

# 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.

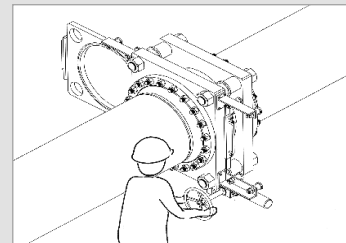
The usual practice for line blinding by using typical materials such as spectacle blinds, spool piece, blind flange valves etc. with gasket inserted between flanged has however been labour intensive & time consuming and thus resulted in making expenses factors which include the time required for the 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.



【 Typical Process 】

The Sammi Line Blind Valves incorporating a touch and simple design have 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 48" with ease, rapidly and safety without any tools or hoisting apparatus etc.



【 Sammi Line Blind 】

## • Application Industries •



• 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 than 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 compact 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.

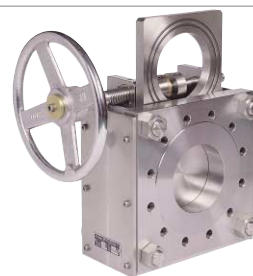
One turns the hand wheel and than slide the blind plate to secure the blind by hand wheel.



### Non-Spill Type

The body of a line blind is covered to prevent hazard or pollution during open/ close procedure. It has very short face to face dimension and compact design.

One turns the hand wheel and than lift up & turn around the blind plate to set in position, and than secure the blind plate by hand wheel.



After a couple of turning of the 3~8 jack bolt around body to move back a pipe line by use of round bar and than change the blind plate position.

It has basical structure for line blinding and lower cost than hand wheel operating types.

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 up to 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.

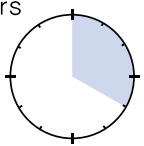
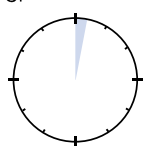
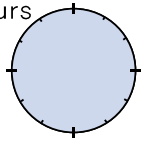
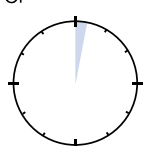
**Simple structure**  
Simple and solid structure needs minimal maintenance only for sealing gasket replacement.





## Cost effectiveness

### ■ Necessary time for blinding or debinding

Size Ranged	Blinding Technique		Saving Effect
	Solid Plate between flanges(typical)	Sammi line Blind	
1/2" ~ 14" (DN15 ~ DN350)	1~4 hours  by 2~4 man Tool, gaskets, wedes	30 Sec or less  by 1 man	<ul style="list-style-type: none"> <li>2~16 man-hours</li> <li>Gasket, bolts &amp; nuts, tools</li> <li>Time for draining and line cooling</li> </ul>
16" ~ 48" (DN400 ~ DN1200)	1~12 hours  by 4~10 man Tool, gaskets, hoisting apparatus	30 Sec or 3min  by 1 man	<ul style="list-style-type: none"> <li>16~120 man-hours</li> <li>Gasket, bolts &amp; nuts, tools</li> <li>Time for draining and line cooling</li> </ul>

### ■ Increase productivity

Size	Blinding (typical)	Deblinding (typical)	More production
1/2" ~ 14"	1 to 4 hours	1 to 4 hours	2 to 8 hours
16" ~ 48"	4 to 12 hours	4 to 12 hours	8 to 24 hours

- time saving for and 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

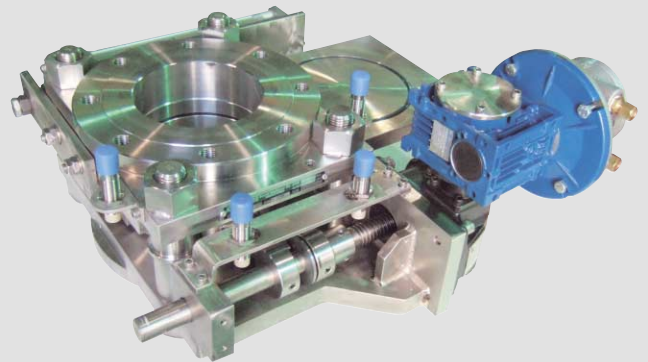
- quick and positive response in emergency
- prevent vaccum losing
- prevent contamination by mixing
- prevent leaking accident in service
- prevent environmental pollution

# Free from Leakage Trouble

*Total equipment isolate valves are never 100% reliable The recent technology of Sammi Line Blinds eliminate spreading pipe & flanges and allow one operator to blank heavy pipework with quick and safe.*



■ 36" compact type blind for isolation



■ Automated Line Blind Valve



■ Hand Wheel Torque Indicator



■ Product carrier tank isolation (On board ship)



■ Naptha feed line of cracking heater for Ethylene plant



■ Gasket Protection Cover

# Engineering / Part Material

## ■ Engineering

*Sammi Line Blinds do extensive physical testing to prove designs. Designs are performed using developed design software and proven by finite element analysis.*

### ASTM Specification

- ASTM F1020-82 : Standard specification for Blind valve for Marine Application

### ASME Specification

- ASME Sec.II : Materials
- ASME Sec.VIII Div. I :Rules for Construction of Pressure Vessels
- ASME Sec.IX : Qualification Standard for Welding and Brazing Procedures
- ASME B15.5 : Pipe Flanges and Flanged Fittings
- ASME B16.34 : Standard for valves-Flanges, Threaded and Welding end
- ASME B31.1 : Power Piping
- ASME B31.3 : Process Piping

### API Specification

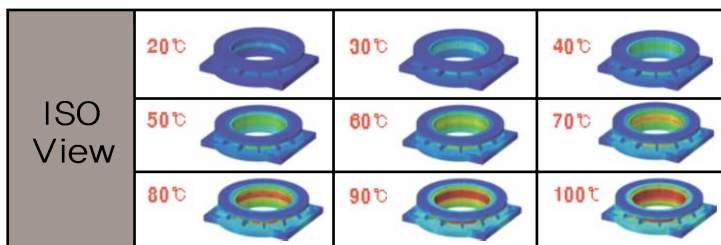
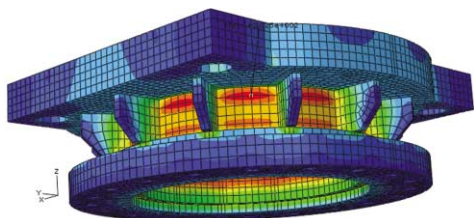
- API Spec. Q1 : Specification for Quality Program for the Petroleum and Natural Gas Industry
- API 598 : Valve Inspection and Test
- API 607 : Fire Test for Soft-Seated Quarter Turn Valves.

### MSS Specification

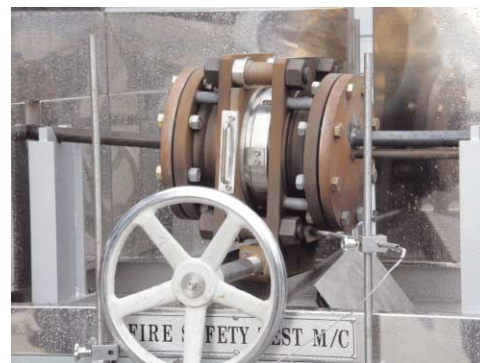
- SP-6 : Finish for contact faces of pipe flanges and connecting end flanges of valves and fittings
- SP-25 : Marking system for valves, fittings, flanges and unions
- SP-55 : Quality standard for steel castings for calces, flanges and fittings, and other piping components

## ■ F.E. Analysis

- Sliding type, NPS 24, ASME 300LBS, Carbon Steel body Valve, part coupled thermal-structural F.E. Analysis (ABAQUS Ver. 6.8-EF1)



## ■ Fire Safety Test (API 607)



## ■ Material

**Carbon Steel, Stainless Steel, Duplex, Hastelloy, Monel and other special materials are available**

# Standard Product Range

## ■ Pressure Test "ASTM F1020, API598"

Class	Seat & Shell
150	23kg/cm <sup>2</sup> (325psi)
300	58kg/cm <sup>2</sup> (825psi)
600	116kg/cm <sup>2</sup> (1,650psi)
900	172kg/cm <sup>2</sup> (2,450psi)
1500	288kg/cm <sup>2</sup> (4,100psi)

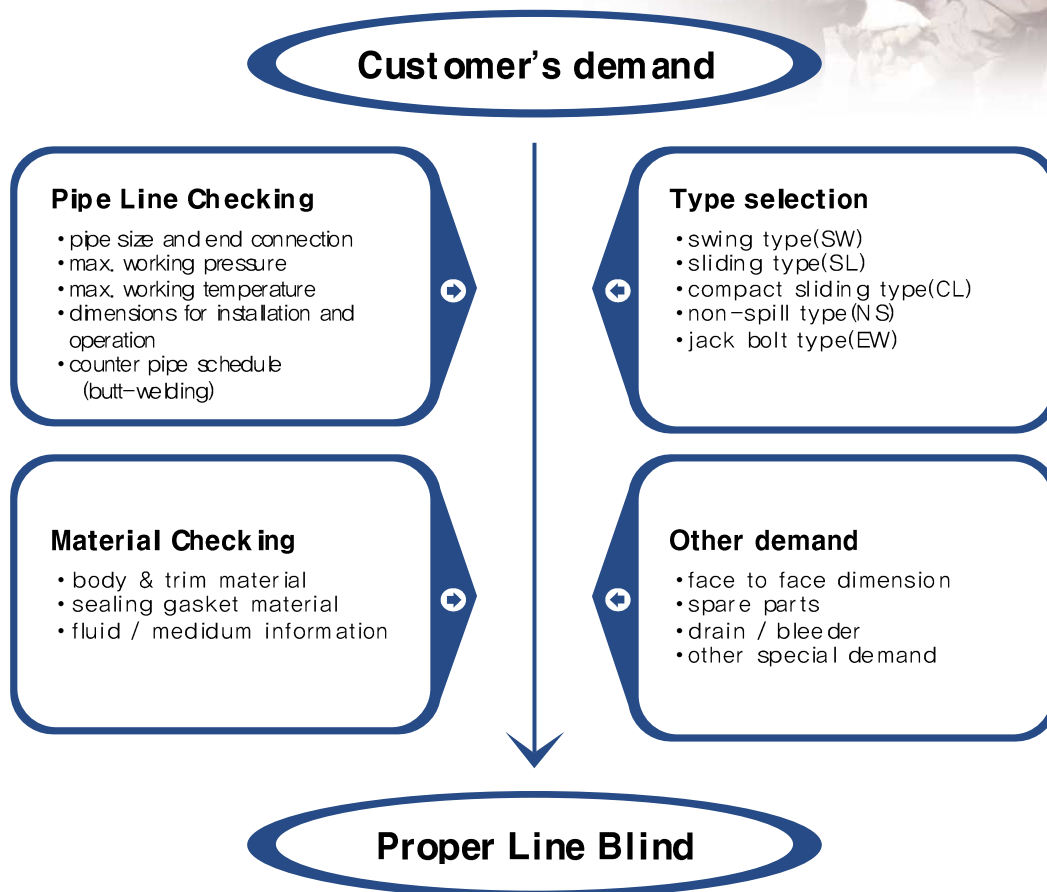
## ■ Standard product range

Class	Type	Size	1/2~6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"
			15~150	200	250	300	350	400	450	500	600	700	800	900	1000	1200
150	Swing		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Sliding		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Compact Sliding		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Non-Spill		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Jack bolt		●	●	●	●	●	●	●	●	●	●	●	●	●	●
300	Swing		●	●	●	●	●	●	●	●	●					
	Sliding		●	●	●	●	●	●	●	●	●					
	Compact Sliding		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Non-Spill		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Jack bolt		●	●	●	●	●	●	●	●	●	●	●	●	●	●
600	Swing		●	●	●	●	●	●								
	Sliding		●	●	●	●	●	●								
	Compact Sliding		●	●	●	●	●	●	●	●						
	Non-Spill		●	●	●	●	●	●	●	●						
	Jack bolt		●	●	●	●	●	●	●	●	●	●	●	●	●	●
900	Swing		●	●	●	●										
	Sliding		●	●	●	●										
	Compact Sliding		●	●	●	●	●									
	Non-Spill		●	●	●	●	●									
	Jack bolt		●	●	●	●	●	●	●	●						
1500	Swing		●	●												
	Sliding		●	●												
	Compact Sliding		●	●												
	Non-Spill		●	●												
	Jack bolt		●	●	●	●										

※ Manufacture up to NPS 100(NB 2500)



# Guide to select a proper line blind



## Product Code

**SW 8 - AN300 - FKM**

**a**

**b**

**c**

**d**

**Type**

- SW : Swing Type
- SL : Sliding Type
- CL : Compact Sliding Type
- EW : Jack bolt Type

**Size**

ex) 8inch = DN200  
= 200A

**Class**

AN800-ASME class 300  
JS20=JIS class 20kg/cm<sup>2</sup>  
PN16=ISO PN 16bar

**sealing gasket**

- NBR / HNBR (Nitril rubber, Buna-N)
- FPM / FKM (Viton)
- FEPM / FEPMQ (Encapsulated Teflon, kel-F, expanded teflon O-ring)
- PFAV / PFAQ (Encapsulated Teflon, kel-F, expanded teflon O-ring)
- VMQ / FVMQ / PVMQ (Silicone)
- PTFE / CTFE / Sdt PTFE (Teflon, kel-F, expanded Teflon)
- FFPM / FFKM (Kalrez, Perfloro Elastomer)
- Graphite (Pure, Engineered)
- Metal

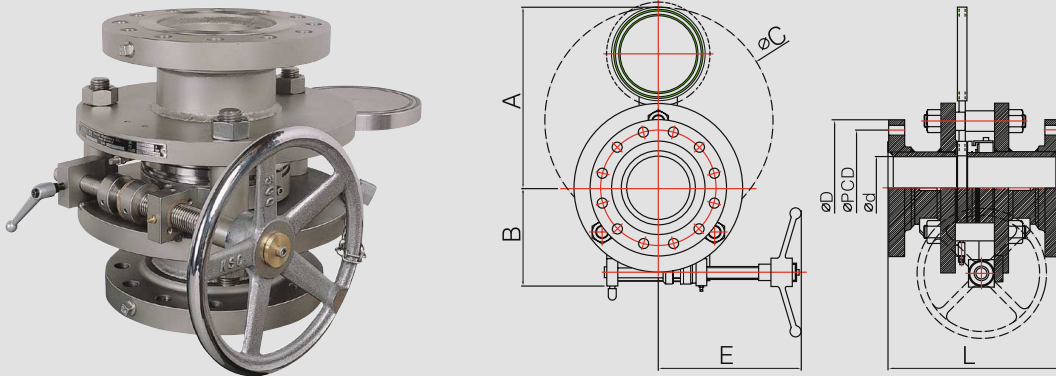
## Application Guide for Sealing Materials

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 fluids, 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 <sub>2</sub> 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) H <sub>2</sub> S Acetone, Skydrol, Ethyl Acetate Hot Water and Steam Low Molecular Esters and Ethers
Aflas -30 C to +204 C *reg. TM Asahi Glass Co	Aflas is a unique fluoroc elastomer 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 <sub>2</sub> 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, Chlorinated 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 <sub>2</sub> S, CO <sub>2</sub>	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 Petroleum 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 subject to wear.	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 resistant, Teflon is a tough, chemically inert elastomer possessing an incredible working range. For static and slow intermittent dynamic situations, Teflon is hampered only by its poor memory at low temperature.	Most chemical Resistance, Fuel Resistance, Low Coefficient of Friction	Non-Elastic
FFPM / FFKM (Chemraz® Karez® Simriz® Perfluoroelastomer) ~ +323 C	Excellent chemical resistance, 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® 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	

## Dimension - Swing Type



### ■ Class 150

Size		L	A	B	ØC	E	kg
inch	DN						Weight(NET)
1	15~25	180	135	80	165	147.8	10
1 - 1/2	40	203	163.4	94	201.5	161.4	15
2	50	216	193.7	110.5	238	200.9	25
2 - 1/2	65	233	220.3	117.5	272.4	214.8	27
3	80	241	263.1	138.5	327.1	258	34
4	100	245	298.5	155	375	286	52
6	150	286	420.6	203	529.6	331.5	87
8	200	312	520	245	655	385	127
10	250	330	602	335	787	470.5	206
12	300	380	699	380	920	487	296

※ Manufacture up to NPS 100(NB 2500)

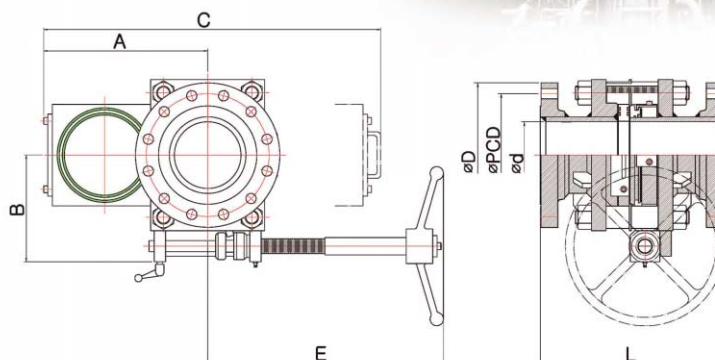
### ■ Class 300

Size		L	A	B	ØC	E	kg
inch	DN						Weight
1	15~25	190	135	80	165	147.8	9
1 - 1/2	40	216	163.4	94	201.5	160.4	8
2	50	229	193.7	110.5	238	200.9	26
2 - 1/2	65	245	220.3	117.5	272.4	214.8	33
3	80	287	263.1	138.5	327.1	258	42
4	100	305	298.5	155	375	286	81
6	150	403	420.6	203	529.6	331.5	136
8	200	419	520	245	655	385	196
10	250	480	612.5	347	787	459	257
12	300	535	716	544.5	920	499.1	402

※ Manufacture up to NPS 100(NB 2500)



## Dimension - Sliding Type



### ■ Class 150

Size		L	A	B	ØC	E	kg
inch	DN						Weight(NET)
1	15~25	180	134	90.5	268	192	10
1 - 1 / 2	40	203	159.7	104	319.5	226	15
2	50	216	183.5	115	366.9	268.7	24
2 - 1 / 2	65	233	198.5	124.4	397.1	282.1	27
3	80	241	244.8	151.5	510.6	378	33
4	100	245	280.8	164.5	582.5	405.5	48
6	150	286	374	212.5	768	519.5	82
8	200	312	452.3	251.5	924.6	600.3	122
10	250	350	517	355.3	1100.6	470.5	198
12	300	400	584.5	377.5	1280.5	490	308

※ Manufacture up to NPS 100(NB 2500)

### ■ Class 300

Size		L	A	B	ØC	E	kg
inch	DN						Weight
1	15~25	190	134	90.5	268	192	10
1 - 1 / 2	40	216	159.7	104	319	226	18
2	50	229	183.5	115	366.9	268.7	26
2 - 1 / 2	65	245	198.5	124.4	397.1	282.1	33
3	80	287	244.8	151.5	510.6	378	42
4	100	305	280.8	164.5	582.5	405.5	78
6	150	403	374	212.5	768	519.5	131
8	200	419	452.3	251.5	924.6	600.3	190
10	250	480	521.5	355.3	1100.6	452.5	262
12	300	502	593.6	390.5	1280.5	500	382

※ Manufacture up to NPS 100(NB 2500)

## 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		D37 10	SF50	G320 1	SF50	
			D37 10	SF50	G320 1	SF50PV	
			D37 10	SF45	G320 1	SF45	
			D37 52	SF30C	G40511	SF30C	
			D37 52	SF25C	G4051	SF25C	
Seamless Carbon steel pipe for high-temperature service	SA-106	Gr. A	D3564	SPPH 38	G3455	STS 38	DIN 1629 St. 35.4
			D3570	SPHT 38-S	G3456	STPT 38-S	DIN 17175 St. 35.8
		Gr. B	D3564	SPPH 42	G3455	STS 42	DIN 1629 St. 45.4
			D3570	SPHT 42-S	G3456	STPT 42-S	DIN 17175 St. 45.8
		Gr. C	D3564	SPPH 49	G3455	DIN 1629 St 52.4 STS 49 SEW 610-19Mn5	SEW 610 - 17Mn4
			D3570	SPHT 49-S	G3456	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	F1	D4110	SFHV 12B	G3213	SFHV 12B	SEW 550 22Mo4 SEW 620 15Mo3
		F2	D4110	SFHV 13B	G3213	SFHV 13S	SEW 620 12Mo44 SEW 620 13Mo44
		F5	D4110	SFHV 25	G3213	SFHV 25	VaTUWVb1.1207-12CrMo19
		F9	D4110	STS 26B	G3213	SFHV 26B	Wa1-Nr1. 7388-12CrMo 91
		F11	D4110	STS 23B	G3213	SFHV 23B	SEW 810 12Cr Mo44 SEW 810 13Cr Mo44
		F12	D4110	STS 22B	G3213	SFHV 22B	SEW 810 12Cr Mo44 SEW 810 13Cr Mo44
		F22	D4110	STS 24B	G3213	SFHV 24B	SEW 810 10CrMo910
		F304	D3214	STS 30 4	G3214	SUSF 804	SEW 880-5CrMo1810 SEW 17440-2CrMo1812
		F304H	D3214	STS 30 4H	G3214	SUSF 804H	
		F304L	D3214	STS 30 4L	G3214	SUSF 804L	DIN 17440-2CrNi 189
		F310	D3214	STS 30 1	G3214	SUSF 810	
		F316	D3214	STS 316	G3214	STSF 816	DIN 17440-5CrNiMo1810 DIN 17440-5CrNiMo1812
		F316H	D3214	STS 2316H	G3214	SUSF 816H	
		F316L	D3214	STS 316L	G3214	SUSF 816L	DIN 17440-2CrNiMo1810 DIN 17440-2CrNiMo1812
		F321	D3214	STS 321	G3214	SUSF 821	DIN 17440-10CrNiMo189 SEW 680-10CrNiMo1810
		F321H	D3214	STS 321H	G3214	SUSF 821H	
		F347H	D3214	STS 347	G3214	SUSF 847	DIN 17440-10CrNiMo189 SEW 680-10CrNiMo1810
F347H	D3214	STS 347H	G3214	SUSF 847H	SEW 870-8CrNiMo1518		
Alloy-steel and stainless steel bolting materials for high-temperature service	SA-193	Gr. B5	D37 55	SNB 5	G410 7	SNB 5	
		Gr. B7	D37 55	SNB 7	G410 7	SNB 7	DIN 17240-24CrMo5
		Gr. B16	D37 55	SNB 16	G410 7	SNB 16	DIN 17240-21CrMo55
Carbon and alloy steel nuts for high pressure and high temperature	SA-194	Gr. 2H	D37 52	SM 45C	G4051	S 45C	DIN 17100 St 50-2
		Gr. 3	D37 55	SNB 5	G410 7	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			
Carbon steel castings suitable for fusion welding for high-temperature service	SA-216	Gr. WCA	D4101	SC 42	G510 1	SC 42	DIN 1681 GS-38		
			D4106	SCW42	G510 2	SCW 42	DIN 1681 GS-38.5		
			D4107	SCPH1	G5151	SCPH1	DIN 1681 GS-38 DIN 1681 GS-45 DIN 17245 GS-C25		
		Gr. WCB	D4101	SC49	G510 1	SC42	DIN 1681 GS-52		
			D4106	SCW49	G510 2	SCW49	DIN 1681 GS-45.3		
			D4107	SCPH 2	G5151	SCPH 2	DIN 1681 GS-52 DIN 17245 GS-C25		
		Gr. WCC	D4106	SCW49	G510 2	SCW 49	DIN 1681 GS-45.3		
			D4107	SCPH2	G5151	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	D4107	SCPH11	G5151	SCPH11	DIN 17245 GS-22Mo4
				Gr. WC6	D4107	SCPH21	G5151	SCPH21	DIN 17245 GS-17CrMo55
Gr. WC9	D4107			SCPH32	G5151	SCPH32	SEW 595 GS-12CrMo90		
Gr. C5	D4107			SCPH61	G5151	SCPH61	SEW 595 GS-12CrMo195 SEW 595 GS-12CrMo101		
Gr. C12	D4107			SCPH61	G5151	SCPH61	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	D3705	STS 302	G4304	SUS302			
		Type 304	D3705	STS 304	G4304	SUS304	SEW 680 5CrNi1810 DIN 17440 5CrNi 189		
		Type 304L	D3705	STS 304L	G4304	SUS304L	DIN 17440 2CrNi 189		
		Type 309S	D3705	STS 309S	G4304	SUS309S			
		Type 310S	D3705	STS 310S	G4304	SUS310S			
		Type 316	D3705	STS 316	G4304	SUS 316	DIN 17440 5CrNiMo1812 DIN 17440 5CrNiMo1810		
		Type 316L	D3705	STS 316L	G4304	SUS 316L	DIN 17440 7CrNiMo1812 DIN 17440 7CrNiMo1810		
		Type 321	D3705	STS 321	G4304	SUS 321	DIN 17440 10CrNiTi1810 SEW 880 10CrNiTi1810		
		Type 347	D3705	STS 347	G4304	SUS 347	DIN 17440-10CrNiTi189		
		Type 405	D3705	STS 405	G4304	SUS 405	DIN 17440 7CrAl 13		
		Type 410	D3705	STS 410	G4304	SUS 410	DIN 17440 10Cr13		
		Type 429	D3705	STS 429	G4304	SUS 429	-		
Type 430	D3705	STS 430	G4304	SUS 430	DIN 17440 8Cr17				
Low and intermediate-tensile strength carbon steel plates of structural	SA-283	Gr.C	D3503	SB 41	G310 1	SS 41	DIN 17100 USt 37-1		
		Gr.D	D3503	SB 41	G310 1	SS 41	DIN 17100 USt 42-1		
Low and intermediate-tensile strength carbon steel plates for pressure vessels	SA-285	Gr.B	D3560	SBB 35	G310 3	SB 35			
		Gr.C	D3560	SBB 42	G310 3	SS 42	DIN 17155 H11		
Cow carbon steel externally and internally threaded standard fasteners	SA-307	Gr.B	D3503	SM 42	G310 1	SS 41	(B) DIN 267 Bl. 3-4, 6 (N) DIN 257 Bl. 4-5,		
			D3752	SM 25C	G4051	S 25C	(B) DIN 267 Bl.35-6 DIN 17240 C 35, CK35 (N) DIN 267 Bl. 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	D3576	STS 304TP	G3459	SUS 304TP	DIN 2462 5CrNi 18 9 SEW 680 5CrNi 18 10
		Gr. TP 304H	D3576	STS 304HTP	G3459	SUS 304HTP	
		Gr. TP 304L	D3576	STS 304LTP	G3459	SUS 304LTP	DIN 2463 2CrNi 18 9
		Gr. TP 309	D3576	STS 309TP	G3459	SUS 309TP	
		Gr. TP 310	D3576	STS 310STP	G3459	SUS 310STP	
		Gr. TP 316	D3576	STS 310STP	G3459	SUS 316TP	DIN 2462 5CrNiMo 18 10 DIN 2462 5CrNiMo 18 12
		Gr. TP 316H	D3576	STS 316TP	G3459	SUS 316HTP	
		Gr. TP 316L	D3576	STS 316HTP	G3459	SUS 316LTP	DIN 2462 2CrNiMo 18 10 DIN 2462 2CrNiMo 18 12
		Gr. TP 321	D3576	STS 321TP	G3459	SUS 321TP	SEW 680 10CrNiTi 18 10 DIN 2462 10CrNiTi 18 9
		Gr. TP 321H	D3576	STS 321HTP	G3459	SUS 321HTP	
		Gr. TP 347	D3576	STS 347TP	G3459	SUS 347TP	DIN 2462 10CrNiNb 13 10 SEW 680 10CrNiNb 18 9
		Gr. TP 347H	D3576	STS 347HTP	G3459	SUS 347HTP	DIN 2462 10CrNiNb 13 9 SEW 670 3CrNiNb 16 13
Alloy steel bolting materials for low-temperature service	SA-320	Gr. B8	D3706	STS 304B	G4303	SUS 304B	DIN 267 A2 SEW 650 5CrNi 18 10
		Gr. B8C	D3706	STS 307B	G4303	SUS 347B	SEW 680 10CrNiNb 18 10
		Gr. B8M	D3706	STS 316B	G4303	SUS 316B	DIN 267 A4
		Gr. B8T	D3706	STS 321B	G4303	SUS 321B	SEW 680 10CrNiTi 18 10
High-strength bolts for structural steel joints, including suitable nuts and plain hardened washers	SA-325	Type 1	D3752	SM 35C	G4051	S 35C	(B) DIN 267 B1 35.6 DIN 17240 C45 DIN 17240 CK45 (N) DIN 17100 St
Austenitic steel castings for high-temperature service	SA-351	Gr. CF3	D4103	SSC 19,-CF	G5121	SCS 19,-CF	DIN 1591 GG-15
		Gr. CF3M	D4103	SSC 15,-CF	G5121	SCS 15,-CF	
		Gr. CF8	D4103	SSC 13,-CF	G5121	SCS 13,-CF	SEW 595 70G 8CrNi 18 10 DIN 17445G 6CrMo18 9
		Gr. CF8C	D4103	SSC 21,-CF	G5121	SCS 21,-CF	SEW 595 70G 8CrNiMo 18 10 DIN 17445G 6CrMoNi18 18
		Gr. 12Cl. 2	-	-	G4109	SCMV2NT	DIN 17155 13CrMo44
		Gr. 12Cl. 1	-	-	G4109	SCMV5A	VdTUVWb11207-12CrMo19 5
		Gr. 12Cl. 2	-	-	G4109	SCMV5NT	VdTUVWb11207-12CrMo19 5
		Gr. 22Cl. 1	-	-	G4109	SCMV4A	VdTUVWb1130-12CrMo9 10
Gr. 22Cl. 2	-	-	G4109	SCMV4NT	VdTUVWb110-12CrMo9 10		
Carbon steel plates for pressure vessels for intermediate and higher-temperature service	SA-515	Gr. 55	D3560	SBB 35	G3103	SBB 35	DIN 17155 H11
		Gr. 60	D3560	SBB 42	G3103	SBB 42	DIN 17155 H11
		Gr. 65	D3560	SBB 46	G3103	SBB 46	DIN 17155 H11, 17Mn4
		Gr. 70	D3560	SBB 49	G3103	SBB 49	DIN 17155 19Mn5, VdTUVWb 1.373 WB23
Phosphor bronze plate, sheet, strip, and rolled bar	SB-103	C 51000	D5506	PBS1/PBT1	H3110	C5101P	-
			D5506	PBS1/PBT1	H3110	C5101R	-
		C 52100	D5506	PBS3/PBT3	H3110	C5212P	DIN 17662 - CuSn8 DIN 17670 - CuSn8
			D5506	PBS3/PBT3	H3110	C5212R	DIN 17662 - CuSn8 DIN 17670 - CuSn8

# Maintenance

## *Swing type line blind valve repair sequence*



**Step1.** remove the position ass'y



**Step2.** remove the both seat holder



**Step3.** turn the spectacle plate 90 degree



**Step4.** take out the seat



**Step5.** 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.