

MANUFACTURER'S NAME AND ADDRESS		STANDARD QUALITY PLAN				TO BE FILLED BY BHEL					
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS			REMARKS
								M	B	N	
1	2	3	4	5	6	7	8	9	10	11	
ITEM		Turbine Oil Coolers (Plate Type Heat Exchangers)				QA/BE/QP/346./Koderma		Page 1 of 3			
DRG. NO.		As per PO				QP No.: 00					
SPEC NO.:		HE57075 & DOC. NO. HXE/SK/2379				Rev. No.:					

1.0 Incoming Raw Material / BOIs Inspection:												
1.1	Plates (Frame Plates) & Pressure Plates), Lower & Upper Guiding Bar, Support Column	Mechanical Properties	Major	Mechanical	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	MTC	V	P	V	Correlated Mill Test Certificates (MTCs) to be Provided for Verification.
		Chemical Properties	Major	Chemical	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	MTC	V	P	V	
		Dimensions	Major	Measurement	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Inspection Report	V	P	V	
		Workmanship and finish	Major	Visual	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Inspection Report	V	P	V	
1.2	Connection Flange with Pipes.	Lamination (applicable for frame and pressure plate only)	Critical	Ultrasonic	100%	TG 60591		Inspection Report	V	P	V	Applicable for Plate Thickness More Than 25 mm only.
		Mechanical Properties	Major	Mechanical	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	MTC	V	P	V	Correlated MTCs to be Provided for Verification.
		Chemical Properties	Major	Analysis	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	MTC	V	P	V	
1.3	Heat Transfer Plates	Dimensions	Major	Measurement	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Inspection Report	V	P	V	
		Mechanical Properties	Major	Mechanical	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	MTC or Lab Test Report	V	P	V	Correlated MTCs to be Provided for Verification.
		Chemical Properties	Major	Analysis	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	MTC	V	P	V	
1.4	Gaskets	Dimensions	Major	Measurement	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Inspection Report	V	P	V	
		Mechanical Properties	Major	Mechanical	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	TCS	V	P	V	
		Chemical Properties	Major	Analysis	1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS		V	P	V	

 MAIN CONTRACTOR/ MANUFACTURER/	Digitally signed by Nishant Kumar	LEGEND: ! RECORDS IDENTIFIED WITH 'TICK' (✓) SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER ADS: BHEL APPROVED DATA SHEET INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER	FOR CUSTOMER USE	APPROVED BY

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1	2	3	4	5	6	7	8	9	D	10	11
		Turbine Oil Coolers (Plate Type Heat Exchangers)		QP No.:	QA/BE/QP/346./Koderma	Page 2 of 3					
		As per PO		Rev. No.:	00						
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1.5	Tightening bolts and nuts, drain and vent valves	Material, Dimensions, Workmanship and Finish, Contour & Hardness Mechanical Properties Chemical Properties	Major Major Major	Visual & Measurement Mechanical Analysis	100% 1 Per Heat / HT Batch 1 Per Heat / HT Batch	HE57075/ BHEL Appd drg / ADS HE57075/ BHEL Appd drg / ADS HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS HE57075/ BHEL Appd drg / ADS HE57075/ BHEL Appd drg / ADS	TCs MTC or Lab Test Report MTC	V P V V P V V P V	V V V	
2.0	In Process Inspection:										
2.1	Heat Transfer Plates	Plate Pressed in Single Operation Gasket Groove Depth on each Plate Workmanship and Finish Surface Defects and Cracks	Major Major Major Critical	Visual Visual & Measurement Visual Light Box / Vacuum Chamber Test & DP Test	100% 100% 100% 100%	Vendor's Procedure Vendor's Procedure ----- Approved Procedure	Vendor's Procedure Vendor's Procedure No Scratches, Crack, etc Approved procedure	Inspection Report Inspection Report Inspection Report Test Report	V P V V P V V P W V P W	V V W W	V V Gasket Groove in each Plate Should be able to Support The Gasket from three Sides BHEL approved Test procedure to be followed (* 10% of total order quantity) Approved WPS Shall be used For Welding
2.2	Welding Procedure Specification (WPS)	Correctness	Major	Process	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Records	V P V	V	Approved WPS Shall be used For Welding
2.3	Procedure Qualification Records (PQR)	Suitability	Major	Visual	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Records	V P V	V	
2.4	Welder Performance Qualification	Welder Performance Soundness of Welds	Major	Visual / RT & Mechanical	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Records	V P V	V	NOTE

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DRG. NO.		As per PO		Rev. No.:	00	8		9		M B N		
SPEC NO.:		HE57075 & DOC. NO. HXE/SK/2379		TYPE OF CHECK	5	QUANTUM OF CHECK	6	REFERENCE DOCUMENT	7	D	10	
CHARACTERISTICS		CLASS		3		4		7		10		11
COMPONENT & OPERATIONS		2		5		6		8		10		

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY	REMARKS
2.5	Welding	Welding Joint Soundness	Major	Visual	100%	HE57075/ BHEL Appd drg / ADS	No Defects	Inspection Report	V P V	V
		Fillet Welds	Major	DPT	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Test Report	V P V	V
		Butt Welds	Major	RT	10%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Test Report	V P V*	V *Film Review
2.7	Plate Gaskets	Presence of Gaskets	Major	Visual	100%	Mfg. Spec	Mfg. Spec	Inspection Report	V P -	-
2.8	Plate Arrangement to Flow Diagram	Correctness	Critical	Visual as Per Flow Diagram	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Inspection Report	V P V	V
3.0 Final Inspection:										
3.1	Complete Assembly	Conformance to Drawing	Major	Measurement	100%	HE57075/ BHEL Appd drg / ADS	HE57075/ BHEL Appd drg / ADS	Inspection Report	V P W	W
3.2	Hydraulic test – (Primary & Secondary Side)	Leakage	Major	Hydraulic	100%	HE57075/ BHEL Appd drg / ADS	No Leakage	Test Report	V P W	W
3.3	Painting	Shade & Dry Film Thickness (DFT)	Major	Visual & Measurement	100%	HXE/SK/2379.		Inspection Report	V P W	W
4.0 Identification, Marking & Inspection:										
4.1		Identification, Marking & Packing	Major	Measurement & Visual	100%	HE57075/ Approved Drawings	HE57075/ Approved Drawings	Internal Records	V P V	V

NOTE: 1 – Welding to be done by qualified welder and approved welding procedures.

2.All material of construction shall be as per BHEL approved drawing/datasheet meeting BHEL technical specification requirements.

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