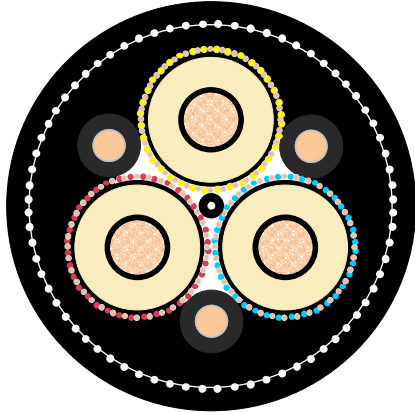


# TYPE 611 6,35/11kV

SANS 1520-2



Flexible copper screened mining cables



CONSTRUCTION	
<b>Cable type</b>	Type 611 6.35/11 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 three unscreened pilot cores one in each interstice laid up in the right hand lay around semi-conductive filler centre . (Alternatively ,one pilot can be replaced with a tinned ECC ).
<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 Type 611 (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>

# TYPE 611 6,35/11kV

SANS 1520-2



**Standard length cable packing** 500 m on drums. Other forms of packing and delivery are available on request

Table 1

Physical Properties

Physical Properties										
Power cores										
Conductor sizes	(mm <sup>2</sup> )	25	35	50	70	95	120	150	185	240
Maximum wire diameter	( mm)	0.41	0.41	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Approx. conductor diameter	( mm)	6.8	8.5	10.3	11.9	13.5	15.5	17.3	20.2	22.9
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	60	60	60	60	60	60	60	60	60
Approx. summarized screen cross-section for power cores (weighing method)	(mm <sup>2</sup> )	29	31	34	37	41	43	46	49	52
Pilot cores										
Conductor sizes	( mm <sup>2</sup> )	10	10	10	16	16	16	25	25	25
Maximum wire diameter	( mm)	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Approx. conductor diameter	( mm)	4.2	4.2	4.2	5.3	5.3	5.3	6.8	6.8	6.8
Lay Ratio (maximum)	(x PCD)	20	20	20	20	20	20	20	20	20
Approximate cable diameter *	(mm)	50.7	52.2	59.4	60.4	67.6	71.3	75.0	85.1	85.6
Cable mass (approximate)										
Type 611	(kg/m)	4.1	4.5	5.3	6.5	8.0	9.8	10.7	13.4	14.7
Minimum bending radius	(mm)	470	500	530	570	600	640	700	730	780
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4	6.8	8.3	10.8

\* Tolerance - ±5% of approx. value

# TYPE 611 6,35/11kV

SANS 1520-2



Table 2

Electrical Properties										
Power cores										
Maximum cond. DC resistance @ 20°C (Ω/km)	0.795	0.565	0.393	0.277	0.210	0.164	0.132	0.108	0.0817	
Maximum cond. DC resistance @ 90°C (Ω/km)	1.05	0.749	0.521	0.368	0.279	0.218	0.176	0.145	0.110	
Reactance (Ω/km)	0.134	0.124	0.117	0.113	0.108	0.103	0.098	0.096	0.092	
Impedance (Z) @ 90°C (Ω/km)	1.06	0.759	0.534	0.385	0.299	0.241	0.201	0.174	0.143	
Minimum combined screen resistance @ 23 °C (Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	0.6	0.6	0.6	
Minimum combined screen & ECC resistance (Ω/km)	0.7	0.5	0.5	0.4	0.3	0.23	0.18	0.18	0.15	
Sustained current rating @ 30°C ambient										
Laid out straight (A)	105	130	160	195	230	260	300	340	400	
Short circuit rating :										
Symmetrical fault current (kA for 1 sec)	3.1	4.3	6.1	8.5	11.6	14.6	18.3	22.57	29.30	
Earth fault current (screens) (kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	4.1	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	14.0	14.0	17.0	

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