## HELUTHERM ${ }^{\circledR} 145$ MULTI flexible, electron beam cross-linked, halogen-free meter marking



## 기술사양

- 고 내열성 할로겐 불포함 연결용 케이블
- 온도범위

이송시 $-35^{\circ} \mathrm{C} \sim+120^{\circ} \mathrm{C}$ 고정설치시 $-55^{\circ} \mathrm{C} \sim+145^{\circ} \mathrm{C}$ (짧은 회로\{Short Circuit\} $+250^{\circ} \mathrm{C}$ )

- 정격전압

Uo/U 450/750V(0.75mm² 이하)
$\mathrm{Uo} / \mathrm{U} 600 / 1000 \mathrm{~V}\left(1 \mathrm{~mm}^{2}\right.$ 이상)

- 시험전압 $3,500 \mathrm{~V}$
- 최소 곡률 반경

고정설치시 $4 \times$ cableø
$-30^{\circ} \mathrm{C}$ 작동시 $12 \times$ cableø
$+60^{\circ} \mathrm{C}$ 작동시 $8 \times$ cableø

- Cabic Load Values
-Technical Information table 참조
- Power ratings table
-Technical Information table 참조


## 케이블 구조

- 주석도금 구리선, DIN VDE 0295 cl 5 BS 6360 d5 및 IEC 60228 d. 5 규격
- 코아 절연체, polyolein 혼성 중합체, 전자빔 교차 결합용
- 코아 DIN VDE 0293-308 규격 및 6코아 번 호 코드
- 3 코아 이상은 황녹색 접지선 포함
- 2 코아는 갈색, 청색
- 코아 최적피치는 적층 연선
- polyolefin 혼성 중합체, 전자빔 교차 결합용, 할로겐 불포함 외피
- 색상은 흑색
- 2 코아는 황-녹색 접지선 불포함
- 각기 다른 절연 및 외피 색상선택 가능


## 특징

- 검사

발화검사 DIN VDE 0482 part 266-2/HD 405.3,BS 4066 part 3/EN 50266-2/IEC 60332-3(DIN VDE 0472 part 804 test method C와 유사)
연소가스 부식성 DIN VDE 0482 part 267/EN 50266-2/IEC 60332-3(DIN VDE 0472 part 804 test method C와 유사)
할로겐 불포함 DIN VDE 0482 part 267/EN 50267-2-1/IEC 60754-1 (DIN VDE 0472 part 815와 유사)
연기농도 VDE 0482 part 268-1 and 2, test method C, $\mathbb{E C}$ 61034-1/61034-2, HD 606 and BS 7622 part 1 and 2(DIN VDE 0472 part 816

- 제조공정에 사용한 재질은 카드뮴, 실리콘등을 함유하지 않은 소재로 락커의 습윤(濕潤) 특성 을 저해하는 물질 없음


## 용도

- 본 할로겐 불포함 전자빔 교차 결합용 케이블은 장비, 설비, 기계의 조명설비, 전열기, 전자기기(B급온도), 스위치 시스템, 배전기 등에 적합하며, 석회 내 외 부 설치, 덕 밀폐 설치뿐만 아니라 교통신호 시스템 및 옥외 용도에 적합함. 본 케이블은 온도, 습도, 오존 및 직사광선에 내구성이 강하여 신호 제어 시스템 및 다양한 외부 환경에서 사용됨. 화재 시 부식 가스가 연소시 할로겐 불포함 케이블에서 배출되기 때문에 연기로 인한 위험이 적음. 화재 시 caloric lœad value가 상대적으로 낮기 때문에 독가스 위험이 적어서 피난 및 인명피해를 줄이는 데 효율적임. 화재로 인한 금전상 손실 및 제어 시스템과 빌딩 • 공장의 콘크리트나 철강구조의 피해를 줄일 수 있음. 인명피해 및 재산피해를 줄여줌. 보다 낮은 교차 결합용 도체는 high thermal bad로 특정 상황에서 사용가 능하며 공간 및 무게를 조절해줌. 본 케이블은 안전 엔지니어링 및 환경보호에 큰 도움이 됨.
- CE $=$ The product is conformed with the EC Low $-\vee$ oltage Directive 2006/95/EG

| Part No. | No.cores x cross-sec. $\mathbf{m m}^{\mathbf{2}}$ | Outer $\varnothing$ ca. mm | Cop. weight $\mathbf{k g} / \mathbf{~ k m}$ | Weight <br> ca. $\mathbf{k g} / \mathbf{k m}$ | AWG-No. | Part No. | No.cores x cross-sec. $\mathbf{m m}^{\mathbf{2}}$ | Outer $\varnothing$ <br> ca. mm | cop. weight $\mathbf{k g} / \mathbf{k m}$ | Weight ca. $\mathrm{kg} / \mathrm{km}$ | AWG-No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 53376 | $1 \times 0,25$ | 2,8 | 2,4 | 11,4 | 24 | 53383 | 8 C 0,25 | 7,3 | 19,2 | 71,0 | 24 |
| 53377 | $2 \times 0,25$ | 4,6 | 4,8 | 28,7 | 24 | 53384 | 10 C0,25 | 8,1 | 24,0 | 84,0 | 24 |
| 53378 | 3 C 0,25 | 4,9 | 7,2 | 33,7 | 24 | 53385 | 12 C 0,25 | 8,1 | 28,8 | 90,0 | 24 |
| 53379 | 4 C 0,25 | 5,5 | 9,6 | 41,8 | 24 | 53386 | 14 C0,25 | 8,6 | 33,6 | 102,0 | 24 |
| 53380 | 5 ¢ 0,25 | 5,8 | 12,0 | 47,0 | 24 | 53387 | 16 C 0,25 | 8,9 | 38,4 | 114,0 | 24 |
| 53381 | 6 C0,25 | 6,5 | 14,4 | 58,0 | 24 | 53388 | 19 C0,25 | 10,1 | 45,6 | 132,0 | 24 |
| 53382 | 7 C 0,25 | 6,9 | 16,8 | 64,0 | 24 | 53389 | 21 C 0,25 | 10,5 | 50,4 | 145,0 | 24 |

## HELUTHERM® 145 MULTI <br> flexible, electron beam cross-linked, halogen-free <br> meter marking

| Part No. | No.cores x cross-sec. mm ${ }^{2}$ | Outer $\varnothing$ <br> ca. mm | cop. weight kg / km | Weight <br> ca. $\mathrm{kg} / \mathrm{km}$ | AWG-No. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 53391 | $1 \times 0,5$ | 3,2 | 4,8 | 15,7 | 20 |
| 53392 | $2 \times 0,5$ | 5,3 | 9,6 | 39,6 | 20 |
| 53393 | $3 \mathrm{C0,5}$ | 5.7 | 14,4 | 48,1 | 20 |
| 53394 | 4 C0,5 | 6,2 | 19,2 | 51,0 | 20 |
| 53395 | $5 \mathrm{C} 0,5$ | 7,0 | 24,0 | 64,0 | 20 |
| 53396 | $6 \mathrm{Co,5}$ | 7,4 | 28,8 | 74,0 | 20 |
| 53397 | 760,5 | 8,1 | 33,6 | 88,0 | 20 |
| 53398 | 8G0,5 | 9,0 | 38,4 | 102,0 | 20 |
| 53399 | 10 C 0,5 | 10,0 | 48,0 | 123,0 | 20 |
| 53400 | $12 \mathrm{C} 0,5$ | 10,0 | 57,6 | 135,0 | 20 |
| 53401 | 14 C0,5 | 10,5 | 67,2 | 153,0 | 20 |
| 53402 | 16 C 0,5 | 11,3 | 76,8 | 176,0 | 20 |
| 53403 | 19 C 0,5 | 12,4 | 91,2 | 213,0 | 20 |
| 53404 | 21 C 0,5 | 13,0 | 100,8 | 234,0 | 20 |
| 53405 | 24 C0,5 | 14,0 | 115,2 | 263,0 | 20 |
| 53406 | 25 C 0,5 | 14,0 | 120,0 | 269,0 | 20 |
| 53407 | 27 CO 0 | 14,0 | 129,6 | 280,0 | 20 |
| 53408 | 30 C 0,5 | 14,6 | 144,0 | 311,0 | 20 |
| 53409 | 33 C0,5 | 15,4 | 158,4 | 343,0 | 20 |
| 53410 | 37 C 0,5 | 16,5 | 177,6 | 392,0 | 20 |
| 53411 | $1 \times 0,75$ | 3,5 | 7,2 | 19,8 | 18 |
| 53412 | $2 \times 0,75$ | 6,0 | 14,4 | 40,0 | 18 |
| 53413 | 3 Cop 75 | 6,4 | 21,6 | 53,0 | 18 |
| 53414 | $4 \mathrm{Co,75}$ | 7,0 | 28,8 | 69,0 | 18 |
| 53415 | 5 C 0,75 | 7,9 | 36,0 | 86,0 | 18 |
| 53416 | 6 C0,75 | 8,5 | 43,2 | 101,0 | 18 |
| 53417 | 7 C 0,75 | 9,1 | 50,4 | 117,0 | 18 |
| 53418 | 8 C 0,75 | 10,3 | 57,6 | 140,0 | 18 |
| 53419 | 10 c 0,75 | 11,4 | 72,0 | 167,0 | 18 |
| 53420 | 12 G 0,75 | 11,4 | 86,4 | 183,0 | 18 |
| 53421 | 14 G0,75 | 12,1 | 100,8 | 212,0 | 18 |
| 53422 | 16 C0,75 | 12,8 | 115,2 | 239,0 | 18 |
| 53423 | 19 C 0,75 | 14,1 | 136,8 | 290,0 | 18 |
| 53424 | 21 c 0,75 | 14,9 | 151,2 | 323,0 | 18 |
| 53425 | 24 G0,75 | 16,1 | 172,8 | 364,0 | 18 |
| 53426 | 25 ¢ 0,75 | 16,1 | 180,0 | 371,0 | 18 |
| 53427 | 27 C 0,75 | 16,1 | 194,4 | 387,0 | 18 |
| 53428 | 30 c 0,75 | 16,8 | 216,0 | 429,0 | 18 |
| 53429 | 33 G0,75 | 17,5 | 237,6 | 468,0 | 18 |
| 53430 | 37 C 0,75 | 19,1 | 266,4 | 550,0 | 18 |
| 53431 | $1 \times 1$ | 3,9 | 9,6 | 25,2 | 17 |
| 53432 | $2 \times 1$ | 6,6 | 19,2 | 50,0 | 17 |
| 53433 | 3 C 1 | 7,0 | 28,8 | 66,0 | 17 |
| 53434 | 4 C 1 | 7,7 | 38,4 | 86,0 | 17 |
| 53435 | 5 C 1 | 8,4 | 48,0 | 106,0 | 17 |
| 53436 | 6 C 1 | 9,2 | 57,6 | 127,0 | 17 |
| 53437 | 761 | 10,2 | 67,2 | 155,0 | 17 |
| 53438 | 8 G 1 | 11,3 | 76,8 | 187,0 | 17 |
| 53439 | 10 C 1 | 12,5 | 96,0 | 214,0 | 17 |
| 53440 | 12 C 1 | 12,5 | 115,2 | 230,0 | 17 |
| 53441 | 14 C 1 | 13,2 | 134,4 | 266,0 | 17 |
| 53442 | 16 C 1 | 13,9 | 153,6 | 301,0 | 17 |
| 53443 | 19 C 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 C 1 | 17,7 | 259,2 | 488,0 | 17 |
| 53448 | 30 C 1 | 18,3 | 288,0 | 536,0 | 17 |
| 53449 | 33 C 1 | 19,4 | 316,8 | 605,0 | 17 |
| 53450 | 37 G 1 | 21,2 | 355,2 | 690,0 | 17 |
| 53451 | $1 \times 1,5$ | 4,3 | 14,4 | 32,3 | 16 |
| 53452 | $2 \times 1,5$ | 7,8 | 28,8 | 69,0 | 16 |
| 53453 | $3 \mathrm{C} 1,5$ | 8,3 | 43,2 | 93,0 | 16 |
| 53454 | $4 \mathrm{C} 1,5$ | 9,1 | 57,6 | 120,0 | 16 |
| 53455 | 5 C 1,5 | 10,1 | 72,0 | 152,0 | 16 |
| 53456 | 6 C 1,5 | 11,2 | 86,4 | 187,0 | 16 |
| 53457 | $7 \mathrm{C} 1,5$ | 12,1 | 100,8 | 222,0 | 16 |
| 53458 | 8 C 1.5 | 13,5 | 115,2 | 263,0 | 16 |
| 53459 | $10 \mathrm{C} 1,5$ | 15,0 | 144,0 | 308,0 | 16 |
| 53460 | $12 \mathrm{C} 1,5$ | 15,0 | 172,8 | 330,0 | 16 |
| 53461 | 14 C 1,5 | 15,9 | 201,6 | 383,0 | 16 |
| 53462 | 16 C 1,5 | 16,8 | 230,4 | 438,0 | 16 |
| 53463 | $19 \mathrm{C} 1,5$ | 19,0 | 273,6 | 554,0 | 16 |
| 53464 | $21 \mathrm{C} 1,5$ | 20,0 | 302,4 | 614,0 | 16 |
| 53465 | $24 \mathrm{C} 1,5$ | 21,7 | 345,6 | 791,0 | 16 |
| 53466 | 25 C 1,5 | 21,7 | 360,0 | 701,0 | 16 |
| 53467 | 27 C 1,5 | 21,7 | 388,8 | 723,0 | 16 |
| 53468 | $30 \mathrm{C} 1,5$ | 22,5 | 432,0 | 796,0 | 16 |
| 53469 | $33 \mathrm{C} 1,5$ | 23,5 | 475,2 | 880,0 | 16 |
| 53470 | 37 C 1,5 | 25,5 | 532,8 | 1026,0 | 16 |


| rt | No.cores x cross-sec. $\mathbf{m m}^{2}$ | Outer $\varnothing$ ca. mm | cop. weight kg / km | Weight ca. $\mathrm{kg} / \mathrm{km}$ | AWG-No |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 53471 | $1 \times 2,5$ | 5,0 | 24,0 | 46,9 | 14 |
| 53472 | $2 \times 2,5$ | 9,1 | 48,0 | 99,0 | 14 |
| 53473 | $3 \mathrm{C} 2,5$ | 9,9 | 72,0 | 140,0 | 14 |
| 53474 | $4 \mathrm{C} 2,5$ | 10,9 | 96,0 | 183,0 | 14 |
| 53475 | 5 C 2,5 | 12,2 | 120,0 | 231,0 | 14 |
| 53476 | 6 C 2,5 | 13,3 | 144,0 | 280,0 | 14 |
| 53477 | 7 C 2,5 | 14,6 | 168,0 | 336,0 | 14 |
| 53478 | $8 \mathrm{C} 2,5$ | 16,2 | 192,0 | 397,0 | 14 |
| 53479 | 10 C 2,5 | 17,9 | 240,0 | 460,0 | 14 |
| 53480 | 12 C 2,5 | 17,9 | 288,0 | 500,0 | 14 |
| 53481 | 14 C 2,5 | 19,2 | 336,0 | 593,0 | 14 |
| 53482 | 16 C 2,5 | 20,4 | 384,0 | 675,0 | 14 |
| 53483 | 19 C 2,5 | 22,8 | 456,0 | 835,0 | 14 |
| 53484 | 21 C 2,5 | 24,2 | 504,0 | 939,0 | 14 |
| 53485 | 24 C 2,5 | 26,1 | 576,0 | 1047,0 | 14 |
| 53486 | 25 C 2,5 | 26,1 | 600,0 | 1067,0 | 14 |
| 53487 | 27 C 2,5 | 26,1 | 648,0 | 1107,0 | 14 |
| 53488 | $30 \mathrm{C} 2,5$ | 27,0 | 720,0 | 1219,0 | 14 |
| 53489 | 33 C 2,5 | 28,4 | 792,0 | 1349,0 | 14 |
| 53490 | 37 C 2,5 | 30,8 | 888,0 | 1565,0 | 14 |


| 53491 | $1 \times 4$ | 5,6 | 38,4 | 96,0 | 12 |
| :--- | :--- | ---: | ---: | ---: | ---: |
| 53492 | $2 \times 4$ | 1,7 | 76,8 | 159,0 | 12 |
| 53493 | 3 C 4 | 11,5 | 115,2 | 197,0 | 12 |
| 53494 | 4 C | 12,8 | 153,6 | 260,0 | 12 |
| 53495 | 5 C 4 | 1,2 | 192,0 | 329,0 | 12 |
| 53496 | 6 C 4 | 15,4 | 230,4 | 398,0 | 12 |
| 53497 | 7 C 4 | 17,0 | 288,8 | 478,0 | 12 |
| 53498 | 8 C 4 | 18,2 | 307,2 | 553,0 | 12 |
| 53499 | 10 C 4 | 20,6 | 384,0 | 663,0 | 12 |
| 53500 | 12 C 4 | 20,6 | 460,8 | 725,0 | 12 |
| 53501 | 14 C 4 | 21,0 | 537,6 | 797,0 | 12 |


| 53502 | $1 \times 6$ | 6,2 | 57,6 | 88,0 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 53503 | $2 \times 6$ | 12,1 | 115,2 | 216,0 | 10 |
| 53504 | 3 C 6 | 12,9 | 172,8 | 285,0 | 10 |
| 53505 | 4 C 6 | 14,4 | 230,4 | 375,0 | 10 |
| 53506 | 506 | 15,8 | 288,0 | 465,0 | 10 |
| 53507 | 606 | 17,4 | 345,6 | 544,0 | 10 |
| 53508 | 766 | 19,4 | 403,2 | 664,0 | 10 |
| 53509 | $1 \times 10$ | 7,9 | 96,0 | 144,0 | 8 |
| 53510 | $2 \times 10$ | 15,4 | 192,0 | 351,0 | 8 |
| 53511 | 3 C 10 | 16,5 | 288,0 | 475,0 | 8 |
| 53512 | 4 C 10 | 18,6 | 384,0 | 630,0 | 8 |
| 53513 | 5 C 10 | 20,4 | 480,0 | 782,0 | 8 |
| 53514 | 6 C 10 | 22,6 | 576,0 | 914,0 | 8 |
| 53515 | 7610 | 24,7 | 672,0 | 1092,0 | 8 |


| 53516 | $1 \times 16$ | 8,9 | 153,6 | 205,0 | 6 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 53517 | $2 \times 16$ | 17,5 | 307,2 | 495,0 | 6 |
| 53518 | 3 C 16 | 19,1 | 460,8 | 691,0 | 6 |
| 53519 | 4 C 16 | 21,2 | 614,4 | 905,0 | 6 |
| 53520 | 5016 | 23,6 | 768,0 | 1129,0 | 6 |
| 53521 | 6016 | 25,9 | 921,6 | 1327,0 | 6 |
| 53522 | 7 C 16 | 28,6 | 1075,2 | 1590,0 | 6 |
| 53523 | $1 \times 25$ | 11,5 | 240,0 | 336,0 | 4 |
| 53524 | $2 \times 25$ | 22,7 | 480,0 | 833,0 | 4 |
| 53525 | 3 C 25 | 24,4 | 720,0 | 1139,0 | 4 |
| 53526 | 4 C 25 | 27,3 | 960,0 | 1489,0 | 4 |
| 53527 | 5 C 25 | 30,4 | 1200,0 | 1863,0 | 4 |
| 53528 | 6 C 25 | 33,6 | 1440,0 | 2275,0 | 4 |
| 53529 | 7625 | 37,0 | 1680,0 | 2633,0 | 4 |
| 53530 | $1 \times 35$ | 12,8 | 336,0 | 454,0 | 2 |
| 53531 | $2 \times 35$ | 25,1 | 672,0 | 1104,0 | 2 |
| 53532 | 3635 | 27,0 | 1008,0 | 1513,0 | 2 |
| 53533 | 4035 | 30,2 | 1344,0 | 1992,0 | 2 |
| 53534 | 5 C 35 | 33,4 | 1680,0 | 2488,0 | 2 |
| 53535 | $1 \times 50$ | 15,3 | 480,0 | 638,0 | 1 |
| 53536 | $2 \times 50$ | 30,3 | 960,0 | 1573,0 | 1 |
| 53537 | 3 C 50 | 32,5 | 1440,0 | 2154,0 | 1 |
| 53538 | 4050 | 36,6 | 1920,0 | 2819,0 | 1 |
| 53539 | 5050 | 40,3 | 2400,0 | 3505,0 | 1 |
| 53540 | $1 \times 70$ | 17,4 | 672,0 | 875,0 | $2 / 0$ |
| 53541 | $2 \times 70$ | 34,7 | 1344,0 | 2157,0 | 2/0 |
| 53542 | 3 C 70 | 37,2 | 2016,0 | 2946,0 | $2 / 0$ |
| 53543 | 4 C 70 | 41,8 | 2688,0 | 3888,0 | 2/0 |
| 53544 | 5070 | 46,6 | 3360,0 | 4864,0 | $2 / 0$ |
| 53545 | $1 \times 95$ | 20,1 | 912,0 | 1149,0 | 3/0 |
| 53546 | $2 \times 95$ | 39,5 | 1824,0 | 2763,0 | 3/0 |
| 53547 | 3 C 95 | 42,6 | 2736,0 | 3835,0 | 3/0 |
| 53548 | 4 C 95 | 47,7 | 3648,0 | 5052,0 | 3/0 |
| 53549 | 5 C 95 | 52,9 | 4560,0 | 6307,0 | 3/0 |

Dimensions and specifications may be changed without prior notice.

