

Claus No.	Description	Comments of M/s Sanrok Enterprises	Comments of M/s Om Besco, Kolkata	Comments of M/s Escorts	Comments of M/s Dellner	Comments of M/s WSF	Comments of M/s Faiveley	Comments of RDSO on the firm's comments
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Clause-wise Comments of the Firms on
 Schedule of Technical Requirements for Supply and Acceptance
 of High Capacity Semi-Permanent Coupler & Draw Gears for
 Electrical Multiple Unit/Mainline Electrical Multiple Unit and
 Diesel Multiple Unit RDSO Specification
 No. RDSO/2014/CG-Draft (Rev. Nil)

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1.0	SCOPE							
1.1	This specification covers the design, manufacture, supply and acceptance of couplers and its associated components like draw and buff gear mounting gear etc. for EMU / MEMU & DEMU rolling stock	Noted	Acceptable	Noted	Compliant	Complied		
1.2	This specification is intended to include everything requisite to the manufacture of the couplers, notwithstanding that everything required may not be mentioned herein.	Noted	Acceptable	Noted	Compliant with comments We feel that the detail with regard to the manufacturing are not needed so long as the technical requirements are being met by the offered product.	Complied		Details with respect to critical manufacturing process/milestones are required to be part of the specification for ensuring consistent and sustained product quality.
2.0	DEFINITIONS							
	'PURCHASER' means the Ministry of Railways, or an administration under the Ministry of Railways, on behalf of the President of the Republic of India	Noted	Acceptable	Noted	Compliant	Complied		
2.2	'IR' means Indian Railways	Noted	Acceptable	Noted	Compliant	Complied		
2.3	'RDSO' means Research Designs & Standards Organization, Manak Nagar, Lucknow-226 011.	Noted	Acceptable	Noted	Compliant	Complied		
2.4	'INSPECTING AUTHORITY' means the representative of RDSO nominated by Director General / RDSO to inspect the supply on behalf of the PURCHASER.	Noted	Acceptable	Noted	Compliant	Complied		
2.5	'Vendor' means the firm / company that submits offer for supply of High Capacity Semi-Permanent Coupler (herein after referred to as	Noted	Acceptable	Noted	Compliant	Complied		

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	couplers), draw and buff gears and associated components as per this specification.							
2.6	Vendor means the firm/company on whom order, for supply of couplers, draft gears and associated components, in full or parts as per this specification is placed.	Noted	Acceptable	Noted	Compliant	Complied		
2.7	'Sub-Vendor' means any firm or company from whom the Vendor may obtain an item of supply not necessarily manufactured by the Vendor himself.	Noted	Acceptable	Noted	Compliant	Complied		
2.8	Sub-vendor means any firm or company from whom the vendor may obtain any material, assemblies or sub-assemblies used for the manufacture of couplers, draft gears and other associated components.	Noted	Acceptable	Noted	Compliant	Complied		
2.9	'SPECIFICATION', unless otherwise mentioned, refers to specifications of IR/RDSO and the same could be procured from DG/RDSO on normal payment basis.	Noted	Acceptable	Noted	Compliant	Complied		
3.0	PARTICULAR REUIREMENTS							
3.1	All the couplers in the rake shall be mechanically and pneumatically couplable with existing Scharfenberg type High Capacity Semi-Permanent type couplers which are already in service over IR as per RDSO Specification IRS 61-B-36/Rev.-68-1 except for driving end where provisions shall be made for mechanical couplability with screw coupling AAR 'H' type CBC and AAR 'E' type CBC.	The AAR-H Head to be used for driving end coaches should be procured from RDSO Approved Sources.	Acceptable	Noted	Compliant, Will the new couplers be coupled with existing once? Dellner has no problems fulfilling this however we might find a more costeffective solution if we can use Dellner standard parts. We running multiple trainsets,	The woed 'High capacity' should be deleted.		New couplers shall be coupled with existing ones also. The requirement of couplability with screw coupling, AAR 'H' type CBC and AAR 'E' type CBC is for the driving end only in emergency for dead train clearance and

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					up to 27 coaches. Will the screw coupling be kept in the interface between trainset but switched to AAR type in the driving end of first and last trainset? Is this correct?			not for regular operation.
3.2	All intermediate couplers in the four car / three car units shall be of the semi- permanent type.	This particular clause seems to have been picked from existing RDSO Spec. No.61-B-36/(Rev.68-1). This may be deleted or replaced as "all the coupler shall be Semi Permanent Coupler Type.	Acceptable	Noted	Compliant	Complied		Clause to be modified as under:- All couplers except driving end in the four car / three car units shall be of the semi-permanent type.
3.3	The vendor shall develop a design based on sound engineering practice and submit general arrangement and working drawings and all technical data to RSDO, Lucknow for approval before commencing manufacture.	Noted and Complied	Acceptable	Noted	Compliant	Complied		
3.4	This specification is for developmental purpose only. All the products supplied under the specification shall be put in service trials for a period of not less then 12 months before decision on adoption of the specification for bulk purchase is made	Noted and Complied	Acceptable	Noted	Compliant	Complied		
4.0	GENERAL DESIGN FEATURES							
4.1	The fixing of coupler to under frame	The mounting	Acceptable	M30 bolt will	Compliant	Complied		The mounting

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	shall be as per RDSO's drawing no. CG- 10016. The fixing arrangement and under frame cutaways shall be identical for all couplers (end and intermediate).	sketch given in the new draft specification to sketch No. CG-10016 allows only one type of generic design and excludes the variants offered by us who is fully compliant to new specification and also is interchangeable and usable in the existing under frame structure.		undergo a service stress>850 MPa at tensile load of 1500 kN which is not safe hence we can be reviewed for a stronger M42 size (stress @1500 kN~400MPa)	Dellner has no problems fulfilling this however we can offer a more costeffective solution if we can use Dellner standard parts. The interface will in that case be similar to existing one in drawing CG-10016.			arrangement giving in the sketch is general enough to include a large variety of designs of Semi Permanent Coupler. Some of the earlier suggested designs with bearing bracket and bearing bolt kind of arrangement have given lot of maintenance related problems over period of time.
4.2	The draft / buffing gear shall be with elastomeric springs	Noted and Complied	Acceptable	Noted and Complied	Compliant, It is preferable that the choice is left to ensure that all the energy requirements as well as the swing requirements are fulfilled.	Complied		Elastomeric springs are desirable because of their attendant advantages.
4.3	The distance between the headstock and coupling line shall be 400 mm when semi- permanent couplers are fitted.	Noted and Complied	Acceptable	Noted and Complied	Compliant	Complied		
4.4	The High Capacity Semi-Permanent Couplers shall be provided with arrangement for coupling of brake pipes.	Noted and Complied	Acceptable	Noted and Complied	Compliant	Complied		
4.5	The mounting arrangement for High Capacity Semi-Permanent shall be as per RDSO drawing no. CG-10016 (Annexure -B)	The mounting sketch given in the new draft specification to	Acceptable	Noted	Compliant Dellner has no problems fulfilling this however we	Complied		The mounting arrangement giving in the sketch is

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		sketch No. CG-10016 allows only one type of generic design and excludes the variants offered by us who is fully compliant to new specification and also is interchangeable and usable in the existing under frame structure.			can offer a more cost effective solution if we can use Dellner standard parts. The interface will in that case be similar to existing one in drawing CG-10016.			general enough to include a large variety of design of Semi Permanent Coupler. Some of the earlier suggested designs with bearing bracket and bearing bolt kind of arrangement have given lot of maintenance related problems over period of time.
4.6	<i>The coupler design shall meet the requirements of vertical shear strength and Torsional resistance as laid down in APTA PR-003-98 dt. 13-02-2004.</i>							<i>Vertical shear strength and Torsional resistance requirements as per APTA PR-003-98 dt. 13-02-2004 incorporated in the clause to completely specify the coupler strength requirement.</i>
5.	Material							
5.1	The material used for the load bearing parts of coupler is High strength steel casting to AAR M-201 Grade 'E' standard	All the load bearing members are made of AAR M-201 grade 'E' material with 827 Mpa Ultimate Tensile Strength, 690 Mpa Yield Strength, 16%	Acceptable	Noted and Complied	Compliant with comments We feel that the details with regard to the material composition should be the prerogative of the supplier so long as the desired	All load bearing parts can't be cast, some of those should be of high tensile group.		IR has good experience with AAR M-201 Grade 'E' standard high tensile steel in the case of Centre Buffer Coupler and hence would like

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		<p>Elongation and 30 % Reduction in area, which is a standard material of castings for all the coupler application in Indian Railways and abroad.</p> <p>We are already supplying these couplers in AAR M-201 grade E, by virtue of which the coupler supplied by us are already upgraded to the strength requirements of the new draft specification .we are the only supplier who is supplying the upgraded couplers.</p>			technical requirements are being met by the our product.			to specify the same for the upgraded Semi Permanent Coupler.										
5.2	CHEMICAL COMPOSITION																	
5.2.1	<p>The percentage by weight of different elements in Grade 'E' steel of specification M-201 shall not exceed the following limits:</p> <table><tr><td>Carbon, Maximum percent</td><td>0.32</td></tr><tr><td>Manganese, maximum percent</td><td>1.85</td></tr><tr><td>Phosphorus, maximum percent</td><td>0.04</td></tr><tr><td>Sulfur, maximum percent</td><td>0.04</td></tr><tr><td>Silicon, maximum percent</td><td>1.50</td></tr></table>	Carbon, Maximum percent	0.32	Manganese, maximum percent	1.85	Phosphorus, maximum percent	0.04	Sulfur, maximum percent	0.04	Silicon, maximum percent	1.50	<p>Noted and Complied</p> <p>We offer castings with sulphur and phosphorous which are impurities with a maximum of 0.03% which is better than 0.04% as stated in the</p>	Acceptable	Noted and Complied		<p>Chemical composition of Grade 'E' steel is found OK.</p> <p>The chemical composition of articulation bearing is ball bearings steel of Spec. SAE 52100 Grade.</p> <p>The chemical composition of</p>		
Carbon, Maximum percent	0.32																	
Manganese, maximum percent	1.85																	
Phosphorus, maximum percent	0.04																	
Sulfur, maximum percent	0.04																	
Silicon, maximum percent	1.50																	

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		chemical composition.				high tensile bearing blt must be of oil quenched medium carbon steel of IS:1367 class 8.8		
5.3	CHEMICAL ANALYSIS All relevant chemical analysis shall be done as per AAR specification M-201, Grade 'E' steel.	Noted and Complied	Acceptable	Noted and Complied		Complied		
5.4	HEAT TREATMENT Heat treatment process shall be done as per AAR specification M-201, Grade 'E' steel.	Noted and Complied	Acceptable	Noted and Complied		Complied		
5.5	MECHANICAL PROPERTIES AND TESTS All relevant mechanical properties and tests shall be done as per AAR specification M-201, Grade 'E' steel. The hardness shall be checked on the location as shown in fig.1 for hardness. Each melt shall be tested for mechanical properties after heat treatment. The coupons from each melt shall be heat treated with castings of the same grade, in the same manner as the casting they represent. All the test results conducted as per AAR specification M-201, Grade 'E' shall be clearly brought out in QAP and their results maintained in the test records.	Noted and Complied	Acceptable	Noted and Complied				
5.6	A. Material of mounting plate and Ribs	A. SAILMA-350 HI. Thickness-50		A. Plate thickness-50			A. EN19/EN24/eq	As per discussion with

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	B. Mounting bolt size and material	mm.. B. M30, 12.9 grade, Hexagon socket head cap screw. Suggested by the firm vide letter no. SE/SPC/RDSO/G K, dt.22-8-15		mm. adequate B. M42, 8.8 grade, suggested by the firm vide letter no. RE:CS:SK-124, dt. 27-8-15			ivalent in QT condition, Plate thickness-60 mm.. B. M30, 10.9 grade, suggested by the firm vide letter no. FTIL/MKTG/E OI/RDSO-Semi permanent coupler, dt. 28-8-2015	the firms material of mounting plate and ribs has been kept as IS 10787-1984 or equivalent and size of bolts as M30, 12.9 grade in the final specification.
6.	Welding procedure	Welding procedure of mounting plate and ribs on the under-frame of the coach, suggested by the firm vide letter no. SE/SPC/RDSO/GK, dt.22-8-15		Welding details given by the firm vide letter mentioned above.			For welding the firm has suggested adopt the standard EN 15085 vide letter mentioned above.	Welding procedure of mounting plate and ribs on the under-frame of the coach has been added in the specification as clause no. 6
6.0	CASTING FINISH (s. no. has been changed 6 to 7 due to Welding procedure of mounting plate and ribs as S.no.-6).							
6.1	Riser pads and gate stubs shall not project more than 6mm above the surrounding surface at any location, where interference would exist in the operation or application or where serviceability would be affected, the riser pads and gate stubs shall be contoured to surrounding areas.	Complied	Acceptable	Noted and Complied	We feel that the details with regard to the casting finish should be the prerogative of the supplier so long as the desired technical requirements are being met by the our product.	Complied		Details with respect to critical manufacturing process/milestones are required to be part of the specification for ensuring consistent and sustained product quality.
6.2	Castings shall be blasted sufficiently clean to permit thorough, visual Inspection. Prior to shipment, castings shall be free of dirt, rust, or loose material that would affect operation. Couplers must not	Complied	Acceptable	Noted and Complied		Complied		

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	be sand or shot blasted when completely assembled							
6.3	The castings shall not be painted or covered with any substance that will hide defects prior to inspection. Manufacturer's and/or purchaser's identification marks shall be put after the complete inspection and acceptance of the parts by the purchaser. The supplier shall paint the coupler exterior except at mating parts to protect the coupler from corrosion.	Complied	Acceptable	Noted and Complied		Painting procedure to be clearly given, when and how. During or after like such		
6.4	GENERAL REQUIREMENT FOR CASTING ACCEPTANCE. This section defines and classifies casting defects. Visual inspection and gauging of coupler casting parts to be complied as per clause 14 of AAR M-211 by the manufacturer before offering for Purchase Inspection.	Noted	Acceptable	Noted and Complied		Complied		
6.4.1	SURFACE ACCEPTANCE LEVEL Coupler casting parts shall conform to the requirements of AAR M -211, Surface Acceptance Level Specifications.	Noted	Acceptable	Noted and Complied		Complied		
6.4.2	EVIDENCE OF IMPROPER HEAT TREATMENT Evidence of improper Heat Treatment as shown from manufacturer's records shall not be accepted. Heat treatment lugs may be used by Inspecting Authority to assist in the determination of improper heat treatment.	Noted and Accepted	Acceptable	Noted and Complied		We proposed to redraft as below: "In case of improper Heat Treatment noted in manufacturer's records shall not be accepted."		
7.	PERFORMANCE AND TEST REQUIREMENTS (s. no. has been changed 7 to 8 due to Welding procedure of mounting plate and ribs as S.no.-6).							
7.1	(i) The complete High capacity Semi-Permanent Coupler	Apart from giving the Proof Strength	Acceptable	Noted, testing will be	Compliant	Complied		Clause (i) to be modified to read

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	<p>assembly shall withstand tensile load of 1000 kN without showing any permanent deformation and tensile load of 1500 kN without any rupture / fracture of any part of the assembly.</p> <p>(ii)The complete High Capacity Semi-Permanent Coupler assembly shall withstand compressive load of 1300 kN without showing any permanent deformation and compressive load of 1500 kN without any rupture / fracture of any part of the assembly.</p> <p>(iii) <i>Bending test of the complete High Capacity Semi-Permanent Coupler assembly shall carried out by applying a force of 300 KN in graduated steps at the centre of the coupler shank. The residual strain should be below 0.2%. No fracture should be observed on application of load of 500 KN.</i></p>	<p>requirement the revised strength requirement must also have residual strain values. i.e.- The residual strain should be below 0.2% after release of load. This will make all the manufacturer to test their couplers by duly strain gauging them, which is a good testing practice.</p>		<p>completed before commencing the first lot production.</p>				<p>as under:- The complete High capacity Semi-Permanent Coupler assembly shall withstand tensile load of 1000 kN with the residual strain being below 0.2% after release of load and tensile load of 1500 kN without any rupture / fracture of any part of the assembly.</p> <p><i>Clause (iii) incorporated in the clause to completely specify the coupler strength requirement.</i></p>									
7.2	<p>Draft gear characteristics- The draft gear characteristics shall be-</p> <table><tr><td>1.</td><td>Travel (in draw mode)</td><td>28mm (maximum)</td></tr><tr><td>2.</td><td>Travel (in buff mode)</td><td>56mm (maximum)</td></tr><tr><td>3.</td><td>End force</td><td>800kN(maximum)</td></tr></table>	1.	Travel (in draw mode)	28mm (maximum)	2.	Travel (in buff mode)	56mm (maximum)	3.	End force	800kN(maximum)	Accepted	Acceptable	<p>Noted, All these performance parameters will be evaluated after successful trials and felid performance. Static load deflection testing for pad/pad packs & dynamic</p>	<p>2. Travel (in buff mode) 56 mm (max) – Please increase it to 70 mm 3. End force 800kN (maximum) - Please increase to this 1300 kN. Moreover without knowing how much energy the</p>	Complied		<p>Maximum travel available in buff mode cannot be increased beyond 56 mm due to infringement considerations. Maximum end force cannot be increased</p>
1.	Travel (in draw mode)	28mm (maximum)															
2.	Travel (in buff mode)	56mm (maximum)															
3.	End force	800kN(maximum)															

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	4.	Energy storage capacity (dynamic). The energy storage capacity shall be obtained observing both the limits of travel and end forces as mentioned above simultaneously	In draw mode: (1-Damping Factor)* Energy storage in Buff mode (minimum)			simulated performance parameters, complying with specification will be submitted with GA drawings for RDSO approval before commencing the first lot production.	side buffers in the front car can absorb during coupling speed we cannot simulate real case. Without side buffers the energy simulation cannot manage maximum 800 kN we would need to increase this to maximum 1300 kN (or 1100 kN if we can decrease swing angle, as explained below).if you can submit data for the energy absorption of the side buffers in the front car we can make new simulation. For Dellner standard parts there are two solutions: alt-1 manages a horizontal angle of 15 ⁰ but will need to increase max force to 1300kN, this is the most costeffective solution Alt.2: manages a horizontal angle of 12 ⁰ and a max force to 1100kN. 4. Please clarify –			beyond 800 kN keeping in view the structural strength of EMU coaches. The energy absorption of the two side buffers during normal operation is of the order of 25 kJ. For draw mode , 4.8 kJ will be the energy absorption in dynamic mode.
	5.	Damping Factor	0.6 (minimum)							
	Draft gear Pad shall be made of elastomer having non - linear characteristic with low spring rate at low travel and significantly higher rates at high travel. In the case of draft gears with internal articulation, it shall be the responsibility of the supplier to certify suitability of the same for use in Indian Railways applications.					Noted and Complied				

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					does this mean it will be enough with $(1-0.6)*12=4.8$ kJ energy absorption? Regarding draft gear we comply.			
7.3	The couplers shall allow coupled coaches to negotiate curves of radius 152.4 meters and shall be capable of passage in either direction over standard 1 in 8 1/2 turnouts and shall function satisfactorily With a 75mm difference in headstock heights of adjacent coaches.	Accepted	Acceptable	Noted and Complied	Please explain: Shall be capable of passage in either direction over standard 1 in 8 ½ turnouts.	Complied		The passage should be possible in either direction at the standard 1 in 8 1/2 turnout used over IR.
7.4	The couplers shall be tight lock and shall not develop slack in service	Accepted	Acceptable	Noted and Complied	Compliant	Complied		
7.5	Coaches with coupled condition the coupler should take minimum vertical swing 75 mm. in either direction.	Accepted and Complied	Acceptable	Noted and Complied	Compliant	Complied		
7.6	Coaches with coupled condition the coupler should take minimum horizontal swing 284 mm. in either direction.	Accepted and Complied	Acceptable	Noted and Complied	Calculating distance 1140 mm from mounting face in car to coupler front face this will mean a swing angle of approx 14° . For Dellner standard parts there are two solutions: alt-1 manages a horizontal angle of 15° but will need to increase max force to 1300kN, this is the most cost			Maximum end force cannot be increased beyond 800 kN keeping in view the structural strength of EMU coaches.

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					effective solution Alt.2: manages a horizontal angle of 12° and a max force to 1100kN.			
7.7	<i>Required type testing shall also be carried out as per RDSO approved test plan for vertical shear strength and Torsional resistance for the requirements laid down in APTA PR-003-98 dt. 13-02-2004.</i>							<i>Vertical shear strength and Torsional resistance requirements as APTA PR-003-98 dt. 13-02-2004 incorporated in the clause to completely specify the coupler strength requirement.</i>
8.0	CRASH ELEMENT (if required by the purchaser) (s. no. has been changed 8 to 9 due to Welding procedure of mounting plate and ribs as S.no.-6).							
8.1	Vendor shall include crash element in his offer, if so required by the purchaser at the time of purchase. The crash element should trigger at 1000 kN and should absorb energy at a rate of approximately 800KN for displacement of 400mm. Energy absorption should be more than 320 kJ.	Crash element is an optional part of Centre buffer Coupler. We have this option available in our design. Detailed design will be submitted in due course of time.	Acceptable	Noted	Please increase triggers force to min 1550 kN. Dellner wants that the specification explains which coupling speed and crash speed need to be managed. From that we can calculate how much energy needs to be absorbed. You will get a simulation report for this together with our offer.	Complied		Maximum triggering force cannot be increased beyond 1000 kN keeping in view the structural strength of EMU coaches.
8.2	Service trial of the couplers shall be	Service Trial shall	Acceptable	Noted	Compliant	Complied		Clause to be

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	carried out post fitment for a period of 12 months for assessing the field performance.	be for a period of 18-24 months in synchronization with the POH Period of the coaches so that various assemblies of the new design can also be verified.						retained in original form since 12 months in service is considered sufficient time period for assessing any operational issues/problems with the new coupler design.
9.0	SUPPLY OF TECHNICAL DATA (s. no. has been changed 9 to 10 due to Welding procedure of mounting plate and ribs as S.no.-6).							
9.1	Vendor shall develop/adopt a design based on sound engineering practice and submit complete assembly drawings and related specification of the coupler and assembly being offered by him.	Accepted	Acceptable	Noted, Concept drawings are being submitted with the proposal.	Compliant	Complied		
9.2	Vendor should prepare QAP for the manufacture and inspection of the coupler and draft gear system /sub-vendor and it should be submitted to RDSO for approval. The heat treatment processes shall be verified at the supplier's end through process flow and control plan defining all critical process and characteristics, to be confirmed by test reports.	Accepted	Acceptable	Noted, QAP will be submitted for RDSO approval before commencing the first lot production.	Compliant	Complied		
9.3	List of the manufacturing and acceptance gauges used by the vendor or the Sub-vendor to check the components of the coupler to ensure interchange ability should be submitted to RDSO.	Accepted	Acceptable	Noted,	Compliant	Complied		
9.4	Onus of obtaining license if required any shall lie with vendor.	Accepted	Acceptable	Noted,	Compliant	Complied		
9.5	Separate drawings in A1/A2/A3 size for each of the coupler assembly shall be submitted with the offer.	Accepted	Acceptable	Detail drawings will be submitted to RDSO for	Compliant	Complied		

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	Each drawing shall indicate sufficient sectional views of the component. These drawings shall be complete in respect of: a) Material Specification b) Estimated Weight c) Dimensions d) Reference of detailed manufacturing drawings.			their approval before commencing the proto-lot production.				
9.6	Following parameters shall also be furnished: a) Characteristics of Draft Gear b) Energy absorption capacity c) Initial pre-compression	Accepted	Acceptable	Noted,	Compliant	Complied		
10.0	Qualifying Requirements (s. no. has been changed 10 to 11 due to Welding procedure of mounting plate and ribs as S.no.-6).							
10.1	The Vendor meeting any one of the following three criteria shall qualify (i) Vendor having experience in supplying Semi-Permanent Coupler to INDIAN RAILWAYS or Metro Railways of India. (ii) Vendor having experience in supplying AAR'H' type coupler to INDIAN RAILWAYS. (iii) Vendor having experience in manufacturing of High capacity Semi-Permanent Coupler / AAR 'H' type coupler and supplying to reputed International Railway like European, American, Japanese or any other developed country. Subsidiary of such a manufacturer and supplier which are located in India is also eligible to submit the offer.	Noted and Complied We qualify to the provision of clause 10.1 sub clause (i) and (ii) "Vendor having experience in supplying Semi-Permanent Coupler to INDIAN RAILWAYS or Metro Railways of India" And "Vendor having experience in supplying AAR'H' type coupler to INDIAN RAILWAYS"	Acceptable It may be noted that the coupler like AAR 'H' are extension the American contour couplers of other types. Enormous capability and expertise is available with some of the engineers who have spent their time in this field by virtue of long term cooperation with American manufacturers of similar	Noted and Complied, Escorts has been the No. 1 supplier of Semi-permanent coupler to IR since last 40 years. Escorts have been a regular supplier of AAR H type coupler to IR since 2006.	Compliant	Complied		Clause to be retained in original form.
10.2	Vendor or Sub-Vendor should have adequate plant and manufacturing	We have adequate plant and	of similar	Noted and Complied,	Compliant	Complied		

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	capacity to manufacture and supply the couplers within the delivery schedule.	Machinery capacity to manufacture the couplers, a copy of our plant and machinery list duly vetted by RDSO is Enclosed for your reference. We also have installed a computer controlled strength and static capacity testing machine for couplers and draft gears which allow us to test the couplers and draft gears in house. This facility is not available with any of the current suppliers.	items, but could not introduce type 'H' or other similar couplers when they tried prior to coach importing in India during 2000's. It is requested that a special consideration used to be provided for such company who have all the other requirements of 10.2 & 10.3 (paras) in addition to the capability of designing, maintaining					
10.3	Vendor should have a well-established quality control system and organizational set-up, to ensure adequate quality, at all stages of manufacture.	We have adequate quality control system and organization set-up, a copy of our Measuring Instrument and Gauges list duly vetted by RDSO is Enclosed for your reference.	and train the people in railways in every comfortable manner i.e. shock friendly. The credentials in these cases can also be subject to verification if so desired. Is not out of place to	Noted and Complied,	Compliant	Complied		
10.4	Vendor not submitting the above mentioned requisite information should note that incomplete offer is	Noted and Accepted		Noted	Compliant	Complied		

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	liable to be rejected.		mention that in					
10.5	In addition to the above, further information, if required by the PURCHASER, shall be promptly provided by the Vendor.	Accepted	one of the recent draft schedule of requirement of RDSO, clauses similar to the one extracted below can be suitably considered WD-71BD-15: Section Preamble “This specification shall enable development of indigenous manufacturing and testing capability for draft gear matching international standards. Development of indigenous manufacturing is in line with Government of India's 'Make in India' initiative. It would be prudent to progress in a graduated manner, meeting the imperatives of up gradation of	Noted	Compliant	Complied		

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			Indigenous manufacturing capabilities. Also cost repercussions of the new improve specifications will need to be established to make it a long term, economically viable solution".					
11.0	GENERAL REQUIREMENTS (s. no. has been changed 11 to 12 due to Welding procedure of mounting plate and ribs as S.no.-6).							
11.1	Inspection of coupler assemblies and associated components shall be carried out by the INSPECTING AUTHORITY and notwithstanding what has been specified in this specification, inspection shall be conducted as per relevant standard international practices/specifications and as mutually agreed to by the INSPECTING AUTHORITY and vendor. In case of a dispute, however, the decision of the PURCHASER shall be final. If purchaser desires in process inspection can be carried out at the manufacturing stage also.	Accepted	Acceptable	Noted	Compliant	Complied		
11.2	A test plan should be submitted by the vendor and after the assessment of the test plan, RDSO may modify or supplement the test plan before granting approval to it	Accepted	Acceptable	Noted, Test plan will be submitted for RDSO approval before testing	Compliant	Complied		
11.3	The general design and the arrangement drawings of the coupler and draft gear system	Accepted	Acceptable	Noted, GA drawings will be submitted for RDSO approval	Compliant	Complied		

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	should be got approved from RDSO. Further modifications and improvements to the product design if any in future, should be got approved from RDSO.			before proto-lot production. Concept drawings are being submitted with this proposal.				
11.4	The inspection of coupler assemblies and associated components shall be done	Accepted	Acceptable	Noted	Compliant	Complied		
11.5	Vendor shall be responsible for execution of the contract in accordance with this specification and for satisfactory fitment and operational performance of the couplers supplied, irrespective of any approval which the PURCHASER/RDSO may have given.	Accepted	Acceptable	Noted	Compliant	Complied		
11.6	Vendor shall provide adequate supervision to ensure satisfactory fitment of 10 coupler sets and satisfactory service performance.	Accepted	Acceptable	Noted	Compliant	Complied		
11.7	Vendor shall also provide training to IR officials at his own cost, regarding maintenance practices of the coupler system.	Accepted	Acceptable	Noted	Should be limited to number of occasions and persons. Dellner standard is two days for max 12 persons. But can be more at additional cost.	Complied		Clause to be retained in original form.
12.	SUBMISSION OF OFFERS (s. no. has been changed 12 to 13 due to Welding procedure of mounting plate and ribs as S.no.-6).							
12.1	Vendor shall offer clause by clause comments on this specification, confirming compliance with all the clauses and elaborating wherever necessary. In case there are any deviations, complete details of alternative proposal against the	Accepted	Acceptable	Noted	Compliant	Complied		

Claus No.	Description	Comments of M/s Sanrok Enterprises	Comments of M/s Om Besco, Kolkata	Comments of M/s Escorts	Comments of M/s Dellner	Comments of M/s WSF	Comments of M/s Faiveley	Comments of RDSO on the firm's comments
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	clause (s) shall be given as a consolidated 'STATEMENT OF DEVIATIONS'. In the absence of any deviation, however, a 'NO DEVIATION STATEMENT' shall be necessarily given.							
12.2	Offers, which are incomplete in respect of details indicated, vide clauses 7. 0 is liable to be ignored.	Noted and Accepted	Acceptable	Noted	Compliant	Complied		
13.	MAINTENANCE OF COUPLERS (s. no. has been changed 13 to 14 due to Welding procedure of mounting plate and ribs as S.no.-6).							
13.1	Vendor shall provide detailed instructions for day-to-day and workshop maintenance and shall include the following: -	Noted	Acceptable	Noted, This will be part of our maintenance manual.	Compliant	Complied		
13.2	Detailed work content of various inspection/maintenance practices including procedure for assembly and fitment of couplers. The work content of each schedule shall also be intimated.	Accepted	Acceptable	Noted, This will be part of our maintenance manual. Set of gauges can separately be purchased by purchaser as per their requirements. Price proposal for the same will be submitted with the offer.	Compliant	Complied		
13.3	Vendor shall also submit a list of technical specification(for procurement purpose) of all special purpose tools, gauges and testing / measuring instruments required for examination repair and over hauling / reconditioning of couplers. Price proposal for these tools gauges and testing / measuring instruments shall also be submitted with the offer separately. One set of gauges	Accepted, this will be submitted at the time of commercial offer	Acceptable	Noted, This will be part of our maintenance manual.	Compliant	Complied		

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	should be supplied for every supply of 60 (sixty) nos. of couplers.							
13.4	Vendor shall make recommendations suggesting scale of spares to be maintained per 100 couplers for a period of 6 (Six) years. Price proposals for these spares shall also be submitted with the offer separately.	Accepted, this will be part of the Maintenance Manual	Acceptable	Noted, This will be part of our maintenance manual.	Compliant	Complied		
13.5	Vendor shall specifically advise criteria for replacement of components of couplers during maintenance.	Accepted, we shall advise the criteria of replacement in the Maintenance manual, which will be supplied along with the supplies.	Acceptable	Maintenance manual copies (hard & soft) will be submitted to RDSO for their review before dispatching the first lot of couplers.	Compliant	Complied		
13.6	The CONTRACTOR shall supply min. 10 (Ten) copies of Maintenance Manuals for every supply of 500 (five hundred) couplers to PURCHASER. A soft copy of the Maintenance manual shall also be submitted.	Accepted	Acceptable	Noted	Compliant	Complied		
14.	GUARANTEE Vendor shall assist the coach builders in the fitting testing and commissioning of these couplers and shall be responsible for their satisfactory working. Vendor shall at his cost replace the couplers and associated components failing prematurely or proving unsatisfactory in service for reasons attributed to defective/faulty design, defective material or poor workmanship within period of 48 months from the date of delivery or 36 months from the date of fitment,	Accepted	Acceptable	Noted,	Compliant	Complied		(s. no. has been changed 14 to 15 due to Welding procedure of mounting plate and ribs as S.no.-6).

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	whichever is earlier. This warranty shall survive notwithstanding the fact that the couplers may have been inspected, accepted and payment thereof made by the PURCHASER. For the replaced coupler / component is commissioned in service. The sole judge in this case shall be the PURCHASER.							
15.	Any design/ manufacturing/ raw material deviation on the items should be approved by RDSO.	Accepted	Acceptable	Noted	Compliant	Complied		(s. no. has been changed 15 to 16 due to Welding procedure of mounting plate and ribs as S.no.-6).
16.	Marking (s. no. has been changed 16 to 17 due to Welding procedure of mounting plate and ribs as S.no.-6).							
	Each item of scope of supply shall be embossed /punched clearly with UNIQUE numbers along with manufacturer logo and year of manufacture.	Accepted	Acceptable	Noted	Compliant	Complied		
17.	PACKING:- (s. no. has been changed 17 to 18 due to Welding procedure of mounting plate and ribs as S.no.-6).							
17.1	All the items shall be covered in polythene cover thickness not less than 25 microns and shall be packed in wooden crates. Machined/unpainted areas shall be treated with rust preventive oil. Items shall be packed separately and labelled in individual wooden boxes. These boxes shall be adequately protected to avoid damage during handling and transit. No organic material such as dry grass shall be used as filling material.	Noted and Complied	Acceptable	Noted	Compliant	Complied		
17.2	Air coupling ends shall be provided	Noted and	Acceptable	Noted	Compliant	Complied		

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	with dummy caps to avoid corrosion of bushes. Threaded holes to be protected suitably	Complied						
17.3	All mounting screws and dowels shall be secured to the respective items. Dummy nuts shall be provided to avoid the missing of the fasteners.	Noted and Complied	Acceptable	Noted	Compliant	Complied		