



CE CIRCULAR NO. 105

Office of
The General Manager (Engg.)
N. E. Railway
Gorakhpur-273012

No. CE/NER/TRACK CIRCULAR/2007/Pt-II/4A

Date: 08.04.2022

Sub:-Pre-requisites for deployment of Track Machines (Tampers) on Construction projects/other agencies.

To streamline the system of deployment of track machines on projects/works being executed by construction organization/ other agencies, the following procedure shall be adopted in future.

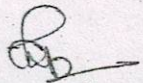
- 1.0. **Construction Organization** shall advise CE/TMC, every year in the month of April, about track machine requirement during the year, in the prescribed Performa attached as **Annexure-A**. For calculating the requirement, average progress of 5 km per day for CSM, 4km for DUO & 5 T/O for UNIMAT shall be assumed in single shift of 8 hrs. **2 rounds** of machine packing shall be carried out before opening the section for the traffic. This requirement shall be reviewed by concerned CE/Const. Quarterly in the months of April, July, Oct & Jan and advised to CE/TMC.
- 2.0. Before deployment of machines, following procedure shall be adopted:
 - a) After Completing the work, as per Para 602 of Indian Railway Track Machine Manual-Sep-2019 attached as **Annexure-B**, Dy. CE/Const. shall inform Sr. DEN/C of the concerned division.
 - b) The Division shall arrange joint inspection of the proposed section at ADENs level, within a week, regarding their readiness for deployment of track machines, The track parameters shall be recorded jointly, Para 520 of NEW IRPWM-JUNE-2020 is also attached as **Annexure-C** for ready reference.
 - c) After due attention wherever required, Dy. CE/Const. shall certify the conditions in "terms of Para 602 of IRTMM 2019"
 - d) CE/Const. concerned shall approach CE/TMC for providing the track machine along with the details of locations on main line, yard & turnouts etc. This shall also include approx. day wise planning for execution of work in a shift of 8 hrs per day.

e) CE/TMC shall obtain the approval of competent authority for diversion of required track machine(s).

f) CE/Const. shall ensure that the track machine(s) are returned back timely to the division after completion (within the allotted time) of the proposed work.

3.0. **The Project organization** (RVNL etc) will assess the requirement of machine as per scale laid down in above Para 1.0 & 2.0 Pre-requisites as per IRTMM and IRPWM may be ensured by Project organizations as well as Construction organizations before deployment of track machines. For convenience and clarity, Project/Construction organizations should submit necessary certifications as per **Annexure-D** to division for joint inspection & requisition of Track Machines.

Enclosures; A, B, C & D

 8/4/22
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Chief Engineer/TMC

Annexure -A

PROGRAMME OF REQUIREMENT OF TRACK MACHINE DURING 2021-22

[illegible]

ANNEXURE-B

602 Pre-requisites for Deployment of Track Machines on Construction Projects/Other Agencies as per IRTMM-2019

(1) Requisite track geometry standards shall be ensured before deployment of track machines on construction projects: -

- (a) Track laying standards in respect of gauge, joints, expansion gaps and spacing of sleepers for the new track as specified in Para 520 of NEW IRPWM-JUNE-2020 should be followed.
- (b) A minimum clean ballast cushion of 250 mm on main line and 150 mm for yard line along with adequate ballast on shoulders and cribs should be ensured before deploying the tamping machines.
- (c) Proper recording of levels and versions should be done by a trained personnel and lift & slews values should also be calculated in advance for lining/ leveling for design mode of tamping.
- (d) The track geometry prior to deployment of track machines for new works of new line, doubling, gauge conversion etc. should be as under: -

Peak value of Unevenness	15 mm on 3.6 m Chord
Peak value of Twist	15 mm on 3.6 m Chord
Peak value of Alignment	15 mm on 7.2 m Chord

- (e) The above track geometry standards are not safety/slow down tolerances but are only a prerequisite for deployment of track tamping machines for better machine productivity and their optimum utilization.
 - (f) For achieving the track geometry parameters as above, suitable small track machines such as off-track tampers etc. may be used. Recording of achieved track parameters should be done using motorized trolleys.
- (2) The track should be certified fit for a speed of 30 kmph before deploying tamping machine.
- (3) On receipt of request from Dy. CE/(C), Sr.DEN will direct joint inspection of track to be done by AEN(C) and AEN/XEN/TM.
- (4) Based on the joint inspection, Dy. CE (C) shall certify the track geometry as mentioned above, before deploying the track machines, after attending to deficiencies, if any. Sectional Sr.DEN/DEN shall confirm suitability of track for deployment of machine(s) by field verification or otherwise before machine is deployed.
- (5) Two rounds of tamping along with consolidation by DTS should be carried out at construction projects prior to opening of section.
- (6) After opening of section for traffic, another round of tamping along with consolidation by DTS may be done on need basis.

ANNEXURE -C

520

New Track Tolerances as per IRPWM-2020 :-

- (1) Utmost care should be taken during linking of track to ensure good quality of work. As a good practice, the laying standards of track geometry for track laid with new Material are as under: (To be measured three months after speed is raised to normal).
- (2) For measurements recorded by TRC.
 - (a) SD Values for Unevenness and Alignment:

Sl. No.	Parameter	Speed upto 100 Kmph	Speed above 100 Kmph; and up to 160 Kmph
1.	UN-1	2.0 mm	1.4 mm
2.	UN-2	-	1.9 mm
3.	AL-1	1.4 mm	1.1 mm
4.	AL-2	-	1.3 mm

- (b) Peak Values for Unevenness and Alignment:

Sl. No.	Parameter	Speed upto 100 Kmph	Speed above 100 Kmph; and up to 160 Kmph
1.	UN-1	6.0 mm	4.0 mm
2.	UN-2	-	6.0 mm
3.	AL-1	4.0 mm	3.0 mm
4.	AL-2	-	4.0 mm

- (3) For measurements recorded in floating conditions:

- (a) **Gauge:**

For new track and through renewal of track, following tolerances would be applicable-

- (i) For straight including curves of radius up to 350 m and more -5 mm to +3 mm
- (ii) For curves of radius less than 350 m Up to +10 mm

- (b) **Other parameters:**

S. No	Parameter	Description of Measurement	Value
1	Gauge	Sleeper to sleeper variation	2 mm
2	Expansion gap	Over average gap worked out by recording 20 successive gaps	± 2 mm
3	Joints	Low joints not permitted High joints not more than Squareness of joints on straight	+ 2 mm ±10 mm
4	Spacing of sleepers	With respect to theoretical spacing	± 20 mm
5	Cross level	To be recorded on every 4 th sleeper	± 3 mm
6	Alignment	On straight on 10 m Chord	± 2 mm
7		Variation over theoretical versines: (On 20 m Chord). On curves of Radius more than 600 m	5 mm
8		Variation over theoretical versines: (On 20 m Chord). On curves of Radius less than 600 m	10 mm
9	Longitudinal level	Variation with reference to approved longitudinal sections.	50 mm

Annexure-D

Compliance of IRTMM and IRPWM before deployment of Track Machines

S.N.	Provision	Certification and field data by AEN/Const, before joint inspection
1	<u>Para 602(1)(a) of IRTMM-Sep-19</u> Track laying standards in respect of gauge, joints, expansion gaps and spacing of sleepers for the new track as specified in Para 520 of IRPWM - June-2020 should be followed.	To be certified by AEN/Const before approaching Division for joint inspection.
2	<u>Para 602(1)(b) of IRTMM-Sep-19</u> A minimum clean ballast cushion of 250 mm on main line and 150 mm for yard line along with adequate ballast on shoulders and cribs should be ensured before deploying the tamping machines.	To be certified by AEN/Const before approaching Division for joint inspection. Minimum 1 reading per TP to be submitted to Division before joint inspection. For T/O min 3 reading per turnout to be submitted.
3	<u>Para 602(1)(d) of IRTMM-Sep-19</u> The track geometry prior to deployment of track machines for new works of new line, doubling, gauge conversion etc. should be as under:- Peak value of Unevenness 15 mm on 3.6 m chord Peak value of Twist 15 mm on 3.6 m chord Peak value of Alignment 15 mm on 7.2 m chord	To be certified by AEN/Const before approaching Division for joint inspection.
4	<u>Para 602(2)(b) of IRTMM-Sep-19</u> The track should be certified fit for a speed of 30 kmph before deploying tamping machine.	To be certified by AEN/Const before approaching Division for joint inspection.

Note:

1. Certifications by AEN/Const. to be verified jointly by AEN/OL
2. Based upon joint verification, Dy. CE/Const to accord necessary certifications in terms of Para 602(4) of IRTMM (Sep-2019). For RVNL projects, CPM shall accord the necessary certifications.
3. Sectional Sr. DEN/DEN shall confirm suitability of track for deployment of track machines.