

Spec clause no.	Clause Description	Firm's Comments/Suggestions	Revised Spec Clause Description/shifted/Deleted	RDSO Remarks
0.1	This specification is issued under the fixed serial no. S 24, the final number indicates the year of original adoption as standard, or in case of revision the year of last revision.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
0.2	This specification also covers Electric point machine having IP 67 protection. Reason: This requirement has been included for IP 67 Protection.	M/s Rotomotive- Ok M/s ELGI ELECTRIC - Will be implemented	No Change	Noted
1.1	This specification covers the requirements of Non-Trailable Electric Point Machines 143-mm throw with internal locking and non-trailable electric point machines 220 mm. Throw with internal locking for operation of points in Railway yard		This specification covers the requirements of Electric Point Machines for operation of points in Railway yard with following Types: <ul style="list-style-type: none"> a. 143-mm Throw with internal locking & non-trailable Conventional Electric Point Machines. b. 220 mm Throw with internal locking & non-trailable Conventional Electric Point Machines. c. 143-mm Throw with internal locking & non-trailable Water-Proof Electric Point Machines. d. 220-mm Throw with internal locking & non-trailable Water-Proof Electric Point Machines. 	The proposed revision covers both conventional and water proof electric point machine, therefore the scope of the specification modified accordingly.
1.2	This specification also covers Electric point machine having IP 67 protection.	S&T Workshop, Mettuguda, SCR - Agreed	Vendor has to specify the option while applying for registration.	Content of Cl No. 1.2 has been included in clause no 1.1. New requirement for opting option between various types of Point machine during fresh vendor registration has been specified to avoid confusion.
1.3	Vendor has to specify the weather Electrical point machine is IP 67 compliant while applying for registration.	M/s Rotomotive- OK		Comments of M/s Rotomotive, M/s CG and M/s ELGI have been Noted.

3304419/2024/O/o ED/SIGNAL-2/RDSO

		<p>M/s CG-</p> <p>CG's IRS-type machine is already registered with RDSO. Additionally, CG's motor meets the IP67 protection standard, where as our existing machine has IP 55 protection. CG has demonstrate experience in manufacturing of IP 67 Products.</p> <p>M/s ELGI ELECTRIC - Will be implemented</p>	<p>All the Clauses mentioned applies to all Options of Electric Point Machine as mentioned in item no. 1.1 above. Clauses which are specific to Conventional Electric Point Machine OR Water-Proof Electric Point machine have been mentioned separately.</p>	<p>Clause 1.3 modified to cover various types of electric point machine and stated in alongside column.</p>
2.1	The terminology used in this specification is covered by the definitions given in IRS: S 23.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2	The terms referred to in this specification but not covered in IRS: S 23, are defined below :	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.1	'Electric Point Machine'- It is an electrically driven machine used for operation of points in railway yards.	M/s ELGI ELECTRIC -Modification not required	'Conventional Electric Point Machine'- It is an electrically driven machine used for operation of points in railway yards which is not water-proof Machine.	<p>Noted</p> <p>Clause is modified to differentiate between conventional point machine and water proof point machine and modified clause is stated in alongside column.</p>
2.2.2	Electric Point Machine with IP67 Protection: - These machines shall be so constructed to provide IP67 features as per IS/IEC 60034-5: 2000 protocol as to prevent any entry of dust and moisture ingress. Protocol shall be maintained as per international standards which define the level of protection from water and dust.	<p>M/s Rotomotive-</p> <p>OK</p> <p>M/s ELGI ELECTRIC - Will be implemented</p> <p>S&T Workshop, Mettuguda, SCR – Vide Clause 5.2 of IS/IEC 60034-5:</p>	No Change	<p>Comments of M/s Rotomotive, M/s ELGI and SCR have been Noted.</p>

3304419/2024/O/o ED/SIGNAL-2/RDSO

		<p>2000, states that For IP 67 or 68, it shall not be assumed that compliance of the enclosure implies that the enclosure will also comply with all lower degrees of protection in table 3.</p> <p>IP 64 clearly indicates Water splashing against the machine from any direction shall have no harmful effect. The splashing of water can be expected when the track is flooded and the Train is moving.</p>	<p>‘Water-Proof Electric Point Machine’ - It is an Water- proof electrically driven machine used for operation of points in railway yards which are prone for waterlogging.</p>	<p>The nomenclature of proposed point machine is mentioned as Water-Proof Electric Point Machine and the requirement of ingress of dust and water have been provisioned. Accordingly this clause is modified and stated in alongside column.</p>
2.2.3	‘Lock Slide’-That part of the point machine which has suitable notches in it for locking segment to effect locking of the points.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.4	‘Detector’- A device to prove the correct setting of points or correct setting and locking of points.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.5	‘Detector Slide’- That part of the point machine which controls the detector contacts and to which the detector rod is connected.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.6	‘Time of Operation’- The time required for one complete sequence of operation as specified in clause 3.1.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.7	‘Right-hand Mounting’- A point machine which is fixed to the right of the track as seen while facing the points.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.8	‘Left-hand Mounting’- A point machine which is fixed to the left of the track as seen while facing the points.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.9	‘Stalling Load’- The load applied to the throw-bar which, when the clutch of the point machine is deliberately prevented from slipping, would just prevent the driving movement of the machine.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
2.2.10	‘Crank Handle’- An appliance by which	M/s ELGI ELECTRIC -Modification not	No Change	Noted

3304419/2024/0/6 ED/SIGNAL-2/RDSO

	Electric point machine may be manually operated at the site.	required		
3.1	The machine shall operate in the following sequence:- a) Open the detection contacts b) Unlock the points c) Move the points d) Lock the points e) Close the detection contacts.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
3.2	Operation (c) shall be completed to the full normal or full reverse position of the points, and operation (d) shall be completed before closing of detection contacts for respective position can take place. Unlocking of point shall start only after opening of detection contacts.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
4.1	The rated voltage of the machine shall be 110V DC.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
5.1	The machine shall be of robust construction, securely fixed and protected from unauthorized interference. The Electric Point Machine with IP67 Protection shall be capable of functioning normally even after remaining in submerged condition.	SER Comments- Time span for remaining in submerged conditions needs to be specified. M/s Rotomotive- To safely mend and defend against unauthorized intervention. Internal locking should be updated, and an external locking system should be added to the IP67 protection cover. Access of motor shaft for cranking the operation, Crank handle hole lock assembly mounted on main cover can be removed. Arrangement of locking can be on external IP67 cover (which	No Change	Comments of SER, M/s Rotomotive, M/s CG, M/s ELGI, and SCR have been Noted. Requirement of water proof point machine has been shifted to clause 5.2 of this spec and general requirement as stated in original specification remained unchanged. Accordingly the modified clause is stated in alongside column.

3304419/2024/O/o ED/SIGNAL-2/RDSO

		<p>is additionally mounted on main cover)</p> <p>M/s CG- Complied(Oil seals, Rubber Gaskets, Rod seals and Rubber O rings are used at Drive, Lock & Detector rod end to Protect point machine from water entrance.)</p> <p>M/s ELGI ELECTRIC - Modification will be done on construction to capable of functioning normally even after remaining in submerged condition. The Area and what type of modification/changes in drawings to be done are In process and will be implimented after complition of the process.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>		
5.2	The machine shall be so designed that it can be stopped, reversed or obstructed at any point during operation without any damage.	M/s ELGI ELECTRIC -Modification not required	<p>The Water-Proof Electric Point Machine shall be capable of functioning normally even after remaining in submerged condition.</p>	<p>Noted</p> <p>New requirement for water proof point machine as discussed against cl. No. 5.1 is given in cl. No.5.2 and Original Clause 5.2 shifted at 5.3</p>
5.3	The machine shall be so constructed that no movement of the mechanism shall result from vibration or external force applied to the mechanical connection.	M/s ELGI ELECTRIC -Modification not required	The machine shall be so designed that it can be stopped, reversed or obstructed at any point during operation without any damage.	Original Clause 5.3 shifted at 5.4

3304419/2024/O/o ED/SIGNAL-2/RDSO

5.4	<p>The machine shall be suitable for either right-hand or left-hand mounting, and shall be so constructed that it can readily be converted at site from right-hand to left-hand mounting and vice-versa</p>	<p>SER Comments- For conversion to Right hand to Left Hand, adequate arrangement should be available so that such conversion does not cause water ingress through lock slide.</p> <p>M/s Globe scott- The IP67 Machine will have either right hand mounting or left hand mounting & shall not be convertible at site, due to its setting for IP67 protection</p> <p>S&T Workshop, Mettuguda, SCR - The Point machine should be clearly marked for LH (left- hand) or RH (right-hand). In open-line practice, the direction of locking and detection rods/slides may be adjusted according to site requirements. However, if the rods/slides are replaced to meet the requirements, it could compromise the integrity of the IP-67 rating</p>	<p>The machine shall be so constructed that no movement of the mechanism shall result from vibration or external force applied to the mechanical connection.</p>	<p>Agreed. This provision has already been mentioned in the proposed Revision.</p> <p>Not agreed. Issue has been discussed in the meeting held on 09.10.24 with Point machine OEMs and conversion to Right hand to Left Hand is possible with water and dust proof point machine. Necessary arrangement to achieve this feature shall be provided by manufacture as provisioned in this specification. So no change is required.</p> <p>Already covered above against M/s Globe Scott comments.</p> <p>Original Clause 5.4 shifted to 5.5</p>
-----	---	---	--	---

3304419/2024/O/o ED/SIGNAL-2/RDSO

5.5	The motor cut-off contacts shall be housed in the mechanism case and so designed that they follow the movement of the mechanism and do not complete their operation until the locking mechanism has completed its function.		The machine shall be suitable for either right-hand or left-hand mounting, and shall be so constructed that it can readily be converted at site from right-hand to left-hand mounting and vice-versa	Clause 5.5 is shifted to 5.6.
5.6	The locking of the points shall be achieved by means of a locking segment engaging in the locking slot of the lock slide.	M/s ELGI ELECTRIC -Modification not required	The motor cut-off contacts shall be housed in the mechanism case and so designed that they follow the movement of the mechanism and do not complete their operation until the locking mechanism has completed its function.	Noted Clause 5.6 is shifted to 5.7.
5.7	The locking segment and the notch in the lock slide shall be of substantial size and shall have a substantial bearing surface between them in the locked position.	M/s ELGI ELECTRIC -Modification not required	The locking of the points shall be achieved by means of a locking segment engaging in the locking slot of the lock slide.	Noted Clause 5.7 is shifted to 5.8
5.8	The entrance edges of the locking slot in the lock slide and the end face of the locking segments shall have square edges. Notches shall be cut to correct size and locking segments shall be made of hardened steel.	M/s ELGI ELECTRIC -Modification not required	The locking segment and the notch in the lock slide shall be of substantial size and shall have a substantial bearing surface between them in the locked position.	Noted Clause 5.8 shifted to 5.9
5.9	The detector unit shall have sufficient number of contacts for proving the full normal and reverse positions of the detector slides and the corresponding locked position of the lock slide. It shall also prove the complete operation of the point machine and the complete movement of locking process. For Electric Point Machine with IP67	M/s Rotomotive- Externally arrangements provided for all types of slides to comply the IP 67 Protection requirement. M/s CG-		5.9 original clause is shifted to 5.11. This issue has already been addressed in CI No 5.10 new.

3304419/2024/076 ED/SIGNAL-2/RDSO

	<p>Hydrogenates nitrile sealing arrangements shall be provided for detector slides, lock slides and drive rod in order to prevent from water or dust ingress in to the machine.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p> <p>M/s ELGI ELECTRIC –</p> <p>Hydrogenates nitrile sealing arrangements will be provided in brackets and also in between of detector slides and lock slides and also in drive rod to prevent water or dust ingress</p>	<p>Complied(Oil seals, Rubber Gaskets, Rod seals and Rubber O rings are used at Drive, Lock & Detector rod end to protect point machine from water entrance.</p>	<p>The entrance edges of the locking slot in the lock slide and the end face of the locking segments shall have square edges. Notches shall be cut to correct size and locking segments shall be made of hardened steel.</p>	<p>Already covered above.</p> <p>Noted</p> <p>Already covered above.</p>
5.10	<p>Detection and motor cut-off contacts shall be housed in a transparent cover made of UV stabilized polycarbonate material. The sealing arrangement should be provided on the transparent cover and it should be dust proof and water proof. The position of the detection and motor cut off contacts shall be such as to avoid dropping of grease, oil during maintenance work.</p>		<p>For Water-Proof Electric Point Machine, necessary sealing arrangements is to be provided for detector slides, lock slides, drive rod, Cable Entry Points, Machine Fixing Holes, Drainage hole, Crank handle arrangement holes and Machine cover to prevent water or dust ingress in the machine.</p>	<p>Original 5.10 is now shifted to clause 5.12 New requirement to achieve water proof feature has been added in the proposed Specification and given in Clause no. 5.10.</p>
5.11	<p>Electrical contacts shall be of low</p>			<p>5.11 is shifted to 5.13</p>

3304419/2024/06 ED/SIGNAL-2/RDSO

	<p>For Electric Point Machine self-aligning and wiping type and shall conform to IRS: S 23.</p> <p>For Electric Point Machine with IP67 Protection, Finger contacts of Electric point machine to be properly insulated by epoxy or some water resistant material till silver contact so even if water enters in machine it shall protected against failure due to water.</p>	<p>M/s Rotomotive- OK</p> <p>M/s CG- Complied (Complete contact assembly A and B will be coated with specified coating after assembly of it.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>	<p>The detector unit shall have sufficient number of contacts for proving the full normal and reverse positions of the detector slides and the corresponding locked position of the lock slide. It shall also prove the complete operation of the point machine and the complete movement of locking process.</p>	Noted
5.12	<p>Provision shall be made for proper and convenient lubrication of the moving parts of the machine, wherever necessary. Grease, oil during maintenance work.</p>	<p>M/s ELGI ELECTRIC -Modification not required</p>	<p>Detection and motor cut-off contacts shall be housed in a transparent cover made of UV stabilized polycarbonate material. The sealing arrangement should be provided on the transparent cover and it should be dust proof and water proof. The position of the detection and motor cut off contacts shall be such as to avoid dropping of grease, oil during maintenance work.</p>	<p>Noted</p> <p>Cl no. 5.12 is shifted to cl. No. 5.14</p>

3304419/2024/06 ED/SIGNAL-2/RDSO

	<p>Exposed oil holes, cups and grease nipples shall be provided with weather-proof spring loaded covers.</p> <p>For Electric Point Machine with IP67 Protection, Necessary sealing is provided for lubrication/ grease nipples to prevent water or dust ingress in the machine.</p>	<p>M/s Rotomotive- For access of grease nipple, Removable plug arrangement provided on the external cover. Spring loaded covers for oil holes/ grease nipples are not capable to fulfill the water / dust resistance IP 67 .</p> <p>M/s CG- Complied S&T Workshop, Mettuguda, SCR - Agreed</p>	<p>Electrical contacts shall be of low resistance, quick acting, self-aligning and wiping type and shall conform to IRS: S 23.</p> <p>In addition to above, For Water-Proof Electric Point Machine, contacts should be properly insulated by epoxy or water-resistant material till silver contact so even if water enters in machine it shall protect against failure due to water.</p>	<p>5.13 is shifted to 5.15</p> <p>Comments of, M/s Rotomotive, M/s CG, and SCR have been Noted.</p> <p>Clause is modified for water proof electric point machine and minor correction has been done and stated in alongside column.</p>
5.14	The design shall be such as to minimize condensation in the machine.	M/s ELGI ELECTRIC -Modification not required	Provision shall be made for proper and convenient lubrication of the moving parts of the machine, wherever necessary	<p>Noted</p> <p>Original 5.14 Now it is shifted to clause 5.16.</p>
5.15	Clearance of not less than 12 mm shall be provided between any exposed current carrying parts and other	M/s ELGI ELECTRIC -Modification not required	Exposed oil holes, cups and grease nipples shall be provided with weather-proof spring loaded covers.	Original 5.15 Now it is shifted to clause 5.17

3304419/2024/06 ED/SIGNAL 2/RDSO

	metallic parts insulated therefrom.		In addition to above, for Water-Proof Electric Point Machine, Necessary sealing shall be provided for lubrication/ grease nipples to prevent water or dust ingress in the machine.	Clause is modified for water proof electric point machine and minor correction has been done and stated in alongside column
5.16	With the exception of motor commutator, a surface leakage distance of not less than 6 mm shall be provided between any exposed current carrying parts and other metallic parts insulated therefrom.	M/s ELGI ELECTRIC -Modification not required	The design shall be such as to minimize condensation in the machine.	Noted Original 5.16 Now it is shifted to clause 5.18
5.17	The insulating materials used shall conform to IRS: S 23 and shall not be injuriously affected by atmospheric conditions.	M/s ELGI ELECTRIC -Modification not required	Clearance of not less than 12 mm shall be provided between any exposed current carrying parts and other metallic parts insulated therefrom.	Noted Original 5.17 Now it is shifted at clause 5.19
5.18	Dimensions of fixing arrangement of point machine shall be as per drawing No. RDSO / S 10800 for 143 mm stroke and RDSO / S 11000 for 220 mm stroke IRS point machine.	M/s ELGI ELECTRIC –Modification not required	With the exception of motor commutator, a surface leakage distance of not less than 6 mm shall be provided between any exposed current carrying parts and other metallic parts insulated therefrom	Noted Original 5.18 Now it is shifted at clause 5.20
5.19			The insulating materials used shall conform to IRS: S 23 and shall not be injuriously affected by atmospheric conditions.	
5.20			Dimensions of fixing arrangement of point machine shall be as per drawing No. RDSO / S 10800 for 143 mm stroke and RDSO / S 11000 for 220 mm stroke IRS point machine.	

3304419/2024/O/o ED/SIGNAL-2/RDSO

Following aspects shall be ensured in the design of Water-Proof Electric Point Machine to achieve the compatibility with Conventional Electric Point.

- a) Existing Position of ground connection shall remain unchanged.
- b) Existing Position of P-Bracket and its holes for connecting ground connection shall remain unchanged.
- c) Existing Position of Clamp lock assembly shall remain unchanged.
- d) Existing Position of Machine fixing holes shall remain unchanged.
- e) Existing Point installation Layout drawing RDSO/S 3454 ALT-B (OR Latest) for Thick Web Switch (220 mm) and Layout drawing RDSO/S 3262-63 (OR Latest) for Overriding Switch (143 mm) shall remain applicable.
- f) Water- proof Electric Point Machine shall be replaceable with conventional Electric Point Machines without any change Ground Connection, P-Bracket, Clamp Lock assembly, Chair plate for fixing Point Machine.

New Clause is added.

Requirement of compatibility of waterproof point machine with Conventional Electric Point has been given in this clause.

3304419/2024/O/o ED/SIGNAL-2/RDSO

The machine shall be enclosed in a strong metallic weather-proof machine case, designed for mounting on two sleepers. Each machine case shall be provided with removable cover/covers. The main cover/covers shall be equipped with suitable fastenings to enable the covers to be secured and locked. Suitable hole or holes with removable metal plugs shall be provided, at the base or the machine case, for draining off of the accumulated oil or water.

For Electric Point Machine with IP67 Protection, Drain holes with removable metal plugs for draining off of the accumulated oil or water shall be prevented from ingress of water and dust. Machine case shall be so designed to accommodate all the rods with necessary sealing arrangements/gaskets for IP 67. For Electric Point Machine with IP67 Protection, all the holes at base for fixing Electric point machine shall be required to be protected against water and dust ingress.

M/s Rotomotive-

Ingress Protection 67 Main covers/ covers is equipped with Suitable holes for grease nipple and for the drainage hole to accumulated the oil or water.

M/s CG-

Complied (Drain plug with proper sealing arrangement will be such design that water or dust will not enter in the machine.

To protect entrance of water inside from the fixing hole we will provide these holes outside the machine.)

M/s ELGI ELECTRIC -

Metal plugs with sealing provisions will be provided for all drain holes to prevent ingress of water and dust inside the machine. Modification will be done on House covers(In-Process)

ECoR –

1. The removable cover of point machine thickness and quality of material to be mentioned as the covers are rusted within one or two year.

2. The mechanism of removing accumulated oil or water for IP-67 point machine to be mentioned

S&T Workshop, Mettuguda, SCR -
Agreed

6.1 a. For Conventional Electric Point Machine, the machine shall be enclosed in a strong metallic weather-proof machine case, designed for mounting on two sleepers. Each machine case shall be provided with removable cover/covers. The main cover/covers shall be equipped with suitable fastenings to enable the covers to be secured and locked. Suitable hole or holes with removable metal plugs shall be provided, at the base or the machine case, for draining off of the accumulated oil or water.

6.1 b. For Water-Proof Electric Point Machine, the machine shall be enclosed in a strong metallic weather and Water-proof machine case, designed for mounting on two sleepers. . Each machine case shall be provided with removable cover/covers. The main cover/covers shall be equipped with suitable pressure mechanism fastenings to enable the covers to be secured and locked and to prevent water and dust ingress. Suitable Drain holes with removable sealing plugs for draining off of the accumulated oil or water shall be provided to prevent ingress of water and dust. All the holes at base for fixing shall be protected against water and dust ingress. Machine case shall be so designed to accommodate all the rods

Comments of, M/s Rotomotive, M/s CG, M/s ELGI and SCR have been Noted.

This clause is modified to differentiate between Conventional Electric Point Machine and Water-Proof Electric Point Machine and stated in alongside column.

3304419/2024/O/o ED/SIGNAL-2/RDSO

			<p>(detector, Lock and Throw) with necessary sealing arrangements/gaskets to prevent ingress of Water and dust. Sealing Material to be used shall be as following: (Please refer Table No-1 of Specification)</p> <p>Note:</p> <p>(i) Condition of Sealing material shall be checked by before each Mansoon and replaced, if required.</p> <p>(ii) Sealing arrangement should be so sturdy so that it shall not get affected by Maintenance activities like opening of cover, replacement of ground connection, replacement of P-Bracket, replacement of Clamp lock assembly, replacement of Cable and maintenance in Crank Handle assembly etc.</p>	
6.2	<p>The machine case shall be provided with cable entries of ample size, conveniently located for access to terminals, equipped with suitable means for connecting flexible conduit and arranged to protect the cable from mechanical injury. The cable entries shall be suitable for either right-hand or left-hand mounting of the machine, and shall be so designed that the machine case will be weather-proof</p> <p>For Electric Point Machine with IP67 Protection, The machine shall be provided with IP67 gland at both sides right-left for cable entry to ensure protection against dust and water.</p>	<p>M/s Rotomotive- OK, Cable gland should be fulfill the IP67</p> <p>M/s CG- Requirement. Will be complied, Please Specify the Cable. Necessary design modification will be done in Machine base for Gland Housing. diameter for motor or detection operation for selection of appropriate Glands.</p> <p>M/s ELGI ELECTRIC - Cable gland with IP 67 Protection</p>		<p>Comments of, M/s Rotomotive, M/s CG, M/s ELGI and SCR have been Noted.</p>

3304419/2024/O/o ED/SIGNAL-2/RDSO

		<p>will be provided at cable entries to protect from dust and water.</p> <p>ECoR - The hole of cable entry to be slightly increased to enter 2 nos of (one 12 and one 19 core) cables inside the point machine.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>	<p>The machine case shall be provided with cable entries of ample size, conveniently located for access to terminals, equipped with suitable means for connecting flexible conduit and arranged to protect the cable from mechanical injury. The cable entries shall be suitable for either right-hand or left-hand mounting of the machine, and shall be so designed that the machine case will be weather-proof</p> <p>In addition to above, water proof cable gland shall be provided at cable entry holes of Water-Proof Electric Point Machine to ensure protection against dust and water. Manufacturer shall supply cable gland as per the size of cable being used.</p>	<p>Requirement to achieve water proof at Cable entry point has been added and accordingly clause is modified and stated in alongside column.</p>
6.3	<p>The machine case shall be provided with an opening, for application of crank handle protected by an external metal weather-proof cover equipped with suitable fastenings for locking.</p> <p>IP67 arrangement to be provided at the entry point of crank handle hole for Electric Point Machine with IP67 Protection.</p>	<p>M/s Rotomotive- Key box assembly can be removed. Operation of voltage cut out with IP 67 protection is not possible with existing key box assembly. For this operation the IP67 protected key electrical switch shall be use instead of key box assembly.</p> <p>M/s CG- Complied Machine cover designing in such a way that opening</p>		<p>Comments of M/s Rotomotive, M/s CG, M/s ELGI, and SCR have been Noted.</p>

3304419/2024/O/o ED/SIGNAL-2/RDSO

		<p>and closing does not effects the IP rating.</p> <p>M/s ELGI ELECTRIC - Modification will be done on the crank handle hole area in Machine case and cover (In-process)</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>	<p>Conventional Electric Point Machine case shall be provided with an opening, for application of crank handle protected by an external metal weather-proof cover equipped with suitable fastenings for locking.</p>	<p>This clause is for conventional electric point machine and accordingly minor correction has been done and stated in alongside column.</p>
6.4	<p>The machine shall be so designed that it is capable of being mounted at a raised level on extended sleepers in flood prone areas. For Electric Point Machine with IP67 Protection, The arrangements adopted for making the Electric point machine water proof shall be such that opening of cover for maintenance should not affect IP-67 protection after fixing the cover.</p>		<p>The design of Water- proof Electric Point Machine shall allow operation of crank handle with existing key and existing crank handle in submerge condition. Suitable sealing arrangement shall be provided to prevent ingress of dust and water. Crank handle arrangement of Water- proof Electric Point Machine shall be protected by an external metal weather and water proof cover equipped with suitable fastenings for locking.</p>	<p>New Clause is added to specify crank handle operation and stated alongside column.</p> <p>Original content of cl no. 6.4 has been shifted to 6.5</p>
6.5	<p>The height of the machine shall be such that there is no infringement with the schedule of dimensions when the machine is mounted on two sleepers. For Electric Point Machine with IP67 Protection, The arrangements adopted for making the Electric point machine water proof shall be such that opening of cover for maintenance should not affect IP-67 protection after fixing the cover.</p>	<p>S&T Workshop, Mettuguda, SCR - Clause may be deleted as the design is proposed for IP-67.</p> <p>CR Comments- Standard rodding design for raised need to be issued.</p> <p>M/s Globe scott- It is an IP67 Machine so, there is no need for machine to be mounted on</p>		<p>Comments of SCR, CR, M/s Globe scott, M/s Rotomotive, M/s ELGI and have been Noted.</p>

3304419/2024/O/o ED/SIGNAL-2/RDSO

		<p>raised level on extended sleepers.</p> <p>M/s Rotomotive-</p> <p>OK, External gasket arrangement can be capable for IP 67 after maintenance Work.</p> <p>M/s ELGI ELECTRIC -</p> <p>Modification will be done on cover suitable for IP-67 protection fixing the cover even after maintenance work complete.</p>	<p>Conventional Electric Point Machine shall be so designed that it is capable of being mounted at a raised level on extended sleepers in flood prone areas.</p>	<p>Clause 6.5 is modified and stated in alongside column. Original 6.5 is shifted at 6.6</p>
7.1	<p>Motor shall comply with the requirements of IRS: S 37 'Motor for Electric Point Machine'.</p> <p>IP67 motor should be used with Electric Point Machine with IP67 Protection, for better results as per IRS: S 37-2022, Version 2.0</p>	<p>M/s CG-</p> <p>Complied (Motor having 110V DC, 400V ACI IP-67 protection will be used)</p> <p>M/s ELGI ELECTRIC -</p> <p>Motor with IP-67 will be used in the point machine.</p> <p>ECoR -</p> <p>Opening of armature should be from top it is very difficult for cleaning of armature and replace of carbon brushes if it is from side. CG point machines are having opening from top.</p> <p>S&T Workshop, Mettuguda, SCR -</p> <p>Agreed</p>	<p>Motor shall comply with the requirements of IRS: S 37-2022, Version 2.0 (Or latest) 'Motor for Electric Point Machine'.</p> <p>In addition to above, IP67 motor as per</p>	<p>Comments of CG, M/s ELGI,ECoR and SCR have been Noted.</p> <p>Clause 7.1 is modified to bring clarity on the use of conventional DC motor with conventional electric point machine and IP67 motor with</p>

3304419/2024/O/o ED/SIGNAL-2/RDSO

			IRS: S 37-2022, Version 2.0 (Or latest) should be used with Water-Proof Electric Point Machine,	water proof electric point machine and stated in alongside column.
7.2	Motor shall form an integral part of the machine and shall be removable therefrom.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
7.3	Motor terminal blocks shall be made of unbreakable material like PBT.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
8.1	The machine shall be so designed as to permit manual operation by use of a crank handle.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
8.2	The machine shall be provided with a crank handle cutout contact such that the crank handle cannot be inserted in the machine without isolating the motor circuit. This circuit shall not be capable of being reconnected until the crank handle has been withdrawn from the machine.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
8.3	The crank handles shall be provided with different ward combinations with matching sockets on the machine, so that the crank handle having a particular ward combination can only operate point machines having matching sockets. Instead of crank handle, a key may also be provided with different ward combinations with matching sockets on the machine so that insertion of key of the particular ward only is possible in the point machine socket which will enable a common crank handle to be inserted in the machine.	<p>M/s CG- Complied (To protect water entrance inside the machine from Cut off Key insertion hole, Key operation mechanism and voltage cut out needs to be modify to meet IP-67 protection.)</p> <p>M/s ELGI ELECTRIC – Proper sealing will be provided at crank handle contact cut off key insertion hole.</p> <p>S&T Workshop, Mettuguda, SCR -</p>		Comments of M/s CG, M/s ELGI, and SCR have been Noted.

3304419/2024/O/o ED/SIGNAL-2/RDSO

	For Electric Point Machine with IP67 Protection, Crank handle contact cut off Key insertion hole to be protected from entry of water and dust inside the point machine.	Agreed	The crank handles shall be provided with different ward combinations with matching sockets on the machine, so that the crank handle having a particular ward combination can only operate point machines having matching sockets. Instead of crank handle, a key may also be provided with different ward combinations with matching sockets on the machine so that insertion of key of the particular ward only is possible in the point machine socket which will enable a common crank handle to be inserted in the machine.	Since Crank Handle operation has been incorporated in clause no 6.4, this clause has been modified by deleting Crank Handle operation to avoid repetition of contents.
8.3.1	<p>Crank handle/key sockets on the machine shall be provided with detachable arrangements so that when the machine is taken out for maintenance purposes, the same crank handle/key ward can be used in the new machine, thus enabling the use of the same crank handle/key ward combination for that point.</p> <p>For Electric Point Machine with (P67 Protection, crank handle arrangements shall be such that the crank handle operation should be possible without water entering inside</p>	<p>CR Comments- It needs to be examined as such arrangement may not be practically possible Opening for crank handling will allow water to enter.</p> <p>M/s Globe scott- Special lock will be provided for Crank handle / Key Socket, so water will not enter the machine even in submerge condition</p> <p>M/s CG- Complied (To protect entrance of water inside the machine</p>	Crank handle/key sockets on the machine	<p>Comments of CR, M/s Globe Scott, M/s CG, M/s ELGI, and SCR have been Noted.</p> <p>Since Crank Handle operation</p>

3304419/2024/0/0-ED/SIGNAL-2/RDSO

	the machine is completely emerged in water during monsoon.	<p>during cranking, Crank arranged needs to be modify to meet IP-67 protection.)</p> <p>M/s ELGI ELECTRIC –</p> <p>The suggestion for modification is under process.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>	shall be provided with detachable arrangements so that when the machine is taken out for maintenance purposes, the same crank handle/key ward can be used in the new machine, thus enabling the use of the same crank handle/key ward combination for that point.	<p>has been incorporated in clause no 6.4, this clause has been modified by deleting Crank Handle operation to avoid repetition of contents.</p> <p>Clause 8.3.1 is modified by deleting additional clause, restored as original clause and stated in alongside column.</p>
9.3	Terminals for external connections shall as far as practicable, be located near the cable entry Terminals of cable entry shall be of standard type	<p>CR Comments-</p> <p>The cable termination shall be suitable raised, to protect the electrical connection from water ingress.</p> <p>M/s ELGI ELECTRIC -Modification not required</p>	No Change	Comments of CR and M/s ELGI have been Noted.
9.4	Terminal shall be marked for identification purposes in accordance with the diagram of connections.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
10.1	Internal wiring shall be neatly arranged and shall conform to IRS: S 23. Color code and numbering of internal wiring shall be as per Figure 1.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
10.2	The conductors for the internal wiring shall be insulated and shall be of tinned copper, stranded, having a cross-sectional area of not less than 2 sq. mm and not less than 3 strands.	<p>CR Comments-</p> <p>The internal wire shall be multi strand tinned copper.</p> <p>M/s ELGI ELECTRIC -Modification not</p>	No Change	Noted

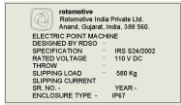
3304419/2024/PO/ED/SIGNAL-2/RDSO

	eyelets of each connection shall be, labelled and provided with an eyelet of a suitable type. These eyelets shall be crimped and soldered.	required		
10.3	Where wire connections are provided at a common terminal, the same shall be capable of being disconnected readily for test purposes.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
10.4	Wiring diagram with explanation, if any, in English, engraved on an anodized metallic sheet, shall be securely attached to the inner face of the cover of the machine and protected from the effects of lubricants and moisture.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
11.1	The machine shall comply with the appropriate operating data given in clause 11.6 of this specification.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
11.2	The machine shall be capable of operating between the limits of 75 percent and 125 percent of the rated voltage at 450 kg. test load. Test load for 143 mm. throw point machine and at 550 kg. test load for 220 mm throw point machine. The machine shall be capable of operating between the limits of 75 percent and 125 percent of the rated voltage at 450 kg. test load.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted Amendment 1 has been incorporated.
11.3	The machine in locked position, shall be capable of withstanding a thrust of 9000 Kg. through the connections, so that in the event of trail through, the damage is confined to the connections between the machine and points.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted

3304419/2024/06 ED/SIGNAL-2/RDSO

	The friction clutch of the machine shall be factory adjusted to slip at not exceeding 580 kg. load on throw bar. The clutch adjustment shall be sealed in the factory. The slipping load and slipping current shall be indicated on the name plate.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted Amendment 1 has been incorporated.
11.5	The point machine shall have a min. AC immunity level of 160 V or 400V (r. m. s.), 50 Hz.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
11.6	Operating data For Operating data pls refer table No.2 of Specification.	<p>CR Comments- Practically it is noted that the current consumption is more than the prescribed value.</p> <p>M/s Globe scott- Please modify the operating data for IP 67 Current consumption in 220mm throw = 6.5A.</p> <p>S&T Workshop, Mettuguda, SCR - i) Current shall be accordingly modified as the friction of Drive, Detection & Lock rods will increase.</p> <p>ii) Time shall be accordingly modified as the friction of Drive, Detection & Lock rods will increase.</p> <p>iii) Current as per Drawing No. RDSO/S:10910 is 5.3Amps.</p>		Comments of CR, M/s Globe scott, SCR have been noted.

3304419/2024/O/o ED/SIGNAL-2/RDSO

		The rating of the Motor shall be modified suitably after due testing of IP point machine for 220 mm type EPM.		
13.1	Marking and identification shall be done in accordance with IRS: S 23.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
13.2	<p>The nameplate of the electric point machine shall have the following details, engraved on a metallic plate, affixed at a convenient place on the internal portion of the point machine.</p> <ol style="list-style-type: none"> 1 Designed by RDSO 2 Manufacturer's name or trade mark 3 Serial No. 4 Rated Voltage (110V, DC) 5 Throw 6 Slipping Current 7 Slipping Load 8 Year of manufacture 9 Enclosure Type 	<p>CR Comments- In addition to Sr 1 to 9 plate must be specifically have immunization level mentioned on it (i.e. 160V or 400V)</p> <p>M/s Rotomotive- OK</p>  <p>M/s CG- Will be Complied (IP-67 Protection rating will be mention on the name plate of point machine)</p> <p>M/s ELGI ELECTRIC – The Point (Enclosure type) will be added in new name plate.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>	<p>The nameplate of the electric point machine shall have the following details, engraved on a metallic plate, affixed at a convenient place on the internal portion of the point machine.</p> <ol style="list-style-type: none"> 1 Designed by RDSO 2 Manufacturer's name or trade mark 3 Type of Point Machine 4 Serial No. 5 Year of manufacture 6 Rated Voltage (110V, DC) 7 Throw 8 Slipping Current 9 Slipping Load 	<p>Type of machine is added and Clause 13.2 is modified and stated in alongside column Writing work should be fixed Engraved/embossed so that it shall remain on plate till the codal life of Electric point machine)</p>

419/2024/O/o ED/SIGNAL-2/RDSO				
14.1	The finish of various parts of the machine shall conform to IRS: S 23.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
14.2	Suitable protective coating shall be provided on detector contacts, crank handle contacts and motor.	CR Comments- Same as of 5.11 For Electric Point Machine with IP67 Protection, Finger contacts of Electric point machine to be properly insulated by epoxy or some water-resistant material till silver contact so even if water enters in machine it shall protected against failure due to water M/s ELGI ELECTRIC -Modification not required	No Change	The issue has already been addressed at clause 5.13 of proposed specification. Noted
Clause No. 14.3	The external portion of electric point machine shall be painted with anti-corrosive paints. The color shall be	M/s Globe scott- Anti-corrosive paint with silver color (outer base) / Galvanizing (cover) to	No Change	Zonal Railways are requested to suggest suitable colour to differentiate between

3304419/2024/NO ED/SIGNAL-2/RDSO

	as per IS/IEC 60034-5:2000 Indian Railway Signal Engineering Manual (1984 issue) as per Annexure 'A', Para 1102.	identify its IP rating. M/s ELGI ELECTRIC -Modification not required		conventional Electric point machine and water proof point machine. Noted
15.1	Inspection and tests shall be carried out to ensure that all the requirements of this specification and that of IRS: S 23 are complied with.	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.2	Type Test The following shall constitute type test and shall be conducted in the sequence given below: - (a) Visual check (clause 15.12.1) (b) Operating voltage test (clause 11.2) (c) Applied high voltage test (clause 15.5) (d) Insulation resistance test (clause 15.6) (e) AC immunity test (clause 11.5) (f) Obstruction test (clause 15.11) (g) Performance test (clause 15.7) (h) Life test (clause 15.10) (i) Dimensional check – Size of notches of lock and detector slides. (j) IP67 Complaint EPM Dust Ingress Test: - This test shall be performed as per IS/IEC 60034-5: 2000 to comply IP-67, before water immersion test. Ingress of dust shall be totally prevented. The protection is satisfactory if there is no ingress of dust or water. (k) IP67 Complaint EPM Water Immersion Test: - This test shall be performed as per IS/IEC 60034-5:	M/s Rotomotive- OK M/s CG- Will be Complied (Point machine will be designed to meet the specified IEC standards.) M/s ELGI ELECTRIC – Will be implemented S&T Workshop, Mettuguda, SCR - Agreed	Type Test The following shall constitute type test and shall be conducted in the sequence given below: - (a) Visual check (clause 15.12.1) (b) Operating voltage test (clause 11.2) (c) Applied high voltage test (clause 15.5) (d) Insulation resistance test (clause 15.6) (e) AC immunity test (clause 11.5) (f) Obstruction test (clause 15.11) (g) Performance test (clause 15.7) (h) Life test (clause 15.10) (i) Dimensional check – Size of notches of lock and detector slides. (a) Water proof Electric Point Machine Dust Ingress Test: This test shall be performed as per IS/IEC 60034-5: 2000 to comply IP-67, before water immersion test. Ingress of dust shall be totally prevented. The protection is satisfactory if there is no ingress of dust or water.	15.2 is revised, minor correction has been done and stated in alongside column.

3304419/2024/06 ED/SIGNAL-2/RDSO

	<p>2000 Edition IP-67 protection. The Machine shall be kept submerged under water at a depth of 1 meter for 24 hours, no water should ingress. It shall be taken out and operated after recovery period of 10 minutes with thoroughly wiping externally using cotton cloth, verify its functionality. Measurement of operating parameters and insulation resistance test shall be done as per Clause 11.6 and Clause 15.6. The values of operating current and insulation resistance shall be within specified limits. This Clause shall be applicable for IP-67 complaint EPM.</p>		<p>(b) Water proof Electric Point Machine Water Immersion Test: - This test shall be performed as per IS/IEC 60034-5: 2000 to comply IP-67 protection. The Machine shall be kept submerged under water at a depth of 1 meter for 24 hours, no water should ingress. It shall be taken out and operated after recovery period of 10 minutes with thoroughly wiping externally using cotton cloth, verify its functionality. Measurement of operating parameters and insulation resistance test shall be done as per Clause 11.6 and Clause 15.6. The values of operating current and insulation resistance shall be within specified limits. This Clause shall be applicable for IP-67 complaint EPM</p>	
15.2.1	<p>Only one point machine shall be tested for this purpose. The point machine shall pass all the type tests for proving conformity with this specification. If the point machine fails in any of the tests, the inspecting authority, at his discretion, may call for another point machine of the same type and rating and subject the same to all the type tests. No failure shall be permitted in the repeat test.</p>	<p>M/s ELGI ELECTRIC -Modification not required.</p>	<p>No Change</p>	<p>Noted</p>
15.3	<p>Acceptance Test: The following test constitutes the acceptance test and shall be conducted in the sequence given below: -</p>	<p>M/s Rotomotive- OK</p>	<p>No Change</p>	<p>Noted</p>

3304419/2024/0/6 ED/SIGNAL-2/PDSO

	<p>(b) Operating voltage test (clause 11.2)</p> <p>(c) Applied high voltage test (clause 15.5)</p> <p>(d) Insulation resistance test (clause 15.6)</p> <p>(e) AC immunity test (clause 11.5)</p> <p>(f) Performance test * (clause 15.7)</p> <p>(g) Dimensional check – Size of notches of lock and detector slides.</p> <p>(h) Water immersion test as per clause 15.2 (k) for submerged duration of 04 hours instead of 24 hours with 10 minutes recovery shall be conducted in addition to Clause no. 15.3. (This test shall be applicable for IP-67 compliant EPM only)</p> <p>Reason: This requirement has been included for IP 67 Protection.</p>			
15.3.1	The samples for acceptance test shall be selected as per Appendix 'B'	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.3.2	For acceptance of the lot, no sample shall fail in the acceptance test.	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.4	<p>The following shall constitute routine test and it shall be conducted by the manufacturer on every point machine offered and the test result shall be submitted to the inspecting authority during inspection.</p> <p>a).....</p> <p>b).....</p> <p>c).....</p>	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.5.1	The insulation of an assembled point machine after snubbing diode, if any, is disconnected, shall withstand for one minute test voltage of 2000 V r.	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted

3304419/2024/06-ED/SIGNAL-2/PDSO

	circuits and other metallic parts insulated therefrom.			
15.6.1	This test shall be made immediately after the applied high voltage test specified in clause 15.5, at a potential of not less than 500 V DC.	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.6.2	The insulation resistance shall be measured between individual insulated circuits and earth. The minimum value for each individual insulated circuit shall be not less than 10 Meg. Ohms.	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.7	Performance test: Test shall be conducted to verify the following: (i) Operating characteristics (clause 11.6) (ii) Contact resistance (clause 15.8) (iii) Contact pressure (clause 15.9) These tests shall be conducted on a layout approved by the purchaser or his nominee.	M/s ELGI ELECTRIC -Modification not required.	No Change	Noted
15.8	Contact Resistance Test: The initial contact resistance of electrical contacts shall not exceed 0.03 ohm. The resistance shall be measured when the contact is carrying a direct current of 100 mA. At the end of the life test, the contact resistance shall not exceed 0.06 ohm.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
15.9	Contact Pressure Test: The initial contact pressure of electrical contacts in closed position when measured very near the point of contact shall not be less than 275	M/s ELGI ELECTRIC -Modification not required	No Change	Noted

3304419/2024/01-ED/SIGNAL-2/RDSO

15.2	<p>The machine shall be carried out as laid down in IRS:S23. In addition, the detailed dimensional check and surface finish of some important parts, such as lock and detector slide, rack & pinion, detection contacts etc. as considered necessary by inspecting official, shall be conducted. It shall be ensured that material of all components of the point machine is as per approved drawings. Chemical test report and relevant documents in support of it shall be verified by the Inspecting officer and recorded in Acceptance Test Report.</p>	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
16.1	<p>The machine or any part thereof that does not comply with any of the requirements of this specification and / or of any other specification and / or of drawings as approved by the purchaser may be rejected.</p>	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
17.1	<p>The packing shall be done in accordance with IRS: S 23. Each electric point machine shall be packed in a suitable wooden crate to protect it from any damage during transit etc.</p>	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
18.2	<p>IP67 Complaint EPM: - The manufacturer shall submit an undertaking that they have tested the each electric point machine for IP-67 protection compliance. In case of</p>	<p>M/s Globe scott- Life of the Sealing arrangement will be finalized after field report and code life to be specified</p> <p>M/s CG-</p>		

3304419/2024/06 ED/SIGNAL-2/RDSO

	<p>if/used in a machine within 60 months from date of supply, the machine shall be replaced by the firm or repaired & installed again free of cost.</p> <p>The sealing arrangement used in the Electric point machine for IP-67 protection shall be long lasting and shall not lose the effectiveness during codal life of EPM.</p>	<p>Complied</p> <p>M/s ELGI ELECTRIC - Will be implemented</p> <p>ECoR – Warranty of point motor should match with codal life of point machine that is number of operations mentioned in 15.10.1.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed & The material to be used for sealing may please be specified. The life of the sealing arrangement can only be finalized after Field assessment.</p>	<p>Water proof EPM: - The manufacturer shall submit an undertaking that they have tested the each electric point machine for protection against entry of dust and water ingress. In case of failure of any machine within 30 months from date of supply, the machine shall be replaced by the firm or repaired & installed again free of cost.</p> <p>The sealing arrangement used in the Electric point machine for water proofing shall be long lasting and shall not lose the effectiveness during codal life of EPM.</p>	<p>Since scope of the revision is for Water proof electric point machine, clause is modified and stated in alongside column for comments and suggestions.</p>
19.1	A copy of installation and maintenance manual shall be supplied along with each point machine.	M/s ELGI ELECTRIC -Modification not required	No Change	Noted
20.1	<p>Tools for maintenance and installation including IP 67 Protection may be added as per requirement.</p> <p>i). Hand operated square drive socket wrenches of 12.5 mm driving square (short type) as per IS: 7381 for M8, M10, M12 & M18 threads.</p> <p>One 250 mm long 12.5 mm square extension bar as per IS: 7991 along with compatible Tee handle Square drive as per IS: 7975 suitable for above socket wrenches shall also be provided.</p> <p>ii) Open jaw wrenches (spanners) for M10, M12, M20, M24 & M33 threads</p>	<p>M/s CG- Complied</p> <p>ECoR – The tools for 220mm point machine for driving rod (50 MM) is not of proper size. Same to be measured and corrected.</p> <p>S&T Workshop, Mettuguda, SCR - Agreed</p>	<p>The following set of tools in a suitable tool box shall be supplied along with everyset of eight point machines or less.</p> <p>i). Hand operated square drive socket wrenches of 12.5 mm driving square (short type) as per IS: 7381 for M8, M10, M12 & M18 threads.</p> <p>One 250 mm long 12.5 mm square extension bar as per IS: 7991 along with compatible Tee handle Square drive as per IS: 7975 suitable for above socket wrenches shall also be provided.</p>	

3304419/2024-10-19-ED/SIGNAL-2/RDSO

	ii) Adjustable Wrench. iv) Screw driver 300 mm long. Tools for maintenance and installation including IP 67 Protection may be added as per requirement.		ii) Open jaw wrenches (spanners) for M10, M12, M20, M24 & M33 threads as per IS: 2028. iii) Adjustable Wrench. iv) Screw driver 300 mm long. v) Additional Tools required for Water-Proof Electric Point machine for maintenance may be added as per requirement.	Additional Tools required for Water-Proof Electric Point machine for maintenance has been added and modified clause is stated in alongside column.
20.2	Junction box and two numbers of telescopic pipes of approved type shall be supplied as an integral part of the point machine.	1. The junction box preferably of cast iron should have provision to terminate 24/30 terminals. JB supplied along with motor is of GI make getting rusted within few years. Telescopic pipe should be of stainless steel or GI type. The drawing to be modified and mentioned in Spec	No Change	Noted
Annexure-1	Following are drawing of existing Electric Point Machine. Zonal Railways, Vendors and stakeholders are requested to identify drawings where modifications will be required for IP-67 protection. Please also attach modified drawings of any changes require in existing drawing for meeting the requirement of IP-67 protection.	M/s CG- Modification mentioned wrt to part in Enclosed Annexure	No Change	Noted
Drawings	220 mm Point Machine. RDSO- S 11001 Base Casting, RDSO- S 11004 RH Bracket, RDSO- S 11005 LH Bracket, RDSO- S 10812 Detector rod bracket. RDSO- S 10967 Cable hole cover, RDSO- S 10908 Crake Handle, RDSO- S 10909 Key Switch Lock, RDSO- S 10865 Main Cover	S&T Workshop, Mettuguda, SCR - All the drawings need to be modified except Transmission assembly.	All changes require for IP 67 feature in existing drawings of Electric point machine (annexure 1) shall be intimated to RDSO for standardization.	Noted Note has been added in Annexure 1

3304419/2024/06/ED/SIGNAL-2/RDSO

	<p>RDSO- S 10848 Side Cover for Detector</p> <p>Point machine -143mm</p> <p>RDSO- S 10801 Base Casting,</p> <p>RDSO- S 10804 RH Bracket,</p> <p>RDSO- S 10805 LH Bracket,</p> <p>RDSO- S 10812 Detector rod bracket.</p> <p>RDSO- S 10967 Cable hole cover,</p> <p>RDSO- S 10908 Crake Handle,</p> <p>RDSO- S 10909 Key Switch Lock,</p> <p>RDSO- S 10865 Main Cover.</p>			
--	--	--	--	--