

i- HTB Valve® FGS High Temperature Ball valves

Improved technology for severe service
high temperature ball valves



Dimensions ½" to 3", DN15 to DN80 Full Bore
4" - DN100 Reduced bore
Rating PN40, PN63, PN100 – EN 1092-1
Rating ASME B16.34, Cl.150, Cl.300, Cl.600

TECHNICAL DATA:

- APPLICABLE STANDARDS: ASME B16.34, BS5351, EN12516, ISO17292
- FIRE SAFE CONSTRUCTION AS PER BS6755/2, API6FA, API607, ISO10497
- HYDROSTATIC BODY AND SEAT TESTING AS PER API598, ISO5208, EN12266 and API6D on request
- Face to Face dimensions as per ANSI B16.10, API6D, EN558
- Actuator mounting flange as per ISO5211

AVAILABLE END CONNECTIONS:

- Flanges PN40, PN63, PN100 – EN 1092-1
- Flanges ANSI 150, 300, 600 - ANSI B16.5
- Socket Welding ANSI B16.11
- Butt Welding ANSI B16.25
- Screwed NPT ANSI B1.20.1
- Screwed BSPP (GAS) BS21, ISO 228/1, BS21, ISO 7/1

DESIGN FEATURES

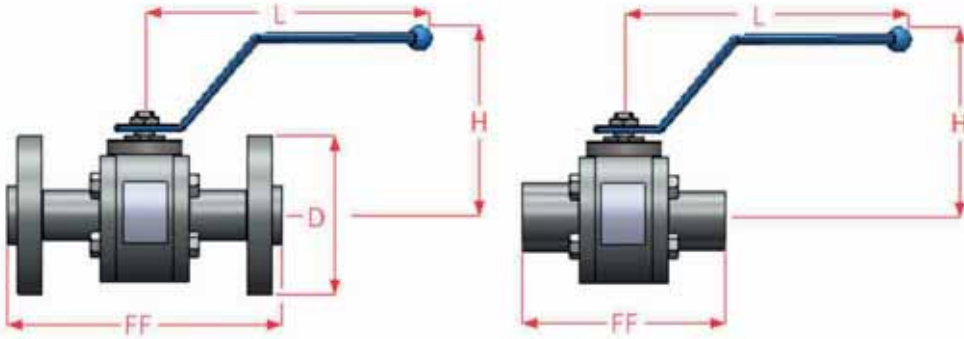
- Maximum design temperature 550°C/1022°F
- Floating Type
- 3-piece body design
- Patented composite graphite/stainless seat
- Anti-blow out stem
- Unidirectional, flow direction indication on body
- Bi-directional and regulating valves available upon request
- Full bore. (Reduced port available upon request)
- Fully tested by TA-Luft to insure compliance with ISO Standard 15848.
- Intrinsically anti-static construction
- ARMASEAL™ stem packing
- Low torque requirements
- Identification and markings as per MSS-SP25



APPROVALS / CERTIFICATES:

- ISO 9001 Approved manufacturer
- Meets the requirements of ATEX 2014 / 34/ UE and PED 2014 / 68/ UE mod.H
- FIRE SAFE as per API 6FA
- API 598 where required
- Conforms with NACE MR103 / MR0175
- All material and test certificates as per EN10204 type 3.1 available on request

HTB Valve®



SIZE		DIMENSIONS			SW/BW/NPT/BSSP/BSPT		DIN PN40			DIN PN63			DIN PN100		
DN		H	L	ISO 5211	FF (mm)	Kg	FF (mm)	D	Kg	FF (mm)	D	Kg	FF (mm)	D	Kg
1/2"	15	120	200	F03	90	3,5	130	95	3,4	210	105	4,8	210	105	4,8
3/4"	20	145	220	F03	100	4,5	150	105	4,5	230	130	6,5	230	130	6,5
1"	25	170	220	F05	110	6,8	160	115	6,9	230	140	8,3	230	140	9
1 1/4"	30	210	250	F05	140	9,5	180	140	12,4	260	155	14,8	260	155	15,2
1 1/2"	40	230	300	F07	150	12,4	200	150	16,1	260	170	20,9	260	170	22,1
2"	50	240	300	F07	170	15,4	230	165	23,5	300	180	25,4	300	195	27,4
2 1/2"	65	250	500	F07	NA	NA	290	185	43,5	340	205	47,8	340	220	48,9
3"	80	250	500	F07/F10	NA	NA	310	200	52	380	215	53,4	380	230	55,2
4"RB	100 RB	250	500	F07/F10	NA	NA	350	235	54	430	250	57	430	265	59,3

SIZE		DIMENSIONS			ANSI 150			ANSI 300			ANSI 600		
DN		H	L	ISO 5211	FF (mm)	D	Kg	FF (mm)	D	Kg	FF (mm)	D	Kg
1/2"	15	120	200	F03	140	89	3,6	140	140	4,4	165	95	5,1
3/4"	20	145	220	F03	152	99	4,8	152	152	6,5	191	118	7,2
1"	25	170	220	F05	165	108	7,2	165	165	8,5	216	124	10,3
1 1/4"	30	210	250	F05	178	118	13	178	178	14,1	229	133	14,5
1 1/2"	40	230	300	F07	191	127	16,8	191	191	20,8	241	156	20,6
2"	50	240	300	F07	216	153	24,3	216	216	25,6	292	165	29,2
2 1/2"	65	250	500	F07	241	178	44,3	241	241	47,9	330	190	48,8
3"	80	250	500	F07/F10	283	191	52,7	283	283	53,5	356	209	53,8
4"RB	100 RB	250	500	F07/F10	305	229	54,8	305	305	57,4	432	273	58,9

* Class 150 face-to-face same as class 300

SIZE		Torque in Nm (**)
1/2"	15	20
3/4"	20	30
1"	25	35
1 1/4"	32	50
1 1/2"	40	65
2"	50	90
2 1/2"	65	120
3"	80	150

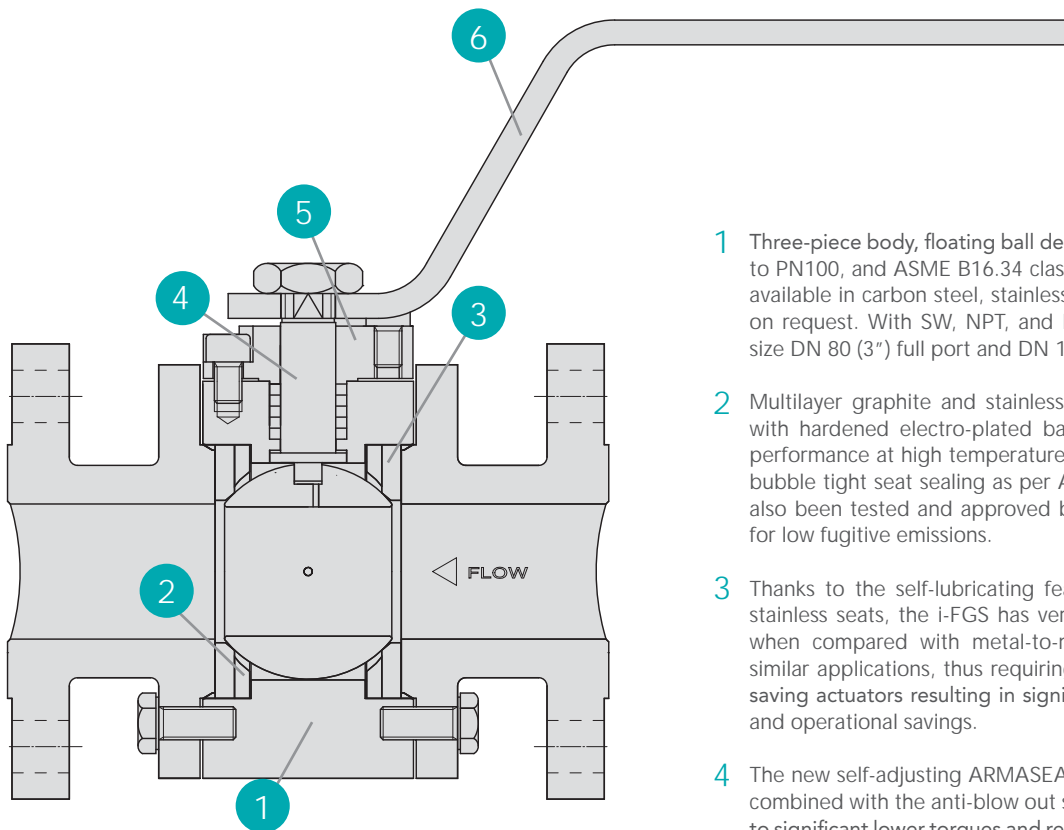
SIZE		CV	KV
1/2"	15	12	10
3/4"	20	30	26
1"	25	45	39
1 1/4"	30	78	68
1 1/2"	40	115	99
2"	50	266	230
2 1/2"	65	446	386
3"	80	681	589
4"RB	100 RB	702	607

* Torque value evaluated at 20 bar with self-lubricating media.
 ** Torque figures depend on type of fluid being handled.
 In case of non-lubricated fluids, a safety factor of at least 30% must be considered. Media with entrained solids may require a higher safety factor.

Max operating TEMPERATURE	MATERIAL A105 / LF2 (C22.8)						MATERIAL F316 (1.4401)					
	Class 150	Class 300	Class 600	PN40	PN63	PN100	Class 150	Class 300	Class 600	PN40	PN63	PN100
°C	bar	bar	bar	bar	bar	bar	bar	bar	bar	bar	bar	bar
-10 +20 (PN) -29 +38 (ANSI)	19.6	51.1	102.1	40	63	100	19.0	49.6	99.3	40	63	100
120 (PN) 100 (ANSI)	17.7	46.4	92.8	40	63	100	16.2	42.2	84.5	40	63	100
200	14.0	43.8	90.5	35	50	80	13.7	35.7	71.2	33.7	53.1	84.2
250	12.1	41.7	83.4	32	45	70	12.1	33.4	66.7	31.8	50.1	79.5
300	10.2	38.7	77.5	28	40	60	10.2	31.6	63.1	29.7	46.8	74.2
350	8.4	37.0	73.9	24	36	56	8.4	30.4	60.7	28.5	45	71.4
400	6.5	34.5	69.0	21	32	50	6.5	29.3	58.9	27.4	43.2	68.5
450	4.7	20.0	40.1	-	-	-	4.6	29.0	57.7	26.9	42.4	67.3
500	-	-	-	-	-	-	2.8	27.3	56.5	26.4	41.7	66.1
550	-	-	-	-	-	-	1.6	23.8	49.8	26	41.1	65.2

i-HTB Valve® i-FGS High Temperature Ball valves

- Offers technological advances for ball valve design
- Bubble tight seat design with long life
- Low fugitive emissions via the stem
- High performance for severe service applications
- Simple, dependable, easy maintenance design
- Low torque requirements



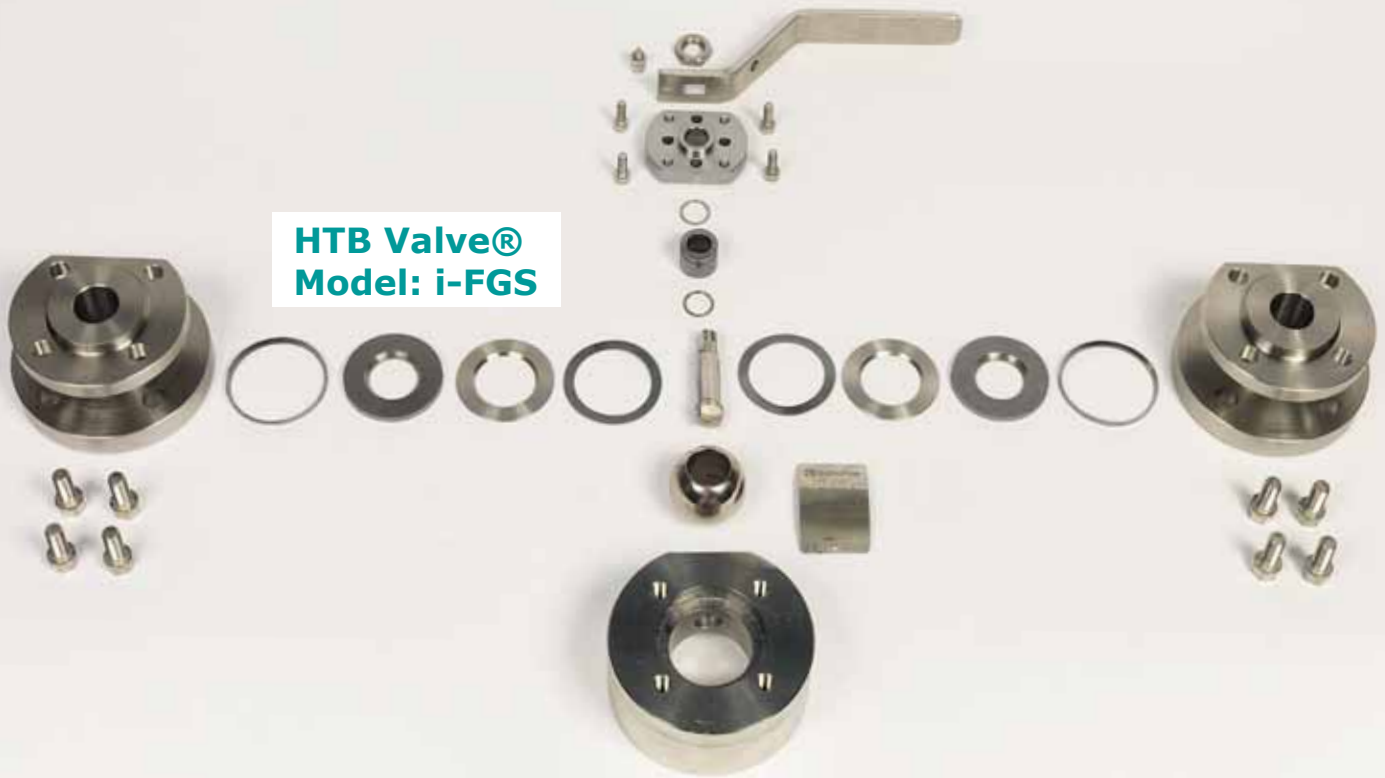
- 1 Three-piece body, floating ball design meeting DIN PN15 to PN100, and ASME B16.34 classes 150 to 800. Valve is available in carbon steel, stainless steel, and other alloys on request. With SW, NPT, and BW connections, up to size DN 80 (3") full port and DN 100 (4") reduced port.
- 2 Multilayer graphite and stainless steel seats, combined with hardened electro-plated ball, provide long-lasting performance at high temperatures. The i-FGS provides a bubble tight seat sealing as per API 598 standard. It has also been tested and approved by TUV standard 15848 for low fugitive emissions.
- 3 Thanks to the self-lubricating feature of the graphite / stainless seats, the i-FGS has very low torque demands when compared with metal-to-metal seated valves in similar applications, thus requiring much smaller, energy saving actuators resulting in significant initial investment and operational savings.
- 4 The new self-adjusting ARMASEAL™ packing material, combined with the anti-blow out stem design, contribute to significant lower torques and result in a vastly improved performance which enables the product to meet fugitive emission control standards.
- 5 The heavy duty actuator mounting flange with integral ISO-5211 bolt circle makes automation fast and convenient.
- 6 Solid steel lever (double lever available on request).

i-FGS 3-piece body design offers ample flexibility in its manufacture allowing multiple combinations of end connections and materials of construction. It further provides easy on-line maintenance thanks to its centre section swing out capability.

i-FGS ball valve has been designed for handling various fluids under severe temperature and flow conditions, as well as for frequent cycling applications where low maintenance is an important requirement.

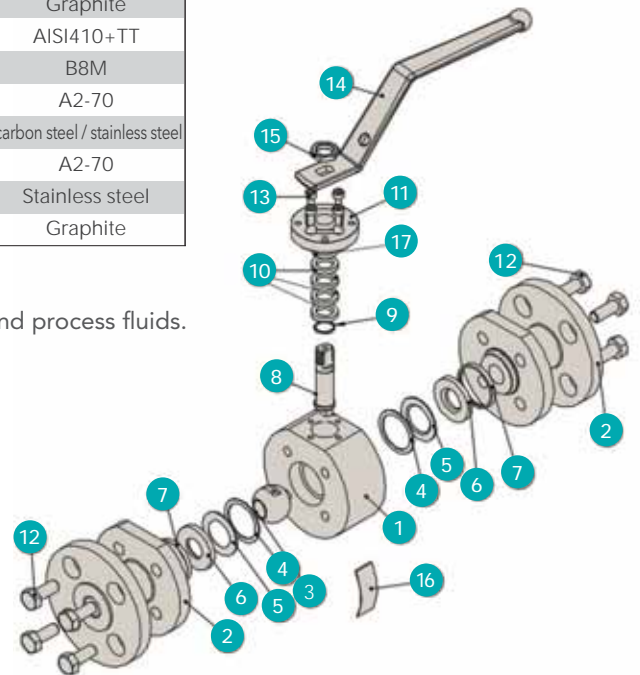
i-FGS design features were carefully considered to ensure long, trouble-free operation at significant energy savings. This philosophy of design, together with the availability of low cost, easy-to-replace parts, makes this an ideal valve selection when dependability and initial cost effectiveness are essential factors.

**HTB Valve®
Model: i-FGS**



SP	No	Q.Ty	Description	A105/LF2 (up to 438°C)	316 (up to 550°C)
	1	1	Body	A105/LF2	F316
	2	2	Ends Connection	A105/LF2	F316
	3	1	Ball	F316L+ENP	F316L+ENP
#	4	2	Primary Gasket	Graphite	Graphite
#	5	2	Ring Seats	F316L	F316L
	6	2	Seats	Graphite / F316	Graphite / F316
#	7	2	Secondary Gasket	Graphite	Graphite
	8	1	Stem	F51 / 630 HT	F51 / 630 HT
	9	1	Antifrictional Ring	F316	F316
#	10	1 set	ARMASEAL™ Gasket	Graphite	Graphite
#	11	1	Top Cover	AISI410+TT	AISI410+TT
	12	****	Bolts	L7M	B8M
	13	****	Stop Pins	A2-70	A2-70
	14	1	Lever	carbon steel / stainless steel	carbon steel / stainless steel
	15	1	Nut	A2-70	A2-70
	16	1	Name plate	Stainless steel	Stainless steel
#	17(**)	1	Bushing	Graphite	Graphite

* Materials can be modified according to operating conditions and process fluids.
(**) For sizes from 1" 1/2 up to 4"



The i-FGS ball valve has been developed in full compliance with DIN, ASME, and other international standards for service in temperatures up to 550 deg. C. (1022 deg. F.) and as per the corresponding pressures up to DIN PN100, and ASME class 800, with due consideration of corresponding materials construction. The i-FGS uses a patented semi-soft seat material consisting of alternating layers of graphite and stainless steel. It is ideal for severe service applications, including saturated steam and heavy particle carry over.