

SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURING OF ALL BLOWERS FOR CONVENTIONAL & 3-PHASE LOCOMOTIVES

SCOPE: - The Schedule of technical requirements (STR) specifies the requirements to be met by vendors who manufacture, test and supply the All Blowers for Conventional & 3-phase locomotives, this STR should be read in conjunction with the CLW,s technical specification for this item. The firm should satisfy themselves having complied with the requirements of the specification and this STR.

(A) M&P Requirements: -

Sl. No.	Description	Capacity	Remarks
1.	Shearing / Power Press M/c	Standard	For shearing / Cutting the job
2.	Profile Cutting / Gas Cutting M/c	Suitable Size	For profile cutting
3.	Welding M/c	350 Amps	For Welding the job.
4.	Grinding Machine	Suitable Size	For surface grinding and smoothing.
5.	Drilling Machine	Up to 1½" dia	For drilling holes of different sizes
6.	Pn. Gun for Rivet welding	Suitable Size	For Rivet joint
7.	Crane / Proper handling / Lifting facility	Suitable Size	Suitable lifting arrgt. for blower fan & motor.
8.	Proper Jig & Fixture, Punching & Labeling Arrgt. Directional Arrow.	Suitable Size	For accurate shaped & size and also for identification/ traceability of the job.
9.	Space Require		For storage of raw material, in process & finished product.

(B) Measuring Equipments: -

Sl. No.	Description	Capacity	Remarks
1.	Vernier Caliper, Micro meter, Scale / Steel Tape	Standard	For measuring of dimension.
2.	Tensile Testing M/c	2000 Kgf	For measuring the Tensile strength.
3.	Sock pulse Meter	Suitable Size	For condition of bearing
4.	Balancing Testing M/c	Suitable Size	Rotor & Blower impeller shall be dynamically balanced.
5.	Vibration Testing M/c	Suitable Size	For vibration test
6.	Air Flow measuring Equip.	Suitable Size	For measuring the air delivery.
7.	Weighing M/c	Suitable Size	For measuring the weight of the unit.
8.	Variable 3- Ø supply	0- 500 V(Ph-Ph)	For apply 3- Ø supply to motor
9.	Tong Tester	Suitable Size	For measuring the starting, running current

(C) Quality requirement:-

1. Input Raw Material – Metallurgical Test is to be done & Sources of raw material to be specified.
2. Stage-wise Inspections are to be done & Check List for the same is to be made.
3. Final Inspection is to be done & Check List for the same is to be made.
4. Welding –quality & Finish are to be ensured at each stage.
5. Valid ISO accredited certificate required.

Dy. CEE/D-I

CEE/Loco

CEE

AEE/D-III

M. Ghosh
10/06/09

12.	Stop watch, Thermometer & Weighing M/c	Standard Size	For measuring Wt., time & temp.
13.	Oscilloscope	Standard	Measuring parameters through curve
14.	Weld Test (DPT, MPI, etc)	Standard	For welding test
15.	Metallurgical Test / Crack Test (UT)	Standard	For Crack Test.

(C) Process Control Requirements: -

Welding	Qualified Welding Process by NABL / Govt. Lab Process	Qualified Welders by NABL / Govt. Lab

M. Chak
10/3/09/09
AEE/D-III

Dy. CEE / D-I May pls recommend for approval of STR please

CEE / Loco

Asst. Secy
7/9/09

CEE

[Signature]
3.10.09

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SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURING OF ALL BLOWERS (EXCEPT OCU) FOR CONVENTIONAL & 3-PHASE LOCOMOTIVES

SCOPE: - The Schedule of technical requirements (STR) specifies the requirements to be met by vendors who manufacture, test and supply the All Blowers (except OCU) for Conventional & 3-phase locomotives, this STR should be read in conjunction with the CLW,s technical specification for this item. The firm should satisfy themselves having compelled with the requirements of the specification and this STR.

(A) M&P Requirements: -

Sl.	Description	Capacity	Remarks
1.	Shearing / Power Press M/c	Standard	For shearing / Cutting the job
2.	Profile Cutting / Gas Cutting M/c	Suitable Size	For profile cutting
3.	Welding M/c	350 Amps	For Welding the job.
4.	Grinding Machine	Suitable Size	For surface grinding and smoothing.
5.	Drilling Machine	Up to 1 1/2" dia	For drilling holes of different sizes
6.	Pn. Gun for Rivet welding -	Suitable Size	For Rivet joint
7.	Crane / Proper handling / Lifting facility	Suitable Size	Suitable lifting arrgt. for blower & motor.
8.	Proper Jig & Fixture, Punching & Labeling Arrgt. Directional Arrow.	Suitable Size	For accurate shaped & size and also for identification/ traceability of the job.
9.	Space Required		For storage of raw material, in process & finished product.
10.	Aluminum Casting facility & turning M/c for all casting impeller.	Suitable Size	Require for all Aluminum Casting impeller

(B) Measuring Equipments: -

Sl.	Description	Capacity	Remarks
1.	Vernier Caliper, Micro meter, Scale / Steel Tape	Standard	For measuring of dimension.
2.	Multimeter, Tachometer, Tong Tester, Meggar	Standard	For measuring of Elec. parameters
3.	Control panel comprising wattmeter, ammeter, voltmeter, frequency meter etc with Variable 3- Ø supply (0-500v) having facility for creating unbalance upto 5%.	Suitable Size	For final testing of blower with motor
4.	Tensile Testing M/c	2000 Kgf	For measuring the Tensile strength.
5.	Sock pulse Meter	Suitable Size	For condition of bearing
6.	Dynamic Balancing M/c	Suitable Size	Rotor & Blower impeller shall be dynamically balanced.
7.	Vibration Testing M/c	Suitable Size	For vibration test
8.	Air Flow measuring meter.	Suitable Size	For measuring the air delivery.
9.	Testing rig	As per IS: 3588	For different type of testing purpose.
10.	Manometer	Suitable Size	For pressure measurement.
11.	ON-OFF timer	Suitable	For starting duty test