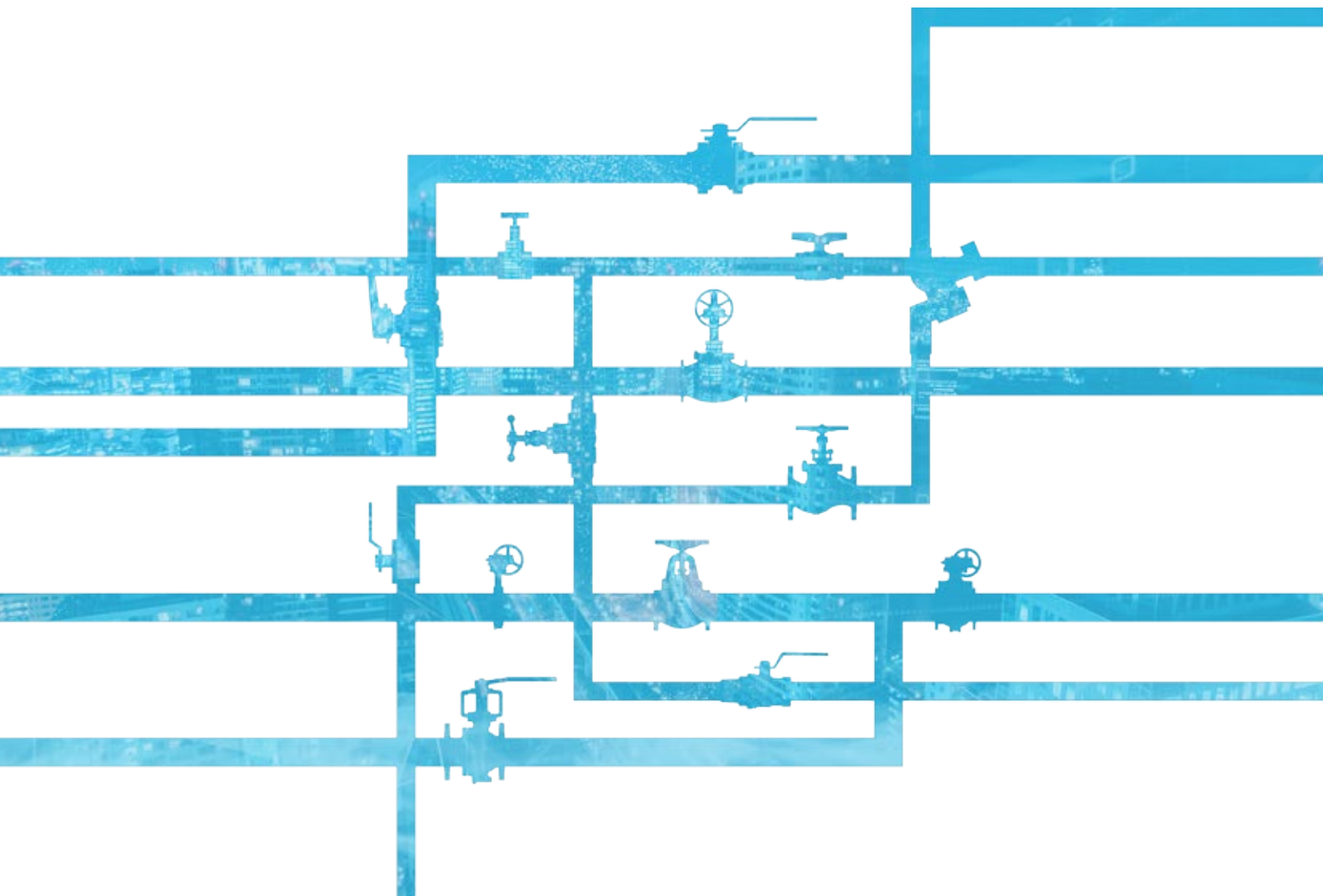


[illegible]

KITZ

GENERAL CATALOG

Steel Ball Valves



INDEX

Series	Body Material	Class	End Connection	Bore	Face to Face Dimension	Actuator Mounting Pad	Body Design	Size Range	Fig	Page
TB	SS	10K	RF	FB	KITZ Standard		Split	1/2 ^B - 10 ^B	10UTB/G-10UTB	BAL6 149
TB (Pocketless)		150			ASME B16.10				10UTBM/G-10UTBM	
									10UTBD/G-10UTBD	
TR		10K							10UTBDM/G-10UTBDM	
	150			150UTB/G-150UTB						
TR	CS	10K		KITZ Standard		Split (Pocketless)	1/2 ^B - 8 ^B	150UTBP		
		150		150UTBPM						
TR	SS	20K		ASME B16.10				Split	2 ^B - 12 ^B	10UTR/G-10UTR
		300								10UTRM/G-10UTRM
TR	CS	20K			5 ^B - 12 ^B	150UTR/G-150UTR				
		300			150UTRM/G-150UTRM					
TB	SS	600		FB		Split	2 ^B - 10 ^B	10SCTR/G-10SCTR		
		1500						150SCTR/G-150SCTR		
TB	CS	10K						20UTR		
		150						20UTRM		
TB	SS	1500		FB		Split/Tank Ball	1 ^B - 10 ^B	300UTR		
		150						300UTRM		
TB	CS	10K						6 ^B - 10 ^B	20SCTR	
		150						300SCTR		
TB	SS	1500		FB		Split/3-way • 2-seats	1 ^B - 6 ^B	600UTBM		
		150						600UTBSM		
TB	CS	10K						10UTBT/G-10UTBT		
		150						10UTBTM/G-10UTBTM		
TB	SS	1500		FB		Split/3-way • 4-seats	1/2 ^B - 8 ^B	150UTBT		
		150						150UTBTM		
TB	CS	10K						10UTB2L		
		150						10UTB2LM		
TB	SS	1500		FB		Jacketed	3 ^B - 6 ^B	150UTB2L		
		150						150UTB2LM		
TB	CS	10K						10UTR2L		
		150						10UTR2LM		
TB	SS	1500		FB		Split/PFA Lined	1/2 ^B - 4 ^B	150UTR2L		
		150	150UTR2LM							
TB	CS	10K	10UTB4L(T)A/G-10UTB4L(T)A							
		150	10UTB4L(T)AM/G-10UTB4L(T)AM							
TB	SS	1500	FB		Uni	1/2 ^B - 10 ^B	150UTB4L(T)A/G-150UTB4L(T)A			
		150					150UTB4L(T)AM/G-150UTB4L(T)AM			
TB	CS	10K					10UTR4L(T)A/G-10UTR4L(T)A			
		150					10UTR4L(T)AM/G-10UTR4L(T)AM			
TB	SS	1500	FB		Uni/Ext. Bonnet	1/2 ^B - 8 ^B	150UTR4L(T)A/G-150UTR4L(T)A			
		150					150UTR4L(T)AM/G-150UTR4L(T)AM			
TB	CS	10K					20UTBJ			
		150					20UTBJM			
TB	SS	1500	FB		Split	6 ^B - 8 ^B	300UTBJ			
		150					300UTBJM			
TB	CS	10K					150UTDZJ			
		150					150UTDZJM			
TB	SS	1500	FB		Split	1/2 ^B - 2 ^B	10UTBLN			
		150					150UTBLN			
TB	CS	10K					150UTAZM			
		150					150SCTAZ			
TB	SS	1500	FB		Uni	1/2 ^B - 4 ^B	300UTAZM			
		150					300SCTAZ			
TB	CS	10K					150SCTAZXCL/G-150SCTAZXCL			
		150					300SCTAZXCL/G-300SCTAZXCL			
TB	SS	1500	FB		Split	1/2 ^B - 10 ^B	150UTAZXLM/G-150UTAZXLM			
		150					300UTAZXLM/G-300UTAZXLM			
TB	CS	10K					150UTAZLM/G-150UTAZLM			
		150					300UTAZLM/G-300UTAZLM			
TB	SS	1500	FB		Split	1/2 ^B - 8 ^B	10UTDZ/G-10UTDZ			
		150					10UTDZM/G-10UTDZM			
TB	CS	10K					150UTDZ/G-150UTDZ			
		150					150UTDZM/G-150UTDZM			
TB	SS	1500	FB		Split	6 ^B - 8 ^B	10UTDRZ			
		150					10UTDRZM			
TB	CS	10K					10UTDRZ			
		150					10UTDRZM			

Series	Body Material	Class	End Connection	Bore	Face to Face Dimension	Actuator Mounting Pad	Body Design	Size Range	Fig	Page
TDRZ	SS	150	RF	RB	ASME B16.10	ISO 5211	Split	6 ^B - 10 ^B	150UTDRZ	BAL16 159
		10K		FB				6 ^B - 10 ^B	150UTDRZM	
TDZ	CS	150		RB				1/2 ^B - 10 ^B	10SCTDZ/G-10SCTDZ	
TDRZ				FB				6 ^B - 8 ^B	150SCTDRZ	
		20K		FB					20UTDZ	
		300		FB				1/2 ^B - 8 ^B	20UTDZM	
TDZ	SS	20K		FB					300UTDZ	BAL17 160
		300		FB					300UTDZM	
TDRZ		20K		RB				6 ^B - 10 ^B	20UTDRZ	
		300		RB					20UTDRZM	
				RB				6 ^B - 8 ^B	300UTDRZ	
				RB					300UTDRZM	
TDZ		20K		FB				1/2 ^B - 8 ^B	20SCTDZ	BAL18 161
TDRZ		300		RB					300SCTDZ	
							Split/Ext. Bonnet	6 ^B - 8 ^B	300SCTDRZ	
TDZX (-46°C)	CS	150						1/2 ^B - 10 ^B	150SCTDZXBL/G-150SCTDZXBL	
		300						1/2 ^B - 8 ^B	150SCTDZXCL/G-150SCTDZXCL	
								1/2 ^B - 10 ^B	300SCTDZXBL/G-300SCTDZXBL	
									300SCTDZXCL/G-300SCTDZXCL	
TDZXL (-104°C)		10K						1/2 ^B - 10 ^B	10UTDZXL/G-10UTDZXL	BAL19 162
		20K						1/2 ^B - 8 ^B	10UTDZXLM/G-10UTDZXLM	
		150						1/2 ^B - 8 ^B	20UTDZXL/G-20UTDZXL	
		300						1/2 ^B - 10 ^B	20UTDZXLM/G-20UTDZXLM	
								1/2 ^B - 8 ^B	150UTDZXL/G-150UTDZXL	
								1/2 ^B - 10 ^B	150UTDZXLM/G-150UTDZXLM	
TDZL (-196°C)	SS	10K						1/2 ^B - 8 ^B	300UTDZXL/G-300UTDZXL	BAL20 163
		20K						1/2 ^B - 10 ^B	300UTDZLM/G-300UTDZLM	
		150						1/2 ^B - 8 ^B	10UTDZL/G-10UTDZL	
		300						1/2 ^B - 8 ^B	10UTDZLM/G-10UTDZLM	
								1/2 ^B - 8 ^B	20UTDZL/G-20UTDZL	
								1/2 ^B - 10 ^B	20UTDZLM/G-20UTDZLM	
TBDXK (-50°C)		10K				KITZ Standard		1/2 ^B - 6 ^B	150UTDZL/G-150UTDZL	BAL21 164
		150							150UTDZLM/G-150UTDZLM	
								1/2 ^B - 8 ^B	300UTDZL/G-300UTDZL	
									300UTDZLM/G-300UTDZLM	
									10UTBDXK/G-10UTBDXK	
									10UTBDXKM/G-10UTBDXKM	
TDZ (Filtite)	CS	10K		FB		ISO 5211	Split/300°C	1/2 ^B - 10 ^B	150UTBDXK/G-150UTBDXK	BAL22 165
		150		FB					150UTBDXKM/G-150UTBDXKM	
		10K		FB					150UTBDXKM/G-150UTBDXKM	
		150		FB					150UTBDXKM/G-150UTBDXKM	
		20K		FB					10UTDZ1H/G-10UTDZ1H	
		300		FB					10UTDZ3H/G-10UTDZ3H	
TDZ (Carbotite)	SS	10K		FB					150UTDZ1HM/G-150UTDZ1HM	BAL23 166
		150		FB					10SCTDZ1H/G-10SCTDZ1H	
		10K		FB					150SCTDZ1H/G-150SCTDZ1H	
		150		FB					20UTDZ1H/G-20UTDZ1H	
		20K		FB					300UTDZ1HM/G-300UTDZ1HM	
		300		FB					20SCTDZ1H/G-20SCTDZ1H	
		20K		FB					300SCTDZ1H/G300SCTDZ1H	BAL24 167
		300		FB					10UTDZ5H/G-10UTDZ5H	
		10K		FB					150UTDZ5HM/G-150UTDZ5HM	
		150		FB					10SCTDZ5H/G-10SCTDZ5H	
		20K		FB					150SCTDZ5H/G-150SCTDZ5H	
		300		FB					20UTDZ5H/G-20UTDZ5H	
TDZ (Metal)	SS	10K		FB				1/2 ^B - 8 ^B	300UTDZ5HM/G-300UTDZ5HM	BAL25 168
		150		FB					20SCTDZ5H/G-20SCTDZ5H	
		10K		FB					300SCTDZ5H/G300SCTDZ5H	
		150		FB					10UTDZ6H/G-10UTDZ6H	
		20K		FB					150UTDZ6HM/G-150UTDZ6HM	
		300		FB					10SCTDZ6H/G-10SCTDZ6H	
		10K		FB					150SCTDZ6H/G-150SCTDZ6H	BAL25 168
		150		FB					20UTDZ6H/G-20UTDZ6H	
		20K		FB					300UTDZ6HM/G-300UTDZ6HM	
		300		FB					20SCTDZ6H/G-20SCTDZ6H	
		10K		FB					300SCTDZ6H/G300SCTDZ6H	
		150		FB					L-10UVC	
Λ Port (Flek)	SS	10K		FB			Split/For Control	1 ^B - 8 ^B	L-150UVC	
		150		FB				6 ^B - 14 ^B	G-10UVC	
		10K		FB					G-150UVC	
		150		FB				1 ^B - 8 ^B	L-20UVC	
		20K		FB					L-300UVC	
		300		FB				6 ^B - 10 ^B	G-20UVC	
		20K		FB					G-300UVC	
		300		FB						

Series	Body Material	Class	End Connection	Bore	Face to Face Dimension	Actuator Mounting Pad	Body Design	Size Range	Fig	Page			
Λ Port (Knife)	SS	10K	RF	FB	ASME B16.10	ISO 5211	Split/For Control	1 ^B - 8 ^B	L-10UVCT L-150UVCTM	BAL26 169			
		150						6 ^B - 12 ^B	G-10UVCT G-150UVCTM				
		10K						1 ^B - 8 ^B	L-20UVCT L-300UVCTM				
		150						6 ^B - 10 ^B	G-20UVCT G-300UVCTM				
		20K											
		300											
3TC (T60S)	CS	10K		RB			3 pc/Fire Safe	2 ^B - 24 ^B	10UF3TCSCM/G-10UF3TCSCM 150UF3TCSCM/G-150UF3TCSCM	BAL27 170			
3TCR (T60S)		150						3 ^B - 24 ^B	10UF3TCRSM/G-10UF3TCRSM 150UF3TCRSM/G-150UF3TCRSM				
3TC (T60S)		10K						2 ^B - 24 ^B	10SF3TCS/G-10SF3TCS 150SF3TCS/G-150SF3TCS				
3TCR (T60S)		150						3 ^B - 24 ^B	10SF3TCRS/G-10SF3TCRS 150SF3TCRS/G-150SF3TCRS				
3TC (T60S)		10K						2 ^B - 24 ^B	10SF3TCSBL/G-10SF3TCSBL 150SF3TCSBL/G-150SF3TCSBL	BAL28 171			
3TCR (T60S)		150						3 ^B - 24 ^B	10SF3TCRSL/G-10SF3TCRSL 150SF3TCRSL/G-150SF3TCRSL				
3TC (T60S)	SS	20K		FB				2 ^B - 24 ^B	20UF3TCSCM/G-20UF3TCSCM 300UF3TCSCM/G-300UF3TCSCM				
3TCR (T60S)		300						3 ^B - 24 ^B	20UF3TCRSM/G-20UF3TCRSM 300UF3TCRSM/G-300UF3TCRSM				
3TC (T60S)		20K						2 ^B - 24 ^B	20SF3TCS/G-20SF3TCS 300SF3TCS/G-300SF3TCS	BAL29 172			
3TCR (T60S)		300						3 ^B - 24 ^B	20SF3TCRS/G-20SF3TCRS 300SF3TCRS/G-300SF3TCRS				
3TC (T60S)		20K						2 ^B - 24 ^B	20SF3TCSBL/G-20SF3TCSBL 300SF3TCSBL/G-300SF3TCSBL				
3TCR (T60S)		300						3 ^B - 24 ^B	20SF3TCRSL/G-20SF3TCRSL 300SF3TCRSL/G-300SF3TCRSL				
3TC (T60S)	CS	20K		RB				2 ^B - 24 ^B	600UF3TCSCM/G-600UF3TCSCM 900SF3TCS/G-900SF3TCS	BAL30 173			
3TCR (T60S)		300						3 ^B - 24 ^B	600UF3TCRSM/G-600UF3TCRSM 900SF3TCRS/G-900SF3TCRS				
3TC (T60S)		20K						2 ^B - 24 ^B	600SF3TCS/G-600SF3TCS 900SF3TCSBL/G-900SF3TCSBL				
3TCR (T60S)		300						3 ^B - 24 ^B	1500UF3TCSCM/G-1500UF3TCSCM 1500SF3TCS/G-1500SF3TCS	BAL31 174			
3TC (T60S)		20K						2 ^B - 24 ^B	1500SF3TCSBL/G-1500SF3TCSBL 150UF3TC6HM/G-150UF3TC6HM				
3TCR (T60S)		300						3 ^B - 24 ^B	150UF3TCR6HM/G-150UF3TCR6HM 150SF3TC6HM/G-150SF3TC6HM				
3TC (T60M)	SS	150		FB			3 pc/525°C	2 ^B - 24 ^B	300UF3TC6HM/G-300UF3TC6HM 300UF3TCR6HM/G-300UF3TCR6HM	BAL32 175			
3TCR (T60M)		300						3 ^B - 24 ^B	300SF3TC6HM/G-300SF3TC6HM G-600UF3TC6HM				
3TC (T60M)		150						2 ^B - 24 ^B	G-600UF3TCR6HM G-600SF3TC6HM				
3TCR (T60M)		300											
3TC (T60M)		150											
3TCR (T60M)		300											
3TC (T60M)	CS	150		RB				1 1/2 ^B - 16 ^B	(G-)150UPG14K (G-)300UPG14K	BAL33 176			
3TCR (T60M)		300						1 ^B - 8 ^B	(G-)W150UPG67K (G-)W300UPG67K				
3TC (T60M)		150						1 ^B - 2 ^B	(G-)W600UPG67K (G-)W900UPG67K				
3TCR (T60M)		300						1/2 ^B - 3/4 ^B	(G-)W150UPG66K (G-)W300UPG66K	BAL34 177			
3TC (T60M)		150						1/2 ^B - 2 ^B	(G-)W600UPG66K (G-)W900UPG66K				
3TCR (T60M)		300						10 ^B - 16 ^B	(G-)W150UPG64K (G-)W300UPG64K				
3TC (T60M)	SS	150	BW	FB			Top Entry/Ext. Bonnet	2 1/2 ^B - 16 ^B	(G-)W600UPG64K (G-)W900UPG64K	BAL35 178			
3TCR (T60M)		300											
3TC (T60M)		150											
3TCR (T60M)		300											
3TC (T60M)		150											
3TCR (T60M)		300											
14-K (-196°C)	SS	150								BAL33 176			
67-K (-196°C)		300											
66-K (-196°C)		600											
64-K (-196°C)		900											
		150											
		300											

* (Abbreviation) RF: Raised Face Ends, BW: Butt welding Ends
FB: Full Bore, RB: Reduced Bore

PRODUCT CODING

Steel Floating Ball Valves

(Note: Some products do not follow this coding system)

G - 150 SC TDZ 1H M -FS

1 2 3 4 5 6 7

1 Operation

None Lever
G Gear

2 Pressure Class

10 10K
20 20K
150 Class 150
300 Class 300
600 Class 600
1500 Class 1500

3 Symbols for Shell Material

U Stainless / High Alloy Steel
SC Carbon / Low Alloy Steel

4 Design & Type

TB·TR TB (FB) / TR (RB) Series
TBD TB (F-to-F:API 6D/ASME B16.10)
TBP TB (Pocketless)
TBT TB (Tank Ball)
TB2L/T·TR2L/T TB/TR (3-way, 2-seat, L or T-Port)
TB4L/LA·TR4L/LA TB/TR (3-way, 4-seat, L or T-Port)
TBJ·TRJ TB/TR (Jacketed)
TBLN TB (PFA Lined)
TAZ TA (RB) Series
TAZX TA (-46°C Series) for SC in ③
TAZXL TA (-104°C Service) for U in ②
TAZL TA (-196°C Service) for U in ③
TDZ·TDRZ TDZ (FB) / TDRZ (RB) Series
TDZX TDZ (-46°C Service) for SC in ③
TDZXL TDZ (-104°C Service) for U in ③
TDZL TDZ (-196°C Service) for U in ③

5 Seat Material

None HYPATITE® PTFE (RTFE or Nylon w/ MoS2*)
1H*1 Filltite (300°C)
3H*1 Hard Graphite (500°C (WCB 425°C))
5H*1 Metal (300°C)
6H*1 Metal (500°C (WCB 425°C))

*1 TDZ Series only *2 for Class 600/1500

6 Shell / Trim Material

For U in ③

None CF8 (304)
M CF8M (316)
O CF3M (316L)
V CF3 (304L)
CB CF8C (321)
CG CG8M (317)
CK CK20 (310)
SD Super Duplex
CN CN7M (Alloy 20)
HB N-12MV (Hastelloy B)
HC CW-12MW (Hastelloy C)

For SC of ③

None WCB (A105)/CF8 (304)
M WCB (A105)/CF8M (316)
BLM LCB (LF2)/CF8M (316)
CLM LCC (LF2)/CF8M (316)

7 Packing / Gasket Material

None PTFE (Except 1H/3H/5H/6H)
S Flexible Graphite (For Class 600/1500)
-FS Flexible Graphite (For TA/TDZ Series)

Λ (Lambda) - Port Control Valves

(Note: Some products do not follow this coding system)

L - 150 UVC T M

1 2 3 4 5

1 Operation

L Lever for Λ Port
G Gear

2 Pressure Class

10 10K
20 20K
150 Class 150
300 Class 300

4 Seat Type

None Flekseal for General Service
T Knifeseal for Heavy Duty Service

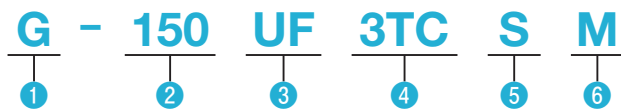
5 Shell / Trim Material

For U of ③

None CF8 (304)
M CF8M (316)

Steel Trunnion Mounted Ball Valves

(Note: Some products do not follow this coding system)



1 Operation

None Lever
G Gear

2 Pressure Class

10 10K
20 20K
150 Class 150
300 Class 300
600 Class 600
1500 Class 1500

3 Symbols for Shell Material

UF Stainless / High Alloy Steel
SF Carbon / Low Alloy Steel

4 Design & Type

3TC 3 pc FB Trunnion Mounted
3TCR 3 pc RB Trunnion Mounted

5 Seat Type

S Soft Seated (Fire Safe)
6H* Metal Seated (Fire Safe)

* In case of use at higher than 400°C, please contact KITZ.

6 Shell Material

For UF in ③

None F304 (or CF8)
M F316 (or CF8M)

For SF in ③

None A105 or (A105)
BL LF2 (or LCB or LCC)

Design Specification

Ball Valves

Series		TB/TR/TBD	TAZ/TDZ/TDRZ	3TC/3TCR	△ Port
P-T Rating	Shell	ASME B16.34			
	Resilient Seating Parts	KITZ Standard			
Bore Size		KITZ Standard	API 608/ISO 17292	API 6D/ISO 14313	KITZ Standard
Shell Wall Thickness & General Valve Design		ASME B16.34	ASME B16.34/ISO 17292	ASME B16.34	
Face to Face Dimension		ASME B16.10 ^{*1}	ASME B16.10	ASME B16.10/API 6D	ASME B16.10
End Flange Dimension & Flange Gasket Facing		ASME B16.5 ^{*2}		ASME B16.5/MSS SP-44 (20 ^B)/ASME B16.47 Series A (26 ^B & above)	ASME B16.5 ^{*2}
Butt Welding End Dimension		ASME B16.25			—
Pressure Test		API 598	API 598/ISO 5208	API 598/ISO 5208/API 6D	KITZ Standard
Fire Test		—	API 607/ISO 10497	API 607/ISO 10497/API 6FA	—
Fugitive Emission Test (Up to Class 600)		—	API 641/ISO 15848-1		—
Cryogenic / Low Temperature Test ^{*3}		—	ISO 28921-1		—

^{*1} For 10UTBD, 150UTBP, 150/300UTR/SCTR, 150/600UTB only. Others are KITZ Standard.

^{*2} (1) 10K Type is JIS B2220

(2) Dimensions in Pipe Connection except 3TC/3TCR Series shall indicate dimensions in millimeters converted from dimensions in inches according to ASME B16.5.

^{*3} For X, XL, L (Low Temperature & Cryogenic Service Valves)

Type	TR Series				TR Series			TR Series			TR Series		
Ball Valve	300  RB				300  RB			20K  RB			300  RB		
													
Fig	300UTR				300UTRM			20SCTR			300SCTR		
End Connection	ASME B16.5 Class 300 RF				ASME B16.5 Class 300 RF			JIS B2220 20K RF			ASME B16.5 Class 300 RF		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
2	50	216	113	230	216	113	230						
3	80	283	154	400	283	154	400						
4	100	305	163	400	305	163	400						
6	150	403	263	750	403	263	750	403	260	750	403	263	750
8	200	419	292	1000	419	292	1000	419	295	1000	419	292	1000
10	250	457	350	1500	457	350	1500	457	355	1500	457	350	1500
Body/Cap	CF8				CF8M			WCB			WCB		
Stem	304SS				316SS			304SS			304SS		
Ball	304SS/CF8				316SS/CF8M			304SS/CF8			304SS/CF8		
Gland Packing	PTFE				PTFE			PTFE			PTFE		
Gasket	PTFE				PTFE			Non Asbestos Sheet			Non Asbestos Sheet		
Ball Seat	HYPATITE® PTFE				HYPATITE® PTFE			HYPATITE® PTFE			HYPATITE® PTFE		
Bore	Reduced Bore				Reduced Bore			Reduced Bore			Reduced Bore		
Cap B/N	B8/8				B8/8			B7/2H			B7/2H		
F-to-F Dimension	ASME B16.10				ASME B16.10			ASME B16.10			ASME B16.10		
Actuator Mounting Pad	KITZ Standard				KITZ Standard			KITZ Standard			KITZ Standard		
Handle	DI/CS				DI/CS			DI/CS			DI/CS		
Reference Page	P-T Rating : Page BAL58				P-T Rating : Page BAL58			P-T Rating : Page BAL58			P-T Rating : Page BAL58		
Remarks	Anti-Static Design Anti-Blowout Stem Fire Safe Design				Anti-Static Design Anti-Blowout Stem Fire Safe Design			Anti-Static Design Anti-Blowout Stem Fire Safe Design Gear for 12 ^B Gear for 5 ^B & over: Available			Anti-Static Design Anti-Blowout Stem Fire Safe Design Gear for 12 ^B Gear for 5 ^B & over: Available		

Type	TB Series					TB Series					TB Series					TB Series				
Ball Valve	600  FS CE EAC					600  FS CE EAC					600  FS CE EAC					600  FS CE EAC				
																				
Fig	600UTBM					600UTBSM					600SCTB					600SCTBS				
End Connection	ASME B16.5 Class 600 RF					ASME B16.5 Class 600 RF					ASME B16.5 Class 600 RF					ASME B16.5 Class 600 RF				
inch	mm	L	H	D		L	H	D		L	H	D		L	H	D				
1/2	15	165	105	130		165	105	130		165	105	130		165	105	130				
3/4	20	190	108	130		190	108	130		190	108	130		190	108	130				
1	25	216	130	160		216	130	160		216	130	160		216	130	160				
1 1/2	40	241	118	230		241	118	230		241	118	230		241	118	230				
Body/Cap	CF8M					CF8M					A105					A105				
Stem	316SS					316SS					304SS					304SS				
Ball	316SS/CF8M					316SS/CF8M					304SS					304SS				
Gland Packing	PTFE					Flexible Graphite					PTFE					Flexible Graphite				
Gasket						Flexible Graphite Spiral Wound										Flexible Graphite Spiral Wound				
Ball Seat	G/F PTFE with MoS2					G/F PTFE with MoS2					G/F PTFE with MoS2					G/F PTFE with MoS2				
Boffre	Full Bore					Full Bore					Full Bore					Full Bore				
Cap B/N	B8/8					B8/8					B7/2H					B7/2H				
F-to-F Dimension	ASME B16.10					ASME B16.10					ASME B16.10					ASME B16.10				
Actuator Mounting Pad	KITZ Standard					KITZ Standard					KITZ Standard					KITZ Standard				
Handle	DI					DI					DI					DI				
O ring/Seat Spring	FKM/Inconel X-750					FKM/Inconel X-750					NBR/304SS					NBR/304SS				
Standard/Approval	PED/CE, TR-CU/EAC					FS: API607, PED/CE, TR-CU/EAC					PED/CE, TR-CU/EAC					FS: API607, PED/CE, TR-CU/EAC				
Reference Page	P-T Rating : Page BAL59					P-T Rating : Page BAL59					P-T Rating : Page BAL59					P-T Rating : Page BAL59				
Remarks	Anti-Static Design Anti-Blowout Stem Fire Safe Design					Anti-Static Design Anti-Blowout Stem Fire Safe Design					Anti-Static Design Anti-Blowout Stem Fire Safe Design					Anti-Static Design Anti-Blowout Stem Fire Safe Design				

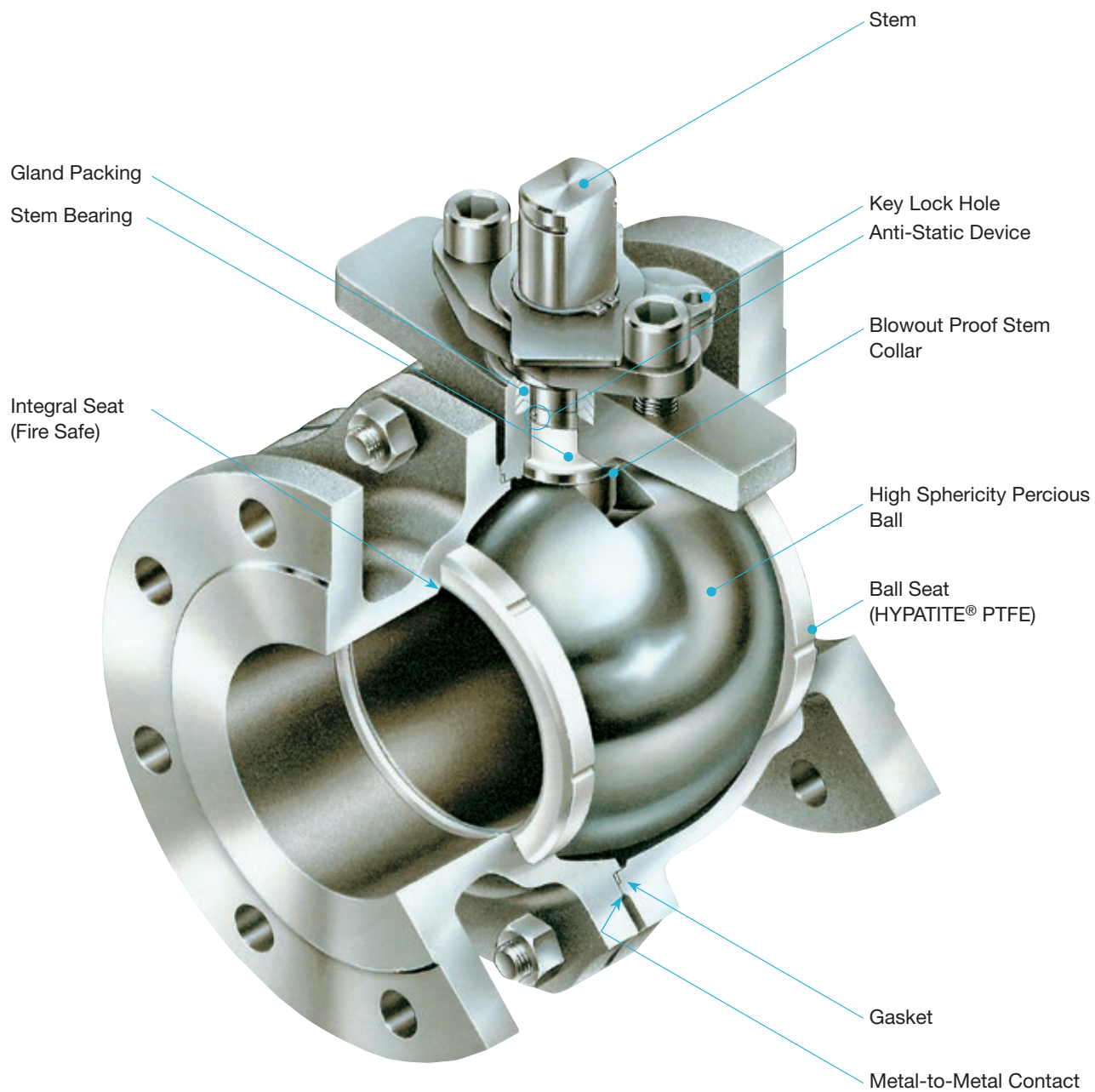
Type	66-K Series(-196℃)						66-K Series(-196℃)				66-K Series(-196℃)				66-K Series(-196℃)					
Ball Valve	150						300				600				150					
	(G)-W300UPG66K						(G)-W600UPG66K				(G)-W900UPG66K				(G)-W1500UPG66K					
	ASME B16.25 (BW)						ASME B16.25 (BW)				ASME B16.25 (BW)				ASME B16.25 (BW)					
	inch	mm	L	H	D	B	L	H	D	B	L	H	D	B	L	H	D	B		
	1/2	15	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA		
3/4	20	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
1	25													TBA	TBA	TBA	TBA			
1 1/2	40													TBA	TBA	TBA	TBA			
2	50													TBA	TBA	TBA	TBA			
Body/Cap/Bonnet	CF8M/CF3M					CF8M/CF3M					CF8M/CF3M					CF8M/CF3M				
Stem/Bottom Stem	UNS S66286					UNS S66286					UNS S66286					UNS S66286				
Ball	CF8M/CF3M					CF8M/CF3M					CF8M/CF3M					CF8M/CF3M				
Gland Packing	Graphite					Graphite					Graphite					Graphite				
Gasket	Graphite					Graphite					Graphite					Graphite				
Ball Seat	PCTFE					PCTFE					PCTFE					PCTFE				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
F-to-F Dimension	ASME B16.10					ASME B16.10					ASME B16.10					ASME B16.10				
Actuator Mounting Pad	ISO 5211					ISO 5211					ISO 5211					ISO 5211				
Standard/Approval	ASME B16.34, ISO 28921-1					ASME B16.34, ISO 28921-1					ASME B16.34, ISO 28921-1					ASME B16.34, ISO 28921-1				
Remarks	Uni-Body, Top Entry Trunnion Mounted Ball Valves with Ball & Stem Integrated Design Double Brand (KITZ® /Perrin®)					Uni-Body, Top Entry Trunnion Mounted Ball Valves with Ball & Stem Integrated Design Double Brand (KITZ® /Perrin®)					Uni-Body, Top Entry Trunnion Mounted Ball Valves with Ball & Stem Integrated Design Double Brand (KITZ® /Perrin®)					Uni-Body, Top Entry Trunnion Mounted Ball Valves with Ball & Stem Integrated Design Double Brand (KITZ® /Perrin®)				

BAL

Steel Ball Valves

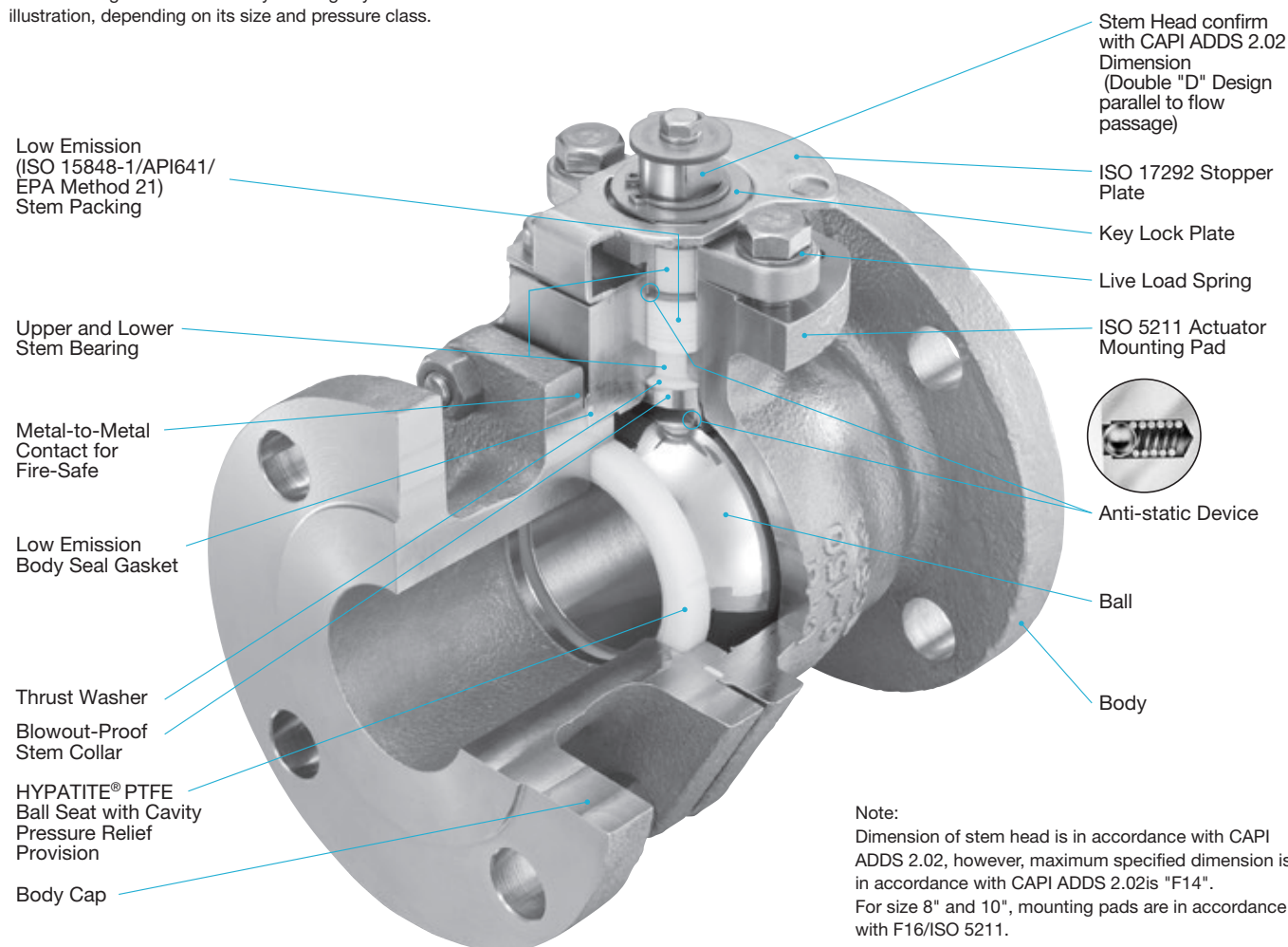
Type	64-K Series(-196°C)					64-K Series(-196°C)					64-K Series(-196°C)					64-K Series(-196°C)				
Ball Valve	150					300					600					900				
	(G)-W150UPG64K					(G)-W300UPG64K					(G)-W600UPG64K					(G)-W900UPG64K				
	ASME B16.25 (BW)					ASME B16.25 (BW)					ASME B16.25 (BW)					ASME B16.25 (BW)				
	inch	mm	L	H	D	B	L	H	D	B	L	H	D	B	L	H	D	B		
21/2	65									TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
3	80									TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
4	100									TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
6	150									TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
8	200									TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
10	250	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
12	300	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
14	350	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
16	400	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA			
Body/Cap/Bonnet	CF8M/CF3M					CF8M/CF3M					CF8M/CF3M					CF8M/CF3M				
Stem/Bottom Stem	UNS S66286					UNS S66286					UNS S66286					UNS S66286				
Ball	CF8M/CF3M					CF8M/CF3M					CF8M/CF3M					CF8M/CF3M				
Gland Packing	Graphite					Graphite					Graphite					Graphite				
Gasket	Graphite					Graphite					Graphite					Graphite				
Ball Seat	PCTFE					PCTFE					PCTFE					PCTFE				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
F-to-F Dimension	ASME B16.10					ASME B16.10					ASME B16.10					ASME B16.10				
Actuator Mounting Pad	ISO 5211					ISO 5211					ISO 5211					ISO 5211				
Standard/Approval	ASME B16.34, ISO 28921-1					ASME B16.34, ISO 28921-1					ASME B16.34, ISO 28921-1					ASME B16.34, ISO 28921-1				
Remarks	Uni-Body, Trunnion Mounted, Top Entry Double Brand (KITZ®/Perrin®)					Uni-Body, Trunnion Mounted, Top Entry Double Brand (KITZ®/Perrin®)					Uni-Body, Trunnion Mounted, Top Entry Double Brand (KITZ®/Perrin®)					Uni-Body, Trunnion Mounted, Top Entry Double Brand (KITZ®/Perrin®)				

Type	64-K Series(-196°C)					
Ball Valve	1500  NO IMAGE	FB				
		(G-)W1500UPG64K				
		End ConnectionASME B16.25 (BW)				
		inch	mm	L	H	D
21/2	65	TBA	TBA	TBA	TBA	
3	80	TBA	TBA	TBA	TBA	
4	100	TBA	TBA	TBA	TBA	
6	150	TBA	TBA	TBA	TBA	
8	200	TBA	TBA	TBA	TBA	
10	250	TBA	TBA	TBA	TBA	
12	300	TBA	TBA	TBA	TBA	
14	350	TBA	TBA	TBA	TBA	
16	400	TBA	TBA	TBA	TBA	
Body/Cap/Bonnet	CF8M/CF3M					
Stem/Bottom Stem	UNS S66286					
Ball	CF8M/CF3M					
Gland Packing	Graphite					
Gasket	Graphite					
Ball Seat	PCTFE					
Bore	Full Bore					
F-to-F Dimension	ASME B16.10					
Actuator Mounting Pad	ISO 5211					
Standard/Approval	ASME B16.34, ISO 28921-1					
Remarks	Uni-Body, Trunnion Mounted, Top Entry Double Brand (KITZ®/Perrin®)					

KITZ TB Series Split Body, End Entry, Floating Ball Valves

KITZ 150/300SCTDZ/UTDZM Series Full Bore, Split Body, Side Entry Ball Valves

This is an illustrated cross-section of typical KITZ split-body floating type full bore ball valve to exhibit basic design concept. Actual design of a valve may be slightly different from this illustration, depending on its size and pressure class.



150UTDZ Size 2

Bubble-tight Sealing Performance with HYPATITE® PTFE Ball Seats

HYPATITE® PTFE Ball Seats, standard stem seals of KITZ Ball Valves, are made of denatured PTFE, molecularly reinforced PTFE copolymer. Specifically engineered for high bidirectional sealing performance and prolonged service life of valves. Its resistance to high or low temperature, creep or compression, abrasion and corrosion is all outstanding. As an option, KITZ **SWELLESS®** Seats, principally made of PFA is recommended specifically for monomer service. This epoch-making seat maximizes resistance to permeation of monomer into its molecular structure (generally known as "swelling" problem), which causes seat deformation and seriously affects shut-off function of valves in styrene and butadiene monomer service.

Simplified Actuator Mounting

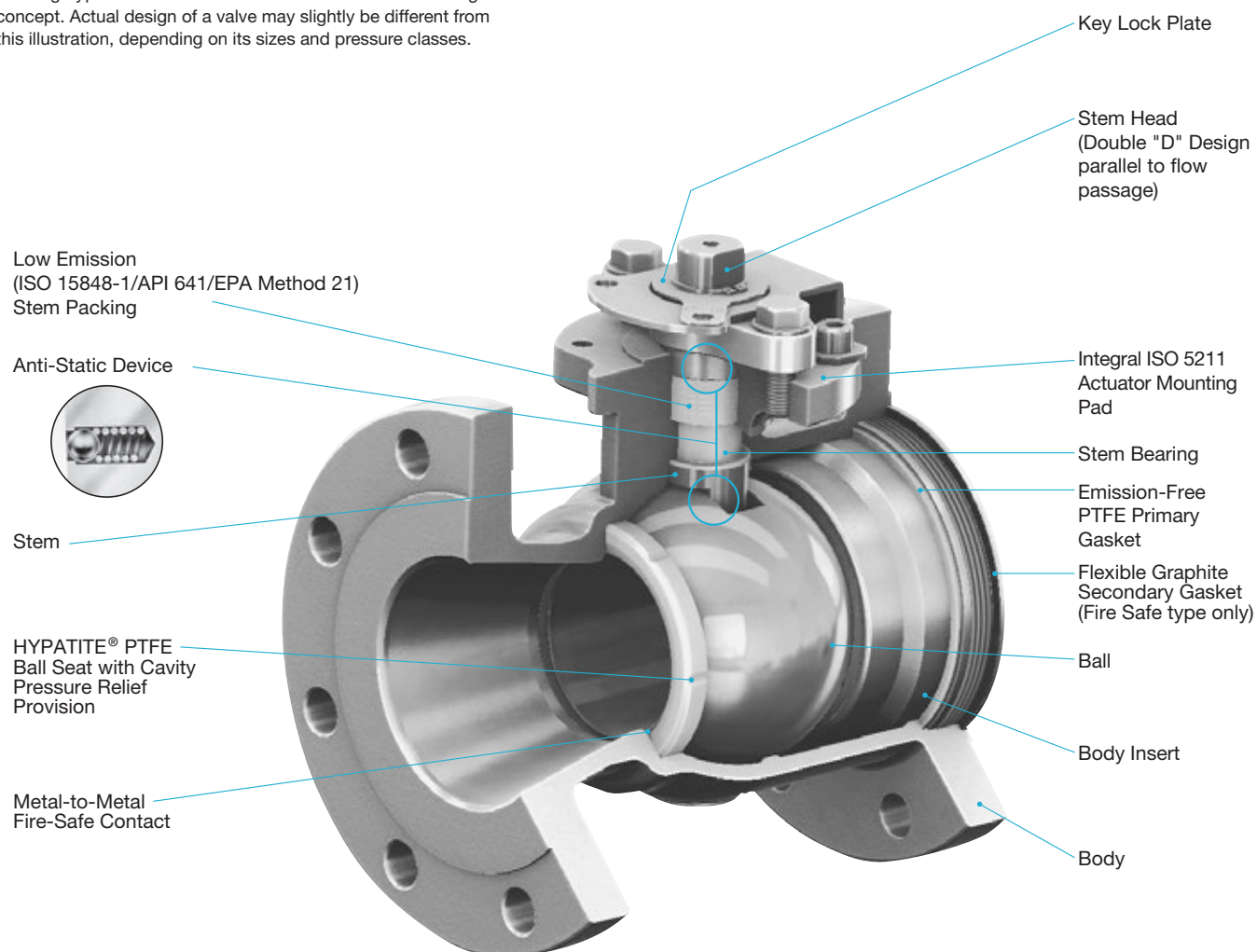
For 150/300SCTDZ/UTDZM and SCTAZ/UTAZM Series Ball Valves, **ISO 5211** actuator mounting pad is integrally provided for uniformly simplified mounting of any actuators provided with valve mounting flanges designed to ISO 5211. 150UTBM Series Ball Valves are provided with KITZ Standard integral actuator mounting pad.

Easy Maintenance

Split Body Design for KITZ SCTDZ/UTDZM Series provides conveniences of easy maintenance critically required for process plants. In order to provide maintenance to KITZ 150/300SCTAZ/UTAZM, uni-body, side entry floating ball valves, its insert can be removed from the body by unscrewing.

KITZ 150/300SCTAZ/UTAZM Series Reduced Bore, Uni-Body, End Entry Ball Valves

This is an illustrated cross-section of typical KITZ uni-body floating type reduced bore ball valve to exhibit basic design concept. Actual design of a valve may slightly be different from this illustration, depending on its sizes and pressure classes.



150SCTAZ Size 1 1/2

Extensive Safety Considerations

KITZ Ball Valves are designed with extensive safety considerations for users. Blow-out proof stem, provision of locking device and prevention of misalignment of lever handle provides safe operation in the field and trouble free operation in the plant. Anti-static device, fire-safe design and cavity pressure relief features all assure economic benefits of smooth and steady plant operation. KITZ advancements in low emission design features contribute to global battle against fugitive emission while greatly reducing costs caused by product loss.

For Sour Service

Hardness of Body, Body Cap/Insert, Ball and Stem materials of KITZ Class 150/300 Steel Ball Valves are controlled by appropriate heat treatment and conformed to the hardness requirements of NACE MR 0175, as standard. In addition following requirements are optionally available.

- Bolting for Valves exposed to sour environment
- NACE requirements for Steel Ball Valves in Class 600 and higher.

Kindly contact KITZ for these requirements.

Seven Safety Considerations

for KITZ 150/300SCTDZ/UTDZ(M) 150UTB(M) and 150/300SCTAZ/UTAZ(M) Series Ball Valves

1. Double "D" Stem Head Design provides mounting of lever handle always in parallel to the flow passage. This feature prevents lever handle from being installed in wrong orientation. (Fig. 1)
2. Lower end of the stem is designed with integral collar for blowout-proof. (Fig. 2)
3. Anti-Static Feature is provided to ensure electrical continuity between ball, stem and body. (Fig. 2)
4. Facility to mount locking device for preventing accidental valve operation is provided.
5. Plant fires are serious concern for soft-seated ball valves due to possible fluid leakage by deterioration of resilient sealing materials.

KITZ Ball Valves are engineered for fire-safety and successfully fire tested to minimize both external and internal fluid leakage after plant fires. Our Ball Valves have post-fire metal-to-metal contact of all sealing areas, such as:

- Contact between ball and valve shell (Fig. 3 and 4)
- Contact between stem and valve shell (Fig. 5 and 6)
- Valve shell coupling flanges of split body design (Fig. 7 and 8)
- Contact between valve body and insert of uni-body design (Fig. 9)

Problem with external fluid leakage is more serious than internal leakage through the valve bore due to fear of fueling fire. To prevent this, KITZ Ball Valves may be ordered with flexible gland packing and gasket, which are extremely heat resistant, and will not be affected by the fire.

6. Surfaces of stem and stuffing box, and interface clearance of stem-to-gland, stem-to-body and gland-to-stuffing box are precisely controlled by machining and assembly for low emission service. Belleville Spring Washer is employed for live loading gland bolts, to minimize needs of re-tightening bolts for low emission service.
7. Some amount of line fluid is usually left, trapped inside of ball-body cavity. This left-over fluid can expand under the influence of high ambient or line temperature. An excessive cavity pressure rise may sometimes damage the valve seats or ball, unless the valve has an adequate pressure relief mechanism. Trunnion Mounted Ball Valves generally provides perfect protection against this problem. Please contact KITZ for details.

With Floating Ball Valves, however, because of its rather simple seating principle, it require special protection from excessive cavity pressure rise, in highly volatile liquid service with frequent and large temperature variation, as the valve is not frequently operated. KITZ 150/300 SCTDZ/UTDZ(M) and 150/300 SCTAZ/UTAZ(M) Series Ball Valves offer self-relieving of excessive cavity pressure as standard feature engineered in HYPATITE® PTFE Ball Seats.

Other general solution for floating ball valves include employment of automatic pressure relief valve or drilling pressure equalization hole on the ball. If requirement of automatic cavity pressure relief is critical as in chlorine service, be sure to contact KITZ or its distributors for technical advice.

The capability is influenced by many variables, including: fluid characteristics, variations in pressure, temperature and thermal cycles.

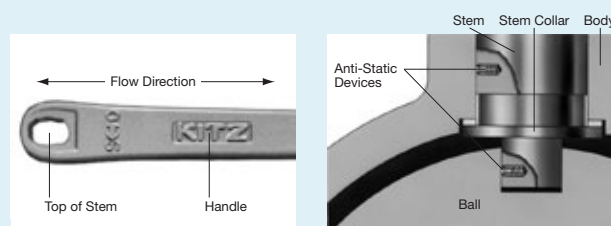


Fig. 1

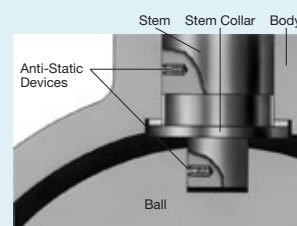


Fig. 2

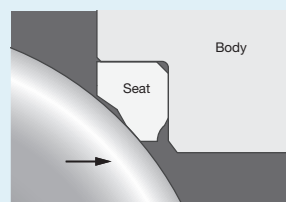


Fig. 3 (Before Fire)

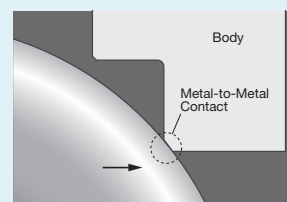


Fig. 4 (After Fire)

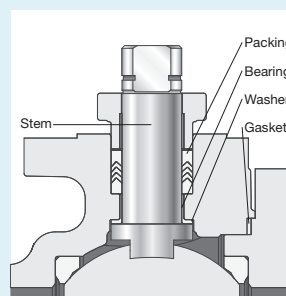


Fig. 5 (Before Fire)

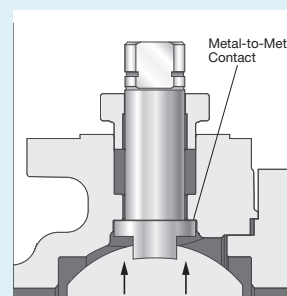


Fig. 6 (After Fire)

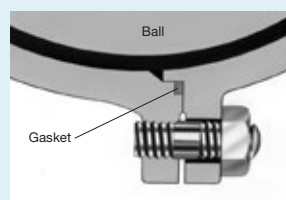


Fig. 7 (Before Fire)

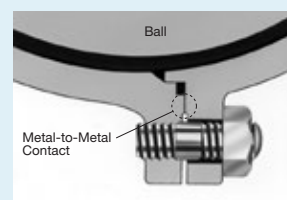


Fig. 8 (After Fire)

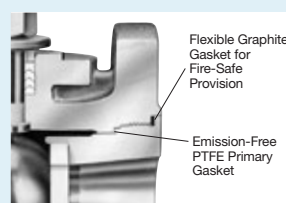


Fig. 9 (Uni-Body Insert)

Emission Free PTFE Gasket is provided as standard for primary body seal. Flexible Graphite Gasket may be additionally employed as the secondary body seal for Fire-Safe Provision.

KITZ Steel Ball Valves for High Temperature

Design Features for Trim 3H, 5H, 6H

Split-Body, Side-Entry, Full-Bore Design

This is an illustrated cross-section of a typical KITZ High Performance Ball Valve for demonstrating the basic design concept. Actual design of a valve may slightly be different from this illustration, depending on its size and pressure class.

Stem Head conforms to CAPI ADDS 2.02 Dimension
(Double "D" Design parallel to flow passage)

Flexible Graphite
Low Emission (ISO 15848/EPA Method 21)
Stem Packing

Upper and Lower
Carbon Stem Bearing

Blowout-Proof Stem Collar

Locking Hole

Integral Actuator
Mounting Pad
(ISO 5211, CAPI ADDS 2.02)

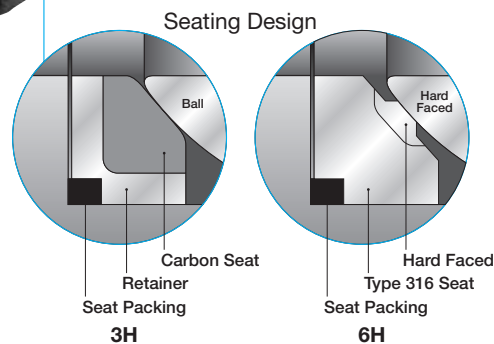
Metal-to-Metal
Fire Safe Contact

Flexible Graphite
Flange Gasket

Trim 3H: 304 (or 316) Ball
Trim 6H: Hard-Faced 316 Ball

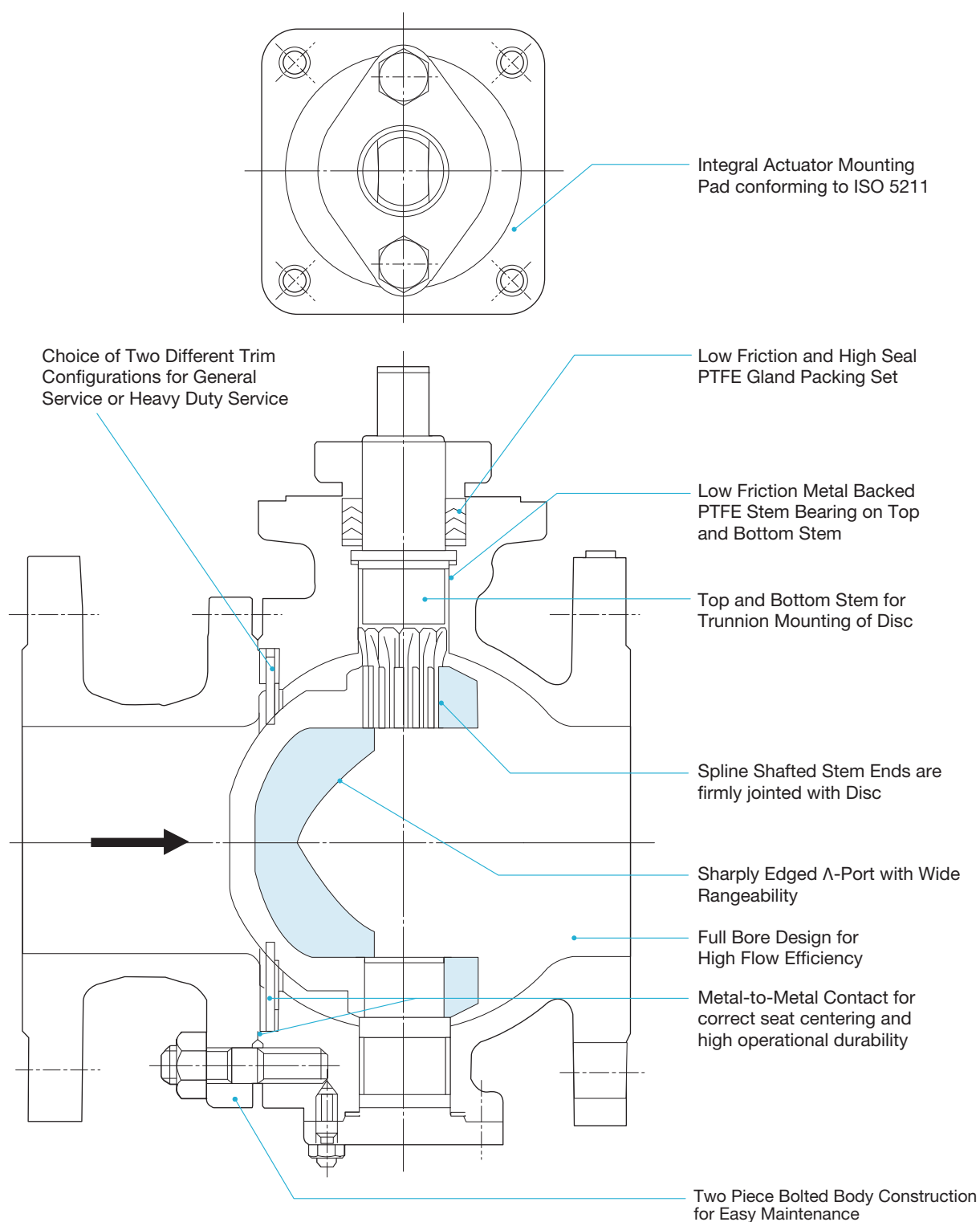
Note:
Dimensions of Stem Head is in accordance with CAPI ADDS 2.02, but
maximum specified dimension is CAPI ADDS 2.02 is "F14".
For NPS 8 and 10, Mounting Pads are in F16/ISO 5211.

150UTDZ6H Size 2



Λ (Lambda)-Port Control Valves

Design Features



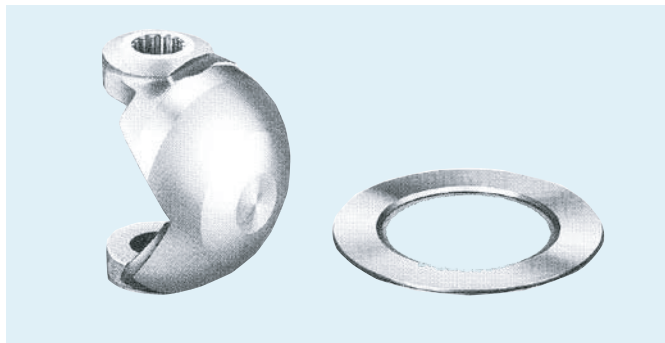
BAL

Steel Ball Valves

Design Features

1. Sharp Solid Cutting

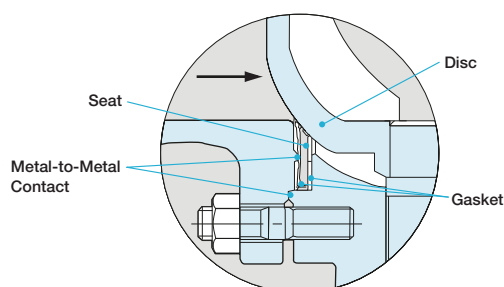
Trunnion mounted disc is sharply edged for cutting solids and fibrous objects mixed in line fluids, preventing disturbance to valve closing operation and minimizing fluid residue within the valve bore.



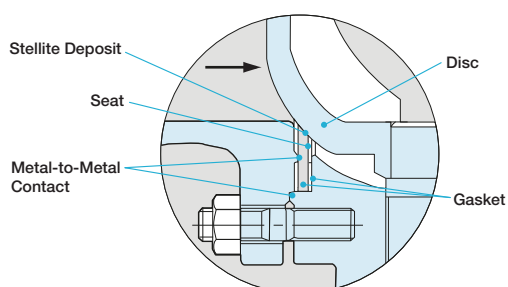
2. Choice of Trims

Depending on the service conditions, choice of two different trim configurations are available.

FLEKSEAT, made of Spring in Stainless Steel Type 316, provides elasticity in its contact with hard-chromium plated CF8M Disc for higher sealing performance. This seat is recommended for pulp and paper mill process control and services where higher sealing performance is critically required for valve shut-off. This seat is suited for throttling service. (KITZ Fig. UVC)



KNIFESEAT, made of Stellite Deposited Steel Type 316, contacts Hard-Chromium Plated CF8M Disc for heavy duty services. This seat is recommended for slurry service, and all other abrasion services. Also good for high viscosity services including pulp and paper mill processes. It is also recommended for throttling service. (KITZ Fig. UVCT)



3. Structural Reliability

Metal-to-Metal Contact is accommodated between body and cap, and between seat and cap, for correct seat centering and adequate depressing force. Spline shafted stem ends are firmly jointed to the disc for correct disc centering and higher operational durability. In addition, trunnion mounting of disc to the body helps increase total structural reliability of the valve against extraordinary piping stress.

4. Stabilized Operating Torque

Metal Backed PTFE Stem Bearings are employed on Top and Bottom Stem for minimized and stabilized torque in valve operation. Fine finish of the disc surface and other sliding surfaces of components also helps smooth operation of the valve.

5. Maintenance Ease

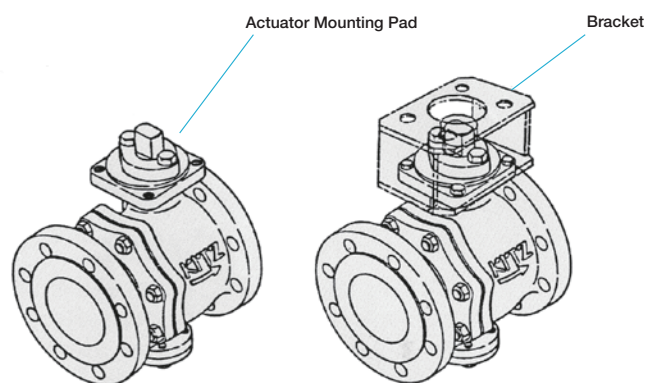
Two-Piece Split Body Construction provides convenience of easy maintenance which is always critically required for handling viscous or fibrous line fluids.

6. High Flow Efficiency

Full Bore Design guarantees maximized and linear flow characteristics with minimized pressure loss, helping viscous or fibrous line fluids to pass through valve bore smoothly.

7. Valve Automation

Quarter-Turn Valve drive mechanism enables technically easier valve mounting measures such as electric and pneumatic actuators. Integral Mounting Pads are provided for easy, safe and assures on-the-spot actuator mounting without disassembly of valve glands, as required by ISO Standard. Note: Customers are requested to prepare mounting brackets and connectors for their valve actuation as illustrated below.



Caution: Caution: KITZ Λ -Port Control Valves are designed for uni-directional flow control. Be sure to install the valve correctly, so that the direction of line flow matches the direction of arrow mark casted out on the valve body.

Design Data

Design Specifications

Valve Structure	Split Body, Side Entry, RF-Flanged, Full Bore, Trunnion Mounted Disc
Wall Thickness	ASME B16.34 Class 150/Class 300
Face to Face Dimension	JIS B2002 or ASME B16.10 Class 150/Class 300 for Ball Valves
End Connection	RF-Flanged to JIS B22020 10K/20K or ASME B16.5 Class 150/Class 300
Actuator Mounting Pad	ISO 5211
P-T Rating	JIS B2220 10K/20K or ASME B16.34 Class 150/Class 300
Operation	Quarter Turn

Test Pressure

Seat Test Hydrostatic or Pneumatic at 0.39 MPa (4 kgf/cm ² or 60 psi)	FLEKSEAT for General Service	Allowable Leakage 0.0005% of Nominal Cv to IEC 534-4 Class IV-SI or ANSI FCI 70-2 Class IV×0.05
	KNIFESEAT for Heavy Duty Service	Allowable Leakage 0.5% of Nominal Cv to IEC 534-4 Class II or ANSI FCI 70-2 Class II

Maximum Allowable Seat Leakage (Per Minute under 0.4 MPa Test Pressure)

Nominal Size		FLEKSEAT (UVC)			KNIFESEAT (UVCT)	
NPS	DN	Cv at Full Opening	Hydrostatic (cc/min)	Pneumatic (NL/min)	Cv at Full Opening	Hydrostatic (L/min)
1	25	25	3.6	1.08	31	4.45
1½	40	85	12.2	3.66	100	14.4
2	50	145	20.8	6.24	160	23.0
2½	65	240	34.5	10.35	265	38.1
3	80	380	54.6	16.38	400	57.5
4	100	550	79.0	23.70	585	84.1
5	125	960	138	41.40	1010	145
6	150	1500	216	46.80	1550	223
8	200	2700	388	116.40	2750	395
10	250	4300	618	185.40	4400	632
12	300	6200	891	267.30	6300	905
14	350	8200	1178	353.40	8300	1193

Conditions: Absolute Air Pressure of 0.1 MPa at 20°C

T60S Series Soft Seated 3-Piece Body Trunnion Mounted Ball Valves



Design Standards

- Basic Design: API 6D/ISO 14313
- Face to Face Dimension: API 6D/ASME B16.10
- End Connection: ASME B16.5
- Bore Diameter: API 6D/ISO 14313
- Wall Thickness: ASME PBVC Section V III

Product Range

- Nominal Pressure: ASME Class 150 to 1500
- Nominal Size: NPS 2 to NPS 24 (DN 50 to DN 600)
- Shell Materials:
 - Carbon Steel, Alloy Steel,
 - Austenitic Stainless Steel, Duplex Stainless Steel,
 - High Alloy Steel, Nickel Based Alloy
- Ball Seat Materials:
 - RPTFE (Reinforced PTFE), Modified PTFE,
 - RNylon (Reinforced Nylon), DEVLON V[®],
 - PEEK

Certification

- Fugitive Emission: ISO 15848-1 BH CO1
- Fire Test: API 607/API 6FA/ISO 10497
- PED: 2014/68/EU
- ATEX: 2014/34/EU
- SIL: IEC 61508 (SIL 2)

Design Features

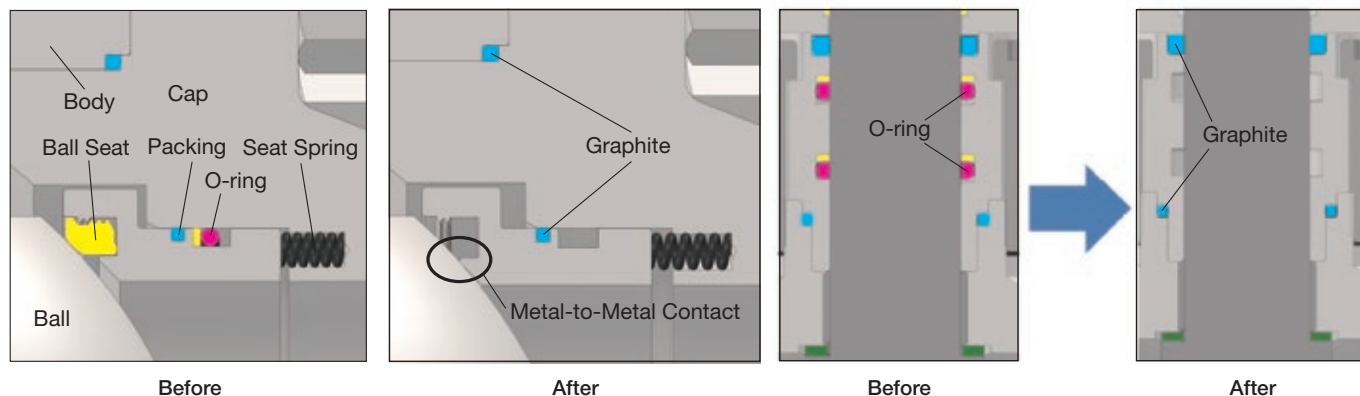
- Structure: 3-piece Bolted Body and Cap
- Standard Materials: NACE MR0175, ASTM and others
- Tight Shut-off Sealing Mechanism
- Low Operating Torque
- Triple Stem Sealing System with 2-Orings & Packing
- Double Block and Bleed Function
- Self Relief of Excessive Cavity Pressure
- Fire Safe Tested
- Blowout-Proof Ball Seat & Stem Construction
- Anti-Static Provision Design
- Locking Device for Lever Operation
- ISO 5211 Actuator Mounting Pad
- Available for DPE (Double Piston Effect)/SPE (Single Piston Effect)

Design Features

1. Fire Safe Design

(1) Internal Leakage Prevention

When resilient sealing materials are damaged or destroyed by plant fire, edges of upstream and downstream metal seat retainers preloaded by seat springs to come in contact with the ball to shut-off line fluid to minimize internal leakage through valve bore. And by flexible graphite seat retainer packing rings of KITZ original design prevents fluid leakage between valve cap and seat retainer during and after the plant fire.



(2) External Leakage Prevention

External leakage from valve stem area is prevented by double sealing mechanism with O-rings and flexible graphite gland packing rings. Leakage through valve body joint is protected by flexible graphite gaskets. Even after fire deteriorates O-rings, flexible graphite gland packing rings and gaskets remain intact to prevent external fluid leakage.

2. Tight Shut-off Sealing Mechanism

Resilient seat design maintains each upstream and downstream ball seats in contact with the ball adequately, by means of repulsing force of seat springs inserted behind seat retainers. Line fluid pressure also helps this contact method. This sealing mechanism features unfailing thru-the-bore sealing performance of upstream and downstream side ball seats at the same time.

3. Double Block and Bleed Function

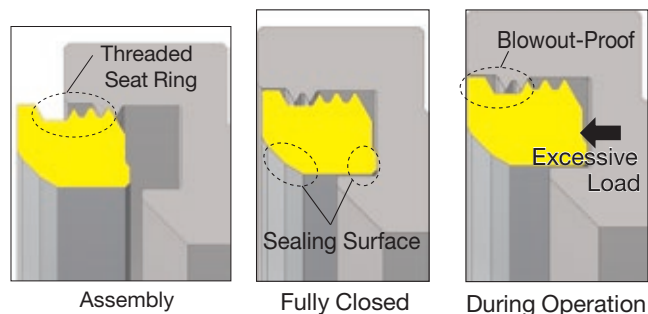
Ball seats independently shuts off line fluid on upstream and downstream side of the ball. Valve bore and body cavity are isolated from each other when valve is fully open or closed. Under this condition, cavity pressure can be discharged with a vent valve and a drain plug. Vent valve is equipped with blowout-proof bleeder for safe discharge. Relieving cavity pressure with a vent valve is recommended for safe draining.



Design Features

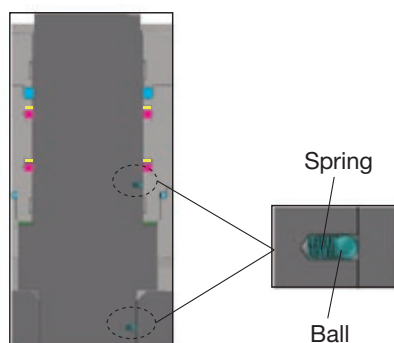
4. Blowout-proof Ball Seat Assembly

As illustrated below, ball seats are threaded into unthreaded back of seat retainers to reach inner walls and lower shoulders of seat retainers for tight sealing surface-to-surface contact. This unique design provides easy maintenance and blowout-proof seat assembly when ball seats are excessively loaded by back pressure, due to incidental cavity pressure rise.



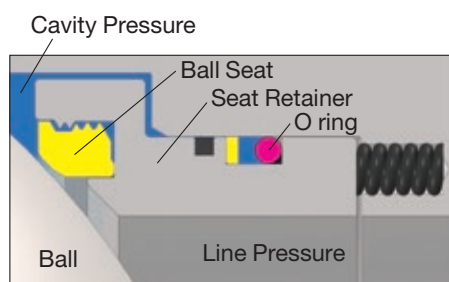
5. Antistatic Design

Spring loaded balls assembled between the stem and bonnet and the stem and ball permits electric conductivity through all metallic valve components.



6. Cavity Pressure Relief

In case service or ambient temperature rises incidentally, liquefied gas or highly volatile liquid trapped within body cavity may vaporize and cause excessive rise in cavity pressure. For safety consideration, when cavity pressure exceeds line pressure, either one of ball seats will move slightly away from the ball surface together with seat retainers to relieve excessive cavity pressure into the valve bore.



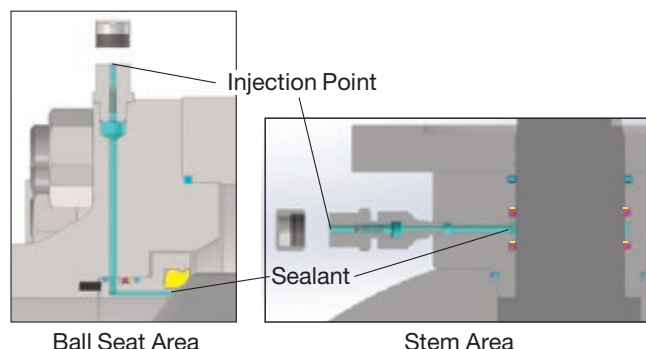
7. Low Emission Guaranteed Design

Fugitive Emission suppressing design for both resilient and metal seated valves are ISO 15848 Tightness Class "B" certified (Lower than 10^{-4} mg·s⁻¹·m⁻¹ for stem leakage and lower than 50 ppmv for body leakage). This verifies outstanding low emission performance of the whole sealing mechanism in the valve.

8. Options^{*1}

(1) Emergency Seal Restoration^{*2}

For accidental leakage from ball seats or stem sealing area, sealant supply mechanism may be provided as an option. Should sealing parts be damaged or decomposed by a fire or other accidental causes, leakage can be temporarily prevented or reduced by sealant injection into this mechanism.



(2) Special Shell and Trim Materials

(3) Special Sealing Component Materials

(4) Butt-weld Piping Connection

(5) Pipe Pups Welded to Valve Ends

(6) DIB: Double Isolation and Bleed (Double Seal)^{*3}

(7) Stem Extension

(8) Overlay for Bore and Cavity

(9) Actuation (Pneumatic and Electric)

^{*1} For all optional provisions, please contact KITZ representative or local distributors.

^{*2} Standard design for North American market.

^{*3} Any combination of DPE (Double Piston Effect)/SPE (Single Piston Effect) is available.

T60M Series Metal Seated 3-Piece Body Trunnion Mounted Ball Valves



Design Standards

- Basic Design: API 6D/ISO 14313 (Except CL 600-24)
- Face to Face Dimension: API 6D/ASME B16.10
- End Connection: ASME B16.5
- Bore Diameter: API 6D/ISO 14313
- Wall Thickness: ASME PBVC Section V III

Product Range

- Nominal Pressure: Class 150 to 600
- Nominal Size: NPS 2 to 24 (DN 50 to 600)
- Shell Materials:
 - Carbon Steel, Alloy Steel,
 - Austenitic Stainless Steel, Duplex Stainless Steel,
 - High Alloy Steel, Nickel Based Alloy
- Seat Materials:
 - 316SS + Ni-Cr Alloy Thermal Spraying

Certification

- Fugitive Emission: ISO 15848-1 BH CO1
- Fire Test: API 6FA
- PED: 2014/68/EU
- ATEX: 2014/34/EU
- SIL: IEC 61508 (SIL 2)

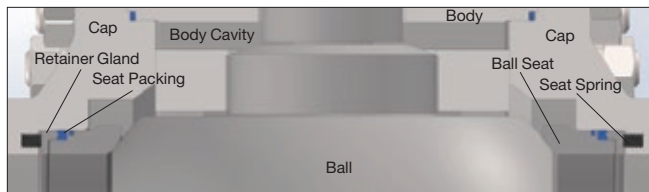
Design Features

- Structure: 3-piece Bolted Body and Cap
- Standard Material: NACE MR0175, ASTM and others
- High Performance Sealing Mechanism
- Low Operating Torque
- Packing with Live Loaded Sealing Mechanism
- Double Block and Bleed Function
- Self-Relief of Excessive Cavity Pressure
- Fire Safe Design
- Blowout-Proof Ball Seat & Stem Construction
- Anti-Static Provision
- Locking Device for Lever Operation
- ISO 5211 Actuator Mounting Pad

Design Features

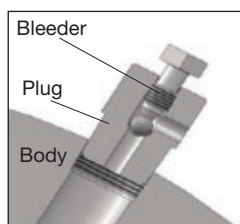
1. High Performance Sealing Mechanism

Metal seat design, as with resilient seat design, adequately maintain each upstream and downstream ball seats in contact with the ball by means of repulsing force of seat springs inserted behind seat retainers. Line fluid pressure also helps this contact method. This sealing mechanism features unfailing thru-the-bore sealing performance of upstream and downstream side ball seats at the same time. In addition, by having surfaces of the ball and ball seats in contact thermally sprayed with high alloy material, this provides higher wear resistance and durability for high temperature and abrasive services.



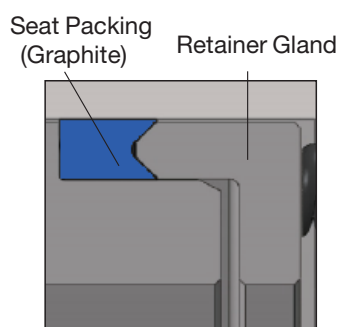
2. Double Block and Bleed Function

Ball seats independently shuts off the line fluid on upstream and downstream side of the ball. Valve bore and body cavity are isolated from each other when the valve is fully open or closed. Under this condition, the cavity pressure can be discharged with a vent valve and a drain plug. Vent valve is equipped with a blowout-proof bleeder for safe discharge. Relieving cavity pressure with a vent valve is recommended for safe draining.



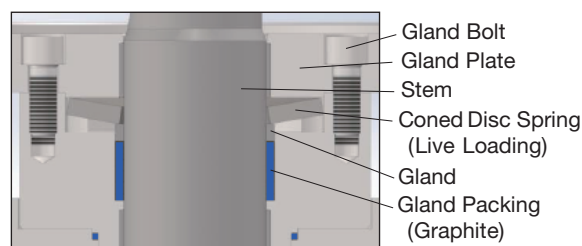
3. High Performance Seat Packing

Unique graphite seat packing rings with retainer glands provide reliable shut-off sealing performance during the entire service life.



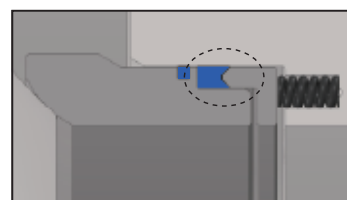
4. Live Loaded Packing Structure

Gland packing ring is compressed with coned disc spring to prevent stress relaxation. This live loaded packing system provides highly durable sealing performance with no need of packing re-tightening.



5. Cavity Pressure Relief

In case incidental rise of service or ambient temperature, liquefied gas or highly volatile liquid trapped within the body cavity may vaporize and cause excessive rise in cavity pressure. For safety consideration, when cavity pressure exceeds the line pressure, either one of ball seats will move slightly away from the ball surface together with seat retainers to relieve excessive cavity pressure into the valve bore.



6. Low Emission Guaranteed Design

Fugitive emission suppressing design for both resilient and metal seated valves are certified to ISO 15848 tightness class "B" (lower than 10^{-4} mg.s⁻¹ m⁻¹ for stem leakage and lower than 50ppmv for body leakage). This verifies outstanding low emission performance of whole sealing mechanism of the valve.

7. Options*

- (1) Special Shell and Trim Materials
- (2) Special Sealing Component Materials
- (3) Butt-weld Piping Connection
- (4) Pipe Pups Welded on Valve Ends
- (5) Stem Extension
- (6) Overlay for Bore and Cavity
- (7) Actuation (Pneumatic and Electric)

*For all optional provisions, please contact KITZ representative or local distributors.

KITZ Ball Seat Materials

Following seat materials are available.

Material	Features	Maximum Service Temperature
Virgin PTFE	High chemical resistance and operation efficiency	200°C
HYPATITE® PTFE	Monomer permeability is lower and resistance against compression and creeping is higher than other PTFE materials	260°C/270°C * ¹
Carbon filled PTFE	Excellent heat and abrasion resistance	260°C/270°C * ¹
FILLTITE*	Highest heat resistance among PTFE based materials	300°C * ²
Graphite	Excellent for high temperature service	500°C
Metal	Excellent for high temperature and abrasive service	500°C/525°C * ³
PEEK	Higher heat resistance and mechanical strength	270°C
Glass fiber filled PTFE with MoS ₂	Higher abrasion resistance and operation efficiency	230°C
Nylon with MoS ₂	Higher mechanical strength	140°C

*: FILLTITE is specially reinforced ball seat, made by using more carbon based fillers into PTFE compared to conventional carbon filled PTFE, which generally improves heat and abrasion resistance. This material provides excellent operability, durability, chemical resistance and sealing performance at a high temperature of 300°C. In addition, ball seats are interchangeable with most of our conventional ball seats, and also have the cost advantage.

*1 270°C: SCTDZ/UTDZM Series only.

*2 Uni-body design: 260°C

*3 525°C: T60M/SF3TC 6H UF3TC6HM Series only.

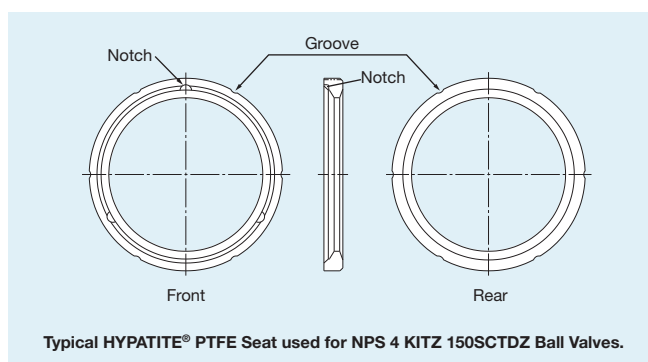
HYPATITE® PTFE Ball Seats (Carbon and Stainless Steel Valves)

As manufacturer's standard, KITZ ball valves are furnished with **HYPATITE® PTFE** ball seats made of denatured PTFE, molecularly reinforced PTFE copolymer and specially engineered for high performance which includes:

- Wide service temperature range of -29°C (-20°F) through 270°C (518°F) for SCTDZ/UTDZ(M) Series and 260°C (500°F) for UTB and SCTAZ/UTAZ(M) Series.

This is standard valve design and materials used for medium to high temperature services. Lower temperature range can be extended down to -196°C (-321°F) by means of extended bonnet design and special low temperature serviced materials.

- High chemical resistance comparable to virgin PTFE.
- Monomer permeability lower than other PTFE materials.
- High mechanical strength against compression, creeping (cold flow) and superior to other PTFE materials for long life cycle.
- Smooth operation, as it possesses specific gravity and friction coefficient equal to those of virgin PTFE.
- Prevents contamination in process line with its stability, the performance comparable to virgin PTFE.
- High sealing performance brought by its resiliency, the typical feature of PTFE.



FILLTITE Ball Seats

Highest heat resistance among PTFE based materials.

- Service temperature range: -29°C to 300°C

- Trim symbol: 1H

Technical Data

1. Choice of Trim for Heated Abrasive Services

Metal seated ball valves are guaranteed for maximum service temperature of 300°C (572°F) for trim symbol 5H and 500°C (932°F) for trim symbol 6H^{*1*2}. With hard graphite seated ball valves, maximum service temperature of 500°C (932°F) is also guaranteed for trim symbol 3H^{*2}. For heat resistant sealing and trim materials, quality of these valves for heated and abrasive service, which cannot be properly handled with conventional soft seated ball valves, due to the limited heat resistant characteristics and mechanical properties of the soft seats.

"FILLTITE" is specially reinforced ball seat, using more carbon based fillers into PTFE compared with conventional carbon filled PTFE, which improves heat and abrasion resistance greatly. This material performs excellent operability, durability, chemical resistance and sealing performance at high temperature of 300°C (572°F). In addition, ball seats are interchangeable with most of our conventional ball seats and also have the cost advantage.

*1 Temperature is limited to 450°C (842°F) for trunnion mounted ball valves with trim 6H

*2 WCB Shell Material: Upon prolonged exposure to temperatures above 425°C (797°F), carbide phase of steel may be converted to graphite.

Permissible, but not recommended for prolonged usage above 425°C (797°F).

2. Unconditional Fire-Safe Provision

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

3. Maintenance Ease

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

4. Valve Automation

Quarter-turn valve drive mechanism makes mounting of valve automation measures such as electric and pneumatic actuators technically easier. KITZ floating ball valves employ integral actuator mounting pads, complying with ISO 5211 and CAPI, for easy, safe and assured on-the-spot actuator mounting without disassembly of valve glands.

8. Metal Seated Ball Valves (Trim 5H/6H)

Rigid construction with full 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.

● Trim Materials

Valve Design	Floating Ball Valve		Trunnion Mounted Ball Valve	
			Split body	3-piece body
Trim Symbol	5H	6H *3	6H	
Temperature	300°C	500°C	450°C	525°C
	572°F	932°F	842°F	977°F
Seat Leakage* ¹	ANSI FCI 70-2 Class VI			ISO 5208 RateC/ ANSI FCI 70-2 Class VI ⁴
Parts	Ball	ASTM A276 Type 316 or ASTM A351 CF8M + Cr plated	ASTM A276 Type 316 or A351 Gr.CF8M + SFNi ²	ASTM A276 Type 304 + SFNi ²
	Ball Seat	ASTM A276 Type 316 + SFNi ²	ASTM A276 Type 316 + SFNi ²	ASTM A276 Type304 + SFNi ²
	Stem	ASTM A 564 Type 630	ASTM A 564 Type 630	ASTM A276 Type304 + SFNi ²
				~343°C/649°F : ASTM A564 Type630 ~525°C/977°F : EN 1.4980

*1 Maximum allowable seat leakage *2 Ni-Cr alloy thermal spraying

*3 WCB Shell Material: Upon prolonged exposure to temperature above 425°C (797°F), carbide phase of steel may be converted to graphite.

Permissible, but not recommended for prolonged usage above 425°C (797°F).

*4 Please contact KITZ representative or distributors for details.

5. High Flow Efficiency

Full port design provides maximized and linear flow characteristic with minimal pressure loss as the line flow travels through the valve bore. This is necessary design requirement particularly for trouble-free service of slurries and other viscous fluids.

6. FILLTITE Seated Ball Valves (Trim1H)

● Highest heat resistance among PTFE based materials.

Valve Design		Floating Ball Valve	Trunnion Mounted Ball Valve
Trim Symbol		1H	
Temperature		300°C	
		572°F	
Parts	Ball	ASTM A276 Type 304 ^{*1} or A351 Gr.CF8 ^{*1}	
	Ball Seat	FILLTITE® PTFE	
	Stem	ASTM A276 Type 304 ^{*2} ASTM A276 Type 316 ^{*2}	

*1 CF8M Shell Material: Ball Type 316 or CF8M

*2 CF8M Shell Material: Stem Type 316



7. Hard Graphite Seated Ball Valves (Trim 3H)

● Bi-directional flow.

● Recommended for low abrasion service.

Valve Design		Floating Ball Valve
Trim Symbol		3H ^{*3}
Temperature		500°C
		932°F
Seat Leakage* ¹		ANSI FCI 70-2 Class VI
Parts	Ball	ASTM A276 Type 304 ^{*1} or A351 Gr.CF8 ^{*2}
	Ball Seat	Carbon + JIS SUS329J1 ^{*3}
	Stem	ASTM A276 Type 304 ^{*4}

*1 Maximum allowable seat leakage *2 CF8M Shell Material: Ball Type 316 or CF8M

*3 Equivalent to AISI Type 329

*4 CF8M Shell Material: Stem Type 316

*5 WCB Shell Material: Upon prolonged exposure to temperature above 425°C (797°F) carbide phase of steel may be converted to graphite.
Permissible, but not recommended for prolonged usage above 425°C (797°F).



Caution:

● Not recommended for throttling service.

● Not recommended for high abrasion service.

● Maximum working temperature for oxidizing service, such as high temperature air, is 450°C (842°F).



● Durable metal seat design and materials also provides fully guaranteed throttling service performance, which makes KITZ metal seated ball valves function as reliable control valve.

● Bi-directional flow.

Caution:

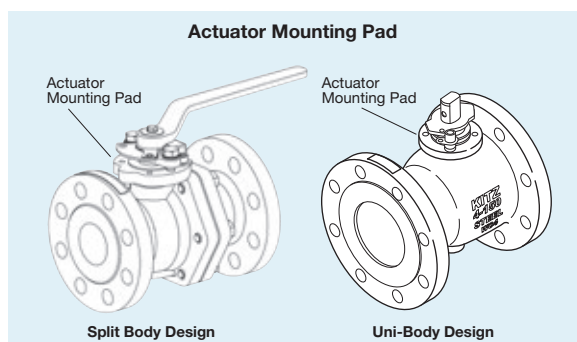
● Use gear operator or valve actuator to fix valve position when used for throttling service.

Dimension of Actuator Mounting Pads

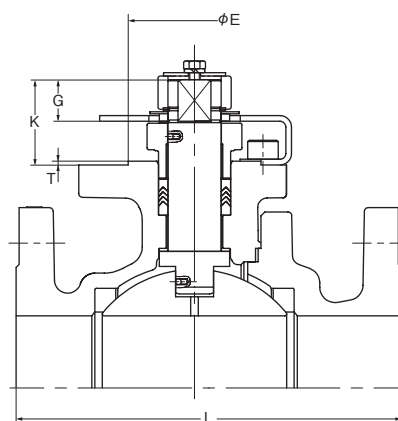
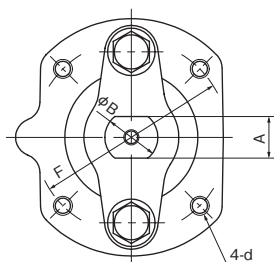
Integral Actuator Mounting Pads

KITZ 150/300 SCTDZ/UTDZ(M) Series and 150/300 SCTAZM/UTAZ(M) Series ball valves are furnished with integral actuator mounting pad designed and factory-drilled according to ISO 5211 Standard specification. This feature facilitates the installation of actuators with ISO 5211 mounting flange to the valves. Mounting pad and stem head dimension also conforms to CAPI ADDS 2.02.

Note: Customers are requested to prepare mounting brackets and connectors for the actuators chosen for their valve automation. Actuators can be mounted on KITZ ball valves without disassembly of valve glands.



Dimensions of ISO 5211 Actuator Mounting Pad for Class 150 / 300 Full Port, Split Body, Side Entry Design Ball Valves



Dimensions

Unit: mm

Nominal Pressure	Nominal Size (NPS)	-0.05 -0.10 A	-0.1 -0.2 ΦB	-0.1 -0.2 ΦE	±0.2 ΦF	G	K	L	d M Thread	T	ISO 5211 Flange Type
Class 150	1/2	9	12	25	36	9	22	108	M5	1	F03
	3/4	9	12	25	36	9	22	117	M5	1	F03
	1	14	18	35	50	14	30	127	M6	1.5	F05
	1 1/4	14	18	35	50	14	30	140	M6	1.5	F05
	1 1/2	17	22	55	70	17	34	165	M8	1.5	F07
	2	17	22	55	70	17	34	178	M8	1.5	F07
	2 1/2	22	28	70	102	22	45	190	M10	2	F10
	3	22	28	70	102	22	45	203	M10	2	F10
	4	27	36	85	125	27	52	229	M12	2	F12
	5	27	36	85	125	27	52	356	M12	2	F12
Class 300	6	36	48	100	140	36	63	394	M16	2	F14
	8	46	60	130	165	46	79	457	M20	2	F16
	10	46	60	130	165	46	79	533	M20	2	F16
	1/2	9	12	25	36	9	22	140	M5	1	F03
	3/4	9	12	25	36	9	22	152	M5	1	F03
	1	14	18	35	50	14	30	165	M6	1.5	F05
	1 1/2	17	22	55	70	17	34	190	M8	1.5	F07
	2	17	22	55	70	17	34	216	M8	1.5	F07
	2 1/2	22	28	70	102	22	45	241	M10	2	F10
	3	22	28	70	102	22	45	283	M10	2	F10
	4	27	36	85	125	27	52	305	M12	2	F12
	6	36	48	100	140	36	63	403	M16	2	F14
	8	46	60	130	165	46	79	502	M20	2	F16

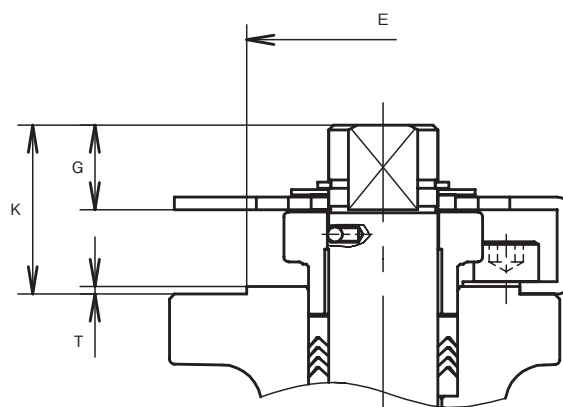
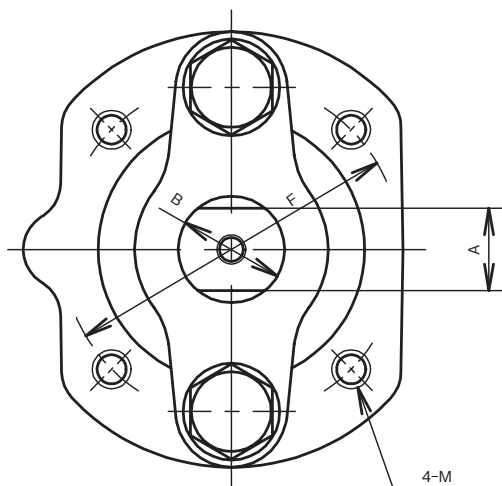
*KITZ Product Codes:

- (1) 150UTDZ(M) (4) 300SCTDZ
 (2) 150SCTDZ (5) 150UTDZXL(M)
 (3) 300UTDZ(M) (6) 300UTDZXL(M)

Note: Dimension of stem head are in accordance with CAPI ADDS 2.02, but the maximum specified dimension in CAPI ADDS 2.02 is "F14".
 For NPS 8 and 10, mounting pads are F16/ISO 5211.

Dimension of Actuator Mounting Pads

Dimensions of ISO 5211 Actuator Mounting Pad for Class 150 / 300 Reduced Bore, Uni-Body, End Entry Design Ball Valves



Dimensions

Unit: mm

Nominal Pressure	Nominal Size (NPS)	Mounting Dimensions for Actuator								ISO 5211 Flange Type
		A	B	E	F	G	K	T	M	
Class 150	1/2	7	10	25	36	8.5	18	1	M5	F03(2)
	3/4	7	10	25	36	8.5	18	1	M5	F03(2)
	1	9	12	25	36	9	22	1	M5	F03
	1 1/2	14	18	35	50	14	30	1.5	M6	F05
	2	17	22	55	70	17	34	1.5	M8	F07
	3	22	28	70	102	22	45	2	M10	F10
	4	22	28	70	102	22	45	2	M10	F10
	6	27	36	85	125	27	52	2	M12	F12
	8	36	48	100	140	36	63	2	M16	F14
Class 300	10	46	60	130	165	46	79	2	M20	F16
	1/2	7	10	25	36	8.5	18	1	M5	F03(2)
	3/4	7	10	25	36	8.5	18	1	M5	F03(2)
	1	9	12	25	36	9	22	1	M5	F03
	1 1/2	14	18	35	50	14	30	1.5	M6	F05
	2	17	22	55	70	17	34	1.5	M8	F07
	3	22	28	70	102	22	45	2	M10	F10
	4	22	28	70	102	22	45	2	M10	F10
	6	27	36	85	125	27	52	2	M12	F12
	8	36	48	100	140	36	63	2	M16	F14
	10	46	60	130	165	46	79	2	M20	F16

*These dimensions are specified as F03S by CAPI.

★UNC threads optionally available.

KITZ Product Codes:

- (1) 150SCTAZ (3) 300SCTAZ
(2) 150UTAZ(M) (4) 300UTAZ(M)

Pressure-Temperature Ratings

Pressure-Temperature rating of ball valves are determined, not only by valve shell materials, but more essentially by sealing materials used for ball seats, gland packing and gaskets. Sealing materials may be high molecule or rubber, but the choice is limited by the characteristics of service fluid, working temperatures, working pressure, velocity of fluid and operation frequency of the valves.

As it is very difficult to predetermine the exact pressure-temperature rating for all kinds of fluid under all imaginable conditions, based on our past experiences, both in the field

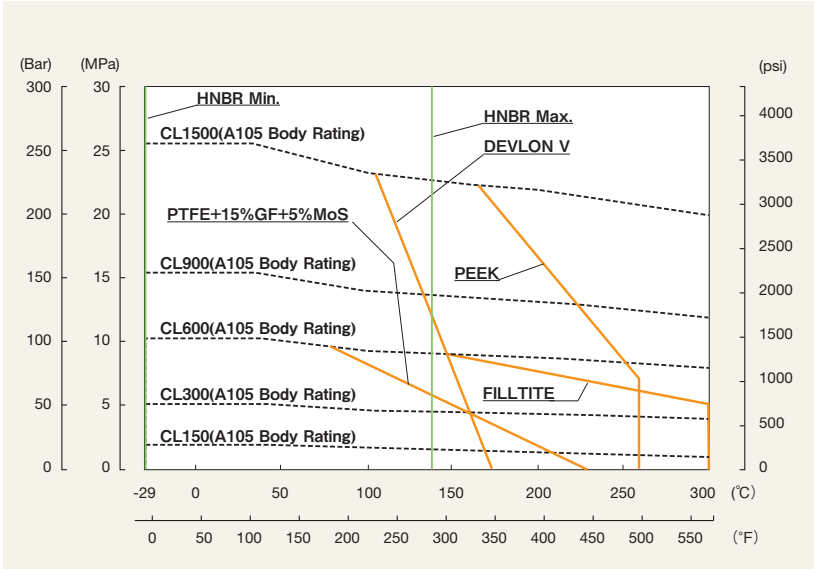
and in our laboratory, we have prepared general rating charts for non-shock fluid service as below. In case of extraordinary service conditions as the following, kindly contact KITZ representative or its distributors for technical advice:

- 1. Valves shall be left fully closed for a long period of time under high temperature or high differential pressure.
- 2. Valves shall be frequently operated under high temperature or high differential pressure.
- 3. Frequent change of line pressure or temperature.

HYPATITE® PTFE is the standard seat material for KITZ ball valves. Specify virgin PTFE or carbon-filled PTFE when required. The body ratings shown here are for ASTM A216 Gr. WCB and A351 Gr. CF8M. For the pressure ratings of other valve shell materials, refer to the latest edition of ASME B16.34.

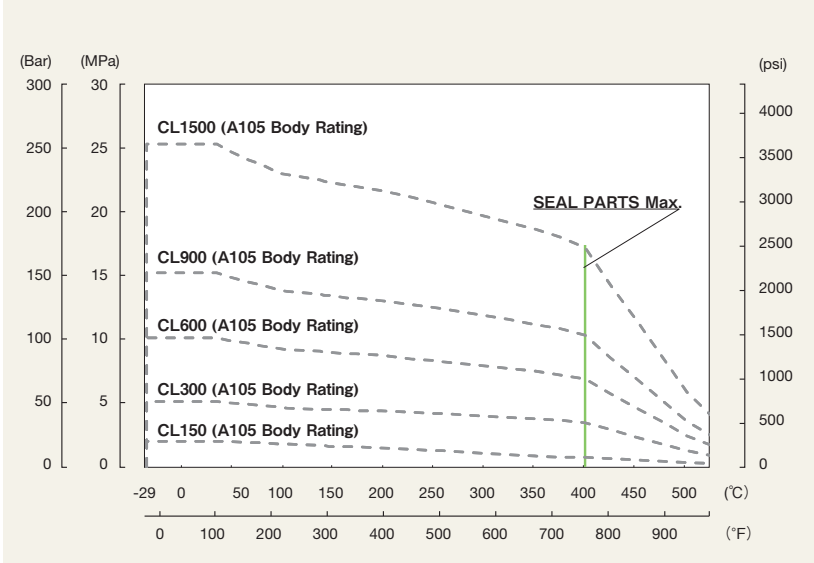
FILLTITE is specially reinforced ball seat using carbon based fillers into PTFE at higher rate than conventional carbon filled PTFE, which greatly improves heat and abrasion resistance. This material has excellent operability, durability, chemical resistance and sealing performance at high temperature of 300°C. In addition, the ball seat is interchangeable with most of our conventional ball seats and also has the cost advantage.

Soft Seated 3-Piece Trunnion Mounted Ball Valves



O-ring Material	Min.Temp. (°C/°F)	Max.Temp. (°C/°F)
NBR	-30/-22	80/176
HNBR	-30/-22	140/284
L-NBR	-50/-58	80/176
L-HNBR	-46/-50	140/284
FKM	-20/-4	200/392

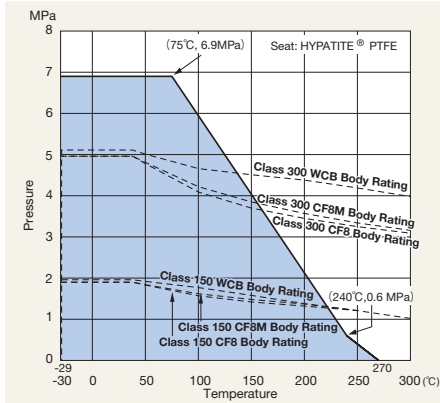
Metal Seated 3-Piece Trunnion Mounted Ball Valves: Trim 6H



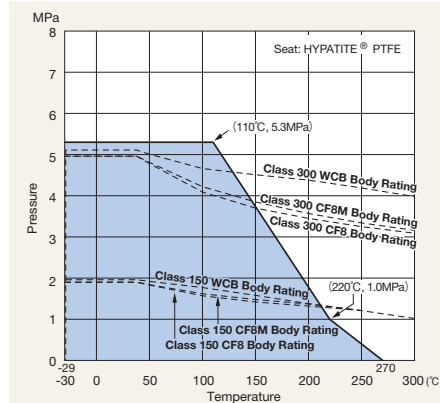
NOTE : In case of using at higher than 400°C please contact KITZ Corporation.

Pressure-Temperature Ratings

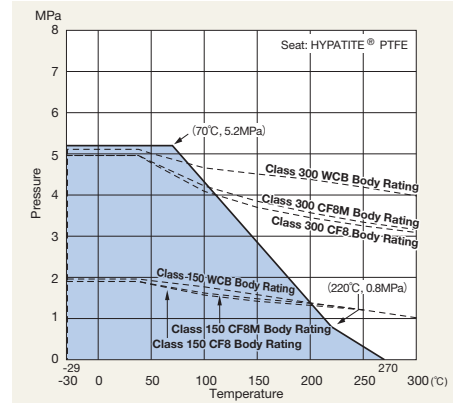
■ 10/20/150/300UTDZ(M)/SCTDZ: NPS 1/2, 3/4



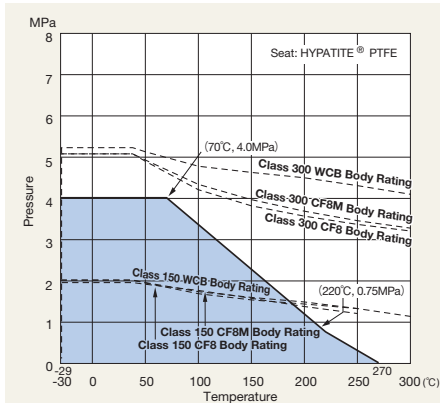
■ 10/20/150/300UTDZ(M)/SCTDZ: NPS 1 to 2 1/2



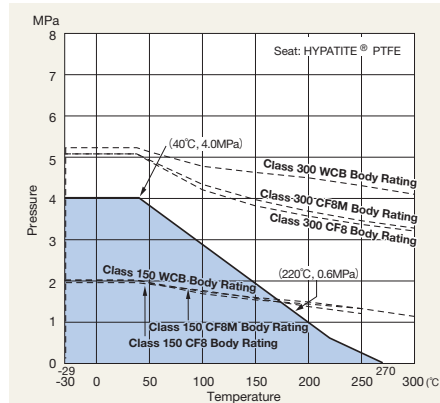
■ 10/20/150/300UTDZ(M)/SCTDZ: NPS 3, 4



■ 10/20/150/300UTDZ(M)/SCTDZ: NPS 5, 6
TDR series: NPS 6, 8

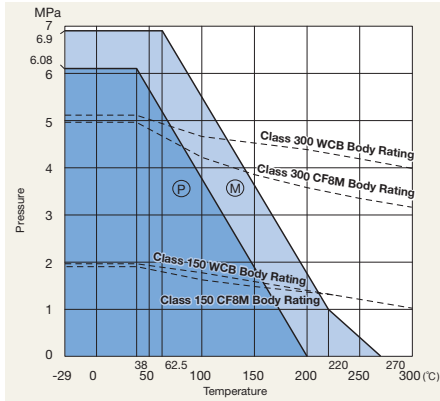


■ 10/20/150/300UTDZ(M)/SCTDZ: NPS 8, 10
TDR series: NPS 10

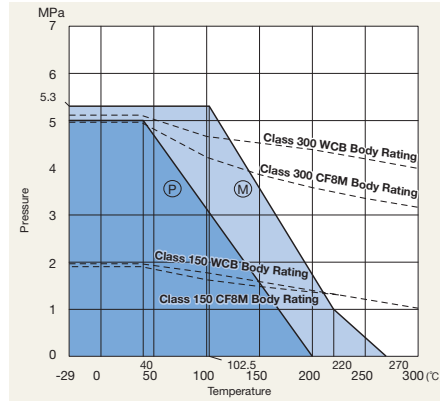


Note: Lowest working temperature for WCB is -29°C.

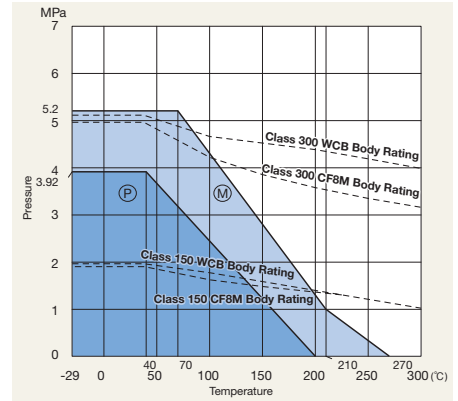
■ 150/300UTAZ(M)/SCTAZ: NPS 1/2 to 1



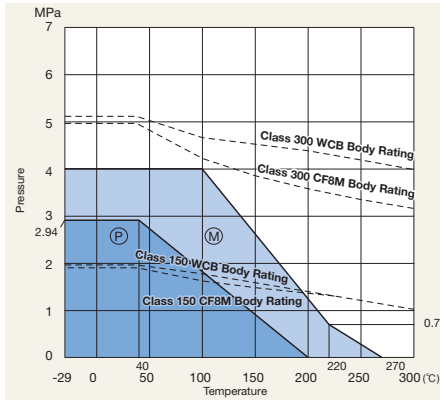
■ 150/300UTAZ(M)/SCTAZ: NPS 1 1/2 to 3



■ 150/300UTAZ(M)/SCTAZ: NPS 4, 6



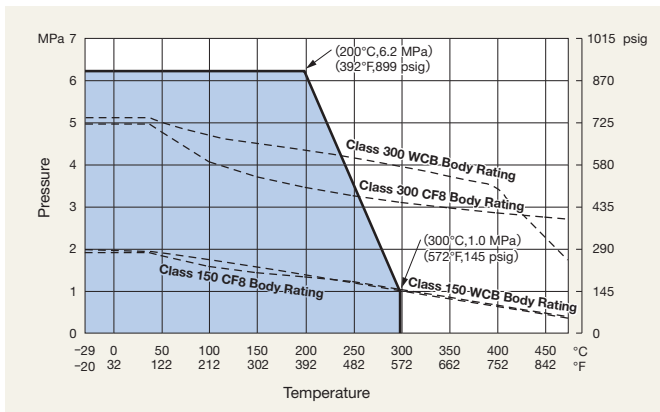
■ 150/300UTAZ(M)/SCTAZ: NPS 8, 10



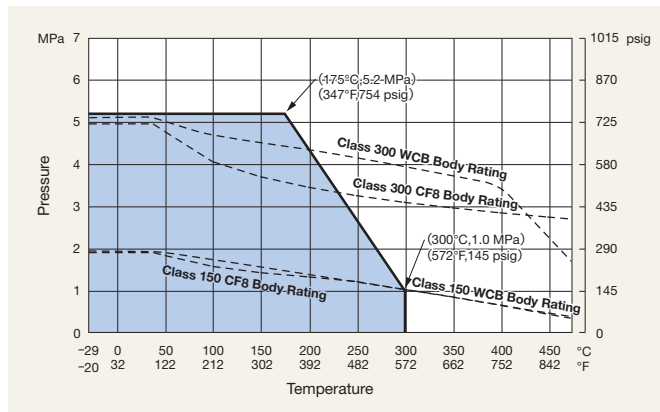
Seat: (P) Virgin PTFE
(M) HYPATITE® PTFE / Carbon-filled PTFE

Pressure-Temperature Ratings

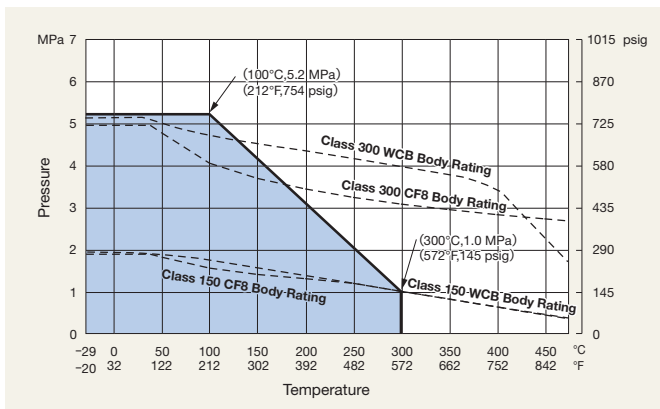
FILLTITE Seated Floating Ball Valves: Trim 1H: NPS 1/2 to 2 1/2



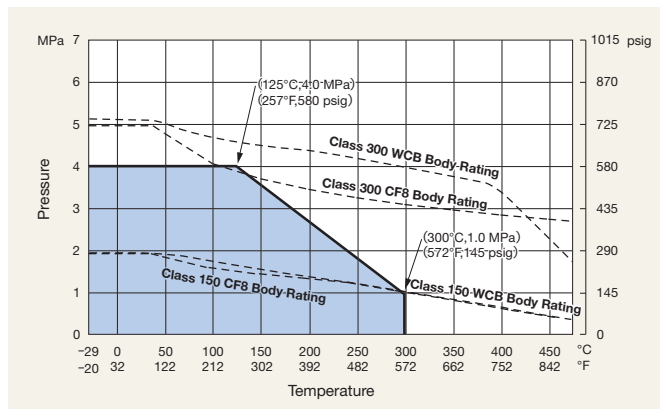
FILLTITE Seated Floating Ball Valves: Trim 1H: NPS 3, 4



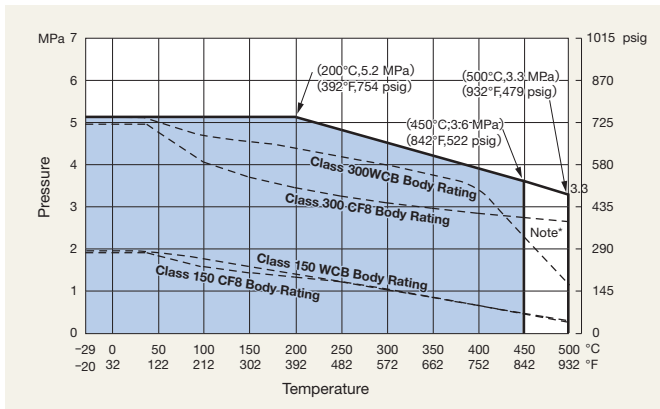
FILLTITE Seated Floating Ball Valves: Trim 1H: NPS 5, 6



FILLTITE Seated Floating Ball Valves: Trim 1H: NPS 8, 10



Hard Graphite Seated Floating Ball Valves: Trim 3H



Note: **3H** Maximum working temperature for oxidizing service, such as high temperature air, is 450°C (842°F).

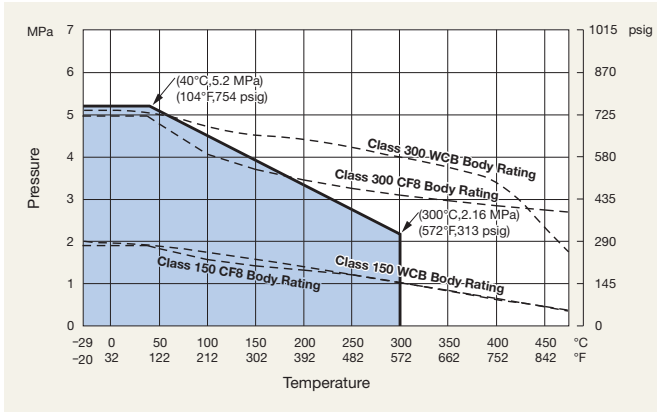
Note: **3H/6H** Serviceable temperature terminates at 300°C (572°F) for JIS 10K and at 425°C (797°F) for JIS 20K.

Note: **3H/6H** WCB Shell material: Upon prolonged exposure to temperatures above 425°C (797°F), the carbide phase of steel may be converted to graphite. Permissible, but not recommended for prolonged usage above 425°C (797°F).

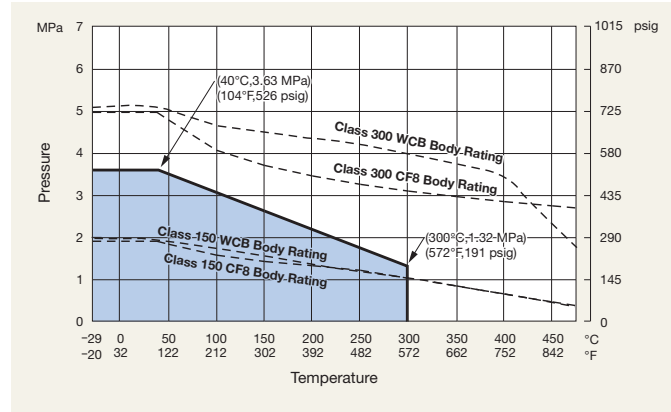
Note: **3H/6H** WCB Shell Material: Upon prolonged exposure to temperatures above 425°C (797°F), carbide phase of steel may be converted to graphite.

Pressure-Temperature Ratings

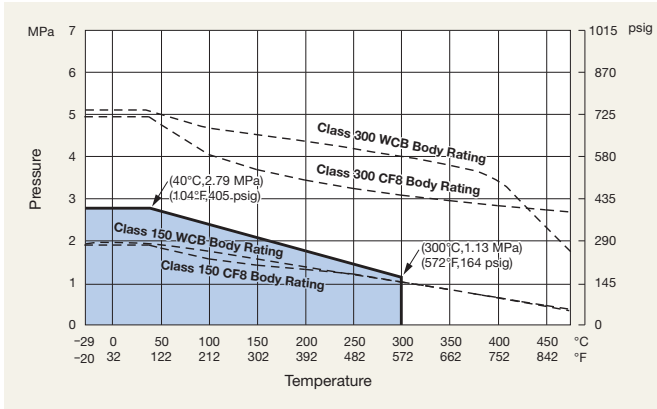
■ Metal Seated Floating Ball Valves: Trim 5H: NPS 1/2 to 1 1/4



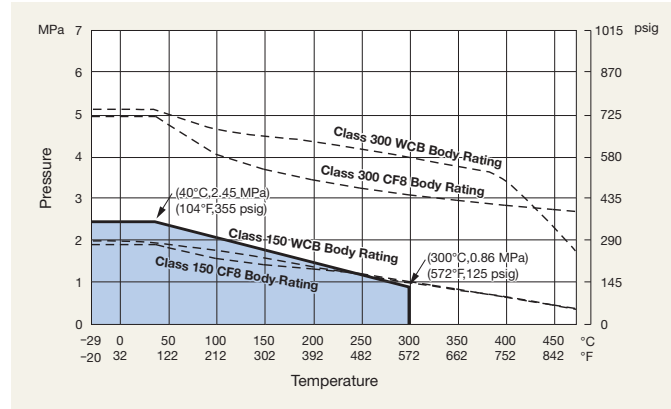
■ Metal Seated Floating Ball Valves: Trim 5H: NPS 1 1/2, 2



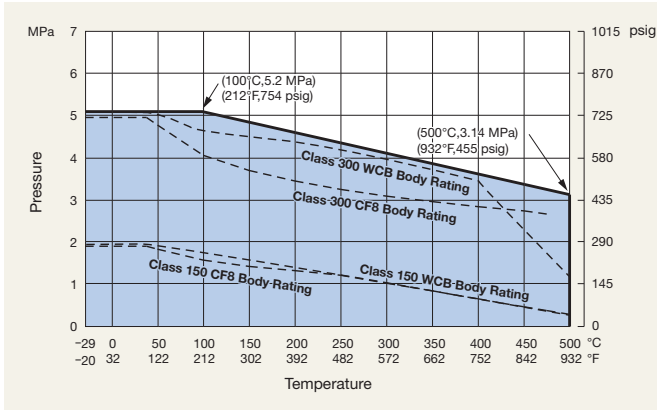
■ Metal Seated Floating Ball Valves: Trim 5H: NPS 2 1/2, 4



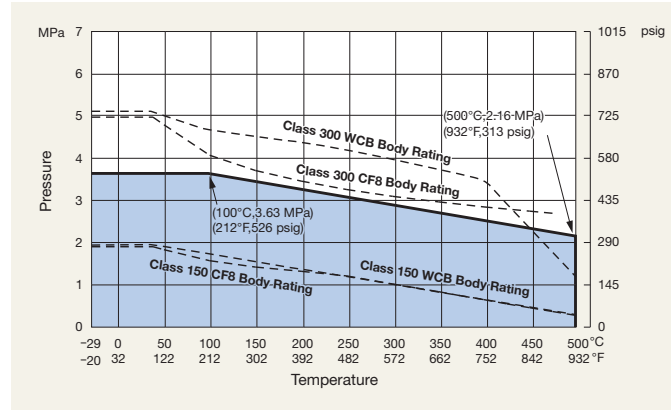
■ Metal Seated Floating Ball Valves: Trim 5H: NPS 5 to 8



■ Metal Seated Floating Ball Valves: Trim 6H: NPS 1/2 to 5

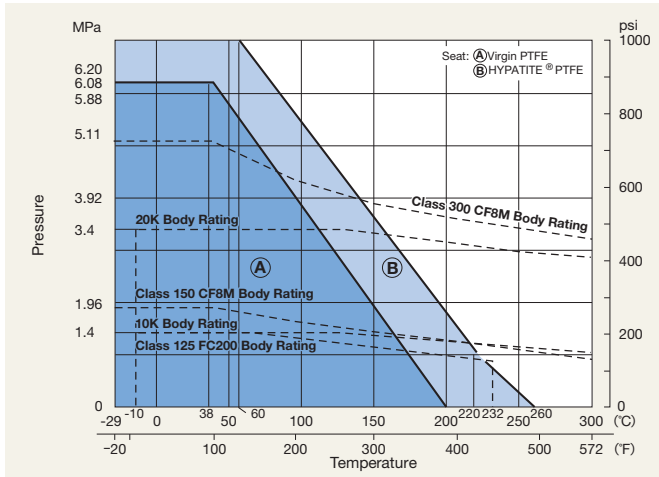


■ Metal Seated Floating Ball Valves: Trim 6H: NPS 6, 8

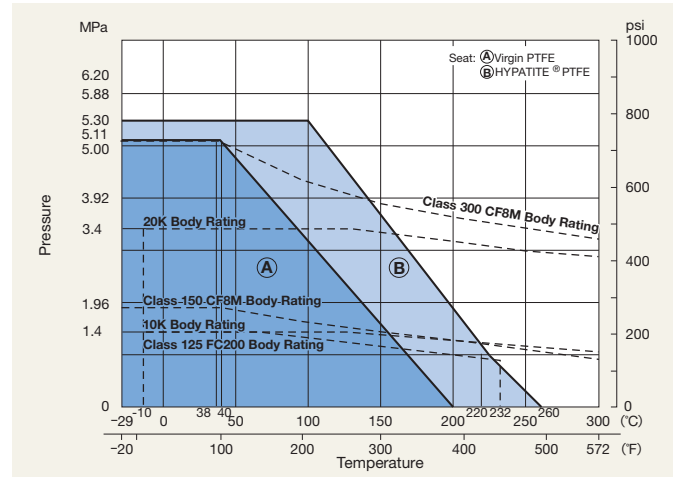


Pressure-Temperature Ratings

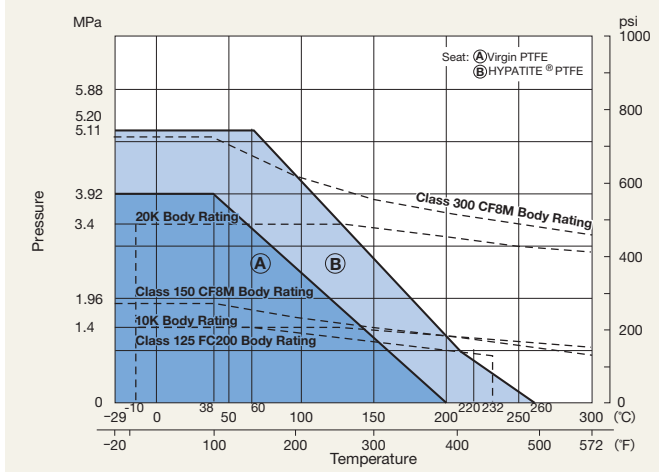
TB Series(*): NPS 1/2, 3/4
TR Series(*): NPS 1/2 to 1



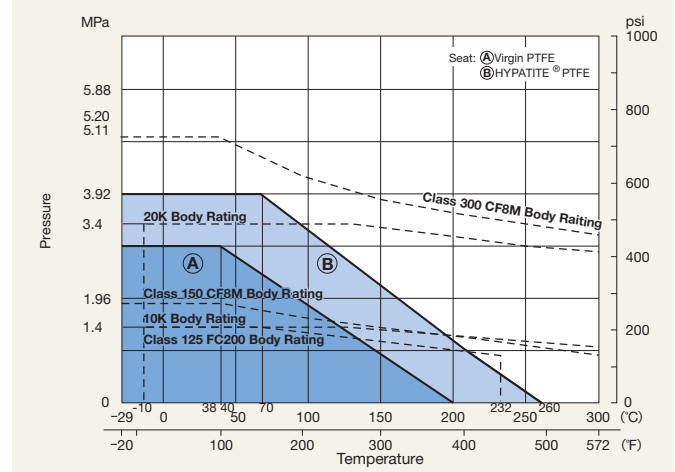
TB Series(*): NPS 1 to 2 1/2
TR Series(*): NPS 1 1/2 to 3



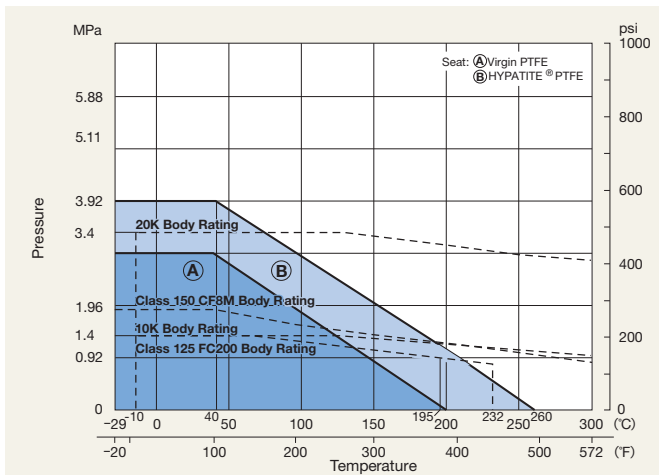
TB Series(*): NPS 3, 4
TR Series(*): NPS 4, 5



TB Series(*): NPS 5, 6
TR Series(*): NPS 6, 8



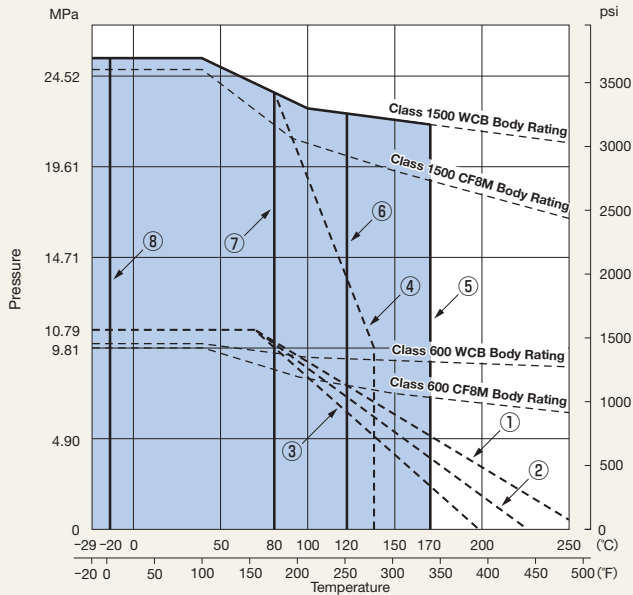
TB Series(*): NPS 8, 10
TR Series(*): NPS 10, 12



(*) except 600/1500, 3-way (4 seats) and PFA lined

Pressure-Temperature Ratings

600/1500SCTB(S)/UTB(M)(S)



Ball Seat Materials

- ①: KITZ HYPATITE[®] or Carbon-filled PTFE
- ②: Glass-filled PTFE with MoS₂
- ③: Virgin PTFE
- ④: Nylon with MoS₂

O-ring Upper Limit

- ⑤: (1) FKM (2) Low Temperature FKM
- ⑥: (1) EPDM (2) ECO (Epichlorohydrin Copolymer)
- ⑦: (1) NBR (2) Low Temperature NBR

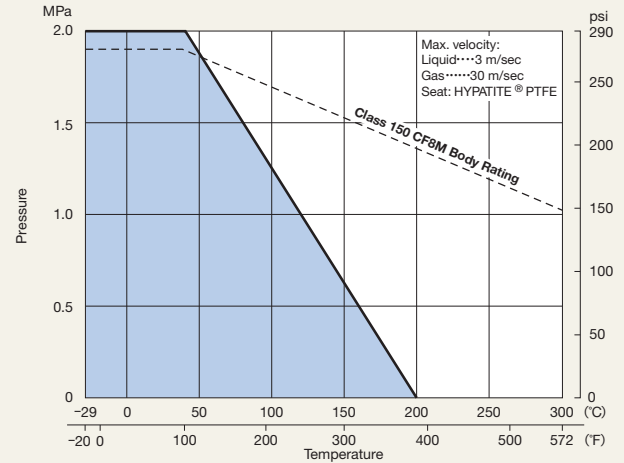
O-ring Lower Limit

- ⑧: FKM

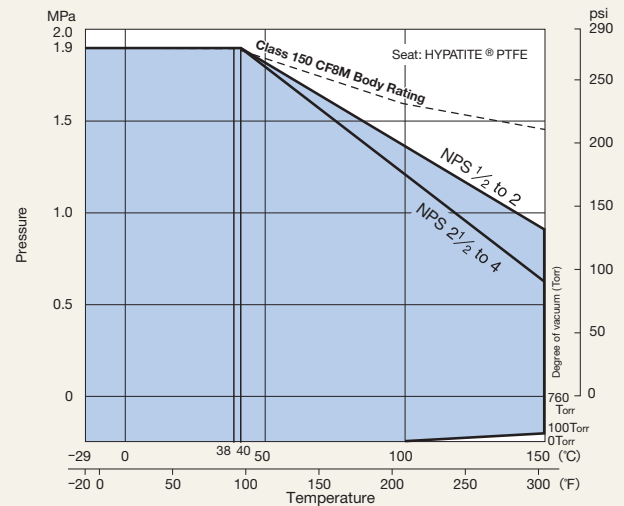
* O-rings made of others than FKM can with stand -29°C (-20°F)

3-way: 150UTB/TR4LA(M)/4TA(M)

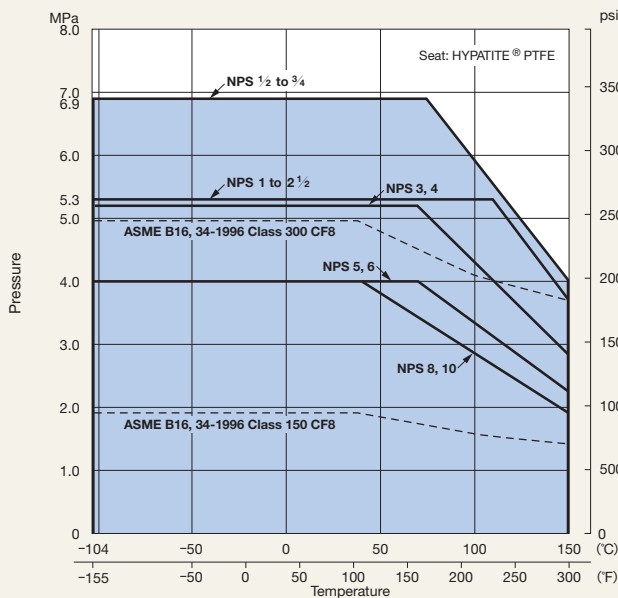
*Refer to 150UTBM Ratings for 150UTB2LM/2TM



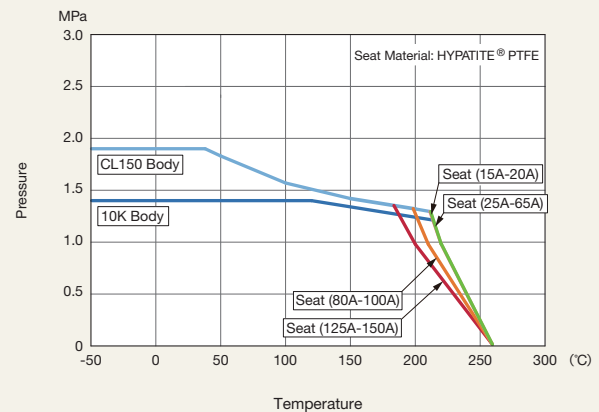
PFA Lined: 150UTBLN



150/300UTDZXL(M)

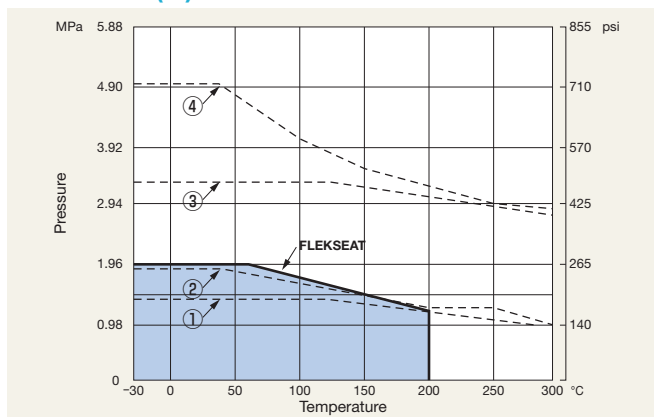


10/15010UTBDXK(M)



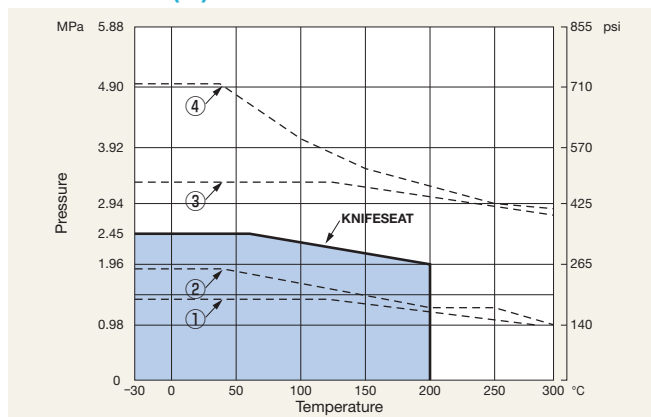
Pressure-Temperature Ratings

150/300UVC(M) 60/20UVC(M)



- ①: Valve Body Rating to JIS B2220 10K Steel
- ②: Valve Body Rating to ASME B16.34 Class 150 CF8
- ③: Valve Body Rating to JIS B2220 20K Steel
- ④: Valve Body Rating to ASME B16.34 Class 300 CF8

150/300UVCT(M) 10/20UVCT(M)



- ①: Valve Body Rating to JIS B2220 10K Steel
- ②: Valve Body Rating to ASME B16.34 Class 150 CF8
- ③: Valve Body Rating to JIS B2220 20K Steel
- ④: Valve Body Rating to ASME B16.34 Class 300 CF8

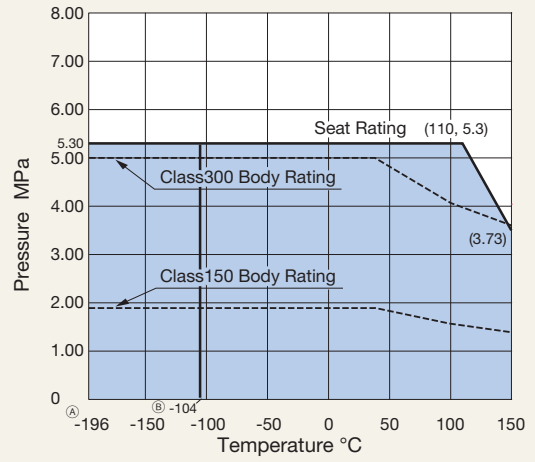
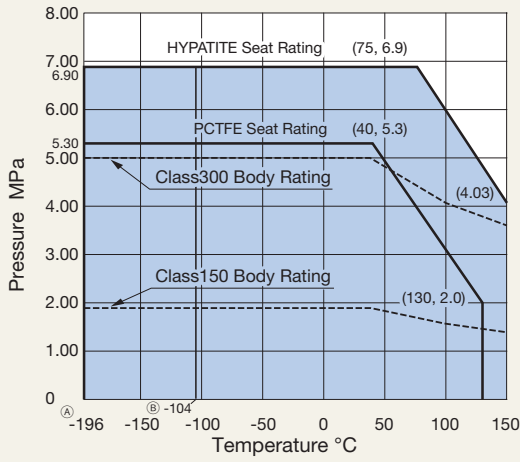
The products introduced in this catalog are all covered by the ISO 9001 Certification awarded KITZ Corporation in 1989, the earliest in the valve industry in Japan.

Pressure-Temperature Rating (Seat Rating)

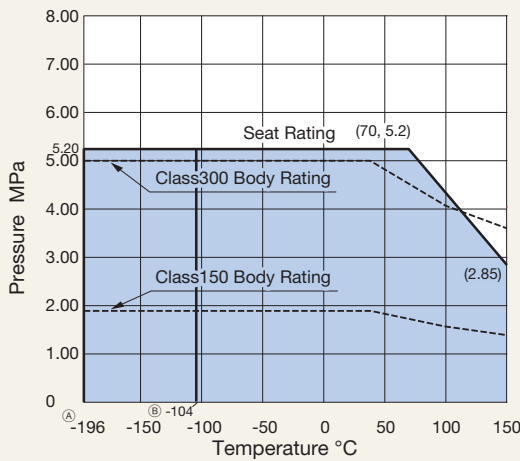
Stainless Steel

- (A) UTAZLM : $\frac{1}{2}B$ to $2B$
- (A) UTDZL : $\frac{1}{2}B$ to $1\frac{1}{2}B$
- (B) UTAZXLM : $\frac{1}{2}B$ to $1B$
- (B) UTDZXL : $\frac{1}{2}B$ to $\frac{3}{4}B$

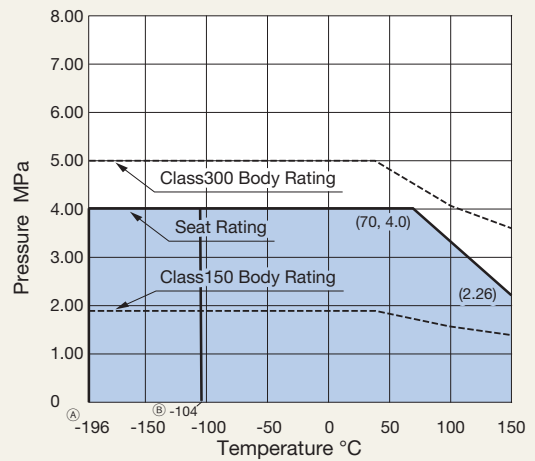
- (A) UTAZLM : $3B$
- (A) UTDZL : $2B$ to $2\frac{1}{2}B$
- (B) UTAZXLM : $1\frac{1}{2}B$ to $3B$
- (B) UTDZXL : $1B$ to $2\frac{1}{2}B$



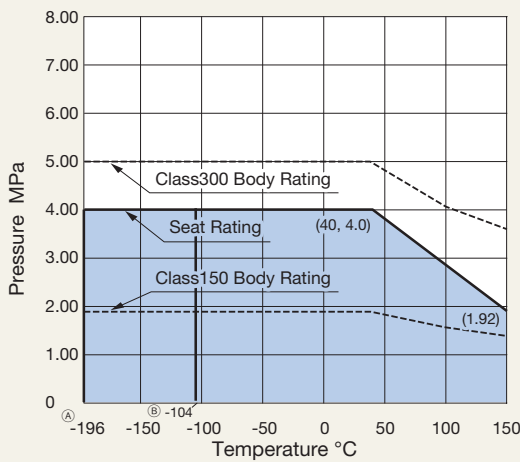
- (A) UTAZLM / (B) UTAZXLM : $4B$ to $6B$
- (A) UTDZL / (B) UTDZXL : $3B$ to $4B$



- (A) UTAZLM / (B) UTAZXLM : $8B$ to $10B$
- (A) UTDZL / (B) UTDZXL : $5B$ to $6B$



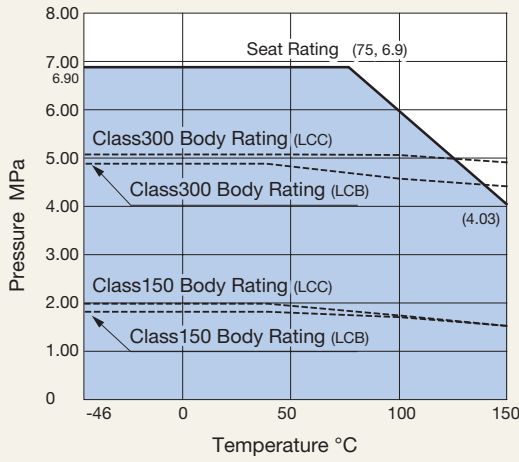
- (A) UTDZL / (B) UTDZXL : $8B$ to $10B$



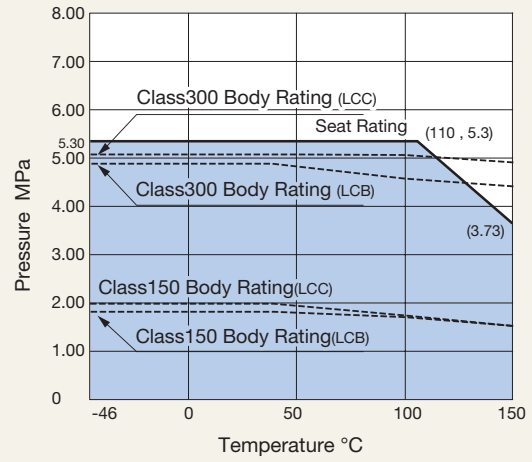
Pressure-Temperature Rating (Seat Rating)

Cast Carbon Steel

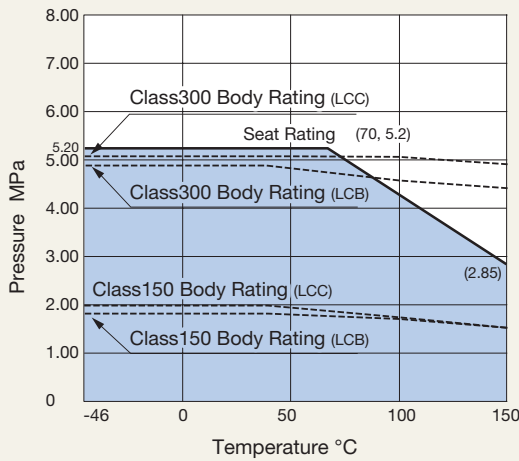
SCTAZXCL(BODY/LCC) : $\frac{1}{2}^B$ to 1^B
 SCTDZXCL(BODY/LCC) : $\frac{1}{2}^B$ to $\frac{3}{4}^B$
 SCTDZXBL(BODY/LCB) : $\frac{1}{2}^B$ to $\frac{3}{4}^B$



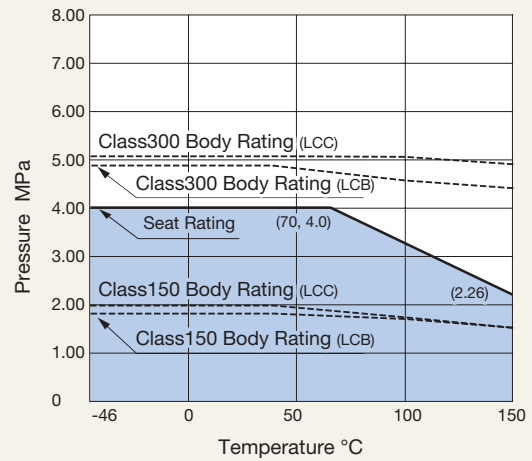
SCTAZXCL(BODY/LCC) : $1\frac{1}{2}^B$ to 3^B
 SCTDZXCL(BODY/LCC) : 1^B to $2\frac{1}{2}^B$
 SCTDZXBL(BODY/LCB) : 1^B to $2\frac{1}{2}^B$



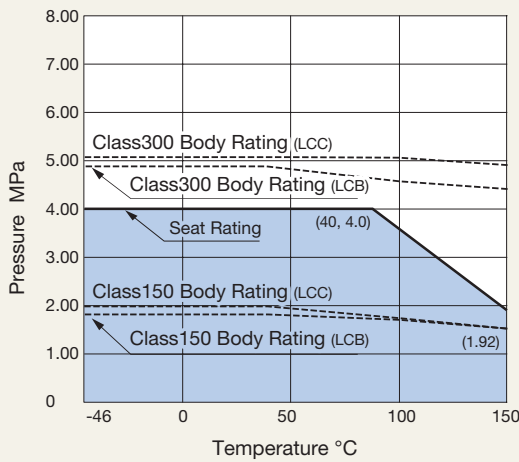
SCTAZXCL(BODY/LCC) : 4^B to 6^B
 SCTDZXCL(BODY/LCC) : 3^B to 4^B
 SCTDZXBL(BODY/LCB) : 3^B to 4^B



SCTAZXCL(BODY/LCC) : 8^B to 10^B
 SCTDZXCL(BODY/LCC) : 5^B to 6^B
 SCTDZXBL(BODY/LCB) : 5^B to 6^B



SCTDZXCL(BODY/LCC) : 8^B to 10^B
 SCTDZXBL(BODY/LCB) : 8^B to 10^B



BAL

Steel Ball Valves

Allowable Port Orientation

Valve Design	Form	Fluid Passage
3-Way 2-Seat L-Port Ball Valve	Top View Form 1 Form 2	1 Flow in Form 1 is between Ports "A" and "C". Flow in Form 2 is between Ports "B" and "C". Flow paths in Form 1 and Form 2 can be exchanged. 2 When fluid pressure P2 in closed path is higher than P1 in open path, slight fluid leakage may occur in P1 through the ball seat of closed path.
3-Way 4-Seat L-Port Ball Valve	Top View Form 1 Form 2	1 Flow in Form 1 is between Ports "A" and "C". Flow in Form 2 is between Ports "B" and "C". Flow paths in Form 1 and Form 2 can be exchanged. 2 When fluid press P2 in closed path is higher than P1 in open path, slight fluid leakage may occur to P1 through the ball seats of closed path.
3-Way 2-Seat T-Port Ball Valve	Top View Form 1 Form 2 Form 3 Form 4 Not Available	1 In Form 1, all ports are open. Flow in Form 2 is between Ports "B" and "C". Flow in Form 4 is between Ports "A" and "C". Flow can be switched from Form 1 to Form 2, (standard operation pattern) or from Form 1 to Form 4 in either direction. Stopper is assembled for standard operation pattern. 2 When fluid pressure P2 in closed path is higher than P1 in the open path, slight fluid leakage may occur to P1 through the ball seat in closed path. ■ Available Operation Patterns • Pattern 1: From Form 4 to Form 1 • Pattern 2: From Form 1 to Form 2 (Standard) Please select one of the above operation patterns at the time of order.
3-Way 4-Seat T-Port Ball Valve	Top View Form 1 Form 2 Form 3 Form 4	1 In Form 1, all ports are open. Flow in Form 2 is between Ports "B" and "C". Flow in Form 3 is between Ports "A" and "B". Flow in Form 4 is between Ports "A" and "C". All forms are available for switching, diverging, or mixing of flows. Stopper is assembled for standard operational pattern to switch flow Form 1 to Form 2. 2 When fluid pressure P2 in closed path is higher than P1 in the open path, slight leakage may occur to P1 through the ball seat of closed path. ■ Available Operation Patterns • Pattern 1: From Form 4 to Form 1 • Pattern 2: From Form 1 to Form 2 (Standard) • Pattern 3: From Form 3 to Form 4 • Pattern 4: From Form 2 to Form 3 Please select one of the above operation patterns at the time of order.