

X-Large Hand Shut-Off Valves

Product Bulletin 83-00

Type: Angle, Globe “Y”

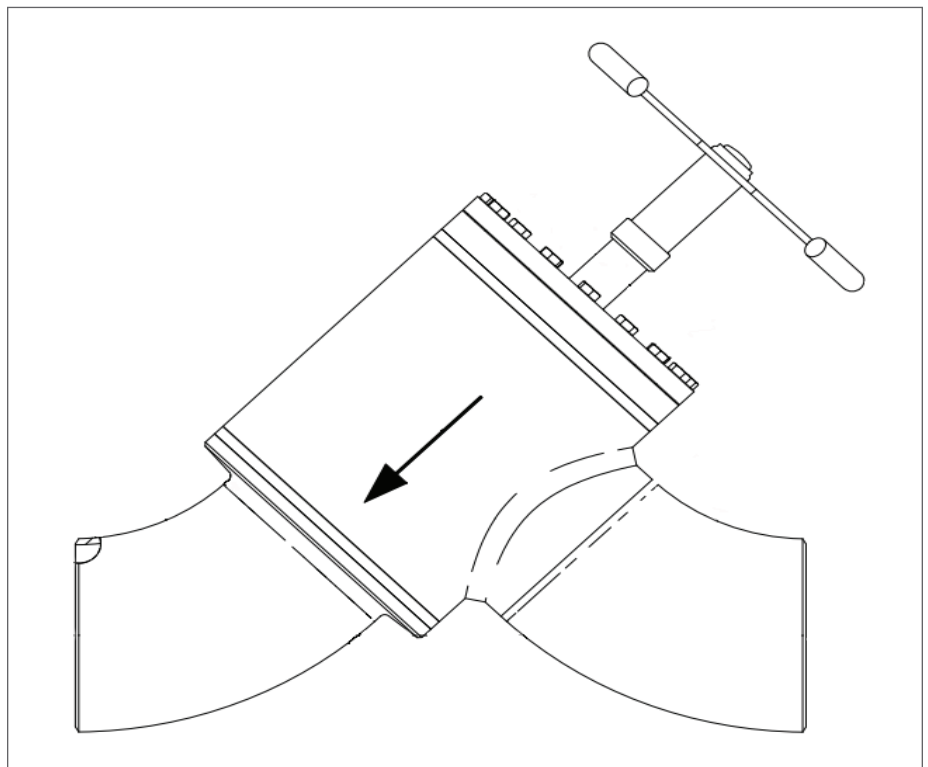
Size: 350 mm (14”) & 400 mm (16”)



Purpose:

Shut-off valves close the pipe by lowering the valve disc onto the valve seat. The stem sealing is provided by a threaded bush or a metal bellows.

The Parker Type Angle, Globe “Y” shut-off valves are designed for industrial refrigeration systems. They can be actuated with a hand wheel or a ratchet that is assembled onto the stem. Rotating the stem clockwise will lower the valve disc onto the valve seat and therefore close the valve, counter-clockwise rotation will lift the valve disc and open the valve. Shut-off valves should only be operated in fully opened or fully closed positions. The stem sealing is provided by a threaded bush with spring-elastic PTFE ring. The valves are also equipped with a back seat seal so that when the valve is fully opened it is possible to replace the threaded bush and the seal.



Contact Information: Product Features:

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- Suitable for Ammonia and Other Common Refrigerants per EN378 Part 1
- Available in Carbon Steel
- Straight or Angle Type
- Design according to ASME B31.5 and Pressure Equipment Directive (PED)
- Standard Bolted Bonnet
- Hand Wheel and Seal Cap
- Interchangeable on same valve
- Nominal size DN 350 & 400 (14” & 16”)
- Maximum Allowable Pressure PS: 25 bar (363 psi)
- Temperature Range: -60°C to +150°C (-76°F to 302°F)
- Butt Welding End Connections as per DIN and ANSI



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Technical Data

Materials Compliance: ASME B31.5 and Pressure Equipment Directive (PED).

Ambient Temperature Range: -50°C to +50°C (-58°F to 122°F).

Working Temperature Range: -60°C to +150°C (-76°F to 302°F).

Maximum Allowable Working Pressure: 25 bar (363 psi)

Maximum Allowable Working Pressure/Temperature - Limits of Application

Port Size		-60°C (-76°F)	-40°C (-40°F)	-20°C (-4°F)	0°C (32°F)	150°C (302°F)
mm	inch					
350	14	13.5 bar (196 psig)	17.2 bar (249 psig)	27.3 bar (396 psig)	28 bar (406 psig)	28 bar (406 psig)
400	16	13.5 bar (196 psig)	17.2 bar (249 psig)	27.3 bar (396 psig)	28 bar (406 psig)	28 bar (406 psig)

Flow Coefficient

Port Size		Style	Cv	Kv
mm	inch			
350	14	Angle	2809.1	2430.0
400	16	Angle	3653.0	3160.0
350	14	Globe Y	2531.6	2190.0
400	16	Globe Y	3271.5	2830.0

Weights

Port Size		Style	Kg	Lb
mm	inch			
350	14	Angle	397	875
400	16	Angle	597	1316
350	14	Globe Y	445	981
400	16	Globe Y	675	1488

Application

Shut off valves are designed for installation in the refrigerant cycles for industrial refrigerating plants.

Function and Design

Shut-off valves are actuated by a hand wheel. They close by turning the hand wheel clockwise and open by turning it counter-clockwise. These shut-off valves may only be operated in “open” or “closed” position. When the valve is being opened, the stem has to be moved to the limit stop into the uppermost position (completely open). The valves are equipped with PTFE back seat seal.

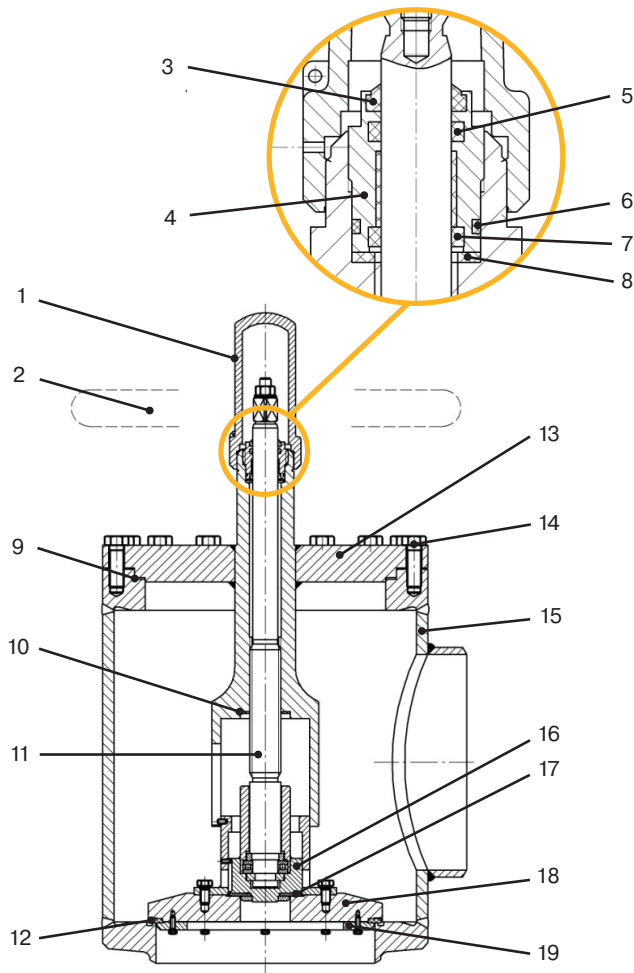
The valve must be fully opened and back seated to safely replace the stem sealing components (stem seal nut, stem seal gasket, PTFE stem seal ring, neoprene o-rings, scraper).

In case of extreme temperatures the valve must be operated with protective gloves.

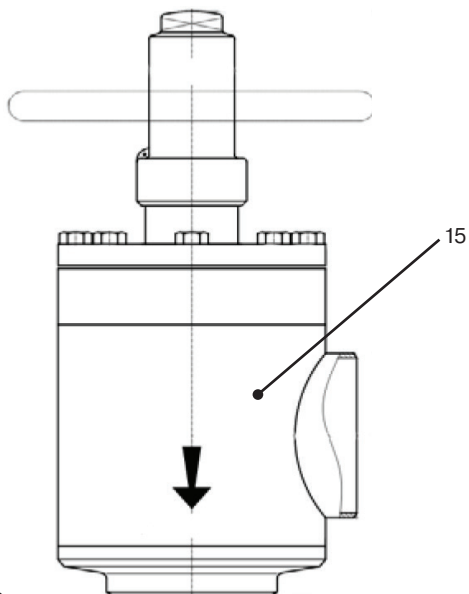
Actuating the valve against a trapped liquid in a closed section must be avoided, as the movement of the stem results in a change in volume within the valve body. This causes an impermissible pressure increase in the closed pipe section. The shut-off valves in liquid lines must be closed in sequence to a container with a gas volume.

Material List & Parts

DN 350 & DN 400 (14" & 16")

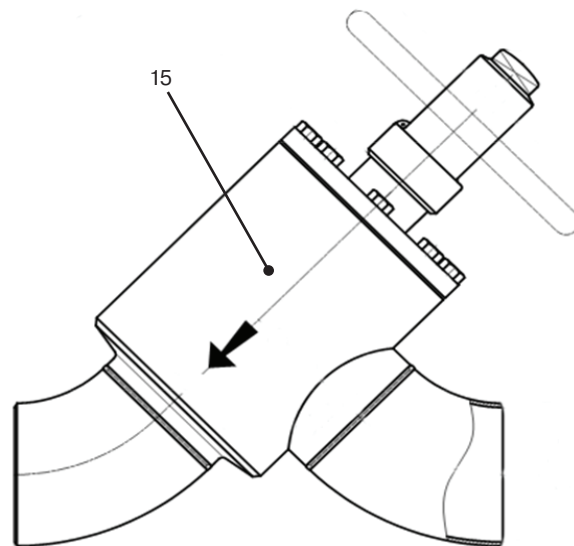


Cross sectional Angle body shown



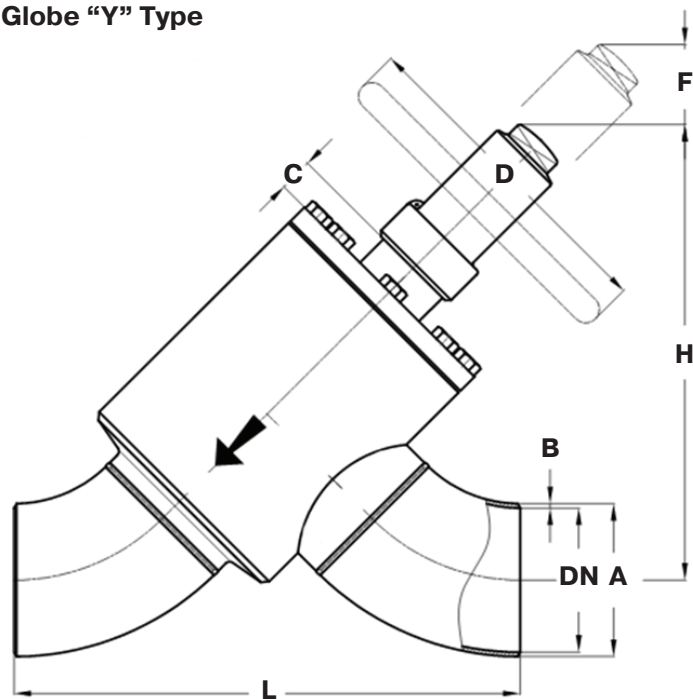
Angle Type

Item	Description	Material
1	Cap	Aluminum
2	Hand wheel	Steel
3	Scraper	NBR
4	Stem Seal Nut	Steel
5	O-Ring	Neoprene
6	O-Ring	Neoprene
7	Stem Seam Ring	PTFE
8	Stem Seal Gasket	AFM 30
9	Bonnet Gasket	AFM 30
10	Back Seat Seal	AFM 30
11	Stem	303 Stainless Steel
12	Main Valve Seal	PTFE
13	Bonnet	Steel 1.0577, 1.0038
14	Bolt	Steel, Class 8.8
15	Body: Angle or Globe "Y"	Steel 1.0345, 1.0038
16	Equalizing Valve Disc	Steel
17	Equalizing Valve Seal	PTFE
18	Valve Disc	Steel
19	Main Valve Seal Retaining Ring	Steel



Straight or Globe "Y" Type

Dimensions
Globe “Y” Type

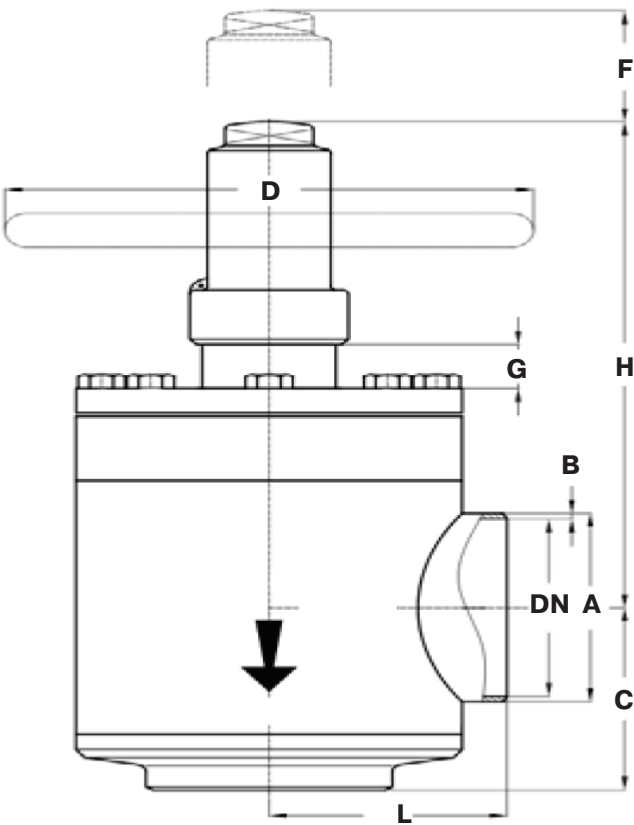


Globe “Y”			Port Size	
			DN 350 (14 inch)	DN 400 (16 inch)
ISO	A	mm	355.60	406.40
		inch	13.96	15.95
	B	mm	8.00	8.80
		inch	0.32	0.35
DIN	A	mm	355.60	406.40
		inch	13.96	15.96
	B	mm	11.10	12.70
		inch	0.44	0.49
C		mm	107.00	112.00
		inch	4.21	4.41
D		mm	630.00	630.00
		inch	24.80	24.80
H		mm	906.00	1047.00
		inch	35.67	41.22
F*		mm	350.00	360.00
		inch	13.78	14.17
L		mm	1215.00	1380.00
		inch	47.83	54.33

* Dismantling measure.
 Clearance Zone: 1219.2 mm (48”) of clearance is needed above the valve for service.

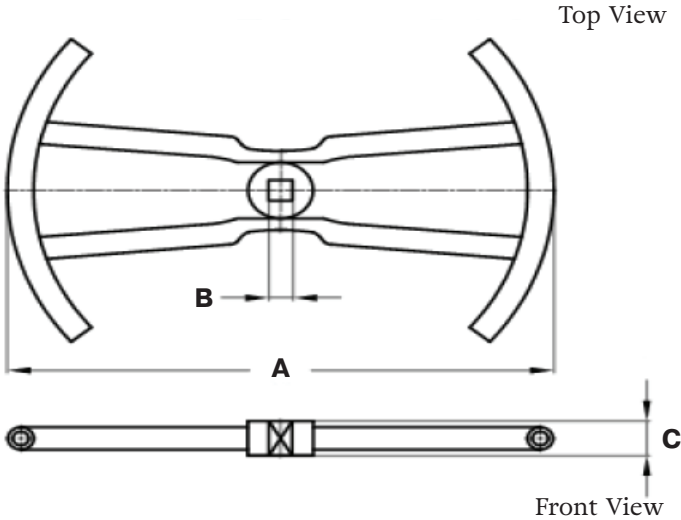
Angle			Port Size	
			DN 350 (14 inch)	DN 400 (16 inch)
ISO	A	mm	355.60	406.40
		inch	13.96	15.95
	B	mm	8.00	8.80
		inch	0.32	0.35
DIN	A	mm	355.60	406.40
		inch	13.96	15.96
	B	mm	11.10	12.70
		inch	0.44	0.49
C		mm	325.00	365.00
		inch	12.80	14.37
D		mm	630.00	630.00
		inch	24.80	24.80
F*		mm	485.00	500.00
		inch	19.09	19.69
G		mm	107.00	112.00
		inch	4.21	4.41
H		mm	708.00	832.00
		inch	27.87	32.76
L		mm	325.00	365.00
		inch	12.80	14.37

* Dismantling measure.
 Clearance Zone: 1219.2 mm (48”) of clearance is needed above the valve for service.

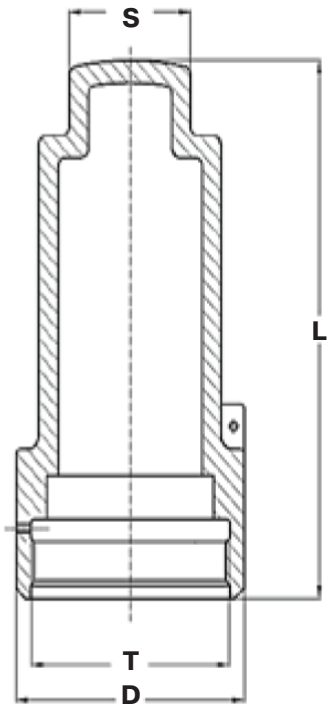


Angle Type

Hand Wheel

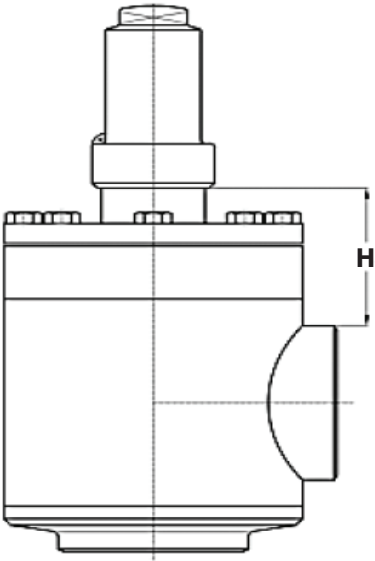


Seal Cap

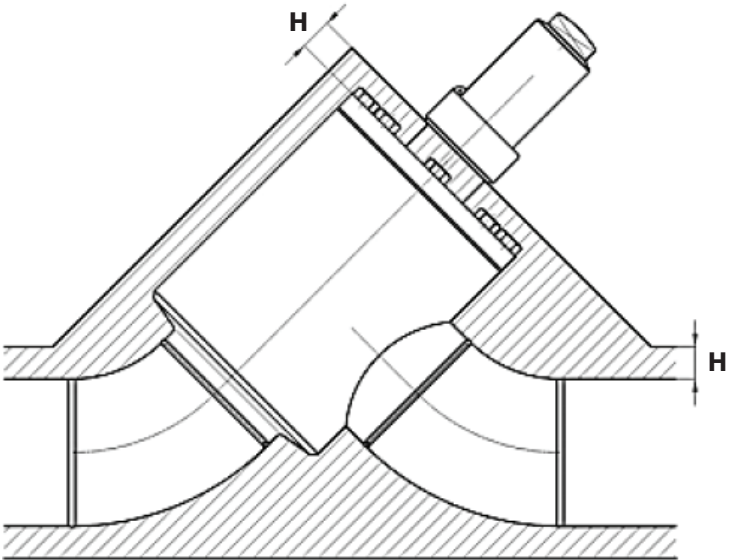


Port Size		Hand Wheel						Seal Cap						
DN	Inch	A		B		C		D		L		S		T
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Thread
350	14	630.00	24.80	28.00	1.10	46.00	1.81	260.00	10.24	100.00	3.94	60.00	2.36	M80x3
400	16	630.00	24.80	28.00	1.10	46.00	1.80	319.00	12.56	100.00	3.94	90.00	3.54	M80x3

Thickness of Insulation
Angle Type



Globe "Y" Type



Port Size		Globe “Y”		Angle	
DN	Inch	H			
		mm	inch	mm	inch
350	14	107.00	24.80	270.00	10.24
400	16	112.00	24.80	309.00	12.56

Installation

All personnel working on valves must be qualified to work on refrigeration systems. If there are any questions contact Refrigerating Specialties before proceeding with the installation.

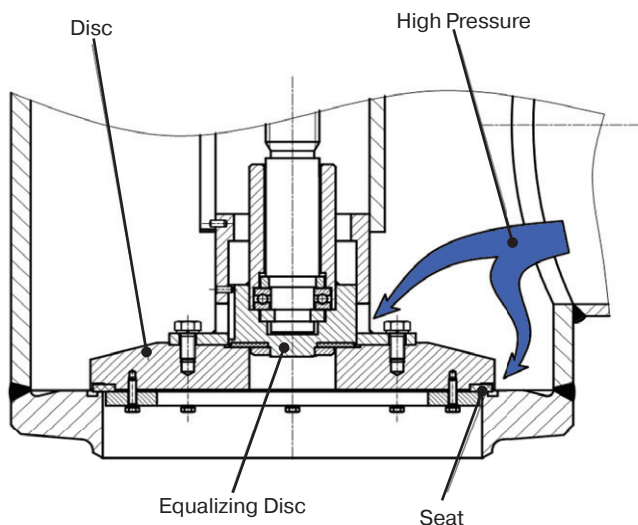
All valves are packed for maximum protection. Unpack carefully, checking to make sure all items are unpacked. Save the enclosed instruction for the installer and eventual user.

⚠ Do not remove the protective coverings from the inlet and outlet of the valve until the valve is ready to be installed.

Installation possible in any desired position, the flow direction should be observed.

Before installing the valves, the pipelines and the components must be cleaned.

NOTE: The deviation from the parallelism and perpendicularity of the welding ends must not exceed 1°. Valves with transport and storage damage must not be installed. Plugs should be removed from pipe ends before welding. The direction of flow (see arrow on body) should be observed, which ensures that the higher pressure pushes from the top on the disk if the valve is closed. If this is the case, valves close tight, no matter how high the differential pressure is (up to MAWP). If a valve is installed the other way around, the valve closes tight up to a maximum differential pressure of 4.5 bar (65.3 psi) for DN 350 (14") and 3.5 bar (50.8 psig) for DN 400 (16").



When applying modern welding procedures (such as TIG, CO₂-shielded metal-arc) the valves do not need to be disassembled for welding. The stem has to be moved into its center position by using the hand wheel (valve half opened).

The fastening bolts and nuts must be tightened crosswise and evenly. After the installation has been completed, check whether the hand wheel runs smoothly within its entire lift range.

The thread on the cover for screwing on the cap must be kept free of paint and must be greased (e. g. with RENOLIT UNITEMP 2).

NOTE: 1219.2 mm (48") of clearance is needed above the valve for service.

Safety Instructions

Valves that have been damaged during transport or storage must not be installed!

Valves must be free of any axial forces, bending or torsional moments,

Valves must not be used as fixed points for pipes!

In the case of gas welding or brazing, the flame may not reach the valve!

Any kind of soiling has to be kept away from the inside of the valve!

It is not allowed to open or close the valves by using a hand wheel wrench or any other devices for extending the lever arm, as this may damage the seat seal!

The valves may not be disassembled or detached before the pipe has been depressurized, evacuated and adequately ventilated!

Maintenance

Parker shut off valves are maintenance-free. In case of any defects in the functional performance, they can be repaired. During the term of warranty, repairs may only be carried out by the manufacturer or, with his consent, by specially trained maintenance personnel working for the plant operator.

Replacing the Stem Seal (During Operation of the System)

1. Unscrew the cap using a 60 mm (2.36 in) open-end wrench.
2. Move the stem to the uppermost position by using a hand wheel.
3. Unscrew the stem seal nut counter-clockwise. Remnants of refrigerant might leak! The screw bushing should be kept loosely in the cover and should be unscrewed completely only after the pressure has completely equalized.

To unscrew the screw bushing use a wrench. Unscrew the stem seal nut using a 55 mm (2.16 in) open-end wrench.

4. Remove o-rings, the PTFE stem seal ring and the scraper and replace them with new ones. Remove stem seal gasket from the seal housing in the bonnet.
5. Clean the stem.
6. Insert a new stem seal gasket into the bonnet. Lubricate the screw bushing with low-temperature grease (e. g. RENOLIT UNITEMP 2) and fasten it finger-tight.
7. For leakage test move the stem into a central position and coat the area with a foaming agent.

Replacing the Stem Assembly, Main Valve Seal, and Back Seat Seal

1. Open the valve completely. Loosen cover screws. Remnants of refrigerant might leak! Cover screws should be kept loosely in the cover and should be unscrewed completely only after the pressure has completely equalized.
Unscrew the bonnet screws using a 36 mm (1.42 in) socket for DN 350 (14 in) valve, or a 46 mm (1.81 in) socket for DN 400 (16 in) valve.
2. Unscrew bonnet screws, grab the hand wheel and pull out the bonnet including internal parts.
3. Unscrew the hand wheel from the stem, and unscrew the stem from the bonnet.
4. Remove the back seat seal and replace it.
5. Removal of main valve seal:
The main valve seal retaining ring is screwed onto the valve disc with multiple M6 screws, all of which have to be unscrewed to remove the main valve seal.
6. Insert a new main valve seal. Replace the retaining ring and replace the screws. Tighten to 10 Nm (7.5 ft-lb) torque.

Before assembling, clean all components of the valve. and grease the stem and the valve cover. Afterwards place the bonnet gasket, then put the bonnet back in place and tighten the bonnet screws evenly and crosswise. See Torque Recommendations table for size of screws, size of wrench and tightening torques.

Torque Recommendations

Port Size		
mm	350	400
Inch	14	16
Bonnet Screw Size (Thd. x Lg.)		
mm	24x65	30x80
Bonnet Screw Hex Size		
mm	36	46
Bonnet Bolt Torque		
Nm	730.0	1450.0
ft-lb	538.4	1069.5

Transport and Storage

During transport, Parker Shut off valves are protected against shocks and covered with plastic sheeting. They should be stored in dry rooms. Care has to be taken that the butt weld ends and plugs are not damaged. All contamination has to be kept away from the inside of the valves. The external surfaces of the valves are provided with a layer of anticorrosive paint for dry storing at room temperature, which remains effective for at least 1 year. The anticorrosive paint which CELEROL-Reaktionsgrund 918 is a good bonding agent for one or two-pot finishing coating paints.

Repair Kit Part Numbers

Port Size		Bonnet Assembly	Cap	Handwheel	Gasket Kit	Stem Seals, Complete
mm	inch	Parker Part Number				
350	14	251735	251738	251737	251739	251743
400	16	251736	251803	251737	251740	251743

Labeling

Parker Refrigerating Specialties	Standard Flow	Material: 1.0038	Made in Germany www.awpvalves.com
Size DN (in)	350(14)	MAWP: 28bar (406 psig) at 0°C (32°F) to 150°C (302 °F) 27.3bar (396 psig) at -20°C (-4 °F) 17.2bar (249 psig) at -40°C (-40°F) 13.5bar (196 psig) at -60°C (-76°F)	
Model #	SAN1400WSBHN		
Type: ANSI BW	Date Code	12/22	No. 0123456 CE 0090

Safe Operation (See Bulletin RSBCV)

People doing any work on a refrigeration system must be qualified and completely familiar with the system and the Refrigerating Specialties Division valves involved, or all other precautions will be meaningless. This includes reading and understanding pertinent Refrigerating Specialties Division Product Bulletins and Safety Bulletin RSB prior to installation or servicing work.

Where cold refrigerant liquid lines are used, it is necessary that certain precautions be taken to avoid damage which could result from liquid expansion. Temperature increase in a piping section full of solid liquid will cause high pressure due to the expanding liquid which can possibly rupture a gasket, pipe or valve. All hand valves isolating such sections should be marked, warning against accidental closing, and must not be closed until the liquid is removed. Check valves must never be installed upstream of solenoid valves, or regulators with electric shut-off, nor should hand valves upstream of solenoid valves or downstream of check valves be closed until the liquid has been removed.

It is advisable to properly install relief devices in any section where liquid expansion could take place. Avoid all piping or control arrangements which might produce thermal or pressure shock.

For the protection of people and products, all refrigerant must be removed from the section to be worked on before a valve, strainer, or other device is opened or removed. Flanges with ODS connections are not suitable for ammonia service.

Warranty

All Refrigerating Specialties products are under warranty against defects in workmanship and materials for a period of one year from date of shipment from factory. This warranty is in force only when products are properly installed, field assembled, maintained, and operated in use and service as specifically stated in Refrigerating Specialties Catalogs or Bulletins for normal refrigeration applications, unless otherwise approved in writing by the Refrigerating Specialties Division. Defective products, or parts thereof returned to the factory with transportation charges prepaid

and found to be defective by factory inspection, will be replaced or repaired at Refrigerating Specialties option, free of charge, F.O.B. factory. Warranty does not cover products which have been altered, or repaired in the field, damaged in transit, or have suffered accidents, misuse, or abuse. Products disabled by dirt or other foreign substances will not be considered defective.

The express warranty set forth above constitutes the only warranty applicable to Refrigerating Specialties products, and is in lieu of all other warranties, expressed or implied, written including any warranty of merchantability, or fitness for a particular purpose. In no event is Refrigerating Specialties responsible for any consequential damages of any nature whatsoever. No employee, agent, dealer or other person is authorized to give any warranties on behalf of Refrigerating Specialties, nor to assume, for Refrigerating Specialties, any other liability in connection with any of its products.

⚠WARNING – USER RESPONSIBILITY

Failure or improper selection or improper use of the products described herein or related items can cause death, personal injury and property damage.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" available at www.parker.com.

For safety information see the Safety Guide at www.parker.com/safety or call 1-800-CParker.

