



BY-PASSES & DRAINS
WEDGE DESIGN
CONSTRUCTION FEATURES
ADVANCED DESIGN OF AN EFFECTIVE STEM SEAL
SPECIAL SERVICE VALVES
ADVANCED PRESSURE SEAL DESIGN
OVERLAY IN GASKET CONTACT AREA
ACCESSORIES



▲ RT



▲ PT



▲ MT



▲ POST HEAT TREATMENT

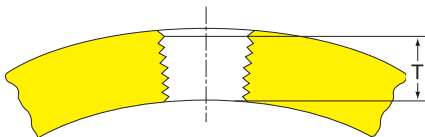
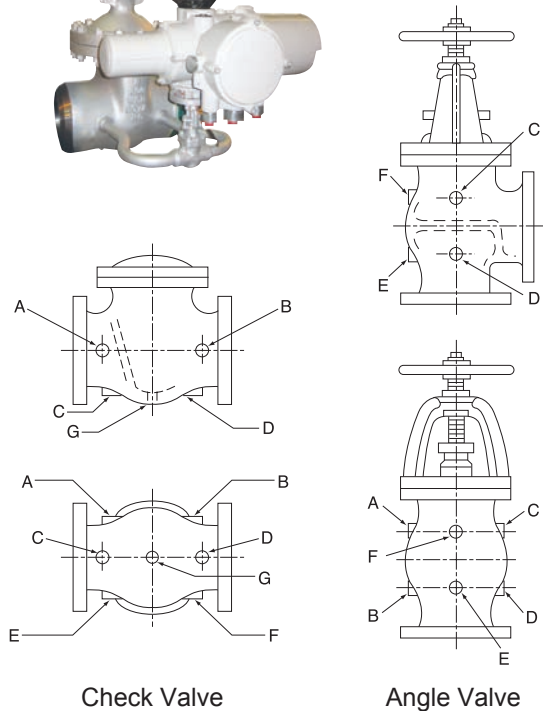
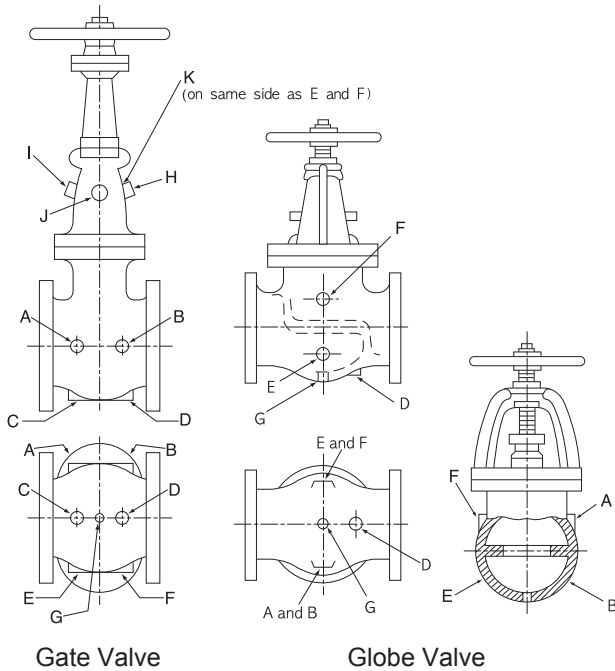
BY-PASSES & DRAINS

When specified, valves can be furnished with drain connections at any of the locations shown below. Standard drain connections are the same size as shown below and are drilled, tapped and plugged.

BUTT WELDING FOR

MAIN VALVE SIZE	1 1/2" ~ 4"	5" ~ 8"	10" ~ 36"
DRAIN SIZE	1/2"	3/4"	1"

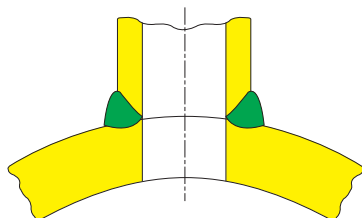
ASME B16.34



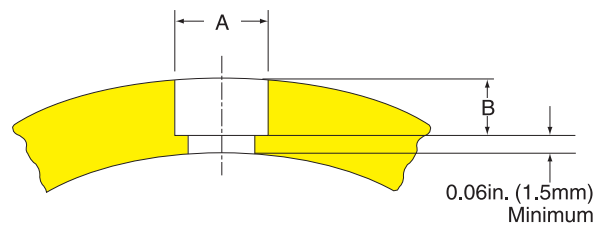
THREAD LENGTH FOR AUXILIARY CONNECTIONS

Conn. Size. NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Length of	in	0.41	0.53	0.56	0.68	0.71	0.72	0.76
Thread. T	mm	11	14	14	18	18	19	20

In no case shall the effective length of thread, T, be less than that shown in table above. These lengths are equal to the effective thread length of American National Standard External Pipe Thread(ANSI B 2.1)

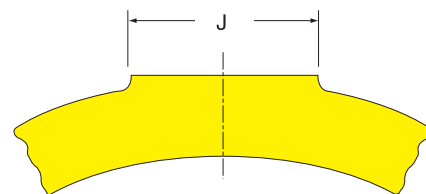


BUTT WELDING FOR AUXILIARY CONNECTIONS



SOCKET WELDING FOR AUXILIARY CONNECTIONS

Conn. Size. NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Min. Dia. of Socket, A	in	0.690	0.855	1.065	1.330	1.675	1.915	2.406
	mm	17.5	22	27	34	43	49	61
Min. Depth of Socket, B	in	0.19	0.19	0.25	0.25	0.25	0.25	0.31
	mm	5	5	6.5	6.5	6.5	6.5	8

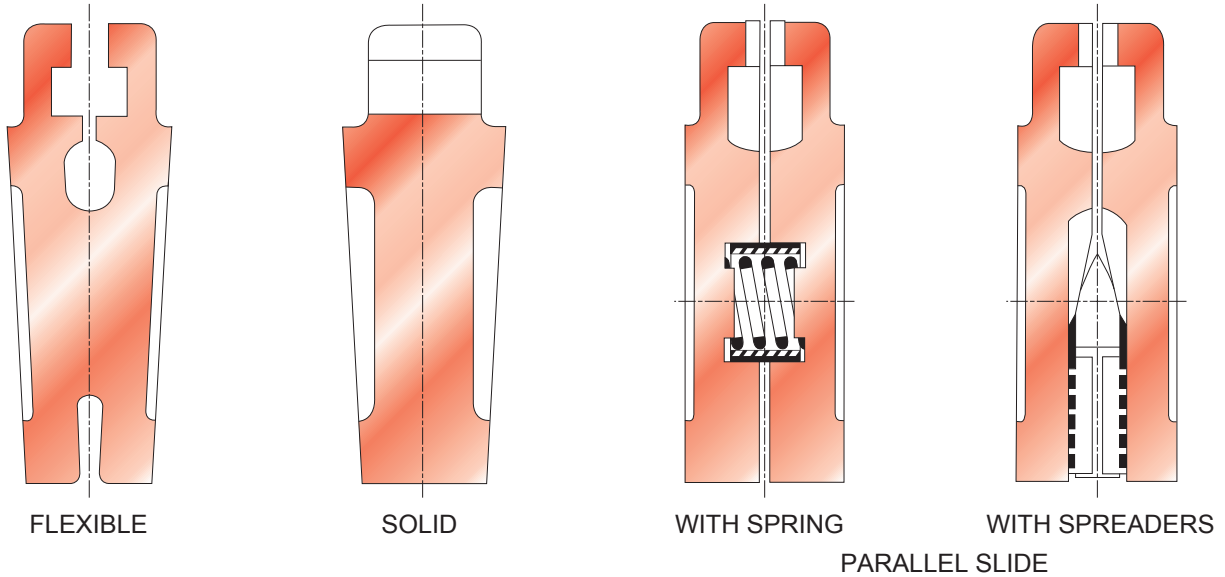


THREAD LENGTH FOR AUXILIARY CONNECTIONS

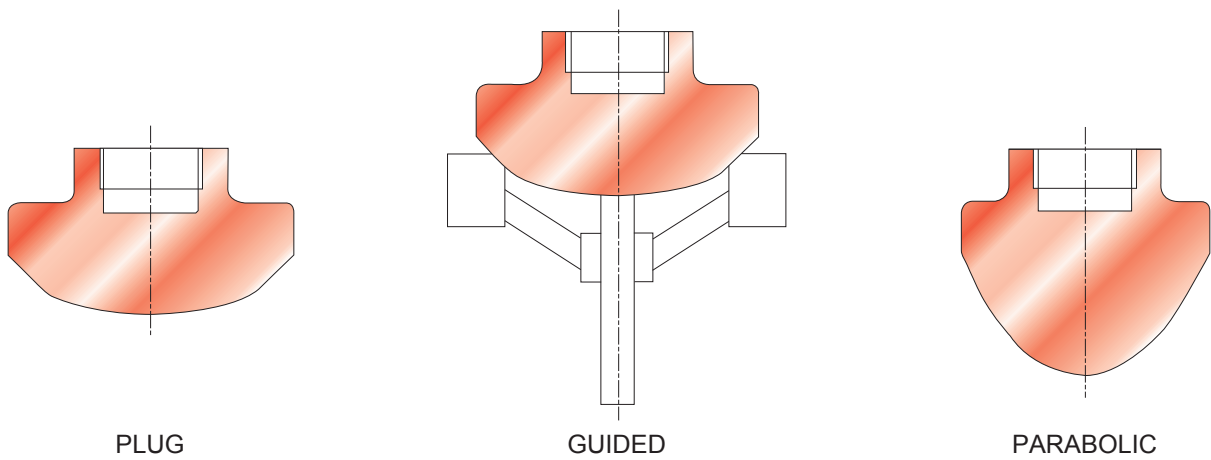
Conn. Size. NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Dia of Boss, J	in	1.25	1.50	1.75	2.12	2.50	2.75	3.38
	mm	32	38	44	54	64	70	86

WEDGE DESIGN

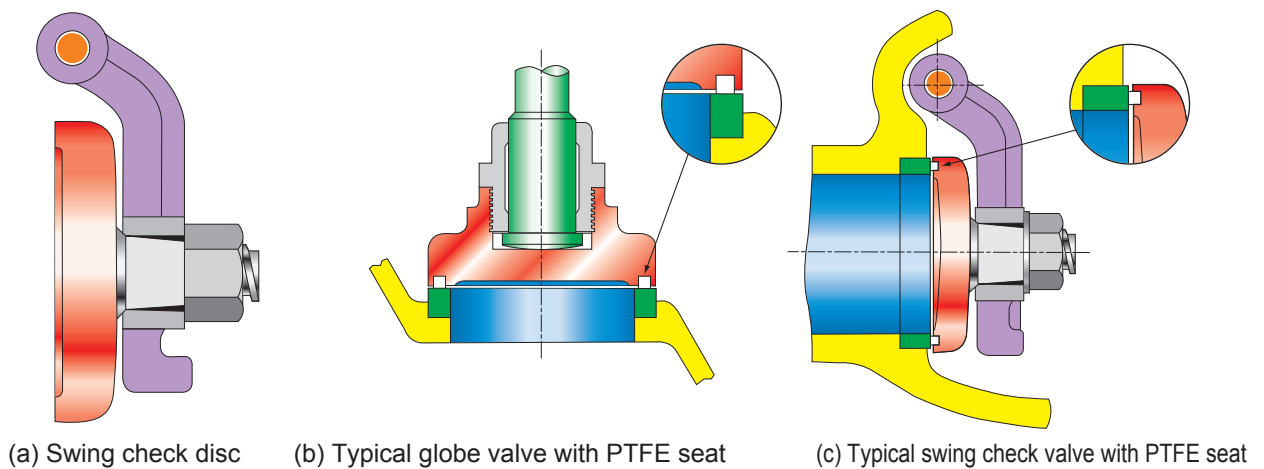
The Gate valve is normally supplied with a flexible wedge, on request with solid wedge, parallel slides with spring or with spreaders as shown below. All the wedges are fully guided.



The Globe Valve is normally supplied with plug type disc. On request we produce guided discs, parabolic discs and equilibrated discs. Equilibrated discs are normally supplied when differential pressure is very high and the service is on-off. In this case the flow direction is over the disc.



Unless otherwise specified, Swing Check valve is normally supplied with the disc shaped as following figure(a). If the customer require special type of disc like following figure(c). We can supply it as his requirement.

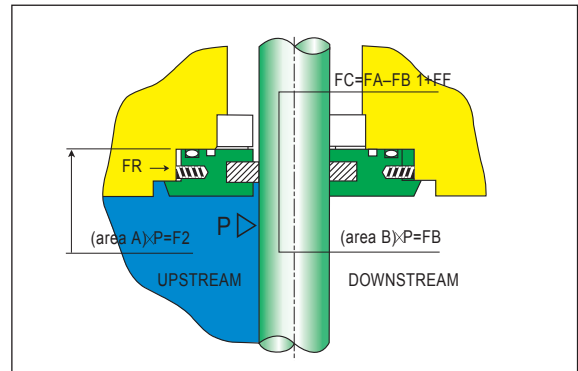


CONSTRUCTION FEATURES

KJS gate valves are engineered for superior performance in pipeline, manifold, product storage, general piping and slurry applications. They are able to handle media including crude oil, natural gas, crude products, water, carbon dioxide and slurries. KJS gate valves are manufactured within an uncompromising QA/QC program, (certification ISO 9001) a KJS tradition, and are available in sizes 4" through 24", and in pressure classes 150 through 600. They are manufactured with cast or forged/welded bodies. All valves are supplied with full documentation and traceability.

SEALING PRINCIPLE/DOUBLE BLOCK AND BLEED

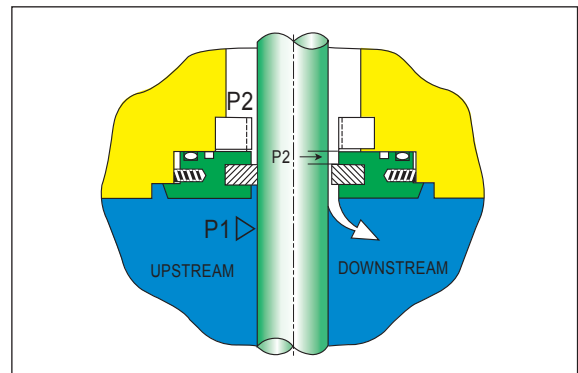
Two floating seat rings provide a positive sealing both upstream and downstream. At low or nil pressure, the floating seats are in contact with the gate using the force of springs. In closed position under high differential pressure the upstream seat is forced into tighter contact with the gate giving a positive shut-off. A vent plug is fitted on a valve body to ensure double block and bleed feature (fig.1).



SEALING PRINCIPLE (FIG.1)

SELF OVERPRESSURE RELIEF DEVICE

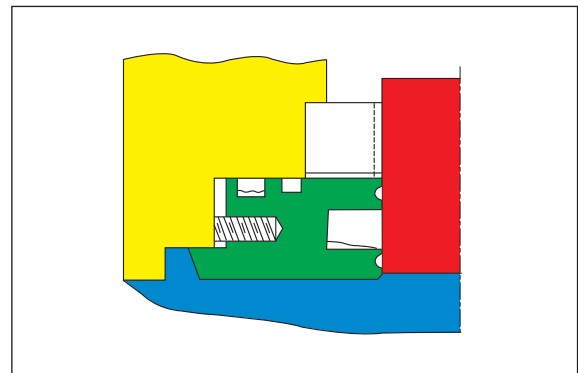
Any excessive build-up body cavity pressure is automatically vented into the high pressure side of the line. This is achieved by a reversal sealing process. (fig.2)



SELF RELIEVING SYSTEM (FIG.2)

FIRE SAFETY

KJS's slab gate valves are intrinsically fire safe by design. The double protection of body and bonnet seals gives the maximum security when specified KJS GATE VALVES are fitted with special graphite seals so as to effectively stop all leakage in the event of the fire. (fig.3)



FIRE SAFE SITUATION (FIG.3)

SOUR SERVICE

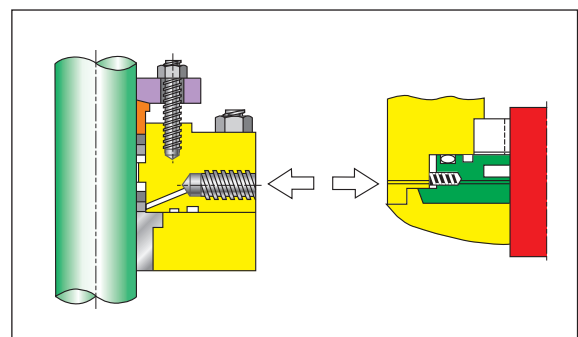
KJS gate valves can be manufactured according to the recommendations of NACE MR 01-75 (latest edition)

EASY MAINTENANCE LINE OPERATION

Optional cover device allows stem removal with pressure in line with out dismantling of the valve bonnet (Gate in open position, seats blocked and bleed).

SECONDARY SEAT AND STEM SEALING

KJS gate valves are designed to provide high integrity shut-off. Upon request, sealant injection facilities are available. In case of seat insert or stem seal damages, external or internal leakages can occur. An emergency sealant injection can save the integrity of the valve by incorporating a special grease seal around the stem or on the face of the seat. (fig.4)



SECONDARY SEALING (FIG.4)

ADVANCED DESIGN OF AN EFFECTIVE STEM SEAL

LIVE LOAD SYSTEM

NEW STEM SEAL ASSURES NEAR-ZERO LEAKAGE

The KJS stem-seal is a new technology, evolved from the test findings described above. It offers the user a tight stem seal with little or no maintenance over long periods of time.

UP TO 50% LOWER OPERATING TORQUE

is achieved with the non-rotating stem. The stem arm, preventing rotation, moves on roller bearings-indicates position and actuates limit switches.

LIVE LOADING OPTIONAL

2sets of Belleville springs maintain a minimum permanent packing stress of 8,000 psi on JC-187-1 or 5,000 psi on Graphoil Packing. Live-loading extends the stem tightness for long periods of time without maintenance. Bolt torques control total spring load.

HEAVY TWO-PIECE GLAND

A heavy gland flange is required to carry the high stresses due to live-load.

LEAK-OFF FOR DOUBLE PACKING

A lantern ring and leak-off pipe are provided for removal of leakage, if any, from lower packing set in packing chamber with 2 sets of packing.(OPTIONAL)

NON-REVOLVING STEM

has close roundness and straightness tolerances and is burnished for superior surface finish.

SHORT AND NARROW PACKING CHAMBER

sealing effectiveness improves as overall packing length shortens. Chamber wall is burnished for superior finish.

PRECOMPRESSED RINGS

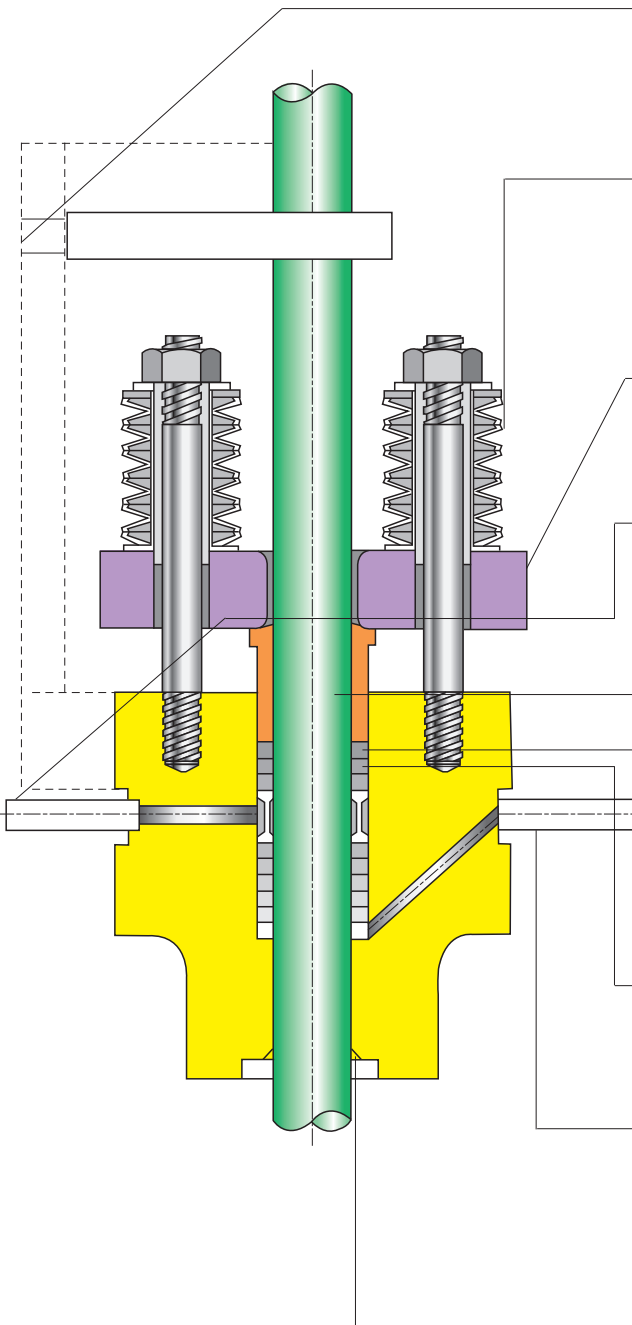
Each JC-187-1 ring is precompressed at 15,000 psi(Graphoil at 5,000 psi) to ensure extreme tightness at high packing strain.

PACKING BLOW-OUT(OPTIONAL)

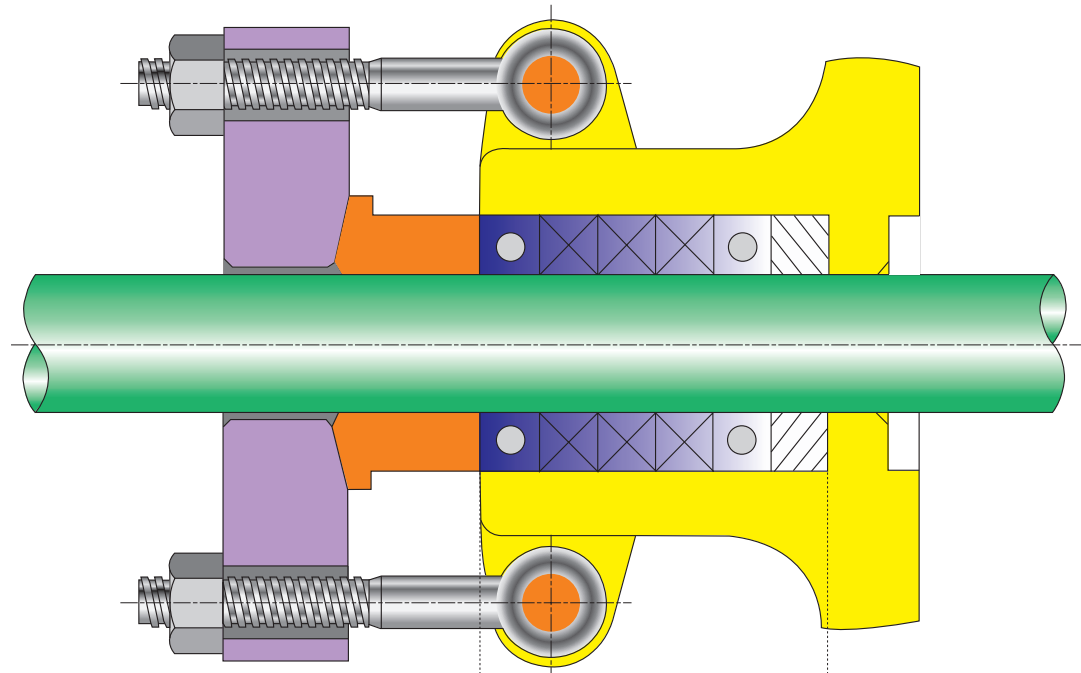
ensures fast removal of old packing rings in areas where time-consuming conventional packing removal methods are not acceptable, such as Nuclear Service, for instance. A Hydraulic source is normally used for this purpose.

EFFICIENT BACKSEAT

assures repacking under line pressure. Cone-in-cone design eliminates problem with over-torquing.



ADVANCED DESIGN OF AN EFFECTIVE STEM SEAL

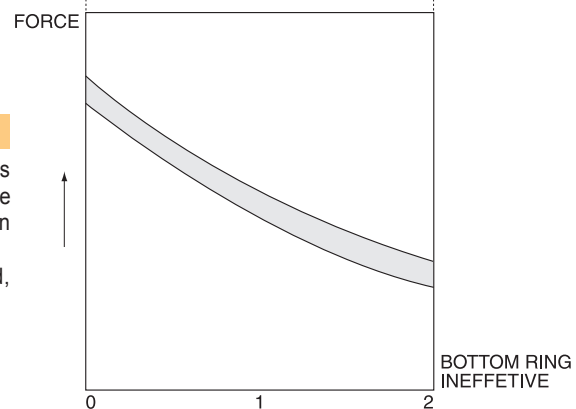


FINDINGS:

1. LARGE LOADS:

Sealing is achieved when compression load is high and packing forms a mass of close fibers of low porosity and permeability resisting the flow. (See Diagram-Leakage vs. Strain). The effect is permanent when optimum compression is reached.

This has been found to be 12,000 psi for John Crane 187-1 and, 5,000psi for Graphoil.



2. SHORT AND NARROW PACKING CHAMBERS

improve sealing

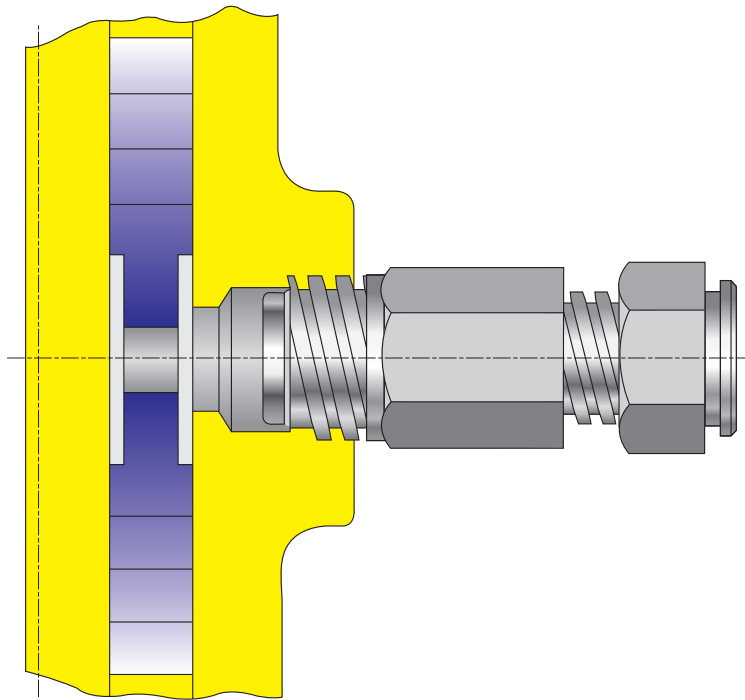
3. PRECISION STEM AND PACKING CHAMBERS

-straightness, roundness and fine finish of stem and packing chamber wall is essential.

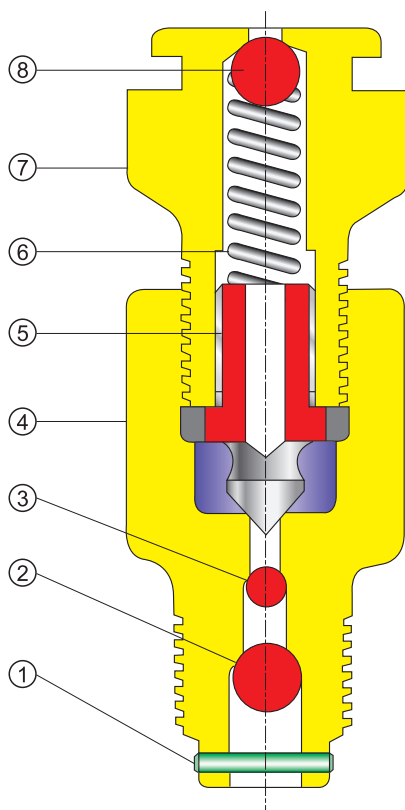
4. LIVE LOADING

may be necessary for automatic compensation of relaxation and aging of packing rings and minimum maintenance in service.

SPECIAL SERVICE VALVES



< Grease injector at lantern ring of gate or globe valve >



Double - Ball Grease Injector

Features :

1. Proprietary design with a double ball check, needle valve and one piece button head fitting
2. Provides positive shut-off by injector grease to seating surfaces if metal to seal fails due to damage to seats or foreign deposits on seat faces.
3. When used to lubricate and seal off around stem, the upper rings of packing are kept soft and pliable.
4. Simple operation-unscrew button head fitting one half turn, inject grease, retighten fitting.
5. Standard in 13Cr Stainless steel-Available on special order in most other materials

NO	PART NAME	MATERIAL
1	PIN	13Cr Stainless
2	BALL CHECK	AISI - 440C
3	BALL CHECK	AISI -440C
4	BODY	13Cr Stainless
5	NEEDLE	13Cr Stainless
6	SPRING	Music Wire
7	BUTTON HEAD	13Cr Stainless
8	BALL CHECK	AISI - 440C

ADVANCED PRESSURE SEAL DESIGN

The pressure seal bonnet joint remains tight under all conditions. The initial seal is established by the inner row of studs. The higher the internal pressure, the greater is the sealing force.

EASY DISMANTLING

by dropping bonnet assembly into body cavity and driving the 4-segmental thrust rings by means of push pin. A 1° body taper above the 18-8 inlay insures easy sliding of the gasket even after years of service.

INNER ROW OF STUDS

establishes the initial seal of the Pressure Seal joint.

OUTER ROW OF STUDS

secures the yoke to the body.

SEGMENTAL THRUST RING

absorbs all the thrust applied by internal pressure.

DRILLED KNOCK-OUT HOLES

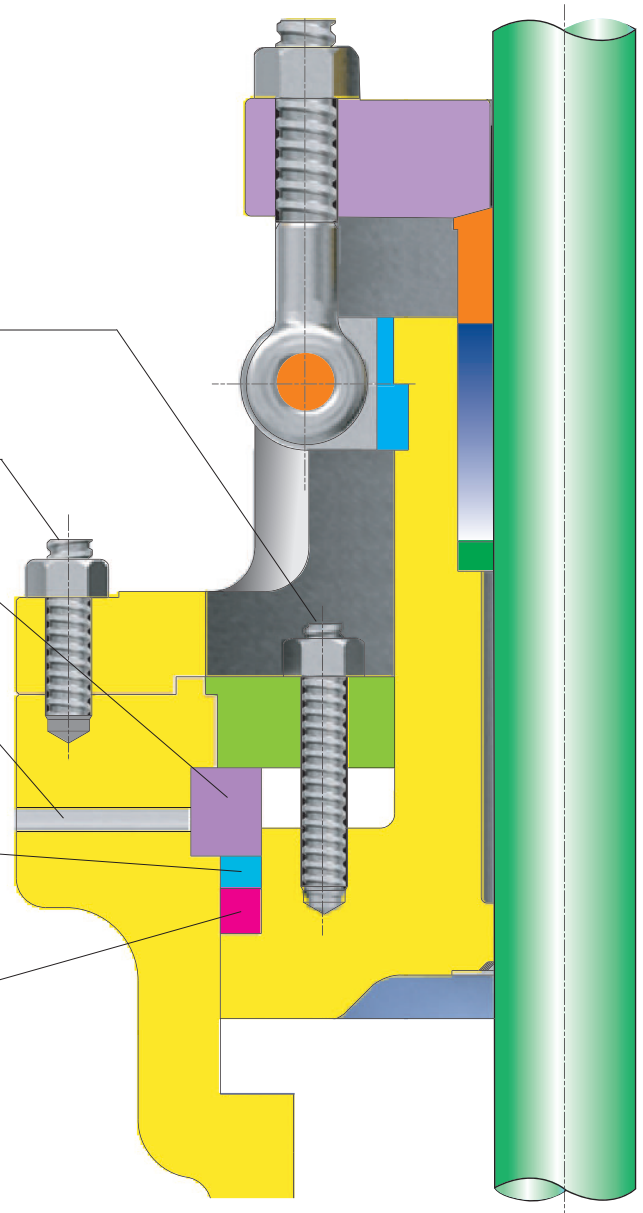
for driving out thrust rings, using pins.

SPACER RING

provides bearing surface and prevents deformation of the gasket.

GRAPHITE GASKET

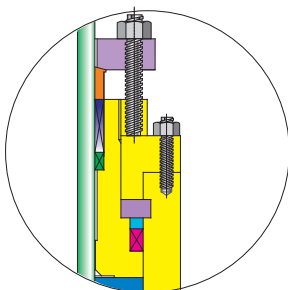
is available at a reduced price. This more economical valve does not have an 18-8 inlay on the body gasket surface



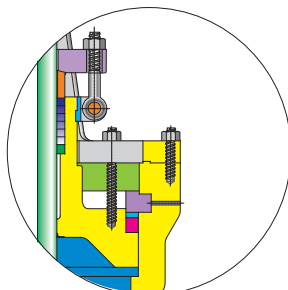
STANDARD BONNET CONSTRUCTION

PRESSURE SEAL TYPE

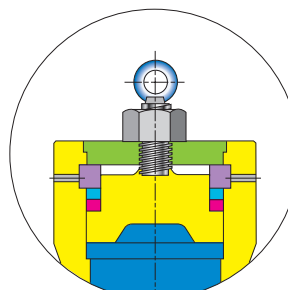
STANDARD BONNET CONSTRUCTION OF PRESSURE SEAL TYPE



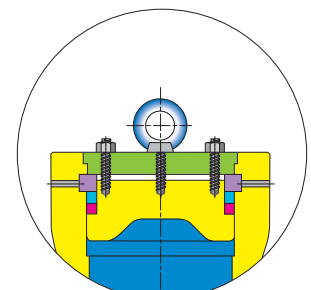
TYPE A
GATE & GLOBE VALVE



TYPE B
GATE & GLOBE VALVE



TYPE C
CHECK VALVE

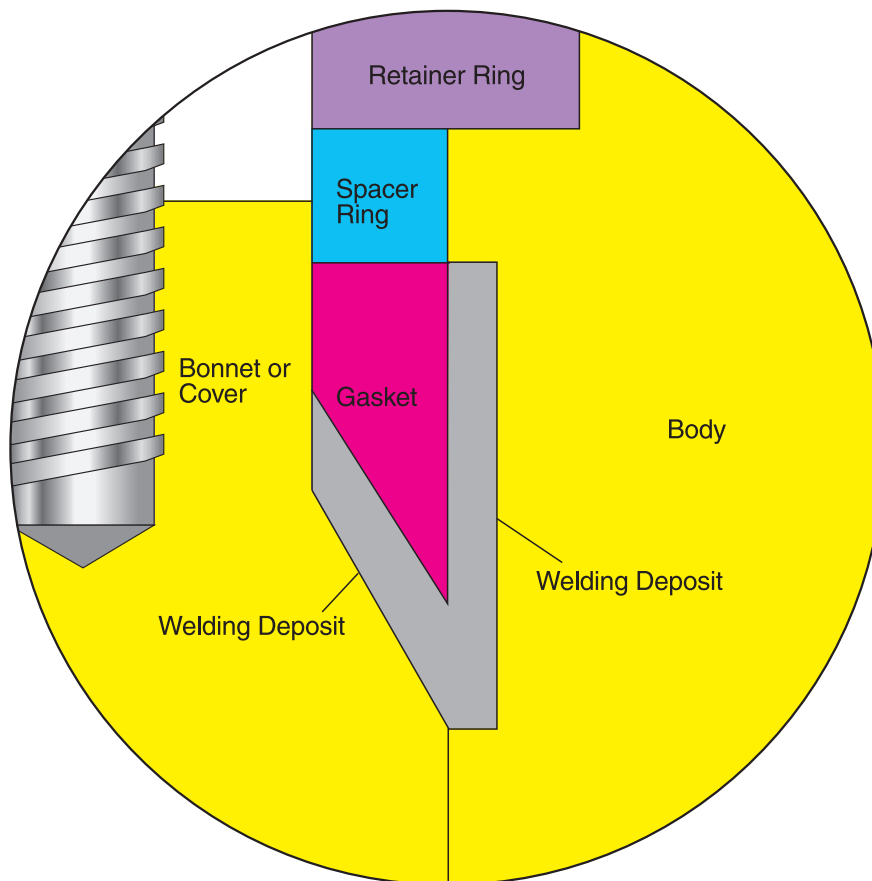


TYPE D
CHECK VALVE

OVERLAY IN GASKET CONTACT AREA

PRESSURE SEAL BONNET

(OPTION DESIGN)



BODY MATERIAL	WELDING DEPOSIT(SEE NOTE 1)			GASKET SPECIFICATION	
CASTING	BODY	BONNET (CASTING ONLY) (SEE NOTE 2)	MAX.HB	MATERIAL	MAX.TEMP
A216 WCB	304	304	180	SOFT IRON	540 °C
A217 WC1	304	304	180	SOFT IRON	540 °C
A217 WC6	304	304	180	F5	650 °C
A217 WC9	304	304	180	F5	650 °C
A217 C5	309	309	180	F5	650 °C
A351 CF8	304	304	180	304	800 °C
A351 CF3	304L	304L	180	304L	800 °C
A351 CF8M	316	316	180	316	800 °C
A351 CF3M	316L	316L	180	316L	800 °C
A351 CF8C	347	347	180	347	870 °C
A27 C12A	304	304	180	F5	650 °C

Note 1 : Other materials are available upon request.

Note 2 : Range of casting bonnet and cover is as follows

ACTUATORS

Operation by conventional handwheel or lever is not always suitable to perform the function of the Valve.

To gain mechanical advantage of to retard the closing and opening speed of operation a manual gear unit may be furnished.

KJS valves can be furnished with any of these many valve operations. It is extremely important that the correct method of operations is selected and that all relevant details of the required device are stated when ordering the valve/operator unit.

MOTOR ACTUATORS

KJS can install actuators on valves to meet customer's needs to automate and provide remote control of the piping system. Actuators may be driven by AIR Motor or Electric motor.

We install the actuators specified by the customer to meet operations needs. The following information needs to be specified when ordering actuators.

- A) Flow media
- B) Maximum differential pressure
- C) Temperature
- D) Speed of operation of the valve
- E) Power supply
- F) Type of motor-dust tight, weather proof, explosion proof etc.
- G) Control station
- H) Accessories
- I) Other requirements.

HYDRAULIC OR PNEUMATIC ACTUATORS

KJS valves can be fitted with pneumatic or hydraulic cylinder actuators. These units can provide adjustment of valve opening or closing times without changing actuator units.

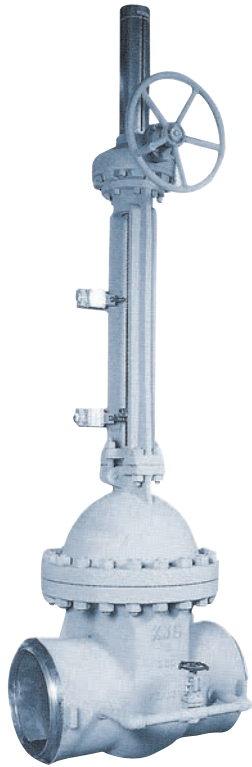
These units can provide fail open, fail closed or fail As-is operation.

Please specify the following when ordering these units.

- A) Operation temperature
- B) Temperature at location of valve / actuator unit
- C) Flow media
- D) Maximum delta pressure
- F) Failure mode
- G) Controls
- H) Accessories
- I) Power source
- J) Other requirements

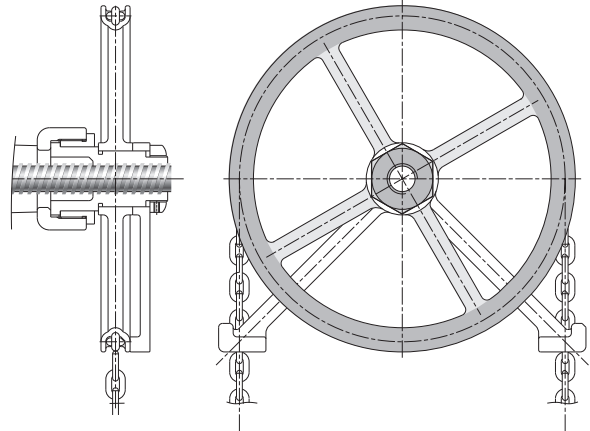


ACCESSORIES



CHAINWHEELS

Chainwheels can be furnished complete with chainwheel and chain guide. They are means of safe and convenient floor operation of valves in valves in overhead or inaccessible locations.



BY-PASSES AND LIMIT SWITCHES

A by-pass is utilized to balance line pressure and to prevent a rapid rise in temperature in steam lines.

When the main valve is starting to be opened, the seat surface is exposed to severe forces of the flow media. With the pressure equalized by means of the By-pass, these forces are reduced and you can expect longer service life from the valve seats.

By-pass assemblies are available on Gate, Globe(both "T" & "Y" pattern) angle valves and check valves.

Please consult your KJS sales engineer for additional data.

Valves can be furnished with all welded-on-by-passes when specified. By-passes are equipped with a single O.S & Y. globe valve with a pressure-temperature rating and corrosion resistance equal to or exceeding that of the main valve.

MAIN VALVE SIZE	1½" ~ 4"	5" ~ 8"	10" ~ 36"
BY - PASS SIZE	½"	¾"	1"

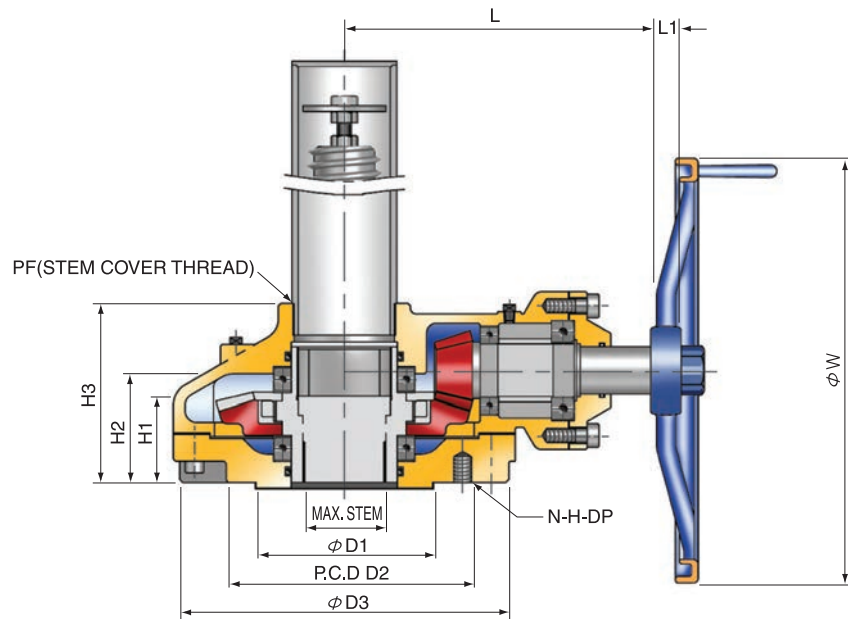
By-passes on valves 4" and larger are furnished to comply with MSS SP-45, Series A.

EXTENSION STEMS AND FLOOR STANDS

Where valves are installed under platforms, floors or in remote locations, KJS can provide stem extensions to provide convenient and safe operation of valves. Stem extensions can be adapted to valves to provide remote operation of valves. Stem extensions can be free standing or supported. Stem extensions can be used in conjunction with floor stands and manual gear units. Floor stands can be furnished with manual or motor operated actuators.

ACCESSORIES

Gear Operator



DIMENSION

Unit : mm

DIM	BASE PART						EXTERNAL PART				INPUT SHAFT PART		HAND WHEEL φW	STEM COVER								
	MODEL	TYPE	PLANGE SIZE.	φD1	P.C.D D2	N-H-DP	φD3	H	H1	H2	H3	L			L1	φPD	KEY					
SB-VS10	A	F-10	70	102	4-M10-17 3/8"-16UNC	140	3	50	68	103	121	34	26	8×7	250	PF 2"						
SB-VS20		F-12	85	125	4-M12-20 1/2"-13UNC	150		60	76	110	131				300							
SB-V0		F-14	100	140	4-M16-25 5/8"-11UNC	175		70	76	120	160				400		10×8	400	PF 2 1/2"			
SB-V1		F-16	130	165	4-M20-30 3/4"-10UNC	210		82	96	141	172				500							
SB-V2		(F-16), F-20	140	205	8-M16-30 5/8"-11UNC	250		94	105	156	209				630		10×8	630	PF 3"			
SB-V3		F-25	200	254	8-M16-32 5/8"-11UNC	300		103	109	168	227				710			10×8		710	PF 4"	
SB-V35		B	F-30	230	298	8-M20-40 3/4"-10UNC		350	3	122	138				200		266		44	38		12×8
SB-V4								133		150	215				291		900					
SB-V5	F-35		260	356	8-M30-45 1"-8UNC	415	164	175		251	334				PF 6"							
SB-V6	C	F-40	300	406	8-M36-55 1 1/4"-7UNC	475	3	182	201	284	375	58	50	16×10	1000	PF 8"						
SB-V7					12-M36-55 1 1/4"-7UNC	560		208	222	316	409				1000		16×10	1000	PF 8"			
SB-V8		F-48	370	483				234	258	360	471				1000			16×10		1000	PF 10"	

SELECTION CHART FOR MANUAL OPERATORS

SIZE MODEL	GEAR RATIO	MAX. Stam Acceptance		MAX. Thrust Capacity		MAX. Torque Capacity		WEIGHT Kg
		TW	KEY	kN	lbf	N · m	Fi · lbf	
SB-VS10	2.5 : 1	30	22 (8×7)	75.5	16970	220	162	8
SB-VS20	3 : 1	40	32 (10×8)	113	25400	370	273	11
SB-V0	3.25 : 1	46	38 (12×8)	127	28550	600	442	16
SB-V1	3.5 : 1	55	45 (14×9)	141	31700	980	723	23
SB-V2	4 : 1	62	52 (16×10)	190	42710	1500	1106	33
SB-V3	5 : 1	72	60 (18×11)	288	64750	2500	1844	48
SB-V35	5.5 : 1	85	72 (20×12)	350	78680	3500	2581	78
SB-V4	6 : 1	98	84 (22×14)	400	89920	5200	3835	103
SB-V5	6.5 : 1	115	100 (28×16)	510	114650	7800	5753	158
SB-V6	7 : 1	130	115 (32×18)	2310	519300	13000	9588	237
SB-V7	7.55 : 1	150	130 (36×20)	2500	562020	17600	12981	320
SB-V8	8 : 1	180	160 (40×22)	4100	921700	26000	19176	460