European <HAR> cable type certification
Cables' <HAR>marking also stands for the international endorsement of national certification institutes' testing marks and certificates, e. g. <VDE><HAR>. The <HAR>marking is of special importance in case of goods traffic between European countries.



CE ◁HAR▷ RoHS

Info
<HAR>

Application range
Laying in tubes, exposed or buried in plaster, and in closed installation ducts
For direct laying on racks, troughs and tubes only as potential equalisation conductor

Design
Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
Core insulation: Based on PVC

Norm references / Approvals
<HAR> cable type certification acc. EN 50525-2-31

Product features
Flame-retardant according IEC 60332-1-2
Spool: d1 = 18 mm; d2 = 200 mm; b = 85 mm

Remark
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil ≤ 30 kg, otherwise drum
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*for conventional use, **for careful bending; "OD" = outer diameter
The outer diameters stated in the part number table are maximum values.

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Technical Data

Classification:	ETIM 5.0 Class-ID: EC000993 ETIM 5.0 Class-Description: Single core cable
Conductor stranding:	Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
Minimum bending radius:	At a cable temperature of 20 °C ±10 °C, according to HD 516 OD ≤ 8 mm: 4 x OD*/2 x OD** 8 < OD ≤ 12 mm: 5 x OD*/3 x OD** OD > 12 mm: 6 x OD*/4 x OD**
Nominal voltage:	U_0/U: 450/750 V
Test voltage:	2500 V
Current rating:	VDE 0298 Part 4 HD 516/VDE 0298-300
Temperature range:	Fixed installation: -30 °C to +80 °C Moved: +5 °C to +70 °C

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Part number	Conductor cross-section (mm²)	Outer diameter (mm)	Core colour	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)
4520001S	1,5	3.4	green/yellow		150	14.4	22
4520011S	1,5	3.4	black		150	14.4	22
4520021S	1,5	3.4	blue		150	14.4	22
4520141S	1,5	3.4	Dark blue		150	14.4	22
4520031S	1,5	3.4	brown		150	14.4	22
4520041S	1,5	3.4	red		150	14.4	22
4520051S	1,5	3.4	white		150	14.4	22
4520061S	1,5	3.4	grey		150	14.4	22
4520002S	2,5	4.1	green/yellow		100	24.0	37
4520012S	2,5	4.1	black		100	24.0	37
4520022S	2,5	4.1	blue		100	24.0	37
4520142S	2,5	4.1	Dark blue		100	24.0	37
4520032S	2,5	4.1	brown		100	24.0	37
4520042S	2,5	4.1	red		100	24.0	37
4520062S	2,5	4.1	grey		100	24.0	37
4520001	1,5	3.4	green/yellow	100		14.4	22
4520011	1,5	3.4	black	100		14.4	22
4520021	1,5	3.4	blue	100		14.4	22
4520141	1,5	3.4	Dark blue	100		14.4	22
4520031	1,5	3.4	brown	100		14.4	22
4520111	1,5	3.4	yellow	100		14.4	22
4520121	1,5	3.4	green	100		14.4	22
4520071	1,5	3.4	violet	100		14.4	22
4520041	1,5	3.4	red	100		14.4	22
4520051	1,5	3.4	white	100		14.4	22
4520061	1,5	3.4	grey	100		14.4	22
4520161	1,5	3.4	ultra-marine blue	100		14.4	22
4520002	2,5	4.1	green/yellow	100		24.0	37
4520012	2,5	4.1	black	100		24.0	37
4520022	2,5	4.1	blue	100		24.0	37
4520142	2,5	4.1	Dark blue	100		24.0	37
4520032	2,5	4.1	brown	100		24.0	37
4520112	2,5	4.1	yellow	100		24.0	37
4520122	2,5	4.1	green	100		24.0	37

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Part number	Conductor cross-section (mm²)	Outer diameter (mm)	Core colour	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)
4520072	2,5	4.1	violet	100		24.0	37
4520042	2,5	4.1	red	100		24.0	37
4520052	2,5	4.1	white	100		24.0	37
4520062	2,5	4.1	grey	100		24.0	37
4520162	2,5	4.1	ultra-marine blue	100		24.0	37
4520003	4	4.8	green/yellow	100		38.4	45
4520013	4	4.8	black	100		38.4	45
4520023	4	4.8	blue	100		38.4	45
4520143	4	4.8	Dark blue	100		38.4	45
4520033	4	4.8	brown	100		38.4	45
4520113	4	4.8	yellow	100		38.4	45
4520123	4	4.8	green	100		38.4	45
4520043	4	4.8	red	100		38.4	45
4520053	4	4.8	white	100		38.4	45
4520063	4	4.8	grey	100		38.4	45
4520163	4	4.8	ultra-marine blue	100		38.4	45
4520004	6	5.3	green/yellow	100		57.6	71
4520014	6	5.3	black	100		57.6	71
4520024	6	5.3	blue	100		57.6	71
4520144	6	5.3	Dark blue	100		57.6	71
4520034	6	5.3	brown	100		57.6	71
4520114	6	5.3	yellow	100		57.6	71
4520124	6	5.3	green	100		57.6	71
4520074	6	5.3	violet	100		57.6	71
4520094	6	5.3	orange	100		57.6	71
4520044	6	5.3	red	100		57.6	71
4520054	6	5.3	white	100		57.6	71
4520064	6	5.3	grey	100		57.6	71
4520164	6	5.3	ultra-marine blue	100		57.6	71
4520005	10	6.8	green/yellow	100		96.0	120
4520015	10	6.8	black	100		96.0	120
4520025	10	6.8	blue	100		96.0	120
4520145	10	6.8	Dark blue	100		96.0	120
4520035	10	6.8	brown	100		96.0	120

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Part number	Conductor cross-section (mm²)	Outer diameter (mm)	Core colour	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)
4520095	10	6.8	orange	100		96.0	120
4520045	10	6.8	red	100		96.0	120
4520055	10	6.8	white	100		96.0	120
4520065	10	6.8	grey	100		96.0	120
4520006	16	8.1	green/yellow			153.6	187
4520016	16	8.1	black			153.6	187
4520026	16	8.1	blue			153.6	187
4520146	16	8.1	Dark blue			153.6	187
4520036	16	8.1	brown			153.6	187
4520126	16	8.1	green			153.6	187
4520096	16	8.1	orange			153.6	187
4520046	16	8.1	red			153.6	187
4520056	16	8.1	white			153.6	187
4520066	16	8.1	grey			153.6	187
4521001	25	10.2	green/yellow			240.0	290
4521011	25	10.2	black			240.0	290
4521021	25	10.2	blue			240.0	290
4521031	25	10.2	brown			240.0	290
4521091	25	10.2	orange			240.0	290
4521041	25	10.2	red			240.0	290
4521002	35	11.7	green/yellow			336.0	399
4521012	35	11.7	black			336.0	399
4521022	35	11.7	blue			336.0	399
4521032	35	11.7	brown			336.0	399
4521042	35	11.7	red			336.0	399
4521092	35	11.7	orange			336.0	399
4521062	35	11.7	grey			336.0	399
4521003	50	13.9	green/yellow			480.0	559
4521013	50	13.9	black			480.0	559
4521023	50	13.9	blue			480.0	559
4521043	50	13.9	red			480.0	559
4521004	70	16.0	green/yellow			672.0	776
4521014	70	16.0	black			672.0	776
4521024	70	16.0	blue			672.0	776

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Part number	Conductor cross-section (mm²)	Outer diameter (mm)	Core colour	m/ring	m/spool	Copper index (kg/km)	Weight (kg/km)
4521044	70	16.0	red			672.0	776
4521005	95	18.2	green/yellow			912.0	1031
4521015	95	18.2	black			912.0	1031
4521025	95	18.2	blue			912.0	1031
4521006	120	20.2	green/yellow			1152.0	1285
4521016	120	20.2	black			1152.0	1285
4521007	150	22.5	green/yellow			1440.0	1563
4521017	150	22.5	black			1440.0	1563
4521008	185	24.9	green/yellow			1776.0	1915
4521018	185	24.9	black			1776.0	1915
4521009	240	28.4	green/yellow			2304.0	2550
4521019	240	28.4	black			2304.0	2550
4520091	1,5	3.4	orange	100		14.4	22
4520092	2,5	4.1	orange	100		24.0	37
4520093	4	4.8	orange	100		38.4	45

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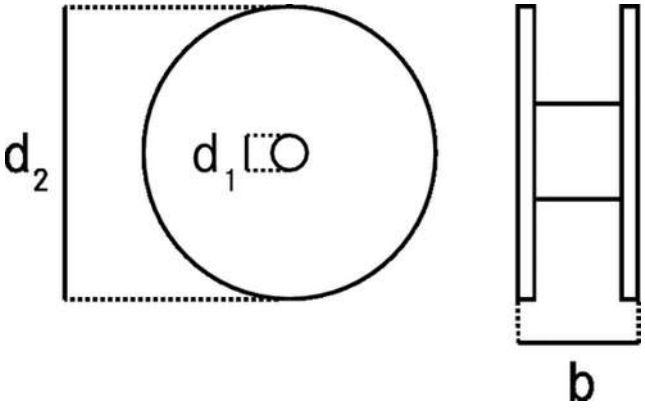

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