



E<sub>ca</sub>

## APPLICATION

Xtrem<sup>®</sup> H07RN-F rubber cables are designed to supply power to low voltage appliances including electric motors and submersible pumps in deep water installations, as well as many other electrical equipment.

Thanks to its extraordinary flexibility and mechanical strength, the Xtrem<sup>®</sup> H07RN-F cable is ideal for power transmission in both fixed installation or mobile service.

The use nominal voltage up to 1000 V is accepted in fixed protected assemblies.

Top Cable Xtrem<sup>®</sup> H07RN-F cables are designed to power all types of electrical equipment including motors and submersible pumps in deep water installations (AD8).

## CONSTRUCTION

### Conductor

Electrolytic annealed copper, class 5 (flexible) according to EN 60228 and IEC 60228.

### Insulation

Thermosetting rubber, type EI7 according to EN 50363-1.








The standard identification according to HD 308 and EN 50334 is the following:

|           |  |
|-----------|--|
| 1 x       | Natural                                    |
| 2 x       | Blue + Brown                               |
| 3 G       | Blue + Brown + Green/Yellow                |
| 3 x       | Brown + Black + Grey                       |
| 4 G       | Brown + Black + Grey + Green/Yellow        |
| 4 x       | Brown + Black + Grey + Blue                |
| 5 G       | Brown + Black + Grey + Blue + Green/Yellow |
| 5 x       | Brown + Black + Grey + Black + Blue        |
| 6 or more | Black numbered + Green/Yellow              |

### Outer sheath


Thermosetting flexible rubber, type EM2 according to EN 50363-2-1. Black colour.

## CHARACTERISTICS

-  **Electrical performance**  
Low voltage: 450/750 V.
-  **Thermal performance**  
Maximum conductor temperature: 90°C.  
Maximum short-circuit temperature: 250°C (max. 5 s).  
Minimum service temperature: -40°C (fixed and protected installations) and -25°C (mobile use).
-  **Fire performance**  
Flame non-propagation according to EN 60332-1 / IEC 60332-1.  
Reaction to fire CPR: E<sub>ca</sub> according to EN 50575.
-  **Mechanical performance**  
Minimum bending radius:  
3x cable diameter < 12 mm.  
4x cable diameter ≥ 12 mm.  
Impact resistance: AG2 Medium severity.
-  **Environmental performance**  
Chemical & Oil resistance: Excellent.  
Grease & mineral oils resistance: Excellent.  
UV Resistant according to EN 50618.  
Water resistance: AD8 Submersion.  
Cable for submersible pumps in drinkable water according to AS/ NZS 4020.  
Deep wells. AWQC.
-  **Installation conditions**  
Open Air.  
Submersible pumps cable.
-  **Other**  
Meter by meter marking.

## STANDARDS / COMPLIANCE

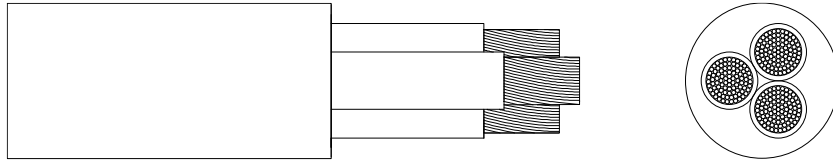
 **According to**  
EN 50525-2-21 / IEC 60092-353 / IEC 60245

 **Standards and approvals**  
HAR / AENOR / DNV / RoHS / CE

 **CPR (Construction Products Regulation)**  
E<sub>ca</sub>



### DIMENSIONS & ADMISSIBLE INTENSITIES



| Cross-section (mm <sup>2</sup> ) | Diameter (mm) | Weight (kg/km) | Fixed Inst. (A) <sup>1</sup> | Mobile Service (A) <sup>2</sup> | Voltage drop (V/A · km) <sup>3</sup> |
|----------------------------------|---------------|----------------|------------------------------|---------------------------------|--------------------------------------|
| 1 x 1,5                          | 5,9           | 45             | 28                           | 16                              | 30,7                                 |
| 1 x 2,5                          | 6,5           | 60             | 39                           | 25                              | 18,4                                 |
| 1x4                              | 7,4           | 85             | 53                           | 34                              | 11,4                                 |
| 1x6                              | 8,1           | 110            | 68                           | 43                              | 7,63                                 |
| 1 x 10                           | 9,9           | 175            | 93                           | 60                              | 4,42                                 |
| 1 x 16                           | 11,2          | 240            | 124                          | 79                              | 2,80                                 |
| 1 x 25                           | 13,0          | 345            | 161                          | 104                             | 1,80                                 |
| 1 x 35                           | 14,6          | 460            | 200                          | 129                             | 1,28                                 |
| 1 x 50                           | 17,0          | 635            | 242                          | 162                             | 0,893                                |
| 1 x 70                           | 19,1          | 845            | 310                          | 202                             | 0,629                                |
| 1 x 95                           | 21,4          | 1.100          | 377                          | 240                             | 0,476                                |
| 1 x 120                          | 23,3          | 1.375          | 437                          | 280                             | 0,372                                |
| 1 x 150                          | 25,8          | 1.695          | 504                          | 321                             | 0,298                                |
| 1 x 185                          | 28,1          | 2.045          | 575                          | 363                             | 0,245                                |
| 1 x 240                          | 31,3          | 2.635          | 679                          | 433                             | 0,185                                |
| 1 x 300                          | 34,4          | 3.275          | 783                          | 497                             | 0,148                                |
| 1 x 400                          | 39,0          | 4.270          | 940                          | 586                             | 0,112                                |
| 1 x 500                          | 41,9          | 5.370          | 1.083                        | 670                             | 0,0888                               |
| 1 x 630                          | 47,8          | 6.960          | 1.254                        | 784                             | 0,0664                               |
| 2 x 1                            | 7,7           | 75             | 21                           | 10                              | 45,1                                 |
| 2 x 1,5                          | 8,5           | 100            | 26                           | 16                              | 30,7                                 |
| 2 x 2,5                          | 10,1          | 145            | 36                           | 25                              | 18,4                                 |
| 2 x 4                            | 11,8          | 200            | 49                           | 34                              | 11,4                                 |
| 2 x 6                            | 12,7          | 250            | 63                           | 43                              | 7,63                                 |
| 2 x 10                           | 17,7          | 485            | 86                           | 60                              | 4,42                                 |
| 2 x 16                           | 20,2          | 670            | 115                          | 79                              | 2,80                                 |
| 2 x 25                           | 24,5          | 995            | 149                          | 105                             | 1,80                                 |
| 2 x 35                           | 26,3          | 1.240          | 185                          | 130                             | 1,28                                 |
| 2 x 50                           | 31,9          | 1.765          | 225                          | 165                             | 0,893                                |
| 2 x 70                           | 36,0          | 2.335          | 289                          | 205                             | 0,629                                |
| 3 G 1                            | 8,3           | 95             | 21                           | 10                              | 45,1                                 |
| 3 G 1,5                          | 9,3           | 125            | 26                           | 16                              | 30,7                                 |
| 3 G 2,5                          | 11,1          | 185            | 36                           | 25                              | 18,4                                 |
| 3 G 4                            | 12,7          | 260            | 49                           | 35                              | 11,4                                 |
| 3 G 6                            | 14,3          | 335            | 63                           | 44                              | 7,63                                 |
| 3 G 10                           | 19,6          | 630            | 86                           | 62                              | 4,42                                 |
| 3 G 16                           | 21,8          | 855            | 115                          | 82                              | 2,80                                 |
| 3 G 25                           | 26,1          | 1.250          | 149                          | 109                             | 1,80                                 |
| 3 G 35                           | 29,4          | 1.650          | 185                          | 135                             | 1,28                                 |
| 3 G 50                           | 33,7          | 2.235          | 225                          | 169                             | 0,893                                |
| 3 G 70                           | 38,3          | 2.970          | 289                          | 211                             | 0,629                                |
| 3 G 95                           | 44,0          | 3.930          | 352                          | 250                             | 0,476                                |
| 3 G 120                          | 47,5          | 4.815          | 410                          | 292                             | 0,372                                |
| 3 G 150                          | 52,0          | 5.900          | 473                          | 335                             | 0,298                                |
| 3 G 185                          | 57,7          | 7.165          | 542                          | 378                             | 0,245                                |
| 4 G 1                            | 9,2           | 120            | 21                           | 10                              | 45,1                                 |
| 4 G 1,5                          | 10,4          | 160            | 26                           | 16                              | 30,7                                 |
| 4 G 2,5                          | 12,1          | 225            | 36                           | 20                              | 18,4                                 |

| Cross-section (mm <sup>2</sup> ) | Diameter (mm) | Weight (kg/km) | Fixed Inst. (A) <sup>1</sup> | Mobile Service (A) <sup>2</sup> | Voltage drop (V/A · km) <sup>3</sup> |
|----------------------------------|---------------|----------------|------------------------------|---------------------------------|--------------------------------------|
| 4 G 4                            | 14,0          | 320            | 49                           | 30                              | 11,4                                 |
| 4 G 6                            | 15,7          | 425            | 63                           | 37                              | 7,63                                 |
| 4 G 10                           | 21,4          | 775            | 86                           | 52                              | 4,42                                 |
| 4 G 16                           | 24,6          | 1.080          | 115                          | 69                              | 2,80                                 |
| 4 G 25                           | 29,5          | 1.610          | 149                          | 92                              | 1,80                                 |
| 4 G 35                           | 32,7          | 2.100          | 185                          | 114                             | 1,28                                 |
| 4 G 50                           | 37,7          | 2.865          | 225                          | 143                             | 0,893                                |
| 4 G 70                           | 42,3          | 3.795          | 289                          | 178                             | 0,629                                |
| 4 G 95                           | 48,4          | 4.995          | 352                          | 210                             | 0,476                                |
| 4 G 120                          | 53,0          | 6.110          | 410                          | 246                             | 0,372                                |
| 4 G 150                          | 58,0          | 7.565          | 473                          | 282                             | 0,298                                |
| 4 G 185                          | 64,0          | 9.180          | 542                          | 319                             | 0,245                                |
| 4 G 240                          | 72,0          | 11.940         | 641                          | 377                             | 0,185                                |
| 5 G 1                            | 9,9           | 145            | 21                           | 10                              | 45,1                                 |
| 5 G 1,5                          | 11,3          | 185            | 26                           | 16                              | 30,7                                 |
| 5 G 2,5                          | 13,5          | 280            | 36                           | 20                              | 18,4                                 |
| 5 G 4                            | 15,6          | 395            | 49                           | 30                              | 11,4                                 |
| 5 G 6                            | 17,7          | 530            | 63                           | 38                              | 7,63                                 |
| 5 G 10                           | 23,9          | 945            | 86                           | 54                              | 4,42                                 |
| 5 G 16                           | 27,0          | 1.320          | 115                          | 71                              | 2,80                                 |
| 5 G 25                           | 32,5          | 1.960          | 149                          | 94                              | 1,80                                 |
| 5 G 35                           | 35,8          | 2.545          | 185                          | 114                             | 1,28                                 |
| 5 G 50                           | 41,9          | 3.535          | 225                          | 143                             | 0,893                                |
| 5 G 70                           | 47,2          | 4.680          | 289                          | 178                             | 0,629                                |
| 5 G 95                           | 53,5          | 6.090          | 352                          | 210                             | 0,476                                |
| 5 G 120                          | 58,0          | 7.455          | 410                          | 246                             | 0,372                                |
| 5 G 150                          | 65,1          | 9.300          | 473                          | 282                             | 0,298                                |
| 5 G 185                          | 71,4          | 11.240         | 542                          | 319                             | 0,245                                |
| 7 G 1,5                          | 15,0          | 315            | 26                           | 16                              | 30,7                                 |
| 7 G 2,5                          | 17,1          | 435            | 36                           | 25                              | 18,4                                 |
| 7 G 4                            | 20,2          | 640            | 49                           | 34                              | 11,4                                 |
| 8 G 1,5                          | 15,5          | 350            | 26                           | 16                              | 30,7                                 |
| 8 G 2,5                          | 18,4          | 510            | 36                           | 25                              | 18,4                                 |
| 8 G 4                            | 21,8          | 740            | 49                           | 34                              | 11,4                                 |
| 10 G 2,5                         | 19,2          | 560            | 36                           | 25                              | 18,4                                 |
| 10 G 4                           | 22,8          | 830            | 49                           | 34                              | 11,4                                 |
| 12 G 1,5                         | 17,5          | 445            | 26                           | 16                              | 30,7                                 |
| 12 G 2,5                         | 20,6          | 650            | 36                           | 25                              | 18,4                                 |
| 12 G 4                           | 24,4          | 950            | 49                           | 34                              | 11,5                                 |
| 14 G 2,5                         | 21,7          | 745            | 36                           | 25                              | 18,4                                 |
| 16 G 1,5                         | 19,6          | 580            | 26                           | 16                              | 30,7                                 |
| 16 G 2,5                         | 22,5          | 845            | 36                           | 25                              | 18,4                                 |
| 18 G 1,5                         | 20,5          | 645            | 26                           | 16                              | 30,7                                 |
| 18 G 2,5                         | 23,6          | 920            | 36                           | 25                              | 18,4                                 |
| 19 G 1,5                         | 21,2          | 680            | 26                           | 16                              | 30,7                                 |
| 19 G 2,5                         | 25,1          | 1.005          | 36                           | 25                              | 18,4                                 |
| 24 G 1,5                         | 23,4          | 815            | 26                           | 16                              | 30,7                                 |
| 24 G 2,5                         | 27,3          | 1.190          | 36                           | 25                              | 18,4                                 |
| 27 G 1,5                         | 24,5          | 895            | 26                           | 16                              | 30,7                                 |
| 27 G 2,5                         | 28,7          | 1.315          | 36                           | 25                              | 18,4                                 |

<sup>1</sup>Reference method F for single-core and method E for multicore cables according to IEC 60364-5-52 in open air at 30°C ambient temperature. It is supposed a single-phase circuit.

<sup>2</sup> One cable in open air at 30°C ambient temperature according to EN 50565. For cables having 4 or 5 cores are supposed a three-phase circuit. For the rest of the cables are supposed a single-phase circuit.

<sup>3</sup> At 60°C conductor temperature,  $\cos \varphi = 1$  and single-phase circuit.

## SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

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|                         |     |     |     |     |     |     |     |     |    |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <b>Time (s)</b>         | 0,1 | 0,2 | 0,3 | 0,5 | 1   | 1,5 | 2   | 2,5 | 3  |
| <b>A/mm<sup>2</sup></b> | 452 | 320 | 261 | 202 | 143 | 117 | 101 | 90  | 83 |

## CORRECTION FACTORS TEMPERATURE

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|                           |    |      |      |      |      |      |
|---------------------------|----|------|------|------|------|------|
| <b>Air Temp (°C)</b>      | 30 | 35   | 40   | 45   | 50   | 55   |
| <b>Mobile service</b>     | 1  | 0,91 | 0,82 | 0,71 | 0,58 | 0,41 |
| <b>Fixed installation</b> | 1  | 0,96 | 0,91 | 0,87 | 0,82 | 0,76 |