

SAFELOK

BONNETLESS Y PATTERN STOP VALVES



**ASME
CLASS4500LB:**

**Size:
10-50mm**



One of the most comprehensive component design and manufacture packages available today to the oil and petrochemical industry is offered by safelok components.

Harnessing the demands of the industry for Total Quality Management (TQM), the Safelok indigenous quality philosophy provides a range of Valves and Instrumentation Fittings finished to the highest standards.



Also ideal for other industrial applications, where significant opportunities exist for component replacement and enhancement. Construction material specification includes Stainless steel, Aluminium Bronze a Carbon Steel. A variety of alternative exotic material specifications are available eg. Monel, Hasteloy, Incoloy and Titanium.

Maintaining their TQM practices throughout the manufacturing process, Safelok ensure all materials utilised in the completion of major components are traceable. Copies of the original mill certificates are retained for future reference.



All products are manufactured in compliance with **ISO 9001:2008**
Safeloks capabilities also extend to Instrumentation Procurement Packages for major Oil Companies and the Construction Industry, both in the United Kingdom and throughout the world.

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BRITISH DESIGN AND MANUFACTURE



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SAFELOK COMPONENTS LIMITED is housed in a modern factory in Wigan, Lancashire, England. An area renowned for its manufacturing skills. It is also ideally situated to all major motorway networks and Manchester International Airport. One of the most comprehensive design and manufacture packages available today to the Oil, Petrochemical and Power Generation industries are offered by SAFELOK COMPONENTS.

Harnessing the demands of the industry for Total Quality Management (TQM), the SAFELOK indigenous quality philosophy provides a range of Valves and Instrumentation Fittings finished to the highest standards.

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Standards & Approvals



Certificate number 488/94

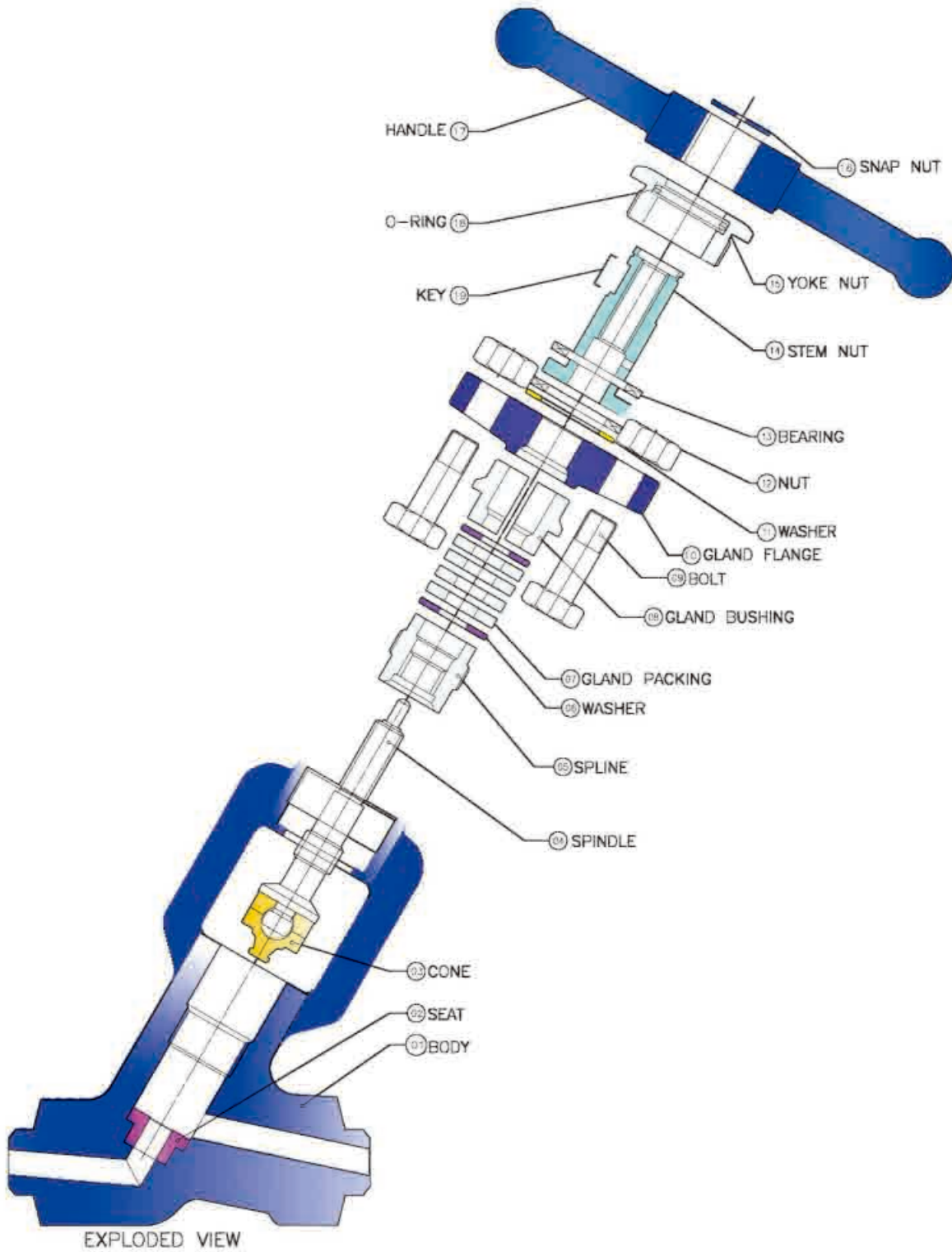


BRITISH DESIGN AND MANUFACTURE

The Bonnetless Y Pattern Stop Valves are designed to meet the requirements of major clients under the most severe duties such as superheated steam at very high pressures, feed water at high pressure, and vent/drain applications under typical supercritical cycles as well as high pressure chemical plant applications.

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SAFELOK BONNETLESS Y PATTERN STOP VALVES ASME CLASSES 4500LB



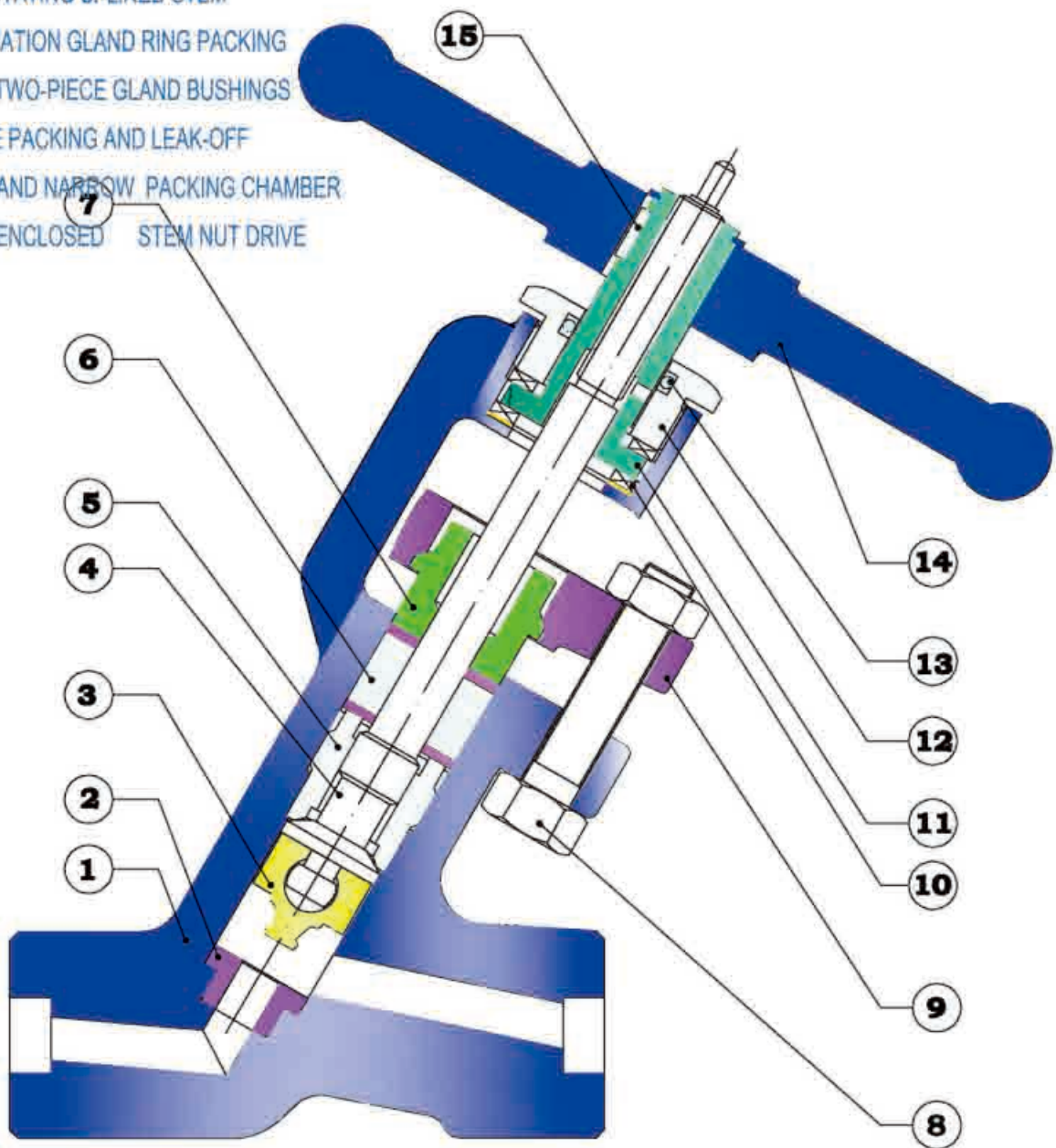
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SAFELOK BONNETLESS Y PATTERN STOP VALVES ASME CLASSES 4500LB

**DESIGNED FOR THE MOST
ARDUOUS OF SERVICE CONDITIONS**

DESIGN FEATURE

- ONE PIECE FORGED BODY
- HEAVY INTEGRAL STELLITE GRADE 12 SEAT AND STELLITE GRADE 6 CONE
- NON-ROTATING SPLINED STEM
- COMBINATION GLAND RING PACKING
- HEAVY TWO-PIECE GLAND BUSHINGS
- DOUBLE PACKING AND LEAK-OFF
- SHORT AND NARROW PACKING CHAMBER
- FULLY-ENCLOSED STEM NUT DRIVE





**SAFELOK BONNETLESS Y PATTERN STOP VALVES
ASME CLASSES 4500LB**

MATERIALS OF CONSTRUCTION

PART NO.	PART DESCRIPTION	QTY	MATERIAL
1	BODY	1	SELECTION
2	SEAT	1	CORRESPONDING MATERIAL (STELLITE GR12)
3	CONE	1	STELLITE GR6
4	SPINDLE	1	SS410
5	SPLINE	1	SS304
6	GLAND PACKING	5	GRAPHITE RING
7	GLAND BUSHING	1	CORRESPONDING MATERIAL
8	BOLT	4	ASTMA193 GR.B7
9	GLAND FLANGE	1	CORRESPONDING MATERIAL
10	BEARING	2	---
11	STEM NUT	2	EN1A
12	YOKE NUT	4	EN1A
13	O-RING	1	NITRILE
14	KEY	1	MS
15	HANDLE	1	CI POWER COATING

DESIGN FEATURE

- **ONE PIECE FORGE BODY**
 - Eliminates pressure retaining threads or bolts
 - No welds to cut for servicing
 - Eliminates deposits
- **Y PATTERN FORGE BODY**
 - Best flow characteristics
 - Allows streamlined flow
 - Eliminates corrosion and deposits
 - 60°inline reduces pressure drop
- **HEAVY INTEGRAL STELLITE GRADE 6 SEAT AND CONE**
 - Tight shutoff
 - Long valve life
 - Prevents corruption
 - Easy to reface
 - Positive seating function as standard

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- Seat is guided at bottom and top
- Integral STELLITE Gr.6 deposited with specialized and automatic procedure which guarantees the achievement of stated constant characteristics
- The deep thickness of the deposited STELLITE Gr.6 enables many renewing operations of the seating surface
- **NON-ROTATING SPLINED STEM**
 - Non-rotating solid cone eliminates galling
 - Eliminates scoring or bending of the stem
 - No torsion applied to gland packing
 - Easy on site maintenance and low maintenance cost
 - Low operational torque
 - Can not be detached from the stem
 - Close roundness and straightness tolerances
 - Burnished for superior finish
- **COMBINATION GLAND RING PACKING**
 - Graphoil as standard maximum temperature 650 degree C.
 - Long operating life
 - Prevents corruption
- **HEAVY TWO-PIECE GLAND BUSHINGS**
 - Withstand high stresses caused by live-loading
 - Bolt torques control total spring load
 - Two sets of GLAND BUSHINGS maintain a minimum permanent stress of 4000psi on the graphoil packing keeping it tight for long periods of time without maintenance
- **DOUBLE PACKING AND LEAK-OFF**

A lantern ring and leak-off pipe provide detection or removal of leakage, if any, from the lower packing set
- **SHORT AND NARROW PACKING CHAMBER**

Sealing effectiveness improves as overall packing length shortens. Chamber wall is burnished to a superior finish
- **HANDLEWHEEL**
 - Of nodular cast iron
 - Its form allows positive grip
 - Impacted Hand-wheel is not necessary thanks to the two roller beatings
- **UNIQUE, FULLY-ENCLOSED STEM NUT DRIVE**
 - Well lubricated stem nut rotates on two thrust bearings
 - 10,000 test cycles show no visible damage to parts
 - Dust cover and sleeve protect stem threads from dirt, dust and sand

CONNECTIONS

- SOCKET WELD : ASME B16.11
- BUTT WELD : ASME B16.25
- NPT THREADS : ANSI B1.20.1



FLOW COEFFICIENT

The flow coefficient values indicated for each valve in the descriptive pages were measured experimentally in our plant, in accordance with ISA-S75.02.

Values are given in Metrical units (Kv) and in English units (Cv)

By definition, Kv is the number of m³/h of water that will flow through a full open valve with a pressure drop of 1 kg/cm².

By definition, Cv is the volume of water at 60 °F in American gallons per minute which flow through a valve, in the fully open position, under 1 psi differential pressure.

ITEM	ORIFICE (MM)	Kv	Cv
1	10	2	2.5
2	20	4	5
3	30	6	7
4	40	19	22
5	50	21	25

TESTING

ALL VALVES ARE 100% PRESSURE TESTED PRIOR TO DESPATCH.

INSTALLATION AND MAINTENANCE

● STORAGE ON SITE

- Do not remove end protectors until ready to install.
- Store valves indoors in a well-protected, dry area. Do not store in contact with the floor.
- Store on pallets or shelves.

● INSTALLATION

- Remove end protects when ready to install.
- Check nameplate to ensure correct type of valve
- Valves should be partially open during welding. If the valve will be normally closed, piping should be flushed, the valve should then be operated 2-3 times before finally seating to prevent solid particles remaining between the seat & disc.

● MAINTENANCE

Inspect periodically all critical parts for wear

- ◇ Stem threads
- ◇ Packing and glands flange
- ◇ Body-bonnet joint and bolting
- ◇ Seats
- ◇ End connections

➤ If leakage on the stem seal occurs, tighten the gland nuts and the gland flange being careful to maintain perpendicular alignment between stem and gland flange. When tightening the gland nuts, alternate tightening with no more than 1/4 turn on each nut until the leak stops.

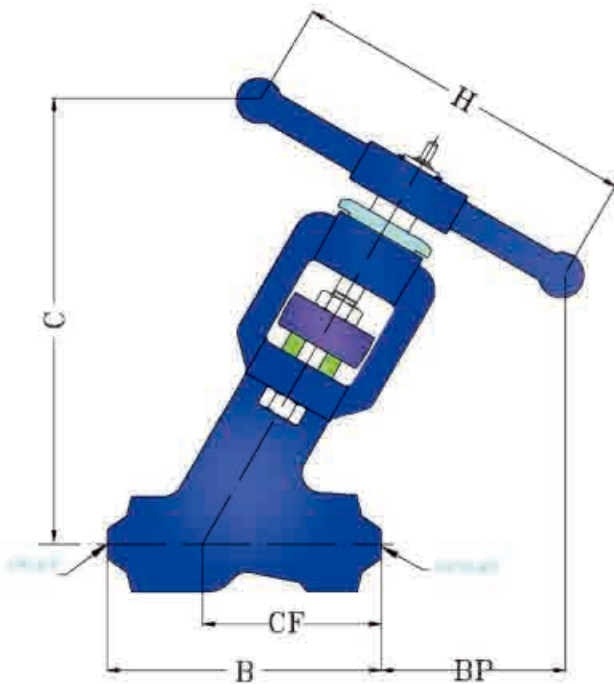
➤ When tightening the gland nut and gland flange is not enough to stop the leak, it will be necessary to replace the packing.

➤ Re-packing may be done while the valve is in line, however, strict attention should be paid to the following points:

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- ✧ Remove all line pressure, upstream and downstream.
- ✧ The valve must be fully and tightly seated prior to any attempt to re-pack.
- ✧ Disassemble with caution in case all pressures has not been fully relieved.
- ✔ For any other repair operation, it is advisable to remove the valve from the line.
- ✔ Use trained personnel and correct tools.
- ✔ If valve is removed from the line for any repair, pressure test the valve prior to re-installation.

DIMENSIONS AND WEIGHTS



- ONE-PIECE FORGE BODY
- STELLITE GRADE 12 SEAT AND STELLITE GRADE 6 CONE
- NON-ROTATING SPLINED STEM
- COMBINATION GLAND RING PACKING
- NON-ROTATING SPLINED STEM
- COMBINATION GLAND RING PACKING
- HEAVY TWO-PIECE GLAND
- DOUBLE PACKING AND LEAK-OFF

Specifications

Design ASME B16.34 **Thread ends** ASME B1.20.1
Butt weld ends ASME B16.25 **Socket weld ends** ASME B16.11

Orifice Size	<i>B</i>	<i>C</i>	<i>H</i>	<i>BP</i>	<i>CF</i>	<i>Weights (kg)</i>
<i>in</i> <i>mm</i>	<i>End to end</i>	<i>Center to top</i>	<i>Handwheel</i>	<i>Clearance Open</i>	<i>Center to end</i>	
0.4 10	5.43 138	8.78 223	6.92 176	3.64 93	3.46 88	5.5
0.79 20	7.79 198	12.28 312	9.68 246	5.11 130	4.84 123	11.5
1.18 30	9.5 241	17.72 450	11.26 286	6.57 167	6.18 157	17
1.57 40	12.63 321	23.62 600	15.00 381	8.76 222	8.19 208	23
3.45 50	15.75 400	29.52 750	18.75 476	10.93 277	10.24 260	27.5



HOW TO ORDER BONNETLESS Y PATTERN STOP VALVES

Example:	YPBL	-14M	-BW	-F91	-10	-GP	-ST	-F	-OC
YPBL:	BONNETLESS Y PATTERN FORGED STOP VALVE								
CONNECTION SIZES	14M-INLET 14mm, OUTLET 14mm 16M-INLET 16mm, OUTLET 16mm 18M-INLET 18mm, OUTLET 18mm 25M-INLET 25mm, OUTLET 25mm 25M16M-INLET 25mm, OUTLET 16mm 25M18M-INLET 25mm, OUTLET 18mm 28M-INLET 28mm, OUTLET 28mm 32M-INLET 32mm, OUTLET 32mm 38M-INLET 38mm, OUTLET 38mm								
CONNECTIONS	BW-BUTT WELD SW-SOCKET WELD								
MATERIAL	F91 F92 CS F11								



F22
F316H
ORIFICE SIZE
10 -10mm ORIFICE
20 -20mm ORIFICE
30 -30mm ORIFICE
40 - 40mm ORIFICE
50 - 50mm ORIFICE
PACKING
GP-GRAPHOIL PACKING
CONE
ST-DEPOSITED STELLITE GR6
SS-SOLID STELLITE GR6
SEAT
F-STELLITE GR12
RATING
OC-OVER CRITICAL 4500LB

EXAMPLE:

Y PATTERN BONNETLESS FORGED BODY STOP VALVE, 16MM BUTT WELD, F91 MATERIAL, ORIFICE 10mm, DEPOSITE STELLITE GR6 CONE AND STELLITE GR12 SEAT, GRAPHOIL, OVER CRITICAL CLASS 4500LB.
YPBL-16M-BW-F91-10-GP-ST-F-OC

Y PATTERN BONNETLESS FORGED BODY STOP VALVE, 25MM SOCKET WELD INLTET, 18MM SOCKET WELD OUTTET, F316H MATERIAL, ORIFICE 10mm, DEPOSITE STELLITE GR6 CONE AND STELLITE GR12 SEAT, GRAPHOIL, OVER CRITICAL CLASS 4500LB.
YPBL-25M16M-SW-F316H-10-GP-ST-F-OC

MATERIALS COMPOSITION AND FEATURE

MATERIAL	ASTM A182 F91	ASTM A182 F92	ASTM A182 F316H	ASTM A182 F22	ASTM A182 F11	ASTM A276-3 410SS	STELLITE Gr.6	STELLITE Gr.12	ASTM A105 CS
Carbon	% 0.08-0.12	0.07-0.13	0.04-0.10	0.15 max	0.10-0.20	0.08-0.15	1	1.8	0.35 max
Manganese	% 0.03-0.6	0.30-0.6	2.00 max	0.30-0.60	0.30-0.80	1.00max			0.60-1.05
Phosphorus	% 0.02max	0.02max	0.04 max	0.04 max	0.04max	0.04max			0.04 max
Sulphur	% 0.01max	0.01max	0.03 max	0.04max	0.04max	0.03max			0.05 max
Silicon	% 0.20-0.50	0.5max	1.00 max	0.5 max	0.5-1.0	1.00max			0.35max
Chromium	% 8.00-9.50	8.50-9.50	16.0-18.0	2.0-2.5	1.0-1.5	11.5-13.5	28	29.0	
Nickel	% 0.40max	0.4max	10.0-14.0			0.012			
Molybdenum	% 0.85-1.05	0.30-0.60	2.00-3.00	0.87-1.13	0.44-0.65				
Columbium	% 0.06-0.10	0.04-0.09							
Aluminium	% 0.04	0.04							
Iron	%							1.0	
Cobalt	%						66	60.2	
Tungsten	%	1.50-2.00					5	8.0	
Others	% N 0.03-0.07 V 0.18-0.25 B 0.001-0.006	N 0.03-0.07 V 0.15-0.25 B 0.001-0.006							
Mechanical features									
Tensile Strength									
psi	85000	89900	75000	75000	70000	69820			70000
Mpa	585	620	515	515	485	480			485
Yield Strength									
psi	60000	63800	30000	45000	40000	40000			36000
Mpa	415	440	205	310	275	275			250



**SAFELOK BONNETLESS Y PATTERN STOP VALVES
ASME CLASSES 4500LB**






















Temperature-Pressure Ratings

working Temperature DEG F.	working pressure for 4500LB(psi)				
	Material Schedule				
	F91	F316H	F22	F11	CS (A105)
122	11,250	11,250	11,250	11,250	11,250
212	11,250	11,250	11,250	11,250	11,250
392	10,611	8,500	10,611	10,434	11,000
500	10,076	7,900	10,076	10,034	11,000
599	8,845	7,500	9,135	9,319	10690
644	8,749	7,300	8,749	8,749	10485
752	7,954	7,100	7,954	7,954	9450
842	7,353	6,900	7,353	7,353	5015
932	5,795	6,800	6,050	5,488	
1070	5,100	6,200	4,060	1,915	
1112	4,525	5,700	2,545	1,316	
1200	2,160	3,450			

working Temperature DEG C.	working pressure for 4500LB(bar)				
	Material Schedule				
	F91	F316H	F22	F11	CS (A105)
50	775.9	775.9	775.9	775.9	775.9
100	775.9	775.9	775.9	775.9	775.9
200	731.8	586.2	731.8	719.6	758.6
260	694.9	544.8	694.9	692	758.6
315	642.7	517.2	630	642.7	737.2
340	603.4	503.4	603.4	603.4	723.1
400	548.6	489.6	548.6	548.6	651.7
450	507.1	475.8	507.1	507.1	345.9
500	399.7	468.9	417.2	378.5	
580	351.7	427.6	280	132.1	
600	312	393.1	175.5	90.8	
650	149	237.93			

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TUBE FITTINGS AND PIPING FITTINGS

TUBE FITTINGS		
Back ferrule	Front ferrule	nut
		
union	Union tee	Union elbow
		
Male connector	Tube socket weld connector	Female connector
		
Male elbow	Bulkhead union	Union cross
		
PIPING FITTINGS		
Female elbow	Male elbow	Hex nipple
		
Hex long nipple	Hex coupling	Union record
		
Gauge adapter	plug	cross
		

Our other product ranges include



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MANUFACTURED BY:

SAFELOK COMPONENTS LTD.
UNIT 1,
THE KILSHAW CENTER,
KILSHAW STREET,
LAMBERHEAD INDUSTRIAL ESTATE,
WIGAN WN5 8EA
ENGLAND

TEL:+44(0)1942 227257
FAX:+44(0)1942 218012

Website: WWW.safelok.com
e-mail: enq@safelok.com



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