

Highly flexible, single core rubber cables



APPLICATION

- Internal switchboard cabling
- Sub-mains
- Electrical traction vehicles
- Battery bank connections
- Machine & equipment cabling
- Steelworks, cranes & hoists
- Stacker & reclaimer cabling
- DC wiring
- Submersible to 100 meters + then depending on application to IEC 60332-1-2
- For fixed installation indoor and outdoor
- Installed in electrical conduit, on surface and flush-mounted, in closed electrical installation ducts and in equipment.
- In switchgear and distribution boards up to 1000 V.

Special-purpose rubber insulated single-core cabled with a rated voltage of at least  $U_0/U$  1,8/3.3kV may be used here. Because of their increased mechanical strength due to the greater insulation thickness as compared with LV single-core cables, they are classified as short-circuit-proof and earth-fault-proof. The short-circuit withstand capability, on the other hand, must be assured by specifying a conductor cross-section suitable for the short-circuit currents concerned. Please see under “Short-Circuit” for the permissible short-circuit currents.

DESIGN

Single core flex cables consist of extra finely stranded tinned copper conductors laid up to provide an extremely flexible design. The Protolon R-E-110 elastomer insulation is rated at 3.3kV with an oil resistant, flame retardant PCP sheath completing the construction.

Designed in accordance with AS1125, AS/NZS 3008.1.1:2017, and VDE0250 part 602. for NSGA Foeu.

Permissible thermal short-circuit currents for 1 s duration (conductor temperature at start of short-circuit: 110°C):

[mm²]	4	6	10	16	25	35	50	70	95	120	150	185	240
[kA]	0.488	0.732	1.22	1.95	3.05	4.27	6.10	8.54	11.6	14.6	18.3	22.6	29.3

The thermal as well as the dynamic short-circuit strength must be taken into account. The cables must in particular be firmly fixed to protect them from the effects of peak short-circuit currents.

Special-purpose rubber insulated single-core cables have a sheath over the insulation to serve as mechanical protection while cable laying is in progress, but are without electrical touch protection. Care should therefore be taken to ensure that cables generally cannot be touched during operation.

## SINGLE CORE – SDI 110<sup>0</sup> FLEX 3.3KV

### OPERATING TEMPERATURE

- Minimum permissible ambient temperature -40°C
- Maximum permissible conductor temperature 110°C
- Maximum permissible short circuit temperature 250°C
- Minimum ambient temperature for optimum fully flexible operation -25°C

### MINIMUM BENDING RADII

The following minimum bending radii should be observed to ensure operating reliability.

For fixed installation 6 x cable diameter

When freely flexing 8 x cable diameter

### CURRENT CARRYING CAPACITY

Current ratings are based on continuous operation at an ambient temperature of 40°C. At other temperatures these values must be converted using the following table.

°C	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Factor	1.26	1.20	1.15	1.10	1.05	1.00	0.94	0.88	0.81	0.73	0.65	0.57	0.47	0.34

The values are valid for permanent operation with DC or AC with 50 up to 60 Hz at 40°C ambient temperature.

### TENSILE STRENGTH

The maximum allowable tensile stress is 15N/mm<sup>2</sup>.

This ensures no conductor damage will occur in operation.

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### VOLTAGE RATING

- Rated voltage:  $U_o/U = 0.6/1\text{kV}$  to 3.3kV AC
- Maximum operating voltages in:
  - 3 phase AC operation  $U_o/U = 2.1/3.6\text{kV}$
  - DC operation  $U_o/U = 2.7/5.4\text{kV}$
- AC test voltage = 6kV (5min)
- Also used on 0.6/1kV Systems

### CORE COLOUR IDENTIFICATION

The core insulation is white.

## Selection and ordering data

Current ratings are based on AS/NZS 3008.1.1:2017.

No. of cores x conductor size	Part No.	Nominal diameter of bare	Normal overall cable conductor	Net cable weight diameter	Unenclosed Spaced
mm <sup>2</sup>		mm	mm	kg/km	A
1 x 1.5	5DF2 043	1.5	5.8	47	31
1 x 2.5	5DF2 053	1.9	6.3	59	42
1 x 4	5DF2 063	2.5	6.8	77	55
1 x 6	5DF2 073	3.2	7.3	97	70
1 x 10	5DF2 103	4.1	8.8	153	99
1 x 16	5DF2 123	6.5	10.2	214	130
1 x 25	5DF2 133	6.8	12.2	324	173
1 x 35	5DF2 143	8.1	13.3	421	214
1 x 50	5DF2 153	9.6	14.7	564	270
1 x 70	5DF2 163	11.2	16.6	758	340
1 x 95	5DF2 173	13.2	18.9	995	410
1 x 120	5DF2 183	14.9	21.0	1253	487
1 x 150	5DF2 203	16.6	23.0	1540	562
1 x 185	5DF2 213	18.0	25.0	1862	644
1 x 240	5DF2 223	21.2	28.3	2428	775
1 x 300	5DF2 233	23.6	31.3	3006	995
1 x 400	5DF2 243	26.5	35.3	3898	1079
1 x 500	5DF2 244	30.1	39.5	5016	1260
1 x 630	5DF2 254	34.3	43.7	6450	1498