

ANNEXURE-3

VENDOR'S NAME & ADDRESS:			MANUFACTURING QUALITY PLAN						QP. NO.:				
			CUSTOMER: BHEL, HYDERABAD – 32.			BHEL P.O.NO.:			REV NO:		DATE:		
			PROJECT:			P.O.DATE:			PAGE 1 OF 1				
PRODUCT:			BHEL SPEC:			REV:							
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
2.0	INPROCESS INSPECTION												
3.0	FINAL INSPECTION & TESTING												
4.0	PRESERVATION & PACKING												

VENDOR TO NOTE: THIS FORMAT IS IN MICROSOFT WORD. HEADER & FOOTER SHALL BE AVAILABLE IN EACH PAGE OF QP. QP SHALL BE IN LANDSCAPE & A4 SIZE ONLY. FONT SIZE SHALL BE MIN 10. VENDOR SHALL SIGN & STAMP IN EACH PAGE OF QP. LOI REF. & DATE ARE NOT ACCEPTABLE. P.O.NO. & DATE SHALL BE INDICATED. QP NO. SHOULD BE UNIQUE AND SHALL NOT REPEAT. ALL THE TESTS / CHECKS INDICATED IN THE BHEL SPEC. SHALL BE INDICATED IN THE QP.

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL CQS (OR BHEL NOMINATED INSPECTION AGENCY) & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY	APPROVED BY	APPROVED BY
	VENDOR'S SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	CUSTOMER'S SIGNATURE & STAMP

		TYPICAL MANUFACTURING QUALITY PLAN							MQP. NO.:				
									REV NO:		DATE:		
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032					PRODUCT: SOLENOID VALVE			PAGE 1 OF 2			
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
	Body, Bonnet, Female outlet	Chemical, Physical	Major	Analysis Test	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	Lab. /Supp. Certificate	√	2	2	1	
	Spindle	Chemical, Physical	Major	Analysis Test	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	Lab. /Supp. Certificate	√	2	2	1	
	Spring	Chemical	Major	Analysis Test	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	Lab. /Supp. Certificate	√	2	2	1	
	Outer Washer, Seat Washer	Hardness	Minor	Measurement	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	Lab. /Supp. Certificate	√	2	2	1	
2.0	INPROCESS INSPECTION												
	Water tightness Seat Test	Leakage	Major	Hydro Test	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
	Hydrostatic Pressure Test	Leakage	Major	Hydro Test	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
	Operation Test	Open-close	Major	Functional	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
	Flow Test	Flow	Major	Flow	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
3.0	FINAL INSPECTION & TESTING												
		VISUAL & DIMENSION CHECK	Major	Visual	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1	-	

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED √ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

		TYPICAL MANUFACTURING QUALITY PLAN							MQP. NO.:				
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032				PRODUCT:SOLENOID VALVE			REV NO:		DATE:		
									PAGE 2 OF 2				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
		HV TEST	Major	Hydro Test	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1	-	
		SEAT LEAKAGE TEST	Major	Leakage	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1	-	
		IR TEST	Major	Electrical	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1	-	
		PNEUMATIC TEST	Major	Pneumatic	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1		
		OPERATIONAL TEST INCLUDING VERIFICATION OF PICKUP AND DROP VOLTAGE	Major	Operational test	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1		
		BOM CHECK	Major	Verification	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1		
4.0	PRESERVATION & PACKING												
	Identification	Marking & Stamping	Major	Verification & Stamping	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	2	1	
	Painting	Final finish & Paint DFT	Major	Visual & Measurement	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	Painting Report	√	2	1	-	
	Packing	Soundness of packing	Major	Verification	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	2	1	

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED √ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

		TYPICAL MANUFACTURING QUALITY PLAN							MQP. NO.:				
									REV NO:		DATE:		
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032					PRODUCT: PRESSURE SWITCH			PAGE 1 OF 2			
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
	RAW MATERIAL	Chemical, Physical	Major	Analysis Test	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	Lab. /Supp. Certificate	√	2	2	1	
2.0	INPROCESS INSPECTION												
		RAW MATERIAL	Major	Visual	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
		PROCESS CONNECTION	Major	Visual	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
		CABLE ENTRY	Major	Visual	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
		MOUNTING	Major	Visual	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
		WORKMANSHIP(Cleanliness, Neatness of wiring)	Major	Visual		Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IIR	√	2	2	1	
3.0	FINAL INSPECTION & TESTING												
		DIMENSION,VISUAL	Major	Visual	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1	-	
		PERFORMANCE TEST INCLUDING SET POINT CALIBRATION,REPEATABILITY,SWITCH DIFFERENTIAL & OVER RANGE I.R TEST ON ASSEMBLY	Major	Functional	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	1	-	

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		TYPICAL MANUFACTURING QUALITY PLAN							MQP. NO.:				
									REV NO:		DATE:		
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032					PRODUCT: PRESSURE SWITCH			PAGE 2 OF 2			
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
		IBR certificate	Major	Functional	10%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2		1	*if applicable
		Certificate of statutory approval authority like CCOE/PESO	Major	Functional	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2		1	
		I.P certificate review	Major	Functional	One/Lot	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2		1	
4.0	PRESERVATION & PACKING												
	Identification	Marking & Stamping	Major	Verification & Stamping	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	2	1	
	Packing	Soundness of packing	Major	Verification	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	2	1	

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED √ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

		TYPICAL MANUFACTURING QUALITY PLAN							MQP. NO.:				
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032			PRODUCT: Forged, Seamless & Welded Fittings				REV NO:		DATE:		
									PAGE 1 OF 2				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
	Billets, Rounds, Pipes,Coil,Plate s,etc.	Chemical, Physical	Major	Analysis Test	One/Lot	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	Lab. /Supp. Certificate	√	2	2	1	
2.0	INPROCESS INSPECTION												
	Cleaning & Finishing	Blast Cleaning	Major	Cleaning	100%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IIR	√	2	2	1	
	Finishing	Galvanizing	Major	Chemical	100%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IIR	√	2	2	1	
3.0	FINAL INSPECTION & TESTING												
		NDT	Major	NDT	10%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IR	√	2	1	-	
		Size,Thickness,Dimen sion	Major	Visual	10%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IR	√	2	1	-	
		Surface Quality,Marking,Color coding,etc	Major	Visual	10%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IR	√	2	1	-	
		PMI(Final inspected Fittings)	Major	PMI	One/Lot	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IR	√	2	1	-	
4.0	PRESERVATION & PACKING												
	Identification	Marking & Stamping	Major	Verification & Stamping	100%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	IR	√	2	2	1	
	Painting	Final finish & Paint DFT	Major	Visual & Measur ement	100%	Approved BHEL Spec./Drawing/ datasheet	Approved BHEL Spec./Drawing/ datasheet	Painting Report	√	2	1	-	

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

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								REV NO:		DATE:			
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032				PRODUCT: Forged, Seamless & Welded Fittings				PAGE 2 OF 2			
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
	Packing	Soundness of packing	Major	Verification	100%	Approved BHEL Spec./Drawing/datasheet	Approved BHEL Spec./Drawing/datasheet	IR	√	2	2	1	

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICAT REVIEW. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY/END USER/END USER'S REPRESENTATIVE & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.