



Traction cable

RADOX GWK-LW 600V MM S

Product description:

RADOX GWK-LW 600V MM S Multicore cables, screened (overall screen)
 Nominal voltage: 600 / 1000 V AC
 Hazard level: M (extra low temperature, extra oil and extra fuel resistant)

General features:

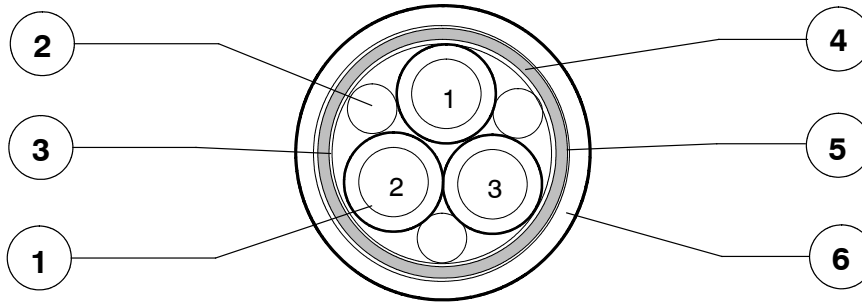
Halogen free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip, soldering iron resistant and flexible.

Application:

The cables are intended for permanent installation in rail vehicles or for applications in which a limited alternating bending stress occur during service.

Guidelines for selection and installation are described in the standards EN 50355 and EN 50343.

General composition of cable:



- | | |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 a) Twisted cores RADOX GWK-LW 600V M</p> | <p>Conductor: stranded tin plated copper, acc. to EN 50306-2 Insulation: RADOX TI 301 Colours: white, greenyellow (optional), black numbered 1,2,3...</p> |
| <p>1 b) Individual screened cores, pairs, triples... RADOX GWK-LW 600V M</p> | <p>Cores: see above Colour: white, black numbered 1,2,3... EMC- screen: Tin plated copper braid Sheath: RADOX S2 Colour: black, yellow numbered 1,2,3...</p> |
| <p>2. Filler (optional)</p> | <p>RADOX 125 REC</p> |
| <p>3. Separator (optional)</p> | <p>Tape</p> |
| <p>4. EMC- screen</p> | <p>Tin plated copper braid</p> |
| <p>5. Separator</p> | <p>Tape</p> |
| <p>6. Sheath</p> | <p>RADOX EM 104, acc. to EN 50264- 1 Colour: black, yellow marked</p> |

Marking:

[a] HUBER+SUHNER RADOX GWK-LW 600V [b] MM S [c]- [d] [e] [f]

| | |
|--------------------------------------|--------------|
| | example: |
| [a] Meter marking (in m) | = 001234 = m |
| [b] Construction | 3X1.5 |
| [c] Part number | 12345678 |
| [d] Batch number | 1234567 |
| [e] Production week and year | 03- 2017 |
| [f] Production place (only if China) | CN |

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The product fulfils the test and specification requirements described in this document for the stated areas of application and operating conditions. HUBER+SUHNER AG does not expressly or implicitly guarantee performance under additional or changed conditions. Deviations are to be agreed upon in writing.

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Technical Data:

| | | | | | | |
|----------------------------------------------------|-------|-------|-------|------|-------|------|
| Voltage rating cond.- earth | | U_0 | | 600 | | V AC |
| Voltage rating cond.- cond. | | U | | 1000 | | V AC |
| maximum permissible Voltage rating AC cond.- earth | ..... |  | ..... | 720 | ..... | V AC |
| maximum permissible Voltage rating AC cond.- cond. | ..... | U_m | ..... | 1200 | ..... | V AC |
| maximum permissible Voltage rating DC cond.- earth | ..... | V_0 | ..... | 900 | ..... | V DC |
| maximum permissible Voltage rating DC cond.- cond. | ..... |  | ..... | 1500 | ..... | V DC |
| Test voltage | ..... |  | ..... | 3500 | ..... | V AC |

Temperature range - 50 ... + 120 °C

Min. bending radius

| | | | | |
|--------------------|-------|----------------|-------|-------|
| fixed installation | ..... | $D \leq 12$ mm | ..... | 3 x D |
|  | ..... | $D > 12$ mm | ..... | 4 x D |
| sporadic movement | ..... | $D \leq 12$ mm | ..... | 4 x D |
|  | ..... | $D > 12$ mm | ..... | 5 x D |

NB:

The upper temperature limit is determined by long term ageing according to EN 50305 Par. 7 and extrapolation to 20,000 hours.
The lower temperature limit is determined by bending and elongation tests according to EN 60811- 1- 4 Par. 8, respectively low temperature behaviour tests according to GOST 20.57.406- 81, method 204- 1 and GOST 17491- 80. (fixed installation)
The specified bending radii require a careful and proper handling using proven fastening technologies.



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The cables are in conformity with:

| | | |
|-----------------------------------------------------------------------|-------------------------------------------|-----------------------------------|
| Fire protection on railway vehicles, category | Ia, Ib, II | BS 6853, GM/RT 2130 |
| Vertical flame spread | $50 < L \leq 540$ mm | EN 60332- 1- 2 |
| Vertical flame spread, bunched | $L \leq 2.5$ m | EN 50266, BS 6853 An. D.8.7 |
| Smoke density | $A_0 \leq$ BS 6853 | BS 6853 An. D.8.7 |
| Toxicity | $R \leq 1.0$ | BS 6853 An. B.1 |
| Fire protection on railway vehicles, hazard level | HL1 - HL3 | EN 45545 |
| Vertical flame spread | $50 < L \leq 540$ mm | EN 60332- 1- 2 |
| Vertical flame spread, bunched, $D \leq 6$ mm | $L \leq 1.5$ m | EN 50305, 9.1.2 |
| Vertical flame spread, bunched, $6 < D < 12$ mm | $L \leq 2.5$ m | EN 50305, 9.1.1 (EN 60332- 3- 25) |
| Vertical flame spread, bunched, $D \geq 12$ mm | $L \leq 2.5$ m | EN 60332- 3- 24 |
| Smoke density | $T \geq 70$ % | EN 61034- 2 |
| Toxicity | $ITC \leq 6$ | EN 50305, 9.2 |
| Fire protection on railway vehicles, level of protection | 1 - 4 | DIN 5510 |
| Vertical flame spread | $50 < L \leq 540$ mm | EN 60332- 1- 2 |
| Vertical flame spread, bunched, $D \leq 6$ mm | $L \leq 1.5$ m | EN 50305, 9.1.2 |
| Vertical flame spread, bunched, $6 < D < 12$ mm | $L \leq 2.5$ m | EN 60332- 3- 25 |
| Vertical flame spread, bunched, $D \geq 12$ mm | $L \leq 2.5$ m | EN 60332- 3- 24 |
| Smoke density | $T \geq 60$ % | EN 61034- 2 |
| Corrosivity of combustion gases | $pH \geq 4.3, C \leq 10$ μ S/mm | EN 50267- 2- 2 |
| Amount of halogen acid gas | $HCl + HBr \leq 0.5$ % | EN 50267- 2- 1 |
| Content of fluorine | $HF \leq 0.1$ % | EN 60684- 2, 45.2 |
| Toxicity, insulation | $ITC \leq 6$ | EN 50305, 9.2 |
| Toxicity, filler and sheath | $ITC \leq 3$ | EN 50305, 9.2 |
| Fire protection on railway vehicles, category | A1, A2, B | NF F16- 101 |
| Fire protection on railway vehicles, class | C / F1 | NF F16- 101 |
| Vertical flame spread | $50 < L \leq 540$ mm | NF C32- 070, 2.1 |
| Vertical flame spread, bunched | $L \leq 300$ mm | NF C32- 070, 2.2 |
| Smoke index | $I.F. \leq 5$ | X10- 702- 2, NF X70- 100- 1 |
| Fire protection on railway vehicles, hazard level | LR1 - LR4 | UNI CEI 11170 |
| Vertical flame spread | $50 < L \leq 540$ mm | EN 60332- 1- 2 |
| Vertical flame spread, bunched, $D \leq 6$ mm | $L \leq 1.5$ m | EN 50305, 9.1.2 |
| Vertical flame spread, bunched, $6 < D < 12$ mm | $L \leq 2.5$ m | EN 60332- 3- 25 |
| Vertical flame spread, bunched, $D \geq 12$ mm | $L \leq 2.5$ m | EN 60332- 3- 24 |
| Smoke density | $T \geq 70$ % | EN 61034- 2 |
| Corrosivity of combustion gases | $pH \geq 4.3, C \leq 10$ μ S/mm | EN 50267- 2- 2 |
| Amount of halogen acid gas | $HCl + HBr \leq 0.5$ % | EN 50267- 2- 1 |
| Toxicity, insulation | $ITC \leq 6$ | EN 50305, 9.2 |
| Toxicity, filler and sheath | $ITC \leq 3$ | EN 50305, 9.2 |
| Fire protection on railway vehicles | Fulfilled | NFPA 130 |
| Vertical flame spread, bunched | $L \leq 1.5$ m | UL 1685, 12 (FT4 exp.) |
| Smoke density | $PSRR \leq 0.40$ m ² /s | UL 1685, 12 (FT4 exp.) |
| | $TSR \leq 150$ m ² | |

Requirement of hazard level code M

(acc. to EN 50264- 1 or EN 50306- 1)

| | |
|-----------------------------|---------------------|
| Extra low temperature | - 40°C |
| Extra oil resistance | IRM 902, 72h, 100°C |
| Extra fuel resistance | IRM 903, 168h, 70°C |



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Applicable documents:

H+S : 563078 (e) : Current rating for multicore cables

H+S : 554550 (e) : Technical Datasheet RADOX GWK-LW 600V M (cores)

Metrical cores:

| Construction ¹⁾ n x mm ² | Conductor dia.nom. ²⁾ mm | Core ³⁾ dia.nom. mm | Screen D mm | Cable dia. mm | R ₂₀ ⁴⁾ max. Ω/km | Z _T ⁵⁾ max. mΩ/m | C' ⁶⁾ core/ core/ screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. | |
|---------------------------------------------------|-------------------------------------------|--------------------------------------|-------------------|---------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------------|-----|--------------------------|----------------------------------------------|------|-------------------|----|
| 2 x 0.25 | 0.60 | 1.02 | 2.5 | 3.45 ± 0.2 | 88.5 | 260 | 100 | 170 | 165 | 1.0 | 2.1 | 12 561 276 | 7) |
| 2 x 0.25 | 0.60 | 1.02 | 2.5 | 3.75 ± 0.3 | 88.5 | 260 | 100 | 170 | 208 | 1.0 | 2.5 | 12 582 801 | |
| 8 x 0.25 | 0.60 | 1.02 | 4.4 | 5.7 ± 0.3 | 88.5 | 130 | 100 | 170 | 511 | 5.5 | 2.7 | 85 009 532 | |
| 25 x 0.25 | 0.60 | 1.02 | 7.3 | 8.9 ± 0.3 | 88.5 | 60 | 100 | 170 | 1100 | 8.4 | 13.9 | 12 567 868 | |
| 2 x 2 x 0.25 | 0.60 | 1.02 | 4.4 | 5.7 ± 0.3 | 91.3 | 130 | 100 | 170 | 405 | 2.2 | 4.9 | 12 566 633 | |
| 3 x 2 x 0.25 | 0.60 | 1.02 | 4.7 | 6.1 ± 0.3 | 91.3 | 120 | 100 | 170 | 455 | 2.8 | 5.7 | 12 566 634 | |
| 4 x 2 x 0.25 | 0.60 | 1.02 | 5.5 | 7.0 ± 0.3 | 91.3 | 90 | 100 | 170 | 580 | 3.5 | 7.1 | 12 581 506 | |
| 7 x 2 x 0.25 | 0.60 | 1.02 | 6.2 | 7.8 ± 0.3 | 91.3 | 70 | 100 | 170 | 710 | 5.1 | 9.2 | 12 566 694 | |

7) SPEC: with reduced wall thickness



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| Construction 1) n x mm ² | Conductor dia.nom. 2) mm | Core 3) dia.nom. mm | Screen D mm | Cable dia. mm | R ₂₀ 4) max. Ω/km | Z _T 5) max. mΩ/m | C' 6) core/ core/ screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. |
|-------------------------------------------|--------------------------------|---------------------------|-------------------|---------------------|---------------------------------------|-----------------------------------|-------------------------------------------|-----|--------------------------|----------------------------------------------|------|-------------------|
| 2 x 0.5 | 0.9 | 1.3 | 3.1 | 4.3 ± 0.3 | 40.1 | 220 | 110 | 190 | 255 | 1.6 | 3.3 | 12 555 592 |
| 3 x 0.5 | 0.9 | 1.3 | 3.3 | 4.5 ± 0.3 | 40.1 | 200 | 110 | 190 | 300 | 2.2 | 3.8 | 12 555 593 |
| 4 x 0.5 | 0.9 | 1.3 | 3.6 | 4.8 ± 0.3 | 40.1 | 180 | 110 | 190 | 335 | 2.8 | 4.5 | 12 555 594 |
| 5 x 0.5 | 0.9 | 1.3 | 4.1 | 5.4 ± 0.3 | 40.1 | 140 | 110 | 190 | 400 | 3.3 | 5.5 | 12 555 595 |
| 6 x 0.5 | 0.9 | 1.3 | 4.6 | 5.9 ± 0.3 | 40.1 | 120 | 110 | 190 | 470 | 4.2 | 6.9 | 12 555 596 |
| 7 x 0.5 | 0.9 | 1.3 | 5.0 | 6.45 ± 0.3 | 40.1 | 100 | 110 | 190 | 580 | 4.7 | 7.7 | 12 555 603 |
| 8 x 0.5 | 0.9 | 1.3 | 5.5 | 6.95 ± 0.3 | 40.1 | 90 | 110 | 190 | 675 | 5.4 | 9.1 | 12 561 467 |
| 9 x 0.5 | 0.9 | 1.3 | 5.8 | 7.2 ± 0.3 | 40.1 | 80 | 110 | 190 | 640 | 6.0 | 9.7 | 12 558 109 |
| 10 x 0.5 | 0.9 | 1.3 | 5.8 | 7.2 ± 0.3 | 40.1 | 80 | 110 | 190 | 625 | 6.5 | 10.1 | 12 555 597 |
| 12 x 0.5 | 0.9 | 1.3 | 6.0 | 7.6 ± 0.3 | 40.1 | 80 | 110 | 190 | 735 | 7.5 | 11.6 | 12 555 598 |
| 15 x 0.5 | 0.9 | 1.3 | 7.0 | 8.5 ± 0.3 | 40.1 | 60 | 110 | 190 | 900 | 9.8 | 14.6 | 12 558 110 |
| 16 x 0.5 | 0.9 | 1.3 | 6.8 | 8.5 ± 0.3 | 40.1 | 60 | 110 | 190 | 945 | 9.7 | 14.7 | 12 555 600 |
| 18 x 0.5 | 0.9 | 1.3 | 7.4 | 8.9 ± 0.3 | 40.1 | 60 | 110 | 190 | 995 | 11.0 | 16.1 | 12 555 601 |
| 20 x 0.5 | 0.9 | 1.3 | 7.8 | 9.3 ± 0.3 | 40.1 | 60 | 110 | 190 | 1120 | 12.2 | 18.1 | 12 562 202 |
| 25 x 0.5 | 0.9 | 1.3 | 8.6 | 10.3 ± 0.4 | 40.1 | 50 | 110 | 190 | 1260 | 15.1 | 21.3 | 12 555 602 |
| 30 x 0.5 | 0.9 | 1.3 | 9.3 | 11.2 ± 0.4 | 40.1 | 50 | 110 | 190 | 1520 | 17.5 | 25.1 | 12 559 008 |
| 36 x 0.5 | 0.9 | 1.3 | 10.2 | 12.1 ± 0.4 | 40.1 | 40 | 110 | 190 | 1790 | 22.3 | 30.9 | 12 559 009 |
| 42 x 0.5 | 0.9 | 1.3 | 11.0 | 12.9 ± 0.4 | 40.1 | 40 | 110 | 190 | 2070 | 26.1 | 36.0 | 12 559 010 |
| 48 x 0.5 | 0.9 | 1.3 | 11.6 | 13.7 ± 0.4 | 40.1 | 40 | 110 | 190 | 2270 | 28.3 | 38.9 | 12 561 833 |
| 50 x 0.5 | 0.9 | 1.3 | 12.1 | 14.3 ± 0.4 | 40.1 | 40 | 110 | 190 | 2410 | 30.0 | 41.7 | 12 559 011 |
| 2 x 2 x 0.5 | 0.9 | 1.3 | 5.0 | 6.4 ± 0.3 | 41.4 | 150 | 110 | 190 | 535 | 3.3 | 6.7 | 12 555 604 |
| 3 x 2 x 0.5 | 0.9 | 1.3 | 5.4 | 6.9 ± 0.3 | 41.4 | 90 | 110 | 190 | 580 | 4.5 | 8.2 | 12 561 834 |
| 3 x (2 x 0.5) | 0.9 | 1.3 | 7.8 | 11.8 ± 0.4 | 41.4 | 50 | - | - | 1790 | 10.6 | 23.2 | 84 120 836 |
| 4 x 2 x 0.5 | 0.9 | 1.3 | 6.4 | 8.0 ± 0.3 | 41.4 | 70 | 110 | 190 | 745 | 5.5 | 10.1 | 12 555 605 |
| 5 x 2 x 0.5 | 0.9 | 1.3 | 8.5 | 9.3 ± 0.3 | 41.4 | 60 | 110 | 190 | 780 | 7.5 | 13.6 | 12 566 533 |
| 6 x 2 x 0.5 | 0.9 | 1.3 | 7.7 | 9.2 ± 0.3 | 41.4 | 60 | 110 | 190 | 1010 | 8.8 | 14.5 | 12 557 170 |
| 8 x 2 x 0.5 | 0.9 | 1.3 | 8.9 | 9.9 ± 0.3 | 41.4 | 50 | 110 | 190 | 905 | 10.8 | 16.7 | 12 555 930 |



Traction cable

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| Construction ¹⁾ n x mm ² | Conductor dia.nom. ²⁾ mm | Core ³⁾ dia.nom. mm | Screen D mm | Cable dia. mm | R ₂₀ ⁴⁾ max. Ω/km | Z _T ⁵⁾ max. mΩ/m | C' ⁶⁾ core/ core/ core screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. | |
|---------------------------------------------------|-------------------------------------------|--------------------------------------|-------------------|---------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------|-----|--------------------------|-------------------------------------------|------|-------------------|--|
| 10 x 2 x 0.5 | 0.9 | 1.3 | 9.1 | 10.9 ± 0.4 | 41.4 | 50 | 110 | 190 | 1280 | 13.1 | 20.2 | 12 555 606 | |
| 12 x 2 x 0.5 | 0.9 | 1.3 | 10.2 | 12.1 ± 0.4 | 41.4 | 40 | 110 | 190 | 1520 | 16.7 | 25.0 | 12 562 825 | |
| 15 x 2 x 0.5 | 0.9 | 1.3 | 11.1 | 13.0 ± 0.4 | 41.4 | 40 | 110 | 190 | 1830 | 20.6 | 29.6 | 12 555 607 | |
| 16 x 2 x 0.5 | 0.9 | 1.3 | 11.5 | 13.7 ± 0.4 | 41.4 | 40 | 110 | 190 | 1920 | 21.5 | 31.7 | 12 560 140 | |
| 20 x 2 x 0.5 | 0.9 | 1.3 | 14.3 | 16.8 ± 0.5 | 41.4 | 30 | 110 | 190 | 2840 | 26.9 | 42.6 | 12 561 619 | |
| 2 x 3 x 0.5 | 0.9 | 1.3 | 5.8 | 7.9 ± 0.3 | 41.4 | 90 | 110 | 190 | 820 | 4.5 | 10.1 | 12 581 433 | |



Traction cable

RADOX GWK-LW 600V MM S

| Construction 1) | Conductor dia.nom. 2) | Core 3) dia.nom. | Screen D | Cable dia. | R ₂₀ 4) max. Ω/km | Z _T 5) max. mΩ/m | C' 6) core/ core/ screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. | |
|---------------------|--------------------------|---------------------|-------------|---------------|---------------------------------------|-----------------------------------|-------------------------------------------|-----|--------------------------|----------------------------------------------|------|-------------------|----|
| n x mm ² | mm | mm | mm | mm | | | | | | | | | |
| 2 x 0.75 | 1.1 | 1.52 | 3.6 | 4.8 ± 0.3 | 26.7 | 180 | 120 | 205 | 315 | 2.5 | 4.2 | 12 556 629 | |
| 3 x 0.75 | 1.1 | 1.52 | 3.9 | 5.0 ± 0.3 | 26.7 | 160 | 120 | 205 | 320 | 3.2 | 5.3 | 12 556 636 | |
| 4 x 0.75 | 1.1 | 1.52 | 4.3 | 5.5 ± 0.3 | 26.7 | 140 | 120 | 205 | 380 | 3.9 | 6.3 | 12 556 630 | |
| 5 x 0.75 | 1.1 | 1.52 | 4.8 | 6.1 ± 0.3 | 26.7 | 110 | 120 | 205 | 480 | 4.7 | 7.5 | 12 556 637 | |
| 6 x 0.75 | 1.1 | 1.52 | 5.2 | 6.6 ± 0.3 | 26.7 | 100 | 120 | 205 | 565 | 6.0 | 9.3 | 12 556 638 | |
| 7 x 0.75 | 1.1 | 1.52 | 5.9 | 7.2 ± 0.3 | 26.7 | 80 | 120 | 205 | 680 | 6.9 | 10.8 | 12 556 639 | |
| 7 x 0.75 | 1.1 | 1.52 | 6.1 | 7.7 ± 0.3 | 26.7 | 80 | 120 | 205 | 760 | 6.3 | 11.8 | 12 585 257 | 8) |
| 8 x 0.75 | 1.1 | 1.52 | 6.4 | 7.8 ± 0.3 | 26.7 | 70 | 120 | 205 | 815 | 7.6 | 12.3 | 12 556 631 | |
| 10 x 0.75 | 1.1 | 1.52 | 6.7 | 8.3 ± 0.3 | 26.7 | 70 | 120 | 205 | 785 | 9.3 | 13.1 | 12 556 640 | |
| 12 x 0.75 | 1.1 | 1.52 | 6.9 | 8.4 ± 0.3 | 26.7 | 60 | 120 | 205 | 830 | 10.8 | 15.4 | 12 556 632 | |
| 16 x 0.75 | 1.1 | 1.52 | 8.1 | 9.7 ± 0.3 | 26.7 | 50 | 120 | 205 | 1110 | 14.6 | 20.4 | 12 556 419 | |
| 18 x 0.75 | 1.1 | 1.52 | 8.4 | 10.2 ± 0.4 | 26.7 | 50 | 120 | 205 | 1260 | 16.3 | 22.8 | 12 556 641 | |
| 24 x 0.75 | 1.1 | 1.52 | 10.1 | 12.0 ± 0.4 | 26.7 | 40 | 120 | 205 | 1550 | 22.7 | 28.8 | 12 561 836 | |
| 25 x 0.75 | 1.1 | 1.52 | 10.3 | 12.3 ± 0.4 | 26.7 | 40 | 120 | 205 | 1620 | 24.0 | 32.0 | 12 556 480 | |
| 2 x 2 x 0.75 | 1.1 | 1.52 | 6.2 | 7.8 ± 0.3 | 27.6 | 70 | 120 | 205 | 725 | 4.7 | 9.3 | 12 558 422 | |
| 3 x 2 x 0.75 | 1.1 | 1.52 | 6.7 | 8.3 ± 0.3 | 27.6 | 70 | 120 | 205 | 795 | 6.0 | 10.8 | 12 558 423 | |
| 4 x 2 x 0.75 | 1.1 | 1.52 | 7.8 | 9.4 ± 0.3 | 27.6 | 60 | 120 | 205 | 940 | 8.1 | 14.2 | 12 568 688 | |
| 5 x 2 x 0.75 | 1.1 | 1.52 | 8.8 | 10.7 ± 0.4 | 27.6 | 50 | 120 | 205 | 1210 | 10.7 | 18.1 | 12 562 002 | |
| 5 x (2x0.75) | 1.1 | 1.52 | 11.2 | 13.5 ± 0.4 | 27.6 | 40 | 120 | 205 | 2100 | 17.4 | 30 | 12 560 882 | |
| 6 x 2 x 0.75 | 1.1 | 1.52 | 10.0 | 11.9 ± 0.4 | 27.6 | 50 | 120 | 205 | 1480 | 13.9 | 22.7 | 12 564 824 | |
| 8 x 2 x 0.75 | 1.1 | 1.52 | 11.1 | 13.2 ± 0.4 | 27.6 | 40 | 120 | 205 | 2000 | 17.5 | 29.0 | 12 568 613 | |
| 16 x 2x0.75 | 1.1 | 1.52 | 14.9 | 17.5 ± 0.5 | 27.6 | 30 | 120 | 205 | 2760 | 29.1 | 44.7 | 85 008 372 | |
| 3 x 3 x 0.75 | 1.1 | 1.52 | 7.5 | 9.0 ± 0.3 | 27.6 | 60 | 120 | 205 | 1390 | 10.1 | 14.2 | 12 562 003 | |
| 3 x (3x0.75) | 1.1 | 1.52 | - | 12.0 ± 0.4 | 27.6 | - | - | - | 1900 | 9.0 | 22.9 | 12 557 512 | |
| 5 x 4 x 0.75 | 1.1 | 1.52 | 11.3 | 13.5 ± 0.4 | 27.6 | 40 | 120 | 205 | 2020 | 20.6 | 32.3 | 12 564 825 | |

8) SPEC: cable with shorter lay length

9) without overall screen



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| Construction 1) n x mm ² | Conductor dia.nom. 2) mm | Core 3) dia.nom. mm | Screen D mm | Cable dia. mm | R ₂₀ 4) max. Ω/km | Z _T 5) max. mΩ/m | C' 6) core/ core/ core screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. | |
|-------------------------------------------|--------------------------------|---------------------------|-------------------|---------------------|---------------------------------------|-----------------------------------|---------------------------------------------------|-----|--------------------------|----------------------------------------------|------|-------------------|-----|
| 2 x 1 | 1.2 | 1.67 | 3.8 | 5.0 ± 0.3 | 20.0 | 160 | 125 | 215 | 345 | 2.7 | 5.0 | 12 555 875 | |
| 2 x 1 | 1.2 | 1.67 | 3.8 | 5.0 ± 0.3 | 20.0 | 160 | 125 | 215 | 345 | 2.7 | 5.0 | 12 586 439 | 10) |
| 3 x 1 | 1.2 | 1.67 | 4.2 | 5.5 ± 0.3 | 20.0 | 140 | 125 | 215 | 390 | 3.9 | 6.2 | 12 555 688 | |
| 4 x 1 | 1.2 | 1.67 | 4.5 | 5.8 ± 0.3 | 20.0 | 120 | 125 | 215 | 430 | 4.7 | 7.9 | 12 555 877 | |
| 5 x 1 | 1.2 | 1.67 | 5.2 | 6.7 ± 0.3 | 20.0 | 100 | 125 | 215 | 580 | 5.7 | 8.9 | 12 555 878 | |
| 6 x 1 | 1.2 | 1.67 | 5.9 | 7.3 ± 0.3 | 20.0 | 80 | 125 | 215 | 680 | 7.5 | 11.0 | 12 555 879 | |
| 7 x 1 | 1.2 | 1.67 | 6.4 | 7.9 ± 0.3 | 20.0 | 70 | 125 | 215 | 820 | 8.7 | 12.9 | 12 555 880 | |
| 8 x 1 | 1.2 | 1.67 | 7.1 | 8.5 ± 0.3 | 20.0 | 60 | 125 | 215 | 970 | 9.5 | 14.4 | 12 556 373 | |
| 10 x 1 | 1.2 | 1.67 | 7.4 | 8.9 ± 0.3 | 20.0 | 60 | 125 | 215 | 860 | 12.3 | 16.4 | 12 555 881 | |
| 10 G 1 | 1.2 | 1.67 | 7.4 | 8.9 ± 0.3 | 20.0 | 60 | 125 | 215 | 860 | 12.3 | 16.4 | 85 063 983 | |
| 12 x 1 | 1.2 | 1.67 | 7.7 | 9.2 ± 0.3 | 20.0 | 60 | 125 | 215 | 955 | 14.0 | 18.4 | 12 555 882 | |
| 16 x 1 | 1.2 | 1.67 | 8.8 | 10.5 ± 0.4 | 20.0 | 50 | 125 | 215 | 1280 | 18.4 | 24.3 | 12 555 883 | |
| 18 x 1 | 1.2 | 1.67 | 9.2 | 11.2 ± 0.4 | 20.0 | 50 | 125 | 215 | 1510 | 19.9 | 26.9 | 12 555 884 | |
| 25 x 1 | 1.2 | 1.67 | 11.0 | 12.9 ± 0.4 | 20.0 | 40 | 125 | 215 | 1740 | 29.5 | 36.8 | 12 555 885 | |
| 27 x 1 | 1.2 | 1.67 | 11.3 | 13.4 ± 0.4 | 20.0 | 40 | 125 | 215 | 1930 | 30.7 | 38.6 | 12 559 012 | |
| 30 x 1 | 1.2 | 1.67 | 11.8 | 14.0 ± 0.4 | 20.0 | 40 | 125 | 215 | 2130 | 33.4 | 42.5 | 12 559 013 | |
| 36 x 1 | 1.2 | 1.67 | 12.8 | 15.2 ± 0.5 | 20.0 | 30 | 125 | 215 | 2610 | 39.9 | 50.9 | 12 559 014 | |
| 42 x 1 | 1.2 | 1.67 | 13.9 | 16.5 ± 0.5 | 20.0 | 30 | 125 | 215 | 3410 | 46.3 | 59.6 | 12 559 015 | |
| 50 x 1 | 1.2 | 1.67 | 15.3 | 17.8 ± 0.5 | 20.0 | 30 | 125 | 215 | 3350 | 56.9 | 70.1 | 12 559 016 | |
| 2 x 2 x 1 | 1.2 | 1.67 | 6.9 | 8.5 ± 0.3 | 20.7 | 60 | 125 | 215 | 830 | 5.8 | 10.7 | 12 558 112 | |
| 2 x (3 x 1) | 1.2 | 1.67 | 9.9 | 12.0 ± 0.4 | 20.7 | 40 | - | - | 1250 | 13.6 | 23.0 | 12 561 698 | |
| 3 x 2 x 1 | 1.2 | 1.67 | 7.3 | 8.9 ± 0.3 | 20.7 | 60 | 125 | 215 | 900 | 7.73 | 13.1 | 85 016 744 | |
| 3 x (2 x 1) | 1.2 | 1.67 | 8.7 | 10.7 ± 0.4 | 20.7 | 50 | - | - | 1000 | 11.8 | 20.1 | 12 565 116 | |
| 4 x 2 x 1 | 1.2 | 1.67 | 8.8 | 10.6 ± 0.4 | 20.7 | 50 | 125 | 215 | 1180 | 10.6 | 17.7 | 12 555 886 | |
| 6 x 2 x 1 | 1.2 | 1.67 | 10.9 | 13.0 ± 0.3 | 20.7 | 40 | 125 | 215 | 1760 | 16.6 | 26.6 | 12 564 826 | |
| 10 x 2 x 1 | 1.2 | 1.67 | 13.5 | 16.0 ± 0.5 | 20.7 | 30 | 163 | 280 | 2787 | 25.4 | 43.2 | 85 008 381 | |
| 12 x 2 x 1 | 1.2 | 1.67 | 12.9 | 15.2 ± 0.5 | 20.7 | 30 | 125 | 215 | 2220 | 28.8 | 40.0 | 12 564 827 | |
| 12 x (2 x 1) | 1.2 | 1.67 | 17.0 | 19.8 ± 0.5 | 20.7 | 25 | - | - | 3100 | 43.7 | 65.1 | 12 565 117 | |
| 3 x 4 x 1 | 1.2 | 1.67 | 9.5 | 11.3 ± 0.4 | 20.7 | 50 | 125 | 215 | 1480 | 15.6 | 23.5 | 12 555 887 | |
| 4 x 4 x 1 | 1.2 | 1.67 | 10.6 | 12.5 ± 0.4 | 20.7 | 40 | 125 | 215 | 1770 | 20.2 | 29.9 | 12 558 113 | |

10) SPEC: Cores marked 3 + 4



Traction cable

RADOX GWK-LW 600V MM S

| Construction 1) | Conductor dia.nom. 2) | Core 3) dia.nom. | Screen D | Cable dia. | R ₂₀ 4) max. Ω/km | Z _T 5) max. mΩ/m | C' 6) core/ core/ screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. | |
|---------------------|--------------------------|---------------------|-------------|---------------|---------------------------------------|-----------------------------------|-------------------------------------------|-----|--------------------------|----------------------------------------------|------|-------------------|-----|
| n x mm ² | mm | mm | mm | mm | | | | | | | | | |
| 2 x 1.5 | 1.5 | 2.04 | 4.5 | 5.8 ± 0.3 | 13.7 | 120 | 125 | 215 | 455 | 4.3 | 7.4 | 12 555 888 | |
| 2 x 1.5 | 1.5 | 2.04 | 4.5 | 5.95 ± 0.3 | 13.7 | 120 | 125 | 215 | 470 | 3.8 | 7.2 | 12 581 889 | 11) |
| 3 x 1.5 | 1.5 | 2.04 | 4.9 | 6.2 ± 0.3 | 13.7 | 100 | 125 | 215 | 505 | 5.5 | 8.6 | 12 555 889 | |
| 3 G 1.5 | 1.5 | 2.04 | 4.9 | 6.2 ± 0.3 | 13.7 | 100 | 125 | 215 | 505 | 5.5 | 8.6 | 12 559 047 | |
| 4 x 1.5 | 1.5 | 2.04 | 5.4 | 6.7 ± 0.3 | 13.7 | 90 | 125 | 215 | 570 | 7.2 | 10.6 | 12 555 890 | |
| 5 x 1.5 | 1.5 | 2.04 | 6.3 | 7.8 ± 0.3 | 13.7 | 70 | 125 | 215 | 770 | 9.2 | 13.7 | 12 555 891 | |
| 5 G 1.5 | 1.5 | 2.04 | 6.3 | 7.8 ± 0.3 | 13.7 | 70 | 125 | 215 | 770 | 9.2 | 13.7 | 12 583 997 | |
| 6 x 1.5 | 1.5 | 2.04 | 6.9 | 8.3 ± 0.3 | 13.7 | 60 | 125 | 215 | 880 | 10.9 | 15.7 | 12 555 892 | |
| 7 x 1.5 | 1.5 | 2.04 | 7.6 | 9.2 ± 0.3 | 13.7 | 60 | 125 | 215 | 1110 | 13.2 | 19.2 | 12 555 893 | |
| 7 G 1.5 | 1.5 | 2.04 | 7.6 | 9.2 ± 0.3 | 13.7 | 60 | 125 | 215 | 1110 | 13.2 | 19.2 | 12 568 979 | |
| 8 x 1.5 | 1.5 | 2.04 | 8.4 | 10.3 ± 0.4 | 13.7 | 50 | 125 | 215 | 1420 | 14.8 | 22.8 | 12 567 260 | |
| 9 x 1.5 | 1.5 | 2.04 | 8.9 | 10.5 ± 0.4 | 13.7 | 50 | 125 | 215 | 1300 | 16.9 | 24.0 | 12 558 115 | |
| 10 x 1.5 | 1.5 | 2.04 | 8.9 | 10.5 ± 0.4 | 13.7 | 50 | 125 | 215 | 1180 | 18.4 | 26.4 | 12 555 894 | |
| 12 x 1.5 | 1.5 | 2.04 | 9.2 | 11.0 ± 0.4 | 13.7 | 50 | 125 | 215 | 1370 | 20.9 | 28.1 | 12 555 895 | |
| 14 G 1.5 | 1.5 | 2.04 | 10.1 | 12.2 ± 0.4 | 13.7 | 40 | 125 | 215 | 1690 | 25.7 | 34.7 | 12 568429 | |
| 16 x 1.5 | 1.5 | 2.04 | 10.6 | 12.6 ± 0.4 | 13.7 | 40 | 125 | 215 | 1820 | 29.7 | 39.2 | 12 555 896 | |
| 18 x 1.5 | 1.5 | 2.04 | 11.3 | 13.2 ± 0.4 | 13.7 | 40 | 125 | 215 | 2010 | 32.5 | 42.6 | 12 555 897 | |
| 25 G 1.5 | 1.5 | 2.04 | 13.1 | 15.6 ± 0.5 | 13.7 | 30 | 125 | 215 | 2610 | 43.3 | 56.4 | 12 568430 | |
| 25 x 1.5 | 1.5 | 2.04 | 13.1 | 15.6 ± 0.5 | 13.7 | 30 | 125 | 215 | 2610 | 43.3 | 56.4 | 12 555 898 | |
| 48 x 1.5 | 1.5 | 2.04 | 17.9 | 20.7 ± 0.5 | 13.7 | 25 | 125 | 215 | 4550 | 82 | 103 | 12 565 317 | |
| 2 x 2 x 1.5 | 1.5 | 2.04 | 8.3 | 10.0 ± 0.3 | 14.2 | 50 | 125 | 215 | 1180 | 9.0 | 16.4 | 12 558 114 | |
| 3 x 2 x 1.5 | 1.5 | 2.04 | 8.8 | 10.6 ± 0.4 | 14.2 | 50 | 125 | 215 | 1270 | 12.4 | 19.9 | 12 561 927 | |
| 1 x 2.5 | 1.9 | 2.54 | 3 | 4.15±0.15 | 8.21 | 220 | - | 160 | 210 | 2.8 | 4.0 | 12 565 668 | |
| 2 x 2.5 | 1.9 | 2.54 | 5.7 | 7.0 ± 0.3 | 8.21 | 80 | 125 | 215 | 655 | 6.0 | 10.4 | 12 557 233 | |
| 3 x 2.5 | 1.9 | 2.54 | 6.1 | 7.6 ± 0.3 | 8.21 | 80 | 125 | 215 | 730 | 8.5 | 13.0 | 12 554 750 | |
| 4 x 2.5 | 1.9 | 2.54 | 7.1 | 8.6 ± 0.3 | 8.21 | 60 | 125 | 215 | 905 | 11.4 | 16.7 | 12 557 234 | |
| 5 x 2.5 | 1.9 | 2.54 | 7.8 | 9.4 ± 0.3 | 8.21 | 60 | 125 | 215 | 1130 | 13.9 | 20.1 | 12 557 235 | |
| 6 x 2.5 | 1.9 | 2.54 | 8.6 | 10.4 ± 0.4 | 8.21 | 50 | 125 | 215 | 1350 | 16.0 | 25.7 | 12 557 236 | |
| 7 x 2.5 | 1.9 | 2.54 | 9.6 | 11.4 ± 0.4 | 8.21 | 50 | 125 | 215 | 1630 | 21.2 | 30.5 | 12 557 237 | |
| 8 x 2.5 | 1.9 | 2.54 | 10.5 | 12.6 ± 0.4 | 8.21 | 40 | 125 | 215 | 2060 | 22.9 | 34.5 | 12 568 536 | |
| 12 x 2.5 | 1.9 | 2.54 | 11.6 | 13.7 ± 0.4 | 8.21 | 40 | 125 | 215 | 2050 | 32.1 | 43.0 | 12 557 239 | |
| 27 x 2.5 | 1.9 | 2.54 | 16.8 | 19.6 ± 0.5 | 8.21 | 25 | 125 | 215 | 3910 | 69.3 | 88.5 | 12 563 351 | |

11) Cables with yellow sheath



Traction cable

RADOX GWK-LW 600V MM S

AWG-cores:

| Construction 1) n x mm ² | Conductor dia.nom. 2) mm | Core 3) dia.nom. mm | Screen D mm | Cable dia. mm | R ₂₀ 4) max. Ω/km | Z _T 5) max. mΩ/m | C' 6) core/ core/ core screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. |
|-------------------------------------------|--------------------------------|---------------------------|-------------------|---------------------|---------------------------------------|-----------------------------------|---------------------------------------------------|-----|--------------------------|----------------------------------------------|------|-------------------|
| 3 x 0.4 | 0.8 | 1.18 | 3.0 | 4.4 ± 0.3 | 54.7 | 220 | 200 | 340 | 270 | 1.8 | 3.5 | 12 585 812 |
| 4 x 0.4 | 0.8 | 1.18 | 3.4 | 4.6 ± 0.3 | 54.7 | 200 | 200 | 340 | 290 | 2.2 | 3.9 | 12 564 307 |
| 15 x 0.4 | 0.8 | 1.18 | 6.2 | 7.8 ± 0.3 | 54.7 | 70 | 200 | 340 | 890 | 7.4 | 11.6 | 12 561 115 |
| 1 x 0.6 | 1 | 1.39 | 1.9 | 3.0 ± 0.2 | 33.4 | 320 | - | 440 | 125 | 1.0 | 1.7 | 12 555 681 |
| 2 x 0.6 | 1 | 1.39 | 3.2 | 4.5 ± 0.3 | 33.4 | 200 | 180 | 310 | 300 | 1.8 | 3.8 | 12 555 682 |
| 3 x 0.6 | 1 | 1.39 | 3.5 | 4.7 ± 0.3 | 33.4 | 200 | 180 | 310 | 315 | 2.5 | 4.4 | 12 555 683 |
| 4 x 0.6 | 1 | 1.39 | 3.8 | 5.1 ± 0.3 | 33.4 | 160 | 180 | 310 | 365 | 3.2 | 5.3 | 12 555 684 |
| 5 x 0.6 | 1 | 1.39 | 4.4 | 5.7 ± 0.3 | 33.4 | 130 | 180 | 310 | 440 | 4.1 | 6.6 | 12 555 685 |
| 1 x 1.2 | 1.4 | 1.83 | 2.3 | 3.5 ± 0.2 | 16.3 | 280 | - | 530 | 160 | 1.5 | 2.5 | 12 555 687 |
| 2 x 1.2 | 1.4 | 1.83 | 4.2 | 5.6 ± 0.3 | 16.3 | 140 | 200 | 350 | 440 | 3.3 | 6.6 | 12 555 587 |

Cables with coloured cores:

| Constr. 1) n x mm ² | Conductor dia.nom. 2) mm | Core colours | Core 3) D _{nom} mm | Screen D mm | Cable dia. mm | R ₂₀ 4) max Ω/km | Z _T 5) max. mΩ/m | C' 6) core/ core/ core screen pF/m | | Fireload nom. kJ/m | Weight nom. copper cable kg/100m | | H + S Part No. |
|--------------------------------------|--------------------------------|--------------------------------------|--------------------------------------|-------------------|---------------------|--------------------------------------|-----------------------------------|---------------------------------------------------|-----|--------------------------|----------------------------------------------|-----|-------------------|
| 4V0.4 | 0.8 | bn, gn, wh, ye | 1.18 | 3.4 | 5.0 ± 0.3 | 54.7 | 200 | 200 | 340 | 780 | 2.2 | 4.5 | 84 099 242 |
| 2V0.5 | 0.9 | bk, rd | 1.30 | 3.1 | 4.35 ± 0.3 | 40.1 | 220 | 170 | 300 | 280 | 1.6 | 3.3 | 12 568 579 |
| 3V0.5 | 0.9 | bk, rd, gn | 1.30 | 3.3 | 4.5 ± 0.3 | 40.1 | 200 | 170 | 300 | 300 | 2.2 | 4.1 | 12 558 070 |
| 4V0.5 | 0.9 | bu, rd, gn, bn | 1.30 | 3.6 | 4.9 ± 0.3 | 40.1 | 180 | 170 | 300 | 330 | 2.8 | 5.2 | 12 568 580 |
| 4V0.5 | 0.9 | bk, rd, gn, bn | 1.30 | 3.6 | 4.9 ± 0.3 | 40.1 | 180 | 170 | 300 | 330 | 2.8 | 5.2 | 12 584 368 |
| 6V0.5 | 0.9 | bk, rd, gn, bn, bu, wh | 1.30 | 4.6 | 5.9 ± 0.3 | 40.1 | 120 | 170 | 300 | 460 | 4.1 | 6.8 | 12 558 071 |
| 8V0.5 | 0.9 | bk, rd, gn, bn, bu, wh, og, ye | 1.30 | 5.5 | 6.95 ± 0.3 | 40.1 | 90 | 170 | 300 | 690 | 5.3 | 9.0 | 12 568 581 |
| 2V2V0.5 | 0.9 | bk/rd gn/bn | 1.30 | 5.0 | 6.5 ± 0.3 | 41.4 | 100 | 170 | 300 | 680 | 3.3 | 6.8 | 12 568 582 |

- 1) X: one colour, numbered
G: one green- yellow core, others one colour, numbered
V: various colours
- 2) conductor construction see Annex
- 3) Cores: Core details according to H+S Datasheet 554550
- 4) R₂₀: Conductor resistance according to EN 50306-2
- 5) Z_T: Transfer impedance for f < 30 Mhz
- 6) C': Capacity per unit length, core/core

Legend: (n x mm²): individually screened
bk: black bn: brown
bu: blue gn: green
gy: grey og: orange
rd: red ye: yellow
wh: white



Traction cable

RADOX GWK-LW 600V MM S

Annex

Conductor construction:

| mm ² | AWG | Construction |
|-----------------|-----|--------------|
| 0.4 | 22 | 19x0.16 mm |
| 0.5 | - | 19x0.18 mm |
| 0.6 | 20 | 19x0.20 mm |
| 0.75 | - | 19x0.23 mm |
| 1 | 18 | 19x0.26 mm |
| 1.5 | - | 37x0.23 mm |
| 2 | 14 | 37x0.25 mm |
| 2.5 | - | 37x0.29 mm |