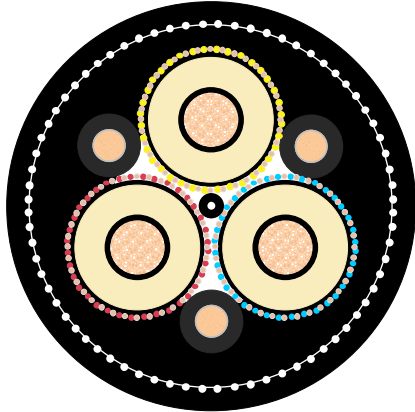


# TYPE 633ECC 19/33kV

In line SANS 1520-2

# POWERMITE

Flexible copper screened mining cables



CONSTRUCTION	
<b>Cable type</b>	Type 633 ECC 19/33 kV to SANS 1520-2
<b>Conductors</b>	Flexible class 5 comply to SANS 1411 - 1 from tinned annealed copper wires , left hand with semi-conducting rubber screen .
<b>Insulation</b>	Ethylene propylene thermosetting compound type RD 3 comply to SANS 1411-3 and a strippable semi-conducting core screen (triple extruded)
<b>Insulation screen</b>	The braid of tinned copper wires .
<b>Cable assembly</b>	Three tinned copper/nylon braid screened power cores and two unscreened pilot cores and one tinned ECC core positioned in each interstice laid up in the right hand lay around semi-conductive filler centre .
<b>Internal sheath</b>	Poly-chloroprene thermosetting compound type RS 6 comply to SANS 1411-3 .
<b>Reinforcing braid</b>	An open nylon braid . Minimum 16 of nylon strings .
<b>Outer sheath</b>	Poly-chloroprene thermosetting compound type RS 6 comply to SANS 1411-3 . Inner and outer sheath are bonded to provide proper torsional protection , black .
<b>Physical Properties</b>	As per Table 1.
<b>Electrical Properties</b>	As per Table 2.
<b>Tests</b>	SANS 1520-2 .
<b>Marking</b>	Legible and indelible embossing as per order. Standard marking : TF KABLE 3 Texoprene TR 633 (size ) (voltage) CR SANS 1520-2 (Year) + metre marking

FEATURES	
<ul style="list-style-type: none"> <li>▪ Excellent flexibility .</li> <li>▪ Abrasion , tear resistant and flame retardant .</li> <li>▪ Temperature range : min. ambient temp . -25 °C , max. conductor temp. 90°C.</li> <li>▪ UV ,sunlight , ozone ,oil, resistant .</li> </ul>	

APPLICATIONS	
<ul style="list-style-type: none"> <li>▪ Electrically driven machines , movable electric apparatus in hazardous areas, portable electric apparatus . Section feeders . Open cast mining , medium sized draglines , shovels and drills. Suitable for reeling purposes.</li> <li>▪ Other industrial applications .</li> </ul>	

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Length cable packing	300 meter on drums. Other forms of packing and delivery are available on request
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Table 1

Physical Properties							
Power cores							
Conductor sizes	(mm <sup>2</sup> )	25	35	50	70	95	120
Maximum wire diameter	( mm)	0.41	0.41	0.41	0.51	0.51	0.51
Approx. conductor diameter	( mm)	6.8	8.5	10.3	11.9	13.5	15.5
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	60	60	60	60	60	60
Pilot cores							
Conductor sizes	( mm <sup>2</sup> )	16	16	16	16	16	16
Maximum wire diameter	( mm)	0.41	0.41	0.41	0.41	0.41	0.41
Approx. conductor diameter	( mm)	4.2	4.2	4.2	4.2	4.2	4.2
ECC size	(mm <sup>2</sup> )	16	25	25	35	50	70
ECC maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.51
Lay Ratio (maximum)	(x PCD)	20	20	20	20	20	20
Approximate cable diameter *	(mm)	71.3	73.5	77.8	83.0	87.8	90.0
Cable mass (approximate)							
Type 633 ECC	(kg/m)	7.2	7.8	8.8	10.4	11.9	13.1
Minimum bending radius	(mm)	620	650	680	710	740	780
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4

\*Tolerance - ±3% of approx. value

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Table 2

Electrical Properties							
Power cores							
Maximum cond. DC resistance @ 20 <sup>0</sup> C (Ω/km)	0.795	0.565	0.393	0.277	0.210	0.164	
Maximum cond. DC resistance @ 90 <sup>0</sup> C (Ω/km)	1.05	0.749	0.521	0.368	0.279	0.218	
Reactance (Ω/km)	0.155	0.144	0.136	0.131	0.125	0.119	
Minimum combined screen resistance @ 23 <sup>0</sup> C (Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	
Minimum combined screen & ECC resistance (Ω/km)	0.7	0.5	0.5	0.4	0.3	0.23	
Sustained current rating @ 30 <sup>0</sup> C ambient							
Laid out straight (A)	105	130	160	195	230	260	
Short circuit rating :							
Symmetrical fault current (kA for 1 sec)	3.1	4.3	6.1	8.5	11.6	14.6	
Earth fault current (screens) (kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	
Earth fault current ECC + screens) (kA for 1 sec )	3.6	5.0	5.0	7.5	9.0	11.5	

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