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ISO 9001-2015	Document No.:TM/SM/IW dated 09.01.2014 (Rev 02 of 2022)	Version-01	Date Effective From: 08 /06 /2022
Document Title: Specification for Broad Functional requirement of Impact Wrench			



**RESEARCH DESIGNS AND STANDARDS ORGANISATION
Manak Nagar, Lucknow-226011
Track Machines & Monitoring Directorate**

Specification of broad functional requirement of Impact Wrench

(No. TM/SM/IW dated 09.01.2014)

(Rev 02 of 2022)

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1.0 Scope:

This specification covers the functional and technical requirements of Impact wrench mainly used to easily open the jammed/rusted nuts of Fish Bolts and other bolts in plain track, Turn outs, Dead End Siding etc.

2.0 References:

Following codes will be preferred as in this specification:

S.N.	Document No.	Subject
1.	IRPWM	Indian Railways Permanent Way Manual(Latest Version)
2.	ISO 28927-2: 2009 (Amendment-01-2017)	Hand-held portable power tools — Test Methods for evaluation of vibration emission-Part-2: Wrenches, nut-runners and screwdrivers

3.0 Material requirements:

The impact wrench should be compact, robust and light-weight.

4.0 Functional requirement:

4.1 Impact wrench shall be suitable for easily open the jammed/rusted nuts of Fish Bolts and other bolts in plain track, Turn outs, Dead End Siding etc.

4.2 One person shall open the nuts easily.

5.0 Technical Features:

(i)	WEIGHT (Approx.)	less than 6 kg(with attached/ hand-held accessories)
(ii)	LENGTH (Approx.)	40 cm
(iii)	WIDTH (Approx.)	25 cm
(iv)	HEIGHT (Approx.)	30 cm
(v)	Torque range	Need to be able to set user specific torque for various bolt sizes
(vi)	Time required to open/tighten a bolt	Less than 2 minutes

6.0 Tests: Following tests shall be carried out on each Impact wrench:

6.1 Visual & dimensional check:

The impact wrench shall be visually checked. The dimensions shall also be checked as per clause 5.1{(i) to (iv)}.

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6.2 Performance tests:

(i) The sample shall be tested for opening jammed nuts (min.10 in number); it shall also be checked as per reference 2.0 for ease of working with.

(ii)The time required to open / tighten the bolts mentioned above shall be as per clause 5.0 (vi).

(iii) The impact wrench shall be tested to open three different sizes of nuts (each at least five in number) in Turn outs, Dead End Siding etc easily.

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

7.1 Acceptance tests shall be carried out on the samples, randomly collected from the consignment as per following manner:

S.N.	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.

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

a)Visual Examination : Each impact wrench shall be examined for external finish and workmanship as per clause 6.1.

(b)Performance tests (Field Tests): The impact wrench shall be tested as per clause 6.2.

8.0 Manufacturer/Supplier has sole responsibility to maintain the quality of the product supplied to railways and other unit.

9.0. Preference for 'Make in India': The Government of India policy on 'Make in India' or any latest guidelines issued in this regard shall be ensured.

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