

Mining trailing & reeling cables

SANS Type 633 / 633-ECC (19/33 kV)

SANS 1520-2 Type 633 / 633-ECC 19/33 kV Mining Cable

Medium-voltage 19/33 kV screened reeling, dragline & section-feeder cable (25–120 mm²)



SANS 1520-2 Type 633

19/33 kV · 25–120 mm²

Type 633 & 633-ECC

Application

South African SANS 1520-2 Type 633 and Type 633-ECC medium-voltage screened reeling and trailing cable (19/33 kV, 25–120 mm²) with three braid-screened EPR power cores, EPM pilots (or tinned ECC) and twin CR sheaths.

Typical uses: Open-cast 19/33 kV shovels & draglines, Rotary blast-hole drills, Hazardous-area 19/33 kV section feeders, Mobile in-pit crushers & conveyors, Stacker-reclaimers & port reels, Mobile Pit Substations / skids

Construction



Cross-section, not to scale

1	Power conductors (3)	SANS 1411-1
2	Power core insulation	SANS 1411-3 · SANS 1520-2
3	Individual phase screens (3)	1.6–4.1 kA 1s screen fault
4	Pilots (3) or 2 Pilots + ECC (633-ECC)	Up to 17 kA 1s earth fault
5	Inner sheath	SANS 1411-3
6	Reinforcement braid	SANS 1520-2
7	Outer sheath	SANS 1520-2 · SANS 1411-3

Technical data

Typical values

Rated voltage U0/U	19/33 kV AC (SANS 1520-2 Type 633 and Type 633-ECC)	Current rating (30 °C)	105–260 A at 30 °C ambient air and 90 °C conductor temperature
Phase screening & stress control	Triple-extruded EPR with strippable semi-conducting core screen + composite tinned copper / nylon braid (0.31 mm wires)	Pilot & ECC variants	Type 633: 3 × EPM-insulated pilots · Type 633-ECC: 2 × pilots + 1 × bare tinned copper ECC (16 to 70 mm ²)
Operating temperature range	–25 °C to +90 °C	Short-circuit & earth-fault rating (1 s)	Phase S/C: 3.1–14.6 kA (1 s) · Earth fault: 1.6–4.1 kA (Type 633 screens) or 3.6–11.5 kA (Type 633-ECC)
Min. bending radius	9 × OD (reeling, dragline trailing and section-feeder service)	Max. tensile load	1.1 to 5.4 kN
Twin CR sheaths & reinforcement	CR polychloroprene inner sheath + 16-string open nylon braid + black CR polychloroprene outer sheath	UV, sunlight & oil resistance	UV resistant, sunlight resistant, oil resistant and flame retardant per SANS 1520-2 / SANS 1411-3
Open-cast & underground abrasion	Heavy-duty polychloroprene (CR) twin sheath resists pit-bench rock drag, shovel reeling and moisture	Standards	SANS 1520-2 · SANS 1411-1 · SANS 1411-3

Sizes

6 standard constructions

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Designation Power cores	Power mm ²	Power Ø mm	Pilot mm ²	ECC size mm ² (-ECC)	Max. tension kN	Nominal OD mm	Mass (Std) kg/100m	Mass (Type 633) kg/km	Mass (633-ECC) kg/km
☐ Type 633 / 633-ECC · 3 × 25 mm ²	25	6.8	16	16	1.1	71.3	720	7,200	7,200
☐ Type 633 / 633-ECC · 3 × 35 mm ²	35	8.5	16	25	1.6	73.5	780	7,800	7,800
☐ Type 633 / 633-ECC · 3 × 50 mm ²	50	10.3	16	25	2.3	77.8	890	8,900	8,800
☐ Type 633 / 633-ECC · 3 × 70 mm ²	70	11.9	16	35	3.2	83.0	1,030	10,300	10,400
☐ Type 633 / 633-ECC · 3 × 95 mm ²	95	13.5	16	50	4.3	87.8	1,170	11,700	11,900
☐ Type 633 / 633-ECC · 3 × 120 mm ²	120	15.5	16	70	5.4	90.0	1,270	12,700	13,100

- Type 633 incorporates 3 EPM-insulated pilot cores; Type 633-ECC replaces one pilot core with a tinned copper earth-continuity conductor (ECC) of the size shown.
- Both variants share the same nominal overall diameter (OD) and maximum tensile load.

Electrical & 1s fault ratings

6 sizes

Designation Power cores	DC res. 20 °C Ω/km	DC res. 90 °C Ω/km	Reactance Ω/km	Screen res. Ω/km	ECC res. Ω/km	Current (30 °C) A	Phase S/C (1 s) kA	Earth S/C (Std) kA (1 s)	Earth S/C (-ECC) kA (1 s)
Type 633 / 633-ECC · 3 × 25 mm ²	0.795	1.050	0.155	1.6	0.70	105	3.1	1.6	3.6
Type 633 / 633-ECC · 3 × 35 mm ²	0.565	0.749	0.144	1.2	0.50	130	4.3	2.1	5.0
Type 633 / 633-ECC · 3 × 50 mm ²	0.393	0.521	0.136	0.8	0.50	160	6.1	3.1	5.0
Type 633 / 633-ECC · 3 × 70 mm ²	0.277	0.368	0.131	0.7	0.40	195	8.5	3.5	7.5
Type 633 / 633-ECC · 3 × 95 mm ²	0.210	0.279	0.125	0.6	0.30	230	11.6	4.1	9.0
Type 633 / 633-ECC · 3 × 120 mm ²	0.164	0.218	0.119	0.6	0.23	260	14.6	4.1	11.5

- Current ratings are based on 30 °C ambient temperature and 90 °C maximum conductor temperature.
- Adding the ECC conductor in Type 633-ECC increases the 1-second earth-fault withstand from 1.6 to 4.1 kA (screens only) to 3.6 to 11.5 kA (screens + ECC).

Standards and approvals

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

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Email

info@tebaoflex.com

Web

tebaoflex.com/cables/type-633-cable-sans



Typical values for this cable type, based on SANS 1520-2 · SANS 1411-1 & -3. Values for your order are confirmed in the quotation. Subject to change without notice.
Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.