SAMMI

Line Blind

Sammi Machinery Co.,

Index.

About Sammi Machinery	3
What is Line Blind ?	4
Application Industries	4
Product Line	5
Features	6
Cost Effectiveness	7
Engineering	8
Part & Material	8
Pressure test	9
Standard Product Range	9
Swing Type	10
Sliding Type	11
Compact Sliding Type	12
Non-Spill Type	12 ~ 13
Econo Type	13
Guide for Line Blind Selection	14
Product Code	14
Dimension	15 ~ 16
Sealing Materials	17 ~ 18
Material conversion table	19 ~ 21
Maintenance (Swing Type)	22
Maintenance (Sliding Type)	23
Warranty	23

Company profile

Apr.	1993	Established
Sep.	2000	Quality Certificated from Korea Gas safety Corporation
Oct.	2002	Licensed new product of Line blind valve
Aug.	2003	CE(0062) approval from Bureau Veritas
Mar.	2005	Certificated "Venture" company from Korea government

Application plant

LG Chemical Co. / SK Corp. / SamSung Chemical Co. / SamSung - BP Chemical Co. / SamSung Semiconductor / LG Petrochemical Co. / YNCC / Dealim Industral Co. / Hanwha Chemical / Cheil Industries / LG China Co. / Pohang Steel Mill. / KwangYang Steel Mill. / KumHo Chemical Co. / SamHo Shipbuilding / NokBong Shipbuilding / Dow Chemical (USA) / Exxon Mobile (USA) / Chevron (USA) / Wholsy Alumina (Australia) / QAL (Australia) / Formosa (Taiwan) ... etc

CE 0062

About Sammi Machinery Co.,

Sammi Machinery Co., a Line Blind Valve fabricator and machine shop, is a wholly owned subsidiary of line blinding technology and products.

Products manufactured by Sammi Machinery included :

- Swing Blind (Hand wheel operating)
- Sliding Blind (Hand wheel operating)
- Compact Sliding Blind (Hand wheel operating)
- Non-Spill Blind (Hand wheel operating)
- Econo Blind (Jack Bolt)

Line Blind Valve

Line Blind Valve is essential to blinding any type of pipe line such as Refineries, Petrochemical plants, Gas industries, Power plants, Steel mills, Food plants, Product Carrier, Shipyards and etc.

- For safety in operation and maintenance
- For prevent product contamination
- For keeping vacuum condition
- Preventing environmental pollution
- In emergency for process problem, accident in line, shutdown of an equipment.

Sammi Machinery is an expert fabricator in the Line Blind Valve industry.
Engineering and designs are based on ASME Section VIII, division 1, and especially often use finite element analysis methodology to prove designs.

Spectacle plates is designed based on ASME B31.1 and it's comparatively checked by API 590. Hazard analyses for Line Blind Valve have been implemented to identify hazards and risks to be detected around applicable valves in accordance with EN 1050.

Quality Control

Sammi Line Blinds does extensive physical testing to prove designs.
Designs are performed using developed design software and proven by finite element analysis.
Keep up strict quality policy and testing for all Line Blinds.

Send us your fabrication inquiries via e-mail at sm@sammiw.com or via fax at +82-55-326-0836. Please contact to us for further discussions. We look forward to doing business with you.
Thank you.

Kim Byeong Ryong
General manager

What is line blind valve ?

Line blinding has been used to pipelines in various industries wherever either positive shut-off is most concerned or full flow should be achieved without pressure drop.

The usual practice for line blinding by using typical materials such as spectacle blinds, spool piece, blind flange valves etc. with gaskets inserted between flanges has however been labour intensive & time consuming and thus resulted in making expense factors which include the time required for the blinding / deblinding process, loss of product caused by spillage during the long blinding time and also the operators of the production line have been unavoidably exposed to the potential hazard of explosion, fire and pollution.

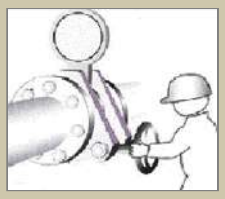
The Sammi Line Blind Valves incorporating a touch and simple design has been developed to provide absolute shut-off, long service life and trouble-free service with minimal maintenance.

The unique and simple opening-closing mechanism of Sammi line blind valves allows one person to blank or blind heavy pipe work up to 24" with ease, rapidity and safety without any tools or hoisting apparatus etc.

Through this guidance brochure, our aim is not only to guide you to the broad range of application of the Sammi line blind, but also to provide a variety of technical data which are useful for whomever related to marine & fluid industries.

We will keep endeavoring to assure our products and services meet the expectations and requirements of our valued customers.

Typical process



Sammi line blind

Application

Petrochemical plant

Oil refinery plant

Product carrier

Iron & steel mill

Oil & gas terminal

Thermal & nuclear power plant

Rigs and platforms

Cement & pulp industries

Product Line

●Swing type

A heavy pipe line can be blinded by operating the hand wheel with safe and ease. It takes 10 second ~2minutes by one person without line spreading.
One turns the hand wheel and then swing the spectacle blind to secure the blind by hand wheel.

●Sliding type

A pipe line is blinded by a blind plate sliding straight forward and backward.
It allows one person to blind a heavy pipe line within 2 minutes by operating the hand wheel

●Compact type

This type is proper to a large size of pipe line. it has solid structure and very short face to face dimension.
It allows one person to blind a heavy pipe line within 2 minutes by operating the hand wheel without line spreading.
One turns the hand wheel and then slide the blind plate to secured it by hand wheel.

●Non-spill type

The body of a line blind are covered to prevent from hazard or pollution during open / close procedure. it has very short face to face dimension and compact design.
One turns the hand wheel and then lift up and turn around the blind plate to set in position to secure the blind plate by hand wheel.

●Econo-swing type

After a couple of turning of the 3~5 jack bolt around body to move back a pipe line by use of round bar to secure the blind plate in position.
It has basical structure and lower cost than handle operating types but widely applicable to extreme pressure & temperature service.

Why choose Sammi Line Blind

Sammi quick blind valves have the successful combination of two essential criteria
- zero leakage to the downstream and safe and easy blinding with untrained one person

And our products are manufactured under the strict quality control system

- **Absolute shutoff**
  In the closed status, any liquid or gas can not leak to the downstream.

- **Quick change**
  Heavy pipe line can be blinded safely within 30 sec. ~ 2 min.

- **Only one operator**
  Untrained one person can operate with ease and safe upto 24" pipe line.

- **Non line spread**
  The operating principle of Sammi line blinds eliminate the need to spread pipe, valve or flanges.

- **Cost saving**
  Not only saving man-hours, but increasing the production time

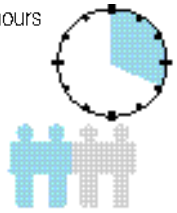
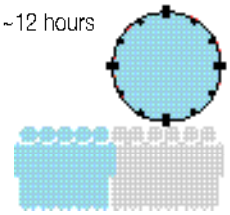
- **No tools**
  Turns hand wheel, then swing or sliding the blind plate without tools and cranes.

- **Safety working**
  Line blinding with Sammi is not labor intensive and no more jeopardizes safety with few people around the pipework.

- **Simple structure**
  Simple and solid structure needs minimal maintenance only for sealing gasket replacement.

Cost effectiveness

● Necessary time for blinding or debinding

Size Ranged	Blinding Technique		Saving Effect
	Solid Plate between flanges(typical)	Sammi line Blind	
1/2″~12″ (DN15 ~DN300)	1~4 hours  by 2~4man Tool, gaskets, wedes	30 Sec or less  by 1man	- 2~16 man-hours - Gasket, bolts & nuts, tools - Time for draining and line cooling
14″~24″ (DN350~DN600)	1~12 hours  by 4~10man Tool, gaskets, hoisting apparatus	30 Sec or 3min  by 1man	- 16~120 man-hours - Gasket, bolts & nuts, tools - Time for draining and line cooling

● Necessary time for blinding or debinding

Size	Blinding(typical)	Deblinding(typical)	More production
1/2″ ~ 6″	1 to 4 hours	1 to 4 hours	2 to 8 hours
8″ ~ 24″	4 to 12 hours	4 to 12 hours	8 to 24 hours

- time saving for draining and line cooling is not included
- less pre-purge time
- immediate work after stopping line

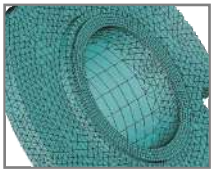
● Saving cost for maintenance
- long life and simple design criteria
- no consumable parts except gaskets- it may be replaced in case of broken after visual checking
- no tools, wedges, crane, bolts are necessary

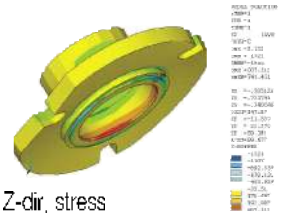
● Positive shutoff
- quick and positive response in emergency
- prevent vacuum losing
- prevent contamination by mixing
- prevent leaking accident in service
- prevent environmental pollution

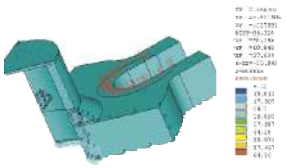
Engineering

Sammi line blinds does extentive physical testing to prove designs are performed using developed design software and proven by finite element analysis.

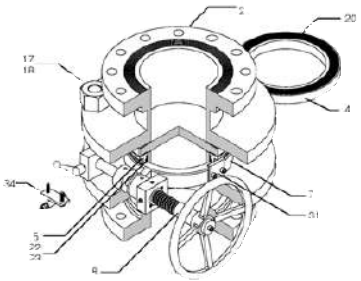
- **ASTM / ANSI standard**
  B16.6 pipe flanges and flanged fittings
  B16.34 valves-flanged, threaded and welding end
  B31.1 power piping
- **ASME standard**
  Section 2 material part
  Section 8 rules for construction of pressure vessels
  Section 9 welding & brazing qualifications
- **API standard**
  598 valve inspection and testing
  6FA fire safety test
- **MSS standard**
  SP-6 finish for contact faces of pipe flanges and connecting end flanges of valves and fittings
  SP-25 marking system for valves, fittings, flanges and unions
  SP-55 quality standard for steel castings for valves, flanges and fittings, and other piping components (visual method)

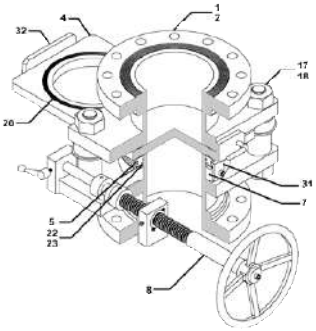

Solid model


Z-dir. stress



Part Material





No.	Part Name	Carbon Steel Principle	Stainless Steel 304 Principle	Stainless Steel 316L Principle
01	Flange	A105/A216-WCB	A182-F304/A351-CF8	A182-F316L/A351-CF3M
02	Pipe	A106/A216-WCB	A312-304/A351-CF8	A312-316L/A351-CF3M
04	Blind Plate	A240-304	A240-304	A240-316L
05	Seat	A240-304	A240-304	A240-316L
07	Gearset	A182-F304	A182-F304	A182-F304
08	Screw Shaft	A479-304	A479-304	A479-304
17	Bolt	A193-B7	A193-B8	A194-Gr8
18	Nut	A194-2H	A193-B8	A194-Gr8
20	Sealing Gasket	selection		
22	Sealing Gasket	selection		
23	Wiper ring	PTFE / Graphite		
31	Seat Holder	SS304	SS304	SS304
32	End Plate	SS304	SS304	SS304
34	Position Ass'y	SS304	SS304	SS304

※alloy, titanium, duplex and other special materials are applicable

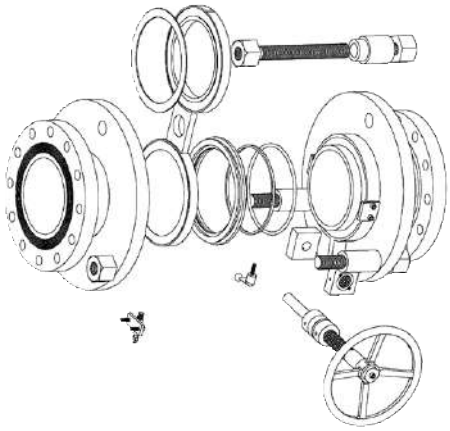
Pressure test (API598, ANSI B16,34)

Class	Seat & Shell
150 lbs	23 kg/cm² (325 psi)
300 lbs	58 kg/cm² (825 psi)
600 lbs	116 kg/cm² (1,650 psi)
900 lbs	172 kg/cm² (2,450 psi)
1,500 lbs	288 kg/cm² (4,100 psi)

Standard product range

class	size / type	1/2~6" 15~150	8" 200	10" 250	12" 300	14 350	16 400	18 450	20 500	24 600	28 700	32 800	36 900	40 1000	48 1200
150 lbs	Swing	●	●	●	●	●	●	●	●	●					
	Sliding	●	●	●	●	●	●	●	●	●					
	Compact Sliding	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Non-Spill	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Econo swing	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Econo sliding	●	●	●	●	●	●	●	●	●					
300 Lbs	Swing	●	●	●	●	●	●	●	●	●					
	Sliding	●	●	●	●	●	●	●	●	●					
	Compact Sliding	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Non-Spill	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Econo swing	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Econo sliding	●	●	●	●	●	●	●	●	●	●	●	●	●	●
600 lbs	Swing	●	●	●	●	●	●								
	Sliding	●	●	●	●	●	●								
	Compact Sliding	●	●	●	●	●	●	●	●	●					
	Non-Spill	●	●	●	●	●	●	●	●	●					
	Econo swing	●	●	●	●	●	●	●	●	●					
	Econo sliding	●	●	●	●	●	●								
900 Lbs	Swing	●	●	●											
	Sliding	●	●	●											
	Compact Sliding	●	●	●	●	●									
	Non-Spill	●	●	●	●	●									
	Econo swing	●	●	●	●	●	●								
	Econo slidin	●	●	●	●	●	●								
1500 lbs	Swing	●													
	Sliding	●													
	Compact Sliding	●													
	Non-Spil	●													
	Econo swing	●	●	●											
	Econo sliding	●	●	●											

Swing Type



Features

quick change & easy operation
Only one operator can blinding / deblinding within 10 sec. ~ 2 min. upto 24 " pipe line with safe and ease by operating the hand wheel

no line spreading.
Unique & powerful mechanism makes a gap to turn the spectacle plate without line spread

wide range of medium
Gas, fuel, naphtha, solvent, monomer, polymer, slurry, powder, mixing liquid

double safety locking
Locking devices are double installed to avoid operator' s carelessness and one of them can be locked with a key

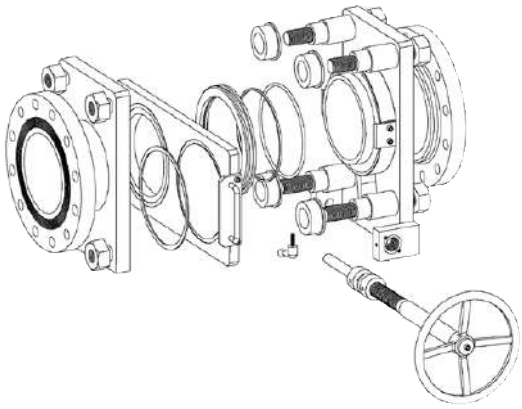
auto positioning of spectacle
Set the spectacle plate at its position without fail by auto positioner

gasket protection cover
Exterior of spectacle be protected from injured with a protection cover

Operating sequence

1. unlock the key and clamp lever
2. turn the hand wheel counter clockwise, it makes gap to turn the spectacle plate without line spreading
3. turn the spectacle plate to change open / close position
4. turn the hand wheel clockwise to secure the blind value
5. lock the clamp lever and key

Sliding type



Features

quick change & easy operation
A blind plate sliding straight forward and backward and only one person to blind a heavy pipe line within 2 minutes upto 24" with safe and ease by operating the hand wheel.

no line spread
Unique & powerful mechanism makes a gap to turn the spectacle plate without line spreading.

applied for wide range of medium
Gas, fuel, naphtha, solvent, monomer, polymer, slurry, powder, mixing liquid

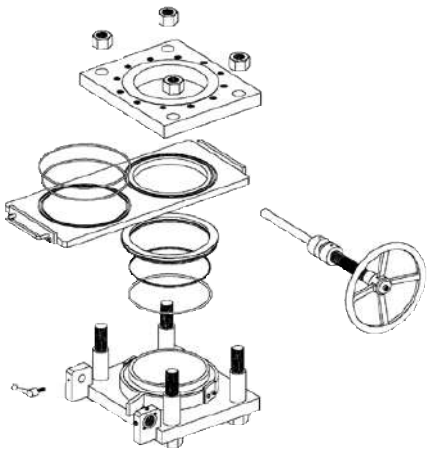
double safety locking
Locking devices are double installed to avoid operator' s carelessness and one of them can be locked with a key

gasket protection cover
Exterior of spectacle be protected from injured by a protection cover

Operating sequence

1. unlock the key and clamp lever
2. turn the hand wheel counter clockwise , it makes gap to slide the blind plate without line spreading
3. slide the blind plate to change open / close position
4. turn the hand wheel clockwise to secure the blind value
5. lock the clamp lever and key

Compact Sliding Type



Features

compact & solid structure

This type is proper to a large size of pipe line. it has solid structure and very short face to face dimension and can be connected counter flanges to its body directly.

quick change & easy operation blinding

Deblinding can be completed within 1 min.~10 min upto 48 " pipe line with safe and ease by operating the hand wheel. Operating sequence is same with sliding type.

no line spread

Unique & powerful mechanism makes a gap to turn the spectacle plate without line spreading.

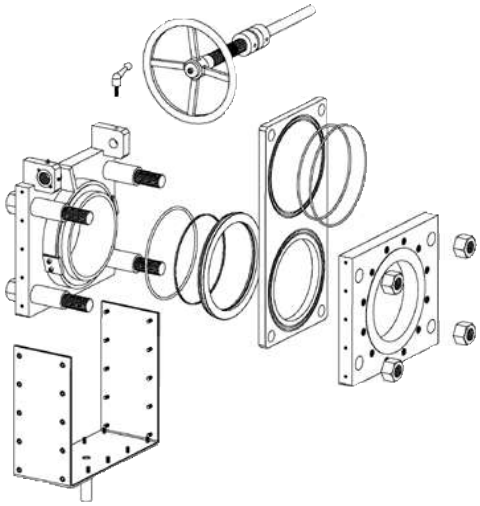
wide range of medium

Gas, fuel, solvent, petroleum products, slurry, powder, mixing liquid

Operation

Operating sequence is same with sliding type

Non-Spill type



Non-Spill Type

Features

pollution prevention
Pollution is prevented from flow down of residues in pipe line during blinding / deblinding procedure.
Application is proper to onboard vessels and shore pipe line.

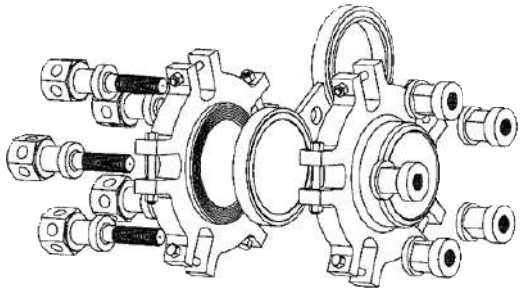
compact & solid structure
Solid structure and very short face to face dimension, and can be connected counter flanges to its body directly.

no line spread
Unique & powerful mechanism makes a gap to turn the spectacle plate without line spreading.

Operation

After release the blind plate by hand wheel, take out the blind plate and turn around it in position than secure the blind plate by hand wheel.
Residus during operation can be drained safely.

Econo Type



Features

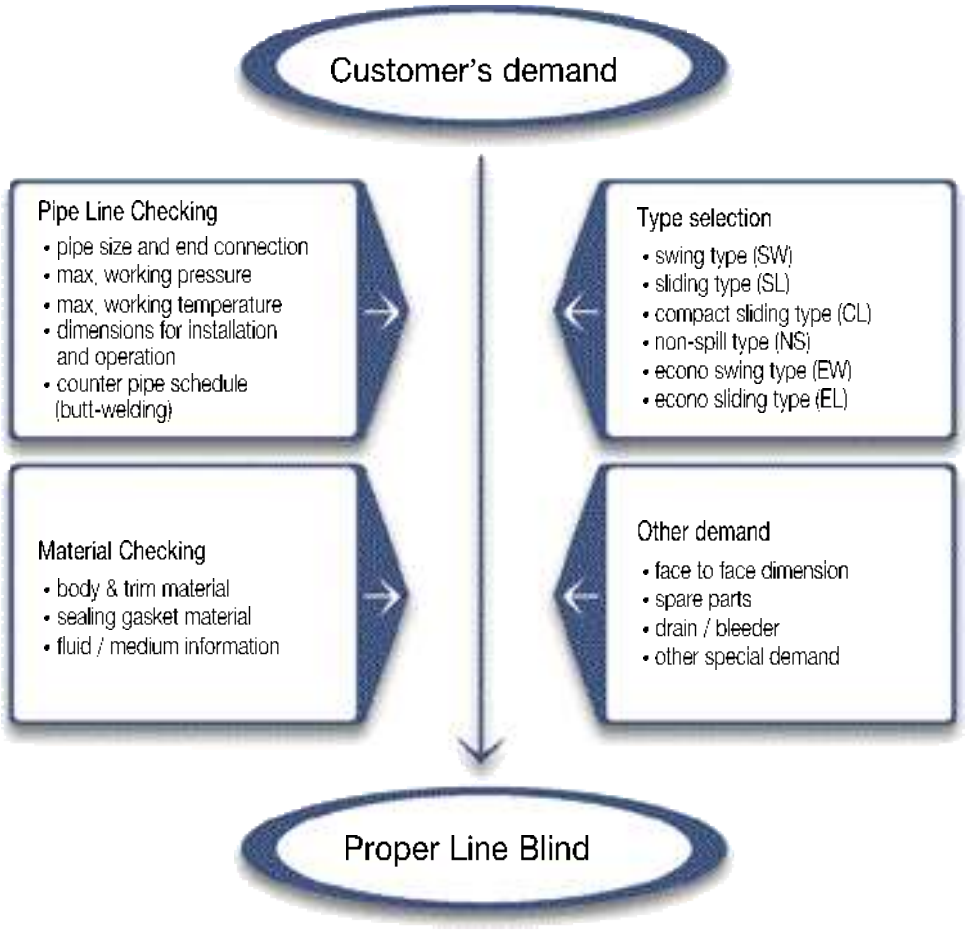
simple & solid structure
This basic model of line blind valve can shorten the blinding / deblinding time drastically comparing with typical way. No need to take out flange bolts but to unscrew the 3~5 jack bolt for 2 or 3 turns to change the blind plate position.

wide range of applications
Simple structure can help its applications to the extreme high pressure & temperature service pipe line with wide range of media.

Operation

After a little turning of the 3~5 jack bolt around body to move back a pipe line by use of round bar, change open/close position of the blind plate than secure the blind plate by tighten the 3~5 jack bolt.

Guide to select a proper line blind



Product Code

SW 200 – AN300 – NBR (=SW8″-AN300-NBR)

ⓐ ⓑ ⓒ ⓓ

type

SW : Swing Type
SL : Sliding Type
CL : Compact Sliding Type
NS : Non-Spill Type
EW : Econo Swing Type
EL : Econo Sliding Type

size

ex) 200 = 200A
= DN200 = 8"

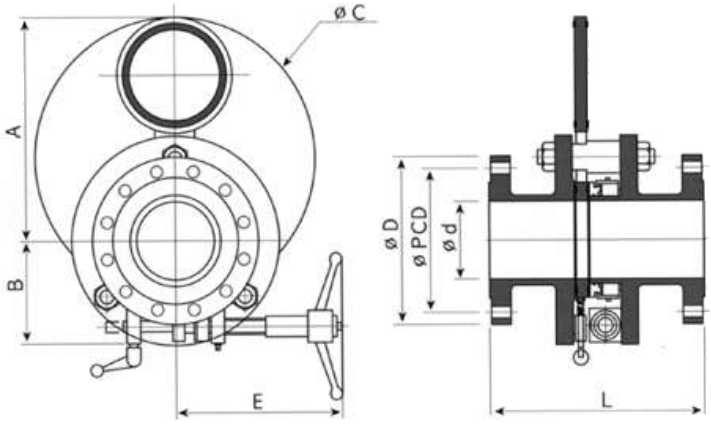
class

AN300 = ANSI class 300
JS20 = JIS class 20 kg/㎠
DN16 = DIN class 16 bar

sealing gasket

NBR / HNBR (Nitrill rubber, Buna-N)
FPM / FKM (Viton)
FEPV / FEPQ (Encapsulated Teflon, kel-F, expended Tefon O-ring)
PFAV / PFAQ (Encapsulated Teflon, kel-F, expended Tefon O-ring)
VMQ / FVMQ/PVMQ (Silicone)
PTFE / CTFE/Soft PTFE (Teflon, kel-F, expended Tefon)
FFPM / FFKM (Kalrez, Perfloro Elastomer)
Graphite (Pure, Engineered)
Metal

Dimension Swing Type



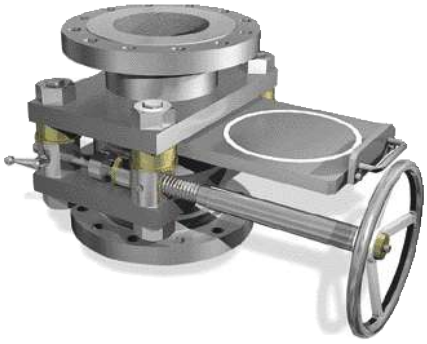
Class 150

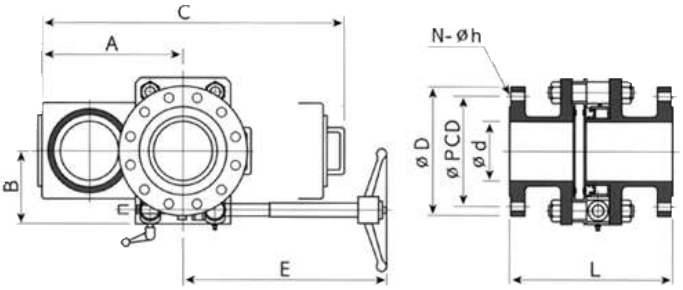
Size		L	A	B	øC	E	kg
inch	DN						Weight(NET)
1/2~1	15~25	165	135	80	165	136	9
1-1/2	40	190	173	101.5	213	175	15
2	50	216	195.7	110.5	241.5	198	25
2-1/2	65	233	223	122	273	218	27
3	80	233	263.7	138.5	328.2	258	34
4	100	245	298.5	157	375	286	52
6	150	286	420.5	203	529.3	328	87
8	200	312	510	245	645	385	127
10	250	330	624.5	282	787	416	190
12	300	376	732.5	320.4	922	477	275
14	350	421	840	343	1085	530	383

Class 300

Size		L	A	B	øC	E	kg
inch	DN						Weight(NET)
1/2~1	15~25	180	135	80	165	136	9
1-1/2	40	190	173	101.5	213	175	18
2	50	216	195.7	110.5	241.5	198	26
2-1/2	65	233	223	122	273	218	33
3	80	283	263.7	138.5	328.2	258	42
4	100	305	298.5	157	375	286	81
6	150	403	420.5	203	529.3	328	136
8	200	419	510	245	645	385	196
10	250	457	624.5	282	787	416	257
12	300	502	732.5	320.4	922	477	399
14	350	762	840	343	1085	530	556

Sliding Type





Class 150

Size		L	A	B	ØC	E	kg
inch	DN						Weight(NET)
1/2~1	15~25	165	136	90.5	272	192	10
1-1/2	40	190	163.6	110	372	226	15
2	50	216	188.5	116	377	268	25
2-1/2	65	233	227	135	463	321	27
3	80	233	244.8	155.5	518.6	373	34
4	100	245	277	168	583	406	49
6	150	286	365	212.5	768	518	82
8	200	312	431.3	251.5	899.6	596	122
10	250	330	542.5	290.5	1092.6	720	181
12	300	376	599	324.5	1223.6	740	294
14	350	421	690	350	1415	815	368

Class 300

Size		L	A	B	ØC	E	kg
inch	DN						Weight(NET)
1/2~1	15~25	180	136	90.5	272	192	10
1-1/2	40	190	163.6	110	372	226	18
2	50	216	188.5	116	377	268	26
2-1/2	65	233	227	135	463	321	33
3	80	283	244.8	155.5	518.6	373	42
4	100	305	277	168	583	406	78
6	150	403	365	212.5	768	518	131
8	200	419	431.3	251.5	899.6	596	190
10	250	457	542.5	290.5	1092.6	720	248
12	300	502	599	324.5	1223.6	740	382
14	350	762	690	350	1415	815	540

Application Guide for Sealing Materials

Material / temperature	Property	Recommended Use	Not Recommended For
Nitrile (Buna-N) -40 C to +135 C Nitrile (Low-Temp) -65 C to +120 C	Good resistance to petroleum based oils and fuels, silicone greases, Hydraulic fluids, Water and alcohols. It has a good balance of working properties such as low compression set, high tensile strength, high abrasion resistance, combined with a low cost.	Silicone Greases / Oils Water Petroleum Oils / Fuels Ethylene Glycol Fluids	Keytones (MEK) Halogenated Hydrocarbons Auto / Aircraft Brake Fluids Strong Acids Sunlight, Ozone, Weathering phosphate esters, H-S
Viton® (Fluorocarbon) -30 C to +204 C	Featuring excellent resistance to petroleum products and solvents, with good high temperature and low compression set characteristics. For use with wide chemical exposure situations, and with low gas permeability, it is also suited for hard vacuum service.	Most Acids / Chemicals Halogenated Hydrocarbons Di-Ester Lubricants Petroleum Oils / Fuels Silicone Oils / Greases transmission fluid	Keytones (MEK) Auto / Aircraft Brake Fluids Amines (Ammonia) H2S Acetone, Skydrol, Ethyl Accetate Hot Water and Steam Low Molecular Esters and Ethers
Aflas -30 C to +204 C *reg. TM Asahi Glass Co.	Aflas is a unique fluoroelastomer resistant to petroleum oils, steam, hydrogen sulfide and amine corrosion inhibitors. This compound is generally used for sour gas oil field services.	Petroleum oils, H-S, steam	Acetone, lacquers
EPDM (Ethylene Propylene) -54 C to +150 C	Ethylene Propylene has excellent ozone and chemical resistance characteristics. Generally used in automotive brake systems.	Brake fluids, Refrigerants, Sunlight, Ozone, Weathering Hot Water and Steam Auto / Aircraft Brake Fluids	Petroleum Oils, Fuels, Diester lubricants
FVMQ (Fluorosilicone) -62 C to +240 C	Fluorosilicone combines the good high and low temperature stability of silicone with the fuel, oil, and solvent resistance of fluorocarbon	Jet Fuel, Dry Heat, Wide Temperature Range ,Petroleum Oils, Clorinated Solvents, Gasoline	Keytones (MEK) Phosphate Esters Some Acids Auto / Aircraft Brake Fluids Amines (Ammonia), Acetone, Ethyl acetate
Highly Saturated Nitrile (HSN, HNBR) -26 C to +160 C	A nitrile elastomer with excellent resistance to petroleum oils, and sour gas, With the extended temperature range, HSN is becoming a preferred compound in the oil patch	Petroleum oils, H-S, CO-	Brake fluid

Application Guide for Sealing Materials

Material /temperature	Property	Recommended Use	Not Recommended For
Neoprene -40 C to +135 C	Due to its excellent resistance to freon and ammonia, Neoprene is widely accepted as a preferred elastomer for refrigeration seals	Refrigerants, alcohol, ozone, Ammonia Some Petrolium Oils Dilute Acids Silicone ester Lubricants	Petroleum oils, Toluene, Keytones (MEK) Gasoline, Auto / Aircraft Brake Fluids
Polyurethane -50 C to +105 C	An excellent elastomer with high abrasion resistance characteristics and high tensile strength. Used in high pressure hydraulic systems where highly stressed parts are	Petroleum oils, Hydraulic oils, Some Hydrocarbon Fuels, Oxygen / Ozone, Drive Belts	Keytones (MEK) Acids Auto / Aircraft Brake Fluids Chlorinated Hydrocarbons Water
Silicone (VMQ) -65 C to +260 C	Silicone elastomer is resistant to high, dry heat, in primarily static applications. It has low compression set characteristics and a wide temperature range.	Dry Heat, alcohol, Vegetable oil, Wide Temperature Range, Sunlight, Ozone, Weathering Odorless and Non-Toxic	Keytones (MEK) Acids Silicone Oils Brake Fluids, Petroleum oils & fuels
Teflon (PTFE) -40 C to +240 C	Excellent chemical registant, Teflon is a tough, chemically inert elastomer possessing an incredible working range. For static and slow intermittent dynamic situations, Teflon is hampered only by it's poor memory at low temperature.	Most chemical Resistance, Fuel Resistance, Low Coefficient of Friction	Non-Elastic
FFPM/FFKM (Chemraz®; Kalrez®; Simriz®; Perfluoroelastomer) ~ +323 C	Excellent chemical registance, Excellent Temperature resistance elastomer Various Compounds Designed for Specific Applications	High Temperature Resistance Excellent Chemical Resistance Low Out Gassing Chlorine Wet/Dry Petroleum Oil Chlorinated Hydrocarbons	Molten metals Gaseous Alkali Metals Halogenated Freons/Fluids Uranium Hexafluoride
FEPV/PFAV (Teflon Encapsulated O-Ring) -40 C to +260 C	Covered with Teflon Tube Usually Silicone or Viton(r) Good Wear Resistance Good Permeation Resistance	Most chemical Resistance, Fuel Resistance, Low Coefficient of Friction, Heat Resistance	Depends on O-Ring Core
Graphite (Pure, Engineered) -240 C to +800 C	Excellent chemical stability and wide range of temperature extreme low & high	Most chemical resistance, Excellent heat resistance	

Material Conversion Table

Section	ASME(ASTM)		KS		JIS		DIN
	SPEC.	GRADE NUMBER	ST'D	SYMBOL	ST'D	SYMBOL NUMBER	
Forgings Carbon steel for piping components	SA-105		D3710	SF 50	G 3201	SF 50	
			D3710	SF 50	G 3201	SF 50PV	
			D3710	SF 45	G 3201	SF 45	
			D3752	SF 30C	G40511	SF 30C	
			D3752	SF 25C	G 4051	SF 25C	
Seamless carbon steel pipe for high-temperature service	SA-106	Gr. A	D 3564	SPPH 38	G 3455	STS38	DIN 1629 St 35.4
			D 3570	SPHT 38-S	G 3456	STPT 38-S	DIN 17175 St 35.8
		Gr. B	D 3564	SPPH 42	G 3455	STS 42	DIN 1629 St 45.4
			D 3570	SPHT 42-S	G 3456	STPT 42-S	DIN 17175 St 45.8
		Gr. C	D 3564	SPPH 49	G 3455	DIN 1629 St 52.4 STS 49 SEW 610-19Mn5	SEW 610-17Mn4
			D 3570	SPHT 49-S	G 3456	STPT 49-S SEW 610-19Mn5	DIN 17175 St 45.8 SEW 610-17Mn4
Forged or rolled steel pipe flanges, Forged fittings, and valves and parts for high-temperature service.	SA-182	F 1	D 4110	SFHV 12B	G 3213	SFHV 12B	SEW 550 22Mo4 SEW 620 15Mo3
		F 2	D 4110	SFHV 13B	G 3213	SFHV 13S	SEW 620 12CrMo44 SEW 620 13CrMo44
		F 5	D 4110	SFHV 25	G 3213	SFHV 25	VaTUVWb1.1207-12CrMo19
		F 9	D 4110	STS 26B	G 3213	SFHV 26B	Wat-Nr1.7388-12CrMo91
		F 11	D 4110	STS 23B	G 3213	SFHV 23B	SEW 810-12CrMo44 SEW 810-13CrMo44
		F 12	D 4110	STS 22B	G 3213	SFHV 22B	SEW 810-12CrMo44 SEW 810-13CrMo44
		F 22	D 4110	STS 24B	G 3213	SFHV 24B	SEW 810-10CrMo910
		F 304	D 3214	STS 304	G 3214	SUSF 804	SEW 880-5CrMo1810 SEW 17440-2CrMo1812
		F 304H	D 3214	STS 304H	G3214	SUSF 804H	
		F 304L	D 3214	STS 304L	G 3214	SUSF 804L	DIN 17440-2CrNi189
		F 310	D 3214	STS 301	G 3214	SUSF 810	
		F 316	D 3214	STS 316	G 3214	SUSF 816	DIN 17440-5CrNiMo1810 DIN 17440-5CrNiMo1812
		F 316H	D 3214	STS 2316H	G 3214	SUSF 816H	
		F 316L	D 3214	STS 316L	G 3214	SUSF 816L	DIN 17440-2CrNiMo1810 DIN 17440-2CrNiMo1812
		F 321	D 3214	STS 321	G 3214	SUSF 821	DIN 17440-10CrNiMo189 SEW 680-10CrNiMo1810
		F 321H	D 3214	STS 321H	G 3214	SUSF 821H	
		F 347H	D 3214	STS 347	G 3214	SUSF 847	DIN 17740-10CrNiMo189 SEW 680-10CrNiMo1810
		F 347H	D 3214	STS 347H	G 3214	SUSF 847H	SEW 870-8CrNiMo1518
Alloy-steel and stainless steel bolting materials for high-temperature service	SA-193	Gr. B5	D 3755	SNB 5	G 4107	SNB 5	
		Gr. B7	D 3755	SNB 7	G 4107	SNB 7	DIN 17240-24CrMo5
		Gr. B16	D 3755	SNB 16	G 4107	SNB 16	DIN 17240-21CrMoV55
Carbon and alloy steel nuts for high pressure and high temperature	SA-194	Gr. 2H	D 3752	SM 45C	G 4051	S 45C	DIN 17100 St 50-2
		Gr. 3	D 3755	SNB 5	G 4107	SNB 5	-
		Gr. 4	-	-	-	-	DIN 17240-24 CrMo5

Material Conversion Table

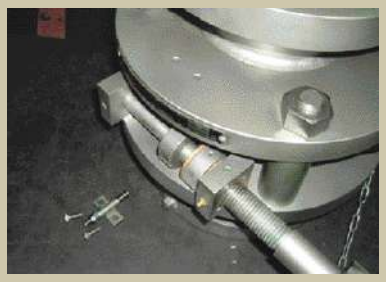
Section	ASME(ASTM)		KS		JIS		DIN
	SPEC.	GRADE NUMBER	ST'D	SYMBOL	ST'D	SYMBOL NUMBER	
Cabon steel castings suitable for fusion welding for high-temperature service	SA-216	Gr. WCA	D 4101	SC 42	G 5101	SC 42	DIN 1681 GS-38
			D 4106	SCW 42	G 5102	SCW 42	DIN 1681 GS-38,5
			D 4107	SCPH 1	G 5151	SCPH 1	DIN 1681 GS-38 DIN 1681 GS-45 DIN 17245 GS-C25
		Gr. WCB	D 4101	SC 49	G 5101	SC 42	DIN 1681 GS-52
			D 4106	SCW 49	G 5102	SCW 49	DIN 1681 GS-45,3
			D 4107	SCPH 2	G 5151	SCPH 2	DIN 1681 GS-52 DIN 17245 GS-C25
		Gr. WCC	D 4106	SCW 49	G 5102	SCW 49	DIN 1681 GS-45,3
			D 4107	SCPH 2	G 5151	SCPH 2	DIN 1681 GS-52 DIN 17245 GS-C25
Martensitic stainless steel and alloy steel casting for pressure containing parts suitable for high-temperature service	SA-217	Gr. WC1	D 4107	SCPH 11	G 5151	SCPH 11	DIN 17245 GS-22Mo4
		Gr. WC6	D 4107	SCPH 21	G 5151	SCPH 21	DIN 17245 GS-17CrMo55
		Gr. WC9	D 4107	SCPH 32	G 5151	SCPH 32	SEW 595 GS-12CrMo910
		Gr. C5	D 4107	SCPH 61	G 5151	SCPH 61	SEW 595 GS-12CrMo195 SEW 595 GS-12CrMo101
		Gr. C12	D 4107	SCPH 61	G 5151	SCPH 61	SEW 595 GS-12CrMo195 SEW 595 GS-12CrMo101
Chromium and chromium-nickel stainless steel plate, sheet, and strip for fusion-welded unfired pressure vessels.	SA-240	Type 302	D 3705	STS 302	G 4304	SUS 302	
		Type 304	D 3705	STS 304	G 4304	SUS 304	SEW 680 5CrNi 1810 DIN 17440 5CrNi 189
		Type 304L	D 3705	STS 304L	G 4304	SUS 304L	DIN 17440 2CrNi 189
		Type 309S	D 3705	STS 309S	G 4304	SUS 309S	
		Type 310S	D 3705	STS 310S	G 4304	SUS 310S	
		Type 316	D 3705	STS 316	G 4304	SUS 316	DIN 17440 5CrNiMo1812 DIN 17440 5CrNiMo1810
		Type 316L	D 3705	STS 316L	G 4304	SUS 316L	DIN 17440 7CrNiMo1812 DIN 17440 7CrNiMo1810
		Type 321	D 3705	STS 321	G 4304	SUS 321	DIN 17440 10CrNiTi1810 SEW 880 10CrNiTi1810
		Type 347	D 3705	STS 347	G 4304	SUS 347	DIN 17440 10CrNiTi189
		Type 405	D 3705	STS 405	G 4304	SUS 405	DIN 17440 7CrAl 13
		Type 410	D 3705	STS 410	G 4304	SUS 410	DIN 17440 10Cr 13
		Type 429	D 3705	STS 429	G 4304	SUS 429	-
		Type 430	D 3705	STS 430	G 4304	SUS 430	DIN 17440 8Cr 17
Low and intermediate tensile strength carbon steel plates of structural	SA-283	Gr. C	D 3503	SB 41	G 3101	SS 41	DIN 17100 USt 37-1
		Gr. D	D 3503	SB 41	G 3101	SS 41	DIN 17100 USt 42-1
Low and intermediate tensile strength carbon steel plates for pressure vessels	SA-285	Gr. B	D 3560	SBB 35	G 3103	SB 35	
		Gr. C	D 3560	SBB 42	G 3103	SB 42	DIN 17155 H11
Cow carbon steel externally and internally threaded standard fasteners	SA-307	Gr. B	D 3503	SM 42	G 3101	SS 41	(B) DIN 267 B1, 3-4, 6 (N) DIN 267 B1, 4-5
			D 3752	SM 25C	G 4051	S 25C	(B) DIN 267 B1, 35-6 DIN 17240 C 35, CK35 (N) DIN 267 B1, 45 DIN 17100 St 50-2

Material Conversion Table

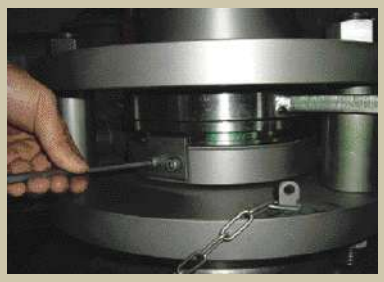
Section	ASME(ASTM)		KS		JIS		DIN
	SPEC.	GRADE NUMBER	ST'D	SYMBOL	ST'D	SYMBOL NUMBER	
Seamless and welded austenitic stainless steel pipe	SA-312	Gr. TP 304	D 3576	STS 304TP	G 3459	SUS 304TP	DIN 2462 5CrNi 18 9 SEW 680 5CrNi 18 10
		Gr. TP 304H	D 3576	STS 304HTP	G 3459	SUS 304HTP	
		Gr. TP 304L	D 3576	STS 304LTP	G 3459	SUS 304LTP	DIN 2463 2CrNi 18 9
		Gr. TP 309	D 3576	STS 309TP	G 3459	SUS 309TP	
		Gr. TP 310	D 3576	STS 310STP	G 3459	SUS 310STP	
		Gr. TP 316	D 3576	STS 310STP	G 3459	SUS 316TP	DIN 2462 5CrNiMo 18 10 DIN 2462 5CrNiMo 18 12
		Gr. TP 316H	D 3576	STS 316TP	G 3459	SUS 316HTP	
		Gr. TP 316L	D 3576	STS 316HTP	G 3459	SUS 316LTP	DIN 2462 2CrNiMo 18 10 DIN 2462 2 CrNiMo 18 12
		Gr. TP 321	D 3576	STS 321TP	G 3459	SUS 321TP	SEW 680 10CrNiTi 18 10 DIN 2462 10CrNiTi 18 9
		Gr. TP 321H	D 3576	STS 321HTP	G 3459	SUS 321HTP	
		Gr. TP 347	D 3576	STS 347TP	G 3459	SUS 347TP	DIN 2462 10CrNiNb 13 10 SEW 680 10CrNiNb 18 9
		Gr. TP 347H	D 3576	STS 347HTP	G 3459	SUS 347HTP	DIN 2462 10CrNiNb 13 9 SEW 670 3CrNiNb 16 13
Alloy steel bolting materials for low-temperature service	SA-320	Gr. B8	D 3706	STS 304B	G 4303	SUS 304B	DIN 267 A2 SEW 650 5CrNi 18 10
		Gr. B8C	D 3706	STS 347B	G 4303	SUS 347B	SEW 680 10CrNiNb 18 10
		Gr. B8M	D 3706	STS 316B	G 4303	SUS 316B	DIN 267 A4
		Gr. B8T	D 3706	STS 321B	G 4303	SUS 321B	SEW 680 10CrNiTi 18 10
High-strength bolts for structural steel joints, ncuding suitable nuts and plain hardened washers	SA-325	Type 1	D 3752	SM 35C	G 4051	S 35C	(B) DIN 267 Bl 35.6 DIN 17240 C45 DIN 17240 CK 45 (N) DIN 17100 St
Austenitic steel castings for high-temperature service	SA-351	Gr. CF3	D 4103	SSC 19,-CF	G 5121	SCS 19,-CF	DIN 1591 GG-15
		Gr. CF3M	D 4103	SSC 15,-CF	G 5121	SCS 15,-CF	
		Gr. CF8	D 4103	SSC 13,-CF	G 5121	SCS 13,-CF	SEW 595-70G 8CrNi 18 10 DIN 17445G 6CrMo 18 9
		Gr. CF8C	D 4103	SSC 21,-CF	G 5121	SCS 21,-CF	SEW 595-70G 8CrNiMo 18 10 DIN 17445G 6CrMoNi 18 18
		Gr. 12Cl. 2	-	-	G 4109	SCMV2NT	DIN 17155 13CrMo44
		Gr. 12Cl.1	-	-	G 4109	SCMV5A	VdTUWb1,1207-12CrMo19 5
		Gr. 21Cl. 2	-	-	G 4109	SCMV5NT	VdTUWb1,1207-12CrMo19 5
		Gr. 22Cl. 1	-	-	G 4109	SCMV4A	VdTUWb1130-12CrMo9 10
		Gr. 22Cl. 2	-	-	G 4109	SCMV4NT	VdTUWb1,110-12CrMo9 10
carbon steel plates for pressure vessels for intermediate and higher-temperature service	SA-515	Gr. 55	D 3560	SBB 35	G 3103	SBB 35	DIN 17155 H11
		Gr. 60	D 3560	SBB 42	G 3103	SBB 42	DIN 17155 H11
		Gr. 65	D 3560	SBB 46	G 3103	SBB 46	DIN 17155 H111, 17Mn4
		Gr. 70	D 3560	SBB 49	G 3103	SBB 49	DIN 17155 19Mn5, VdTUWb 1,373 WB23
phosphor bronze plate, sheet, strip, and roed bar	SB-103	C 51000	D 5506	PBS1/PBT1	H 3110	C 5101P	-
			D 5506	PBS1/PBT1	H 3110	C 5101R	-
		C 52100	D 5506	PBS3/PBT3	H 3110	C 5212P	DIN 17662-CuSn8 DIN 17670-CuSn8
			D 5506	PBS3/PBT3	H 3110	C 5212R	DIN 17662-CuSn8 DIN 17670-CuSn8

Maintenance

Swing type line blind valve repair sequence



Step 1 remove the position ass`y



Step 2 remove the both seat holder

Step 3 turn the spectacle plate 90 degree

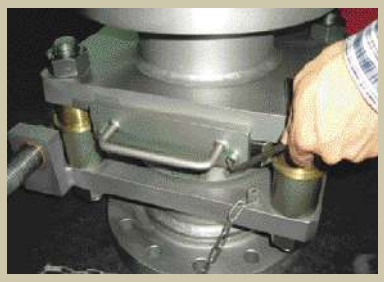
Step 4 take out the seat

Step 5 replace the internal O-ring

Assembling should be done inversely

Maintenance

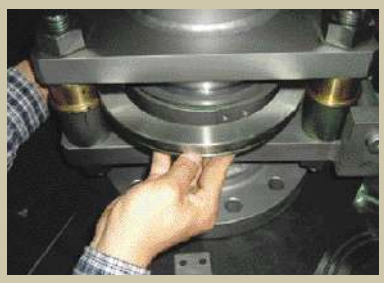
Sliding type line blind valve repair sequence



Step 1 remove the end-plate of the blind

Step 2 take out the blind plate

Step 3 remove the both seat holder



Step 4 take out the seat

Step 5 replace the internal O-ring

Assembling should be done inversely

WARRANTY

Sammi Machinery Co. warrants to Buyer as the original purchaser that all products manufactured by it shall be free from defects in workmanship and material for three years when properly installed and operated.

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