

KITZ

High Performance Steel Ball Valves

Service Temperature: 450°C (842°F)

Unconditional Firesafe Provision



- Metal seated ball valves rated JIS 10K/20K and ASME Class 150/300 for high abrasive fluid control and throttling service.
- Hard graphite seated ball valves rated JIS 10K/20K and ASME Class 150/300 for low abrasive fluid control service.

KITZ CORPORATION OF AMERICA

Production Range

Metal seated (Trim 6H): JIS 10K/20K · ASME Class 150/300
 Hard graphite seated (Trim 3H): JIS 10K/20K · ASME Class 150/300

Size	mm	15	20	25	32	40	50	65	80	100	125	150	200
	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
Full port		●	●	●	☆	●	●	★	●	●	★	●	●

☆ Size 1 1/4" is available only for JIS 10K stainless steel version.
 ★ Contact KITZ distributors or agents for confirmation of product availability in advance.

KITZ Product Coding

Example: Gear operated ASME Class 150 metal seated ball valve, CF8M shell with Trim 6H.

G - 150 U T B 6H M

① ② ③ ④ ⑤ ⑥ ⑦

① Valve operational measure

- None — Lever
- G — Worm gear
- B — KITZ Type B double action pneumatic actuator
- BS — KITZ Type BS spring return pneumatic actuator
- BSW — KITZ Type BSW spring return pneumatic actuator

Refer to KITZ Cat. No. E-350 (or 910E) for detailed information of KITZ B Series pneumatic actuators.

② Valve pressure class

- 150 — ASME Class 150
- 300 — ASME Class 300
- 10 — JIS 10K
- 20 — JIS 20K

③ Shell material

- U — Stainless steel
- SC — Carbon steel

④ Symbol for ball valve

⑤ Valve design

- B — Full port, floating ball design

⑥ Trim symbol

- 3H — Hard graphite seats for high abrasive service
- 6H — Metal seats for low abrasive service

⑦ Stainless steel shell material

- None — ASTM CF8 or JIS SCS13A
- M — ASTM CF8M or JIS SCS14A

This catalog uses **MPa**, a SI unit, for pressure indication. **Kgf/cm²** is, however, added for readers' convenience.

Product Codes

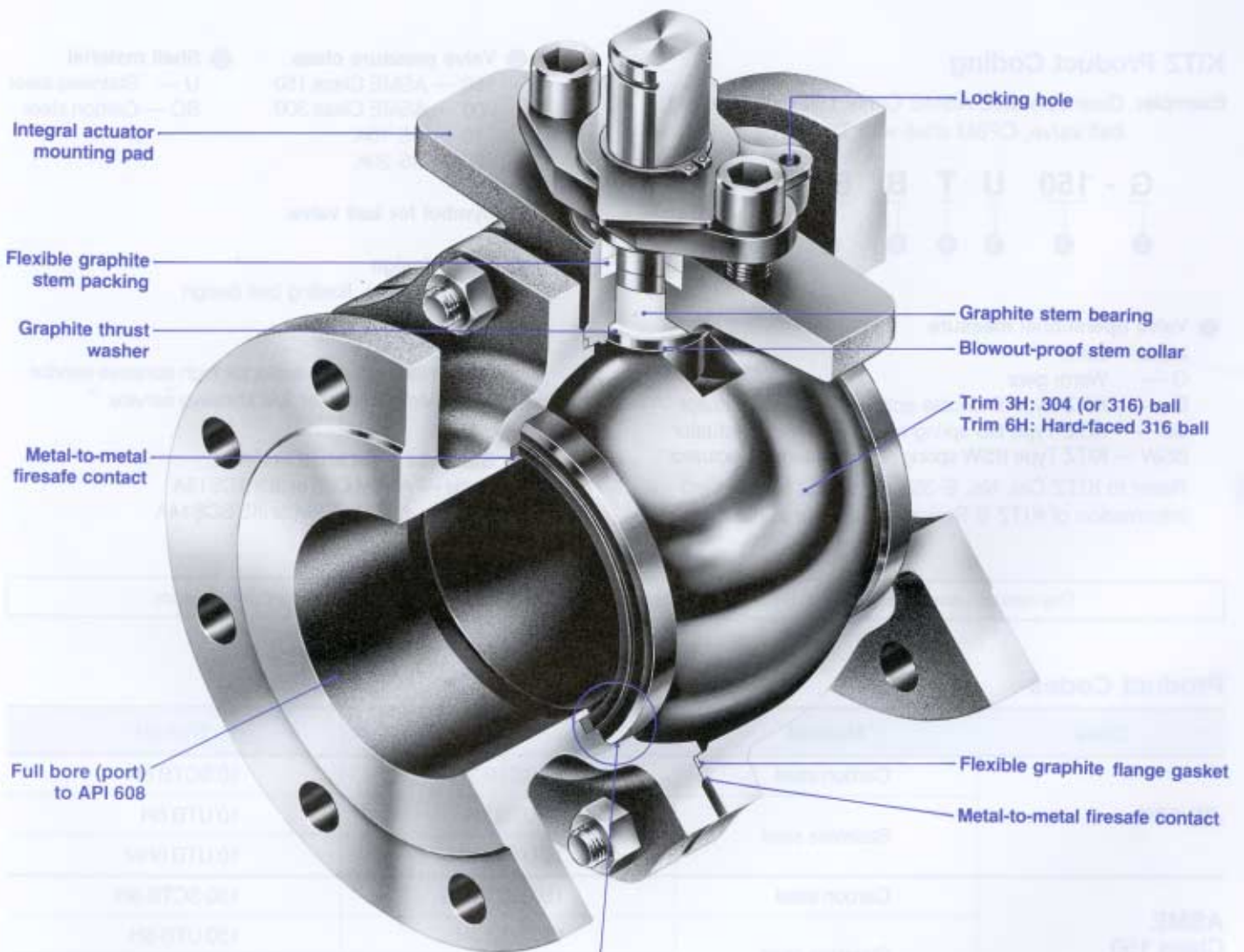
Class	Material	Trim 3H	Trim 6H
JIS 10K	Carbon steel	10 SCTB 3H	10 SCTB 6H
	Stainless steel	10 UTB 3H	10 UTB 6H
		10 UTB 3HM	10 UTB 6HM
ASME Class 150	Carbon steel	150 SCTB 3H	150 SCTB 6H
	Stainless steel	150 UTB 3H	150 UTB 6H
		150 UTB 3HM	150 UTB 6HM
JIS 20K	Carbon steel	20 SCTB 3H	20 SCTB 6H
	Stainless steel	20 UTB 3H	20 UTB 6H
		20 UTB 3HM	20 UTB 6HM
ASME Class 300	Carbon steel	300 SCTB 3H	300 SCTB 6H
	Stainless steel	300 UTB 3H	300 UTB 6H
		300 UTB 3HM	300 UTB 6HM

The products introduced in this catalog are all covered by the ISO 9001 certification awarded KITZ Corporation in 1989, the earliest in the valve industry.

Design Features

Split Body, Side Entry, Full Port Design

This is an illustrated cross-section of a typical KITZ high performance ball valve to exhibit the basic design concept. The actual design of a valve may be slightly different from this illustration, depending on its size and pressure class.



Seating Design

Trim 3H: Hard graphite seats with stainless steel retainer rings & flexible graphite gaskets.

Labels: Inner ring, Ball, Seat gasket, Graphite seat, Retainer

Trim 6H: 316 seats reinforced with nickel based self-fluxing alloy and INCONEL X-750 seat spring

Labels: Type 316 Seat, Seat spring, Hard faced

Trim 3H
Trim 6H

Design Features

1. 450°C (842°F) abrasive service

KITZ High Performance steel ball valves are guaranteed for a maximum service temperature of 450°C (842°F), depending on the service environment (*See the restrictive service conditions cautioned below). Heat resistant sealing and trim materials qualify these valves for heated abrasive service which cannot be properly handled by conventional soft seated ball valves due to the limited heat resistant characteristics and mechanical properties of their plastomer seats.

2. Unconditional firesafe provision

While metal or hard graphite seats are extremely heat resistant, other sealing components such as gland packings and flange gaskets are made of flexible graphite, another heat resistant material, so that no part of the valve will be affected by extraordinarily heated environments. Also the provision of anti-static device is not required because of inter-component electric conductivity.

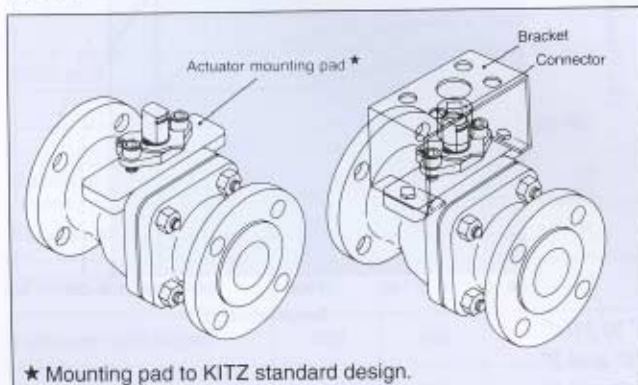
3. Maintenance ease

Split body construction of the valve body provides the convenience of easy maintenance, a critical requirement for handling slurries and other viscous fluids.

4. Valve automation

Quarter-turn valve drive mechanism makes mounting of valve automation measures such as electric and pneumatic actuators technically easier. KITZ ball valves employ integral actuator mounting pads for easy, safe and assured on-the-spot actuator mounting without disassembly of packing glands.

Note: Customers are requested to prepare mounting brackets and connectors chosen for their valve actuation as illustrated below:



5. High flow efficiency

Full port design provides maximized and linearized flow characteristics with minimized pressure loss while the line flow travels through the valve bore. This is a design requirement particularly important for trouble-free service of slurries and other viscous fluids.

6. Metal seated ball valves (Trim 6H)

- Rigid construction with fully metallic contact between the ball and seats, and high durability of trim materials make KITZ metal seated ball valves ideally suited to highly abrasive services handling slurries and other viscous fluids.
- Durable metal seat design and material also provides fully guaranteed throttling service performance, which makes KITZ metal seated ball valves function as a reliable control valve.

Caution:

- Be sure to use a valve actuator for throttling service.
- Mount the valve with the body cap to the downstream side at all times, since the valve is designed for uni-directional pressurization, as indicated by the arrow mark on the body flange.
- Ball seats are not interchangeable with any other KITZ ball valve seats.

7. Hard graphite seated ball valves (Trim 3H)

- Bi-directional pressurizing direction.
- Recommended for low abrasive service.

Caution:

- Not recommended for throttling service.
- Not recommended for high abrasion service.
- Ball seats are not interchangeable with any other KITZ ball valve seats.

* Restrictive service conditions

- Temperatures exceeding 400°C (752°F) are not recommended for prolonged service duration.
- 400°C (752°F) is the maximum temperature for handling inflammable or toxic gaseous fluids.
- Service restriction according to JIS B2238:
Maximum 300°C (572°F) for 10K valves
Maximum 425°C (797°F) for 20K valves

Technical Specifications

Design Standards

Valve body design	Split body, side entry, RF-flanged, full port with floating ball design
Wall thickness	ASME B16.34 Class 150/300
F-F dimensions	ASME B16.10 Class 150/300
End connection	RF-flanged to JIS B2238 10K/20K or ASME B16.5 Class 150/300
P-T rating	JIS B2238 10K/20K or ASME B16.34 Class 150/300

Pressure Test

■ Metal seated ball valves (Trim 6H)

Maximum allowable seat leakage:

Water: ANSI / FCI 70-2 Class V (Standard)

Water: ANSI / FCI 70-2 Class VI (Optional oil-free*)

Air: ANSI / FCI 70-2 Class VI (Standard)

Hydrostatic test pressure Unit: MPa (kgf/cm²)

Class	JIS 10K	JIS 20K	ASME 150	ASME 300
Shell test	2.06 (21)	5.00 (51)	S/S*:2.94(30) C/S*:3.14(32)	S/S*:7.65(78) C/S*:7.85(80)
Seat test	0.68 (7.0) Water / 0.35 (3.6) Air			

■ Hard graphite seated ball valves (Trim 3H)

Maximum allowable seat leakage: ANSI/FCI 70-2 Class VI

Hydrostatic test pressure Unit: MPa (kgf/cm²)

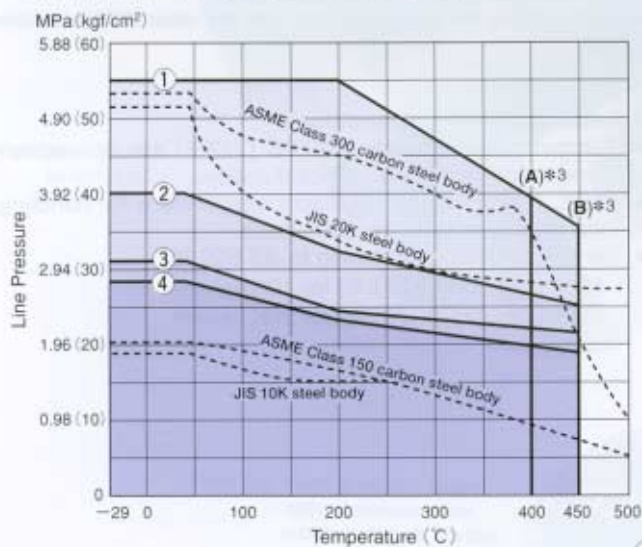
Class	JIS 10K	JIS 20K	ASME 150	ASME 300
Shell test	2.06 (21)	5.00 (51)	S/S*:2.94(30) C/S*:3.14(32)	S/S*:7.65(78) C/S*:7.85(80)
Seat test	0.35 (3.6) Air			

* S/S: Stainless steel C/S: Carbon steel

* Contact KITZ Corporation in case of oil-free requirement.

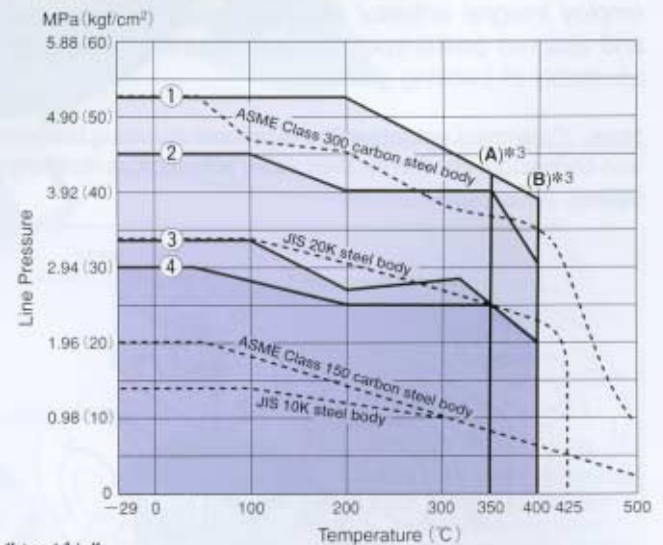
Pressure-Temperature Rating (*1)(*2)

■ Metal seated ball valves : Trim 6H



- ① Size 1/2" to 1 1/4"
- ② Size 1 1/2" and 2"
- ③ Size 2 1/2" and 3"
- ④ Size 4" to 8"

■ Hard graphite seated ball valves : Trim 3H



Note: *1 The above P-T rating are applicable to the full line pressure and full differential pressure.

*2 Refer to the restrictive conditions on Page 3.

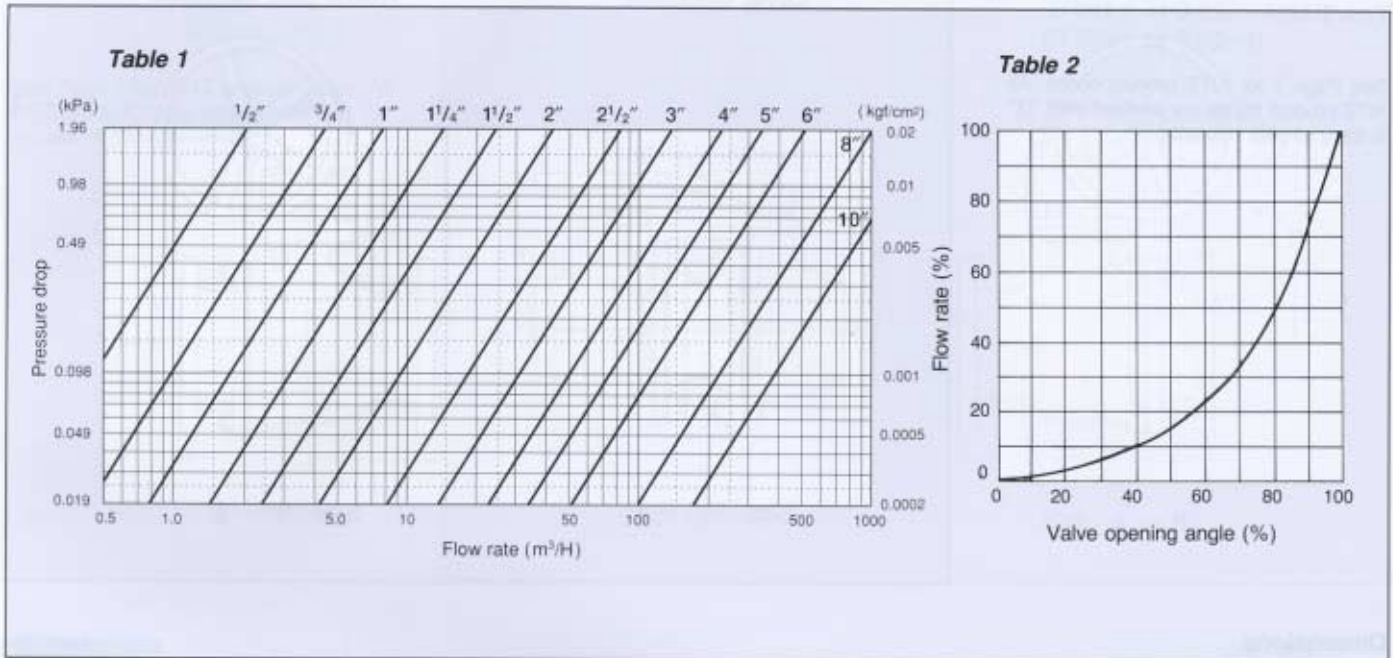
*3 (A) Oxidized service environment.

(B) Unoxidized service environment.

Technical Data

Flow Efficiency of KITZ Ball Valves

Multiple the volumetric flow rate (m^3/H) in Table 1 with the flow rate (%) in Table 2 to calculate the flow volume at a given opening angle of a full port ball valve.



Chemical Resistance of KITZ Hard Graphite Seats (Trim 3H)

○: Recommended
X: Not recommended

Chemicals	Density %	Temp. °C	Recommendation	Chemicals	Density %	Temp. °C	Recommendation
Sulfuric acid	0-70	*	○	Ammonia hydroxide	25	50	○
	70-98	100	○	Sodium chlorite	100	100	○
	98	150	X	Hydrochloric acid	100	100	○
Sulfuric acid + SO ₃	98	**	X	Bromine	100	**	X
Nitric acid	0-10	85	○	Chroline gas	100	100	○
	10-20	65	○	Chroline liquid	100	**	○
	65	120	X	Gasoline	100	*	○
Sulfuric acid + nitric acid	100	**	X	Acetone	100	*	○
Fluorine gas	100	**	X	Ethylene glycol	100	*	○
Chromic acid solution	40	**	○	Potassium permanganate	50	100	X
Hydrogen sulfide gas	100	100	○	Steam	—	*	○
Sulfurous acid gas	100	**	○	Air	—	450	○
Caustic soda	60	100	○				

* At any temperature within the range of P-T rating

** Room temperature

Possibilities of the galvanic corrosion caused by coexisting different metallic ions are not considered here.

High Performance Steel Ball Valves

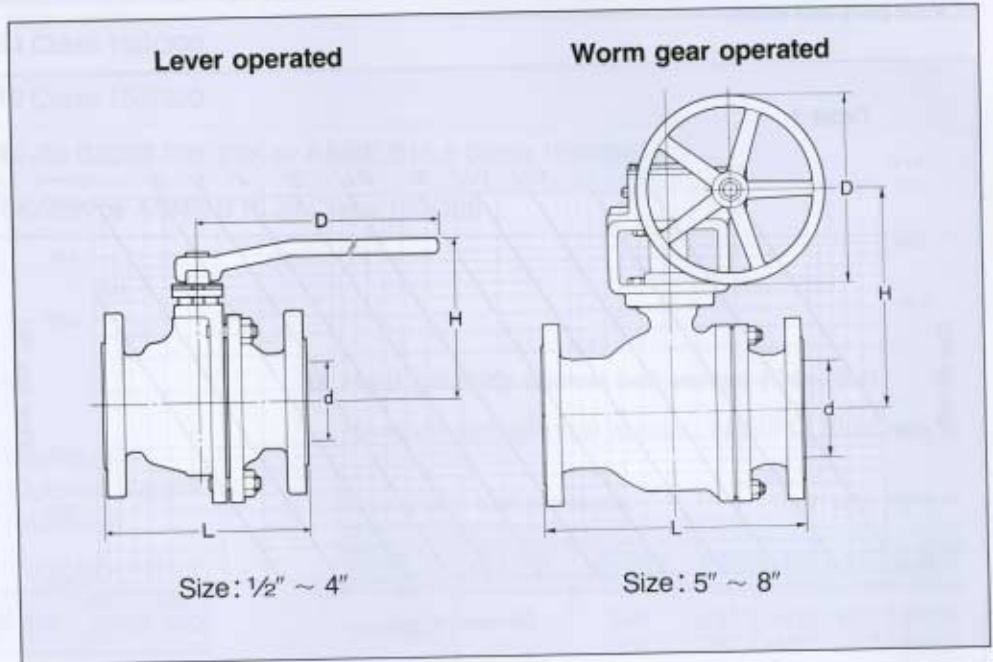
Product Dimensional Data

JIS 10K/ASME Class 150, Lever or Gear Operated (Metal or Hard Graphite Seated)

Service temperature

Trim 3H/6H: -29°C to $+450^{\circ}\text{C}$
 $(-20^{\circ}\text{F}$ to $+842^{\circ}\text{F})$

See Page 1 for KITZ product codes. All KITZ product codes are prefixed with "G" in case of gear operation.



Dimensions

Unit: mm

Valve size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
	mm	15	20	25	32	40	50	65	80	100	125	150	200
d		15	20	25	32	40	50	65	80	100	125	150	200
L	10UTB*	110	120	130	140	165	180	190	200	230	300	340	450
	150UTB 10SCTB 150SCTB	108	117	127	—	165	178	190	203	229	356	394	457
H	10UTB	102	105	124	130	115	141	188	197	242	312	337	414
	150UTB 10SCTB 150SCTB	102	105	124	—	115	141	188	197	242	312	337	414
D		130	130	160	160	230	300	600	600	1000	310	310	360

* F-F dimension to KITZ Std.

Product Dimensional Data

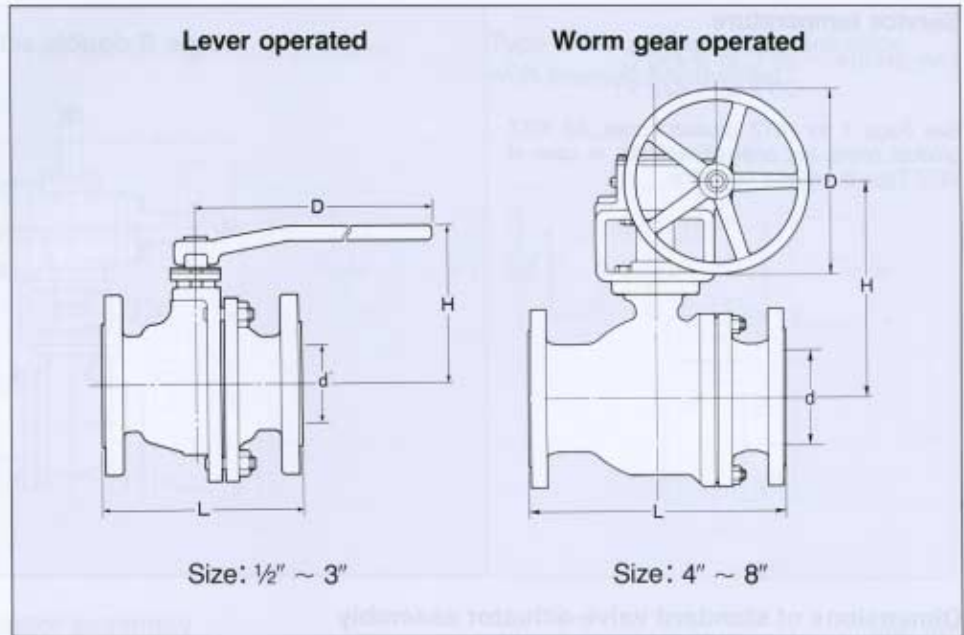
Product Dimensional Data

JIS 20K/ASME Class 300, Lever or Gear Operated (Metal or Hard Graphite Seated)

Service temperature

Trim 3H/6H: -29°C to $+450^{\circ}\text{C}$
 $(-20^{\circ}\text{F}$ to $+842^{\circ}\text{F})$

See Page 1 for KITZ product codes. All KITZ product codes are prefixed with "G" in case of gear operation.



Dimensions

Unit: mm

Valve size	inch	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8
	mm	15	20	25	40	50	65	80	100	125	150	200
d		15	20	25	40	50	65	80	100	125	150	200
L		140	152	165	190	216	241	283	305	381	403	502
H	20UTB	102	105	124	136	141	—	197	292	—	337	414
	300UTB 20SCTB 300SCTB	102	105	124	136	141	188	197	292	312	337	414
	D	130	130	160	600	600	1000	1000	310	310	310	360

Product Dimensional Data

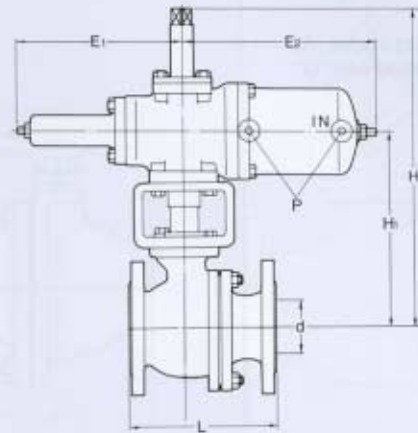
Automatic Ball Valves with KITZ Type B Pneumatic Actuators

Service temperature

Trim 3H/6H: -29°C to $+450^{\circ}\text{C}$
 (-20°F to $+842^{\circ}\text{F}$)

See Page 1 for KITZ product codes. All KITZ product codes are prefixed with "B" in case of KITZ Type B actuator operation.

Type B double action actuator



Dimensions of standard valve-actuator assembly

Unit: mm

Valve size		d	H	H ₁	L			KITZ Type B actuator			
inch	mm				10UTB	150UTB 10SCTB 150SCTB	20UTB 20SCTB 300UTB 300SCTB	E ₁	E ₂	P	Model
1/2	15	15	279	144	110	108	140	128	154	Rc1/4	B-1
3/4	20	20	282	147	120	117	152				
1	25	25	289	154	130	127	165				
1 1/4	32	32	332	184	140	—	—	177	205	Rc1/4	B-2
1 1/2	40	40	353	205	165	165	190				
2	50	50	425	250	180	178	216	235	272	Rc1/4	B-3
2 1/2	65	65	450	275	190	190	241				
3	80	80	550	325	200	203	283	284	328	Rc1/4	B-4
4	100	100	575	350	230	229	305				
5	125	125	640	420	300	356	—	367	423	Rc1/2	B-5
6	150	150	665	445	340	394	403				
8	200	200	691	488	450	457	502	527	631	Rc1/2	B-6

Refer to KITZ Cat. No. E-350 (or 910E) for detailed information of KITZ B Series pneumatic actuators.

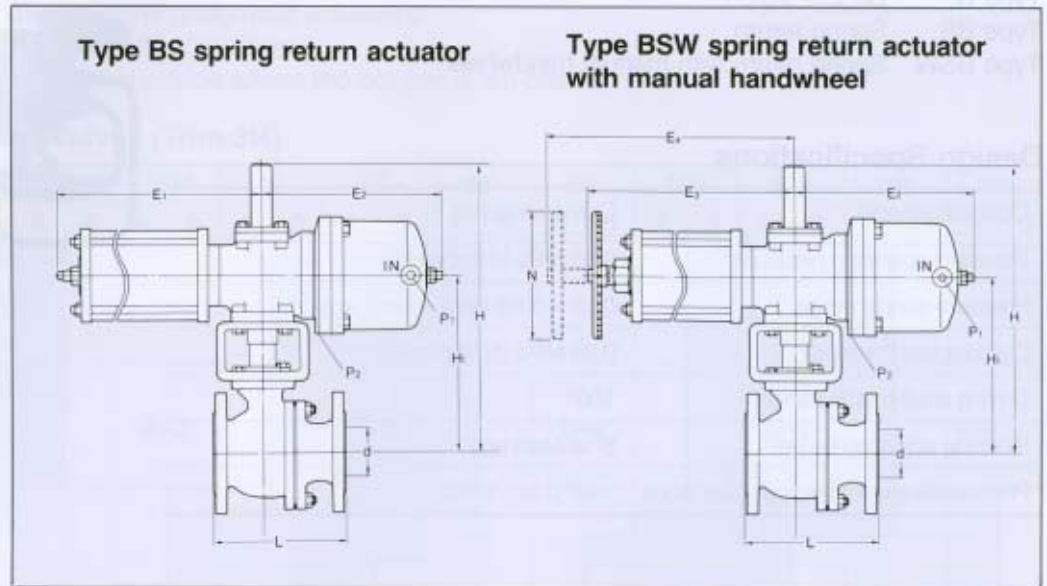
Product Dimensional Data

Automatic Ball Valves with KITZ Type BS/BSW Pneumatic Actuators

Service temperature

Trim 3H/6H: -29°C to +450°C
(-20°F to +842°F)

See Page 1 for KITZ product codes. All KITZ product codes are prefixed with "BS" or "BSW" in case of KITZ Type BS or Type BSW actuator operation.



Dimensions of standard valve-actuator assembly

Unit: mm

Valve size		d	H	H ₁	L			KITZ Type BS or BSW actuator							
inch	mm				10UTB	150UTB 10SCTB 150SCTB	20UTB 300UTB 20SCTB 300SCTB	E ₁	E ₂	E ₃	E ₄	N	P ₁	P ₂	Model
1/2	15	15	279	144	110	108	140	239	161	259	315	100	Rc1/4	Rc1/8	BS-1 (W)
3/4	20	20	282	147	120	117	152								
1	25	25	289	154	130	127	165								
1 1/4	32	32	332	184	140	—	—	335	210	362	438	140	Rc1/4	Rc1/8	BS-2 (W)
1 1/2	40	40	353	205	165	165	190								
2	50	50	425	250	180	178	216	451	276	482	582	200	Rc1/4	Rc1/4	BS-3 (W)
2 1/2	65	65	450	275	190	190	241								
3	80	80	550	325	200	203	283	575	351	609	734	250	Rc1/2	Rc1/4	BS-4 (W)
4	100	100	575	350	230	229	305								
5	125	125	640	420	300	356	—	745	446	795	956	300	Rc1/2	Rc1/4	BS-5 (W)
6	150	150	665	445	340	394	403								
8	200	200	705	488	450	457	502	931	638	1006	1250	450	Rc1/2	Rc1/2	BS-6 (W)

Refer to KITZ Cat. No. E-350 (or 910E) for detailed information of KITZ B Series pneumatic actuators.

KITZ Pneumatic Actuators

Profile of KITZ B Series Pneumatic Actuators

Type B: Double action
 Type BS: Spring return
 Type BSW: Spring return with manual handwheel

Design Specifications

Operating media:	Compressed air
Standard operating pressure:	0.39 MPa (4 kgf/cm ²)
Pressure supply range:	0.29~0.68 MPa (3 to 7 kgf/cm ²)
Cylinder test pressure:	0.98 MPa (10 kgf/cm ²)
Driving shaft rotating angle:	100°
Rotation adjusting range:	5° at each end
Permissible ambient temperature range:	-20°C to +60°C



Selection of KITZ B Series Pneumatic Actuators

- Determine the actuator load category **A** or **B** from the table on the right, depending on your planned service conditions, and make a selection of your actuator, following the selection guides given on Page 11. For the service conditions marked "**See notes**", contact KITZ Corporation for technical advice, while referring to the restrictive service conditions cautioned on Page 11.
- Note that fail-safe operation of KITZ B Series actuators is guaranteed in the ambient temperature range of -20°C (-4°F) to 60°C (140°F).
- Please contact KITZ Corporation for technical advice for the following service conditions:
 - For extremely high flow rate and/or high fluid velocity.
 - For extremely high fluid viscosity.
 - For valves being left open or closed for longer than 3 months without operation.
 - In case of supply air pressure being less than 0.39MPa (4 kgf/cm²).
 - In case of line pressure exceeding 2.45 MPa (25 kgf/cm²).

Actuator Load Category against Service Temperature

Service conditions	Valve trim	≤300°C (≤572°F)	300°C to 350°C (572°F to 662°F)	350°C to 450°C (662°F to 842°F)
Water lubricant(≤10000cp) Heavy oil(≤10000cp)	3H/6H	A	B	See notes
Air and gas steam	3H/6H	A	B	See notes
Kerosine, naphtha, alcohol and other solvents. Oil-free medium	3H/6H	A	B	See notes
Viscous semifluid (10000cp to 50000cp)	3H/6H	A	B	See notes
Slurries and powdered semifluid	3H	Not recommended		
	6H	See notes		

High Performance Steel Ball Valves

Construction and Materials

Construction and Materials

Actuator Selection for KITZ High Performance Steel Ball Valves

Selection Guide of KITZ B Series Actuators

- Applicable to KITZ Type B, BS and BSW pneumatic actuators.
- Sizes marked* are available only for JIS 10K valves.
- Contact KITZ Corporation for technical advice where the column is left blank.

■ For Hard Graphite Seated Valves (Trim 3H)

Size	15A		20		25		32*		40		50		60		80		100		125		150		200		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
MPa(kgf/cm ²)																									
0.49 (5)																									
0.98(10)																									
1.47(15)																									
1.96(20)																									
2.45(25)																									

■ For Metal Seated Valves (Trim 6H)

Size	15A		20		25		32*		40		50		60		80		100		125		150		200		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
MPa(kgf/cm ²)																									
0.49 (5)																									
0.98(10)																									
1.47(15)																									
1.96(20)																									
2.45(25)																									

★ Restrictive service conditions

- Temperatures exceeding 400°C (752°F) are not recommended for prolonged service duration.
- 400°C (752°F) is the maximum temperature for handling inflammable or toxic gaseous fluids.
- Service restriction according to JIS B2238:
 Maximum 300°C (572°F) for 10K valves
 Maximum 425°C (797°F) for 20K valves

High Performance Steel Ball Valves

Construction and Materials

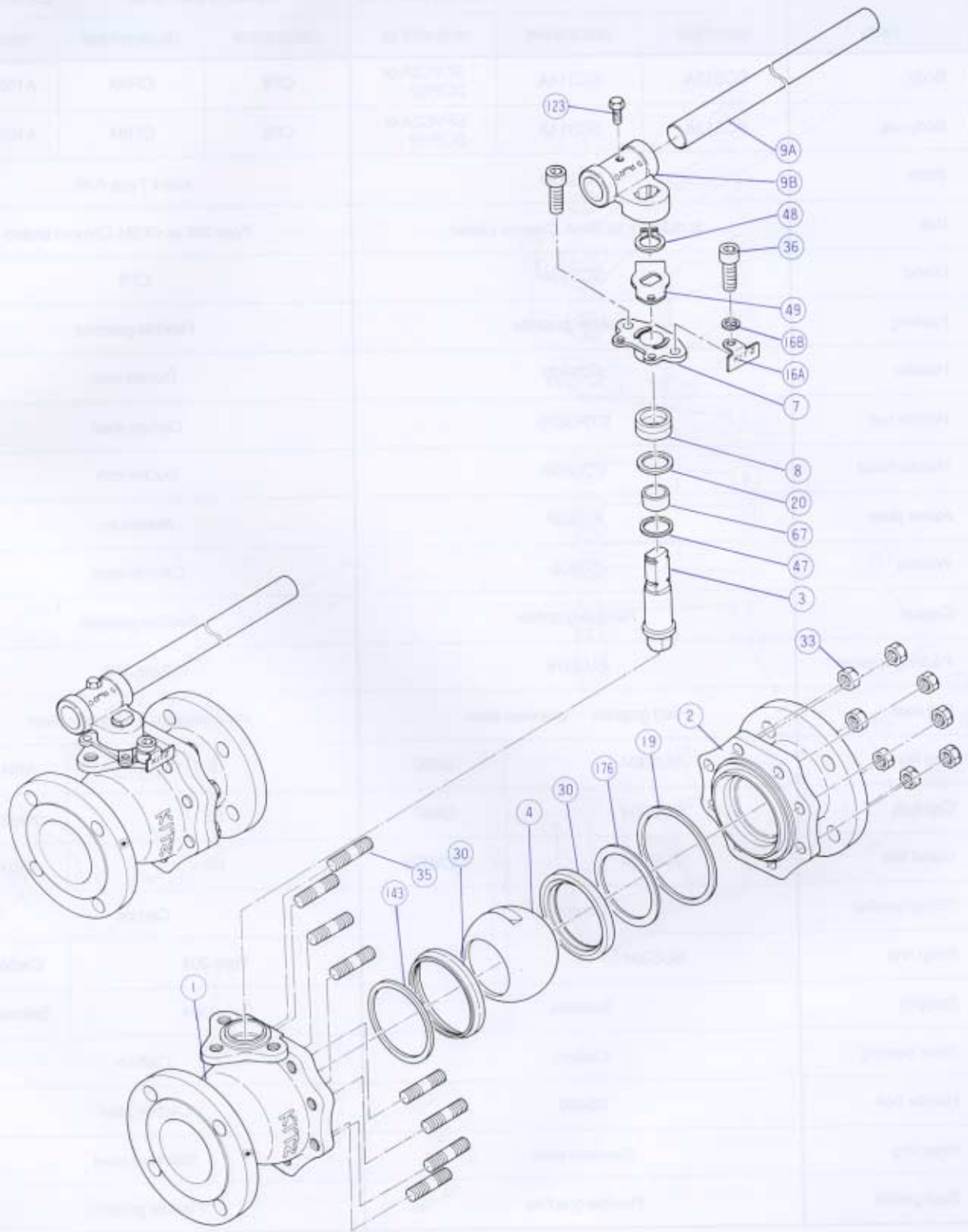
JIS 10K/20K ASME 150/300 Metal Seated Ball Valves

No.	Parts	JIS Material Designation (Trim 6H)			ASTM Material Designation (Trim 6H)		
		Stainless steel shell		Carbon steel shell	Stainless steel shell		Carbon steel shell
		10/20 UTB 6H	10/20 UTB 6HM	10/20 SCTB 6H	150/300 UTB 6H	150/300 UTB 6HM	150/300 SCTB 6H
1	Body	SCS13A	SCS14A	SFVC2A or SCPH2	CF8	CF8M	A105 or WCB
2	Body cap	SCS13A	SCS14A	SFVC2A or SCPH2	CF8	CF8M	A105 or WCB
3	Stem	SUS630			A564 Type 630		
4	Ball	SUS316 or SCS14A with Ni-Cr alloy hard facing			Type 316 or CF8M with Ni-Cr alloy hard facing		
7	Gland	SCS13A			CF8		
8	Gland packing	Flexible graphite			Flexible graphite		
9	Handle	FCD400			Ductile iron		
9A	Handle bar	SGP			Carbon steel		
9B	Handle head	FCD400			Ductile iron		
16A	Name plate	A1050P			Aluminum		
16B	Washer	SS400			Carbon steel		
19	Gasket	Flexible graphite			Flexible graphite		
20	Packing washer	SUS316			Type 316		
30	Ball seat	SUS316 + SF Ni*			Type316 + SF Ni*		
33	Cap nut	SUS304		S45C	8		A194 Gr 2H
35	Cap bolt	SUS304		SNB7	B8		A193 Gr B7
36	Gland bolt	SUS304		SCM435	B8		A193 Gr B8
47	Thrust washer	Carbon			Carbon		
48	Snap ring	SUS304		SK5	Type 304		Carbon steel
49	Stopper	SUS304			Type 304		Stainless steel
67	Stem bearing	Carbon			Carbon		
123	Handle bolt	SS400			Carbon steel		
143	Seat spring	INCONEL X-750			INCONEL X-750		
176	Seat gasket	Flexible graphite			Flexible graphite		

*Nicked based self-fluxing alloy.

Construction and Materials

JIS 10K/20K ASME 150/300 Metal Seated Ball Valve



High Performance Steel Ball Valves

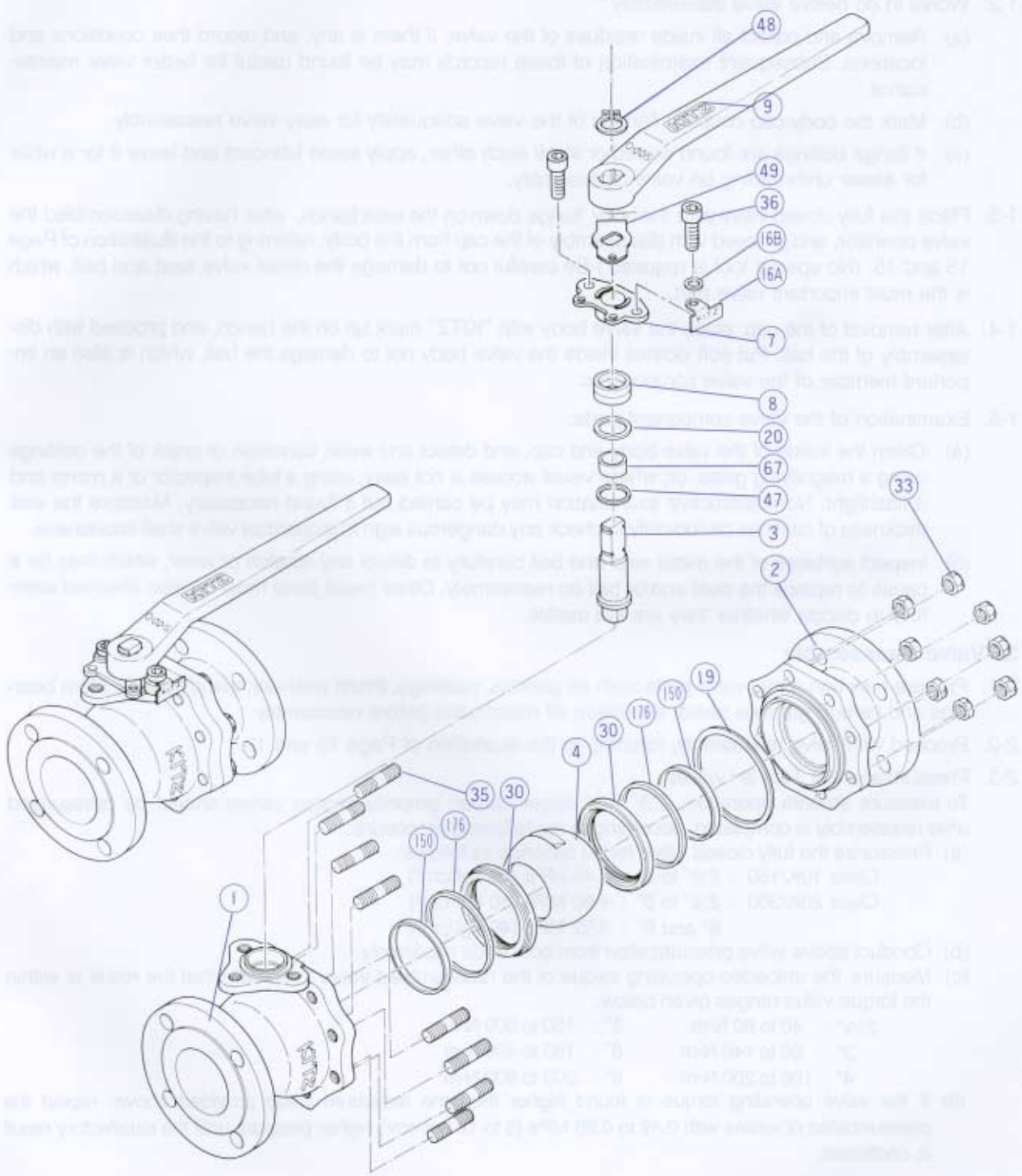
Construction and Materials

JIS 10K/20K ASME 150/300 Hard Graphite Seated Ball Valves

No.	Parts	JIS Material Designation (Trim 3H)			ASTM Material Designation (Trim 3H)		
		Stainless steel shell		Carbon steel shell	Stainless steel shell		Carbon steel shell
		10/20 UTB 3H	10/20 UTB 3HM	10/20 SCTB 3H	150/300 UTB 3H	150/300 UTB 3HM	150/300 SCTB 3H
1	Body	SCS13A	SCS14A	SFVC2A or SCPH2	CF8	CF8M	A105 or WCB
2	Body cap	SCS13A	SCS14A	SFVC2A or SCPH2	CF8	CF8M	A105 or WCB
3	Stem	SUS630			A564 Type 630		
4	Ball	SUS316 or SCS14A Chrome plated			Type 316 or CF8M Chrome plated		
7	Gland	SCS13A			CF8		
8	Packing	Flexible graphite			Flexible graphite		
9	Handle	FCD400			Ductile iron		
9A	Handle bar	STPG370			Carbon steel		
9B	Handle head	FCD400			Ductile iron		
16A	Name plate	A1050P			Aluminum		
16B	Washer	SS400			Carbon steel		
19	Gasket	Flexible graphite			Flexible graphite		
20	Packing washer	SUS316			Type 316		
30	Ball seat	Hard graphite + stainless steel			Hard graphite + stainless steel		
33	Cap nut	SUS304		S45C	8		A194 Gr 2H
35	Cap bolt	SUS304		SNB7	B8		A193 Gr B7
36	Gland bolt	SUS304		SCM435	B8		A193 Gr B8
47	Thrust washer	Carbon			Carbon		
48	Snap ring	SUS304		SK5	Type 304		Carbon steel
49	Stopper	SUS304			Type 304		Stainless steel
67	Stem bearing	Carbon			Carbon		
123	Handle bolt	SS400			Carbon steel		
150	Inner ring	Stainless steel			Stainless steel		
176	Seat gasket	Flexible graphite			Flexible graphite		

Construction and Materials

JIS 10K/20K ASME 150/300 Hard Graphite Seated Ball Valve



Valve Disassembly and Reassembly for Maintenance*

1. Valve Disassembly

1-1. Works to do before valve dismantling from the pipeline:

- (a) Release the line pressure completely and discharge all line fluids from the bore and body cavity of the half opened valve.
- (b) Mark the valve end flanges and coupled piping flanges adequately for easy remounting of the valve on the pipeline.

1-2. Works to do before valve disassembly:

- (a) Remove and collect all inside residues of the valve, if there is any, and record their conditions and locations. Subsequent examination of these records may be found useful for better valve maintenance.
- (b) Mark the body-cap coupling flanges of the valve adequately for easy valve reassembly.
- (c) If flange boltings are found seized or stuck each other, apply some lubricant and leave it for a while for easier unthreading on valve disassembly.

1-3. Place the fully closed valve with the body flange down on the work bench, after having disassembled the valve operator, and proceed with disassembly of the cap from the body, referring to the illustration of Page 13 and 15. (No special tool is required.) Be careful not to damage the metal valve seat and ball, which is the most important valve part.

1-4. After removal of the cap, place the valve body with "KITZ" mark up on the bench, and proceed with disassembly of the ball. Put soft clothes inside the valve body not to damage the ball, which is also an important member of the valve components.

1-5. Examination of the valve component parts:

- (a) Clean the inside of the valve body and cap, and detect any wear, corrosion or crack of the castings using a magnifying glass, or, where visual access is not easy, using a tube inspector or a mirror and a flashlight. Non-destructive examination may be carried out if found necessary. Measure the wall thickness of castings periodically to check any dangerous sign to jeopardize valve shell soundness.
- (b) Inspect surfaces of the metal seat and ball carefully to detect any scratch or wear, which may be a cause to replace the seat and/or ball on reassembly. Other metal parts must be also checked carefully to decide whether they are still usable.

2. Valve Reassembly

2-1. Prepare new non-metal valve parts such as gaskets, packings, thrust washers, gland bushes, stem bearings and carbon graphite seats, and clean all metal parts before reassembly.

2-2. Proceed with valve reassembly, referring to the illustration of Page 13 and 15.

2-3. Pressurization for Trim 3H valves

To reassure smooth operation, 2½" and larger carbon graphite seated valves should be pressurized after reassembly is completed, according to the following procedure:

(a) Pressurize the fully closed valve for 60 seconds as follows:

Class 10K/150 : 2½" to 8" : 2.45 MPa (25 kgf/cm²)

Class 20K/300 : 2½" to 5" : 4.90 MPa (50 kgf/cm²)

6" and 8" : 3.92 MPa (40 kgf/cm²)

(b) Conduct above valve pressurization from both ends separately.

(c) Measure the unloaded operating torque of the reassembled valve to confirm that the result is within the torque value ranges given below:

2½" : 40 to 80 N-m 5" : 150 to 300 N-m

3" : 60 to 140 N-m 6" : 180 to 400 N-m

4" : 100 to 200 N-m 8" : 300 to 900 N-m

(d) If the valve operating torque is found higher than the maximum value provided above, repeat the pressurization of valves with 0.49 to 0.98 MPa (5 to 10 kgf/cm²) higher pressure until the satisfactory result is oncfirmed.

3. Acceptance Test

After reassembly, open and close the valve several times to check satisfactory valve operation. Then pressure-test the valve according to the specifications given in Page 4 to ensure the satisfactory sealing performance for final acceptance.

* Refer to KITZ MT-05 Operation Manual for more information.



CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

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