> / <sub>8</sub> (130)	3 <sup>1</sup> / <sub>2</sub> (89)	4	3/4 (19)	7/8 (22)	-	1 <sup>11</sup> / <sub>16</sub> (43)	1/4 (6)	-	-	1 (25)	-

BS 10

Table A	4 (102)	2 <sup>7</sup> / <sub>8</sub> (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	-	-
Table D	4 (102)	2 <sup>7</sup> / <sub>8</sub> (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table E	4 (102)	2 <sup>7</sup> / <sub>8</sub> (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	1/4 (6)	3/8 (10)	-
Table F	4 (102)	2 <sup>7</sup> / <sub>8</sub> (73)	4	1/2 (13)	9/16 (14)	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table H	4 <sup>1</sup> / <sub>2</sub> (114)	3 <sup>1</sup> / <sub>4</sub> (83)	4	5/8 (16)	1 <sup>1</sup> / <sub>16</sub> (17)	-	2 <sup>1</sup> / <sub>4</sub> (57)	1/16 (2)	5/8 (16)	3/8 (10)	1/2 (13)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 25mm (1")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
										Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	100	75	4	M10	11	58	60	3	2	14 (1)	-	14	-
PN10	115	85	4	M12	14	65	68	3	2	16 (1)	-	18	16
PN16	115	85	4	M12	14	65	68	3	2	16 (1)	8 (2)	18	16
PN25	115	85	4	M12	14	65	68	3	2	18 (1)	9 (2)	18	16
PN40	115	85	4	M12	14	65	68	3	2	-	11 (2)	18	18
PN64	140	100	4	M16	18	-	68	-	2	-	-	24	-
PN100	140	100	4	M16	18	-	68	-	2	-	-	24	-

ANSI

Class 125/150	4 <sup>1</sup> / <sub>4</sub> (114)	3 <sup>1</sup> / <sub>8</sub> (79)	4	1/2 (13)	5/8 (16)	-	2 (51)	-	1/16 (2)	7/16 (11)	3/8 (10)	7/16 (11)	9/10 (14)
Class 300	4 <sup>7</sup> / <sub>8</sub> (124)	3 <sup>1</sup> / <sub>2</sub> (89)	4	5/8 (16)	3/4 (19)	-	2 (51)	-	1/16 (2)	-	1 <sup>9</sup> / <sub>32</sub> (15)	1 <sup>11</sup> / <sub>16</sub> (17)	-
Class 600	4 <sup>7</sup> / <sub>8</sub> (124)	3 <sup>1</sup> / <sub>2</sub> (89)	4	5/8 (16)	3/4 (19)	-	2 (51)	-	1/4 (6)	-	-	1 <sup>11</sup> / <sub>16</sub> (17)	-
Class 900	5 <sup>7</sup> / <sub>8</sub> (149)	4 (102)	4	7/8 (22)	1 (25)	-	2 (51)	-	1/4 (6)	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	-
Class 1500	5 <sup>7</sup> / <sub>8</sub> (149)	4 (102)	4	7/8 (22)	1 (25)	-	2 (51)	-	1/4 (6)	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	-

BS 10

Table A	4 <sup>1</sup> / <sub>2</sub> (114)	3 <sup>1</sup> / <sub>4</sub> (83)	4	1/2 (13)	9/16 (14)	-	-	-	-	1/2 (13)	5/16 (8)	-	-
Table D	4 <sup>1</sup> / <sub>2</sub> (114)	3 <sup>1</sup> / <sub>4</sub> (83)	4	1/2 (13)	9/16 (14)	-	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table E	4 <sup>1</sup> / <sub>2</sub> (114)	3 <sup>1</sup> / <sub>4</sub> (83)	4	1/2 (13)	9/16 (14)	-	-	-	-	1/2 (13)	5/16 (8)	3/8 (10)	-
Table F	4 <sup>3</sup> / <sub>4</sub> (121)	3 <sup>7</sup> / <sub>16</sub> (87)	4	5/8 (16)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	1/2 (13)	3/8 (10)	3/8 (10)	-
Table H	4 <sup>3</sup> / <sub>4</sub> (121)	3 <sup>7</sup> / <sub>16</sub> (87)	4	5/8 (16)	1 <sup>1</sup> / <sub>16</sub> (17)	-	2 <sup>1</sup> / <sub>2</sub> (64)	-	1/16 (2)	3/4 (19)	7/16 (11)	9/16 (14)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 32mm (1 1/4")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	120	90	4	M12	14	14	69	70	3	2	16 (1)	-	14	-
PN10	140	100	4	M16	19	18	76	78	3	2	18 (1)	-	18	18
PN16	140	100	4	M16	19	18	76	78	3	2	18 (1)	8 (2)	18	18
PN25	140	100	4	M16	19	18	76	78	3	2	20 (1)	9 (2)	18	18
PN40	140	100	4	M16	19	18	76	78	3	2	-	11 (2)	18	20
PN64	155	110	4	M20	-	22	-	78	-	2	-	-	26	-
PN100	155	110	4	M20	-	22	-	78	-	2	-	-	26	-

ANSI

Class 125/150	4 3/8 (117)	3 1/2 (89)	4	1/2 (13)	5/8 (16)	5/8 (16)	-	2 1/2 (64)	-	1/16 (2)	1/2 (13)	1 3/32 (10)	1/2 (13)	5/8 (16)
Class 300	5 1/4 (133)	3 7/8 (98)	4	5/8 (16)	-	3/4 (19)	-	2 1/2 (64)	-	1/16 (2)	-	5/8 (16)	3/4 (19)	-
Class 600	5 1/4 (133)	3 7/8 (98)	4	5/8 (16)	-	3/4 (19)	-	2 1/2 (64)	-	1/4 (6)	-	-	1 3/16 (21)	-
Class 900	6 1/4 (159)	4 3/8 (111)	4	7/8 (22)	-	1 (25)	-	2 1/2 (64)	-	1/4 (6)	-	-	1 1/8 (29)	-
Class 1500	6 1/4 (159)	4 3/8 (111)	4	7/8 (22)	-	1 (25)	-	2 1/2 (64)	-	1/4 (6)	-	-	1 1/8 (29)	-

BS 10

Table A	4 3/4 (121)	3 7/16 (87)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	5/16 (8)	-	-
Table D	4 3/4 (121)	3 7/16 (87)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	5/16 (8)	1/2 (13)	-
Table E	4 3/4 (121)	3 7/16 (87)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	5/16 (8)	1/2 (13)	-
Table F	5 1/4 (133)	3 7/8 (98)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	5/8 (16)	3/8 (10)	1/2 (13)	-
Table H	5 1/4 (133)	3 7/8 (98)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	3 (76)	-	1/16 (2)	7/8 (22)	7/16 (11)	1 1/16 (17)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 40mm (1 1/2")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	130	100	4	M12	14	14	78	80	3	2	16 (1)	-	14	-
PN10	150	110	4	M16	19	18	84	88	3	2	18 (1)	-	18	19
PN16	150	110	4	M16	19	18	84	88	3	2	18 (1)	9 (2)	18	19
PN25	150	110	4	M16	19	18	84	88	3	2	20 (1)	11 (2)	18	19
PN40	150	110	4	M16	19	18	84	88	3	2	-	13 (2)	18	19
PN64	170	125	4	M20	-	22	-	88	-	2	-	-	28	-
PN100	170	125	4	M20	-	22	-	88	-	2	-	-	28	-

ANSI

Class 125/150	5 (127)	3 7/8 (98)	4	1/2 (13)	5/8 (16)	5/8 (16)	-	2 7/8 (73)	-	1/16 (2)	9/16 (14)	7/16 (11)	9/16 (14)	1 1/16 (17)
Class 300	6 1/8 (156)	4 1/2 (114)	4	3/4 (19)	-	7/8 (22)	-	2 7/8 (73)	-	1/16 (2)	-	1 1/16 (17)	1 3/16 (21)	-
Class 600	6 1/8 (156)	4 1/2 (114)	4	3/4 (19)	-	7/8 (22)	-	2 7/8 (73)	-	1/4 (6)	-	-	7/8 (22)	-
Class 900	7 (178)	4 7/8 (124)	4	1 (25)	-	1 1/8 (29)	-	2 7/8 (73)	-	1/4 (6)	-	-	1 1/4 (32)	-
Class 1500	7 (178)	4 7/8 (124)	4	1 (25)	-	1 1/8 (29)	-	2 7/8 (73)	-	1/4 (6)	-	-	1 1/4 (32)	-

BS 10

Table A	5 1/4 (133)	3 7/8 (98)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	3/8 (10)	-	-
Table D	5 1/4 (133)	3 7/8 (98)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	3/8 (10)	1/2 (13)	-
Table E	5 1/4 (133)	3 7/8 (98)	4	1/2 (13)	9/16 (14)	9/16 (14)	-	-	-	-	5/8 (16)	3/8 (10)	1/2 (13)	-
Table F	5 1/2 (140)	4 1/8 (105)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	5/8 (16)	7/16 (11)	1/2 (13)	-
Table H	5 1/2 (140)	4 1/8 (105)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	3 1/4 (83)	-	1/16 (2)	7/8 (22)	1/2 (13)	1 1/16 (17)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 50mm (2")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	140	110	4	M12	14	14	88	90	3	2	16 (1)	-	14	-
PN10	165	125	4	M16	19	18	99	102	3	2	20 (1)	-	18	19
PN16	165	125	4	M16	19	18	99	102	3	2	20 (1)	11 (2)	18	19
PN25	165	125	4	M16	19	18	99	102	3	2	22 (1)	11 (2)	20	19
PN40	165	125	4	M16	19	18	99	102	3	2	-	13 (2)	20	19
PN64	180	135	4	M20	-	22	-	102	-	2	-	-	26	-
PN100	195	145	4	M24	-	26	-	102	-	2	-	-	30	-

ANSI

Class 125/150	6 (152)	4 <sup>3/4</sup> (121)	4	5/8 (16)	3/4 (19)	3/4 (19)	-	3 <sup>5/8</sup> (92)	-	1/16 (2)	5/8 (16)	1/2 (13)	5/8 (16)	-
Class 300	6 1/2 (165)	5 (127)	8	5/8 (16)	-	3/4 (19)	-	3 <sup>5/8</sup> (92)	-	1/16 (2)	-	3/4 (19)	7/8 (22)	-
Class 600	6 1/2 (165)	5 (127)	8	5/8 (16)	-	3/4 (19)	-	3 <sup>5/8</sup> (92)	-	1/4 (6)	-	- 1	(25)	-
Class 900	8 1/2 (216)	6 1/2 (165)	8	7/8 (22)	-	1 (25)	-	3 <sup>5/8</sup> (92)	-	1/4 (6)	-	- 1	1/2 (38)	-
Class 1500	8 1/2 (216)	6 1/2 (165)	8	7/8 (22)	-	1 (25)	-	3 <sup>5/8</sup> (92)	-	1/4 (6)	-	- 1	1/2 (38)	-

BS 10

Table A	6 (152)	4 1/2 (114)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	5/8 (16)	3/8 (10)	-	-
Table D	6 (152)	4 1/2 (114)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	1 1/16 (17)	3/8 (10)	9/16 (14)	-
Table E	6 (152)	4 1/2 (114)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	3/8 (10)	9/16 (14)	-
Table F	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	7/16 (11)	5/8 (16)	-
Table H	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	4 (102)	-	1/16 (2)	1 (25)	1/2 (13)	3/4 (19)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 65mm (2 1/2")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	160	130	4	M12	14	14	108	110	2	3	16 (1)	-	14	-
PN10	185	145	4 (2)	M16	19	18	118	122	2	3	20 (1)	-	18	19
PN16	185	145	4 (2)	M16	19	18	118	122	2	3	20 (1)	13	18	19
PN25	185	145	8	M16	19	18	118	122	2	3	24 (1)	13	22	19
PN40	185	145	8	M16	19	18	118	122	2	3	-	14	22	19
PN64	205	160	8	M20	-	22	-	122	2	-	-	-	26	-
PN100	220	170	8	M24	-	26	-	122	2	-	-	-	34	-

ANSI

Class 125/150	7 (178)	5 1/2 (140)	4	5/8 (16)	3/4 (19)	3/4 (19)	-	4 1/8 (105)	-	1/16 (2)	1 1/16 (17)	9/16 (14)	1 1/16 (17)	-
Class 300	7 1/2 (191)	5 7/8 (149)	8	3/4 (19)	-	7/8 (22)	-	4 1/8 (105)	-	1/16 (2)	-	1 3/16 (21)	1 (25)	-
Class 600	7 1/2 (191)	5 7/8 (149)	8	3/4 (19)	-	7/8 (22)	-	4 1/8 (105)	-	1/4 (6)	-	-	1 1/8 (29)	-
Class 900	9 5/8 (244)	7 1/2 (191)	8	1 (25)	-	1 1/8 (29)	-	4 1/8 (105)	-	1/4 (6)	-	-	1 5/8 (41)	-
Class 1500	9 5/8 (244)	7 1/2 (191)	8	1 (25)	-	1 1/8 (29)	-	4 1/8 (105)	-	1/4 (6)	-	-	1 5/8 (41)	-

BS 10

Table A	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	1 1/16 (17)	7/16 (11)	-	-
Table D	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	1 1/16 (17)	7/16 (11)	9/16 (14)	-
Table E	6 1/2 (165)	5 (127)	4	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	7/16 (11)	9/16 (14)	-
Table F	7 1/4 (184)	5 3/4 (146)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	-	-	-	3/4 (19)	1/2 (13)	5/8 (16)	-
Table H	7 1/4 (184)	5 3/4 (146)	8	5/8 (16)	1 1/16 (17)	1 1/16 (17)	-	4 1/2 (114)	-	1/16 (2)	1 (25)	9/16 (14)	3/4 (19)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Steel flanges in this DN and PN may be supplied with 8 holes. For compliance with these, equivalent cast iron flanges may be supplied with 8 holes as special order and after agreement between manufacturer and customer

(3) Flange thicknesses for copper alloy are from BS 4504 (4) Copper alloy flanges are always flat-faced



Nominal Size 80mm (3")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	190	150	4	M16	19	18	124	128	3	2	18 (1)	-	16	-
PN10	200	160	8	M16	19	18	132	138	3	2	22 (1)	-	20	19
PN16	200	160	8	M16	19	18	132	138	3	2	22 (1)	13 (2)	20	19
PN25	200	160	8	M16	19	18	132	138	3	2	26 (1)	14 (2)	24	19
PN40	200	160	8	M16	19	18	132	138	3	2	-	16 (2)	24	19
PN64	215	170	8	M20	-	22	-	138	-	2	-	-	28	-
PN100	230	180	8	M24	-	26	-	138	-	2	-	-	36	-

ANSI

Class 125/150	7 <sup>1</sup> / <sub>2</sub> (191)	6 (152)	4	5 <sup>8</sup> / <sub>16</sub> (16)	3 <sup>4</sup> / <sub>16</sub> (19)	3 <sup>4</sup> / <sub>16</sub> (19)	-	5 (127)	-	1 <sup>1</sup> / <sub>16</sub> (2)	3 <sup>4</sup> / <sub>16</sub> (19)	5 <sup>8</sup> / <sub>16</sub> (16)	3 <sup>4</sup> / <sub>16</sub> (19)	-
Class 300	8 <sup>1</sup> / <sub>4</sub> (210)	6 <sup>5</sup> / <sub>8</sub> (168)	8	3 <sup>4</sup> / <sub>16</sub> (19)	-	7 <sup>8</sup> / <sub>16</sub> (22)	-	5 (127)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	2 <sup>9</sup> / <sub>32</sub> (23)	1 <sup>1</sup> / <sub>8</sub> (29)	-
Class 600	8 <sup>1</sup> / <sub>4</sub> (210)	6 <sup>5</sup> / <sub>8</sub> (168)	8	3 <sup>4</sup> / <sub>16</sub> (19)	-	7 <sup>8</sup> / <sub>16</sub> (22)	-	5 (127)	-	1 <sup>4</sup> / <sub>4</sub> (6)	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	-
Class 900	9 <sup>1</sup> / <sub>2</sub> (241)	7 <sup>1</sup> / <sub>2</sub> (192)	8	7 <sup>8</sup> / <sub>16</sub> (22)	-	1 (25)	-	5 (127)	-	1 <sup>4</sup> / <sub>4</sub> (6)	-	-	1 <sup>1</sup> / <sub>2</sub> (38)	-
Class 1500	10 <sup>1</sup> / <sub>2</sub> (267)	8 (203)	8	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	5 (127)	-	1 <sup>4</sup> / <sub>4</sub> (6)	-	-	1 <sup>7</sup> / <sub>8</sub> (48)	-

BS 10

Table A	7 <sup>1</sup> / <sub>4</sub> (184)	5 <sup>3</sup> / <sub>4</sub> (146)	4	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>2</sup> / <sub>16</sub> (13)	-	-
Table D	7 <sup>1</sup> / <sub>4</sub> (184)	5 <sup>3</sup> / <sub>4</sub> (146)	4	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	3 <sup>4</sup> / <sub>16</sub> (19)	1 <sup>2</sup> / <sub>16</sub> (13)	9 <sup>1</sup> / <sub>16</sub> (14)	-
Table E	7 <sup>1</sup> / <sub>4</sub> (184)	5 <sup>3</sup> / <sub>4</sub> (146)	4	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	3 <sup>4</sup> / <sub>16</sub> (19)	1 <sup>2</sup> / <sub>16</sub> (13)	9 <sup>1</sup> / <sub>16</sub> (14)	-
Table F	8 (203)	6 <sup>1</sup> / <sub>2</sub> (165)	8	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	3 <sup>4</sup> / <sub>16</sub> (19)	9 <sup>1</sup> / <sub>16</sub> (14)	5 <sup>8</sup> / <sub>16</sub> (16)	-
Table H	8 (203)	6 <sup>1</sup> / <sub>2</sub> (165)	8	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	5 (127)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>1</sup> / <sub>8</sub> (29)	5 <sup>8</sup> / <sub>16</sub> (16)	7 <sup>8</sup> / <sub>16</sub> (22)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 100mm (4")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	210	170	4	M16	19	18	144	148	3	2	18 (1)	-	16	-
PN10	220	180	8	M16	19	18	156	158	3	2	24 (1)	-	20	19
PN16	220	180	8	M16	19	18	156	158	3	2	24 (1)	16 (2)	20	19
PN25	235	190	8	M20	23	22	156	162	3	2	28 (1)	17 (2)	24	19
PN40	235	190	8	M20	23	22	156	162	3	2	-	19 (2)	24	19
PN64	250	200	8	M24	-	26	-	162	-	2	-	-	30	-
PN100	265	210	8	M27	-	30	-	162	-	2	-	-	40	-

ANSI

Class 125/150	9 (229)	7 <sup>1</sup> / <sub>2</sub> (191)	8	5 <sup>8</sup> / <sub>16</sub> (16)	3 <sup>4</sup> / <sub>16</sub> (19)	3 <sup>4</sup> / <sub>16</sub> (19)	-	6 <sup>3</sup> / <sub>16</sub> (157)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>5</sup> / <sub>16</sub> (24)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>5</sup> / <sub>16</sub> (24)	-
Class 300	10 (254)	7 <sup>7</sup> / <sub>8</sub> (200)	8	3 <sup>4</sup> / <sub>16</sub> (19)	-	7 <sup>8</sup> / <sub>16</sub> (22)	-	6 <sup>3</sup> / <sub>16</sub> (157)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	1 <sup>1</sup> / <sub>16</sub> (27)	1 <sup>1</sup> / <sub>4</sub> (32)	-
Class 600	10 <sup>3</sup> / <sub>4</sub> (273)	8 <sup>1</sup> / <sub>2</sub> (216)	8	7 <sup>8</sup> / <sub>16</sub> (22)	-	1 (25)	-	6 <sup>3</sup> / <sub>16</sub> (157)	-	1 <sup>4</sup> / <sub>4</sub> (6)	-	-	1 <sup>1</sup> / <sub>2</sub> (38)	-
Class 900	11 <sup>1</sup> / <sub>2</sub> (292)	9 <sup>1</sup> / <sub>4</sub> (235)	8	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	6 <sup>3</sup> / <sub>16</sub> (157)	-	1 <sup>4</sup> / <sub>4</sub> (6)	-	-	1 <sup>3</sup> / <sub>4</sub> (44)	-
Class 1500	12 <sup>1</sup> / <sub>4</sub> (311)	9 <sup>1</sup> / <sub>2</sub> (241)	8	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	6 <sup>3</sup> / <sub>16</sub> (157)	-	1 <sup>4</sup> / <sub>4</sub> (6)	-	-	2 <sup>1</sup> / <sub>8</sub> (54)	-

BS 10

Table A	8 <sup>1</sup> / <sub>2</sub> (216)	7 (178)	4	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	3 <sup>4</sup> / <sub>16</sub> (19)	5 <sup>8</sup> / <sub>16</sub> (16)	-	-
Table D	8 <sup>1</sup> / <sub>2</sub> (216)	7 (178)	4	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	3 <sup>4</sup> / <sub>16</sub> (19)	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	-
Table E	8 <sup>1</sup> / <sub>2</sub> (216)	7 (178)	8	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	7 <sup>8</sup> / <sub>16</sub> (22)	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	-
Table F	9 (229)	7 <sup>1</sup> / <sub>2</sub> (191)	8	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	7 <sup>8</sup> / <sub>16</sub> (22)	1 <sup>1</sup> / <sub>16</sub> (17)	3 <sup>4</sup> / <sub>16</sub> (19)	-
Table H	9 (229)	7 <sup>1</sup> / <sub>2</sub> (191)	8	5 <sup>8</sup> / <sub>16</sub> (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	6 (152)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>1</sup> / <sub>4</sub> (32)	3 <sup>4</sup> / <sub>16</sub> (19)	1 (25)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Flange thicknesses for copper alloy are from BS 4504 (3) Copper alloy flanges are always flat-faced

Nominal Size 125mm (5")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	240	200	8	M16	19	18	174	178	3	2	20 (1)	-	18	-
PN10	250	210	8	M16	19	18	184	188	3	2	26 (1)	-	22	19
PN16	250	210	8	M16	19	18	184	188	3	2	26 (1)	-	22	19
PN25	270	220	8	M24	28	26	184	188	3	2	30 (1)	-	26	19
PN40	270	220	8	M24	28	26	184	188	3	2	-	-	26	23.5
PN64	295	240	8	M27	-	30	-	188	-	2	-	-	34	-
PN100	315	250	8	M30	-	33	-	188	-	2	-	-	40	-

ANSI

Class 125/150	10 (254)	8 <sup>1</sup> / <sub>2</sub> (216)	8	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	7 <sup>5</sup> / <sub>16</sub> (186)	-	1 <sup>1</sup> / <sub>16</sub> (2)	5 <sup>5</sup> / <sub>16</sub> (24)	3 <sup>3</sup> / <sub>4</sub> (19)	5 <sup>5</sup> / <sub>16</sub> (24)	-
Class 300	11 (279)	9 <sup>1</sup> / <sub>4</sub> (235)	8	3 <sup>3</sup> / <sub>4</sub> (19)	-	7 <sup>7</sup> / <sub>8</sub> (22)	-	7 <sup>5</sup> / <sub>16</sub> (186)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>3</sup> / <sub>8</sub> (35)	-
Class 600	13 (330)	10 <sup>1</sup> / <sub>2</sub> (267)	8	1 (25)	-	1 <sup>1</sup> / <sub>8</sub> (29)	-	7 <sup>5</sup> / <sub>16</sub> (186)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	1 <sup>3</sup> / <sub>4</sub> (44)	-
Class 900	13 <sup>3</sup> / <sub>4</sub> (349)	11 (279)	8	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	7 <sup>5</sup> / <sub>16</sub> (186)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	2 (51)	-
Class 1500	14 <sup>3</sup> / <sub>4</sub> (375)	11 <sup>1</sup> / <sub>2</sub> (292)	8	1 <sup>1</sup> / <sub>2</sub> (38)	-	1 <sup>5</sup> / <sub>8</sub> (41)	-	7 <sup>5</sup> / <sub>16</sub> (186)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	2 <sup>7</sup> / <sub>8</sub> (73)	-

BS 10

Table A	10 (254)	8 <sup>1</sup> / <sub>4</sub> (210)	4	5 <sup>5</sup> / <sub>8</sub> (16)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-	-	-	3 <sup>3</sup> / <sub>4</sub> (19)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-
Table D	10 (254)	8 <sup>1</sup> / <sub>4</sub> (210)	8	5 <sup>5</sup> / <sub>8</sub> (16)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-	-	-	13 <sup>13</sup> / <sub>16</sub> (21)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-
Table E	10 (254)	8 <sup>1</sup> / <sub>4</sub> (210)	8	5 <sup>5</sup> / <sub>8</sub> (16)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-	-	-	7 <sup>7</sup> / <sub>8</sub> (22)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-
Table F	11 (279)	9 <sup>1</sup> / <sub>4</sub> (235)	8	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	-	-	-	1 (25)	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	-
Table H	11 (279)	9 <sup>1</sup> / <sub>4</sub> (235)	8	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	7 (178)	-	1 <sup>1</sup> / <sub>16</sub> (2)	13 <sup>13</sup> / <sub>8</sub> (35)	7 <sup>7</sup> / <sub>8</sub> (22)	1 <sup>1</sup> / <sub>8</sub> (29)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

Nominal Size 150mm (6")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	265	225	8	M16	19	18	199	202	3	2	20 (1)	-	18	-
PN10	285	240	8	M20	23	22	211	212	3	2	26 (1)	-	22	19
PN16	285	240	8	M20	23	22	211	212	3	2	26 (1)	-	22	19
PN25	300	250	8	M24	28	26	211	218	3	2	34 (1)	-	28	20
PN40	300	250	8	M24	28	26	211	218	3	2	-	-	28	26
PN64	345	280	8	M30	-	33	-	218	-	2	-	-	36	-
PN100	355	290	12	M30	-	33	-	218	-	2	-	-	44	-

ANSI

Class 125/150	11 (279)	9 <sup>1</sup> / <sub>2</sub> (241)	8	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	8 <sup>1</sup> / <sub>2</sub> (216)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 (25)	13 <sup>13</sup> / <sub>16</sub> (21)	1 (25)	-
Class 300	12 <sup>1</sup> / <sub>2</sub> (318)	10 <sup>5</sup> / <sub>8</sub> (270)	12	3 <sup>3</sup> / <sub>4</sub> (19)	-	7 <sup>7</sup> / <sub>8</sub> (22)	-	8 <sup>1</sup> / <sub>2</sub> (216)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	13 <sup>13</sup> / <sub>16</sub> (30)	17 <sup>17</sup> / <sub>16</sub> (37)	-
Class 600	14 (356)	11 <sup>1</sup> / <sub>2</sub> (292)	12	1 (25)	-	1 <sup>1</sup> / <sub>8</sub> (29)	-	8 <sup>1</sup> / <sub>2</sub> (216)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	17 <sup>17</sup> / <sub>8</sub> (48)	-
Class 900	15 (381)	12 <sup>1</sup> / <sub>2</sub> (318)	12	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	8 <sup>1</sup> / <sub>2</sub> (216)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	23 <sup>23</sup> / <sub>16</sub> (56)	-
Class 1500	15 <sup>1</sup> / <sub>2</sub> (394)	12 <sup>1</sup> / <sub>2</sub> (318)	12	1 <sup>3</sup> / <sub>8</sub> (35)	-	1 <sup>1</sup> / <sub>2</sub> (38)	-	8 <sup>1</sup> / <sub>2</sub> (216)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	31 <sup>31</sup> / <sub>4</sub> (83)	-

BS 10

Table A	11 (279)	9 <sup>1</sup> / <sub>4</sub> (235)	4	5 <sup>5</sup> / <sub>8</sub> (16)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-	-	-	13 <sup>13</sup> / <sub>16</sub> (21)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-
Table D	11 (279)	9 <sup>1</sup> / <sub>4</sub> (235)	8	5 <sup>5</sup> / <sub>8</sub> (16)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-	-	-	-	13 <sup>13</sup> / <sub>16</sub> (21)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-
Table E	11 (279)	9 <sup>1</sup> / <sub>4</sub> (235)	8	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	-	-	-	7 <sup>7</sup> / <sub>8</sub> (22)	11 <sup>11</sup> / <sub>16</sub> (17)	11 <sup>11</sup> / <sub>16</sub> (17)	-
Table F	12 (305)	10 <sup>1</sup> / <sub>4</sub> (260)	12	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	-	-	-	1 (25)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-
Table H	12 (305)	10 <sup>1</sup> / <sub>4</sub> (260)	12	3 <sup>3</sup> / <sub>4</sub> (19)	7 <sup>7</sup> / <sub>8</sub> (22)	7 <sup>7</sup> / <sub>8</sub> (22)	-	8 <sup>1</sup> / <sub>4</sub> (210)	-	1 <sup>1</sup> / <sub>16</sub> (2)	13 <sup>13</sup> / <sub>8</sub> (35)	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

Nominal Size 200mm (8")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	320	280	8	M16	19	18	254	258	3	2	22 (1)	-	20	-
PN10	340	295	8	M20	23	22	266	268	3	2	26 (1)	-	24	20
PN16	340	295	12	M20	23	22	266	268	3	2	30 (1)	-	24	20
PN25	360	310	12	M24	28	26	274	278	3	2	34 (1)	-	30	22
PN40	375	320	12	M27	31	30	284	285	3	2	-	-	34	30
PN64	415	345	12	M33	-	36	-	285	-	2	-	-	42	-
PN100	430	360	12	M33	-	36	-	285	-	2	-	-	52	-

ANSI

Class 125/150	13 <sup>1</sup> / <sub>2</sub> (343)	11 <sup>3</sup> / <sub>4</sub> (298)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	10 <sup>5</sup> / <sub>8</sub> (270)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>5</sup> / <sub>16</sub> (24)	1 <sup>1</sup> / <sub>8</sub> (29)	-
Class 300	15 (381)	13 (330)	12	7/8 (22)	-	1 (25)	-	10 <sup>5</sup> / <sub>8</sub> (270)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>5</sup> / <sub>8</sub> (41)	-
Class 600	16 <sup>1</sup> / <sub>2</sub> (419)	13 <sup>3</sup> / <sub>4</sub> (349)	12	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	10 <sup>5</sup> / <sub>8</sub> (270)	-	1/4 (6)	-	-	2 <sup>3</sup> / <sub>16</sub> (56)	-
Class 900	18 <sup>1</sup> / <sub>2</sub> (470)	15 <sup>1</sup> / <sub>2</sub> (394)	12	1 <sup>3</sup> / <sub>8</sub> (35)	-	1 <sup>1</sup> / <sub>2</sub> (38)	-	10 <sup>5</sup> / <sub>8</sub> (270)	-	1/4 (6)	-	-	2 <sup>1</sup> / <sub>2</sub> (64)	-
Class 1500	19 (438)	15 <sup>1</sup> / <sub>2</sub> (394)	12	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	10 <sup>5</sup> / <sub>8</sub> (270)	-	1/4 (6)	-	-	3 <sup>5</sup> / <sub>8</sub> (92)	-

BS 10

Table A	13 <sup>1</sup> / <sub>4</sub> (337)	11 <sup>1</sup> / <sub>2</sub> (292)	8	5/8 (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	7/8 (22)	3/4 (19)	1/2 (13)	-
Table D	13 <sup>1</sup> / <sub>4</sub> (337)	11 <sup>1</sup> / <sub>2</sub> (292)	8	5/8 (16)	1 <sup>1</sup> / <sub>16</sub> (17)	1 <sup>1</sup> / <sub>16</sub> (17)	-	-	-	-	7/8 (22)	3/4 (19)	3/4 (19)	-
Table E	13 <sup>1</sup> / <sub>4</sub> (337)	11 <sup>1</sup> / <sub>2</sub> (292)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	3/4 (19)	3/4 (19)	-
Table F	14 <sup>1</sup> / <sub>2</sub> (368)	12 <sup>3</sup> / <sub>4</sub> (324)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 (25)	1 (25)	-
Table H	14 <sup>1</sup> / <sub>2</sub> (368)	12 <sup>3</sup> / <sub>4</sub> (324)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	10 <sup>1</sup> / <sub>4</sub> (260)	-	1/16 (2)	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

Nominal Size 250mm (10")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	375	335	12	M16	19	18	309	312	3	2	24 (1)	-	22	-
PN10	395 (2)	350	12	M20	23	22	319	320	3	2	28 (1)	-	26	22
PN16	405 (2)	355	12	M24	28	26	319	320	3	2	32 (1)	-	26	22
PN25	425	370	12	M27	31	30	330	335	3	2	-	-	32	24.5
PN40	450	385	12	M30	34	33	345	345	3	2	-	-	38	34.5
PN64	470	400	12	M33	-	36	-	345	-	2	-	-	46	-
PN100	505	430	12	M36	-	39	-	345	-	2	-	-	60	-

ANSI

Class 125/150	16 (406)	14 <sup>1</sup> / <sub>4</sub> (362)	12	7/8 (22)	1 (25)	1 (25)	-	12 <sup>3</sup> / <sub>4</sub> (324)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>3</sup> / <sub>16</sub> (30)	1 (25)	1 <sup>3</sup> / <sub>16</sub> (30)	-
Class 300	17 <sup>1</sup> / <sub>2</sub> (445)	15 <sup>1</sup> / <sub>4</sub> (387)	16	1 (25)	-	1 <sup>1</sup> / <sub>8</sub> (29)	-	12 <sup>3</sup> / <sub>4</sub> (324)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	1 <sup>7</sup> / <sub>8</sub> (41)	-
Class 600	20 (508)	17 (432)	16	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	12 <sup>3</sup> / <sub>4</sub> (324)	-	1/4 (6)	-	-	2 <sup>1</sup> / <sub>2</sub> (64)	-
Class 900	21 <sup>1</sup> / <sub>2</sub> (546)	18 <sup>1</sup> / <sub>2</sub> (470)	16	1 <sup>3</sup> / <sub>8</sub> (35)	-	1 <sup>1</sup> / <sub>2</sub> (38)	-	12 <sup>3</sup> / <sub>4</sub> (324)	-	1/4 (6)	-	-	2 <sup>3</sup> / <sub>4</sub> (70)	-
Class 1500	23 (584)	19 (483)	12	1 <sup>7</sup> / <sub>8</sub> (41)	-	2 (51)	-	12 <sup>3</sup> / <sub>4</sub> (324)	-	1/4 (6)	-	-	4 <sup>1</sup> / <sub>4</sub> (108)	-

BS 10

Table A	16 (406)	14 (356)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 <sup>5</sup> / <sub>16</sub> (24)	3/4 (19)	-	-
Table D	16 (406)	14 (356)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	3/4 (19)	3/4 (19)	-
Table E	16 (406)	14 (356)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	7/8 (22)	7/8 (22)	-
Table F	17 (432)	15 (381)	12	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 (25)	1 (25)	-
Table H	17 (432)	15 (381)	12	7/8 (22)	1 (25)	1 (25)	-	12 <sup>1</sup> / <sub>4</sub> (311)	-	1/16 (2)	1 <sup>5</sup> / <sub>8</sub> (41)	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) For ductile iron pipes and fittings the outside diameters shall be: for PN10, D = 400mm, for PN16, D = 400mm

(3) Copper alloy flanges are always flat-faced

Nominal Size 300mm (12")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	440	395	12	M20	23	22	363	365	4	2	24 (1)	-	22	-
PN10	445 (2)	400	12	M20	23	22	370	370	4	2	28 (1)	-	26	24.5
PN16	460 (2)	410	12	M24	28	26	370	378	4	2	32 (1)	-	28	24.5
PN25	485	430	16	M27	31	30	389	395	4	2	40 (1)	-	34	27.5
PN40	515	450	16	M30	34	33	409	410	4	2	-	-	42	39.5
PN64	530	460	16	M33	-	36	-	410	-	2	-	-	52	-
PN100	585	500	16	M39	-	42	-	410	-	2	-	-	68	-

ANSI

Class 125/150	19 (483)	17 (432)	12	7/8 (22)	1 (25)	1 (25)	-	15 (381)	-	1/16 (2)	1 1/4 (32)	1 1/16 (27)	1 1/4 (32)	-
Class 300	20 1/2 (521)	17 3/4 (451)	16	1 1/8 (29)	-	1 1/4 (32)	-	15 (381)	-	1/16 (2)	-	-	2 (51)	-
Class 600	22 (559)	19 1/4 (489)	20	1 1/4 (32)	-	1 3/8 (35)	-	15 (381)	-	1/4 (6)	-	-	2 5/8 (67)	-
Class 900	24 (610)	21 (533)	20	1 3/8 (35)	-	1 1/2 (38)	-	15 (381)	-	1/4 (6)	-	-	3 1/8 (80)	-
Class 1500	26 1/2 (673)	22 1/2 (571)	16	2 (51)	-	2 1/8 (54)	-	15 (381)	-	1/4 (6)	-	-	4 7/8 (124)	-

BS 10

Table A	18 (457)	16 (406)	8	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	15/16 (24)	7/8 (22)	-	-
Table D	18 (457)	16 (406)	12	3/4 (19)	7/8 (22)	7/8 (22)	-	-	-	-	1 (25)	7/8 (22)	7/8 (22)	-
Table E	18 (457)	16 (406)	12	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/8 (29)	1 (25)	1 (25)	-
Table F	19 1/4 (489)	17 1/4 (438)	16	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/4 (32)	1 1/8 (29)	1 1/8 (29)	-
Table H	19 1/4 (489)	17 1/4 (438)	16	7/8 (22)	1 (25)	1 (25)	-	14 1/4 (362)	-	1/16 (2)	1 3/4 (44)	1 1/2 (38)	1 1/2 (38)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) For ductile iron pipes and fittings the outside diameter shall be: for PN10, D = 455mm; for PN16, D = 455mm

(3) Copper alloy flanges are always flat-faced

Nominal Size 350mm (14")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	490	445	12	M20	23	22	413	415	4	2	26 (1)	-	22	-
PN10	505	460	16	M20	23	22	429	430	4	2	30 (1)	-	26	24.5
PN16	520	470	16	M24	28	26	429	438	4	2	36 (1)	-	30	26.5
PN25	555	490	16	M30	34	33	448	450	4	2	44 (1)	-	38	30
PN40	580	510	16	M33	37	36	465	465	4	2	-	-	46	44
PN64	600	525	16	M36	-	39	-	465	-	2	-	-	56	-
PN100	655	560	16	M45	-	48	-	465	-	2	-	-	74	-

ANSI

Class 125/150	21 (533)	18 3/4 (476)	12	1 (25)	1 1/8 (29)	1 1/8 (29)	-	16 1/4 (413)	-	1/16 (2)	1 3/8 (35)	-	1 3/8 (35)	-
Class 300	23 (584)	20 1/4 (514)	20	1 1/8 (29)	-	1 1/4 (32)	-	16 1/4 (413)	-	1/16 (2)	-	-	2 1/8 (54)	-
Class 600	23 3/4 (603)	20 3/4 (527)	20	1 3/8 (35)	-	1 1/2 (38)	-	16 1/4 (413)	-	1/4 (6)	-	-	2 3/4 (70)	-
Class 900	25 1/4 (641)	22 (559)	20	1 1/2 (38)	-	1 5/8 (41)	-	16 1/4 (413)	-	1/4 (6)	-	-	3 3/8 (86)	-
Class 1500	29 1/2 (749)	25 (635)	16	2 1/4 (57)	-	2 3/8 (60)	-	16 1/4 (413)	-	1/4 (6)	-	-	5 1/4 (133)	-

BS 10

Table A	20 3/4 (527)	18 1/2 (470)	8	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 (25)	1 (25)	-	-
Table D	20 3/4 (527)	18 1/2 (470)	12	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/8 (29)	1 (25)	1 (25)	-
Table E	20 3/4 (527)	18 1/2 (470)	12	7/8 (22)	1 (25)	1 (25)	-	-	-	-	1 1/4 (32)	1 (25)	1 (25)	-
Table F	21 3/4 (552)	19 1/2 (495)	16	1 (25)	1 1/8 (29)	1 1/8 (29)	-	-	-	-	1 3/8 (35)	1 1/4 (32)	1 1/4 (32)	-
Table H	21 3/4 (552)	19 1/2 (495)	16	1 (25)	1 1/8 (29)	1 1/8 (29)	-	16 1/2 (419)	-	1/16 (2)	1 7/8 (48)	1 5/8 (41)	1 5/8 (41)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

Nominal Size 400mm (16")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	540	495	16	M20	23	22	463	465	4	2	28 (1)	-	22	-
PN10	565	515	16	M24	28	26	480	482	4	2	32 (1)	-	26	24.5
PN16	580	525	16	M27	31	30	480	490	4	2	38 (1)	-	32	28
PN25	620	550	16	M33	37	36	503	505	4	2	48 (1)	-	40	32
PN40	660	585	16	M36	41	39	535	535	4	2	-	-	50	48
PN64	670	585	16	M39	-	42	-	535	-	2	-	-	60	-
PN100	715	620	16	M45	-	48	-	535	-	2	-	-	78	-

ANSI

Class 125/150	23 <sup>1</sup> / <sub>2</sub> (597)	21 <sup>1</sup> / <sub>4</sub> (540)	16	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>16</sub> (2)	17 <sup>1</sup> / <sub>16</sub> (37)	-	17 <sup>1</sup> / <sub>16</sub> (37)	-
Class 300	25 <sup>1</sup> / <sub>2</sub> (648)	22 <sup>1</sup> / <sub>2</sub> (572)	20	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>1</sup> / <sub>4</sub> (57)	-
Class 600	27 (686)	23 <sup>3</sup> / <sub>4</sub> (603)	20	1 <sup>1</sup> / <sub>2</sub> (38)	-	1 <sup>5</sup> / <sub>8</sub> (41)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>4</sup> / <sub>16</sub> (6)	-	-	3 (76)	-
Class 900	27 <sup>3</sup> / <sub>4</sub> (705)	24 <sup>1</sup> / <sub>4</sub> (616)	20	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>4</sup> / <sub>16</sub> (6)	-	-	3 <sup>1</sup> / <sub>2</sub> (89)	-
Class 1500	32 <sup>1</sup> / <sub>2</sub> (826)	27 <sup>3</sup> / <sub>4</sub> (705)	16	2 <sup>1</sup> / <sub>2</sub> (64)	-	2 <sup>5</sup> / <sub>8</sub> (67)	-	18 <sup>1</sup> / <sub>2</sub> (470)	-	1 <sup>4</sup> / <sub>16</sub> (6)	-	-	5 <sup>3</sup> / <sub>4</sub> (146)	-

BS 10

Table A	22 <sup>3</sup> / <sub>4</sub> (578)	20 <sup>1</sup> / <sub>2</sub> (521)	12	7 <sup>7</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>16</sub> (27)	1 (25)	-	-
Table D	22 <sup>3</sup> / <sub>4</sub> (578)	20 <sup>1</sup> / <sub>2</sub> (521)	12	7 <sup>7</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 (25)	1 (25)	-
Table E	22 <sup>3</sup> / <sub>4</sub> (578)	20 <sup>1</sup> / <sub>2</sub> (521)	12	7 <sup>7</sup> / <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 (25)	1 (25)	-
Table F	24 (610)	21 <sup>3</sup> / <sub>4</sub> (552)	20	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-	-	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-
Table H	24 (610)	21 <sup>3</sup> / <sub>4</sub> (552)	20	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	19 (483)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 (51)	1 <sup>3</sup> / <sub>4</sub> (44)	1 <sup>3</sup> / <sub>4</sub> (44)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

Nominal Size 450mm (18")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	595	550	16	M20	23	22	518	520	4	2	28 (1)	-	22	-
PN10	615	565	20	M24	28	26	530	532	4	2	32 (1)	-	28	25.5
PN16	640	585	20	M27	31	30	548	550	4	2	40 (1)	-	40	30
PN25	670	600	20	M33	37	36	548	555	4	2	50 (1)	-	46	34.5
PN40	685	610	20	M36	41	39	560	560	4	2	-	-	57	49
PN64	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PN100	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ANSI

Class 125/150	25 (635)	22 <sup>3</sup> / <sub>4</sub> (578)	16	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	21 (533)	-	1 <sup>1</sup> / <sub>16</sub> (2)	19 <sup>1</sup> / <sub>16</sub> (40)	-	19 <sup>1</sup> / <sub>16</sub> (40)	-
Class 300	28 (711)	24 <sup>3</sup> / <sub>4</sub> (629)	24	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	21 (533)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>3</sup> / <sub>8</sub> (60)	-
Class 600	29 <sup>1</sup> / <sub>4</sub> (743)	25 <sup>5</sup> / <sub>4</sub> (654)	20	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	21 (533)	-	1 <sup>4</sup> / <sub>16</sub> (6)	-	-	3 <sup>1</sup> / <sub>4</sub> (83)	-
Class 900	31 (787)	27 (686)	20	1 <sup>7</sup> / <sub>8</sub> (48)	-	2 (51)	-	21 (533)	-	1 <sup>4</sup> / <sub>16</sub> (6)	-	-	4 (102)	-
Class 1500	36 (914)	30 <sup>1</sup> / <sub>2</sub> (775)	16	2 <sup>3</sup> / <sub>4</sub> (70)	-	2 <sup>7</sup> / <sub>8</sub> (73)	-	21 (533)	-	1 <sup>4</sup> / <sub>16</sub> (6)	-	-	6 <sup>3</sup> / <sub>8</sub> (162)	-

BS 10

Table A	25 <sup>1</sup> / <sub>4</sub> (641)	23 (584)	12	7 <sup>7</sup> / <sub>8</sub> (22)	-	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>16</sub> (27)	1 <sup>1</sup> / <sub>16</sub> (27)	-	-
Table D	25 <sup>1</sup> / <sub>4</sub> (641)	23 (584)	12	7 <sup>7</sup> / <sub>8</sub> (22)	-	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-
Table E	25 <sup>1</sup> / <sub>4</sub> (641)	23 (584)	16	7 <sup>7</sup> / <sub>8</sub> (22)	-	1 (25)	-	-	-	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-
Table F	26 <sup>1</sup> / <sub>2</sub> (673)	24 (610)	20	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	-	-	-	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	-
Table H	26 <sup>1</sup> / <sub>2</sub> (673)	24 (610)	20	1 <sup>1</sup> / <sub>8</sub> (29)	-	1 <sup>1</sup> / <sub>4</sub> (32)	-	21 (533)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 <sup>1</sup> / <sub>8</sub> (54)	1 <sup>7</sup> / <sub>8</sub> (48)	1 <sup>7</sup> / <sub>8</sub> (48)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) Copper alloy flanges are always flat-faced

Nominal Size 500mm (20")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	645	600	20	M20	23	22	568	570	4	2	30 (1)	-	24 (2)	-
PN10	670	620	20	M24	28	26	582	585	4	2	34 (1)	-	28 (2)	26.5
PN16	715	650	20	M30	34	33	609	610	4	2	42 (1)	-	44 (2)	31.5
PN25	730	660	20	M33	37	36	609	615	4	2	52 (1)	-	48 (2)	36.5
PN40	755	670	20	M39	44	42	615	615	4	2	-	-	57 (2)	52
PN64	800	705	20	M45	-	48	-	615	-	2	-	-	68 (2)	-
PN100	870	760	20	M52	-	56	-	615	-	2	-	-	94 (2)	-

ANSI

Class 125/150	27 <sup>1</sup> / <sub>2</sub> (699)	25 (635)	20	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	23 (584)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>11</sup> / <sub>16</sub> (43)	-	1 <sup>11</sup> / <sub>16</sub> (43)	-
Class 300	30 <sup>1</sup> / <sub>2</sub> (775)	27 (686)	24	1 <sup>1</sup> / <sub>4</sub> (32)	-	1 <sup>3</sup> / <sub>8</sub> (35)	-	23 (584)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>1</sup> / <sub>2</sub> (64)	-
Class 600	32 (813)	28 <sup>1</sup> / <sub>2</sub> (724)	24	1 <sup>5</sup> / <sub>8</sub> (41)	-	1 <sup>3</sup> / <sub>4</sub> (44)	-	23 (584)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	3 <sup>1</sup> / <sub>2</sub> (89)	-
Class 900	33 <sup>3</sup> / <sub>4</sub> (857)	29 <sup>1</sup> / <sub>2</sub> (749)	20	2 (51)	-	2 <sup>1</sup> / <sub>8</sub> (54)	-	23 (584)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	4 <sup>1</sup> / <sub>4</sub> (108)	-
Class 1500	38 <sup>3</sup> / <sub>4</sub> (984)	32 <sup>3</sup> / <sub>4</sub> (832)	16	3 (76)	-	3 <sup>1</sup> / <sub>8</sub> (79)	-	23 (584)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	7 (178)	-

BS 10

Table A	27 <sup>3</sup> / <sub>4</sub> (705)	25 <sup>1</sup> / <sub>4</sub> (641)	12	7 <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-
Table D	27 <sup>3</sup> / <sub>4</sub> (705)	25 <sup>1</sup> / <sub>4</sub> (641)	16	7 <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	-
Table E	27 <sup>3</sup> / <sub>4</sub> (705)	25 <sup>1</sup> / <sub>4</sub> (641)	16	7 <sub>8</sub> (22)	1 (25)	1 (25)	-	-	-	-	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-
Table F	29 (737)	26 <sup>1</sup> / <sub>2</sub> (673)	24	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	-	-	-	1 <sup>5</sup> / <sub>8</sub> (41)	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>1</sup> / <sub>2</sub> (38)	-
Table H	29 (737)	26 <sup>1</sup> / <sub>2</sub> (673)	24	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	23 <sup>1</sup> / <sub>2</sub> (597)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 <sup>1</sup> / <sub>4</sub> (67)	2 (51)	2 (51)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) These flange thicknesses are changed substantially as a result of the flange calculation method used in BS EN 1092-1

(3) Copper alloy flanges are always flat-faced

Nominal Size 600mm (24")

BS EN 1092	Dia. of flange	Bolt circle diameter	No. of bolts	Dia. of bolts	Dia. of holes Iron	Dia. of holes Steel	Dia. of raised face(3) Iron	Dia. of raised face(3) Steel	Height of raised face(3) Iron	Height of raised face(3) Steel	Thickness of flange			
											Grey Cast Iron	Copper Alloy	Cast and Forged Steel	Ductile Cast Iron
PN6	755	705	20	M24	28	26	667	670	5	2	30 (1)	-	30	-
PN10	780	725	20	M27	31	30	682	685	5	2	36 (1)	-	34	30
PN16	840	770	20	M33	37	36	720	725	5	2	48 (1)	-	54	36
PN25	845	770	20	M36	41	39	720	720	5	2	-	-	58	42
PN40	890	795	20	M45	50	48	735	735	5	2	-	-	72	58
PN64	930	820	20	M52	-	56	-	735	-	2	-	-	76	-

ANSI

Class 125/150	32 (813)	29 <sup>1</sup> / <sub>2</sub> (749)	20	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	-	27 <sup>1</sup> / <sub>4</sub> (692)	-	1 <sup>1</sup> / <sub>16</sub> (2)	1 <sup>7</sup> / <sub>8</sub> (48)	-	1 <sup>7</sup> / <sub>8</sub> (48)	-
Class 300	36 (914)	32 (813)	24	1 <sup>1</sup> / <sub>2</sub> (38)	-	1 <sup>5</sup> / <sub>8</sub> (41)	-	27 <sup>1</sup> / <sub>4</sub> (692)	-	1 <sup>1</sup> / <sub>16</sub> (2)	-	-	2 <sup>3</sup> / <sub>4</sub> (70)	-
Class 600	37 (940)	33 (838)	24	1 <sup>7</sup> / <sub>8</sub> (48)	-	2 (51)	-	27 <sup>1</sup> / <sub>4</sub> (692)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	4 (102)	-
Class 900	41 (1041)	35 <sup>1</sup> / <sub>2</sub> (902)	20	2 <sup>1</sup> / <sub>2</sub> (64)	-	2 <sup>5</sup> / <sub>8</sub> (67)	-	27 <sup>1</sup> / <sub>4</sub> (692)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	5 <sup>1</sup> / <sub>2</sub> (140)	-
Class 1500	46 (1168)	39 (991)	16	3 <sup>1</sup> / <sub>2</sub> (89)	-	3 <sup>5</sup> / <sub>8</sub> (92)	-	27 <sup>1</sup> / <sub>4</sub> (692)	-	1 <sup>1</sup> / <sub>4</sub> (6)	-	-	8 (203)	-

BS 10

Table A	32 <sup>1</sup> / <sub>2</sub> (826)	29 <sup>3</sup> / <sub>4</sub> (756)	12	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-	-	-	1 <sup>3</sup> / <sub>16</sub> (30)	1 <sup>3</sup> / <sub>16</sub> (30)	-	-
Table D	32 <sup>1</sup> / <sub>2</sub> (826)	29 <sup>3</sup> / <sub>4</sub> (756)	16	1 (25)	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>8</sub> (29)	-	-	-	-	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	-
Table E	32 <sup>1</sup> / <sub>2</sub> (826)	29 <sup>3</sup> / <sub>4</sub> (756)	16	1 <sup>1</sup> / <sub>8</sub> (29)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	-	-	-	-	1 <sup>5</sup> / <sub>8</sub> (41)	1 <sup>1</sup> / <sub>2</sub> (38)	1 <sup>1</sup> / <sub>2</sub> (38)	-
Table F	33 <sup>1</sup> / <sub>2</sub> (851)	30 <sup>3</sup> / <sub>4</sub> (781)	24	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>3</sup> / <sub>8</sub> (35)	-	-	-	-	1 <sup>3</sup> / <sub>4</sub> (44)	1 <sup>5</sup> / <sub>8</sub> (41)	1 <sup>5</sup> / <sub>8</sub> (41)	-
Table H	33 <sup>1</sup> / <sub>2</sub> (851)	30 <sup>3</sup> / <sub>4</sub> (781)	24	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>3</sup> / <sub>8</sub> (35)	1 <sup>3</sup> / <sub>8</sub> (35)	-	27 <sup>1</sup> / <sub>2</sub> (699)	-	1 <sup>1</sup> / <sub>16</sub> (2)	2 <sup>1</sup> / <sub>2</sub> (64)	2 <sup>1</sup> / <sub>4</sub> (57)	2 <sup>1</sup> / <sub>4</sub> (57)	-

(1) These flange thicknesses are also valid for ductile iron flanges type 21-2

(2) These flange thicknesses are changed substantially as a result of the flange calculation method used in BS EN 1092-1

(3) Copper alloy flanges are always flat-faced

## QUALITY ASSURANCE

### ISO9001:2008 Accreditation



Crane BS&U holds ISO9001:2008 Accreditation. The Quality Management System is audited regularly by BSI to confirm compliance with the ISO9001:2008 standard.

### BSI Kitemark



A number of the Crane BS&U products hold the BSI Kitemark. This is a quality standard that confirms that the products comply with the appropriate British or European standards. More recently 'Kitemarks' have been introduced to cover products made in accordance with the National Grid Gas Industry Standards (GIS).



### Water Regulations Advisory Scheme (WRAS)

Many of the Crane BS&U products have been approved by WRAS. These products are approved by the Water Industry as complying with the requirements of the Water Fittings Regulations in England, Wales and Northern Ireland, and the Water Byelaws 2004 in Scotland.

### Pressure Equipment Directive

Crane BS&U Products have been assessed against the requirements of the European Pressure Equipment Directive (97/23/EC). Where products fall under the scope of the Pressure Equipment Directive then they will have the CE mark appended.

**Figure Number Page**

**BROWNALL**

1688 Three-way Univent .....66  
 1988 Three-way Vent Cocks .....67  
 AAE - Standard Pressure .....63  
 AAE - High Pressure .....64  
 AAE - Medium Pressure .....64  
 Service Kits.....65

**CRANE FLUID SYSTEMS**

D15 .....40  
 33XU-F.....37  
 47XU-F.....36  
 F58.....39  
 FM63.....38  
 D142 .....32  
 143XU .....42  
 147XU .....34  
 151XU .....43  
 159XU .....35  
 FM278.....45  
 D297 .....44  
 FM369.....41  
 FM455.....33  
 F614.....30  
 F615.....31  
 F624.....30  
 F625.....31  
 F628.....30  
 F629.....31

**HATTERSLEY**

5.....16  
 48.....13  
 170M.....18  
 171M.....18  
 200M.....19  
 201M.....19  
 200R .....20  
 201R .....20  
 200L/T.....21  
 201T.....21  
 201TG.....21  
 221T.....21  
 401M.....22

**Figure Number Page**

731.....17  
 807.....27  
 811.....28  
 850.....14  
 907.....27  
 911.....28  
 970.....10  
 971.....11  
 971G.....11  
 980ANSI .....12

**NABIC**

175.....59  
 255.....56  
 256A .....57  
 256B .....57  
 500.....52  
 500L.....53  
 500SS.....54  
 500T.....51  
 503.....58  
 520.....55  
 542.....49  
 542L.....50  
 568.....60  
 568SS.....60

**POSIFLEX**

A15-90 .....98  
 1010.....86  
 1015.....88  
 1015T.....88  
 1020.....86  
 1030.....86  
 1080.....106  
 1081.....104  
 1082.....104  
 1083.....104  
 1086.....106  
 1087.....106  
 1091.....106  
 1092.....107  
 1093.....108  
 1094.....109



Figure Number	Page
1095.....	110
1097.....	107
1098.....	111
1100LW.....	96
1101.....	90
1101CR.....	94
1101ER.....	94
1101LW.....	96
1102.....	90
1103.....	90
1104.....	90
1200.....	92
1202.....	92
1203.....	92
1204.....	92
4100.....	114
4200.....	116
Control Units .....	100
EPS.....	112
LPS.....	112
PVS.....	113
PTFE Single, Double, Treble, Quadruple & 5 Arch .....	118
TSS.....	112

**SPERRYN**

G1000.....	156
------------	-----

**RHODES**

233.....	72
234.....	72
400.....	73
400B .....	73
408.....	74
901.....	75
902.....	75
903.....	76
904.....	76
913.....	77
914.....	78
923.....	79
924.....	80
933.....	81
934.....	82

Figure Number	Page
---------------	------

**VIKING JOHNSON**

Shouldered Joints .....	146
SM48 .....	146
SF60 .....	147
SF76 .....	147
SF89 .....	147
SF114 .....	147
SF168 .....	147
SR219.....	148
SR273.....	148
SR324.....	148
SR406.....	148
SR419.....	149
SR457.....	149
SR470.....	149
SR508.....	149
SR521.....	149
SR559.....	149
SR571.....	149
SR610.....	149
SR622.....	149
SR724.....	149
SR775.....	149
Carlton Joints .....	150
Dismantling Joints.....	120
Large Diameter.....	130
QuickFit .....	140

**WASK**

Gas Gate Valves.....	70
----------------------	----







Project: Daw Mill Colliery  
Specification: Viking Johnson Shouldered Joints





Project: HMS Queen Elizabeth Royal Navy Carrier  
Specification: Brownall Plant Room Valves





Distributor details



BRANDS YOU KNOW TECHNOLOGY YOU WANT SOLUTIONS YOU NEED



BUILDING SERVICES & UTILITIES

CRANE HOUSE, EPSILON TERRACE  
WEST ROAD, IPSWICH  
SUFFOLK IP3 9FJ

TELEPHONE: +44 (0)1473 277300

FAX: +44 (0)1473 277301

EMAIL: enquiries@cranebsu.com



FM311  
ISO 9001

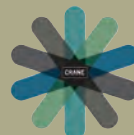


www.flowoffluids.com

Visit [www.flowoffluids.com](http://www.flowoffluids.com) to order your copy of the New Technical Paper 410.

- Designed and manufactured under quality management systems in accordance with BS EN 9001:2008.
- For full terms and conditions, please visit our website.
- We hope our communications have an impact on you - but not the environment - we have taken steps to ensure this brochure is printed on Forestry Stewardship Council material and the paper is made by an elemental chlorine free process.

*Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Crane Ltd assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.*



VIMMXI



BUILDING SERVICES & UTILITIES

[www.cranesbu.com](http://www.cranesbu.com)