

|                           |                             |                                                                                    |
|---------------------------|-----------------------------|------------------------------------------------------------------------------------|
| 38115805                  | <b>DATA SHEET</b>           |  |
| Valid from:<br>2025-01-20 | <b>ÖLFLEX® SOLAR H1 BUR</b> |                                                                                    |

## Application

ÖLFLEX® SOLAR H1 BUR cables are weather- and UV-resistant photovoltaic cables.

These cross-linked, halogen-free and double-insulated solar cables are suitable for permanent outdoor use and especially for the interconnection of grounded and ungrounded photovoltaic power systems. They are applicable for the connection of solar panels among themselves and as extension cable between the individual module strings or the DC/AC inverter.

Recommended use of cables for PV systems acc. to IEC 62930 and EN 50618:

Intended for use in PV installations e.g. acc. to IEC 60364-7-712 resp. HD 60364-7-712.

They are intended for permanent use outdoor and indoor, for free movable, free hanging and fixed installation.

It is also permitted to install the cables in conduit or trunking systems.

Halogen free low smoke cables are intended to reduce the risks for people and goods in the event of fire, for example in buildings.

They are suitable for the application in /at equipment with protective insulation (protection class II).

They are inherently short-circuit and earth fault proof acc. to IEC 60364-5-52.

The expected period of use under normal usage conditions as specified in IEC 62930 and EN 50618 is at least 25 years.

Based on UL's Impact-Resistance and Crushing-Resistance Test and an additional AD8 rating ÖLFLEX® SOLAR H1 BUR cables will be suitable for the installation underground if the cable is laid in a cable trench acc. to VDE 0891-6, Section 4.2, or comparable standards.

Wiring systems shall be selected and erected so as to minimize the damage arising from mechanical stress, e.g. by impact, penetration or compression during installation, use or maintenance.

For underground use, installation in conduits is allowed acc. to IEC 60364-5-52, chapter 522.3.

Additional tensile force or shearing during installation and operation has to be ruled out.

## Design

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Design           | Sheathed single core cable acc. to IEC 62930 and EN 50618                                                                                                                                                                                                                                                                                                                                                          |
| Code Designation | 62930 IEC 131: 1x2.5 mm <sup>2</sup> to 1x35 mm <sup>2</sup><br>H1Z2Z2-K: 1x2.5 mm <sup>2</sup> to 1x35 mm <sup>2</sup>                                                                                                                                                                                                                                                                                            |
| Certification    | TÜV Rheinland certificate with No. R 50598420, R 60176265, R 50462071 (62930 IEC 131)<br>TÜV Rheinland certificate with No. R 5059841B, R 60176265, R 50345247 (H1Z2Z2-K)<br><br>CPR: EN 13501-6 and EN 50575<br>Classification of fire behaviour<br>Dca-s2,d2,a1-: 1x4 mm <sup>2</sup> to 1x10 mm <sup>2</sup><br>(article/dimension range see <a href="http://www.lappkabel.com/cpr">www.lappkabel.com/cpr</a> ) |
| Conductor        | Fine wire strands of tinned copper acc. to IEC 60228 resp. EN IEC 60228, class 5                                                                                                                                                                                                                                                                                                                                   |
| Core insulation  | cross-linked polyolefin co-polymer acc. to IEC 62930 and EN 50618, halogen free<br>Colour: White                                                                                                                                                                                                                                                                                                                   |
| Outer sheath     | cross-linked polyolefin co-polymer acc. to IEC 62930 and EN 50618, halogen free<br>Colour: black or blue or red                                                                                                                                                                                                                                                                                                    |

## Electrical properties

|                                    |                                                                                                  |
|------------------------------------|--------------------------------------------------------------------------------------------------|
| Rated voltage U <sub>0</sub> /U    | 1.0/1.0 kV AC RMS acc. to IEC 62930 and EN 50618<br>1.5/1.5 kV DC acc. to IEC 62930 and EN 50618 |
| Max. permissible operating voltage | 1.8 kV DC acc. to IEC 62930 and EN 50618                                                         |
| Test voltage                       | 6.5 kV AC acc. to IEC 62930 and EN 50618                                                         |
| Current carrying rating            | IEC 62930, Table A.3 & A.4 and EN 50618, Table A.3 & A.4                                         |

|                                         |                                       |             |
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### Ampacity acc. to EN 506 18

| Ampacity acc. to EN 506 18, Table A.3 at 60 °C ambient temperature |                             |                             |                                           |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|-------------------------------------------|
|                                                                    | Single cable<br>free in air | Single cable<br>on surfaces | 2 loaded cables<br>touching, on a surface |
| [mm²]                                                              | [A]                         | [A]                         | [A]                                       |
| 1 x 2.5                                                            | 41                          | 39                          | 33                                        |
| 1 x 4                                                              | 55                          | 52                          | 44                                        |
| 1 x 6                                                              | 70                          | 67                          | 57                                        |
| 1 x 10                                                             | 98                          | 93                          | 79                                        |
| 1 x 16                                                             | 132                         | 125                         | 107                                       |
| 1 x 25                                                             | 176                         | 167                         | 142                                       |
| 1 x 35                                                             | 218                         | 207                         | 176                                       |

Conversion factors for different ambient temperatures:

| Ambient temperature<br>[°C] | Conversion factor |
|-----------------------------|-------------------|
| bis 60                      | 1.00              |
| 70                          | 0.92              |
| 80                          | 0.84              |
| 90                          | 0.75              |

For installation in groups, the reduction factors for current rating acc. to HD 60364-5-52, Table B.52.17 shall apply.

### Ampacity acc. to IEC 62930

| Ampacity acc. to IEC 62930, Table A.3 at 30 °C ambient temperature |                             |                             |                                           |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|-------------------------------------------|
|                                                                    | Single cable<br>free in air | Single cable<br>on surfaces | 2 loaded cables<br>touching, on a surface |
| [mm²]                                                              | [A]                         | [A]                         | [A]                                       |
| 1 x 2.5                                                            | 42                          | 40                          | 33                                        |
| 1 x 4                                                              | 57                          | 54                          | 45                                        |
| 1 x 6                                                              | 72                          | 69                          | 58                                        |
| 1 x 10                                                             | 98                          | 96                          | 80                                        |
| 1 x 16                                                             | 132                         | 130                         | 107                                       |
| 1 x 25                                                             | 183                         | 174                         | 138                                       |
| 1 x 35                                                             | 227                         | 215                         | 171                                       |

Conversion factors for different ambient temperatures:

| Ambient temperature<br>[°C] | Conversion factor |
|-----------------------------|-------------------|
| 0                           | 1.22              |
| 10                          | 1.15              |
| 20                          | 1.08              |
| 30                          | 1.00              |
| 40                          | 0.91              |
| 50                          | 0.82              |
| 60                          | 0.71              |
| 70                          | 0.58              |

For installation in groups, the reduction factors for current rating acc. to IEC 60364-5-52, Table B.52.17 shall apply.

|                    |                        |             |
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### Ampacity acc. to IEC 60364-5-52

| Ampacity acc. to IEC 60364-5-52, at 20 °C ground temperature |                                                                                                     |                                                                          |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
|                                                              | Table B.52.3 D1 (one DC circuit) when<br>laid inside channel/duct/conduit which<br>is buried ground | Table B.52.3 D2 (one DC circuit) when<br>directly buried in cable trench |
| [mm <sup>2</sup> ]                                           | [A]                                                                                                 | [A]                                                                      |
| 1 x 2.5                                                      | 33                                                                                                  | 35                                                                       |
| 1 x 4                                                        | 43                                                                                                  | 46                                                                       |
| 1 x 6                                                        | 53                                                                                                  | 58                                                                       |
| 1 x 10                                                       | 71                                                                                                  | 77                                                                       |
| 1 x 16                                                       | 91                                                                                                  | 100                                                                      |
| 1 x 25                                                       | 116                                                                                                 | 129                                                                      |
| 1 x 35                                                       | 139                                                                                                 | 155                                                                      |

For installation in groups, the reduction factors for current rating acc. to IEC 60364-5-52, Table B.52.18 resp. Table B.52.19 shall apply.

**Please also note the national implementation of the ampacity.**

### Voltage drop

Calculated voltage drop in the DC circuit (DC side of the inverter).

|                    | DC (ohmic)<br>resistance,<br>IEC 60228,<br>cl.5, 20 °C | Calculated voltage drop |         |         |         |         |         |         |         |         |         |
|--------------------|--------------------------------------------------------|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                    |                                                        | 30 °C                   | 40 °C   | 50 °C   | 60 °C   | 70 °C   | 80 °C   | 90 °C   | 100 °C  | 110 °C  | 120 °C  |
| [mm <sup>2</sup> ] | [Ohm/km]                                               | [mV/Am]                 | [mV/Am] | [mV/Am] | [mV/Am] | [mV/Am] | [mV/Am] | [mV/Am] | [mV/Am] | [mV/Am] | [mV/Am] |
| 1 x 2.5            | 8.21                                                   | 8.53                    | 8.86    | 9.18    | 9.50    | 9.83    | 10.15   | 10.47   | 10.8    | 11.12   | 11.44   |
| 1 x 4              | 5.09                                                   | 5.29                    | 5.49    | 5.69    | 5.89    | 6.09    | 6.29    | 6.49    | 6.69    | 6.89    | 7.10    |
| 1 x 6              | 3.39                                                   | 3.52                    | 3.66    | 3.79    | 3.92    | 4.06    | 4.19    | 4.32    | 4.46    | 4.59    | 4.73    |
| 1 x 10             | 1.95                                                   | 2.03                    | 2.10    | 2.18    | 2.26    | 2.33    | 2.41    | 2.49    | 2.56    | 2.64    | 2.72    |
| 1 x 16             | 1.24                                                   | 1.29                    | 1.34    | 1.39    | 1.44    | 1.48    | 1.53    | 1.58    | 1.63    | 1.68    | 1.73    |
| 1 x 25             | 0.795                                                  | 0.826                   | 0.858   | 0.889   | 0.920   | 0.952   | 0.983   | 1.014   | 1.046   | 1.077   | 1.108   |
| 1 x 35             | 0.565                                                  | 0.587                   | 0.610   | 0.632   | 0.654   | 0.676   | 0.699   | 0.721   | 0.743   | 0.765   | 0.788   |

Assumed linear temperature coefficient of the electrical resistance of Cu (approx. purity: 99.9 %) at 20 °C: 0.00393·K<sup>-1</sup>.

These informative calculation examples are noncommittal, simplified and not covered by any warranty/liability.

The effects of frequency and the geometry of the lateral circuits are not considered, but these calculations focus only on variations in DC resistance due to changes in conductor temperature.

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