



Ranipet

**MANUFACTURER NAME
AND ADDRESS:**M/S BHEL / QUALITY
DEPARTMENT/
BAP / RANIPET
TAMIL NADU-632 406

ITEM/SUB SYSTEM:

Air cylinders**STANDARD QUALITY PLAN**

Doc. Ref. No	QP.GAT.449
Rev. No	00
Date	28 02 2012
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Sl no	Component & Operation	Characteristics	Type of Check	Quantum of Check	Reference Documents	Acceptance Norms	Agency		Remarks
							M	B	
1	2	3	4	5	6	7	9		10

I. RAW MATERIAL

1.1	Barrel - pipe	Surface defect, finish	Visual	100%	Approved drawing	Approved drawing /manufacturing drawing	P	-	
		Chemical properties	Chemical test	1/heat	/manufacturing drawing		P	V	
		Mechanical properties	Mechanical test	1/heat			P	V	
1.2	Piston rod	Chemical properties	Chemical test	1/heat/lot	Approved drg./Mfg. drg./ASTM/A	Approved drg./Mfg. drg./ASTM/A	P	V	
		Mechanical properties	Mechanical test	1/heat/lot			P	V	
		Surface defect, finish	Visual test	100%			P	V	
		Internal defects	UT>50	100%	388/A 745	388/A 745	P	V	
1.3	Piston and End covers	Surface defect	Visual	100%	Approved drawing /manufacturing drawing	Approved drawing /manufacturing drawing	P	-	
		Dimensional	Measurement	100%			P	-	
		Mechanical	Tensile	1/heat			P	V	
1.4	Seals	Chemical	Chemicals	1/heat	Approved drawing /manufacturing drawing	Approved drawing /manufacturing drawing	P	V	
		Visual	Visual	100%			P	V	
		Dimensional	Measurement	100%			P	V	
		Hardness	Shore hardness	10%			P	V	

II . INPROCESS INSPECTION

2.1	Machining of components	Dimensional Conformity	Visual	100%	Approved /manufacturing drawing	Approved /manufacturing drawing		P	
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							M	B	9	
2.2	Barrel-pipe	Inside finishing	Measurement	100%	Mfg drg./std	Mfg. drg./std/approved drawing	P	V		10
		Soundness	Hydro test	1/lot	2xworking Pr Or 1.5Xdesign Pr whichever is higher	No leakage	P	V		Refer. note:2
		Inside coating thickness	Measurement	100%	Approved drawing /data sheet /mfg drg	Approved drawing /data sheet /mfg drg.	P	V		
2.3	Piston rods	Hard chrome plating thickness (as applicable)	Measurement	100%	Approved drawing /data sheet /mfg drg	Approved drawing /data sheet /mfg drg	P	V		

III. FINAL INSPECTION

3.1	Operational test	Operation (10cycles)	Movement /cushion	100%	Approved drawing /data sheet /mfg drg. Approved drawing /data sheet /mfg drg	Satisfactory performance	P	W	
	Leakage test	Leakage at 150 PSI &Working pressure	Leakage test with compressed air	100%			P	W	
	Dimension	Measurement	Measurement	100%		Approved /mfg. drawing	P	W	
	Stroke length	Measurement	Measurement	100%		Approved /mfg. drawing	P	W	

- When back wall echo (BWE) set to 100% full screen height (FSH), a defect echo >20% FSH in not acceptable. Also loss of BWE >20% is not acceptable.
- For barrels where hydro test report of mother pipe is not available
All materials /information shall be as per approved drawing data sheet. In case not mentioned in the approved drawing /data sheet, then manufacturing drawing /data sheet shall be applicable.
- All reports shall be submitted along inspection clearance.

LEGENDS:

M - MANUFACTURER / SUBCONTRACTOR B - BHEL / AUTHORIZED INSPECTION AGENCY P -
PERFORM ED, V - VERIFICATION, W - WITNESS, R - REPORT
T C - TEST CERTIFICATE, C: - CUSTOMER

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