

# HELUTHERM® 145 MULTI flexible, electron beam cross-linked, halogen-free



## Technical data

- Halogen-free control and connecting cable with increased heat resistance
- **Temperature range**  
flexing -35°C to +120°C  
fixed installation -55°C to +145°C  
in short-circuit +250°C
- **Nominal voltage**  
U<sub>0</sub>/U 450/750 V (up to 0,75 mm<sup>2</sup>)  
U<sub>0</sub>/U 600/1000 V (≥1 mm<sup>2</sup>)
- **Test voltage** 3500 V
- **Minimum bending radius**  
for fixed installation 4x cable Ø  
in operation to -30°C 12x cable Ø  
in operation to +60°C 8x cable Ø
- **Caloric load values**  
see Technical Informations
- **Power ratings table**  
see Technical Informations

## Cable construction

- Tinned Cu wires, according to DIN VDE 0295 class 5, BS 6360 cl. 5 and IEC 60228 class 5
- Core insulation of polyolefin-copolymer, electron beam cross-linked and halogen-free
- Colour coded to DIN VDE 0293-308 and as of 6 cores number coded
- For two cores: brown, blue
- Green-yellow earth core as of 3 cores
- Cores stranded in layers with optimal lay-length
- Polyolefin-Copolymer, electron beam cross-linked and halogen-free outer sheath
- Colour black
- Different insulation- and outer sheath in other colours available on request.

## Properties

- Halogen-free, no liberation of corrosive or toxic vapours
- Lower propagation of fire
- Good abrasion and notch resistance
- Good resistance to oils and weathering
- Resistant to UV radiation and ozone
- Resistant to soldering temperatures
- Thermal class B
- Are resistant to melting, even when in contact with a temperatures of between 300°C and 380°C, because of the electron-beam cross-linking for the insulation material
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers
- **Tests**  
**Flame test** to DIN VDE 0482 part 266-2/ HD 405.3, BS 4066 part 3/ EN 50266-2/ IEC 60332-3 (equivalent DIN VDE 0472 part 804 test method C)  
**Corrosiveness of combustion gases** according to DIN VDE 0482 part 267/ EN 50267-2-2/ IEC 60754-2 (equivalent DIN VDE 0472 part 813)  
**Halogen-free** according to DIN VDE 0482 part 267/ EN 50267-2-1/ IEC 60754-1 (equivalent DIN VDE 0472 part 815)  
**Smoke density** to VDE 0482 part 268-1 and 2, test method C, IEC 61034-1/61034-2, HD 606 and BS 7622 part 1 and 2 (DIN VDE 0472 part 816)

## Note

- G = with green-yellow earth core

## Application

These halogen-free, electron-beam cross-linked and temperature resistant wiring and control cables with enhanced fire-behaviour properties are used for wiring up the lighting fixtures, heaters, electric machines (temperature class B), switching systems and distribution switchboards. A very long service life is also given on account of their excellent high-temperature stability.

These cables exhibit good resistance to weathering as well as being very stable to temperature, moisture, ozone and UV radiation. These cables are therefore mainly used for traffic control systems and diverse outdoor applications. The development of smoke is low and no corrosive gases are liberated during combustion of these halogen-free cables in case of fire. The risk of toxic fumes is considerably less in the event of fire because the caloric load values is lower. Precious time can thus be won for a disciplined evacuation, and unnecessary loss of life can be prevented. The extent of the damage to costly control and monitoring systems and the concrete and steel structures of buildings and plant due to fire is reduced by this. Injuries to persons and damage to materials can be prevented. A lower conductor cross-section is possible in certain circumstances because of the high thermal load and thus savings in the space and weight required can be made. These wiring and control cables provide a significant contribution in safety engineering and environmental protection.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

| Part No. | No. cores x cross-sec. mm <sup>2</sup> | Outer ø ca. mm | Cop. weight kg / km | Weight ca. kg / km | AWG-No. |
|----------|--|----------------|---------------------|--------------------|---------|
| 53376    | 1 x 0,25                               | 2,8            | 2,4                 | 11,4               | 24      |
| 53377    | 2 x 0,25                               | 4,6            | 4,8                 | 28,7               | 24      |
| 53378    | 3 G 0,25                               | 4,9            | 7,2                 | 33,7               | 24      |
| 53379    | 4 G 0,25                               | 5,5            | 9,6                 | 41,8               | 24      |
| 53380    | 5 G 0,25                               | 5,8            | 12,0                | 47,0               | 24      |
| 53381    | 6 G 0,25                               | 6,5            | 14,4                | 58,0               | 24      |
| 53382    | 7 G 0,25                               | 6,9            | 16,8                | 64,0               | 24      |

| Part No. | No. cores x cross-sec. mm <sup>2</sup> | Outer ø ca. mm | Cop. weight kg / km | Weight ca. kg / km | AWG-No. |
|----------|--|----------------|---------------------|--------------------|---------|
| 53383    | 8 G 0,25                               | 7,3            | 19,2                | 71,0               | 24      |
| 53384    | 10 G 0,25                              | 8,1            | 24,0                | 84,0               | 24      |
| 53385    | 12 G 0,25                              | 8,1            | 28,8                | 90,0               | 24      |
| 53386    | 14 G 0,25                              | 8,6            | 33,6                | 102,0              | 24      |
| 53387    | 16 G 0,25                              | 8,9            | 38,4                | 114,0              | 24      |
| 53388    | 19 G 0,25                              | 10,1           | 45,6                | 132,0              | 24      |
| 53389    | 21 G 0,25                              | 10,5           | 50,4                | 145,0              | 24      |

Dimensions and specifications may be changed without prior notice.

Continuation ►

# HELUTHERM® 145 MULTI flexible, electron beam cross-linked, halogen-free

| Part No. | No. cores x cross-sec. mm² | Outer ø ca. mm | Cop. weight kg / km | Weight ca. kg / km | AWG-No. |
|----------|----------------------------|----------------|---------------------|--------------------|---------|
| 53391    | 1 x 0,5                    | 3,2            | 4,8                 | 15,7               | 20      |
| 53392    | 2 x 0,5                    | 5,3            | 9,6                 | 39,6               | 20      |
| 53393    | 3 G 0,5                    | 5,7            | 14,4                | 48,1               | 20      |
| 53394    | 4 G 0,5                    | 6,2            | 19,2                | 51,0               | 20      |
| 53395    | 5 G 0,5                    | 7,0            | 24,0                | 64,0               | 20      |
| 53396    | 6 G 0,5                    | 7,4            | 28,8                | 74,0               | 20      |
| 53397    | 7 G 0,5                    | 8,1            | 33,6                | 88,0               | 20      |
| 53398    | 8 G 0,5                    | 9,0            | 38,4                | 102,0              | 20      |
| 53399    | 10 G 0,5                   | 10,0           | 48,0                | 123,0              | 20      |
| 53400    | 12 G 0,5                   | 10,0           | 57,6                | 135,0              | 20      |
| 53401    | 14 G 0,5                   | 10,5           | 67,2                | 153,0              | 20      |
| 53402    | 16 G 0,5                   | 11,3           | 76,8                | 176,0              | 20      |
| 53403    | 19 G 0,5                   | 12,4           | 91,2                | 213,0              | 20      |
| 53404    | 21 G 0,5                   | 13,0           | 100,8               | 234,0              | 20      |
| 53405    | 24 G 0,5                   | 14,0           | 115,2               | 263,0              | 20      |
| 53406    | 25 G 0,5                   | 14,0           | 120,0               | 269,0              | 20      |
| 53407    | 27 G 0,5                   | 14,0           | 129,6               | 280,0              | 20      |
| 53408    | 30 G 0,5                   | 14,6           | 144,0               | 311,0              | 20      |
| 53409    | 33 G 0,5                   | 15,4           | 158,4               | 343,0              | 20      |
| 53410    | 37 G 0,5                   | 16,5           | 177,6               | 392,0              | 20      |
| 53411    | 1 x 0,75                   | 3,5            | 7,2                 | 19,8               | 18      |
| 53412    | 2 x 0,75                   | 6,0            | 14,4                | 40,0               | 18      |
| 53413    | 3 G 0,75                   | 6,4            | 21,6                | 53,0               | 18      |
| 53414    | 4 G 0,75                   | 7,0            | 28,8                | 69,0               | 18      |
| 53415    | 5 G 0,75                   | 7,9            | 36,0                | 86,0               | 18      |
| 53416    | 6 G 0,75                   | 8,5            | 43,2                | 101,0              | 18      |
| 53417    | 7 G 0,75                   | 9,1            | 50,4                | 117,0              | 18      |
| 53418    | 8 G 0,75                   | 10,3           | 57,6                | 140,0              | 18      |
| 53419    | 10 G 0,75                  | 11,4           | 72,0                | 167,0              | 18      |
| 53420    | 12 G 0,75                  | 11,4           | 86,4                | 183,0              | 18      |
| 53421    | 14 G 0,75                  | 12,1           | 100,8               | 212,0              | 18      |
| 53422    | 16 G 0,75                  | 12,8           | 115,2               | 239,0              | 18      |
| 53423    | 19 G 0,75                  | 14,1           | 136,8               | 290,0              | 18      |
| 53424    | 21 G 0,75                  | 14,9           | 151,2               | 323,0              | 18      |
| 53425    | 24 G 0,75                  | 16,1           | 172,8               | 364,0              | 18      |
| 53426    | 25 G 0,75                  | 16,1           | 180,0               | 371,0              | 18      |
| 53427    | 27 G 0,75                  | 16,1           | 194,4               | 387,0              | 18      |
| 53428    | 30 G 0,75                  | 16,8           | 216,0               | 429,0              | 18      |
| 53429    | 33 G 0,75                  | 17,5           | 237,6               | 468,0              | 18      |
| 53430    | 37 G 0,75                  | 19,1           | 266,4               | 550,0              | 18      |
| 53431    | 1 x 1                      | 3,9            | 9,6                 | 25,2               | 17      |
| 53432    | 2 x 1                      | 6,6            | 19,2                | 50,0               | 17      |
| 53433    | 3 G 1                      | 7,0            | 28,8                | 66,0               | 17      |
| 53434    | 4 G 1                      | 7,7            | 38,4                | 86,0               | 17      |
| 53435    | 5 G 1                      | 8,4            | 48,0                | 106,0              | 17      |
| 53436    | 6 G 1                      | 9,2            | 57,6                | 127,0              | 17      |
| 53437    | 7 G 1                      | 10,2           | 67,2                | 155,0              | 17      |
| 53438    | 8 G 1                      | 11,3           | 76,8                | 187,0              | 17      |
| 53439    | 10 G 1                     | 12,5           | 96,0                | 214,0              | 17      |
| 53440    | 12 G 1                     | 12,5           | 115,2               | 230,0              | 17      |
| 53441    | 14 G 1                     | 13,2           | 134,4               | 266,0              | 17      |
| 53442    | 16 G 1                     | 13,9           | 153,6               | 301,0              | 17      |
| 53443    | 19 G 1                     | 15,7           | 182,4               | 377,0              | 17      |
| 53444    | 21 G 1                     | 16,5           | 201,6               | 419,0              | 17      |
| 53445    | 24 G 1                     | 17,7           | 230,4               | 464,0              | 17      |
| 53446    | 25 G 1                     | 17,7           | 240,0               | 472,0              | 17      |
| 53447    | 27 G 1                     | 17,7           | 259,2               | 488,0              | 17      |
| 53448    | 30 G 1                     | 18,3           | 288,0               | 536,0              | 17      |
| 53449    | 33 G 1                     | 19,4           | 316,8               | 605,0              | 17      |
| 53450    | 37 G 1                     | 21,2           | 355,2               | 690,0              | 17      |
| 53451    | 1 x 1,5                    | 4,3            | 14,4                | 32,3               | 16      |
| 53452    | 2 x 1,5                    | 7,8            | 28,8                | 69,0               | 16      |
| 53453    | 3 G 1,5                    | 8,3            | 43,2                | 93,0               | 16      |
| 53454    | 4 G 1,5                    | 9,1            | 57,6                | 120,0              | 16      |
| 53455    | 5 G 1,5                    | 10,1           | 72,0                | 152,0              | 16      |
| 53456    | 6 G 1,5                    | 11,2           | 86,4                | 187,0              | 16      |
| 53457    | 7 G 1,5                    | 12,1           | 100,8               | 222,0              | 16      |
| 53458    | 8 G 1,5                    | 13,5           | 115,2               | 263,0              | 16      |
| 53459    | 10 G 1,5                   | 15,0           | 144,0               | 308,0              | 16      |
| 53460    | 12 G 1,5                   | 15,0           | 172,8               | 330,0              | 16      |
| 53461    | 14 G 1,5                   | 15,9           | 201,6               | 383,0              | 16      |
| 53462    | 16 G 1,5                   | 16,8           | 230,4               | 438,0              | 16      |
| 53463    | 19 G 1,5                   | 19,0           | 273,6               | 554,0              | 16      |
| 53464    | 21 G 1,5                   | 20,0           | 302,4               | 614,0              | 16      |
| 53465    | 24 G 1,5                   | 21,7           | 345,6               | 791,0              | 16      |
| 53466    | 25 G 1,5                   | 21,7           | 360,0               | 701,0              | 16      |
| 53467    | 27 G 1,5                   | 21,7           | 388,8               | 723,0              | 16      |
| 53468    | 30 G 1,5                   | 22,5           | 432,0               | 796,0              | 16      |
| 53469    | 33 G 1,5                   | 23,5           | 475,2               | 880,0              | 16      |
| 53470    | 37 G 1,5                   | 25,5           | 532,8               | 1026,0             | 16      |

| Part No. | No. cores x cross-sec. mm² | Outer ø ca. mm | Cop. weight kg / km | Weight ca. kg / km | AWG-No. |
|----------|----------------------------|----------------|---------------------|--------------------|---------|
| 53471    | 1 x 2,5                    | 5,0            | 24,0                | 46,9               | 14      |
| 53472    | 2 x 2,5                    | 9,1            | 48,0                | 99,0               | 14      |
| 53473    | 3 G 2,5                    | 9,9            | 72,0                | 140,0              | 14      |
| 53474    | 4 G 2,5                    | 10,9           | 96,0                | 183,0              | 14      |
| 53475    | 5 G 2,5                    | 12,2           | 120,0               | 231,0              | 14      |
| 53476    | 6 G 2,5                    | 13,3           | 144,0               | 280,0              | 14      |
| 53477    | 7 G 2,5                    | 14,6           | 168,0               | 336,0              | 14      |
| 53478    | 8 G 2,5                    | 16,2           | 192,0               | 397,0              | 14      |
| 53479    | 10 G 2,5                   | 17,9           | 240,0               | 460,0              | 14      |
| 53480    | 12 G 2,5                   | 17,9           | 288,0               | 500,0              | 14      |
| 53481    | 14 G 2,5                   | 19,2           | 336,0               | 593,0              | 14      |
| 53482    | 16 G 2,5                   | 20,4           | 384,0               | 675,0              | 14      |
| 53483    | 19 G 2,5                   | 22,8           | 456,0               | 835,0              | 14      |
| 53484    | 21 G 2,5                   | 24,2           | 504,0               | 939,0              | 14      |
| 53485    | 24 G 2,5                   | 26,1           | 576,0               | 1047,0             | 14      |
| 53486    | 25 G 2,5                   | 26,1           | 600,0               | 1067,0             | 14      |
| 53487    | 27 G 2,5                   | 26,1           | 648,0               | 1107,0             | 14      |
| 53488    | 30 G 2,5                   | 27,0           | 720,0               | 1219,0             | 14      |
| 53489    | 33 G 2,5                   | 28,4           | 792,0               | 1349,0             | 14      |
| 53490    | 37 G 2,5                   | 30,8           | 888,0               | 1565,0             | 14      |
| 53491    | 1 x 4                      | 5,6            | 38,4                | 96,0               | 12      |
| 53492    | 2 x 4                      | 10,7           | 76,8                | 159,0              | 12      |
| 53493    | 3 G 4                      | 11,5           | 115,2               | 197,0              | 12      |
| 53494    | 4 G 4                      | 12,8           | 153,6               | 260,0              | 12      |
| 53495    | 5 G 4                      | 14,2           | 192,0               | 329,0              | 12      |
| 53496    | 6 G 4                      | 15,4           | 230,4               | 398,0              | 12      |
| 53497    | 7 G 4                      | 17,0           | 268,8               | 478,0              | 12      |
| 53498    | 8 G 4                      | 18,2           | 307,2               | 553,0              | 12      |
| 53499    | 10 G 4                     | 20,6           | 384,0               | 663,0              | 12      |
| 53500    | 12 G 4                     | 20,6           | 460,8               | 725,0              | 12      |
| 53501    | 14 G 4                     | 21,0           | 537,6               | 797,0              | 12      |
| 53502    | 1 x 6                      | 6,2            | 57,6                | 88,0               | 10      |
| 53503    | 2 x 6                      | 12,1           | 115,2               | 216,0              | 10      |
| 53504    | 3 G 6                      | 12,9           | 172,8               | 285,0              | 10      |
| 53505    | 4 G 6                      | 14,4           | 230,4               | 375,0              | 10      |
| 53506    | 5 G 6                      | 15,8           | 288,0               | 465,0              | 10      |
| 53507    | 6 G 6                      | 17,4           | 345,6               | 544,0              | 10      |
| 53508    | 7 G 6                      | 19,4           | 403,2               | 664,0              | 10      |
| 53509    | 1 x 10                     | 7,9            | 96,0                | 144,0              | 8       |
| 53510    | 2 x 10                     | 15,4           | 192,0               | 351,0              | 8       |
| 53511    | 3 G 10                     | 16,5           | 288,0               | 475,0              | 8       |
| 53512    | 4 G 10                     | 18,6           | 384,0               | 630,0              | 8       |
| 53513    | 5 G 10                     | 20,4           | 480,0               | 782,0              | 8       |
| 53514    | 6 G 10                     | 22,6           | 576,0               | 914,0              | 8       |
| 53515    | 7 G 10                     | 24,7           | 672,0               | 1092,0             | 8       |
| 53516    | 1 x 16                     | 8,9            | 153,6               | 205,0              | 6       |
| 53517    | 2 x 16                     | 17,5           | 307,2               | 495,0              | 6       |
| 53518    | 3 G 16                     | 19,1           | 460,8               | 691,0              | 6       |
| 53519    | 4 G 16                     | 21,2           | 614,4               | 905,0              | 6       |
| 53520    | 5 G 16                     | 23,6           | 768,0               | 1129,0             | 6       |
| 53521    | 6 G 16                     | 25,9           | 921,6               | 1327,0             | 6       |
| 53522    | 7 G 16                     | 28,6           | 1075,2              | 1590,0             | 6       |
| 53523    | 1 x 25                     | 11,5           | 240,0               | 336,0              | 4       |
| 53524    | 2 x 25                     | 22,7           | 480,0               | 833,0              | 4       |
| 53525    | 3 G 25                     | 24,4           | 720,0               | 1139,0             | 4       |
| 53526    | 4 G 25                     | 27,3           | 960,0               | 1489,0             | 4       |
| 53527    | 5 G 25                     | 30,4           | 1200,0              | 1863,0             | 4       |
| 53528    | 6 G 25                     | 33,6           | 1440,0              | 2275,0             | 4       |
| 53529    | 7 G 25                     | 37,0           | 1680,0              | 2633,0             | 4       |
| 53530    | 1 x 35                     | 12,8           | 336,0               | 454,0              | 2       |
| 53531    | 2 x 35                     | 25,1           | 672,0               | 1104,0             | 2       |
| 53532    | 3 G 35                     | 27,0           | 1008,0              | 1513,0             | 2       |
| 53533    | 4 G 35                     | 30,2           | 1344,0              | 1992,0             | 2       |
| 53534    | 5 G 35                     | 33,4           | 1680,0              | 2488,0             | 2       |
| 53535    | 1 x 50                     | 15,3           | 480,0               | 638,0              | 1       |
| 53536    | 2 x 50                     | 30,3           | 960,0               | 1573,0             | 1       |
| 53537    | 3 G 50                     | 32,5           | 1440,0              | 2154,0             | 1       |
| 53538    | 4 G 50                     | 36,6           | 1920,0              | 2819,0             | 1       |
| 53539    | 5 G 50                     | 40,3           | 2400,0              | 3505,0             | 1       |
| 53540    | 1 x 70                     | 17,4           | 672,0               | 875,0              | 2/0     |
| 53541    | 2 x 70                     | 34,7           | 1344,0              | 2157,0             | 2/0     |
| 53542    | 3 G 70                     | 37,2           | 2016,0              | 2946,0             | 2/0     |
| 53543    | 4 G 70                     | 41,8           | 2688,0              | 3888,0             | 2/0     |
| 53544    | 5 G 70                     | 46,6           | 3360,0              | 4864,0             | 2/0     |
| 53545    | 1 x 95                     | 20,1           | 912,0               | 1149,0             | 3/0     |
| 53546    | 2 x 95                     | 39,5           | 1824,0              | 2763,0             | 3/0     |
| 53547    | 3 G 95                     | 42,6           | 2736,0              | 3855,0             | 3/0     |
| 53548    | 4 G 95                     | 47,7           | 3648,0              | 5052,0             | 3/0     |
| 53549    | 5 G 95                     | 52,9           | 4560,0              | 6307,0             | 3/0     |

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