

**INSPECTION, TESTING AND CERTIFICATION OF PRESSURE VESSELS, HEAT EXCHANGERS AND  
GAS STORAGE FACILITY**

Ultrasonic testing, External & Internal Examination and Certification of Pressure Vessels / Air Receivers and Heat Exchangers as per Karnataka State Factories Act Rule 65(7)a(i)

- A. Pressure Vessels / Air Receivers, Qty=11 nos
- B. Heat Exchangers, Qty=20 nos
- C. R&D Engine Test Gas Storage Facility, Qty = 1 no.

**Scope of Work:**

- 1.The firm has to carry out Ultrasonic Testing to evaluate optimal gauge thickness, External examination i.e., Safety valve, Pressure switch, Pressure Gauge checking etc., Internal examination for corrosion, wear out parts, painting / coating etc., and Certification of each Receiver/ Vessels all as per requirement of the KARNATAKA FACTORY RULES.
- 2.The firm should be authorized / Approved by the Inspector of Factories to carry out the testing of Pressure Vessels /Plant.
- 3.While carrying out the above work, BEML will provide minimum possible assistance only and if any additional man power required, the same should be arranged by the firm.
- 4.Firm has to bring all the necessary equipments like Ultrasonic test equipment / Gauges etc. for to carry out the above work. and any consumables required during the testing should be brought by the firm.
- 5.All Safety precautions should be taken during testing and BEML is not responsible for any accidents occurred during testing. Any damages occurred during testing should be made good by the firm.
- 6.Firm has to carry out the above testing one air receiver/ Vessel / Heat exchanger at a time.
- 7.Work should be completed within 30 days from the release of purchase order.
- 8.Inspection / Test certificates to be furnished for all the items as per the requirement of the KARNATAKA STATE FACTORY RULES.
- 9.Payment after work completion and Certification by Safety Officer & Dept. Head Plant Engg.

**Other Terms:**

1. Work involved is labour charges only. Firm is Responsible for Supervision/overseeing the activities of Work and is responsible for SAFETY of their Workmen.
2. Firm has to take full responsibility for Any Injury/Accident to their workman during working inside BEML Premises. BEML Ltd. in anyway is NOT RESPONSIBLE.
3. Firm has to arrange for coverage of ESI & PF for its persons or Should furnish Valid Accidental Insurance Policy issued from Govt. Insurance Companies & an Undertaking in BEML Format for all the persons engaged in work.

**List of Pressure Vessels, Heat Exchangers and Test Gas Storage facility available in Engine Division**

Sl no.	Location	Description of Pressure Vessels & Heat Exchanger	Connected to Equipment	Remarks
01	Near mechanical maintenance dept.	Air Receiver Vertical : Cap 3 Cubic Mtr, KPC part no. 1380103650 mfg. slno. UEW 092654 Design Code: IS 2825	Kirloskar Air Compressor Model : KES-55-V Mfg. : Sept 2008	Cap: 3 cub M
02	Outside Engine Assembly shop	Air Receiver Tank ( Vertical ) 2000 Ltr, Model: SR200 DA slno. 1102 SR0018	For Pneumatic Operation – fitted to Air line	Cap: 2000 Ltr
03	Behind Compr. House	Air Receiver Vertical No.1 : Cap 2 Cubic Mtr.	Kirloskar Air Compressor Mfg. year : May 1990	Cap: 2 cub M
04	Behind Compr. House	Air Receiver Vertical No. 2 : Cap 2 Cubic Mtr	Kirloskar Air Compressor Mfg: Jan 1990	Cap: 2 cub M
05	MAG HMC	Air Receiver Vertical : Cap 500 Ltr Part No. : 9096-405200 Job No. : RO 703600	Atlas Copco Compressor Model: GA 15 Mfg. : March 2007	Cap: 500 Ltr
06	Engine Assly.	Air Receiver Vertical Part / Fab no. 1092		Cap: 500 Ltr
07	Engine Assly.	Air Receiver Vertical Part / Fab no. 1093		Cap: 500 Ltr
08	Aerospace Divn	Air Receiver Vertical Part / Fab no. 1094		Cap: 500 Ltr
09	Compressor Room	Air/Oil Receiver Vertical	Compressor No. 4 Kirloskar 350cfm	Cap: 47 Ltr
10	Aerospace Divn	Air/Oil Receiver Vertical	Compressor No3 Atlascopco 100cfm	Cap: 15 Ltr
11	m/c shop 1 <sup>st</sup> bay	Heatless Desicant Dryers Model: DP-192 Slno. 9907 D-1250	Air Dryer – 1 set of 2 towers	Cap: 192 cub M/ Hr
12	Compr. Room	Air Receiver NO: PNE MT 89105 VOL: 30 Ltrs, Size: 300 mm Dia X 520mm Ht, TK Shell / Dish : 6mm	Atlas copco screw compressor No. 865223 type: GA 1107 Sl.No.: PNE 865220 mfg. : 1989	Air Receivers. Air / Oil Receivers & Heat Exchanger 01 & 02 connected to AtlasCopco Screw Compressor Unit no. 865223
		Air Receiver NO: PNE AR 89105 Mfg. year: 1989 VOL: 118 Ltr, Size: 400 mm dia X 1075 mm Ht, TK Shell/ Dish: 6mm	Atlas copco screw compressor No. 865223 type: GA 1107 Sl.No.: PNE 865220 mfg: 1989	
		Heat Exchanger – 01 : Air Cooler TK: 5mm Size: 170 mm Dia X 680 mm LG	Atlas copco screw compressor No. 865223 type: GA 1107 Sl.No.: PNE 865220 mfg: 1989	
		Heat Exchanger – 02: Oil Cooler – TK: 5mm Size: 225 mm Dia X 1300 m LG	Atlas copco screw compressor No. 865223 type: GA 1107 Sl.No.: PNE 865220 mfg: 1989	
		Oil Receiver NO: PNE OR 89105 VOL: 145 Ltr, Size: 400 mm Dia X 1300 m Ht, TK Shell / Dish : 6mm	Atlas copco screw compressor No. 865223 type: GA 1107 Sl.No.: PNE 865220 mfg: 1989	

Sl no.	Location	Description of Pressure Vessels & Heat Exchanger	Connected to Equipment	Remarks
13	Compr. Room	Air Receiver NO: PNE MT 89106 VOL: 30 Ltr Size: 300 mm Dia X 520 mm Ht, TK Shell / Dish: 6mm	Atlas copco screw compressor No. : 865222 type: GA 1107 STD mfg. year: 1989	Air Receivers. Air/Oil Receiver & Heat Exchanger 03& 04 connected to AtlasCopco Screw Compressor Unit no. 865222
		Air Receiver NO: PNE AR 89106 VOL: 118 Ltr, Size: 400 mm Dia X 1075 mm Ht, TK Shell / Dish: 6mm	Atlas copco screw compressor No. : 865222 type: GA 1107 STD mfg. year: 1989	
		Oil Receiver NO: PNE OR 89106 VOL: 145 Ltr, Size: 400 mm Dia X 1300 mm Ht, TK Shell / Dish : 6mm	Atlas copco screw compressor No. : 865222 type: GA 1107 STD mfg. year: 1989	
		Heat Exchanger -01 : Air Cooler TK : 5mm, Size: 170 mm Dia X 680 mm LG	Atlas copco screw compressor No. : 865222 type: GA 1107 STD mfg. year: 1989	
		Heat Exchanger – 02 : Oil Cooler – TK: 5 mm Size: 225 mm Dia X 1300 mm LG	Atlas copco screw compressor No. : 865222 type: GA 1107 STD mfg. year: 1989	
14	Testing Cell : TC-01	Heat Exchanger : 01 & 02 Intake Vessel -01 , TK: 6 mm Size: 325 mm Dia X 1140 mm LG Main Vessel -02, Model: 010-054, slno. : 1159, TK : 5 mm Size: 420 m Dia X 1670 mm LG	TC-01 Engine Radiator Cooling  Mfg. year : Apr 1990	
15	Testing Cell : TC-02	Heat Exchanger : 03 & 04 Intake Vessel -03, TK: 5 mm Size: 275 mm Dia X 775 mm LG. Main Vessel -04, Model: 012-048, slno. 1158, TK 4.8 mm Size: 410 mm Dia X 1480 mm LG	TC-02 Engine Radiator Cooling  Mfg. year: Apr 1990	
16	Testing Cell : TC-03	Heat Exchanger : 05 & 06 Intake Vessel -05, TK: 6 mm Size: 325 mm Dia X 1140 mm LG. Main Vessel -06, slno. 1157, TK 7.25 mm Size: 410 mm Dia X 2230 mm LG	TC-03 Engine Radiator Cooling  Mfg. year: Apr 1990	
17	Testing Cell : TC-04	Heat Exchanger : 07 & 08 Intake Vessel -07, TK: 5 mm Size: 275 mm Dia X 775 mm LG. Main Vessel -08, Model: W/W 003 Cap: 3.38 – 840 KCA/H TK 4.6 mm Size: 410 mm Dia X 1480 mm LG	TC-04 Engine Radiator Cooling  Mfg. Year: Apr 1990	

Sl no.	Location	Description of Pressure Vessels & Heat Exchanger	Connected to Equipment	Remarks
18	Testing Cell : TC-05	Heat Exchanger : 09 & 10 Intake Vessel -09, TK: 6 mm Size: 325 mm Dia X 1140 mm LG. Main Vessel -10, Model: W / W 002 Cap: 3.38 -840 KCA/H, TK 6 mm Size: 410 mm Dia X 2230 mm LG	TC-05 Engine Radiator Cooling  Mfg. year : Apr 1990	
19	Testing Cell : TC-06	Heat Exchanger : 11 & 12 Intake Vessel -11, TK: 5 mm Size: 275 mm Dia X 775 mm LG. Main Vessel -12, Model: W / W 001 Cap: 3.38 – 840 KCA/H, TK 4.6 mm Size: 410 mm Dia X 1480 mm LG	TC-06 Engine Radiator Cooling  Mfg. year : Apr 1990	
20	Testing Cell: TC-07	Heat Exchangers: 13 & 14 Intake Vessel – 13, Size: 310mm diaX 1275mmLG Main Vessel – 14 Size:220mm diaX1570mmLG	TC-07 Engine Radiator Cooling	
21	Testing Cell: TC-08	Heat Exchangers: 15 & 16 Intake Vessel – 15 Size: 310m diaX1275mmLG Main Vessel-16, Size: 220mm diaX1570mmLG	TC-08 Engine Radiator Cooling	
22	R&D Engine Test Gas Storage Facility	Minimum 6nos. of Gas cylinders, connected to manifold, Pressure gauge, piping between storage room to engine test cell etc. complete facility to be tested		

Firm's Remarks if any:

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Firm's Signature & Stamp