

SPECIFICATION OF CHAMFERING KIT

(No. TM-53 Rev.01 of 2004)

- 1.0 **Scope:** This specification covers essential material and functional characteristics with testing criteria of chamfering kit.
- 2.0 **Reference Drawings:** RDSO Drawing No. TM/ 0512
- 3.0 **Reference Documents:** This specification refers to following Indian standards of the BIS and IRS. These shall be available at the manufacturer's works for reference.

I.S.No	TITLE
(i) 1363 (Pt-1): 92 (Pt.3): 92	Specification for Hexagon head bolts screws & nuts.
(ii) 1367: (Pt-2): 79 (Pt-3): 91 (Pt-6): 80	Specification for fasteners- Threaded Steel
(iii) 7291 : 1981	Specification for high speed tool steel
(iv) 432(Pt.-1) 1982	Specification for Mild Steel and Medium tensile steel bars and hard drawn steel wires.
(v) 7268 : 1974	Specification for 'Click type torque wrench'
(vi) 6129: 1971	Specification for square box wrenches
(vii) 7381: 1986	Specification for hand operated square drive socket wrench
(viii) IRS: T-28	Specification for high tensile bolts and nuts.

4.0 **Technical Features:** The chamfering kit shall comprise of following items:

- (i) High tensile fish bolt 130 x 20mm with nut as per drg.no. TM/ 0512 (Alternately high tensile hexagon head bolt M20x130 with nut as per IS-1367) 1 set
- (ii) Set of 2 High Speed steel chamfering bits (For 32 mm dia holes) 1 set
- (iii) Set of 2 High Speed steel chamfering bits (For 28 mm dia holes) 1 set
- (iv) 19 mm square drive sockets size 32 mm. 02 Nos.
- (v) Set of two packing pieces (sleeves) 01 set
- (vi) T-400 torque -wrench with ratchet mechanism 1.25 m length 1 No
- (vii) Square box wrench of nominal size 19

(if hexagon head bolt is used)

1No

5.0 **General Construction** : Chamfering kit is a tool set used for chamfering and work hardening the sharp edges of the periphery of a fish bolt hole. This tool is used in a pair on both sides of the rail web on the drilled fish bolt hole to be chamfered. The dimensions and assembling of different parts i.e, H.T.S bolt, packing sleeves, chamfering bits and the H.T.S nut shall be as per drg No TM/ 0512.

6.0 **Materials** :

6.1 High tensile steel bolts of square head as per RDSO drg. No. TM/ 0512 and conforming to IRS specification No. T-28 shall be used. Alternatively, high tensile steel hexagon head bolt of size M20 x 130 conforming to IS 1363 (Pt-1) : 1992 and properties conforming to IS:1367 (Pt-3):91 & 1367(Pt-2):79 may be used.

6.2 Chamfering bit shall be of high speed tool steel conforming to IS:7291:1981 and shall be of any one of the seven grades as mentioned in the clause 5 (Table -1) of the specification. Chemical composition and Heat treatment of the chamfering tool shall be as per IS: 7291 : 81 and hardness achieved after heat treatment shall be R.C 62 (Minimum) .

6.3 The high tensile steel nut shall be of M 20 conforming to IS:1363 (Pt-3):1992 and properties shall conform to IS:1367(Pt-6) 1980.

6.4 The square drive socket wrench shall be of size 32 X 19 S and shall confirm to IS:7381:1986

6.5 The packing pieces (sleeves) shall be of mild steel conforming to any of the two grades of IS 432 (Pt-1): 1982.

6.6 T-400 torque wrench shall conform to nominal size 5 of IS: 7268:1974 of length 1.25 M.

6.7 Box wrench shall be of 32 mm size having 19 mm square head conforming to IS 6129:1979.

7.0 **Functional Requirement**.

7.1 The torque wrench shall be able to provide minimum torque of 52 Kgm.

7.2 The chamfering bits and packing pieces (sleeves) shall have good machine finished surface, free from any surface irregularities.

7.3 The chamfering tool shall be able to remove minor projections of the edges of the hole as a result of drilling.

8.0 **Tests**:

8.1 **Type Tests** : The manufacturer shall make available three samples for following type tests.

- (i) Visual & Dimensional check : Dimensions of each of the items of the kit shall be checked and shall confirm the drawing No. TM/ 0512.

2

(ii) Test of Mechanical Properties : Following mechanical properties for these samples shall be checked.

- (a) Hardness of bolt - as per IS: 1367(Pt-3) : 1991
- (b) Hardness of chamfering Tool - as per IS: 7291: 1981(Table-4).
- (c) Tensile strength of bolt - as per IS: 1367 (Part-3) : 1991
- (d) Proof Load of nut - as per IS: 1367 (Part-6) : 1980

(iii) Field test for chamfering operation - This test shall be carried out on 60 Kg or 52 Kg 90 UTS rail pieces on minimum three newly drilled holes. The equipment shall be able to achieve proper chamfering of the edges of the bolt holes.

(iv) The manufacturer shall have facilities for conducting the tests specified in para 8.1(i) and para 8.1 (ii) a & b. Facilities for tests specified in para 8.1 (ii) C & d are also desirable.

(v) The type tests for mechanical properties as listed in clause 8.1 (ii) shall be carried out in the premises of the manufacturer under witnessing of the inspecting official. If the manufacturer does not have the facilities for testing mechanical properties specified in para 8.1 (ii) c & d, the samples shall be sent for these tests to a Govt. approved test house, as decided by the inspecting officials. The samples shall be numbered and duly sealed by the inspecting officials at the manufacturer's premises for sending them to the test house. The manufacturer shall arrange for the testing of the samples at the test house nominated by the inspecting officials. After tests the manufacturer shall obtain certificate from the test house mentioning details of tests conducted, test results, deviations, if any etc. for each of the test samples. All arrangements and expenses in connection with the testing including cost of testing shall be borne by the manufacturer.

8.2 Acceptance Test :

(i) Every bit in the consignment shall be subjected to following acceptance tests :

- (a) Visual & Dimensional check - as per clause 8.1(i)
- (b) Hardness test of chamfering tool & bolt - as per clause 8.1 (ii) a & b.
- (c) Field test for chamfering operation - as per clause 8.1 (iii).

(ii) The acceptance tests, mentioned in para 8.1 (i) and para 8.1 (ii) a & b shall be conducted by the manufacturer for all the instruments in the consignment before despatch. For this purpose each instrument should be duly numbered. Manufacturer shall issue certificate in respect of each instrument that the same conforms to the stipulated dimensions and hardness. The results of hardness test for each instrument of the consignment shall also be furnished in the respective certificate. Any deviation in the test result from the requirement in the specification shall be the cause of rejection of the instrument.

(iii) Whenever the consignee considered if necessary, the hardness test shall be carried out under witnessing of the consignee /inspecting official. If desired by the consignee/inspecting official, the manufacture shall also produce all relevant documents as proof for conformity of the quality of the raw materials used in the instrument and their procurement source. .

9.0 Inspection : The inspection of the instrument shall be carried out as per following para:

- 9.1 Every instrument of the consignment, shall be subjected to visual and dimensional checks as per clause 8.1 (i) by the consignee.
- 9.2 Minimum three samples or 10 percent of the consignment size, which ever is more, shall be randomly picked up by the consignee out of the total consignment and subjected to field test for chamfering operation as per clause 8.1 (iii). In case any of the sample fails in the field test, whole consignment shall be subjected to field test.
- 9.3 In case more than 10% of the samples of the consignment fail either in the visual & dimensional tests or in the field test, the total consignment shall be rejected.

10.0 Guarantee:

- (i) All parts of the instrument shall be guaranteed for satisfactory and trouble free service for a period of twelve months from the date of acceptance of the instrument. In case of any part of the instrument is not able to give satisfactory performance due to defective design, material or workmanship within 12 months from the date of supply, the same shall be replaced by the manufacturer at his own expenses. Further, should any replacement of a part or whole of the instrument, design modification be made in any part of the instrument offered, the period of twelve months would commence from the date of replacement/ modification in the instrument. The manufacture/ supplier shall also provide prompt after sale service.

- 11.0 **Packaging** : The instrument shall be supplied in due packaging in good quality wooden/plastic box as per best trade practice.