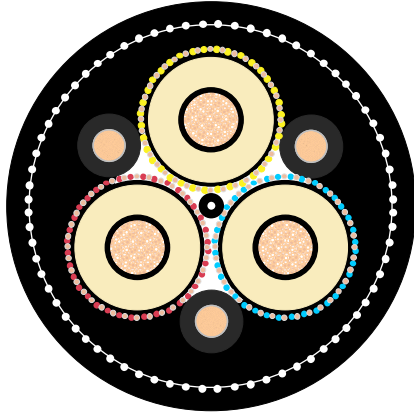


# TYPE 611ECC 6,35/11kV

SANS 1520-2



Flexible copper screened mining cables



## CONSTRUCTION

<b>Cable type</b>	Type 611 ECC 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. TFKABLE 3 Texoprene TR 611 ECC (size ) (Voltage) CR SANS 1520-2 (Year)+metre marking

## FEATURES

- Excellent flexibility .
- Abrasion , tear resistant and flame retardant .
- Temperature range : min. ambient temp . -25 °C , max. conductor temp. 90°C.
- UV ,sunlight , ozone ,oil, resistant .

## APPLICATIONS

- 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.
- Other industrial applications .

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**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	25	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
ECC size	(mm <sup>2</sup> )	16	25	25	35	50	70	95	95	120
ECC maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.51	0.51	0.51	0.51
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 ECC	(kg/m)	4.2	4.6	5.4	6.7	8.2	10.2	10.9	13.9	15.0
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

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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	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	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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