GUJARAT GAS	**SPECIMEN COPY QUALITY ASSURANCE PLAN FOR INDUSTRIAL METERING SKID**				**QAP No.:**		**PROJECT : INDUSTRIAL METERING SKID**				
					DATE:		1 of 2 .				
GUJARAT GAS LIMITED	**P.O. NO. :**				**MANUFACTURE'S NAME & ADDRESS:**						
SR No	**Component & Stage**	**Characteristic**	**Type of Check**	**Quantam of Check**	**Reference Standard/ Documents**	**Acceptance Standard / Documents**	**Format of Records**	**Inspection By**			**Remarks**
								M	**TPA**	**CLIENT**	
1	**Drawings & Calculations**										
1.1	P & ID, GAD, BOM, QAP, Technical Datasheet, FAT	Complete Skid	Submittals	100%	Technical Spec. and Datasheets	Approved Datasheet	Mfrs Format	P	RF	A	
2	**Incoming Material Identification of Broughtout Items**										
2.1	Pressure Gauge	Calibration, Accuracy, Range, Size, Dimension, & End Connection	Visual, Measurement	100%	Approved Datasheet	Approved Datasheet	Inspection Report 3.1	P	R	R	
2.2	Pipe, Pipe Fitting, Flanges for Interconnecting Piping & Fastners, Strainers	Material TC, Size & Dimension	Chemical test	Per heat No	ASTM 370,ASME B 16.20 & B16.5 ASTM A193 & ASTM A194 HDG- ASTM A153	Pipe: ASTM A106 Gr 6 Flanges: ASTM A105 Pipe Fittings- As per PMS Fastners: As per PMS	Inspection Report 3.1	P	R	R	
			Physical Test (tensile,yield,elongation &hardness)	Per heat No							
			Impact test	Per heat No							
2.3	Gaskets	Material TC	Chemical test & Physical Test	Per heat No	As per drawing and Data sheet	As per drawing and Data sheet	Inspection Report 3.1	P	R	R	
		Size & Dimension	Visual, Measurement	100%							
2.4	Brass Ball valves	As per QAP of Brass Ball Valve									
2.5	Brass Meter Adaptor	As per QAP of Brass Meter Adaptor enclosed as Annexure-19									
2.6	Transition Fitting	As per QAP of Electrofusion Fitting enclosed as Annexure-18									
2.7	FRP Canopy	As per Specification of FRP Canopy enclosed as Annexure-15									
3	**Welding, NDT & Testing for Interconnecting Piping**										
3.1	WPS / PQR	Welders Qualification & Welding	Welders Qualification & Welding	100%	ASME Sec. IX, Article II, follow QW200.1, QW482 for WPS & QW 483 for PQR or API 1104	As per ASME SEC. IX//ASME B 31.8	WPS / PQR	P	R	R	
3.2	Liquid Penetrant Examination (DPT)	On Fillet Welds	Surface Weld Defects	100%	ASME Sec V	ASME SEC.31.3	Internal Inspection Report	P	R	R	
3.3	Radiography Test	To identify internal surface defects	Soundness of weld	10%	ASME Sec V	ASME SEC.31.3	Interpretation Report - Review of report	P	R	R	
3.4	Hydro Testing of Interconnecting Piping	Hydro test of weld joints	Strength of weld joints	100%	1.5 times of Design Pressure for 4 hrs	For 150#: 28.5 kg/cm2 Holding time: 4 Hours	Inspection Report	P	W	V	

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								M	TPA	CLIENT	
4	**Final Inspection of Skid Assembly**										
4.1	Final Dimensional/ Visual Inspection	Complete Skid	Visual Inspection	100%	Approved P&ID & GAD	Approved Drawings	Test Reports	P	W	V	--
4.2	Painting of Complete Skid	1) Surface preperation: as per SA 2.5 2) Galvanizing as per ASTM A 153 3) Check Total DFT at Random Location	Visual & Final DFT measurement	100%	Surface preperation Visual & DFT Check as per Approved Painting Spec.	As per ISO 8501-1 and profile 35 to 50 micron 1) Hot Deep Galvanized a)- Pipe & pipe fitting- min 86µ. b) - Fastners- min 53µ for more than 9.6 mm Dia c) Fastners- min 43µ for under 9.6 mm Dia Approved paint procedure	Inspection Reports	P	W	V	--
4.3	Verification of Material from approved vendor of equipments	Each Material (valves,,Piping ,fittings & Filter)	Approved Vendor	100%	Approved Vendor List of GGL	Approved Vendor List of GGL	Inspection	P	V	V	
4.4	Factory Acceptance Test	Set Point Test PRV Lock up test	Performance Test	100%	Approved FAT procedure	Approved FAT procedure	FAT Report	P	W	V	
		Pneumatic Test	No leakage from bolt Joints	100%	Approved FAT procedure	1) Pneumatic Test @ 7 kg/cm2 2) Holding	FAT Report	P	W	V	--
5	**Final Documentation:**										
5.1	Design & Calculation, Material compliance report as per EN 10204 3.1 , Calibration Certificate, GAD & P & ID, Final FAT report,NDT reports,Hydro & Pneumatic report,Test certificate	History docket	Verification of records	100%	Approved specification	As per approved specification	History Docket	P	R	R	

M : Manufacturer; P : Performer; W : Witness ; R : Review ; A: Approval; RW: Random Witness ; V : Verification

Prepared By:	Reviewed By:	Approved By:

ANNEXURE-1 to QUALITY ASSURANCE PLAN FOR INDUSTRIAL METERING SKID - SPECIMEN COPY

Sr. No.	Components & Stage	Characteristics	Type of Check	Quantum of check	Reference standard/ Document	Acceptance Standard/ Document	Format of Record	Inspection Agency			Remarks
								M	TPA	CLIENT	
1	Brass Ball Valve	Raw material Testing: (Chemical / Physical Requirement)	Material TC for valves	One in each heat	ASTM B 283(Alloy UNSC37700)	ASTM B 283(Alloy UNSC37700)	MTC	P	R	R	
		Springs, Seat, Stem, Seat, Seals and Lubricants	Material TC for valves	One in each heat	As per EN 331 /EN 549 / EN 377 / PTEF / SOFT SEAT	As per EN 331 /EN 549 / EN 377 / PTEF / SOFT SEAT	MTC	P	R	R	
		Gas Tightness Test	Leak Test	100%	As per EN 331	Measured leakage rate should not exceed 20 cm^3/hr as per clause 7.2 of EN331	MTC	P	R	R	
		Twist (Torque) Test		1 piece in each lot	As per EN 331	Operating torque should not exceed 7 N. m at ambient temperature as per table 4 of EN 331	MTC	P	R	R	
		Bending Test & Turning Torque Test		100%	As per EN 331	Should confirm to clause 6.5 of EN 331	MTC	P	R	R	
		Flow Capacity test	1 piece in each lot	1 piece in each lot	As per EN 331	1/2" - 5m3/hr 1" - 16 m3/hr	MTC	P	R	R	
		Hydrostatic pressure test	Leak Test	100%	As per EN 331	5.0 Bar to 7.0 Bar	MTC	P	R	R	
		Visual inspection (Free from defects)	Visual	100%	As per EN 331	As per EN 331	MTC	P	R	R	
		Sizes of Valves	Visual	100%	As per EN 331	15mm, 25mm	MTC	P	R	R	
		Ball Position	Visual	100%	As per EN 331	Open & Close Indicator	MTC	P	R	R	
		Length of valve	Vernier Caliper	100%	As per EN 331 / As per Approved Drawing	As per datasheet	MTC	P	R	R	
		Valve Seat		100%	As per EN 331 / As per Approved Drawing	As per EN 331 /EN 549 / EN 377 / PTEF / SOFT SEAT	MTC	P	R	R	
		End Connection	"GO" - " NO GO" Gauge	100%	As per EN 331 / IS 554 /ISO-7/As per Approved Drawing	1/2" BSPT(F) & 1"BSPT(F) as per IS 554/ISO-7	MTC	P	R	R	
		Type of handle	Visual	100%	As per EN 331	Lever with PVC coating	MTC	P	R	R	
		Surface Coating by Nickel / chromium	Visual	100%	As per EN 331 / IS 4736	Datasheet	MTC	P	R	R	
		Marking incl. On / Off indication	Visual	100%	As per EN 331	As per clause No. 9 of EN 331	MTC	P	R	R	
		Final Documentation		100%			COMPLIANCE CERTIFICATE	P	R	R	

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