Technical specifications of Type: EP-1250/4, Fire Resistant, Anti-Static Rubber Conveyor Belting

1.0	**General Description**				
	Fire Resistant, Anti-static, synthetic fabric reinforced, rubber conveyor belt confirming to IS: 1891 (Part-5): 1993 and IS:1891 (Part-1)1994 for use in surface installations. The belt shall be confirming to the following standards in respect of properties as mentioned below: ISO-340 - Flame Resistance Properties. DIN- 53516 - Abrasion Resistance Properties. ASTM D 624 - For tear strength. IS 1891(Part-V)-1994 - Electrical Resistance & Drum friction test. IS 1891(Part-I)-1994 - Tensile strength & other parameters				
2.0	**Scope of supply:**	**Type**	**Width** (in mm)		
		EP- 1250	1000/1200/1400/1600		
3.0	**Construction:**				
3.1	The Belt shall consist of a carcass having a cover of fire resistant rubber. The carcass shall consist of either one or more plies of woven fabric or solid woven fabric and shall be impregnated with fire resistant rubber or plastic mix. The whole shall either be fused or vulcanized together in a uniform manner.				
3.2	For carcass protection in plied Belting, layer or layers of open-mesh or cords fabric (termed as breaker) may be placed between the cover and the carcass or may be embedded in the cover. Where such a layer is incorporated, it shall be considered to be part of the cover thickness and not counted as a fabric ply. Alternatively, a fabric pile may be integrally woven with a solid woven carcass on either one or both sides, in which case it shall be considered to be a part of the carcass thickness.				
3.3	Type of Edge: Moulded				
4.0	**Fabric (Carcass) :**				
4.1	The fabric used shall be made of Ester / polyamide or any other synthetic material or combination there of evenly and firmly woven and free from manufacturing faults as is normal in the best manufacturing practice.				
4.2	Carcass shall be made of 4 plies of EP-315 type of fabric impregnated with fire resistant rubber compound.				
4.3	The construction of belt shall be amenable for joining the belt through mechanical fasteners also in addition to vulcanizing joints.				
5.0	**General Properties of finished belts:**				
5.1.0	Width :	1000 mm	1200 mm	1400 mm	1600 mm
5.1.1	Width as specified in scope of supply				
5.1.2	Tolerance on width : $\pm$ 1%				
5.2	Type – 1250				
5.3	No. of plies – 4				
5.4	Longitudinal breaking strength – 1250 KN/m				
5.5	Troughability – (35°) 0.11 minimum.				
5.6	Shore 'A' Hardness – 65 $\pm$ 5				
5.7	Elongation at breaking load – 10% (minimum)				
5.8	Elongation at Ref. load – 4% (maximum)				
6.0	**Rubber Cover:**				
6.1	Grade – Fire resistant Anti-static (FRAS)				
6.2.0	Cover thickness – 5x1.5 mm				
6.2.1	Tolerance – 5% on top cover - 0.2mm bottom cover				
6.3.0	Tensile strength – 17 mpa (Minimum)				

6.3.1	Change in Tensile strength after ageing for 72 Hrs at 70° C = + 10% - 20%
6.4.0	Elongation at Break – 350% (Minimum)
6.4.1	Change in Elongation after Ageing for 72 Hrs at 70° C = +10% - 25%
6.5	Abrasion Loss – 175 mm^3(maximum) (As per DIN:53516)
7.0	**Tear Strength: (as per ASTM D624)**
	(a) Angular - 30 N/mm (minimum
	(b) Cresent - 15_ N/mm (minimum)
8.0	**Adhesion Strength (As per IS:1891(part-5):1993)**
8.1.1	Adhesion between adjacent plies :4.5 KN/m (Minimum)
8.1.2	Adhesion between cover and Carcass :3.50 KN/m (Minimum)
9.0	**Fire resistance properties**
9.1.0	Drum Friction Test: (As per IS: 1891 (Part-5):1993 Temperature shall not exceed 325°c during 3 hours test period.
9.2.0	Fire Resistance (flame Test) : (as per ISO:340:1988)
9.2.1	Duration of flame (after removal of burner): The duration of flame shall be less than 45 sec. For each group of 6 tests and no individual value shall be greater than 15 sec.
9.2.2	Non Appearance of flame: No flame shall appear after supply of a current of air at a speed of 1.5 m/Sec.
9.3.0	Electrical Surface Resistance Test (Anti-static test): (As per IS:1891) (Part-5, 1993) 3 x 10^8 Ohms (Maximum)
10.0	**Marking**
10.1	The belt shall be marked at intervals maximum 12 m on the carrying surface as follows:
	(a) Manufacturers name and trade-mark, if any
	(b) Fabric designation:
	(c) Belt designation:
	(d) Character identifying the grades of rubber and / or plastic cover used
	(e) Last two figures of the year of manufacture and
	(f) Number of this standard
10.2	The belt shall also be embossed “For use of SCCL only” on the return side at an interval of 3/6 meters.
11.0	**Packing:** To be packed suitably to avoid damage in transit or during unloading.
11.1	Roll length: 200 meters. **No joints are allowed in the roll of belt.**
11.2	Tolerance : +2% & -0.5%
	Note:- Payment will be per meter as per actual measurement.
12.0	**Guarantee / warrantee:** To extend tonnage guarantee for the EPFR Grade Belt to the extent of Eighty lakh tonnes (**80 lakh tonnes**) or **36 months** from the date of supply, whichever is earlier, subject to proper maintenance of the conveyors by SCCL as per standard engineering practices. In case of premature failure and if it is proved in the joint inspection that the failure is due to manufacturing defect/sub-standard material/design limitations, the firm would reimburse proportionate cost between guaranteed tonnage and actual tonnage handled. Any replacement due to warranty failure will be on free of cost basis after joint inspection within a week days of receipt of intimation.
13.0	Tenderer shall confirm to submit type & Routine test certificates for each roll along with supplies from their inhouse testing lab.
14.0	Tenderer shall furnish the testing facilities available with them / third party arrangements for conducting all the acceptance tests in the presence of SCCL representative.
15.0	Tenderer shall have the facility to offer the full length belt for visual examination

of both the sides of BELT.

16.0 TESTING

a. The belt will be jointly inspected at the firm's works. Based on physical inspection and internal test results of the manufacturer, the belts will be cleared for dispatch.

b. During the inspection, SCCL engineer will select the samples as per IS 1891(Part-1) of 1994.

c. The samples are to be sent to any NABL Accredited Laboratory for testing as per relevant IS at the cost of Manufacturer/ supplier for conducting the type & routine tests as enclosed in Annexure1.

d. Deputation of Engineer to the firm's works is discretion of SCCL.

e. If any sample fails to meet the tolerance value as per IS, two fresh samples from the same belt are to be tested and if both samples passed then the belt is acceptable as per IS 1891(Part-1) of 1994, failing which the firm has to replace the entire consignment of the failed width conveyor on free of cost.

f. The Chief inspector of mines or Inspector of mines may inspect, check and examine the Conveyor belting at any time and may advise to test the belt characteristics. Then the successful tenderer shall get samples tested as per the advice of Inspectorate at M/s. IRMRA (Indian Rubber Manufacturers Research Association, Thane (Affiliated to Ministry of Commerce and Industry) at the cost of manufacturer. Tender shall confirm their acceptance for this condition

17.0 Payment:

Payment will be released for each consignment only after receipt of certificates tested at NABL laboratory and found as per the specifications of purchase order.

18.0 Delivery Schedule:

50% of the order quantity to be supplied within 4 months and balance quantity within 08 months from the date of receipt of purchase order.

19.0 ELIGIBILITY CRITERIA

Offers are invited from Manufacturers of EPFR belts. Manufacturers should submit a copy of valid Manufacturing license/ NSIC/SSI/MSME/Factory/Govt Doc along with the bid for the EPFR belts.

20.0 Provenness Criteria:

Copies of Rate Contract or Firm Order shall not be less than 20% of the tendered quantity with tendered specification or items of higher specifications at least in ONE year period during the last **07 years** from the date of opening of the tender and shall be worked for not less than three years or handled not less than 60 LT of Coal satisfactorily. Performance letter to be submitted along with the offer failing which the offer will be rejected. Self certificate is not acceptable.

G.M.(E&M), CHPs

Annexure I

Sl.no	Type of test			IS Standard
1.	Thickness in mm		Tope cover	IS-1891(Part-I): 1994
			Bottom Cover	
2.	Full thickness Breaking strength, kN/m		Longitudinal (Warp) direction	IS-1891(Part-I): 1994
3.	Elongation at 10% reference Load %		Longitudinal (Warp) direction	IS-1891(Part-I): 1994
4.	Elongation at Break %		Longitudinal (Warp) direction	IS-1891(Part-I): 994
5.	Adhesion strength, kN/m		Top cover to ply	IS-1891(Part-I): 1994
			Bottom cover to ply	
			Ply to ply	
6.	Test on Cover Sheet	Tensile Strength- MPa	Top cover	IS-1891(Part-I): 1994
			Bottom Cover	
7.		Elongation at break %	Top cover	
			Bottom Cover	
8.	Abrasion loss mm^3			IS-1891(Part-I): 1994
9.	Tear Strength- N/mm(min)		Angular	As per ASTM D624
			Cresent	
10.	Heat Ageing Test (at $70^{+/-}1^{o}C$ for 72 hours)	Change in tensile strength %	Top cover	IS-1891(Part-V): 1994
			Bottom Cover	
		Elongation at break %	Top cover	
			Bottom Cover	
11.	Drum Friction test ^{o}C			IS-1891(Part-V): 1994
12.	Electrical Resistance in Ohms		Top cover	IS-1891(Part-V): 1994
			Bottom Cover	
13.	Flame test/Fire Resistivity	Sum of the periods of after flame(s)- Conveyor belt with cover	Logitudinal direction	ISO 340:2013(E)
			Transverse direction	
		No Re-appearance of the flame- Conveyor belt with cover	Logitudinal direction	
			Transverse direction	
14.	Troughability at 35^{o}(min)			IS-1891(Part-I): 1994
15.	Hardness H (Shore'A') $65^{+/-}5$			