		BHEL HYDERABAD-32		STANDARD QUALITY PLAN					QP No. : HYQA /06/ 2347				
				ITEM: HI- FIN TUBES					Rev. 01				
				BHEL Spec. No. : HE 51179 Rev. 02			BHEL Drg. No. : As per P.O.		Date : 09-01-2008				
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
										S	M	C	
	RAW MATERIAL												
1	Bare Tube (at Sub-vendors works) (Pl. see Note 5)	a) Chemical	Major	Chem.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	V	V	Note 1
		b) Tensile Properties	Major	Mech.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	W	W	
		c) Heat treatment (Solution annealing / Temper Annealing) *	Major	Heat Treatment	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	V	V	*As applicable
		d) Eddy Current Testing	Major	NDE	100%	ASTM E243/ E426	ASTM E243/ E426	Sub vendor TC	✓	P	W	W	
		e) Hydrostatic Test	Major	Hydro	100%	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	W	W	
		f) Flattening Test	Major	Mech.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	W	W	
		g) Drifting Test	Major	Mech.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	W	W	
		h) Hardness Test	Major	Mech.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	W	V	
		i) Mercurous Nitrate Test / Ammonia vapour cracking test #	Major	Micro.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	V	V	# As applicable
		j) Micro. Examination	Major	Micro.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	V	V	
		k) Dimensional exam.	Major	Measurt.	100%	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	W	V	
1.2	Copper / Aluminium Fin (at	Chemical Properties	Major	Chemical	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC	✓	P	V	V	Note 2

Legend: *D- Documents marked (✓) to be included by Supplier in Documentation Package.

S - Sub Vendor

P - Perform

C of C : Certificate of Compliance

M - Vendor / Manufacturer

W - Witness

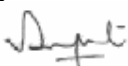
Mfr. : Manufacturer

C - BHEL/ Third Party Inspection Agency

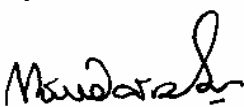
V - Verify


Measurt. : Measurement

Prepared by :


D.S.SATPUTE
DGM / QA

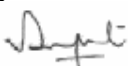
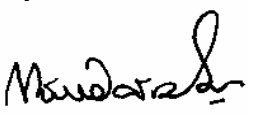
Approved by :


M. SUNDARA SIVA RAO
SR. DGM / QA

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										S	M	C	
	Manufacturer's works)	Mechanical Properties	Major	Mech.	As per Spec	P.O & Spec	P.O & Spec	Sub vendor TC		P	V	V	
		Dimensional exam.	Major	Measurt	Random	P.O & Spec	P.O & Spec	Sub vendor TC		P	V	V	
2.0	IN PROCESS INSPECTION												
2.1	Tubes & Fin material	a) Material identification & correlation with TC	Major	Visual	100%	P.O & Spec	P.O & Spec	Sub vendor TC			P	W	CHP
		b) Dimensional exam.	Major	Measurt	Random	P.O & Spec	P.O & Spec	Sub vendor TC			P	V	
2.2	Finning of Tubes and Circlip Fixing	Checking of Fin OD, Fins/ inch, Overall length, Unfinned length etc	Critical	Measurt	20%	Drg.	Drg.	Mfr. TC	✓		P	W	
2.3	Finned Tubes	Pull out test at 3 Kg / cm ²	Major	Measurt	1% of Tubes	P.O & Spec	P.O & Spec	Mfr. TC	✓		P	W	
2.4		Hydrostatic Test of Finned Tubes at 20 Kg/cm ²	Critical	Hydro	100%	Drg.	No leakage	Mfr. TC	✓		P	W	
3.0	Packing & despatch	a) Verification of all TCs for completion	Major	Visual	100%	P.O & Spec	No leakage	Mfr. TC			P	V	
		b) Identification, preservation, providing end caps & packing	Major	Visual	100%	PO / Drg	PO / Drg	Mfr. TC			P	V	Note 3

Notes:

- 1) Material specification for tubes shall be Stainless Steel / Carbon Steel / Admiralty Brass / Curpo Nickel as per P.O.
- 2) Material Specification for Fins shall be Aluminium / Copper as per P.O.
- 3) Tubes shall be suitably packed such that the packing case as well as Tubes shall be capable of withstanding mechanical damages during transit.
- 4) Project specific requirements, if any, as per P.O. shall also be complied with.
- 5) Bare tubes shall be procured from BHEL approved sources only.

Legend: *D- Documents marked (✓) to be included by Supplier in Documentation Package. S - Sub Vendor P - Perform C of C : Certificate of Compliance M -Vendor / Manufacturer W - Witness Mfr. : Manufacturer C - BHEL/ Third Party Inspection Agency V - Verify Measurt. : Measurement				Prepared by :  D.S.SATPUTE DGM / QA		Approved by :  M. SUNDARA SIVA RAO SR. DGM / QA	
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