GUJARAT GAS

DATASHEET FOR BALL VALVE – SRM, IMS, DRS, CNG-PRS AND IPRS (150# / 300#)

Document No.: GGL/TS/2021/JAN/08

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Sr. No.	Description	BALL VALVE Specification		
1. General				
1.1	Valve Size	Below 2”	2” and 3”	4" and above
1.2	Pressure Rating	800#	150# / 300#	150#/300#
1.3	Design Standard	BS EN ISO 17292	API 6D (latest)	API 6D (latest)
1.4	Corrosion allowance	1.5 mm	1.5 mm	1.5 mm
1.5	Design Factor	0.4	0.4	0.4
2. Service Conditions				
2.1	Service	Natural Gas	Natural Gas	Natural Gas
2.2	Design Pressure	138 Bar-g	1. For 150# - 19 Bar-g 2. For 300# - 49 Bar-g	1. For 150# - 19 Bar-g 2. For 300# - 49 Bar-g
2.3	Design Temperature	0°C to 65°C	0°C to 65°C	0°C to 65°C
2.4	Operating Pressure Maximum	19 Bar-g for 150# application 49 Bar-g for 300# application	19 Bar-g for 150# application 49 Bar-g for 300# application	19 Bar-g for 150# application 49 Bar-g for 300# application
2.5	Operating Temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C
3. Valve Construction Design				
3.1	Location	Above Ground	Above Ground	Above Ground
3.2	Valve Type	Floating	Floating	Trunion mounted
3.3	Bore Type	Full Bore	Full Bore	Full Bore
3.4	End Connections	1. Socket welded as per ASME B 16.11 2. Threaded as per ASME B 1.20.1	1. Flange End Raised Face (as per ASME B 16.5) 2. Butt Welded (as per ASME B 16.25)	1. Flange End (as per ASME B16.5) 2. Butt Welded (as per ASME B16.25) 3. Ring Type (as per ASME B 16.5)
3.5	PUPS Length	1. Length - 150mm (Max.) 2. Bevel angel as per ASME B 31.8 Note: Thickness of pup shall be as per piping Material specification	1. Length - 150mm (Max.) 2. Bevel angel as per ASME B 31.8 Note: Thickness of pup shall be as per piping Material specification	1. Length-1.5 x ND or 300mm (Min.) and 800mm (Max.) 2. Bevel angel as per ASME B 31.8

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3.6	Locking Arrangement	Required - Locking facility in full open position	Required - Locking facility in full open position	Required - Locking facility in full open position
3.7	Shutoff Class	Class: VI	Class: VI	Class : VI
3.8	Construction	Two or Three Piece construction / Bolted	Two or Three Piece construction required/Bolted	Two or Three Piece construction /Bolted
3.9	Bi-Directional	Required	Required	Required
3.10	Double Block and Bleed	Not Required	Not Required	Required
3.11	Blowout Proof Stem	Required	Required	Required
3.12	Anti-Static Device	Required	Required	Required
3.13	Valve Operation	Lever Operated with PVC Grip	Lever operation with PVC Grip	4" lever operated & Gear operated for size 6” and above for 150# and 300#
3.14	Open & Close Ball Position Indicator	Required	Required	Required
3.15	Flange Facing	-	RF-125 AARH (ASME B 16.5)	RF-125 AARH (ASME B 16.5)
4. Valve Material Specification (Equivalent Or Superior)				
	Part	**Specified Material**	**Specified Material**	**Specified Material**
4.1	Body	ASTM A 105 (Charpy test at 0°C)	ASTM A 216 Gr WCB (Charpy test at 0°C)	ASTM A 216 Gr WCB (Charpy test at 0°C)
4.2	Ball (SOLID)	ASTM A479 Gr. SS 316 / ASTM A 351 Gr. CF8M	ASTM A 479 Gr. SS316 / ASTM A351 Gr.CF8M	ASTM A 479 Gr. SS316 / ASTM A351 Gr.CF8M
4.3	Primary seat	Seat: RPTFE OR Superior	ASTM A 479 Gr. SS316 / ASTM A351 Gr.CF8M	ASTM A 479 Gr. SS316 / ASTM A351 Gr.CF8M
4.4	Seat insert		RPTFE OR Superior	RPTFE OR Superior
4.5	Stem (Anti-Blow Out) (No Casting)	ASTM A479 Gr. SS316 / ASTM A 182 Gr. F51 / ASTM A 564 Type 630 (17 – 4PH)	ASTM A479 Gr. 316 OR ASTM A Gr.F316 OR ASTM A 564 Type 630 (17-4PH)	ASTM A479 Gr. 316 / ASTM A 182 Gr. F51 / ASTM A 564 Type 630 (17 – 4PH)
4.6	Stem seals (Renewable with valve open on Stream)	-	GRAFOIL OR RPTFE V-Rings OR Viton	GRAFOIL OR RPTFE V-Rings OR Viton

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4.7	Pups	1. MOC-ASTM A 106 Gr. B (Charpy test at 0 Deg C) 2. The carbon content is greater than 0.12% in product analysis, the CE (IIW) shall not exceed 0.40% and if carbon content is less than 0.12% in product analysis, the CE (Pcm) shall not exceed 0.20%.	1. MOC-ASTM A 106 Gr. B (Charpy test at 0 Deg C) 2. The carbon content is greater than 0.12% in product analysis, the CE (IIW) shall not exceed 0.40% and if carbon content is less than 0.12% in product analysis, the CE (Pcm) shall not exceed 0.20%.	1. MOC-ASTM A 106 Gr. B (Charpy test at 0 deg C) or ASTM A 333 Gr. 6, WT matching to pipe WT as per Piping Material Specification. 2. The carbon content is greater than 0.12% in product analysis, the CE (IIW) shall not exceed 0.40% and if the carbon content is less than 0.12% in product analysis, the CE (Pcm) shall not exceed 0.20%.
4.8	Stud and Nuts	Stud-ASTM A 193 Gr. B7 and Nut ASTM A 194 Gr. 2H, Hot Dipped Galvanized as per ASTM A 153	Stud-ASTM A 193 Gr. B7 and Nut ASTM A 194 Gr. 2H, Hot Dipped Galvanized as per ASTM A 153	Stud-ASTM A 193 Gr. B7 and Nut ASTM A 194 Gr. 2H, Hot Dipped Galvanized as per ASTM A 153
4.9	Anti-Static Device	SS302	SS 302	SS 302
4.10	Gland Packing	GRAFOIL	GRAFOIL	GRAFOIL
4.11	Body Gasket	-	Spiral Wound with inner & outer ring SS 316 with CNAF filler	Spiral Wound with inner & outer ring SS 316 with CNAF Filler
4.12	Gear Box	-	-	Material : CS OR MS Quarter Turn Worm Type Protection against water ingress Self Locking provison required
4.13	Stem & Seat Sealant Injector	-	Not Required	-
4.14	Drain & Vent (For 6” NB & above) (Drain only for 4” NB)	-	-	Configuration : One (1) Ball valve + One (1) Needle valve + De pressurizing Plug Valve, pipe & Plug MoC : SS 316 Valve, pipe Size & Plug : ½” NB for 4” NB to 8” NB and 1” NB for 8” NB above Pipe Thickness as per GGL Piping Material Specification

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4.15	Stem & Seat Sealant Injector(For size 6" NB and above)	-	-	Configuration – Needle valve with internal NRV and PlugValve & pipe MOC : SS 316Note: Stem & sealant injector required for 4" NB extended stem valves
5. Valve Testing Requirement				
5.1	Fire Resistant Design Requirement	As per API 6FA/API 607 / BS : 6755 (Part - II) BS EN ISO 10497/API-RP-6FA/API 602	As per API 6FA/API 607/BS:6755 (Part – II)/BS EN ISO 10497	As per API 6FA/API 607 / BS : 6755 (Part – II) BS EN ISO 10497/API-RP-6FA
5.2	Double block and Bleed Test	-	-	Required
5.3	Closure Test	-	-	-
5.4	Hydrostatic Test	Body: 1.5 X Design Pressure Seat: 1.1 X Design Pressure	Body: 1.5 X Design Pressure Seat: 1.1 X Design Pressure	Body: 1.5 X Design Pressure Seat: 1.1 X Design Pressure
5.5	Air Seat Test	7 Bar-g	7 Bar-g	7 Bar-g
5.6	Anti-Static Testing Requirement	Direct current <12V and resistance on dry valves shall not exceed 10 Ohms	Direct current <12 V and resistance on dry valves shall not exceed 10 Ohms	Direct current <12 V and resistance on dry valves shall not exceed 10 Ohms
5.7	Charpy Impact Test	Body & side pieces, Pipe pup, vent drain pipe, Ball & seat, Stem and all pressure containing part as per the MOC standard In case Charpy test value not specified in relevant codes and standards than Charpy shall be carried out at 0 °C and absorbed energy value shall be average 27 J and minimum 22 J respectively .	Body & side pieces, Pipe pup, vent drain pipe, Ball & seat, Stem and all pressure containing part as per the MOC standard In case Charpy test value not specified in relevant codes and standards than Charpy shall be carried out at 0 °C and absorbed energy value shall be average 27 J and minimum 22 J respectively.	Body & side pieces, Pipe pup, vent & drain pipe, Ball & seat, Stem and all pressure containing part as per the MOC standard. In case Charpy test value not specified in relevant codes and standards than Charpy shall be carried out at 0 °C and absorbed energy value shall be average 27 J and minimum 28 J respectively.
5.8	Hardness test	Applicable as per Material of construction standard	Applicable as per Material of construction standard	Applicable as per Material of construction standard
5.9	NDE Test	As per notes	As per notes	As per notes

5.1	Operational Torque Test	-	As per API 6D	As per API 6D
5.11	Marking & Painting	SSPC-SP/MSS SP-25, API 6D and as per GGL Technical Specification	SSPC-SP/MSS SP-25, API 6D and as per GGL Technical Specification	SSPC-SP/MSS SP-25, API 6D and as per GGL Technical Specification

Note:

1. This data sheet shall be read in conjunction with SOR, Technical Specifications and Piping Material Specification.
2. Inspection and Testing: As per this Data Sheet, GGL Specification, API 6D and API 598. Inspection shall be carried out by TPI at Manufacture's work as per QAP approved by GGL.
3. Short pattern ball valves are not acceptable.
4. Vendor to submit GA drawing and QAP for approval prior to commencement of manufacturing.
5. Test Certificates shall be reviewed by client/TPIA as per approved QAP, GA drawing, Inspection & Test certificates including NDE.
6. In case valve is supplied in accordance with API 6D/ BS EN ISO 15761/API 602, Min. body valve thickness shall be as per ASME B 16.34 and corrosion allowance.
7. 100% of valve shall undergo hydro test of seat, soft seat shall be replaced after hydro test in case the same is found damaged or un-serviceable. After that all ball valves shall be air tested.
8. Vendor to submit suitable type of corrosion protection coating system for Underground and above ground valve for salient atmosphere for GGL approval prior to commencement of work along with GA drawing.
9. TPIA shall issue EN 10204 3.1/3.2 certification for testing & inspection of valves as per requirement of PO.
10. Vendor shall provide ball valve weight and operation torque requirement in GAD for reference.
11. Vendor to provide suitable provison for valve lifting and valve support. The same shall be shown in valve GAD.
12. Vent, Drain and sealant connection with valve body shall be of socket welded type. Threaded connection not acceptable for vent, drain and sealant connections.
13. Painting and coating of valve shall be as per technical specifications for valves.
14. Primary seat Metal to Metal and secondary seat shall be soft type for ball valve having size 4" and Above.
15. Non Destructive Examination
    - All sizes, body casting shall be subjected to 100% radiography as per ASME B 16.34. Procedure and acceptance criteria shall be as per ASME B 16.34.
    - All forgings shall be ultrasonically examined in accordance with the procedure and acceptance standard of Annexure E of ASME B 16.34.

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,Econnect Id : 24357 Approved by: Nagendra Kishore Verma on 15/01/2021
,Approval Note Ref No:GGL/TS/2021/JAN/08

- Full inspection by radiography shall be carried out on all welds of pressure containing parts. Acceptance criteria shall be as per ASME B 31.3 or ASME B31.8 as applicable and API 1104.
- All finished weld ends subject to welding in field shall be 100% ultrasonically tested for lamination type defects for a distance of 50 mm from the end. Laminations shall not be acceptable.
- Weld ends of all cast valves subject to welding in field shall be 100% radio graphically examined and acceptance criteria shall be as per ASME B16.34.
- After final machining, all bevel surfaces shall be inspected by dye penetrate or wet - magnetic particle methods. All defects longer than 6.35 mm shall be rejected. Reject able defects must be removed.
- Weld repair of bevel surface is not permitted.

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