

Steel Ball Valves for High Temperature

Service Temperature: up to 932°F

Unconditional Firesafe Provision



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KITZ Product Coding

Example: Gear Operated ASME Class 300 Metal Seated Ball Valve, CF8M Shell Materials, Trim Symbol 6H

G- 300 U T DZ 6H M

1 2 3 4 5 6 7

1 Operation

None..... Lever handle
G..... Worm gear
HAS..... KITZ Type HAS spring return pneumatic actuator

2 Valve pressure class

150..... ASME Class 150
300..... ASME Class 300
600..... ASME Class 600

3 Shell material

U..... Stainless steel or high alloy steel
SC..... Carbon steel

4 Symbol of ball valve

5 Valve design

DZ..... Floating design, full port, split body with ISO/CAPI actuator mounting pad
C..... Trunnion mounting design, split body

6 Trim symbol (Ball / Ball seat)

1H..... CF8M / FILLTITE® PTFE
3H..... CF8M / Carbon + Stainless Steel
5H..... CF8M + Cr Plating / 316 + Ni-Cr Alloy
6H..... CF8M + Ni-Cr Alloy / 316 + Ni-Cr Alloy
** CF8M or 316

7 Shell material for stainless steel and high alloy steel

M..... CF8M (316)
O..... CF3M (316L)
V..... CF3 (304L)
SD..... Duplex stainless steel

Production Range

Trim	Ball Seat	Class	Design	Shell Material	Production Code	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	
						15	20	25	40	50	65	80	100	125	150	200	250	300	350	
1H	FILLTITE® PTFE	150	Floating	Stainless Steel	150UTDZ1HM	●	●	●	●	●	●	●	●	■	■	■	■			
				Carbon Steel	150SCTDZ1HM	●	●	●	●	●	●	●	●	■	■	■	■			
			Trunnion	Stainless Steel	150UTC1HM					●		●	●		■	■	■	■	■	■
				Carbon Steel	150SCTC1HM					●		●	●		■	■	■	■	■	■
		300	Floating	Stainless Steel	300UTDZ1HM	●	●	●	●	●	●	●	●	■		■	■			
				Carbon Steel	300SCTDZ1HM	●	●	●	●	●	●	●	■		■	■				
			Trunnion	Stainless Steel	300UTC1HM					●		●	●		■	■	■	■	■	■
				Carbon Steel	300SCTC1HM					●		●	●		■	■	■	■	■	■
				Stainless Steel	600UTC1HM					●		●	■		■	■	■	■	■	
				Carbon Steel	600SCTC1HM					●		●	■		■	■	■	■	■	
3H	Carbon + Stainless Steel	150	Floating	Stainless Steel	150UTDZ3HM	●	●	●	●	●	●	●	●	■	■	■				
				Carbon Steel	150SCTDZ3H	●	●	●	●	●	●	●	●	■	■	■				
				Stainless Steel	300UTDZ3HM	●	●	●	●	●	●	●	■	■	■	■				
				Carbon Steel	300SCTDZ3H	●	●	●	●	●	●	●	■	■	■	■				
5H	A276 Type 316 + Ni-Cr Alloy	150	Floating	Stainless Steel	150UTDZ5HM	●	●	●	●	●	●	●	●	■	■	■				
				Carbon Steel	150SCTDZ5HM	●	●	●	●	●	●	●	●	■	■	■				
		300		Stainless Steel	300UTDZ5HM	●	●	●	●	●	●	●	■	■	■	■				
				Carbon Steel	300SCTDZ5HM	●	●	●	●	●	●	●	■	■	■	■				
6H	A276 Type 316 or 304 + Ni-Cr Alloy	150	Floating	Stainless Steel	150UTDZ6HM	●	●	●	●	●	●	●	●	■	■	■				
				Carbon Steel	150SCTDZ6HM	●	●	●	●	●	●	●	●	■	■	■				
			Trunnion	Stainless Steel	150UTC6HM										■	■	■	■	■	■
				Carbon Steel	150SCTC6HM										■	■	■	■	■	
		300	Floating	Stainless Steel	300UTDZ6HM	●	●	●	●	●	●	●	■	■	■	■				
				Carbon Steel	300SCTDZ6HM	●	●	●	●	●	●	●	■	■	■	■				
			Trunnion	Stainless Steel	300UTC6HM										■	■	■	■	■	
				Carbon Steel	300SCTC6HM								■		■	■	■	■	■	
		600	Trunnion	Stainless Steel	600UTC6HM					●		●	■		■	■	■	■		
				Carbon Steel	600SCTC6HM					●		●	■		■	■	■	■		

• The substitutional equivalent materials may be used for valve part materials where ASTM A276 and/or A564 is stated on the material descriptions in this catalog.

●: Lever handle ■: Worm gear

Design Features

Split Body, Side Entry, Full Bore 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.

Stem head conform with CAPI ADDS2.02 dimension
(Double "D" design parallel to flow passage)

Flexible graphite
Low emission(ISO 15848/EPA Method 21)
stem packing

Graphite stem bearing

Blowout-proof stem collar

Live loading spring

Locking hole

Integral actuator
mounting pad
(ISO 5211, CAPI ADDS2.02)

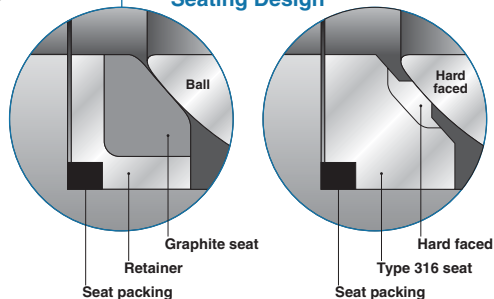
Antistatic device

Metal-to-metal
firesafe contact

Flexible graphite
flanfe gasket

Trim 1H: 316 ball
Trim 3H: 316 ball
Trim 5H: Cr plated 316 ball
Trim 6H: Hard-faced 316 ball

Seating Design



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.

2" 150 UTDZ 6H

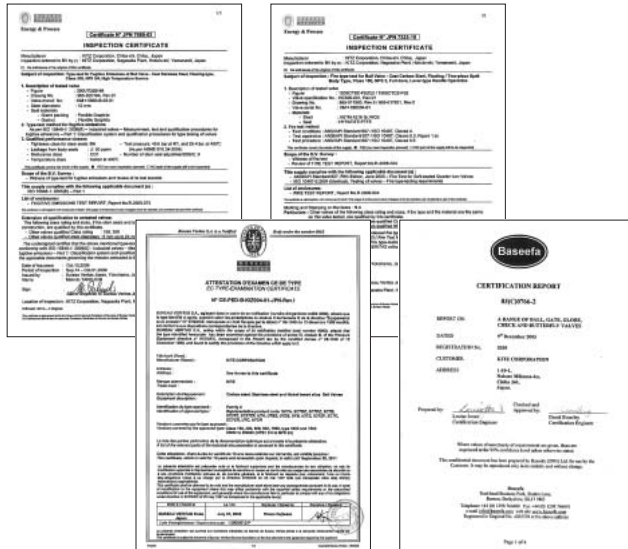
3H

6H

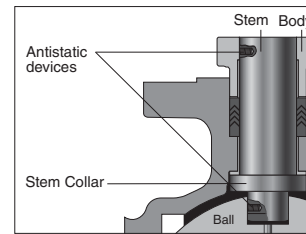
Design Features

- ISO 17292 and API 608 fully compliance to serve petroleum, petrochemical and allied industries.
- New gland sealing design achieves superior fugitive emission performance for ISO 15848.
- API 607/5th - ISO 10497/2004, the latest fire test certification are available.
- ISO 5211 top mount and CAPI stem dimension for global automation conformity.
- PED 97/23/EC are available for CE marked products.

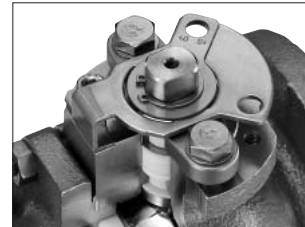
Certificate



An antistatic feature is provide to ensure electrical continuity between ball, stem, and body.



Position stops independent of gland construction, required ISO 17292.

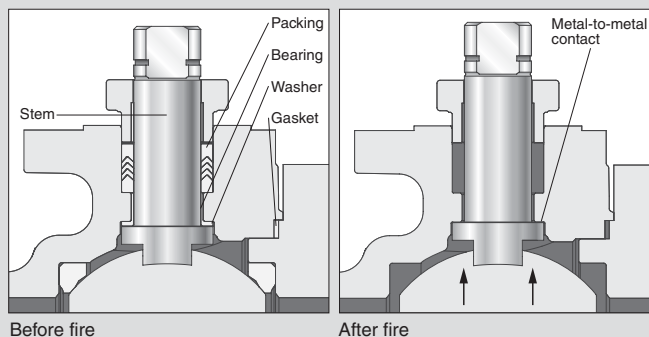


ISO 5211 top mount and CAPI stem dimension for global automation conformity.

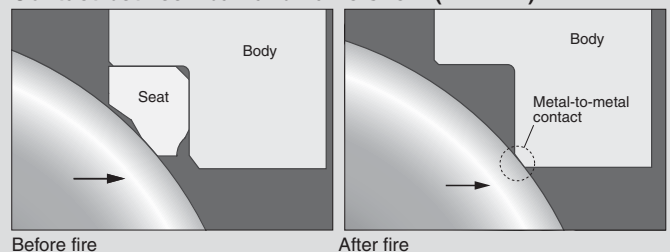


KITZ ball valves are engineered for firesafe tested to minimize both external and internal fluid leakage after fires. They have post-fire metal - to - metal contact of all sealing areas.

Contact between stem and valve shell.



Contact between ball and valve shell. (Trim 1H)



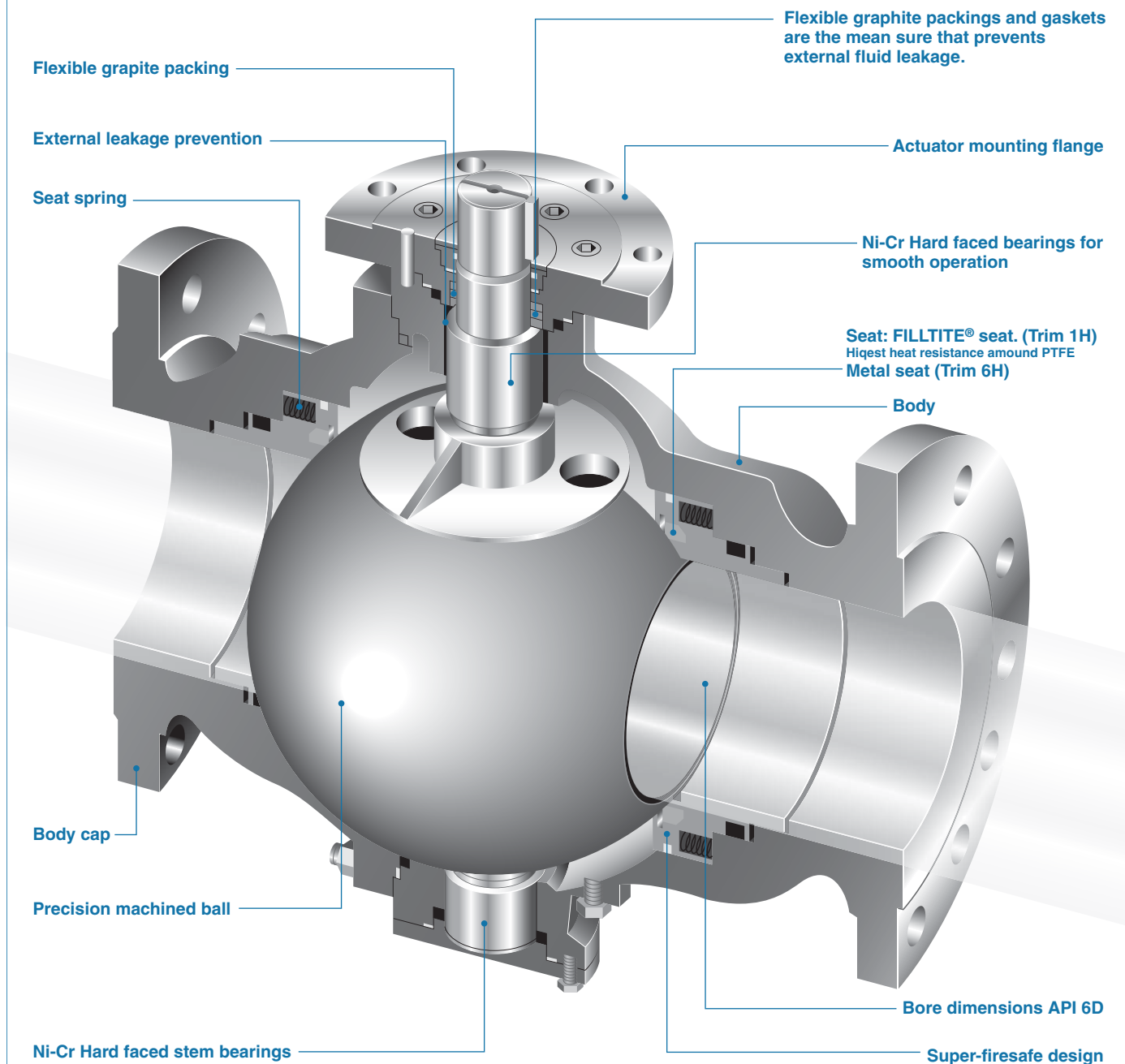
Design Standards

Valve body design	Split body, side entry, RF-flanged, full port with floating ball design
Basic design	ISO 17292 / API 608 / ASME B16.34 / BS 5351
End to End	ASME B16.10
End connection	ASME B16.5
Wall thickness	ISO17292 / ASME B16.34 / BS 5351
Actuator mounting	ISO 5211 / CAPI
Fire safe	API607/5th - ISO 10497
Fugitive emission	ISO 15848 / EPA Method 21

- ISO 17292: Metal ball valves for petroleum, petrochemical and allied industries.
- BS 5351: Steel ball valves for the petroleum, petrochemical and allied industries.
- CAPI: Spec ADDS 2.02 Rev: H Technical Specification for design requirements of actuator brackets for quarter turn soft seated ball valves.
- API 608: Metal Ball Valves - Flanged, Threaded, and Welding Ends.
- ISO 15848 : Industrial valves - Measurement, test and qualification procedures for fugitive emissions.
- API 607: Fire Test for Soft-seated Quarter - turn Valves.
- ISO 1497-5 : 2004 (Identical), Testing of Valves-Fire type-testing requirements.
- ISO 5211: Industrial valves - Part-turn actuator attachment.
- Pressure Equipment Directive (PED) 97/23/EC

Design Features Trunnion Mounted Ball Design

Illustration shows Trim 1H

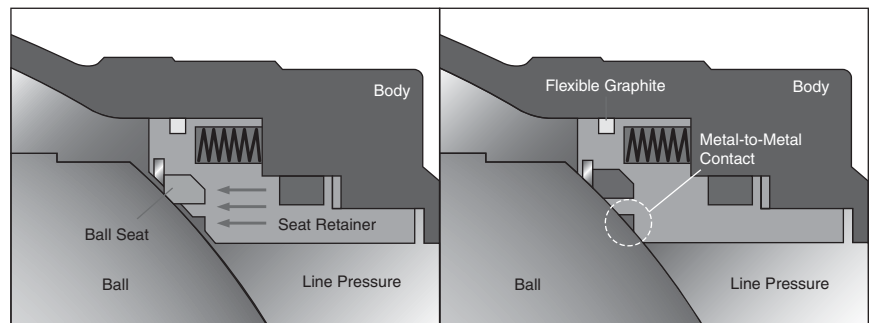


Design Features

1. Super-firesafe Design.

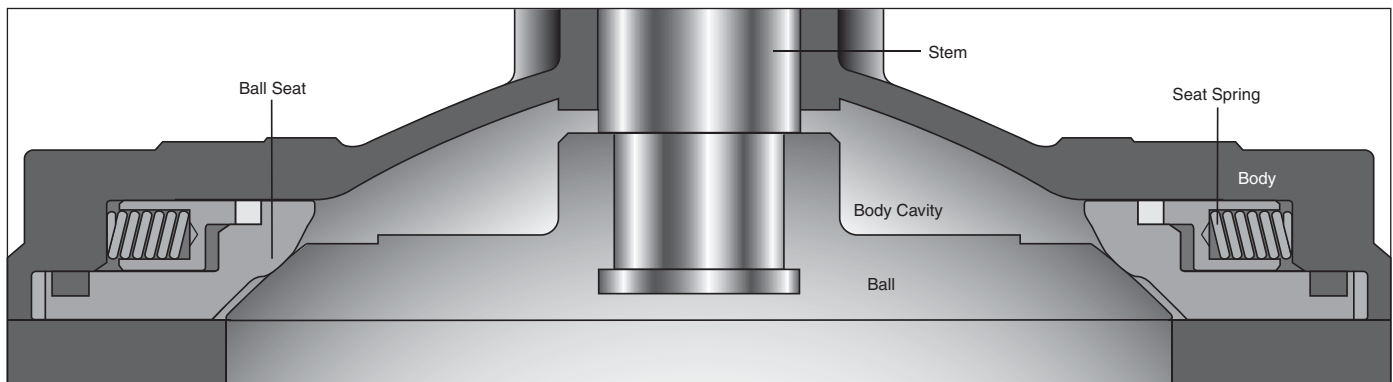
Internal leakage prevention:

When resilient sealing materials are decomposed or deteriorated by a plant fire, the edge of the metal seat retainer preloaded by the seat spring comes into contact with the ball to shut off the line fluid to minimize internal leakage through the valve bore. The seat retainer also compresses KITZ originally designed flexible graphite retainer packings to prevent fluid leakage form between the valve body and the seat retainer (PATENTED).



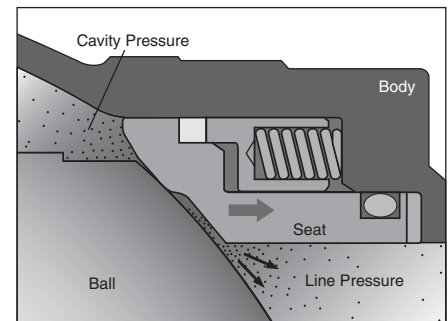
2. Block and Bleed Function.

Ball seats shut off the line fluid independently on the upstream and downstream side of the ball. The valve bore and the body cavity are isolated from each other when the valve is fully opened or closed so that the residue within the body cavity may be disposed through the drain port or an optional vent valve mounted on the bottom of the valve body. The design prevents fluid contamination within the valve interior and easily detects seat leakage from both flow directions, without dismantling the valve from the pipeline.



3. Cavity Pressure Relief.

In case of an unusually high increase of servicing or ambient temperature, liquefied gas or highly volatile liquid trapped within the body cavity may evaporate, and cause an excessive rise in the cavity pressure. For safety consideration, a provision is made so that when the cavity pressure exceeds the line pressure, the ball seat will move slightly away from the ball surface to relieve the excessive cavity pressure into the valve bore.



4. Low Emission Design

The emission suppressing design of KITZ trunnion mounted ball valves is guaranteed by the production test carried out at factories prior to shipment. In the United States, the Federal Clean Air Act was dramatically amended in 1990, to realize the new environmental protection policy of a 95% reduction in fugitive emission or leak levels of toxic gases and chemicals from plant equipment. Promulgated in April, 1994, the new law requires all plants handling the toxic gas specified by the Environmental Protection Agency, to periodically monitor their plant equipment for detection of leaks exceeding 500 ppm, and repair or replace all defective parts immediately. California has exceeded the Federal law with a state regulation requiring 100 ppm maximum leak level for an astonishing 99% reduction of such an environmental pollution for the Northern California Region after 1997.

Low Emission Design Features for KITZ 150 / 300 UTDZ / SCTDZ Series Ball Valves.

KITZ high engineered sealing design achieves superior low emission performance.

ISO 15848-1qualified.

KITZ precise laboratory tests and various field experiences achieve the optimized new stem sealing design for superior low emission performance. That is proven on the certificate of ISO 15848-1 Tightness Class BH qualification test, witnessed by Bureau Veritas. This is KITZ standard specification for Class 150 and 300 flanged floating ball valves, identified as 150 / 300 UTDZ / SCTDZ Series (split body, side entry design) in this catalog.

ISO 15848-1 Qualification

Class	Series	Seat	Packing Gasket	Tightness Class	Temperature Class	Endurance Class
150 300	SCTDZ 3H/5H/6H UTDZ 3H/5H/6H	Graphite/ Metal	Flexible Graphite	B *1	-29°C ~400°C	CO 1 *2

*1 : ISO 15848-1 remarks that tightness class A typically achieved with bell seals, class B with PTFE packing and class C with flexible graphite packing.

*2 : CO 1 includes 500 cycle operation and 2 times thermal cycle.



ISO 15848-1Certificate

CAA / EPA Method 21 (40 CFR. 60 Appendix A)

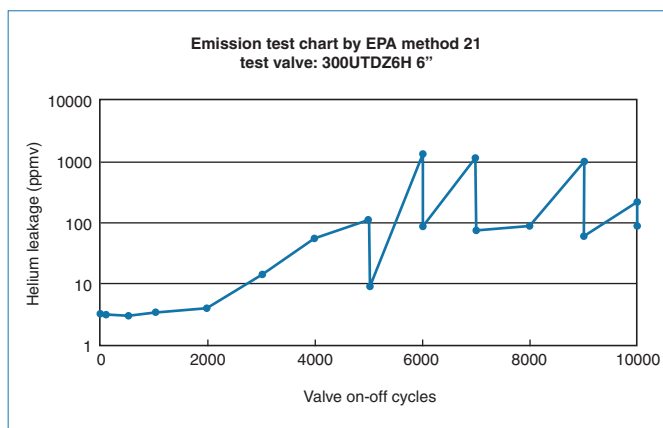
The US Federal Clean Air Act requires all plants handling the toxic gases and chemicals listed by the Environmental Protection Agency (EPA) to periodically monitor their plant equipment for detection of fugitive emissions exceeding criteria, and repair or replace all defective equipment immediately. The criteria of emission are categorized in detail by the emission sources (equipment) and/or listed fluid type. Some state regulations, such as California, require more stringent emission control that is reaching 50 ppm maximum leak level. KITZ low emission service ball valves are designed, engineered, manufactured and tested to meet these emission level as standard product for KITZ 150 / 300 UTDZ / SCTDZ Series Ball Valves. Our low emission valve performance and laboratory test results are shown on the below table*1.

Laboratory Test Results

Class	Body Type	Series	Seat	Packing Gasket	Maximum leak level on new valve	Test result after 10,000 cycle operation
150 300	Split-body	SCTDZ 3H/5H/6H UTDZ 3H/5H/6H	Graphite/ Metal	Flexible Graphite	50 ppm	100 ppm *2

*1 Maximum leak level guaranteed for the duration of the KITZ warranty in North America for emission monitoring with EPA Method 21 procedures and methane-calibrated organic vapor analyzers.

*2 Maximum leak level was measured with clean fluid at ambient room temperature, and with adequate gland bolts retightening according to KITZ maintenance manual.



The valves on the chart are just represented value. Those are not guaranteed value.

Low Emission Design

Features for KITZ 150 / 300 UTDZ / SCTDZ Series Ball Valves.

Major design considerations for having upgraded our standard valves to the low emission performer are introduced below:

Diametrical interface clearance

The diametrical is strictly controlled to prevent the line fluid from leaking into the atmosphere through these potential leak paths. The optimum diametrical clearance is realized on the following area by high precision machining.

- Gland and Stem
- Gland and Stuffing Box
- Stem and Bearing

Stem

The stem surface finish is controlled according to KITZ design and manufacturing standards.

This specification is particularly important for flexible graphite packing, because, while the stem travels through the packing rings, graphite tends to fill micro scratches on the stem surface and migrates to the stem to function as a lubricant. Too fine a stem smoothness loses this advantage and can increase leakage. The stem straightness and roundness are also controlled according to our design and manufacturing standards.

Stuffing box

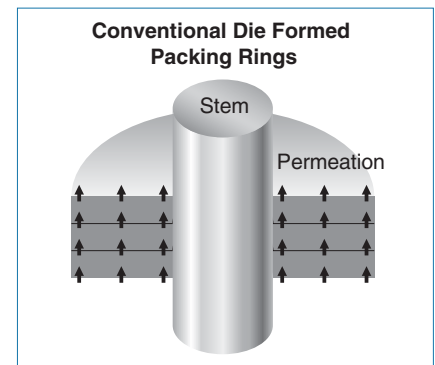
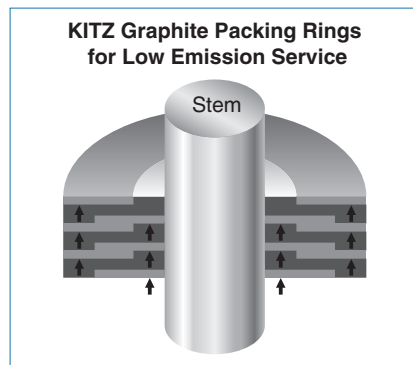
The surface finish is controlled according to KITZ design and manufacturing standards.

Contrary to the stem, the stuffing box wall statically contacts packing rings, and a reasonably rougher surface finish results in a better sealing performance. The cylindricity and verticality are precisely controlled according to KITZ design and manufacturing standards.

Gland packing

For high temperature low emission service, KITZ original designed die formed graphite packing rings are provided on KITZ FILLTITE®, hard graphite or metal seated ball valves. (SCTDZ1H/3H/5H/6H, UTDZ1H/3H/5H/6H)

A conventional type of die formed packing ring is entirely made of many layers of vertically wrapped graphite tape. Interlayer and through-graphite permeation of line fluid in the vertical axis direction is rather an inherent problem on the conventional type of die formed packing rings. To solve this problem, the unique design is employed on the KITZ graphite packing rings for low emission service. Vertically and horizontally wrapped graphite tapes are securely fixed into the ring structure of KITZ graphite packing rings for low emission service, as shown in Fig.



Gasket

Graphite gasket is used for ball valves to high temperature low emission service respectively.

The gasket contact faces of valve shells are precisely machined to further upgrade the sealing function of the valve shell joint.

KITZ General Term of Warranty for Low Emission Service Valves

Warranty Period

12 months after placement in service, but not exceeding 18 months after shipment from KITZ factories.

Warranty Conditions

1. Proper storage and maintenance of valves prior to installation, according to the KITZ maintenance manual.
2. Proper handling of valves during transportation and plant construction, which includes sandblasting and painting, for protection of exposed stems and glands of valves.
3. **Need of adequate retightening of gland packing sets***, according to the KITZ maintenance manual to reduce the leak level, when an excessive level of fugitive emission is detected during:
 - a) Pre-installation valve inspection
 - b) Process pilot run or start-up operation
 - c) Periodic or occasional inspection of valves in service
4. **Valve stems must be kept free of scratches, scars or corrosion.**
5. Following all other instructions provided in the KITZ maintenance and operation manuals.

* This condition is particularly important when valves are subjected to thermal cycles on the site. Users are recommended to ensure that packing is retightened after every cool-down of the process.

Technical Data

1. Choice of trim for heated abrasive service

Metal seated ball valves are guaranteed for a maximum service temperature of 572°F(300°C) (Trim symbol 5H) and 932°F(500°C) (Trim symbol 6H*). For hard graphite seated ball valves, a maximum service temperature of 932°F(500°C) is also guaranteed (Trim symbol 3H). 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 soft seats.

FILLTITE® is a specially reinforced ball seat, made by using more carbon based fillers into PTFE than conventional carbon filled PTFE, which greatly improves heat and abrasion resistance. The material shows excellent operability, durability, chemical resistance and sealing performance at a high temperature of 572°F. In addition, the ball seat is replaceable with the most of our conventional ball seats, so it also has the cost advantage.

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

2. Unconditional firesafe provision

While metal or hard graphite seats are extremely heat resistant, other sealing components such as gland packing 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 an 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 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.

5. High flow efficiency

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

6. 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 (Floating)

Valve Design		Floating Ball Valve		Trunnion Mounting Ball Valve
Trim symbol		5H	6H	6H
Temp.		300°C	500°C	450°C
		572°F	932°F	842°F
Seat leakage*1		ANSI FCI 70-2 Class VI		
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 316 + SFNi *2
	Ball Seat	ASTM A276 Type 316 + SFNi *2	ASTM A276 Type 316 + SFNi *2	ASTM A276 Type 316 + SFNi *2
	Stem	A 564 Type 630	A 564 Type 630	ASTM A276 Type 316 + SFNi *2

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

● 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.

● Bi-directional flow.

Caution:

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

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

● Bi-directional flow.

● Recommended for low abrasion service.

Valve Design		Floating Ball Valve
Trim symbol		3H
Temp.		500°C
		932°F
Seat leakage*1		ANSI FCI 70-2 Class VI
Parts	Ball	ASTM A276 Type 316 or A351 Gr.CF8M
	Ball Seat	Carbon + JIS SUS329J1*2
	Stem	ASTM A276 Type 316*3

*1 Maximum allowable seat leakage *2 Equivalent to AISI Type 329

*3 Class 300 Size 4 & over : A564 Type 630



Caution:

● Not recommended for throttling service.

● Not recommended for high abrasion service.

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

8. FILLTITE® seated ball valves (Trim 1H)

● Highest heat resistance among PTFE based materials.

Valve Design		Floating Ball Valve	Trunnion Mounting Ball Valve
Trim symbol		1H	
Temp.		300°C	
		572°F	
Parts	Ball	ASTM A276 Type 316 or A351 Gr.CF8M	
	Ball Seat	FILLTITE® PTFE	
	Stem	ASTM A276 Type 316	ASTM A276 Type 316 + SFNi*1

*1 Ni-Cr alloy thermal spraying

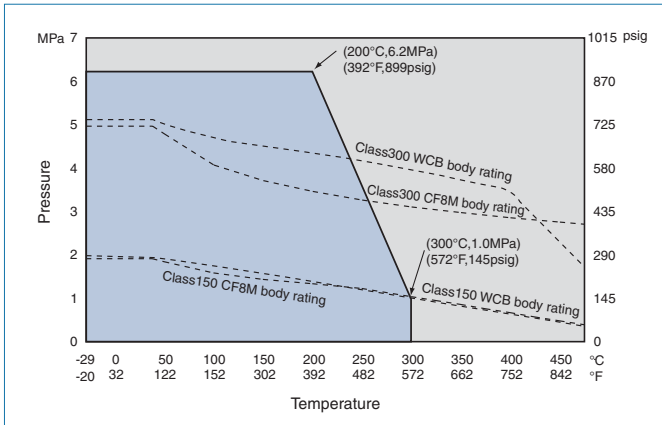


Technical Data

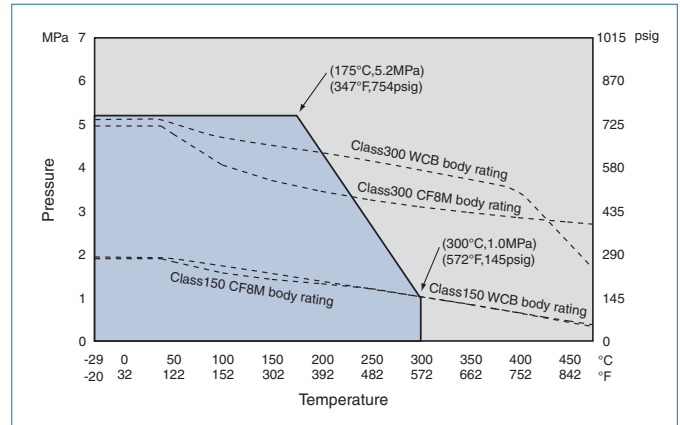
Pressure - Temperature Rating

● FILLTITE® seated floating ball valves: Trim 1H

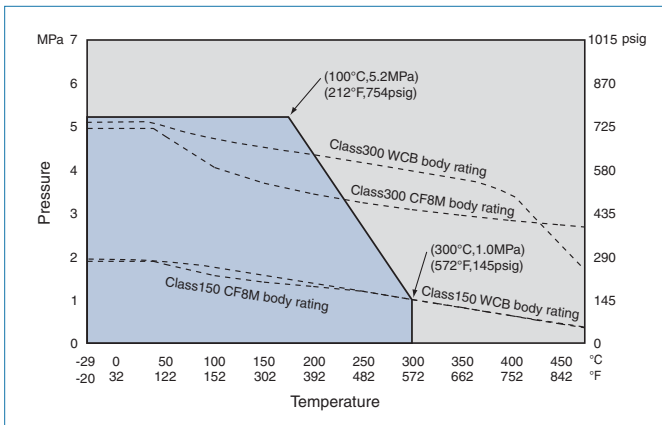
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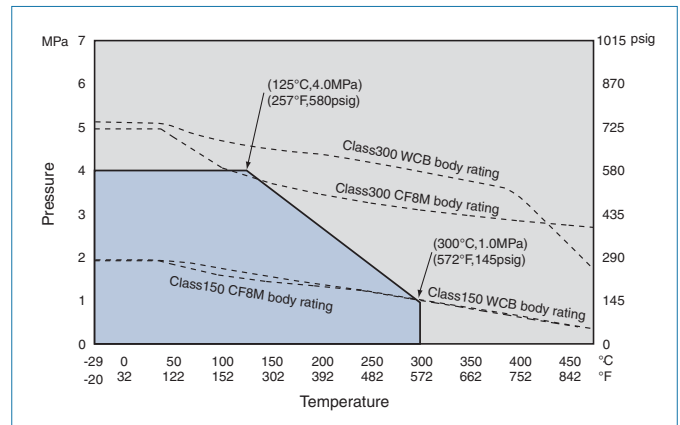
Size: 3 and 4



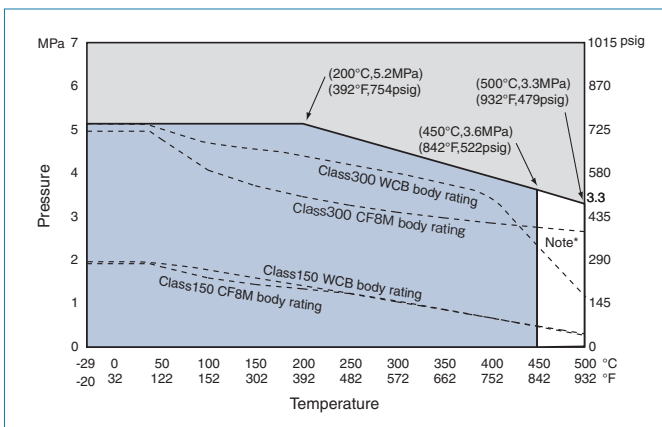
Size: 5 and 6



Size: 8 and 10



● Hard graphite seated floating ball valves: Trim 3H

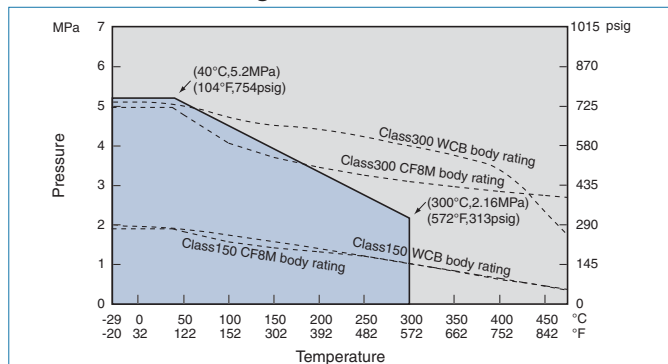


Note* Maximum working temperature for oxidizing service, such as high temperature air, is 842°F (450°C).

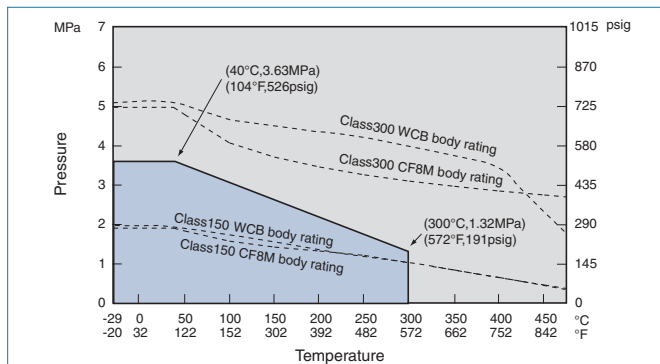
Technical Data

Pressure - Temperature Rating

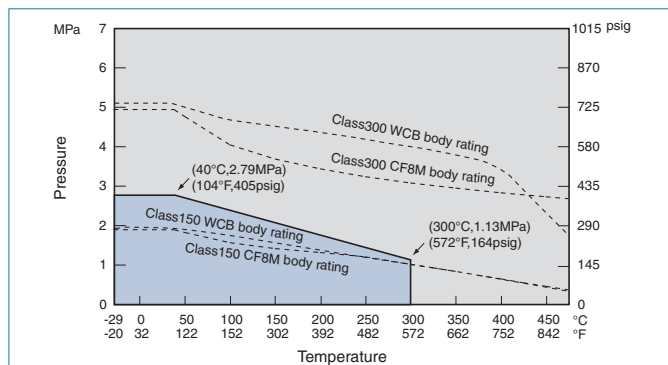
● **Metal seated floating ball valves: Trim 5H** Size: 1/2 to 11/4



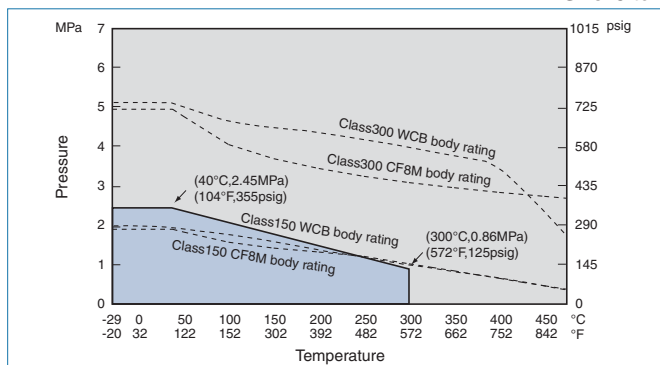
Size: 11/2 and 2



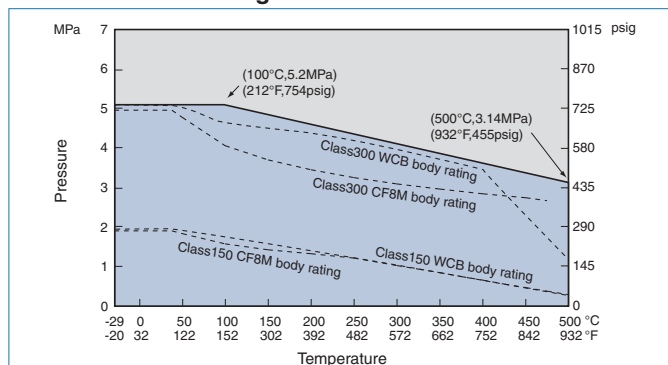
Size: 21/2 to 4



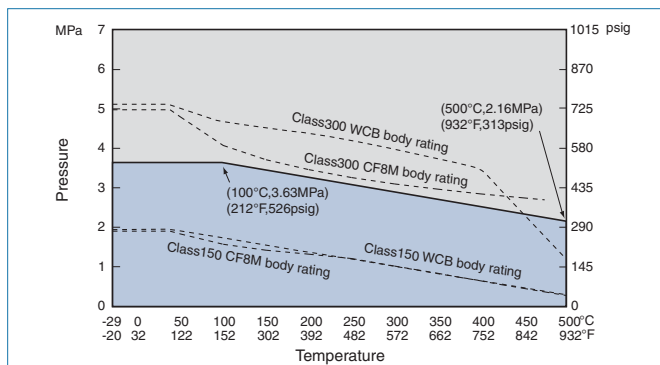
Size: 5 to 8



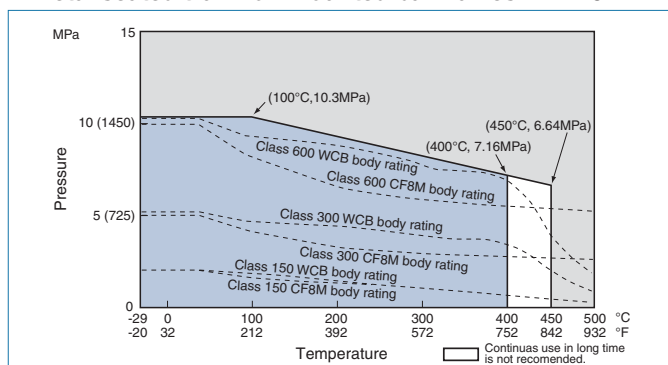
● **Metal seated floating ball valves: Trim 6H** Size: 1/2 to 5



Size: 6 and 8



● **Metal seated trunnion mounted ball valves: Trim 6H**



Note: Maximum working temperature for oxidizing service, such as high temperature air, is 752°F(400°C).

Technical Data

Flow Efficiency of KITZ Ball Valves

Multiple the volumetric flow rate (m³/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.

Table 1

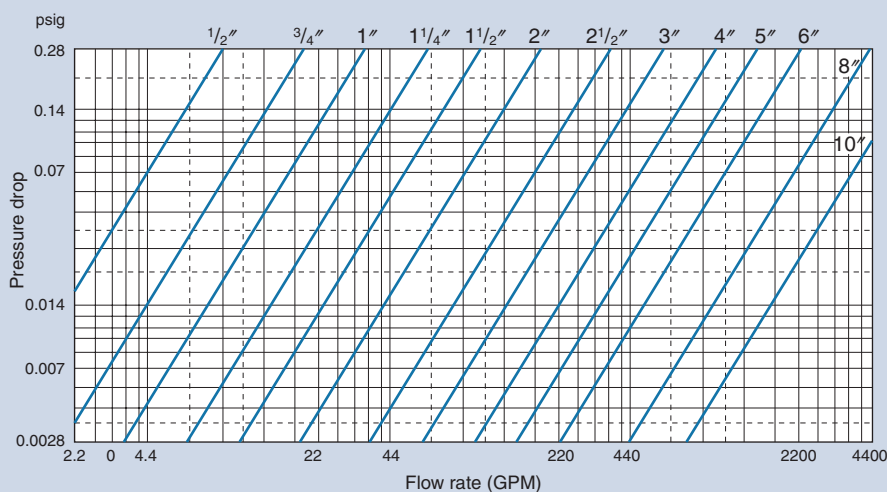
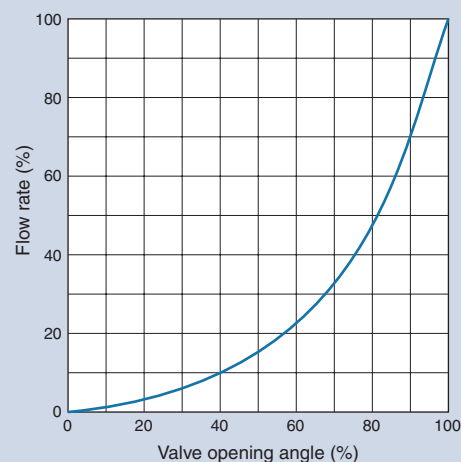


Table 2



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

○:Recommended
X:Not recommended

Chemicals	Density (%)	Temp. (°F)	Applicability
Sulfuric acid	0 70	*	○
	70 98	212	○
	98	302	×
Sulfuric acid + SO ₃	98	* *	×
Nitric acid	0 10	185	○
	10 20	149	○
	65	248	×
Sulfuric acid + Nitric acid	100	* *	×
Fluorine gas	100	* *	×
Chromic acid solution	60	212	○
Hydrogen sulfide gas	100	212	○
Sulfurous acid gas	100	* *	○
Caustic soda	60	212	○

Chemicals	Density (%)	Temp. (°F)	Applicability
Ammonia hydroxide	25	122	○
Sodium chlorite	100	212	○
Hydrochloric acid	100	212	○
Bromine	100	* *	×
Chlorine gas	100	212	○
Chlorine gas	100	* *	○
Gasoline	100	*	○
Acetone	100	*	○
Ethylene glycol	100	*	○
Potassium per manganate	50	212	×
Steam		*	○
Air		842	○

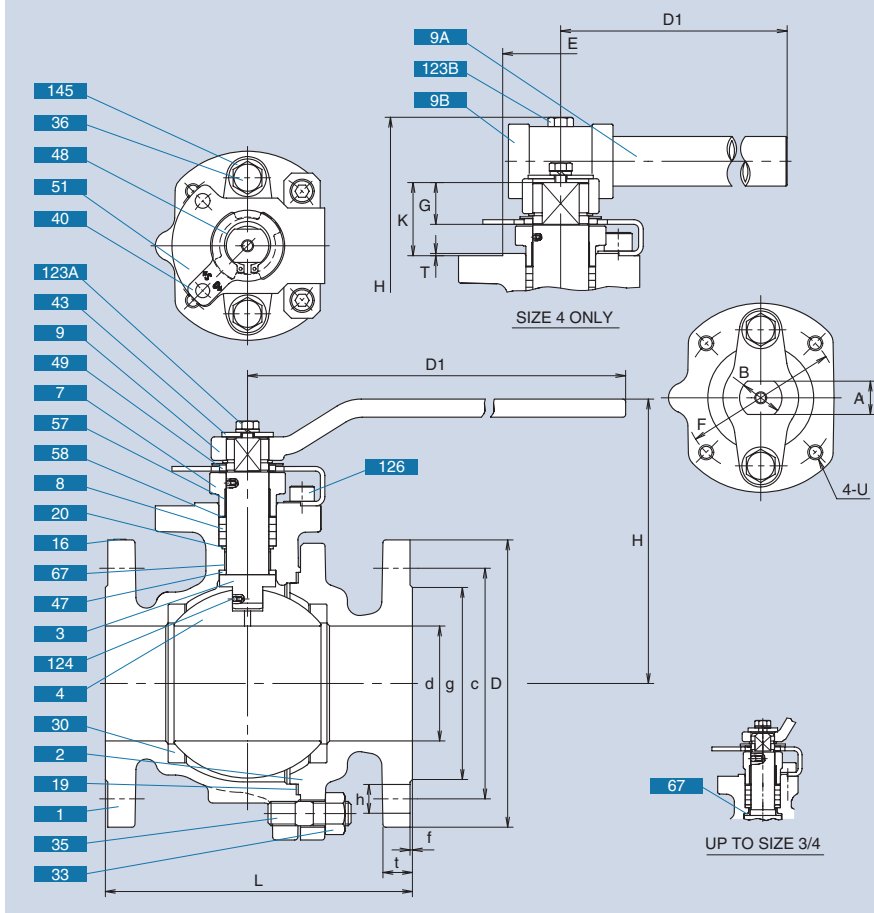
* At any temperature within the range of P-T rating

* * Room temperature

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

FILLTITE® seated floating ball design valves (Trim 1H)

150UTDZ 1HM, 150SCTDZ 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		150UTDZ 1HM	150SCTDZ 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	FILLTITE® PTFE	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	

*1) Refer to the following table

Operation (Standard)	Class 150
Lever type	Size 1/2 to 3
Bar type	Size 4
Gear	Size 5 to 8

Dimensions: 150UTDZ 1HM, 150SCTDZ 1HM

Unit: inch

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
in.						C	NO.	h														
1/2	0.55	4.25	5.12	4.25	3.50	2.38	4	0.62	1/2	1.38	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	5.73
3/4	0.75	4.37	5.12	4.62	3.88	2.75	4	0.62	1/2	1.69	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	6.17
1	0.95	4.88	6.30	5.00	4.25	3.12	4	0.62	1/2	2.00	0.44	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	9.92
1.1/4*	1.26	5.04	6.30	5.50	4.61	3.50	4	0.63	1/2	2.52	0.50	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	11.02
1.1/2	1.50	5.28	9.06	6.50	5.00	3.88	4	0.62	1/2	2.88	0.56	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	18.74
2	1.97	5.63	9.06	7.00	6.00	4.75	4	0.75	5/8	3.62	0.62	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	25.13
2.1/2	2.52	7.05	15.75	7.50	7.00	5.50	4	0.75	5/8	4.12	0.69	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	43.43
3	3.00	7.44	15.75	8.00	7.50	6.00	4	0.75	5/8	5.00	0.75	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	55.12
4	3.94	9.88	29.53	9.00	9.00	7.50	8	0.75	5/8	6.19	0.94	0.06	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	105.82

* 150UTDZ 1H only.

Dimensions: 150UTDZ 1HM, 150SCTDZ 1HM

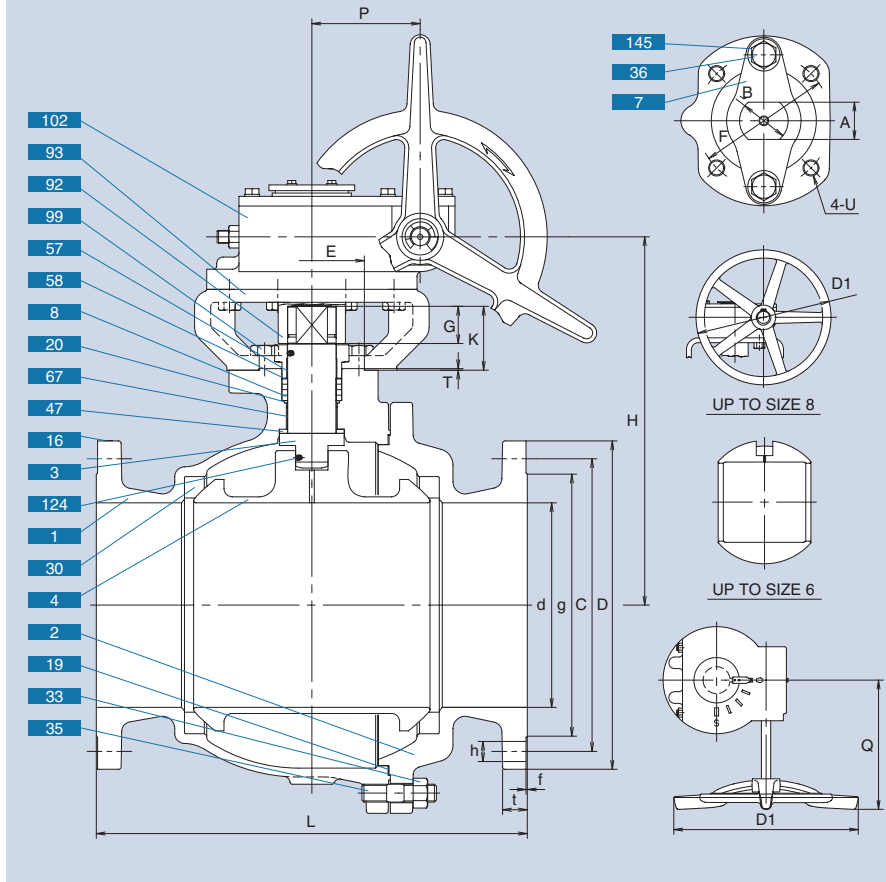
Unit: mm

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
mm						C	NO.	h														
15	14	108	130	108	89	60.5	4	16	1/2	35	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.6
20	19	111	130	117	98	70.0	4	16	1/2	43	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.8
25	24	124	160	127	108	79.5	4	16	1/2	51	11.2	1.6	14	18	35	50	14	30	1.5	M6	F05	4.5
32	32	128	160	140	117	89.0	4	16	1/2	64	12.7	1.6	14	18	35	50	14	30	1.5	M6	F05	5.0
40	38	134	230	165	127	98.5	4	16	1/2	73	14.3	1.6	17	22	55	70	17	34	1.5	M8	F07	8.5
50	50	143	230	178	152	120.5	4	19	5/8	92	15.9	1.6	17	22	55	70	17	34	1.5	M8	F07	11.4
65	64	179	400	190	178	139.5	4	19	5/8	105	17.5	1.6	22	28	70	102	22	45	2	M10	F10	19.7
80	76	189	400	203	190	152.5	4	19	5/8	127	19.1	1.6	22	28	70	102	22	45	2	M10	F10	25.0
100	100	251	750	229	229	190.5	8	19	5/8	157	23.9	1.6	27	36	85	125	27	52	2	M12	F12	48.0

* 150UTDZ 1H only.

FILLTITE® seated floating ball design valves (Trim 1H)

G-150UTDZ 1HM, G-150SCTDZ 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-150UTDZ 1HM	G-150SCTDZ 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	FILLTITE® PTFE	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

Dimensions: G-150UTDZ 1HM, G-150SCTDZ 1HM

Unit: inch

Nominal size	d	H	D1	L	End flange							P	Q	Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t			f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
in.						C	NO.	h																
5	4.84	10.79	12.20	14.00	10.0	8.50	8	0.88	3/4	7.31	0.94	0.06	2.58	6.50	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F14	163.14
6	5.95	13.19	14.17	15.50	11.0	9.50	8	0.88	3/4	8.50	1.00	0.06	3.48	8.27	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	288.81
8	7.95	16.10	19.69	18.00	13.5	11.75	8	0.88	3/4	10.62	1.12	0.06	3.68	14.29	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	421.09
10	9.96	17.95	19.69	21.00	16.0	14.25	12	1.00	7/8	12.75	1.19	0.06	5.28	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	582.02

NOTE (1) Valve size 8 & over shall be cored cavity construction.

Dimensions: G-150UTDZ 1HM, G-150SCTDZ 1HM

Unit: mm

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
	C	NO.	h																						
mm																									
125	123	274	310	356	254	216.0	8	22	3/4	186	23.9	1.6	65.5	165	27	36	85	125	27	52	2	M12	F12	74	
150	151	335	360	394	279	241.5	8	22	3/4	216	25.4	1.6	88.5	210	36	48	100	140	36	63	2	M16	F14	131	
200	202	409	500	457	343	298.5	8	22	3/4	270	28.6	1.6	93.5	363	46	60	130	165	46	79	2	M20	F16	191	
250	253	456	500	533	406	362.0	12	25	7/8	324	30.2	1.6	134.0	377	46	60	130	165	46	79	2	M20	F16	264	

NOTE (1) Valve size 8 & over shall be cored cavity construction.

FILLTITE® seated floating ball design valves (Trim 1H)

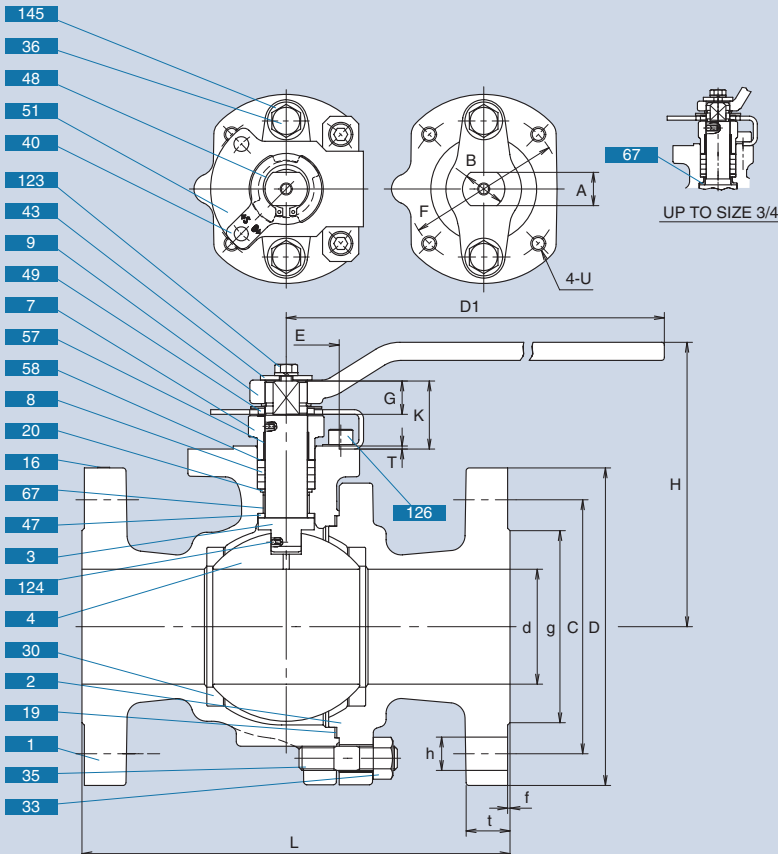
300UTDZ 1HM, 300SCTDZ 1HM

Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		300UTDZ 1HM	300SCTDZ 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	FILLTITE® PTFE	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	

*1) Refer to the following table

Operation (Standard)	Class 300
Lever type	Size 1/2 to 3
Gear	Size 4 to 8



Dimensions:300UTDZ 1HM, 300SCTDZ 1HM

Unit: inch

Nominal size	d	H	D1	L	End flange								Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type		
	C	NO.	h																				
in.																							
1/2	0.55	4.25	5.12	5.50	3.75	2.62	4	0.62	1/2	1.38	0.56	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	6.61	
3/4	0.75	4.37	5.12	6.00	4.62	3.25	4	0.75	5/8	1.69	0.62	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	9.92	
1	0.95	4.88	6.30	6.50	4.88	3.50	4	0.75	5/8	2.00	0.69	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	15.87	
1.1/4*	1.26	5.04	6.30	7.00	5.25	3.88	4	0.75	5/8	2.50	0.75	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	24.25	
1.1/2	1.50	5.28	9.06	7.50	6.14	4.50	4	0.88	3/4	2.88	0.81	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	30.64	
2	1.97	5.63	9.06	8.50	6.50	5.00	8	0.75	5/8	3.62	0.88	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	40.57	
2.1/2	2.52	7.05	15.75	9.50	7.50	5.88	8	0.88	3/4	4.12	1.00	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	59.53	
3	3.00	7.44	15.75	11.12	8.25	6.62	8	0.88	3/4	5.00	1.12	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	83.78	

* 300UTDZ 1H only.

Dimensions:300UTDZ 1HM, 300SCTDZ 1HM

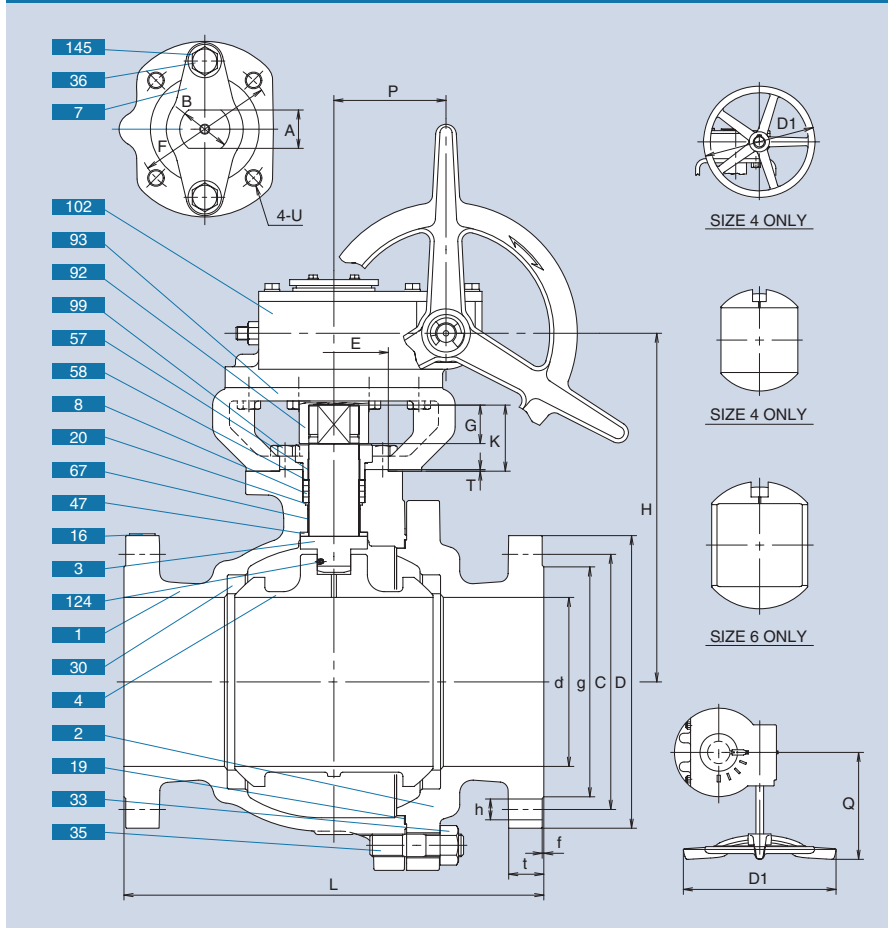
Unit: mm

Nominal size	d	H	D1	L	End flange								Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type		
						C	NO.	h															
mm																							
15	14	108	130	140	95	66.5	4	16	1/2	35	14.3	1.6	9	12	25	36	9	22	1	M5	F03	3.0	
20	19	111	130	152	117	85.5	4	19	5/8	43	15.9	1.6	9	12	25	36	9	22	1	M5	F03	4.5	
25	24	124	160	165	124	89.0	4	19	5/8	51	17.5	1.6	14	18	35	50	14	30	1.5	M6	F05	7.2	
32	32	128	160	178	133	98.5	4	19	5/8	64	19.4	1.6	14	18	35	50	14	30	1.5	M6	F05	11.0	
40	38	134	230	190	156	114.5	4	22	3/4	73	20.7	1.6	17	22	55	70	17	34	1.5	M8	F07	13.9	
50	50	143	230	216	165	127.0	8	19	5/8	92	22.3	1.6	17	22	55	70	17	34	1.5	M8	F07	18.4	
65	64	179	400	241	190	149.0	8	22	3/4	105	25.4	1.6	22	28	70	102	22	45	2	M10	F10	27.0	
80	76	189	400	283	210	168.0	8	22	3/4	127	28.6	1.6	22	28	70	102	22	45	2	M10	F10	38.0	

* 300UTDZ 1H only.

FILLTITE® seated floating ball design valves (Trim 1H)

G-300UTDZ 1HM, G-300SCTDZ 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-300UTDZ 1HM	G-300SCTDZ 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	FILLTITE® PTFE	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	

Dimensions: G-300UTDZ 1HM, G-300SCTDZ 1HM

Unit: inch

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
						C	NO.	h																	
in.																									
4	3.94	10.16	12.20	12.00	10.00	7.88	8	0.88	3/4	6.19	1.25	0.06	2.58	6.50	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	176.37	
5	4.84	11.89	14.17	15.00	11.00	9.25	8	0.88	3/4	7.31	1.38	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	255.74	
6	5.95	13.07	19.69	15.88	12.50	10.62	12	0.88	3/4	8.50	1.44	0.06	3.68	14.29	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	341.72	
8	7.95	16.42	19.69	19.75	15.00	13.00	12	1.00	7/8	10.62	1.62	0.06	5.28	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	564.39	

NOTE (1) Valve size 8 shall be cored cavity construction.

Dimensions: G-300UTDZ 1HM, G-300SCTDZ 1HM

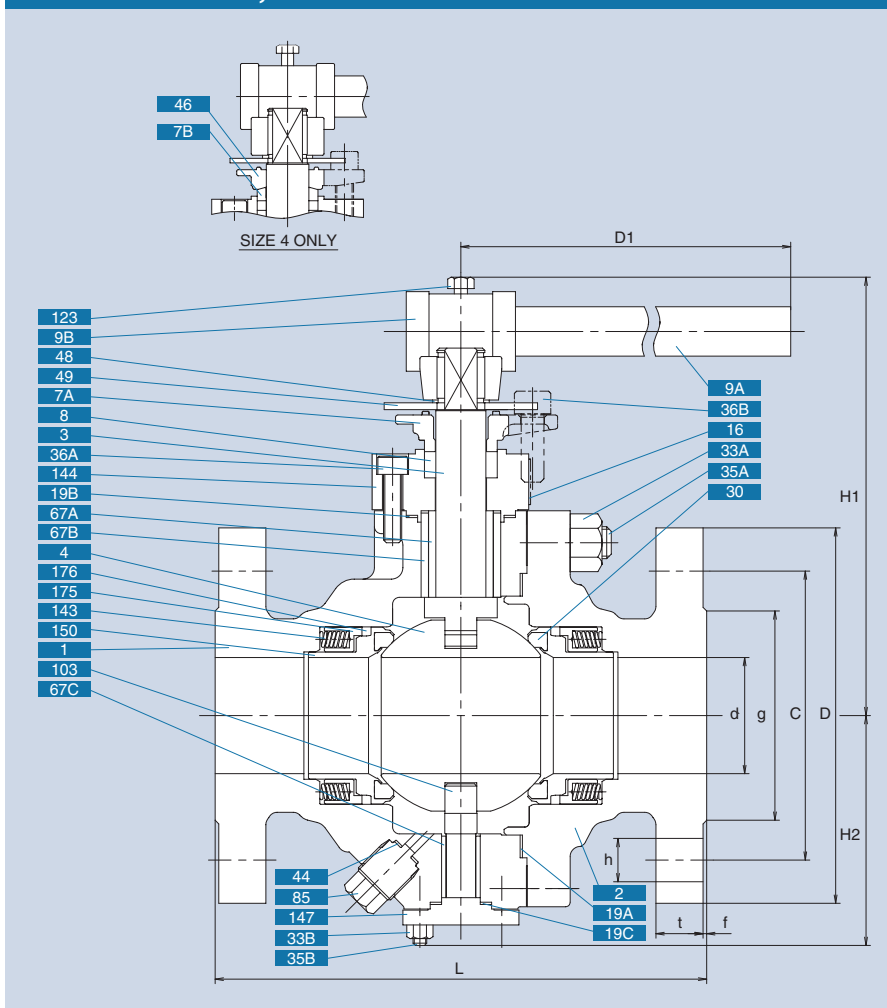
Unit: mm

Nominal size	d	H	D1	L	End flange							P	Q	Mounting Demension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t			f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
						C	NO.	h																
mm																								
100	100	258	310	305	254	200	8	22	3/4	157	31.8	1.6	65.5	165	27	36	85	125	27	52	2	M12	F12	80
125	123	302	360	381	279	235	8	22	3/4	186	35.0	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	116
150	151	332	500	403	318	270	12	22	3/4	216	36.6	1.6	93.5	363	36	48	100	140	36	63	2	M16	F14	155
200	202	417	500	502	381	330	12	25	7/8	270	41.3	1.6	134.0	377	46	60	130	165	46	79	2	M20	F16	256

NOTE (1) Valve size 8 shall be cored cavity construction.

FILLTITE® seated trunnion ball design valves (Trim 1H)

150UTC 1HM, 150SCTC 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		150UTC 1HM	150SCTC 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi* ¹	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7A	Gland	A351 Gr.CF8	
7B	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
9A	Handle bar* ¹	Carbon steel	
9B	Handle head* ¹	Carbon steel	
16	Name plate	A276 Type 304	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	FILLTITE® PTFE	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	Stainless steel	Alloy steel
36B	Gland bolt	Stainless steel	
44	Gasket	Flexible graphite	
46	Flange	A351 Gr.CF8	
48	Snap ring	Stainless steel	Carbon steel
49	Stopper	A276 Type 304	
67A	Stem bearing	A276 Type 316 + SFNi* ¹	
67B	Stem bearing	A276 Type 316 + SFNi* ¹	
67C	Stem bearing	A276 Type 316 + SFNi* ¹	
85	Plug	A276 Type 316	A576 Gr.1025
103	Bottom stem	A276 Type 329 + SFNi*	
123	Handle bolt	Carbon steel	
143	Seat spring	Ni-Co-Cr-Fe Alloy	
144	Gland plate	A276 Type 316 + HF* ²	A105 + HF* ²
147	End plate	A276 Type 316	
150	Seat retainer	A276 Type 316	
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy thermal spraying

*2) Co-Cr-W Alloy

Dimensions:150UTC 1HM, 150SCTC 1HM

Unit: inch

Nominal size	d	H1	H2	D1	L	End flange								
						D	Bolt hole (4)				Bolt size	g	t	f
							C	NO.	h	i				
in.														
2	2.00	2.01	6.50	3.98	7.00	6.00	4.75	4	5/8-11UNC	0.75	5/8	3.62	0.81	0.06
3	3.00	2.99	7.60	5.04	8.00	7.50	6.00	4	5/8-11UNC	0.75	5/8	5.00	0.81	0.06
4	4.00	4.02	9.09	6.02	9.00	9.00	7.50	8	5/8-11UNC	0.79	5/8	6.18	0.81	0.06

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

Dimensions:150UTC 1HM, 150SCTC 1HM

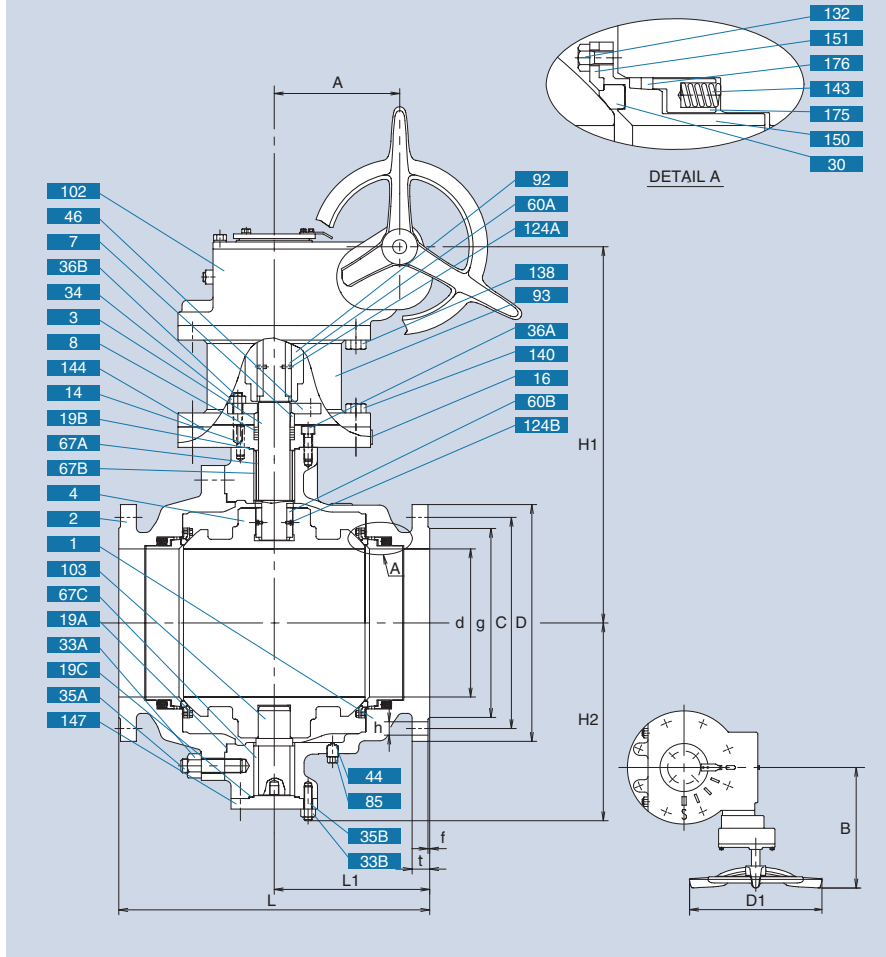
Unit: mm

End flange														
Nominal size	d	H1	H2	D1	L	D	Bolt hole (4)				Bolt size	g	t	f
							C	NO.	h	i				
mm														
50	51	165	101	230	178	152	120.5	4	5/8-11UNC	19	5/8	92	20.6	1.6
80	76	193	128	400	203	190	152.5	4	5/8-11UNC	19	5/8	127	20.6	1.6
100	102	231	153	460	229	229	190.5	8	5/8-11UNC	20	5/8	157	23.9	1.6

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

FILLTITE® seated trunnion ball design valves (Trim 1H)

G-150UTC 1HM, G-150SCTC 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-150UTC 1HM	G-150SCTC 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	A351 Gr.CF8	
14	Set pin	A276 Type 304	Carbon steel
16	Name plate	A276 Type 304	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	FILLTITE® PTFE	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
34	Gland nut	A194 Gr.8	
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	Stainless steel	
36B	Gland bolt	A193 Gr.B8	
44	Gasket	Flexible graphite	
46	Flange	A276 Type 304 or A351 Gr.CF8	
60A	KEY	Alloy steel	
60B	KEY	Stainless steel	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
67C	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 316	
92	Connector	Carbon steel	
93	Bracket	Carbon steel	
102	Gear unit		
103	Bottom stem	A276 Type 329 + SFNi*	
124A	Spring pin	Stainless steel	
124B	Set bolt	A193 Gr.B8M	
132	Set bolt	A276 Type 316	
138	Bolt	Carbon steel	
140	Bolt	Carbon steel	
143	Seat spring	Ni-Co-Cr-Fe Alloy	
144	Gland plate	A276 Type 316 + HF*2	A105 + HF*2
147	End plate	A276 Type 316	
150	Seat retainer	A276 Type 316	
151	Outer ring	A276 Type 316	
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy thermal spraying

*2) Co-Cr-W Alloy

Dimensions: G-150UTC 1HM, G-150SCTC 1HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange							A	B	Gear Unit Type & Size	APPROX. MASS (lb)	
							D	Bolt hole			Bolt size	g	t					f
	in.	C	NO.	h														
10	10.00	25.47	13.35	19.69	21.00	10.50	16.00	14.25	12	1.00	7/8	12.75	1.19	0.06	8.39	14.80	NO.7	804.69
12	12.00	28.43	15.16	19.69	24.00	12.00	19.00	17.00	12	1.00	7/8	15.00	1.25	0.06	8.39	14.80	NO.7	1168.5
14	13.25	30.00	16.69	19.69	27.00	13.50	20.98	18.76	12	1.14	1	16.26	1.38	0.06	8.39	14.84	NO.7	1384.5
16	15.24	34.76	18.54	19.69	30.00	15.00	23.50	21.24	16	1.14	1	18.50	1.44	0.06	10.91	17.99	NO.8	1995.2
18	17.25	36.54	20.24	19.69	24.00	17.00	25.00	22.76	16	1.26	1 1/8	20.98	1.56	0.06	10.91	17.99	NO.8	2469.2
20	19.25	37.52	22.80	19.69	35.00	18.00	27.48	25.00	20	1.26	1 1/8	22.99	1.69	0.06	10.91	18.39	NO.8	3079.9

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

Dimensions: G-150UTC 1HM, G-150SCTC 1HM

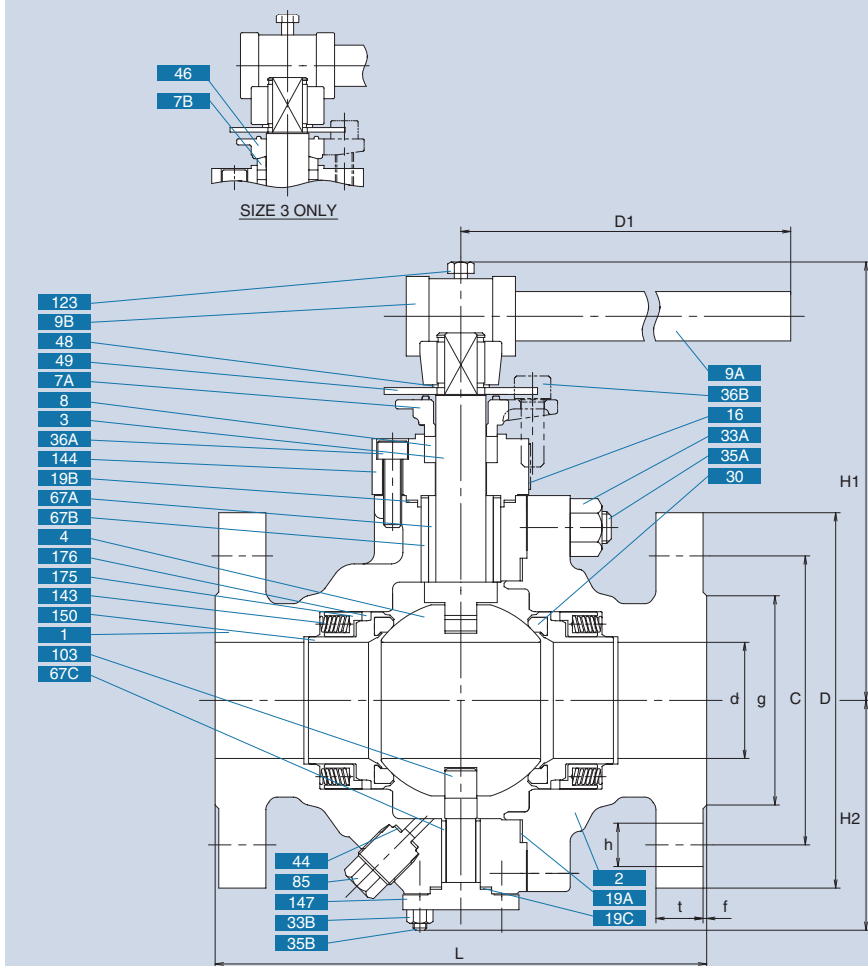
Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange							A	B	Gear Unit Type & Size	APPROX. MASS (kg)	
							D	Bolt hole			Bolt size	g	t					f
	mm	C	NO.	h														
250	254	647	339	500	533	266.5	406	362.0	12	25	7/8	324	30.2	1.6	213	377	NO.7	365
300	305	722	385	500	610	305	483	432.0	12	25	7/8	381	31.8	1.6	213	377	NO.7	530
350	337	762	424	500	686	343	533	476.5	12	29	1	413	35.0	1.6	213	377	NO.7	628
400	387	883	471	500	762	381	597	539.5	16	29	1	470	36.6	1.6	277	457	NO.8	905
450	438	928	514	500	864	432	635	578.0	16	32	1.1/8	533	39.7	1.6	277	457	NO.8	1120
500	489	953	579	500	914	457	698	635.0	20	32	1.1/8	584	42.9	1.6	277	457	NO.8	1397

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

FILLTITE® seated trunnion ball design valves (Trim 1H)

300UTC 1HM, 300SCTC 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		300UTC 1HM	300SCTC 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7A	Gland	A351 Gr.CF8	
7B	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	FILLTITE® PTFE	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	Stainless steel	Alloy steel
36B	Gland bolt	Stainless steel	
44	Gasket	Flexible graphite	
46	Flange	A351 Gr.CF8	
48	Snap ring	Stainless steel	Carbon steel
49	Stopper	A276 Type 304	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
67C	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 316 A576 Gr.1025	
103	Bottom stem	A276 Type 329 + SFNi*	
123	Handle bolt	Carbon steel	
143	Seat spring	Ni-Co-Cr-Fe Alloy	
144	Gland plate	A276 Type 316 + HF*2	A105 + HF*2
147	End plate	A276 Type 316	A105
150	Seat retainer	A276 Type 316	
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy thermal spraying

*2) Co-Cr-W Alloy

Dimensions:300UTC 1HM, 300SCTC 1HM

Unit: inch

Nominal size	d	H1	H2	D1	L	End flange							
						D	Bolt hole			Bolt size	g	t	f
in.							C	NO.	h				
2	2.00	7.52	7.52	23.62	8.50	6.50	5.00	8	0.75	5/8	3.62	0.88	0.06
3	3.00	9.65	9.65	39.37	11.14	8.25	6.62	8	0.88	3/4	5.00	1.12	0.06

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

Dimensions:300UTC 1HM, 300SCTC 1HM

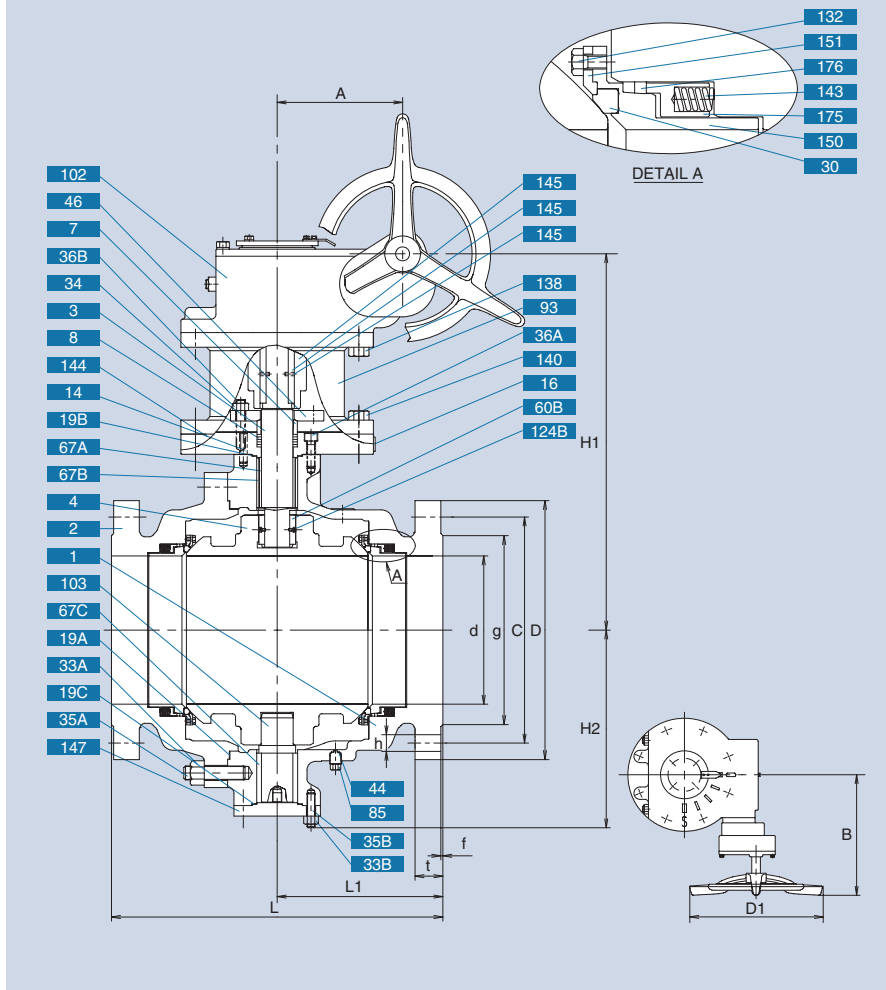
Unit: mm

Nominal size	d	H1	H2	D1	L	End flange							
						D	Bolt hole			Bolt size	g	t	f
mm							C	NO.	h				
50	51	191	191	600	216	165	127.0	8	19	5/8	92	22.3	1.6
80	76	245	245	1000	283	210	168.0	8	22	3/4	127	28.6	1.6

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

FILLTITE® seated trunnion ball design valves (Trim 1H)

G-300UTC 1HM, G-300SCTC 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-300UTC 1HM	G-300SCTC 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
14	Set pin	A276 Type 304	Carbon steel
16	Name plate	A276 Type 304	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	FILLTITE® PTFE	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
34	Gland nut	A194 Gr.8	
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	Stainless steel	
36B	Gland bolt	A193 Gr.B8	
44	Gasket	Flexible graphite	
46	Flange	A276 Type 304 or A351 Gr.CF8	
60A	KEY	Alloy steel	
60B	KEY	Stainless steel	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
67C	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 316	A576 Gr.1025
92	Connector	Carbon steel	
93	Bracket	Carbon steel	
102	Gear unit		
103	Bottom stem	A276 Type 329 + SFNi*	
124A	Spring pin	Stainless steel	
124B	Set bolt	A193 Gr.B8M	
132	Set bolt	A276 Type 316	
138	Bolt	Carbon steel	
140	Bolt	Carbon steel	
143	Seat spring	A313M Type 316	
144	Gland plate	A276 Type 316 + HF*2	A105 + HF*2
147	End plate	A276 Type 316	
150	Seat retainer	A276 Type 316	
151	Outer ring	A276 Type 316	
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy thermal spraying

*2) Co-Cr-W Alloy

Dimensions: G-300UTC 1HM, G-300SCTC 1HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	Bolt hole			Bolt size	g	t	f			
in.								C	NO.	h							
4	4.00	13.15	6.02	19.69	12.00	6.00	10.00	7.88	8	0.88	3/4	6.19	1.25	0.06	3.68	14.29	NO.5
6	6.00	17.32	8.62	19.69	15.88	7.94	12.50	10.62	12	0.88	3/4	8.50	1.44	0.06	3.68	14.29	NO.5
8	8.00	19.06	10.75	19.69	19.75	9.88	15.00	13.00	12	1.00	7/8	10.62	1.62	0.06	5.28	14.84	NO.6
10	10.00	26.50	13.35	19.69	22.38	12.75	17.50	15.25	16	1.12	1	12.75	1.88	0.06	8.39	14.84	NO.7
12	12.00	31.42	15.16	19.69	25.50	15.00	20.50	17.75	16	1.25	1. 1/8	15.00	2.00	0.06	10.91	17.99	NO.8

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Portdia (inch) × Pressure (MPa)

Dimensions: G-300UTC 1HM, G-300SCTC 1HM

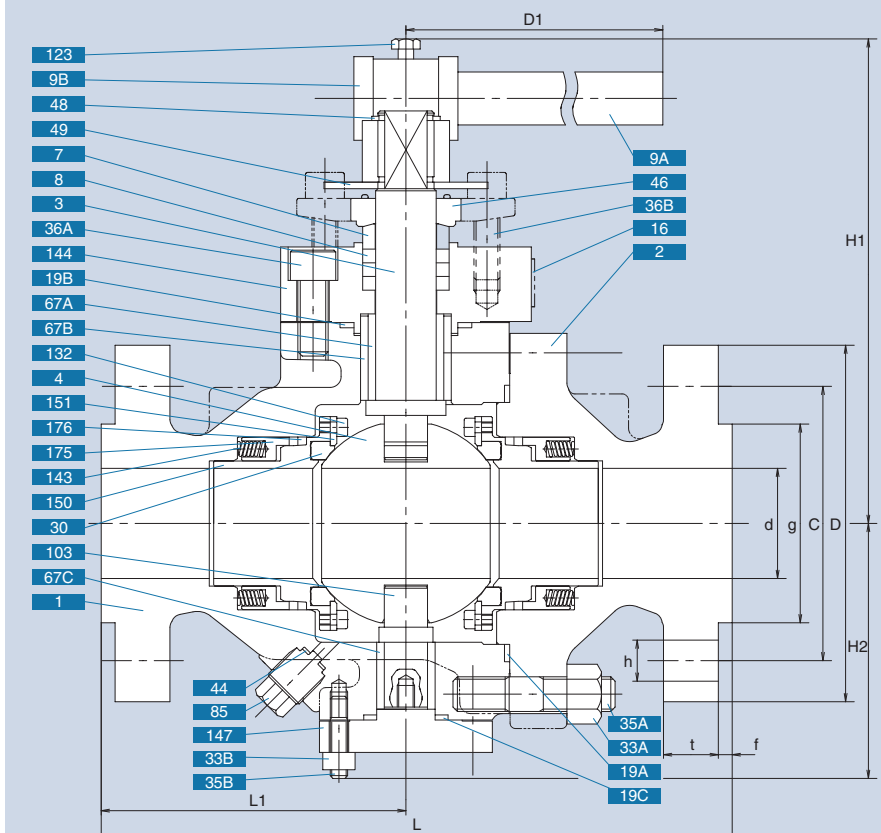
Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	Bolt hole			Bolt size	g	t	f			
mm								C	NO.	h							
100	102	334	153	500	305	152.5	254	200.0	8	22	3/4	157	31.8	1.6	93.5	363	NO.5
150	152	440	219	500	403	201.5	318	270.0	12	22	3/4	216	36.6	1.6	93.5	363	NO.5
200	203	484	273	500	502	251	381	330.0	12	25	7/8	270	41.3	1.6	134	377	NO.6
250	254	673	339	500	568	284	444	387.5	16	29	1	324	47.7	1.6	213	377	NO.7
300	305	798	385	500	648	324	521	451.0	16	32	1. 1/8	381	50.8	1.6	277	457	NO.8

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Portdia (inch) × Pressure (MPa)

FILLTITE® seated trunnion ball design valves (Trim 1H)

600UTC 1HM, 600SCTC 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		600UTC 1HM	600SCTC 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7A	Gland	A351 Gr.CF8	
7B	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	FILLTITE® PTFE	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	Stainless steel	Alloy steel
36B	Gland bolt	Stainless steel	
44	Gasket	Flexible graphite	
46	Flange	A351 Gr.CF8	
48	Snap ring	Stainless steel	Carbon steel
49	Stopper	A276 Type 304	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
67C	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 316	A576 Gr.1025
103	Bottom stem	A276 Type 329 + SFNi*	
123	Handle bolt	Carbon steel	
143	Seat spring	Ni-Co-Cr-Fe Alloy	
144	Gland plate	A276 Type 316 + HF*2	A105 + HF*2
147	End plate	A276 Type 316	
150	Seat retainer	A276 Type 316	
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy thermal spraying

*2) Co-Cr-W Alloy

Dimensions:600UTC 1HM, 600SCTC 1HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange								APPROX. MASS (lb)
							D	C	NO.	h	Bolt size	g	t	f	
2	2.00	9.06	4.69	39.37	11.50	141	6.50	5.00	0.31	0.75	5/8	3.62	1.00	0.25	77.16
3	3.00	10.43	5.79	59.06	14.00	168	8.27	6.61	0.31	0.87	3/4	5.00	1.25	0.25	143.3

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

Dimensions:600UTC 1HM, 600SCTC 1HM

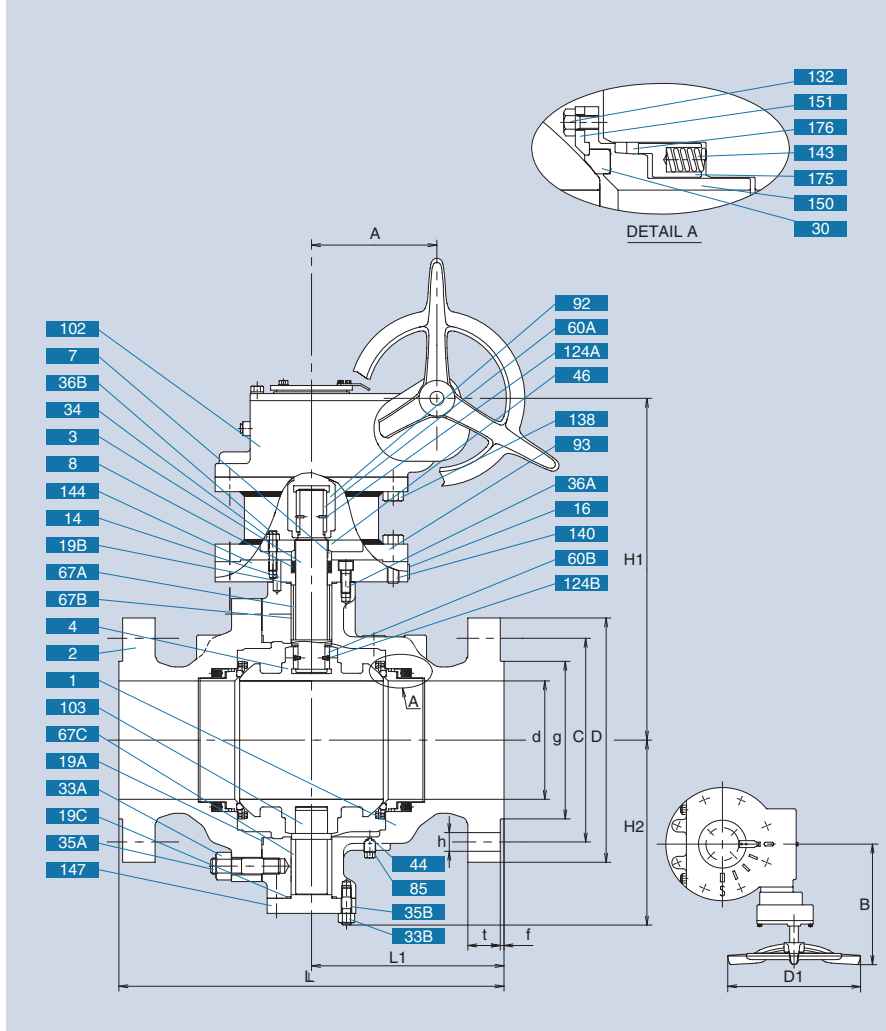
Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange								APPROX. MASS (kg)
							D	C	NO.	h	Bolt size	g	t	f	
50	51	230	119	1000	292	141	165	127.0	8	19	5/8	92	25.4	6.4	35
80	76	265	147	1500	356	168	210	168.0	8	22	3/4	127	31.8	6.4	65

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

FILLTITE® seated trunnion ball design valves (Trim 1H)

G-600UTC 1HM, G-600SCTC 1HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-600UTC 1HM	G-600SCTC 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
14	Set pin	A276 Type 304	Carbon steel
16	Name plate	A276 Type 304	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	FILLTITE® PTFE	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
34	Gland nut	A194 Gr.8	
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	Stainless steel	A193 Gr.B7
36B	Gland bolt	A193 Gr.B8	
44	Gasket	Flexible graphite	
46	Flange	A276 Type 304 or A351 Gr.CF8	
60A	KEY	Alloy steel	
60B	KEY	Stainless steel	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
67C	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 316	A576 Gr.1025
92	Connector	Carbon steel	
93	Bracket	Carbon steel	
102	Gear unit		
103	Bottom stem	A276 Type 329 + SFNi*	
124A	Spring pin	Stainless steel	
124B	Set bolt	A193 Gr.B8M	
132	Set bolt	A276 Type 316	
138	Bolt	Carbon steel	
140	Bolt	Carbon steel	
143	Seat spring	Ni-Co-Cr-Fe Alloy	
144	Gland plate	A276 Type 316 + HF*2	A105 + HF*2
147	End plate	A276 Type 316	A105
150	Seat retainer	A276 Type 316	
151	Outer ring	A276 Type 316	
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy thermal spraying

*2) Co-Cr-W Alloy

Dimensions: G-600UTC 1HM, G-600SCTC 1HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	C	NO.	h	Bolt size	g	t	f			
3	3.00	12.09	5.79	19.69	14.00	7.40	8.27	6.61	0.31	0.87	3/4	5.00	1.25	0.25	3.68	14.29	NO.5
4	4.00	11.97	6.77	19.69	17.00	8.90	10.75	8.50	8	1.00	7/8	6.19	1.50	0.25	3.68	14.29	NO.5
6	6.00	17.87	9.84	19.69	22.00	11.00	14.00	11.50	12	1.12	1	8.50	1.88	0.25	5.28	14.84	NO.6
8	8.00	25.47	12.52	19.69	26.00	13.00	16.50	13.75	12	1.25	1.1/8	10.62	2.19	0.25	8.39	14.84	NO.7
10	10.00	30.83	14.65	19.69	31.00	15.50	20.00	17.00	16	1.38	1.1/4	12.75	2.50	0.25	10.91	17.99	NO.7
12	12.00	32.20	17.09	19.69	33.00	16.50	22.00	19.25	20	1.38	1.1/4	15.00	2.62	0.25	10.91	17.99	NO.8

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

Dimensions: G-600UTC 1HM, G-600SCTC 1HM

Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	C	NO.	h	Bolt size	g	t	f			
80	76	307	147	500	356	168	210	168.0	8	22	3/4	127	31.8	6.4	93.5	363	NO.5
100	102	304	172	500	432	226	273	216.0	8	25	7/8	157	38.1	6.4	93.5	363	NO.5
150	152	454	250	500	559	279.5	356	292.0	12	29	1	216	47.7	6.4	134	377	NO.6
200	203	647	318	500	660	330	419	349.0	12	32	1.1/8	270	55.6	6.4	213	377	NO.7
250	254	783	372	500	787	393.5	508	432.0	16	35	1.1/4	324	63.5	6.4	277	457	NO.8
300	305	818	434	500	838	419	559	489.0	20	35	1.1/4	381	66.7	6.4	277	457	NO.8

NOTE (1) Allowable seat leakage (ml/min.) = 21.75 × Port dia (inch) × Pressure (Mpa)

Hard graphite seated floating ball design valve (Trim 3H)

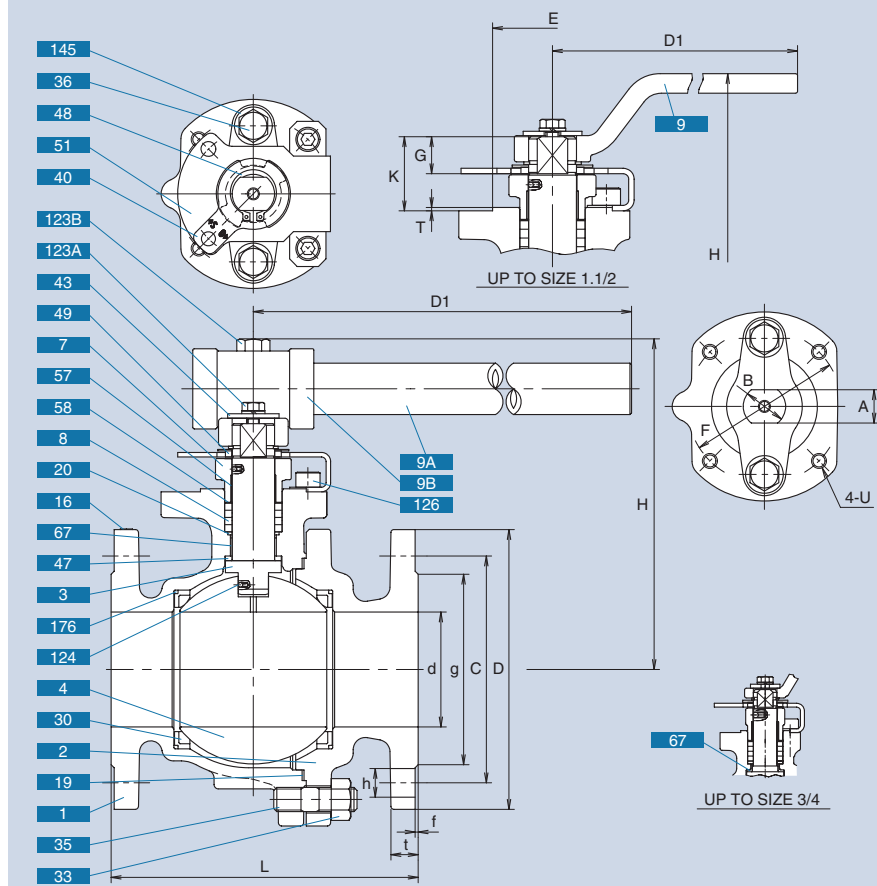
150UTDZ 3HM, 150SCTDZ 3HM

Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		150UTDZ 3HM	150SCTDZ 3HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	Carbon + JIS SUS329J1*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Refer to the following table *2) Equivalent to AISI Type 329

Operation (Standard)	Class 150
Lever type	Size 1/2 to 11/2
Bar type	Size 2 to 4
Gear	Size 5 to 8



Dimensions: 150UTDZ 3HM, 150SCTDZ 3HM

Unit: inch

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
in.						C	NO.	h														
1/2	0.55	4.25	5.12	4.25	3.50	2.38	4	0.62	1/2	1.38	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	5.73
3/4	0.75	4.37	5.12	4.62	3.88	2.75	4	0.62	1/2	1.69	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	6.17
1	0.95	4.88	6.30	5.00	4.25	3.12	4	0.62	1/2	2.00	0.44	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	9.92
1.1/4*	1.26	5.04	6.30	5.50	4.61	3.50	4	0.63	1/2	2.52	0.50	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	11.02
1.1/2	1.50	5.28	9.06	6.50	5.00	3.88	4	0.62	1/2	2.88	0.56	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	18.74
2	1.97	5.83	11.81	7.00	6.00	4.75	4	0.75	5/8	3.62	0.62	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	25.13
2.1/2	2.52	8.23	23.62	7.50	7.00	5.50	4	0.75	5/8	4.12	0.69	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	43.43
3	3.00	8.62	23.62	8.00	7.50	6.00	4	0.75	5/8	5.00	0.75	0.06	0.87	1.10	2.76	4.02	1.06	1.77	0.08	M10	F10	55.12
4	3.94	9.88	39.37	9.00	9.00	7.50	8	0.75	5/8	6.19	0.94	0.06	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	108.03

* 150UTDZ 3H only.

Dimensions: 150UTDZ 3HM, 150SCTDZ 3HM

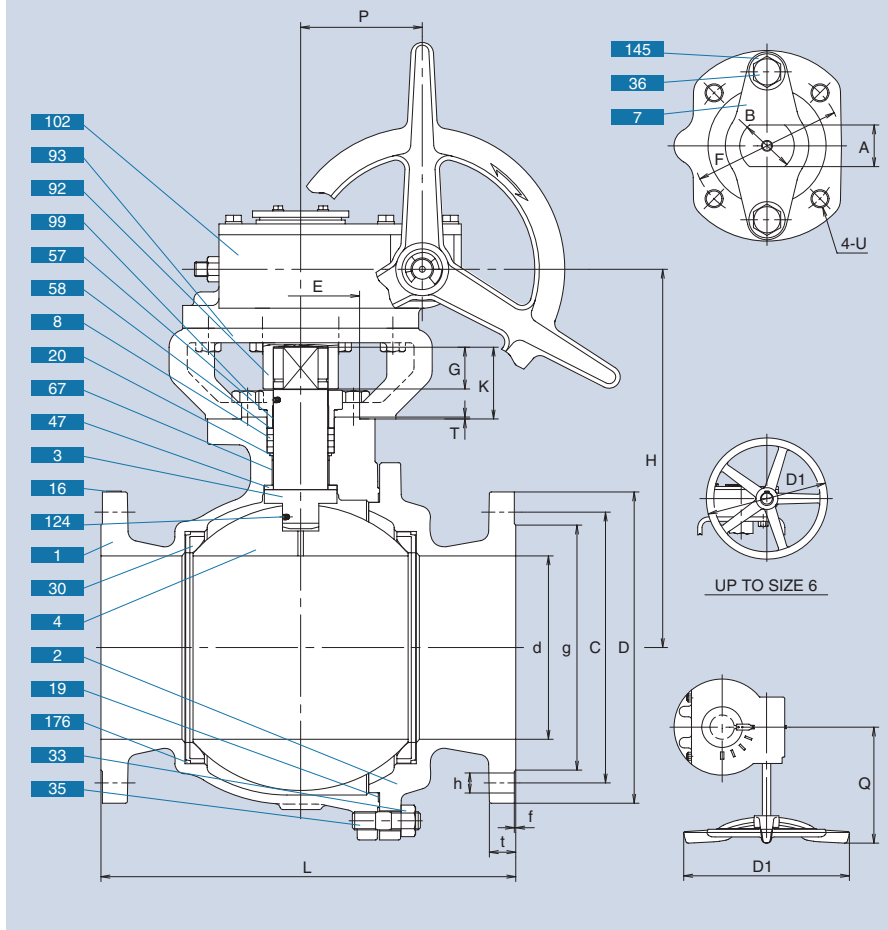
Unit: mm

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
mm						C	NO.	h														
15	14	108	130	108	89	60.5	4	16	1/2	35	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.6
20	19	111	130	117	98	70.0	4	16	1/2	43	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.8
25	24	124	160	127	108	79.5	4	16	1/2	51	11.2	1.6	14	18	35	50	14	30	1.5	M6	F05	4.5
32	32	128	160	140	117	89.0	4	16	1/2	64	12.7	1.6	14	18	35	50	14	30	1.5	M6	F05	5.0
40	38	134	230	165	127	98.5	4	16	1/2	73	14.3	1.6	17	22	55	70	17	34	1.5	M8	F07	8.5
50	50	148	300	178	152	120.5	4	19	5/8	92	15.9	1.6	17	22	55	70	17	34	1.5	M8	F07	11.4
65	64	209	600	190	178	139.5	4	19	5/8	105	17.5	1.6	22	28	70	102	22	45	2	M10	F10	19.7
80	76	219	600	203	190	152.5	4	19	5/8	127	19.1	1.6	22	28	70	102	22	45	2	M10	F10	25.0
100	100	251	1000	229	229	190.5	8	19	5/8	157	23.9	1.6	27	36	85	125	27	52	2	M12	F12	49.0

* 150UTDZ 3H only.

Hard graphite seated floating ball design valve (Trim 3H)

G-150UTDZ 3HM, G-150SCTDZ 3HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-150UTDZ 3HM	G-150SCTDZ 3HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	Carbon + JIS SUS329J1*1	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
124	Spring & pin	A313 & A276 Type 316	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Equivalent to AISI Type 329

Dimensions: G-150UTDZ 3HM, G-150SCTDZ 3HM

Unit: inch

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
in.						C	NO.	h																	
5	4.84	10.79	12.20	14.00	10.0	8.50	8	0.88	3/4	7.31	0.94	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	163.14	
6	5.95	13.19	14.17	15.50	11.0	9.50	8	0.88	3/4	8.50	1.00	0.06	3.48	8.27	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	264.56	
8	7.95	16.42	19.69	18.00	13.5	11.75	8	0.88	3/4	10.62	1.12	0.06	5.28	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	467.38	

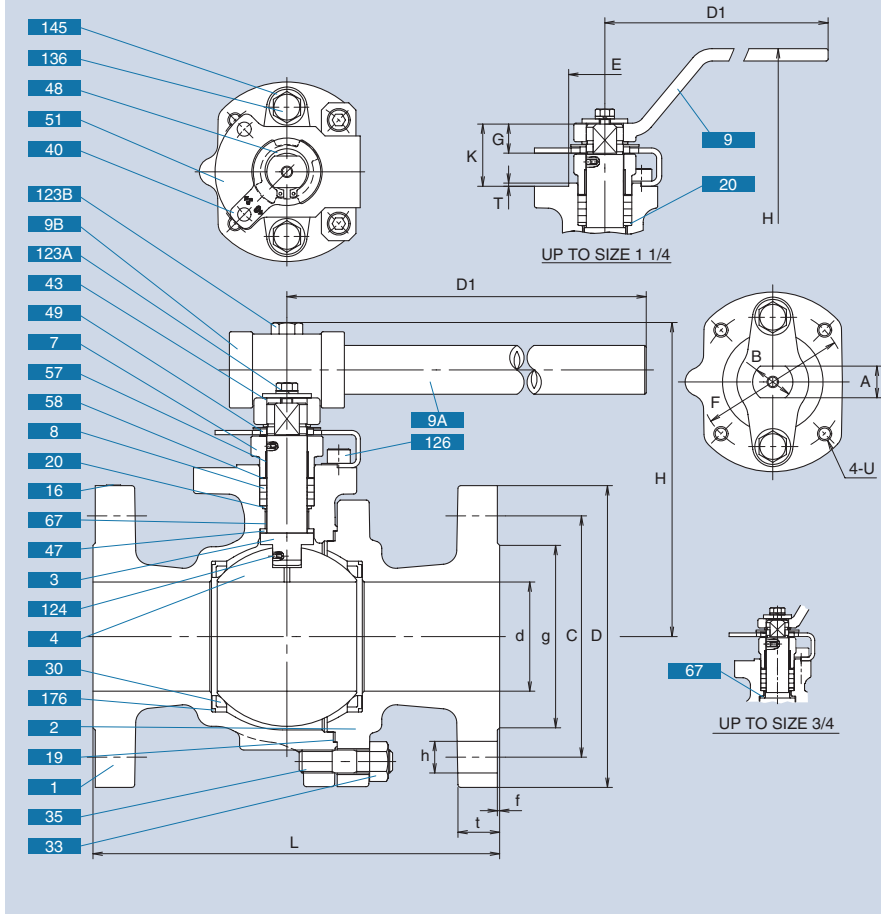
Dimensions: G-150UTDZ 3HM, G-150SCTDZ 3HM

Unit: mm

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
						C	NO.	h																	
mm																									
125	123	274	310	356	254	216.0	8	22	3/4	186	23.9	1.6	65.5	165	27	36	85	125	27	52	2	M12	F12	74	
150	151	335	360	394	279	241.5	8	22	3/4	216	25.4	1.6	88.5	210	36	48	100	140	36	63	2	M16	F14	120	
200	202	417	500	457	343	298.5	8	22	3/4	270	28.6	1.6	134.0	377	46	60	130	165	46	79	2	M20	F16	212	

Hard graphite seated floating ball design valve (Trim 3H)

300UTDZ 3HM, 300SCTDZ 3HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		300UTDZ 3HM	300SCTDZ 3HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	Carbon + JIS SUS329J1*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Refer to the following table *2) Equivalent to AISI Type 329

Operation (Standard)	Class 300
Lever type	Size 1/2 to 1 1/4
Bar type	Size 1 1/2 to 3
Gear	Size 4 to 8

Dimensions:300UTDZ 3HM, 300SCTDZ 3HM

Unit: inch

Nominal size	d	H	D1	L	End flange							Mounting Demension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
in.							NO.	h														
1/2	0.55	4.25	5.12	5.50	3.75	2.62	4	0.62	1/2	1.38	0.56	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	6.61
3/4	0.75	4.37	5.12	6.00	4.62	3.25	4	0.75	5/8	1.69	0.62	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	9.92
1	0.95	4.88	6.30	6.50	4.88	3.50	4	0.75	5/8	2.00	0.69	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	15.87
1.1/4*	1.26	5.04	6.30	7.00	5.25	3.88	4	0.75	5/8	2.50	0.75	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	24.25
1.1/2	1.50	5.47	23.62	7.50	6.14	4.50	4	0.88	3/4	2.88	0.81	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	34.17
2	1.97	5.83	23.62	8.50	6.50	5.00	8	0.75	5/8	3.62	0.88	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	46.74
2.1/2	2.52	8.23	39.37	9.50	7.50	5.88	8	0.88	3/4	4.12	1.00	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	66.14
3	3.00	8.62	39.37	11.12	8.25	6.62	8	0.88	3/4	5.00	1.12	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	83.78

* 300UTDZ 3H only.

Dimensions:300UTDZ 3HM, 300SCTDZ 3HM

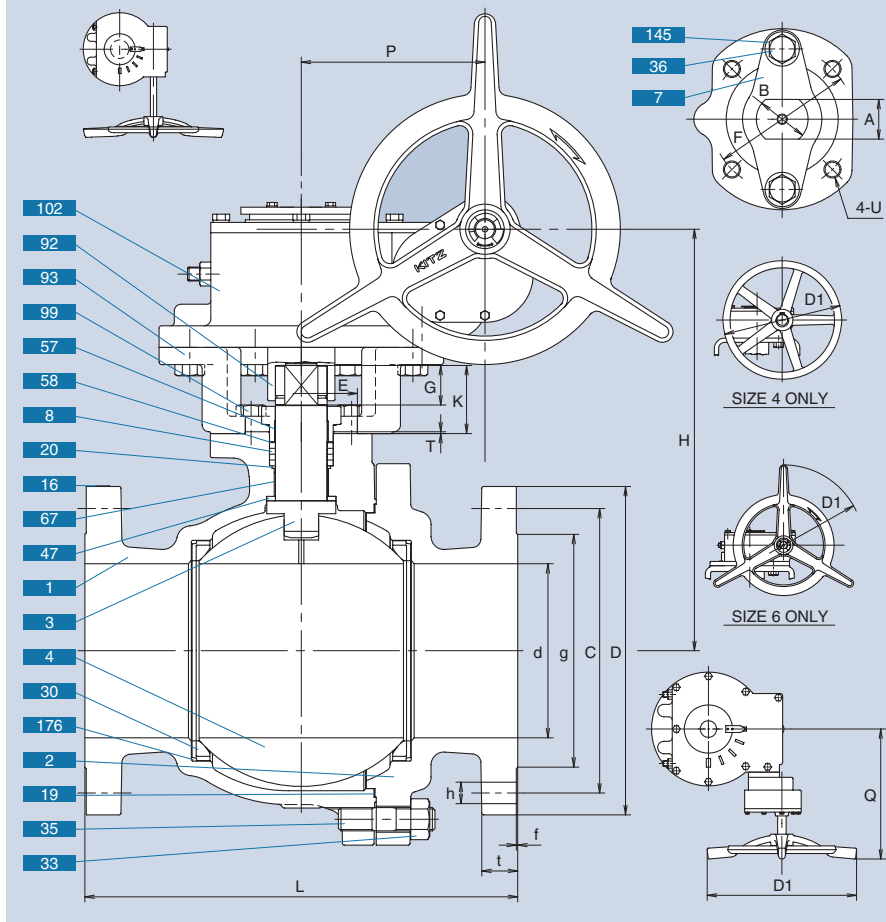
Unit: mm

Nominal size	d	H	D1	L	End flange								Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type		
	C	NO.	h																				
mm																							
15	14	108	130	140	95	66.5	4	16	1/2	35	14.3	1.6	9	12	25	36	9	22	1	M5	F03	3.0	
20	19	111	130	152	117	85.5	4	19	5/8	43	15.9	1.6	9	12	25	36	9	22	1	M5	F03	4.5	
25	24	124	160	165	124	89.0	4	19	5/8	51	17.5	1.6	14	18	35	50	14	30	1.5	M6	F05	7.2	
32	32	128	160	178	133	98.5	4	19	5/8	64	19.4	1.6	14	18	35	50	14	30	1.5	M6	F05	11.0	
40	38	139	600	190	156	114.5	4	22	3/4	73	20.7	1.6	17	22	55	70	17	34	1.5	M8	F07	15.5	
50	50	148	600	216	165	127.0	8	19	5/8	92	22.3	1.6	17	22	55	70	17	34	1.5	M8	F07	21.2	
65	64	209	1000	241	190	149.0	8	22	3/4	105	25.4	1.6	22	28	70	102	22	45	2	M10	F10	30.0	
80	76	219	1000	283	210	168.0	8	22	3/4	127	28.6	1.6	22	28	70	102	22	45	2	M10	F10	38.0	

* 300UTDZ 3H only.

Hard graphite seated floating ball design valve (Trim 3H)

G-300UTDZ 3HM, G-300SCTDZ 3HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-300UTDZ 3HM	G-300SCTDZ 3HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	Carbon + JIS SUS329J1*1	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
124	Spring & pin	A313 & A276 Type 316	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Equivalent to AISI Type 329

Dimensions: G-300UTDZ 3HM, G-300SCTDZ 3HM

Unit: inch

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
in.						C	NO.	h																	
4	3.94	11.26	14.17	12.00	10.00	7.88	8	0.88	3/4	6.19	1.25	0.06	3.61	8.57	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	209.44	
5	4.84	11.89	14.17	15.00	11.00	9.25	8	0.88	3/4	7.31	1.38	0.06	3.61	8.57	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	260.15	
6	5.95	14.17	19.69	15.88	12.50	10.62	12	0.88	3/4	8.50	1.44	0.06	5.47	15.39	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	388.02	
8	7.95	19.25	19.69	19.75	15.00	13.00	12	1.00	7/8	10.62	1.62	0.06	8.69	15.39	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	643.75	

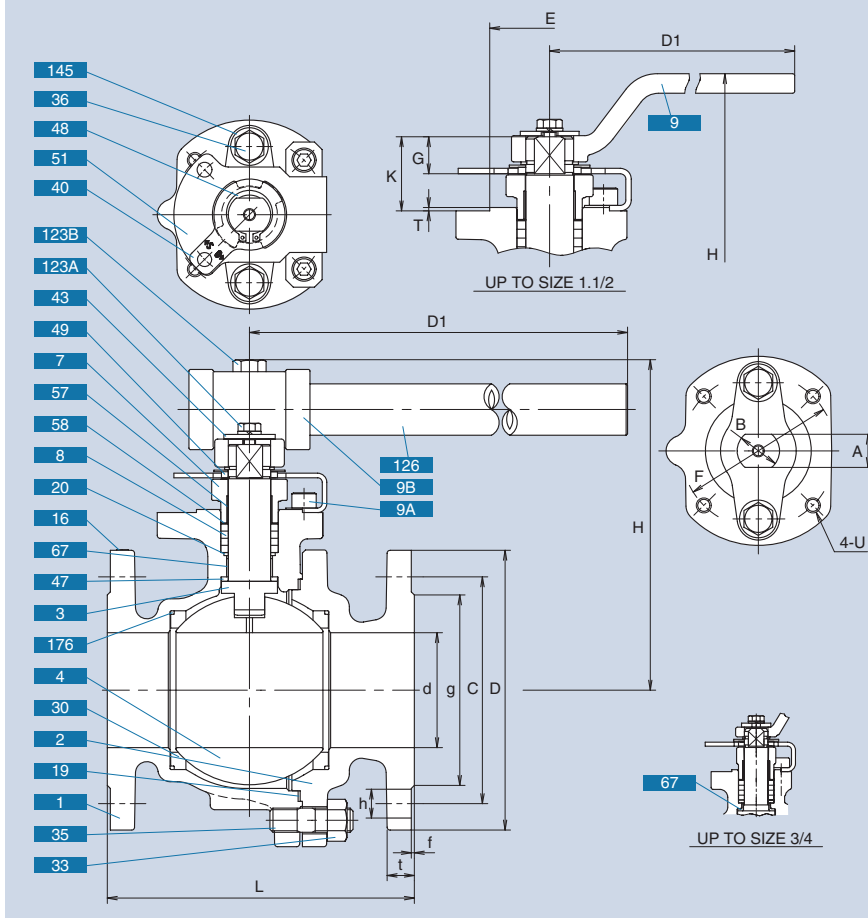
Dimensions: G-300UTDZ 3HM, G-300SCTDZ 3HM

Unit: mm

Nominal size		End flange												Mounting Dimension for Actuator										APPROX. MASS (kg)
		d	H	D1	L	D	Bolt hole		Bolt size	g	t	f	P	Q	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
							NO.	h																
mm						C																		
100	100	286	360	305	254	200	8	22	3/4	157	31.8	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	95
125	123	302	360	381	279	235	8	22	3/4	186	35.0	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	118
150	151	360	500	403	318	270	12	22	3/4	216	36.6	1.6	134.0	377	36	48	100	140	36	63	2	M16	F14	176
200	202	489	500	502	381	330	12	25	7/8	270	41.3	1.6	213.0	377	46	60	130	165	46	79	2	M20	F16	292

Metal seated floating ball design valve (Trim 5H)

150UTDZ 5HM, 150SCTDZ 5HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		150UTDZ 5HM	150SCTDZ 5HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Cr. plating	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Refer to the following table *2) Equivalent to METCO Type 16C

Operation (Standard)	Class 150
Lever type	Size 1/2 to 11/2
Bar type	Size 2 to 4
Gear	Size 5 to 8

Dimensions: 150UTDZ 5HM, 150SCTDZ 5HM

Unit: inch

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
						C	NO.	h														
in.																						
1/2	0.55	4.25	5.12	4.25	3.50	2.38	4	0.62	1/2	1.38	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	5.73
3/4	0.75	4.37	5.12	4.62	3.88	2.75	4	0.62	1/2	1.69	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	6.17
1	0.95	4.88	6.30	5.00	4.25	3.12	4	0.62	1/2	2.00	0.44	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	9.92
1.1/4*	1.26	5.04	6.30	5.50	4.61	3.50	4	0.63	1/2	2.52	0.50	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	11.02
1.1/2	1.50	5.28	9.06	6.50	5.00	3.88	4	0.62	1/2	2.88	0.56	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	18.74
2	1.97	5.83	11.81	7.00	6.00	4.75	4	0.75	5/8	3.62	0.62	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	25.13
2.1/2	2.52	8.23	23.62	7.50	7.00	5.50	4	0.75	5/8	4.12	0.69	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	43.43
3	3.00	8.62	23.62	8.00	7.50	6.00	4	0.75	5/8	5.00	0.75	0.06	0.87	1.10	2.76	4.02	1.06	1.77	0.08	M10	F10	55.12
4	3.94	9.88	39.37	9.00	9.00	7.50	8	0.75	5/8	6.19	0.94	0.06	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	108.03

* 150UTDZ 5H only.

Dimensions: 150UTDZ 5HM, 150SCTDZ 5HM

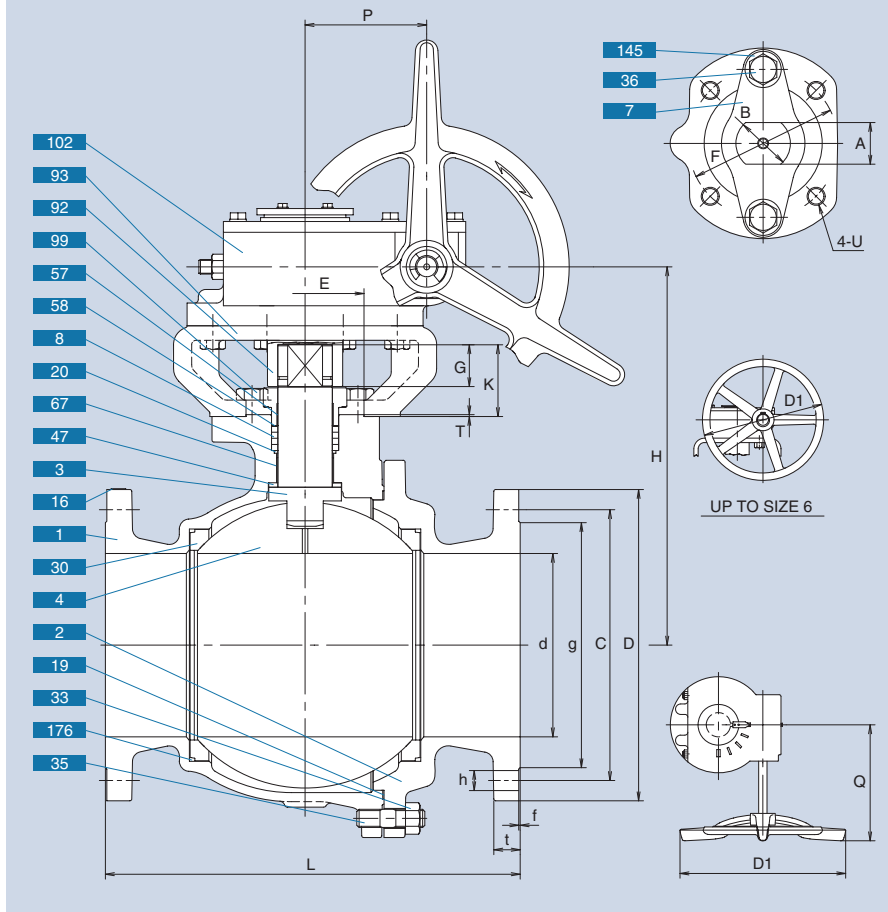
Unit: mm

Nominal size		d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (kg)
						D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
							C	NO.	h														
mm	15	14	108	130	108	89	60.5	4	16	1/2	35	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.6
	20	19	111	130	117	98	70.0	4	16	1/2	43	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.8
	25	24	124	160	127	108	79.5	4	16	1/2	51	11.2	1.6	14	18	35	50	14	30	1.5	M6	F05	4.5
	32	32	128	160	140	117	89.0	4	16	1/2	64	12.7	1.6	14	18	35	50	14	30	1.5	M6	F05	5.0
	40	38	134	230	165	127	98.5	4	16	1/2	73	14.3	1.6	17	22	55	70	17	34	1.5	M8	F07	8.5
	50	50	148	300	178	152	120.5	4	19	5/8	92	15.9	1.6	17	22	55	70	17	34	1.5	M8	F07	11.4
	65	64	209	600	190	178	139.5	4	19	5/8	105	17.5	1.6	22	28	70	102	22	45	2	M10	F10	19.7
	80	76	219	600	203	190	152.5	4	19	5/8	127	19.1	1.6	22	28	70	102	22	45	2	M10	F10	25.0
	100	100	251	1000	229	229	190.5	8	19	5/8	157	23.9	1.6	27	36	85	125	27	52	2	M12	F12	49.0

* 150UTDZ 5H only.

Metal seated floating ball design valve (Trim 5H)

G-150UTDZ 5HM, G-150SCTDZ 5HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-150UTDZ 5HM	G-150SCTDZ 5HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Cr. plating	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*1	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Equivalent to METCO Type 16C

Dimensions: G-150UTDZ 5HM, G-150SCTDZ 5HM

Unit: inch

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
in.						C	NO.	h																	
5	4.84	11.89	14.17	14.00	10.0	8.50	8	0.88	3/4	7.31	0.94	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	194.01	
6	5.95	13.19	14.17	15.50	11.0	9.50	8	0.88	3/4	8.50	1.00	0.06	3.48	8.27	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	264.56	
8	7.95	16.42	19.69	18.00	13.5	11.75	8	0.88	3/4	10.62	1.12	0.06	5.28	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	467.38	

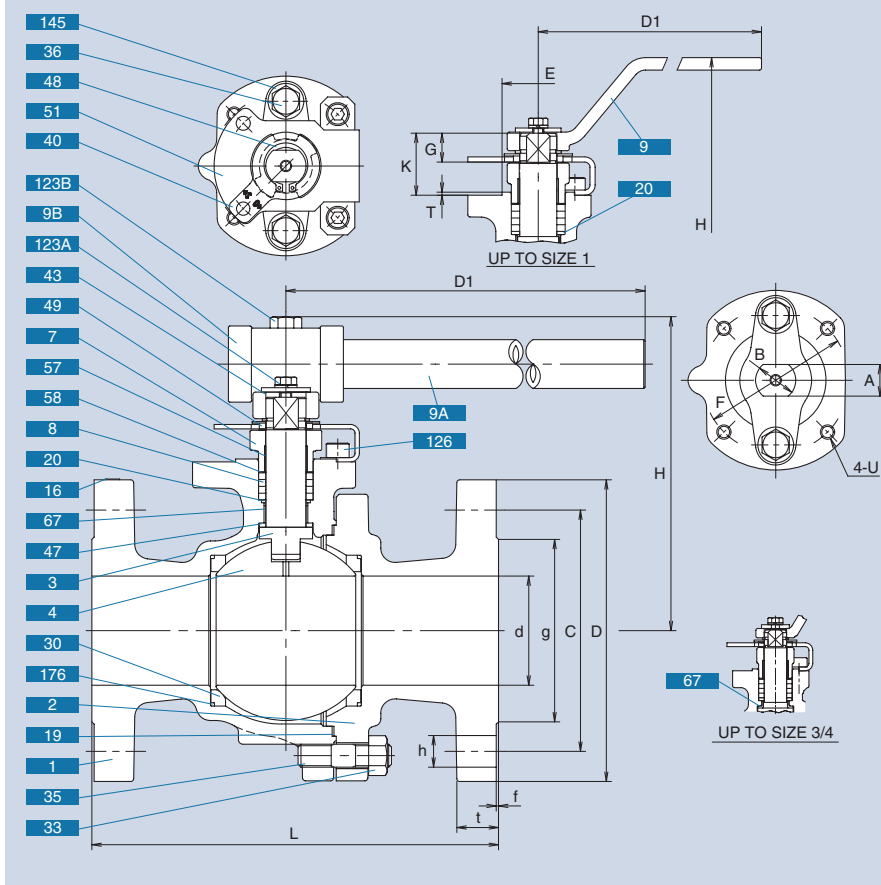
Dimensions: G-150UTDZ 5HM, G-150SCTDZ 5HM

Unit: mm

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
						C	NO.	h																	
mm																									
125	123	302	360	356	254	216.0	8	22	3/4	186	23.9	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	88	
150	151	335	360	394	279	241.5	8	22	3/4	216	25.4	1.6	88.5	210	36	48	100	140	36	63	2	M16	F14	120	
200	202	417	500	457	343	298.5	8	22	3/4	270	28.6	1.6	134.0	377	46	60	130	165	46	79	2	M20	F16	212	

Metal seated floating ball design valve (Trim 5H)

300UTDZ 5HM, 300SCTDZ 5HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		300UTDZ 5HM	300SCTDZ 5HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Cr. plating	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Refer to the following table *2) Equivalent to METCO Type 16C

Operation (Standard)	Class 300
Lever type	Size 1/2 to 1
Bar type	Size 11/2 to 3
Gear	Size 4 to 8

Dimensions:300UTDZ 5HM, 300SCTDZ 5HM

Unit: inch

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
in.						C	NO.	h														
1/2	0.55	4.25	5.12	5.50	3.75	2.62	4	0.62	1/2	1.38	0.56	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	6.61
3/4	0.75	4.37	5.12	6.00	4.62	3.25	4	0.75	5/8	1.69	0.62	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	9.92
1	0.95	4.88	6.30	6.50	4.88	3.50	4	0.75	5/8	2.00	0.69	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	15.87
1.1/4	1.26	5.04	6.30	7.00	5.25	3.88	4	0.75	5/8	2.50	0.75	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	24.25
1.1/2	1.50	5.47	23.62	7.50	6.14	4.50	4	0.88	3/4	2.88	0.81	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	34.17
2	1.97	5.83	23.62	8.50	6.50	5.00	8	0.75	5/8	3.62	0.88	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	46.74
2.1/2	2.52	8.23	39.37	9.50	7.50	5.88	8	0.88	3/4	4.12	1.00	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	66.14
3	3.00	8.62	39.37	11.12	8.25	6.62	8	0.88	3/4	5.00	1.12	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	83.78

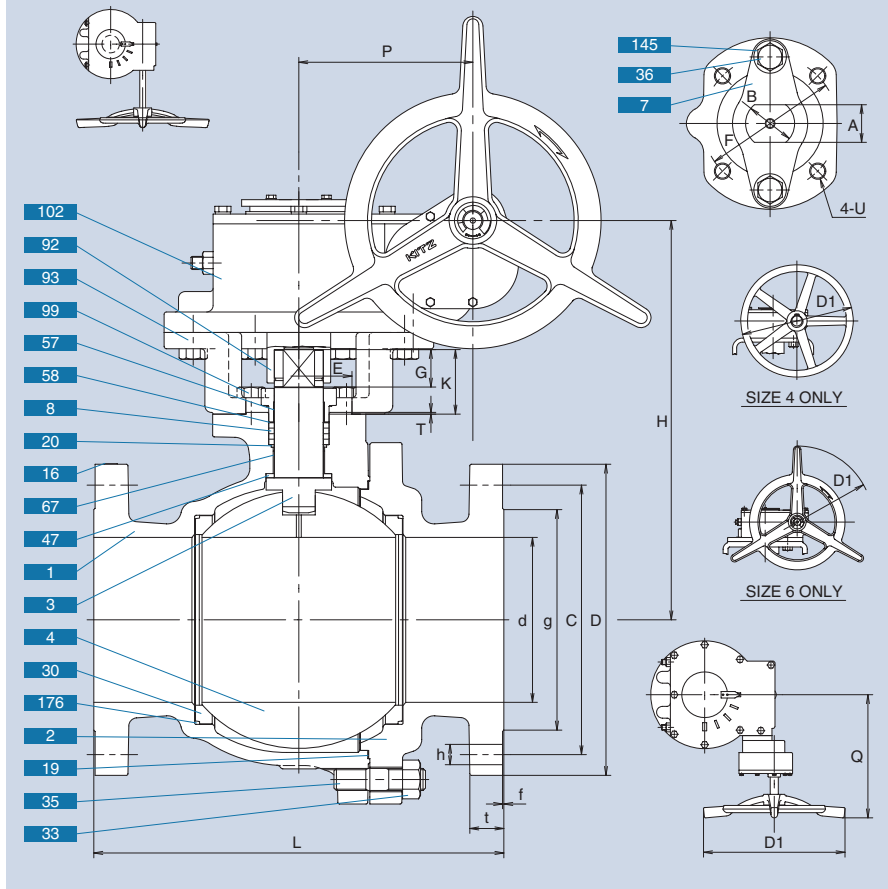
Dimensions:300UTDZ 5HM, 300SCTDZ 5HM

Unit: mm

Nominal size	d	H	D1	L	End flange							Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
mm						C	NO.	h														
15	14	108	130	140	95	66.5	4	16	1/2	35	14.3	1.6	9	12	25	36	9	22	1	M5	F03	3.0
20	19	111	130	152	117	85.5	4	19	5/8	43	15.9	1.6	9	12	25	36	9	22	1	M5	F03	4.5
25	24	124	160	165	124	89.0	4	19	5/8	51	17.5	1.6	14	18	35	50	14	30	1.5	M6	F05	7.2
32	32	128	160	178	133	98.5	4	19	5/8	64	19.4	1.6	14	18	35	50	14	30	1.5	M6	F05	11.0
40	38	139	600	190	156	114.5	4	22	3/4	73	20.7	1.6	17	22	55	70	17	34	1.5	M8	F07	15.5
50	50	148	600	216	165	127.0	8	19	5/8	92	22.3	1.6	17	22	55	70	17	34	1.5	M8	F07	21.2
65	64	209	1000	241	190	149.0	8	22	3/4	105	25.4	1.6	22	28	70	102	22	45	2	M10	F10	30.0
80	76	219	1000	283	210	168.0	8	22	3/4	127	28.6	1.6	22	28	70	102	22	45	2	M10	F10	38.0

Metal seated floating ball design valve (Trim 5H)

G-300UTDZ 5HM, G-300SCTDZ 5HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-300UTDZ 5HM	G-300SCTDZ 5HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Cr. plating	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*1	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Equivalent to METCO Type 16C

Dimensions: G-300UTDZ 5HM, G-300SCTDZ 5HM

Unit: inch

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
in.						C	NO.	h																	
4	3.94	11.26	14.17	12.00	10.00	7.88	8	0.88	3/4	6.19	1.25	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	209.44	
5	4.84	11.77	19.69	15.00	11.00	9.25	8	0.88	3/4	7.31	1.38	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	275.58	
6	5.95	14.17	19.69	15.88	12.50	10.62	12	0.88	3/4	8.50	1.44	0.06	5.28	14.84	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	388.02	
8	7.95	19.25	19.69	19.75	15.00	13.00	12	1.00	7/8	10.62	1.62	0.06	8.39	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	643.75	

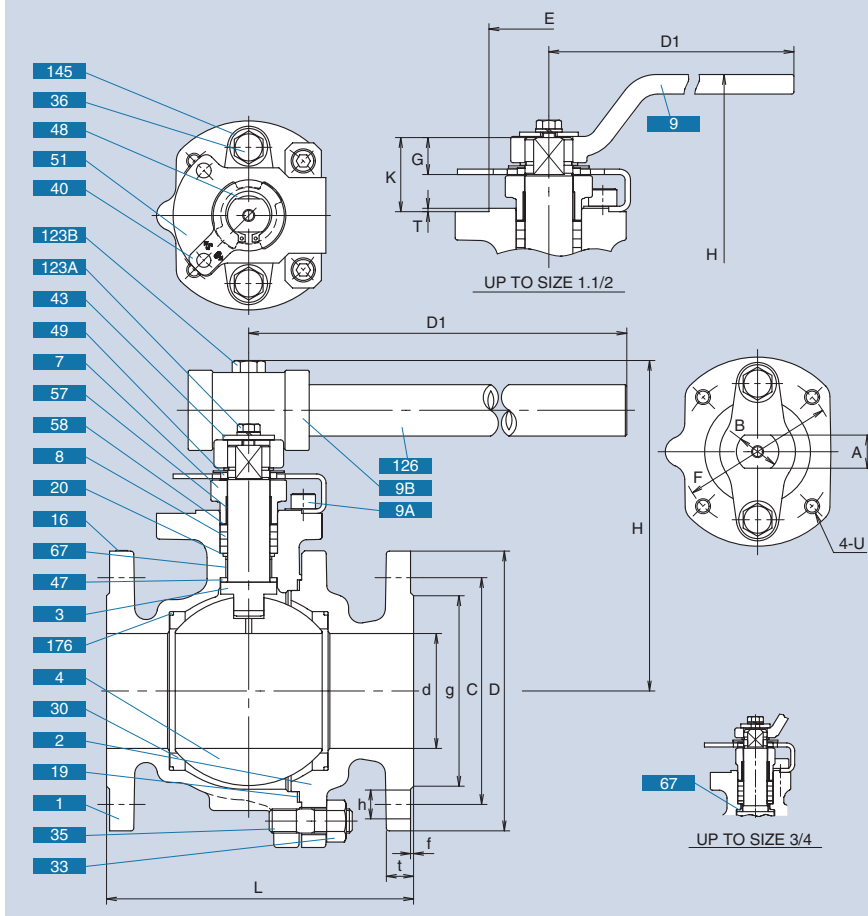
Dimensions: G-300UTDZ 5HM, G-300SCTDZ 5HM

Unit: mm

Nominal size	d	H	D1	L	End flange							P	Q	Mounting Demension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t			f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
	C	NO.	h																					
mm																								
100	100	286	360	305	254	200	8	22	3/4	157	31.8	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	95
125	123	299	500	381	279	235	8	22	3/4	186	35.0	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	125
150	151	360	500	403	318	270	12	22	3/4	216	36.6	1.6	134.0	377	36	48	100	140	36	63	2	M16	F14	176
200	202	489	500	502	381	330	12	25	7/8	270	41.3	1.6	213.0	377	46	60	130	165	46	79	2	M20	F16	292

Metal seated floating ball design valve (Trim 6H)

150UTDZ 6HM, 150SCTDZ 6HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		150UTDZ 6HM	150SCTDZ 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Ni-Cr alloy hard facing*2	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Refer to the following table *2) Equivalent to METCO Type 16C

Operation (Standard)	Class 150
Lever type	Size 1/2 to 11/2
Bar type	Size 2 to 4
Gear	Size 5 to 8

Dimensions: 150UTDZ 6HM, 150SCTDZ 6HM

Unit: inch

Nominal size	d	H	D1	L	End flange						Mounting Dimension for Actuator											APPROX. MASS (lb)
in.					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
						C	NO.	h														
1/2	0.55	4.25	5.12	4.25	3.50	2.38	4	0.62	1/2	1.38	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	5.73
3/4	0.75	4.37	5.12	4.62	3.88	2.75	4	0.62	1/2	1.69	0.44	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.04	M5	F03	6.17
1	0.95	4.88	6.30	5.00	4.25	3.12	4	0.62	1/2	2.00	0.44	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	9.92
1.1/4*	1.26	5.04	6.30	5.50	4.61	3.50	4	0.63	1/2	2.52	0.50	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	11.02
1.1/2	1.50	5.28	9.06	6.50	5.00	3.88	4	0.62	1/2	2.88	0.56	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	18.74
2	1.97	5.83	11.81	7.00	6.00	4.75	4	0.75	5/8	3.62	0.62	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	25.13
2.1/2	2.52	8.23	23.62	7.50	7.00	5.50	4	0.75	5/8	4.12	0.69	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	43.43
3	3.00	8.62	23.62	8.00	7.50	6.00	4	0.75	5/8	5.00	0.75	0.06	0.87	1.10	2.76	4.02	1.06	1.77	0.08	M10	F10	55.12
4	3.94	9.88	39.37	9.00	9.00	7.50	8	0.75	5/8	6.19	0.94	0.06	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	108.03

* 150UTDZ 6H only.

Dimensions: 150UTDZ 6HM, 150SCTDZ 6HM

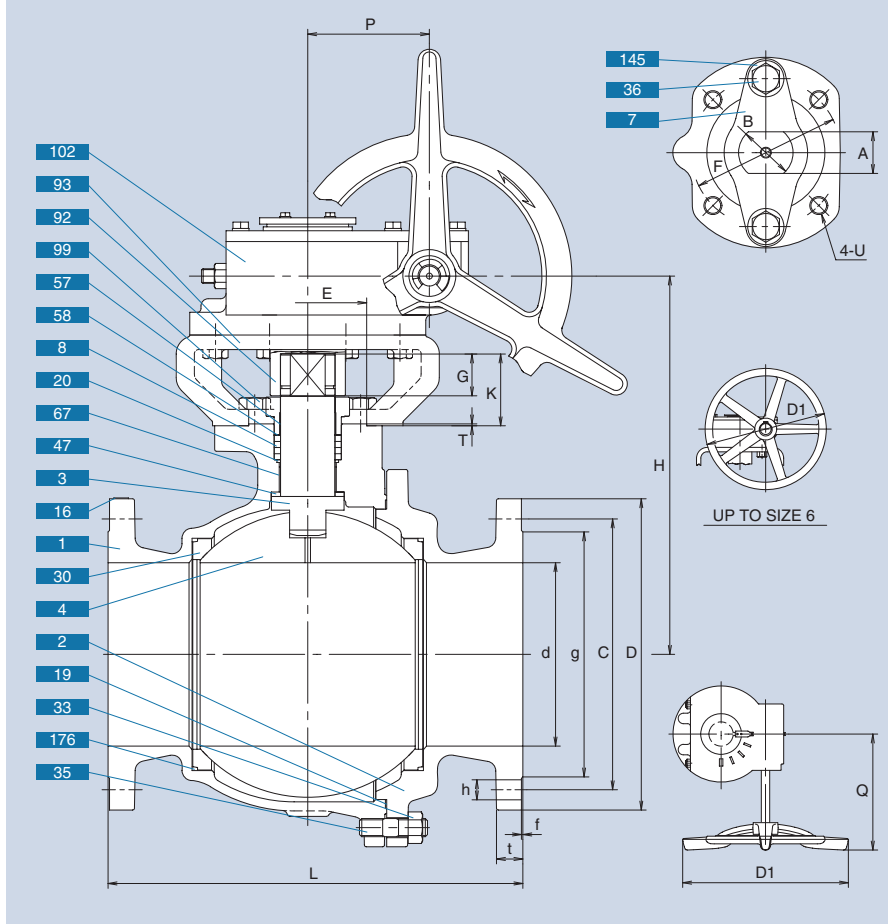
Unit: mm

Nominal size	d	H	D1	L	End flange						Mounting Dimension for Actuator											APPROX. MASS (kg)
mm					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
						C	NO.	h														
15	14	108	130	108	89	60.5	4	16	1/2	35	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.6
20	19	111	130	117	98	70.0	4	16	1/2	43	11.2	1.6	9	12	25	36	9	22	1	M5	F03	2.8
25	24	124	160	127	108	79.5	4	16	1/2	51	11.2	1.6	14	18	35	50	14	30	1.5	M6	F05	4.5
32	32	128	160	140	117	89.0	4	16	1/2	64	12.7	1.6	14	18	35	50	14	30	1.5	M6	F05	5.0
40	38	134	230	165	127	98.5	4	16	1/2	73	14.3	1.6	17	22	55	70	17	34	1.5	M8	F07	8.5
50	50	148	300	178	152	120.5	4	19	5/8	92	15.9	1.6	17	22	55	70	17	34	1.5	M8	F07	11.4
65	64	209	600	190	178	139.5	4	19	5/8	105	17.5	1.6	22	28	70	102	22	45	2	M10	F10	19.7
80	76	219	600	203	190	152.5	4	19	5/8	127	19.1	1.6	22	28	70	102	22	45	2	M10	F10	25.0
100	100	251	1000	229	229	190.5	8	19	5/8	157	23.9	1.6	27	36	85	125	27	52	2	M12	F12	49.0

* 150UTDZ 6H only.

Metal seated floating ball design valve (Trim 6H)

G-150UTDZ 6HM, G-150SCTDZ 6HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-150UTDZ 6HM	G-150SCTDZ 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Ni-Cr alloy hard facing*1	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*1	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Equivalent to METCO Type 16C

Dimensions: G-150UTDZ 6HM, G-150SCTDZ 6HM

Unit: inch

Nominal size	d	H	D1	P	End flange								P	Q	Mounting Dimension for Actuator											APPROX. MASS (lb)
					D	Bolt NO.			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type			
						C	h	NO.																		
in.																										
5	4.84	11.89	14.17	14.00	10.0	8.50	8	0.88	3/4	7.31	0.94	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12		194.01	
6	5.95	13.19	14.17	15.50	11.0	9.50	8	0.88	3/4	8.50	1.00	0.06	3.48	8.27	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14		264.56	
8	7.95	16.42	19.69	18.00	13.5	11.75	8	0.88	3/4	10.62	1.12	0.06	5.28	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16		467.38	

Dimensions: G-150UTDZ 6HM, G-150SCTDZ 6HM

Unit: mm

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator											APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type			
						C	NO.	h																		
mm																										
125	123	302	360	356	254	216.0	8	22	3/4	186	23.9	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12			88
150	151	335	360	394	279	241.5	8	22	3/4	216	25.4	1.6	88.5	210	36	48	100	140	36	63	2	M16	F14			120
200	202	417	500	457	343	298.5	8	22	3/4	270	28.6	1.6	134.0	377	46	60	130	165	46	79	2	M20	F16			212

Metal seated floating ball design valve (Trim 6H)

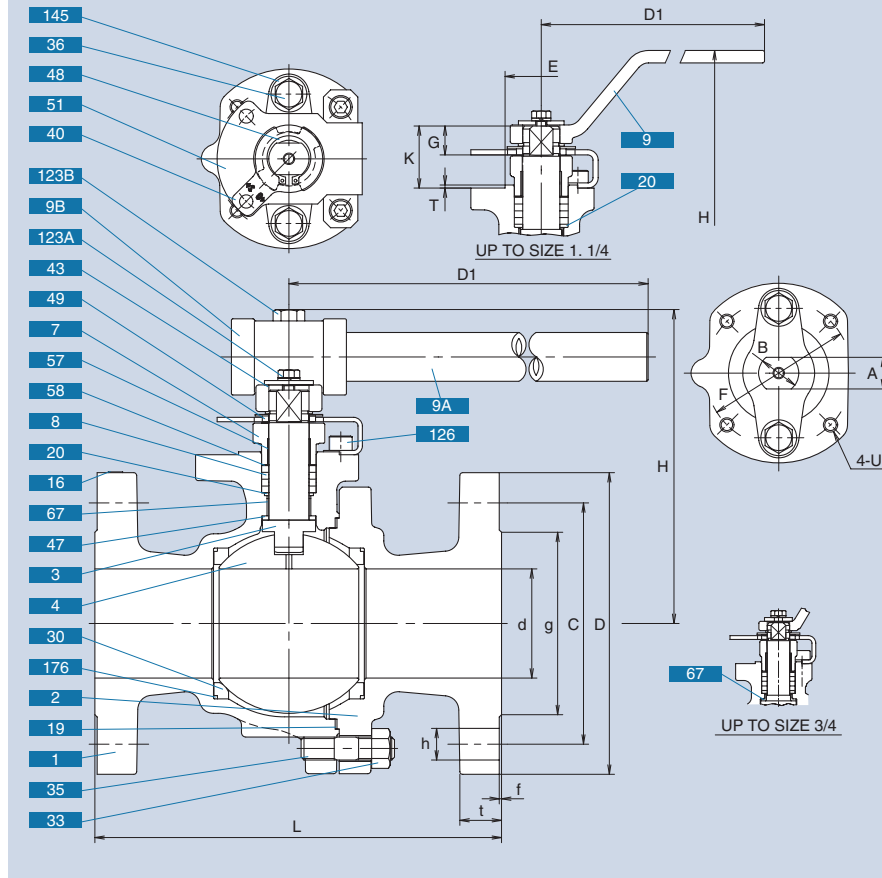
300UTDZ 6HM, 300SCTDZ 6HM

Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		300UTDZ 6HM	300SCTDZ 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Ni-Cr alloy hard facing ²	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle ^{*1}	Ductile iron	
9A	Handle bar ^{*1}	Carbon steel	
9B	Handle head ^{*1}	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing ²	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Refer to the following table *2) Equivalent to METCO Type 16C

Operation (Standard)	Class 300
Lever type	Size 1/2 to 1 1/4
Bar type	Size 11/2 to 3
Gear	Size 4 to 8



Dimensions:300UTDZ 6HM, 300SCTDZ 6HM

Unit: inch

Nominal size	d	H	D1	L	End flange								Mounting Dimension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type		
						C	NO.	h															
in.																							
1/2	0.55	4.25	5.12	5.50	3.75	2.62	4	0.62	1/2	1.38	0.56	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	6.61	
3/4	0.75	4.37	5.12	6.00	4.62	3.25	4	0.75	5/8	1.69	0.62	0.06	0.36	0.47	0.99	1.42	0.35	0.87	0.44	M5	F03	9.92	
1	0.95	4.88	6.30	6.50	4.88	3.50	4	0.75	5/8	2.00	0.69	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	15.87	
1.1/4*	1.26	5.04	6.30	7.00	5.25	3.88	4	0.75	5/8	2.50	0.75	0.06	0.55	0.71	1.38	1.97	0.55	1.18	0.06	M6	F05	24.25	
1.1/2	1.50	5.47	23.62	7.50	6.14	4.50	4	0.88	3/4	2.88	0.81	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	34.17	
2	1.97	5.83	23.62	8.50	6.50	5.00	8	0.75	5/8	3.62	0.88	0.06	0.67	0.87	2.17	2.76	0.67	1.34	0.06	M8	F07	46.52	
2.1/2	2.52	8.23	39.37	9.50	7.50	5.88	8	0.88	3/4	4.12	1.00	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	66.14	
3	3.00	8.62	39.37	11.12	8.25	6.62	8	0.88	3/4	5.00	1.12	0.06	0.87	1.10	2.76	4.02	0.87	1.77	0.08	M10	F10	83.78	

* 300UTDZ 6H only.

Dimensions:300UTDZ 6HM, 300SCTDZ 6HM

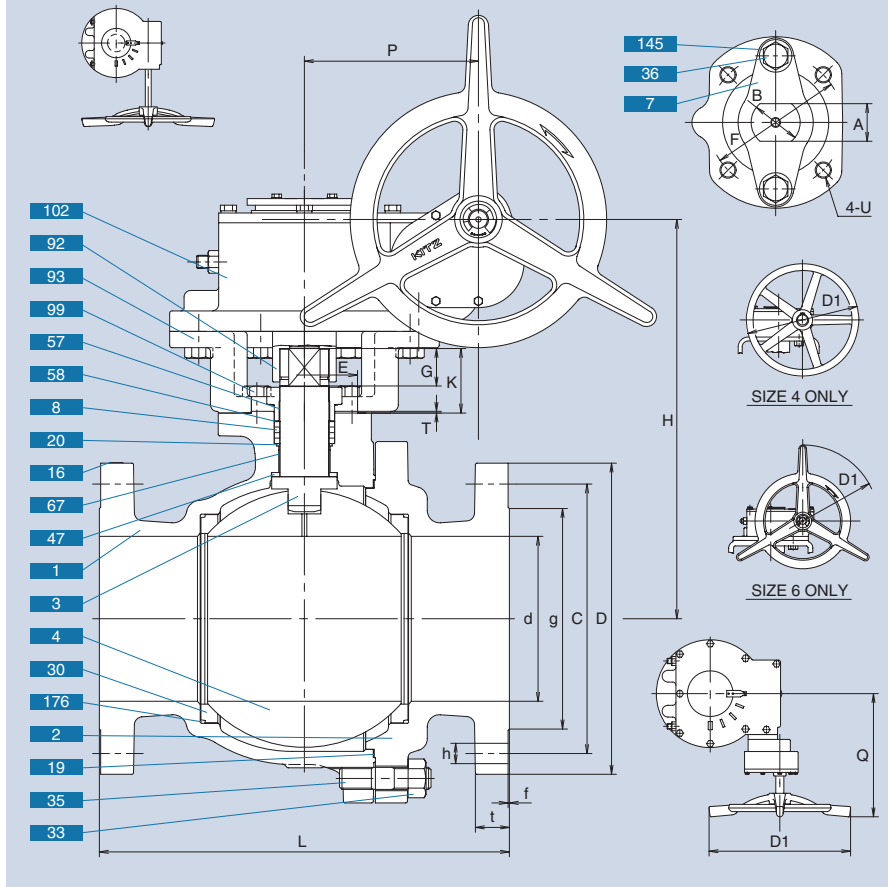
Unit: mm

Nominal size	d	H	D1	L	End flange								Mounting Dimension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t	f	A	B	E	F	G	K	T	U	ISO5211 Flange Type		
						C	NO.	h															
mm																							
15	14	108	130	140	95	66.5	4	16	1/2	35	14.3	1.6	9	12	25	36	9	22	1	M5	F03	3.0	
20	19	111	130	152	117	85.5	4	19	5/8	43	15.9	1.6	9	12	25	36	9	22	1	M5	F03	4.5	
25	24	124	160	165	124	89.0	4	19	5/8	51	17.5	1.6	14	18	35	50	14	30	1.5	M6	F05	7.2	
32	32	128	160	178	133	98.5	4	19	5/8	64	19.4	1.6	14	18	35	50	14	30	1.5	M6	F05	11.0	
40	38	139	600	190	156	114.5	4	22	3/4	73	20.7	1.6	17	22	55	70	17	34	1.5	M8	F07	15.5	
50	50	148	600	216	165	127.0	8	19	5/8	92	22.3	1.6	17	22	55	70	17	34	1.5	M8	F07	21.1	
65	64	209	1000	241	190	149.0	8	22	3/4	105	25.4	1.6	22	28	70	102	22	45	2	M10	F10	30.0	
80	76	219	1000	283	210	168.0	8	22	3/4	127	28.6	1.6	22	28	70	102	22	45	2	M10	F10	38.0	

* 300UTDZ 6H only.

Metal seated floating ball design valve (Trim 6H)

G-300UTDZ 6HM, G-300SCTDZ 6HM



Construction and Materials

No.	Parts	Stainless steel shell	Carbon steel shell
		G-300UTDZ 6HM	G-300SCTDZ 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Ni-Cr alloy hard facing*1	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 with Ni-Cr alloy hard facing*1	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
47	Thrust washer	Carbon	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
92	Connector	Carbon Steel	
93	Bracket	Ductile Iron	
99	Bolt	Stainless Steel	
102	Gear unit		
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

*1) Equivalent to METCO Type 16C

Dimensions: G-300UTDZ 6HM, G-300SCTDZ 6HM

Unit: inch

Nominal size	d	H	D1	L	End flange								P	Q	Mounting Demension for Actuator										APPROX. MASS (lb)
					D	Bolt hole			Bolt size	g	t	f			A	B	E	F	G	K	T	U	ISO5211 Flange Type		
	C	NO.	h																						
4	3.94	11.26	14.17	12.00	10.00	7.88	8	0.88	3/4	6.19	1.25	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	209.44	
5	4.84	11.77	19.69	15.00	11.00	9.25	8	0.88	3/4	7.31	1.38	0.06	3.48	8.27	1.06	1.42	3.35	4.92	1.06	2.05	0.08	M12	F12	275.58	
6	5.95	14.17	19.69	15.88	12.50	10.62	12	0.88	3/4	8.50	1.44	0.06	5.28	14.84	1.42	1.89	3.94	5.51	1.42	2.48	0.08	M16	F14	388.02	
8	7.95	19.25	19.69	19.75	15.00	13.00	12	1.00	7/8	10.62	1.62	0.06	8.39	14.84	1.81	2.36	5.12	6.50	1.81	3.11	0.08	M20	F16	643.75	

Dimensions: G-300UTDZ 6HM, G-300SCTDZ 6HM

Unit: mm

Nominal size	d	H	D1	L	End flange							P	Q	Mounting Demension for Actuator										APPROX. MASS (kg)
					D	Bolt hole			Bolt size	g	t			f	A	B	E	F	G	K	T	U	ISO5211 Flange Type	
	mm	C	NO.	h																				
100	100	286	360	305	254	200	8	22	3/4	157	31.8	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	95
125	123	299	500	381	279	235	8	22	3/4	186	35.0	1.6	88.5	210	27	36	85	125	27	52	2	M12	F12	125
150	151	360	500	403	318	270	12	22	3/4	216	36.6	1.6	134.0	377	36	48	100	140	36	63	2	M16	F14	176
200	202	489	500	502	381	330	12	25	7/8	270	41.3	1.6	213.0	377	46	60	130	165	46	79	2	M20	F16	292

Metal seated trunnion ball design valve (Trim 6H)

G-150UTC 6HM, G-150SCTC 6HM

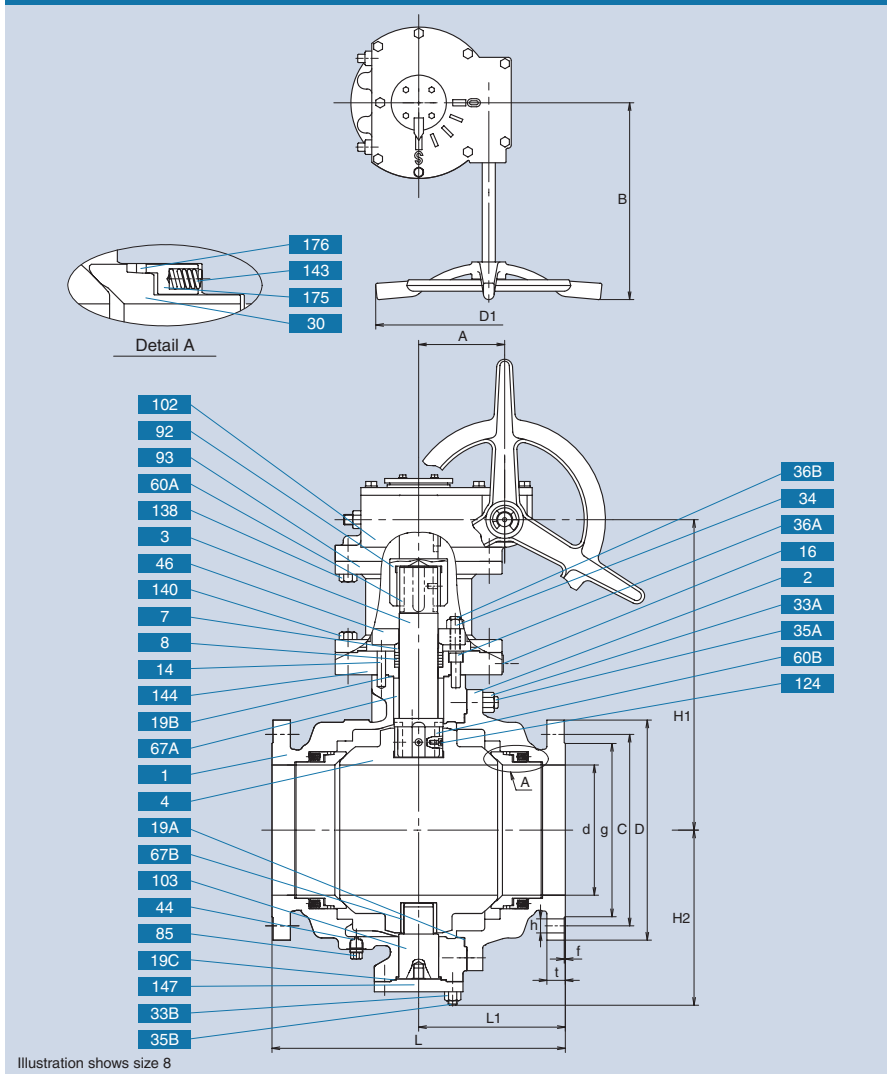


Illustration shows size 8

● Reduced bore is also available.: G-150UTC6HM

Construction and materials (Size 8)

No.	Parts	Specifications	
		G-150UTC 6HM	G-150SCTC 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 + SFNi*1	
7	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
14	Set pin	JIS G4303 SUS630*2	
16	Name plate	Stainless steel	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	A276 Type 316 + SFNi*1	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
34	Gland nut	A194 Gr. 8	
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	A193 Gr.B8	A193 Gr.B7
36B	Gland bolt	A193 Gr. B8	
44	Gasket	Flexible graphite	
46	Flange	A276 Type 304	A351 Gr. CF8 or A276 Type 304
60A	Key	A576 Gr. 1045	
60B	Key	A276 Type 304	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 304	A576 Gr.1025
92	Connector	Carbon steel	
93	Bracket	Carbon steel	
102	Gear unit		
103	Bottom stem	A276 Type 304 + SFNi*1	
124	Spring pin	Stainless steel	A276 Type 304
138	Bolt	Carbon steel	
141	Bolt	Carbon steel	
143	Seat spring	INCONEL® X-750	
144	Gland plate	A276 Type 316 + Co-Cr-W Alloy	A105 + Co-Cr-W Alloy
147	End plate	A276 Type 316	A105
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy Thermal spraying

*2) Equivalent to ASTM A564 TYPE 630

Dimensions:G-150UTC 6HM, G-150SCTDZ 6HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	Bolt hole			Bolt size	g	t	f			
in.								C	NO.	h							
6	6.00	17.32	8.62	19.69	15.50	7.76	11.00	9.50	8	0.88	3/4	8.50	1.00	0.06	3.68	14.29	NO.5
8	8.00	19.06	10.75	19.69	18.00	9.00	13.50	11.75	8	0.88	3/4	10.62	1.12	0.06	5.28	14.84	NO.6
10	10.00	26.50	13.35	19.69	21.00	10.50	16.00	14.25	12	1.00	7/8	12.75	1.19	0.06	8.39	14.80	NO.7
12	12.00	31.42	15.16	19.69	24.00	12.00	19.00	17.00	12	1.00	7/8	15.00	1.25	0.06	8.39	14.80	NO.8

NOTE (1) JIS 10K: Please contact KITZ Corporation for details.

Dimensions:G-150UTC 6HM, G-150SCTDZ 6HM

Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	Bolt hole			Bolt size	g	t	f			
mm								C	NO.	h							
150	152	440	219	500	394	197	279	241.5	8	22	3/4	216	25.4	1.6	93.5	363	NO.5
200	203	484	273	500	457	228.5	343	298.5	8	22	3/4	270	28.6	1.6	134.0	377	NO.6
250	254	673	339	500	533	266.5	406	362.0	12	25	7/8	324	30.2	1.6	213.0	377	NO.7
300	305	798	385	500	610	305	483	432.0	12	25	7/8	381	31.8	1.6	277.0	457	NO.8

NOTE (1) JIS 10K: Please contact KITZ Corporation for details.

Metal seated trunnion ball design valve (Trim 6H)

G-300UTC 6HM, G-300SCTC 6HM

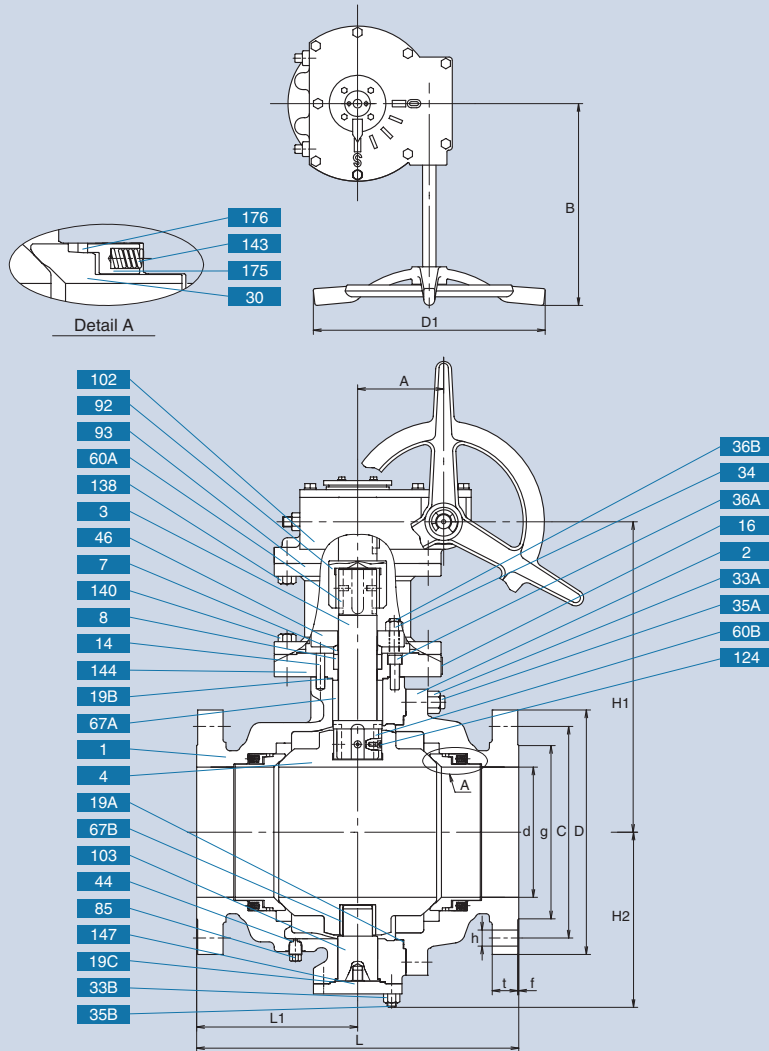


Illustration shows size 8

- Reduced bore is also available.: 300UTC6HM, G-300UTC6HM
- Reduced bore is also available.: 300SCTC6HM, G-300SCTC6HM

Construction and materials (Size 8)

No.	Parts	Specifications	
		G-300UTC 6HM	G-300SCTC 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 + SFNi*1	
7	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
14	Set pin	JIS G4303 SUS630*2	
16	Name plate	Stainless steel	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	A276 Type 316 + SFNi*1	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
34	Gland nut	A194 Gr. 8	
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	A193 Gr.B8	A193 Gr.B7
36B	Gland bolt	A193 Gr. B8	
44	Gasket	Flexible graphite	
46	Flange	A351 Gr. CF8 or A276 Type 304	
60A	Key	A576 Gr. 1045	
60B	Key	A276 Type 304	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 304	A576 Gr. 1025
92	Connector	Carbon steel	
93	Bracket	Carbon steel	
102	Gear unit		
103	Bottom stem	A276 Type 316 + SFNi*1	
124	Spring pin	A276 Type 304	
138	Bolt	Carbon steel	
141	Bolt	Carbon steel	
143	Seat spring	INCONEL® X-750	
144	Gland plate	A276 Type 316 + Co-Cr-W Alloy	A105 + Co-Cr-W Alloy
147	End plate	A276 Type 316	A105
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy Thermal spraying

*2) Equivalent to ASTM A564 TYPE 630

Dimensions: G-300UTC 6HM, G-300SCTC 6HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange							A	B	Gear unit type & size	
							D	Bolt hole			Bolt size	g	t				f
in.							C	NO.	h								
4*	4.00	13.15	6.02	19.69	12.00	6.00	10.00	7.88	8	0.88	3/4	6.19	1.25	0.06	3.50	8.27	NO.5
6	6.00	17.32	8.62	19.69	15.88	7.94	12.50	10.62	12	0.88	3/4	8.50	1.44	0.06	3.68	14.30	NO.5
8	8.00	19.06	10.75	19.69	19.75	9.875	15.00	13.00	12	1.00	7/8	10.62	1.62	0.06	5.28	14.80	NO.6
10	10.00	26.50	13.35	19.69	22.38	11.19	17.50	15.25	16	1.12	1	12.75	1.88	0.06	8.39	14.80	NO.7
12	12.00	31.42	15.16	19.69	25.50	12.75	20.50	17.75	16	1.25	1 1/8	15.00	2.00	0.06	8.39	14.80	NO.8

*2 and 3 are also available with a lever handle.

Dimensions: G-300UTC 6HM, G-300SCTC 6HM

Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange							A	B	Gear unit type & size	
							D	Bolt hole			Bolt size	g	t				f
mm							C	NO.	h								
100	102	334	153	500	305	152.5	254	200.0	8	22	3/4	157	31.8	1.6	93.5	363	NO.5
150	152	440	219	500	403	201.5	318	270.0	12	22	3/4	216	36.6	1.6	93.5	363	NO.5
200	203	484	273	500	502	251	381	330.0	12	25	7/8	270	41.3	1.6	134	377	NO.6
250	254	673	339	500	568	284	444	387.5	16	29	1	324	47.7	1.6	213	377	NO.7
300	305	798	385	500	648	324	521	451.0	16	32	1.1/8	381	50.8	1.6	277	457	NO.8

*2 and 3 are also available with a lever handle.

Metal seated trunnion ball design valve (Trim 6H)

600UTC 6HM, 600SCTC 6HM

Construction and materials (Size 2)

No.	Parts	Specifications	
		600UTC 6HM	600SCTC 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 + SFNi*1	
7	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
9A	Handle bar	Carbon steel	
9B	Handle head	Ductile iron	
16	Name plate	Stainless steel	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	A276 Type 316 + SFNi*1	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	A193 Gr.B8	A193 Gr.B7
36B	Gland bolt	A193 Gr. B8	
44	Gasket	Flexible graphite	
46	Flange	A351 Gr. CF8 or A276 Type 304	
48	Spring pin	A167 Type 304	Alloy steel
49	Stopper	A276 Type 304	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 316	A576 Gr. 1025
103	Bottom stem	A276 Type 316 + SFNi*1	
123	Handle bolt	Stainless steel	
143	Seat spring	INCONEL® X-750	
144	Gland plate	A276 Type 316 + Co-Cr-W Alloy	A105 + Co-Cr-W Alloy
147	End plate	A276 Type 316	A105
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy Thermal spraying

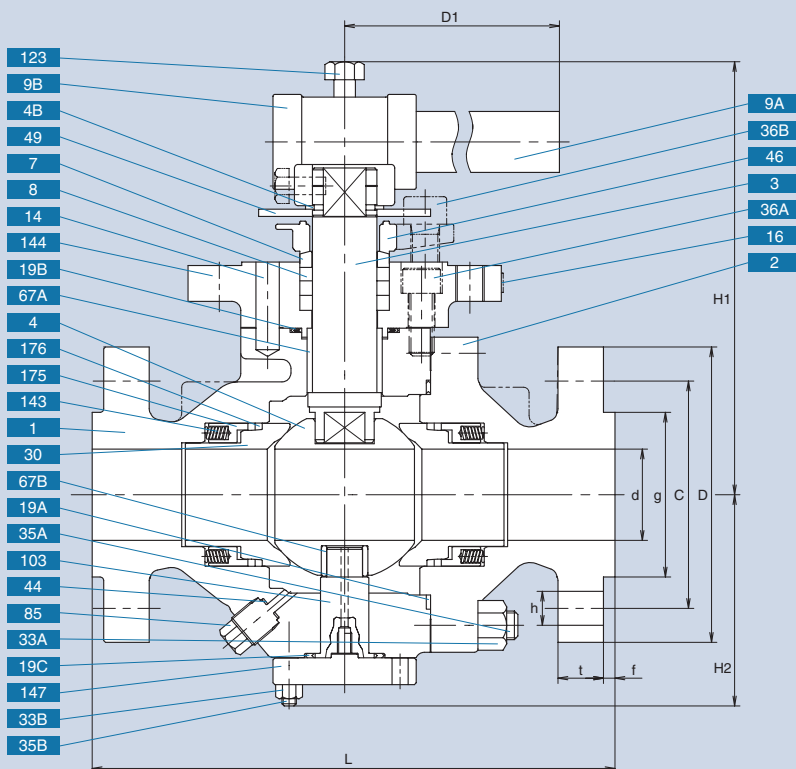


Illustration shows size 2

● Reduced bore is also available.: 600UTC6HM

● Reduced bore is also available.: 600SCTC6HM

Dimensions:600UTC 6HM, 600SCTC 6HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange							
							D	Bolt hole			Bolt size	g	t	f
								C	NO.	h				
in.														
2	2.00	9.53	4.69	39.37	11.5		6.50	5.00	0.31	0.75	5/8	3.62	1.00	0.25

Dimensions:600UTC 6HM, 600SCTC 6HM

Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange							
							D	Bolt hole			Bolt size	g	t	f
								C	NO.	h				
mm														
50	51	242	119	1000	292	151	165	127.0	8	19	5/8	92	25.4	6.4

Metal seated trunnion ball design valve (Trim 6H)

G-600UTC 6HM, G-600SCTC 6HM

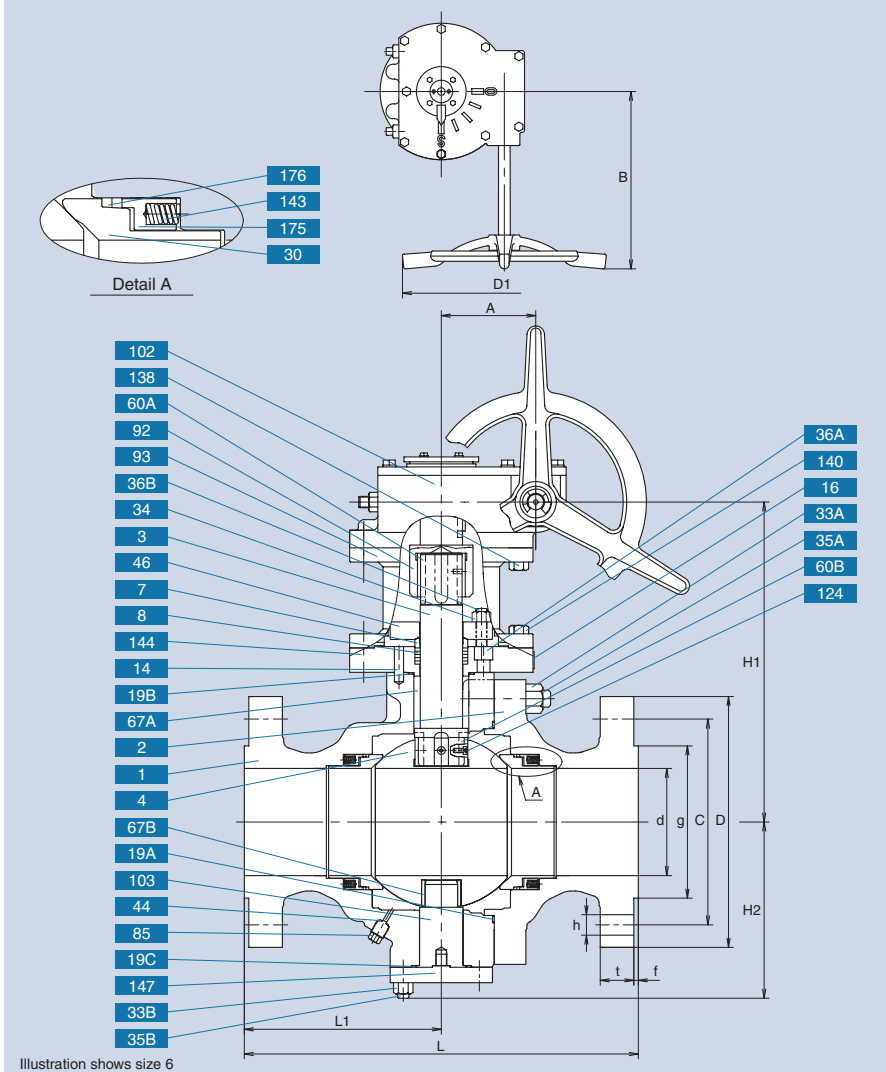


Illustration shows size 6

● Reduced bore is also available.: G-600UTC6HM

● Reduced bore is also available.: G-600SCTC6H

Construction and materials (Size 6)

No.	Parts	Specifications	
		G-600UTC 6HM	G-600SCTC 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316 + SFNi*1	
4	Ball	A276 Type 316 + SFNi*1	
7	Gland	A276 Type 304	
8	Gland packing	Flexible graphite	
14	Set pin	JIS G4303 SUS630*2	
16	Name plate	Stainless steel	
19A	Gasket	Flexible graphite	
19B	Gasket	Flexible graphite	
19C	Gasket	Flexible graphite	
30	Ball seat	A276 Type 316 + SFNi*1	
33A	Cap nut	A194 Gr.8	A194 Gr.2H
33B	Cover nut	A194 Gr.8	A194 Gr.2H
34	Gland nut	A194 Gr. 8	
35A	Cap bolt	A193 Gr.B8	A193 Gr.B7
35B	Cover bolt	A193 Gr.B8	A193 Gr.B7
36A	Gland bolt	A193 Gr.B8	A193 Gr.B7
36B	Gland bolt	A193 Gr. B8	
44	Gasket	Flexible graphite	
46	Flange	A351 Gr. CF8 or A276 Type 304	
60A	Key	A576 Gr. 1045	
60B	Key	A276 Type 316	
67A	Stem bearing	A276 Type 316 + SFNi*1	
67B	Stem bearing	A276 Type 316 + SFNi*1	
85	Plug	A276 Type 304	A576 Gr. 1025
92	Connector	Carbon steel	
93	Bracket	Carbon steel	
102	Gear unit		
103	Bottom stem	A276 Type 316 + SFNi*1	
124	Spring pin	Stainless steel	
138	Bolt	Carbon steel	
141	Bolt	Carbon steel	
143	Seat spring	INCONEL® X-750	
144	Gland plate	A276 Type 316 + Co-Cr-W	A105 + Co-Cr-W Alloy
147	End plate	A276 Type 316	A105
175	Retainer gland	A276 Type 316	
176	Retainer packing	Flexible graphite	

*1) Ni-Cr Alloy Thermal spraying

*2) Equivalent to ASTM A564 TYPE 630

Dimensions:G-600UTC 6HM, G-600SCTC 6HM

Unit: inch

Nominal size	d	H1	H2	D1	L	L1	End flange							A	B	Gear unit type & size	
							D	Bolt hole			Bolt size	g	t				f
								C	NO.	h							
in.																	
3	3.00	12.09	5.79	19.69	14.00	7.40	8.27	6.61	8	0.87	3/4	5.00	1.25	0.25	3.68	14.30	NO.5
4	4.00	11.97	6.77	19.69	17.00	8.90	10.75	8.50	8	1.00	7/8	6.19	1.50	0.25	3.68	14.30	NO.5
6	6.00	17.87	9.84	19.69	22.00	11.00	14.00	11.50	12	1.12	1	8.50	1.88	0.25	5.28	14.80	NO.6
8	8.00	25.47	12.52	19.69	26.00	13.00	16.50	13.75	12	1.25	1 1/8	10.62	2.19	0.25	8.39	14.80	NO.7
10	10.00	30.83	14.65	19.69	31.00	15.50	20.00	17.00	16	1.38	1 1/4	12.75	2.50	0.25	8.39	14.80	NO.8
12	12.00	32.20	17.09	19.69	33.00	16.50	22.00	19.25	20	1.38	1 1/4	15.00	2.62	0.25	10.91	18.00	NO.8

Dimensions:G-600UTC 6HM, G-600SCTC 6HM

Unit: mm

Nominal size	d	H1	H2	D1	L	L1	End flange								A	B	Gear unit type & size
							D	Bolt hole			Bolt size	g	t	f			
								C	NO.	h							
mm																	
80	76	307	147	500	356	168	210	168.0	8	22	3/4	127	31.8	6.4	93.5	363	NO.5
100	102	304	172	500	432	226	273	216.0	8	25	7/8	157	38.1	6.4	93.5	363	NO.5
150	152	454	250	500	559	279.5	356	292.0	12	29	1	216	47.7	6.4	134	377	NO.6
200	203	647	318	500	660	330	419	349.0	12	32	1 1/8	270	55.6	6.4	213	377	NO.7
250	254	783	372	500	787	393.5	508	432.0	16	35	1 1/4	324	63.5	6.4	277	457	NO.8
300	305	818	434	500	838	419	559	489.0	20	35	1 1/4	381	66.7	6.4	277	457	NO.8

Construction and Materials

Parts List :1H

No.	Parts	ASTM Material Designation (Trim 1H)	
		Stainless steel shell	Carbon steel shell
		150/300 UTDZ 1HM	150/300 SCTDZ 1HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316	
4	Ball	A276 Type 316 or A351 Gr.CF8M	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	FILLTITE® PTFE	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	

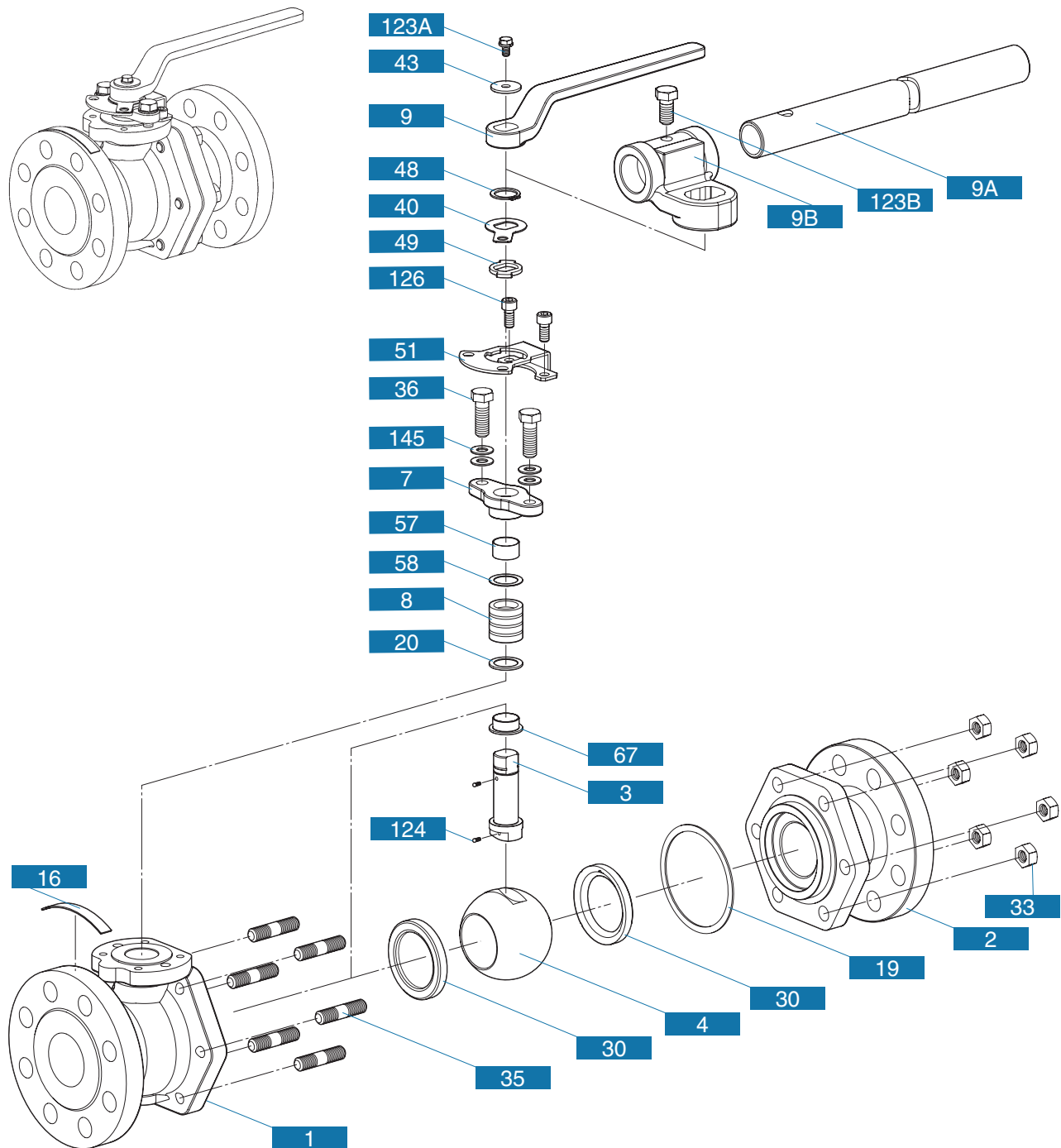
*1) Refer to the following table *2) Equivalent to AISI Type 329

• The substitutional equivalent materials may be used for valve part materials where ASTM A276 and/or A564 is stated on the material descriptions in this catalog.

Operation (Standard)	Class 150	Class 300
Lever type	Size 1/2 to 3	Size 1/2 to 3
Bar type	Size 4	
Gear	Size 5 to 8	Size 4 to 8

Construction and Materials

Class 150/300 FILLTITE® Seated Floating Ball Design Valve (Trim 1H)



Construction and Materials

Parts List :3H

No.	Parts	ASTM Material Designation (Trim 3H)	
		Stainless steel shell	Carbon steel shell
		150/300 UTDZ 3HM	150/300 SCTDZ 3HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A276 Type 316*2	
4	Ball	A276 Type 316	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	Carbon + JIS SUS329J1*3	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
124	Spring & pin	A313 & A276 Type 316	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

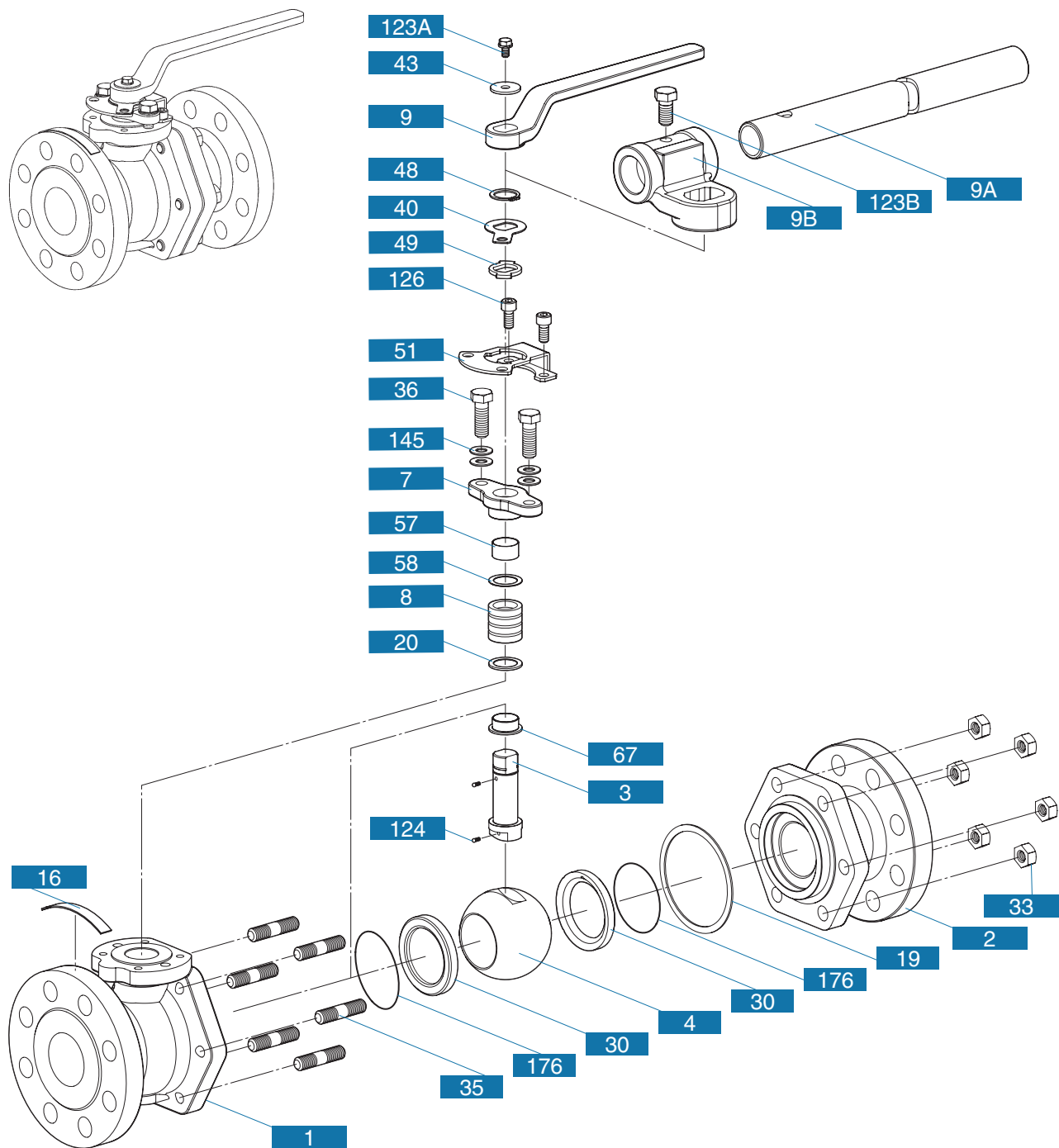
*1) Refer to the following table *2) Class 300 Size 4 & over : A564 Type 630 *3) Equivalent to AISI Type 329

• The substitutional equivalent materials may be used for valve part materials where ASTM A276 and/or A564 is stated on the material descriptions in this catalog.

Operation (Standard)	Class 150	Class 300
Lever type	Size 1/2 to 11/2	Size 1/2 to 11/4
Bar type	Size 2 to 4	Size 11/2 to 3
Gear	Size 5 to 8	Size 4 to 8

Construction and Materials

Class 150/300 Metal Seated Floating Ball Design Valve (Trim 3H)



Construction and Materials

Parts List :5H

No.	Parts	ASTM Material Designation (Trim 5H)	
		Stainless steel shell	Carbon steel shell
		150/300 UTDZ 5HM	150/300 SCTDZ 5HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Cr. plating	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 + Ni-Cr alloy hard facing*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

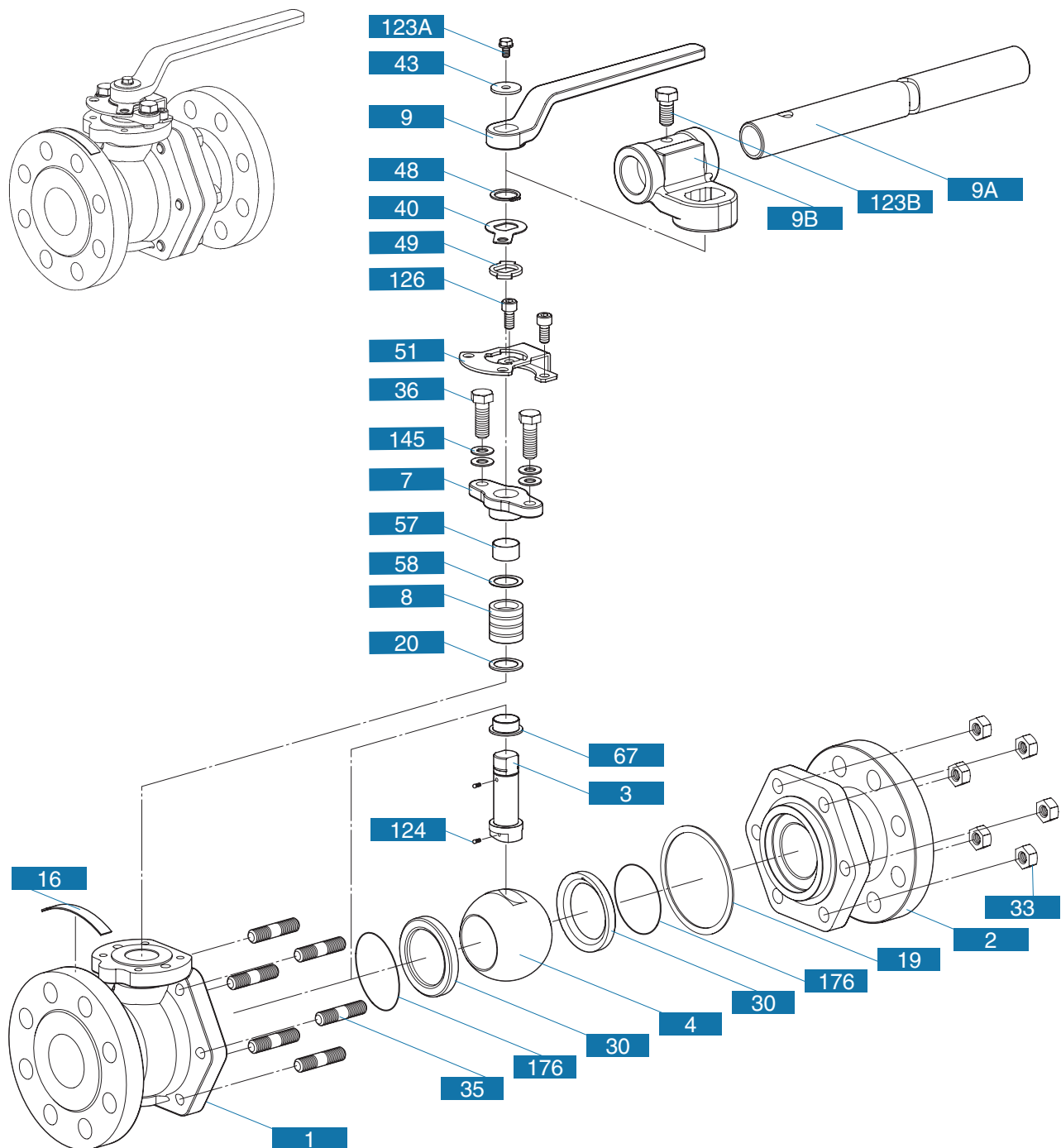
*1) Refer to the following table *2) Equivalent to METCO Type 16C

• The substitutional equivalent materials may be used for valve part materials where ASTM A276 and/or A564 is stated on the material descriptions in this catalog.

Operation (Standard)	Class 150	Class 300
Lever type	Size 1/2 to 11/2	Size 1/2 to 1
Bar type	Size 2 to 4	Size 11/2 to 3
Gear	Size 5 to 8	Size 4 to 8

Construction and Materials

Class 150/300 Metal Seated Floating Ball Design Valve (Trim 5H)



Construction and Materials

Parts List :6H

No.	Parts	ASTM Material Designation (Trim 6H)	
		Stainless steel shell	Carbon steel shell
		150/300 UTDZ 6HM	150/300 SCTDZ 6HM
1	Body	A351 Gr.CF8M	A216 Gr.WCB
2	Body cap	A351 Gr.CF8M	A216 Gr.WCB
3	Stem	A564 Type 630	
4	Ball	A276 Type 316 with Ni-Cr alloy hard facing*2	
7	Gland	A351 Gr.CF8	
8	Gland packing	Flexible graphite	
9	Handle*1	Ductile iron	
9A	Handle bar*1	Carbon steel	
9B	Handle head*1	Ductile iron	
16	Name plate	A276 Type 304	
19	Gasket	Flexible graphite	
20	Packing washer	A276 Type 316L	
30	Ball seat	A276 Type 316 + Ni-Cr alloy hard facing*2	
33	Cap nut	A194 Gr.8M	A194 Gr.2HM
35	Cap bolt	A193 Gr.B8M	A193 Gr.B7M
36	Gland bolt	Stainless steel	
40	Keylock plate	A276 Type 304	
43	Handle-lock plate	A276 Type 304	
47	Thrust washer	Carbon	
48	Snap ring	A276 Type 304	
49	Stopper	A276 Type 304	
51	Stopper plate	A276 Type 304	
57	Gland bush	Carbon	
58	Gland washer	A276 Type 304	
67	Stem bearing	Carbon	
123A	Handle-lock plate bolt	Stainless steel	
123B	Handle bolt	Stainless steel	
126	Stopper plate bolt	Stainless steel	
145	Coned disc springs	Inconel® 718 or Equivalent	
176	Seat packing	Flexible graphite	

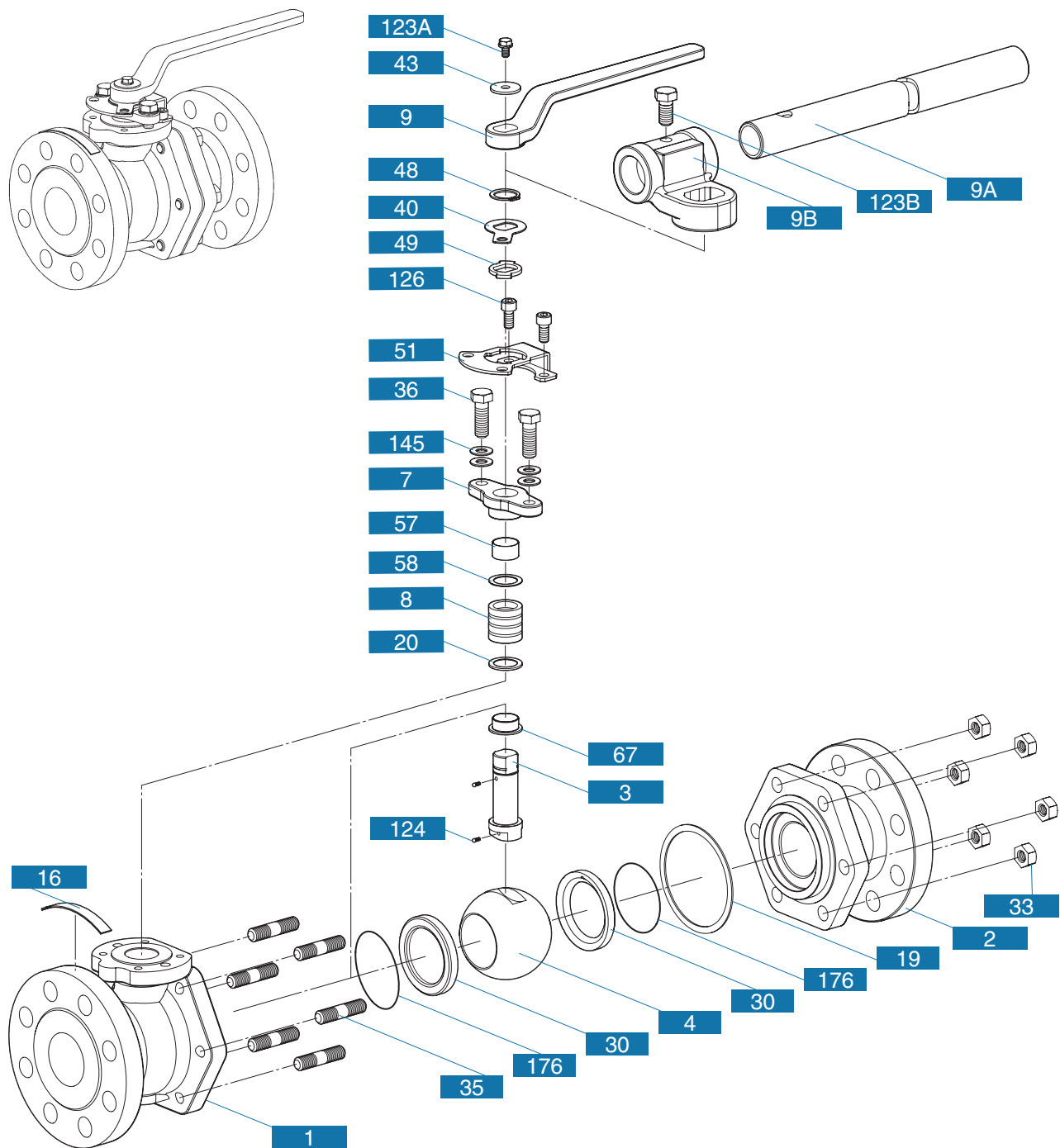
*1) Refer to the following table *2) Equivalent to METCO Type 16C

• The substitutional equivalent materials may be used for valve part materials where ASTM A276 and/or A564 is stated on the material descriptions in this catalog.

Operation (Standard)	Class 150	Class 300
Lever type	Size 1/2 to 11/2	Size 1/2 to 11/4
Bar type	Size 2 to 4	Size 11/2 to 3
Gear	Size 5 to 8	Size 4 to 8

Construction and Materials

Class 150/300 Metal Seated Floating Ball Design Valve (Trim 6H)



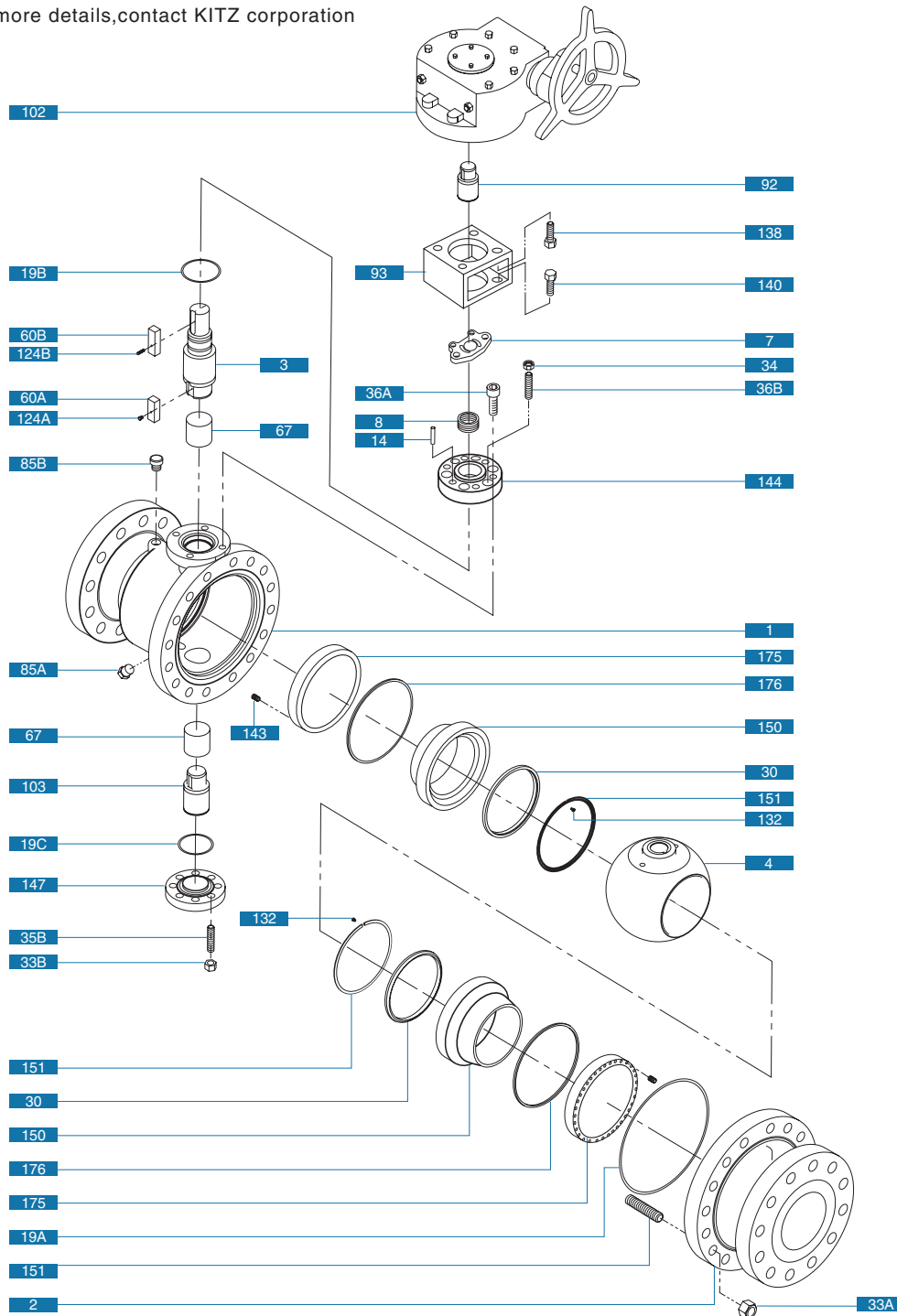
Construction

Class 150/300/600 FILLTITE® Seated Trunnion Ball Design Valve (Trim 1H)

Exploded Diagram

This is typical construction of KITZ trunnion mounted ball design.

For more details, contact KITZ corporation



No.	Name of Parts	Quantity
1	Body	1
2	Body Cap	1
3	Stem	1
4	Ball	1
7	Gland	1
8	Gland Packing	1set
14	Set Pin	1set
19A/B/C	Gasket	1each
30	Ball Seat	2
33A	Cap Nut	1set
33B	Cover Nut	1set
34	Gland Nut	1set
35A	Cap Bolt	1set
35B	Cover Bolt	1set
36	Gland Bolt	1set
46	Flange	1
60A/B	Key	1set
67	Stem Bearing	2
85A/B	Plug	1each
102	Gear Unit	1
103	Bottom Stem	1
124A	Set Bolt	1
124B	Spring & Pin	1
132	Set Bolt	2
143	Seat Spring	1set
144	Gland Plate	1
147	End Plate	1
150	Seat Retainer	2
151	Outer Ring	2
175	Retainer Grand	2
176	Retainer Packing	2set

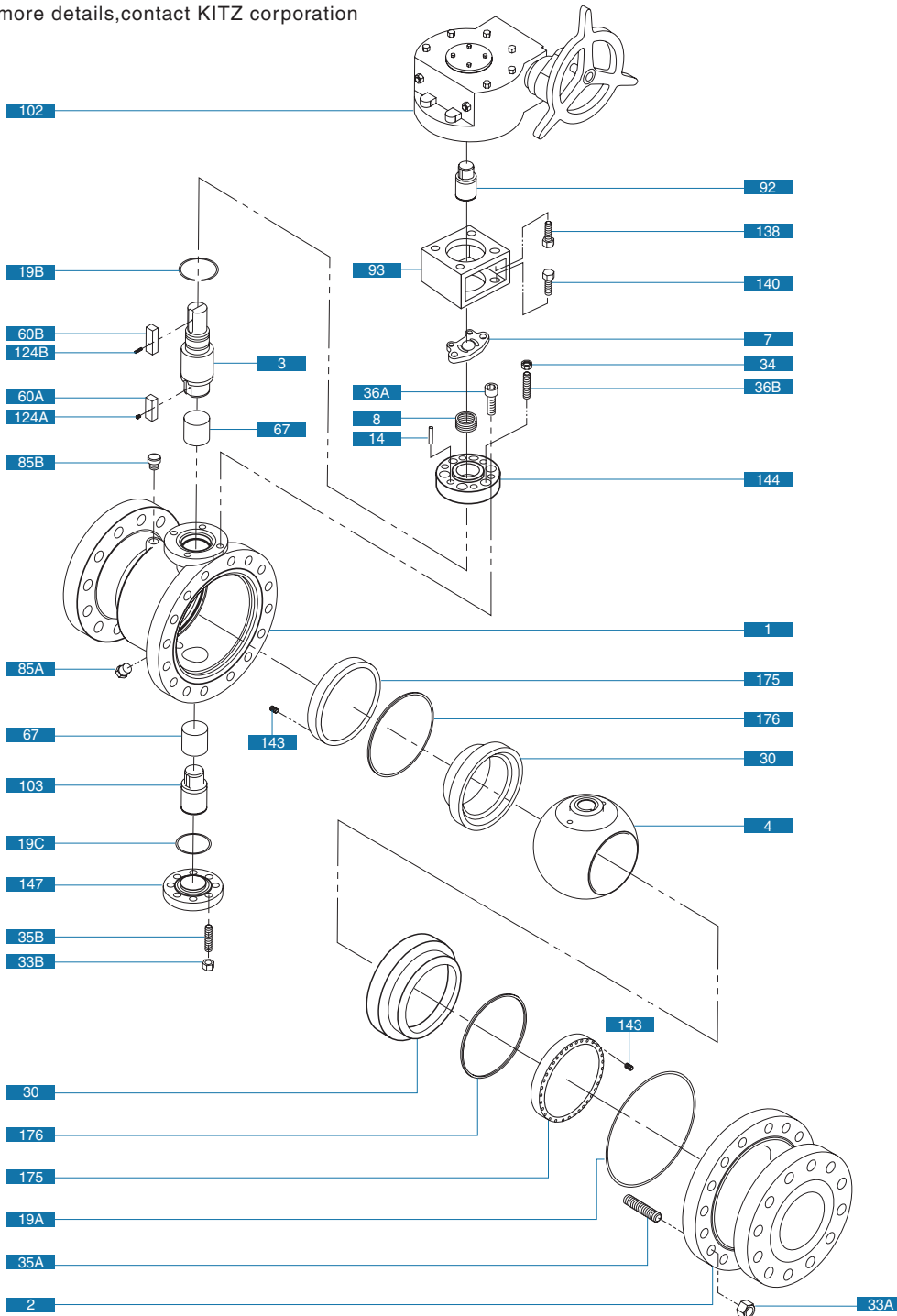
Construction

Class 150/300/600 Metal Seated Trunnion Ball Design Valve (Trim 6H)

Exploded Diagram

This is typical construction of KITZ trunnion mounted ball design.

For more details, contact KITZ corporation



No.	Name of Parts	Quantity
1	Body	1
2	Body Cap	1
3	Stem	1
4	Ball	1
7	Gland	1
8	Gland Packing	1
14	Set Pin	1set
19A/B/C	Gasket	1each
30	Ball Seat	2
33A	Cap Nut	1set
33B	Cover Nut	1set
34	Gland Nut	1set
35A	Cap Bolt	1set
35B	Cover Bolt	1set
36	Gland Bolt	1set
46	Flange	1
60A/B	Key	1set
67	Stem Bearing	2
85A/B	Plug	1each
102	Gear Unit	1
103	Bottom Stem	1
124A	Set Bolt	1
124B	Spring & Pin	1
137	Nut	1set
138	Bolt	1set
143	Seat Spring	2set
144	Gland Plate	1
147	End Plate	1
175	Retainer Gland	2
176	Retainer Packing	2set

Valve Disassembly and Reassembly for Maintenance

1. Valve Disassembly

- 1-1 Work to do before removing valve from the pipeline:
- Relieve the line pressure completely and discharge all line fluids from the bore and body cavity of the half opened valve.
 - Mark the valve end flanges and mating pipe flanges adequately for easy reinstalling valve in the pipeline.
- 1-2 Work to do before valve disassembly:
- Bleed the valve of fluid in valve cavity. If there are any foreign objects or broken parts inside the valve, collect them and record their condition and location for resolution of the problems.
 - Mark the body-cap coupling flanges of the valve adequately for easy valve reassembly.
 - If flange bolts are found to be seized or stuck, apply some lubricant and leave for a while for easier unthreading on valve disassembly.
- 1-3 Place the fully closed valve with the body flange down on a workbench. After removing the operator, carefully remove the cap from the body. Put soft cloth or towel inside the valve body so not to damage the ball and ball seat, which are the most important valve parts. Carefully remove the ball from the body.
- 1-4 Referring to the illustrations on Pages 39, 41, 43, 45, 46 and 47 (No special tool is required), proceed with the valve components disassembly.
- 1-5 Examination of the valve components:
- Clean the inside of the valve body and cap, and note any wear, corrosion or cracks in the castings. Measure the wall thickness of castings periodically to check for any dangerous signs that might jeopardize valve shell soundness.
 - Inspect surfaces of the ball seat and ball carefully to detect any scratches or wear which may be cause to replace the seat and/or ball on reassembly. Other metal parts must also be checked carefully to decide whether they are still usable.

2. Valve Reassembly

- 2-1 Prepare new consumable parts such as gaskets, gland packing, thrust washers, gland bushings, stem bearings and carbon graphite seats, and clean all metal parts before reassembly.
- 2-2 Proceed with valve reassembly, referring to the illustrations on Pages 39, 41, 43, 45, 46 and 47.
- 2-3 Measure the operating torque of the reassembled valve under no pressurization. If measured torque exceeds that in Table 1, the pressurization procedure, shown at 2-4, should be performed to assure smooth operation.

Table 1 : Maximum operating torque for reassembled valve at zero pressure

Valve Size		1/2	3/4	1	1 1/2	2	3	4	6	8
Trim 3H	lbf-in	125	138	226	381	466	912	1752	4337	8478
	N-m	14.1	15.6	25.5	43.1	52.6	103	198	490	958
Trim 5H Trim 6H	lbf-in	144	165	266	466	595	1159	2239	5717	11558
	N-m	16.3	18.6	30.0	52.6	67.2	131	253	646	1306

2-4 Pressurizing procedure:

If operation torque of reassembled valve exceeds that in Table 1, the valve should be pressurized according to the following procedure:

- Pressurize the valve 290 psig (2.0MPa) with it fully closed valve for 60 seconds for both the body and cap side.
- Relieve pressure completely and measure the operating torque again. If measured torque is still higher than Table 1, increase pressure by 73 psig (0.5MPa) and retest.
- Repeat the procedure (a) and (b) until the operation torque conforms to Table 1. Pressure should not exceed the values shown in Table 2.

Table 2 : Maximum allowable pressure for pressurization procedure

		Class 150	Class 300
Maximum Allowable Pressure	psig	435	725
	MPa	3.0	5.0

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 on Page 3 to ensure the satisfactory sealing performance for final acceptance.

* Refer to KITZ KE-1021-02 Operation Manual for more information.

Memo

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Read instruction manual carefully before use.

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