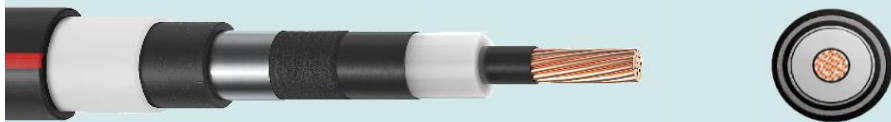


TRIFIREPROT FE 90/E 180 12/20 kV

Medium voltage powercable with circuit integrity



TRIFIREPROT FE 90/E 180 12/20 kV

Advantages

- Circuit integrity 90 Minutes
- Flame retardant, no fire spread
- Longitudinally and transversely watertight
- Long service life
- Halogen-free / Ecology
- Reduced shielding losses
- Compact / light / modular
- Robust abrasion resistant sheath

Applications

Medium voltage powercable systems with circuit integrity in the event of fire. Use in safety-relevant MV-circuits in:

- public buildings
- tunnels
- underground train systems
- civil engineering works

Construction

- | | |
|--|---|
| ▪ Conductor | Copper, multi compacted conductor, accord. to DIN VDE 0295 / IEC 60228, class 2 |
| ▪ Inner semiconductor screen / insulation layer / outer semiconductor screen | XLPE, extruded in one step, insulation crosslinked |
| ▪ Semiconductor swellable tape | Tape pad, semiconductor, longitudinally water tight |
| ▪ Aluminium screen | Tubular aluminium tape, sealed, transversally water tight |
| ▪ Swellable tape | Tape pad, longitudinally water tight |
| ▪ Sheath | Polyolefin Copolymer |
| ▪ Thermal barrier | Polyolefin-Copolymer |
| ▪ Outer sheath | Polyolefin Copolymer, double layer, rodent protection, water barrier, black with two longitudinal red stripes |

Technical data

Rated voltage U_0/U (U_{max})	12/20 kV ($U_{max}=24kV$)
Test voltage	$4 \times U_0$ at 50Hz during 20 min.
Partial discharge	$4 \times U_0$, < level < 2pC /20 Min.

Temperature range

Continuous operation	+90°C
Emergency operation	+130°C (<8h/d; <100h/a)
Short circuit temp.	+250°C (max 5s)

Min. bending radius

during laying	$\geq 15 \times$ cable diameter
fixed	$\geq 11 \times$ cable diameter

Pulling force

Max. 60 N/mm²

Standards

Design: CENELEC HD 620 S2
 Absence of halogens: IEC 60754-1; EN 50267-2-1
 No corrosive gases: EN 50267-2-3
 No toxic gases: NES 02-713, NFC 20-454
 Flame retardant: IEC 60332-1, EN 60332-1
 No flame spread on bunched cables: IEC 60332-3, EN 60332-3
 Circuit integrity based on: IEC 60331-11/21

Remarks

- Open tray laying as well as in tubes, conduits etc.
- The use of terminations, earthing sets and other accessories provided by LEONI is recommended

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Construction	Conductor insulation- Ø	Outer-Ø	Weight	Tensile strength	Fire load	Order no.
n x mm ²	mm	mm	mm	kg / km	max. kN	kWh / m
1 x 95/32	11.95	22.9	42.4	2685	5.7	9.47
1x120/34	13.25	24.7	44.4	3023	7.2	10.2
1 x 150/34	14.70	25.7	45.4	3385	9.0	10.6
1 x 185/38	16.45	27.9	47.6	3790	11.1	11.7
1 x 240/39	18.80	29.8	49.5	4380	14.4	12.2
1 x 300/41	21.10	32.1	51.8	5071	18.0	13.1

Current rating

Construction	Laying in tube in earth ^{4,5}					
	Current load ¹ / Industrial load ² 60°C		90°C		Emergency service ³	
n x mm ²	A	A	A	A	A	A
1 x 95/32	221 / 260	263 / 309	276 / 325	331 / 389	326	391
1x120/34	251 / 295	297 / 350	316 / 372	375 / 441	374	443
1 x 150/34	281 / 331	335 / 394	355 / 418	422 / 496	420	498
1 x 185/38	318 / 374	378 / 444	401 / 472	476 / 560	475	563
1 x 240/39	369 / 434	440 / 517	465 / 548	555 / 653	551	655
1 x 300/41	424 / 499	496 / 584	535 / 630	626 / 737	635	742

Construction	Laid in air					
	Current load ¹ 60°C		90°C		Emergency service ³	
n x mm ²	A	A	A	A	A	A
1 x 95/32	271	309	389	440	495	556
1x120/34	311	354	445	505	567	639
1 x 150/34	352	402	505	574	644	727
1 x 185/38	403	462	579	659	739	836
1 x 240/39	474	546	683	780	872	989
1 x 300/41	543	628	783	898	1001	1141

¹ Loadfactor 24 h., 100% nominal current (main application: power plant)² Loadfactor 10 h., 100% and 14 h, 60% nominal current (standard application)³ Maximum 8 h a day and maximum 100 h a year⁴ Inner diameter of tube at least 3 x overall diameter⁵ Inner diameter of tube at least 1.5 x overall diameter

Basic of calculation: Depth of laying 1 m, ground temperatur 20°C, air temperature 30°C, screens connected to earth on both sides, specific thermal resistance of soil 1Kxm/W, protected against direct sunlight, each cable system laid separately.