4” BALL VALVE DATA SHEET

1. General Information

Item	Description
Valve Type	Trunnion Mounted Ball Valve
Service	Natural Gas
Installation	Underground
Valve Size	**4" (DN100)**
Pressure Rating	**Class 600**
Bore	**Full Bore (Full Port)**
Flow Type	2 Way
Body Construction	Fully Welded
Operation	Gear Operated
Stem Extension	**Not Required**

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2. Design Codes & Standards

Parameter	Standard
Valve Design	API 6D
Pressure–Temperature Rating	ASME B16.34
Face to Face	ASME B16.10
Butt Weld Ends	ASME B16.25
Inspection & Testing	API 598
Fire Safe	API 607

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3. Pup Piece Detail

Parameter	Specification
End Type	Butt Weld
End Preparation	ASME B16.25
Pup Piece	Minimum 300 mm
Pipe Schedule	API 5L Gr. X60 Thickness 6.4 mm

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4. Material of Construction (MOC)

Component	Material
Body	ASTM A216 Gr. WCB
Ball	ASTM A351 Gr. CF8M
Stem	ASTM A182 F316
Seat	RPTFE with Secondary metal to metal
Seat Ring	AISI 4140+0.03” ENP)/AISI410
Handle/Lever/Hand Wheel	Carbon Steel (Gear)
Bolting	ASTM A193 B7 / A194 2H

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5. Design Conditions

Parameter	Value
Pressure Class	600#
Design Temperature	-29°C to +200°C
Leakage	Zero Leakage (Bubble Tight)
Flow Direction	Bi-directional

6. Valve Design Factor

Parameter	Value
Corrosion Allowance	1.5 mm
Design Factor	0.4
Installation	In Valve Pit

7. Valve Painting Specification

Item	Specification
Painting for Ball Valve	Surface preparation by abrasive blasting to SA 2½ as per ISO 8501-1 followed by epoxy coating system asper standard thickness

8. Testing & Inspection

Test	Requirement
Hydrostatic Test Pressure & Duration	1.5xDesigned Pressure & 15 Minutes
Seat Leakage Test Pressure	1.1xDesigned Pressure
Pneumatic Testing Pressure & Duration	7.0 kg/cm2 & 5 Minutes
Charpy impact Test	Yes (at -29˚ C)
Hardness Test	Yes (Hardness shall not exceed 248 HV10)

9. Certification

Document	Requirement
Material Test Certificate	**Type 3.2** as per EN 10204
Hydro Test Report	Yes
Valve Test Certificate	Yes

4” BALL VALVE DATA SHEET

Document	Requirement
Traceability	Full material traceability

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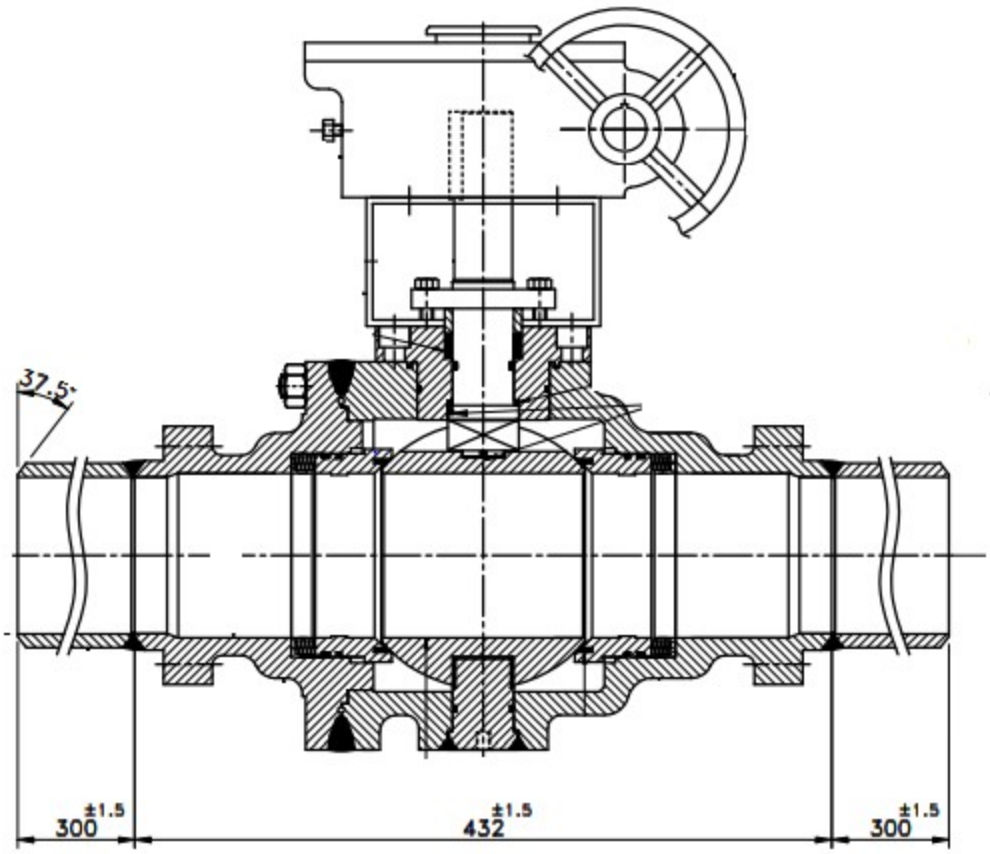
10. Vendor Documentation Requirement

Vendor shall supply:

- General Arrangement Drawing
- Valve Data Sheet
- Material Certificates (EN 10204 Type 3.2)
- Hydrostatic Test Report
- Installation & Maintenance Manual

NOTE:

- Vent and Drain connection with end plugin.
- Latest Editions of standards, which are specified above are also acceptable.


37.5°
300 ±1.5
432 ±1.5
300 ±1.5

QUALITY ASSURANCE PLAN

Client:
Manufacturer Name

QAP No …….
Valve Details : 4" x 600# Ball Valve(UG)
P.O .No: …..

SR. NO.	COMPONENTS & OPERATIONS	TYPES OF CHECK	QUANTAM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	INSPECTION	
						FCI/ SUB VEND	TPIA
1.	RAW MATERIAL 1. BODY & SIDE PIECE	1.CHEM. TEST	PER HEAT	ASTM A 216 Gr.WCB	FOUNDRY TC. REPORT 3.1	P	R
		2.MECHANICAL TEST	PER HEAT	API 6D	FOUNDRY TC. REPORT 3.2	P	R
		3.VISUAL	100%	AS REQUIRED BY ASTM PRODUCT SPECIFICATION, MSS SP-55	INSPECTION REPORT 3.2	P	W
		4. IMPACT TEST AT 0˚ C	PER HEAT	ASTM A370	INSPECTION REPORT 3.2	P	W
		5. MPT	100% ACCESSIBLE SURFACE AREA	ASME B16.34 APPENDIX –II/ ASME SECTION V ARTICLE 7	INSPECTION REPORT 3.2	P	W
		6. RADIOGRAPHY FOR CASTING	100%	ASME B16.34 APPENDIX -I	INSPECTION REPORT 3.1	P	R
	2. BALL & SEAT RING FOR TMBV	1.CHEM. TEST	PER HEAT	ASTM A351 GR.CF8M/ ASTM A182 GR. F316 / ASTM A479 GR. SS316 / OWNER'S SPEC.	SUPLLIER T.C. REPORT 3.1	P	R
		2. MECHANICAL TEST	PER HEAT	ASTM A351 GR.CF8M/ ASTM A182 GR. F316 / ASTM A479 GR. SS316 / OWNER'S SPEC.	SUPLLIER T.C. REPORT 3.1	P	R
		3.VISUAL	100%	AS REQUIRED BY ASTM PRODUCT SPECIFICATION, MSS SP-55	SUPLLIER T.C. REPORT 3.1	P	R
		4.RADIOGRAPHY FOR CASTINGS	100%	ASME B16.34 APPENDIX -I	INSPECTION REPORT 3.1	P	R
		5. ULTRASONIC TEST FOR FORGINGS OR OPTION FOR RADIOGRAPHY	100%	ASME B16.34 APPENDIX –IV / ASME SEC. V. ART. 5	INSPECTION REPORT 3.1	P	R
		6.IMPACT TEST AT 0°C	PER HEAT	ASTM A370	SUPLLIER T.C. REPORT 3.1	P	R
	3. STEM	1.CHEM. TEST	PER HEAT	ASTM A 479 GR.SS410/ OWNER'S SPEC.	LAB T.C. REPORT 3.1	P	R

QUALITY ASSURANCE PLAN

	Client: Manufacturer Name			QAP No …… Valve Details : 4" x 600# Ball Valve(UG) P.O .No: …..			
		2. MECHANICAL TEST	PER HEAT	ASTM A 479 GR.SS410/ OWNER'S SPEC.	LAB T.C. REPORT 3.1	P	R
		3. IMPACT TEST AT 0˚ C	PER HEAT	ASTM A370 / OWNER'S SPEC.	LAB T.C. REPORT 3.1	P	R
	4. PUPPIECE	1.CHEM. TEST	PER HEAT	ASTM A106 GR. B / OWNER'S SPEC.	SUPLLIER T.C. REPORT 3.1	P	R
		2. MECHANICAL TEST	PER HEAT	ASTM A106 GR. B / OWNER'S SPEC.	SUPLLIER T.C. REPORT 3.1	P	R
		3.VISUAL	100%	ASTM A106 GR. B / OWNER'S SPEC.	SUPLLIER T.C. REPORT 3.1	P	R
2.	BOUGHTOUT ITEM 1, FASTNERS	1, CHEMICAL TEST	PER HEAT	ASTM A193 GR. B7M & ASTM A194 GR. 2HM	SUPPLIER TC/ INSPECTION REPORT 3.1	P	R
		2, MECHANICAL TEST	PER HEAT	ASTM A193 GR. B7M & ASTM A194 GR. 2HM	SUPPLIER TC/ INSPECTION REPORT 3.1	P	R
3.	INPROCESS INP. 1. . BODY & SIDE PIECE	TRANSFER OF HEAT NO.	100%	API 6D/OWNER'S SPEC.	INSPECTION REPORT 3.2	P	R
		MPT OR DPT FOR BODY WELD JOINT	100%	ASME SEC. V, ARTICLE 7 (MPT) / ASME SEC. V, ARTICLE 6 (DPT)	INSPECTION REPORT 3.1	P	R
	2. ANTI BLOWOUT DESIGN	1. VISUAL INSPECTION DURING ASSEMBLY OF VALVE (STEM ASSEMBLY)	ONE VALVE PER SIZE FOR 4" AND ABOVE	AS PER APPROVED GAD	INSPECTION REPORT 3.2	P	W
4.	PERFORMANCE TEST	1. HYD SHELL TEST AT 1.5 TIMES OF RATING, 45° OPEN BALL, WITH SEALANT NRV (BEFORE SEALANT LINE WELDING)	100%	API 6D/ASME B16.34 OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
		2, HYD. SEAT TEST (DRAIN, VENT LINE VALVES IN FULL OPEN CONDITION)	100%	API 6D/ASME B16.34/ OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
		3. HIGH PRESSURE CLOSURE(HYDRO SEAT) TEST AT 1.1 TIMES OF RATING (DOUBLE BLOCK & BLEED TEST)	100% FOR TMBV	API 6D/ASME B16.34/ OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
		4. AIR SEAT TEST AT 7.0 BARG	100%	API 6D / ASME B16.34/ OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W

QUALITY ASSURANCE PLAN

Client:	QAP No …….
Manufacturer Name	Valve Details : 4" x 600# Ball Valve(UG)
	P.O .No: …..

		5. AIR TEST AT FULL OPEN CONDITION (7 BAR)	100%	API 6D/ASME B16.34 /OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
		7. HYD SHELL TEST AT 1.1 TIMES OF RATING, 45° OPEN BALL, (AFTER SEALANT LINE WELD)	100%	API 6D/ASME B16.34 OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
		8. PERFORMANCE TEST (OPENING & CLOSING)	100%	API 6D / OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
		9. ANTISTATIC TEST	100%	BS EN 17292/API 6D	INSPECTION REPORT 3.2	P	W
		10. FIRE SAFE TEST	TYPE TEST	API 607/API 6FA	FIRE SAFE TEST CERTIFICATE	P	R
		11. TORQUE TEST	10%	API 6D/ OWNER'S SPEC.	INSPECTION REPORT 3.2	P	W
5.	PAINTING	1. SURFACE PREPARATION	100%	Surface preparation by abrasive blasting to SA 2½ as per ISO 8501-1	INSPECTION REPORT	P	R
		2. PRIMER COAT	100%	As per Standared Thickness	PAINT INSPECTION REPORT	P	R
		3. FINAL COAT	100%	As per Standared Thickness	PAINT INSPECTION REPORT	P	R
		4. VISUAL	100%	OWNER'S SPEC.	INSPECTION REPORT	P	R
6.	FINAL INSPECTION	1, VISUAL/TAGGING/ MARKING	100%	APPR. DRG.	INSPECTION REPORT 3.2	P	W
		2. VALID API 6D CERTIFICATION AND MONOGRAM	AS PER BQC	VALID API 6D CERTIFICATION AND API MONOGRAM	INSPECTION REPORT 3.1 & VALID API CERTIFICATE	P	W
		3. DIMENSIONS	100%	APPR. DRG./ASME B16.10/ASME B16.5/B16.25/API 6D	INSPECTION REPORT 3.2	P	W
		4 PACKING INSPECTION (AS PER TECH. SPEC.)	10% OF EACH VALVE SIZE	AS PER OWNER'S SPEC./ AS PER APPR. DRG. & QAP	INSPECTION REPORT 3.2	P	R

QUALITY ASSURANCE PLAN

	Client: Manufacturer Name				QAP No ……. Valve Details : 4" x 600# Ball Valve(UG) P.O .No: …..		
7.	FINAL DOCUMENTS	1.QAP / PO / MTC / IR / COMPLIANCE CERTIFICATES	100%	AS PER OWNER'S SPEC.	COMPLIANCE CERTIFICATE	P	R
		2. INSPECTION RELEASE NOTE	100%	AS PER OWNER'S SPEC. /	INSPECTION RELEASE NOTE	H	P

LEGEND: P=PERFORM, R=REVIEW, RW=RANDOM WITNESS(10%), H=HOLD, TPIA=THIRD PARTY INSPECTION AGENCY

NOTE: 1.DRAIN & VENT VALVES, PIPES AND AUXILLARY CONNECTIONS AS PER APPROVED GAD OF VALVES TO BE REVIEWED BY TPIA.
2. WPS/PQR FOR PUP PIECE WELDING TO BEREVIEWED BY TPIA.
3. TPIA SHALL ISSUE 3.2 CERTIFICATE AS PER EN 10204 FOR BALL VALVE.
4. FOR ALL FORGING MATERIALS, THE SPECIMAN SHALL BE TAKEN FROM THE INTEGRAL PART OF THE FORGING.
5. FOR HEAT TREATMENT START & STOP TEMP. CHART SHALL BE SIGNED BY TPIA, ALSO POWER FAILURE LOG SHALL BE MAINTAINED.
6. MATERIAL & TYPE SHALL BE AS PER OWNER'S SPECIFICATIONS/DATASHEET.
7. THIS QAP SHALL BE READ IN CONJUNCTION WITH BALL VALVE DATASHEET
8. SAMPLE FROM ANY ONE LOT/HEAT SHALL BE TESTED AT EXTERNAL NABL LAB.
9. ALL MEASURING INDSTRUMENT/EQUIPMENT SHALL HAVE VALID CALIBRATION CERTIFICATE & SAME SHALL BE REVIEWED BY TPIA.