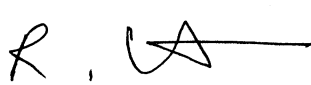


QUALITY DEPARTMENT	
Amendment to Quality Work Instructions (SQP)	
QWI NO:SQP 312 REV: 02	DT. 13 03 2015
Amendment no: A1	DT. 16 11 2016
Description : <i>Standard quality Plan for LUB OIL SYSTEM FOR FANs.</i>	

Details of Amendment		
Sl.no.	Amended As	Basis For Amendment
Note 4	Following are added to the existing note. The manometers of the local pressure indicators should be glycerin filled manometers to have better dampening.	Revised based on Bellary & Yeramarus site feedback.

Prepared by	Reviewed and Approved By
 Rakesh kr madhu(SEr/QA)	 R. Arunachalam (SM/QA)



MANUFACTURER'S NAME &
ADDRESS
M/S BHEL: BAP: RANIPET
TAMIL NADU-632 406

MANUFACTURING QUALITY PLAN

Item/subsystem:

LUB OIL SYSTEM FOR FANS

QP: No: **SQP:312**
Rev No: **02**
Date: **13.03.2015**
Page: **1 OF 4**

Project & Package: **Standard**

SL NO 1	COMPONENT & OPERATION 2	CHARACTERISTICS 3	Class 4	TYPE OF CHECK 5	QUANTUM OF CHECK 6	REFERENCE DOCUMENTS 7	ACCEPTANCE NORMS 8	FORMAT OF RECORD 9	Agency 10			REMARKS 11
									M	C	B	

1.0	SUB DELIVERIES (Bo/s)		MAJOR	AS PER COLUMN 3	100%	RESPECTIVE PO SPEC		TC	P	V	V	
1.1	LT MOTOR, COOLER, FILTER, FLEXIBLE HOSE, LEVEL SWITCH, PRESSURE GAUGE/SWITCH, TEMPERATURE GAUGE, DP GAUGE/ DP SWITCH, VALVES, PUMP.	RESPECTIVE TESTS AS PER REPECTIVE P.O SPEC.										
2.0	INPROCESS INSPECTION	a) WELD** QUALITY	MAJOR	PT	100%	## ASTM E 165		REP	P	V	V	** WELDERS & PROCEDURES ARE QUALIFIED AS PER AWS D.1.1/ASME SEC IX
2.1	TANK FABRICATION	b) DIMENSIONS	MAJOR	MEASUREMENT	100%	DRAWING		REP	P	V	V	## DEFECTS LIKE PIN HOLES, UNDER CUTS, LINEAR INDICATIONS ARE UNACCEPTABLE.
2.2	TANK WATER FILL TEST	SOUNDNESS	MAJOR	VISUAL	100%	NO LEAK IS PERMITTED		REP	P	V	V	\$ DFT WITNESS DURING FINAL INSPECTION
2.3	SURFACE PREPARATION & PAINTING	SURFACE PREPARATION & PAINT DFT	MAJOR	VISUAL & MEASUREMENT	100%	REFER GENERAL GUIDELINES (Point 1 & 2)		REP	P	W	\$	

LEGENDS:

M - Manufacturer / Sub vendor
C: vendor
B - BHEL /BHEL Authorized Inspection Agency,
W - Witness, TC - Test certificate, DR - Dimensional report,
CHP-Customer Hold point, REP: Report
V - verification of test reports.

Prepared by		Approved by	
	Reviewed by		



Ranipet

MANUFACTURER'S NAME &
ADDRESS
M/S BHEL: BAP: RANIPET
TAMIL NADU-632 406

MANUFACTURING QUALITY PLAN

Item/subsystem:

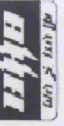
LUB OIL SYSTEM FOR FANS

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Project & Package: **Standard**

SL NO 1	COMPONENT & OPERATION 2	CHARACTERISTICS 3	Class 4	TYPE OF CHECK 5	QUANTUM OF CHECK 6	REFERENCE DOCUMENTS 7	ACCEPTANCE NORMS 8	FORMAT OF RECORD 9	Agency 10			REMAR KS 11
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3.0	FINAL INSPECTION		MAJOR	VISUAL & MEASUREMENT	100%	DRAWING		REP	P		W	
3.1(a)	ROUTING & ASSY OF COMPONENTS	VERIFICATION & DIEMNSIONS	MAJOR	MEASUREMENT	100%	BHEL PUR SPEC		REP	P		W	
3.1 (b)	PERFORMANCE TEST AT RATED PRESSURE	a) MEASURE- MENT OF DISCHARGE	MAJOR	VISUAL	100%	-DO-		REP	P		W	
		b) SMOOTH OPERATION	MAJOR	VISUAL	100%	-DO-		REP	P		W	
		c) VERIFICATION OF SET POINTS OF PRESSURE & DP SWITCHES	MAJOR	VISUAL	100%	-DO-		REP	P		W	
		d) VERIFICATION OF SET POINTS OF RELIEF VALVE (FD, ID & PA FANS)	MAJOR	VISUAL	100%	-DO-		REP	P		W	
		e) VERIFICATION OF LEAKAGE	MAJOR	VERIFICATION	100%	NO LEAK		REP	P		W	
3.1(c)	LEAKAGE TEST AT 1.5 TIMES WORKING PRESSURE	VERIFICATION OF LEAKAGE	MAJOR	VISUAL	100 %	NO LEAK		REP	P		W	
3.2	PAINING & PACKING	IDENTIFICATION & PRESERVATION	MAJOR	VISUAL	100%	BHEL PUR SPEC		REP	P		V	

 Ranipet		MANUFACTURER'S NAME & ADDRESS M/S BHEL: BAP: RANIPET TAMIL NADU-632 406		MANUFACTURING QUALITY PLAN					Project & Package: Standard		
		LUB OIL SYSTEM FOR FANS			Item/subsystem: Q.P. No: SQP:312 Rev No: 02 Date: 13.03.2015 Page: 3 OF 4						
SL NO 1	COMPONENT & OPERATION 2	CHARACTERISTICS 3	Class 4	TYPE OF CHECK 5	QUANTUM OF CHECK 6	REFERENCE DOCUMENTS 7	ACCEPTANCE NORMS 8	FORMAT OF RECORD 9	Agency 10 M C B		REMARKS 11

GENERAL GUIDE LINES:-

1. Tank inside paint:

- Surface preparation: Blast cleaning to Sa2 1/2.
- Primer coating: Epoxy zinc rich primer to IS 13238- DFT 40 µm min.
- Finish coating: Epoxy glossy finish paint (oil resistant type)- DFT 35 µm min. (White shade)

2. Tank outside paint (unless specified otherwise following paint shall be adopted)

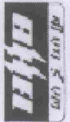
- Primer: Red oxide zinc phosphate paint to IS 12744 - DFT 25 µm min.
- Finish paint: Synthetic enamel paint to IS 2932- Smoke gray – Shade 692 of IS5 – DFT 20 µm min.
- Total DFT shall be 45 microns minimum.

3. PIPES AND FITTINGS

- Acid clean the pipes by filling the pipes with 10% V/V orthophosphoric acid after plugging one end suitably.
- Keep the solution for about three hours.
- Prepare a neutralizing solution with washing soda (sodium carbonate) and water (500 gms of washing soda for 10 liters of water). Rinse the acid cleaned pipelines with neutralizing solution several times. After neutralization, dry the tubes by compressed air. Then rinse with lubricating oil.

4. INSTRUMENTS, CABLES AND ROUTINGS.

- Ensure the proper alignment between motor and pump during the assembly with coupling.
- Ensure the correct wiring in the junction boxes meant for instrument control cabling and power control cabling as per wiring diagram.
- Cables up to junction box shall be routed through flexible conduits.
- Support the cables in cable trays.
- All the control cabling into junction boxes shall be identified with tags.

 MANUFACTURER'S NAME & ADDRESS M/S BHEL: BAP: RANIPET TAMIL NADU-632 406 Ranipet			MANUFACTURING QUALITY PLAN Item/subsystem: LUB OIL SYSTEM FOR FANS					QP: No: 5QP:312 Rev No: 02 Date: 13.03.2015 Page: 4 OF 4			Project & Package: Standard		
SL NO 1	COMPONENT & OPERATION 2	CHARACTERISTICS 3	Class 4	TYPE OF CHECK 5	QUANTUM OF CHECK 6	REFERENCE DOCUMENTS 7	ACCEPTANCE NORMS 8	FORMAT OF RECORD 9	Agency 10 M C B		REMARKS 11		

- All indicating instruments and switches with their respective root valves shall be mounted on a common panel on the tank.
- Metallic name plates of the respective components indicating the make, model number etc., shall be available in the respective equipment.
- An anodized plate showing the lub oil system drawing shall be provided on the tank.
- Verify for the current drawn at operation pressure.
- Indicate the direction of fluid on the pipelines.

5. PACKING AND PRESERVATION

- Lub oil system shall be properly packed as per applicable packing drawing.
- The lifting location shall be indicated by painting.
- Provide sufficient amount of silica gel in the packing box.
- Mark the identification details of the system on the oil tank.

Note:

- Easy access & space for maintenance of filter, cooler & heater shall be provided.

Rev 00	dt 12 01 01	Original issue.
Rev 01	dt 08 03 06	Totally modified based on COA feedback.
Rev 02	dt 13 03 15	Clause 2.3 Painting of oil tank inside witness by BHEL incorporated based on site feed back. Note-1 added.