

Flexible cables for submersion in polluted liquids



APPLICATION

OZOFLEX(PLUS) rubber-sheathed cables are intended for connection of electrical equipment in contaminated water and for medium mechanical stresses. Owing to the various (and frequently changing) substances of which the contaminated water is made up, the cables may be used only in easily accessible areas that can be inspected (installation depth of approximately 10 m, as customarily encountered in sewage water tanks).

These cables are also suitable for use in process water, cooling water, mine surface water, rainwater and combined waste water. They also can be used in groundwater and seawater; it is possible to impose less stringent specifications in terms of accessibility and inspection. In such cases the cables can be used at depths up to 500 m.

If the water concerned is aggressive or composed of special substances, the cable's resistance properties should be examined. These cables can be used indoors, outdoors, in explosion-hazard areas, in fire-hazard locations, on construction sites, in open-cast mining and in quarries, in industry and in agriculture. They can also be permanently installed, e.g. on plaster, on excavators or on hoisting gear.

The permissible AC test voltage in connection with motor tests is 3 kV, the maximum test duration is 3 minutes.

The insulating and sheath materials used allow a maximum temperature at the conductor of 90 °C.

Typical uses include:

- Sewage treatment plants
- Waste water pumps – effluent aerators
- Abattoirs (high temp chemical cleaning)
- Dairy industry
- Mining – de-watering
- Chemical plants & steelworks
- Hygienic cleaning in breweries, food processing plants etc.
- Water depth approx. 10m in waste water, up to 500m in all other types
- Suitable in seawater

DESIGN

OZOFLEX (PLUS) cables consist of finely stranded copper conductors laid up to provide a flexible design. R-EP-90 elastomer insulation provides improved current capacities. Cables above 16mm<sup>2</sup> and all control cables include an additional elastomer inner sheath and all cables up to 6mm<sup>2</sup> have tinned conductors. The specially compounded heavy duty CPE Elastomer sheath (Hypalon) is oil resistant and flame retardant and resists the effects of water absorption.

The construction is in accordance with the Australian Standards AS 1125, AS 3191, AS/NZS 5000-1.

THERMAL CHARACTERISTICS

- |  |                      |
|--|----------------------|
| ■ Maximum permissible operating temperature at conductor   | 90 °C                |
| ■ Maximum permissible short circuit temperature at conductor   | 250 °C<br>(max. 5 s) |
| ■ Maximum permissible water temperature (At higher water temperatures, a shortened cable service life is to be expected) | 40 °C                |
| ■ Minimum permissible temperatures   |                      |
| when in motion   | -25 °C               |
| when stationary  | -40 °C               |

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### MINIMUM BENDING RADII

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

- For fixed installation 4 x cable diameter
- When freely flexing 5 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. Touching a surface, two or three cores loaded, multi-core cables all cores loaded.

### VOLTAGE RATING

- Rated voltage:  $U_o/U$  = 0.6/1kV
- Maximum operating voltages in:
  - 3 phase AC operation  $U_o/U$  = 0.7/1.15kV
  - DC operation  $U_o/U$  = 0.9/1.73kV
- AC test voltage (test duration) = 2.5 kV (15 min)

\* The cable is designated with EI4 insulation compound in accordance with VDE/IEC and is in accordance with Australian Standard AS/NZS 5000-1 for the voltage rating of 0.6/1kV.

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### CORE COLOUR IDENTIFICATION

Single Core	black
3 Core	blue, brown, <b>green/yellow</b>
4 Core	brown, black, grey, <b>green/yellow</b>
5 Core	blue, brown, black, grey, <b>green/yellow</b>
Multi core	black insulation sequentially numbered including a <b>green/yellow</b> earth core.


### TENSILE STRENGTH

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

This ensures no conductor damage will occur in operation.

## Selection and ordering data

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

	No. of cores x conductor size	Part No.	Nominal No. of strands x and strand diameter	Nominal Diameter of bare conductor	Nominal cable overall diameter	Approx. net cable weight	Unenclosed Spaced 
OZOFLEX HORN-F 1X ...	mm <sup>2</sup>		mm	mm	mm	kg/km	A
OZOFLEX (PLUS) including a green/yellow earth	3G1	5DH1 014	29 x 0.20	1.5	9.6	122	19
	3G1.5	5DH1 015	27 x 0.25	1.8	10.6	154	24
	3G2.5	5DH1 016	45 x 0.25	2.6	12.8	229	32
	3G4	5DH1 017	50 x 0.30	3.2	14.8	319	43
	3G6	5DH1 018	75 x 0.30	3.9	16.9	420	55
	3G10	5DH1 020	78 x 0.30	5.1	22.4	780	78

## Selection and ordering data

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	No. of cores x conductor size	Part No.	Nominal No. of strands x and strand diameter	Nominal Diameter of bare conductor	Nominal cable overall diameter	Approx. net cable weight	Unenclosed Spaced
"Brown, black, grey, green/yellow"	mm <sup>2</sup>		mm	mm	mm	kg/km	A
OZOFLEX (PLUS) including a green/yellow earth	4G1	5DH1 245	29 x 0.21	1.2	9.8	139	16
	4G1.5	5DH1 021	27 x 0.26	1.5	11.0	177	20
	4G2.5	5DH1 022	45 x 0.26	1.9	12.8	251	27
	4G4	5DH1 023	50 x 0.31	2.4	14.6	344	36
	4G10	5DH1 025	78 x 0.41	3.9	22.2	841	66
	4G16	5DH1 026	124 x 0.41	5.7	26.8	1256	87
	4G25	5DH1 027	192 x 0.41	6.8	31.4	1812	116
	4G35	5DH1 028	271 x 0.41	8.0	35.2	2312	144
	4G50	5DH1 030	388 x 0.41	9.4	40.1	3011	182
	4G70	5DH1 031	551 x 0.41	11.0	45.2	4230	230
	4G95	5DH1 032	733 x 0.41	12.8	52.3	5536	275
	4G120	5DH1 033	938 x 0.41	14.5	56.6	6724	327
	7G1.5	5DH1 241	30 x 0.26	1.5	15.75	362	20
OZOFLEX (PLUS) with pilots	4G1.5 + 2 x 1.5	5DH1 069	27 x 0.26	1.5	12.5	187	20
	4G2.5 + 2 x 1.5	5DH1 070	45 x 0.26	1.9	14.3	261	27
	4G4 + 2 x 1.5	5DH1 071	50 x 0.31	2.4	16.1	354	36
	4G6 + 2 x 1.5	5DH1 072	75 x 0.31	2.9	18.6	491	46
	4G10 + 2 x 1.5	5DH1 073	78 x 0.41	3.9	23.7	851	66
	4G10 + 4 x 1.5	5DH1 276	78 x 0.41	3.9	23.7	851	66
	4G16 + 2 x 1.5	5DH1 275	124 x 0.41	5.7	28.3	1266	87
	4G25 + 2 x 1.5	5DH1 282	192 x 0.41	6.8	32.9	1822	116
	4G35 + 2 x 1.5	5DH1 076	271 x 0.41	8.0	36.70	2322	144