

ANNEXURE-A

TECHNICAL SPECIFICATIONS & SCHEDULE OF QUANTITIES

Supply of Driving/Driven (Flywheel) Pulleys of "Vee" Groove Type for Air Compressors and Vacuum Pumps as per Technical Specifications and Schedule of Quantity as given below:

Sr. No.	Item Description	Unit	Qty.
1	Pulley Motor Side (Driver Side) of "Vee" Groove Type for Air Compressor 7506 C1 to C5 as per Drawing No. 1	Nos.	5
2	Pulley Compressor Side (Driven Side/Flywheel) of "Vee" Groove Type for Air Compressor 7506 C1 to C5 as per Drawing No. 2	Nos.	5
3	Pulley Motor Side (Driver Side) of "Vee" Groove Type for Air Compressor 7506 C6 as per Drawing No. 3	Nos.	1
4	Pulley Motor Side (Driver Side) of "Vee" Groove Type along with Taper Lock Bush for Vacuum Pump 7112 P17 & 18 as per Drawing No. 4	Nos.	2
5	Pulley Pump Side (Driven Side) of "Vee" Groove Type along with Taper Lock Bush for Vacuum Pump 7112 P17 & 18 as per Drawing No. 5	Nos.	2

- 1.** The Dimensional Drawing of the pulleys is enclosed separately for reference of bidders. The pulleys shall be manufactured as per IS: 3142 Latest Edition. However this technical specification/reference drawing shall superimpose IS: 3142 wherever deviation between technical specification/reference drawing and IS: 3142 exists.
- 2.** The supplier shall prepare the dimensional drawings and QAP of pulleys and submit for approval of purchaser/DyMM(M), HWPK within 15 days from the date of PO and prior to manufacturing of pulleys.
- 3.** The material of construction of pulleys and Taper Lock Bushes shall be as follows:

Sl. No.	Item	Material of Construction
1	Pulley	IS:210 FG 260
2	Taper Lock Bush	IS:210 FG 260

4. Pre-dispatch Inspection (PDI):

The pre-dispatch inspection of the pulleys and taper lock bushes shall be carried out at the works of the supplier/manufacturer. Supplier shall give 15 days advance intimation for inspection to purchaser so that the deputation of inspector of purchaser can be planned in advance. Following activities shall be arranged by supplier during PDI:

- 4.1 Supplier shall submit mill test certificate for Chemical Composition (Identification) and Mechanical Properties of the material from NABL/Govt. approved lab. Original Mill Test Report shall be submitted to purchaser's Inspector for his review and record. The material of Pulleys and Taper Lock Bush shall comply with the material as mentioned in the above table.
- 4.2 All the Pulleys/flywheels shall be dynamically balanced as per ISO: 1940 Gr 6.3. The speed of all the pulleys/flywheels is 1500 RPM. The dynamic balancing shall be done only by removal of excess mass. Addition of mass for dynamic balancing is not allowed. The dynamic balancing of 01 no. qty. of item Sl. No. 1 & 2 shall be witnessed by inspector of purchaser. The dynamic balancing report of all the Pulleys/flywheels shall be submitted to inspector of purchaser for review and record. The dynamic balancing of all the Pulleys/flywheels shall comply with acceptable limits as given in ISO: 1940 Gr 6.3.
- 4.3. All the castings and machined surfaces shall be Liquid Penetrant Tested as per ASTM Practice E 165. The DP test shall be carried out by ASNT/ISNT competent person. The DP Test report shall be submitted to inspector of purchaser for review and record.
- 4.4 All the Pulleys/flywheels shall be subjected to dimensional check as per approved drawing and witness to inspector of purchaser. Dimensional check report shall be submitted to inspector of purchaser for review and record. Dimensional check shall also include geometrical inspection of V-grooves of pulleys and concentricity as per IS: 3142 Latest Edition.

- 4.5 The allowable tolerances for side wobble and run out (eccentricity) shall be as per IS: 3142 Latest Edition for applicable pulley diameters accordingly.
- 4.6 The true running test of the Pulleys/flywheels shall also be carried out as per IS: 3142 Latest Edition.
- 4.7 The surfaces i.e. other than grooves of the Pulleys/flywheels shall be painted with anti-corrosive paint/coating (Aircraft Grey Color).
- 4.8 The Pulleys/flywheels shall be subjected to visual check. The material shall be free from internal defects and surface defects. Hence the surface shall be free from any pits, cavity, scratch, burrs and other defects. Surface Roughness value at the grooves shall be Ra 6.3 microns.

5. Instructions to Bidders:

- 5.1 The bidders shall submit detailed literature/technical specification of pulleys and taper lock bushes mentioning MOC, Inspection & Testing, Grade of Dynamic Balancing, true running test, side wobble and run out (eccentricity), acceptance to activities of PDI etc along with their technical/commercial offer.
- 5.2 The material shall be delivered to Stores officer, Heavy Water Plant-Kota, via-Kota, Anushakti, Rajasthan-323303.

QUALITY ASSURANCE PLAN

Supply of Driving/Driven (Flywheel) Pulleys of "Vee" Groove Type for Air Compressors and Vacuum Pumps.

Sl No	Stage	Characteristics	Type/check	Quantum	Ref. Doc	Acceptance norms	Forms of Record	Insp. Agency		
								P	W	R
1	Pulleys	Design & Construction	Major	100%	Tender Technical Specifications (Approved Drawing) and IS: 3142 Latest Edition	As per Tender Technical Specifications (Approved Drawing) and IS: 3142 Latest Edition	Conformance Certificate	1/2	-	3
2	Pulleys and Taper Lock Bush	Chemical Analysis & Mechanical Properties	Major	1 sample from each lot	As per IS: 210 Gr FG 260	As per IS: 210 Gr FG 260	Material Certificate from NABL/Govt. approved lab	1	2	2,3
3	--do--	Liquid Penetrant Test	Major	100%	ASTM Practice E 165	ASTM Practice E 165	DP Test Report	1/2	2	3
4	--do--	Dimensional Check and Tolerances	Major	100%	Approved Drawing an Tender Technical Specifications	Approved Drawing an Tender Technical Specifications	Dimensional Check Report	1	2,3	3
5	Pulleys/ flywheels	Dynamic Balancing	Major	Major	ISO 1940 Gr 6.3	As per ISO 1940 Gr 6.3	Dynamic Balancing Report	1	2,3*	3
6	Pulleys/ flywheels	Side wobble and run out (eccentricity) & true running test	Major	Major	IS: 3142 Latest Edition	As per IS: 3142 Latest Edition	Test Report	1/2	3	-
7	--do--	Visual Inspection & Painting	Major	100%	As per tender technical specifications	As per tender technical specifications	Visual Inspection Report	1	2,3	-

LEGENDS:,

P = Performing Agency, W = Witnessing Agency, R = Review of Documents Agency

1 = Sub-Vendor, 2 = Supplier/Manufacturer, 3 = HWP (K) Representative

* Witness to 01 no. qty. of item Sl. No. 1 & 2 and review of Dynamic Balancing Report of all the pulleys.