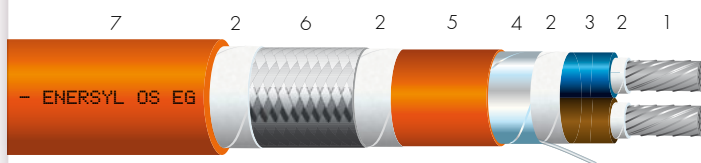


# ENERSYL® OS 331 SHF1 CONTROL Control cables



- 1 • Stranded tin-plated copper core, class 2 as per IEC 60228.
- 2 • Optional separating tape.
- 3 • Insulation: silicone rubber, type S 95 + optional filler(s).
- 4 • (optional) Electrical screen: aluminium/PET tape + continuity wire (EG) / tin-plated copper braid (BE) / bare copper braid (BR).
- 5 • (optional) Internal sheath: HFFR, type SHF1.
- 6 • (optional) Armour: galvanized steel braid (BG) / double steel tape (FA).
- 7 • Outer sheath: HFFR, type SHF1.

## Reference

- (example) ENERSYL® OS EG BG 331 SHF1  
CONTROL 19x1,5 mm<sup>2</sup>  
OS: for offshore applications  
EG, BE, BR: type of electrical screen  
BG, FA: type of armour  
331 : fire resistant cable  
SHF1: nature of sheath material  
CONTROL: control cable  
19: number of conductors  
X, G: type of assembly without (X)  
or with (G) an earth wire  
1.5 mm<sup>2</sup>: cross-section in mm<sup>2</sup>

## Approvals - standards

- IEC 60228 / IEC 60092-376.  
• IEC 60092-360.
- IEC 60332-1 / IEC 60332-3 / IEC 60331-21.
- IEC 61034-2 / IEC 60754-1 / IEC 60754-2.

## Markings

- OMERIN – ENERSYL < OS xx xx 331 SHF1  
CONTROL > < cross-section > – 450/750 V  
– < batch > – < year >

## Standard products

- Sheath: orange.
- Colour identification of conductors:  
< up to 5 conductors: as per HD 308 S2.  
> more than 5 conductors: white numbered.

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**omerin**  
LES CABLES DE L'EXTREME

## Technical characteristics

### Thermal

- Continuous operating temperature: -30 °C to +80 °C.
- Maximum core temperature: +95 °C.

### Electrical

- Rated voltage: 450/750 V.
- Test voltage: 2500 V.

### Smoke - fire

- Flame retardant – cable alone: IEC 60332-1-2 / NF C 32-070 test C2.
- Flame retardant – bunched cable: IEC 60332-3-22 cat. A.
- Fire retardant: NF C 32-070 test C1.
- Fire resistant: IEC 60331-21.
- Low smoke density: IEC 61034-2.
- Halogen-free: IEC 60754-1.
- Low corrosivity of gas emissions: IEC 60754-2.

### Resistance of outer sheath to chemical attacks as per OMERIN test report NT140220-01:

- Good resistance to acid.
- Good resistance to base.
- Fairly good resistance to aliphatic hydrocarbons.
- Resistance to water: type AD7 as per IEC 60529 without immersion of ends.
- Resistance to UV ≥ 2000 hours as per EN 16472.

## Options

- SHF2: cross-linked HFFR outer sheath, type SHF2.
- Other colours: contact us.
- ATEX as per EN 60079-14.  
Particularly suited for static facilities in potentially explosive environments with "i" intrinsic safety protection mode, requiring specific identification of cables.  
Colour of the sheath: blue as per EN 60079-14 part 16.2.2.6.  
> ENERSYL® OS 331 EX SHF1 CONTROL: without electrical screen.  
> ENERSYL® OS BE 331 EX SHF1 CONTROL: with electrical screen.

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The information provided in this technical data sheet is indicative and may be modified without prior notice, laying, wiring and electrical conditions and the environment of the cable can not be fully considered in our studies. In no way the company OMERIN shall be held responsible for any incidents in the case of inappropriate uses, particularly in the case of wiring conditions that do not respect the good practice and the standards in force.  
For an optimum use of the cables produced by our company, we recommend testing in real conditions. Our sales department is available for a possible provision of samples, and/or for the conditions of a complete study in our laboratories.

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| Nominal cross-section (mm <sup>2</sup> ) | Nominal stranding | Nominal thickness of insulation (mm) | Nominal diameter of conductors (mm) | NON-SHIELDED CABLES                  |                                |                                   | ARMoured CABLES                      |                                |                                   | Max. linear resistance at 20 °C (Ω/km) |
|--|-------------------|--------------------------------------|-------------------------------------|--------------------------------------|--------------------------------|-----------------------------------|--------------------------------------|--------------------------------|-----------------------------------|--|
|  |                   |                                      |                                     | Nominal thickness of the sheath (mm) | Nominal outside diameter* (mm) | Approximate linear weight (kg/km) | Nominal thickness of the sheath (mm) | Nominal outside diameter* (mm) | Approximate linear weight (kg/km) |  |
| 2 x 0.5                                  | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.0                                  | 6.6                            | 48                                | 0.8                                  | 9.6                            | 133                               | 36.7                                   |
| 3 x 0.5                                  | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.0                                  | 6.9                            | 59                                | 0.8                                  | 9.9                            | 147                               | 36.7                                   |
| 4 x 0.5                                  | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.0                                  | 7.5                            | 70                                | 0.8                                  | 10.5                           | 165                               | 36.7                                   |
| 5 x 0.5                                  | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.0                                  | 8.1                            | 81                                | 0.8                                  | 11.1                           | 183                               | 36.7                                   |
| 7 x 0.5                                  | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.1                                  | 9.0                            | 108                               | 0.9                                  | 12.1                           | 223                               | 36.7                                   |
| 12 x 0.5                                 | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.2                                  | 11.6                           | 170                               | 0.9                                  | 14.8                           | 319                               | 36.7                                   |
| 19 x 0.5                                 | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.2                                  | 13.4                           | 240                               | 1.0                                  | 16.8                           | 418                               | 36.7                                   |
| 24 x 0.5                                 | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.3                                  | 15.8                           | 306                               | 1.0                                  | 19.4                           | 534                               | 36.7                                   |
| 27 x 0.5                                 | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.3                                  | 16.1                           | 334                               | 1.0                                  | 19.7                           | 566                               | 36.7                                   |
| 37 x 0.5                                 | 7 / 0.30          | 0.6                                  | 2.1                                 | 1.4                                  | 18.1                           | 439                               | 1.1                                  | 21.9                           | 708                               | 36.7                                   |
| 2 x 0.75                                 | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.0                                  | 7.2                            | 60                                | 0.8                                  | 10.2                           | 151                               | 24.8                                   |
| 3 x 0.75                                 | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.0                                  | 7.6                            | 73                                | 0.8                                  | 10.6                           | 170                               | 24.8                                   |
| 4 x 0.75                                 | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.0                                  | 8.3                            | 90                                | 0.8                                  | 11.3                           | 195                               | 24.8                                   |
| 5 x 0.75                                 | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.1                                  | 9.2                            | 110                               | 0.8                                  | 12.2                           | 224                               | 24.8                                   |
| 7 x 0.75                                 | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.1                                  | 9.9                            | 138                               | 0.9                                  | 13.0                           | 263                               | 24.8                                   |
| 12 x 0.75                                | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.2                                  | 12.9                           | 219                               | 0.9                                  | 16.1                           | 383                               | 24.8                                   |
| 19 x 0.75                                | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.3                                  | 15.1                           | 321                               | 1.0                                  | 18.7                           | 540                               | 24.8                                   |
| 24 x 0.75                                | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.3                                  | 17.6                           | 401                               | 1.0                                  | 21.2                           | 653                               | 24.8                                   |
| 27 x 0.75                                | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.4                                  | 18.2                           | 447                               | 1.1                                  | 21.8                           | 712                               | 24.8                                   |
| 37 x 0.75                                | 7 / 0.37          | 0.6                                  | 2.4                                 | 1.4                                  | 20.2                           | 580                               | 1.1                                  | 24.0                           | 879                               | 24.8                                   |
| 2 x 1                                    | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.0                                  | 7.4                            | 68                                | 0.8                                  | 10.4                           | 162                               | 18.2                                   |
| 3 x 1                                    | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.0                                  | 7.8                            | 84                                | 0.8                                  | 10.8                           | 183                               | 18.2                                   |
| 4 x 1                                    | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.0                                  | 8.8                            | 108                               | 0.8                                  | 11.8                           | 217                               | 18.2                                   |
| 5 x 1                                    | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.1                                  | 9.5                            | 126                               | 0.8                                  | 12.6                           | 246                               | 18.2                                   |
| 7 x 1                                    | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.1                                  | 10.2                           | 159                               | 0.9                                  | 13.3                           | 288                               | 18.2                                   |
| 12 x 1                                   | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.2                                  | 13.3                           | 253                               | 0.9                                  | 16.6                           | 426                               | 18.2                                   |
| 19 x 1                                   | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.3                                  | 15.7                           | 377                               | 1.0                                  | 19.3                           | 604                               | 18.2                                   |
| 24 x 1                                   | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.3                                  | 18.4                           | 474                               | 1.0                                  | 22.2                           | 748                               | 18.2                                   |
| 27 x 1                                   | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.3                                  | 18.8                           | 520                               | 1.0                                  | 22.5                           | 799                               | 18.2                                   |
| 37 x 1                                   | 7 / 0.43          | 0.6                                  | 2.5                                 | 1.4                                  | 21.1                           | 687                               | 1.1                                  | 24.9                           | 999                               | 18.2                                   |
| 2 x 1.5                                  | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.0                                  | 8.7                            | 92                                | 0.8                                  | 11.7                           | 201                               | 12.2                                   |
| 3 x 1.5                                  | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.1                                  | 9.2                            | 115                               | 0.8                                  | 12.3                           | 232                               | 12.2                                   |
| 4 x 1.5                                  | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.1                                  | 10.0                           | 141                               | 0.9                                  | 13.1                           | 267                               | 12.2                                   |
| 5 x 1.5                                  | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.1                                  | 10.8                           | 166                               | 0.9                                  | 13.9                           | 302                               | 12.2                                   |
| 7 x 1.5                                  | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.1                                  | 11.9                           | 218                               | 0.9                                  | 15.1                           | 370                               | 12.2                                   |
| 12 x 1.5                                 | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.3                                  | 15.7                           | 354                               | 1.0                                  | 19.2                           | 581                               | 12.2                                   |
| 19 x 1.5                                 | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.4                                  | 18.4                           | 525                               | 1.1                                  | 22.2                           | 799                               | 12.2                                   |
| 24 x 1.5                                 | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.5                                  | 21.6                           | 661                               | 1.1                                  | 25.5                           | 985                               | 12.2                                   |
| 27 x 1.5                                 | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.5                                  | 22.1                           | 726                               | 1.1                                  | 25.9                           | 1057                              | 12.2                                   |
| 37 x 1.5                                 | 7 / 0.52          | 0.7                                  | 3.0                                 | 1.6                                  | 24.8                           | 964                               | 1.2                                  | 28.8                           | 1341                              | 12.2                                   |
| 2 x 2.5                                  | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.1                                  | 9.5                            | 119                               | 0.9                                  | 12.6                           | 240                               | 7.56                                   |
| 3 x 2.5                                  | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.1                                  | 10.0                           | 153                               | 0.9                                  | 13.1                           | 280                               | 7.56                                   |
| 4 x 2.5                                  | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.1                                  | 10.9                           | 189                               | 0.9                                  | 14.0                           | 326                               | 7.56                                   |
| 5 x 2.5                                  | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.2                                  | 12.1                           | 231                               | 0.9                                  | 15.3                           | 385                               | 7.56                                   |
| 7 x 2.5                                  | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.2                                  | 13.1                           | 298                               | 0.9                                  | 16.4                           | 469                               | 7.56                                   |
| 12 x 2.5                                 | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.3                                  | 17.5                           | 497                               | 1.0                                  | 21.2                           | 754                               | 7.56                                   |
| 19 x 2.5                                 | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.4                                  | 20.6                           | 743                               | 1.1                                  | 24.4                           | 1048                              | 7.56                                   |
| 24 x 2.5                                 | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.6                                  | 24.2                           | 935                               | 1.2                                  | 28.2                           | 1303                              | 7.56                                   |
| 27 x 2.5                                 | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.6                                  | 24.7                           | 1031                              | 1.2                                  | 28.7                           | 1407                              | 7.56                                   |
| 37 x 2.5                                 | 19 / 0.41         | 0.7                                  | 3.4                                 | 1.7                                  | 27.8                           | 1376                              | 1.3                                  | 32.0                           | 1811                              | 7.56                                   |

\* The rated outer diameter of cables may vary by +/- 15% depending on the options selected.