



RESEARCH DESIGNS AND STANDARDS ORGANISATION
Manak Nagar, Lucknow-226011

Track Machines & Monitoring Directorate

TM-SM-336(Rev 01 of 2023)
Specification of Chamfering Machine
(Battery Operated)

1.0 Scope: This specification covers the functional and technical requirements of Chamfering Machine (Battery Operated) which is portable equipment used to chamfer holes in the rails. In this specification “Chamfering Machine (Battery Operated)” will be termed as “Machine” for convenience. This specification chiefly covers the technical provisions having no connections with necessary contractual provisions.

2.0 Materials, Processing and Workmanship:

- 2.1 The machine shall be made of light weight metallic/ non-metallic material suitable for working in all weather in India.
- 2.2 The outer surface of the machine shall be well finished, smooth and free from any unwanted projected part. The outer surface shall be free from surface defect like holes, sharp edges, cracks etc.
- 2.3 Each set of machine shall comprise of the chamfering machine without battery, two rechargeable batteries, one battery charger and two chamfering tools.

3.0 Functional Requirements:

- 3.1 The machine shall be light weight, portable and handy so that one person can carry the same with ease.
- 3.2 The operation of the machine shall be easy, safe and user-friendly.
- 3.3 The vibration coming into the operator's hand shall be least and non-hazardous to operator's health.
- 3.4 The design of the machine shall be such that it is compact in one piece and easily gripped by the operator's hand without any extra pressure or specified effort required to hold it during operation.
- 3.5 The machine shall be capable to chamfer the hole in rails up to R-350 (1175 HT). The chamfering shall be uniform around the hole corner /edges.
- 3.6 The machine shall be electrically shock-proof. The battery charger if designed “in-built”, shall have easy fitment with the machine.
- 3.7 The chamfering, when done by grinding or any other means, shall leave smooth surface. The grinding stone/tool shall have easy fitment.
- 3.8 The chamfering tool shall be able to remove minor projections of the edges of the hole as a result of drilling.

4.0 Technical Features:

i.	Chamfering Time	For rails up to R-350 (1175 HT)-20 Sec(Max.)
ii.	Battery backup during operation	Minimum 150 chamfering operations.
iii.	Surface finish	Smooth and even
iv.	Weight (with battery & one chamfering tool)	Maximum 6 kg
v.	Battery life	Minimum 3 years
vi.	Stone/tool size	Suitable to chamfer holes of dia.28 mm to 32 mm.

5.0 INSPECTION:

- 5.1 The inspection of the machine shall be carried out by the purchaser Zonal Railway or any representative/agency authorized by CTE of the Zonal Railway. The cost of inspection and testing shall be borne by the supplier/manufacturer.
- 5.2 After the machine have been supplied at consignee's end the supply shall be considered as complete only after conducting training on operation etc. is provided by the manufacturer/supplier as per clause 9.0.

6.0 Tests at the time of supply (Acceptance Test):

- 6.1 Acceptance tests shall be carried out on the machines, randomly collected from the consignment as per following manner:

SN	Consignment Size	No. of samples to be tested
1.	1-5	1
2.	6-10	2
3.	11-25	3
4.	25-50	5
5.	More than 50	5+1 for every 20 or part thereof beyond 50 nos.

6.2 Acceptance test shall be carried out as per following details:

- (i) **Visual Examination:** Each machines shall be examined for external finish and workmanship.
- (ii) **Field Test:** Each sample shall be tested in field for chamfering of at least 05 freshly drilled holes in R-350 (1175 HT)rail. If R-350 (1175 HT) rail is not available, test can be conducted on R-260/60 kg 90 UTS rail. The chamfering quality and time shall be as per specification. Arrangement for the field test shall be done by the purchaser by mutual agreement with the manufacturer/supplier.

7.0 Warranty & AMC:

- 7.1 Any part of the machine failing or proving unsatisfactory in service due to defective design, material or workmanship within 12 months from the date of commissioning shall be replaced by supplier/manufacturer at his own expenses. If any design modifications is made in any part of the equipment offered, the period of 12 months would commence from the date of such modifications.
- 7.2 During procurement of the machine purchaser railways may go post-warranty AMC with the supplier for a 5 years. This may be incorporated in the tender document as a condition of contract/Tender/Supply. In this connection RDSO report no. TM-227, approved by Railway Board shall be followed.

8.0 Service Facility and Spare Parts (including tools):

- 8.1 Each machine shall be supplied with a complete kit of tools and following spare parts:
- (i) One spare battery and one battery charger
 - (ii) One chamfering tool/stone.
 - (iii)A complete list of tools and a catalogue of spare tools.

- 8.2 The manufacturer shall be responsible for subsequent availability of spares to ensure trouble free service for the normal life of the machine.
- 8.3 The machine shall be supplied with suitable battery with good records of service with wide service network in India. Robust construction & low maintenance cost are of particular importance. The manufacturer shall furnish the information regarding make & model of battery proposed to be used & details of service network and availability of spares in India.
- 9.0 Training and commissioning:**
- 9.1 Adequate training for operation and maintenance of the machine shall be imparted at the rate of one operator per machine which shall be treated as part of commissioning. The training may be imparted either at manufacturer's premises or at consignee depot.
- 10.0 Documentation:**
- 10.1 Operation and Maintenance Manual: Detailed operating and maintenance manual for the machine shall be supplied by the manufacturer with each set of the machine. The operating manual shall contain the instruction for operation, trouble-shooting, maintenance instructions to be followed in the field during normal life of the machine. The maintenance schedules shall also be indicated in the maintenance manual.
- 10.2 Copies of the maker's certificate guaranteeing the performance of the machine shall be supplied along with the delivery of each machine.
- 11.0 Marking and Packing:**
- 11.1 Each machine shall be legibly and indelibly marked with the following details:
- Name and trade mark/brand of the manufacturer.
 - Contact details of manufacturer / supplier.
 - Serial No.
 - Month & year of supply.
- 11.2 The machine along with tools/ spares shall be packed in a suitable case/ plastic molded durable suitcase of convenient size with carrying handle.
- 12.0 Manufacturers/suppliers have sole responsibility to maintain quality of products supplied to Railways.
- 13.0 **Preference to Make in India:** The Government of India policy on 'Make in India' shall be applicable.
