



Specification

TRANSMISSION

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for Line Hardware
Evaluations- long term 2023**

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Date: 23/10/2023
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1. INTRODUCTION

This standard depicts the technical evaluation process, criteria and scoring to be used when evaluating Line Hardware suppliers for technical compliance for the supply of line hardware for the long term contract.

2. SUPPORTING CLAUSES

2.1 SCOPE

The document outlines the technical evaluation process, criteria and scoring to be used when conducting evaluations on hardware suppliers. It does not inform you how to conduct the evaluation, and what credentials you require to conduct such an audit.

2.1.1 Purpose

The purpose of this document is to finalise and register the documents used to conduct hardware evaluations.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

240-6077474- Specification for Suspension and Strain Assemblies and for hardware for Transmission lines.

SABS IEC 61284: 1997- Overhead Lines- Requirements and Tests for fittings.

IEC 61854- Overhead lines- Requirements and tests for spacers.

2.2.1 Normative

[1] ISO 9001 Quality Management Systems.

2.2.2 Informative

N/A

2.3 DEFINITIONS

Definition	Description
N/A	

2.3.1 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

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Abbreviation	Description
N/A	

2.5 ROLES AND RESPONSIBILITIES

1. It is the responsibility of the evaluator to gain expert knowledge in line hardware design and application before he attempts to evaluate suppliers on his own. If accompanied by a senior person knowledgeable about the subject being evaluated, that is acceptable.

2. Evaluators need to use the latest evaluation sheets available or the latest signed standard depicting these documents.

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

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3. DOCUMENT CONTENT

3.1 LINE HARDWARE EVALUATION PROCESS

Below is the process that will be followed when conducting the technical evaluations for Line hardware for the interim contract.

Basically, this evaluation process consists of 3 steps.

Table 1: Full evaluation process

		THRESHOLD	FULL SCORE	MIN REQUIRED	WAY FORWARD
1	APPENDIX 1- ENTRANCE REQUIREMENTS	70%	39	27.3	If you get min 70% for this section, you move on to next desktop evaluations- Appendix 2 AND 3
2	APPENDIX 2- FULL ASSEMBLY TECHNICAL DETAILS AND REQUIREMENTS	70%	356	249.2	Achieve min 70%
3	APPENDIX 3- INDIVIDUAL ITEM TECHNICAL REQUIREMENTS	70%	187	130.9	Achieve min 70%

3.2 ENTRANCE REQUIREMENTS

In order for a tenderer to be technically compliant, we need to know their technical capabilities and evaluate accordingly. This first step of the evaluation determines if the tenderer is technically acceptable to make hardware as per the international specifications and Eskom requirements. APPENDIX 1, lists the requirements, full scores achievable and the threshold of 70%. If a tenderer achieves the min threshold score of 70%, they move onto the next step.

Tenders are reminded that for them to tender on any item/assembly, every item used must be fully type tested. No allowance will be made to any tenderer for time for items to be tested. Tenderers are urged not to include items in the tender which have not been type tested. Although no specific score is allocated for type tests in this tender, it must be noted that when the factory evaluation/ first order is placed, checks will be done to verify type tests on products.

All bidders who are supplying Line hardware to Eskom currently and have not changed their product and their manufacturing plant (factory) will be exempted from the technical evaluation, but they must still submit all required technical documents and submit a letter to indicate if there are changes to their product or not. Eskom will assess the changes and decide if the supplier qualifies or not.

Factory assessments shall be undertaken post contract award, upon placement of the first order.

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3.3 DESKTOP EVALUATION

APPENDIX 2 and 3, lists the Eskom evaluation criteria for hardware components and assemblies. This spreadsheet lists the technical requirements per assembly or component and the applicable score. Once this is populated by the Evaluators, a total score is given per tenderer. The tenderer needs to achieve a min score of 381.5, which is a 70% threshold limit for assemblies and individual components combined. It must be noted that you need to achieve an individual score of 70% for each to qualify overall.

4. AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation
Bharat Haridass	Senior Consultant
Ockert Fourie	Senior Engineer
AS Jacobs	Chief technologist

5. REVISIONS

Date	Rev.	Compiler	Remarks
Oct 2023	0	Ockert Fourie	New document for tender purposes.

6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- As per authorisation team

7. ACKNOWLEDGEMENTS

- N/A

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APPENDIX 1: ENTRANCE REQUIREMENTS

APPENDIX 1- ENTRANCE REQUIREMENTS									
Entrance level questions					Supplier comments	Concerns	Assessment conclusion	Scoring	Total marks achievable
1	Ability to supply complete assemblies including all shackles, yokes and other hardware components that make up the assemblies. Evidence that complete assemblies can be supplied. Documents or company catalogue to be submitted to verify this aspect.							Statement-1, drawings or catalogue-1, place of manufacture of each item-1	3
2	Ability to supply assemblies for single, twin, triple, quad and hex conductor configurations as a minimum requirement as per Eskom conceptual drawings. Proof in the form of technical drawings indicating complete assembled assemblies as well as separate individual drawings of components, indicating assembly or component strength, dimensions, type of material and key processes, mass etc, to be supplied.							Drawings indicating- component strength, dimensions, type of material and key processes, mass, individual item number, to be supplied.	6
3	Confirm that manufacturing, design and testing will be in accordance to SANS IEC 61284:1997 and Eskom hardware specification-240-6077474. Letter stating this aspect to be submitted, as well as company policies stating this requirement.							Company statement, plus company policies	2
4	All testing to be done by laboratories that have calibrated equipment and competent personnel capable of operating and performing tests correctly. Documents containing laboratory setup, equipment lists, equipment calibration certificates, testing personnel qualification, laboratory procedures for testing to be submitted. Main criteria is that the laboratory must have an ISO 9001 management system in place or a management system that conforms to ISO 9001.							laboratory setup, equipment lists, equipment calibration certificates, testing personnel qualification, laboratory procedures for testing to be submitted. Main criteria is that the laboratory must have an ISO 9001 management system in place or a management system that conforms to ISO 9001.	6
5	Show evidence of Type testing on each individual item, in accordance to SANS IEC 61284: 1997 and relevant Eskom product specification -240-6077474. For this tender, spreadsheet A, to be completed by tenderer. Please indicate on spreadsheet if items still need to be type tested, if not done so already.							Spreadsheet A complete for future tests, or not completed because all tests are done. Evidence provided for all items tendered on	2
6	Show evidence of Sample testing in accordance to SANS IEC 61284: 1997 and relevant Eskom product specification-240-6077474. For this tender, documents showing that the above requirements can be met.							Typical test procedures submitted for each area of production, Forging, casting, plate work.	3
7	Show evidence of Production testing in accordance to SANS IEC 61284: 1997 and relevant Eskom product specification-240-6077474. For this tender, documents showing that the above requirements can be met.							Typical test procedures submitted for each area of production, Forging, casting, plate work.	3
8	Indicate the maximum strength class of hardware that you can supply. Eskom requirement ranges from 120kN up to 900kN.							Details to be supplied on range of items that can be produced. 120kN, 210kN, 300kN, 450kN, 600kN, 900kN.	6
9	Ability to produce twin, triple, quad and six conductor spacer dampers. Drawings and specifications must be supplied.							Four types of spacer dampers	4
10	Ability to produce twin, triple, quad and six conductor rigid dampers. Drawings and specifications must be supplied.							Four types of rigid spacers	4
Total marks								0	39

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APPENDIX 2: FULL ASSEMBLY TECHNICAL DETAILS AND REQUIREMENTS

APPENDIX 2- FULL ASSEMBLY TECHNICAL DETAILS AND REQUIREMENTS											
NO	Item Description	132kV to 765kV Assemblies		Please indicated with "X"							
		Conductor eg Tern, Wolf, Bear	Configuration Twin/Trip Quad/Hex	Offered (X)	Basic details	Technical information required-0-not supplied, 1 supplied					FINAL TECHNICAL COMMENTS
	132kV					Drawing supplied.	Overall length mentioned	Individual items numbered/ code specified and load rating specified	Material type for each item stipulated	Lengths for individual items or critical items mentioned.	Critical clearances between items shown- especially for suspension assemblies
1	"V" Suspension assembly	Bear	Twin		Spacing-380mm						
2	Strain Assembly	Bear	Twin		Spacing-380mm						
3	Vibration damper	Bear									
4	Strain Assembly- Single attachment	Chicadee	Single								
5	"T" Suspension Assembly	Tern	Trip		Spacing 380mm						
6	"V" Suspension assembly	Tern	Trip		Spacing 380mm						
7	Strain assembly-double attachment	Tern	Trip		Spacing 380mm						
8	"T" Suspension Assembly	Zebra	Single								
9	Cushion Grip Suspension clamp for Suspension assemblies	Zebra									
10	Strain Assemblies for Phase Conductor	Zebra	Single								
11	Strain Assembly- Single attachment	Zebra	Single								
275kV											
12	"V" Suspension assembly	Tern	Quad		see DWG for concept details						
13	Strain assembly-double attachment	Tern	Quad		see DWG for concept details						
14	"T" Suspension Assembly	Tern	Twin		see DWG for concept details						
15	"V" Suspension assembly	Tern	Twin		see DWG for concept details						
16	Strain assembly-double attachment	Tern	Twin		see DWG for concept details						
17	"V" Suspension assembly	Zebra	Quad		see DWG for concept details						
18	Strain assembly-double attachment	Zebra	Quad		see DWG for concept details						
400kV											
19	"T" Suspension Assembly	Bersfort	Trip		see DWG for concept details						
20	"T" Suspension Assembly	Dinosaur	Twin		see DWG for concept details						
21	"T" Suspension Assembly	IEC315	Trip		see DWG for concept details						
22	"T" Suspension Assembly	Tern	Quad		see DWG for concept details						
23	"T" Suspension Assembly	Tern	Trip		see DWG for concept details						
24	"T" Suspension Assembly	Wolf	Quad		see DWG for concept details						
25	"V" Suspension assembly	Bersfort	Trip		see DWG for concept details						
26	"V" Suspension assembly	Dinosaur	Trip		see DWG for concept details						
27	"V" Suspension assembly	Goat	Twin		see DWG for concept details						
28	"V" Suspension assembly	IEC315	Trip		see DWG for concept details						
29	"V" Suspension assembly (518 TOWER)	IEC560	Quad		see DWG for concept details						
30	"V" Suspension assembly	Kingbird	Trip		see DWG for concept details						
31	"V" Suspension assembly	Tern	Quad		see DWG for concept details						
32	"V" Suspension assembly	Tern	Trip		see DWG for concept details						
33	"V" Suspension assembly	Wolf	Quad		see DWG for concept details						
34	"V" Suspension assembly	Zebra	Quad		see DWG for concept details						
35	Strain assembly-double attachment	Bersfort	Trip		see DWG for concept details						
36	Strain assembly-double attachment	Dinosaur	Trip		see DWG for concept details						
37	Strain assembly-double attachment	Goat	Twin		see DWG for concept details						
38	Strain assembly-double attachment	IEC315	Trip		see DWG for concept details						
39	Strain assembly-double attachment	IEC560	Quad		see DWG for concept details						
40	Strain assembly-double attachment	Kingbird	Trip		see DWG for concept details						
41	Strain assembly-double attachment	Tern	Quad		see DWG for concept details						
42	Strain assembly-double attachment	Tern	Trip		see DWG for concept details						
43	Strain assembly-double attachment	Wolf	Quad		see DWG for concept details						
765kV											
56	"V" Suspension assembly	Tern	Hex		see DWG for concept details						
57	Strain assembly-double attachment	Tern	Hex		see DWG for concept details						
58	Bolted slack span assembly	Tern	Hex								
Earthwire											
59	EW non-insulated suspension assembly	19/2.70	N/A								
60	EW insulated strain assembly	19/2.70	N/A								
61	EW non-insulated strain assembly	19/2.70	N/A								
62	EW insulated suspension assembly	19/2.70	N/A								
63	EW insulated suspension assembly	Panther	N/A								
64	EW insulated suspension assembly	Horse	N/A								
65	EW non-insulated suspension assembly	Panther	N/A								
66	EW non-insulated suspension assembly	Horse	N/A								
67	EW insulated strain assembly	Panther	N/A								
68	EW insulated strain assembly	Horse	N/A								
69	EW non-insulated strain assembly	Panther	N/A								
70	EW non-insulated strain assembly	Horse	N/A								
71	EW insulated cross rope assembly	Horse	N/A								
72	EW non-insulated cross rope assembly	Horse	N/A								
Total score											
						TOTAL SCORE ACHIEVABLE	356				
						THRESHOLD	70				

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APPENDIX 3: INDIVIDUAL ITEM TECHNICAL REQUIREMENTS

APPENDIX 3- INDIVIDUAL ITEM TECHNICAL REQUIREMENTS						
No	Item Description	Line Hardware Components		Please indicated with "X"	TECHNICAL REQUIREMENTS	
		Conductor eg Tern, Wolf, Bear	Configuration Twin/Trip Quad/Hex		DRAWING PROVIDED	COMMENTS
1	380 mm spacing Spacer Damper for Conductor	Goat	Twin	Offered (X)	1	
2	380 mm spacing Spacer Damper for Conductor	Tern	Twin		1	
3	570 mm spacing Spacer Damper for Conductor	Dinosaur	Twin		1	
4	450 mm spacing Spacer Damper for Conductor	Tern	Trip		1	
5	570 mm spacing Spacer Damper for Conductor	Bersfort	Trip		1	
6	570 mm spacing Spacer Damper for Conductor	Dinosaur	Trip		1	
7	570 mm spacing Spacer Damper for Conductor	IEC315	Trip		1	
8	570 mm spacing Spacer Damper for Conductor	Kingbird	Trip		1	
9	380 mm spacing Spacer Damper for Conductor	Tern	Quad		1	
10	380 mm spacing Spacer Damper for Conductor	Wolf	Quad		1	
11	380 mm spacing Spacer Damper for Conductor	Zebra	Quad		1	
12	570 mm spacing Spacer Damper for Conductor	IEC560	Quad		1	
13	320 mm spacing Spacer Damper for Conductor	Tern	Hex		1	
14	Spacer Damper - twin bear	Bear	Twin		1	
15	Midspan Joints for Conductor	Bear			1	
16	Midspan Joints for Conductor	Bersfort			1	
17	Midspan Joints for Conductor	Dinosaur			1	
18	Midspan Joints for Conductor	Goat			1	
19	Midspan Joints for Conductor	IEC315			1	
20	Midspan Joints for Conductor	IEC560			1	
21	Midspan Joints for Conductor	Kingbird			1	
22	Midspan Joints for Conductor	Tern			1	
23	Midspan Joints for Conductor	Wolf			1	
24	Midspan Joints for Conductor	Zebra			1	
25	Strain Clamps – Straight type 10-13,5mm				1	
26	Midspan Joints -Dino				1	
27	Midspan Joints -Zebra				1	
28	Midspan Joints - Bersfort				1	
29	Midspan Joints –Tern				1	
30	Midspan Joints –Goat				1	
31	Midspan Joints -Bear				1	
32	Midspan Joints -Wolf				1	
33	Midspan Joints – Horse				1	
34	Midspan Joints - Tiger				1	
35	Midspan Joint Compression –Earth wire 13,48mm				1	
36	Midspan Joints - Chicadee				1	
37	Midspan Joints –IEC315				1	
38	Midspan Joints –IEC560				1	
39	Midspan Joint Compression – Earth wire 10.53mm				1	
40	Compression Repair sleeves – Dino (short)				1	
41	Compression Repair sleeves- Bersfort				1	
42	Compression Repair sleeves - Zebra				1	
43	Compression Repair sleeves – Tern				1	
44	Compression Repair sleeves – Goat				1	
45	Compression Repair sleeves - Bear				1	
46	Compression Repair sleeves – Wolf				1	
47	Compression Repair sleeves – Horse				1	
48	Compression Repair sleeves - Tiger				1	
49	Compression Repair sleeves – IEC315				1	
50	Compression Repair sleeves - IEC560				1	

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51	Armour Rods/Helical Wraps –Dino - 36mm				1	
52	Armour Rods/Helical Wraps - Bersfort				1	
53	Armour Rods/Helical Wraps -Zebra				1	
54	Armour Rods/Helical Wraps –Tern				1	
55	Armour Rods/Helical Wraps –Goat				1	
56	Armour Rods/Helical Wraps -Bear				1	
57	Armour Rods/Helical Wraps – Wolf				1	
58	Armour Rods/Helical Wraps – Horse				1	
59	Armour Rods/Helical Wraps - Tiger				1	
60	Armour Rods/Helical Wraps –IEC315				1	
61	Armour Rods/Helical Wraps -IEC560				1	
62	Shackles-210kN				1	
63	Shackles-300kN				1	
64	Crosby clamps 19/2,70				1	
65	Bird Flight Diverters - Black				1	
66	Bird Flight Diverters - White				1	
67	Aircraft Warning spheres - Red				1	
68	Aircraft warning spheres - White				1	
69	Suspension Clamps – 16 – 24mm				1	
70	Suspension Clamps – 25 – 40mm				1	
71	Suspension Clamps – Earth wire type 11-21mm				1	
72	Compression Dead-end Clamp-Dino				1	
73	Compression Dead-end Clamp Bersfort				1	
74	Compression Dead-end Clamp-Zebra				1	
75	Compression Dead-end Clamp-Tern				1	
76	Compression Dead-end Clamp-Goat				1	
77	Compression Dead-end Clamp-Bear				1	
78	Compression Dead-end Clamp-Wolf				1	
79	Compression Dead-end Clamp - Horse				1	
80	Compression Dead-end Clamp - Tiger				1	
81	Compression Dead-end Clamp - Chicadee				1	
82	Compression Dead-end Clamp-IEC315				1	
83	Compression Dead-end Clamp-IEC560				1	
84	Strain Clamps – Straight type 10-13,5mm				1	
85	Pistol Grip/Cricket Bat Strain Clamps – 7.95 – 10.50mm				1	
86	Pistol Grip Strain/Cricket Bat Clamps – 11.50- 13.50mm				1	
87	Yoke Plates- triangle, trapezoidal, service, Y and Vee types				1	
88	Triangular yoke for I assembly-210kN-with 450mm spacing				1	
89	Trapezoidal yoke for V assembly-210kN-450mm spacing				1	
90	Rectangular yoke- 450kN with 450mm spacing				1	
91	765kv- suspension yoke				1	
92	765kv strain yoke-live end				1	
93	765kv strain yoke dead end				1	
94	Strain triple yoke- 600kN- 450mm spacing for 2x 300kN insulators				1	
95	Strain V yoke- 600kN- 450mm spacing for 2x 300kN insulators for dead end to connect to tower-single attachment.				1	
96	Strain rectangular yoke- 600kN- 450mm spacing for 2x 300kN insulators for dead end to connect to tower-double attachment.				1	
97	Socket Tongues –16mm, 120kN				1	
98	Socket Tongues – 20mm, 210kN				1	
99	Socket Tongues – 24mm, 300kN				1	
100	Socket Tongues – 28mm, 450kN				1	

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101	Socket Clevis –16mm, 120kN				1	
102	Socket Clevis – 20mm, 120kn				1	
103	Socket Clevis – 24mm, 300kN				1	
104	Socket Clevis – 28mm, 450kN				1	
105	Ball Clevis –16mm, 120kN				1	
106	Ball Clevis – 20mm, 120kn				1	
107	BallClevis – 24mm, 300kN				1	
108	Ball Clevis-28mm-450kN				1	
109	Ball oval eyes –16mm, 120kN				1	
110	Ball oval eyes – 20mm, 120kn				1	
111	Balloval eyes – 24mm, 300kN				1	
112	Ball oval eyes-28mm-				1	
113	Junction Plates – Universal				1	
114	Conductor Spacers, 380mm Spacing, Helical Wraps Twin - Dinosaur				1	
115	Conductor Spacers, 380mm Spacing, Helical Wraps Twin - Bersfort				1	
116	Conductor Spacers, 380mm Spacing, Helical Wraps Twin - Zebra				1	
117	Conductor Spacers, 380mm Spacing, Helical Wraps Twin - Tern				1	
118	Conductor Spacers, 380mm Spacing, Helical Wraps Twin - Goat				1	
119	Conductor Spacers, 380mm Spacing, Helical Wraps Twin - Bear				1	
120	Conductor Spacers, 570mm Spacing, Helical Wraps Trip - Dinosaur				1	
121	Conductor Spacers, 570mm Spacing, Helical Wraps Trip - Bersfort				1	
122	Conductor Spacers, 380mm Spacing, Helical Wraps Trip - Zebra				1	
123	Conductor Spacers, 450mm Spacing, Helical Wraps Trip - Tern				1	
124	Conductor Spacers, 380mm Spacing, Helical Wraps Trip - IEC315				1	
125	Conductor Spacers, 380mm Spacing, Helical Wraps Quad - Bersfort				1	
126	Conductor Spacers, 380mm Spacing, Helical Wraps Quad - Zebra				1	
127	Conductor Spacers, 380mm Spacing, Helical Wraps Quad - Tern				1	
128	Conductor Spacers, 380mm Spacing, Helical Wraps Quad - IEC560				1	
129	Conductor Spacers, 320mm Spacing, Helical Wraps Hex - Tern				1	
130	Conductor Spacers, Twin Bolted O Ring Type - 380mm Spacing - Dinosaur				1	
131	Conductor Spacers, Twin Bolted O Ring Type - 380mm Spacing - Bersfort				1	
132	Conductor Spacers, Twin Bolted O Ring Type - 380mm Spacing - Zebra				1	
133	Conductor Spacers, Twin Bolted O Ring Type - 380mm Spacing - Tern				1	
134	Conductor Spacers, Twin Bolted O Ring Type - 380mm Spacing - Goat				1	
135	Conductor Spacers, Twin Bolted O Ring Type - 380mm Spacing - Bear				1	
136	Conductor Spacers, Trip Bolted Rigid Type - 380mm Spacing - Dinosaur				1	
137	Conductor Spacers, Trip Bolted Rigid Type - 380mm Spacing - Bersfort				1	
138	Conductor Spacers, Trip Bolted Rigid Type - 380mm Spacing - Zebra				1	
139	Conductor Spacers, Trip Bolted Rigid Type - 380mm Spacing - Tern				1	
140	Conductor Spacers, Trip Bolted Rigid Type - 380mm Spacing - IEC315				1	
141	Conductor Spacers, Quad Bolted Rigid Type - 380mm Spacing - Bersfort				1	
142	Conductor Spacers, Quad Bolted Rigid Type - 380mm Spacing - Zebra				1	
143	Conductor Spacers, Quad Bolted Rigid Type - 380mm Spacing - Tern				1	
144	Conductor Spacers, Quad Bolted Rigid Type - 380mm Spacing - IEC560				1	
145	Conductor Spacers, Hex Bolted Rigid Type - 380mm Spacing - Bull				1	
146	Shackles-120kN				1	
147	Shackles-210kN				1	
148	Shackles-300kN				1	
149	Shackles-450kN				1	
150	Shackles-600kN				1	

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151	Shackles-900kN				1	
152	Adjustable Extension links-min 300mm-210kN				1	
153	Adjustable Extension links-min 300mm-450kN				1	
154	Chain links- 120kN				1	
155	Chain links- 210kN				1	
156	Vibration damper - Dinosaur				1	
157	Vibration damper - Bersfort				1	
158	Vibration damper - Zebra				1	
159	Vibration damper - Tern				1	
160	Vibration damper - Goat				1	
161	Vibration damper - Bear				1	
162	Vibration damper - IEC315				1	
163	Vibration damper - IEC560				1	
164	Vibration damper - 19/2,70				1	
165	Tee off Clamps (Bersfort bolted to Bersfort Compressed)				1	
166	Tee off Clamps (Tern bolted to Tern Compressed)				1	
167	Parallel groove clamps (2 Bolts al-al)				1	
168	Sag adjuster 210kN				1	
169	Sag adjuster 120kN				1	
170	Crosby clamps 19/2,70				1	
171	Preform repair for steel earth wire				1	
172	Preform Repair Aluminum Zambezi Conductor ()				1	
173	Repair Sleeves compression Zambezi conductor (Full Tension)				1	
174	Repair Sleeves compression Zambezi conductor (Non-Tension)				1	
175	Damper Spacers Quad Zambezi conductor				1	
176	Conductor Vibration Dampers - Zambezi				1	
177	Shield Wire Dampers - 533kV Oden				1	
178	Compression Dead-end Clamp- Oden				1	
179	Compression Dead-end Clamp- Zambezi				1	
180	Midspan Joints -Oden				1	
181	Midspan Joints -Zambezi				1	
182	Midspan Joint Compression – Earth wire 17.80mm				1	
183	Compression Repair sleeves – Oden (short)				1	
184	Compression Repair sleeves- Zambezi (Long)				1	
185	Armour Rods/Helical Wraps – Oden				1	
186	Armour Rods/Helical Wraps - Zambezi				1	
187	Socket Tongues –16mm, 120kN				1	
188	Ball Clevis –16mm, 120kN				1	
189	Conductor Spacers, 380mm Spacing, Helical Quad - Zambezi				1	
				TOTAL SCORE		
				ACHIEVABLE	189	
				THRESHOLD	70	

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