

## ANNEXURE - 1

### SPECIFICATION OF HEADGEAR SHEAVE WHEEL FOR TURAMDIH VERTICAL SHAFT

1. Sheave Wheel should conform to IS 9239-1979.
2. Sheave Wheel must be as per enclosed Drg. No. MECL/TMD/1-1.
3. Sheave wheel Dia : 2.6 meters.
4. Type : Sheave cast in two pieces (Halves) and bolted together.
5. STATIC ROPE TENSION : 10.8 tonnes (SWL)
6. Dimension and Material  
Specification: As per IS 9239 - 1979 and as per Drg. No. MECL/TMD/1-1.
7. Grooves: Suitable for 26 MM dia. Full locked coil rope.
8. Material of Construction: As per ISI.

### GENERAL REQUIREMENTS

- i) All castings shall be of sound construction and free from blowholes, porosity, hard spots, cold shuts, intrusions and other harmful defects.
- ii) Axles should be carefully machined to specified close tolerances in order to avoid any possible notch effect.
- iii) Spokes shall have firm and sound connection with rim and hub.
- iv) Arrangement shall be made in the in the plummer blocks for lubrication of bearings.
- v) The keyways for sheaves shall be at 90 degrees hub/rim must be securely fixed on the shaft.
- vi) At least two (2 no's) inspection holes of 6mm dia. and plunged with copper rivets shall be provided for measuring the thickness of material in tread. All these holes shall be situated between the spokes and shall be diametrically opposite to each other.

The hub of two pieces of the sheave shall be fastened together by means of four bolts and nuts of suitable size conforming to IS 1363-1967. Special provision shall be made, if required to accommodate these bolts, nuts and lock nuts.

Headgear sheaves shall be marked with the following:-


- i) Identification mark
- ii) Year of Manufacture

Following tests shall be carried out at Central Institute of Mining and Fuel Research (Council of Scientific & Industrial Research), Dhanbad, (A DGMS approved test house) and test certificates shall be furnished along with the consignment of sheaves:-

- i) Non-Destructive testing of Axle Shaft & spokes.
- ii) Balancing test of sheave wheels
- iii) Ultrasonic test of sheave wheel for surface flew & internal crack defects.





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- iv) Proof load test for sheave wheels (This test shall consist of applying a load of three times (at least 32.4 T) the static rope tension at 120 degrees apart in suitable manner and sheaves should not show any deformation or any abnormality after removal of proof load.
- v) Material test certificate of RIM, HUB, AXLE (SHAFT) & SPOKES.

**Material of construction of sheave wheel components**

1. RIM : Grade 25 of IS 210- 1970 Gray cast iron castings (second revision)
2. HUB : Grade 25 of IS 210 – 1970
3. AXLE (Shaft) : Class 4 of IS : 1875 – 1975 Carbon steel billets, Blooms, slabs & bars for forgings (third revision) Or C-45 of IS 1570- 1961 'Schedule for rough steels for general engineering purposes'.
4. SPOKES : Steel Fe 410-S of IS 226-1975 structural steel (standard quality) (fifth revision) Or Steel Fe 570-HT of IS 961-1975 'Structural steel (High Tensile) – (Second revision).
5. Bearing Blocks : As mentioned in Drg, No, MECL/TMD/1-1, Make : SKF (Plummer Block)
6. Bearings & Locating ring: As mentioned in Drg, No, MECL/TMD/1-1, Make : SKF

