



TUBASYS

**LEADERS IN
PREFABRICATED
PIPE SYSTEM**

CATALOGUE

CONTENTS

1. TUBASYS, THE COMPANY.....	1
• EFFICIENCY IS OUR STRENGTH	
• OUR COMMITMENTS	
• OFFICES AND FACTORIES	
2. WHY US.....	3
• TECHNICAL SERVICE	
• TUBASYS QUALITY	
• REDUCTION OF TIMES AND COST	
• RELIABILITY AND DURABILITY	
• ADAPTABILITY AND VERSATILITY	
• DISTRIBUTION	
3. PRODUCT.....	4
• PRODUCT SPECIFICATIONS	
• TECHNICAL OFFICE	
• MANUFACTURING PROCESOS AND STAGES	
• PREFABRICATION OF MACHINERY ROOMS	
• ANNEXES	
4. ASSEMBLY OF GROOVED ACCESSORY.....	8
• GUIDELINES	
• ASSEMBLY STEPS	
5. COUPLINGS.....	9
• RIGID COUPLING	
• FLEXIBLE COUPLING	
• REDUCER COUPLING	
6. ACCESSORIES.....	13
• GROOVED MECHANICAL TEE	
• 90° GROOVED ELBOW	
• 45° GROOVED ELBOW	
• GROOVED TE	
• CONCENTRIC REDUCER	
• GROOVED CAP	
• GROOVED ECCENTRIC CAP	
• U-BOLT MECHANICAL TEE	
7. COMPLEMENTS.....	22
• GREASE	
8. VALVES.....	23
• GATE VALVE	
• BUTTERFLY VALVE	
• SWING CHECK VALVE	
• Y-TYPE STRAINER	
• ALARM VALVE SYSTEM	
• PRESSURE SWITCH	
• WATERFLOW INDICATOR	
9. HOSES.....	64
• INSTALLATION	
• ASSEMBLY STEPS	
• UNBRAIDED FLEXIBLE HOSE TU SERIES	
• BRAIDED FLEXIBLE HOSE TB SERIES	
• NIPPLE ADAPTADOR (INPUT) · NP	
• NIPPLE REDUCER OUTPUT · RD34	
• SQUARE BAR · SQ25	
• CENTRAL SUPPORT · SBB02	
• CENTRAL SUPPORT · SSB01	
• END SUPPORT · TBSS01	
• END SUPPORT · TBSR	
• END SUPPORT · MSB	
• 90° ELBOW · LRD	
10. CONTACT.....	77



TUBASYS

THE COMPANY

TUBASYS

EFFICIENCY IS OUR STRENGTH

Founded in 2003, **TUBASYS** is the first Spanish company to offer its own make of prefabricated pipe for fire protection installations under the most demanding seals of quality, using totally automated and robotised production systems. Tubasys completes its range of products with catalogue of couplings, grooved accessories, hoses and complements.

Market leaders, Tubasys' success lies in applying the most advanced technology to all its industrial processes, carrying out the strictest quality controls and committing to efficient customer service. Strict production and verification systems entirely automated and robotised, unique in our sector, have earned the trust from our clients, both inside and outside of Spain.

We lead the market contributing with our products to the tranquility given by having a reliable system and 100% in accordance with standards, supported in rigorous verification systems and the strictest quality certifications.

Our production process is endorsed by Factory Mutual <FM> and VdS, being the pioneers in the sector in obtaining such approval.

TUBASYS
prefabricated pipe

OUR COMMITMENTS

Its quality and service commitment has led TUBASYS to regularly update the most demanding certifications for this type of process and product:

- **First company worldwide to obtain the Factory Mutual <FM> certification** for prefabricated pipe. Year 2006.
- **First non-German company in the world to obtain VdS 2552en certification.** VDS - approved welding procedure for pipes < DN65: sleeves, pipe connection, branch pipe. Year 2020.
- **Bureau Veritas product certification** for prefabrication of steel pipe for PCI Systems and other fluid ducts. Brand: Tubasys. BBVQi external audit.
- Environmental commitment set out in the environmental management certificate according to **UNE-EN-ISO 14001:2004**.
- Integral quality management guaranteed by standard **UNE-EN-ISO 9001:2000**



VDS - approved welding procedure for pipes < DN65: sleeves, pipe connection, branch pipe



We make a 100% commitment to the customer: from the initial technical assistance, optimising each installation, through the drawing up of exploded-view plans and budget and ending with an after-sale service with an immediate response capacity.

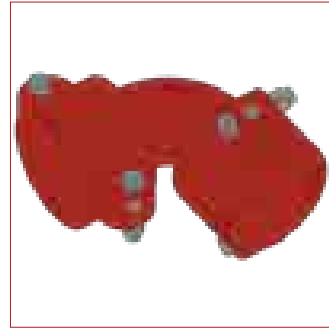
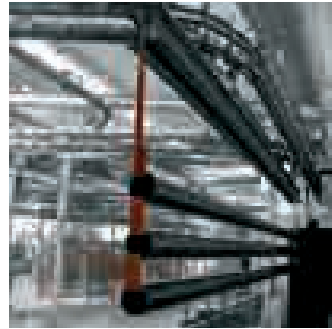
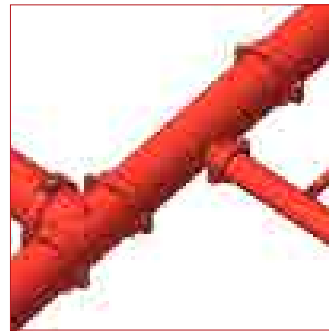
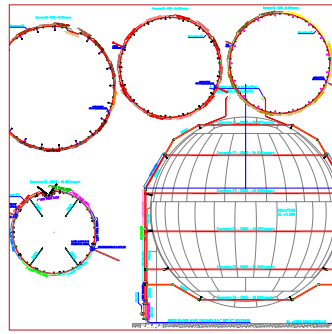
OFFICES & FACTORIES

HEADQUARTERS

Pol. Ind. de Carballo Rua do Bronce, s/n - Parcelas G-4 y G-5. 15100 Carballo (A Coruña) España
Tel. +34 981 704 330
tubasys@tubasys.com

PUERTOLLANO FACTORY

Pol. Ind. La Nava II Avenida de Europa - Parcela M 1.1. 13500 Puertollano (Ciudad Real) España
puertollano@tubasys.com



TECHNICAL SERVICE

Tubasys' technical office has **over 20 years experience** and works closely with our customers to provide the best and most optimal technical solutions aimed at facilitating field installation.

TUBASYS QUALITY

The quality of Tubasys products is recognized internationally and is backed up by various certifications and accreditations.

Our products are subject to inspections, audits and quality controls, both internal and external, at national and international level.

REDUCTION OF TIMES AND COST

Both with prefabricated pipe fittings and with grooved accessories **significant time and cost savings are made during field installation.**

No field welding is necessary, which leads to improved quality and faster installation, cleaning and presentation of the end product.

RELIABILITY AND DURABILITY

All products manufactured and marketed by Tubasys

are designed and manufactured for a **long functional life, minimizing maintenance costs.**

ADAPTABILITY AND VERSATILITY

Our products are **designed to minimize adjustments and maintenance work** in the field.

The gaskets of our grooved accessories fit perfectly to the bearing areas on the ends of pipe or other accessories, providing excellent damping of vibrations and noises that can be transmitted throughout the pipe installation.

The flexible couplings we market enable both longitudinal and angular alignment defects to be corrected.

DISTRIBUTION

Tubasys distributes its products nationally and internationally, reaching anywhere in the world and adapting to the specific needs of each region and customer.

To do this it has a wide distribution logistics network committed to Tubasys' objectives and levels of service.



PRODUCT SPECIFICATIONS

- Pipe of diameters between 1" and 12", with grooved weld-o-lets between 1" and 4" and threaded weld-o-lets between 1/2" and 2 1/2". Pipe between 14" and 24" is manufactured to order.
- Seamless (AESS) and welded (ACS). EN-10255, EN-10216, EN-10217, ASTM A-53, ASTM A-106 and API 5L.
- Wide range of finishes, thicknesses and paint colours (Any from the RAL chart).
- Product ready for quick, clean on-site assembly.
- Joining and Assembly Accessories

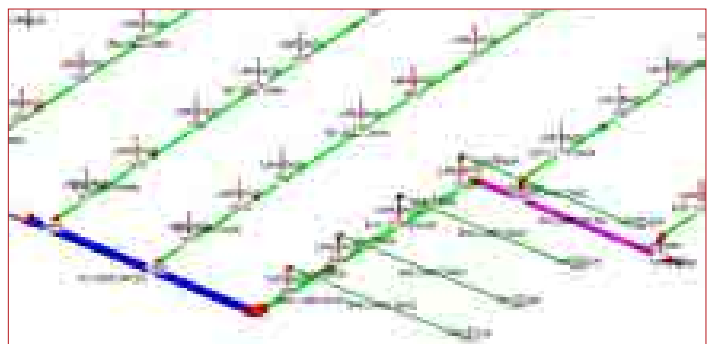
TECHNICAL OFFICE

Our team of outstanding professional engineers has over 20 years experience and works closely with our customers to provide the best and most optimal technical solutions aimed at facilitating site installation. A team of engineers and computer marked by professionalism and the use of the latest technologies including **Building Information Modeling (BIM) software**.

We carry out an essential job at our technical office throughout the process, from the assistance to our customers to the drafting of explosion drawings for production.

It is a precise process which is developed following an accurately detailed step-by-step system required for a perfect installation.

CUSTOM SOLUTIONS



MANUFACTURING PROCESSES AND STAGES

Starting from the steel pipe, according to the standard specified by the customer, all the necessary processes are executed for the end product to be ready for on-site assembly:

- Cutting to the length required and elimination of burrs and roughness by milling.
- Grooving of ends and cap welding on ends.
- Opening of orifices with absolute guarantee that the cut-out is eliminated.
- Joining of the UL/FM approved weld-o-lets to the pipe by means of welding, in accordance with standard UNE-EN ISO 15609-1:2005.
- Marking on the pipe of all its characteristics and data, for traceability purposes.
- Testing of 100% of welds using the penetrating liquids procedure.

- Washing of the tube outside and inside, phosphate coating to guarantee the adherence of the paintwork, demineralisation and subsequent oven drying.

Paint finish:

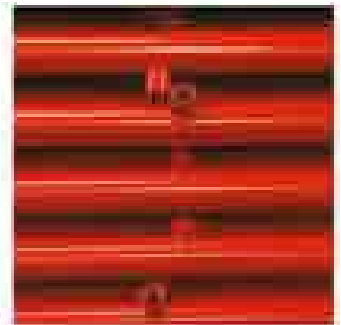
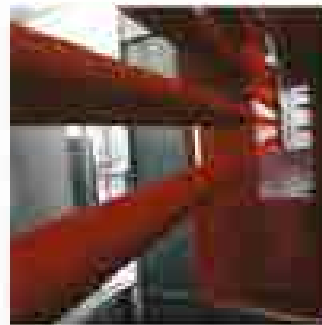
- Application of powder paint in automated booth.
- Polymerisation of the paint in oven at 180°C.

Galvanised finish:

- Hot galvanisation: Immersion in zinc oven at a temperature between 442 and 455°C.
- Checking and review of grooves and threads to guarantee the required tolerances.

Multilayers:

- Printing + Painting
- Galvanisation + Printing + Painting



PREFABRICATION OF MACHINERY ROOMS

The **Tubasys team is expert in the prefabrication of pumping rooms of up to 24" (600mm)** in different qualities, painted or galvanised carbon steel pipe with welded or grooved union.

We carry out the execution and the design on the basis of the original plan of the room and after studying all the variables: space, maintenance, assembly, cleaning and organisation, among others.



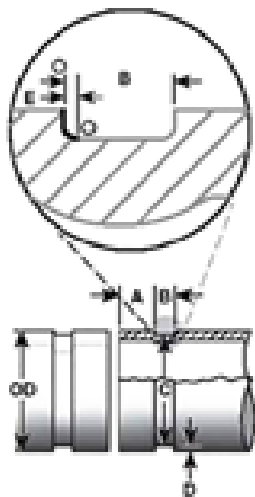
PIPING THICKNESS & FIRE PROTECTIONS STANDARDS

DN	INCH	10255(M) Welded EN12845 (ISO 65 M)			10255(M) Seamless EN12845 (ISO 65 M)			10216-1 Seamless			10217-1 Welded FM & EN 12845 (ISO4200D)			10217-1 Welded VDS/ AFSAD R1-2014		
		Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water
33,70	1'	2,44	3,25	3,02	2,44	3,25	3,02	1,99	2,60	2,63	1,78	2,30	2,45	1,99	2,60	2,63
42,40	1 1/4'	3,14	3,25	4,15	3,14	3,25	4,15	2,55	2,60	3,64	2,28	2,30	3,40	2,55	2,60	3,64
48,30	1 1/2'	3,61	3,25	4,98	3,61	3,25	4,98	2,93	2,60	4,39	2,61	2,30	4,11	2,93	2,60	4,39
60,30	2'	5,10	3,65	7,31	5,10	3,65	7,31	4,11	2,90	6,44	3,29	2,30	5,73	3,70	2,60	6,08
76,10	2 1/2'	6,52	3,65	10,24	6,52	3,65	10,24	5,24	2,90	9,12	4,71	2,60	8,66	4,71	2,60	8,66
88,90	3'	8,48	4,05	13,60	8,48	4,05	13,60	6,77	3,20	12,11	6,15	2,90	11,57	6,15	2,90	11,57
114,30	4'	12,19	4,50	20,89	12,19	4,50	20,89	9,83	3,60	18,84	8,77	3,20	17,91	8,77	3,20	17,91
139,70	5'	16,60	5,00	29,82	16,60	5,00	29,82	13,39	4,00	27,01	12,10	3,60	25,87	12,10	3,60	25,87
168,30	6'	19,80	5,50	41,52	19,80	5,50	41,52	18,18	4,50	38,11	16,21	4,00	36,39	16,21	4,00	36,39
219,10	8'							33,07	6,30	66,55	23,82	4,50	58,48	23,82	4,50	58,48

DN	INCH	10255 L Welded OLD AFSAD			NFPA GROOVED			NFPA THREADED			ASTM API ANSI B-36-10 SCH10S			ASTM API ANSI B-36-10 SCH40S		
		Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water	Kg/M	thickness	weight w/water
33,70	1'	2,20	2,90	2,81	2,20	2,90	2,81	2,54	3,40	3,11	2,09	2,77	2,74	2,50	3,38	3,10
42,40	1 1/4'	2,83	2,90	3,88	2,83	2,90	3,88	3,45	3,60	4,42	2,70	2,77	3,77	3,39	3,56	4,39
48,30	1 1/2'	3,25	2,90	4,67	3,25	2,90	4,67	4,07	3,70	5,38	3,10	2,77	4,55	4,05	3,68	5,37
60,30	2'	4,51	3,20	6,79	4,11	2,90	6,44	5,43	3,90	7,59	3,93	2,77	6,29	5,44	3,91	7,60
76,10	2 1/2'	5,76	3,20	9,57	5,76	3,20	9,57	9,10	5,20	12,48	5,26	3,05	9,34	8,63	5,16	12,43
88,90	3'	6,77	3,20	12,11	6,77	3,20	12,11	11,32	5,50	16,08	6,45	3,05	11,84	11,29	5,49	16,06
114,30	4'	9,83	3,60	18,84	8,77	3,20	17,91	16,03	6,00	24,24	8,36	3,05	17,56	16,07	6,02	24,29
139,70	5'	13,40	4,00	27,01	12,10	3,60	25,87	21,67	6,60	34,23	11,57	3,40	25,30	21,77	6,55	34,10
168,30	6'	18,18	4,50	38,11	14,60	3,60	35,01	28,24	7,10	46,88	13,84	3,40	34,31	28,26	7,11	46,91
219,10	8'				26,40	5,00	60,74	36,63	7,00	69,65	19,96	3,76	55,13	42,55	8,18	74,83

STANDARD ROLL GROOVE SPECIFICATIONS FOR ROLL GROOVED STEEL PIPE SYSTEM

1		2		3		4		5		6		7		8	
Dimensions (mm)															
Outside Diameter			Gasket seat A ±0,76	Groove width B ±0,76	Groove Diameter C		Groove Depth D (ref.)	Groove Corner E (max.)	Pipe Wall Thickness (min.)	Flare Diameter (max.)					
Basic	Tolerance				Basic	Tolerance									
	+	-													
33,7	0,33	0,33	15,88	7,14	30,23	-0,38	1,6	2	1,65	36,3					
42,4	0,41	0,41	15,88	7,14	38,99	-0,38	1,6	2	1,65	45					
48,3	0,48	0,48	15,88	7,14	45,09	-0,38	1,6	2	1,65	51,1					
60,3	0,61	0,61	15,88	8,74	57,15	-0,38	1,6	2	1,65	63					
76,1	0,76	0,76	15,88	8,74	72,26	-0,46	1,98	2	2,11	78,7					
88,9	0,89	0,79	15,88	8,74	84,94	-0,46	1,98	2	2,11	91,4					
114,3	1,14	0,79	15,88	8,74	110,08	-0,51	2,11	2	2,11	116,8					
139,7	1,42	0,79	15,88	8,74	135,48	-0,51	2,11	2	2,77	142,2					
165,1	1,6	0,79	15,88	8,74	160,78	-0,56	2,16	2	2,77	167,6					
168,3	1,6	0,79	15,88	8,74	163,96	-0,56	2,16	2	2,77	170,9					
219,1	1,6	0,79	19,05	11,91	214,4	-0,64	2,34	1,5	2,77	223,5					
273	1,6	0,79	19,05	11,91	268,28	-0,69	2,39	1,5	3,4	277,4					
323,9	1,6	0,79	19,05	11,91	318,29	-0,76	2,77	1,5	3,96	328,2					



- **COLUMN 1:** Outside diameter of the pipe. The outside diameter of roll grooved pipe will not be above, or below, the listed tolerances.
- **COLUMN 2:** Gasket seat. The surface of the pipe will be free of indentations, roll marks, and projections from the end of the pipe to the groove, to provide a leak-tight seal to the joint. All the chipped paint, dirt, grease, and rust must be removed. The gasket seat 'A' is measured from the end of the pipe.
- **COLUMN 3:** Groove width. The surface of the groove will be free of dirt and rust that could interfere with the montage of the grooved accessory. The corners of the groove must be radiused.
- **COLUMN 4:** Outside Diameter of the groove. The groove will be of uniform depth for the entire pipe circumference. The groove must be inside the tolerance of the diameter of the list.
- **COLUMN 5:** Groove Depth. For reference only, the groove depth must be the one that accomplishes the groove diameter listed in the column 4.
- **COLUMN 6:** Groove Corner. It is the distance between points (o) of the picture. The dimension 'E' starts in the reduction of the outside diameter of the pipe and ends in the bottom of the groove.
- **COLUMN 7:** Minimum allowable wall thickness. This is the minimum pipe wall thickness which may be roll grooved.
- **COLUMN 8:** Maximum allowable flare diameter. Diameter is measured at the grooved end pipe.

GROOVED FITTINGS & COUPLINGS

ASSEMBLY:

The **assembly guidelines** outlined here should be considered as recommendations to achieve a correct installation of the grooved accessory. Failure to follow them may lead to the appearance of problems in the installation and to injuries and material damage.

Operators must wear personal protection equipment appropriate to the work and the sites on which the work is to be carried out. It is recommended that at least a helmet, protective glasses, gloves and safety boots be worn.

Ensure that the installation on which the work is to be done is empty and depressurized.

The accessories are not components on which the installation's supports can be placed.

Check that the tooling and equipment that will be used are appropriate, in perfect condition and that staff know how to use them.

Check that the measurements and materials of the accessories and their gaskets are suitable for the

type of installation on which they are to be assembled.

Check that the lubricants to be used are appropriate for the type of gasket of the accessory selected.

Check that on the pipes or grooved accessories:

- The cuts are straight at the ends, which must be free of burrs, dents, dirt and any other thing that may affect the integrity of the rubber or its placement or the placement of the accessory's body.
- The grooves must be free of burrs, dents, dirt and anything else that may hinder the accessory's assembly.
- Ensure that the dimensions of the pipes' grooves comply with

the grooving standards (available on the Tubasys website, Download Area).

- It is not recommended that the ends are bevelled.

Check that the gasket:

- Is appropriate for the facility in which is to be mounted. Class E EPDM gaskets have a green mark.
- Is suitable for the temperature range of the installation or area in which it is to be placed.
- Will never come into contact with lubricants or products containing mineral oils.
- Has no damage and is in perfect condition.

ASSEMBLY STEPS:

1. Remove the coupling gasket.
2. Apply a thin layer of lubricant to the gasket both outside and on the sealing lips.
3. Apply a thin layer of lubricant to the inside of the two coupling segments.
4. Apply a thin layer of lubricant to the outside of the pipe ends.
5. Mount the gasket on the pipe making sure that it is completely supported in the pipe without protruding from it ..
6. In large diameter pipes it may be more convenient and easy to turn the gasket so that the lips are facing upwards.
7. Join the ends of the pipes or grooved accessories, ensuring their alignment is straight and concentric.
8. Slide the gasket until it is between the two grooves of the two pipe ends. If you placed the gasket upturned, you must return to its correct position. Ensure that the gasket does not get positioned on either of the two grooves.
9. Unscrew the bolt and nut from one the two sides of the coupling and loosen the other until the coupling can be opened and turn it to place it on the gasket.
10. Place the segments on the gasket so that their cotters stay lodged inside the grooves.
11. Check that the gasket has not been bitten or pinched.
12. Place the bolt and nut removed previously, tightening the two bolt-nut assemblies by hand.
13. Check that the necks of the bolts are lodged in the holes of the segments arranged for this purpose.
14. Tighten the nuts gradually and alternately, thus achieving a better placement and more even seating of the accessory.
15. Once you have finished mounting the accessory, you should inspect it to detect any anomalies.
16. Below we indicate the recommended torques, for indicative purposes.

Bolts 8.8	Torque (Nm)
M10	40 - 60
M12	110 - 135
M16	135 - 175
M20	175 - 245
M22	245 - 325

COUPLINGS

RIGID COUPLING



FLEXIBLE COUPLING



REDUCER COUPLING



BODY

Ductile cast iron compliant with ASTM A-536. Grade 65-45-12.

METRIC BOLT & REINFORCED HEX NUTS

Manufactured as 40 cr, thermal treated to reach Gr. 8.8

Head finished in oval neck.

Reinforced hex nuts and screws Only one spanner is necessary for their assembly.

FINISHES

Anti-corrosion protective paint in colour RAL 3000.

Optional hot galvanised finish.

Other finishes available by order.

GASKET

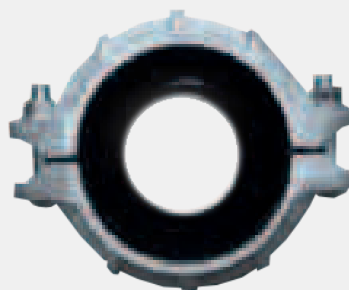
EPDM gasket as standard.

Pre-lubricated gasket as option.

EPDM

Temperature range: -34 °C to + 110 °C. Colour: Green.

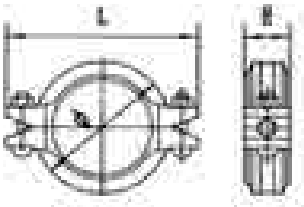
Suitable for hot water service within the temperature range and for various diluted acids, oil-free air and many chemical services.



TUBASYS
prefabricated pipe

01

RIGID COUPLING



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	Max.pressure PSI/Mpa	Bolts	DIMENSIONS (mm)			Aprox. weight (Kg)
					Ø	L	H	
1"	25	33,7	500 / 3,45	2-M10x45	60	102	45	0,54
1 ¼"	32	42,4	500 / 3,45	2-M10x45	70	106	44	0,56
1 ½"	40	48,3	500 / 3,45	2-M10x45	73	108	44	0,63
2"	50	60,3	500 / 3,45	2-M10x55	87	123	44	0,68
2 ½"	65	76,1	500 / 3,45	2-M10x55	103	142	45	0,79
3"	80	88,9	500 / 3,45	2-M12x60	117	166	45	1,02
4"	100	114,3	500 / 3,45	2-M12x65	139	190	49	1,40
5"	125	139,7	400/2,75	2-M12x75	168	218	49	1,74
6"	150	168,3	400/2,75	2-M12x75	198,5	249	50	2,30
8"	200	219,1	300/2,07	2-M16x85	253	320	59	4,55
10"	250	273,0	300/2,07	2-M22x130	335	426	68	8,95
12"	300	323,9	300/2,07	2-M22x130	380	470	65	9,82

RIGID COUPLING

Adjustable to standard pipe, limits groove tolerances. Fixes firmly onto the pipe to withstand bending and twisting loads.

Body with larger cross-section to better occupy the grooved area.

Working pressures up to 500 psi (approx. 35 kg/cm²), depending on the size.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536
Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request

BOLTS / NUTS:

Dome bolts in accordance with ASTM-183
Minimum elastic limit 110,000 psi (7.584 bar)

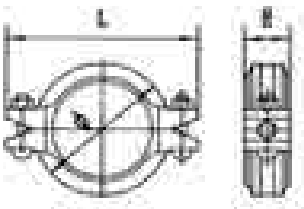
GASKET:

EPDM Grade E, green colour code -34°C to +110°C



02

FLEXIBLE COUPLING



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	Max.pressure PSI/Mpa	Bolts	DIMENSIONS (mm)			Aprox. weight (Kg)
					Ø	L	H	
1"	25	33,7	500 / 3,45	2-M10x45	60	98	45	0,54
1 ¼"	32	42,4	500 / 3,45	2-M10x45	70	106	44	0,56
1 ½"	40	48,3	500 / 3,45	2-M10x45	73	108,0	44	0,63
2"	50	60,3	500 / 3,45	2-M10x55	87	123	44	0,68
2 ½"	65	76,1	500 / 3,45	2-M10x55	103	142	45	0,79
3"	80	88,9	500 / 3,45	2-M12x60	117	166	45	1,02
4"	100	114,3	500 / 3,45	2-M12x65	139	190	49	1,40
5"	125	139,7	400/2,75	2-M12x75	168	218	49	1,74
6"	150	168,3	400/2,75	2-M12x75	198,5	249	50	2,30
8"	200	219,1	300/2,07	2-M16x85	253	320	59	4,55
10"	250	273,0	300/2,07	2-M22x130	335	401,0	68	8,95
12"	300	323,9	300/2,07	2-M22x130	380	455	65	9,82

FLEXIBLE COUPLING

Enable control of angular, linear and rotatory movement, absorb vibrations, dilations and other movements akin to this assembly system.

Working pressures up to 500 psi (approx. 35 kg/cm²), depending on the size.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536 Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request

BOLTS / NUTS:

Dome bolts in accordance with ASTM-183
Minimum elastic limit 110,000 psi (7.584 bar)

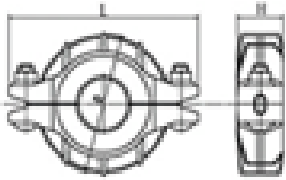
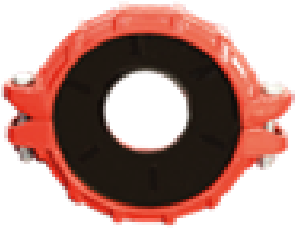
GASKET:

EPDM Grade E, green colour code -34°C to +110°C



03

REDUCER COUPLING



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	Max.pressure PSI/Mpa	Bolts	DIMENSIONS (mm)			Aprox. weight (Kg)
					Ø	L	H	
2"x1-1/2"	50x40	60,3x48,3	300/2,07	2-M10x55	90	129	47	0,96
2-1/2"x2"	65x50	76,1x60,3	300/2,07	2-M10x55	101	137	48	0,23
3"x2"	80x50	88,9x60,3	300/2,07	2-M12x65	120	164	48,0	0,30
3"x2-1/2"	80x65	88,9x76,1	300/2,07	2-M12x65	120	164	48	0,33
4"x2"	100x50	114,3x60,3	300/2,07	2-M12x65	150	195	49	0,56
4"x2-1/2"	100x65	114,3x76,1	300/2,07	2-M12x65	150	195	49	0,95
4"x3"	100x80	114,3x88,9	300/2,07	2-M12x65	150	195	49	1,15
6"x4"	150x100	168,3x114,3	300/2,07	2-M12x75	203	235	50	1,85
8"x6"	200x150	219,1x168,3	300/2,07	2-M16x100	264	313	60	4,10

REDUCER COUPLING

Directly reduces the pipe's clearance cross-section with significant savings on accessories.

Working pressures up to 300 psi (approx. 21 kg/cm²)

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536 Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request

BOLTS / NUTS:

Dome bolts in accordance with ASTM-183
Minimum elastic limit 110,000 psi (7.584 bar)

GASKET:

EPDM Grade E, green colour code -34°C to +110°C



FITTINGS

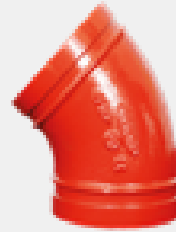
MECHANICAL TEE



90 ° ELBOW



45° ELBOW



GROOVED TEE



CONCENTRIC REDUCER



GROOVED CAP



GROOVED ECCENTRIC CAP



U-BOLT MECHANICAL TEE



BODY

Ductile cast iron compliant with ASTM A-536. Grade 65-45-12.

METRIC BOLT & REINFORCED HEX NUTS

Manufactured as 40 cr, thermal treated to reach Gr. 8.8

Head finished in oval neck.

Reinforced hex nuts and screws Only one spanner is necessary for their assembly.

GASKET

EPDM gasket as standard.

Pre-lubricated gasket as option.

FINISHES

Anti-corrosion protective paint in colour RAL 3000.

Optional hot galvanised finish.

Other finishes available by order.



EPDM

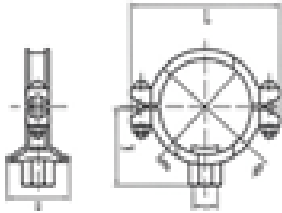
Temperature range: -34 °C to + 110 °C.

Colour: Green.

Suitable for hot water service within the temperature range and for various diluted acids, oil-free air and many chemical services.



04 GROOVED MECHANICAL TEE



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	Max. pressure PSI/Mpa	Bolts	DIMENSIONS (mm)				Ø hole (mm)	aprox weight (Kg)
					Ø	L	K	H		
2"x1-1/4"	50x32	60,3x42,4	300/2,07	2-M10x55	74	116	59	69	46	0,83
2"x1-1/2"	50x40	60,3x48,3	300/2,07	2-M10x55	78	116	59	69	46	0,73
2-1/2"x1-1/4"	65x32	76,1x42,4	300/2,07	2-M12x65	93	144	70	84	46	1,10
2-1/2"x1-1/2"	65x40	76,1x48,3	300/2,07	2-M12x65	93	144	70	83	51	1,08
3"x1-1/4"	80x32	88,9x42,4	300/2,07	2-M12x65	104	152	76	82	46	1,17
3"x1-1/2"	80x40	88,9x48,3	300/2,07	2-M12x65	104	152	77	91	51	1,24
3"x2"	80x50	88,9x60,3	300/2,07	2-M12x65	114	152	82	97	61	1,42
4"x1-1/4"	100x32	114,3x42,4	300/2,07	2-M12x65	133	186	93	83	46	1,68
4"x1-1/2"	100x40	114,3x48,3	300/2,07	2-M12x65	133	186	93	92	51	1,82
4"x2"	100x50	114,3x60,3	300/2,07	2-M12x65	140	188	93	97	61	1,87
4"x2-1/2"	100x65	114,3x76,1	300/2,07	2-M12x65	140	188	93	112	81	2,12
4"x3"	100x80	114,3x88,9	300/2,07	2-M12x65	140	188	93	122	86	2,37
6"x1-1/4"	150x32	168,3x42,4	300/2,07	2-M16x85	198	247	128	82	46	2,86
6"x1-1/2"	150x40	168,3x48,3	300/2,07	2-M16x85	198	247	128	92	51	2,88
6"x2"	150x50	168,3x60,3	300/2,07	2-M16x85	198	247	128	98	61	3,16
6"x2-1/2"	150x65	168,3x76,1	300/2,07	2-M16x85	198	247	128	121	82	3,33
6"x3"	150x80	168,3x88,9	300/2,07	2-M16x85	198	247	128	134	86	3,29
6"x4"	150x100	168,3x114,3	300/2,07	2-M16x85	198	247	128	157	114	4,18
8"x2-1/2"	200x65	219,1x76,1	300/2,07	2-M16x100	250	310	146	112	81	4,01
8"x3"	200x80	219,1x88,9	300/2,07	2-M16x100	250	310	146	122	86	4,21
8"x4"	200x100	219,1x114,3	300/2,07	2-M16x100	250	310	146	134	114	4,54

GROOVED MECHANICAL TE

Enables direct and quick connection of a branch by means of a gasket that acts to seal the orifice and absorb the pressure.

Working pressures up to 300 psi (approx. 21 kg/cm²)

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536 Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request

BOLTS / NUTS:

Dome bolts in accordance with ASTM-183
Minimum elastic limit 110,000 psi (7.584 bar)

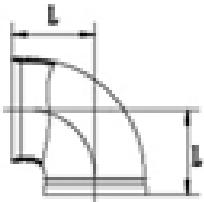
GASKET:

EPDM Grade E, green colour code -34°C to +110°C



05

90° GROOVED ELBOW



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	L (mm)	Aprox. weight (Kg)
1"	25	33,7	57	0,33
1 ¼"	32	42,4	60	0,38
1 ½"	40	48,3	60	0,42
2"	50	60,3	70	0,60
2 ½"	65	76,1	76	0,95
3"	80	88,9	86	1,46
4"	100	114,3	101,5	2,00
5"	125	139,7	122	3,12
6"	150	168,3	140	4,22
8"	200	219,1	175	7,26
10"	250	273,0	215	16,62
12"	300	323,9	245	21,20

90° GROOVED ELBOW

They have grooved ends enabling direct, quick and easy connection of the part to the installation, minimising load loss.

The union with grooved accessories makes them easier to align and provides flexibility on assembly.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536 Grade 65-45-12

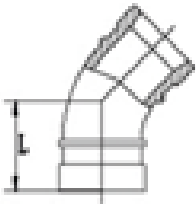
FINISH:

Lead-free paint RAL 3000
Other RAL on request



06

45° GROOVED ELBOW



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	L (mm)	Aprox. weight (Kg)
1"	25	33,7	38	0,30
1 ¼"	32	42,4	44	0,38
1 ½"	40	48,3	44	0,40
2"	50	60,3	51	0,68
2 ½"	65	76,1	57	0,78
3"	80	88,9	64	1,12
4"	100	114,3	76	1,76
5"	125	139,7	83	2,50
6"	150	168,3	89	3,40
8"	200	219,1	108	5,60
10"	250	273,0	121	11,60
12"	300	323,9	133	18,52

45° GROOVED ELBOW

They have grooved ends enabling direct, quick and easy connection of the part to the installation, minimising load loss.

The union with grooved accessories makes them easier to align and provides flexibility on assembly.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536 Grade 65-45-12

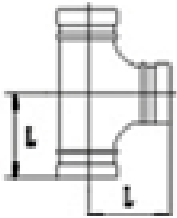
FINISH:

Lead-free paint RAL 3000
Other RAL on request



07

GROOVED TEE



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	L (mm)	Aprox. weight (Kg)
1"	25	33,7	57	0,48
1 ¼"	32	42,4	60	0,45
1 ½"	40	48,3	60	0,56
2"	50	60,3	70	0,85
2 ½"	65	76,1	76	1,27
3"	80	88,9	86	1,74
4"	100	114,3	101,5	2,78
5"	125	139,7	122	4,20
6"	150	168,3	140	7,36
8"	200	219,1	175	10,72
10"	250	273,0	215	19,20
12"	300	323,9	245	28,90

GROOVED TE

They have grooved ends enabling direct, quick and easy connection of the part to the installation, minimising load loss.

The union with grooved accessories makes them easier to align and provides flexibility on assembly.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536
Grade 65-45-12

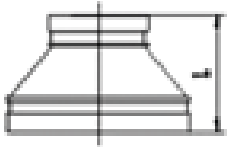
FINISH:

Lead-free paint RAL 3000
Other RAL on request



08

CONCENTRIC REDUCER



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	L (mm)	Aprox. weight (Kg)
1-1/4"x1"	32x25	42,4x33,7	64	0,20
1-1/2"x1"	40x25	48,3x33,7	64	0,20
1-1/2"x1-1/4"	40x32	48,3x42,4	64	0,26
2"x1"	50x25	60,3x33,7	64	0,30
2"x1-1/4"	50x32	60,3x42,4	64	0,32
2"x1-1/2"	50x40	60,3x48,3	64	0,332
2-1/2"x1"	65x25	76,1x33,7	64	0,52
2-1/2"x1-1/4"	65x32	76,1x42,4	64	0,6
2-1/2"x1-1/2"	65x40	76,1x48,3	64	0,62
2-1/2"x2"	65x40	76,1x60,3	64	0,51
3"x1-1/4"	80x32	88,9x42,4	64	0,73
3"x1-1/2"	80x40	88,9x48,3	64	0,79
3"x2"	80x50	88,9x60,3	64	0,65
3"x2-1/2"	80x65	88,9x76,1	64	0,68
4"x2"	100x50	114,3x60,3	76	1,0
4"x2-1/2"	100x65	114,3x76,1	76	1,02
4"x3"	100x80	114,3x88,9	76	1,08
5"x2"	125x50	139,7x60,3	89	1,25
5"x2-1/2"	125x65	139,7x76,1	89	1,82
5"x3"	125x80	139,7x88,9	89	1,88
5"x4"	125x100	139,7x114,3	89	1,99
6"x2"	150x50	168,3x60,3	102	2,04
6"x2-1/2"	150x65	168,3x76,1	102	2,12
6"x3"	150x80	168,3x88,9	102	2,18
6"x4"	150x100	168,3x114,3	102	1,8
6"x5"	150x125	168,3x139,7	102	2,40
8"x4"	200x100	219,1x114,3	127	3,93
8"x5"	200x125	219,1x139,7	127	4,00
8"x6"	200x150	219,1x168,3	127	4,42

CONCENTRIC REDUCER

They have grooved ends enabling direct, quick and easy connection of the part to the installation, minimising load loss.

The union with grooved accessories makes them easier to align and provides flexibility on assembly.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536
Grade 65-45-12

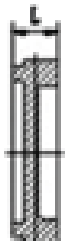
FINISH:

Lead-free paint RAL 3000
Other RAL on request



09

GROOVED CAP



Pipe ext. Ø (in)	DN	Pipe ext. Ø (mm)	L (mm)	Aprox. weight (Kg)
1"	25	33,7	25	0,10
1 ¼"	32	42,4	25	0,15
1 ½"	40	48,3	25	0,23
2"	50	60,3	25	0,30
2 ½"	65	76,1	25	0,33
3"	80	88,9	25	0,56
4"	100	114,3	25	0,95
5"	125	139,7	25	1,15
6"	150	168,3	25	1,85
8"	200	219,1	30	4,10
10"	250	273,0	32	8,62

GROOVED CAP

They have grooved ends enabling direct, quick and easy connection of the part to the installation, minimising load loss.

The union with grooved accessories makes them easier to align and provides flexibility on assembly.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

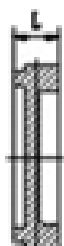
Ductile iron in accordance with ASTM A536
Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request



10 GROOVED ECCENTRIC CAP



Ø Ext. Tubería (in)	DN	Ø Ext. Tubería (mm)	L (mm)	Masa aprox. (Kg)
2-1/2"x1-1/2"	65x40	76,1x48,3	25	0,41
2-1/2"x2"	65x50	76,1x60,3	25	0,36
3"x1-1/2"	80x40	88,9x48,3	25	0,64
3"x2"	80x50	88,9x60,3	25	0,62
4"x2"	100x50	114,3x60,3	25	0,95
6"x2"	150x50	168,3x60,3	25	2,20
8"x2"	200x50	219,1x60,3	30	4,30

GROOVED ECCENTRIC CAP

They have grooved ends enabling direct, quick and easy connection of the part to the installation.

The union with grooved accessories makes them easier to align and provides flexibility on assembly.

They include an eccentric orifice for network emptying points.

Special or galvanised finishes by hot immersion are available as options.

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

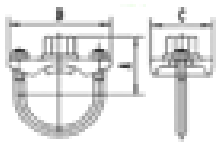
Ductile iron in accordance with ASTM A536 Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request



11 U-BOLT MECHANICAL TEE



Ø Ext. Tubería (in)	DN	Ø Ext. Tubería (mm)	Presión max. PSI/Mpa	Abarcón Métrica	DIMENSIONES (mm/in)			Dimensiones corte orificio (mm/in)
					A	B	C	
1-1/4"x1/2"	32X15	42,4X21,3	300/2,07	M10X28,5	43/1,693	90/3,543	56/2,205	30/1,181
1-1/4"x3/4"	32x20	42,4X26,9	300/2,07	M10X28,5	45/1,772	90/3,543	56/2,205	30/1,181
1-1/4"x1"	32x25	42,4X33,7	300/2,07	M10X28,5	50/1,969	90/3,543	56/2,205	30/1,181
1-1/2"x1/2"	40x15	48,3X21,3	300/2,07	M10X28,5	43/1,693	93/3,661	59/2,323	30/1,181
1-1/2"x3/4"	40x20	48,3X26,9	300/2,07	M10X28,5	54/2,126	93/3,661	59/2,323	30/1,181
1-1/2"x1"	40x25	48,3X33,7	300/2,07	M10X28,5	58/2,283	93/3,661	59/2,323	30/1,181
2"x1/2"	50x15	60,3X21,3	300/2,07	M10X30,0	54/2,126	96/3,780	59/2,323	30/1,181
2"x3/4"	50x20	60,3X26,9	300/2,07	M10X30,0	56/2,205	96/3,780	59/2,323	30/1,181
2"x1"	50x25	60,3X33,7	300/2,07	M10X30,0	66/2,598	96/3,780	59/2,323	30/1,181
2-1/2"x1/2"	65x15	76,1X21,3	300/2,07	M10X30,0	61/2,402	110/4,331	59/2,323	30/1,181
2-1/2"x3/4"	65x20	76,1X26,9	300/2,07	M10X30,0	67/2,638	110/4,331	59/2,323	30/1,181
2-1/2"x1"	65x25	76,1X33,7	300/2,07	M10X30,0	74/2,913	110/4,331	59/2,323	30/1,181

SPRINKLER OUTPUT

Enables direct and quick connection of a sprinkler by means of a gasket that acts to seal the orifice and absorb the pressure.

Working pressures up to 300 psi (approx. 21 Kg/cm²)

Special or galvanised finishes by hot immersion are available as options.

Recommended for pipe systems with tapped orifices

CERTIFICATIONS / LISTINGS:

<FM>, UL, ULC, CE

BODY:

Ductile iron in accordance with ASTM A536 Grade 65-45-12

FINISH:

Lead-free paint RAL 3000
Other RAL on request

BOLTS / NUTS:

Dome bolts in accordance with ASTM-183
Minimum elastic limit 110,000 psi (7.584 bar)

GASKET:

EPDM Grade E, green colour code -34°C to +110°C



COMPLEMENTS

12

GREASE

DESCRIPTION

Lubricant for vegetable fibre gaskets ideal for our accessories system and grooved couplings for fire sprinkler systems.

NON-staining.

NON-bacterial growth-permitting. NON-toxic

Water soluble.

In normal conditions it is not harmful to the skin.

Suitable for all types of pipe installations, including potable water.

Can be applied at temperatures from -23°C (-10 °F)

to 65°C (150 °F).

Certifications:

Certified under NSF/ANS/Std 61-G

Compatible with FBC™ System. This means this product has been tested by Lubrizol Advanced Materials and is continuously monitored to guarantee chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® pipes and accessories.



Specifications:

Appereance:

Dense, of a pasty consistency and light or dun brown colour.

Content:

Potassium oleate, propylene

Glycol and Mica.

Doesn't contain PETROLEUM.

VALVES



GATE VALVE

RESILIENT WEDGE GATE VALVE WITH OUTSIDE SCREW & YOKE (OS&Y) AND NON-RISING STEM (NRS)

TECHNICAL DATA

MODELS	OS&Y TYPE GVRS-16-300 (2" a 8") GVRS-16-300-GG (2" a 12") NRS GVNR-16-300 (2" a 8") GVNR-16-300-GG (2" a 12")
MAXIMUM WORKING PRESSURE	As per Table-1
END CONNECTION	As per Table-1
FINISH	Red Fusion Bonded Epoxy Coated Inside and Outside
APPROVALS	UL Listed & FM Approved Manufacturing Standard AWWA C515, BS 5163. As per Table-1



DESCRIPTION

Ductile Iron Gate Valves are available as OS&Y Type with rising stem and as NRS type with non-rising stem. Gate valves are designed to be the control valves in many of fire protection systems. Gate valves have flanged end connections, either ANSI/AWWA or BS PN16. Gate valves are fusion bonded epoxy coated, externally as well as internally.

Outside screw and yoke (OS&Y) gate valves are recommended when positive shutoff and a quick visual indicator of open/closed position is required. These can be easily fitted with OS&Y Tamper switch.

Gate valves are UL Listed and FM Approved.

Type	Model Number	Maximum Working Pressure	Factory Hydro Test	End Connection	Approvals
OS&Y	GVRS-16-300	232PSI (16 BAR)	Shell 464 PSI Seal 348 PSI	Flanged - BS EN 1092 PN16	UL Listed & FM Approved
	GVRS-16-300-GG			Grooved	
NRS	GVNR-16-300	232PSI (16 BAR)	Shell 464 PSI Seal 348 PSI	Flanged - BS EN 1092 PN16	UL Listed & FM Approved
	GVNR-16-300-GG			Grooved	

TABLE 1

INSTALLATION INSTRUCTIONS

- Gate valves should be properly cleaned and free from ingress of debris and foreign materials. Before installation wipe away dirt and grit from the valve.
- Visually inspect the gate valve seating and ports for cleanliness prior to installation.
- All gate valves should be independently supported against movement and stress from the connected piping system.
- Ensure that the valve pressure rating is compatible with service conditions.
- Operate the gate valve at least once from the open to closed position before use.
- Verify that packing nuts are tight, before pressurizing the system.
- Open the valve about four to five turns and allow water flow to flush away any trash and debris from the line.
- Gate valves are not suitable for water throttling applications.
- Gate valves should be installed in the vertical position on horizontal pipework and in the horizontal position on vertical pipework.
- Piping systems should be supported and aligned to avoid damage to the valve.
- On completion of the installation, valve location, size, date of installation, number of turns to open, direction of opening, and other information deemed pertinent should be entered on permanent records.
- It is not advisable to use any valve in applications where either the pressure or temperature is higher than the allowable working values.
- Also valves should not be used in service media if not compatible with the valve material of construction, as this will lead to chemical issues in the valve.

- Make Gate valves are generally bi-directional, and therefore may be installed in either direction; unless a directional mark is mentioned on the valve body.

OPERATIONAL INSTRUCTIONS

Gate Valves must be used only in fully opened or fully closed position. Gate Valves are manually operated multi-turn valves and are opened by a hand wheel in a counter clockwise direction and then closed clockwise direction.

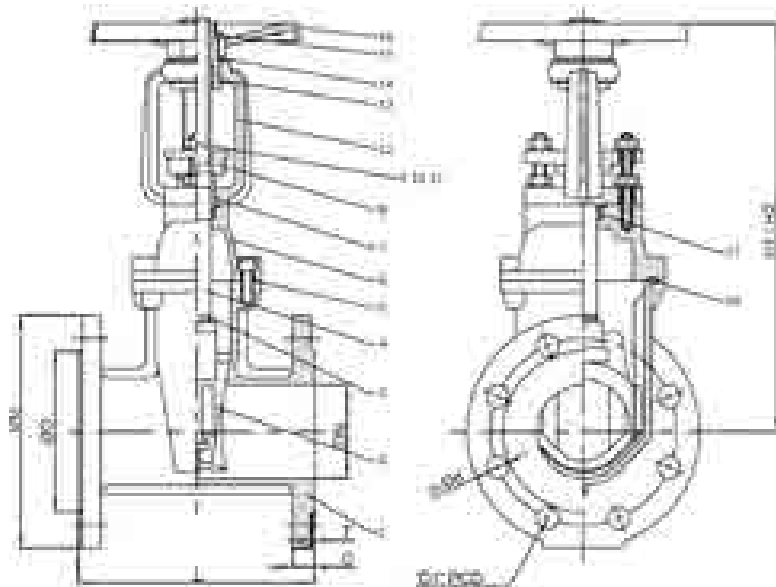
Each valve should be operated through a full cycle and returned to its normal position, at least once in a year.

INSPECTION AND MAINTENANCE

- Gate valves require no routine or regular maintenance, apart from annual operation test.
- All Gate valves should be operated for open and close cycle at least once in a year, to prevent stem binding due to rust or encrustation.
- In the event of a packing leak, adjust the packing nuts to increase pressure on the stem packing. Packing nuts should be tightening evenly, approximately a quarter turn in a clockwise direction.
- Always shut down the system before repacking the valve. Valves are designed with back seats for repacking under pressure but this is not recommended.

GVRS-16-300

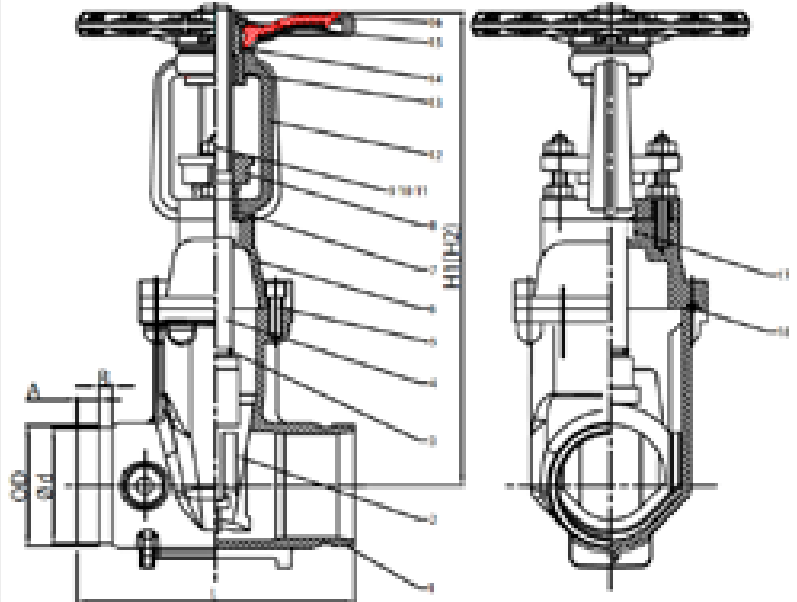
No.	Description	Material
1	Valve Body	EN-GJS-450-10
2	Resilient Wedge Disc	EN-GJS-450-10+EPDM
3	O-Ring	NBR
4	Stem	SS 420
5	Nut	Carbon Steel Zinc plated
6	Bonnet	EN-GJS-450-10
7	Stem Bushing	Brass Hpb59-1
8	Gland	EN-GJS-450-10
9	Flat Washer	Carbon Steel Zinc plated
10	Stud	Carbon Steel Zinc plated
11	Nut	Carbon Steel Zinc plated
12	Yoke	EN-GJS-450-10
13	Nut	Brass Hpb59-1
14	Washer	Brass Hpb59-1
15	Locknut	Carbon Steel Zinc plated
16	Handwheel	EN-GJS-450-10
17	Stem	NBR
18	Bonnet Gasket	EPDM



Size (DN)		Dimensions (mm)									Weight
Inch	MM	L	H1 (Close)	H2 (Open)	D	D 1	G	C	T	n-ø d	Kg
(close)	H 2	178	257	307	165	125	99	19	3	4-ø 19	14,5
(open)	D	D 1	G	C	T	n-ø d	118	19	3	4-ø 19	17,5
3"	80	203	350	430	200	160	132	19	3	8-ø 19	22,9
4"	100	229	422	522	220	180	156	19	3	8-ø 19	31,8
5"	125	254	515	640	250	210	184	19	3	8-ø 19	consult
6"	150	267	563	713	285	240	211	19	3	8-ø 23	52,5
8"	200	292	675	875	340	295	266	19	3	12-ø 23	92,7
10"	250	330	905	1155	405	355	319	22	3	12-ø 28	132,5
12"	300	356	1030	1330	460	410	370	24.5	4	12-ø 28	198,6

GVRS-16-300-GG

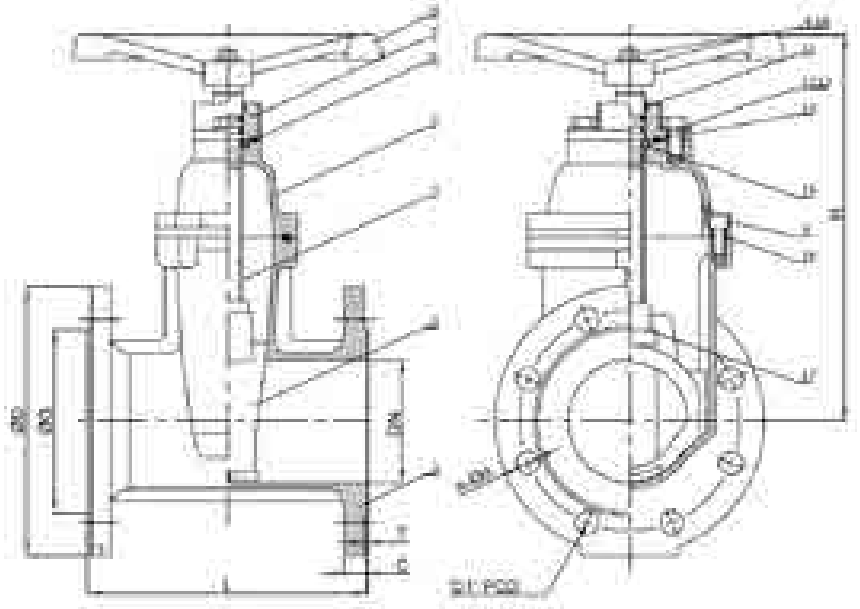
No.	Description	Material (Standard Specification)	Options
1	Valve Body	EN-GJS-450-10	
2	Resilient Wedge Disc	EN-GJS-450-10+EPDM	
3	O-Ring	NBR	EPDM
4	Stem	SS420	SS304, SS316, SS431
5	Bolt	Carbon Steel Zinc Plated	SS304, SS316
6	Bonnet	EN-GJS-450-10	
7	Stem Bushing	Brass HPb59-1	
8	Gland	EN-GJS-450-10	
9	Flat Washer	Carbon Steel Zinc Plated	SS304, SS316
10	Stud	Carbon Steel Zinc Plated	SS304, SS316
11	Nut	Carbon Steel Zinc Plated	SS304, SS316
12	Yoke	EN-GJS-450-10	
13	Stem Nut	Brass HPb59-1	
14	Washer	Brass HPb59-1	
15	Lock Nut	Carbon Steel Zinc Plated (Type A) Not available (Type B)	
16	Handwheel	EN-GJS-450-10	
17	Stem Packing	EPDM	NBR
18	Bonnet Gasket	EPDM	NBR



Size (DN)		Dimensions (mm)							Weight
Inch	MM	L	H1 (Close)	H2 (Open)	OD	Ød	A	B	Kg
(Close)	H 2	178	323	373	60.3	57.15	15.88	7.93	6,62
(Open)	OD	Ød	A	B	73	69.09	15.88	7.93	7,96
2.5"	65	190	343	408	76.1	72.26	15.88	7.93	8,11
3"	90	203	370	450	88.9	84.94	15.88	7.93	12,02
4"	100	229	442	542	114.3	110.08	15.88	9.53	15,95
5"	125	254	541	665	139.7	135.48	15.88	9.53	31,21
5"	125	254	541	665	141.3	137.03	15.88	9.53	31,41
6"	150	267	608	758	159	154.5	15.88	9.53	34,81
6"	150	267	608	758	165.1	160.9	15.88	9.53	34,76
6"	150	267	608	758	168.3	163.96	15.88	9.53	34,49
8"	200	292	720	920	219.1	214.40	19.05	11.13	49,49
10"	250	330	939	1193	273	268.28	19.05	12.7	110,85
12"	300	356	1065	1370	323.9	318.29	19.05	12.7	150,87

GVNR-16-300

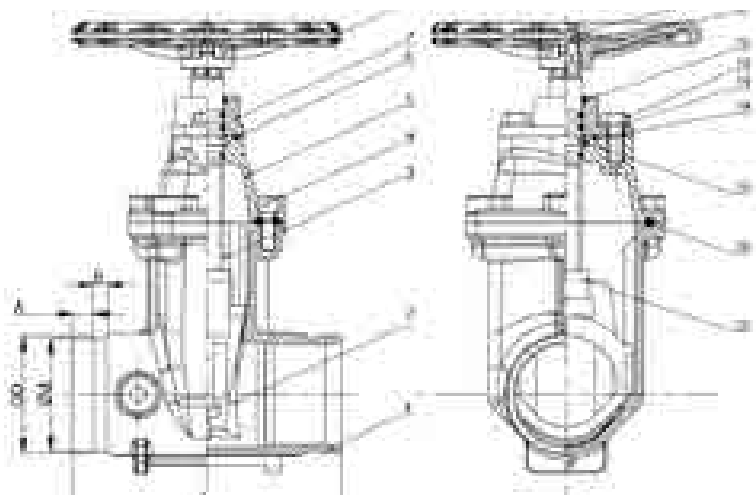
No.	Description	Material
1	Valve Body	EN-GJS-450-10
2	Resilient Wedge Disc	EN-GJS-450-10+EPDM
3	Stem	SS 420
4	Nut	Carbon Steel Zinc plated
5	Bonnet	EN-GJS-450-10
6	O-Ring	NBR
7	Gland Stem	EN-GJS-450-10
8	Handwheel	EN-GJS-450-10
9	Bolt	Carbon Steel Zinc plated
10	Flat Washer	Carbon Steel Zinc plated
11	Ring Wiper	NBR
12	Bolt	Carbon Steel Zinc plated
13	Flat Washer	Carbon Steel Zinc plated
14	O-Ring	NBR
15	Thrust Washer	Brass Hpb59-1
16	Bonnet Gasket	EPDM
17	Wedge Nut	NBR



Size (DN)		Dimensions (mm)								Weight
Inch	MM	L	H	D	D 1	G	C	T	n-ø d	Kg
2"	50	178	257	165	125	99	19	3	4-ø 19	9,74
2.5"	65	190	305	185	145	118	19	3	4-ø 19	11,72
3"	80	203	350	200	160	132	19	3	8-ø 19	15,49
4"	100	229	422	220	180	156	19	3	8-ø 19	21,13
5"	125	254	515	250	210	184	19	3	8-ø 19	36,06
6"	150	267	563	285	240	211	19	3	8-ø 23	42,04
8"	200	292	675	340	295	266	19	3	12-ø 23	59,98
10"	250	330	905	405	355	319	22	3	12-ø 28	107,04
12"	300	356	1030	460	410	370	24.5	4	12-ø 28	160,17

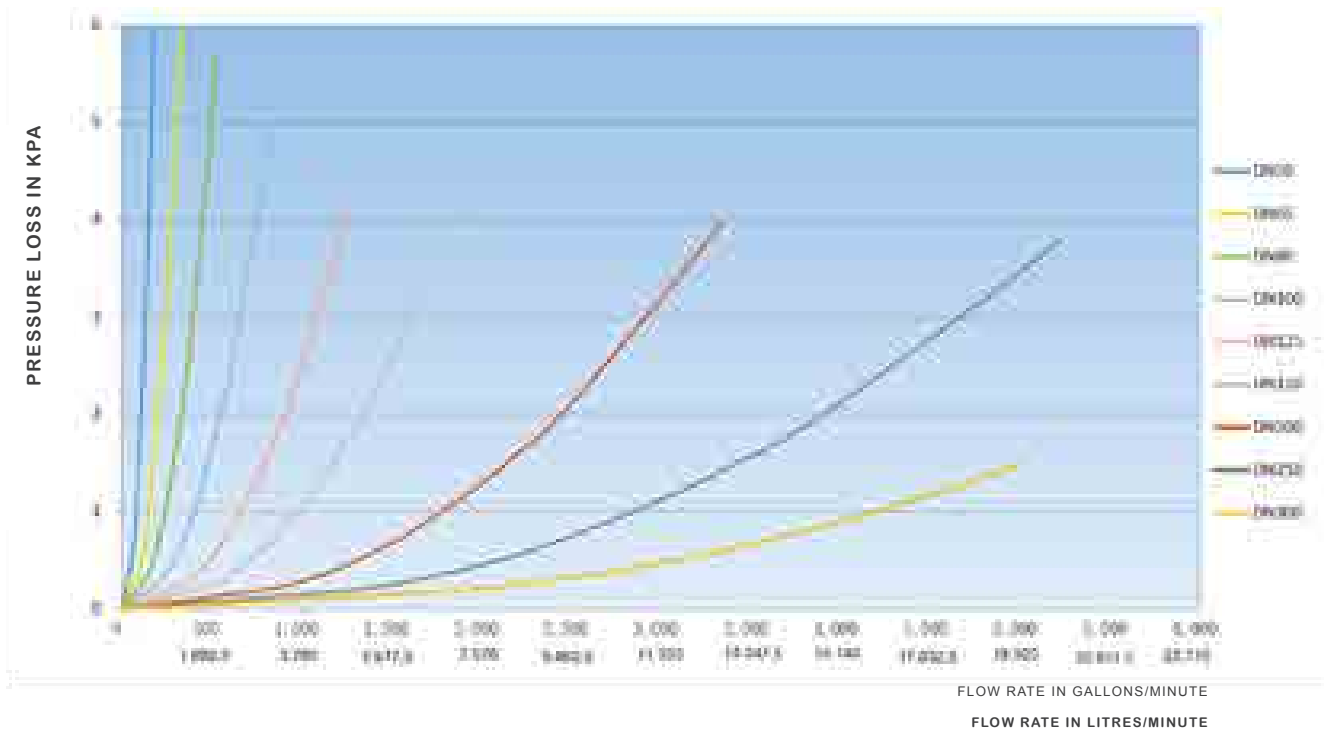
GVNR-16-300-GG

No.	Description	Material	Options
1	Valve Body	EN-GJS-450-10	
2	Resilient Wedge Disc	EN-GJS-450-10+EPDM	
3	Stem	SS 420	SS304, SS316, SS431
4	Bolt	Carbon Steel Zinc plated	SS304, SS316
5	Bonnet	EN-GJS-450-10	
6	O-Ring	NBR	EPDM
7	Gland	EN-GJS-450-10	
8	Handwheel	EN-GJS-450-10	
9	Bolt	Carbon Steel Zinc plated	SS304, SS316
10	Flat Washer	Carbon Steel Zinc plated	SS304, SS316
11	Ring Wiper	EPDM	NBR
12	Bolt	Carbon Steel Zinc plated	SS304, SS316
13	Flat Washer	Carbon Steel Zinc plated	SS304, SS316
14	O-Ring	NBR	EPDM
15	Thrust Washer	Brass Hpb59-1	Bronze ZQSn5-5-5
16	Bonnet Gasket	EPDM	
17	Wedge Nut	Brass Hpb59-1	Bronze ZQSn5-5-5



Size (DN)		Dimensions (mm)						Weight
Inch	MM	L	H	OD	d	A	B	Kg
2"	50	178	218	60.3	57.15	15.88	7.93	5,49
2.5"	65	190	230	73	69.09	15.88	7.93	consult
2.5"	65	190	230	76.1	72.26	15.88	7.93	6,98
3"	80	203	281	88.9	84.94	15.88	7.93	10,21
4"	100	229	316	114.3	110.08	15.88	9.53	13,97
5"	125	254	393	139.7	135.48	15.88	9.53	28,22
5"	125	254	393	141.3	137.03	15.88	9.53	consult
6"	150	267	420	159	154.5	15.88	9.53	consult
6"	150	267	420	165.1	160.9	15.88	9.53	30,60
6"	150	267	420	168.3	163.96	15.88	9.53	30,32
8"	200	292	490	219.1	214.40	19.05	11.13	45,90
10"	250	330	626	273	268.28	19.05	12.7	90,48
12"	300	356	722	323.9	318.29	19.05	12.7	132,43

PRESSURE LOSS IN GATE VALVES



Flow rate in gallons per minute								
DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.95	52.48	79.47	123.81	193.46	278.58	495.25	773.83	1114.31
62.26	105.32	159.43	249.03	389.12	560.33	996.13	1556.46	2241.30
93.43	157.72	238.82	373.73	583.95	840.88	1494.91	2335.79	3363.54
124.43	210.07	318.60	497.72	777.68	1119.86	1990.86	3110.72	4479.44
139.88	236.31	358.14	559.53	874.27	1258.95	2238.13	3497.08	5035.80
142.97	241.90	366.20	571.86	893.53	1286.69	2287.45	3574.14	5146.75
155.69	262.73	397.99	622.76	973.06	1401.21	2491.04	3892.25	5604.84
189.68	320.67	486.05	758.72	1185.51	1707.13	3034.90	4742.03	6828.52
209.14	353.45	528.36	836.57	1307.14	1882.28	3346.28	5228.56	7529.13

Pressure loss in KPa								
DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.25	0.21	0.18	0.16	0.14	0.13	0.12	0.12	0.11
0.56	0.47	0.40	0.35	0.31	0.29	0.28	0.27	0.25
1.34	1.11	0.96	0.84	0.74	0.70	0.67	0.64	0.61
2.54	2.12	1.82	1.59	1.41	1.34	1.27	1.21	1.16
3.31	2.76	2.37	2.07	1.84	1.74	1.66	1.58	1.51
3.41	2.84	2.44	2.13	1.90	1.80	1.71	1.63	1.55
4.17	3.47	2.98	2.61	2.32	2.19	2.08	1.99	1.89
6.52	5.43	4.65	4.07	3.62	3.43	3.26	3.10	2.96
7.97	6.64	5.69	4.98	4.43	4.19	3.98	3.79	3.62

BUTTERFLY VALVE

BUTTERFLY VALVE WITH TAMPER SWITCH

TECHNICAL DATA

SIZES	2" (50NB), 2.5" (65NB), 3" (80NB), 4" (100NB), 6" (150NB), 8" (200NB), 10" (250NB), 12" (300NB)
MAXIMUM WORKING PRESSURE	300 PSI (21 Kg/cm ²)
TEMPERATURE RATING	0-100 °
BODY	Ductile iron conforming to ASTM A-536, grade 65-45-12
DISC	Ductile iron ASTM A-536, EPDM Coated
COATING	Fusion Bond Epoxy Coating
APPROVALS	UL Listed & FM Approved



DESCRIPTION

Butterfly Valves are available in three types 1. Wafer Type 2. Grooved Type and 3. Lug Type. These are gear operated fitted with visual indicator and tamper switch. Wafer Type Butterfly Valves are suitable for installation between two flanges. These have universal design and can be connected between ANSI B 16 Class 125, ASME B16.5 Class 150 and BSEN 1092 PN10/PN 16 Flanges. Grooved joint dimensions are made in accordance with ANSI/AWWA C606 (Ductile iron pipe and steel pipe) and metric pipe specifications.

Valve gearbox is fitted with two internal switches with SPDT contact to supervise valve open or closed position. Butterfly valves offer minimum flow restriction and pressure loss when used in the fully open position.

Model	Description
HDMW	BV with gearbox and micro-switches, Wafer type
HDMG	BV with gearbox and micro-switches, Grooved type
PN16	Connect to flange complying with EN 1092

INSTALLATION

Wafer Type: Wafer Type Butterfly Valve can be installed vertically or horizontally with flow in either direction. Valve is self-sealing with no additional gasket needed. While inserting valve between two flanges, close the butterfly valve fully so that it can be properly positioned between the flanges. Insert and hand tighten the bolts, check whether valve disc is free while opening and closing. Electrical connections need to be connected as per wiring diagram.

Grooved Type: Grooved Type Butterfly valve should be connected to the piping system with approved grooved couplings and connections. It can be installed vertically or horizontally with flow in either direction.

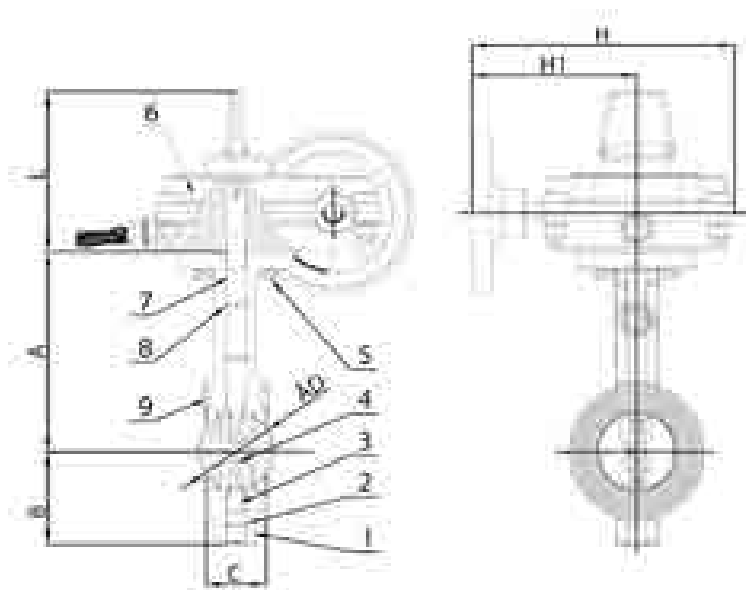
MAINTENANCE

Inspect and verify proper operation on an annual basis or according to the requirements of NFPA or Authority Having Jurisdiction (AHJ). Check for leakage at the valve pipe connection and body-to-operator connection. Installation, inspection and maintenance should be performed by a qualified person(s), certified by the Authority Having Jurisdiction

If the valve closes hard, please ensure that there is no debris clogged in the waterway around the seat area. Backing off the hand wheel and closing the butterfly valve again can often resolve this issue.

WAFER TYPE BUTTERFLY VALVE

Part No	Part	Material	Qty
1	Body	ASTM A536, 65-45-12	1
2	O-Ring	NBR	2
3	Stub Shaft	SS431	1
4	Disc	ASTM A536, 65-45-12+EPDM	1
5	Hex Nut	Carbon Steel Zinc Pated	4
6	Signal Gear Box	Body: ASTM A536, 65-45-12	1
7	Drive Shaft	SS431	1
8	O-Ring	NBR	2
9	End Face Steel	EPDM	2



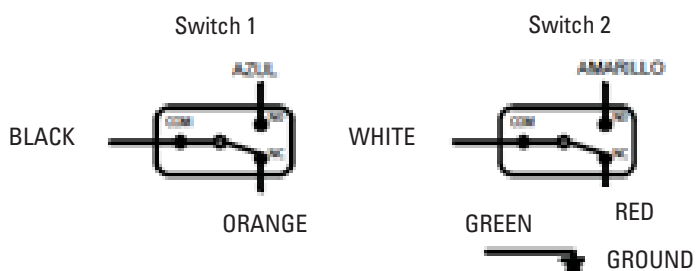
Size (DN)		Dimensions (mm)							Weight
Inch	mm	A	B	C	D	L	H1	H	Kg
2"	50	140.5	65	43±2	50.3	122.5	127	202.2	8,10
2.5"	65	153	71	46±2	60.8	122.5	127	202.2	8,47
3"	80	157.5	81	46±2	76	122.5	127	202.2	9,06
4"	100	176	95	52±2	98.5	122.5	127	202.2	10,39
5"	125	191	111	56±2	122.6	122.5	127	202.2	11,73
6"	150	202.5	133	56±2	148	122.5	127	202.2	15,14
8"	200	243.5	164	60±2	199	122.5	185	260.2	20,43
10"	250	273	196	68±2	252	122.5	185	260.2	28,38
12"	300	311	226	78±2	300.5	132	202.5	297.5	40,95

NOTES

- 1) Dimensions given are in mm; 2) Design: BS EN593; 3) Top flange: ISO 5211; 4) Flange specification: PN16 A; 5) Working Pressure: PN16/250 PSI
- 6) Coating: Fusion Bonded Epoxy Coating, Complies with ANSI/AWWA C550

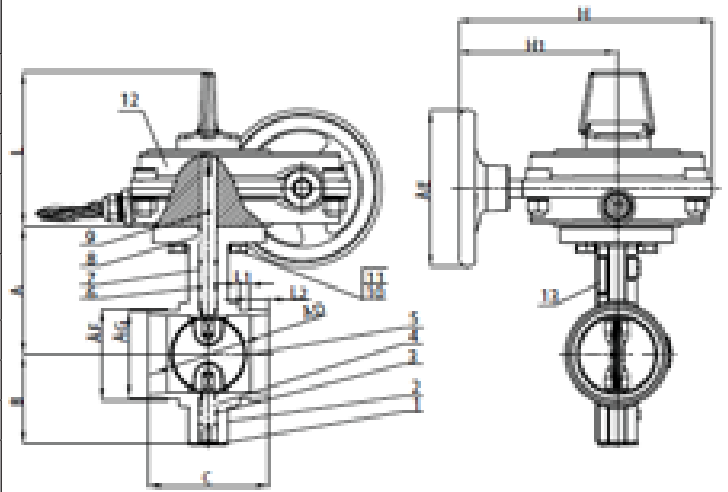
SIGNAL DESCRIPTION

1. Switch parameters: 16A 1/2HP 125/250VAC
2. Wiring diagram:



GROOVED TYPE BUTTERFLY VALVE

Part No	Part	Material	Qty
1	Plug	EPDM	1
2	Body	ASTM A536, 65-45-12	1
3	O-Ring	NBR	2
4	Bushing	SS304+PTFE	1
5	Stub Shaft	SS431	1
6	Disc	ASTM A536, 65-45-12+EPDM	1
7	Drive Shaft	SS431	1
8	Bushing	SS304+PTFE	4
9	Cylindrical Pin	SS304	1
10	Hex Nut	Carbon Steel Zinc Plated	4
11	Spring Washer	Spring Steel, 65 MN	4
12	Gear Box	Body:ASTM A536, 65-45-12	1
13	Name Plate	Stainless Steel Plate	1



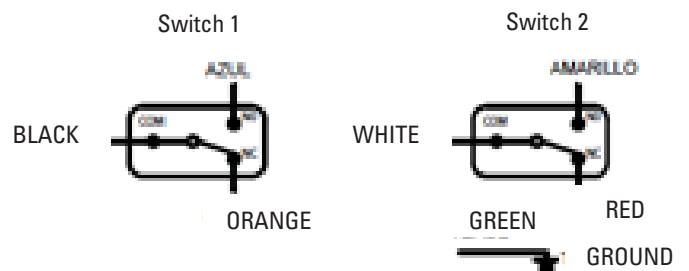
Size (DN)		Dimensions (mm)											Weight	
Inch	mm	A	B	C	E	F	G	L	L1	L2	H1	H	D	Kg
2"	50	89	65	81±1.5	225	60.3	57.15	122.5	7.93	15.88	127	202.2	50.3	7,63
2.5"	65	102	71	97±1.5	125	73.0	69.09	122.5	7.93	15.88	127	202.2	60.8	8,22
2.5"	65	102	71	97±1.5	125	76.1	72.26	122.5	7.93	15.88	127	202.2	60.8	8,35
3"	80	109	81	97±1.5	125	88.9	84.94	122.5	7.93	15.88	127	202.2	76	8,56
4"	100	128	95	116±1.5	125	114.3	110.08	122.5	9.53	15.88	127	202.2	98.5	9,89
5"	125	141	111	148±1.5	125	139.7	135.48	122.5	9.53	15.88	127	202.2	122.6	12,17
5"	125	141	111	148±1.5	125	141.3	137.03	122.5	9.53	15.88	127	202.2	122.6	12,25
6"	150	153	133	148±1.5	225	165.1	160.90	122.5	9.53	15.88	127	202.2	148	15,62
6"	150	153	133	148±1.5	225	168.3	163.96	122.5	9.53	15.88	127	202.2	148	15,94
8"	200	184	164	133±3.3	225	219.1	214.40	122.5	11.1	19.05	185	260.2	199	20,3
10"	250	216	196	159±3.3	225	273.0	268.28	122.5	12.7	19.05	185	260.2	252	28,66
12"	300	254	226	165±3.3	225	323.9	318.29	132	12.7	19.05	202.5	297.5	300.5	41,48

NOTAS

- 1) Dimensions given are in mm; 2) Design: BS EN593; 3) Top flange: ISO 5211; 4) Flange specification: PN16 A; 5) Working Pressure: PN16/250 PSI
- 6) Coating: Fusion Bonded Epoxy Coating, Complies with ANSI/AWWA C550

SIGNAL DESCRIPTION

1. Switch parameters: 16A 1/2HP 125/250VAC
2. Wiring diagram:



SWING CHECK VALVE

TECHNICAL DATA

SIZES	2" (50NB), 2.5" (65NB), 3" (80NB), 4" (100NB), 6" (150NB), 8" (200NB), 10" (250NB), 12" (300NB)
MAXIMUM WORKING PRESSURE	300 PSI (21 Kg/cm2)
TEMPERATURE RATING	0-100 °
BODY	Ductile iron conforming to ASTM A-536, Grade 65-45-12
DISC	DN50-100: AISI 304 DN150-300: ASTM A536, 65-45-12
FLANGE CONNECTION	BS EN 1092 PN 16
COATING	Fusion Bond Epoxy Coating (RAL 3000)
MODELS	As per Table-I
APPROVALS	UL Listed & FM Approved



Model	Description
SCV-300A	Flanged Swing Check Valve
SCV-300G	Grooved Swing Check Valve

TABLE 1

DESCRIPTION

Swing Check Valves are general purpose rubber-faced check valves approved for use in fire protection systems. These are rated for maximum working pressure of 300 PSI.

These valves are suitable for horizontal as well as vertical installations. The valves are provided with access cover (flange type) and plug (grooved type) for maintenance and drain purpose. Direction of water flow is marked on the valves.

INSTALLATION

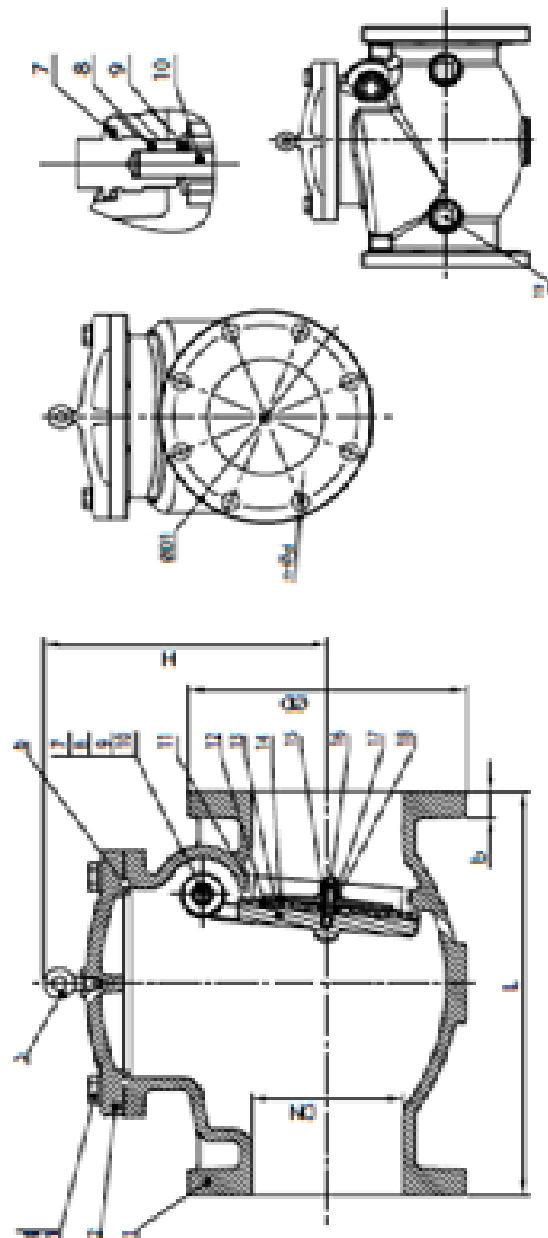
Swing Check Valve can be installed vertically or horizontally with flow direction as marked on the valve.

The Swing Check Valve must be installed in an area not subject to physical damage. When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Swing Check Valve and associated equipment. Prior to installing the valve, thoroughly flush the water supply piping to verify that no foreign matter is present. The Swing Check Valve may be installed in vertical position with direction of flow up, or in horizontal position with the access cover up.

Valves should be installed at reasonable distance downstream from pumps, elbows, reducers, or other similar devices to extend the valve life. Standard piping practice requires a minimum of five (5) times the pipe diameter for general use installation.

SWING CHECK VALVE WITH FLANGE ENDS

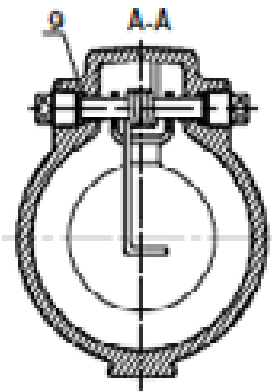
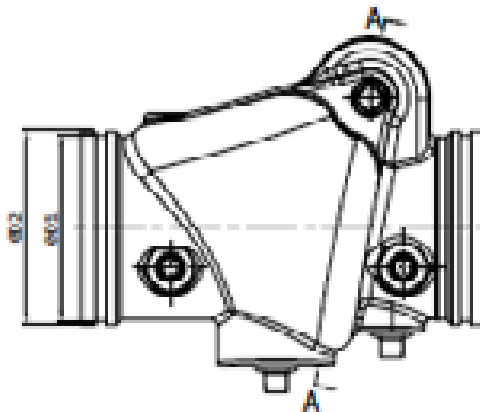
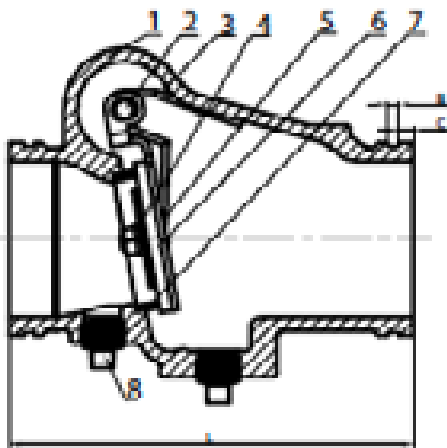
No	Part	Material
1	Valve Body	Ductile Iron, 65-45-12
2	Bonnet	Ductile Iron, 65-45-12
3	Bolts	Carbon Steel Zinc Plated
4	Washer	Carbon Steel Zinc Plated
5	Eye Bolt	Carbon Steel Zinc Plated
6	O-Ring	NBR
7	Washer	PTFE
8	Plug	Stainless Steel 304
9	Hinge Bushing	Brass ASTM B16 C36000
10	Hinge Pin	Stainless Steel 410
11	Seat Ring	Bronze ASTM B62
12	Seal	EPDM
13	Disc	Ductile Iron, 65-45-12
14	Plate	Ductile Iron, 65-45-12
15	Nut	Stainless Steel 304
16	Bolt	Stainless Steel 304
17	Spring Washer	Stainless Steel 304
18	Flat Washer	Stainless Steel 304
19	Plug	Malleable Iron Galvanized



Size		Dimensions (mm)						Weight
Inch	mm	L	D	D1	b	n-Ød	H	Kg
2"	50	203	152	120.5	16	4-Ø19.1	133	11,32
2.5"	65	254	178	139.5	17.5	4-Ø19.1	150	17,21
3"	80	278	191	152.5	19	4-Ø19.1	150	22,24
4"	100	330	229	190.5	24	8-Ø19.1	218	33,14
6"	150	406	279	241.5	25.5	8-Ø22.2	290	62,87
8"	200	495	343	298.5	28.5	8-Ø22.2	330	115,42
10"	250	622	406	362	30.5	12-Ø25.4	350	173,3
12"	300	660	483	432	32	12-Ø25.4	376	231,67

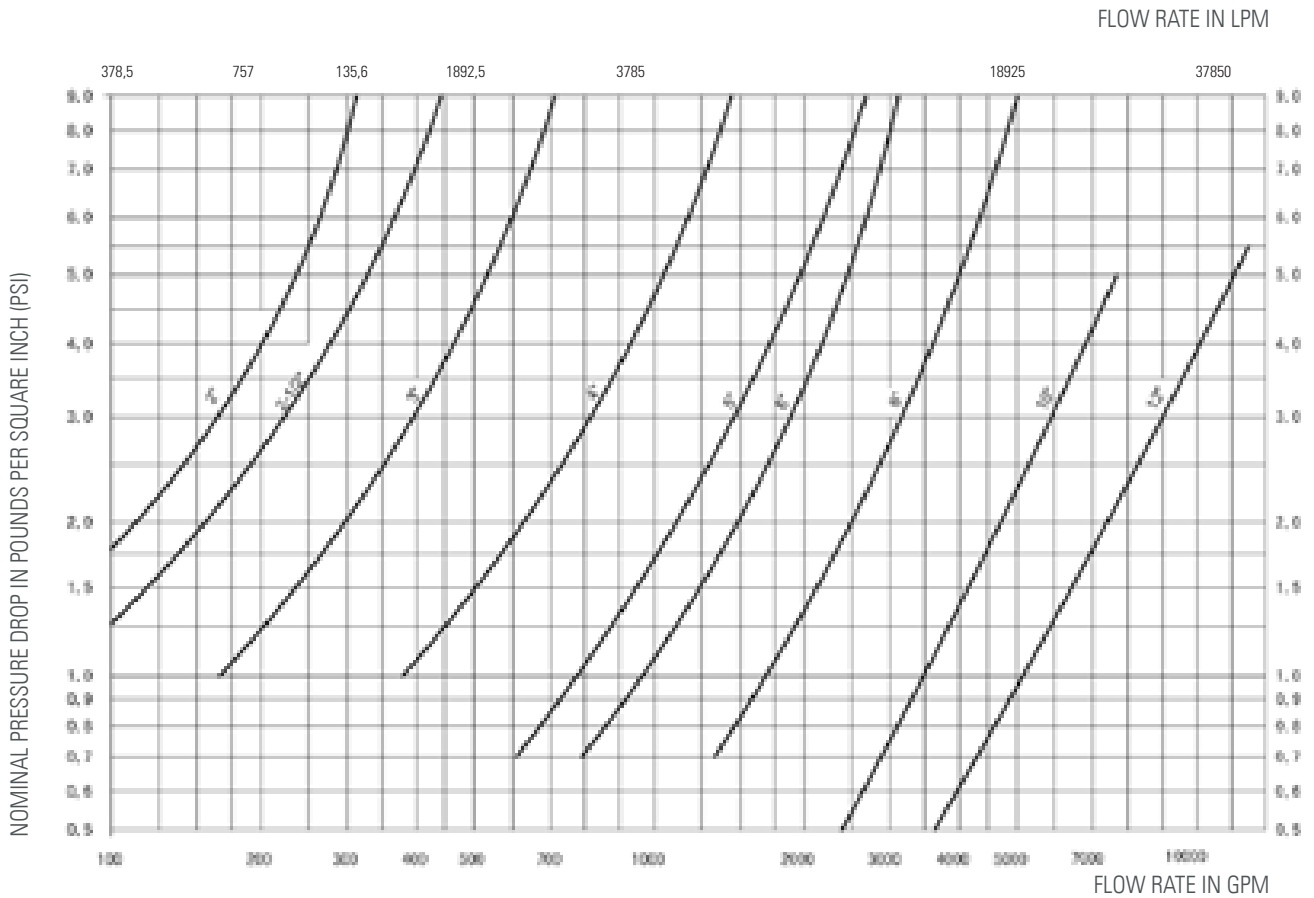
SWING CHECK VALVE WITH GROOVED ENDS

No.	Part	Material
1	Valve Body	Ductile Iron 65-45-12
2	Hinge Pin	Stainless Steel 420
3	Spring	Stainless Steel 304
4	Spring Washer	Stainless Steel 304
5	Disc	Ductile Iron 65-45-12 or Stainless Steel 304
6	Seal Ring	EPDM
7	Seat	ASTM B62
8	Plug	Malleable Iron Galvanized
9	Bushing	ASTM B62



SIZE		L (mm)	ØD1 (mm)		ØD2 (mm)		B (mm)		C (mm)	Weight
In	mm									Kg
2"	60	171 ±1	57.15	0 -0.38	60.3	+0.61 0	7.93	+0.79 0	15.88 ±0.79	3,29
2.5"	73	184 ±1	69.09	0 -0.46	73	+0.74 0	7.93	+0.79 0	15.88 ±0.79	3,58
3"	89	197 ±1	84.94	0 -0.46	88.9	+0.89 -0.79	7.93	+0.79 0	15.88 ±0.79	4,66
4"	114	206 ±1	110.08	0 -0.51	114.3	+1.14 -0.79	9.53	+0.79 0	15.88 ±0.79	7,27
5"	141	324 ±1	137.03	0 -0.56	141.3	+1.42 -0.79	9.53	+0.79 0	15.88 ±0.79	9,85
6"	168	247.65±1	163.96	0 -0.56	168.3	+1.57 -0.79	9.53	+0.79 0	15.88 ±0.79	16,15
8"	219	370.84±1.5	214.4	0 -0.64	219.10	+1.57 -0.79	11.13	+0.79 0	19.05 ±0.79	27,19
10"	273	457.2 ±1.5	268.28	0 -0.69	273	+1.57 -0.79	12.7	+0.79 0	19.05 ±0.79	51,99
12"	324	534.9 ±1.5	318.29	0 -0.76	323.9	+1.57 -0.79	12.7	+0.79 0	19.05 ±0.79	75,71

NOMINAL PRESSURE LOSS VS FLOW



MAINTENANCE

Inspect and verify proper operation on semi-annual basis or according to the requirements of NFPA or Authority Having Jurisdiction (AHJ).

Installation, inspection and maintenance should be performed by a qualified person(s), certified by the Authority Having Jurisdiction. In case of any issue, please ensure that there is no debris clogged in the waterway around the seat area of the valve.

Y-TYPE STRAINER

TECHNICAL DATA

SIZES	2" (50NB), 2.5" (65NB), 3" (80NB), 4" (100NB), 6" (150NB), 8" (200NB), 10" (250NB), 12" (300NB)
MAXIMUM WORKING PRESSURE	300 PSI (21 Kg/cm ²)
TEMPERATURE RATING	0-100 °
BODY	Ductile iron conforming to ASTM A-536, Grade 65-45-12
SCREEN	AISI 304
COATING	Fusion Bond Epoxy Coating (RAL 3000)
APPROVALS	UL Listed
MODEL	Flanged Type: YSF Grooved Type: YSG (Refer Table-I)
WEIGHT	Refer Table-II page 43



DESCRIPTION

Y-Type Strainers are used for filtering out the dirt, rust, and other debris in the water flow protecting the piping equipment such as pumps, meters, valves, and other equipment in the piping system. All strainers are equipped with a retainer cap which allows easy access to the stainless steel screen for cleaning.

Strainers should be installed horizontally with the cap facing downwards with access to remove the basket/ screen. Direction of water flow is marked on the strainers.

INSTALLATION

Y-Type Strainers are supposed to be horizontally installed with flow direction as marked on the valve and basket/screen facing downwards. The Strainer

can also be installed vertically with downward flow and the screen element pointing downward. The Strainer must be installed in an area not subject to physical damage. When corrosive atmospheres and/ or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Strainer and associated equipment.

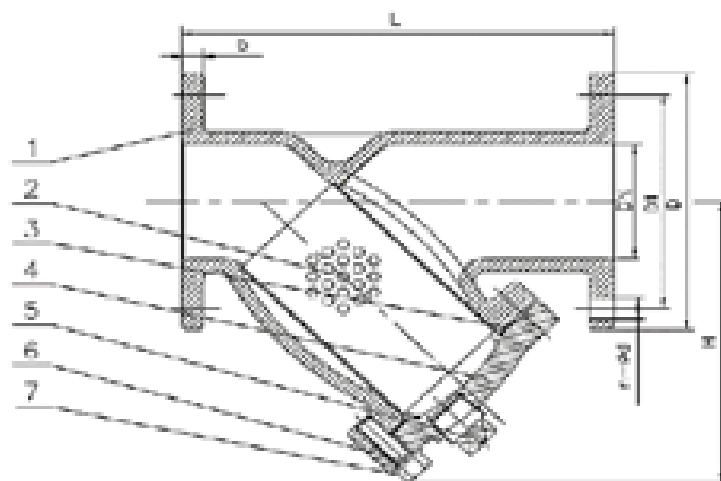
Model	Description
YSF	Y-Type Strainer with Flange Ends BS EN 1092-2 PN16.
YSG	Y-Type Strainer with Grooved Ends

TABLE I

Y-TYPE STRAINER WITH FLANGE ENDS (YSF)

SCREEN DATA

Size		Sieve No.	Hole Dia. (mm)	Free Flow Area (%)
Inch	mm			
2" - 2½"	50-65	25	4	48
3" - 4"	80-100	19	5	59
6" - 12"	150-300	13	6.3	64



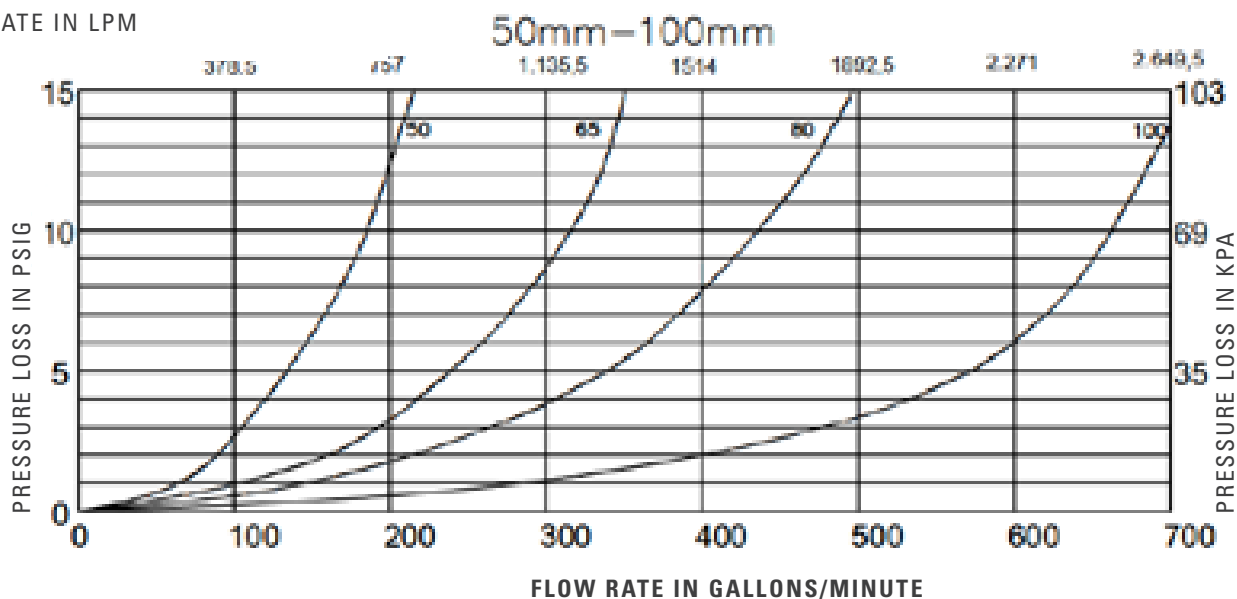
PART LIST

No	Part	Material	Specification
1	Strainer Body	Ductile Iron	ASTM A536 65-45-12
2	Screen	Stainless Steel	AISI 304 (Perforated)
3	Gasket	EPDM	Commercial
4	Cover	Ductile Iron	ASTM A536 65-45-12
5	Plug	Malleable Iron	Galvanized
6	Bolt	Carbon Steel	Zinc Plated
7	Flat Washer	Carbon Steel	Zinc Plated

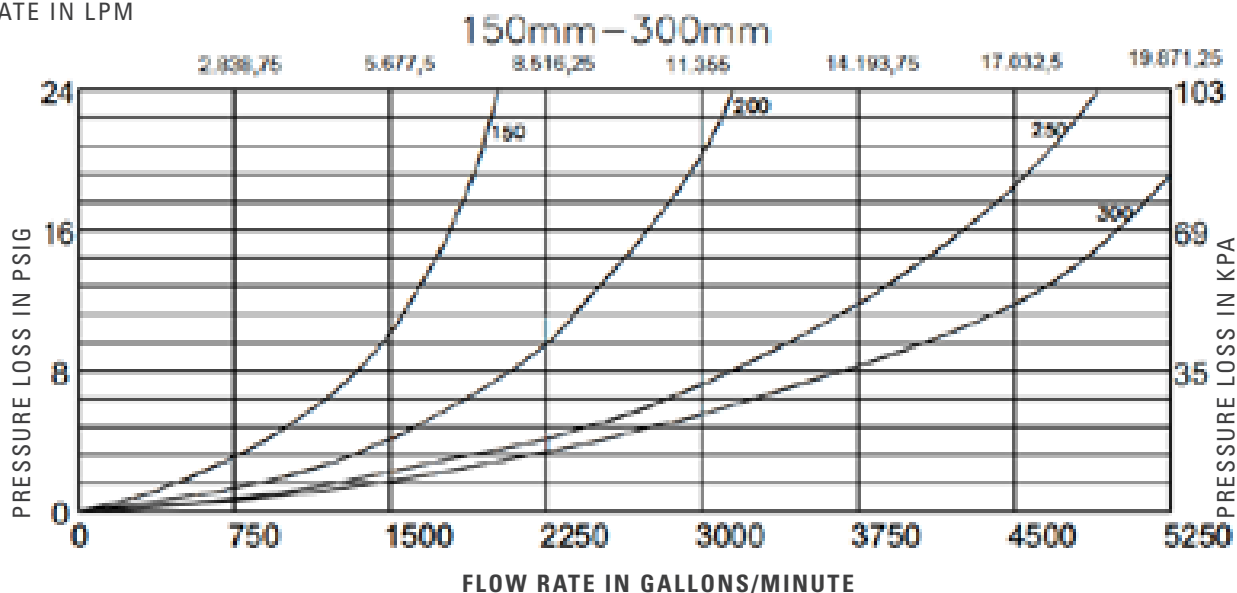
Size		Dimensions (mm)						Drain Plug
Metric	Inch	L	D	b	H	D1	n-Ød	BSP Thread
						PN16	PN16	
DN50	2"	200	152	16	155	125	4-Ø19.1	1"
DN65	2½"	254	178	17.5	165	145	4-Ø19.1	1"
DN80	3"	257	191	19	180	160	8-Ø19.1	1"
DN100	4"	308	229	24	229	180	8-Ø19.1	1"
DN150	6"	470	279	25.5	311	240	8-Ø23	1½"
DN200	8"	549	343	28.5	394	295	12-Ø23	1½"
DN250	10"	654	406	30.5	487	355	12-Ø28	2"
DN300	12"	759	483	32	547	410	12-Ø28	2"

PRESSURE LOSS AT Y-TYPE STRAINER WITH FLANGE CONNECTION

FLOW RATE IN LPM



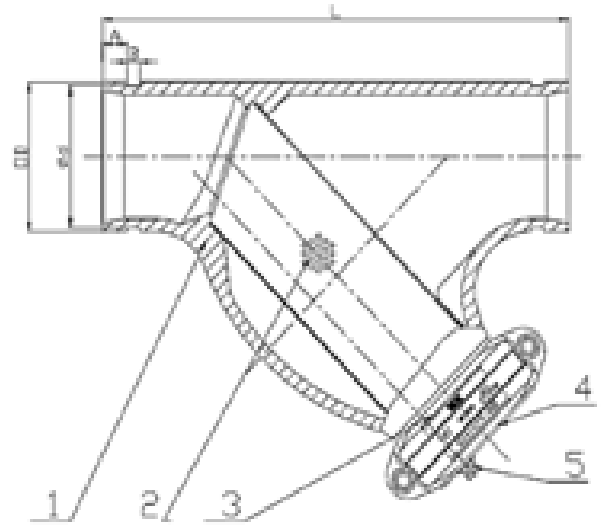
FLOW RATE IN LPM



Y-TYPE STRAINER WITH GROOVED ENDS (YSG)

SCREEN DATA

Size		Sieve No.	Hole Dia. (mm)	Free Flow Area (%)
Inch	mm			
2" - 2½"	50-65	25	4	48
3" - 4"	80-100	18	5	53
6" - 12"	150-300	12	6.3	56



PART LIST

No	Part	Material	Specification
1	Strainer Body	Ductile Iron	ASTM A536 65-45-12
2	Screen	Stainless Steel	AISI 304 (Perforated)
3	Rigid Coupling	Ductile Iron	ASTM A536 65-45-12
	Coupling Gasket	EPDM	Commercial
4	Cap	Ductile Iron	ASTM A536 65-45-12
5	Plug	Malleable Iron	Galvanized

Size		Pipe	Drain Plug	Dimensions (mm)			
Metric	Inch	O.D. (mm)	BSP Thread (mm)	L	Ød	A	B
DN50	2"	60.3	15	247.5	57.2	15.9	7.9
DN65	2½"	73	25	273	69.1	15.9	7.9
		76.1			72.3		
DN80	3"	88.9	25	298.5	84.9	15.9	7.9
DN100	4"	114.3	40	362	110.1	15.9	9.5
DN150	6"	165.1	50	470	160	15.9	9.5
		168.3			164		
DN200	8"	219.1	50	609	214.4	19.1	11.1
DN250	10"	273	50	686	268.3	19.1	12.7
DN300	12"	323.9	50	762	318.3	19.1	12.7

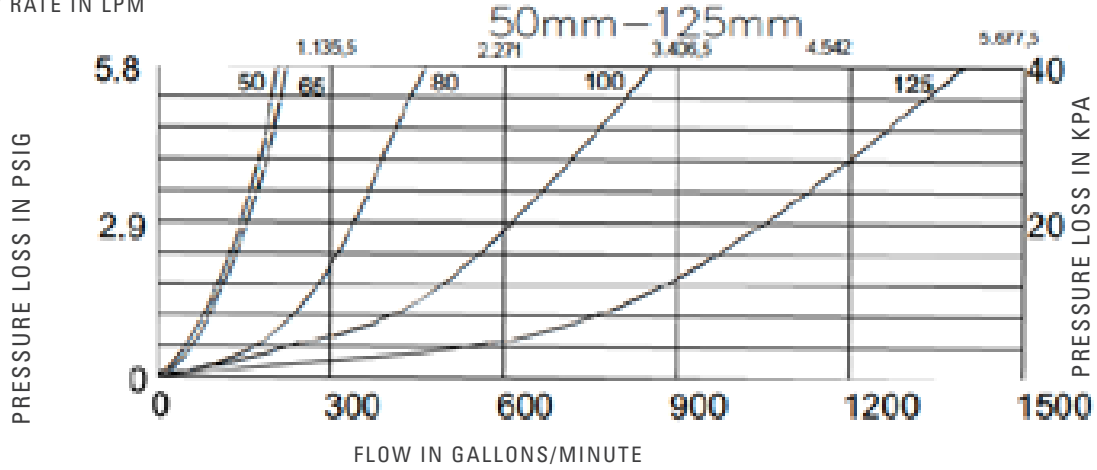
WEIGHT TABLE

YSF Strainer		YSG Strainer	
Size	Weight (kg)	Size	Weight (kg)
2"	8.7	2"	3.8
2½"	12.2	2½" (OD 73 mm)	6.2
3"	13.8	2½" (OD 76 mm)	6.4
4"	23.9	3"	9.2
6"	43.8	4"	15.3
8"	75.4	6" (OD 165 mm)	32.0
10"	109.3	6" (OD 168 mm)	32.7
12"	173.1	8"	70.9
-	-	10"	108.6
-	-	12"	159.4

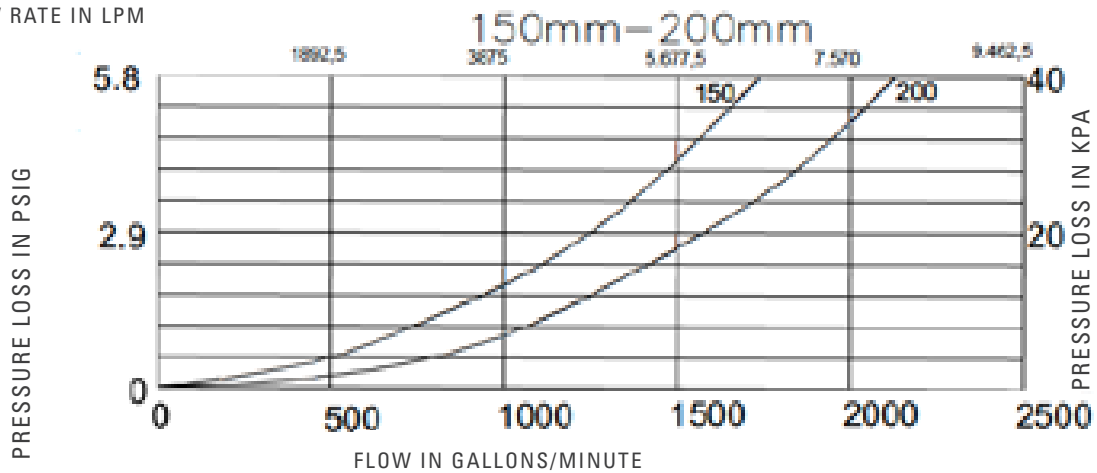
TABLE II

PRESSURE LOSS AT Y-TYPE STRAINER WITH GROOVED CONNECTION

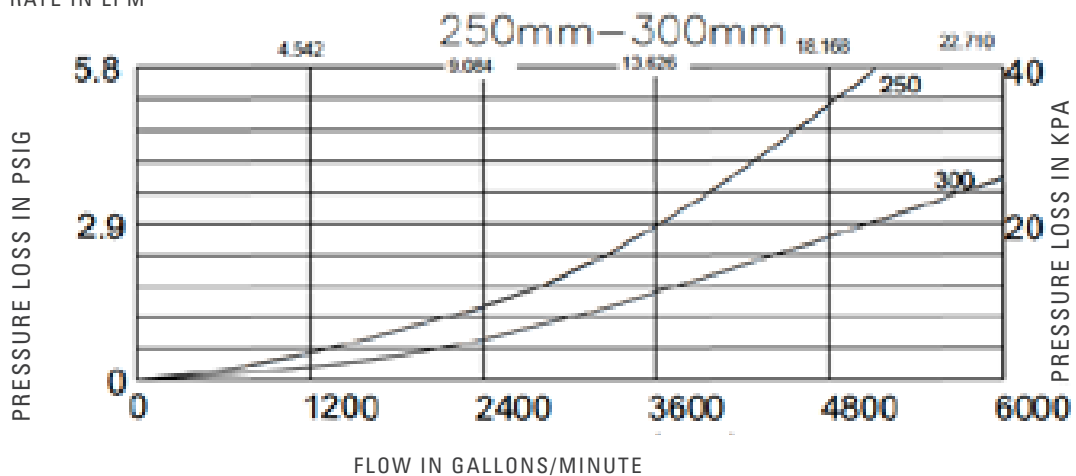
FLOW RATE IN LPM



FLOW RATE IN LPM



FLOW RATE IN LPM



ALARM VALVE SYSTEM

ALARM VALVE MODEL - H

TECHNICAL DATA

MODEL	H
END CONECTION	Flange X Flange Flange X Groove Groove X Groove
NOMINAL SIZE	200, 150, 100 & 80 NB
MAXIMUM WORKING PRESSURE	17.5 Bar (250 PSI)
TEMPERATURE RATING	0-100 °
THREADED OPENING	BSPT
MOUNTING	Vertical
FLANGE CONECTION	EN 1092-IPN16
TRIM	Galvanised fitting with Brass Valves
HYDROSTATIC TEST PRESSURE	35Kg./Sq.Cm. (500PSI)
FRICTIONAL LOSS IN TERMS OF EQUIVALENT LENGTH OF PIPE (C-120)	200 NB - 7.50 Mtrs. 150 NB - 7 Mtrs. 100 NB - 6.1 Mtrs. 80 NB - 4.7 Mtrs.
FINISH	Red RAL 3001
APPROVAL	UL Listed & FM Approved



WEIGHT IN KG

Size	Flange x Flange	Flange x Groove	Groove x Groove
200	65	54.0	44.0
150	42	35.8	28.0
100	27	22.1	17.30
80	18	15.0	12.10

GROOVE PIPE SIZE

Tamaño	Tubo O.D. (mm)
3" (80 NB)	89
4" (100 NB)	114.3
6" (150 NB)	168.3
8" (200 NB)	219.1

DESCRIPTION

Alarm Valve is a double seated clapper check valve with grooved seat design, which ensures positive water flow for alarm operation and is designed for installation in wet pipe sprinkler system. External bypass prevents false alarm under all supply pressure condition. In the event of variable pressure condition, false alarm is prevented with the provision of retard chamber, thus the design allows for installation under both variable and constant supply pressure condition.

Operation of one or more automatic fire sprinklers causes the water to flow into the sprinkler system causing the alarm valve to open, allowing continuous flow of water into the system and transmittal of alarm, both electrical and mechanical.

OPERATION

The fire protection system initially when being pressurized, will allow water to flow into the system until water supply and system pressure is equalized and the clapper closes the waterway. Once the pressure is stabilized, the fire protection system is ready to be placed in service and then the alarm control valve must be opened. Under normal condition, the water pressure gauge connected to the system side of the alarm valve would show a higher or equal pressure reading than the water pressure gauge connected to the supply side of the valve. This occurs because of the bypass line connecting downstream and upstream side of the alarm valve, which allows water pressure surge to pass without lifting the valve clapper off its seat, thereby causing excessive high pressure surge entrapped in the system side due to presence of a check valve, which generally prevents false alarm.

Sudden high pressure surge, as might be encountered by start-up of a large fire pump may lead the valve clapper to lift momentarily, allowing water to flow through grooves in the valve seat to the retard chamber. The water in the alarm line is automatically drained out, which helps to prevent false alarm due to successive transient surge in supply pressure. Restriction assembly located beneath the retard chamber consists of inlet and drain restriction orifices, which are established by considering the volume of the retard chamber to meet the listing and approval requirement with regard to time-to- alarm. These requirements represent a balancing of the need to reduce the possible false alarm due to a transient surge in

supply pressure and to achieve desired minimum time- to- alarm following a sprinkler operation.

In constant pressure installation, the retard chamber is not required and the water passing through the groove in the alarm valve seat flows directly through restriction nozzle assembly to activate the mechanical and electrical alarm.

INSTALLATION

1. Sprinkler alarm valve, Model-H must be installed vertically.
2. The alarm valve must be installed in a readily visible and accessible location and provision to be made in such a way that alarm line drain is visible and accessible.
3. Where water pressure fluctuates, the variable pressure trim with retard chamber must be used. Under non-fluctuating water pressure condition, the constant pressure trim, which does not include retard chamber, may be used.
4. The valve must be installed with trim in accordance with the trim data. Failure to follow the appropriate trim connection guidelines may prevent the device from functioning properly as well as void listing, approval and the manufacturer's warranty.
5. Care must be exercised while installing the check valve in the trim to ascertain that they are located with the arrow mark on the check valve body and pointed in proper direction.
6. The contraction and expansion associated with an excessive volume of trapped air could cause the waterway clapper to cycle open and shut. This may result in false alarm or an intermittent alarm. To avoid these, it is recommended to have breather valve in the system piping network and a vent valve at the extreme end of the system to bleed-off the air.
7. The ball valve provided on the alarm line must be kept open and strapped in set position.
8. Pipe connecting the retard chamber and sprinkler alarm bell must be supported properly to avoid loading on the retard chamber.
9. All the newly installed system pipes must be flushed properly before alarm valve is put into service.

INSPECTION AND MAINTENANCE

It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that all the control valves are in proper position as per the requirement of the system and no damage has taken place to any component.

It is recommended that the alarm valve and its accessories should be examined and performed for following at least quarterly or as demanded by local authorities to ensure reliable and trouble free operation and service.

1. Inspection and testing is to be carried out only by an authorized person. DO NOT TURN OFF the water supply valve to undertake repair work or to test the valve, without placing a roving fire patrol in the area covered by the system. The patrol should continue until the system is back into service. Also do inform the local security personnel and alarm control station, so that a false alarm is not signaled.
 2. Open the alarm test valve. Verify that the sprinkler alarm bell and/or the pressure alarm switch/ electric alarm properly actuate. Close the alarm test valve and verify that water has ceased to flow from the alarm line drain.
 3. Clean the 20 NB (3/4") strainer provided on the sprinkler alarm bell line.
 4. Clean the strainer of restriction assembly.
 5. Inspect the check valve clapper located on the bypass line.
2. If sprinkler alarm bell is not functioning or the impeller is jammed, please follow the maintenance guideline provided in the catalogue for sprinkler alarm bell.
 3. If pressure alarm switch gives a steady signal, but sprinkler alarm generates an intermittent alarm, check sprinkler alarm bell shaft. If both the sprinkler alarm bell and pressure alarm switch are generating intermittent alarm then check for the possible air which is trapped within the sprinkler system. Trapped air is to be bled off. Also the intermittent alarm may occur due to sudden pressure drop and increase in the system. These problems can be corrected by maintaining a steady supply.

CAUTION

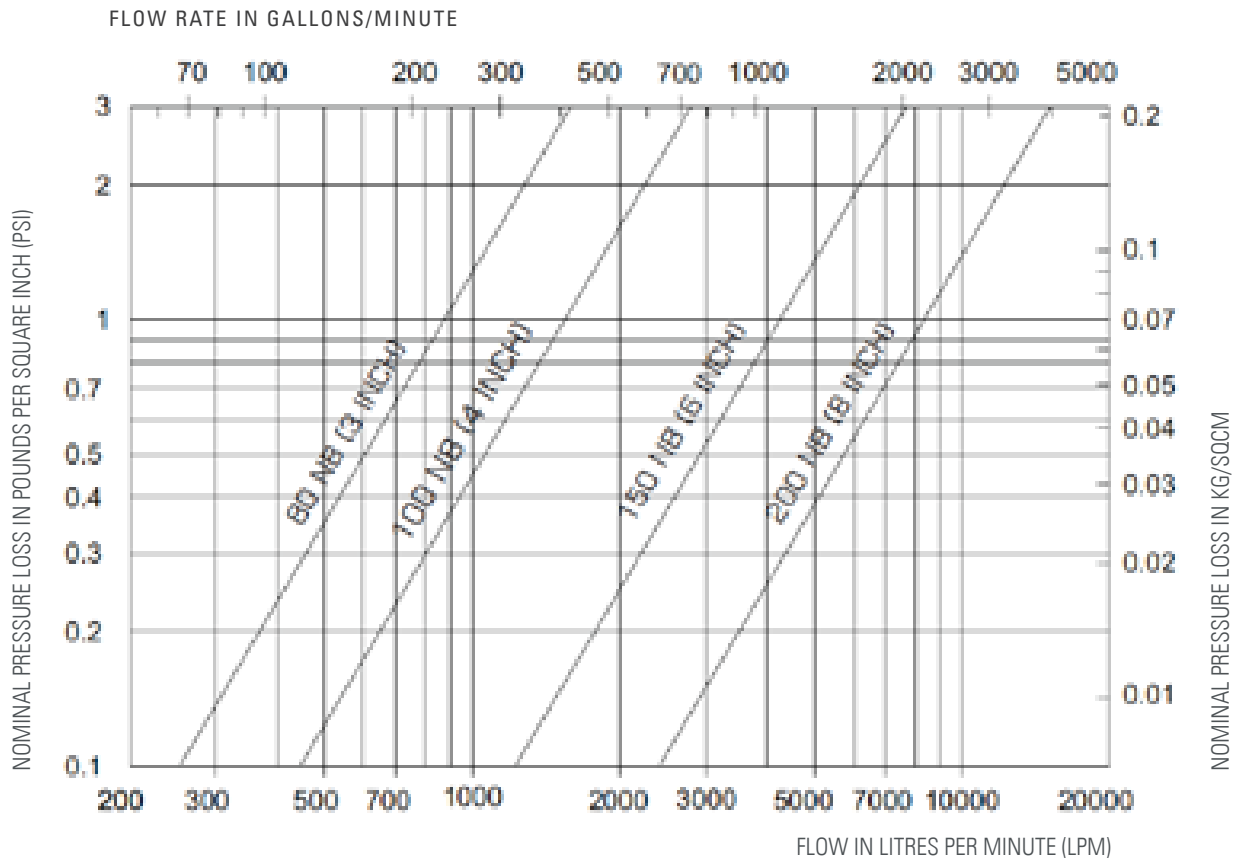


1. The UL Listing, FM Approval and manufacturer's warranty are valid only when the alarm valve is installed with HD trim set and installed as per installation guidelines.
2. Pressure relief valve is required with wet pipe system, when a rise in ambient temperature can cause system pressure to exceed 17.5 Bar (250 PSI). A 17.7 Bar relief valve setting should be used.
3. For proper operation of the wet system and to minimize unwanted false alarm, it is important to remove trapped air from the system. The air trapped in the system may also cause intermittent operation of the Water Motor Alarm during sustained flow of water.

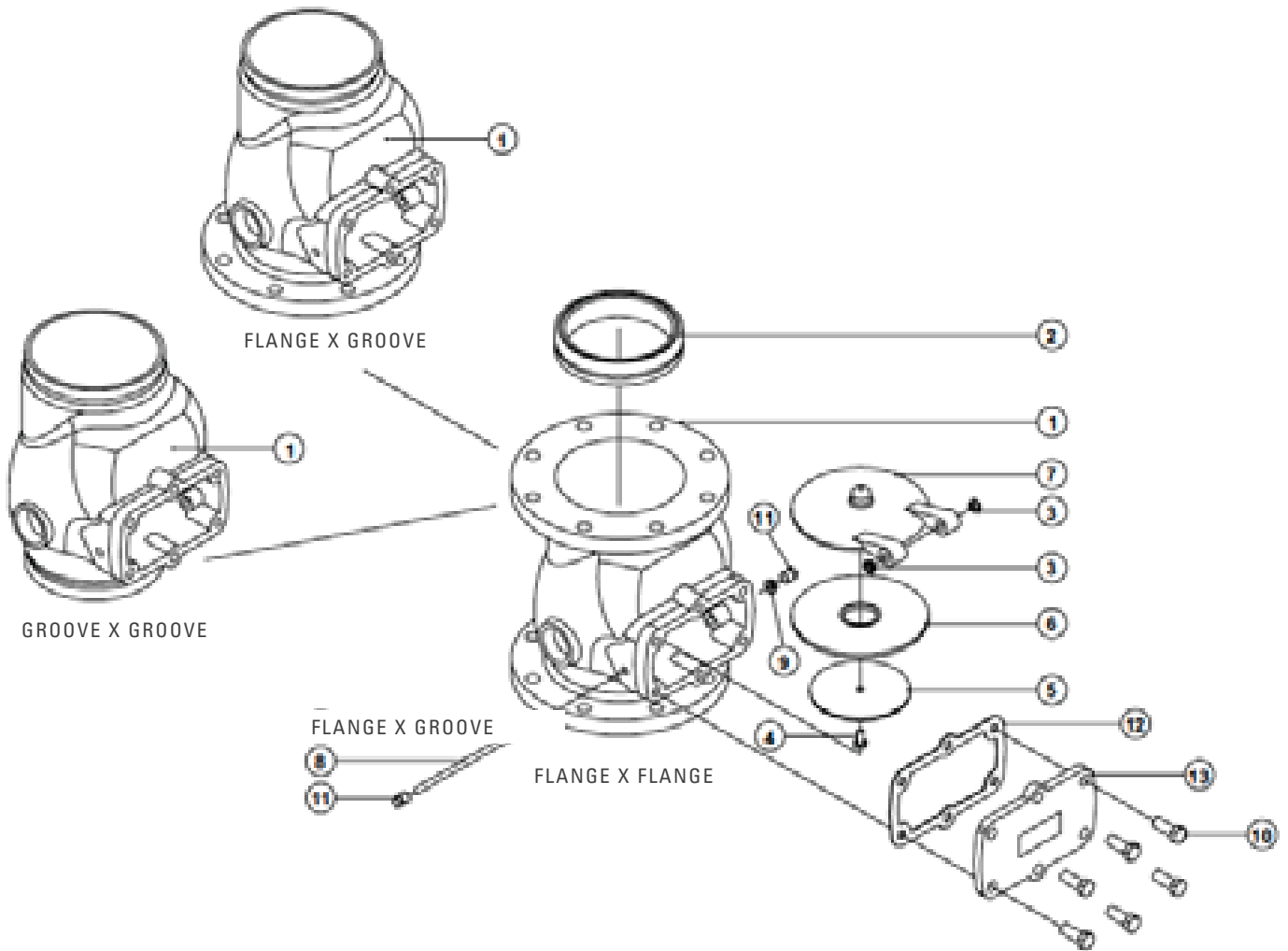
FALSE ALARM

1. Inspect the valve rubber clapper face. If worn or damaged, replace it. Be certain that dirt, stone or any other foreign object have not accumulated under the clapper face and lodged in the groove or holes. Clean the clapper face thoroughly. If the seat ring surface is nicked or scoured, it might be possible to repair the same using lapping compound. If not, replace the complete valve or return it to the manufacturer's works for repair.

NOMINAL PRESSURE LOSS VS. FLOW

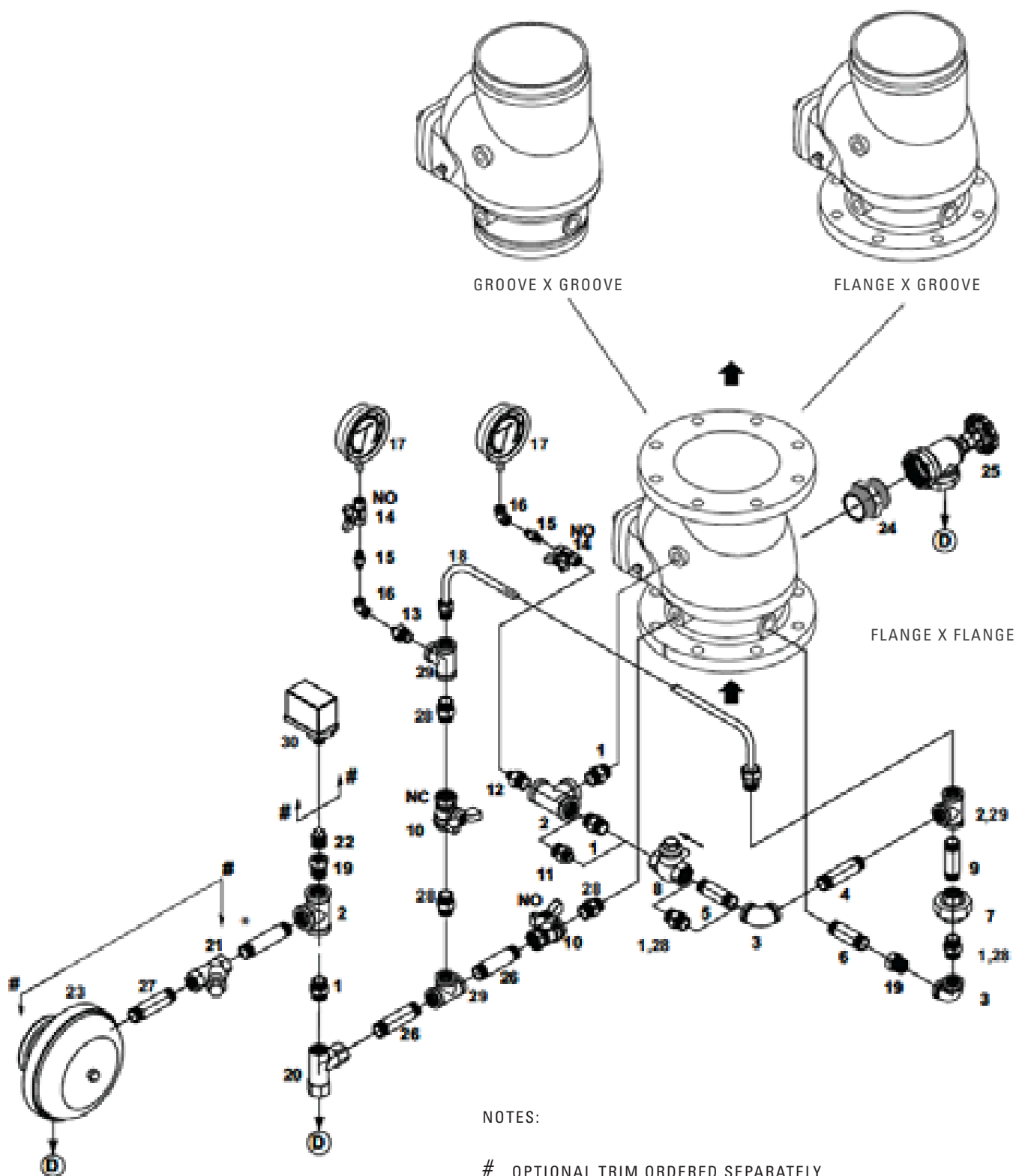


ALARM VALVE MODEL - H - SIZE 200/150/100/80 NB



ITEM	PART No.				Description	QTY				Material
	200 NB	150 NB	100 NB	80 NB		200 NB	150 NB	100 NB	80 NB	
1	NA	NA	NA	NA	Housing (Flange x Flange)	1	1	1	1	Ductile Iron
1	2478	2471	2469	2468	Housing (Flange x Groove)	1	1	1	1	Ductile Iron
1	2485	2482	2480	2479	Housing (Groove x Groove)	1	1	1	1	Ductile Iron
2	NA	NA	NA	NA	Seat	1	1	1	1	Stainless steel
3	2600	2600	2600	2600	Clapper Bush	2	2	2	2	Brass
4	9102	9101	9101	9101	Hex. Head Bolt	4	1	1	1	Stainless steel
5	2636	2628	2619	2656	Rubber Clamp	1	1	1	1	Stainless steel
6	2635	2606	2618	2655	Rubber Seat	1	1	1	1	EPDM
7	2634	2603	2617	2654	Clapper	1	1	1	1	Ductile Iron
8	2638	2608	2258	2658	Hinge Pin	1	1	1	1	Stainless steel
9	2599	2599	2599	2599	Body Bush	2	2	2	2	Brass
10	9004	9004	9004	8373	Hex. Head bolt	6	6	4	4	Steel
11	9430	9430	9430	9430	SQ. Head Plug	2	2	2	2	Ductile Iron
12	2637	2611	2620	2657	Cover Gasket	1	1	1	1	EPDM
13	2631	2604	2615	2651	Cover	1	1	1	1	Ductile Iron

CONSTANT PRESSURE TRIM FOR ALARM VALVE MODEL - H - 200/150/100/80 NB



NOTES:

OPTIONAL TRIM ORDERED SEPARATELY

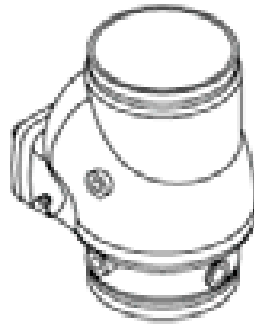
Ⓧ DRAIN

NO: NORMALLY OPEN

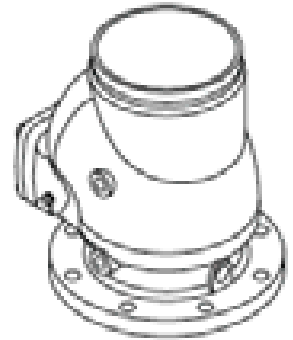
NC: NORMALLY CLOSED

ITEM No.	Code No.	Description	Size	Quantity per alarm valve size			
				200NB	150NB	100NB	80NB
1	8625	Hex Nipple	3/4"	4	4	5	2
2	8620	Tee	3/4"	3	3	3	2
3	8617	Elbow	3/4"	2	2	2	
3	8616	Elbow	1/2"	-	-	-	2
4	8951	Pipe Nipple	3/4" X 150 MM LONG	1	-	-	-
4	9407	Pipe Nipple	3/4" X 130 MM LONG	-	1	-	-
4	9406	Pipe Nipple	3/4" X 100 MM LONG	-	-	1	-
4	9397	Pipe Nipple	1/2" X 100 MM LONG	-	-	-	1
5	9406	Pipe Nipple	3/4" X 100 MM LONG	1	-	-	-
5	9441	Pipe Nipple	3/4" X 80 MM LONG	-	1	-	-
6	9397	Pipe Nipple	1/2" X 100 MM LONG	1	-	-	1
6	9480	Pipe Nipple	1/2" X 80 MM LONG	-	1	1	-
7	8628	Union	3/4"	1	1	1	-
7	8627	Union	1/2"	-	-	-	1
8	9421	Swing Check Valve	3/4"	1	1	1	-
8	9455	Swing Check Valve	1/2"	-	-	-	1
9	8663	Pipe Nipple	3/4" X 70MM LONG	1	1	-	-
9	9426	Pipe Nipple	3/4" X 60MM LONG	-	-	1	-
9	9893	Pipe Nipple	1/2" X 70MM LONG	-	-	-	1
10	9423	Ball valve	1/2"	2	2	2	2
11	8633	Reducing Hex Nipple	3/4" X 1/2"	-	-	-	1
12	8632	Reducing Hex Nipple	3/4" X 1/4"	1	1	1	1
13	8631	Reducing Hex Nipple	1/2" X 1/4"	1	1	1	1
14	9477	Ball valve	1/4"	2	2	2	2
15	8698	Hex Nipple	1/4"	2	2	2	2
16	8357	Elbow	1/4"	2	2	2	2
17	9526	Pressure guage	1/4"	2	2	2	2
18	2301	Alarm test line assembly	1/2"	-	-	-	1
18	2302	Alarm test line assembly	1/2"	-	-	1	-
18	2303	Alarm test line assembly	1/2"	-	1	-	-
18	2304	Alarm test line assembly	1/2"	1	-	-	-
19	8355	Reducing Bush	3/4" X 1/2"	2	2	2	1
20	1027	Restriction Nozzle Assembly		1	1	1	1
21	9382	"Y" Type Strainer	3/4"	1	1	1	1
22	8629	Plug	1/2"	1	1	1	1
23	1416	Sprinkler alarm	TIPO A	1	1	1	1
23	1417	Sprinkler alarm	TIPO B	1	1	1	1
24	8359	Hex Nipple	2"	1	1	1	-
24	8360	Hex Nipple	1-1/4"	-	-	-	1
25	9394	Angle valve	2"	1	1	1	-
25	9392	Angle valve	1-1/4"	-	-	-	1
26	9561	Pipe Nipple	1/2" X 60MM LONG	2	2	2	2
27	9441	Pipe Nipple	3/4" X 80MM LONG	1	1	1	1
28	8624	Pipe Nipple	1/2"	3	3	3	5
29	8619	Tee	1/2"	2	2	2	3
30	-	Pressure switch (optional)	1/2" END CONNECTION	1	1	1	1

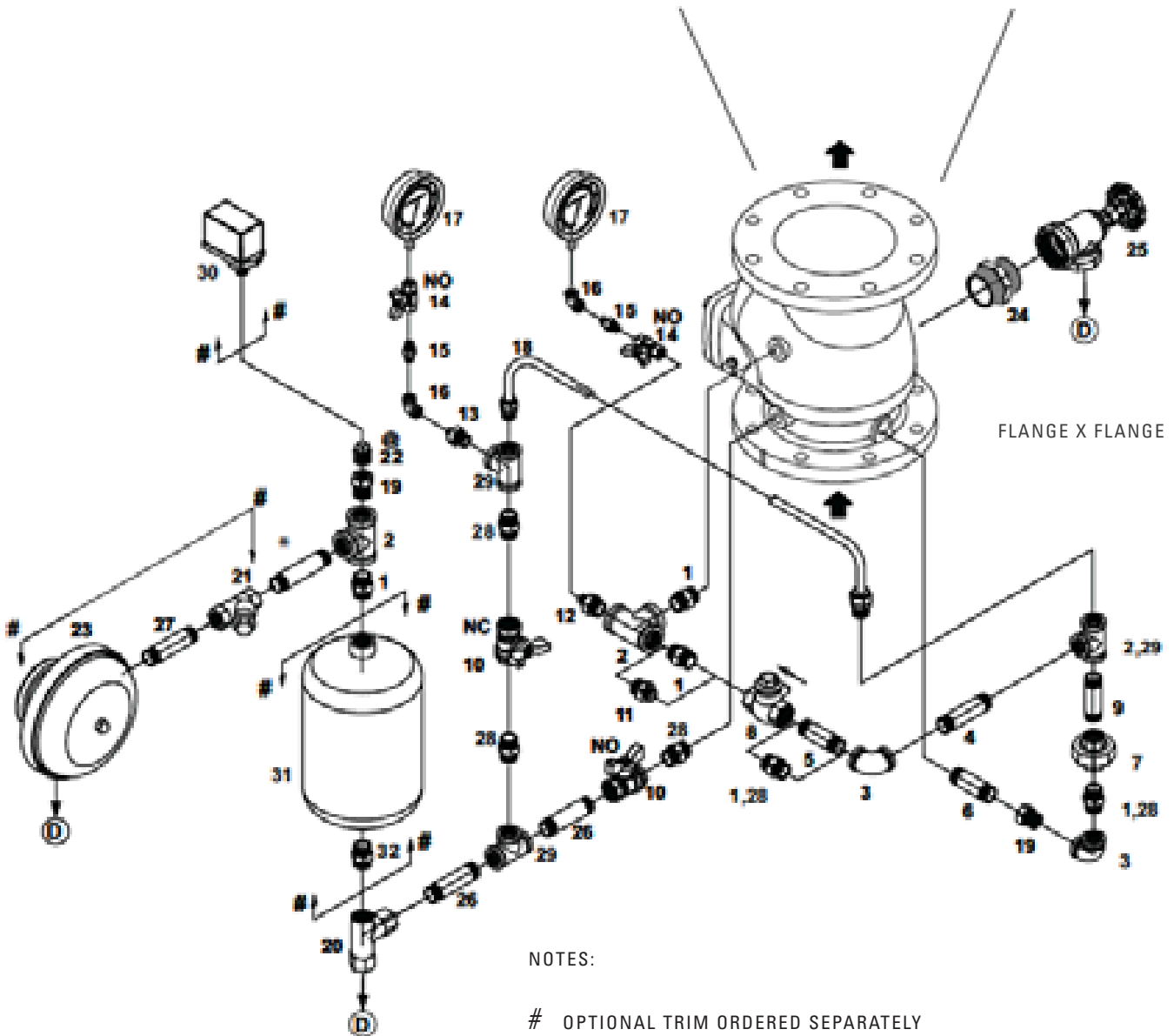
VARIABLE PRESSURE TRIM FOR ALARM VALVE MODEL - H 200/150/100/80 NB



GROOVE X GROOVE



FLANGE X GROOVE



NOTES:

OPTIONAL TRIM ORDERED SEPARATELY

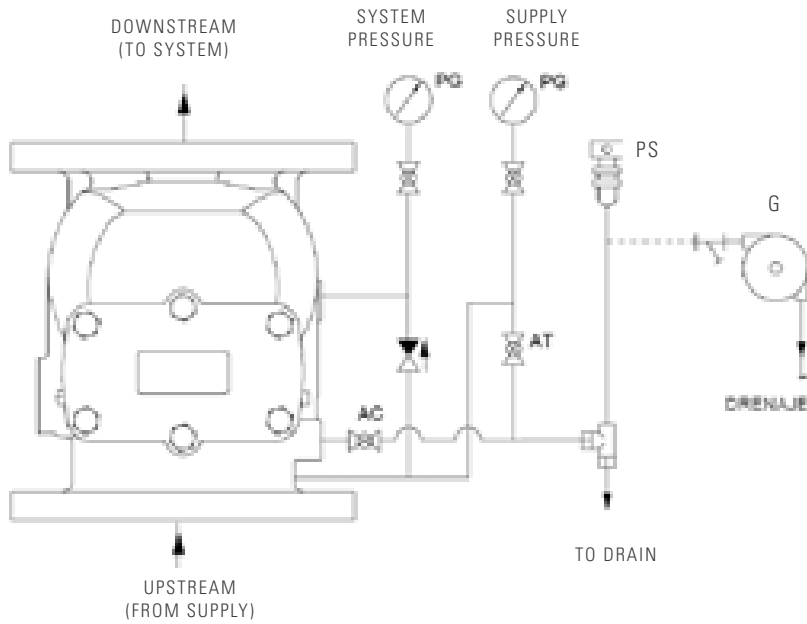
Ⓛ DRAIN

NO: NORMALLY OPEN

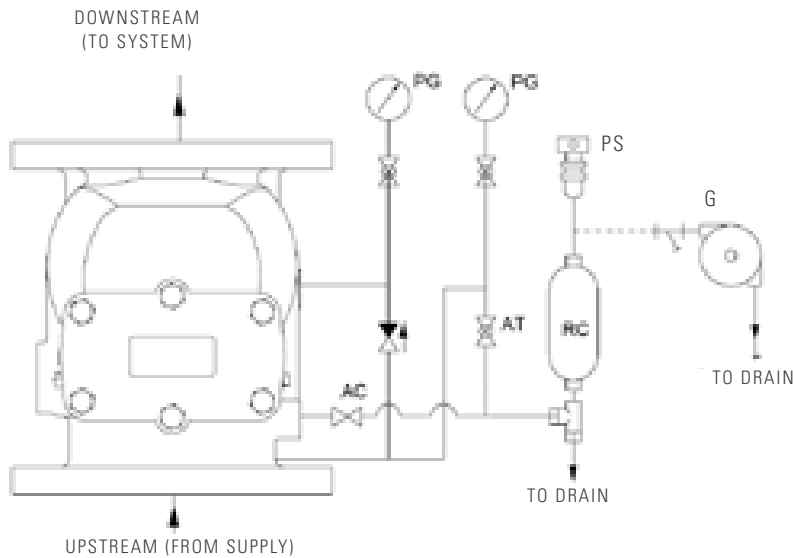
NC: NORMALLY CLOSED

ITEM No.	Code No.	Description	Size	Quantity per alarm valve size			
				200NB	150NB	100NB	80NB
1	8625	Hex Nipple	3/4"	4	4	5	2
2	8620	Tee	3/4"	3	3	3	2
3	8617	Elbow	3/4"	2	2	2	
3	8616	Elbow	1/2"	-	-	-	2
4	8951	Pipe Nipple	3/4" X 150 MM LONG	1	-	-	-
4	9407	Pipe Nipple	3/4" X 130 MM LONG	-	1	-	-
4	9406	Pipe Nipple	3/4" X 100 MM LONG	-	-	1	-
4	9397	Pipe Nipple	1/2" X 100 MM LONG	-	-	-	1
5	9406	Pipe Nipple	3/4" X 100 MM LONG	1	-	-	-
5	9441	Pipe Nipple	3/4" X 80 MM LONG	-	1	-	-
6	9397	Pipe Nipple	1/2" X 100 MM LONG	1	-	-	1
6	9480	Pipe Nipple	1/2" X 80 MM LONG	-	1	1	-
7	8628	Union	3/4"	1	1	1	-
7	8627	Union	1/2"	-	-	-	1
8	9421	Swing Check Valve	3/4"	1	1	1	-
8	9455	Swing Check Valve	1/2"	-	-	-	1
9	8663	Pipe Nipple	3/4" X 70MM LONG	1	1	-	-
9	9426	Pipe Nipple	3/4" X 60MM LONG	-	-	1	-
9	9893	Pipe Nipple	1/2" X 70MM LONG	-	-	-	1
10	9423	Ball valve	1/2"	2	2	2	2
11	8633	Reducing Hex Nipple	3/4" X 1/2"	-	-	-	1
12	8632	Reducing Hex Nipple	3/4" X 1/4"	1	1	1	1
13	8631	Reducing Hex Nipple	1/2" X 1/4"	1	1	1	1
14	9477	Ball valve	1/4"	2	2	2	2
15	8698	Hex Nipple	1/4"	2	2	2	2
16	8357	Elbow	1/4"	2	2	2	2
17	9526	Pressure guage	1/4"	2	2	2	2
18	2301	Alarm test line assembly	1/2"	-	-	-	1
18	2302	Alarm test line assembly	1/2"	-	-	1	-
18	2303	Alarm test line assembly	1/2"	-	1	-	-
18	2304	Alarm test line assembly	1/2"	1	-	-	-
19	8355	Reducing Bush	3/4" X 1/2"	2	2	2	1
20	1027	Restriction Nozzle Assembly		1	1	1	1
21	9382	"Y" Type Strainer	3/4"	1	1	1	1
22	8629	Plug	1/2"	1	1	1	1
23	1416	Sprinkler alarm	TIPO A	1	1	1	1
23	1417	Sprinkler alarm	TIPO B	1	1	1	1
24	8359	Hex Nipple	2"	1	1	1	-
24	8360	Hex Nipple	1-1/4"	-	-	-	1
25	9394	Angle valve	2"	1	1	1	-
25	9392	Angle valve	1-1/4"	-	-	-	1
26	9561	Pipe Nipple	1/2" X 60MM LONG	2	2	2	2
27	9441	Pipe Nipple	3/4" X 80MM LONG	1	1	1	1
28	8624	Pipe Nipple	1/2"	3	3	3	5
29	8619	Tee	1/2"	2	2	2	3
30	-	Pressure switch (optional)	1/2" END CONNECTION	1	1	1	1
31	2300	Retard Chamber, Model - RC9	-	1	1	1	1
32	8625	Hex Nipple	3/4"	1	1	1	1

CONSTANT PRESSURE TRIM - SCHEMATIC ALARM VALVE MODEL - H - FLANGE X FLANGE 200/150/100/80 NB



VARIABLE PRESSURE TRIM - SCHEMATIC ALARM VALVE MODEL - H FLANGE X FLANGE - 200/150/100/80 NB



ABBREVIATION & SYMBOLS

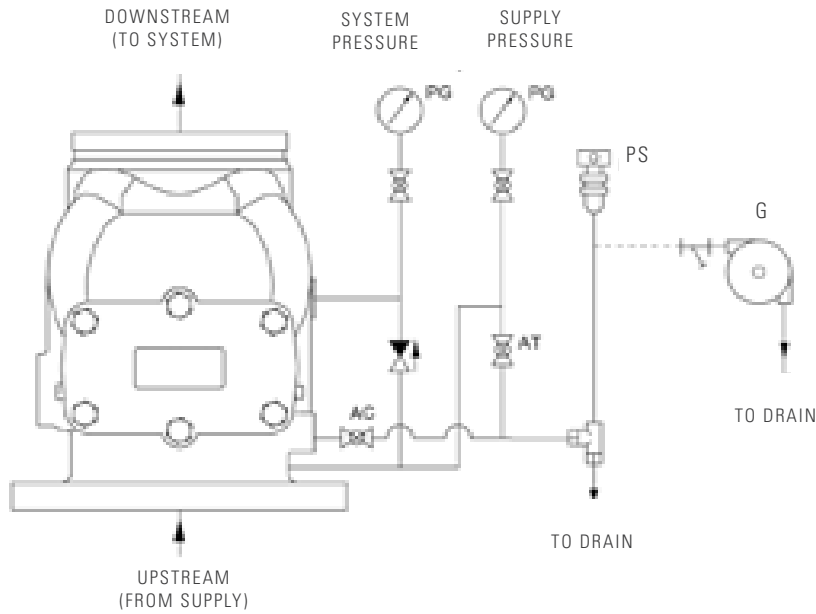
NON RETURN VALVE	RESTRICTION NOZZLE ASSEMBLY	ALARM VALVE
VALVE	PRESSURE GAUGE	SPRINKLER ALARM
ANGLE VALVE		PRESSURE SWITCH
STRAINER		RETARD CHAMBER
		SPRINKLER ALARM TEST VALVE

NOTE:

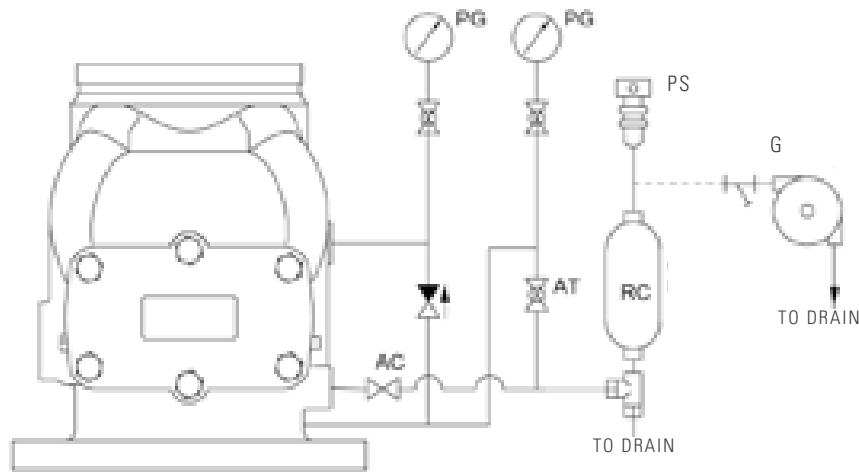
SPRINKLER ALARM CONTROL VALVE MUST BE KEPT NORMALLY OPEN IF THIS VALVE IS KEPT CLOSED THE SPRINKLER ALARM BELL/ ELECTRIC ALARM WILL NOT SIGNAL.

SPRINKLER ALARM TEST VALVE MUST BE KEPT NORMALLY CLOSED CONDITION. VALVE IS OPENED TO TEST THE SPRINKLER ALARM BELL / ELECTRIC ALARM.

CONSTANT PRESSURE TRIM - SCHEMATIC ALARM VALVE MODEL - H - FLANGE X GROOVE 200/150/100/80 NB



VARIABLE PRESSURE TRIM - SCHEMATIC ALARM VALVE MODEL - H - FLANGE X GROOVE 200/150/100/80 NB



ABBREVIATION & SYMBOLS

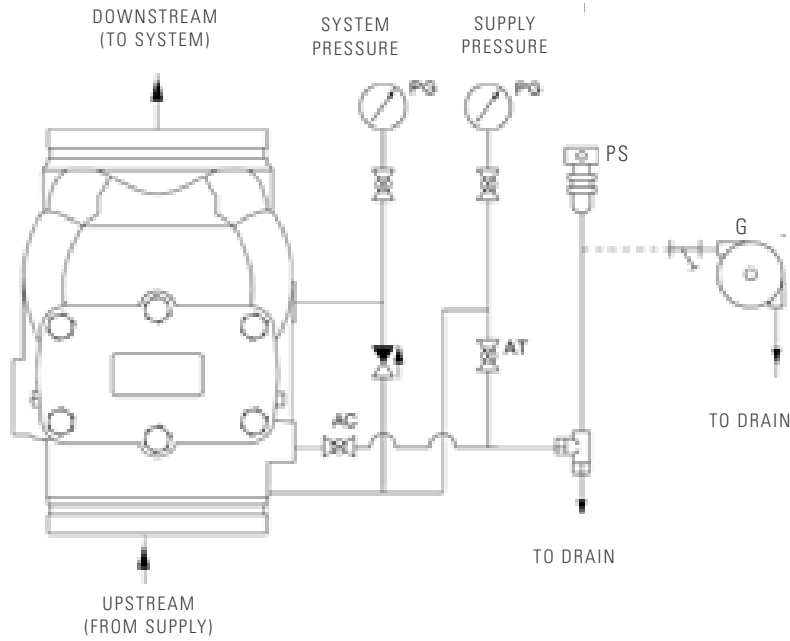
NON RETURN VALVE	RESTRICTION NOZZLE ASSEMBLY	ALARM VALVE
VALVE	PRESSURE GAUGE	SPRINKLER ALARM
ANGLE VALVE		PRESSURE SWITCH
STRAINER		RETARD CHAMBER
		SPRINKLER ALARM TEST VALVE

NOTE:

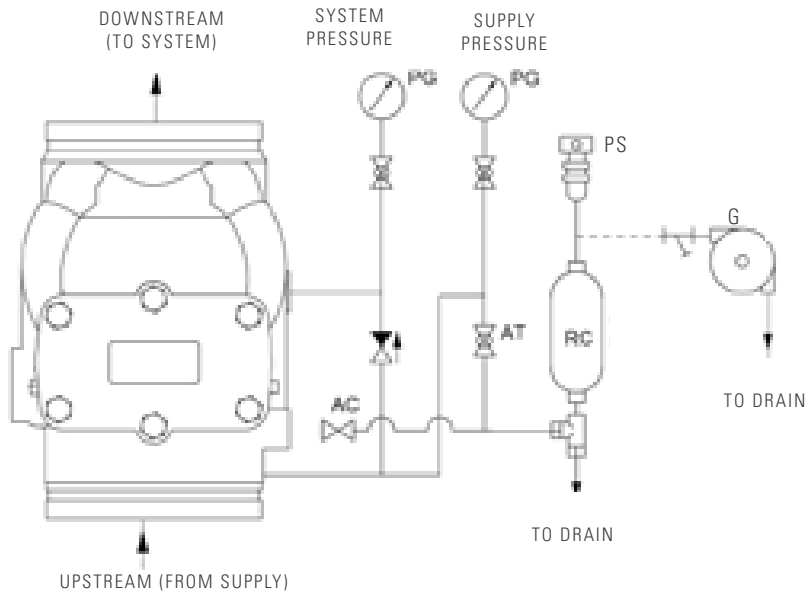
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SPRINKLER ALARM TEST VALVE MUST BE KEPT NORMALLY CLOSED CONDITION. VALVE IS OPENED TO TEST THE SPRINKLER ALARM BELL / ELECTRIC ALARM.

CONSTANT PRESSURE TRIM - SCHEMATIC ALARM VALVE MODEL - H - GROOVE X GROOVE 200/150/100/80 NB



VARIABLE PRESSURE TRIM - SCHEMATIC ALARM VALVE MODEL - H - GROOVE X GROOVE 200/150/100/80 NB



ABBREVIATION & SYMBOLS

- | | | |
|------------------|-----------------------------|----------------------------|
| NON RETURN VALVE | RESTRICTION NOZZLE ASSEMBLY | ALARM VALVE |
| VALVE | PRESSURE GAUGE | SPRINKLER ALARM |
| ANGLE VALVE | | PRESSURE SWITCH |
| STRAINER | | RETARD CHAMBER |
| | | SPRINKLER ALARM TEST VALVE |

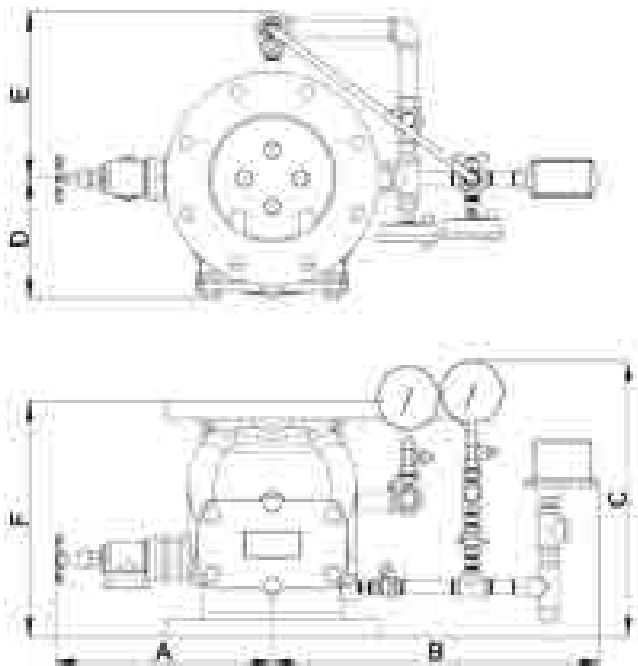
NOTE:

SPRINKLER ALARM CONTROL VALVE MUST BE KEPT NORMALLY OPEN IF THIS VALVE IS KEPT CLOSED THE SPRINKLER ALARM BELL/ ELECTRIC ALARM WILL NOT SIGNAL.

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INSTALLATION DIMENSION WITH TRIM ALARM VALVE MODEL - H · FLANGE X FLANGE 200/150/100/80 NB

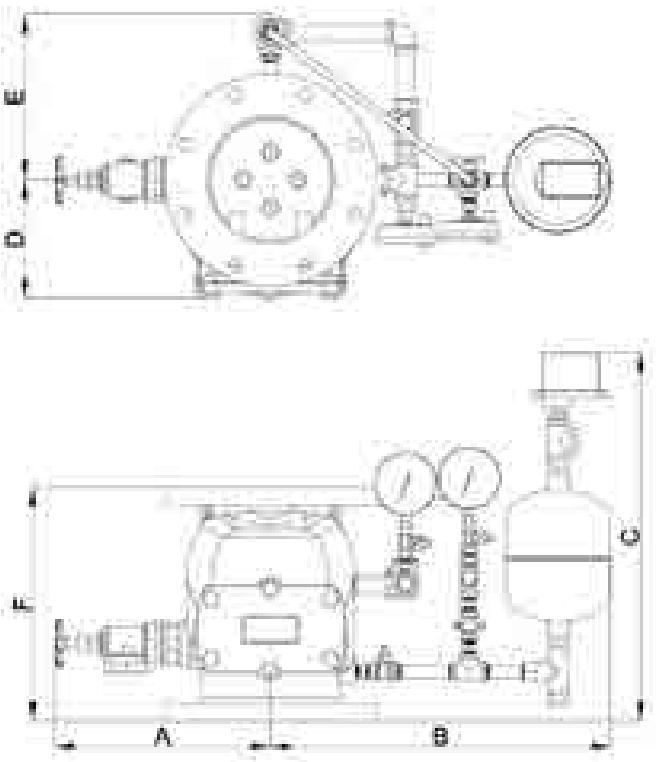
A · CONSTANT PRESSURE TRIM



With Constant Pressure Trim				
Size	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	434	434	434	443
D	127	140	173	192
E	201	219	234	269
F	262	274	315	378

Dimensions are approx. and in millimeters

B · VARIABLE PRESSURE TRIM

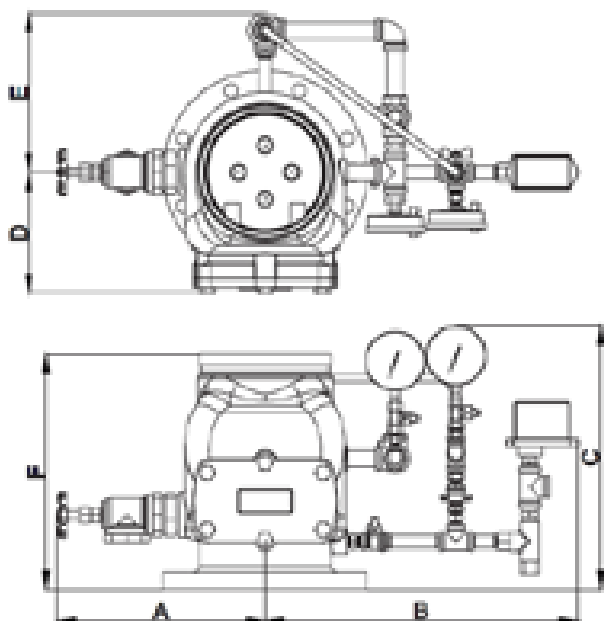


With Variable Pressure Trim				
Size	80NB	100NB	150NB	200NB
A	279	312	331	350
B	482	488	510	551
C	588	588	588	597
D	127	140	173	192
E	201	219	234	269
F	262	274	315	378

Dimensions are approx. and in millimeters

INSTALLATION DIMENSION WITH TRIM ALARM VALVE MODEL - H · FLANGE X GROOVE 200/150/100/80 NB

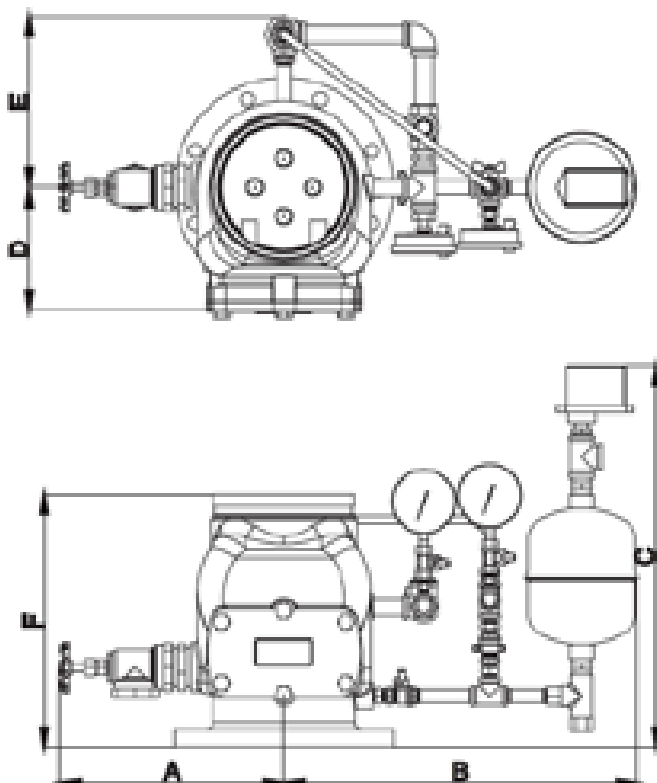
A · CONSTANT PRESSURE TRIM



With Constant Pressure Trim				
Size	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	434	434	434	443
D	127	140	173	192
E	201	219	234	269
F	275	291.3	316.8	395.2

Dimensions are approx. and in millimeters

B · VARIABLE PRESSURE TRIM

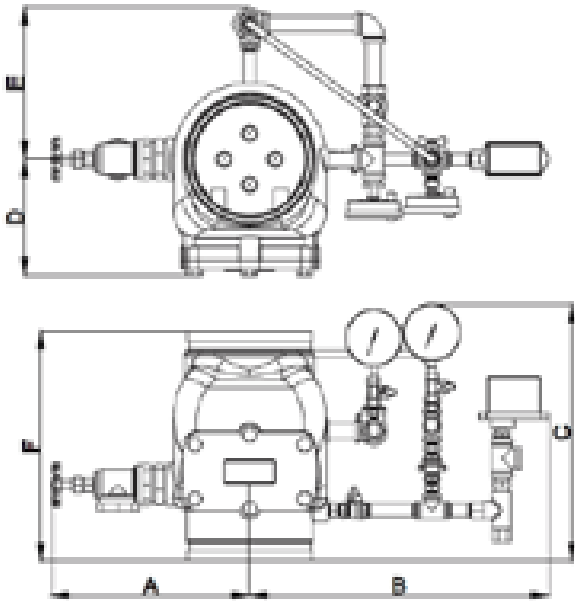


With Variable Pressure Trim				
Size	80NB	100NB	150NB	200NB
A	279	312	331	350
B	482	488	510	551
C	588	588	588	597
D	127	140	173	204
E	201	219	234	269
F	275	291.3	316.8	395.2

Dimensions are approx. and in millimeters

INSTALLATION DIMENSION WITH TRIM ALARM VALVE MODEL - H · GROOVE X GROOVE 200/150/100/80 NB

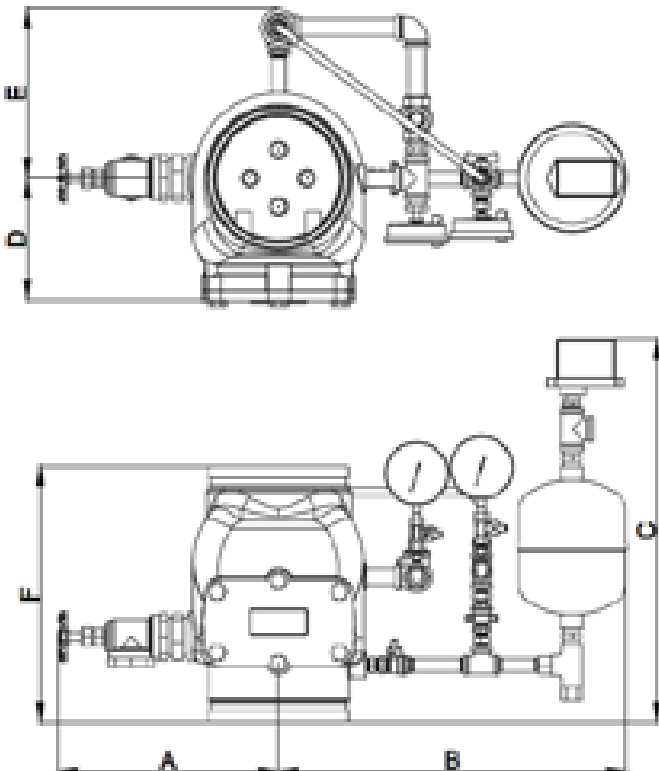
A · CONSTANT PRESSURE TRIM



With Constant Pressure Trim				
Size	80NB	100NB	150NB	200NB
A	279	312	331	350
B	457	464	486	527
C	439	443	442	443
D	127	140	173	204
E	201	219	234	269
F	280	300	324	405

Dimensions are approx. and in millimeters

B · VARIABLE PRESSURE TRIM



With Variable Pressure Trim				
Size	80NB	100NB	150NB	200NB
A	279	312	331	350
B	482	488	510	551
C	593	596	596	607
D	127	140	173	204
E	201	219	234	269
F	280	300	324	405

Dimensions are approx. and in millimeters

RETARDING CHAMBER MODEL - RC9

TECHNICAL DATA

MODEL	RC9
MATERIAL	Stainless Steel
CONNECTION	3/4" BSPT (F)
WEIGHT	2,6 Kg
APPROVAL	UL Listed, FM Approved for use with Alarme Valva Model H
RATED PRESSURE	17.5 Bar (250 PSI)
FINISH	RED RAL 3001



APPLICATION

Retarding Chamber is used with Alarm Valve Trim when variable pressure is anticipated in the system. It is a holding tank to prevent activation of the Sprinkler Alarm during water pressure surge, but permits the activation of alarm on sustained flow. The Retarding Chamber is part of UL Listed and FM Approved Alarm Valve Trim. The Retarding Chamber is made of stainless steel material and rated for 17.5 bar pressure.

OPERATION

Due to sprinkler operation, water starts flowing and clapper of Alarm Valve opens, allowing the water flow to Sprinkler Alarm port. The Sprinkler Alarm port is connected to Retarding Chamber through Restriction

Nozzle assembly. When the flow through inlet of Restriction Nozzle exceeds the drain nozzle flow, the Retarding Chamber begins to fill and there by flowing to sprinkler alarm and pressure switch to activate the alarm. Use of Retarding Chamber prevents the false alarm in variable pressure system.

MAINTENANCE

The Restriction Nozzle assembly need to be inspected and cleaned for possible blockage of Orifice and Screen. More frequent cleaning may be required depending on water quality with respect to water borne debris. The owner is solely responsible for maintaining their fire protection system and devices in proper operating condition.

SPRINKLER ALARM

TECHNICAL DATA

MODEL	GA
MOUNTING TYPE	Type A
WATER WORKING PRESSURE	17.5 Bar (250 PSI)
CONNECTION:	
- Inlet	3/4" BSPT (3/4" NPT)
- Drain	1" BSPT (1" NPT)
DIAMETER	205 mm (8")
DEPTH	50 mm (2")
FINISH	red RAL 3001
WEIGHT	3,0 Kg approx.



SPRINKLER ALARM MODEL - GA

Sprinkler Alarm is a hydraulically driven mechanical bell. It does sound a continuous alarm when the sprinkler system operates. The impeller and drive shaft are energy efficient, made from light weight nonmetallic material and do not require any external lubrication. The gong, protection cover and motor housing are made of corrosion resistant aluminium alloy.

OPERATION

When the sprinkler system is activated by fusing of one or more automatic sprinklers at fire condition, the water flows through the Alarm Valve/Deluge Valve and enters the sprinkler alarm through the nozzle, creating a high velocity jet which strikes the impeller causing the drive shaft and the striker arm assembly to rotate. The alarm arm assembly rotates and strikes to impact against the aluminium gong, producing a continuous alarm. The waste water then drains out through a 25NB drain outlet.

MAINTENANCE

Even though corrosion resistant material is used in the construction of the Sprinkler Alarm, it is suggested that the Sprinkler Alarm be examined and tested at regular intervals to ensure that the nozzle is free from obstruction and the impeller is free to rotate. The inspection should include the following, in addition to any specific requirement of NFPA, or as required by

authority having jurisdiction.

1. Clean the 20 NB (3/4") Strainer provided in the alarm line.
2. Open the 3/8" plug provided on the inlet of the Sprinkler Alarm and clean out any accumulated particles.
3. Detach the Gong, clean the internal surface and refit in proper sequence.
4. Activate the Sprinkler Alarm to verify clear and steady sound.

DESIGN REQUIREMENT

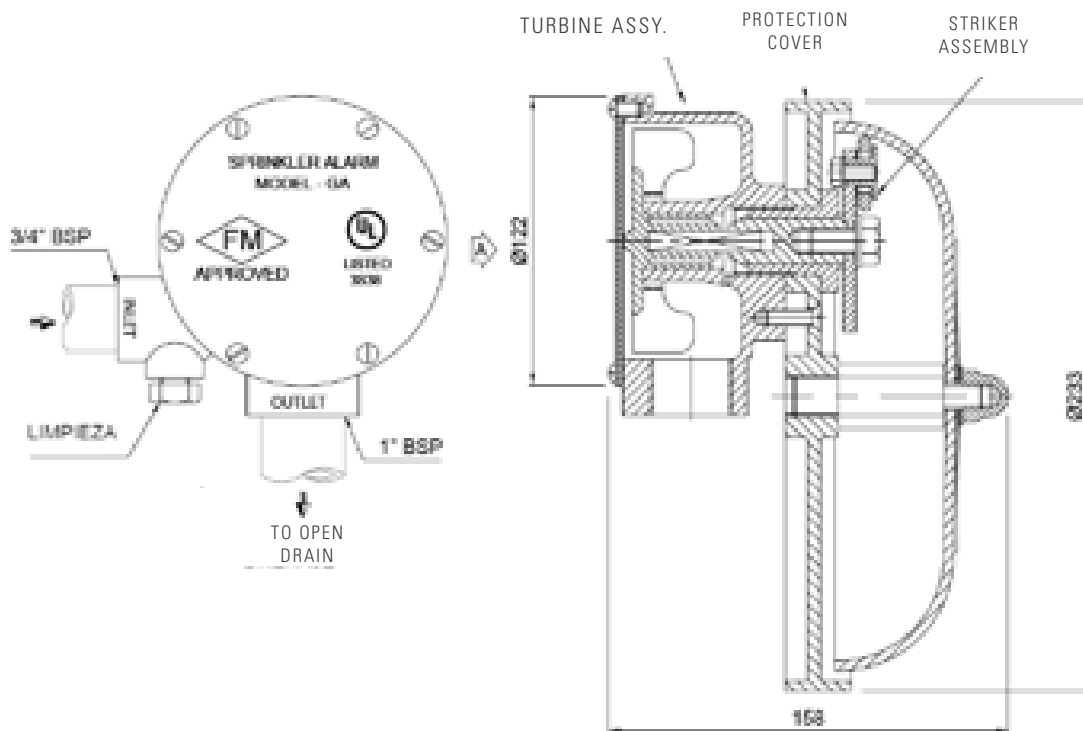
Strainer is required in the Sprinkler Alarm line to protect the 3.2 mm nozzle in the water motor housing from clogging.

The alarm line pipe must be 20NB (3/4") size with 22.8 mtrs. maximum total length of pipe with minimum number of fittings. If the length of the pipe exceeds 22.8 mtrs., then higher size pipe must be used to reduce hydraulic friction loss.

The Sprinkler Alarm should not be located more than 1.8 mtrs. above Alarm Valve / Deluge Valve.

One Sprinkler Alarm may be connected to one or maximum of three alarm lines of separate fire systems. For interconnecting more than one Sprinkler Alarm, a swing check valve in each line need to be provided.

SPRINKLER ALARM - GA MOUNTING TYPE A



INSTALLATION OF SPRINKLER ALARM MODEL GA MOUNTING TYPE A

The Sprinkler Alarm with mounting Type-A is supplied pre-assembled. Connect the Alarm port of the Alarm valve or Deluge valve to the inlet of the sprinkler alarm assembly with 20NB (3/4") pipe with proper support.

A 20NB (3/4") strainer is to be provided as close as possible to the Sprinkler Alarm assembly. Connect the 25NB (1") drain pipe to the housing, taking due care that the drain discharge is running to a safe location and keep the drain free from obstruction. A blocked drain discharge may create back pressure and prevent the Sprinkler Alarm from operating properly.

The 20NB (3/4") inlet and 25NB (1") drain pipe should be properly supported with the help of the bracket, so that in turn proper support is available for the Sprinkler Alarm. The inlet and the drain pipe is to be preferably connected with an union for easy removal and re-fixing of the Sprinkler Alarm during maintenance.

The Sprinkler Alarm must be installed in accordance with the requirement of NFPA, TAC or to the requirement of the local authority having jurisdiction.

PRESSURE SWITCH

TECHNICAL SPECIFICATIONS

CONTACT RATINGS	SPDT (Form C) 10.1 Amps at 125/250 VAC, 2,0 Amps at 30 VDC ONe SPDT in PS10-1, Two SPDT in PS10-2
DIFERENCIAL	2 psi (0,13 bar) typical
ENCLOSURE	Cover: Weather/UV/Flame Resistant High Impact Composite BAse: Die CAst All parts have corrosion resistant finishes
ENVIROMENTAL LIMITATIONS	-40 °F to 140 °F (-40 °Cto 60 °C) NEMA 4/IP66 RAted Enclosure indoor or outdorr when used with NEMA 4 conduit fittings
FACTORY ADJUSTMENT	4 - 8 psi (0,27 - 0,55 bar)
MAXIMUM SYSTEM PRESSURE	300 psi (20,68 bar)
PRESSURE CONNECTION	Nylon 1/2" NPY male
PRESSURE RANGE	4-15 psi (0,27 - 1,03 bar)



WATERFLOW INDICATOR

TECHNICAL SPECIFICATIONS

SYSTEM SERVICE PRESSURE	Up to 3,1 MPa (450 PSI)
FLOW SENSITIVITY RANGE FOR SIGNAL	15-38 LPM
MAXIMUM SURGE	18 FPS (5.5 m/s)
CONTACT RATINGS	ONe or Two sets od SPDT (Form C) 15 Amps at 125/250 VAC 2.0 Amps at 30 VDC resistive
ENVIROMENTAL SPECIFICATIONS	<ul style="list-style-type: none"> • Suitable for indoor of outdoor use with factory installed gasket and die-cast housing. • IP54/NEMA 4 Rated Enclosure - use with appropriate cable or conduit fitting. • Temperature Range: 40 °F/120 °F ;4.5 °C a 49 °C • Non-corrosive sleeve factory installed in saddle



FLEXIBLE HOSES

Tubasys flexible hoses are designed to reduce the times and costs of on-site installation on connections between branches and sprinklers.

Each installation kit comprises:

- one flexible hose
- one adapter nipple (input)
- one reducer nipple (sprinkler connection)
- one square bar
- one central support
- two end supports

Tubasys' flexible hoses are available both braided and unbraided in lengths that go from 700 to 1,800 mm and with different supports for false ceiling and wall applications and therefore a wide variety of accessories: square bars, reducers, elbows, central and end supports.

The TU series hoses are listed by cULus. The TB series hoses are approved by FM.

The flexible hose system is suitable for retail installations, catering premises, offices, health centres, administrative buildings, etc., both for wet and dry systems.

INSTALLATION OF FLEXIBLE HOSES:

The assembly guidelines outlined here should be considered as recommendations to achieve a correct installation of the Tubasys flexible hoses. Failure to follow them may lead to the appearance of problems in the installation and to injuries and material damage.

- Operators must wear personal protection equipment appropriate to the work and the sites on which the work is to be carried out. It is recommended that at least a helmet, protective glasses, gloves and safety boots be worn.
- Ensure that the installation on which the work is to be done is empty and depressurized.
- Check that the tooling and equipment that will be used are appropriate, in perfect condition and that staff know how to use them.
- Check that the measurements and materials of the hoses and their gaskets are suitable for the type of installation on which they are to be assembled.

Tubasys' flexible hoses must be installed in accordance with the applicable

NFPA regulations (NFPA13, NFPA13D, NFPA13R,..) or equivalent regulations.

The construction of the suspended ceilings must be compliant with ASTM-C635 and the installation in accordance with ASTM-C636.

Check that the gasket:

- Is appropriate for the facility in which is to be mounted. Class E EPDM gaskets have a green mark.
- Is suitable for the temperature range of the installation or area in which it is to be placed.
- Will never come into contact with lubricants or products containing mineral oils.
- Has no damage and is in perfect condition.

The owner is responsible for the correct maintenance and operation of the fire protection system and must comply with the applicable standards in force at all times.

ASSEMBLY STEPS:

1. Installation of end supports

1.1. Install the end supports on the square bar in the selected position



1.2. Firmly screw in the screws of the end supports using the appropriate screwdriver (2.5 Nm).



2. Installation of the square bar

2.1. Insert the square bar into one of the holes of one of the end supports.



2.2. Insert the square bar into the hole of the other end support.



2.3. Firmly screw in the screws of the end supports using the appropriate screwdriver (2.5 Nm).



3. Installation of the flexible hose

3.1. Installation of the adapter nipple (input):

3.1.1. Separate the adapter nipple from the flexible hose

3.1.2. Apply thread sealing tape to the adapter nipple's 1" thread following the NFPA instructions and the sealing tape manufacturer's instructions.



3.1.3. Screw the adapter nipple in until it is tight using the appropriate spanner to ensure there are no water leaks (96 Nm)



3.2. Installation of the reducer nipple on the flexible hose:

3.2.1. Check the rubber gasket inside the nut at the end of the hose in order to avoid water leaks.

3.2.2. Do not apply paste for gaskets or sealing tape.

3.2.3. Connect the hose to the reducer nipple using the end nut.

3.2.4. Screw in until the nut is tight using the appropriate spanner (70 Nm)

3.3 Installation of the hose on the adapter nipple.

3.3.1. Check the rubber gasket inside the nut at the end of the hose in order to avoid water leaks.



3.3.2. Do not apply paste for gaskets or sealing tape.

3.3.3. Connect the hose to the reducer nipple using the end nut.

3.3.4. Screw in until the nut is tight using the appropriate spanner (70 Nm)



3.4. Position the head of the flexible hose

3.4.1. Determine the position of the head of the flexible hose along the length of the square bar.

3.4.2. Curve the flexible hose to position its head. Follow the flexible hose's technical instructions with regard to its curvature.

3.5. Installation of the flexible hose

3.5.1. Install the central support on the square bar and position it in its definitive location



3.5.2. Insert the reducer in the central support.



3.5.3. If the central support has screws, screw them in tightly using a screwdriver or the appropriate spanner so that the reducer ends up firmly fixed to the central support (4 Nm).



3.5.4. If the central support has a wing nut, turn it to the position in which the reducer is firmly fixed.

3.6. Installation of the sprinkler

3.6.1. Apply sealing tape to the sprinkler's thread

3.6.2. Screw the sprinkler into the reducer on the end of the flexible hose



3.7. Final inspection

3.7.1. Check that all the components have ended up in the desired position and firmly held

3.7.2. Perform the pneumatic and hydrostatic tests to detect any leaks following the pertinent standard.

13

FLEXIBLE HOSE UNBRAIDED TU SERIES

Reference	Length Inch	Length mm	Input Npt	Exit Npt	US/Metric K factor	Max. No of 90° Curvatures	Friction Loss Data	
							Equivalent Length Of Pipe Of 1 In Sch40 (Ft)	Equivalent Length Of Pipe Of 1 In Sch40 (mm)
Tu 12 28	28"	700	1"/DN25	1/2"	5.6/80	1	18	5.400
Tu 34 28				3/4"	8.0/115	1	22	6.700
Tu 12 40	40"	1000	1"/DN25	1/2"	5.6/80	2	32	9.700
Tu 34 40				3/4"	8.0/115	2	39	11.890
Tu 12 48	48"	1220	1"/DN25	1/2"	5.6/80	2	38	11.580
Tu 34 48				3/4"	8.0/115	2	44	13.410
Tu 12 60	60"	1520	1"/DN25	1/2"	5.6/80	3	55	16.760
Tu 34 60				3/4"	8.0/115	3	61	18.590
Tu 12 67	67"	1720	1"/DN25	1/2"	5.6/80	3	63	19.200
Tu 34 67				3/4"	8.0/115	3	83	25.300



SPECIFICATIONS:

Minimum curvature radius:

6" / 150 mm (UL/ULC)

Do not curve at less than 2.52 in / 65 mm from the connecting nuts.

Maximum Ambient Temperature: 225°F / 107°C

Maximum Working Temperature: 175 psi / 12 Bar

Maximum tightening torque of the nipples: 50 ft-lb / 70 Nm

Materials:

Hose: Stainless steel AISI 304

Nut and nipples: Zinc-plated Steel

Sealing rubber and ring: EPDM / Nylon

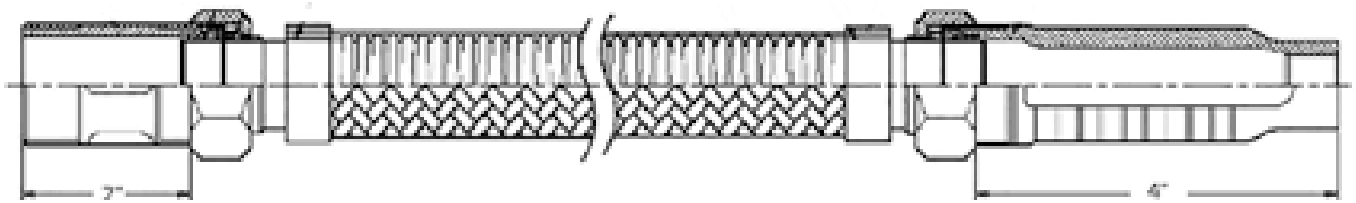


14

FLEXIBLE HOSE

BRAIDED TB SERIES

Reference	Length Inch	Length mm	Input Npt	Exit Npt	US/Metric K factor	Max. No of 90° Curvatures	Friction Loss Data	
							Equivalent Length Of Pipe Of 1 In Sch40 (Ft)	Equivalent Length Of Pipe Of 1 In Sch40 (mm)
TB 12 24	24"	705	1"/DN25	1/2"	5.6/80	1	27	8.100
TB 34 24				3/4"	8.0/115	1	18,6	5.600
TB 12 40	40"	1000	1"/DN25	1/2"	5.6/80	2	27	8.100
TB 34 40				3/4"	8.0/115	2	18,6	5.600
TB 12 48	48"	1220	1"/DN25	1/2"	5.6/80	3	54,9	16.500
TB 34 48				3/4"	8.0/115	3	48,3	14.500
TB 12 60	60"	1500	1"/DN25	1/2"	5.6/80	4	72,5	21.750
TB 34 60				3/4"	8.0/115	4	66,2	19.900
TB 12 72	72"	1820	1"/DN25	1/2"	5.6/80	4	90,5	27.150
TB 34 72				3/4"	8.0/115	4	83	24.900



SPECIFICATIONS:

Minimum curvature radius:

4" / 102 mm (UL/ULC) y 8" / 203 mm (UL/ULC)

Do not curve at less than 2.52 in / 65 mm from the connecting nuts.

Maximum Ambient Temperature: 225°F / 107°C

Maximum Working Temperature: 175 psi / 12 Bar

Maximum tightening torque of the nipples: 50 ft-lb / 70 Nm

Materials:

Hose: Stainless steel AISI 304

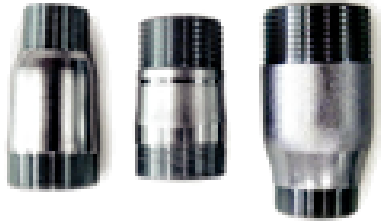
Nut and nipples: Zinc-plated Steel

Sealing rubber and ring: EPDM / Nylon

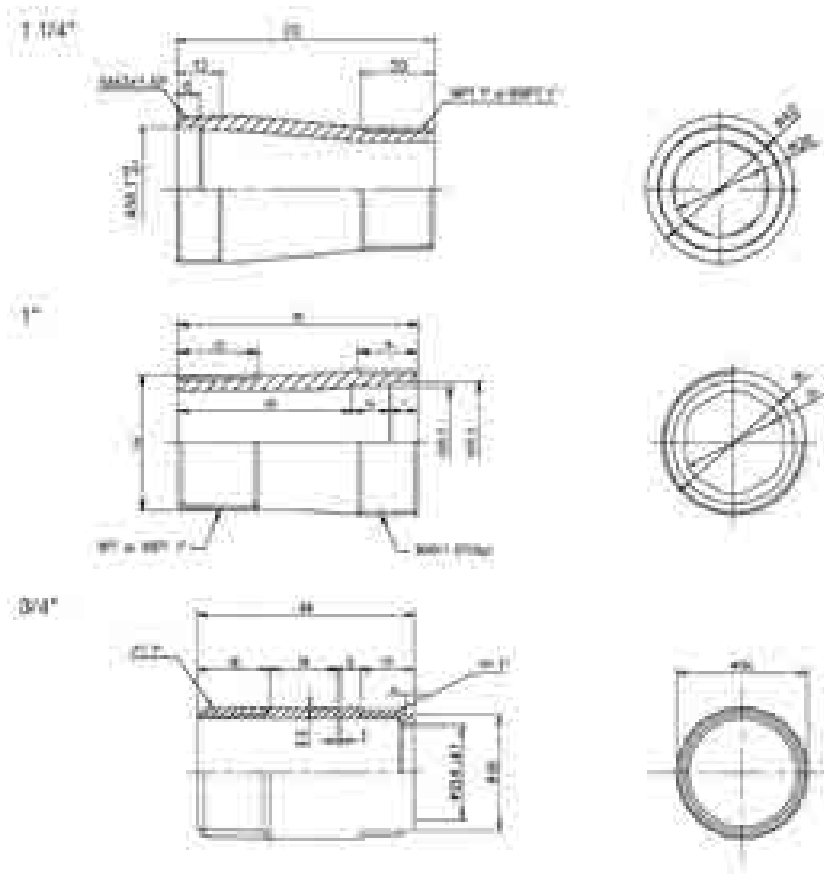


15

NIPPLE ADAPTER (INPUT) · NP



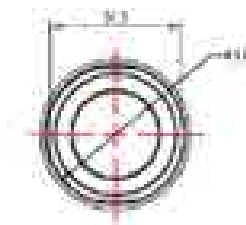
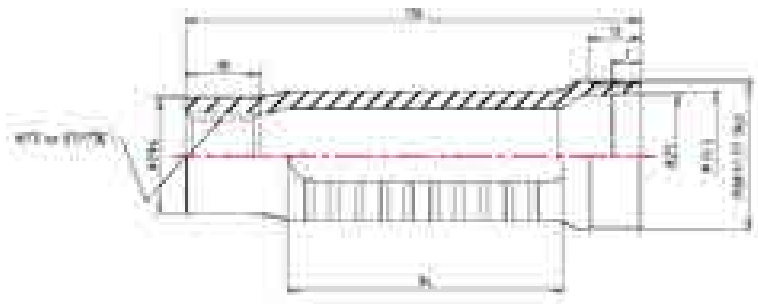
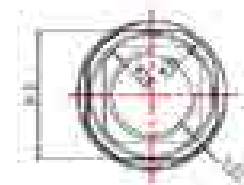
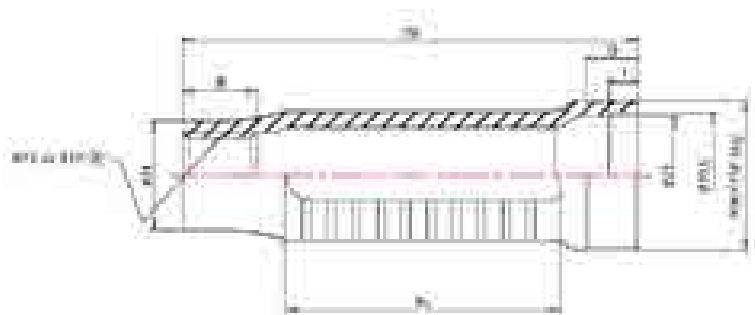
MATERIAL	STPG 370
TOLERANCE	±0.3
THICKNESS	2.0mm, ±0.05
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without signs of corrosion compliant with KSD 9502



16 NIPPLE REDUCER (OUTPUT) · RD34



MATERIAL	ASTM A-366
TOLERANCE	±0.3
THICKNESS	2 mm, ±0.05
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test

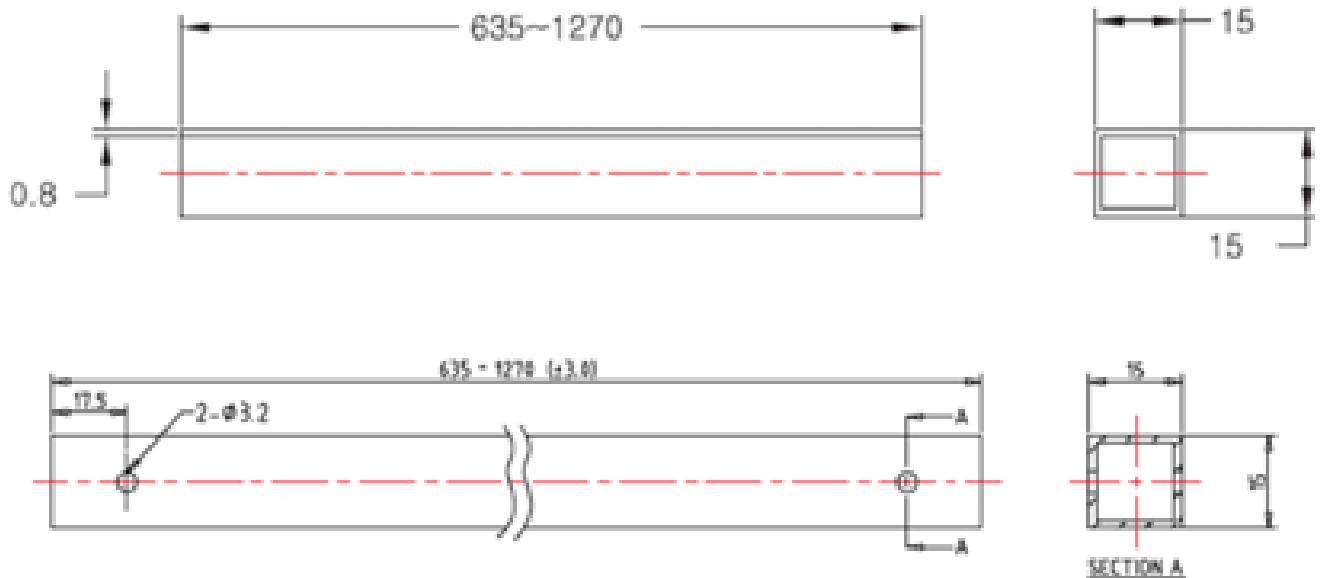


17

SQUARE BAR · SQ25



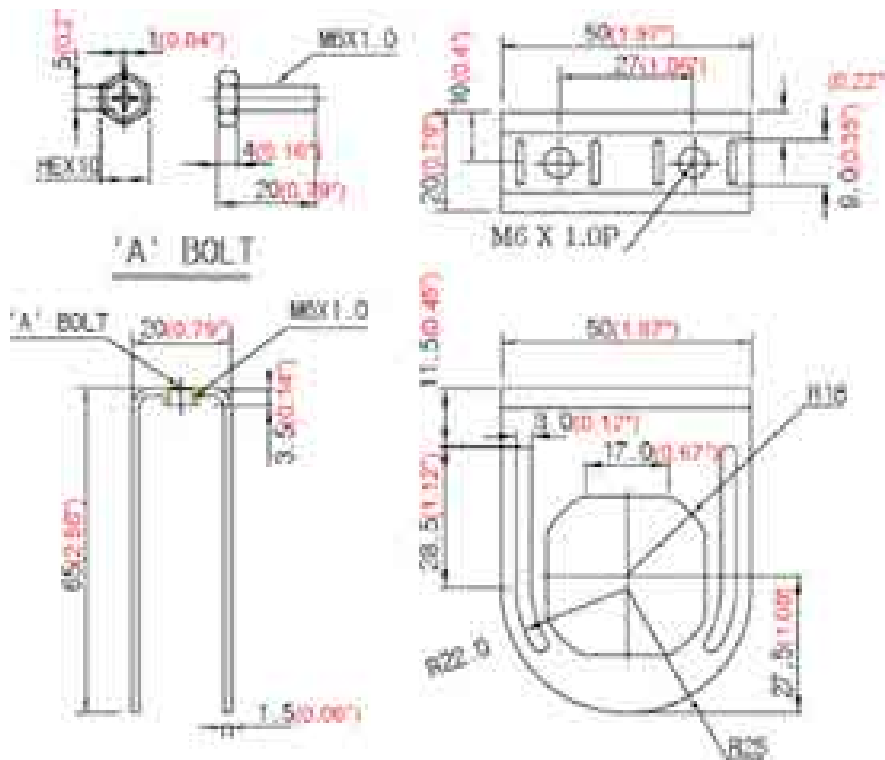
MATERIAL	ASTM A-366
TOLERANCE	±0.3
THICKNESS	2 mm, ±0.05
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test



18 CENTRAL SUPPORT · SBB02



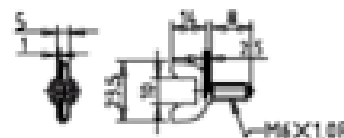
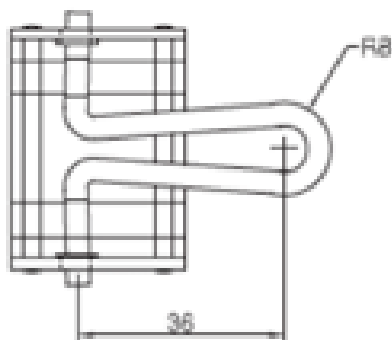
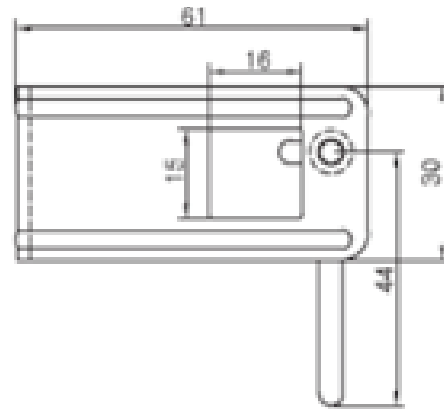
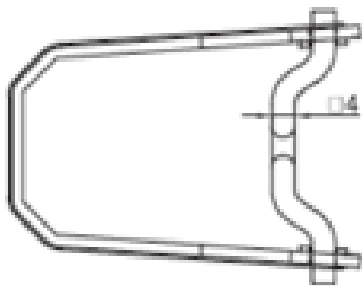
MATERIAL	ASTM A-366
TOLERANCE	±0.2
THICKNESS	2 mm
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test



19 CENTRAL SUPPORT · SSB01



MATERIAL	ASTM A-366
TOLERANCE	±0.2
THICKNESS	2 mm
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test

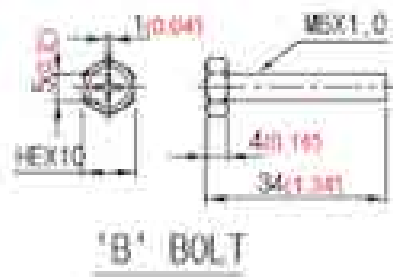
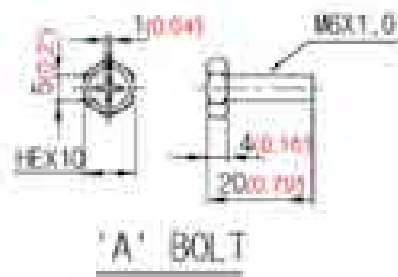
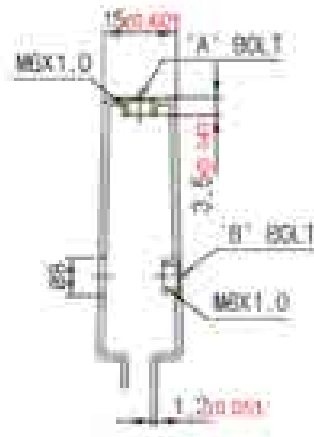
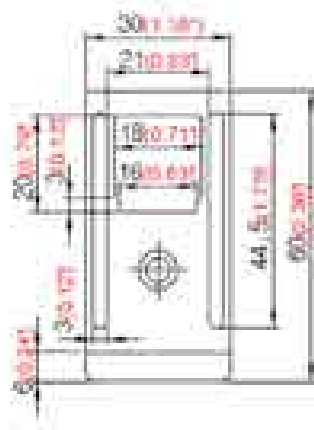


20

END SUPPORT · TBSS01



MATERIAL	ASTM A-366
TOLERANCE	±0.3
THICKNESS	2 mm ±0.05
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test

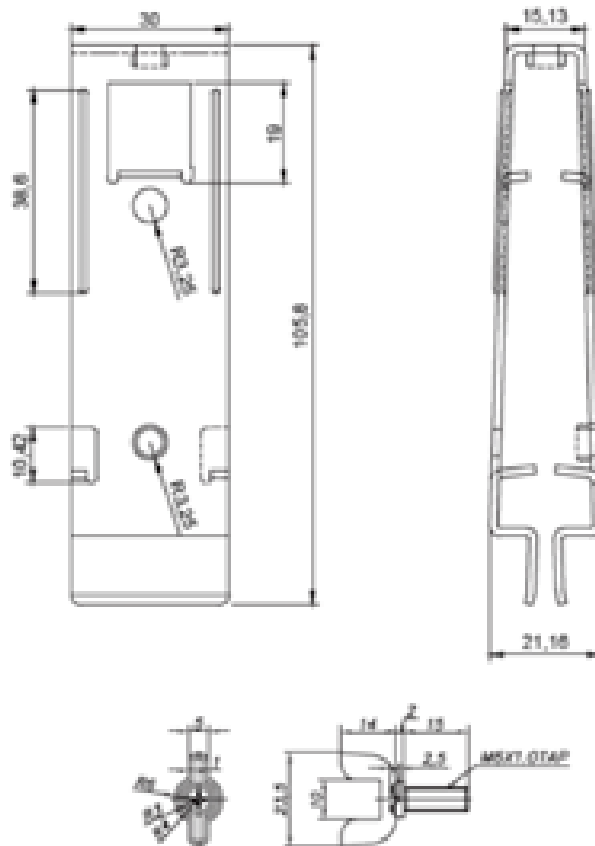


21

END SUPPORT · TBSR



MATERIAL	ASTM A-366
TOLERANCE	±0.2
THICKNESS	2 mm
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test

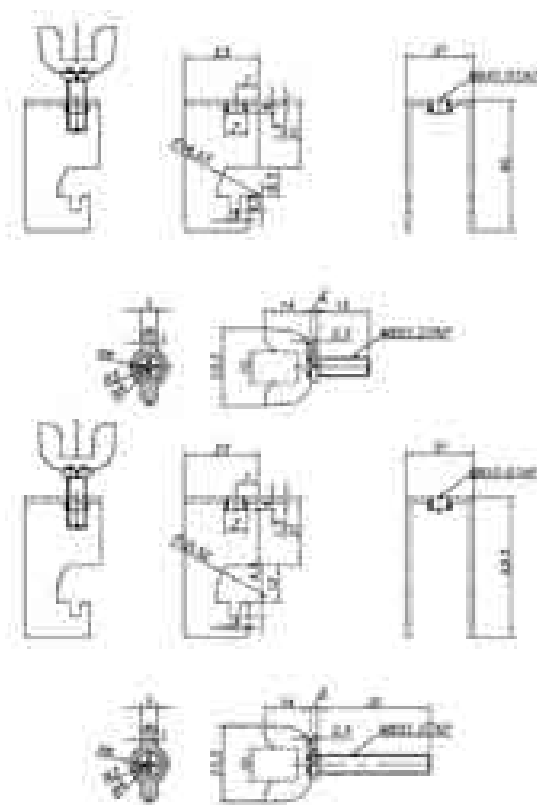


22

END SUPPORT · MSB



MATERIAL	ASTM A-366
TOLERANCE	±0.2
THICKNESS	2 mm
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test

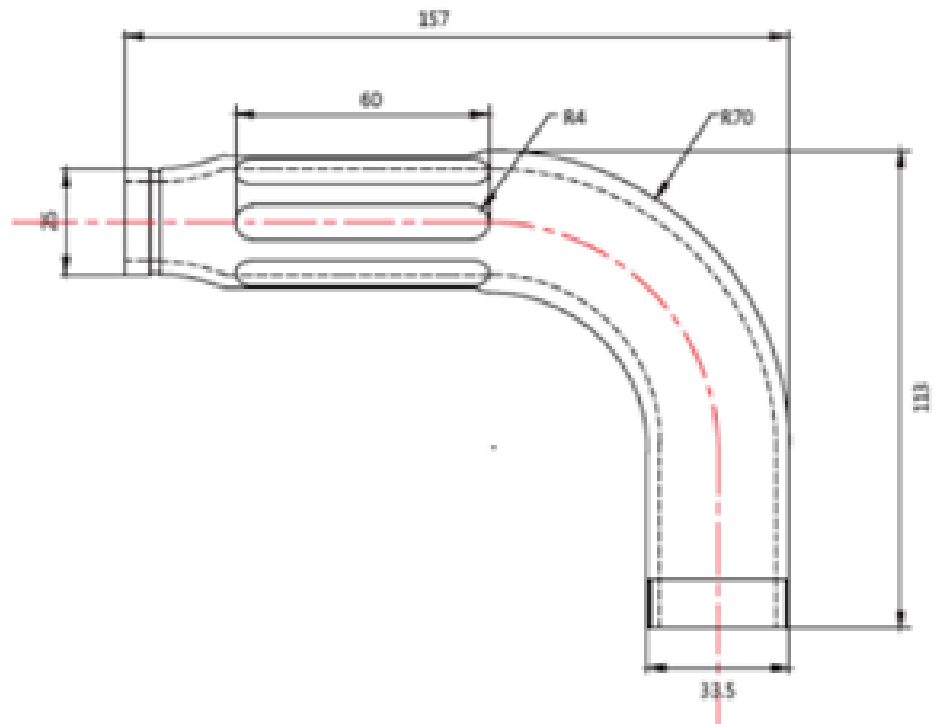
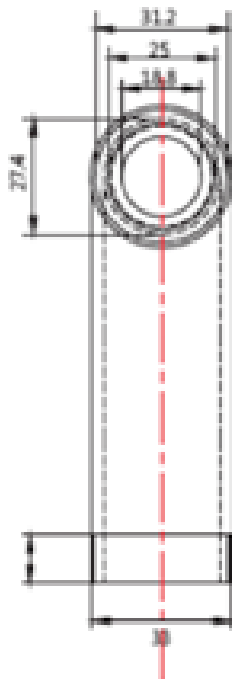


23

90° ELBOW - LRD



MATERIAL	ASTM A-366
TOLERANCE	±0.3
THICKNESS	2 mm ± 0.05
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test

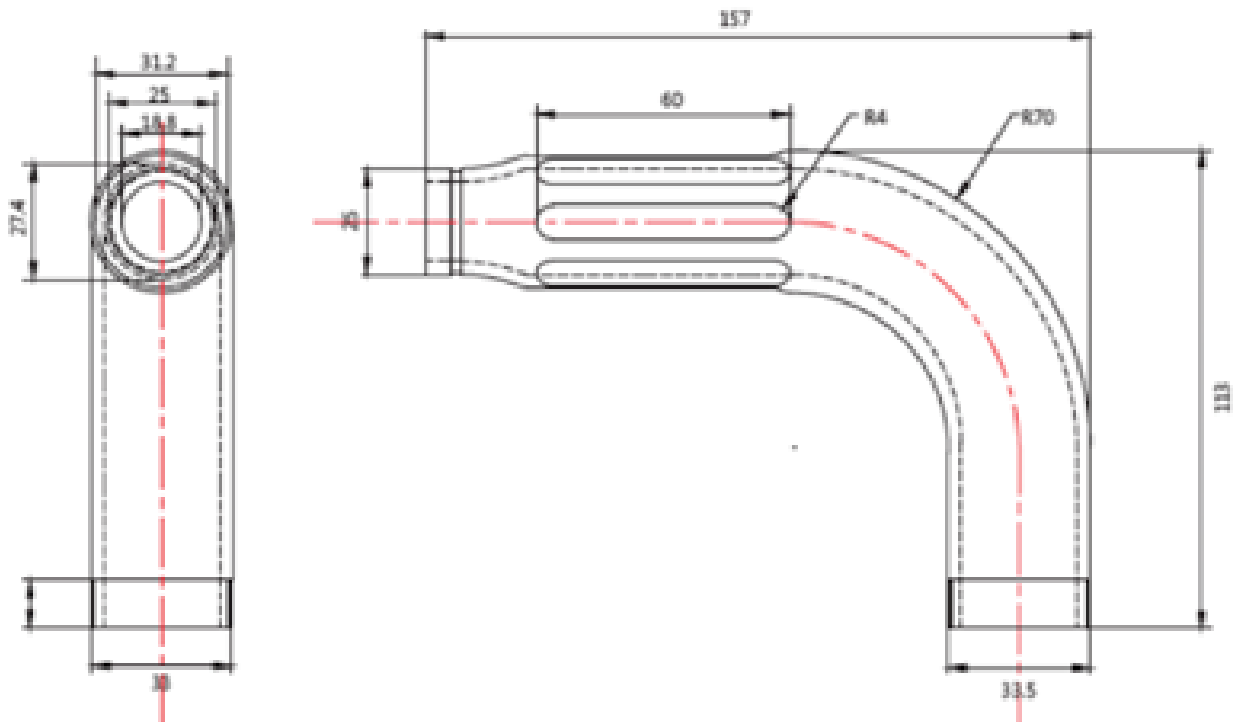


23

90° ELBOW - LRD



MATERIAL	ASTM A-366
TOLERANCE	±0.3
THICKNESS	2 mm ± 0.05
SPECIFICATION	Zinc-plated
DURABILITY OF THE FINISH	Without signs of flaking
ANTI-CORROSION	Without indication of corrosion with saline mist test





OFFICES AND FACTORIES

HEADQUARTERS

Pol. Ind. de Carballo Rúa do Bronce, s/n
Parcelas G-4 y G-5. 15100 · Carballo
(A Coruña) España
Tel. +34 981 704 330
tubasys@tubasys.com

PUERTOLLANO FACTORY

Pol. Ind. La Nava II Avenida de Europa
Parcela M 1.1. 13500 · Puertollano
(Ciudad Real) España

puertollano@tubasys.com

www.tubasys.com