

PROTOMONT (Z) Coal Cutter Cables for Trailing Operation



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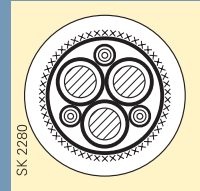
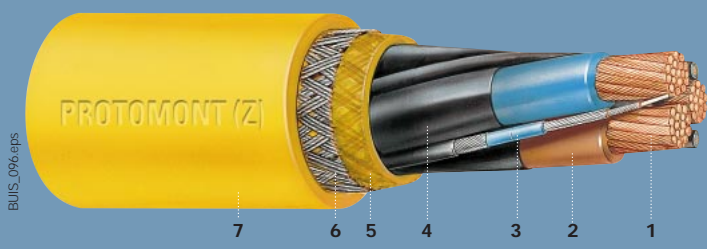


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| Selection and dimensioning criteria | | | Refer to Section 4 for further details → | |
|-------------------------------------|--|---|--|------|
| | Type | PROTOMONT (Z) | Page | 4/2 |
| | Type designation | NSSHCGEÖU | Page | 4/3 |
| | Approvals/standards | DIN VDE 0250, Part 812 MSHA-P-189-4, WUG GE-68/97 | Page | 4/4 |
| | Application (refer also to DIN VDE 0298, Part 3) | Used as power supply connection cable for mobile equipment in underground mining applications, such as coal shearer, tunnel driving machines and scoops (LHDs). (Z) Coal cutter cables are designed for free trailing operation and due to their special construction may be trailed for considerable distances behind the machine during operation. | Page | 4/6 |
| Electrical parameters | Rated voltage | $U_0/U = 0.6/1$ kV | Pages to | 4/14 |
| | Maximum permissible operating voltage in AC systems | $U_0/U = 0.7/1.2$ kV | | 4/17 |
| | Maximum permissible operating voltage in DC systems | $U_0/U = 0.9/1.8$ kV | | |
| | AC test voltage | Power cores: 3 kV Control cores: 2 kV | | |
| | Current-carrying capacity | According to DIN VDE 0298, Part 4 | | |
| Thermal parameters | Ambient temperature | | Pages to | 4/18 |
| | • Fully flexible operation | - 20 °C to + 60 °C | | 4/19 |
| | • Fixed installation | - 40 °C to + 80 °C | | |
| | Maximum permissible operating temperature of the conductor | + 90 °C | | |
| | Short-circuit temperature of the conductor | 200 °C | | |
| Mechanical parameters | Breaking load of the steel braid | Min. 40 kN | Page | 4/20 |
| | Minimum bending radii | 4 x D | Page | 4/22 |
| Chemical parameters | Resistance to oil | Given to DIN VDE 0473, Part 811-2-1, Para. 10 | Page | 4/28 |
| | Behaviour in case of fire | Given to DIN VDE 0482, Part 265-2-1, Para. 10 | | |
| | Weather resistance | Unrestricted use outdoors and indoors, resistant to ozone and moisture | | |

PROTOMONT (Z) Coal Cutter Cables for Trailing Operation

- 1 Conductor
- 2 Insulation
- 3 Control core/monitoring conductor
- 4 Semiconductive layer
- 5 Inner sheath
- 6 Steel/Cu stranded braid
- 7 Outer sheath



| Design features | | Refer to Section 4 for further details → | |
|---|--|--|------|
| Type | PROTOMONT (Z) | Page | 4/2 |
| Conductor (refer also to DIN VDE 0295) | Finely stranded copper conductor, tinned, Class 5 Protective-earth conductor: steel/Cu stranded braid between the inner and outer sheath Control core: double-concentric control/monitoring conductor elements in the outer interstice | Page | 4/29 |
| Insulation (refer also to DIN VDE 0207, Part 20) | PROTOLON, basic material EPR, compound type: 3GI3 | Page | 4/32 |
| Electrical field control | Outer semiconductive layer of semiconductive cold-strippable rubber | Page | 4/36 |
| Core identification | Main cores coloured, black, blue, brown Control cores blue | | |
| Core arrangement | Three main cores laid-up, with double-concentric control/monitoring conductor elements in the outer interstice; length of lay approx. 6 x D | | |
| Inner sheath (refer also to DIN VDE 0207, Part 21) | Vulcanized rubber inner sheath Basic material EPR, compound type: GM1b | Page | 4/32 |
| Reinforced braid | Braid of steel/copper wires in a vulcanized bond between inner and outer sheath | Page | 4/39 |
| Outer sheath (refer also to DIN VDE 0207, Part 21) | PROTOFIRM, basic material PCP, compound type: 5GM5, colour yellow | Page | 4/32 |
| Marking | (Year of manufacture) <VDE> PROTOMONT (Z) NSSHCGEÖU (number of cores) x (cross-section) | Page | 4/40 |

Selection and ordering data

| Number of cores and nominal cross-section mm ² | Order No. | Conductor diameter (Max. value) mm | Overall diameter of cable (guidance value) | | Breaking load of the braid kN | Conductor resistance at 20 °C Ω/km | Inductance per unit length mH/km | Operating capacitance per unit length μF/km | Current carrying capacity at 30 °C A | Permissible short-circuit current (1s) kA | Approx. net weight for 1000 m kg |
|--|-----------|--|--|----------------------|--------------------------------------|---|---|--|---|--|---|
| | | | Min. value mm | Max. value mm | | | | | | | |

0.6/1 kV NSSHCGEÖÜ

| | | | | | | | | | | | |
|--|-----------------|------|----|----|----|-------|------|------|-----|-------|------|
| 3 x 16 + 3 x (1.5ST KON+16/3KON) | 5DM1 491 | 5.8 | 40 | 44 | 40 | 1.21 | 0.27 | 0.51 | 99 | 1.95 | 2740 |
| 3 x 25/16KON + 3 x (1.5ST KON/1.5 ÜL KON) | 5DM1 050 | 7.1 | 42 | 46 | 40 | 0.78 | 0.25 | 0.6 | 131 | 3.05 | 2950 |
| 3 x 35/16KON + 3 x (1.5ST KON/1.5 ÜL KON) | 5DM1 051 | 8.4 | 42 | 46 | 40 | 0.554 | 0.24 | 0.69 | 162 | 4.27 | 3250 |
| 3 x 50/25KON + 3 x (1.5ST KON/1.5 ÜL KON) | 5DM1 052 | 9.9 | 48 | 52 | 40 | 0.386 | 0.23 | 0.72 | 202 | 6.10 | 4180 |
| 3 x 70/35KON + 3 x (1.5ST KON/1.5 ÜL KON) | 5DM1 053 | 11.9 | 52 | 57 | 45 | 0.272 | 0.23 | 0.84 | 250 | 8.54 | 5160 |
| 3 x 95/50KON + 3 x (1.5ST KON/1.5 ÜL KON) | 5DM1 061 | 13.9 | 60 | 65 | 45 | 0.206 | 0.23 | 0.86 | 301 | 11.59 | 7230 |
| 3 x 70/35KON + 3 x (1.5ST KON/1.5 ÜL KON) ¹⁾ | 5DM1 112 | 11.9 | 52 | 57 | 45 | 0.272 | 0.23 | 0.84 | 250 | 8.54 | 5160 |
| 3 x 95/50KON + 3 x (1.5ST KON/1.5 ÜL KON) ¹⁾ | 5DM1 111 | 13.9 | 60 | 65 | 45 | 0.206 | 0.23 | 0.86 | 301 | 11.59 | 7230 |

0.6/1 kV NTSCGERLWÖU

| | | | | | | | | | | | |
|--|-----------------|------|----|----|----|-------|------|------|-----|-------|------|
| 3 x 16 + 3 x (1.5ST KON + 16/3KON) | 5DM1 511 | 5.8 | 41 | 45 | 40 | 1.21 | 0.27 | 0.51 | 99 | 1.95 | 2980 |
| 3 x 70 + 3 x (1.5ST KON + 35/3KON) | 5DM1 512 | 11.9 | 51 | 56 | 45 | 0.272 | 0.23 | 0.84 | 250 | 8.54 | 5210 |
| 3 x 95 + 3 x (1.5ST KON + 50/3KON) | 5DM1 513 | 13.9 | 59 | 64 | 45 | 0.206 | 0.23 | 0.86 | 301 | 11.59 | 6860 |
| 3 x 150 + 3 x (1.5ST KON + 70/3KON) | 5DM1 514 | 17.6 | 68 | 74 | 45 | 0.129 | 0.22 | 0.92 | 404 | 18.30 | 9590 |

1) Version with WUG certification for Poland.