भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
EPBX (0522) 2451200
Fax (0522) 2458500

Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011
DID (0522) 2450115
DID (0522) 2465310

# PROVISIONAL SPEED CERTIFICATE FOR OPERATION

| No. | TM/HM/11/24/BRM RPB-01 | Date | As signed |
|---|---|---|---|

**(A) महाप्रबन्धक (इंजीनियरिंग),**

1. मध्य रेलवे, छत्रपति शिवाजी टर्मिनस, मुम्बई– 400 001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता– 700 001
3. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली– 110 001
4. पूर्वोत्तर रेलवे, गोरखपुर– 273 001
5. पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव, गुवाहाटी– 781 011
6. दक्षिण रेलवे, एनेक्सी, पार्क टाऊन, चेन्नई– 600 003
7. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद– 500 071
8. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता– 700 043
9. पश्चिम रेलवे, चर्चगेट, मुम्बई– 400020
10. उत्तर मध्य रेलवे, प्रयागराज– 211 001
11. उत्तर पश्चिम रेलवे, जयपुर– 302 006
12. पूर्व मध्य रेलवे, हाजीपुर– 844 101
13. पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, भुवनेश्वर– 751 023
14. दक्षिण पश्चिम रेलवे, हुबली– 580 023
15. पश्चिम मध्य रेलवे, जबलपुर– 482 001
16. दक्षिण पूर्व मध्य रेलवे, बिलासपुर– 495 004

**(B) प्रबन्ध निदेशक,**

डेडीकेटेड फ्रेट कोरीडोर कॉर्पोरेशन ऑफ इण्डिया लि0 पाँचवा तल, प्रगति मैदान मेट्रो स्टेशन बिल्डिंग कॉम्पलेक्स नई दिल्ली–110 001

| **Sub.** | Provisional Speed Certificate for Ballast Regulating Machine (BRM) Model RPB-01 supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia over Indian Railways BG routes and over routes of Eastern & Western dedicated freight corridors of DFCCIL. |
|---|---|

| **Ref.** | Railway Board Contract No. 2019/Track-III/MC/16(i) dated 02.07.2020 |
|---|---|

| **1.0** | **IMPORTANT PARAMETERS RELATED TO ROLLING STOCK** |
|---|---|

| **Type** | **Final / Provisional / Oscillation Trial / COCR Movement** | Provisional |
|---|---|---|

| **Validity/ Period or Permanent** | IR / Sectional/ DFCCIL | 5Years/ IR & routes of Eastern & Western DFCCIL. |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Stock Name** | Ballast Regulating Machine (BRM) | **Max. Axle Load (Empty)** | 17t | **Max. Axle Load (Loaded)** | 22.5t |

| | | | |
|---|---|---|---|
| **Transportation Code** | BRMRPB01 | **GA Drg. No.** | M/s JSC KPM GA Drawing No. 199.00.00.000(sheet 1-2) |

| | | | |
|---|---|---|---|
| **Bogie Arrgt. Drg. No.** | M/s JSC KPM Drawing No. 199.00.00.000(sheet 5-6) | **Suspension Arrgt. Drg. No.** | M/s JSC KPM Drawing No. 199.00.00.000(sheet 3-4) |

| | | | | | |
|---|---|---|---|---|---|
| **Commodity** | Coal / Ore / Steel /Bagged / Oil /etc. | NA | | **Gauge** | BG |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Bogie** | M/s JSC KPM Drawing No.199.00.00.000(sheet 5-6) | **Type of Coupler** | M/s JSC KPM Drawing No.199.00.00.000(sheet 7.2) | **Wheel Dia (mm)** | **New** | **Worn** |
| | | | | | 950 | 910 |

| | | | | | |
|---|---|---|---|---|---|
| **Max. Permissible Speed over IR as well as over routes of Eastern & Western DFCCIL.** | **Own Power** | 65 kmph | **Train Formation** | 65 kmph | |

| | |
|---|---|
| **2.0** | **INTRODUCTION** |

| | |
|---|---|
| 2. 1 | Ballast Regulating Machine (BRM) Model RPB-01 is a self- propelled machine supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia as per their drawing No. 199.00.00.000(sheet 1-2). The machine is used for making ballast profile on straight as well as curved track. |
| 2. 2 | Maximum axle load, rigid wheel base and wheel diameter of Ballast Regulating Machine (BRM) Model RPB-01 are 22.5t, 2000mm and 950mm respectively. The suspension arrangement as per M/s JSC KPM Drawing No. 199.00.00.000(sheet 3-4). The design speed of machine is 80 kmph when running on its own power and 100 kmph when running in train formation as a dead vehicle. The design details are given in Annexure- A. |

| | |
|---|---|
| **3.0** | Based on design features, details given in Annexure-A and Dynamic simulation results of Ballast Regulating Machine (BRM) Model RPB-01, supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia, it is certified that the Ballast Regulating Machine (BRM) Model RPB-01, as per drawing No. 199.00.00.000(sheet 1-2) may be permitted provisionally to run up to maximum permissible speed of 65 kmph when running on its own power as well as when running in train formation as a dead vehicle for operation over Indian Railways BG routes and over routes of Eastern & Western dedicated freight corridors of DFCCIL, subject to the following conditions: - |

| | |
|---|---|
| **3.1** | **TRACK** |
| **3.1.1** | **FOR INDIAN RAILWAYS** |
| 3.1.1.1 | **The track shall be to a minimum standard of-** |

| | Rail Section | Sleeper Density | Ballast Cushion | Max. Speed (own power) | Max. Speed (train formation) |
|---|---|---|---|---|---|
| | 52 kg (72 UTS) | 1540 Nos./km PSC Sleeper | 250 mm (100 mm clean & rest in caked up condition on compacted and stable formation) | Upto 50 kmph | Upto 50 kmph |
| | 52 kg (90UTS) | 1540 Nos./km PSC Sleeper | 250 mm (100 mm clean & rest in caked up condition on compacted and stable formation) | Upto 65 kmph | Upto 65 kmph |

| | |
|---|---|
| 3.1.1.2 | Track Geometry standards shall be maintained to as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522. |
| 3.1.1.3 | For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board's vide letter no. 65/WDO/SR/26 dated 19/20.10.1966 may be seen. When the Chief Engineer considers that the road bed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions. |
| 3.1.1.4 | The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June- 2020. Maximum cant deficiency permissible would be 75 mm. |
| 3.1.1.5 | The welds shall be protected by joggled fish plates as per provisions of USFD Manual and Indian Railways Permanent Way Manual, June-2020 and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of Indian Railways Permanent Way Manual, June-2020. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc., necessary precautions shall be taken for fish plating/joggled fish plating. |
| 3.1.1.6 | Zonal Railways shall ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc. as per the provisions of Indian Railways Permanent Way Manual, June-2020, regarding permanent way renewals and shall suitably restrict maximum speed of operation based on such examination. |

| | | | | | |
|---|---|---|---|---|---|
| 3.1.2 | **FOR EASTERN & WESTERN DEDICATED FREIGHT CORRIDORS OF DFCCIL** | | | | |
| 3.1.2.1 | **The track shall be to a minimum standard of-** | | | | |
| | **Rail Section** | **Sleeper Density** | **Ballast Cushion** | **Max. Speed (own power)** | **Max. Speed (train formation)** |
| | 60 kg (90 UTS) | 1660Nos./Km PSC sleeper | 300 mm (200 mm clean & rest in caked up condition on compacted and stable formation) | 65 kmph | 65 kmph |

| | |
|---|---|
| 3.1.2.2 | The minimum standard of track geometry maintenance shall be as per provisions of Indian Railways Permanent Way Manual, June-2020, containing track geometry standards under Para 522. |
| 3.1.2.3 | For track maintained to lower standard than that mentioned above, the Chief Engineer/GGM (Engg.) concerned shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, instructions issued by Railway Board's letter no. 65/WDO/SR/26 dated 19/20.10.1966 may be seen. When the Chief Engineer/GGM (Engg.) considers that the road bed is not compacted or there is improper drainage, he shall suitably restrict the maximum permissible speed depending upon the local conditions. |
| 3.1.2.4 | The maximum permissible speed on curves shall be decided on the basis of the existing provisions of the Indian Railways Permanent Way Manual, June-2020. Maximum cant deficiency of 75 mm is permitted. |
| 3.1.2.5 | The welds shall be protected by joggled fish plates as per provisions of USFD Manual and Indian Railways Permanent Way Manual, June-2020 and other policy instructions of Railway Board. The maintenance of Rails and Rail joints shall be ensured as per provisions of Indian Railways Permanent Way Manual, June-2020. In addition, wherever condition warrants on account of corrosion on rail/weld collar, wear on rail, cupping of welds etc., necessary precautions shall be taken for fish plating/joggled fish plating. |
| 3.1.2.6 | DFCCIL shall ensure further detailed examination of track as deemed fit based on age cum condition basis, overdue renewal and condition of formation etc. as per the provisions of Indian Railways Permanent Way Manual, June-2020 regarding permanent way renewals and may suitably restrict maximum speed of operation based on such examination. |

| **3.2** | **BRIDGE STIPULATIONS** |
|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **3.2.1** | **FOR INDIAN RAILWAYS** | | | | |
| 3.2.1.1 | The clearance refers to "Standard RDSO Spans" bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for BGML, RBG, MBG and 25t-2008 standard loadings. | | | | |
| 3.2.1.2 | Superstructures & bearings of "Special Spans" (designed and constructed by Zonal Railways based on site requirements), Arches and sub-structures (including foundation) of all bridges (Standard RDSO spans and Special Spans) are to be got examined by the Chief Bridge Engineer and certified safe with respect to current Indian Railway standard codes with up to-date correction slips. | | | | |
| 3.2.1.3 | The clearance is subject to the following parameters of Ballast Regulating Machine (BRM) Model RPB-01 supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia: | | | | |
| | **Rolling Stock** | **Maximum axle load (t)** | **Maximum tractive effort per axle (t)** | **Maximum braking force at rail level per axle (t)** | **Maximum CG height from rail level(mm)** |

| | | | | | |
|---|---|---|---|---|---|
| | Ballast Regulating Machine (BRM) | 22.5 | 3.99 | 2.57 | 1315 |
| 3.2.1.4 | All Standard RDSO spans of BGML, RBG, MBG and 25t-2008 loading are fit for proposed speed of 65 kmph when running on its own power as well as when running in train formation. | | | | |
| 3.2.1.5 | During operation of Ballast Regulating Machine (BRM) Model RPB-01 with single/multiple locomotives and other rolling stocks, the speed certificate issued by RDSO of the single/multiple locomotives/rolling stocks in empty/loaded condition shall be strictly complied with. Therefore, speed certificate of each single/multiple locomotive and rolling stocks in train formation should be examined carefully & speed restriction/strengthening/prohibition/any other restriction shall be imposed according to most restrictive rolling stock/locomotive/multiple locomotives in train formation. | | | | |
| 3.2.1.6 | Location of bridges on which speed restrictions are imposed should be notified by the Railways and incorporated in the working timetable. | | | | |
| 3.2.1.7 | The above clauses have been arrived at considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed restriction to be imposed by Chief Bridge Engineer of Zonal Railway on condition basis. | | | | |
| **3.2.2** | **FOR EASTERN & WESTERN DEDICATED FREIGHT CORRIDORS OF DFCCIL** | | | | |
| 3.2.2.1 | The clearance refers to “Standard RDSO Spans” bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for “DFC” loading (32.5 t axle load)”. | | | | |
| 3.2.2.2 | All Standard RDSO spans of DFC loading is fit for proposed speed of 65 kmph when running on its own power as well as when running in train formation. | | | | |
| 3.2.2.3 | Superstructures & Bearings of “Special Spans” (designed and constructed by DFCCIL based on site requirements), Arches and sub-structures (including foundation) of all bridges (Standard RDSO spans & Special Spans) are to be examined by DFCCIL and certified safe with respect to current Indian Railway Standard Codes with up to-date correction slips. | | | | |
| 3.2.2.4 | During operation of Ballast Regulating Machine (BRM) Model RPB-01 with single/multiple locomotives and other rolling stocks, the speed certificate issued by RDSO of the single/multiple locomotives/rolling stocks in empty/loaded condition shall be strictly complied with. Therefore, speed certificate of each single/multiple locomotive and rolling stocks in train formation should be examined carefully & speed restriction/strengthening/prohibition/any other restriction should be imposed according to most restrictive rolling stock/locomotive/multiple locomotives in train formation. | | | | |
| 3.2.2.5 | Location of bridges on which speed restrictions are imposed should be notified by DFCCIL and incorporated in the working timetable. | | | | |
| 3.2.2.6 | The above clauses have been arrived at considering bridges are in physically sound condition. In case the bridges are not in satisfactory physical condition, necessary speed | | | | |

| | |
|---|---|
| | restriction to be imposed by DFCCIL on condition basis. |

| | |
|---|---|
| **3.3** | **SIGNALLING STIPULATIONS** |

| | |
|---|---|
| 3.3.1 | Provisions of GR, SR, IRSOD, DFC-SSOD, SEM & all extant instructions issued from time to time as applicable shall be complied with. |
| 3.3.2 | In case of locomotive/rolling stocks /train (having this machine in its composition) having EBD of more than 1 km and non-provision of second distant signal/4 Aspect Automatic signalling in the section, action as per para 7.8.9 of IRSEM (issue July 2021) shall be taken. |
| 3.3.3 | While running through a station yard, speed of the rolling stock shall be restricted to the maximum permissible speed as per standard of interlocking provided at the station or any other speed restriction whichever is severe. |

| | |
|---|---|
| **3.4** | **ROLLING STOCK STIPULATIONS** |

| | |
|---|---|
| 3.4.1 | Before initiating the operation of Ballast Regulating Machine (BRM) Model RPB-01 supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia, the Chief Engineer/Track Machine of concerned Railway /GGM (Mech.) of the DFCCIL shall ensure the safety of the rolling stock and certify the track worthiness. He shall also ensure the proper maintenance of the rolling stock. |
| 3.4.2 | Brake of the machine shall be in perfect working condition during the operation. |

| | |
|---|---|
| **3.5** | **TRACTION INSTALLATION** |

| | |
|---|---|
| 3.5.1 | **FOR INDIAN RAILWAYS** |
| 3.5.1.1 | In 25KV AC traction area, Principal Chief Electrical Engineer of the concerned Railway shall have to ensure that the minimum height of contact wire and electrical clearances as stipulated in provisions of Chapter-V and V-A, Electric Traction 'Schedule of Dimensions of 1676mm Gauge (BG) revised 2022' with latest Addendum & Corrigendum Slips is not violated and strictly followed to ensure its safe running. |
| 3.5.1.2 | In addition to above, the Principal Chief Electrical Engineer of the concerned Railway may impose any temporary speed restriction on the basis of personal knowledge, experience of the sectional OHE and the field conditions prevailing on the particular section. |
| 3.5.1.3 | When the Ballast Regulating Machine (BRM) Model RPB-01 is being moved, it shall be ensured that all the protruding parts are withdrawn and suitably locked, so that during the run there is no possibility of any infringement occurring to the standard moving dimensions. |
| 3.5.2 | **FOR EASTERN & WESTERN DEDICATED FREIGHT CORRIDORS OF DFCCIL** |
| 3.5.2.1 | In 25 KV AC traction area, the GGM (Electrical) of the DFCCIL shall have to ensure that the minimum height of contact wire and electrical clearances as stipulated in provisions of Chapter VII of Eastern Corridor & Chapter XIV of Western Corridor, Electric Traction 'Standard Schedule of Dimensions' for dedicated freight corridors with latest Addendum & Corrigendum Slips is not violated and strictly followed to ensure its safe running. |
| 3.5.2.2 | In addition to above, the GGM (Electrical) of the Concerned DFCCIL may impose any temporary speed restriction on the basis of personal knowledge, experience of the sectional OHE and the field conditions prevailing on the particular section. |
| 3.5.2.3 | When the Ballast Regulating Machine (BRM) Model RPB-01 is being moved, it shall be ensured that all the protruding parts are withdrawn and suitably locked, so that during the |

| | |
|---|---|
| | run there is no possibility of any infringement occurring to the standard moving dimensions. |

| | |
|---|---|
| **3.6** | **GENERAL STIPULATIONS** |

| | |
|---|---|
| 3.6.1 | The working of Maintenance Machine shall be as per provision of Indian Railways Permanent Way Manual, June-2020. |
| 3.6.2 | The profile of Ballast Regulating Machine (BRM) Model RPB-01, supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia as per their drawing No. 199.00.00.000(sheet 1-2), does not infringe with the Clauses of Chapter IV (D) of Indian Railway Schedule of Dimensions B.G. Revised-2022 and clauses of Chapter-IV for Eastern Dedicated Freight Corridor and Chapter-XI for Western Dedicated Freight Corridor of 'Standard Schedule of Dimensions of January'2013. |
| 3.6.3 | All the permanent and temporary speed restrictions in force and those that shall be imposed from time to time due to track, bridges, curves, signaling and interlocking etc. shall also be observed. In this connection the speed on curve shall be in accordance with Para 3.1.1.4 for Indian Railway Track and Para 3.1.2.4 for DFCCIL track of this speed certificate. |
| 3.6.4 | The movement of the machine in case of failure in block sections, the instructions of the para 708(4) of Indian Railways Track Machine Manual, September -2019 shall be followed. |
| 3.6.5 | Competent track machine staff who can apply the machine brakes in case of train parting shall escort the machine while running in train formation as a dead vehicle. |
| 3.6.6 | This speed certificate is provisional and shall be valid up to 5 years from date of issue or before date of issuance of relevant final speed certificate, whichever is earlier. |

**ENCLOSURES:/ संलग्नकः**

| | |
|---|---|
| **i)** | Annexure-A |
| **ii)** | M/s JSC KPM GA Drawing No. 199.00.00.000(sheet 1-2) |
| **iii)** | M/s JSC KPM Suspension arrangement Drawing No. 199.00.00.000(sheet 3-4) |
| **iv)** | M/s JSC KPM Bogie arrangement Drawing No. 199.00.00.000(sheet 5-6) |
| **v)** | Railway Board letter No. 65/WDO/SR/26 dated 19/20.10.1966 |
| **vi)** | Railway Board letter No. 2020/M(C)/202/6/SBCM dated 10.08.2022 |
| **vii)** | Para 708(4) of Indian Railways Track Machine Manual, September -2019 |
| **viii)** | Railway Board Contract No. 2019/Track-III/MC/16(i) dated 02.07.2020 |

Digitally Signed by Nitin Mehrotra
Date: 18-04-2023 10:16:46
Reason: Approved

**(नितिन मेहरोत्रा)**
कार्यकारी निदेशक मानक/चालन शक्ति

प्रतिलिपिः

1. सचिव, {यांत्रिक/विद्युत/इंजीनियरिंग(जी)}, रेलवे बोर्ड, रेल भवन, नई दिल्ली– 110001
2. मुख्य रेल संरक्षा आयुक्त, अशोक मार्ग, लखनऊ–226001
3. महाप्रबन्धक (यांत्रिक/विद्युत/संचालन/संकेत एवं दूरसंचार)

i) मध्य रेलवे, छत्रपति शिवाजी टर्मिनस मुम्बई– 400 001
ii) पूर्व रेलवे, फेयरली प्लेस, कोलकाता– 700 001
iii) उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली– 110001
iv) पूर्वोत्तर रेलवे, गोरखपुर– 273001
v) पूर्वोत्तर फ्रन्टियर रेलवे, मालीगॉव ,गुवाहाटी– 781 011
vi) दक्षिण रेलवे, एनेक्सी, पार्क टाऊन, चेन्नई– 600 003
vii) दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद– 500 071
viii) दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता– 700 043
ix) पश्चिम रेलवे, चर्चगेट, मुम्बई– 400020
x) उत्तर मध्य रेलवे, प्रयागराज– 211 001
xi) उत्तर पश्चिम रेलवे, जयपुर– 302 006
xii) पूर्व मध्य रेलवे, हाजीपुर– 844 101
xiii) पूर्व तट रेलवे, रेलवे कॉम्पलेक्स, भुवनेश्वर– 751 023
xiv) दक्षिण पश्चिम रेलवे, हुबली– 580 023
xv) पश्चिम मध्य रेलवे, जबलपुर– 482 001
xvi) दक्षिण पूर्व मध्य रेलवे, बिलासपुर– 495 004

**4. अध्यक्ष एवं प्रबन्ध निदेशक, कोंकण रेलवे कारपोरेशन लिमिटेड, बेलापुर भवन, सेक्टर–11, सी.बी.डी.बेलापुर नवी मुम्बई–400 614.**

**5. जी.जी.एम ( मेकैनिकल/इंजी/यातायात/संकेत एवं दूर संचार) डेडीकेटेड फ्रेट कोरीडोर कॉर्पोरेशन ऑफ इण्डिया लि0 नई दिल्ली–110001.**

**ENCLOSURES:/ संलग्नकः**

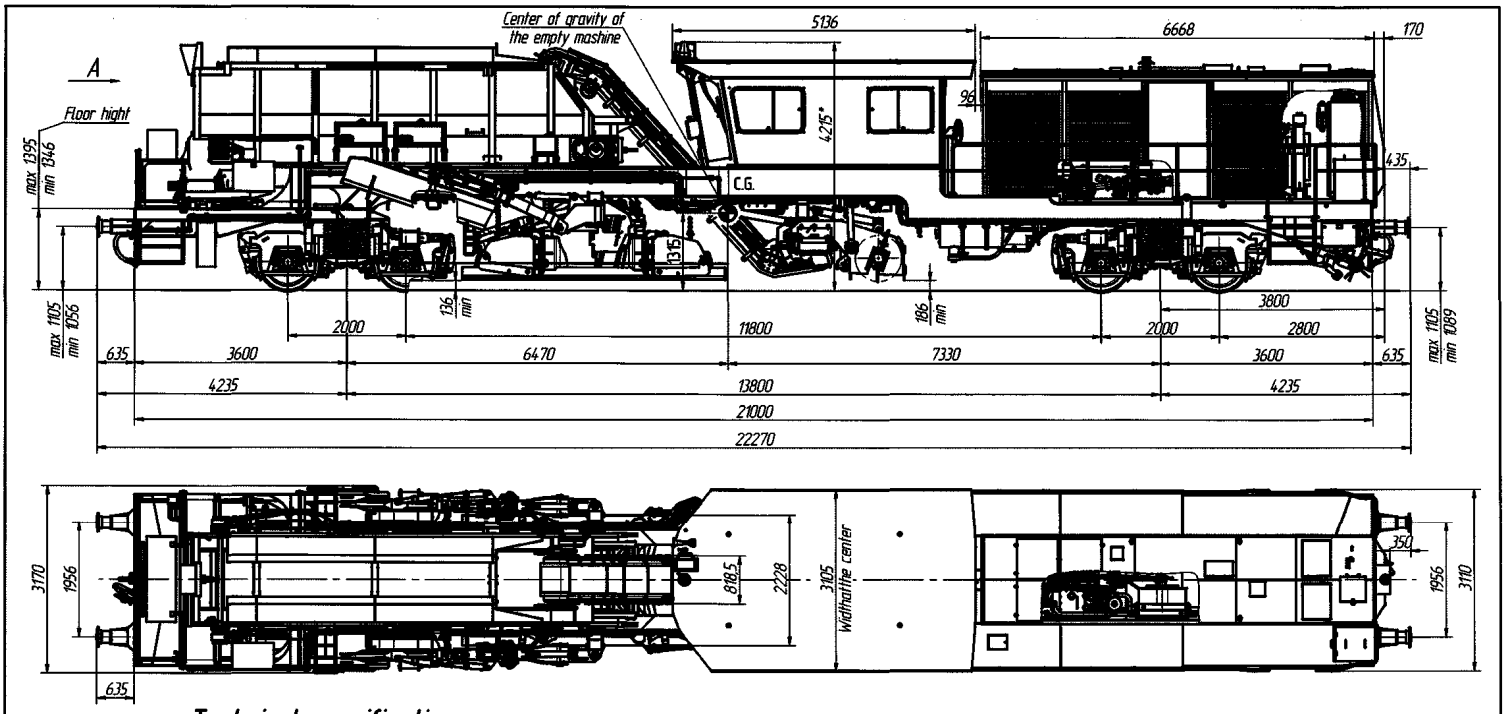
| | |
|---|---|
| **i)** | Annexure-A |
| **ii)** | M/s JSC KPM GA Drawing No. 199.00.00.000(sheet 1-2) |
| **iii)** | M/s JSC KPM Suspension arrangement Drawing No. 199.00.00.000(sheet 3-4) |
| **iv)** | M/s JSC KPM Bogie arrangement Drawing No. 199.00.00.000(sheet 5-6) |
| **v)** | Railway Board letter No. 65/WDO/SR/26 dated 19/20.10.1966 |
| **vi)** | Railway Board letter No. 2020/M(C)/202/6/SBCM dated 10.08.2022 |
| **vii)** | Para 708(4) of Indian Railways Track Machine Manual, September -2019 |
| **viii)** | Railway Board Contract No. 2019/Track-III/MC/16(i) dated 02.07.2020 |

(**Signed**)
**(नितिन मेहरोत्रा)**
कार्यकारी निदेशक मानक/चालन शक्ति

**Annexure-A**

**Particulars required in respect of the rolling stock Ballast Regulating Machine (BRM) Model RPB-01, supplied by M/s JSC Kalugaputmash Lenin Str. 23 Kaluga Russia.**

| SN | Description | Details |
|---|---|---|
| 1. | Principal dimensions of rolling stock | M/s JSC KPM GA Drawing No. 199.00.00.000(sheet 1-2) |
| 2. | Length of buffers | 22270mm |
| 3. | Bogie centre distance | 13800mm |
| 4. | Wheel base | 2000mm |
| 5. | Max. axle load | 22.5t |
| 6. | Wheel dia. | New- 950mm<br>Worn out- 910mm |
| 7. | Weight of Machine | Empty: 64t<br>Loaded:84t |
| 8. | Max. design speed | i) Own power - 80kmph<br>ii) Train formation- 100kmph |
| 9. | Suspension arrangement | M/s JSC KPM Suspension arrangement Drawing No. 199.00.00.000(sheet 3-4) |
| 10. | Bogie arrangement | M/s JSC KPM Bogie arrangement Drawing No. 199.00.00.000(sheet 5-6) |
| 11. | Brake system details | Pneumatic brake as per M/s JSC KPM Drawing No. 199.00.00.000(sheet 9-10) |
| 12. | Details of coupler and buffer | Coupler– As per M/s JSC KPM Drawing No.199.00.00.000(sheet 7.2)<br>Buffer- As per M/s JSC KPM Drawing.199.00.00.000(sheet 7.1) |
| 13. | Engine | Cummins diesel Engine model QSL8,9FR95896 Rated power 365hp@2100 rpm |
| 14. | Safety Items | a) Fire extinguisher : one<br>b) Hooter (manual) : two<br>c) Jack (10t) : two<br>d) Wooden Blocks : four<br>e) Crow bars : four<br>f) Hydraulic hand pump : one<br>g) Emergency pneumatic/ hydraulic hose with end fittings : one |







## Technical specifications

### Transmission type

- in transport mode – hydromechanical
- in working mode – hydrostatic
- EMC/EMI is not required

### Power plant

- Engine type – diesel
- model – QSL8,9 FR95896
- Rated power – 268 (365) kW_1(hp)
- Rated shaft speed – 2100 min. (rpm)

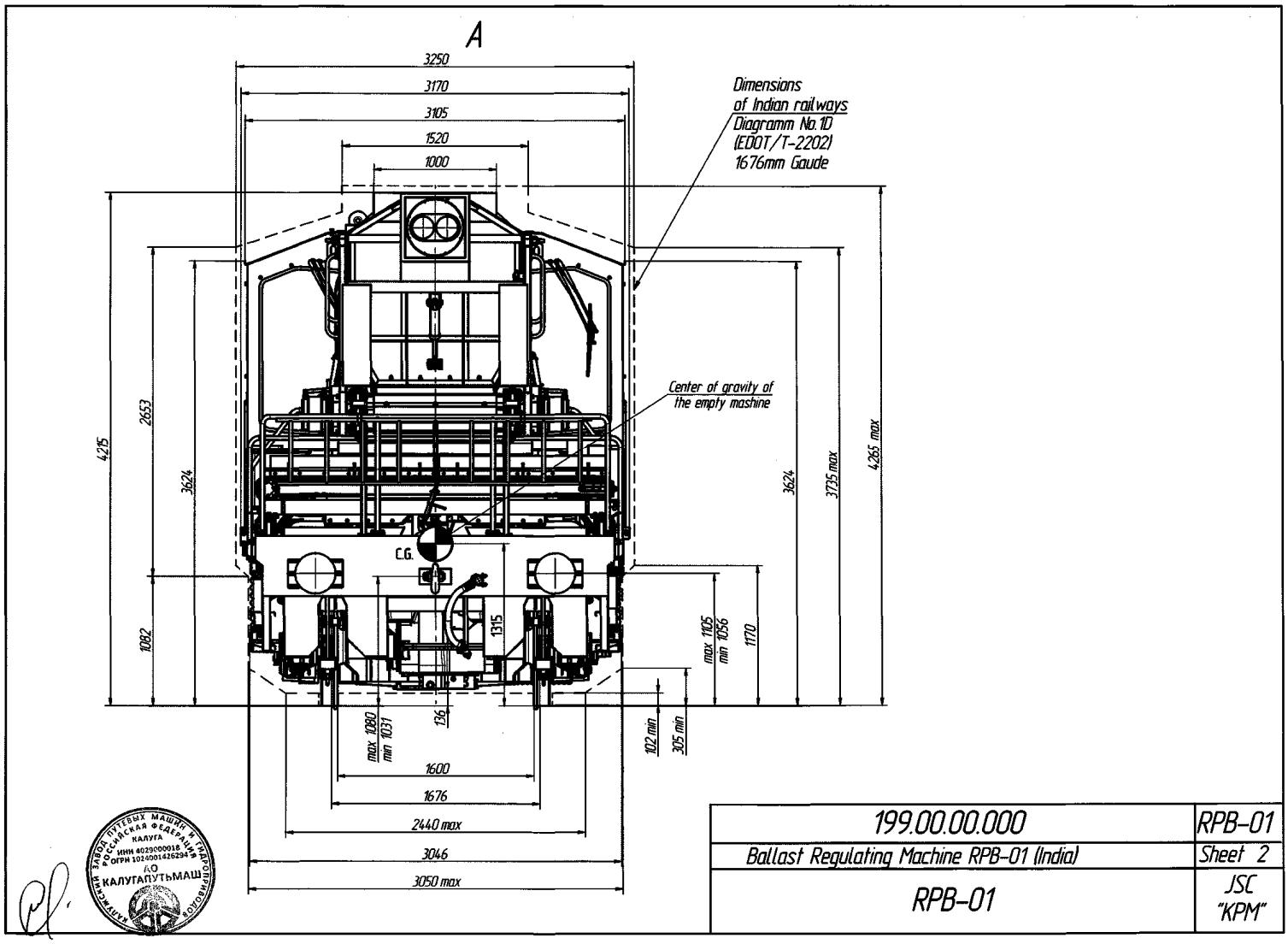
### Max speed

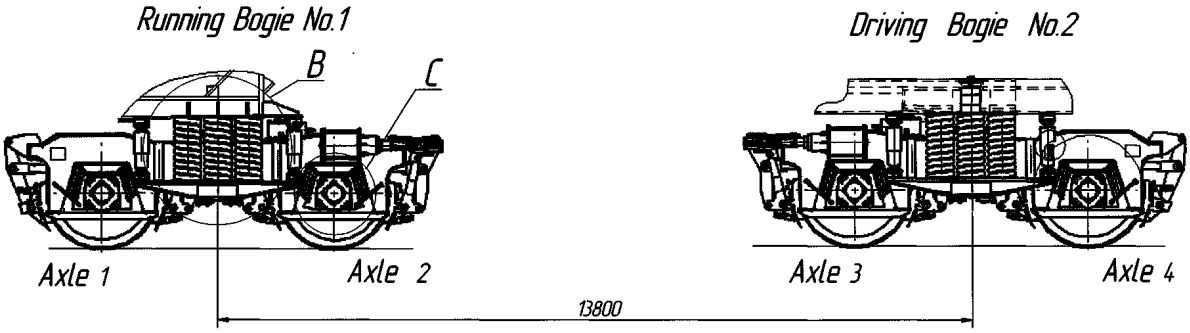
- self-propelled – 80 km / h
- as part of a train – 100 km / h

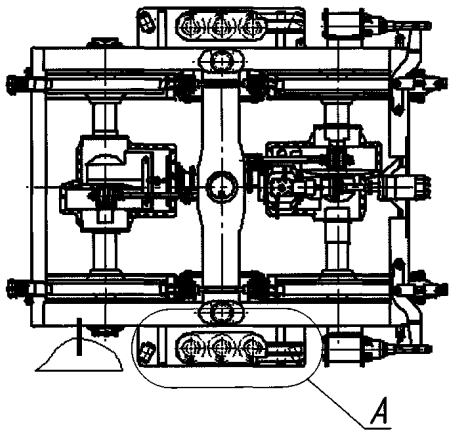
Axle load laden

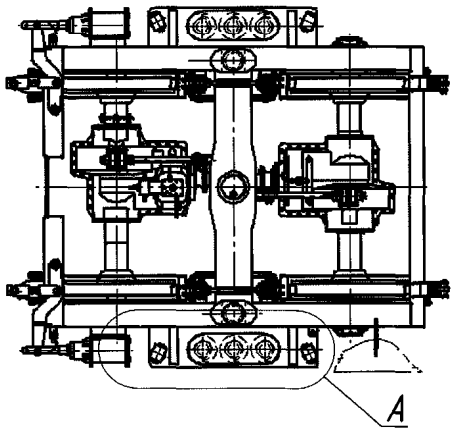
- Axle 1 – 22.5 t
- Axle 2 – 22.5 t
- Axle 3 – 19.5 t
- Axle 4 – 19.5 t

| | |
|---|---|
| 199.00.00.000 | RPB-01 |
| Ballast Regulating Machine RPB-01 (India) | Sheet 1 |
| RPB-01 | JSC "KPM" |

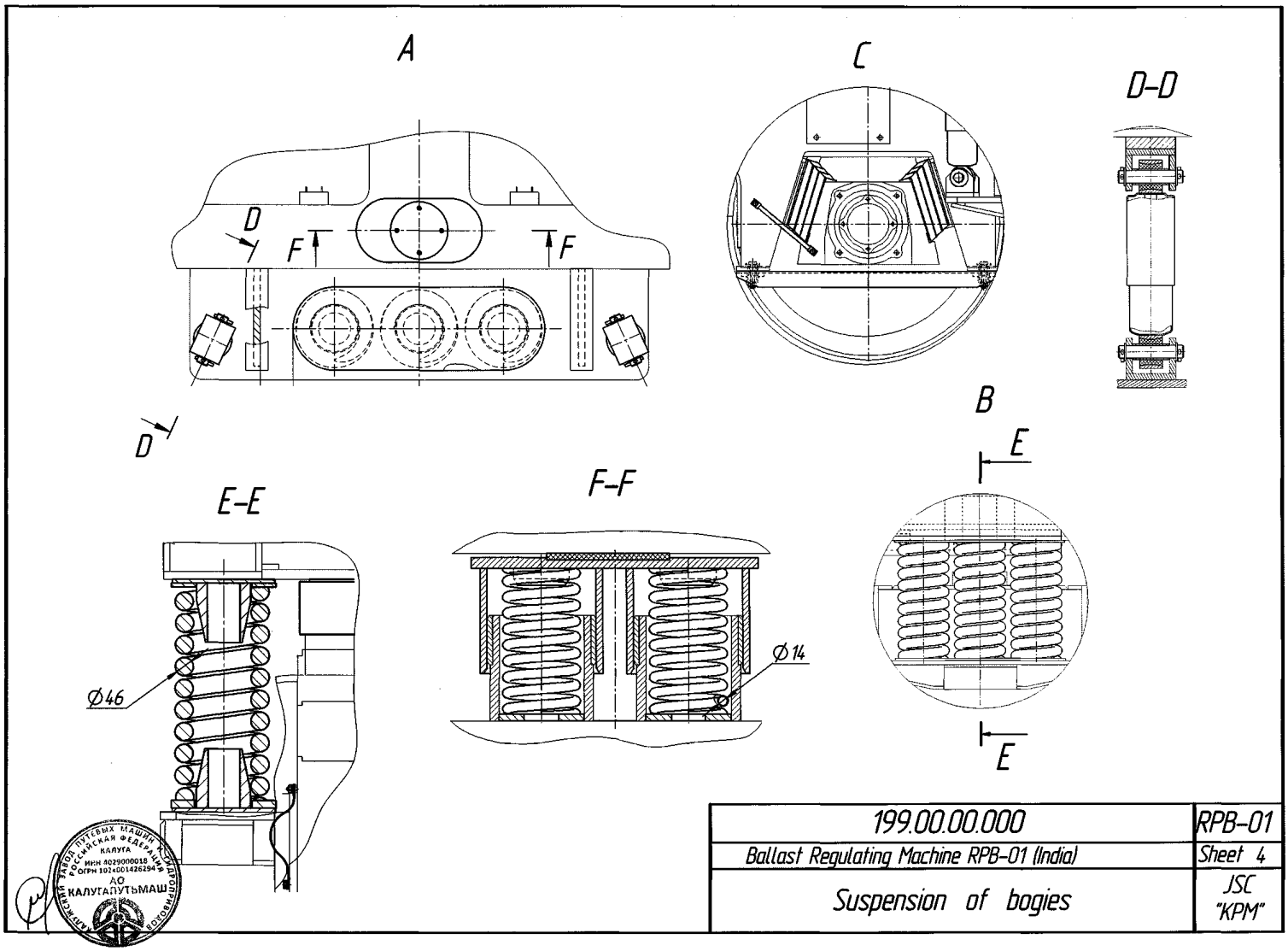

A
3250
3170
3105
1520
1000
Dimensions
of Indian railways
Diagramm No.10
(EDOT/T-2202)
1676mm Gaude
Center of gravity of
the empty mashine
C.G.
4215
2653
3624
1082
1315
3624
3735 max
4265 max
max 1105
min 1056
1170
max 1080
min 1031
136
102 min
305 min
1600
1676
2440 max
3046
3050 max
199.00.00.000
RPB-01
Ballast Regulating Machine RPB-01 (India)
Sheet 2
RPB-01
JSC
"KPM"



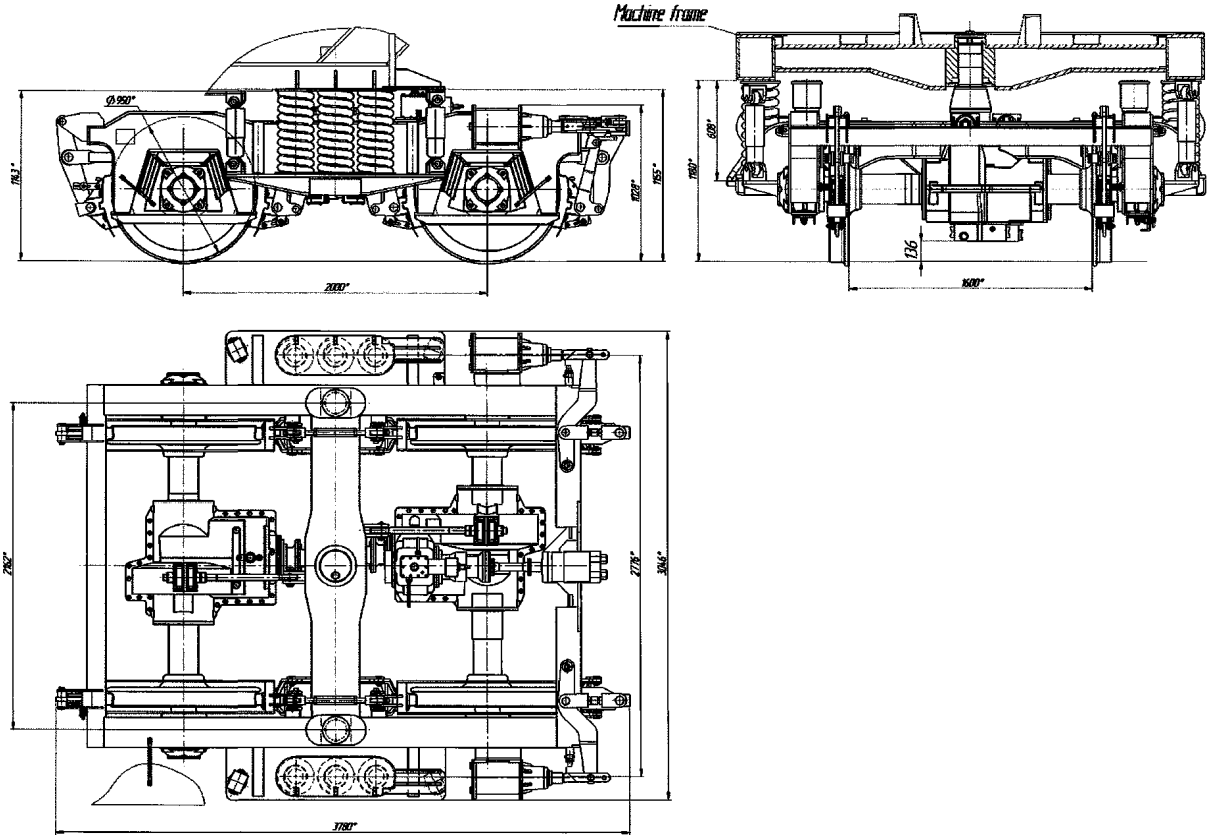




| | |
|---|---|
| 199.00.00.000 | RPB-01 |
| Ballast Regulating Machine RPB-01 (India) | Sheet 3 |
| Suspension of bogies | JSC "KPM" |



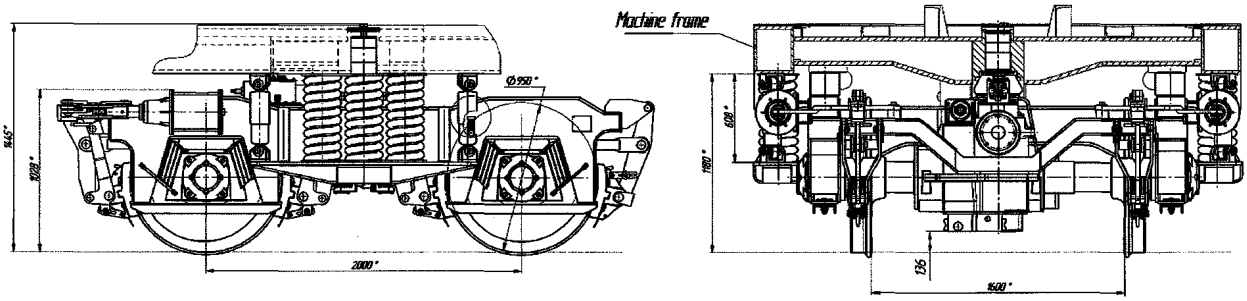

| | |
|---|---|
| 199.00.00.000 | RPB–01 |
| Ballast Regulating Machine RPB–01 (India) | Sheet 4 |
| Suspension of bogies | JSC "KPM" |

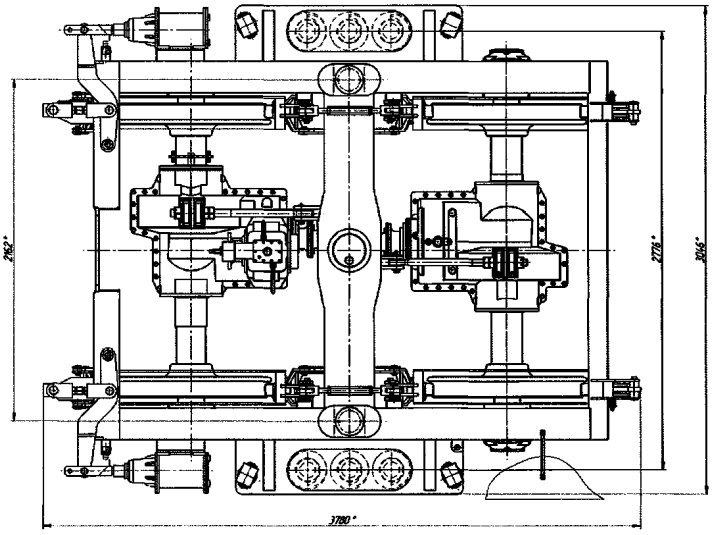
# Running Bogie №1




| | |
|---|---|
| 199.00.00.000 | RPB-01 |
| Ballast Regulating Machine RPB-01 (India) | Sheet 5 |
| Running Bogie №1 | JSC "KPM" |

# Driving Bogie №2




| | |
|---|---|
| 199.00.00.000 | RPB–01 |
| Ballast Regulating Machine RPB–01 (India) | Sheet 6 |
| Driving Bogie №2 | JSC "KPM" |

No.65/WDO/SR/26 (Railway Board) New Delhi, October 19/20, 1966

To

The General Managers,
All Indian Railways.

The G.M. & Chief Engineer,
Railway Electrification project, Calcutta.

The Chief Administrative Officer,
B.B.K. Railway Projects, Waltair.

Sub: Use of new type of Rolling Stock.

.....

Use of new type of rolling stock on existing Railway systems is governed by the Rules laid down in Chapter VI of the Rules for opening of a Railway. In terms of para 5 of this Chapter, applications for use of new type of rolling stock are required to be accompanied by a certificate to be signed by the Chief Engineer and Chief Mechanical Engineer of a Railway in a form specified therein.

2. The Board wish to point out that this certificate by the Chief Engineer and the Chief Mechanical Engineer ( and Chief Electrical Engineer in case of electrical stock) is a positive act of certification in regard to track and locomotive maintenance standards for the speed indicated and a statutory obligation. The Officers signing the certificate are required to decide, on the basis of their personal knowledge and experience of the maintenance conditions of the track, locomotives or rolling stock, with due regard to relevant information available and the maintenance requirements of the new type of rolling stock, as to whether the operation of the particular type of locomotive or rolling stock on the relevant section of the Railway is safe and practicable with the facilities available on the Railway system. The RDSO merely recommend the maximum speed at which locomotives and rolling stock could be permitted to run on standard track under average maintenance conditions and this recommendation is made only on the basis of design features of the particular type of locomotive, rolling stock and assessment of their suitability from oscillation and other tests conducted by the RDSO. These certificates for speed issued by RDSO are meant merely to assist the CEs and CMEs/CEEs in deciding on the speed at which these engines/rolling stock may be permitted to run on their Railway system for the maintenance conditions obtaining on their Rlys.

3. A note on the subject prepared by the DG/RDSO is enclosed herewith in quadruplicate for guidance of your officers.

4. Receipt of this letter may please be acknowledged.

Sd/-
(B.S.D. Baliga)
Director, Civil Engineering,
Railway Board
New Delhi, October 19/20, 1966,

DA: As above.

No.65/WDO/SR/26

Copy to D.G. RDSO, Alambagh, Lucknow with reference to his letter No.MRA/573 of 16.8.1966.

Sd/-
(B.S.D. Baliga)
Director, Civil Engineering.
Railway Board.

Enclosure to Board's letter No.65/WDO/SR/26 dated 19-10-66.

....

Use of new types of Rolling Stock.

The rules for use of new types of rolling stock on existing railways are laid down in Chapter VI of the Rules for Opening of a Railway. According to para 5 of this Chapter, applications for use of new type of rolling stock arerequired to be accompanied by a certificate to be signed by the Chief Engineer and the Chief Mechanical Engineer of the Railway in the form specified in para 5(a)(ii). It should be clearly understood that this certificate by the Chief Engineer and the Chief Mechanical Engineer(Chief Electrical Engineer in the case of Electrical Stock) is a positive act of certification and a statutory obligation.

2. The Chief Engineers and Chief Mechanical Engineers (Chief Electrical Engineers in the case of electric stock) are required to decide on the basis of their personal knowledge and experience of track, locomotives or rolling stock with due regard to relevant information available of track and rolling stock and their maintenance requirements, as to whether the operation of particular locomotive or rolling stock is safe and practicable with the facilities provided on the railway system. It may be emphasized that respective Heads of Departments are required to certify annually regarding the sound condition of the track and rolling stock in operation in terms of para 1522 of Indian Railway Code for Accounts department.

3. Prior to the setting up of testing facilties on the Indian Railways, the safety certificate for operation of locomotives and rolling stock was issued by the Chief Engineer and Chief Mechanical Engineers on the basis of their personal knowledge and experience and on the basis of the recommendation for speed limit by the consulting engineers, who available. With the build up of increased design and testing facilities in RDSO, due recommendation is made by RDSO on the basis of design features of particular stock and assessment of their stability from oscillation tests conducted on main line track in normal state of maintenance and not subjected to speed restriction.

4. R.D.S.O. advises the Railway of the speed at which different types of locomotive and rolling stock can be permitted to run on different track structures. This is done in two stages:

(a) preliminary speed; and

(b) final maximum speed.

The preliminary speed is based on a study of the design characteristics of the vehicle and experience of performance of similar designs in India and/or abroad. Such speed would be generally lower than the sectional maximum speed and it would not be difficult for CEs and CMAs to arrive at a decision in issuing the Safety Certificate. Further, it is up to the CEs to decide whether any particular sections or routes require the imposition of a restriction on a generally sanctioned speed. Such a decision has to be based purely on the personal knowledge and experience of the engineers of the zonal railways.

5. It is, however, necessary to keep a watch on the performance of vehicles permitted on such preliminary speed limit to gather experience for guidance in determination of the final maximum speed both by RDSO and Railways the former taking this aspect into account along with the review of the oscillation test, and the latter while issuing the certificate for the final maximum speed. The final maximum speed is determined by the RDSO on review of the oscillation tests generally conducted for new designs and on confirmation of the suitability of the stock from the point of view of strength of track and bridges, although such investigation is made even at the initial stage of design. The oscillation trials are conducted with a view to obtaining data relating to the riding characteristics of the vehicle at the specified speeds. Such tests include aspects, such as, vertical wheel/axle load and lateral force ratio and vertical and lateral acceleration of the vehicle. The studies are aimed at assessing the possibilities of track distortion, wheel mounting, riding comforts etc. For conducting these tests, a section of main line track is selected over which there are no temporary restrictions and which is considered by the railway as being in a generally run down condition for main line standards but without speed restriction. The vehicle is tested generally for new and worn clearance conditions and also where relevant for operation in the forward or back-ward direction. The vehicle selected is one of those in average condition of normal maintenance. The tests are conducted on speeds usually 10% higher than that to which it is proposed to be certified.

On the basis of the theoretical studies and investigations of the tests as indicated and the analysis of the test results, the RDSO recommends the maximum speeds up to which a vehicle may be permitted in normal traffic operation. The certificate of the RDSO though issued by the Director Standards(Mech.) is the final result of studies conducted by the various concerned

Directorates such as Civil Engineering, Carriage and Wagon Motive Power etc. This recommendation of the RDSO is meant to be used as guidance by the CEs and CMEs of the zonal railways in formulating their own certificates to be furnished to the ACRS. It is upto Chief Engineer, Chief Mechanical Engineers and Chief Electrical Engineers to consider on the basis of their personal knowledge and experience of track locomotive and rolling stock and their maintenance requirements whether the conditions prevailing are such as to require a reduction in the speed of the vehicles in normal traffic operation.

6. In the case of certification of speeds by the CEs and CMEs up to 105 Km/hr., it is neither feasible nor it is considered necessary that any more guidance than that at present being given by RDSO should be available to them in normal cases in arriving at their conclusions in the matter of formulation of their certificates to the ACRS. In the case of operation at higher speeds, it is proposed that in addition to the data at present being furnished, copies of track recording charts of the track over which the tests were conducted would also be incorporated in the test reports and made available for reference to the CEs and CMEs. It has already been accepted by the Board that in the case of high speed track ( speed above 105 km/hr) track recording would be done at intervals of about 6 months. A comparison of the track recording for the test track with the track recording of the routes over which the high speeds are to be run would be an additional guidance to the CEs and CMEs in the formulation of their certificates.

In conclusion, it may be pointed out that the statutory obligation of certification of speeds is that of the CEs and CMEs/ and CAEs of the zonal railways. In discharging these functions, the CEs and CMEs/CAEs are assisted by the RDSO. The extent of such assistance would normally depend on the speeds involved and the facilities available with the RDSO now. The procedures, at present, followed are considered satisfactory for speeds upto 105 km/hr. For higher speeds, recording of characteristics of the test track would also be made available to the zonal railways for purpose of comparison with the actual track conditions prevailing from time to time.

....

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
रेलवे बोर्ड Railway Board

(E-File No. 3338762)

No. 2020/M(C)/202/6 SBCM
ED / Carriage
RDSO / Lucknow

New Delhi, Date: 10.08.2022

**Sub: Transportation code for Ballast Regulating Machine (BRM) Model RPB-01" (axle load 22.5t) supplied by M/s JSC " Kalugaputmash" Lenin str 23 Kalunga Russia.**

**Ref: RDSO letter No. MC/TW dated 25.07.2022.**

Vide reference above RDSO requested for allotment of transportation code for Ballast Regulating Machine (BRM) Model RPB-01" supplied by M/s JSC " Kalugaputmash" Lenin str 23 Kalunga Russia.

In this regard, transportation code is being allotted.

| Type of Coach | Transportation Code |
|---|---|
| Ballast Regulating Machine (BRM) Model RPB-01" supplied by M/s JSC " Kalugaputmash" Lenin str 23 Kalunga Russia. | BRMRPB01 |

For further necessary action please.

(सुमन कुमार तांती)
निदेशक / यांत्रिक इंजी. को.
रेलवे बोर्ड

C/-GM/CMM CRIS for kind information.

involve large number of labour working with the machine. Hence, extra care is necessary as detailed below, to ensure safety of workers.

**(b)** Hooters should be provided on the track machines. These hooters should be used to warn the staff working on/around the track machine about approaching train on adjoining track. Remote controlled hooters shall also be deployed as an added precaution by SSE/JE/P.Way so that lookout man standing around 150 m away from the track machine can also operate the hooter to warn the staff suitably. SSE/JE/TM shall also put on the flasher light on as an added precaution till the train on adjacent line has passed the site of work.

**(c)** Caution order of 30 to 50 kmph with instructions to whistle freely should be imposed on the adjacent line, during the duration of block, for the safety of workmen, depending upon the site conditions and visibility.

**(8)** **Checking Infringement After Work -** The vertical and lateral clearance for OHE, signal post and any other structure should be checked and adjusted before clearing the block. It shall be ensured by SSE/JE (P.Way) working with track machine that there should be no infringement to signal post, OHE and any other structure as per schedule of dimensions.

## 708 Failure and Accidents of Track Machines

**(1)** **Protection in case of Breakdown -** In the event of breakdown, the track machines shall be protected as per GR 6.03 and SR there to by the machine staff, as directed by machine in-charge.

**(2)** **Failures in Block Section -** Failures in block sections of the track machines will be treated as accident under class 'J – Equipment failure'.

**(3)** **Accidents involving Track Machine -** Accidents involving track machines shall be treated as train accidents under the appropriate class and action shall be taken as per the rules in force.

**(4)** **Action in case of Failure in Block -** In case of failure of track machine in block section, immediate information with details should be conveyed to the ADEN/DEN/Sr.DEN of the section and the AXEN/XEN/Dy.CE/Line/TM. SE/JE/TM should decide in consultation with SSE/JE (P. Way), the action to be taken to clear the section. They may decide to push the disabled unit to the nearest station provided the brake power is in good condition. Otherwise, intimation shall be sent to the nearest Station Master asking for a light engine to tow the unit.

**(5)** **Request for ART/Breakdown -** In case, SSE/JE (P. Way) and/or SSE/JE/TM feels clearance of section is going to take long time, the assistance of Road Break-down or Accident Relief Train shall be asked for immediately. Meanwhile SSE/JE/TM in-charge on the machine shall take necessary action to rectify the defect(s). SSE/JE (P. Way) shall provide all necessary assistance.

File No.2019/Track-III/MC/16(i)

**GOVERNMENT OF INDIA**
**MINISTRY OF RAILWAYS**
**RAILWAY BOARD**

No. 2019/Track-III/MC/16(I) New Delhi, dated 22.12.2020

| To, | Through: |
|---|---|
| M/s JSC "Kalugaputmash"<br>Lenin str., 23, Kaluga,<br>Russia | M/s SRB International Pvt. Ltd,<br>G-44, Sector-63<br>Noida – 201301 (U.P.) |

**Sub.: Contract No. 2019/Track-III/MC/16(I) dated02.07.2020 for the Supply of 19 Nos. Ballast Regulating Machine (BRM) "Model RPB-01" against e-Global Tender TM-1919 opened on 24.01.2020**

1.0 With reference to the subject tender, your offer has been accepted by Competent Authority and it has been decided to place the contract on your firm for supply of 19 Nos. of Ballast Regulating Machine (BRM) " Model RPB-01" consisting of sets of Russian components (supplied by M/s JSC "Kalugaputmash", Russia) and Indian components (supplied by "SRB International" Pvt. Ltd, Noida) and assembled at the production facilities of "SRB International" Pvt. Ltd on the territory of the Republic of India as per the subject tender specifications and following price, terms and conditions:

| | | |
|---|---|---|
| 2.0 | **Purchaser:** | The President of India,<br>**Through:** The Director, Track (Machines),<br>Ministry of Railways (Railway Board)<br>New Delhi – 110 001, India |
| 3.0 | **Name and address of the Contractor:** | **M/s JSC "Kalugaputmash"<br>Lenin str., 23, Kaluga,<br>Russia** |
| 3.1 | Name & address of the Imported components Manufacturer: | M/s JSC "Kalugaputmash"<br>Lenin str., 23, Kaluga,<br>Russia |
| 3.2 | Name & address of the Indian Components Manufacturer: | By M/s SRB International Pvt. Ltd,<br>G-44, Sector-63<br>Noida – 201301 (U.P.) India |
| 4.0 | **(A) Purchaser's Reference:** | 1. Railway Board's Tender No. TM-1919 opened on 24.01.2020<br>2. Railway Board's Counter Offer No. 2019/Track-III/MC/16(i) dated 12.06.2020<br>3. Railway Board's Letter of Acceptance No. 2019/Track-III/MC/16(i) dated 02.07.2020 |
| | **(B) Contractor's Reference:** | 1. Your e-offer Bid ID 10816651 dated 24.01.2020 & manual offer submitted against subject Global tender.<br>2. Your unconditional acceptance vide letter No. 75/97-19-428 dated 22.06.2020 in response to the Railway Board's Counter Offer dated 12.06.2020.<br>3. Your acceptance of LoA vide your letter No 75/97-18-540 dated 04.08.2020<br>4. State Bank of India letter dated 01.09.2020 forwarding the authenticated Swift Message MT 760/MT 767 (Bank guarantee # 07/1420) received by them from VNESHECONOMBANK, RUSSIA. |

**5.0 Particulars of the order:**

**A.I** **Ballast Regulating Machine (BRM) "Model RPB-01":** The imported components of Ballast Regulating Machines (supplied by M/s JSC "Kalugaputmash", Russia) and indigenous components (supplied by M/s SRB International Pvt. Ltd., India.) will be assembled by M/s SRB International Pvt. Ltd., India at their works in Cuttack, Orissa under the supervision of M/s JSC "Kalugaputmash", Russia at all stages of production based on Quality Assurance Plant of M/s JSC "Kalugaputmash", Russia. The complete Ballast Regulating Machine "Model RPB-01" will be supplied by M/s SRB International Pvt. Ltd, Noida to Indian Railways.

The technical details of the Ballast Regulating Machine (BRM) "Model RPB-01" shall conform to specifications and technical data at **Annexure-I.**

**A.II** Price per machine consisting of sub-clause A.I above are as under:

| Item No. | Description of item | Unit | Quantity | Rate per Unit |
|---|---|---|---|---|
| 1. | Design, manufacture, supply, testing, commissioning Ballast Regulating Machine (BRM) & Training of Indian Railway personnel | No. | 19 | **Imported Portion:**<br><br>**Basis: CIF, USD 275,275.00 Mumbai/ Nhava Sheva** (Break-up: FOB USD 259,000.00St. Petersburg, Russia + Sea Freight USD 16,000.00 + Marine Insurance USD 275.00 plus Custom Duty, IGST etc. applicable at the time of supply within the delivery period of the contract.<br><br>+ (plus)<br><br>**Agency Commission @ 0.5% of FOB Price**<br><br>**+ (plus)**<br>**Indigenous Portion:**<br>₹ 2,83,35,212.64 (Ex-works) plus applicable GST at the time of actual supply.<br><br>**+ (plus)**<br><br>**Freight: ₹ 12,83,860.00** plus applicable GST at the time of actual supply |
| 2. | Lump sum cost of the Set of Spares per Ballast Regulating Machine (BRM) required for 1200 effective Working Hours of the machine during warranty period as defined in Clause 18.0 of the Technical Specification of the Machine. The Set of | No. | 19 | **Imported Portion:**<br>**Basis: CIF, USD 18,417.66 Mumbai/ Nhava Sheva** (Break-up: FOB USD 17,899.26 St. Petersburg, Russia + Sea Freight USD 500.00 + Marine Insurance USD 18.40 plus Custom Duty, IGST etc. applicable at the time of supply within the delivery period of the contract |

| | | | | |
|---|---|---|---|---|
| | Spares offered shall **exclude consumables** such as wear plates, conveyor Belt and all types of Filters. | | | |
| 3. | Servicing and Break down maintenance charges ( 8 hours per day): including lodging and boarding for the service engineer, during post-warranty 3 (three) Years Annual Maintenance Contract | Man days | 342 | **₹10,000/-** Plus applicable GST at the time of actual delivery. |
| 4. | Conveyance charges for journey on deputation performed by the service engineer, during post warranty 3 (Three) Years Annual Maintenance Contract. The contractor will be paid per Km of actual distance travelled between OEM's Service centre to place of work (to & fro). | Km. | 410400 | **₹ 7.25/-** Plus applicable GST at the time of actual delivery |

**A.III Agency Commission:** The Agency Commission shall be payable to M/s SRB International Pvt. Ltd., Noida @ 0.5% of FOB value of SOR Item No. 1 only (USD 1295.00 per BRM) in terms of Clause-3.3 of ITT after completion of proving tests and final commissioning of each machine(s) in India and setting up of after sales service centre with adequate no. of Spares and stationed service engineers in India by the manufacturer in terms of Clause-19.2 of ITT.

**A.IV: Quantity Variation Clause:** As per Special Notes No. 5.8 of SOR and Clause 7.11 of ITT, the Purchaser reserves the right to vary the quantity mentioned in the "Schedule of Requirement" by plus 30% within a year from the date of placement of order.

**6.0 Specifications and Technical requirements:** The machines shall conform to the specifications and technical data attached to this contract at **Annexure-I.**

**7.0 Prices:**

**i)** The prices indicated above are exclusive of GST/ statutory taxes / duties levied by Central / State Government. All taxes, duties, Govt. levies and foreign exchange rate variation will be to the purchaser's account.

**ii) Statutory Variation Clause:** Statutory Variation in taxes and duties, or fresh imposition of taxes and duties by State/Central Governments in respect of the items stipulated in the contract (and not the raw material thereof), within the original delivery period of 34 months, or last unconditionally extended delivery