Product Description

MV ABC (Medium Voltage Aerial Bundled Cable) is designed for overhead installation in public medium-voltage power distribution networks. Manufactured in accordance with SANS 1713, the cable is suitable for distribution systems ranging from 3.8/6.6 kV to 19/33 kV.

The cable consists of three stranded hard-drawn aluminium phase conductors, individually insulated with triple-layer TR-XLPE insulation, and assembled with a supporting catenary conductor. Depending on the required design, the cable can be supplied in armoured or unarmoured configurations.

MV ABC cables provide a practical solution for overhead medium-voltage distribution, combining electrical insulation, mechanical support and outdoor durability for utility and infrastructure projects.

Applications

- Medium-voltage overhead power distribution networks
- Public electricity distribution systems
- Utility overhead line installations
- Rural and urban distribution networks
- Infrastructure and electrification projects
- Overhead power lines requiring supported bundled cable construction

Applicable Standard

SANS 1713

Electric cables – Medium voltage aerial bundled conductors for voltages from 3.8/6.6 kV to 19/33 kV.

Product Types

Type A – Armoured MV ABC

- Armoured medium-voltage aerial bundled cable.
- Available for 3.8/6.6 kV, 6.35/11 kV, 12.7/22 kV and 19/33 kV applications.
- Phase conductor sizes: 95–185 mm², according to the source specification.

Type B – Unarmoured MV ABC

- Unarmoured medium-voltage aerial bundled cable.
- Available for 3.8/6.6 kV, 6.35/11 kV and 12.7/22 kV applications.
- Phase conductor sizes: 35–185 mm².
- For 19/33 kV applications, phase conductor sizes: 50–185 mm².

Cable Construction

1. Conductor

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Stranded, circular and compacted hard-drawn aluminium conductors, Class 2.

2. Conductor Screening

Extruded thermosetting semi-conductive layer applied over the aluminium conductor.

3. Insulation

Triple-layer TR-XLPE thermosetting insulation system, designed for medium-voltage overhead applications.

4. Insulation Screening

Extruded thermosetting semi-conductive layer applied over the insulation, with a swellable semi-conducting tape incorporated for water-tightness.

5. Metallic Screen

Plain soft copper wires and/or copper tape applied helically, or longitudinally bonded aluminium tape, depending on the specified construction.

6. Outer Sheath

Extruded black polyethylene (PE) sheath. PVC sheath is available upon specific customer requirements.

7. Steel Messenger / Catenary

50 mm² or 70 mm² galvanized steel stranded wires, covered with black PE. PVC covering is available upon specific customer requirements.

MV ABC Cable Voltage Range

Voltage Rating	Typical Application
3.8/6.6 kV	Medium-voltage overhead distribution
6.35/11 kV	11 kV overhead distribution networks
12.7/22 kV	22 kV overhead distribution networks
19/33 kV	33 kV overhead distribution networks

Cable Size Range

Cable Type	Voltage Rating	Phase Conductor Size
Type A – Armoured	3.8/6.6 kV	95–185 mm²
Type A – Armoured	6.35/11 kV	95–185 mm²
Type A – Armoured	12.7/22 kV	95–185 mm²
Type A – Armoured	19/33 kV	95–185 mm²
Type B – Unarmoured	3.8/6.6 kV	35–185 mm²
Type B – Unarmoured	6.35/11 kV	35–185 mm²

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Cable Type	Voltage Rating	Phase Conductor Size
Type B – Unarmoured	12.7/22 kV	35–185 mm²
Type B – Unarmoured	19/33 kV	50–185 mm²

Other cable configurations are available according to project requirements.

Technical Specifications

6.6 kV MV ABC Cable

Phase Core								
Conductor size	mm2 nom	35	50	70	95	120	150	185
Conductor diameter	mm app.	7.15	8.25	9.95	11.8	13.1	14.8	15.95
Insulation diameter	mm app.	15.4	16.5	18.2	20.1	21.4	22.7	24.2
Core sheath diameter	mm app.	20.5	21.6	23.5	25.5	26.8	28.1	29.9
Catenary (Support Core)								
Conductor size	mm2 nom	50	50	50	50	70	70	70
Conductor diameter	mm app.	9	9	9	9	10.8	10.8	10.8
Insulation diameter	mm app.	11.5	11.5	11.5	11.5	13.3	13.3	13.3
Maximum tensile strength and pulling force of catenary	kN	26	26	26	26	37	37	37
Cable								
Cable diameter	mm app.	44	47	51	55	58	61	65
Cable mass	kg/m app.	2.05	2.24	2.6	3.01	3.51	3.85	4.33
Gross mass (500m)	kg app.	915	973	1,079	1,204	1,354	1,454	1,599
Bending radius	mm min.	636	669	720	776	841	880	926
Current rating								
In air	Amps	150	185	230	280	325	370	430
Resistance								
dc @ 20°C	W/km max	0.868	0.641	0.443	0.32	0.253	0.206	0.164
ac @ 90°C	W /km max	1.113	0.822	0.568	0.411	0.325	0.265	0.211
Reactance	W /km	0.136	0.124	0.121	0.114	0.111	0.106	0.103
Impedance	W /km	1.121	0.832	0.581	0.426	0.342	0.284	0.233
Short circuit ratings								
Symmetrical	kA (1 sec)	3	4	5.8	8	10.2	12.5	15.7
Earth fault	kA (1 sec)	1.5	1.6	1.7	1.9	2	2.1	2.3

11 kV MV ABC Cable

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11kv ABC Cable Specification								
Phase Core								
Conductor size	mm2 nom	35	50	70	95	120	150	185
Conductor diameter	mm app.	7.15	8.25	9.95	11.8	13.1	14.8	16.35
Insulation diameter	mm app.	17.3	18.4	20.1	21.9	23.2	24.5	26.1
Core sheath diameter	mm app.	22.5	23.6	25.3	27.4	28.7	30.2	31.7
Catenary (Support Core)								
Conductor size	mm2 nom	50	50	50	50	70	70	70
Conductor diameter	mm app.	9	9	9	9	10.8	10.8	10.8
Insulation diameter	mm app.	11.5	11.5	11.5	11.5	13.3	13.3	13.3
Maximum tensile strength and pulling force of catenary	kN	26	26	26	26	37	37	37
Cable								
Cable diameter	mm app.	49	51	55	59	62	65	69
Cable mass	kg/m app.	2.31	2.52	2.85	3.28	3.61	3.99	4.43
Gross mass (500m)	kg app.	993	1,055	1,155	1,285	1,382	1,496	1,628
Bending radius	mm min.	691	724	775	831	896	935	981
Current rating								
In air	Amps	150	185	230	280	325	370	430
Resistance								
dc @ 20°C	W/km max	0.868	0.641	0.443	0.32	0.253	0.206	0.164
ac @ 90°C	W /km max	1.113	0.822	0.568	0.411	0.325	0.265	0.211
Reactance	W /km	0.136	0.124	0.121	0.114	0.111	0.106	0.103
Impedance	W /km	1.121	0.832	0.581	0.426	0.342	0.284	0.233
Short circuit ratings								
Symmetrical	kA (1 sec)	3	4	5.8	8	10.2	12.5	15.7
Earth fault	kA (1 sec)	1.5	1.6	1.7	1.9	2	2.1	2.3

22 kV MV ABC Cable

22kV ABC Cable Specification								
Phase Core								
Conductor size	mm2 nom	35	50	70	95	120	150	185
Conductor diameter	mm app.	7.15	8.25	9.95	11.8	13.1	14.8	16.35
Insulation diameter	mm app.	21.6	22.7	24.4	26.2	27.5	29.2	30.8
Core Sheath diameter	mm app.	27	28.1	30	31.9	33.4	35.1	36.8
Catenary (Support Core)								
Conductor size	mm2 nom	50	50	50	50	70	70	70
Conductor diameter	mm app.	9	9	9	9	10.8	10.8	10.8

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Insulation diameter	mm app.	11.5	11.5	11.5	11.5	13.3	13.3	13.3
Maximum Tensile Strength and Pulling force of Catenary	kN	26	26	26	26	37	37	37
Cable								
Cable diameter	mm app.	58	61	65	69	72	76	80
Cable mass	kg/m app.	2.96	3.19	3.61	4.05	4.63	5.06	5.61
Gross mass (500m)	kg app.	1 188	1 257	1 383	1 514	1 690	1 819	1 984
Bending radius	mm min.	821	854	905	960	1025	1076	1123
Current rating								
In air	Amps	150	185	230	280	325	370	430
Resistance								
dc @ 20°C	W/km max	0.868	0.641	0.443	0.32	0.253	0.206	0.164
ac @ 90°C	W /km max	1.113	0.822	0.568	0.411	0.325	0.265	0.211
Reactance	W /km	0.136	0.124	0.121	0.114	0.111	0.106	0.103
Impedance	W /km	1.121	0.832	0.581	0.426	0.342	0.284	0.233
Short circuit ratings								
Symmetrical	kA (1sec)	3	4	5.8	8	10.2	12.5	15.7
Earth fault	kA (1sec)	1.5	1.6	1.7	1.9	2	2.1	2.3

33 kV MV ABC Cable

33kV ABC Cable Specification								
Phase Core								
Conductor size	mm2 nom	50	70	95	120	150	185	
Conductor diameter	mm app.	8.25	9.95	11.8	13.1	14.8	16.35	
Insulation diameter	mm app.	27.8	29.5	314	32.7	34	35.5	
Core Sheath diameter	mm app.	33.7	35.4	37.4	38.7	40.2	41.8	
Catenary (Support Core)								
Conductor size	mm2 nom	50	50	50	70	70	70	
Conductor diameter	mm app.	9	9	9	10.8	10.80	10.8	
Insulation diameter	mm app.	11.5	11.5	11.5	13.3	13.3	13.3	
Maximum Tensile Strength and Pulling force of Catenary	kN	26	26	26	37	37	37	
Cable								
Cable diameter	mm app.	73	76	81	84	87	90	
Cable mass	kg/m app.	4.12	4.53	5.06	5.37	5.82	6.33	
Gross mass (500m)	kg app.	1,535	1,658	1,819	1,910	2,046	2,200	
Bending radius	mm min.	1007	1058	1114	1179	1218	1264	

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Current rating							
In air	Amps	185	230	280	325	370	430
Resistance							
dc @ 20°C	W/km max	0.641	0.443	0.32	0.253	0.206	0.164
ac @ 90°C	W/km max	0.822	0.568	0.411	0.325	0.265	0.211
Reactance	W /km	0.124	0.121	0.114	0.111	0.106	0.103
Impedance	W /km	0.832	0.581	0.426	0.342	0.284	0.233
Short circuit ratings							
Symmetrical	kA (1 sec)	4	5.8	8	10.2	12.5	15.7
Earth fault	kA (1 sec)	1.6	1.7	1.9	2	2.1	2.3

Note: The source table lists 314 mm for the 95 mm² insulation diameter. This has been provisionally formatted as 31.4 mm for readability, but must be confirmed against the original specification before publication.

Manufacturing & Customization

Qingzhou Cable supplies medium-voltage aerial bundled cable solutions for utility distribution systems, infrastructure projects and overhead electrification applications.

Available customization options include:

- Armoured and unarmoured constructions
- Phase conductor sizes and voltage ratings
- Steel messenger conductor size
- PE or PVC outer sheath
- Metallic screen configurations
- Cable lengths and reel packaging
- Technical specifications based on customer drawings and project requirements

Frequently Asked Questions

1. What is MV ABC cable according to SANS 1713?

MV ABC cable according to SANS 1713 is a medium-voltage aerial bundled conductor designed for overhead power distribution networks, covering voltage levels from 3.8/6.6 kV to 19/33 kV, subject to the applicable cable design.

2. What voltage ratings are available for SANS 1713 MV ABC cable?

The listed voltage ratings are 3.8/6.6 kV, 6.35/11 kV, 12.7/22 kV and 19/33 kV.

3. What is the difference between Type A and Type B MV ABC cable?

Type A refers to the armoured cable design, while Type B refers to the unarmoured cable design, according to the product classification in the supplied specification.

4. What conductor material is used?

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The phase conductors are stranded, compacted hard-drawn aluminium conductors, Class 2.

5. What insulation is used in MV ABC cable?

The cable uses a triple-layer TR-XLPE insulation system with semi-conductive conductor and insulation screens.

6. Is a steel messenger included?

Yes. The cable assembly includes a steel catenary or messenger conductor, with listed sizes of 50 mm² and 70 mm² in the supplied specification.

7. Can MV ABC cable be customized?

Yes. Phase conductor size, messenger configuration, metallic screening, sheath material and other project-specific requirements can be customized.

8. What standard does this MV ABC cable comply with?

The product is specified according to SANS 1713. The applicable standard edition and construction compliance should be confirmed for the specific project.

9. Is MV ABC cable suitable for overhead installation?

Yes. MV ABC is designed for aerial installation in public power distribution networks and other overhead distribution applications.

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