SN	Exiting clause of IRS Specification SI. No T-56 – 2020 Proposed Final Draft of IRST-56-2020-2024 (First Revision)(uploaded on RDSO's website for 30 days)  0FOREWORD:  0 FOREWORD:		Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
1.0	OFOREWORD:  0.1 This specification is framed for facilitating inspection and procurement of metal liners for use with Elastic Rail Clip on concrete sleepers. This specification was initially adopted as 'Provisional Specification 1995'. To make the specification self-explanatory and to improve quality of the product the specification is revised as first revision and issued in 2010 with the view to include sources of raw material, hardness test and marking of Lot No. of the product. Applicability of Freedom from Surface Defect test has been specified for Pre-acceptance & Acceptance test.	0.1 This specification is framed for facilitating inspection and procurement of metal liners for use with Elastic Rail Clip on concrete sleepers. This specification was initially adopted as 'Provisional Specification 1995'. To make the specification self-explanatory and to improve quality of the product the specification is revised as first revision and issued in 2010 with the view to include sources of raw material, hardness test and marking of Lot No. of the product. Applicability of Freedom from Surface Defect test has been specified for Preacceptance & Acceptance test.	Nil	Nil	O FOREWORD:  O.1 This specification is framed for facilitating inspection and procurement of metal liners for use with Elastic Rail Clip on concrete sleepers. This specification was initially adopted as 'Provisional Specification 1995'. To make the specification self-explanatory and to improve quality of the product the specification is revised as first revision and issued in 2010 with the view to include sources of raw material, hardness test and marking of Lot No. of the product. Applicability of Freedom from Surface Defect test has been specified for Preacceptance & Acceptance test.
2.0	0.2 Due to discontinuation in publishing the list of sources of structural steel item in Vendor Directory by RDSO and non-identification of integrated steel plants by Joint Plants Committee for procurement, the requirement of steel for rolling of metal liner bars has been revised in the specification so as to improve the quality & serviceability of metal liner bars as well as metal liners henceforth on sustained basis.	0.2 Due to discontinuation in publishing the list of sources of structural steel item in Vendor Directory by RDSO and non-identification of integrated steel plants by Joint Plants Committee for procurement, the requirement of steel for rolling of metal liner bars has been revised in the specification so as to improve the quality & serviceability of metal liner bars as well as metal liners henceforth on sustained basis.	Nil	Nil	0.2 Due to discontinuation in publishing the list of sources of structural steel item in Vendor Directory by RDSO and non-identification of integrated steel plants by Joint Plants Committee for procurement, the requirement of steel for rolling of metal liner bars has been revised in the specification so as to improve thequality & serviceability of metal liner bars as well as metal liners henceforth on sustained basis.
3.0	0.3 The specification was revised as Provisional-2013 with a view to cover the specification & sources for raw material for use by the manufacturer of metal liners and to exercise checks of the steel being used. The chemical composition & mechanical properties of the steel were revised to conform to grade designation E250 Quality C as laid down in Table 1 & Table 2 of IS: 2062-2011 respectively. The chemical composition and metallurgical properties to be tested on raw material (metal liner bar) and finished product (metal liner) were defined.	0.3 The specification was revised as Provisional-2013 with a view to cover the specification & sources for raw material for use by the manufacturer of metal liners and to exercise checks of the steel being used. The chemical composition & mechanical properties of the steel were revised to conform to grade designation E250 Quality C as laid down in Table 1 & Table 2 of IS: 2062-2011 respectively. The chemical composition and metallurgical properties to be tested on raw material (metal liner bar) and finished product (metal liner) were defined.	Nil	Nil	0.3 The specification was revised as Provisional-2013 with a view to cover the specification & sources for raw material for use by the manufacturer of metal liners and to exercise checks of the steel being used. The chemical composition & mechanical properties of the steel were revised to conform to grade designation E250 Quality C as laid down in Table 1 & Table 2 of IS: 2062-2011 respectively. The chemical composition and metallurgical properties to be tested on raw material (metal liner bar) and finished product (metal liner) were defined.

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4.0	0.4 This specification has now been revised and issued in 2020 to cover the corrigendum issued to this	0.4 This specification has now been revised and issued in 2020 to cover the corrigendum issued to this	Nil	Nil	0.4 This specification has now been revised and issued in 2020 to cover the corrigendum issued to this		
	specification till date and to update the latest revision of IS codes.	specification till date and to update the latest revision of IS codes.			specification till date and to update the latest revision of IS codes.		
5.0	<del></del>	0.5This specification has been revised to incorporate Technical requirements for hot dip galvanizing of low carbon steel metal liner to IS: 2062 and the corrigendum No1 issued in the year 2022 to this specification and to update the latest revision of IS codes	Para has been added	Para has been added	0.5This specification has been revised to incorporate Technical requirements for hot dip galvanizing of low carbon steel metal liner to IS: 2062 and the corrigendum No1 issued in the year 2022 to this specification and to update the latest revision of IS codes		
6.0	1.0 SCOPE: This standard covers the general requirements, inspection and testing procedure for metal liners, here after referred to as "LINERS". The metal liner bars used for manufacture of liners shall be referred to as 'RAW MATERIAL'.	1.0 SCOPE: This standard covers the general requirements, inspection and testing procedure for metal liners, here after referred to as "LINERS". The metal liner bars used for manufacture of liners shall be referred to as 'RAW MATERIAL'.	Nil	Nil	1.0 SCOPE: This standard covers the general requirements, inspection and testing procedure for metal liners, here after referred to as "LINERS". The metal liner bars used for manufacture of liners shall be referred to as 'RAW MATERIAL'.		
	All the provisions contained RDSO's ISO Procedures laid down in Document No. QO-D-8.1-11 dated 22.06.2020 (titled "Vendor-changes in approved status") and subsequent versions/amendments 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.	All the provisions contained RDSO's ISO Procedures laid down in Document No. QO-D-8.1-11 dated 22.06.2020 (titled "Vendor-changes in approved status") and subsequent versions/amendments 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.			All the provisions contained RDSO's ISO Procedures laid down in Document No. QO-D-8.1-11 dated 22.06.2020 (titled "Vendor-changes in approved status") and subsequent versions/amendments 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.		

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7.0	REFERENCE DOCUMENTS:	REFERENCE DOCUMENTS:	Nil		REFERENCE DOCUMENTS:		
	i) IS 228 - (Part 1) 1987 (Reaffirmed 2018)- Determination of carbon by Volumetric method (for carbon 0.05 to 2.50 percent) Third revision  ii) IS-228-(Part 3) - 1987 (Reaffirmed 2018) - Determination of phosphorus by alkali metric method	i) IS 209 : 1992 (Reaffirmed Year : 2018 ) Zinc Ingot.		nce has	i) IS 209 : 1992 (Reaffirmed Year : 2018 ) Zinc Ingot.		
		ii) IS 228-(Part 1) 1987 (Reaffirmed 2018) - Determination of carbon by Volumetric method (for carbon 0.05 to 2.50 percent) Third revision		been added	ii) IS 228-(Part 1) 1987 (Reaffirmed 2018) - Determination of carbon by Volumetric method (for carbon 0.05 to 2.50 percent) Third revision		
		iii) IS-228-(Part 3)-1987 (Reaffirmed 2018)- Determination of phosphorus by alkali metric method			iii) IS-228-(Part 3)-1987 (Reaffirmed 2018)- Determination of phosphorus by alkali metric method		
	iii) IS-228-(Part 8)-1989 (Reaffirmed 2019) - Determination of silicon by gravimetric method	iv) IS-228-(Part 8)-1989 (Reaffirmed 2019) - Determination of silicon by gravimetric method (for silicon 0.05 to 5.00%).			iv) IS-228-(Part 8)-1989 (Reaffirmed 2019) - Determination of silicon by gravimetric method (for silicon 0.05 to 5.00%).		
	(for silicon 0.05 to 5.00%).  iv) IS-228-(Part 12)-2001 (Reaffirmed 2019) - Determination of manganese by periodatespectro photometric method in plain carbon, low alloy and high alloy steels (For manganese 0.01 to 5.0%).  v) IS-228-(Part 20)-2003 (Reaffirmed 2019)-	v) IS-228-(Part 12)-2001 (Reaffirmed 2019) - Determination of manganese by periodatespectro photometric method in plain carbon, low alloy and high alloy steels (For manganese 0.01 to 5.0%).			v) IS-228-(Part 12)-2001 (Reaffirmed 2019) - Determination of manganese by periodatespectro photometric method in plain carbon, low alloy and high alloy steels (For manganese 0.01 to 5.0%).		
		vi) IS-228-(Part 20)-2003 (Reaffirmed 2019)- Determination of carbon and sulphur by infrared absorption method (for carbon 0.005 to 2% and sulphur 0.001 to 0.35%			vi) IS-228-(Part 20)-2003 (Reaffirmed 2019)- Determination of carbon and sulphur by infrared absorption method (for carbon 0.005 to 2% and sulphur 0.001 to 0.35%		
	Determination of carbon and sulphur by infrared	vii) IS 265 : 2021 Hydrochloric Acid.			vii) IS 265 : 2021 Hydrochloric Acid.		
	absorption method (for carbon 0.005 to 2% and sulphur 0.001 to 0.35%)	viii) IS-1153-2000 (Reaffirmed 2016) - Specification for temporary corrosion preventives, hard film, solvent deposited)			viii) IS-1153-2000 (Reaffirmed 2016) - Specification for temporary corrosion preventives, hard film, solvent deposited)		
	vi) S-1153-2000 (Reaffirmed 2016) - Specification for temporary corrosion preventives, hard film, solvent deposited)	ix) IS-1500-2005 (Reaffirmed 2010)-Method for Brinell hardness test for metallic materials. (Superseded by IS 1500: Part 1 to Part 4)			ix) IS-1500-2005 (Reaffirmed 2010)-Method for Brinell hardness test for metallic materials. (Superseded by IS 1500: Part 1 to Part 4)		
	vii) IS-1500-2005 (Reaffirmed 2010)-Method for Brinell hardness test for metallic materials. (Superseded by IS 1500: Part 1 to Part 4)	x) IS-1599-1985 (Reaffirmed 2019) Metallic Materials- Bend Test (Fourth revision)			x) IS-1599-1985 (Reaffirmed 2019) Metallic Materials- Bend Test (Fourth revision)		
	viii) IS-1599-1985 (Reaffirmed 2019) - Metallic Materials-Bend Test (Fourth revision)	xi) IS-1608-2005-Metalic materials —Tensile testing at ambient temperature. (Superseded by IS 1608:(Part 1:2018) & (Part 3:2018)			xi) IS-1608-2005-Metalic materials –Tensile testing at ambient temperature. (Superseded by IS 1608:(Part 1:2018) & (Part 3:2018)		
		xii) IS: 1757- (Part-1):2020 (Fourth Revision) - Metallic			xii) IS: 1757- (Part-1):2020 (Fourth Revision) - Metallic		

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	ix) IS-1608-2005-Metalic materials –Tensile	Materials-Charpy Pendulum Impact Test.			Materials-Charpy Pendulum Impact Test.
	testing at ambient temperature. (Superseded by IS 1608:(Part 1:2018) & (Part 3:2018)	xiii) IS- 2062-2011 (Reaffirmed 2016)- Hot rolled, medium and high tensile structural steel.			xiii) IS- 2062-2011 (Reaffirmed 2016)- Hot rolled, medium and high tensile structural steel.
	<ul> <li>x) IS- 2062-2011 (Reaffirmed 2016)- Hot rolled, medium and high tensile structural steel.</li> <li>xi) IS-2500 (Part 1)-2000 (Reaffirmed 2016)</li> </ul>	Xiv) IS-2500 (Part 1)-2000 (Reaffirmed 2016) Sampling Inspection Procedures- Part 1: Attribute Sampling Plans Indexed by Acceptable Quality limit (AQL) for Lot -by -Lot Inspection.			Xiv) IS-2500 (Part 1)-2000 (Reaffirmed 2016) Sampling Inspection Procedures- Part 1: Attribute Sampling Plans Indexed by Acceptable Quality limit (AQL) for Lot -by -Lot Inspection.
	Sampling Inspection Procedures- Part 1: Attribute Sampling Plans Indexed by Acceptable Quality limit (AQL) for Lot -by -Lot Inspection	xv) BIS IS 2629: 1985 (Reaffirmed Year : 2021): Recommended Practice For Hot-Dip Galvanizing Of Iron And Steel.			xv) BIS IS 2629: 1985 (Reaffirmed Year : 2021): Recommended Practice For Hot-Dip Galvanizing Of Iron And Steel.
	xii) IS: 4163-2004 (Reaffirmed 2017) - Determination of Content of Nonmetallic Inclusions- Micrographic Method Using Standard Diagram	xvi) IS 2633 : 1986 (Reaffirmed Year : 2021 ) Methods For TestingUniformity of Coating On Zinc Coated Articles			xvi) IS 2633: 1986 (Reaffirmed Year: 2021) Methods For TestingUniformity of Coating On Zinc Coated Articles
		xvii) IS 3203: 1982 (Reaffirmed Year: 2021) Methods For Testing Local Thickness of Electroplated Coatings			xvii) IS 3203 : 1982 (Reaffirmed Year : 2021 ) Methods For Testing Local Thickness of Electroplated Coatings
	xiii) IS 4748: 2009 (Reaffirmed 2017) : Steels-Micrographic determination of the apparent grain size s.	xviii) IS: 4163-2004 (Reaffirmed 2017) Determination of Content of Nonmetallic Inclusions- Micrographic Method Using Standard Diagrams.			xviii) IS: 4163-2004 (Reaffirmed 2017) Determination of Content of Nonmetallic Inclusions- Micrographic Method Using Standard Diagrams.
		xix) IS 4748: 2009 (Reaffirmed 2017) : Steels- Micrographic determination of the apparent grain size			xix) IS 4748: 2009 (Reaffirmed 2017) : Steels- Micrographic determination of the apparent grain size
		xx) IS 4759: 1996 (Reaffirmed Year: 2021) : HOT-Dip Zinc Coatings On Structural Steel And Other Allied Products.			xx) IS 4759: 1996 (Reaffirmed Year: 2021): HOT-Dip Zinc Coatings On Structural Steel And Other Allied Products.
		xxi) IS 4905 :2015 (Reaffirmed Year : 2020 ) Random Sampling and Randomization Procedures			xxi) IS 4905 :2015 (Reaffirmed Year : 2020 ) Random
		xxii) IS 6012 : 1992 (Reaffirmed Year : 2021 ) Measurement Of Coating Thickness By Eddy Current Method			Sampling and Randomization Procedures  xxii) IS 6012 : 1992 (Reaffirmed Year : 2021)  Measurement Of Coating Thickness By Eddy Current  Method
		xxiii) IS 61S8 :1984 (Reaffirmed Year :2021) Recommended Practice For Safeguarding Against Embrittlement Of Hot-Dip Galvanized Iron And Steel			xxiii) IS 61S8 :1984 (Reaffirmed Year : 2021) Recommended Practice For Safeguarding Against

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,SI. No T-56 – 2024 ( First Revision )
		Products  xxiv) IS: 6745: 1972 (Reaffirmed Year: 2021) Methods For Determination Of Mass Of Zinc Coating On Zinc Coated Iron And Steel Articles  xxv) IS 6746:1994 (Reaffirmed Year: 2020): Unsaturated Polyester Resin Systems – Specification  xxvi)IS 13229: 1991 (Reaffirmed Year: 2019) Zinc For Galvanizing			Embrittlement Of Hot-Dip Galvanized Iron And Steel Products  xxiv) IS: 6745: 1972 (Reaffirmed Year: 2021) Methods For Determination Of Mass Of Zinc Coating On Zinc Coated Iron And Steel Articles  xxv) IS 6746:1994 (Reaffirmed Year: 2020): Unsaturated Polyester Resin Systems – Specification  xxvi)IS 13229: 1991 (Reaffirmed Year: 2019) Zinc For Galvanizing
8.0	3.0 Process of Manufacturing Metal liners	3.0 Process of Manufacturing Metal liners	Nil	Nil	3.0 Process of Manufacturing Metal liners
	i) The metal liner manufacturer shall procure metal liner bars from re-rollers engaged by them.	i) The metal liner manufacturer shall procure metal liner bars from re-rollers engaged by them.	Nil	Nil	i) The metal liner manufacturer shall procure metal liner bars from re-rollers engaged by them.
	ii) The desired properties and the chemical composition of the metal liner bars shall conform to be within the stipulations of IS: 2062:2011 (Grade designation E250, Quality C).	ii) The desired properties and the chemical composition of the metal liner bars shall conform to be within the stipulations of IS: 2062:2011 (Grade designation E250, Quality C).	Nil	Nil	ii) The desired properties and the chemical composition of the metal liner bars shall conform to be within the stipulations of IS: 2062:2011 (Grade designation E250, Quality C).
	iii) Such metal liner bars shall be used for manufacture of metal liners by the process of shearing, punching, grinding etc. which shall conform to the desired chemical & mechanical properties as contained in this specification.	iii) Such metal liner bars shall be used for manufacture of metal liners by the process of shearing, punching, grinding etc. which shall conform to the desired chemical & mechanical properties as contained in this specification.	Nil	Nil	iii) Such metal liner bars shall be used for manufacture of metal liners by the process of shearing, punching, grinding etc. which shall conform to the desired chemical & mechanical properties as contained in this specification.

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9.0	4.0 Procurement of Raw material (Metal liner Bars)	4.0 Procurement of Raw material (Metal liner Bars)	Nil	Nil	4.0 Procurement of Raw material (Metal liner Bars)
	i) The Metal Liner bars shall be supplied in hot rolled and normalized heat treated condition.	i) The Metal Liner bars shall be supplied in hot rolled and normalized heat treated condition.	Nil	Nil	i) The Metal Liner bars shall be supplied in hot rolled and normalized heat treated condition.
	ii) The steel used for metal liner should be of killed quality manufactured by any process of steel making except Bessemer process followed by secondary refining. Metal Liner manufacturer shall obtain a certificate for the same from metal liner bar manufacturer (re-roller approved by them)/ Billet manufacturer and shall produce this certificate at the time of offering the material for inspection.  a) The chemical composition of the steel should conform to grade designation E250 Quality C as laid down in Table 1 of IS: 2062-2011.	ii) The steel used for metal liner should be of killed quality manufactured by any process of steel making except Bessemer process followed by secondary refining. Metal Liner manufacturer shall obtain a certificate for the same from metal liner bar manufacturer (re-roller approved by them)/Billet manufacturer and shall produce this certificate at the time of offering the material for inspection.  a) The chemical composition of the steel should conform to grade designation E250 Quality C as laid down in Table 1 of IS: 2062-2011.	Nil	Nil	ii) The steel used for metal liner should be of killed quality manufactured by any process of steel making except Bessemer process followed by secondary refining. Metal Liner manufacturer shall obtain a certificate for the same from metal liner bar manufacturer (re-roller approved by them)/ Billet manufacturer and shall produce this certificate at the time of offering the material for inspection.  a) The chemical composition of the steel should conform to grade designation E250 Quality C as laid down in Table 1 of IS: 2062-2011.

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				TABLE 1: CHEMICAL COMPOSITION					TABLE 1: CHEMICAL COMPOSITION			
Element  Carbon	% age (Max.)	Permissible variation percent (Max)	Element	% age (Max.)	Permissible variation percent (Max)				Element	% age (Max.)		
Silicon 0.40		Silicon	0.40	0.03				Silicon	0.40	0.03		
Manganese	1.50	0.03	Mangan ese	1.50	0.05	-			Mangan ese	1.50	0.05	
Sulphur	0.040	0.005	Sulphur	0.040	0.005				Sulphur	0.040	0.005	
Phosphorus	0.040	0.005	Phosph	0.040	0.005	_			Phospho rus	0.040	0.005	
b) When the steel is killed by silicon alone, the silicon content shall not be less than 0.1%. When steel is killed by Aluminium alone, the Aluminium content shall not be less than 0.02%. When the steel is killed by Silicon–Aluminium, the Silicon content shall not be less than 0.03% and total Aluminium content shall not be less than 0.01%. Metal liner manufacturer shall obtain a certificate for the same metal liner bar manufacturer (reroller approved by them)/ Billet manufacturer and shall produce this certificate at the time of offering the material for inspection		silicon conte steel is killed content shal steel is killed content shal Aluminium of Metal liner r for the sam roller approv	nt shall not did by Alumin I not be lest of by Silico II not be lest ontent shall manufacture e metal linged by them ce this cer	illed by silicon ald be less than 0.1% ium alone, the Alust than 0.02%. Win—Aluminium, the ess than 0.03% and in ot be less than a celer bar manufacturificate at the inspection.	6. When uminium then the estilicon and total an 0.01%. ertificate urer (re-	Nil	Nil	silicon conter steel is killed content shall steel is killed content shall Aluminium of Metal liner certificate f manufacture manufacture	nt shall no by Alumin not be led by Silice I not be content sh manufa for the r (re-rolle r and shal	killed by silicon alone, of the less than 0.1%. When the sess than 0.02%. When the silicon alone, the Alumini ess than 0.02%. When the silicon all not be less than 0.02% and the same metal liner or approved by them)/ Bill produce this certificate ematerial for inspection		

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for <mark>30</mark> days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,SI. No T-56 – 2024 ( First Revision )
	iii) The liner bars after hot rolling shall further be subjected to normalizing heat treatment by properly soaking in appropriate austenitic state for a suitable period followed by cooling in still air.	iii)The liner bars after hot rolling shall further be subjected to normalizing heat treatment by properly soaking in appropriate austenitic state for a suitable period followed by cooling in still air.	Nil	Nil	iii)The liner bars after hot rolling shall further be subjected to normalizing heat treatment by properly soaking in appropriate austenitic state for a suitable period followed by cooling in still air.
	iv) The mechanical properties Tensile strength, Yield strength, % elongation, bend test &Charpy Impact Test of the liner bars shall conform to grade designation E250 Quality C as laid down in Table 2 of IS:2062-2011.	iv)The mechanical properties Tensile strength, Yield strength, % elongation, bend test &Charpy Impact Test of the liner bars shall conform to grade designation E250 Quality C as laid down in Table 2 of IS:2062-2011.	Nil	Nil	iv) The mechanical properties Tensile strength, Yield strength, % elongation, bend test &Charpy Impact Test of the liner bars shall conform to grade designation E250 Quality C as laid down in Table 2 of IS:2062-2011.

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	TABLE 2: MECHANICAL PROPER	RTIES	TABLE 2: MECHANICAL P	ROPERTIES			TABLE 2: MECHANICAL PRO	OPERTIES	
	Ultimate Tensile Strength (Min)	410 MPa	Ultimate Tensile Strength (Min)	410 MPa			Ultimate Tensile Strength (Min)	410 MPa	
	Yield Strength (Min.)	250 MPa	Yield Strength (Min.)	250 MPa			Yield Strength (Min.)	250 MPa	
	% age Elongation (Min.) Hardness (Min.)	23% 115HBW	% age Elongation (Min.)	23%			% age Elongation (Min.)	23%	
	Bend Test	(BHN/HB/HBS) Internal dia. 2t	Hardness (Min.)	115HBW (BHN/HB/HBS)			Hardness (Min.)	115HBW (BHN/HB/HBS)	
	Charpy Impact Test	at 180° (U- Shape) 27 J (Min.)	Bend Test	Internal dia. 2t at 180° (U-			Bend Test	Internal dia. 2t at 180° (U-Shape)	
			Charpy Impact Test	Shape) 27 J (Min.)			Charpy Impact Test	27 J (Min.)	
	v) The inclusion content of the in accordance with IS: 4163-20 section, inclusion rating shall 2.0 A,B,C,D for both thick and compared to the chart for inclusion content of secondary 2) of IS: 4163-2004.	004 in longitudinal not be worse than d thin series when determining the	v) The inclusion content of the liner bars shall be in accordance with IS: 4163-2004 in longitudinal section, inclusion rating shall not be worse than 2.0 A,B,C,D for both thick and thin series when compared to the chart for determining the inclusion content of secondary refined steels (Fig. 2) of IS: 4163-2004.			Nil	v) The inclusion content of the liner bars shall be in accordance with IS: 4163-2004 in longitudinal section, inclusion rating shall not be worse than 2.0 A,B,C,D for both thick and thin series when compared to the chart for determining the inclusion content of secondary refined steels (Fig. 2) of IS: 4163-2004.		
	vi) The microstructure of the signains ferrite and pearlite with 6 or finer.		vi)The microstructure of grains ferrite and pearlite 6 or finer.			Nil	vi)The microstructure of the grains ferrite and pearlite ASTM-6 or finer.		
	vii) The hardness of steel shal with IS: 1500-2005 and shall no		vii)The hardness of steel shall be in accordance with IS: 1500-2005 and shall not be less than 115			Nil	vii)The hardness of steel s with IS: 1500-2005 and sha		

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for <del>30</del> days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )		
	BHN.	BHN.			BHN.		
	viii) The chemical and mechanical properties to be tested on metal liner bar shall be Chemical composition, Hardness, Inclusion content, Microstructure & Grain size, Tensile strength, Yield strength, % elongation & Bend test in accordance to IS: 2062:2011. Metal liner manufacture shall carryout all these tests at the rate of two samples per 20 metric tonnes of metal liner bar or per heat whichever is less. Metal liner manufacture shall also preserve and submit the test pieces of the raw material of metal liner bar to the inspecting official for verification of chemical and mechanical properties.	viii) The chemical and mechanical properties to be tested on metal liner bar shall be Chemical composition, Hardness, Inclusion content, Microstructure & Grain size, Tensile strength, Yield strength, % elongation & Bend test in accordance to IS: 2062:2011. Metal liner manufacture shall carryout all these tests at the rate of two samples per 20 metric tonnes of metal liner bar or per heat whichever is less. Metal liner manufacture shall also preserve and submit the test pieces of the raw material of metal liner bar to the inspecting official for verification of chemical and mechanical properties.	Nil	Nil	viii) The chemical and mechanical properties to be tested on metal liner bar shall be Chemical composition, Hardness, Inclusion content, Microstructure & Grain size, Tensile strength, Yield strength, % elongation & Bend test in accordance to IS: 2062:2011. Metal liner manufacture shall carryout all these tests at the rate of two samples per 20 metric tonnes of metal liner bar or per heat whichever is less. Metal liner manufacture shall also preserve and submit the test pieces of the raw material of metal liner bar to the inspecting official for verification of chemical and mechanical properties.		
	ix) The metal liner manufacturer shall be responsible to ensure that only proper quality of billet is used by re-roller (approved by them) for rolling of metal liner bars.	ix) The metal liner manufacturer shall be responsible to ensure that only proper quality of billet is used by re-roller (approved by them) for rolling of metal liner bars.	Nil	Nil	ix) The metal liner manufacturer shall be responsible to ensure that only proper quality of billet is used by re-roller (approved by them) for rolling of metal liner bars.		
10.0	5.0 Pre-Acceptance Tests: Deleted	5.0 Pre-Acceptance Tests: Deleted	Nil	Nil	5.0 Pre-Acceptance Tests: Deleted		
	5.1For initial registration /approval, the manufacturer shall manufacture metal liners in presence of Inspecting Authority. 16 samples shall be drawn randomly from the lot so produced for initial testing. In addition, the manufacturer shall also furnish 5 Nos. test specimens each for tensile and bend test for testing.	manufacturer shall manufacture metal liners in presence of Inspecting Authority. 16 samples shall be drawn randomly from the lot so produced for initial testing. In addition, the manufacturer shall		Nil			
	5.2 Samples manufactured in presence of representative of Inspecting Authority shall be	5.2 Samples manufactured in presence of representative of Inspecting Authority shall be	Nil	Nil			

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	tested as per scheme of testing 'A' given in Annexure-I.	tested as per scheme of testing 'A' given in Annexure-I.			
11.0	6.0 Acceptance Tests  Tests as per Para 6.2 to 6.8 shall be conducted on liners for acceptance of the material as per scheme of testing 'B' given in Annexure I.	6.0 Acceptance Tests  Tests as per Para 6.2 to 6.86.9 shall be conducted on liners for acceptance of the material as per scheme of testing 'B'A given in Annexure I.	Nil	Nil	6.0 Acceptance Tests  Tests as per Para 6.2 to 6.86.9 shall be conducted on liners for acceptance of the material as per scheme of testing 'B'A given in Annexure I.
	6.1 LOT/BATCH FOR TESTING:  For the purpose of inspection, maximum 30,000 liners shall form a lot. Lot no. shall be punch marked on the liner as per drawing. For identity of material, the firm shall certify heat number of the above lot. The metal liner manufacturer shall produce heat-wise complete certificate of chemical analysis of metal liner bar obtained from metal liner bar manufacturer at the time of inspection of the liners.  6.2 CHEMICAL ANALYSIS:  Three sample liners per lot shall be tested as per stipulations of sub clause 8.1 and 8.2 of IS-2062:2011. Testing shall be done on middle portion of the liner and the chemical composition shall conform to the following:	6.1LOT/BATCH FOR TESTING:  For the purpose of inspection, maximum 30,000 liners shall form a lot. Lot no. shall be punch marked on the liner as per drawing. For identity of material, the firm shall certify heat number of the above lot. The metal liner manufacturer shall produce heat-wise complete certificate of chemical analysis of metal liner bar obtained from metal liner bar manufacturer at the time of inspection of the liners.  6.2CHEMICAL ANALYSIS:  Three sample liners per lot shall be tested as per stipulations of sub clause 8.1 and 8.2 of IS-2062:2011. Testing shall be done on middle portion of the liner and the chemical composition shall conform to the following:	Nil	Nil	6.1LOT/BATCH FOR TESTING:  For the purpose of inspection, maximum 30,000 liners shall form a lot. Lot no. shall be punch marked on the liner as per drawing. For identity of material, the firm shall certify heat number of the above lot. The metal liner manufacturer shall produce heat-wise complete certificate of chemical analysis of metal liner bar obtained from metal liner bar manufacturer at the time of inspection of the liners.  6.2 CHEMICAL ANALYSIS:  Three sample liners per lot shall be tested as per stipulations of sub clause 8.1 and 8.2 of IS-2062:2011. Testing shall be done on middle portion of the liner and the chemical composition shall conform to the following:

SN	Exiting clause of IRS Specification SI. No T-56 – 2020			Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for <b>30</b> days)			Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )		
	the specifie The chemi	d limit, the cal analy phically or	In product analysis max. variation over the limit specified for ladle analysis  0.02  0.05  0.03  0.005  0.005  osition does not conform to e lot shall be rejected.  The sis shall be done either through wet analysis as a gagency.	the specified	d limit, the local analysishically or	In product analysis max. variation over the limit specified for ladle analysis  0.02  0.05  0.03  0.005  0.005  sition does not conform to ot shall be rejected.  s shall be done either through wet analysis as agency.			the specifie	d limit, the ical analysionically or	In product analysis max. variation over the limit specified for ladle analysis  0.02  0.05  0.03  0.005  0.005  sition does not conform to lot shall be rejected.  is shall be done either through wet analysis as agency.
14.	6.3 Dimensional Check 6.3.1 Sample size: Sampling plan as per IS-2500 (Part-1):2000 to be followed. For dimensional check, the sample size and the acceptance & rejection number for inspection level II and AQL 2.5% shall be as per IS-2500 (Part-1):2000 and is summarized at Annexure VII of this standard.		6.3 Dimensional Check 6.3.1 Sample size:  Sampling plan as per IS–2500 (Part-1):2000 to be followed. For dimensional check, the sample size and the acceptance & rejection number for inspection level II and AQL 2.5% shall be as per IS–2500 (Part-1):2000 and is summarized at Annexure VII of this standard.				Nil	followed. F and the a inspection l	ple size: lan as per Is or dimensio cceptance evel II and Part-1):2000	S-2500 (Part-1):2000 to be smal check, the sample size & rejection number for AQL 2.5% shall be as per and is summarized at	

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
14.	6.3.2 TEST:  The sample liners shall be checked for dimensions and shall meet the requirement of dimensions and tolerances as provided in the drawing of the respective liner. Checking of the dimensions shall be made by means of approved inspection gauges to be provided by the supplier.	6.3.2 TEST:  The sample liners shall be checked for dimensions and shall meet the requirement of dimensions and tolerances as provided in the drawing of the respective liner. Checking of the dimensions shall be made by means of approved inspection gauges to be provided by the supplier.	Nil	Nil	6.3.2 TEST:  The sample liners shall be checked for dimensions and shall meet the requirement of dimensions and tolerances as provided in the drawing of the respective liner. Checking of the dimensions shall be made by means of approved inspection gauges to be provided by the supplier.
15.	6.3.3 INSPECTION GAUGES:  Minimum two sets of inspection gauges shall be manufactured by the supplier as per RDSO approved drawing / manufacturer's drawing as the case be and shall be got approved by Purchaser/Inspecting authority before use. Out of these, one set of inspection gauges shall be used as master gauge and preserved safely by the liner manufacturer. The second set shall be used by the inspecting officer during inspection. For internal quality checks the firm should use additional set of gauges as per drawing.	6.3.3 INSPECTION GAUGES:  Minimum two sets of inspection gauges shall be manufactured by the supplier as per RDSO approved drawing / manufacturer's drawing as the case be and shall be got approved by Purchaser/Inspecting authority before use. Out of these, one set of inspection gauges shall be used as master gauge and preserved safely by the liner manufacturer. The second set shall be used by the inspecting officer during inspection. For internal quality checks the firm should use additional set of gauges as per drawing.	Nil	Nil	6.3.3 INSPECTION GAUGES:  Minimum two sets of inspection gauges shall be manufactured by the supplier as per RDSO approved drawing / manufacturer's drawing as the case be and shall be got approved by Purchaser/Inspecting authority before use. Out of these, one set of inspection gauges shall be used as master gauge and preserved safely by the liner manufacturer. The second set shall be used by the inspecting officer during inspection. For internal quality checks the firm should use additional set of gauges as per drawing.
16.	6.4 TENSILE TEST, BEND TEST AND: CHARPY IMPACT TEST  As it is not possible to draw tensile, bend test and Charpy Impact Test pieces from finished liners, the same shall be conducted on specially prepared samples. Three test samples for these tests shall be prepared by the metal liner manufacturer from same heat of metal liner bars	6.4 TENSILE TEST, BEND TEST AND: CHARPY IMPACT TEST  As it is not possible to draw tensile, bend test and Charpy Impact Test pieces from finished liners, the same shall be conducted on specially prepared samples. Three test samples for these tests shall be prepared by the metal liner manufacturer from same heat of metal liner bars used for	Nil	Nil	6.4 TENSILE TEST, BEND TEST AND: CHARPY IMPACT TEST  As it is not possible to draw tensile, bend test and Charpy Impact Test pieces from finished liners, the same shall be conducted on specially prepared samples. Three test samples for these tests shall be prepared by the metal liner manufacturer from same heat of metal liner bars

SN	Exiting c	lause of IRS S	ecification	SI. No T-56 – 20	020				-56- <del>2020</del> -202 n RDSO's web		Comme nts Receive d from	RDSO' s Remar ks		raft of IRS S evision )	oecificatio	n,Sl. No T-56	5 – 2024 (
	shall be p material wise. The firm for t of respec mechanic yield stre liner bars Quality C The test shown at	prepared from for each lot the test sample testing at the ctive heat. Total properties and the ctive heat as laid down as laid down as laid down as under:    Total properties and properties as laid down as under:	n rectanguand shall les shall be time of in the chemic sonamely ngation & m to grade in Table 2 dibe preparties. Salient of the chemic sonamely ngation & m to grade in Table 2 dibe preparties. Salient of the chemic sonamely ngation & m to grade in Table 2 dibe preparties and the chemic sonamely named in Table 2 dibe	The test samular section of the preserved approduced by inspection of tal composition. Tensile strength bend test of the designation of the design	raw heat the liner on & ngth, the E250 011.	prepare for each test sa testing respect mechan yield st liner ba Quality	ed from h lot are mples at the circular per circular per circular shall C as lact Anries at Anries et piece at Anries shall circular piece at Anries et piece et piece at Anries et piece et pie	n rectanguland shall be properties in conform to id down in the same should be sexure-IX. Sander:	er section of preserved heroduced by inspection hemical columnation & benco grade desirable 2 of IS	ples shall be raw material eat wise. The the firm for of liner of mposition & sile strength, d test of the gnation E250:2062-2011 as per sketch esions of test	Firms		shall b materi wise. I firm for of resp mechal yield s liner I E250 (2011.	e prepared fal for each The test saper testing a pective head inical propertrength, % pars shall Quality C as	from recolor and amples should the time of tim	tangular se shall be prod e of inspec nemical cor mely Tensi on & bend to grade in in Table 2 prepared a ient dimen	rest samples ction of raw served heat uced by the tion of liner imposition & le strength, test of the designation of IS:2062-s per sketch sions of test

SN	Exiti	ng claus	e of IRS Spe	ecification	SI. No T-56 – 2020		Revision		T-56- <del>2020</del> -202 n RDSO's web		Comme nts Receive d from Firms	RDSO' s Remar ks		raft of IRS Spe evision )	cification,	SI. No T-56	- 2024 (
	(iii)	Thic kness s	(i) 5mm for liner to drawing No RT- 3740. (ii) as available for all other liners	(i) 5mm for liner to drawin g No RT- 3740.  (ii) as availab le for all other liners  Depen	10 mm	(iii)	Thic kne ss	(i) 5mm for liner to drawing No RT- 3740. (ii) as available for all other liners	(i) 5mm for liner to drawing No RT-3740.  (ii) as available for all other liners	10 mm			(iii)	Thickness  Total length	(i) 5mm for liner to drawi ng No RT- 3740.( ii) as availa ble for all other liners  200- 300	(i) 5mm for liner to drawin g No RT- 3740. (ii) as availabl e for all other liners  Depen ding on	10 mm  55 mm (In the
		l leng th	mm	ding on thickne ss and testing equip ment	(In the centre of the length there shall be a V-notchof 45° included angle, 2 mm deep, with 0.25 mm root radius.)		leng th		thickness and testing equipmen t	(In the centre of the length there shall be a V-notch of 45° included angle, 2 mm deep, with 0.25 mm root radius.)					mm	thickne ss and testing equipm ent	centre of the length there shall be a V-notch of 45° included angle, 2 mm deep, with 0.25 mm root

SN	Three sa strength, and Char	mples   yield st py test	per lot rength, as pe	shall b , % elong er clause	tion SI. No T-56 – 2020 the tested for tensile gation and , bend test to 10,11 and 12of IS: shall conform to the	( <u>l</u> d	First Revisions Revisions First Revision First First Revision First Fi	nples per ield stren trest as p	lot shal gth, % elder clause	be tested to program and 10,11 and 120 shall confor	for tensile , bend test of IS: 2062-	Comme nts Receive d from Firms	RDSO' s Remar ks	First Rev	amples	per lot s	shall be test	radius.)
	tensile olionimate of the strength olionimate ol	. Yield 220 Strength	Elongation % (min )	2t at 180° (U-shap e) On bending there shoul d be no	Charpy Impact Test (uild) f 25		Tensile strength (min.)	Yield strength 05 (min.) MPa	Elongation % (min.)	2t at 180° (U-shape) On bending there should be no appeara nce of	(ui M) Charpy Impact Test			and Cha	rpy test 11 and t	as per	Bend test (Internal dia.)  2t at 180° (U-shape) On	and, bend test 1 and 12of IS: conform to the  Charpy Impact Test  27 J (Min)
				appe aranc e of crack on outer surfa ce of the saple						crack on outer surface of the sample viewed through naked eye							bending there should be no appearan ce of crack on outer surface of the sample	

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,SI. No T-56 – 2024 ( First Revision )
	GL =Gauge length, So= Area of cross section, t = Thickness of specimen. Three samples per lot shall be tested for bend test as per clause 6.2 (b) of IS 1599-1985. Three samples per lot shall be tested for Charpy Impact test as per IS 1757-2020	GL =Gauge length, So= Area of cross section, t = Thickness of specimen. Three samples per lot shall be tested for bend test as per clause 6.2 (b) of IS 1599-1985. Three samples per lot shall be tested for Charpy Impact test as per IS 1757-2020			viewed through naked eye  GL =Gauge length, So= Area of cross section, t = Thickness of specimen. Three samples per lot shall be tested for bend test as per clause 6.2 (b) of IS 1599-1985. Three samples per lot shall be tested for Charpy Impact test as per IS 1757-2020
17.	6.5 FREEDOM FROM SURFACE DEFECTS:  5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for freedom from surface defects and should be free from harmful surface defects within the description given in sub clause 7.1 & 7.2 of IS-2062: 2011. The sample liners shall be examined for surface flaws, laminations, rough/ jagged &imperfect edges etc. and other harmful defects by the macro etching process in hot acid.	6.5 FREEDOM FROM SURFACE DEFECTS:  5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for freedom from surface defects and should be free from harmful surface defects within the description given in sub clause 7.1 & 7.2 of IS- 2062: 2011. The sample liners shall be examined for surface flaws, laminations, rough/ jagged & imperfect edges etc. and other harmful defects by the macro etching process in hot acid.	Nil	Nil	6.5 FREEDOM FROM SURFACE DEFECTS:  5% liners of sample size as given under clause 6.3.1or minimum 5 Nos. shall be checked for freedom from surface defects and should be free from harmful surface defects within the description given in sub clause 7.1 & 7.2 of IS-2062: 2011. The sample liners shall be examined for surface flaws, laminations, rough/jagged & imperfect edges etc. and other harmful defects by the macro etching process in hot acid.
18.	6.6 HARDNESS TEST:	6.6 HARDNESS TEST:	Nil	Nil	6.6 HARDNESS TEST:
	5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be tested for hardness on the middle portion of the liner in	5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be tested for hardness on the middle portion of the liner in accordance with IS-1500-2005 and hardness test			5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be tested for hardness on the middle portion of the liner in accordance with IS-1500-2005 and hardness test

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
	accordance with IS-1500-2005 and hardness test values should not be less than 115 HBW (BHN/HB/HBS).	values should not be less than 115 HBW (BHN/HB/HBS).			values should not be less than 115 HBW (BHN/HB/HBS).
19.	6.7 INCLUSION CONTENT TEST: 5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for inclusion rating in the material of metal liners. The inclusion rating when determined as per IS: 4163-2004 shall not be worse than 2.0 A, B, C, D both for thick & thin series when compared to the chart in Fig. 2 of IS: 4163-2004.	6.7 INCLUSION CONTENT TEST: 5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for inclusion rating in the material of metal liners. The inclusion rating when determined as per IS: 4163-2004 shall not be worse than 2.0 A, B, C, D both for thick & thin series when compared to the chart in Fig. 2 of IS: 4163-2004.	Nil	Nil	6.7 INCLUSION CONTENT TEST: 5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for inclusion rating in the material of metal liners. The inclusion rating when determined as per IS: 4163-2004 shall not be worse than 2.0 A, B, C, D both for thick & thin series when compared to the chart in Fig. 2 of IS: 4163-2004.
20.	6.8 GRAIN SIZE TEST:  5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for microstructure of the steel in the material of metal liners. The grain size when determined as per IS 4748:1988 should be fine grains ferrite and pearlite with grain size of ASTM-6 or finer.	6.8 GRAIN SIZE TEST: 5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for microstructure of the steel in the material of metal liners. The grain size when determined as per IS 4748:1988 should be fine grains ferrite and pearlite with grain size of ASTM-6 or finer.	Nil	Nil	6.8 GRAIN SIZE TEST: 5% liners of sample size as given under clause 6.3.1 or minimum 5 Nos. shall be checked for microstructure of the steel in the material of metal liners. The grain size when determined as per IS 4748:1988 should be fine grains ferrite and pearlite with grain size of ASTM-6 or finer.
21.	WEIGHT TEST:  The sample of Metal Liner shall be checked for the weight by means of digital weighing machine, and shall meet with requirement of weight as given in Annexure-X and the results shall be recorded as per Annexure-XI of this standard.  For weight test, the sample size and acceptance and rejection numbers for Inspection Level II and AQL 2.5 % shall be as per IS-2500 (Part-1):2000 and is summarized at Annexure VII of this standard.	WEIGHT TEST:  The sample of Metal Liner shall be checked for the weight by means of digital weighing machine, and shall meet with requirement of weight as given in Annexure-X and the results shall be recorded as per Annexure XI of this standard. For weight test, the sample size and acceptance and rejection numbers for Inspection Level II and AQL 2.5 % shall be as per IS-2500 (Part-1):2000 and is summarized at Annexure VII of this standard. Sampling plan as per IS-2500 (Part-1):2000 to be followed. For weight Test, the sample size and the acceptance & rejection number for inspection level II and AQL 2.5% shall be as per IS-2500 (Part-1):2000 and	Nil	Para has been modifi ed	WEIGHT TEST:  The sample of Metal Liner shall be checked for the weight by means of digital weighing machine, and shall meet with requirement of weight as given in Annexure-X and the results shall be recorded as per Annexure-XI of this standard. For weight test, the sample size and acceptance and rejection numbers for Inspection Level II and AQL 2.5 % shall be as per IS-2500 (Part-1):2000 and is summarized at Annexure VII of this standard.  Sampling plan as per IS-2500 (Part-1):2000 to be followed. For weight Test, the sample size and the acceptance & rejection number for inspection level II and AQL 2.5% shall be as per IS-2500 (Part-1):2000 and is summarized at Annexure VII of this standard.

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision)</u> (uploaded on RDSO's website for <del>30</del> days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,SI. No T-56 – 2024 ( First Revision )
22.	7.0 RE-TEST:  If any of the sample liner does not conform to the requirements of the tests stipulated in clause 6 other than chemical analysis, dimension check and weight test, twice the number of samples as stipulated therein shall be drawn at random from the same lot and tested for that particular test in which the samples are failed. If all the liners/ test samples so drawn are found to conform to the requirements of that test, the lot shall be accepted; otherwise the entire lot shall be rejected	7.0 RE-TEST:  If any of the sample liner does not conform to the requirements of the tests stipulated in clause 6 other than chemical analysis, dimension check and weight test, twice the number of samples as stipulated therein shall be drawn at random from the same lot and tested for that particular test in which the samples are failed. If all the liners/ test samples so drawn are found to conform to the requirements of that test, the lot shall be accepted; otherwise the entire lot shall be rejected	Nil	Nil	7.0 RE-TEST:  If any of the sample liner does not conform to the requirements of the tests stipulated in clause 6 other than chemical analysis, dimension check and weight test, twice the number of samples as stipulated therein shall be drawn at random from the same lot and tested for that particular test in which the samples are failed. If all the liners/ test samples so drawn are found to conform to the requirements of that test, the lot shall be accepted; otherwise the entire lot shall be rejected
23.	8.0 PROTECTION: After acceptance by the purchaser or his nominee, liners shall be painted with temporary corrosion preventive to IS-1153-2000in such a way that surface of the liner is covered properly with protective coating.	8.0 PROTECTION: HOT DIP GALVANIZATION  After acceptance by the purchaser or his nominee. The liners shall be galvanized painted with temporary corrosion preventive to IS 1153 2000 in such a way that surface of the liner is covered properly with protective coating as per the technical requirements for hot dip galvanizing of low carbon steel metal liner to IS:2062 given in Annexure–XII.	Nil	Para has been modifi ed	8.0 PROTECTION: HOT DIP GALVANIZATION  After acceptance by the purchaser or his nominee. The liners shall be galvanized painted with temporary corrosion preventive to IS-1153-2000in such a way that surface of the liner is covered properly with protective coating as per the technical requirements for hot dip galvanizing of low carbon steel metal liner to IS:2062 given in Annexure–XII.
24.	9.0 MARKING: All the liners shall be punch marked with Lot No. distinctly along with other requirements of respective drawing of the liner. The liners shall also be marked with rail section and GS or NGS as the case be, to indicate use of liner on gauge face side or non-gauge face side of rail in track. Screen-printing as per drawing may also make distinction between GS and NGS liner. In case the purchaser desires to dispense with the screen printing on liners, this aspect shall have to be specifically mentioned in the purchase order / contract	9.0 MARKING: All the liners shall be punch marked with Lot No. distinctly along with other requirements of respective drawing of the liner. The liners shall also be marked with rail section and GS or NGS as the case be, to indicate use of liner on gauge face side or non-gauge face side of rail in track. Screen-printing as per drawing may also make distinction between GS and NGS liner. In case the purchaser desires to dispense with the screen printing on liners, this aspect shall have to be specifically mentioned in the purchase order / contract by the purchasing authority	Nil	Nil	9.0 MARKING:  All the liners shall be punch marked with Lot No. distinctly along with other requirements of respective drawing of the liner. The liners shall also be marked with rail section and GS or NGS as the case be, to indicate use of liner on gauge face side or non-gauge face side of rail in track. Screen-printing as per drawing may also make distinction between GS and NGS liner. In case the purchaser desires to dispense with the screen printing on liners, this aspect shall have to be specifically mentioned in the purchase order / contract by the purchasing authority

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	by the purchasing authority.				
25.	10.0 PACKING: The liner shall be packed in double gunny / plastic bags. Each bag shall contain not more than 200 liners. Each bag shall be marked distinctly with lot No. followed by bag No. of that lot i.e. L-1/1 to L-1/200 etc on the bag. The packing shall ensure that there is no loss or damage to the liners in transit.	10.0 PACKING: The liner shall be packed in double gunny / plastic bags. Each bag shall contain not more than 200 liners. Each bag shall be marked distinctly with lot No. followed by bag No. of that lot i.e. L-1/1 to L-1/200 etc on the bag. The packing shall ensure that there is no loss or damage to the liners in transit.	Nil	Nil	10.0 PACKING: The liner shall be packed in double gunny / plastic bags. Each bag shall contain not more than 200 liners. Each bag shall be marked distinctly with lot No. followed by bag No. of that lot i.e. L-1/1 to L-1/200 etc on the bag. The packing shall ensure that there is no loss or damage to the liners in transit.
26.	11.0 TEST FACILITIES:  The manufacturer shall install all the essential testing facilities for carrying out chemical analysis and physical testing along with other accessories required for inspection in a separate, well lit, clean and properly ventilated laboratory in their own premises. However, Chemical Analysis test by spectrograph method may be done at Govt. owned/NABL accredited/ RDSO approved lab.	11.0 TEST FACILITIES:  The manufacturer shall install all the essential testing facilities for carrying out chemical analysis and physical testing along with other accessories required for inspection in a separate, well lit, clean and properly ventilated laboratory in their own premises. However, Chemical Analysis test by spectrograph method may be done at Govt. owned/NABL accredited/Govt.approved lab.	Nil	Nil	11.0 TEST FACILITIES:  The manufacturer shall install all the essential testing facilities for carrying out chemical analysis and physical testing along with other accessories required for inspection in a separate, well lit, clean and properly ventilated laboratory in their own premises. However, Chemical Analysis test by spectrograph method may be done at Govt. owned/NABL accredited/ Govt. approved lab.
27	<b>12.0 DISPOSAL OF REJECTED MATERIAL</b> : The rejected liners shall be cut into two pieces to make it unusable.	12.0 DISPOSAL OF REJECTED MATERIAL:  The rejected liners shall be cut into two pieces to make it unusable	Nil	Nil	12.0 DISPOSAL OF REJECTED MATERIAL:  The rejected liners shall be cut into two pieces to make it unusable.
28.	<b>13.0 REPORT:</b> The inspecting officer shall report the test observations in the format given in Annexure II to VI	13.0 REPORT:  The inspecting officer shall report the test observations in the format given in Annexure II to VI & XI.	Nil	Para has been modif ied	13.0 REPORT:  The inspecting officer shall report the test observations in the format given in Annexure II to VI & XI.
29.	14.0 GENERAL:	14.0 GENERAL:			14.0 GENERAL:
30.	14.1 The liner manufacturer shall furnish at his cost the liners/test specimen required for all tests and shall provide necessary manpower along with required facilities for carrying out tests at his works.	14.1 The liner manufacturer shall furnish at his cost the liners/test specimen required for all tests and shall provide necessary manpower along with required facilities for carrying out tests at his works.	Nil	Nil	14.1 The liner manufacturer shall furnish at his cost the liners/test specimen required for all tests and shall provide necessary manpower along with required facilities for carrying out tests at his works.

SN	Exiting	clause of	IRS Specificati	on SI. No T-56 –	2020			ft of IRST-56- <del>2</del> oaded on RDS0		e for <mark>30</mark>	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,SI. No T-56 – 2024 ( First Revision )
31.	have fre reasonal manufac pertaining quality	e access to the times acture at an among to raw	to the works and shall be a sy stage included material, in the control of the con	nis representativ of manufacture t liberty to inspe ding calling for r nanufacturing pi be made availa	at all ect the ecords rocess,	shall hav all reason the man records process,	e free acc nable time sufacture pertaining quality o	ng authority of ess to the wor es and shall be at any stage g to raw ma control etc. w thin reasonable	ks of man e at liberty including iterial, ma which shal	ufacturer a to inspec calling fo nufacturin	t t r	Nil.	Purchaser/Inspecting authority or his representative shall have free access to the works of manufacturer at all reasonable times and shall be at liberty to inspect the manufacture at any stage including calling for records pertaining to raw material, manufacturing process, quality control etc. which shall be made available to him within reasonable time.
32			oe offered for nnexure–VIII.	inspection as pe	r letter			ne offered for i	nspection a	as per lette	Nil r	Nil	14.3 The material shall be offered for inspection as per letter of offer given at Annexure–VIII.
<del>33</del>				PRE-ACCEPTANC	E TEST			STING FOR PI S:Deleted	RE-ACCEPT	ANCE TES	Nil	Test proper ties of A: Schem	Deleted
	1.	Chemi cal analysi s	No. of samples to be tested	Criteria Contentia de la contentia della contentia della contentia della contentia della conte	or sadues	1 <del>.</del>	Chemi cal analys is	to the teach of th	Each sampl e must clear the test	Ab. Of samples to to	4	e of Testin g for Pre- Accep tance Test for Metal Liners of Annex ure-I	

SN	Exiting	g clause of	IRS Specif	ication SI. No	T-56 – 2020	_		aft of IRST-56 loaded on RI			Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
	<del>2.</del>	Tensile streng	3	-do-	5	2.	Tensil e streng th*	3	<del>-do-</del>	5		has been delete d becaus e the	
		th*				3.	Bend Test	3	-do-	5		item has been	
	3.	Bend Test	3	-do-	5		*					decont rolled	
	4.	Surfac e Defect	5	-do-	5	4.	Surfac e Defect	5	<del>-do-</del>	5			
	5.	Hardn ess	3	- <del>do-</del>	Test shall be condu cted on sampl es draw n for Surfac e Defec ts test	5.	Hardn ess	3	-do-	Test shall be conduct ed on samples drawn for Surface Defects test			
	<del>6.</del>	Inclusi on conten	3	<del>-do-</del>	Test shall be	6.	Inclusi on conte	3	- <del>do-</del>	Test shall be conduct			

SN	Exiting	clause of	IRS Specificat	tion SI. No	T-56 – 2020		st Rev		ft of IRST-56-2 oaded on RDS		e for 30	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,SI. No T-56 – 2024 ( First Revision )
		ŧ			condu cted on sampl es draw n for Surfac e Defec ts test			nt			ed on samples drawn for Surface Defects test			
	7.	Grain size	3	- <del>do</del> -	Test shall be condu cted on sampl es draw n for Surfac e Defee	:	<del>7.</del>	<del>Grain</del> <del>size</del>	3	-do-	Test shall be conduct ed on samples drawn for Surface Defects test			
	8.	Dimen sions	8	-do-	ts test	;	<del>8.</del>	<del>Dimen</del> sions	8	<del>-do-</del>	8			
	be 16 al	ong with the second sec	5 No. test sp	ecimens ea	l liners shall ach iners shall ach of tensile arepared test	be and *Th	<del>16 ald</del> Hend	ong with 5 I test. ts to be c	r of samples of Society of Societ	<del>cimens ea</del>	<del>ch of tensile</del>			

SN	B : SCHE		IRS Specification			( <u>Fii</u> day	rst Re	evision)(	uploaded or	r-56- <del>2020</del> -2024 n RDSO's webs	ite for <mark>30</mark>	Comme nts Receive d from Firms	RDSO' s Remar ks	First F	Revision )	Specification,S  OF TESTING F LINERS		
	S. No.	Property	No. of samples to be tested	Criteria value for acceptance/ Rejection	of 3		S. No.	Property	No. of samples to be tested	Criteria value for acceptanc e	No. of samples to be drawn			o N Si	Chemi	No. of samples to be	Each	samples
				ช็	No.		1.	Che mical analy	3	Each sample must clear the	3				cal analys is		sampl e must clear the	
	1.	Chemi cal analysi s	3	Each sample must clear the test	3			sis		test the				2.	Tensil e	3	test -do-	3
	2.	Tensile strengt h*	3	-do-	3		2.	Tensi	3	-do-	3				streng th*			
	3.	Bend Test*	3	-do-	3		۷.	le stren	3	-40-	3			3.	Bend Test*	3	-do-	3
	4.	Surfac e Defect s	As per clause 6.5	-do-	As per clause 6.5		<ol> <li>4.</li> </ol>	gth* Bend Test* Surfa ce Defe	As per clause 6.5	-do-	As per clause 6.5			4.	Surfac e Defect s	As per clause 6.5	-do-	As per claus e 6.5
	5.	Hardn ess	As per clause 6.6	-do-	Test shall be condu cted on		5 .	cts Hard ness	As per clause 6.6	-do-	Test shall be conduc ted on sample			5 .	Hardn ess	As per clause 6.6	-do-	Test shall be cond ucted on

SN	Exiting	clause of	IRS Specificatio	on Sl. No T	<sup>-</sup> -56 – 2020	( <u>F</u>	•			T-56- <del>2020</del> -202 n RDSO's web		Comme nts Receive d from Firms	RDSO' s Remar ks	Final Dr First Re		Specification,	6l. No T-5	6 – 2024 (
					sampl es drawn for Surfac e Defec ts test						s drawn for Surface Defects test							samp les draw n for Surfa ce Defec ts test
	6.	Inclusi on conten t	As per clause 6.7	-do-	Test shall be condu cted on sampl es drawn for Surfac e Defec ts test		6 .	Inclu sion conte nt	As per clause 6.7	-do-	Test shall be conduc ted on sample s drawn for Surface Defects test			6 .	Inclusi on conte nt	As per clause 6.7	-do-	Test shall be cond ucted on samp les draw n for Surfa ce Defec ts
	7.	Grain size	As per clause 6.8	-do-	Test shall be condu cted on sampl es drawn for Surfac e		7	Grain size	As per clause 6.8	-do-	Test shall be conduc ted on sample s drawn for Surface Defects test			7	Grain size	As per clause 6.8	-do-	test Test shall be cond ucted on samp les draw n for Surfa ce

8. Dimen As per IS- do- As per sions sions 2500 (Part-1):2000	Exiting	g clause of l	RS Specificatio	on SI. No 1	Г-56 — 2020		Revision)(	Draft of IRST uploaded or		024 ebsite for <mark>30</mark>	comme nts Receive d from Firms	RDSO' s Remar ks		raft of IRS evision )	Specification,	SI. No T-5	6 – 2024 (
*The tests to be conducted on specially prepared test given by manufacturer to inspecting official in this regard.  *The tests to be conducted on specially prepared test given by manufacturer to inspecting official in this inspecting official in this regard.  *The tests to be conducted on specially prepared test given by manufacturer to inspecting official in this inspecting official in this regard.  *The tests to be conducted on specially prepared test given by manufacturer to inspecting official in this regard.	9.  Note: To Charpy material liner and shall be this regarder.	Charpy Impact Test*  Weight Test  The sample Impact Test  of the san d preserved given by n ard.	As per IS - 2500 (Part-1): 2000  As per IS - 2500 (Part-1): 2000  es for tensile, est shall be repeated to the time of the part of the par	and bei	As per IS-2500 (Part-1):200 0 3  As per IS -2500 (Part-1): 2000 (Part-1): 2000 (Part-1): 2000 and test and om the raw inufacture of a undertaking ing official in	9	nsion s Char py Impa ct Test* Weig ht Test Thesampl tt Test sha lot at the rived lot we by manual	As per IS - 2500 (Part-1): 2000 es for tensill be made for tensile time of ise by the file.	e, and bend from the ray manufactu	IS-2500 ( Part- 1):2000  3  As per IS - 2500 (Part- 1): 2000  test and Charpy w material of the re of liner and ertaking shall be	Firms	KS	9 . 10  Note: Charpy materialiner a undertainspect	Charp y Impac t Test* Weigh t Test  The samp Impact Test al of the sa and presentating sha ing official	2500 (Part-1):2000  3  As per IS - 2500 (Part-1): 2000  les for tensilerest shall be me lot at the cred lot will be given in this regard.	-do- -do- e, and b made f time of m se by t by man	ts test  As per IS-2500 (Part-1):20 00 3  As per IS -2500 (Part-1): 2000 end test all rom the ramanufacture the firm. Anufacturer

Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for <del>30</del> days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
Annexure - II TEST RESULTS - CHEMICAL ANALYSIS  1. Name of firm: M/s 2. Firm's offer letter no.: 3. Liner to Drg. No.: 4. Qty. on order: 5Rly. P.O. No.:	Annexure - II TEST RESULTS - CHEMICAL ANALYSIS  1. Name of firm: M/s 2. Firm's offer letter no.: 3. Liner to Drg. No.: 4. Qty. on order: 5Rly. P.O. No.:	NIL	NIL	Annexure - TEST RESULTS - CHEMICAL ANALYSIS  6. Name of firm: M/s  7. Firm's offer letter no.:  8. Liner to Drg. No.:  9. Qty. on order:  10Rly. P.O. No.:
*Remark: Variation over and above ladle analysis shall be as per clause 6.2 of the specification.	*Remark: Variation over and above ladle analysis shall be as per clause 6.2 of the specification.			*Remark: Variation over and above ladle analysis shall be as per clause 6.2 of the specification.
Signature of inspecting authorityFirm's representative	Signature of inspecting authorityFirm's representative			Signature of inspecting authorityFirm's representative

I	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for <del>30</del> days)	Comme RDSO' Final Draft of IRS Specification,SI. No T-56 – 2024 ( nts s First Revision ) Receive Remar d from ks Firms
	Annexure - III	Annexure - III	NIL NIL Annexure - III
	TEST RESULTS – DIMENSIONS	TEST RESULTS – DIMENSIONS	TEST RESULTS – DIMENSIONS
	<ol> <li>Name of firm: M/s</li> <li>Firm's offer letter no.:</li> <li>Liner to drg. no.:</li> <li>Qty. on order:</li> <li>Rly. P.O. no.:</li> </ol>	<ol> <li>Name of firm: M/s</li> <li>Firm's offer letter no.:</li> <li>Liner to drg. no.:</li> <li>Qty. on order:</li> <li>Rly. P.O. no.:</li> </ol>	1. Name of firm: M/s 2. Firm's offer letter no.: 3. Liner to drg. no.: 4. Qty. on order: 5Rly. P.O. no.:
	No. Integration of the property of the propert	No.   Condition   Condition	No. Pred No. Out and per segments of the segme
	Signature of	Signature of	Signature of
	inspecting authority Firm's representative	inspecting authority Firm's representative	inspecting authority Firm's representative

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme RDSO' Final Draft of IRS Specification,Sl. No T-56 – 2024 ( nts s First Revision )  Receive Remar d from ks Firms
36.	TEST RESULTS - TENSILE TEST & BEND TEST  1. Name of firm: M/s. 2. Firm's offer letter no.: 3. Liner to Drg. No.: 4. Qty. on order: 5 Rly. P.O. No:    Consider length (mm)   Midth (mm)	TEST RESULTS - TENSILE TEST & BEND TEST  1. Name of firm: M/s. 2. Firm's offer letter No: 3. Liner to Drg. No.: 4. Qty on order 5 Rly P.O. No.  Size of damb bell rest or No 1020 MPa) Min.  Yield stress min. (250 MPa) Min.  Yield stress	NIL NIL Annexure - IV  TEST RESULTS - TENSILE TEST & BEND TEST  1. Name of firm: M/s. 2. Firm's offer letter No: 3. Liner to Drg. No.: 4. Qty on order 5
	Signature of inspecting authorityFirm's representative	Signature of inspecting authority Firm's representative	Signature of inspecting authority Firm's representative

SN	Exiti	ing clau	ise of I	RS Spe	cificati	on SI. N	lo T-5	6 – 2020		st Rev					<del>2020</del> -2 SO's we		for 30	Comme nts Receive d from Firms	RDSO' s Remar ks		Draft o Revisio	-	oecifica	ation,S	l. No T-5	6 – 20	024 (
37							Anne	exure -	V							Ann	exure - V	NIL	NIL						ı	Anne	cure - V
	1. 2. 3. 4.	RESUL CT Name Firm's Liner Qty. c	of firn offer to Drg	n: M/s letter . No.: er:	5.	OM SU	JRFA	CE		FECT Na Firi Lir Qt	sults  ame of m's off ner to y, on a . Rly.	f firm fer le Drg. I order	n: M/s tter r No.:	S.	ROM S	URFA(	CE			1. 2. 3. 4.	Name Firm's Liner	of firm offer to Drg	n: M/s letter ;. No.: er:	j.	ROM SU	RFAC	E
	S.No	Heat No	Lot No	Quantity(Nos)	Sample Size	Freedom from surface defects OK/Not OK	No of defectives	Accepted/Not Accepted			Heat No	Lot No	Quantity(Nos)	Sample Size	Freedom from surface defects OK/Not OK	No of defectives	Accepted/Not Accepted			S.No	Heat No	Lot No	Quantity(Nos)	Sample Size	Freedom from surface defects OK/Not OK	No of defectives	Accepted/Not Accepted
	Signat	turo of	F						Sig	natur	o of									Signs	ature o	f					
		Signature of inspecting authority Firm's representati									ng aut	horit	у	F	irm's r	epres	entative				ecting a		ity	F	irm's re	prese	entative
38.	Anne	Annexure - VI								nexui	re - VI	l						NIL	NIL	Anne	exure -	VI					
	1. 2. 3. 4.	RESUL Nai Firm's Liner Qty. c	me of offer to Drg on orde	firm: Netter : No.: er:	M/s.	EST			2 3 4	Firi Lir Qt	Name m's off ner to y. on o . Rly.	e of fi fer le Drg. I order	irm: N tter r No.:	M/s.	EST					1. 2. 3. 4.	Firm's Liner	me of offer to Drg on ord	firm: letter . No.: er:	M/s.	EST		

SN	Exiti	ng clau	se of IF	RS Spec	ificatio	on Sl. N	o T-56 -	- 2020	· ·					<del>:020</del> -20 O's wel		r 30	Comme nts Receive d from Firms	RDSO' s Remar ks	Final D		-	ecifica	tion,SI.	. No T-5	66 – 202	4 (
	S.No	Heat No	Lot No	Quantity(Nos)	Sample Size	Hardness value(115 HBW Min)	No of defectives	Accepted/Not Accepted	S.No	Heat No	Lot No	Quantity(Nos)	Sample Size	Hardness value(115 HBW Min)	No of defectives	Accepted/Not Accepted			S.No	Heat No	Lot No	Quantity(Nos)	Sample Size	Hardness value(115 HRW Min)	No of defectives	Accepted/Not Accepted
	Signat			ty	Fir	·m's re	epreser	ntative	Signat	ture of	uthorit	y	F	irm's r	eprese	ntative			Signat	cting a	uthorit	у	F	irm's		
39.	(Re	ANNEXURE  (IRS specification of T-56-20  DOUBLE SAMPLING PLAN  General Inspection Level-II  (Refer: Table I & 3A of IS 2500 Part I – 2000									<b>DOUB</b> Gener	s <b>LE SAI</b> al Insp	MPLIN ection		56- <del>202</del> 4 <b>N</b> -II	URE-VII <del>0</del> -2024) 000)	NIL	Note's Serial has been correc ted .		(	(IRS s <b>DOUB</b> Genera	<b>LE SAI</b> al Insp	<b>MPLIN</b> ection	of T-50 <b>G PLA</b> I Level-		-2024)
	Lot size	Sample size code letter	Sample		Sample Size	Cumulative sample	Accept anc e No. (a)	ty	Lot size	Sample size code letter	Sample		Sample Size	Cumulative sample	Accept anc e No. (a)	ty			Lot size	Sample size code letter	Sample		Sample Size	Cumulative sample	Accept qualit level Perce defect 2.5 Acc ept anc e No. (a)	nt

Exiting	clau	se of IRS Sp	ecificat	ion Sl. N	No T-56	- 2020	-		al Draft of <u>n)</u> (uploade				or <b>30</b>	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Dra First Rev		IRS Specifi	cation,S	l. No T-	56 – 20	24 (
281-	Н	FIRST	32	32	1	3	281-	Н	FIRST	32	32	1	3			281-	Н	FIRST	32	32	1	3
500		SECON D	32	64	4	5	500		SECON D	32	64	4	5			500		SECON D	32	64	4	5
501-	J	FIRST	50	50	2	5	501-	J	FIRST	50	50	2	5			501-	J	FIRST	50	50	2	5
1200		SECON D	50	100	6	7	1200		SECON D	50	100	6	7			1200		SECON D	50	100	6	7
1201	Κ	FIRST	80	80	3	6	1201	K	FIRST	80	80	3	6			1201	Κ	FIRST	80	80	3	6
- 3200		SECON D	80	160	9	10	3200		SECON D	80	160	9	10			3200		SECON D	80	160	9	10
3201	L	FIRST	125	125	5	9	3201	L	FIRST	125	125	5	9			3201	L	FIRST	125	125	5	9
- 1000 0		SECON D	125	250	12	13	1000		SECON D	125	250	12	13			1000		SECON D	125	250	12	13
1000	М	FIRST	200	200	7	11	1000	M	FIRST	200	200	7	11			1000	М	FIRST	200	200	7	11
1- 3500 0		SECON D	200	400	18	19	1- 3500 0		SECON D	200	400	18	19			1- 3500 0		SECON D	200	400	18	19
may be 2000 fo number	mad r sa	other lot s de to table imple size	e I & 3 , accep	-A of IS otance	\$2500 and re	(Part I)- ejection	may be 2000 f	or sars.	y other lot de to tabl ample size	e I & 3 e, acce	-A of I ptance	S2500 and r	(Part I)- ejection			may be 2000 fo number	mad r sa s.	other lot si de to table mple size	e I & 3- , accep	A of IS tance	2500 ( and re	Part I)- jection
pieces is lot shall equal to	be or	first sampual to the accepted. more thate ejected.	accept If num	ance nober of t	umber failed p	(a), the pieces is	pieces lot sha	is ed II be o or	e first sanual to the accepted. more than ected.	accept If num	ance n	umber failed	(a), the pieces is			pieces is lot shall equal to	s equ be a	irst samplication in the accepted. more that rejected.	accepta If numb	nce nu er of fa	ımber ailed p	(a), the ieces is
number	(a),	ailed piec but less nd sample	than t	he reje	ection	number	numbe	r (a),	e failed pi but less tl sample sh	nan the	rejecti	on nur	•			number	(a),	ailed piece but less nd sample	than th	ne reje	ction r	umber

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
	(v) If the cumulative failed pieces equal or exceed the rejection number (r), the lot shall be rejected. The cumulative failed pieces are the total number of failed pieces in the first and second samples.	(v) (iv) If the cumulative failed pieces equal or exceed the rejection number (r), the lot shall be rejected. The cumulative failed pieces are the total number of failed pieces in the first and second samples.			(iv) If the cumulative failed pieces equal or exceed the rejection number (r), the lot shall be rejected. The cumulative failed pieces are the total number of failed pieces in the first and second samples
40.	ANNEXURE-VIII  (IRS specification of T-56-2020)  LETTER OF OFFER FROM THE FIRM  To,  (Address of inspecting agency)  Sub: Call letter for inspection of metal liner to drg. no. RDSO/T  Ref Railway's/ Railway Board's P.O. No	ANNEXURE-VIII  (IRS specification of T-56- <del>2020</del> -2024)  LETTER OF OFFER FROM THE FIRM  To, (Address of inspecting agency)  Sub: Call letter for inspection of metal liner to drg. no. RDSO/T  Ref Railway's/ Railway Board's P.O. No	NIL	NIL	ANNEXURE-VIII  (IRS specification of T-56- <del>2020</del> -2024)  LETTER OF OFFER FROM THE FIRM  To,  (Address of inspecting agency)  Sub: Call letter for inspection of metal liner to drg. no. RDSO/T  Ref Railway's/ Railway Board's P.O. No
	The metal liners as per following details are offered for inspection in terms of the above referred purchase order. These liners have been internally checked and found satisfactory as per drawing no. RDSO/ T and relevant IRS specification. All burrs on liners are also properly removed. Copy of internal test result is enclosed.  1. Installment No.  2. Quantity on order a) Against original order b) Against extension  3. Quantity previously inspected and passed.  4. Quantity now offered for inspection a) Against original order b) Against extension  5. Batch /Lot Nos.  6. Corresponding cast/heat no. of raw material and its source of procurement	The metal liners as per following details are offered for inspection in terms of the above referred purchase order. These liners have been internally checked and found satisfactory as per drawing no. RDSO/ T and relevant IRS specification. All burrs on liners are also properly removed. Copy of internal test result is enclosed.  1. Installment No.  2. Quantity on order a) Against original order b) Against extension  3. Quantity previously inspected and passed.  4. Quantity now offered for inspection a) Against original order b) Against extension  5. Batch /Lot Nos.  6. Corresponding cast/heat no. of raw material and its source of procurement			The metal liners as per following details are offered for inspection in terms of the above referred purchase order. These liners have been internally checked and found satisfactory as per drawing no. RDSO/ T and relevant IRS specification. All burrs on liners are also properly removed. Copy of internal test result is enclosed.  1. Installment No.  2. Quantity on order a) Against original order b) Against extension  3. Quantity previously inspected and passed.  4. Quantity now offered for inspection a) Against original order b) Against extension  5. Batch /Lot Nos.  6. Corresponding cast/heat no. of raw material and its source of procurement

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024	Comme	RDSO'	Final Draft of IRS Specification, Sl. No T-56 – 2024 (
		( <u>First Revision</u> )(uploaded on RDSO's website for 30	nts	s	First Revision )
		days)	Receive	Remar	
			d from	ks	
			Firms		
	7. Rate per liner.	7. Rate per liner.			7. Rate per liner.
	8. Marking on liners	8. Marking on liners			8. Marking on liners
	9. Delivery period a) Original b) Extended c) Letter	9. Delivery period a) Original b) Extended c) Letter			9. Delivery period a) Original b) Extended c)
	no. (for extension)	no. (for extension)			Letter no. (for extension)
	10. Consignee	10. Consignee			10. Consignee
	11. Consignee letter of authority no.	11. Consignee letter of authority no.			11. Consignee letter of authority no.
	12. Packing	12. Packing			12. Packing
	13. Test certificate No. of raw material	13. Test certificate No. of raw material			13. Test certificate No. of raw material
	14. Rolled section of Metal liner bar supplied by	14. Rolled section of Metal liner bar supplied by			14. Rolled section of Metal liner bar supplied by
	Yours faithfully	Yours faithfully			Yours faithfully
41	Yours faithfully  Annexure-IX (IRS Specification of T-56-2020)	Yours faithfully  Annexure-IX  (IRS Specification of T-56- <del>2020</del> -2024)	NIL	NIL	Yours faithfully  Annexure-IX  (IRS Specification of T-56-2020-2024)
41	Annexure-IX	Annexure-IX	NIL	NIL	Annexure-IX

SN	Exiting (	clause of IRS Sp	ecification SI. No T-56	5 – 2020		sed Final Draf <u>Revision)</u> (uplo		2020-2024 O's website for 30	Comme nts Receive d from Firms	RDSO' s Remar ks		raft of IRS evision )	S Specification	,Sl. No T-56 – 2024 (
	SPECIMEN	55 mm	ACT TEST NOT TO SCALE	10 mm	SPECIN	55 m	-	OF MM  NOT TO SCALE			SPECIM		5 mm	OPE NOT TO SCALE
42.			A (IRS Specification of T	nnexure X Γ-56-2020)			(IRS Specific	Annexure X cation of T-56- <del>2020-</del> 2024)	NIL	NIL			(IRS Spec	Annexure X ification of T-56- <del>2020</del> -2024)
	Minimum \	Neight of Metal Li	ners for use with Elastic	Rail Clins	Minim	ım Weight of M	letal Liners for u	se with Elastic Rail Clips			Minimu	m Weight o	of Metal Liners f	or use with Elastic Rail Clips
	SN	Drawing No.	Minimum Weight of			Drawing	Minimum	Minimum			IVIIIIII	Drawin	Minimum	Minimum Weight of Metal
	1	RDSO/T- 3740	Metal Liner (gm) 261		SN	No.	Weight of Metal Liner (gm)	Weight of Metal Liner with			SN	g No.	Weight of Metal Liner (gm)	Galvanization(gm)
	2	RDSO/T- 3741	366					Galvanizat ion(gm)						
	3	RDSO/T- 3742	481								1	RDSO/	261	269.55
	4	RDSO/T-	333	1	1	RDSO/T- 3740	261	269.55			2	T-3740 RDSO/	366	375.28
	5	8616 RDSO/T-	399		2	RDSO/T-	366	375.28	1			T-3741		
		8617			3	3741 RDSO/T-	481	491.45			3	RDSO/ T-3742	481	491.45
	6	RDSO/T- 8748	294			3742					4	RDSO/	333	341.37
	7	RDSO/T-	362		4	RDSO/T- 8616	333	341.37			5	T-8616 RDSO/	399	408.03
	8	8749 RDSO/T-	479		5	RDSO/T-	399	408.03	1		Ľ	T-8617		.55.65
		1	1	J		8617	<u> </u>							

SN	Exit	ting c	lause	of IR	S Spe	ecifica	ation	Sl. No	Г-56 -	- 2020	Prop	osed	Final	Draft	of IR	ST-56	5- <del>202</del>	<del>0</del> -2024			Comme	RDSO'	Final	Draft	of IR	RS Spe	ecifica	ation	SI. N	o T-56	- 2024	(
					·						(First	Revi	sion)(	uploa	aded	on RE	OSO's	s websi	te fo	r 30	nts	s	First	Revisi	on )	•						
											days)	)									Receive	Remar										
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																					Firms											
			875								6		SO/T-		294		3	02.05					6		SO/	29	4		302.	05		
	9			50/T-		277					7	_	748		262			70.22					H_		3748 SO/	26			370.	22		
			373	8							′		OSO/T- 749		362		3	370.23					7		3749	36	2		370.	23		
											8		OSO/T-		479		4	88.42					8		SO/	47	9		488.	42		
													750												3750							
											9		OSO/T- '38		277		2	85.40					9		SO/ 3738	27	7		285.	40		
43.									Ann	exure-XI	<u> </u>	3,	30						An	nexure-XI	NIL	NIL		1 1' -	7730						Annex	ure-XI
								cification	of T-5	56-2020)								cification	of T	-56-2020)										fication	of T-56-	2020)
		sed n					T-56				Propo					FIRS-T	-56							sed ne					-56			
		RESUL ne of t									TEST F													RESULT ne of th								
	2. Firr										2. Firn			-										ns offe								
	3. Line				•						3. Line													er to Di								
	4. Qty		_								4. Qty		-											on ord								
	5. Rly	/ P.O n	10.:								5. Rly	P.O n	10.:										5. Rly	P.O no	).:							-
				(\$)			ves	Cumulative No.of Defectives																		(S)			ves	ives		
				l(nc	ize	m)	ecti	ve fecti							ize	(ms		ve Ve								l(nc	ize	Œ	ecti	ve fecti		
			ō.	tity	le si	ht(g	ij	ılati De	ırks				j	tity	ole s	tht(g	<b>.</b>	ulati f	arks						ō.	tity	le si	ht(g	: Dir	ılati <sup>:</sup> De	ırks	
	S,NO	Hea t	Lot. No.	Quantity I(nos)	Sample size	Weight(gm)	No.of Directives	Cumulative No.of Defec	Remarks		S,NO	Hea t	Lot. No.	Quantity	Sample size	Weight(gm)	No.of	Cumulative No.of	Remarks				S,NO	Hea t	Lot. No.	Quantity I(nos)	Sample size	Weight(gm)	No.of Directives	Cumulative No.of Defectives	Remarks	
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44.															(IR	speci	ificati	on ot T-	56- <del>20</del>	) <del>20-</del> 2024)		Annex ure of					(IRS	specif	icatio	n of T-5	6- <del>2020</del> -	2024)
											Techn	ical R	equire	ment	s for H	lot Di	o Galv	anizing/	of lo	w carbon		Techni	Techr	nical R	equir	emen	ts fo	r Hot	Dip	Galvan	izing of	f low
											steel I	Vletal	Liner	to IS:2	062			·				cal	carbo	n steel	Meta	al Line	r to I				•	
											1. Ger	neral r	equire	ement	s:							require	1. <b>G</b> e	neral re	equire	ement	is:					

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024	Comme	RDSO'	Final Draft of IRS Specification, Sl. No T-56 – 2024 (
		(First Revision)(uploaded on RDSO's website for 30	nts	s	First Revision )
		days)	Receive	Remar	
			d from	ks	
			Firms		
		<ol> <li>1.1 The zinc used for galvanizing shall conform to any of the grades specified in IS-209 or IS-13229-91</li> <li>1.2 The molten metal in the galvanizing bath shall contain not less than 98.5% by mass of zinc.</li> <li>1.3 The minimum value of average mass of zinc coating on liner shall be 700 gm/m²</li> <li>2. Surface preparation:</li> <li>2.1 The liner shall be subjected to cleaning in sodium hydroxide solution obtained by dissolving 10 to 15 Kg of sodium hydroxide in 100 liters of water. The temperature of alkaline bath will be kept between 80 to 90°C and immersion time of the article to be cleaned varying from 1 to 20 minutes depending upon the nature and degree of contamination. Immediately after cleaning in alkaline bath, the liner should be rinsed in hot water maintained at 60°C followed by rinse in cold running water.</li> <li>2.2 After cleaning, the liner shall be subjected to pickling in hydrochloric acid. The dilute technical grade acid conforming to IS:265-1976 with an equal volume of water to be used for pickling. The actual concentration of the acid to be established for achieving the best results. A suitable inhibitor should be used with hydrochloric acid for pickling operation. After pickling, the liners should be rinsed in running water</li> <li>3. Fluxing:         <ul> <li>The rinsed liner to be dipped in a strong solution of Zinc ammonium chloride where the concentration of solution will be 200-400 gms of zinc ammonium chloride per liter. Some wetting agent to be added in the flux solution and a temperature of the solution may range from room temperature to 80°C. After fluxing, the liner to be thoroughly dried in air oven where the temperature of drying shall be maintained at about 120°C.</li> </ul> </li> </ol>	NIL	ments for Hot Dip Galvan ization of low carbon steel Metal Liner to IS:206 2 has been added  New Annex ure of Techni cal require ments for Hot Dip Galvan ization of low carbon steel Metal Liner	<ol> <li>1.1 The zinc used for galvanizing shall conform to any of the grades specified in IS-209 or IS-13229-91</li> <li>1.2 The molten metal in the galvanizing bath shall contain not less than 98.5% by mass of zinc.</li> <li>1.3 The minimum value of average mass of zinc coating on liner shall be 700 gm/m²</li> <li>2. Surface preparation:</li> <li>2.1 The liner shall be subjected to cleaning in sodium hydroxide solution obtained by dissolving 10 to 15 Kg of sodium hydroxide in 100 liters of water. The temperature of alkaline bath will be kept between 80 to 90°C and immersion time of the article to be cleaned varying from 1 to 20 minutes depending upon the nature and degree of contamination. Immediately after cleaning in alkaline bath, the liner should be rinsed in hot water maintained at 60°C followed by rinse in cold running water.</li> <li>2.2 After cleaning, the liner shall be subjected to pickling in hydrochloric acid. The dilute technical grade acid conforming to IS:265-1976 with an equal volume of water to be used for pickling. The actual concentration of the acid to be established for achieving the best results. A suitable inhibitor should be used with hydrochloric acid for pickling operation. After pickling, the liners should be rinsed in running water</li> <li>3. Fluxing:         <ul> <li>The rinsed liner to be dipped in a strong solution of Zinc ammonium chloride where the concentration of solution will be 200-400 gms of zinc ammonium chloride per liter. Some wetting agent to be added in the flux solution and a temperature of the solution may range from room temperature to 80°C. After fluxing, the liner to be thoroughly dried in air oven where the temperature of drying shall be maintained at about 120°C.</li> </ul> </li> </ol>
		4. Galvanizing:  The liner after fluxing and drying should be galvanized without delay because flux coating picks up moisture from the air and also tends to oxidize. The liner should be galvanized at the lowest possible temperature of molten galvanizing bath, which will allow the free		to IS:206 2 has been added	4. Galvanizing:  The liner after fluxing and drying should be galvanized without delay because flux coating picks up moisture from the air and also tends to oxidize. The liner should be galvanized at the lowest possible temperature of

SN	Exiting clause of IRS Specification Sl. No T-56 – 2020	Proposed Final Dr	raft of IRST-56- <del>202</del>	<del>0</del> -2024	Comme	RDSO'	Final Draft of IRS	Specification,Sl. No	T-56 – 2024 (
	·	(First Revision)(u	ploaded on RDSO's	website for 30	nts	s	First Revision )	•	•
		days)			Receive	Remar	,		
		uuys,			d from	ks			
						KS			
					Firms				
		vary from 4 temperature The liner sho inthe molter immersion the the best resul the bath as s liners after subjected to overflowing w 5. Post Treatment: The galvaniz a chromating acid solution 6. Stacking: The liner afte and thereaft and well ven 7. Inspection and T The galvaniz and testing mass of galv adhesion as 7.1. Sampling: 7.1.1 Lot: All the Liners having unifo groupedtoge 7.1.2 Each lot sha requirements of the	of molten metal show ould be immersed an bath ensuring some molten bath to be a lits and the liner show soon as the boiling a withdrawal from zothe water quench water.  The water quench water are should be ging bath where the tender is maintained around the stacked liner should be stacked the stacked liner shall be suggested liner shall be suggested liner shall be suggested liner shall be suggested to soft the same type in a soft the same type in a specification. The relation this purpose significant in the suggested liner shall be tested separate as specification. The relation that shall be tested separate as specification. The relation to the same type in a specification. The relation that suggested liner shall be tested separate as specification. The relation that suggested liner shall be tested separate as specification. The relation that suggested liner shall be tested separate as specification. The relation that suggested liner shall be tested separate as specification. The relation that suggested liner shall be tested separate as specification. The relation that suggested liner shall be tested separate as specification. The relation that suggested liner shall be	build be allowed to dry d properly in a clean expected to inspection in from visual defects, ormity of Coating, and 1759-1996.	NIL	New Annex ure of Techni cal require ments for Hot Dip Galvan ization of low carbon steel Metal Liner to IS:206 2 has been added	drainage of vary from temperature 475°C. The possible in the p	ged liner should be giving bath where the tem is maintained around coost treatment should hould be stacked proposed space.  Testing: ner shall be subjected to ffreedom from visuing, Uniformity of Coating f IS 4759-1996.  Ters of the same type iform coating character to constitute a light be tested separate e specification. The number of the spurpos	th temperature may ring galvanizing the should not exceed as rapidly as ring safety. The time o be established to he liner should be as the boiling action rawal from zinc bath requenching in tanks en post treatment in perature of chromic d 70-75°C.  If the allowed to dry perly in a clean and to inspection and all defects, mass of any, and adhesion as the in a coating bath acteristics shall be ot.  Bely for the various umber of units to be
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SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024			Comme	RDSO'	Final Draft of IRS Specification, Sl. No T-56 – 2024 (			
		(First Revision)(uploaded on RDSO's website for 30			nts	s	First Revision )			
		days)			Receive	Remar	•			
		,0,			d from	ks				
					Firms	, KS				
		501-1000	20	2	111113		151-500	13	1	
		1001-1000	32	3			501-1000	20	2	
		10000 & above	50	5			1001-10000	32	3	
			1				10000 & above	50	5	
		7.2 Freedom from	Defects:					-1		
		· ·		checked for visually			7.2 Freedom from	Defects:		
		forFreedom from Defects. The zinc coating shall be				New	<b>7.2.1</b> The sample liners shall be checked for visually			
		uniform, adherent, reasonably smooth and free from such imperfections as flux, ash bare patches, black				Annex			coating shall be uniform,	
						ure of	· ·	•	and free from such thes, black spots, pimples,	
		spots, pimples, lumpiness, runs, rust stains, bulky white deposits and blisters.				Techni cal	•		hite deposits and blisters	
		7.2.2 The complete	soloeted shall be seen	ding to Table 1 of		require ments		-14411	and and Table 1 of	
		<b>7.2.2</b> The sample selected shall be according to Table 1 of para 7.1.2.				for Hot	para 7.1.2.	elected shall be a	according to Table 1 of	
						Dip				
		<b>7.2.3</b> Visual inspection of the material in a lot shall be made to			NIL	Galvan ization				
		•		ements of 7.2.1.If the		of low	·		al in a lot shall be made e requirements of 7.2.1.If	
			rejection of the lot, t			carbon		,	the lot, the galvanizer	
			pieces of the lot and s	-		steel			e lot and submit it once	
		for inspection.				Metal Liner	again for inspection			
		<b>7.2.4</b> If the lot inspected for visual inspection passes then it				to IS:206	7.2.4 If the lot insp	ected for visual in	nspection passes then it	
		shall be declared as conforming to the requirements of 7.2.1.				2 has been	shall be declared as	conforming to th	he requirements of 7.2.1.	
		7.3 Mass of Galvanized Coating:				added	7.3 Mass of Galvanized Coating:			
		<b>7.3.1</b> The sample selected shall be according to Table 1 of para					·	elected shall be a	according to Table 1 of	
		7.1.2.					para 7.1.2.			
		<b>7.3.2</b> The sample	e liners shall he c	hecked for Mass of						
		<b>7.3.2</b> The sample liners shall be checked for Mass of Galvanized Coating based on coating thickness by Magnetic					7.3.2 The sample li	ners shall be che	cked for Mass of	
		_	•	of Galvanized Coating			•		g thickness by Magnetic	
				1.The mass of coating			method as per IS 32	203:1982. Thickne	ess of Galvanized Coating	
				en be calculated by					Fig-1.The mass of coating	
			-	illimetres by a factor			in grams per square		•	
			•	ass of zinc coating on				•	millimetres by a factor mass of zinc coating on	
		liner shall be700 gm/m2 .Thickness of Galvanized coating should not be less than 99µ at any of the locations for checking						•	of Galvanized coating	
		coating thickness as shownin figure-1otherwise it will be					should not be less t			
		treated as a defect					checking coating th	ickness as shown	in figure-1otherwise it	
							will be treated as a	defect		

SN	Exiting clause of IRS Specification SI. No T-56 – 2020	Proposed Final Draft of IRST-56- <del>2020</del> -2024 ( <u>First Revision</u> )(uploaded on RDSO's website for 30 days)	Comme nts Receive d from Firms	RDSO' s Remar ks	Final Draft of IRS Specification,Sl. No T-56 – 2024 ( First Revision )
		7.3.3 If the number of defective units in a lot exceeds the acceptance number as per Table 1 of para 7.1.2, the lot shall be rejected else accepted.  Figure-1- Reference area for checking coating thickness on Galvanized Metal Liner  7.4 Determination of Uniformity of Galvanizing Coating  7.4.1 The sample selected shall be according to Table 1 of para 7.1.2.  7.4.2 The sample liners shall be checked for uniformity of galvanizing coating by Preece Test as prescribed in IS 2633:1972. The sample liners should withstand 4 dip for aperiod of one minute.  7.4.3 If the number of defective units in a lot exceeds the acceptance number as per Table 1 of para 7.1.2, the lot shall be rejected else accepted.  7.5 Adhesion of Galvanized Coating  7.5.1 The sample liners shall be checked for Adhesion of Galvanized Coating. The coating shall withstand the pivoted hammer &knife tests as prescribed in IS 2629:1985.  7.5.3 If the number of defective units in a lot exceeds the acceptance number as per Table 1 of para 7.1.2, the lot shall be rejected else accepted.  Note:  i). In pivoted hammer tests Removal or lifting of the coating in the area between the impressions shall constitute failure. ii). In knife tests, it shall only be possible to remove small particles of the coating and it shall not be possible to peel any portion of the coating so as to expose the underlying iron or steel.	NiL	New Annex ure of Techni cal require ments for Hot Dip Galvan ization of low carbon steel Metal Liner to IS:206 2 has been added	.3.3 If the number of defective units in a lot exceeds the acceptance number as per Table 1 of para 7.1.2, the lot shall be rejected else accepted.  Figure-1- Reference area for checking coating thickness on Galvanized Metal Liner  7.4 Determination of Uniformity of Galvanizing Coating  7.4.1 The sample selected shall be according to Table 1 of para 7.1.2.  7.4.2 The sample liners shall be checked for uniformity of galvanizing coating by Preece Test as prescribed in IS 2633:1972. The sample liners should withstand 4 dip for a period of one minute.  7.4.3 If the number of defective units in a lot exceeds the acceptance number as per Table 1 of para 7.1.2, the lot shall be rejected else accepted.  7.5 Adhesion of Galvanized Coating  7.5.1 The sample selected shall be according to Table 1 of para 7.1.2.  7.5.2 The sample liners shall be checked for Adhesion of Galvanized Coating. The coating shall withstand the pivoted hammer &knife tests as prescribed in IS 2629:1985.  7.5.3 If the number of defective units in a lot exceeds the acceptance number as per Table 1 of para 7.1.2, the lot shall be rejected else accepted.  Note:  i). In pivoted hammer tests Removal or lifting of the coating in the area between the impressions shall constitute failure.  ii). In knife tests, it shall only be possible to remove small particles of the coating and it shall not be possible to peel any portion of the coating so as to expose the underlying iron or steel.