



# SOUTHERN CABLE

De mm

Conductor  
Conductor Screen  
Insulation  
Insulation Screen  
Messenger  
Metallic Screen  
Oversheath

**SOUTHERN CABLE offers overhead cables of ABC (Aerial Bundle Cable) for Low Voltage and Medium Voltage. ABC is used for overhead service application with polyethylene insulated conductors.**

## ABC (Aerial Bundle Cable)

### Construction:-

- Phase Conductor** - The Phase and street lighting conductors (if any) shall be of three hard drawn aluminum conductors & stranded compacted circular.
- Neutral Conductor** - The neutral of messenger conductor is aluminum alloy & stranded circular.
- Insulation** - The insulation is black weather-resistant PE.
- Completed Cable** - The cable consist of insulated phase Aluminum conductors, held firmly onto the insulated neutral messenger aluminum alloy conductor in right-hand (Z) direction of lay.

### a) ABC OF LOW VOLTAGE CABLE 600/1000V

- 1C & 3C x 16 mm<sup>2</sup> + 1C x 25 mm<sup>2</sup>
- 3C x 35 mm<sup>2</sup> + 1C x 25 mm<sup>2</sup>
- 3C x 50 mm<sup>2</sup> + 1C x 35 mm<sup>2</sup>
- 3C x 70 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 95 mm<sup>2</sup> + 1C x 70 mm<sup>2</sup> + 1 x 16 mm<sup>2</sup>
- 3C x 185 mm<sup>2</sup> + 1C x 120 mm<sup>2</sup> + 1 x 16 mm<sup>2</sup>

## MV ABC

### Description

The aerial bundle cable designed for overhead distribution lines rated 6.35/11 kV and 19/33 kV conform to IEC 60502-2. They are suitable for installation mostly in power supply station, indoors and in cable ducts, outdoors and underground as well as for installation on cable trays for industries.

### Construction

#### 1) Phase Conductor

The phase conductor shall be of H68 condition aluminum conductor and compacted circular stranded.

#### 2) Messenger Conductor

The neutral messenger conductor shall be of aluminum alloy conductor and compacted circular stranded.

#### 3) Insulation

The phase and messenger conductor shall be extruded with Polyvinyl Chloride (PVC) as insulation.

#### 4) The Completed Cable

The cable consist of insulated phase aluminum conductors, shall be held firmly into the insulated neutral messenger aluminum alloy conductor in a right-hand (Z) direction of lay.

### a) ABC OF MEDIUM VOLTAGE CABLE 11 kV

- 3C x 35 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 50 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 70 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 95 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 120 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 150 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 185 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 240 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 300 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>

### b) ABC OF MEDIUM VOLTAGE CABLE 33 kV

- 3C x 50 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 70 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 150 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 185 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>
- 3C x 240 mm<sup>2</sup> + 1C x 50 mm<sup>2</sup>

# ABC LOW VOLTAGE AERIAL BUNDLE CABLE

## LOW VOLTAGE AERIAL BUNDLE CABLE

### CONSTRUCTION

Phase Conductor	: AAC	Specification	: TNB Specification
Insulation	: PE	Voltage Rating	: 600/1000 V
Messenger / Neutral	: AAAC	Conductor	: Stranded Aluminum Wire
Street Lightning	: AAC	Messenger	: Stranded Aluminum Alloy
		Core Color	: Black Weather Resistant PE

Size	Standard		Phase Conductor			Messenger/ Neutral Conductor					Street Lighting			
	Length (m)	Weight (kg)	No. of Strand	Diameter (mm)	Cross-Section (mm <sup>2</sup> )	Max. Cond. Res. at 20°C Ω/km	No. of Strand	Diameter (mm)	Cross-Section (mm <sup>2</sup> )	Max. Cond. Res. at 20°C Ω/km	No. of Strand	Diameter (mm)	Cross-Section Area (mm <sup>2</sup> )	Max. Cond. Res. at 20°C Ω/km
1 x 16 mm <sup>2</sup> + 1 x 25 mm <sup>2</sup>	1000	170	7	4.9	16	1.91	7	6.0	25	1.38	-	-	-	-
3 x 16 mm <sup>2</sup> + 1 x 25 mm <sup>2</sup>	1000	285	7	4.9	16	1.91	7	6.0	25	1.38	-	-	-	-
3 x 35 mm <sup>2</sup> + 1 x 25 mm <sup>2</sup>	1000	500	7	7.0	35	0.868	7	5.9	25	1.38	-	-	-	-
3 x 50 mm <sup>2</sup> + 1 x 35 mm <sup>2</sup>	1000	680	7	8.4	50	0.641	7	7.0	35	0.99	-	-	-	-
3 x 70 mm <sup>2</sup> + 1 x 50 mm <sup>2</sup>	1000	940	19	9.9	70	0.443	7	8.4	50	0.69	-	-	-	-
3 x 95 mm <sup>2</sup> + 1 x 70 mm <sup>2</sup> + 1 x 16 mm <sup>2</sup>	1000	848	19	11.7	95	0.320	19	9.9	70	0.49	7	4.9	16	1.91
3 x 185 mm <sup>2</sup> + 1 x 120 mm <sup>2</sup> + 1 x 16 mm <sup>2</sup>	1000	1540	37	16.2	185	0.164	19	13.0	120	0.29	7	4.9	16	1.91

### TECHNICAL PARTICULAR

Nominal Conductor Area	mm <sup>2</sup>	16	25	35	50	70	95	120	150	185
Number of Wires	no	7	7	7	7	19	19	19	37	37
Number of Cores	no	3	3	3	3	3	3	3	3	3
Nominal Insulation Thickness										
Diameter of Insulation Core	mm	1.0	1.2	1.2	1.4	1.4	1.6	1.6	1.8	2.0
Maximum DC Resistance at 20°C										
AC Resistance at 75°C	ohm/km	1.91	1.20	0.868	0.641	0.443	0.320	0.253	0.206	0.164
Equivalent Star Reactance at 50 Hz	ohm/km	2.33	1.47	1.061	0.783	0.542	0.392	0.310	0.253	0.202

### MESSENGER

Nominal Conductor Area	mm <sup>2</sup>	25	25	50	70	95	120
Number of Wires	no	7	7	7	19	19	19
Nominal Insulation Thickness	no	1.2	1.2	1.4	1.4	1.6	1.6
Diameter of Insulation Messenger	mm	9.1	10.1	11.2	13.1	15.2	16.5
Maximum DC Resistance at 20°C	ohm/km	1.36	1.36	1.36	0.98	0.69	0.49
Calculated Breaking Load	kN	7.5	10.4	14.7	20.8	28.4	36.8

# MEDIUM VOLTAGE AERIAL BUNDLE CABLE

MV ABC

6.35/11 KV

DESCRIPTION	
Reference Standard	: IEC 60502-2, TNB
Reference Standard	: 6.35/11 KV
Number of Cores	: Phase 3, Messenger 1
Maximum Conductor Temperature	: 90°C
Conductor Short Time Current	: -
- Initial Temperature	: 90°C
- Max. Cond. Short Time Temperature	: 250°C

CONSTRUCTION	
Phase Conductor Material	: H68 Aluminum
Conductor Shape	: Compacted Circular
Conductor's Outermost	: Right-Handed (Z)
Conductor Screen Material	: Semi-Conducting Compound
Insulation Material	: Cross-Linked Polyethylene
Insulation Screen Material	: Semi-Conducting Compound
Metallic Screen Material	: Copper Tape
Outer Sheath Material	: Black PVC (ST2) + UV Resistant
Messenger Wire Material	: Bare Stranded Galvanized Steel Round Wire

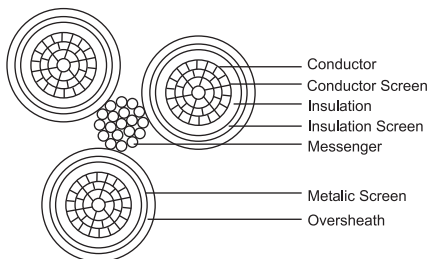
Size	Phase Conductor		Ins. XLPE Thickness mm	Ins. Scr. Dia. over Ins. Scr. (Approx) mm	Metalic Screen Copper Tape Thick- ness mm	Outer Shaeth		Messenger Wire		Max. Current Carrying Capacity A	Max. DC Resistance at 20°C ohm/km	Short Circuit Current Rating			
	Cross- Sectional Area mm <sup>2</sup>	No. of Strands Nos				PVC ST2 Thick- ness mm	Overall Dia. Over Outer Sheath (Approx.) mm	Bare Stranded Galvanized Steel Wire				Max. Current Carrying Capacity A	Max. DC Resistance at 20°C ohm/km	For 1 sec kA	For 3 sec kA
								Size mm	Breaking Load kN						
35 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	35	Min.6	3.4	16.65	0.10	2.80	23.10	50	64.3	120	0.868	3.31	1.91		
50 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	50													17.80	24.25
70 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	70	Min. 12								19.46	25.91	146	0.443	6.62	3.82
95 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	95	Min. 15								21.21	27.66	181	0.320	8.98	5.18
120 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	120	Min. 15								22.35	28.80	215	0.253	11.34	6.55
150 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	150	Min. 15								23.72	30.17	254	0.206	14.18	8.19
185 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	185	Min. 30								25.42	31.87	284	0.164	17.49	10.10
240 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	240	Min. 30								28.20	34.65	331	0.125	22.69	13.10
300 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	300	Min. 30								30.12	36.57	387	0.100	28.36	16.37
300 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	400	Min.53								32.68	39.13	438	0.078	37.81	21.83

# MEDIUM VOLTAGE AERIAL BUNDLE CABLE

MV ABC

6.35/11 KV

Description	Unit	35 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	50 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	70 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	95 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	120 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>
Reference Standard		IEC 60502-2 TNB				
Voltage (U <sub>o</sub> / U)		6.35/11 KV				
Number of Cores		Phase 3, Messenger 1				
<b>Phase Conductor</b>						
Material		H68 Aluminum				
Cross Sectional Area	mm <sup>2</sup>	35	50	70	95	120
Number of Strands	Nos	Min. 6		Min. 12	Min. 15	Min. 15
Conductor Shape		Compacted Circular				
Conductor's Outermost Direction		Right-Handed (Z)				
Conductor Screen Material		Semi-Conducting Compound				
<b>Insulation</b>						
Material		Cross-Linked Polyethylene (XLPE)				
Nominal Thickness	mm	3.4				
<b>Insulation Screen</b>						
Material		Semi-Conducting Compound				
Dia. Over Insulation Screen (Approx.)	mm	16.65	17.80	19.46	21.21	22.35
<b>Metallic Screen</b>						
Material		Copper Tape				
Nominal Thickness	mm	0.10				
<b>Outer Sheath</b>						
Material		Black PVC (ST2) +UV Resistant				
Nominal Thickness	mm	2.8				
Overall Dia. Over Outer Sheath (Approx.)		23.10	24.25	25.91	27.66	28.80
<b>Messenger Wire</b>						
Material		Bare Stranded Galvanized Steel Round Wire				
Size	mm <sup>2</sup>	50				
Breaking Load	kN	64.3				
<b>Maximum DC Resistance at 20°C</b>	Ω/km	0.868	0.641	0.443	0.320	0.253
<b>Maximum Conductor Temperature Laid in Air</b>	°C	90				
<b>Maximum Current Carrying Capacity</b>	Amp	120	146	181	215	254
<b>Conductor Short Time Current Rating</b>						
- Initial Temperature	°C	90				
- Max. Conductor Short Time Temperature	°C	250				
<b>Short Circuit Current Rating:-</b>						
- For 1 second	kA	3.31	4.73	6.62	8.98	11.34
- For 3 second	kA	1.91	2.73	3.82	5.18	6.55



Standards
IEC 60502-2
IEC 60228
BS 183
BS 443
BS 2627

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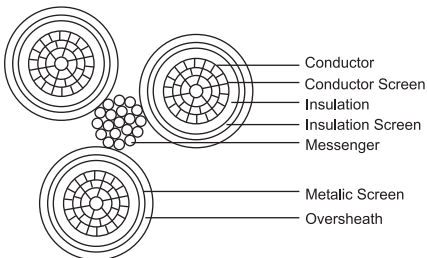
All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale.

# MEDIUM VOLTAGE AERIAL BUNDLE CABLE

MV ABC

6.35/11 KV

Description	Unit	150 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	185 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	240 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	300 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	400 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>
Reference Standard		IEC 60502-2 TNB				
Voltage (U <sub>0</sub> / U)		6.35/11 KV				
Number of Cores		Phase 3, Messenger 1				
<b>Phase Conductor</b>						
Material		H68 Aluminum				
Cross Sectional Area	mm <sup>2</sup>	150	185	240	300	400
Number of Strands	Nos	Min. 15	Min. 30	Min. 30	Min. 30	Min. 53
Conductor Shape		Compacted Circular				
Conductor's Outermost Direction		Right-Handed (Z)				
Conductor Screen Material		Semi-Conducting Compound				
<b>Insulation</b>						
Material		Cross-Linked Polyethylene (XLPE)				
Nominal Thickness	mm	3.4				
<b>Insulation Screen</b>						
Material		Semi-Conducting Compound				
Dia. Over Insulation Screen (Approx.)	mm	23.72	25.42	28.20	30.12	32.68
<b>Metallic Screen</b>						
Material	mm	Copper Tape				
Nominal Thickness		0.10				
<b>Outer Sheath</b>						
Material	mm	Black PVC (ST2) +UV Resistant				
Nominal Thickness		2.8				
Overall Dia. Over Outer Sheath (Approx.)		30.17	31.87	34.65	36.57	39.13
<b>Messenger Wire</b>						
Material		Bare Stranded Galvanized Steel Round Wire				
Size	mm <sup>2</sup>	50				
Breaking Load	kN	64.3				
<b>Maximum DC Resistance at 20°C</b>	Ω/km	0.206	0.164	0.125	0.100	0.078
<b>Maximum Conductor Temperature Laid in Air</b>	°C	90				
<b>Maximum Current Carrying Capacity</b>	Amp	284	331	387	438	507
<b>Conductor Short Time Current Rating</b>						
- Initial Temperature	°C	90				
- Max. Conductor Short Time Temperature	°C	250				
<b>Short Circuit Current Rating:-</b>						
- For 1 second	kA	14.18	17.49	22.69	28.36	37.81
- For 3 second	kA	8.19	10.10	13.10	16.37	21.83



Standards
IEC 60502-2
IEC 60228
BS 183
BS 443
BS 2627

# MEDIUM VOLTAGE AERIAL BUNDLE CABLE

MV ABC

19/33 KV

DESCRIPTION	
Reference Standard	: IEC 60502-2, TNB
Reference Standard	: 19/33 KV
Number of Cores	: Phase 3, Messenger 1
Maximum Conductor Temperature	: 90°C
Laid in Air	
Conductor Short Time Current	: -
Rating	
- Initial Temperature	: 90°C
- Max. Cond. Short Time Temperature	: 250°C
Rated Frequency	: 50Hz
Nominal Voltage (rms)	: 33kV
Maximum Voltage (rms)	: 36 kV
Impulse withstand Level - Peak	: 170 kV
Maximum Continuous Operating Temp	: 90°C
3 Phase Symmetrical Fault Level	: 1500 MVA

CONSTRUCTION	
Phase Conductor Material	: H68 Aluminum
Conductor Shape	: Compacted Circular
Conductor's Outermost Direction	: Right-Handed (Z)
Conductor Screen Material	: Semi-Conducting Compound
Insulation Material	: Cross-Linked Polyethylene
Insulation Screen Material	: Semi-Conducting Compound
Metalic Screen Material	: Copper Tape
Outer Sheath Material	: Black PVC (ST2) + UV Resistant
Messenger Wire Material	: Bare Stranded Galvanized Steel Round Wire
Core Identification	: Color PTP Tape Red / Yellow / Blue 1/0.05
Separator	: Non-Hygroscopic, Foamed Polypropylene Tape 1 Layer

Size	Phase Conductor			Ins. XLPE Thickness	Insulation Screen			Metalic Screen Copper Tape Thick- ness	Outer Shaeth PVC ST2 Thick- ness	Overall Dia. Over Outer Shealth	Messenger Wire				Max. Current Carrying Capacity	Max. DC Resistance at 20°C	Short Circuit Current Rating		
	Cross- Sectional Area	No. of Strands (min)	Nom. Diameter		Ins. Res.	Semi- cond. Compound Thickness	Diameter over Insulation Screen (Approx.)				Bare Stranded Gvanized Steel Round Wire						For 1 sec	For 1 sec	
	mm <sup>2</sup>	Nos	mm	MΩ.km	mm	mm	mm	mm	mm	mm	mm	Stranding No/mm	Nom. Diameter	Breaking Load	A	Ω/km	kA	kA	
3 x 50 mm <sup>2</sup> + 50 mm <sup>2</sup>	50	6	8.10	4000	28.7	2/0.10 Overtape 15%	75.3	50	7/3.15	9.45	64.3	146	0.641	4.73	2.73				
3 x 70 mm <sup>2</sup> + 50mm <sup>2</sup>	70	12	9.74						3600	30.8	80.0	50	7/3.15	9.45	64.3	181	0.443	6.62	3.82
3 x 150 mm <sup>2</sup> + 50 mm <sup>2</sup>	150	15	14.50						2800	35.5	90.0	50	7/3.15	9.45	64.3	284	0.206	14.18	8.19
3 x 185 mm <sup>2</sup> + 50 mm <sup>2</sup>	185	30	16.10						2700	37.1	93.5	50	7/3.15	9.45	64.3	331	0.164	17.49	10.10
	240	30	18.50						2400	39.5	93.5	70	7/3.75	11.25	91.3	387	0.125	17.49	10.10
3 x 240 mm <sup>2</sup>																			

# MEDIUM VOLTAGE AERIAL BUNDLE CABLE

MV ABC

19/33 KV

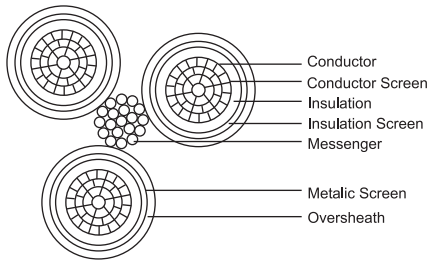
Description	Unit	150 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	185 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	240 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	300 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	400 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>
Reference Standard		IEC 60502-2, TNB				
Voltage (U <sub>o</sub> / U)		19/33kV				
Number of Cores		Phase 3, Messenger 1				
<b>Phase Conductor</b>						
Material		H68 Aluminum				
Cross Sectional Area	mm <sup>2</sup>	50	70	150	185	240
Number of Strands	Nos	Min. 6	Min. 12	Min. 15	Min 30	Min.30
Conductor Shape		Circular Compacted Stranded				
Conductor's Outermost Direction		Right-Handed (Z)				
Nominal Diameter (Approx.)	mm	8.10	9.74	14.50	16.10	18.50
<b>Conductor Screen Material</b>		Semi-Conducting Compound				
Nominal Thickness		0.5				
Colour	mm	Black				
<b>Insulation</b>						
Material		Cross-Linked Polyethylene (XLPE)				
Nominal Thickness		8.0				
Minimum Insulation Resistance	MΩ/km	4000	3600	2800	2700	2400
<b>Insulation Screen</b>						
Material		Semi-Conducting Compound				
Nominal Thickness		0.5				
Dia. Over Insulation Screen (Approx.)	mm	28.7	30.8	35.5	37.1	39.5
<b>Core identification</b>						
Material		Colour PTP Tape				
Layer & Nominal Thickness		1/0.05				
Colour Arrangement		Red, Yellow, Blue				
<b>Metallic Screen</b>						
Material		Copper Tape				
Nominal Thickness	mm	2/0.10				
Overlap (min)	%	15				
<b>Separator</b>						
Material		Non-Hygroscopic, Foamed Polypropylene Tape				
Layer		1				
<b>Outer Sheath</b>						
Material		Black PVC (ST2) +UV Resistant				
Nominal Thicknes (Min)	mm	2.30				
<b>Overall Diameter (Approx.)</b>	mm	75.3	80.0	90.0	93.5	98.5
Color		Black				
<b>Messenger Wire</b>						
Material		Bare Stranded Galvanized Steel Round Wire				
Size	mm <sup>2</sup>	50	50	50	50	70
Stranding no/mm		7/3.15	7/3.15	7/3.15	7/3.15	7/3.75
Nominal Diameter	mm	9.45	9.45	9.45	9.45	11.25
Breaking Load	kN	64.3	64.3	64.3	64.3	91.3

# MEDIUM VOLTAGE AERIAL BUNDLE CABLE

MV ABC

19/33 KV

Description	Unit	50 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	70 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	150 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	185 mm <sup>2</sup> x 3C + 50 mm <sup>2</sup>	240 mm <sup>2</sup> x 3C + 70 mm <sup>2</sup>
<b>Maximum DC Resistance at 20°C</b>		0.641	0.443	0.206	0.164	0.125
<b>Maximum Conductor Temperature Laid in Air</b>	°C	90				
<b>Maximum Current Carrying Capacity</b>	Amp	146.0	181.0	284	331	387
<b>Conductor Short Time Current Rating</b>						
- Initial Temperature	°C	90				
- Maximum Conductor Short Time Temperature	°C	250				
<b>Short Circuit Current Rating:-</b>						
- For 1 second	kA	4.73	6.62	14.18	17.49	17.49
- For 3 second	kA	2.73	3.82	8.19	10.10	10.10
<b>Rated Frequency</b>	Hz	50				
<b>Nominal Voltage (rms)</b>	kV	33				
<b>Maximum Voltage (rms)</b>	kV	36				
<b>Impulse Withstand Level - Peak</b>	kV	170				
<b>Maximum Continuous Operating Temperature</b>	°C	90				
<b>3 Phase Symmetrical Fault Level</b>	MVA	1500				



Standards
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