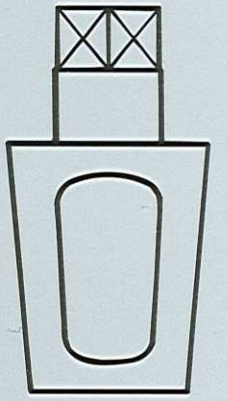
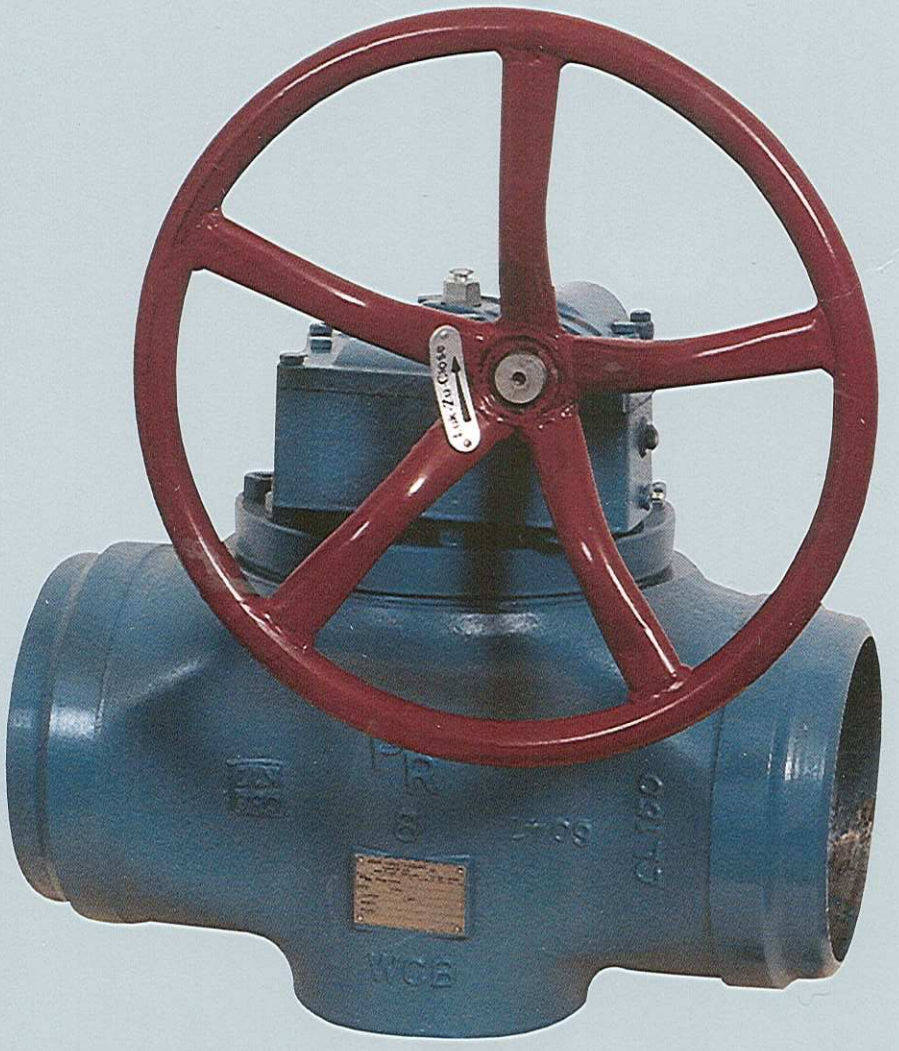
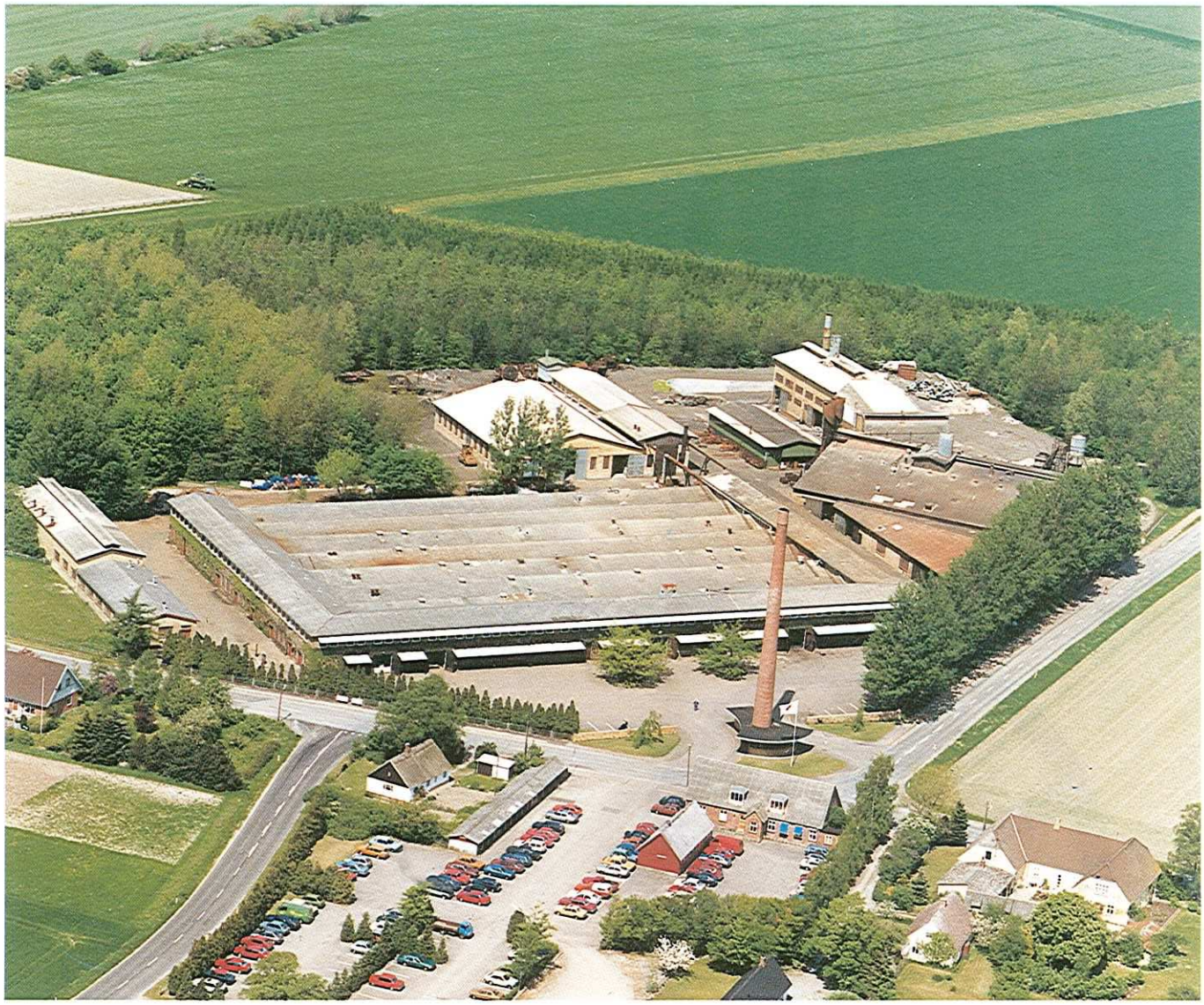
Product group 9 catalogue no. 102

TAPER PLUG VALVES

Class 125-150-250-300
For petroleum derivatives, gases, chemicals and water.

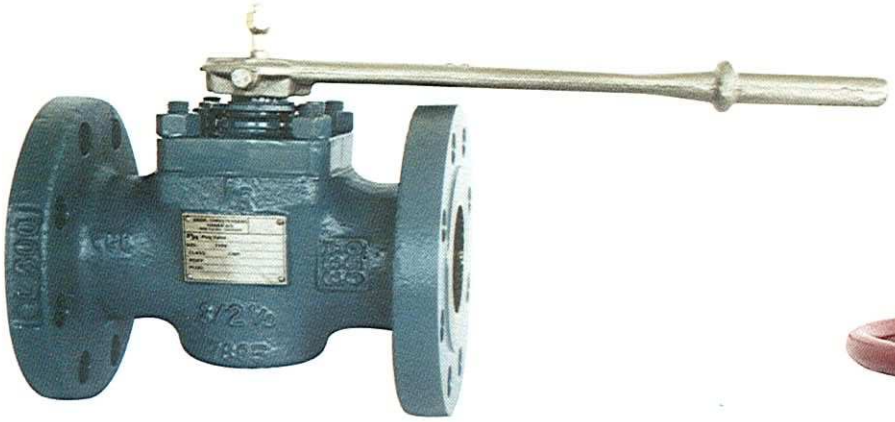




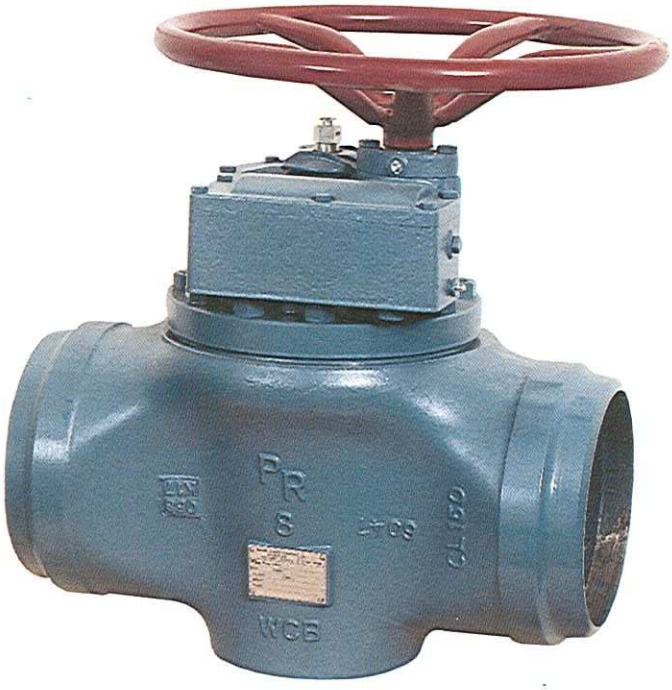


The Factory in Skuderløse. Founded in 1942.

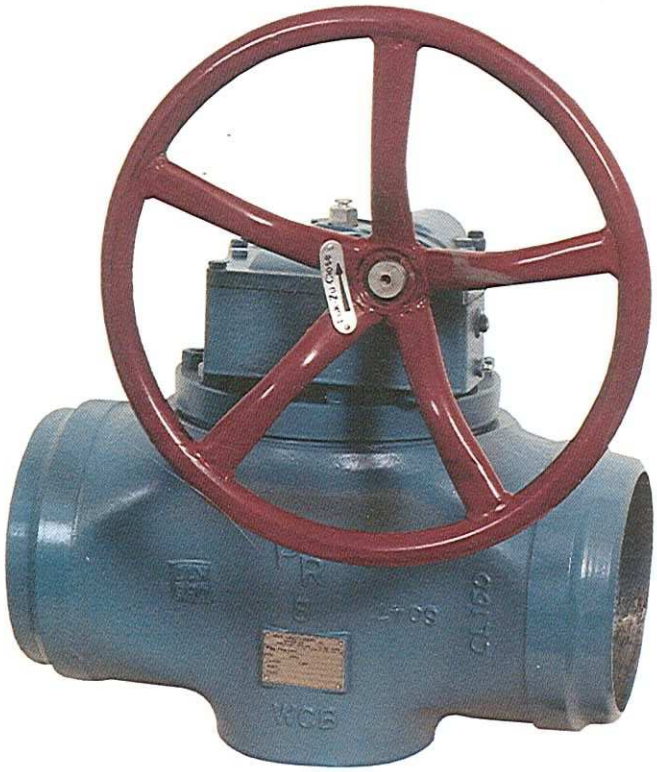
ISO 9001 CERTIFIED



Wrench Operated Valve.



Gear Operated Valve
with Horizontal handwheel. Type D.



Gear Operated Valve
with Vertical handwheel. Type C.

Valve with square head
for wrench operation.

This catalogue covers all standard straightway in the Taper Plug design to the ANSI pressure class 125 - 150 - 250 and 300.

To identify the correct type of valve, please use the code on the following page, by means of which the valve figure number is specified in the shape of letters and figures.

When sending inquiries or orders to the supplier/representatives, it is important to state the exact details of the service (working conditions). Therefore, in addition to the identification number, quantity and size, please state the following information:

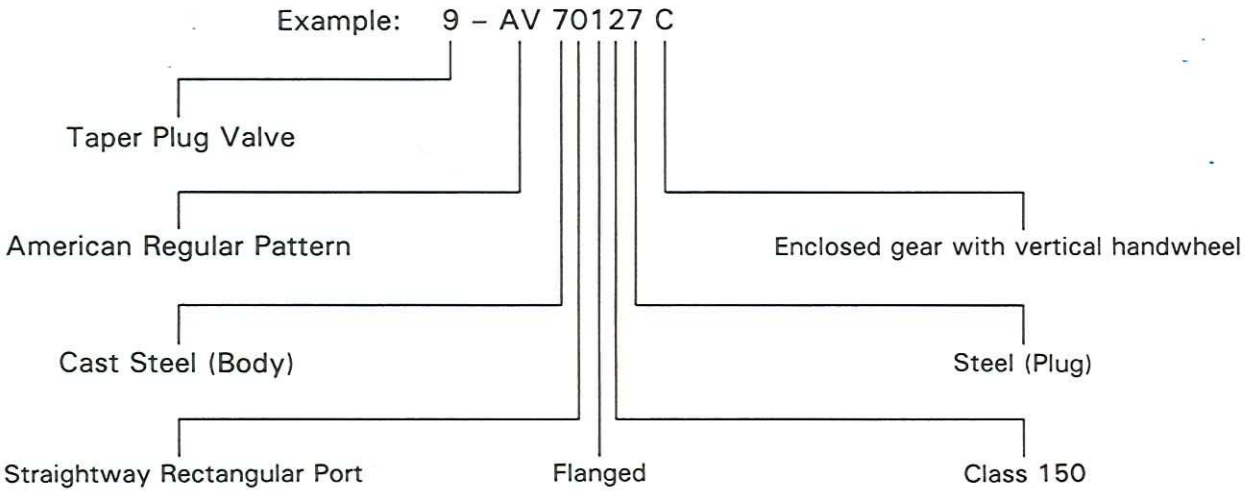
Nature of service
Range of temperature
Normal working pressure
Type of flanges (raised face/ring joint or other)
Dimension of pipe (only when valves have butt or socket welding ends)
Accessories, if any.

For information on valve types not covered by this catalog, please contact our sole agent/representative in your country.

The Valves are available in a wide range of variants, each being identified by figures and letters which provide all pertinent characteristics of each individual valve required. In addition always specify temperature, pressure, and medium the valve is to be used on. This facilitates our choosing the appropriate lubricant.

Before the actual identification number, the number of the required Product Group must be stated.

Note: Combinations shown in a thin print are not shown in this catalogue.



		Symbol:	1.	2.	3.	4.	5.	6.	7.	8.
Product-group	Taper Plug Valve. Standard design		9							
Standard	American Regular pattern (Full port area)			AR						
	American Regular pattern			AV						
	American Short pattern			AS						
	American Venturi pattern			AT						
Materials in Body	Ductile Iron				2					
	Cast Iron				4					
	Bronze				6					
	Cast Steel				7					
	Stainless Steel				8					
	Special Alloy Steel (To order)				9					
Port	Straightway, rectangular					0				
	Straightway, round					1				
	Regulating Valve					2				
	Threeway, rectangular L-port					7				
	Threeway, rectangular T-port					8				
Ends	Screwed						0			
	Flanged						1			
	Clamps						4			
	Welding Ends						5			
	Socket Welding Ends						6			
Pressure Stage	Class 125							1		
	Class 150	(PN 20)						2		
	Class 250							3		
	Class 300	(PN 50)						4		
Materials in Plug	Ductile Iron								2	
	Cast Iron								4	
	Bronze								6	
	Steel								7	
	Stainless Steel								8	
	Special Alloy Steel (To order)								9	
Methods of Operation	Wrenchoperated									N
	Enclosed gear unit, horizontal handwheel									C
	Enclosed gear unit, vertical handwheel									D

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Class	125	Regular Full Bore Screwed Ends	B2
Class	125	Regular Full Bore Flanges	B3
Class	125	Regular Pattern Screwed Ends	B4
Class	125	Regular Pattern Flanges	B5
Class	125	Venturi Pattern Flanges	B6
Class	250	Short Pattern Flanges	B7
Class	250	Regular Full Bore Screwed Ends	B8
Class	250	Regular Full Bore Flanges	B9
Class	250	Regular Pattern Screwed Ends	B10
Class	250	Regular Pattern Flanges	B11
Class	250	Venturi Pattern Flanges	B12
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Class	150	Short Pattern Welding Ends	B14
Class	150	Regular Full Bore Screwed Ends	B15
Class	150	Regular Full Bore Flanges	B16
Class	150	Regular Full Bore Welding Ends	B17
Class	150	Regular Pattern Flanges	B18
Class	150	Regular Pattern Welding Ends	B19
Class	150	Venturi Pattern Flanges	B20
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Class	300	Venturi Pattern Welding Ends	B30

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9-AV 40014	B4	9-AS 40134 D	B7	9-AS 70127 C	B13	9-AS 70147 D	B22	9-AS 70544	B23
9-AR 40014 C	B2	9-AT 40134 D	B12	9-AT 70127 C	B20	9-AT 70147 D	B29	9-AT 70544	B30
9-AV 40014 C	B4	9-AV 40134 D	B11	9-AV 70127 C	B18	9-AV 70147 D	B27	9-AV 70544	B28
9-AR 40034	B8	9-AR 70024	B15	9-AR 70127 D	B16	9-AR 70524	B17	9-AR 70544 C	B26
9-AV 40034	B10	9-AR 70024 C	B15	9-AS 70127 D	B13	9-AS 70524	B14	9-AS 70544 C	B23
9-AR 40034 C	B8	9-AR 70027	B15	9-AT 70127 D	B20	9-AT 70524	B21	9-AT 70544 C	B30
9-AV 40034 C	B10	9-AR 70027 C	B15	9-AV 70127 D	B18	9-AV 70524	B19	9-AV 70544 C	B28
9-AR 40114	B3	9-AR 70044	B24	9-AR 70144	B25	9-AR 70524 C	B17	9-AR 70544 D	B26
9-AS 40114	B1	9-AR 70044 C	B24	9-AS 70144	B22	9-AS 70524 C	B14	9-AS 70544 D	B23
9-AT 40114	B6	9-AR 70047	B24	9-AT 70144	B29	9-AT 70524 C	B21	9-AT 70544 D	B30
9-AV 40114	B5	9-AR 70047 C	B24	9-AV 70144	B27	9-AV 70524 C	B19	9-AV 70544 D	B28
9-AR 40114 C	B3	9-AR 70124	B16	9-AR 70144 C	B25	9-AR 70524 D	B17	9-AR 70547	B26
9-AS 40114 C	B1	9-AS 70124	B13	9-AS 70144 C	B22	9-AS 70524 D	B14	9-AS 70547	B23
9-AT 40114 C	B6	9-AT 70124	B20	9-AT 70144 C	B29	9-AT 70524 D	B21	9-AT 70547	B30
9-AV 40114 C	B5	9-AV 70124	B18	9-AV 70144 C	B27	9-AV 70524 D	B19	9-AV 70547	B28
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9-AT 40114 D	B6	9-AT 70124 C	B20	9-AT 70144 D	B29	9-AT 70527	B21	9-AT 70547 C	B30
9-AV 40114 D	B5	9-AV 70124 C	B18	9-AV 70144 D	B27	9-AV 70527	B19	9-AV 70547 C	B28
9-AR 40134	B9	9-AR 70124 D	B16	9-AR 70147	B25	9-AR 70527 C	B17	9-AR 70547 D	B26
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9-AV 40134	B11	9-AV 70124 D	B18	9-AV 70147	B27	9-AV 70527 C	B19	9-AV 70547 D	B28
9-AR 40134 C	B9	9-AR 70127	B16	9-AR 70147 C	B25	9-AR 70527 D	B17		
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9-AV 40134 C	B11	9-AV 70127	B18	9-AV 70147 C	B27	9-AV 70527 D	B19		

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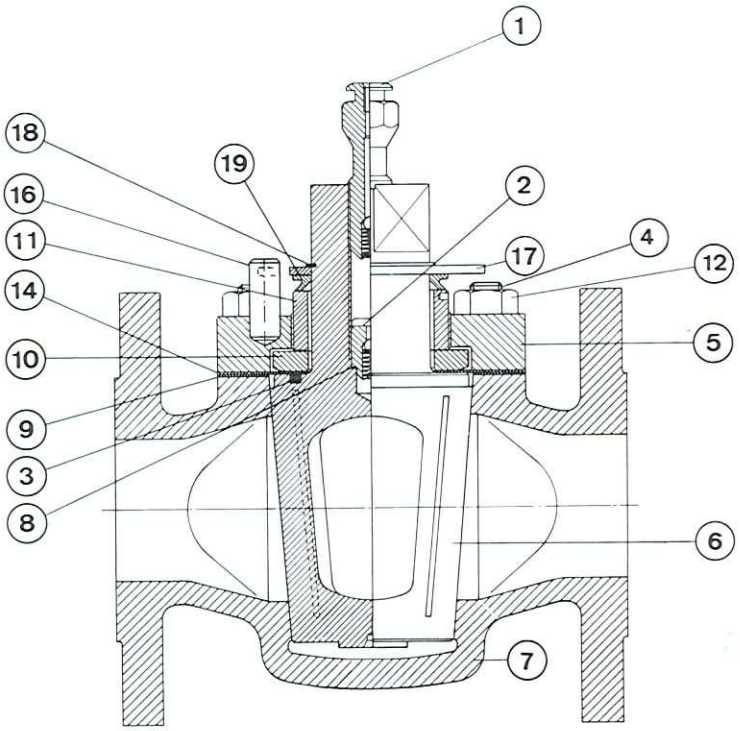
Flange dimensions class 250 and class 300	F8
Flange dimensions class 150 Ring Joint	F9
Flange dimensions class 300 Ring Joint	F10
Socket Welding Ends dimensions	F11

The Standards printed in bold print is to be considered as the main standard (specification). The below standards in thin print originate from the main standard. Each main standard has its own reference.
The list of standard practice is only intended as a guide.

List of Standard Practice	
BS 5353	**Specification for steel plug valves**
BS 1560	Circular Flange for Pipes, Valves and Fittings (Class designated)
BS 4504	Circular Flange for Pipes, Valves and Fittings (PN designated)
BS 21	Pipe Threads
BS 2080	Face-to-Face, Centre-to-Face, End-to-End and Centre-to-End dimensions of valves
BS 6755	Testing of Valve Part 1 Specification for production pressure testing requirements.
ASME B 16.34	**Valves – Flanged, Threaded and Welding Ends**
ASME B 16.5	Pipe Flanges and Flanged Fittings
ASME B 16.11	Forged Fittings, Socket-Welding and Threaded Ends
ASME B 16.25	Buttwelding Ends
ASME B 1.20.1	Pipe Threads, General Purpose (Inch)
ASME B 16.10	Face-to-Face and End-to-End Dimensions of Valves
API 6D	**Specification for Pipeline Valves (Gate, Plug, Ball and Check Valves)**
ASME B 16.5	Pipe Flanges and Flanged Fittings
ASME B 31.4	Liquid Petroleum Transportation Piping Systems
ASME B 31.8	Gas Transmission and Distribution Piping Systems
API 599	**Metal Plug Valves – Flanged and Welding Ends**
API 598	Valve Inspection and Test.
ASME B 16.5	Pipe Flanges and Flanged Fittings.
ASME B 16.25	Buttwelding Ends
ASME B 16.10	Face-to-Face and End-to-End Dimensions of Valves.
ASME B 16.34	Valves – Flanged, Threaded and Welding Ends.
API 6A	**Specification for Wellhead and Christmas Tree Equipment.**
Quality management systems	**Design and manufacture of valves for liquid and gaseous applications on onshore and offshore installation in acc. to Pressure Equipment, Directive 97/23/EC** **Design and manufacture of vlaves and associated pipe fittings ISO 9001** **American Petroleum institute 6A** **American Petroleum institute 6D**
NACE MR01-75	Standard Material Requirements Sulfide Stress Cracking Resistant – Metallic. Materials for Oilfield Equipment. The NACE MR01-75 standard can be connected to every main standard (printed with bold) provided that the choise of material is acceptable to the NACE MR01-75 standard
API 607	Fire Test for Soft-Seated Ball Valves.
API 6FA	Specification for Fire Test for Valves.
BS 6755	Testing of Valves Part 2 Specification for fire type-testing requirements.
ISO 10497	Testing of Valves – Fire Type – testing requirements. These Fire Test standards can be connected to every main standard.

API = American Petroleum Institute.
ASME = The American Society of Mechanical Engineers.
BS = British Standard
NACE = National Association of Corrosion Engineers.
ISO = The International Organization for Standardization



1. Lubricant Screw
2. Check Valve
3. O-Ring
4. Stud
5. Top Cover
6. Taper Plug
7. Body
8. Gasket
9. Gasket
10. Press Ring
11. Adjustable Screw
12. Nut
14. Flexible Plate
16. Stop*
17. Stop Plate
18. Snap Ring
19. Weatherseal

* The stop (part no. 16) may form an integral part of the top cover (part no. 5)

The lubricated taper plug valve group 9 is the ideal shut-off device for almost any medium, even under the most severe operating conditions.
It can be used in most places where fast, trouble-free and efficient sealing is required. The design is very compact, it requires little space to install and it can be mounted in any position required.
Since the only moving part is the plug, the basic operation of the valve is very simple. When the plug is turned 90°, the valve moves from closed to open position – and vice versa.

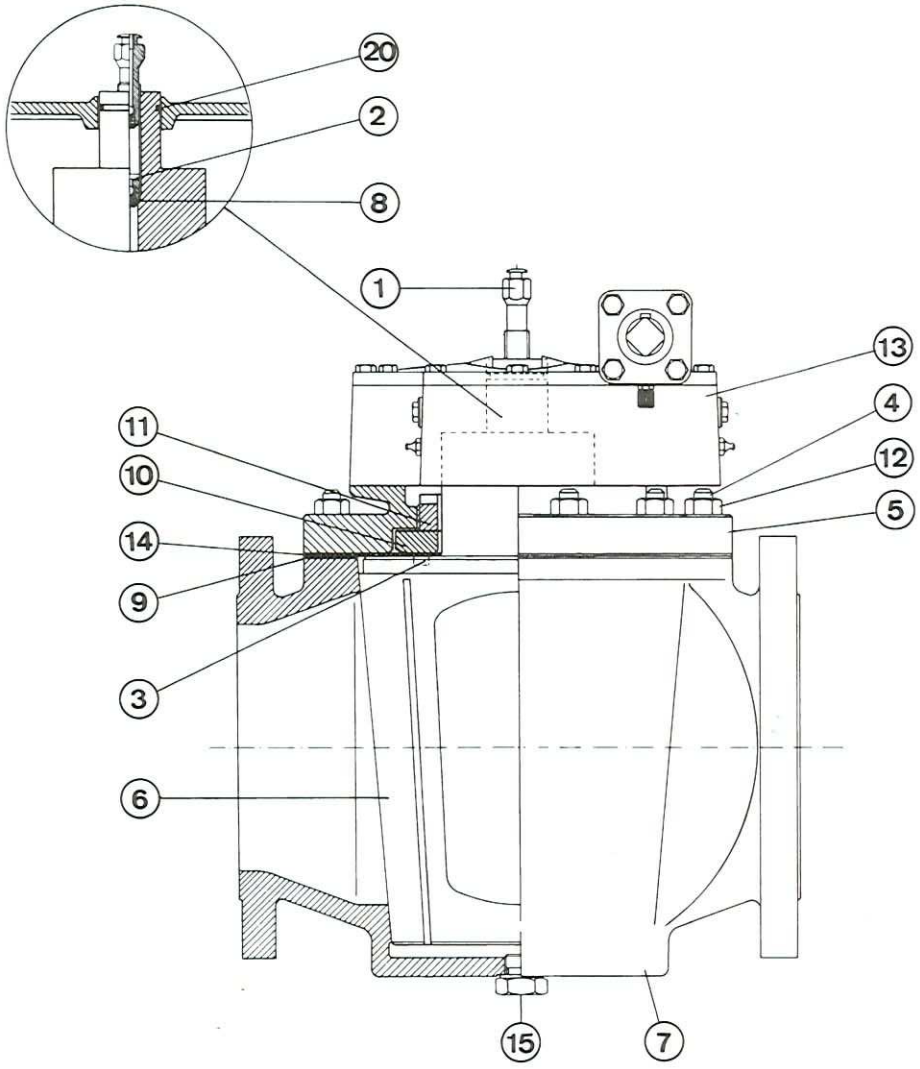
The plug is tapered 1:6 and is individually lapped to the valve body with very close tolerances. It incorporates Metal to Metal sealing, which means that no soft seal will be damaged by the flowing medium.
As a secondary seal, the valve is provided with a lubrication system which allows feeding a special lubricant into the valve while the valve is in operation.
Besides sealing, the purpose of the lubricant is to protect the internals of the valve against corrosion and wear as well as reducing the valve torque.
In order to avoid seizing between plug and valve body the plug is plated with nickel after the "electroless" method. Moreover, in order to reduce friction when operating the plug is coated with P.T.F.E.

Design Concept:
The plug (6) is adjusted into the conical seat of the valve body (7) by means of the adjusting screw (11) and press ring (10).

Between the plug (6), cover (5) and valvebody (7) a relatively thin flexible plate (14) is placed to ensure an effective sealing. This plate is sealed by the gasket (9). Against the plug the flexible plate has partly metallic and partly soft sealing (3). The soft sealing material is synthetic rubber (O-ring) or P.T.F.E. with embedded spring, depending on the actual medium and temperature range of the valve.

For the sake of corrosion wrench operated valves are provided with a soft rubber weatherseal (19) to prevent dirt, water etc. from forcing their way into the valve between the adjustable screw (11) and the neck of the plug (6).

As mentioned, the valve is provided with a lubrication system which allows penetration of special lubricant into the valve through the lubricant screws (1) and the check valve (2).
The lubricant is injected into a network of grooves by means of a special high pressure lubricant gun. This network system ensures that all seal faces are supplied with a thin coat of lubricant, making an efficient secondary seal.
The valves can be supplied as wrench operated or gear operated valves. (Smaller sizes are normally wrench operated).
Moreover the valves can be supplied with top-flange for mounting of any kind of actuator.
If the valve is supplied with such a top flange, the lubrication injection system is moved from the stem to the side of the valve body.



1. Lubricant Screw
2. Check Valve
3. O-Ring
4. Stud
5. Top Cover
6. Taper Plug
7. Body
8. Gasket
9. Gasket
10. Press Ring
11. Adjustable Screw
12. Nut
13. Gearbox
14. Flexible Plate
15. Bottom Screw*
20. O-Ring

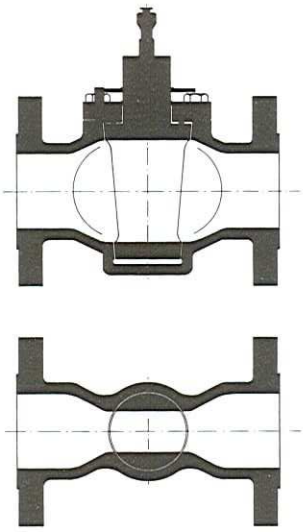
Operation – gearing. Gear, type C, is enclosed in a water-proof casing, with the handwheel located vertically on side of the valve.
Gear, type D, is enclosed in a water-proof casing, with the handwheel located horizontally on top of the valve.

Worm and worm wheel are embedded in heavy bronze bearings, and the axial load stress is absorbed by ball bearings. Both bearings and tooth racks are lubricated with concentrated molybdenum grease to resist high temperatures.
The gear has fixed stops at extreme positions, plus position indicator.

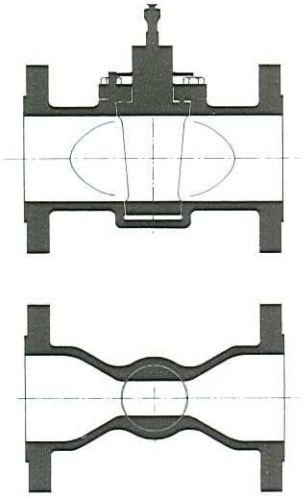
Further, all valves can be equipped for automatic cycling using electric, pneumatic or hydraulic actuators.

* On larger valves (above 6") part 15 is utilized as a means of draining Hydrostatic test medium.

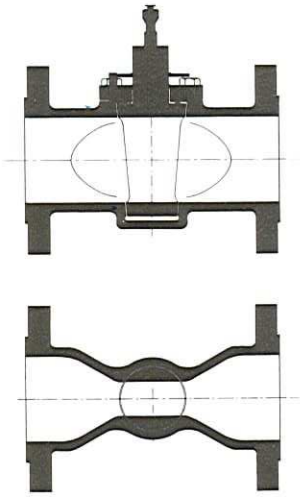
The word "pattern" in this catalogue refers to the shape of the valve port and the laying length of the valve. The valves are made in four patterns.



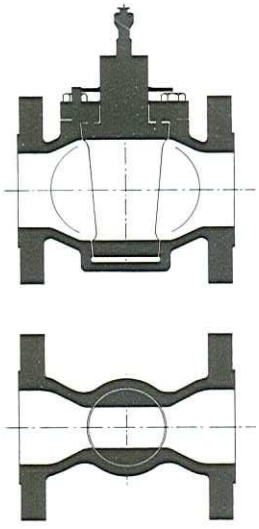
Regular Pattern Full Bore. These valves have face-to-face dimensions in accordance with the appropriate British and American standards where applicable.
This ensures the maximum interchangeability between valves of different types and end connections.
The plug ports of these valves are approximately rectangular in section and have an area substantially equal to the full bore of the pipe. The transition from the round body end ports to the rectangular seat ports is smooth, and entails no sudden alterations in shape or section which might cause excessive changes in velocity or direction of the fluid flowing in the pipeline. This feature makes these valves particularly suitable for installations where it is essential to keep pressure losses in the piping to a minimum, for example, on long suction lines to pumps or similar applications where head losses due to pipe bends and fittings are critical.



Regular Pattern
These valves have face-to-face dimensions in accordance with the appropriate British and American standards where applicable.
This ensures the maximum interchangeability between valves of different types and end connections. The plug ports of these valves have a rectangular – slightly tapered shape in section and have an area larger than Venturi Pattern. The transition from the round body end ports to the rectangular seat ports is smooth, and entails no sudden alterations in shape or section which might cause excessive changes in velocity or direction of the fluid flowing in the pipeline.



Venturi Pattern
These valves have face-to-face dimensions in accordance with the appropriate British and American standards where applicable, in order to ensure the maximum interchangeability between different valves.
The plug ports of these valves are of reduced area, but the change of section through the body throat is so designed as to produce a Venturi effect to restore a large percentage of the velocity head losses through the valve, thus resulting in a relatively low pressure drop. These valves are ideally suited for all normal pipeline applications, particularly in the larger sizes where there is a considerable saving in cost.



Short Pattern
These valves have face-to-face dimension in accordance with ANSI B 16.10 Short Pattern for Plug valves. Identical with Short Pattern Gate valves in class 125, 150 and 300.
Except 1" in class 150.

In order to obtain the relatively short face-to-face dimension, the plug port is reduced and has a rectangular slightly tapered-shape.

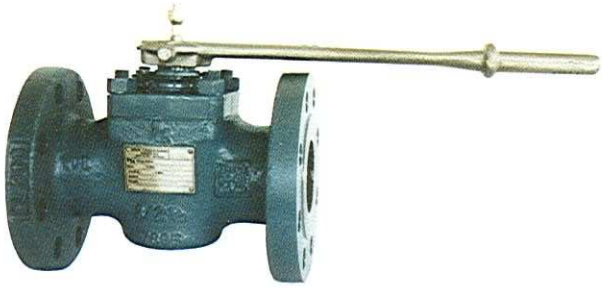
The simplest method of operation the valve is by using a wrench directly on top of the valve plug.

Straight–way valves open and close by rotating through 90° while three–way and four–way valves have rotary motions through 90° – 180° – 270° – 360°.

The wrench can be fitted on the square of the valve plug in eight different positions. This is a big advantage in places with limited space.

The wrench is available in a short and a long version as type 8K and type 8L.

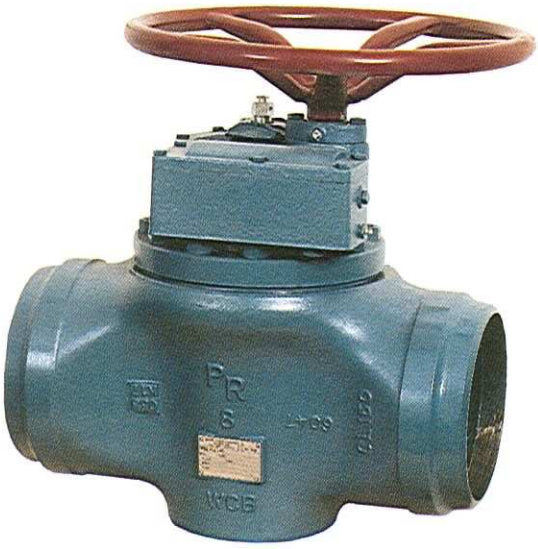
Wrench operation is used on relatively small valve sizes, as indicated on the dimension sheets.



Gear, type C, is enclosed in a water–proof casing, with the handwheel located vertically on side of the valve.
Worm and worm wheel are embedded in heavy bronze bearings, and the axial load stress is absorbed by ball bearings.
Both bearings and tooth racks are lubricated with concentrated molybdenum grease to resist high temperatures. (See lubrication of gear, page A6.
The gear has fixed stops at extreme position, plus position indicator.

Gear, type C, is available in all pressure classes and valve sizes.

Type C can be fitted with electric, pneumatic or hydraulic actuator.



Gear, type D, is enclosed in a water–proof casing, with the handwheel located horizontally on top of the valve.
Worm and worm wheel are embedded in heavy bronze bearings, and the axial load stress is absorbed by ball bearings.
Both bearings and tooth racks are lubricated with concentrated molybdenum grease to resist high temperatures. (See lubrication of gear, page A6.

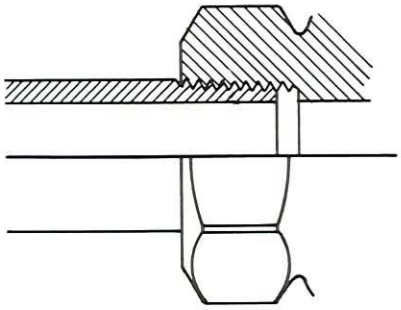
The gear has fixed stops at extreme positions, plus position indicator.

Gear, type D, is available in all pressure classes. (For valve sizes – see dimension sheets).

Gear, type D, can be fitted with electric, pneumatic or hydraulic actuator.

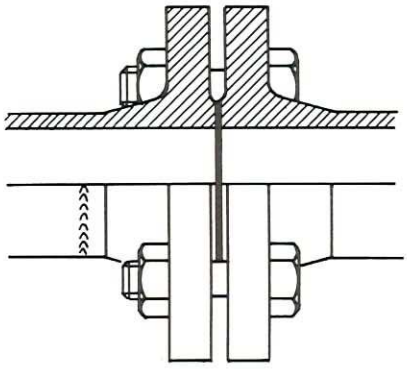
Screwed Ends:

Designed in accordance with API Line Pipe threads (Taper) API Std. 5B Table 2.1 or ANSI Std. B1.20.1.
Available in size 1/2" to 4".



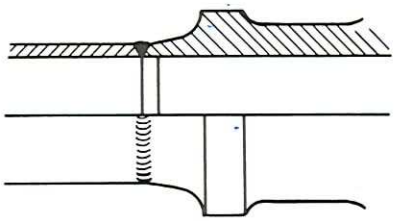
Flanges:

Designed in accordance with the ANSI B16.5 standard, as indicated on the dimension sheets.
Unless otherwise specified, all flanges are supplied with Raised Face.



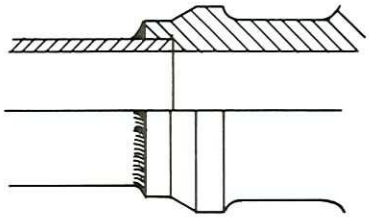
Butt Welding Ends:

For direct welding in the pipeline.
Designed in accordance with ANSI B 16.25.



Socket-Welding Ends:

For direct welding in the pipeline.
Designed in accordance with ANSI B 16.11.
Dimension, page F11.



The valve is grease packed, i.e. the plug rests on a lubricating film in the valve body.
The lubricant has three functions: to protect the internal closing surfaces of the valve from corrosion, to grease seal the valve, and to contribute to easy handling. With an eye to achieving the best possible action, it is therefore important to relubricate the valve. The number of relubrication will depend on the operating conditions and the demands made on sealing.
Thus a valve operating at high temperature is to be lubricated more frequently than a valve operating at low temperature. If frequently handled, the valve is to be lubricated more often, to obtain good sealing.
As the lubricant dries up faster at rising temperatures, the below time intervals indicate when relubrication should take place.

Temp. between	0° C-90°	90° C-120°C	120° C-150°C	150° C-180° C	180° C-200°C
Time interval	24 mo.	12 - 18 mo.	8 - 12 mo.	4 – 8 mo.	2 – 4 mo.

There is a Lubricant for each flow medium (see lubrication chart).
It is therefore important to relubricate the valve with the proper type. If the valve is ordered specifically for a given medium, then the type of lubricant is stamped on the hexagonal head of the lubricating screw.
Use only original Lubricant.

Lubrication procedure-a) Lubricant gun (Manual or automatic).

The best and fastest results is achieved by using a Lubricant Gun (see fig. 1). The lubricating screw (push on connection) of the lubricant gun is fastened directly to the lubricating screw.

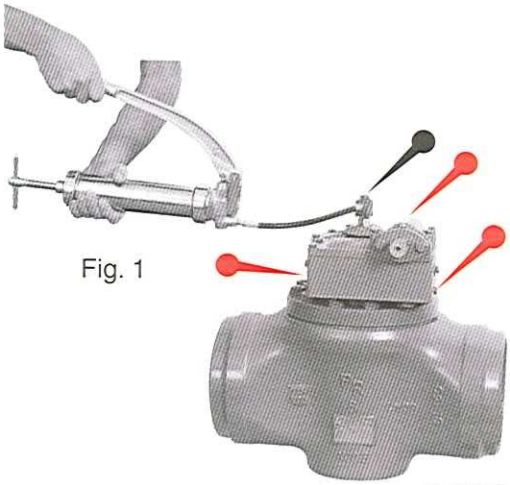


Fig. 1

b) Lowering of the lubricating screw.
Lubrication can also be effected by turning the lubricating screw into the lubricant chamber. In doing so, the lubricant under the screw is pressed into the lubricating channels of the valve (see fig. 2).
Refilling of the lubricant chamber is done by removing the lubricating screw, inserting a new lubricant cartridge (see fig. 3), and then turning in the lubricating screw.

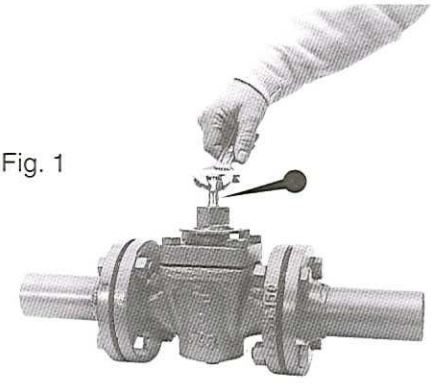


Fig. 1

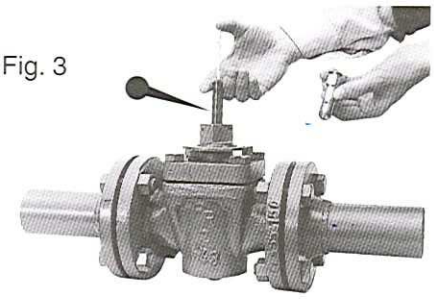


Fig. 3

Gear Lubrication:

The lubrication of the gear follows the "principle of dry lubrication", meaning that a layer of antiseizing paste with a content of molybdenum disulphide is applied to bearings, teeth and worms. Bearings are lubricated through lubricating nipples.
The gear is lubricated at the factory and needs no lubrication within the first year of valve action.

Relubrication of gear:

The gear bearings are lubricated through grease nipples. (See fig. 4)
The gear tooth racks on worms and worm wheels are, as a rule, never relubricated. However, in case of trouble of control, making handling difficult, a penetrating and almost screaming sound will indicate a lack of lubrication. In such cases, a relubrication of the tooth racks is necessary.
For gear type C or D, a removal of the gear cover is necessary to make the gear parts accessible. The lubricating paste is then applied to all tooth racks of both worms and worm wheels in a layer of about 1 millimetre (1/32"). Use a little filling spatula for application.
Recommended for use by the factory are:
For bearings, worms and gears: BCH G10.

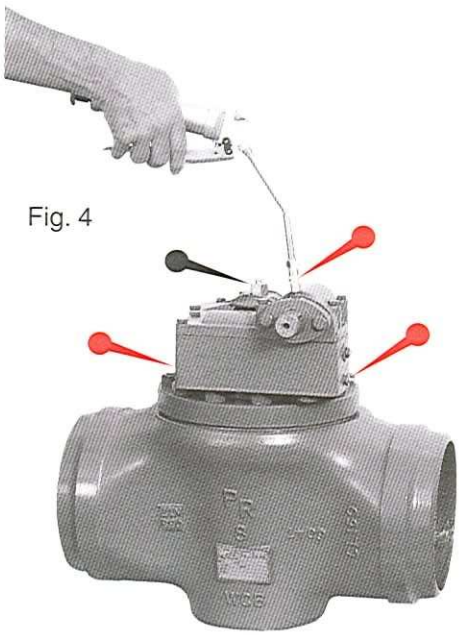


Fig. 4

Standard Lubricants - These sealants to be used whenever possible for optimal performance.

Lubricant no. PR	Colour of compound	Temperature Range C	Temperature Range F	RECOMMENDATIONS
80	Black	- 10 + 180	+ 14 + 356	**Cold and hot water** up to 180°C, conditional up to 200°C. Cold and hot air. 50% lye up to 50°C conditional up to 100°C, 50% acids up to 50°C, inorganic saline solutions up to 100°C, steam conditional up to 200°C. Suitable for town gas, propane, butane and natural gas. Not suitable for gas condensate.
711	Black	- 10 + 225	+ 14 + 437	**Petroleum products.** Butane and propane (max. 100°C). Gasoline, kerosene, asphalt and bitumen, oils and most hydrocarbon solvents. Also suitable for gases (max. 170°C). Cold and hot air. Not suitable for hot water, strong alkalis and aromatic solvents.

Special Lubricants - normally to be used only where the standard lubricants cannot be used.

Lubricant no. PR	Colour of compound	Temperature Range C	Temperature Range F	RECOMMENDATIONS
40	Clear	- 10 + 100	+ 14 + 212	Cold and warm water. General Aqueous Solutions. Alcohols.
45	Yellowish-beige clear	- 10 + 130	+ 14 + 266	For drinking water at max. 100°C, beer, mineral water, milk, cocoa, cream, ammonia compound, acids and alkali desinfecant, fruit-acid and alcohol.
60	White	- 30 + 250	- 22 + 482	All diluted and concentrated acids and lyes, fluorine, chlorine, bromine, iodine, phosphorus oxychloride, ozone, hydrogen peroxide, all organic solvents (except hydrogen fluorcide), all mineral, vegetable and animal oils and fats. Do not affect elastomers and plastics.
103	Green	- 30 + 200	- 22 + 392	General purpose synthetic sealant for liquid and gaseous aliphatic hydrocarbon service suitable for gasoline, kerosene, fuel oils, crude distillates, aviation and jet fuel, natural gas. Not suitable for steam, aromatic solvents, strong acids and alkalies.
280	Black	- 10 + 200	+ 14 + 392	Cold and hot air up to 200°C. Cold and hot water up to 180°C. Cold and hot gases up to 150°C. Not suitable for strong acids, petroleum products and aromatic and chlorinated solvents.
* 330	White	- 30 + 250	- 22 + 482	Hot water and gases. Natural gas, propane, butane, asphalt and bitumen. General chemical aqueous solutions eg. alkalis and dilute acids. It is useful for hot air. Not suitable for light liquid hydrocarbons, aromatic and chlorinated solvents and strong mineral acids.

* This type of lubricant ought to be avoided, if one of the other types can be used, as this contain silicone oil. The operating torque of the valve will increase considerably.
For exceptional working conditions and services not mentioned in the table, please ask for further information.

CAST IRON
ASTM A 126 Class B (High strength grey iron).
Tensile Strength: min. 31000 PSI (214 N/mm²).
Cast Iron material is very economical and suitable for most common service conditions such as air, water, gas and oil at medium pressures and temperatures. It possesses good resistance to corrosion in most organic solutions, alkalies and many acids of higher concentrations at normal temperatures. Plugs are anti-friction treated with P.T.F.E.

DUCTILE IRON (Cast Iron with spheroidal Graphite).
ASTM A 536 Gr. 60-40-18.
Tensile Strength: min. 60000 PSI (414 N/mm²).
This material is especially used where cast iron does not fulfil the requirements and where cast steel is too expensive.
Plugs are anti-friction treated with P.T.F.E.

CARBON STEEL
ASTM A 216 Grade WCB.
Tensile Strength: min. 70000 PSI (485 N/mm²).
The valves of cast steel are made in accordance with the specification of the mentioned ASTM standard.
To counteract seizing steel plugs have a thin coat 20 µm of electroless nickel, and then anti-friction treated with P.T.F.E.
Carbon steel is suited for valves in cold or hot water services without corrosive impurities. It is also suitable for oil, gas, air and, other line fluids where valves are required of high strength, toughness and stability against vibration, blows and fire, except for extremely high or low temperatures which require steel alloys.
Our valves are also available to NACE Standard MR-01-75. Hardness level of Rc 22 or lower.

LEAD-BRONZE 80/10/10
CuPb10Sn10. ISO 1338 - ASTM B30 937.
Tensile Strength: min. 12500 PSI (180 N/mm²).
Brinell Hardness: 65
Chemical Properties: Resistant to actions of ordinary services.
Physical Properties: Good pressure tightness and resistant to wear.
Other alloys, fx. 90/10 or 88/10/2,0 are delivered on inquiry.

STAINLESS ACID-RESISTING STEEL
Rust and acid resisting.

Chromium	Nickel	Molybdenum
Cr 18% to 21%	9 to 12%	2 to 3%

ASTM A 351 Grade CF8M or AISI 316.
Tensile Strength: min. 70000 PSI (485 N/mm²).
To counteract seizing plugs in stainless steel have a thin coat 20 µm of electroless nickel, and then anti-friction treated with P.T.F.E.

AUSTENITIC - FERRITIC STEEL. (Duplex stainless steel)
ASTM A 890 4A,

Chromium	Nickel	Molybdenum	Nitrogen
Cr 22%	Ni 5%	Mo 2,5%	N 0.1%

Tensile strength: min. 620 N/mm².
The materials A 890 4A are austenitic-ferritic acid-resistant steel with very high mechanical properties. Moreover they are extremely, resistant to corrosion.
The materials A 890 4A are very resistant to stress - (SCC) and pitting corrosion in environments containing cloride. The resistance to stress corrosion (SCC) caused by hydrogen sulphide in environments containing cloride is also excellent.
The materials A 890 A4 meet the demands usually requiring high alloyed nickel qualities. As the content of cromium and nickel is fairly low these materials will proove an economically good alternative to for more expensive high alloyed qualities.
To counteract seizing plugs in stainless steel have a thin coat 20 µm of electroless nickel, and then anti-friction treated with P.T.F.E.

SPECIAL QUALITIES AND ALLOYS: Tests which exceed the requirements of the respective standards can be carried out on the above mentioned materials if required.
Special alloys are manufactured on request.

COLOUR CODE
To facilitate identification the valves are normally painted as follows:

Cast Iron : Green	Steel : Blue	Stainless Steel : Silver grey
Ductile : Dark grey	Bronze : Unpainted	Duplex : Light grey

After assembling, before delivery, all Christensens Plug Valves pass through a careful pressure test.
The test is carried out acc. to the following standards: ASME B 16.34, BS 1560, BS 6755 API 598 and ASME B16.1.
If the customer or his representative wants to participate at the test - or, if there are special requirements to the pressure testing, this must be arranged with the manufacturer and stipulated in the purchase order.

Material	ASME B 16.1		(1/2" to 12") Class 125	250				(14" to 36") Class 125	250
Semi Steel ASTM A126 Class B	Maximum Cold Working Pressure	PSI	200	500				150	300
		BAR	13,8	34,5				11,0	21,0
	Hydrostatic Shell Test	PSI	300	750				230	450
		BAR	20,7	51,8				16,0	30,0
	Seat Test	Min. PSI	220	550				165	330
		Min. BAR	15,2	37,9				12,0	23,0

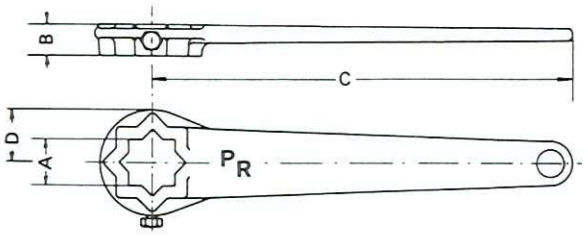
Material			Class 150	300	400	600	900	1500	2500
Carbon Steel ASTM A216 Gr. WCB	Maximum Cold Working Pressure	PSI	285	740	990	1480	2220	3705	6170
		BAR	19,7	51,0	68,1	102,0	153,1	255,5	425,4
	Hydrostatic Shell Test	PSI	450	1125	1500	2225	3350	5575	9275
		BAR	30,0	77,0	103,0	154,0	230,0	383,0	639,0
	Seat Test	Min. PSI	315	815	1090	1630	2442	4075	6787
		Min. BAR	21,5	56,2	74,9	112,3	168,5	280,8	468,0

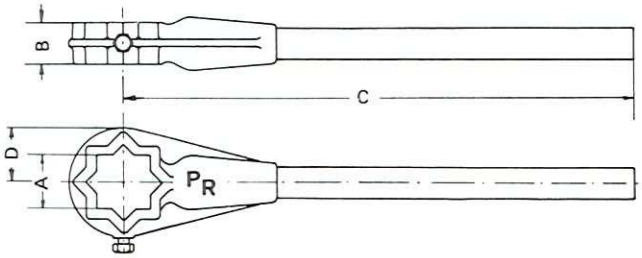
Material			Class 150	300	400	600	900	1500	2500
Carbon Steel ASTM A352 Gr. LCB	Maximum Cold Working Pressure	PSI	265	695	925	1390	2085	3470	5785
		BAR	18,3	47,9	63,8	95,8	143,8	239,2	398,9
	Hydrostatic Shell Test	PSI	400	1050	1400	2100	3150	5225	8700
		BAR	28,0	72,0	96,0	144,0	216,0	360,0	599,0
	Seat Test	Min. PSI	292	765	1018	1529	2294	3817	6364
		Min. BAR	20,2	52,7	70,2	105,5	158,2	263,3	438,9

Material			Class 150	300	400	600	900	1500	2500
Stainless Steel ASTM A351 Gr. CF8M	Maximum Cold Working Pressure	PSI	275	720	960	1440	2160	3600	6000
		BAR	19,0	49,6	66,2	99,3	148,9	248,2	413,7
	Hydrostatic Shell Test	PSI	425	1100	1450	2175	3250	5400	9000
		BAR	29,0	75,0	100,0	149,0	224,0	373,0	621,0
	Seat Test	Min. PSI	303	792	1056	1584	2376	3960	6600
		Min. BAR	20,9	54,6	72,8	109,2	163,7	272,9	454,9

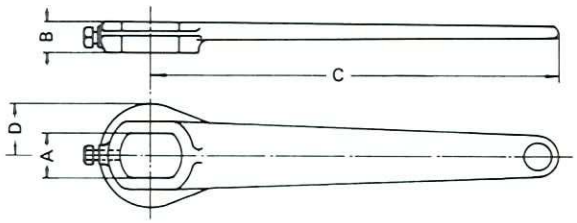
Material			Class 150	300	400	600	900	1500	2500
ASTM A216 Gr.WCC ASTM A352 Gr. LCC ASTM A352 Gr. LC2 ASTM A890 Gr. 4A	Maximum Cold Working Pressure	PSI	290	750	1000	1500	2250	3750	6250
		BAR	20,0	51,7	69,0	103,4	155,1	258,6	430,9
	Hydrostatic Shell Test	PSI	450	1125	1500	2250	3375	5625	9375
		BAR	30,0	78,0	104,0	156,0	233,0	388,0	647,0
	Seat Test	Min. PSI	319	825	1100	1650	2475	4125	6875
		Min. BAR	22,0	56,9	75,9	113,7	170,7	284,5	474,0

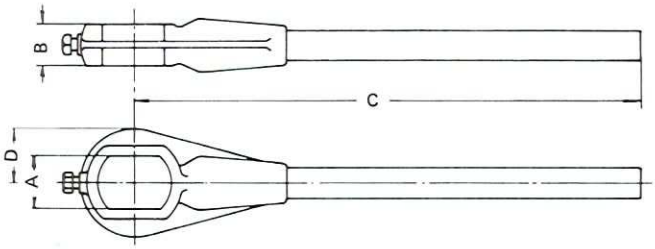
Standard wrench type 8K (Short)





Standard wrench type 2K (Short)

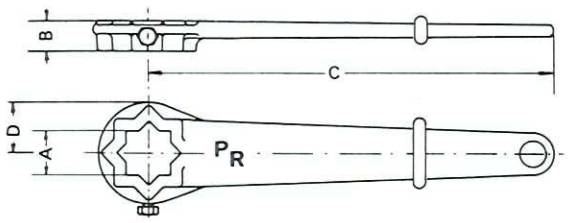


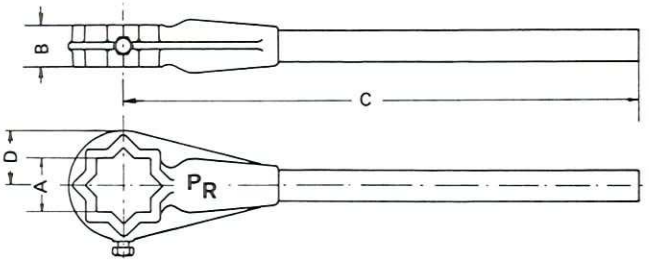


A	B	C	D
17	14	140	20
19	16	150	22
24	18	200	26
27	20	225	30
30	22	280	33
36	26	330	38
50	40	420	52

A	B	C	D
55	45	815	58
65	50	940	70
70	50	1090	76

Wrench type 8L (Long)

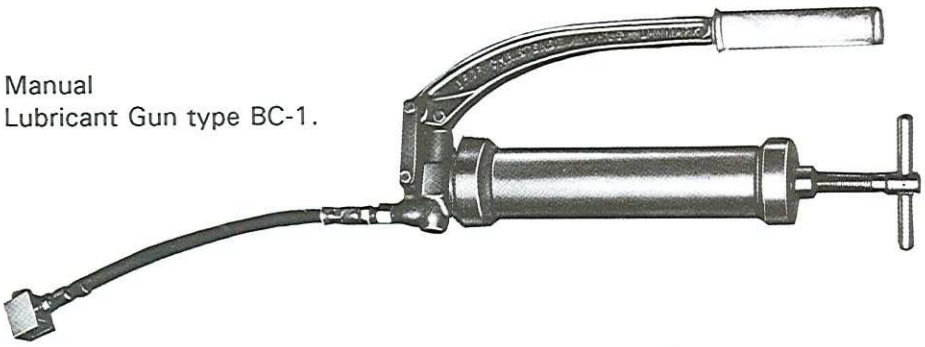




A	B	C	D
17	14	230	20
22	20	300	30
24	20	300	30
27	20	340	30
30	26	420	38
36	26	470	42

A	B	C	D
41	35	650	50
50	45	815	58
55	50	1090	70
65	50	1270	80

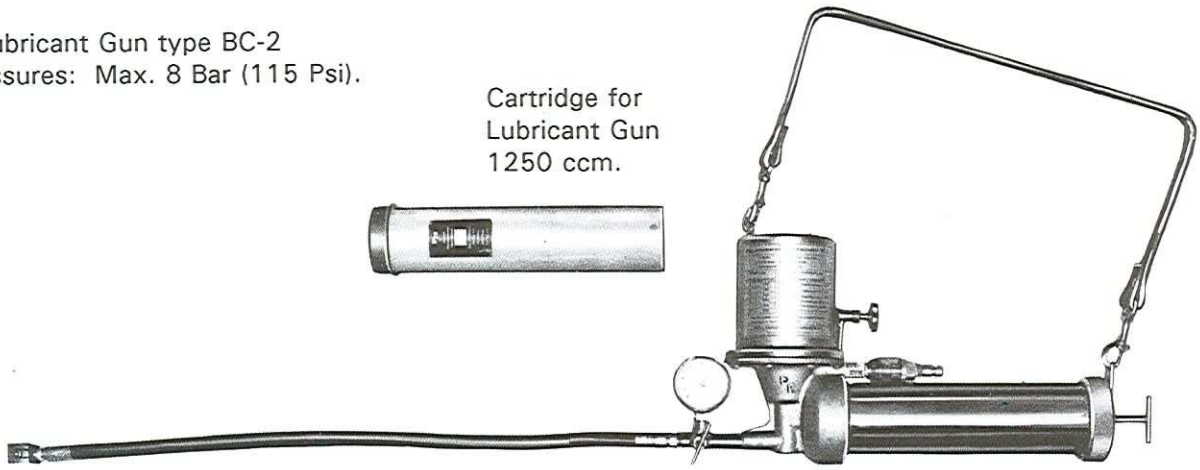
Manual
Lubricant Gun type BC-1.



Cartridge for
Lubricant Gun
300 ccm.

Pneumatic Lubricant Gun type BC-2
Working Pressures: Max. 8 Bar (115 Psi).

Cartridge for
Lubricant Gun
1250 ccm.



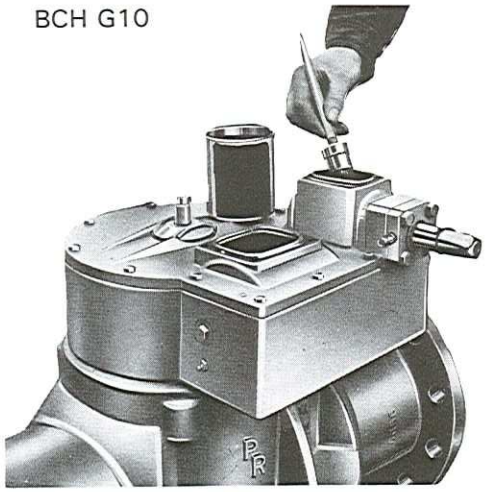
Grease Gun for Gear
Lubrication type 315-2

Grease for bearings:

BCH G10

Grease for worms and gear wheel:

BCH G10

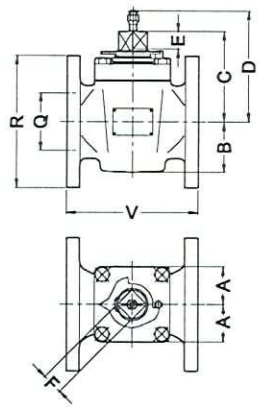


STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 125
SHORT PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
125	200 Psi	Shell 300 Psi Seat 220 Psi	Straight-way Short	Flange F.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

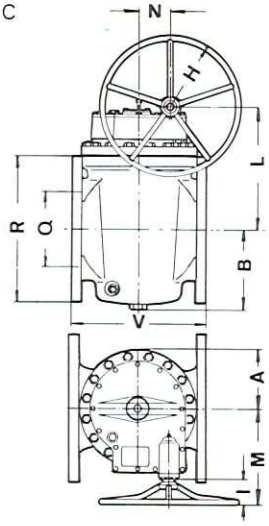
WRENCH
TYPE 8 L



DN 1" - 6"

9-AS 40114 N

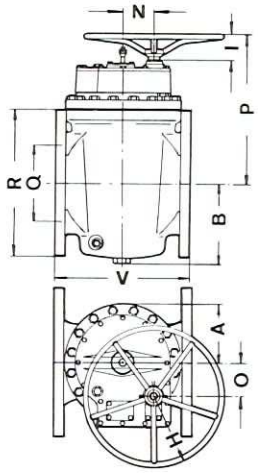
GEAR
TYPE C



DN 1" - 12"

9-AS 40114 C

GEAR
TYPE D



DN 6" - 12"

9-AS 40114 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
1"	37	32	76	124	15	22	45	16	76	104	32			25	108	140
1 1/2"	40	49	92	140	18	22	45	16	98	104	32			38	127	165
2"	46	55	102	162	21	24	150	101	110	180	47			51	152	178
2 1/2"	52	65	120	180	22	27	150	101	122	181	47			64	178	191
3"	62	74	135	195	24	30	150	101	134	181	47			76	191	203
4"	65	87	160	240	31	36	150	101	150	195	65			102	229	229
6"	117	115	206	286	42	50	200	101	252	268	85	46	375	152	279	267
8"	135	165					300	101	283	268	85	46	406	203	343	292
10"	144	187					300	101	316	268	85	46	439	254	406	330
12"	160	216					300	101	370	293	100	70	493	305	483	356

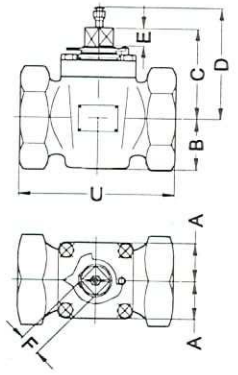
STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 125
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
125	200 Psi	Shell 300 Psi Seat 220 Psi	Straight-way Regular	Screwed API 5B Table 2.1 or ASME B1.20.1	Rectan-gular Full bore **	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

** 1/2" and 3/4" Round port full bore.

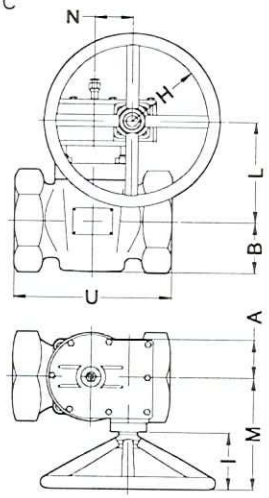
WRENCH
TYPE 8 L



DN 1/2" - 4"

9-AR 40014 N

GEAR
TYPE C



DN 1/2" - 4"

9-AR 40014 C

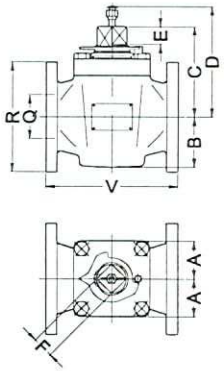
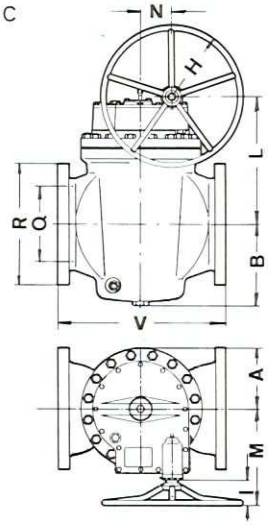
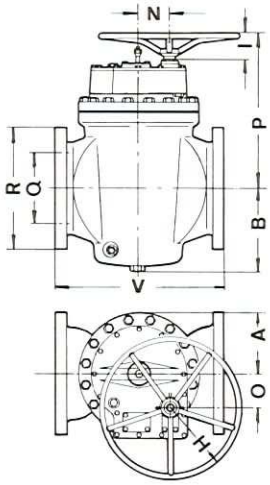
DN	A	B	C	D	E	F	H	I	L	M	N	U
1/2"	34	30	70	105	14	17	45	16	72	104	32	115
3/4"	37	32	76	124	15	22	45	16	76	104	32	115
1"	37	40	86	134	17	22	45	16	83	104	32	115
1 1/4"	40	49	92	140	18	22	45	16	98	104	32	130
1 1/2"	46	55	102	162	21	24	150	101	110	181	47	150
2"	52	65	120	180	22	27	150	101	122	181	47	160
2 1/2"	62	74	135	195	24	30	150	101	134	181	47	195
3"	65	87	160	240	31	36	150	101	150	195	65	220
4"	105	101	180	260	38	41	150	101	167	195	65	270

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 125
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
125	200 Psi	Shell 300 Psi Seat 220 Psi	Straight-way Regular	Flange F.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular Full Bore **	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

** 1/2" and 3/4" Round port full bore.

WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
		
DN 1/2" - 5"	DN 1/2" - 12"	DN 5" - 12"
9-AR 40114 N	9-AR 40114 C	9-AR 40114 D

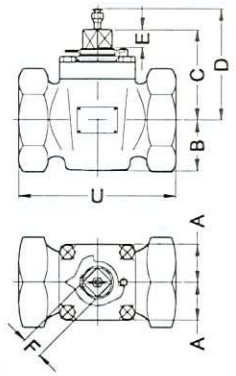
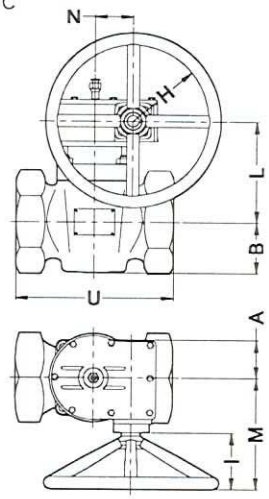
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
1/2"	34	30	70	105	14	17	45	16	72	104	32			*13	*89	*133
3/4"	37	32	76	124	15	22	45	16	76	104	32			*19	*98	*133
1"	37	40	86	134	17	22	45	16	83	104	32			25	108	140
1 1/4"	40	49	92	140	18	22	45	16	98	104	32			32	117	165
1 1/2"	46	55	102	162	21	24	150	101	110	181	47			38	127	165
2"	52	65	120	180	22	27	150	101	122	181	47			51	152	191
2 1/2"	62	74	135	195	24	30	150	101	134	181	47			64	178	210
3"	65	87	160	240	31	36	150	101	150	195	65			76	191	229
4"	105	101	180	260	38	41	150	101	167	195	65			102	229	229
5"	130	126	206	286	42	50	200	101	252	268	85	46	375	127	254	356
6"	144	158	254	334	48	55	200	101	289	268	85	46	412	152	279	394
8"	183	190					300	101	334	293	95	70	458	203	343	457
10"	212	240					300	101	435	361	135	69	569	254	406	533
12"	240	285					300	101	470	400	160	108	604	305	483	610

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 125
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
125	200 Psi	Shell 300 Psi Seat 220 Psi	Straight-way Regular	Screwed API 5B Table 2.1 or ASME B1.20.1	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

WRENCH TYPE 8 L	GEAR TYPE C
	
DN 1" - 4"	DN 1" - 4"
9-AV 40014 N	9-AV 40014 C

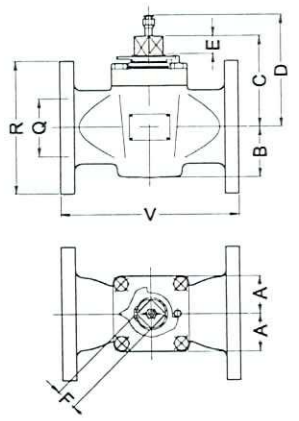
DN	A	B	C	D	E	F	H	I	L	M	N	U
1"	37	32	76	124	15	22	45	16	76	104	32	115
1 1/4"	37	40	86	134	17	22	45	16	83	104	32	130
1 1/2"	40	49	92	140	18	22	45	16	98	104	32	150
2"	46	55	102	162	21	24	150	101	110	181	47	160
2 1/2"	52	65	120	180	22	27	150	101	122	181	47	195
3"	62	74	135	195	24	30	150	101	134	181	47	220
4"	65	87	160	240	31	36	150	101	150	195	65	270

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 125
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
125	≤ 12″ 200 Psi ≥ 14″ 150 Psi	Shell ≤ 12″ 300 Psi ≥ 14″ 230 Psi Seat ≤ 12″ 220 Psi ≥ 14″ 165 Psi	Straight-way Regular	Flange F.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

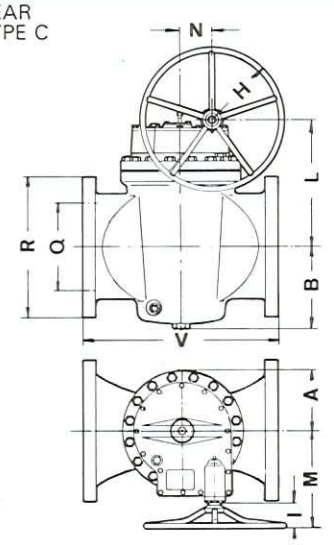
WRENCH
TYPE 8 L



DN 1" - 6"

9-AV 40114 N

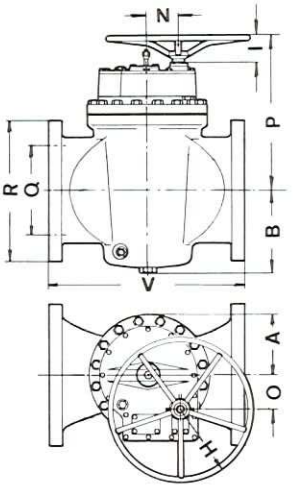
GEAR
TYPE C



DN 1" - 16"

9-AV 40114 C

GEAR
TYPE D



DN 6" - 16"

9-AV 40114 D

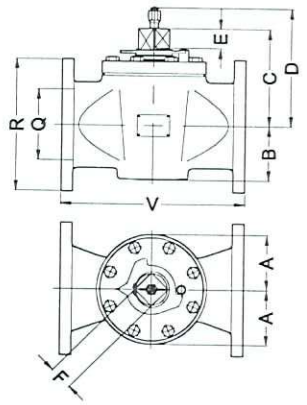
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
1″	37	32	76	124	15	22	45	16	76	104	32			25	108	140
1 1/4″	37	40	86	134	17	22	45	16	83	104	32			32	117	165
1 1/2″	40	49	92	140	18	22	45	16	98	104	32			38	127	165
2″	46	55	102	162	21	24	150	101	110	181	47			51	152	191
2 1/2″	52	65	120	180	22	27	150	101	122	181	47			64	178	210
3″	62	74	135	195	24	30	150	101	134	181	47			76	191	229
4″	65	87	160	240	31	36	150	101	150	195	65			102	229	229
5″	105	101	185	265	38	41	150	101	167	195	65			127	254	356
6″	117	115	206	286	42	50	200	101	252	268	85	46	375	152	279	394
8″	144	165	254	334	48	55	200	101	260	268	85	46	383	203	343	457
10″	183	190					300	101	334	293	95	70	458	254	406	533
12″	197	224					300	101	364	293	95	70	488	305	483	610
14″	235	247					300	101	441	361	135	69	575	356	533	686
16″	250	295					300	101	466	400	160	108	600	406	597	762

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 125
VENTURI PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
125	≤ 12″ 200 Psi ≥ 14″ 150 Psi	Shell ≤ 12″ 300 Psi ≥ 14″ 230 Psi Seat ≤ 12″ 220 Psi ≥ 14″ 165 Psi	Straight-way Venturi	Flange F.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

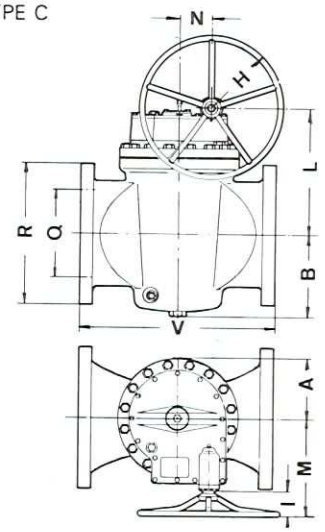
WRENCH
TYPE 8 L



DN 6" - 8"

9-AT 40114 N

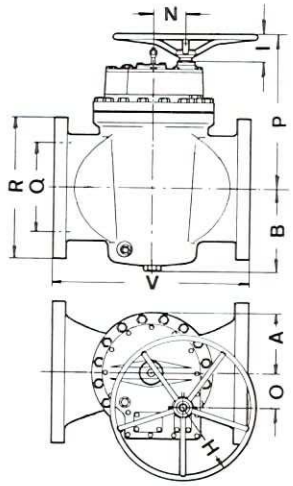
GEAR
TYPE C



DN 6" - 16"

9-AT 40114 C

GEAR
TYPE D



DN 8" - 16"

9-AT 40114 D

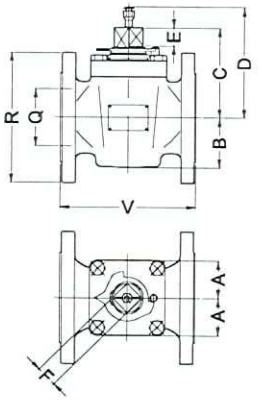
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
6″	106	123	198	278	37	41	150	101	183	195	71			152	279	394
8″	128	153	260	340	52	55	200	101	284	268	85	46	407	203	343	457
10″	145	186					200	101	326	268	85	46	449	254	406	533
12″	171	219					300	101	376	293	95	70	500	305	483	610
14″	180	243					300	101	404	293	95	70	528	356	533	686
16″	202	274					300	101	487	361	135	69	621	406	597	762

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 250
SHORT PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
250	500 Psi	Shell 750 Psi Seat 550 Psi	Straight-way Short	Flange R.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

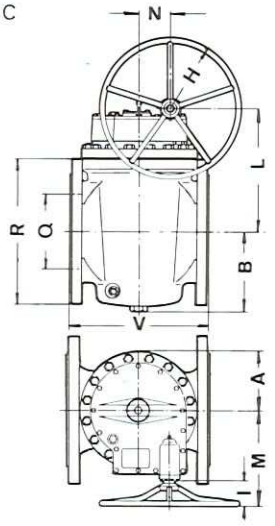
WRENCH
TYPE 8 L



DN 2" - 6"

9-AS 40134 N

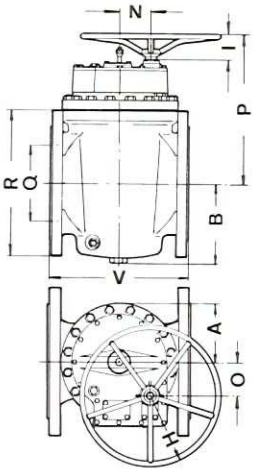
GEAR
TYPE C



DN 2" - 12"

9-AS 40134 C

GEAR
TYPE D



DN 6" - 12"

9-AS 40134 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
2"	46	55	102	162	21	24	150	101	110	181	47			51	165	184
2 1/2"	52	65	120	180	22	27	150	101	122	181	47			64	191	203
3"	65	80	135	195	24	30	150	101	134	181	47			76	210	235
4"	90	93	160	240	31	36	150	101	150	195	65			102	254	267
6"	117	115	206	286	42	50	200	101	252	268	85	46	375	152	318	378
8"	135	165					200	101	283	268	85	46	406	203	381	*419
10"	144	187					300	101	316	268	85	46	439	254	445	568
12"	160	216					300	101	370	293	100	70	493	305	521	648

Note: * Not included in the standards.

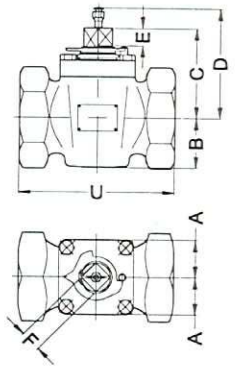
STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 250
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
250	500 Psi	Shell 750 Psi Seat 550 Psi	Straight-way Regular	Screwed API 5B Table 2.1 or ASME B1.20.1	Rectan-gular Full bore **	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

** 1/2" and 3/4" Round port full bore.

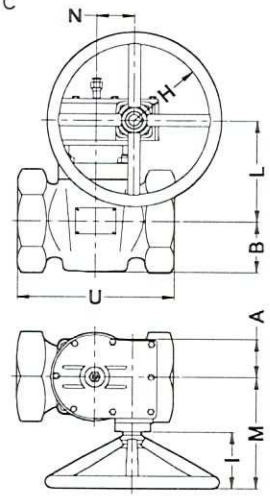
WRENCH
TYPE 8 L



DN 1/2" - 4"

9-AR 40034 N

GEAR
TYPE C



DN 1/2" - 4"

9-AR 40034 C

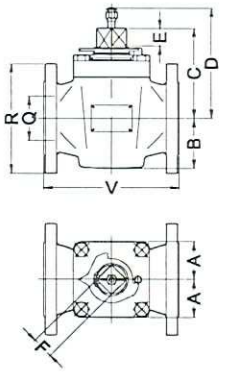
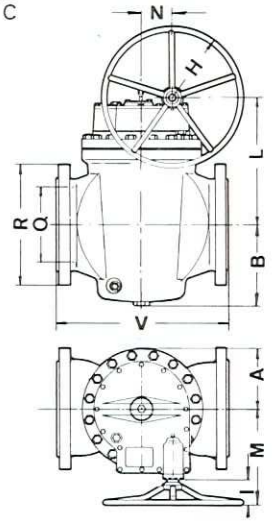
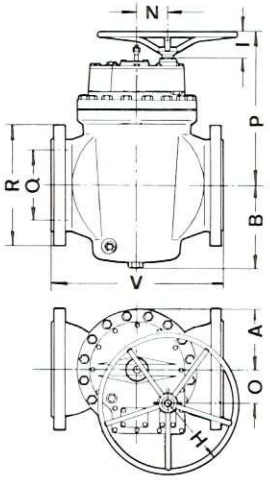
DN	A	B	C	D	E	F	H	I	L	M	N	U
1/2"	34	30	70	105	14	17	45	16	72	104	32	115
3/4"	37	32	76	124	15	22	45	16	76	104	32	115
1"	37	40	86	134	17	22	45	16	83	104	32	115
1 1/4"	40	49	92	140	18	22	45	16	98	104	32	130
1 1/2"	46	55	102	162	21	24	150	101	110	181	47	150
2"	52	65	120	180	22	27	150	101	122	181	47	160
2 1/2"	65	80	135	195	24	30	150	101	134	181	47	195
3"	90	93	160	240	31	36	150	101	150	195	65	220
4"	105	106	180	260	38	41	150	101	167	195	65	270

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 250
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
250	500 Psi	Shell 750 Psi Seat 550 Psi	Straight-way Regular	Flange R.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular Full Bore **	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

** 1/2" and 3/4" Round port full bore.

WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
		
DN 1/2" - 5"	DN 1/2" - 12"	DN 5" - 12"
9-AR 40134 N	9-AR 40134 C	9-AR 40134 D

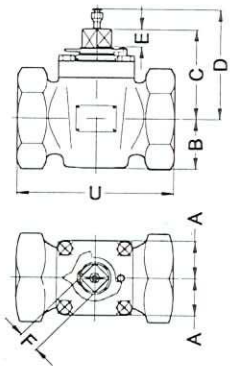
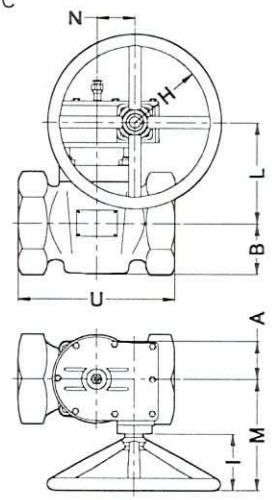
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
1/2"	34	30	70	105	14	17	45	16	72	104	32			*13	95	*140
3/4"	37	32	76	124	15	22	45	16	76	104	32			*19	117	*140
1"	37	40	86	134	17	22	45	16	83	104	32			25	124	159
1 1/4"	40	49	92	140	18	22	45	16	98	104	32			32	133	*178
1 1/2"	46	55	102	162	21	24	150	101	110	181	47			38	155	191
2"	52	65	120	180	22	27	150	101	122	181	47			51	165	216
2 1/2"	65	80	135	195	24	30	150	101	134	181	47			64	191	241
3"	90	93	160	240	31	36	150	101	150	195	65			76	210	283
4"	105	106	180	265	38	41	150	101	167	195	65			102	254	305
5"	130	126	206	286	42	50	200	101	252	268	85	46	375	127	279	387
6"	144	168	254	334	48	55	200	101	289	268	85	46	412	152	318	426
8"	183	190					300	101	334	293	95	70	458	203	381	502
10"	212	240					300	101	435	361	135	69	569	254	445	597
12"	240	285					300	101	470	400	160	108	604	305	521	711

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 250
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
250	500 Psi	Shell 750 Psi Seat 550 Psi	Straight-way Regular	Screwed API 5B Table 2.1 or ASME B1.20.1	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

WRENCH TYPE 8 L	GEAR TYPE C
	
DN 1" - 4"	DN 1" - 4"
9-AV 40034 N	9-AV 40034 C

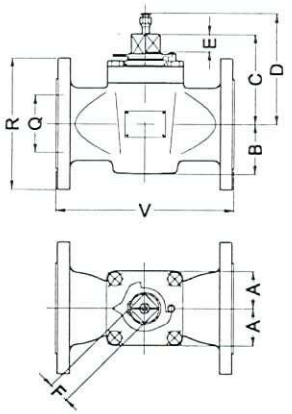
DN	A	B	C	D	E	F	H	I	L	M	N	O
1"	37	32	76	124	15	22	45	16	76	104	32	115
1 1/4"	37	40	86	134	17	22	45	16	83	104	32	130
1 1/2"	40	49	92	140	18	22	45	16	98	104	32	150
2"	46	55	102	162	21	24	150	101	110	181	47	160
2 1/2"	52	65	120	180	22	27	150	101	122	181	47	195
3"	65	80	135	195	24	30	150	101	134	181	47	220
4"	90	93	160	240	31	36	150	101	150	195	65	270

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 250
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
250	≤ 12″ 500 Psi ≥ 14″ 300 Psi	Shell ≤ 12″ 750 Psi ≥ 14″ 450 Psi Seat ≤ 12″ 550 Psi ≥ 14″ 330 Psi	Straight-way Regular	Flange R.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

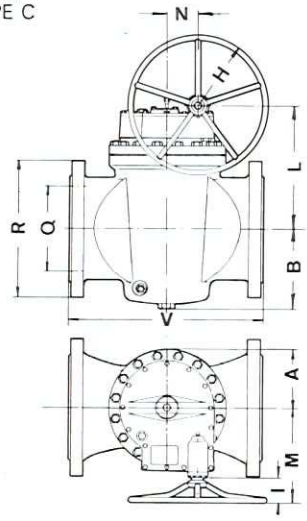
WRENCH
TYPE 8 L



DN 1" - 6"

9-AV 40134 N

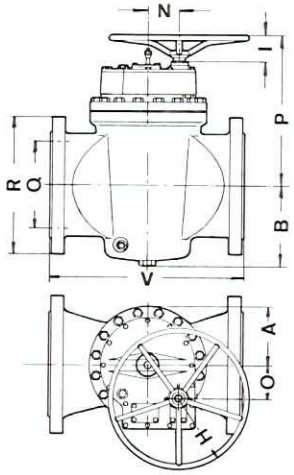
GEAR
TYPE C



DN 1" - 16"

9-AV 40134 C

GEAR
TYPE D



DN 6" - 16"

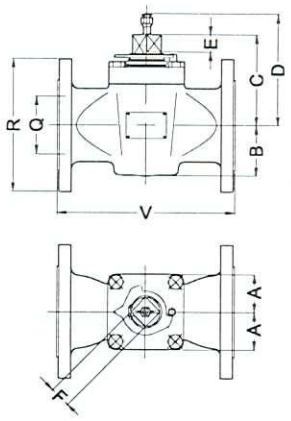
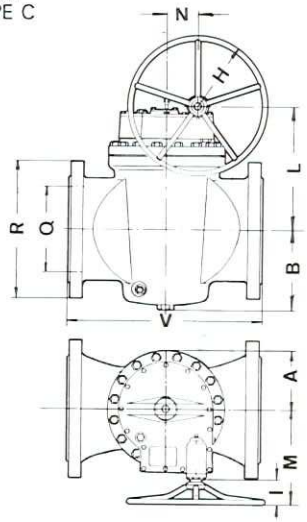
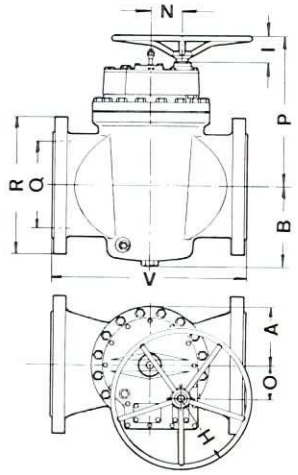
9-AV 40134 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
1″	37	32	76	124	15	22	45	16	76	104	32			25	124	159
1 1/4″	37	40	86	134	17	22	45	16	83	104	32			32	133	*178
1 1/2″	40	49	92	140	18	22	45	16	98	104	32			38	155	191
2″	46	55	102	162	21	24	150	101	110	181	47			51	165	216
2 1/2″	52	65	120	180	22	27	150	101	122	181	47			64	191	241
3″	65	80	135	195	24	30	150	101	134	181	47			76	210	283
4″	90	93	160	240	31	36	150	101	150	195	65			102	254	305
5″	105	106	185	265	38	41	150	101	167	195	65			127	279	387
6″	130	126	206	286	42	50	200	101	252	268	85	46	375	152	318	426
8″	144	168	254	334	48	55	200	101	260	268	85	46	383	203	381	502
10″	183	190					300	101	334	293	95	70	458	254	445	597
12″	197	224					300	101	364	293	95	70	488	305	521	711
14″	235	247					300	101	441	361	135	69	575	337	584	*762
16″	250	295					300	101	466	400	160	108	600	387	648	*838

STRAIGHTWAY TAPER PLUG VALVES

CAST IRON CLASS 250
VENTURI PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
250	≤ 12″ 500 Psi ≥ 14″ 300 Psi	Shell ≤ 12″ 750 Psi ≥ 14″ 450 Psi Seat ≤ 12″ 550 Psi ≥ 14″ 330 Psi	Straight-way Venturi	Flange R.F. ASME B 16.1 Face to Face ASME 16.10	Rectan-gular	Cast Iron ASTM A 126 Class B	Cast Iron ASTM A 126 Class B	Manual

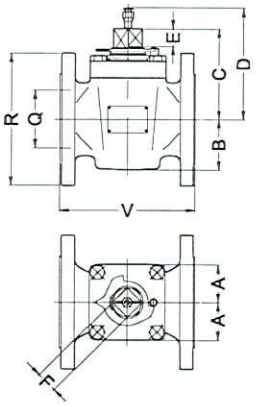
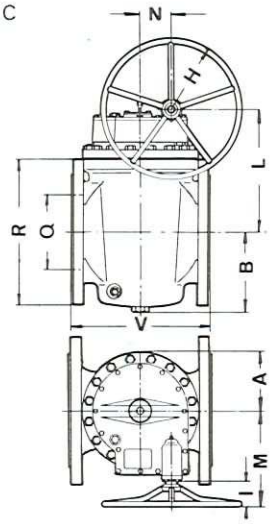
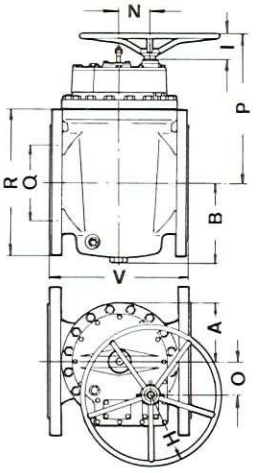
WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
		
DN 6″	DN 6″ - 16″	DN 8″ - 16″
9-AT 40134 N	9-AT 40134 C	9-AT 40134 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V
6″	106	123	198	278	37	41	150	101	183	195	71			152	318	403
8″	128	153	260	340	52	55	200	101	284	268	85	46	407	203	381	419
10″	145	186					200	101	326	268	85	46	449	254	445	457
12″	171	219					300	101	376	293	95	70	500	305	521	502
14″	180	243					300	101	404	293	95	70	528	337	584	762
16″	202	274					300	101	487	361	135	69	621	387	648	838

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
SHORT PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Short	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B	Manual
							Steel	

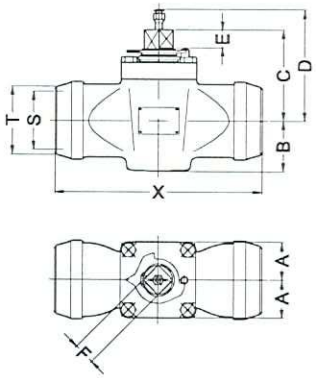
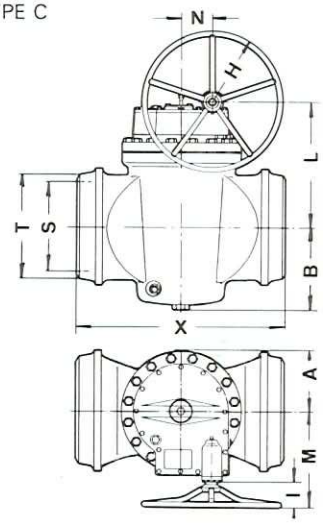
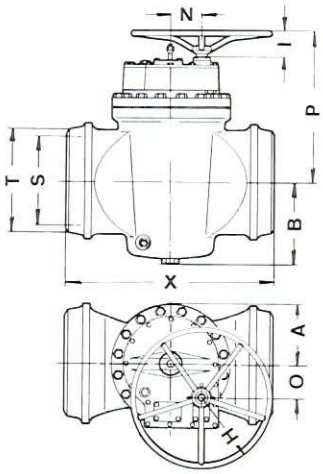
	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 12"	DN 6" - 12"
Cast Iron	9-AS 70124 N	9-AS 70124 C	9-AS 70124 D
Steel	9-AS 70127 N	9-AS 70127 C	9-AS 70127 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
1"	37	32	76	124	15	22	45	16	76	104	32			25	108	140	152
1 1/2"	40	49	92	140	18	22	45	16	98	104	32			38	127	165	178
2"	46	55	102	162	21	24	150	101	110	181	47			51	152	178	191
2 1/2"	52	65	120	180	22	27	150	101	122	181	47			64	178	191	203
3"	62	74	135	195	24	30	150	101	134	181	47			76	191	203	216
4"	65	87	160	240	31	36	150	101	150	195	65			102	229	229	241
6"	117	115	206	286	42	50	200	101	252	268	85	46	375	152	279	267	279
8"	130	156					200	101	283	268	85	46	406	203	343	292	305
10"	144	187					300	101	316	268	85	46	439	254	406	330	343
12"	160	216					300	101	370	293	95	70	493	305	483	356	368

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
SHORT PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Short	Welding Ends ASME B 16.25 End to End ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 12"	DN 6" - 12"
Cast Iron	9-AS 70524 N	9-AS 70524 C	9-AS 70524 D
Steel	9-AS 70527 N	9-AS 70527 C	9-AS 70527 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
1"	37	32	76	124	15	22	45	16	76	104	32			Inside pipe dimension to be specified by purchaser.	*35,4	*172
1 1/4"	37	40	86	134	17	22	45	16	83	104	32				*44,2	*200
1 1/2"	40	49	92	140	18	22	45	16	98	104	32				*50,3	*241
2"	46	55	102	162	21	24	150	101	110	181	47				*62,3	267
2 1/2"	52	65	120	180	22	27	150	101	122	181	47				75	305
3"	62	74	135	195	24	30	150	101	134	181	47				91	330
4"	65	87	160	240	31	36	150	101	150	195	65				117	356
5"	105	101	185	265	38	41	150	101	167	195	65				144	381
6"	117	115	206	286	42	50	200	101	252	268	85	46	375		172	457
8"	143	163					200	101	289	268	85	46	412		223	521
10"	183	190					300	101	334	293	95	70	458		278	559
12"	197	224					300	101	364	293	95	70	488		329	635

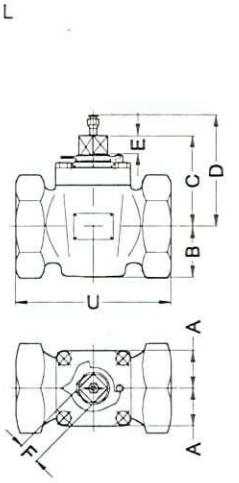
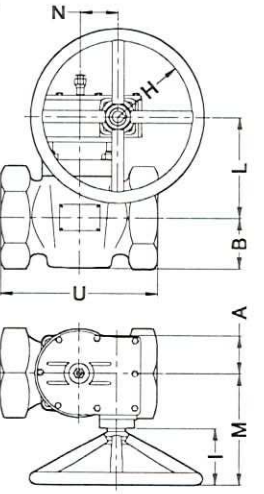
Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Regular	Screwed API 5B table 2.1 or ASME B1.20.1	Rectan-gular Full bore **	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

** 1/2" and 3/4" Round port full bore.

	WRENCH TYPE 8 L	WRENCH TYPE C
		
Plug	DN 1/2" - 4"	DN 1/2" - 4"
Cast Iron	9-AR 70024 N	9-AR 70024 C
Steel	9-AR 70027 N	9-AR 70027 C

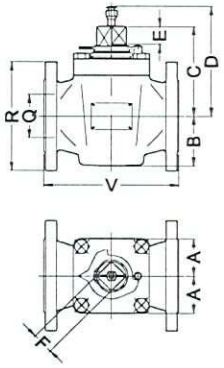
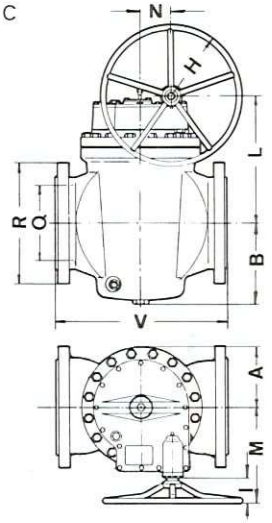
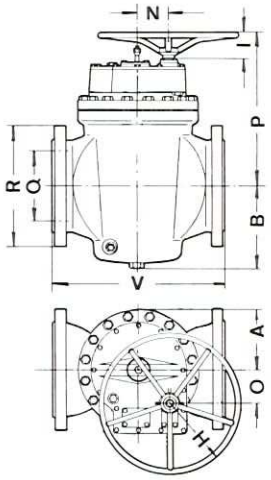
DN	A	B	C	D	E	F	H	I	L	M	N	U
1/2"	34	30	70	105	14	17	45	16	72	104	32	115
3/4"	37	32	76	124	15	22	45	16	76	104	32	115
1"	37	40	89	134	20	22	45	16	83	104	32	115
1 1/4"	40	49	92	140	18	22	45	16	98	104	32	130
1 1/2"	46	55	102	162	21	24	150	101	110	181	47	150
2"	52	65	120	180	22	27	150	101	122	181	47	160
2 1/2"	62	74	135	195	24	30	150	101	134	181	47	195
3"	65	87	160	240	31	36	150	101	150	195	65	220
4"	105	101	185	265	38	41	150	101	167	195	65	270

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Regular	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular Full bore **	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

** 1/2" and 3/4" Round port full bore.

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1/2" - 5"	DN 1/2" - 12"	DN 5" - 12"
Cast Iron	9-AR 70124 N	9-AR 70124 C	9-AR 70124 D
Steel	9-AR 70127 N	9-AR 70127 C	9-AR 70127 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
1/2"	34	30	70	105	14	17	45	16	72	104	32			*13	89	*133	*144
3/4"	37	32	76	124	15	22	45	16	76	104	32			*19	98	*133	*146
1"	37	40	86	134	17	22	45	16	83	104	32			25	108	*140	*152
1 1/4"	40	49	92	140	18	22	45	16	98	104	32			32	117	*165	*178
1 1/2"	46	55	102	162	21	24	150	101	110	181	47			38	127	*165	*178
2"	52	65	120	180	22	27	150	101	122	181	47			51	152	*191	*203
2 1/2"	62	74	135	195	24	30	150	101	134	181	47			64	178	*210	*222
3"	65	87	160	240	31	36	150	101	150	195	65			76	191	*229	*241
4"	105	101	180	260	38	41	150	101	167	195	65			102	229	305	318
5"	130	126	206	286	42	50	200	101	252	268	85	46	375	127	254	381	394
6"	143	163	254	334	48	55	200	101	289	268	85	46	412	152	279	394	406
8"	183	190					300	101	334	293	95	70	458	203	343	457	470
10"	212	240					300	101	435	361	135	69	569	254	406	533	546
12"	240	285					300	101	470	400	160	108	604	305	483	610	622

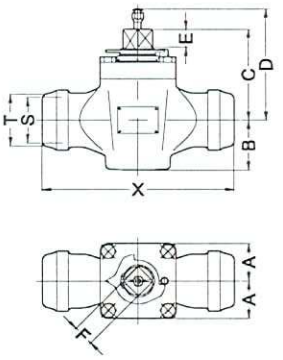
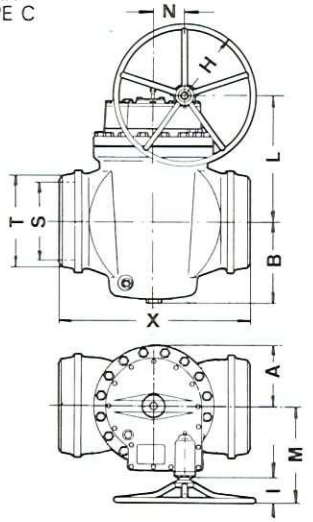
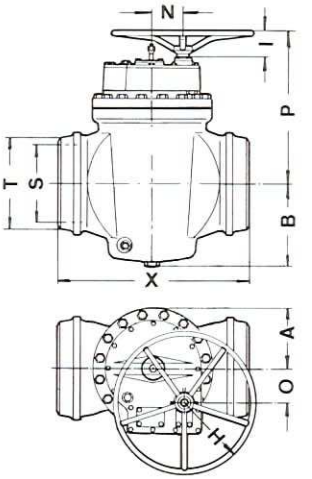
Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Regular	Welding Ends ASME B 16.25 End to End ASME B 16.10	Rectan-gular Full bore **	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

** 1/2" and 3/4" Round port full bore.

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1/2" - 5"	DN 1/2" - 12"	DN 5" - 12"
Cast Iron	9-AR 70524 N	9-AR 70524 C	9-AR 70524 D
Steel	9-AR 70527 N	9-AR 70527 C	9-AR 70527 D

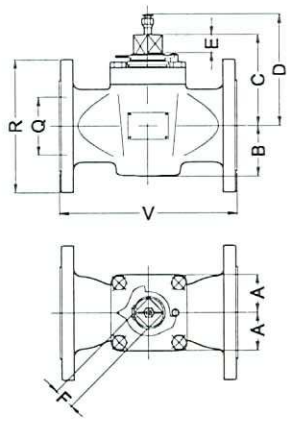
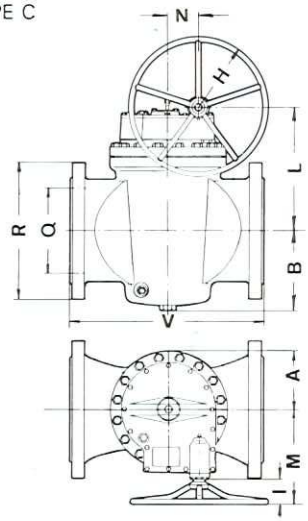
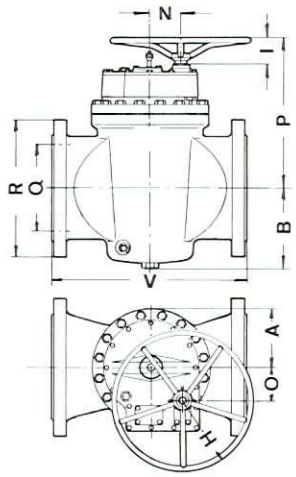
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
1/2"	34	30	70	105	14	17	45	16	72	104	32			Inside pipe dimension to be specified by purchaser.	*23,3	*140
3/4"	37	32	76	124	15	22	45	16	76	104	32				*28,7	*149
1"	37	40	86	134	17	22	45	16	83	104	32				*35,4	*172
1 1/4"	40	49	92	140	18	22	45	16	98	104	32				*44,2	*200
1 1/2"	46	55	102	162	21	24	150	101	110	181	47				*50,3	*241
2"	52	65	120	180	22	27	150	101	122	181	47				*62,3	267
2 1/2"	62	74	135	195	24	30	150	101	134	181	47				75	305
3"	65	87	160	240	31	36	150	101	150	195	65				91	330
4"	105	101	180	260	38	41	150	101	167	195	65				117	356
5"	130	126	206	286	42	50	200	101	252	268	85	46	375		144	381
6"	143	163	254	334	48	55	200	101	289	268	85	46	412		172	457
8"	183	190					300	101	334	293	95	70	458		223	521
10"	212	240					300	101	435	361	135	69	569		278	559
12"	240	285					300	101	470	400	160	108	604		329	635

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Regular	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 16"	DN 6" - 16"
Cast Iron	9-AV 70124 N	9-AV 70124 C	9-AV 70124 D
Steel	9-AV 70127 N	9-AV 70127 C	9-AV 70127 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
1"	37	32	76	124	15	22	45	16	76	104	32			25	108	*140	*152
1 1/4"	37	40	86	134	17	22	45	16	83	104	32			32	117	*165	*178
1 1/2"	40	49	92	140	18	22	45	16	98	104	32			38	127	*165	*178
2"	46	55	102	162	21	24	150	101	110	181	47			51	152	*191	*203
2 1/2"	52	65	120	180	22	27	150	101	122	181	47			64	178	*210	*222
3"	62	74	135	195	24	30	150	101	134	181	47			76	191	*229	*241
4"	65	87	160	240	31	36	150	101	150	195	65			102	229	305	318
5"	105	101	185	265	38	41	150	101	167	195	65			127	254	381	394
6"	117	115	206	286	42	50	200	101	252	268	85	46	375	152	279	394	406
8"	143	163	254	334	48	55	200	101	289	268	85	46	412	203	343	457	470
10"	183	190					300	101	334	293	95	70	458	254	406	533	546
12"	197	224					300	101	364	293	95	70	488	305	483	610	622
14"	235	247					300	101	441	361	135	69	575	337	533	686	699
16"	250	295					300	101	466	400	160	108	600	387	597	762	775

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Regular	Welding Ends ASME B 16.25 End to End ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B	Manual
							Steel	

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
Plug	DN 1" - 6"	DN 1" - 16"	DN 6" - 16"
Cast Iron	9-AV 70524 N	9-AV 70524 C	9-AV 70524 D
Steel	9-AV 70527 N	9-AV 70527 C	9-AV 70527 D

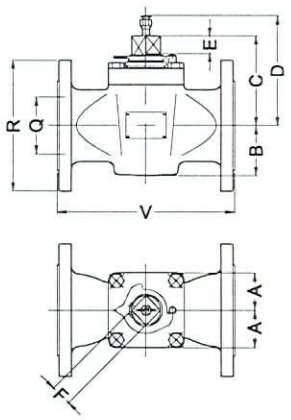
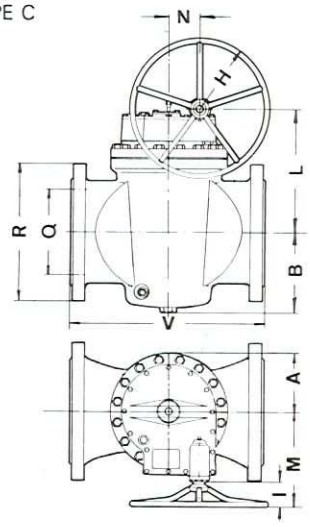
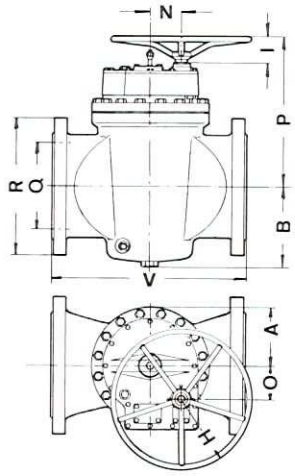
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
1"	37	32	76	124	15	22	45	16	76	104	32			Inside pipe dimension to be specified by purchaser.	*35,4	*172
1 1/4"	37	40	86	134	17	22	45	16	83	104	32				*44,2	*200
1 1/2"	40	49	92	140	18	22	45	16	98	104	32				*50,3	*241
2"	46	55	102	162	21	24	150	101	110	181	47				*62,3	267
2 1/2"	52	65	120	180	22	27	150	101	122	181	47				75	305
3"	62	74	135	195	24	30	150	101	134	181	47				91	330
4"	65	87	160	240	31	36	150	101	150	195	65				117	356
5"	105	101	185	265	38	41	150	101	167	195	65				144	381
6"	117	115	206	286	42	50	200	101	252	268	85	46	375		172	457
8"	143	163	254	334	48	55	200	101	289	268	85	46	412		223	521
10"	183	190					300	101	334	293	95	70	458		278	559
12"	197	224					300	101	364	293	95	70	488		329	635
14"	235	247					300	101	441	361	135	69	575		362	*762
16"	250	295					300	101	466	400	160	108	600		413	*838

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
VENTURI PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Venturi	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

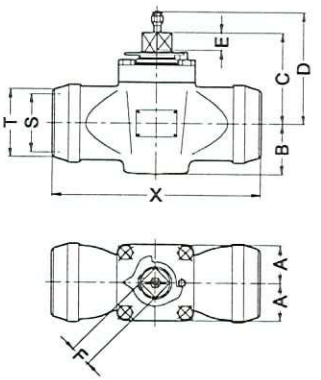
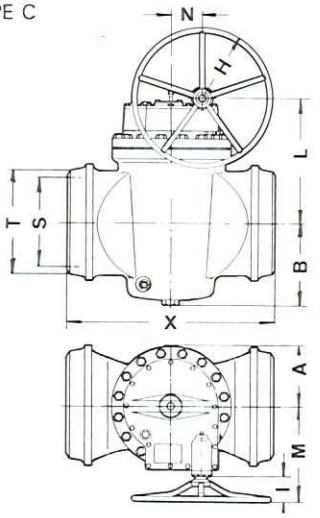
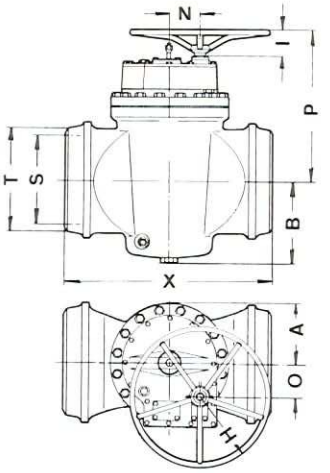
	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 6" - 8"	DN 6" - 16"	DN 8" - 16"
Cast Iron	9-AT 70124 N	9-AT 70124 C	9-AT 70124 D
Steel	9-AT 70127 N	9-AT 70127 C	9-AT 70127 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
6"	106	123	198	278	37	41	150	101	183	195	71			152	279	394	406
8"	128	153	260	340	52	55	200	101	284	268	85	46	407	203	343	457	470
10"	145	186					200	101	326	268	85	46	449	254	406	533	546
12"	171	219					300	101	376	293	95	70	500	305	483	610	622
14"	180	243					300	101	404	293	95	70	528	337	533	686	699
16"	202	274					300	101	487	361	135	69	621	387	597	762	775

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 150
VENTURI PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
150	285 Psi	Shell 450 Psi Seat 315 Psi	Straight-way Venturi	Welding Ends ASME B 16.25 End to End ASME B 16.10 Regular Pattern	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B	Manual
							Steel	

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 6" - 8"	DN 6" - 16"	DN 8" - 16"
Cast Iron	9-AT 70524 N	9-AT 70524 C	9-AT 70524 D
Steel	9-AT 70527 N	9-AT 70527 C	9-AT 70527 D

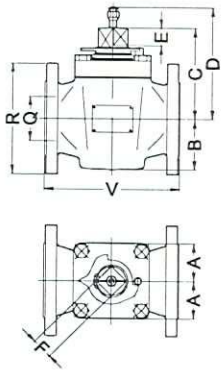
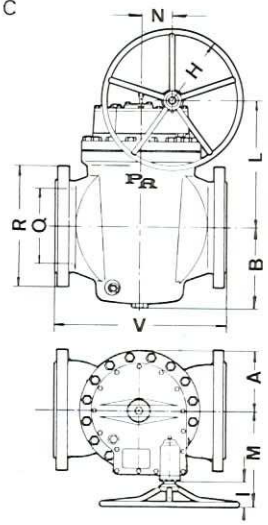
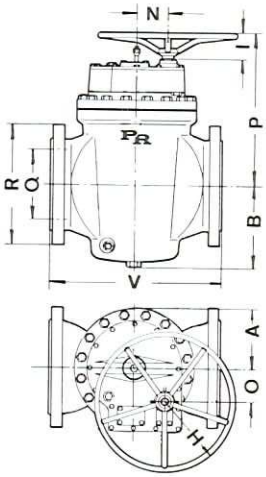
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
6"	106	123	198	278	37	41	150	101	183	195	71			Insie pipe dimen-sion to be specified by purchaser.	172	457
8"	128	153	260	340	52	55	200	101	284	268	85	46	407		223	521
10"	145	186					200	101	326	268	85	46	449		278	559
12"	171	219					300	101	376	293	95	70	500		329	635
14"	180	243					300	101	404	293	95	70	528		362	*762
16"	202	274					300	101	487	361	135	69	621		413	*838

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
SHORT PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Short	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

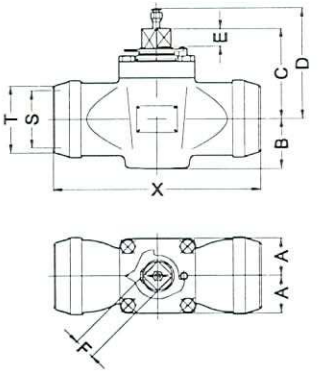
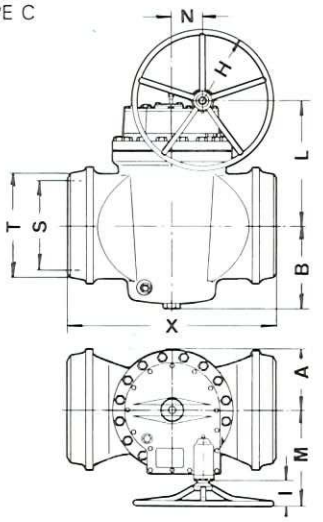
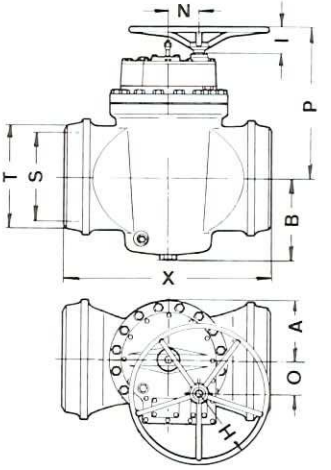
	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 12"	DN 6" - 12"
Cast Iron	9-AS 70144 N	9-AS 70144 C	9-AS 70144 D
Steel	9-AS 70147 N	9-AS 70147 C	9-AS 70147 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
1"	37	32	76	124	15	22	45	16	78	104	32			25	124	159	172
1 1/2"	40	49	92	140	18	22	45	16	98	104	32			38	156	191	203
2"	46	55	102	162	21	24	150	101	110	181	47			51	165	216	232
2 1/2"	52	65	120	180	22	27	150	101	122	181	47			64	191	241	257
3"	62	74	135	195	24	30	150	101	134	181	47			76	210	283	299
4"	90	93	160	240	31	36	150	101	150	195	65			102	254	305	321
6"	117	115	206	286	42	50	200	101	252	268	85	46	375	152	318	403	419
8"	135	165					200	101	283	268	85	46	406	203	381	419	435
10"	144	187					300	101	316	268	85	46	439	254	445	457	473
12"	160	216					300	101	370	293	95	70	493	305	521	502	518

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
SHORT PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Short	Welding Ends ASME B 16.25 End to End ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 12"	DN 6" - 12"
Cast Iron	9-AS 70544 N	9-AS 70544 C	9-AS 70544 D
Steel	9-AS 70547 N	9-AS 70547 C	9-AS 70547 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
1"	37	32	76	124	15	22	45	16	78	104	32			Inside pipe dimension to be specified by purchaser.	*35,4	*172
1 1/4"	37	40	86	134	17	22	45	16	83	104	32				*44,2	*200
1 1/2"	40	49	92	140	18	22	45	16	98	104	32				*50,3	*241
2"	46	55	102	162	21	24	150	101	110	181	47				*62,3	267
2 1/2"	52	65	120	180	22	27	150	101	122	181	47				75	305
3"	62	74	135	195	24	30	150	101	134	181	47				91	330
4"	90	93	160	240	31	36	150	101	150	195	65				117	356
5"	105	101	185	265	38	41	150	101	167	195	65				144	*381
6"	117	115	206	286	42	50	200	101	252	268	85	46	375		172	457
8"	144	162					200	101	289	268	85	46	412		223	521
10"	183	190					300	101	334	293	95	70	458		278	559
12"	197	224					300	101	364	293	95	70	488		329	635

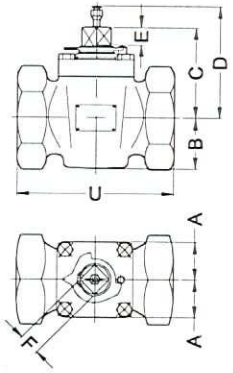
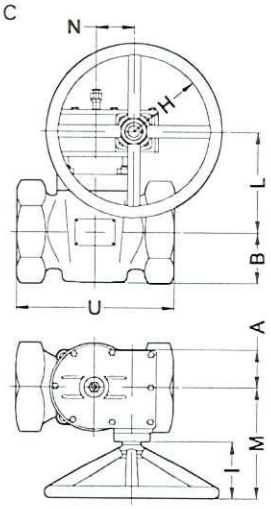
Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Regular	Screwed API 5B table 2.1 or ASME B1.20.1	Rectan-gular Full bore **	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B	Manual
							Steel	

** 1/2" and 3/4" Round port full bore.

	WRENCH TYPE 8 L	GEAR TYPE C
		
Plug	DN 1/2" - 4"	DN 1/2" - 4"
Cast Iron	9-AR 70044 N	9-AR 70044 C
Steel	9-AR 70047 N	9-AR 70047 C

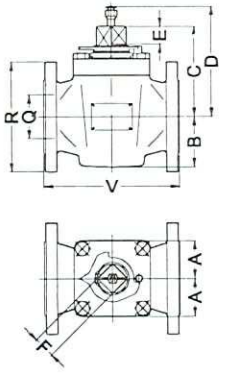
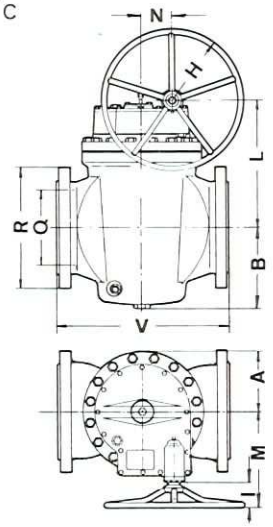
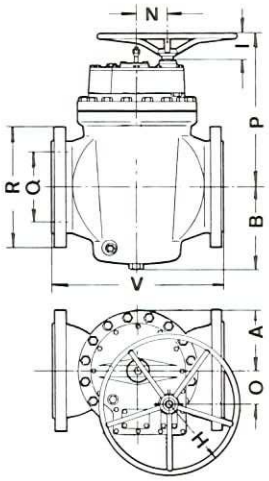
DN	A	B	C	D	E	F	H	I	L	M	N	U
1/2"	34	30	70	105	14	17	45	16	72	104	32	115
3/4"	37	32	76	124	15	22	45	16	76	104	32	115
1"	37	40	86	134	17	22	45	16	83	104	32	115
1 1/4"	40	49	92	140	18	22	45	16	98	104	32	130
1 1/2"	46	55	102	162	21	24	150	101	110	181	47	150
2"	52	65	120	180	22	27	150	101	122	181	47	160
2 1/2"	62	74	135	195	24	30	150	101	134	181	47	195
3"	90	93	160	240	31	36	150	101	150	195	65	220
4"	105	101	185	265	38	41	150	101	167	195	65	270

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Regular	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular Full Bore **	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

** 1/2" and 3/4" Round port full bore.

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1/2" - 5"	DN 1/2" - 12"	DN 5" - 12"
Cast Iron	9-AR 70144 N	9-AR 70144 C	9-AR 70144 D
Steel	9-AR 70147 N	9-AR 70147 C	9-AR 70147 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
1/2"	34	30	70	105	14	17	45	16	72	104	32			*13	95	*140	*151
3/4"	37	32	76	124	15	22	45	16	76	104	32			*19	117	*140	*153
1"	37	40	86	134	17	22	45	16	83	104	32			25	124	*159	*172
1 1/4"	40	49	92	140	18	22	45	16	98	104	32			32	133	*178	*191
1 1/2"	46	55	102	162	21	24	150	101	110	181	47			38	155	*191	*203
2"	52	65	120	180	22	27	150	101	122	181	47			51	165	*216	*232
2 1/2"	62	74	135	195	24	30	150	101	134	181	47			64	191	*241	*257
3"	90	93	160	240	31	36	150	101	150	195	65			76	210	*283	*299
4"	105	101	180	260	38	41	150	101	167	195	65			102	254	*305	*321
5"	130	126	206	286	42	50	200	101	252	268	85	46	375	127	279	*349	*365
6"	144	162	254	334	48	55	200	101	289	268	85	46	412	152	318	403	419
8"	183	190					300	101	334	293	95	70	458	203	381	502	518
10"	212	240					300	101	435	361	135	69	569	254	445	568	584
12"	240	285					300	101	470	400	160	108	604	305	521	711	727

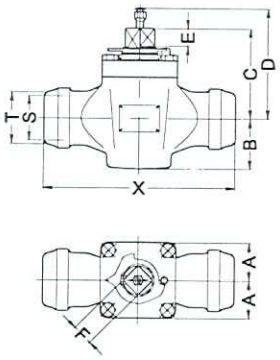
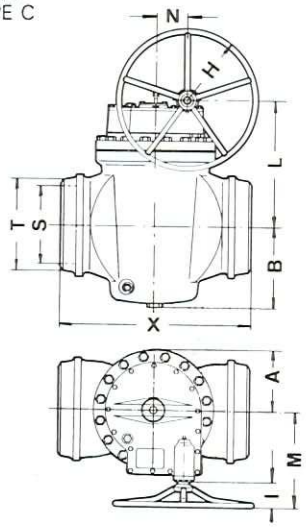
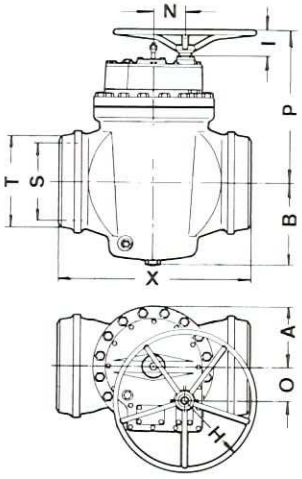
Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
REGULAR PATTERN
RECTANGULAR PORT FULL BORE

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Regular	Welding Ends ASME B 16.25 End to End ASME B 16.10 Short and Regular Pattern	Rectan-gular Full bore **	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

** 1/2" and 3/4" Round port full bore.

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1/2" - 5"	DN 1/2" - 12"	DN 6" - 12"
Cast Iron	9-AR 70544 N	9-AR 70544 C	9-AR 70544 D
Steel	9-AR 70547 N	9-AR 70547 C	9-AR 70547 D

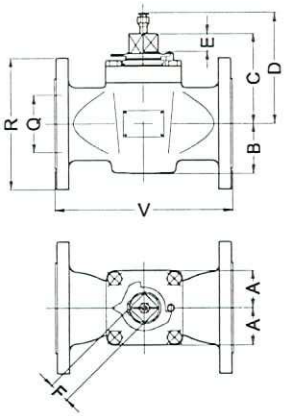
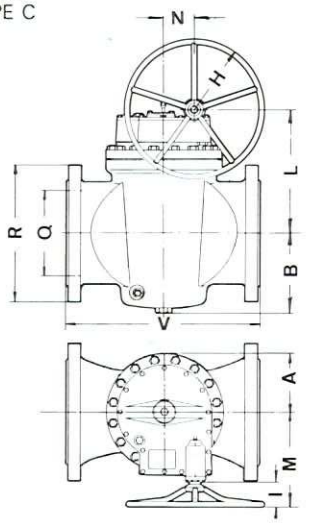
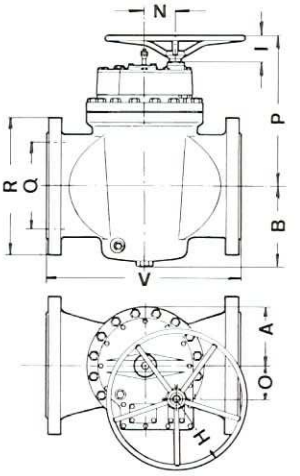
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
1/2"	34	30	70	105	14	17	45	16	72	104	32			Inside pipe dimension to be specified by purchaser.	*23,3	*140
3/4"	37	32	76	124	15	22	45	16	76	104	32				*28,7	*149
1"	37	40	86	134	17	22	45	16	83	104	32				*35,4	*172
1 1/4"	40	49	92	140	18	22	45	16	98	104	32				*44,2	*200
1 1/2"	46	55	102	162	21	24	150	101	110	181	47				*50,3	*241
2"	52	65	120	180	22	27	150	101	122	181	47				*62,3	267
2 1/2"	62	74	135	195	24	30	150	101	134	181	47				75	305
3"	90	93	160	240	31	36	150	101	150	195	65				91	330
4"	105	101	180	260	38	41	150	101	167	195	65				117	356
5"	130	126	206	286	42	50	200	101	252	268	85	46	375		144	*381
6"	144	162	254	334	48	55	200	101	289	268	85	46	412		172	457
8"	183	190					300	101	334	293	95	70	458		223	521
10"	212	240					300	101	435	361	135	69	569		278	559
12"	240	285					300	101	470	400	160	108	604		329	635

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Regular	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 100254 S355 J0 S355 J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 16"	DN 6" - 16"
Cast Iron	9-AV 70144 N	9-AV 70144 C	9-AV 70144 D
Steel	9-AV 70147 N	9-AV 70147 C	9-AV 70147 D

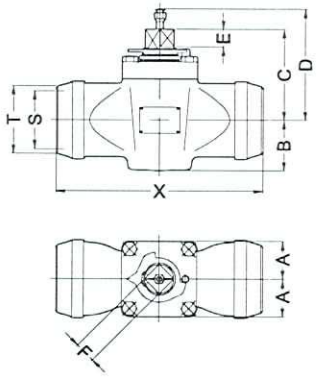
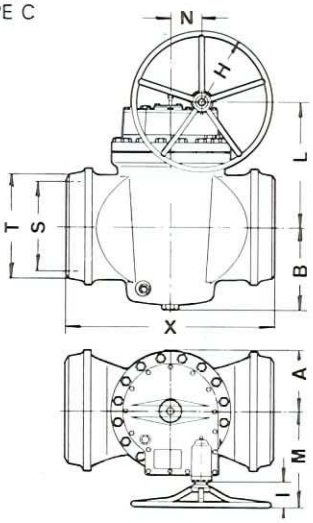
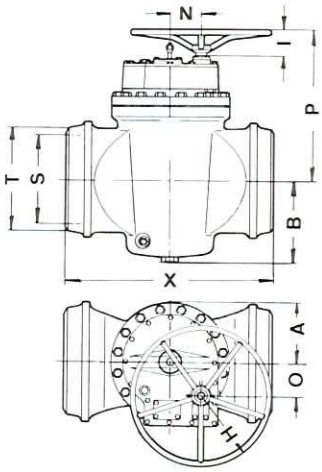
																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
1"	37	32	76	124	15	22	45	16	76	104	32			25	124	*159	*172
1 1/4"	37	40	86	134	17	22	45	16	83	104	32			32	133	*178	*191
1 1/2"	40	49	92	140	18	22	45	16	98	104	32			38	155	*191	*203
2"	46	55	102	162	21	24	150	101	110	181	47			51	165	*216	*232
2 1/2"	52	65	120	180	22	27	150	101	122	181	47			64	191	*241	*257
3"	62	74	135	195	24	30	150	101	134	181	47			76	210	*283	*299
4"	90	93	160	240	31	36	150	101	150	195	65			102	254	*305	*321
5"	105	101	185	265	38	41	150	101	167	195	65			127	279	*349	*365
6"	117	115	206	286	42	50	200	101	252	268	85	46	375	152	318	403	419
8"	144	162	254	334	48	55	200	101	289	268	85	46	412	203	381	502	518
10"	183	190					300	101	334	293	95	70	458	254	445	568	584
12"	197	224					300	101	364	293	95	70	488	305	521	711	727
14"	235	247					300	101	441	361	135	69	575	337	584	762	778
16"	250	295					300	101	466	400	160	108	600	387	648	838	854

Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
REGULAR PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Regular	Welding Ends ASME B 16.25 End to End ASME B 16.10 Short and Regular Pattern	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 1" - 6"	DN 1" - 16"	DN 6" - 16"
Cast Iron	9-AV 70544 N	9-AV 70544 C	9-AV 70544 D
Steel	9-AV 70547 N	9-AV 70547 C	9-AV 70547 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
1"	37	32	76	124	15	22	45	16	76	104	32			Inside pipe dimension to be specified by purchaser.	*35,4	*172
1 1/4"	37	40	86	134	17	22	45	16	83	104	32				*44,2	*200
1 1/2"	40	49	92	140	18	22	45	16	98	104	32				*50,3	*241
2"	46	55	102	162	21	24	150	101	110	181	47				*62,3	267
2 1/2"	52	65	120	180	22	27	150	101	122	181	47				75	305
3"	62	74	135	195	24	30	150	101	134	181	47				91	330
4"	90	93	160	240	31	36	150	101	150	195	65				117	356
5"	105	101	185	265	38	41	150	101	167	195	65				144	*381
6"	117	115	206	286	42	50	200	101	252	268	85	46	375		172	457
8"	144	162	254	334	48	55	200	101	289	268	85	46	412		223	521
10"	183	190					300	101	334	293	95	70	458		278	559
12"	197	224					300	101	364	293	95	70	488		329	635
14"	235	247					300	101	441	361	135	69	575		362	762
16"	250	295					300	101	466	400	160	108	600		413	838

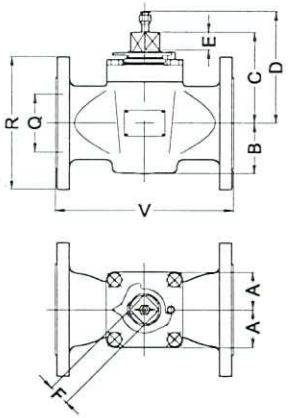
Note: * Not included in the standards.

STRAIGHTWAY TAPER PLUG VALVES

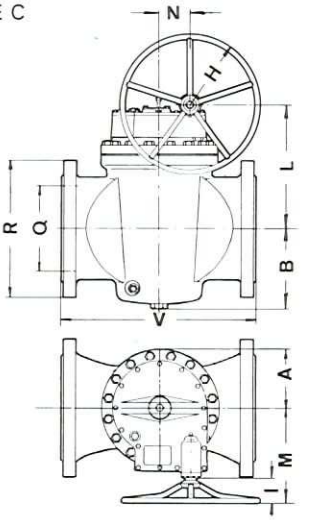
CAST STEEL CLASS 300
VENTURI PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Venturi	Flanges R.F. or R.J. ASME B 16.5 Face to Face ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

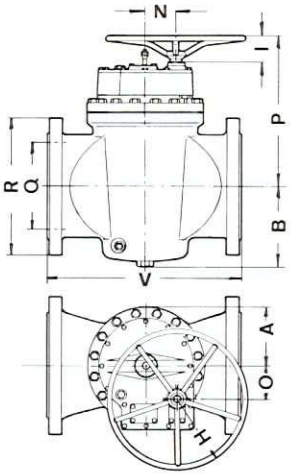
WRENCH
TYPE 8 L



GEAR
TYPE C



GEAR
TYPE D



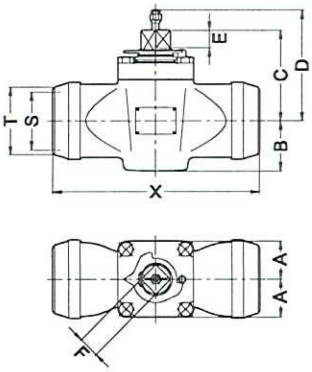
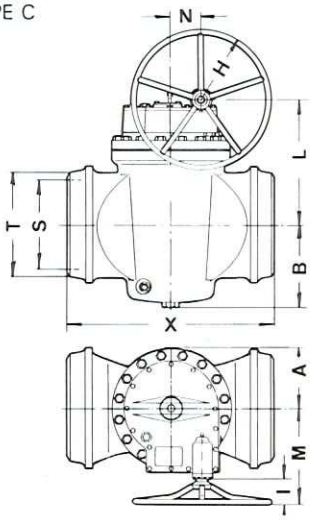
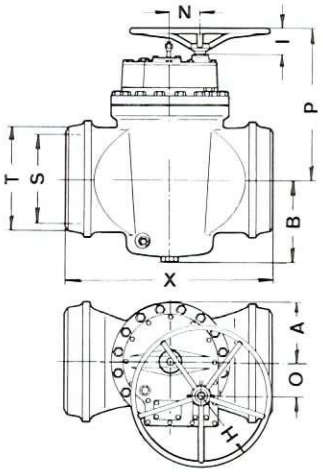
Plug	DN 6"	DN 6" - 16"	DN 8" - 16"
Cast Iron	9-AT 70144 N	9-AT 70144 C	5-AT 70144 D
Steel	9-AT 70147 N	9-AT 70147 C	5-AT 70147 D

																Raised Face	Ring Joint
DN	A	B	C	D	E	F	H	I	L	M	N	O	P	Q	R	V	V
6"	106	123	198	278	38	41	150	101	183	195	71			152	318	403	419
8"	128	153	260	340	52	55	200	101	284	268	85	46	407	203	381	419	435
10"	145	186					200	101	326	268	85	46	449	254	445	457	473
12"	171	219					300	101	376	293	95	70	500	305	521	502	518
14"	180	243					300	101	404	293	95	70	528	337	584	762	778
16"	202	274					300	101	487	361	135	69	621	387	648	838	854

STRAIGHTWAY TAPER PLUG VALVES

CAST STEEL CLASS 300
VENTURI PATTERN
RECTANGULAR PORT

Class	Max. CWP	Test Pressure	Pattern	Connections	Port	Materials		Operation
						Body & Cover	Plug	
300	740 Psi	Shell 1125 Psi Seat 815 Psi	Straight-way Venturi	Welding Ends ASME B 16.25 End to End ASME B 16.10	Rectan-gular	Cast Steel ASTM A 216 Grade WCB Cover: EN 10025 S355J0 S355J2G3	Cast Iron ASTM A 126 Class B Steel	Manual

	WRENCH TYPE 8 L	GEAR TYPE C	GEAR TYPE D
			
Plug	DN 6"	DN 6" - 16"	DN 8" - 16"
Cast Iron	9-AT 70544 N	9-AT 70544 C	9-AT 70544 D
Steel	9-AT 70547 N	9-AT 70547 C	9-AT 70547 D

DN	A	B	C	D	E	F	H	I	L	M	N	O	P	S	T	X
6"	106	123	198	278	38	41	150	101	183	195	71			Insie pipe dimen-sion to be specified by purchaser.	172	457
8"	128	153	260	340	52	55	200	101	284	268	85	46	407		223	521
10"	145	186					200	101	326	268	85	46	449		278	559
12"	171	219					300	101	376	293	95	70	500		329	635
14"	180	243					300	101	404	293	95	70	528		362	762
16"	202	274					300	101	487	361	135	69	621		413	838

Inch to millimeter (1 inch = 25,4 mm)

Inch	0	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16
0	0,0	1,6	3,2	4,8	6,4	7,9	9,5	11,1	12,7	14,3	15,9	17,5	19,1	20,6	22,2	23,8
1	25,4	27,0	28,6	30,2	31,8	33,3	34,9	36,5	38,1	39,7	41,3	42,9	44,5	46,0	47,6	49,2
2	50,8	52,4	54,0	55,6	57,2	58,7	60,3	61,9	63,5	65,1	66,7	68,3	69,9	71,4	73,0	74,6
3	76,2	77,8	79,4	81,0	82,6	84,1	85,7	87,3	88,9	90,5	92,1	93,7	95,3	96,8	98,4	100,0
4	101,6	103,2	104,8	106,4	108,0	109,5	111,1	112,7	114,3	115,9	117,5	119,1	120,7	122,2	123,8	125,4
5	127,0	128,6	130,2	131,8	133,4	134,9	136,5	138,1	139,7	141,3	142,9	144,5	146,1	147,6	149,2	150,8
6	152,4	154,0	155,6	157,2	158,8	160,3	161,9	163,5	165,1	166,7	168,3	169,9	171,5	173,0	174,6	176,2
7	177,8	179,4	181,0	182,6	184,2	185,7	187,3	188,9	190,5	192,1	193,7	195,3	196,9	198,4	200,0	201,6
8	203,2	204,8	206,4	208,0	209,6	211,1	212,7	214,3	215,9	217,5	219,1	220,7	222,3	223,8	225,4	227,0
9	228,6	230,2	231,8	233,4	235,0	236,5	238,1	239,7	241,3	242,9	244,5	246,1	247,7	249,2	250,8	252,4
10	254,0	255,6	257,2	258,8	260,4	261,9	263,5	265,1	266,7	268,3	269,9	271,5	273,1	274,6	276,2	277,8
11	279,4	281,0	282,6	284,2	285,8	287,3	288,9	290,5	292,1	293,7	295,3	296,9	298,5	300,0	301,6	303,2
12	304,8	306,4	308,0	309,6	311,2	312,7	314,3	315,9	317,5	319,1	320,7	322,3	323,9	325,4	327,0	328,6
13	330,2	331,8	333,4	335,0	336,6	338,1	339,7	341,3	342,9	344,5	346,1	347,7	349,3	350,8	352,4	354,0
14	355,6	357,2	358,8	360,4	362,0	363,5	365,1	366,7	368,3	369,9	371,5	373,1	374,7	376,2	377,8	379,4
15	381,0	382,6	384,2	385,8	387,4	388,9	390,5	392,1	393,7	395,3	396,9	398,5	400,1	401,6	403,2	404,8
16	406,4	408,0	409,6	411,2	412,8	414,3	415,9	417,5	419,1	420,7	422,3	423,9	425,5	427,0	428,6	430,2
17	431,8	433,4	435,0	436,6	438,2	439,7	441,3	442,9	444,5	446,1	447,7	449,3	450,9	452,4	454,0	455,6
18	457,2	458,8	460,4	462,0	463,6	465,1	466,7	468,3	469,9	471,5	473,1	474,7	476,3	477,8	479,4	481,0
19	482,6	484,2	485,8	487,4	489,0	490,5	492,1	493,7	495,3	496,9	498,5	500,1	501,7	503,2	504,8	506,4
20	508,0	509,6	511,2	512,8	514,4	515,9	517,5	519,1	520,7	522,3	523,9	525,5	527,1	528,6	530,2	531,8
21	533,4	535,0	536,6	538,2	539,8	541,3	542,9	544,5	546,1	547,7	549,3	550,9	552,5	554,0	555,6	557,2
22	558,8	560,4	562,0	563,6	565,2	566,7	568,3	569,9	571,5	573,1	574,7	576,3	577,9	579,4	581,0	582,6
23	584,2	585,8	587,4	589,0	590,6	592,1	593,7	595,3	596,9	598,5	600,1	601,7	603,3	604,8	606,4	608,0
24	609,6	611,2	612,8	614,4	616,0	617,5	619,1	620,7	622,3	623,9	625,5	627,1	628,7	630,2	631,8	633,4
25	635,0	636,6	638,2	639,8	641,4	642,9	644,5	646,1	647,7	649,3	650,9	652,5	654,1	655,6	657,2	658,8
26	660,4	662,0	663,6	665,2	666,8	668,3	669,9	671,5	673,1	674,7	676,3	677,9	679,5	681,0	682,6	684,2
27	685,8	687,4	689,0	690,6	692,2	693,7	695,3	696,9	698,5	700,1	701,7	703,3	704,9	706,4	708,0	709,6
28	711,2	712,8	714,4	716,0	717,6	719,1	720,7	722,3	723,9	725,5	727,1	728,7	730,3	731,8	733,4	735,0
29	736,6	738,2	739,8	741,4	743,0	744,5	746,1	747,7	749,3	750,9	752,5	754,1	755,7	757,2	758,8	760,4
30	762,0	763,6	765,2	766,8	768,4	769,9	771,5	773,1	774,7	776,3	777,9	779,5	781,1	782,6	784,2	785,8
31	787,4	789,0	790,6	792,2	793,8	795,3	796,9	798,5	800,1	801,7	803,3	804,9	806,5	808,0	809,6	811,2
32	812,8	814,4	816,0	817,6	819,2	820,7	822,3	823,9	825,5	827,1	828,7	830,3	831,9	833,4	835,0	836,6
33	838,2	839,8	841,4	843,0	844,6	846,1	847,7	849,3	850,9	852,5	854,1	855,7	857,3	858,8	860,4	862,0
34	863,6	865,2	866,8	868,4	870,0	871,5	873,1	874,7	876,3	877,9	879,5	881,1	882,7	884,2	885,8	887,4
35	889,0	890,6	892,2	893,8	895,4	896,9	898,5	900,1	901,7	903,3	904,9	906,5	908,1	909,6	911,2	912,8
36	914,4	916,0	917,6	919,2	920,8	922,3	923,9	925,5	927,1	928,7	930,3	931,9	933,5	935,0	936,6	938,2
37	939,8	941,4	943,0	944,6	946,2	947,7	949,3	950,9	952,5	954,1	955,7	957,3	958,9	960,4	962,0	963,6
38	965,2	966,8	968,4	970,0	971,6	973,1	974,7	976,3	977,9	979,5	981,1	982,7	984,3	985,8	987,4	989,0
39	990,6	992,2	993,8	995,4	997,0	998,5	1000,1	1001,7	1003,3	1004,9	1006,5	1008,1	1009,7	1011,2	1012,8	1014,4
40	1016,0	1017,6	1019,2	1020,8	1022,4	1023,9	1025,5	1027,1	1028,7	1030,3	1031,9	1033,5	1035,1	1036,6	1038,2	1039,8
41	1041,4	1043,0	1044,6	1046,2	1047,8	1049,3	1050,9	1052,5	1054,1	1055,7	1057,3	1058,9	1060,5	1062,0	1063,6	1065,2
42	1066,8	1068,4	1070,0	1071,6	1073,2	1074,7	1076,3	1077,9	1079,5	1081,1	1082,7	1084,3	1085,9	1087,4	1089,0	1090,6
43	1092,2	1093,8	1095,4	1097,0	1098,6	1100,1	1101,7	1103,3	1104,9	1106,5	1108,1	1109,7	1111,3	1112,8	1114,4	1116,0
44	1117,6	1119,2	1120,8	1122,4	1124,0	1125,5	1127,1	1128,7	1130,3	1131,9	1133,5	1135,1	1136,7	1138,2	1139,8	1141,4
45	1143,0	1144,6	1146,2	1147,8	1149,4	1150,9	1152,5	1154,1	1155,7	1157,3	1158,9	1160,5	1162,1	1163,6	1165,2	1166,8
46	1168,4	1170,0	1171,6	1173,2	1174,8	1176,3	1177,9	1179,5	1181,1	1182,7	1184,3	1185,9	1187,5	1189,0	1190,6	1192,2
47	1193,8	1195,4	1197,0	1198,6	1200,2	1201,7	1203,3	1204,9	1206,5	1208,1	1209,7	1211,3	1212,9	1214,4	1216,0	1217,6
48	1219,2	1220,8	1222,4	1224,0	1225,6	1227,1	1228,7	1230,3	1231,9	1233,5	1235,7	1236,7	1238,3	1239,8	1241,4	1243,0
49	1244,6	1246,2	1247,8	1249,4	1251,0	1252,5	1254,1	1255,7	1257,3	1258,9	1260,5	1262,1	1263,7	1265,2	1266,8	1268,4
50	1270,0	1271,6	1273,2	1274,8	1276,4	1277,9	1279,5	1281,1	1282,7	1284,3	1285,9	1287,5	1289,1	1290,6	1292,2	1293,8

Decimal and millimeter equivalents

Fraction	Decimal	Millimeter	Fraction	Decimal	Millimeter
1/64	.015625	0.39688	33/64	.515625	13.09690
1/32	.03125	0.79375	17/32	.53125	13.49378
3/64	.046875	1.19063	35/64	.546875	13.89065
1/16	.0625	1.58750	9/16	.5625	14.28753
5/64	.078125	1.98438	37/64	.578125	14.68440
3/32	.09375	2.38125	19/32	.59375	15.08128
7/64	.109375	2.77813	39/64	.609375	15.47816
1/8	.125	3.17501	5/8	.625	15.87503
9/64	.140625	3.57188	41/64	.640625	16.27191
5/32	.15625	3.96876	21/32	.65625	16.66878
11/64	.171875	4.36563	43/64	.671875	17.06566
3/16	.1875	4.76251	11/16	.6875	17.46253
13/64	.203125	5.15939	45/64	.703125	17.85941
7/32	.21875	5.55626	23/32	.71875	18.25629
15/64	.234375	5.95314	47/64	.734375	18.65316
1/4	.25	6.35001	3/4	.75	19.05004
17/64	.265625	6.74689	49/64	.765625	19.44691
9/32	.28125	7.14376	25/32	.78125	19.84379
19/64	.296875	7.54064	51/64	.796875	20.24067
5/16	.3125	7.93752	13/16	.8125	20.63754
21/64	.328125	8.33439	53/64	.828125	21.03442
11/32	.34375	8.73127	27/32	.84375	21.43129
23/64	.359375	9.12814	55/64	.859375	21.82817
3/8	.375	9.52502	7/8	.875	22.22504
25/64	.390625	9.92189	57/64	.890625	22.62192
13/32	.40625	10.31877	29/32	.90625	23.01880
27/64	.421875	10.71565	59/64	.921875	23.41567
7/16	.4375	11.11252	15/16	.9375	23.81255
29/64	.453125	11.50940	61/64	.953125	24.20942
15/32	.46875	11.90627	31/32	.96875	24.60630
31/64	.484375	12.30315	63/64	.984375	25.00318
1/2	.5	12.70003	1	1.0	25.40005

Decimal equivalents
(0,10 inch = 2,54 millimeter)

Inch	0.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	Inch
0.00	0.00	0.25	0.51	0.76	1.02	1.27	1.52	1.78	2.03	2.29	0.00
.10	2.54	2.79	3.05	3.30	3.56	3.81	4.06	4.32	4.57	4.83	.10
.20	5.08	5.33	5.59	5.84	6.10	6.35	6.60	6.86	7.11	7.37	.20
.30	7.62	7.87	8.13	8.38	8.64	8.89	9.14	9.40	9.65	9.91	.30
.40	10.60	10.41	10.67	10.92	11.18	11.43	11.68	11.94	12.19	12.45	.40
.50	12.70	12.95	13.21	13.46	13.72	13.97	14.22	14.48	14.73	14.99	.50
.60	15.24	15.49	15.75	16.00	16.26	16.51	16.76	17.02	17.27	17.53	.60
.70	17.78	18.03	18.29	18.54	18.80	19.05	19.30	19.56	19.81	20.07	.70
.80	20.32	20.57	20.83	21.08	21.34	21.59	21.84	22.10	22.35	22.61	.80
.90	22.86	23.11	23.37	23.62	23.88	24.13	24.38	24.64	24.89	25.15	.90

Kilogram in pounds
(1 kilogram = 2,2046)

Kilo-gram	0	1	2	3	4	5	6	7	8	9
0	0.00	2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	52.91	55.12	57.32	59.52	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.77	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	101.41	103.62	105.82	108.03
50	110.23	112.43	114.64	116.84	119.05	121.25	123.46	125.66	127.87	130.07
60	132.28	134.48	136.69	138.89	141.09	143.30	145.50	147.71	149.91	152.12
70	154.32	156.53	158.73	160.94	163.14	165.35	167.35	169.75	171.96	174.16
80	176.37	178.57	180.78	182.98	185.19	187.39	189.60	191.80	194.00	196.21
90	198.41	200.62	202.82	205.03	207.23	209.44	211.64	213.85	216.05	218.26

Pounds in kilogram
(1 pound = 0,4536 kilogram)

Pounds	0	1	2	3	4	5	6	7	8	9
0	0.00	0.45	0.91	1.36	1.81	2.27	2.72	3.18	3.63	4.08
10	4.54	4.99	5.44	5.90	6.35	6.80	7.26	7.71	8.16	8.62
20	9.07	9.53	9.98	10.43	10.89	11.34	11.79	12.25	12.70	13.15
30	13.61	14.06	14.52	14.97	15.42	15.88	16.33	16.78	17.24	17.69
40	18.14	18.60	19.05	19.50	19.96	20.41	20.87	21.32	21.77	22.23
50	22.68	23.13	23.59	24.04	24.49	24.95	25.40	25.86	26.31	26.76
60	27.22	27.67	28.12	28.58	29.03	29.48	29.94	30.39	30.84	31.30
70	31.75	32.21	32.66	33.11	33.57	34.02	34.47	34.93	35.38	35.83
80	36.29	36.74	37.20	37.65	38.10	38.56	39.01	39.46	39.92	40.37
90	40.82	41.28	41.73	42.18	42.64	43.09	43.55	44.00	44.45	44.91

−495.4−0			1−60			61−290			300−890			900−3000		
C =	F	C = F	C =	F	C = F	C =	F	C = F	C =	F	C = F	C =	F	C = F
−273	−459.4		−17.2	1	33.8	16.1	61	141.8	149	300	572	482	900	1652
−268	−450		−16.7	2	35.6	16.7	62	143.6	154	310	590	488	910	1670
−262	−440		−16.1	3	37.4	17.2	63	145.4	160	320	608	493	920	1688
−257	−430		−15.6	4	39.2	17.8	64	147.2	166	330	626	499	930	1706
−251	−420		−15.0	5	41.0	18.3	65	149.0	171	340	644	504	940	1724
−246	−410		−14.4	6	42.8	18.9	66	150.8	177	350	662	510	950	1742
−240	−400		−13.9	7	44.6	19.4	67	152.6	182	360	680	516	960	1760
−234	−390		−13.3	8	46.4	20.0	68	154.4	188	370	698	521	970	1778
−229	−380		−12.8	9	48.2	20.6	69	156.2	193	380	716	527	980	1796
−223	−370		−12.2	10	50.0	21.1	70	158.0	199	390	734	532	990	1814
−218	−360		−11.7	11	51.8	21.7	71	159.8	204	400	752	538	1000	1832
−212	−350		−11.1	12	53.6	22.2	72	161.6	210	410	770	549	1020	1868
−207	−340		−10.6	13	55.4	22.8	73	163.4	216	420	788	560	1040	1904
−201	−330		−10.0	14	57.2	23.3	74	165.2	221	430	806	571	1060	1940
−196	−320		− 9.4	15	59.0	23.9	75	167.0	227	440	824	582	1080	1976
−190	−310		− 8.9	16	60.8	24.4	76	168.8	232	450	842	593	1100	2012
−184	−300		− 8.3	17	62.6	25.0	77	170.6	238	460	860	604	1120	2048
−179	−290		− 7.8	18	64.4	25.6	78	172.4	243	470	878	616	1140	2084
−173	−280		− 7.2	19	66.2	26.1	79	174.2	249	480	896	627	1160	2120
−169	−273	−459.4	− 6.7	20	68.0	26.7	80	176.0	254	490	914	638	1180	2156
−168	−270	−454	− 6.1	21	69.8	27.2	81	177.8	260	500	932	649	1200	2192
−162	−260	−436	− 5.6	22	71.6	27.8	82	179.6	266	510	950	660	1220	2228
−157	−250	−418	− 5.0	23	73.4	28.3	83	181.4	271	520	968	671	1240	2264
−151	−240	−400	− 4.4	24	75.2	28.9	84	183.2	277	530	986	682	1260	2300
−146	−230	−382	− 3.9	25	77.0	29.4	85	185.0	282	540	1004	693	1280	2336
−140	−220	−364	− 3.3	26	78.8	30.0	86	186.8	288	550	1022	704	1300	2372
−134	−210	−346	− 2.8	27	80.6	30.6	87	188.6	293	560	1040	732	1350	2462
−129	−200	−328	− 2.2	28	82.4	31.1	88	190.4	299	570	1058	760	1400	2552
−123	−190	−310	− 1.7	29	84.2	31.7	89	192.2	304	580	1076	788	1450	2642
−118	−180	−292	− 1.1	30	86.0	32.2	90	194.0	310	590	1094	816	1500	2732
−112	−170	−274	.6	31	87.8	32.8	91	195.8	316	600	1112	843	1550	2822
−107	−160	−256	.0	32	89.6	33.3	92	197.6	321	610	1130	871	1600	2912
−101	−150	−238	.6	33	91.4	33.9	93	199.4	327	620	1148	899	1650	3002
− 96	−140	−220	1.1	34	93.2	34.4	94	201.2	332	630	1166	927	1700	3092
− 90	−130	−202	1.7	35	95.0	35.0	95	203.0	338	640	1184	954	1750	3182
− 84	−120	−184	2.2	36	96.8	35.6	96	204.8	343	650	1202	882	1800	3272
− 79	−110	−166	2.8	37	98.6	36.1	97	206.6	349	660	1220	1010	1850	3362
− 73	−100	−148	3.3	38	100.4	36.7	98	208.4	354	670	1238	1038	1900	3452
− 68	− 90	−130	3.9	39	102.2	37.2	99	210.2	360	680	1256	1066	1950	3542
− 62	− 80	−112	4.4	40	104.0	37.8	100	212.0	366	690	1274	1093	2000	3632
− 57	− 70	− 90	5.0	41	105.8	43	110	230	371	700	1292	1121	2050	3722
− 51	− 60	− 76	5.6	42	107.6	49	120	248	377	710	1310	1149	2100	3812
− 46	− 50	− 58	6.1	43	109.4	54	130	266	382	720	1328	1177	2150	3902
− 40	− 40	− 40	6.7	44	111.2	60	140	284	388	730	1346	1204	2200	3992
− 34	− 30	− 22	7.2	45	113.0	66	150	302	393	740	1364	1232	2250	4082
− 29	− 20	− 4	7.8	46	114.8	71	160	320	399	750	1382	1260	2300	4172
− 23	− 10	14	8.3	47	116.6	77	170	338	404	760	1400	1288	2350	4262
− 17.8	0	32	8.9	48	118.4	82	180	356	410	770	1418	1316	2400	4352
			9.4	49	120.2	88	190	374	416	780	1436	1343	2450	4442
			10.0	50	122.0	93	200	392	421	790	1454	1371	2500	4532
			10.6	51	123.8	99	210	410	427	800	1472	1399	2550	4622
			11.1	52	125.6	100	212	413.6	442	810	1490	1427	2600	4712
			11.7	53	127.4	104	220	428	438	820	1508	1454	2650	4802
			12.2	54	129.2	110	230	446	443	830	1526	1482	2700	4892
			12.8	55	131.0	116	240	464	449	840	1544	1510	2750	4982
			13.3	56	132.8	121	250	482	454	850	1562	1538	2800	5072
			13.9	57	134.6	127	260	500	460	860	1580	1566	2850	5162
			14.4	58	136.4	132	270	518	466	870	1598	1593	2900	5252
			15.0	59	138.2	138	280	536	471	880	1616	1621	2950	5342
			15.6	60	140.0	143	290	554	477	890	1634	1649	3000	5432

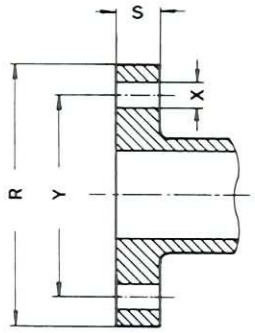
Pounds/square inch (psi) to kg/cm²

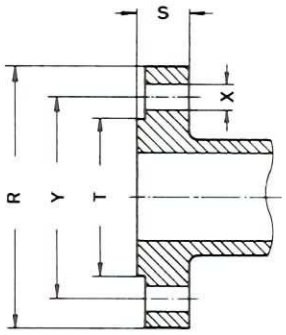
1 – 40		41 – 80		81 – 200		205 – 500		510 – 900		910 – 1500	
psi	kg/cm²	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²	psi	kg/cm²
1	.07	41	2.88	81	5.69	205	14.41	510	35.86	910	63.98
2	.14	42	2.95	82	5.77	210	14.76	520	36.56	920	64.68
3	.21	43	3.02	83	5.84	215	15.12	530	37.26	930	65.39
4	.28	44	3.09	84	5.91	220	15.47	540	37.97	940	66.09
5	.35	45	3.16	85	5.98	225	15.82	550	38.67	950	66.79
6	.42	46	3.23	86	6.05	230	16.17	560	39.37	960	67.49
7	.49	47	3.30	87	6.12	235	16.52	570	40.07	970	68.20
8	.56	48	3.37	88	6.19	240	16.87	580	40.78	980	68.90
9	.63	49	3.45	89	6.26	245	17.23	590	41.48	990	69.60
10	.70	50	3.52	90	6.33	250	17.58	600	42.18	1000	70.31
11	.77	51	3.59	91	6.40	255	17.93	610	42.89	1010	71.01
12	.84	52	3.66	92	6.47	260	18.28	620	43.59	1020	71.71
13	.91	53	3.73	93	6.54	265	18.63	630	44.29	1030	72.42
14	.98	54	3.80	94	6.61	270	18.98	640	45.00	1040	73.12
15	1.05	55	3.87	95	6.68	275	19.33	650	45.70	1050	73.82
16	1.12	56	3.94	96	6.75	280	19.69	660	46.40	1060	74.52
17	1.20	57	4.01	97	6.82	285	20.04	670	47.11	1070	75.23
18	1.27	58	4.08	98	6.89	290	20.39	680	47.81	1080	75.93
19	1.34	59	4.15	99	6.96	295	20.74	690	48.51	1090	76.63
20	1.41	60	4.22	100	7.03	300	21.09	700	49.21	1100	77.34
21	1.48	61	4.29	105	7.38	310	21.80	710	49.92	1120	78.74
22	1.55	62	4.36	110	7.73	320	22.50	720	50.62	1140	80.15
23	1.62	63	4.43	115	8.09	330	23.20	730	51.35	1160	81.56
24	1.69	64	4.50	120	8.44	340	23.90	740	52.03	1180	82.96
25	1.76	65	4.57	125	8.79	350	24.61	750	52.73	1200	84.37
26	1.83	66	4.64	130	9.14	360	25.31	760	53.43	1220	85.77
27	1.90	67	4.71	135	9.49	370	26.01	770	54.14	1240	87.18
28	1.97	68	4.78	140	9.84	380	26.72	780	54.84	1260	88.59
29	2.04	69	4.85	145	10.19	390	27.42	790	55.54	1280	89.99
30	2.11	70	4.92	150	10.55	400	28.12	800	56.25	1300	91.40
31	2.18	71	4.99	155	10.90	410	28.83	810	56.95	1320	92.80
32	2.25	72	5.06	160	11.25	420	29.53	820	57.65	1340	94.21
33	2.32	73	5.13	165	11.60	430	30.23	830	58.35	1360	95.62
34	2.39	74	5.20	170	11.95	440	30.93	840	59.06	1380	97.02
35	2.46	75	5.27	175	12.30	450	31.64	850	59.76	1400	98.43
36	2.53	76	5.34	180	12.66	460	32.34	860	60.46	1420	99.84
37	2.60	77	5.41	185	13.01	470	33.04	870	61.17	1440	101.24
38	2.67	78	5.48	190	13.36	480	33.75	880	61.87	1460	102.65
39	2.74	79	5.55	195	13.71	490	34.45	890	62.57	1480	104.05
40	2.81	80	5.62	200	14.06	500	35.15	900	63.28	1500	105.46

Note: 1 atmosphere pressure = 14,7 psi = 1,033 Kg. per sq. cm
1 psi = 2,31 feet head of water = 0,0703066 Kg. per sq. cm

TEMPERATURE IN °F	WORKING PRESSURE IN psi BY CLASSES						
	150	300	400	600	900	1500	2500
−20 TO 100	285	740	990	1480	2220	3705	6170
200	260	675	900	1350	2025	3375	5625
300	230	655	875	1315	1970	3280	5470
400	200	635	845	1270	1900	3170	5280
500	170	600	800	1200	1795	2995	4990
600	140	550	730	1095	1640	2735	4560
650	125	535	715	1075	1610	2685	4475
700	110	535	710	1065	1600	2665	4440
750	95	505	670	1010	1510	2520	4200
800	80	410	550	825	1235	2060	3430
850	65	270	355	535	805	1340	2230
900	50	170	230	345	515	860	1430
950	35	105	140	205	310	515	860
1000	20	50	70	105	155	260	430

TEMPERATURE IN °C	WORKING PRESSURE IN bar BY CLASSES						
	150	300	400	600	900	1500	2500
−29 TO 38	19.6	51.1	68.1	102.1	153.2	255.3	425.5
50	19.2	50.1	66.8	100.2	150.2	250.4	417.3
100	17.7	46.4	61.8	92.8	139.1	231.9	386.5
150	15.8	45.2	60.3	90.5	135.7	226.1	376.9
200	14.0	43.8	58.4	87.6	131.5	219.1	365.2
250	12.1	41.7	55.6	83.4	125.2	208.6	347.7
300	10.2	38.7	51.6	77.5	116.2	193.7	322.8
350	8.4	37.0	49.3	73.9	110.9	184.8	308.0
375	7.4	36.5	48.6	72.9	109.4	182.3	303.9
400	6.5	34.5	46.0	69.0	103.5	172.5	287.5
425	5.6	28.8	38.3	57.5	86.3	143.8	239.6
450	4.7	20.0	26.7	40.1	60.1	100.2	166.9
475	3.7	13.5	18.1	27.1	40.6	67.7	112.9
500	2.8	8.8	11.7	17.6	26.4	44.0	73.3
525	1.9	5.2	6.9	10.4	15.5	25.9	43.2
540	1.3	3.3	4.3	6.5	9.8	16.3	27.2





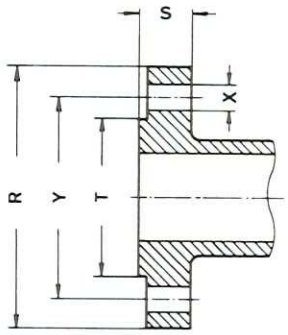
CLASS 125 SEMI STEEL FLAT FACE FLANGES

Valve Size	R Flange Diameter	S Flange Thickness	U No. of Bolts	V Size of Bolts in	X Size of Holes	Y Bolt Circle Diameter
* 1/2"	* 88,9	* 11,1	* 4	* 1/2"	* 15,9	* 60,3
* 3/4"	* 98,4	* 11,1	* 4	* 1/2"	* 15,9	* 69,9
1"	108,0	11,1	4	1/2"	15,9	79,4
1 1/4"	117,5	12,7	4	1/2"	15,9	88,9
1 1/2"	127,0	14,3	4	1/2"	15,9	98,4
2"	152,4	15,9	4	5/8"	19,1	120,7
2 1/2"	177,8	17,5	4	5/8"	19,1	139,7
3"	190,5	19,1	4	5/8"	19,1	152,4
4"	228,6	23,8	8	5/8"	19,1	190,5
5"	254,0	23,8	8	3/4"	22,2	215,9
6"	279,4	25,4	8	3/4"	22,2	241,3
8"	342,9	28,6	8	3/4"	22,2	298,5
10"	406,4	30,2	12	7/8"	25,4	362,0
12"	482,6	31,8	12	7/8"	25,4	431,8
14"	533,4	34,9	12	1"	28,6	476,3
16"	596,9	36,5	16	1"	28,6	539,8
18"	635,0	39,7	16	1 1/8"	31,8	577,9
20"	698,5	42,9	20	1 1/8"	31,8	635,0
24"	812,8	47,6	20	1 1/4"	34,9	749,3
30"	984,3	54,0	28	1 1/4"	34,9	914,4

CLASS 150 CAST STEEL RAISED FACE FLANGES

Valve Size	R Flange Diameter	S Flange Thickness	T 1/16" Raised Face Diameter	U No. of Bolts	V Size of Bolts in	X Size of Holes	Y Bolt Circle Diameter
1/2"	88,9	11,1	34,9	4	1/2"	15,9	60,3
3/4"	98,4	11,1	42,9	4	1/2"	15,9	69,9
1"	108,0	11,1	50,8	4	1/2"	15,9	79,4
1 1/4"	117,5	12,7	63,5	4	1/2"	15,9	88,9
1 1/2"	127,0	14,3	73,0	4	1/2"	15,9	98,4
2"	152,4	15,9	92,1	4	5/8"	19,1	120,7
2 1/2"	177,8	17,5	104,8	4	5/8"	19,1	139,7
3"	190,5	19,1	127,0	4	5/8"	19,1	152,4
4"	228,6	23,8	157,2	8	5/8"	19,1	190,5
5"	254,0	23,8	185,7	8	3/4"	22,2	215,9
6"	279,4	25,4	215,9	8	3/4"	22,2	241,3
8"	342,9	28,6	269,9	8	3/4"	22,2	298,5
10"	406,4	30,2	323,9	12	7/8"	25,4	362,0
12"	482,6	31,8	381,0	12	7/8"	25,4	431,8
14"	533,4	34,9	412,8	12	1"	28,6	476,3
16"	596,9	36,5	469,9	16	1"	28,6	539,8
18"	635,0	39,7	533,4	16	1 1/8"	31,8	577,9
20"	698,5	42,9	584,2	20	1 1/8"	31,8	635,0
24"	812,8	47,6	692,2	20	1 1/4"	34,9	749,3
* 30"	* 984,3	* 54,0	* 857,3	* 28	* 1 1/4"	* 34,9	* 914,4

Note: * Not included in the standards.



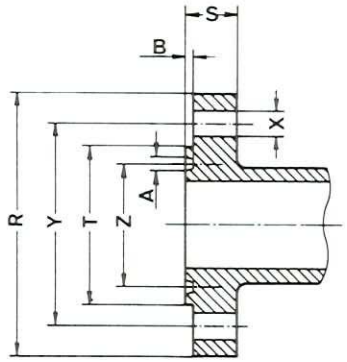
CLASS 250 SEMI STEEL RAISED FACE FLANGES

Valve Size	R Flange Diameter	S Flange Thickness	T 1/16" Raised Face Diameter	U No. of Bolts	V Size of Bolts in	X Size of Holes	Y Bolt Circle Diameter
* 1/2"	* 95,3	* 14,3	* 50,8	* 4	* 1/2"	* 15,9	* 66,7
* 3/4"	* 117,5	* 15,9	* 61,9	* 4	* 5/8"	* 19,1	* 82,6
1"	123,8	17,5	68,0	4	5/8"	19,1	88,9
1 1/4"	133,4	19,1	77,8	4	5/8"	19,1	98,4
1 1/2"	155,6	20,6	90,5	4	3/4"	22,2	114,3
2"	165,1	22,2	106,4	8	5/8"	19,1	127,0
2 1/2"	190,5	25,4	125,4	8	3/4"	22,2	149,2
3"	209,6	28,6	144,5	8	3/4"	22,2	168,3
4"	254,0	31,8	176,2	8	3/4"	22,2	200,0
5"	279,4	34,9	211,1	8	3/4"	22,2	235,0
6"	317,5	36,5	246,1	12	3/4"	22,2	269,9
8"	381,0	41,5	303,2	12	7/8"	25,4	330,2
10"	444,5	47,6	357,2	16	1"	28,6	387,4
12"	520,7	50,8	417,5	16	1 1/8"	31,8	450,9
14"	584,2	54,0	481,0	20	1 1/8"	31,8	514,4
16"	647,7	57,2	535,0	20	1 1/4"	34,9	571,5
18"	711,2	60,3	592,1	24	1 1/4"	34,9	628,7
20"	774,7	63,5	649,3	24	1 1/4"	34,9	685,8
24"	914,4	69,9	768,4	24	1 1/2"	41,3	812,8
30"	1092,2	76,2	944,6	28	1 3/4"	50,8	997,0

CLASS 300 CAST STEEL RAISED FACE FLANGES

Valve Size	R Flange Diameter	S Flange Thickness	T 1/16" Raised Face Diameter	U No. of Bolts	V Size of Bolts in	X Size of Holes	Y Bolt Circle Diameter
1/2"	95,3	14,3	34,9	4	1/2"	15,9	66,7
3/4"	117,5	15,9	42,9	4	5/8"	19,1	82,6
1"	123,8	17,5	50,8	4	5/8"	19,1	88,9
1 1/4"	133,4	19,1	63,5	4	5/8"	19,1	98,4
1 1/2"	155,6	20,6	73,0	4	3/4"	22,2	114,3
2"	165,1	22,2	92,1	8	5/8"	19,1	127,0
2 1/2"	190,5	25,4	104,8	8	3/4"	22,2	149,2
3"	209,6	28,6	127,0	8	3/4"	22,2	168,3
4"	254,0	31,8	157,2	8	3/4"	22,2	200,0
5"	279,4	34,9	185,7	8	3/4"	22,2	235,0
6"	317,5	36,5	215,9	12	3/4"	22,2	269,9
8"	381,0	41,3	269,9	12	7/8"	25,4	330,2
10"	444,5	47,6	323,9	16	1"	28,6	387,4
12"	520,7	50,8	381,0	16	1 1/8"	31,8	450,9
14"	584,2	54,0	412,8	20	1 1/8"	31,8	514,4
16"	647,7	57,2	469,9	20	1 1/4"	34,9	571,5
18"	711,2	60,3	533,4	24	1 1/4"	34,9	628,7
20"	774,7	63,5	584,2	24	1 1/4"	34,9	685,8
24"	914,4	69,9	692,2	24	1 1/2"	41,3	812,8
* 30"	* 1092,2	* 76,2	* 857,3	* 28	* 1 3/4"	* 50,8	* 997,0

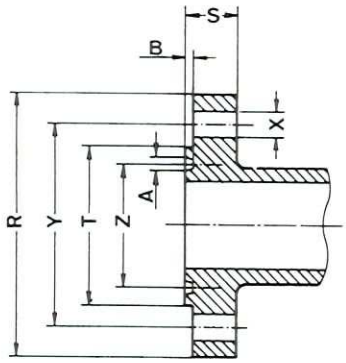
Note: * Not included in the standards.



CLASS 150 CAST STEEL RING JOINT FLANGES

Valve Size	R Flange Diameter	S Flange Thickness	T Raised Face Diameter	U No. of Bolts	V Size of Bolts in	X Size of Holes
1"	108,0	15,9	63,5	4	1/2"	15,9
1 1/4"	117,5	17,5	73,0	4	1/2"	15,9
1 1/2"	127,0	19,1	82,6	4	1/2"	15,9
2"	152,4	20,6	101,6	4	5/8"	19,1
2 1/2"	177,8	22,2	120,7	4	5/8"	19,1
3"	190,5	23,8	133,4	4	5/8"	19,1
4"	228,6	28,6	171,5	8	5/8"	19,1
5"	254,0	28,6	193,7	8	3/4"	22,2
6"	279,4	30,1	219,1	8	3/4"	22,2
8"	342,9	33,3	273,1	8	3/4"	22,2
10"	406,4	35,0	330,2	12	7/8"	25,4
12"	482,6	36,5	406,4	12	7/8"	25,4
14"	533,4	40,0	425,5	12	1"	28,6
16"	596,9	41,3	482,6	16	1"	28,6
18"	635,0	44,5	546,1	16	1 1/8"	31,8
20"	698,5	47,6	596,9	20	1 1/8"	31,8
24"	812,8	52,5	711,2	20	1 1/4"	34,9

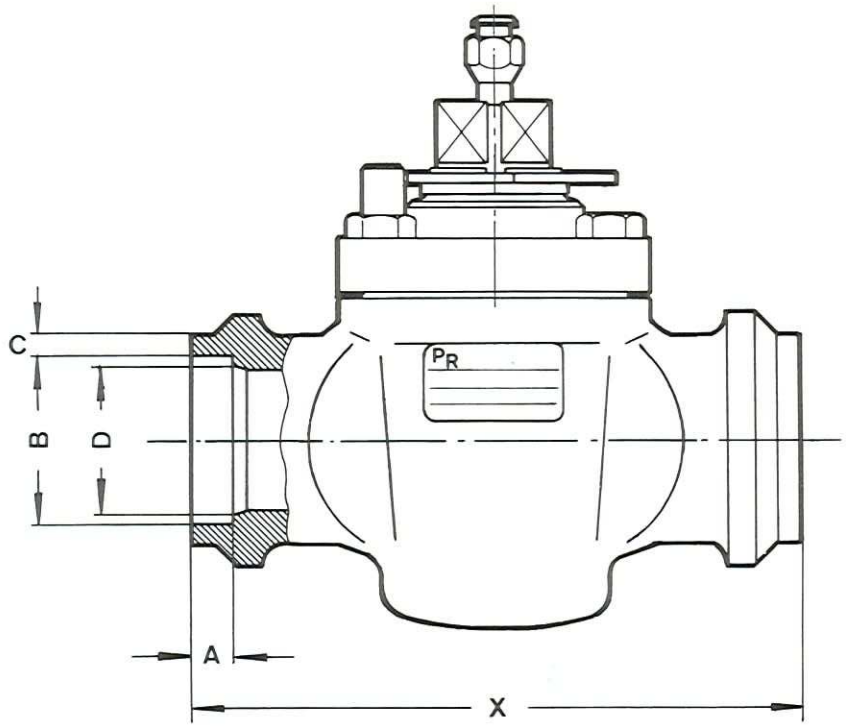
Valve Size	Y Bolt Circle Diameter	Z Pitch Diameter	A Width	B Depth	C Groove Number
1"	79,4	47,6	8,7	6,4	R 15
1 1/4"	88,9	57,2	8,7	6,4	R 17
1 1/2"	98,4	65,1	8,7	6,4	R 19
2"	120,7	82,6	8,7	6,4	R 22
2 1/2"	139,7	101,6	8,7	6,4	R 25
3"	152,4	114,3	8,7	6,4	R 29
4"	190,5	149,2	8,7	6,4	R 36
5"	215,9	171,5	8,7	6,4	R 40
6"	241,3	193,7	8,7	6,4	R 43
8"	298,5	247,7	8,7	6,4	R 48
10"	362,0	304,8	8,7	6,4	R 52
12"	431,8	381,0	8,7	6,4	R 56
14"	476,3	396,9	8,7	6,4	R 59
16"	539,8	454,0	8,7	6,4	R 64
18"	577,9	517,5	8,7	6,4	R 68
20"	635,0	558,8	8,7	6,4	R 72
24"	749,3	673,1	8,7	6,4	R 76



CLASS 300 CAST STEEL RING JOINT FLANGES

Valve Size	R Flange Diameter	S Flange Thickness	T Raised Face Diameter	U No. of Bolts	V Size of Bolts in	X Size of Holes
1/2"	95,3	18,3	50,8	4	1/2"	15,9
3/4"	117,5	20,6	63,5	4	5/8"	19,1
1"	123,8	22,2	69,9	4	5/8"	19,1
1 1/4"	133,4	23,8	79,4	4	5/8"	19,1
1 1/2"	155,6	25,4	90,5	4	3/4"	22,2
2"	165,1	28,6	108,0	8	5/8"	19,1
2 1/2"	190,5	31,8	127,0	8	3/4"	22,2
3"	209,6	34,9	146,1	8	3/4"	22,2
4"	254,0	38,1	174,6	8	3/4"	22,2
5"	279,4	41,3	209,6	8	3/4"	22,2
6"	317,5	42,9	241,3	12	3/4"	22,2
8"	381,0	47,4	301,6	12	7/8"	25,4
10"	444,5	54,0	355,6	16	1"	28,6
12"	520,7	57,2	412,8	16	1 1/8"	31,8
14"	584,2	60,1	457,2	20	1 1/8"	31,8
16"	647,7	63,5	508,0	20	1 1/4"	34,9
18"	711,2	66,7	574,7	24	1 1/4"	34,9
20"	774,7	71,5	635,0	24	1 1/4"	34,9
24"	914,4	79,4	749,3	24	1 1/2"	41,3

Valve Size	Y Bolt Circle Diameter	Z Pitch Diameter	A Width	B Depth	C Groove Number
1/2"	66,7	34,1	7,1	5,6	R 11
3/4"	82,6	42,9	8,7	6,4	R 13
1"	88,9	50,8	8,7	6,4	R 16
1 1/4"	98,4	60,3	8,7	6,4	R 18
1 1/2"	114,3	68,3	8,7	6,4	R 20
2"	127,0	82,6	11,9	7,9	R 23
2 1/2"	149,2	101,6	11,9	7,9	R 26
3"	168,3	123,8	11,9	7,9	R 31
4"	200,0	149,2	11,9	7,9	R 37
5"	235,0	181,0	11,9	7,9	R 41
6"	269,9	211,1	11,9	7,9	R 45
8"	330,2	269,9	11,9	7,9	R 49
10"	387,4	323,9	11,9	7,9	R 53
12"	450,9	381,0	11,9	7,9	R 57
14"	514,4	419,1	11,9	7,9	R 61
16"	571,5	469,9	11,9	7,9	R 65
18"	628,7	533,4	11,9	7,9	R 69
20"	685,8	584,2	13,5	9,5	R 73
24"	812,8	692,2	16,7	11,1	R 77



ANSI B16.11

X = ANSI B16.10 Buttwelding End

Valve size	A	B	C			D		
			* Schedul 40	Schedul 80	Schedul 160	* Schedul 40	Schedul 80	Schedul 160
1/2"	9,65	21,84	3,71	4,67	5,97	15,80	15,80	11,79
3/4"	12,70	27,18	3,56	4,90	6,96	20,93	20,93	15,54
1"	12,70	33,91	4,21	5,69	7,92	26,64	26,64	20,70
1 1/4"	12,70	42,67	4,44	6,07	7,92	35,05	35,05	29,46
1 1/2"	12,70	48,77	4,59	6,35	8,92	40,89	40,89	33,99
2"	15,75	61,24	4,90	6,93	10,92	52,50	52,50	42,85
2 1/2"	15,75	74,00	6,45	8,76		62,71	62,71	
3"	15,75	89,98	6,85	9,53		77,93	77,93	
4"	19,05	115,63	7,54	10,69		102,26	102,26	

Tolerances: B = 1/2" - 2" = ±0,1
2 1/2" - 4" = ±0,15

D = 1/2" - 2" = ±0,7
2 1/2" - 4" = ±1,5

* Not included in ANSI B16.11.