

REASONED DOCUMENT IN RESPONSE TO UPLOADED DRAFT INDIAN RAILWAY STANDARD SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS SERIAL NO. IRS/T-46(THIRD REVISION)

Clause no.	Existing Clause in IRS/T-46 specification for SGCI Inserts	Modified provision of IRS/T-46 specification for SGCI Inserts for 30 days	Received from	Comments/Suggestion	Discussion & reason for accepting/rejecting the suggestion	Final Modified provision of IRS/T-46 specification for SGCI Inserts
	INDIAN RAILWAY STANDARDS SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS SERIAL NO. T-46-1996	INDIAN RAILWAY STANDARDS SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS SERIAL NO. T-46- 1996 2022 (THIRD REVISION AUGUST-2022)	-	No comments	Para has been modified because specification has been revised in 2022.	INDIAN RAILWAY STANDARDS SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS SERIAL NO. T-46- 1996 2022 (THIRD REVISION SEPTEMBER-2022)
	INDIAN RAILWAY STANDARDS SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS S. NO.T-46-1996	INDIAN RAILWAY STANDARDS SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS S. NO.T-46- 1996 2022 (THIRD REVISION AUGUST-2022)	-	No comments	Para has been modified because specification has been revised in 2022.	INDIAN RAILWAY STANDARDS SPECIFICATION FOR SPHEROIDAL GRAPHITE CAST IRON INSERTS S. NO.T-46- 1996 2022 (THIRD REVISION SEPTEMBER -2022)
0.3	new added	The present revision in 2022 has been taken up with a view to incorporate modifications found necessary as item has been decontrolled by Railway Board.	-	No comments	Para has been modified because specification has been revised in 2022.	The present revision in 2022 has been taken up with a view to incorporate modifications found necessary as item has been decontrolled by Railway Board.
0.4	new added	All Correction slips /Corrigendum (Corrigendum no. 1 to 3) issued till date have been incorporated in this	-	No comments	Para has been modified because specification has been	All Correction slips /Corrigendum (Corrigendum no. 1 to 3) issued till date have been incorporated in this

		revision.			revised in 2022.All correction slip have been incorporated.	revision.
1.1	This standard covers the manufactures, approval of samples, internal checking/testing and record keeping for quality assurance, offering material for inspection, testing and inspection and packing of spheroidal graphite Cast Iron Inserts for concrete sleepers hereinafter referred to as "Inserts". Contract awarding party has been referred to as "Purchaser" and its nominated inspection agency/representative as "Inspection Agency/Officer". The firm entrusted with manufacture and supply of inserts, is referred to as "Manufacturer".	This standard covers the manufactures, approval of samples, internal checking/testing and record keeping for quality assurance, offering material for inspection, testing and inspection and packing of spheroidal graphite Cast Iron Inserts for concrete sleepers hereinafter referred to as "Inserts". Contract awarding party has been referred to as "Purchaser" and its nominated inspection agency/representative as "Inspection Agency/Officer authority". The firm entrusted with manufacture and supply of inserts, is referred to as "Manufacturer".	-	No comments	Para has been modified because the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022.	This standard covers the manufactures, approval of samples, internal checking/testing and record keeping for quality assurance, offering material for inspection, testing and inspection and packing of spheroidal graphite Cast Iron Inserts for concrete sleepers hereinafter referred to as "Inserts". Contract awarding party has been referred to as "Purchaser" and its nominated inspection agency/representative as "Inspection Agency/Officer authority". The firm entrusted with manufacture and supply of inserts, is referred to as "Manufacturer".
1.2	"All the provisions contained RDSO's ISO procedures laid down in Document No. QO-D-7.1-11 dated 19.07.2016 (titled "Vendor-Changes in approved status") and subsequent versions/amendments thereof, shall be binding and	"All the provisions contained RDSO's ISO procedures laid down in Document No. QO-D-7.1-11 dated 19.07.2016 (titled "Vendor-Changes in approved status") and subsequent versions/amendments thereof, shall be binding and applicable on the successful	-	No comments	Para has been deleted because the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated	"All the provisions contained RDSO's ISO procedures laid down in Document No. QO-D-7.1-11 dated 19.07.2016 (titled "Vendor-Changes in approved status") and subsequent versions/amendments

	applicable on the successful vendor/vendors in the contracts floated by Railways to maintain quality of products supplied to Railways.”	vendor/vendors in the contracts floated by Railways to maintain quality of products supplied to Railways.”			09.02.2022 & 22.02.2022.	thereof, shall be binding and applicable on the successful vendor/vendors in the contracts floated by Railways to maintain quality of products supplied to Railways.”
3.1	General requirements relating to the supply of inserts shall conform to IS:1387-1967 “ General Requirements for the Supply of Metallurgical Materials (First Revision)”	General requirements relating to the supply of inserts shall conform to IS:1387-1967 1993 “ General Requirements for the Supply of Metallurgical Materials (First Second Revision)”	-	No comments	Since IS specification: 1387 has been revised in 1993.	General requirements relating to the supply of inserts shall conform to IS:1387-1967 1993 “ General Requirements for the Supply of Metallurgical Materials (First Second Revision)”
8 8.1	APPROVAL FOR BULK MANUFACTURE The manufacturer shall make few trial castings with the aim of development of inserts. The castings shall be thoroughly checked for dimension, weight, metallurgical properties and chemical composition. If on examination, any change in pattern of gating, risers and runners, and method of moulding is found necessary, it shall be carried out. The same procedure shall be repeated till all aspects of manufacture technology get corrected.	8. APPROVAL FOR BULK MANUFACTURE 8.1 The manufacturer shall make few trial castings with the aim of development of inserts. The castings shall be thoroughly checked for dimension, weight, metallurgical properties and chemical composition. If on examination, any change in pattern of gating, risers and runners, and method of moulding is found necessary, it shall be carried out. The same procedure shall be repeated till all aspects of manufacture technology get corrected.	-	No comments	Para has been deleted because the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022.	8. APPROVAL FOR BULK MANUFACTURE 8.1 The manufacturer shall make few trial castings with the aim of development of inserts. The castings shall be thoroughly checked for dimension, weight, metallurgical properties and chemical composition. If on examination, any change in pattern of gating, risers and runners, and method of moulding is found necessary, it shall be carried out. The same procedure shall be repeated till all

						aspects of manufacture technology get corrected.
8.2	When the procedure is perfected, the manufacturer shall issue call letter for visit of inspecting officer and sample inserts and test samples shall be made in the presence of inspecting officer. 8 inserts for dimensional checking and other samples and test pieces as instructed by inspecting officers shall be submitted to RDSO for testing. If the samples are found satisfactory dimensionally and metallurgically, the bulk manufacture of inserts shall be allowed. Inspection/testing charges for inspection of firm, checking of gauges, making and testing of samples etc. shall be borne by the manufacturers.	8.2 When the procedure is perfected, the manufacturer shall issue call letter for visit of inspecting officer and sample inserts and test samples shall be made in the presence of inspecting officer. 8 inserts for dimensional checking and other samples and test pieces as instructed by inspecting officers shall be submitted to RDSO for testing. If the samples are found satisfactory dimensionally and metallurgically, the bulk manufacture of inserts shall be allowed. Inspection/testing charges for inspection of firm, checking of gauges, making and testing of samples etc. shall be borne by the manufacturers.	-	No comments	Para has been deleted because the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022.	8.2 When the procedure is perfected, the manufacturer shall issue call letter for visit of inspecting officer and sample inserts and test samples shall be made in the presence of inspecting officer. 8 inserts for dimensional checking and other samples and test pieces as instructed by inspecting officers shall be submitted to RDSO for testing. If the samples are found satisfactory dimensionally and metallurgically, the bulk manufacture of inserts shall be allowed. Inspection/testing charges for inspection of firm, checking of gauges, making and testing of samples etc. shall be borne by the manufacturers.
9.2	Calibration of tensile testing machine shall be got done	8.2 Calibration of tensile testing machine shall be got done	-	No comment	Para has been modified	8.2 Calibration of tensile testing machine shall

	from a reputed and approved firm at least once in a year and test certificates maintained for scrutiny by the Inspecting Officer.	from a reputed and approved Govt. lab/NABL accredited lab firm at least once in a year and test certificates maintained for scrutiny by the Inspecting Officer authority .		s	because the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022. Calibration of Machine shall be reputed and approved Govt. owned /NABL accredited / Govt. lab.	be got done from a reputed and approved Govt. lab/NABL accredited lab firm at least once in a year and test certificates maintained for scrutiny by the Inspecting Officer authority .
9.8	Every insert shall be given one hammer blow as per arrangement shown in annexure XII. Only sound inserts which do not break with blow shall be offered for inspection.	8.8 Every insert shall be given one hammer blow as per arrangement shown in annexure XII X . Only sound inserts which do not break with blow shall be offered for inspection.	-	No comments	Para has been modified because annexure-IX & X has been deleted. Accordingly, annexure-XII has been renumbered as annexure-X.	8.8 Every insert shall be given one hammer blow as per arrangement shown in annexure XII X . Only sound inserts which do not break with blow shall be offered for inspection.
10.3	At least three weeks clear notice will be given to the Inspecting Officer to arrange inspection.	9.3 At least three weeks clear notice will be given to the Inspecting Officer authority to arrange inspection.	-	No comments	Since the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022. Accordingly, para has been modified and	9.3 At least three weeks clear notice will be given to the Inspecting Officer authority to arrange inspection.
10.6	One set of inspection jig and gauge shall be kept for exclusive use of inspecting officer. Height gauge, surface table, clamps and vernier etc. shall also be	9.6 One set of inspection jig and gauge shall be kept for exclusive use of inspecting officer authority . Height gauge, surface table, clamps and vernier etc. shall also be made available				9.6 One set of inspection jig and gauge shall be kept for exclusive use of inspecting officer authority . Height gauge, surface table,

	made available for checking the accuracy of the gauges. Balance/scale shall also be provided for taking the weight of inserts to the accuracy of 1 gm.	for checking the accuracy of the gauges. Balance/scale shall also be provided for taking the weight of inserts to the accuracy of 1 gm.			renumbered.	clamps and vernier etc. shall also be made available for checking the accuracy of the gauges. Balance/scale shall also be provided for taking the weight of inserts to the accuracy of 1 gm.
	new added	10. <u>ACCEPTANCE TESTS</u> Tests as per Para 11 to 14 shall be conducted on SGCI inserts for acceptance of the material	-	No comments	Para has been added because tests have been conducted on SGCI inserts for acceptance of the material.	10. <u>ACCEPTANCE TESTS</u> Tests as per Para 11 to 14 shall be conducted on SGCI inserts for acceptance of the material
11.4.2	One test bar from each batch shall be tested in accordance with IS:1608-1972 and results shall be as under: Tensile strength (Min) - 500 N/mm ² Elongation (Min) - 7%	One test bar from each batch shall be tested in accordance with IS:1608- 1972 2005 and results shall be as under: Tensile strength (Min) - 500 N/mm ² Elongation (Min) - 7%	-	No comments	Since IS specification: 1608 has been revised in 2005.	One test bar from each batch shall be tested in accordance with IS:1608- 1972 2005 and results shall be as under: Tensile strength (Min) - 500 N/mm ² Elongation (Min) - 7%
11.4.3	In addition, tensile shall also be carried out on proportionate test pieces machined out from 1% of the castings selected from every batch. The test pieces shall be machined out from suitable locations on the castings and tested in accordance with IS:1608:1972 'Method of Tensile Testing of Steel	In addition, tensile strength shall also be carried out on proportionate test pieces machined out from 1% of the castings selected from every batch. The test pieces shall be machined out from suitable locations on the castings and tested in accordance with IS:1608 : 1971 2005 'Method of Tensile Testing of Steel Products Other than Sheet,	-	No comments	Since IS specification: 1608 has been revised in 2005. Word 'strength' has been replaced with 'tensile strength'.	In addition, tensile strength shall also be carried out on proportionate test pieces machined out from 1% of the castings selected from every batch. The test pieces shall be machined out from suitable locations on the castings and tested in accordance with IS:1608: 1972 2005

	Products Other than Sheet, Strip, Wire and Tube'. The tensile strength and elongation shall not be less than 80% of the minimum values specified in clause 11.4.2 above.	Strip, Wire and Tube'. The tensile strength and elongation shall not be less than 80% of the minimum values specified in clause 11.4.2 above.				'Method of Tensile Testing of Steel Products Other than Sheet, Strip, Wire and Tube'. The tensile strength and elongation shall not be less than 80% of the minimum values specified in clause 11.4.2 above.
11.4.4	The frequency of testing mentioned in clause 11.4.3 above may at the discretion of the Inspecting Officer be relaxed to one number per heat after ensuring consistency of quality of production in 20000 inserts. In case of results of 2 batches out of 5 batches going beyond permitted values, the frequency of testing shall be reverted back for 20000 inserts.	The frequency of testing mentioned in clause 11.4.3 above may be at the discretion of the Inspecting Officer authority be relaxed to one number per heat after ensuring consistency of quality of production in 20000 inserts. In case of results of 2 batches out of 5 batches going beyond permitted values, the frequency of testing shall be reverted back for 20000 inserts.	-	No comments	Para has been modified because the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022.	The frequency of testing mentioned in clause 11.4.3 above may be at the discretion of the Inspecting Officer authority be relaxed to one number per heat after ensuring consistency of quality of production in 20000 inserts. In case of results of 2 batches out of 5 batches going beyond permitted values, the frequency of testing shall be reverted back for 20000 inserts.
11.5.1	Brinell Hardness test shall be carried out on the end face of the head of all the inserts selected for tensile test in accordance with IS:1500-1983 and hardness shall vary between 170 – 241 BHN.	Brinell Hardness test shall be carried out on the end face of the head of all the inserts selected for tensile test in accordance with IS:1500- 1983 2005 and hardness shall vary between 170 – 241 BHN.	-	No comments	Since IS specification: 1500 has been revised in 2005.	Brinell Hardness test shall be carried out on the end face of the head of all the inserts selected for tensile test in accordance with IS:1500- 1983 2005 and hardness shall vary between 170 – 241 BHN.
11.8.2	Should any of the tests carried out for tensile, hardness, micro-examination and internal soundness on	Should any of the tests carried out for tensile strength , hardness, micro-examination and internal soundness on the	-	No comments	Since word 'strength' has been replaced with 'tensile	Should any of the tests carried out for tensile strength , hardness, micro-examination and internal

	<p>the castings selected fails to meet the specified requirements, two more castings from the same batch represented shall be selected for testing in respect of each failure. Should the test pieces from both these additional samples pass, the castings represented by the test sample shall be deemed to comply with the requirements of that particular test. Should the test pieces from either of these additional samples fail, the castings represented by the test samples shall be considered as not having complied with this standard and shall be rejected.</p>	<p>castings selected fails to meet the specified requirements, two more castings from the same batch represented shall be selected for testing in respect of each failure. Should the test pieces from both these additional samples pass, the castings represented by the test sample shall be deemed to comply with the requirements of that particular test. Should the test pieces from either of these additional samples fail, the castings represented by the test samples shall be considered as not having complied with this standard and shall be rejected.</p>			<p>strength’.</p>	<p>soundness on the castings selected fails to meet the specified requirements, two more castings from the same batch represented shall be selected for testing in respect of each failure. Should the test pieces from both these additional samples pass, the castings represented by the test sample shall be deemed to comply with the requirements of that particular test. Should the test pieces from either of these additional samples fail, the castings represented by the test samples shall be considered as not having complied with this standard and shall be rejected.</p>
12.3	<p>Inspection of inserts for dimensions shall be as per double sampling plan as detailed in Table 1 and 3A of IS:2500 Part I-2000 assuming an AQL of 2.5% and general inspection level of II. The inserts shall be arranged in convenient lots of approximate 1200 (between 501 and 1000).</p>	<p>Inspection of inserts for dimensions shall be as per double sampling plan as detailed in Table 1 and 3A of IS:2500 Part I-2000 assuming an AQL of 2.5% and general inspection level of II. The inserts shall be arranged in convenient lots of approximate 1200 (between 501 and 1000).</p>	-	No comments	<p>Since, As per table1 of IS: 2500 has lot of approximate range (501 to 1200).</p>	<p>Inspection of inserts for dimensions shall be as per double sampling plan as detailed in Table 1 and 3A of IS:2500 Part I-2000 assuming an AQL of 2.5% and general inspection level of II. The inserts shall be arranged in convenient lots of approximate 1200 (between 501 and 1000).</p>
18.2	<p>Manufacturer shall provide transport to the inspecting</p>	<p>Manufacturer shall provide transport to the inspecting</p>	-	No comment	<p>Para has been deleted because</p>	<p>Manufacturer shall provide transport to the inspecting</p>

18.3	<p>officer to and from the railway station/rest house or convenient place of stay.</p> <p>Necessary office accommodation for the inspecting officials at the factory premises shall also be provided by the manufacturer.</p>	<p>officer to and from the railway station/rest house or convenient place of stay.</p> <p>18.2 Necessary office accommodation for the inspecting officials at the factory premises shall also be provided by the manufacturer.</p>		s	<p>the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022.</p>	<p>officer to and from the railway station/rest house or convenient place of stay.</p> <p>18.2 Necessary office accommodation for the inspecting officials at the factory premises shall also be provided by the manufacturer.</p>
19.1	<p>The Inspecting Officer or the Purchaser shall have free access at all reasonable times to the Works where the inserts are made. He shall be at liberty to inspect the manufacture at any stage and to reject any material or supplies that do not conform to the terms of the specification. He shall be provided facility to conveniently inspect any part of the works.</p>	<p>The Inspecting Officer authority or the Purchaser shall have free access at all reasonable times to the Works where the inserts are made. He shall be at liberty to inspect the manufacture at any stage and to reject any material or supplies that do not conform to the terms of the specification. He shall be provided facility to conveniently inspect any part of the works.</p>	-	No comments	<p>Since the item has been decontrolled by Railway Board letter no.2022/Tk-II/22/7/1 dated 09.02.2022 & 22.02.2022. Accordingly, para have been modified and renumbered.</p>	<p>The Inspecting Officer authority or the Purchaser shall have free access at all reasonable times to the Works where the inserts are made. He shall be at liberty to inspect the manufacture at any stage and to reject any material or supplies that do not conform to the terms of the specification. He shall be provided facility to conveniently inspect any part of the works.</p>