



Hook-up & equipment wires

EN 50306-3

Thin-Wall Screened Rolling Stock Cable

EN 50306-3 300 V thin-wall tinned-Cu screened pair/triad/quad railway cable



EN 50306-3 Screened

300 V · 1C / Pair / Triad / Quad

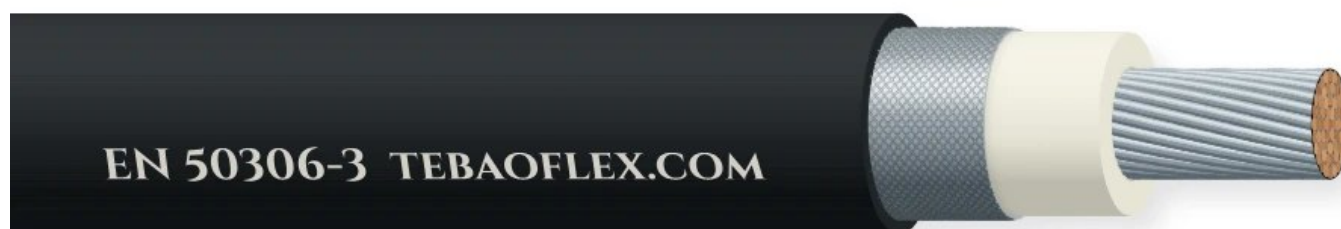
EN 45545-2 HL3

Application

Compact 300 V EMC-screened railway rolling-stock signal element certified to EN 50306-3 and EN 45545-2 HL3, assembling 1, 2 (pair), 3 (triad) or 4 (quad) EN 50306-2 thin-wall cores (0.5–2.5 mm²) inside a tinned-Cu braid screen and thin EM 104 LSZH sheath.

Typical uses: TCMS, ATP/ETCS & onboard signalling, Wheel-slide protection (WSP) & speed sensors, Traction motor & gearbox Pt100 RTD leads, Passenger announcement & cab audio links, Sub-elements for EN 50306-4 multipair harnesses

Construction



Cross-section, not to scale

1	19/37-strand tinned copper conductor	EN 50306-2 / EN 50306-3
2	Thin-wall EI 101-105 core insulation	EN 50306-1 / EN 50306-2
3	Tinned-copper wire braid screen (S)	EN 50306-3 · EN 50121-3-2
4	Thin-wall EM 104 outer sheath (M)	EN 50306-1 EM 104 · EN 45545-2 HL3

Technical data

Typical values

Rated voltage U0/U	300/300 V AC (max. operating 330 V AC / 495 V DC)	AC test voltage (50 Hz)	1.5 kV AC (core/core) · 1.0 kV AC (core/screen) for 5 min
Surface transfer impedance	≤ 100 mΩ/m at 30 MHz	Max. DC conductor resistance (20 °C)	0.5 mm ² : ≤ 40.1 Ω/km · 0.75 mm ² : ≤ 26.7 Ω/km · 1.0 mm ² : ≤ 20.0 Ω/km · 1.5 mm ² : ≤ 13.7 Ω/km
Operating temperature range	−40 °C (Class E) or −25 °C (Class P) to +90 °C (+105 °C 20,000 h class)	Short-circuit temperature	+200 °C max. (5 s)
Min. bending radius, fixed	5 × overall diameter	Min. bending radius, flexing	10 × overall diameter
Thin-wall sheath thickness	0.30 mm nominal outer EM 104 sheath wall for ultra-compact screened pairs/quads	Railway fire safety	EN 45545-2 Hazard Level HL1, HL2 & HL3 (Requirement Sets R15 & R16)
Oil, fuel & fluids	EM 104 cross-linked sheath resists mineral oil (IRM 902), diesel fuel (IRM 903) and cleaning agents	Smoke & toxicity	EN 61034-2 low smoke · EN 60754-1/2 zero halogen · EN 50305 low toxicity
Standards	EN 50306-3 (Thin wall screened 1 to 4 core railway rolling stock cables)	Standard packing	Heat-treated ISPM-15 timber drums or spools with sealed ends

Sizes

17 standard constructions

Tick the sizes you need and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

Order designation	Cores × mm ² / AWG	AWG ≈	Outer Ø min mm	Outer Ø max mm	Copper kg/km	Weight ≈ kg/km	Min. bend R mm
1-Core Screened Thin-Wall Signal Wires (EN 50306-3 1×mm ² SM) 4 sizes							
☐ EN 50306-3 1×0.5 SM	1×0.5	20	2.3	2.5	11	15	12
☐ EN 50306-3 1×0.75 SM	1×0.75	18	2.5	2.7	14	18	14
☐ EN 50306-3 1×1.0 SM	1×1.0	18	2.7	2.9	17	22	14
☐ EN 50306-3 1×1.5 SM	1×1.5	16	3.0	3.3	23	29	16
2-Core Screened Twisted Pairs (EN 50306-3 2×mm ² SM) 5 sizes							
☐ EN 50306-3 2×0.5 SM (Pair)	2×0.5	20	3.6	3.9	19	28	20
☐ EN 50306-3 2×0.75 SM (Pair)	2×0.75	18	4.0	4.3	25	36	22
☐ EN 50306-3 2×1.0 SM (Pair)	2×1.0	18	4.2	4.6	31	44	23
☐ EN 50306-3 2×1.5 SM (Pair)	2×1.5	16	5.0	5.4	43	61	27
☐ EN 50306-3 2×2.5 SM (Pair)	2×2.5	14	6.1	6.6	65	92	33
3-Core Screened Triads & 4-Core Star-Quads (EN 50306-3 3×/4×mm ² SM) 8 sizes							
☐ EN 50306-3 3×0.5 SM (Triad)	3×0.5	20	3.8	4.1	25	35	20
☐ EN 50306-3 3×0.75 SM (Triad)	3×0.75	18	4.1	4.5	33	45	22
☐ EN 50306-3 3×1.0 SM (Triad)	3×1.0	18	4.5	4.9	42	56	24
☐ EN 50306-3 3×1.5 SM (Triad)	3×1.5	16	5.3	5.8	59	78	29
☐ EN 50306-3 4×0.5 SM (Quad)	4×0.5	20	4.1	4.5	31	43	22
☐ EN 50306-3 4×0.75 SM (Quad)	4×0.75	18	4.6	5.0	42	56	25
☐ EN 50306-3 4×1.0 SM (Quad)	4×1.0	18	5.0	5.4	53	70	27
☐ EN 50306-3 4×1.5 SM (Quad)	4×1.5	16	5.9	6.4	75	98	32

– Dimensions and weights are typical values per EN 50306-3 / EN 45545-2 HL1–HL3. Minimum fixed bending radius shown is 5 × OD.

Electrical & current ratings

5 sizes

Cross-section mm ²	AWG ≈	Max. DC resistance 20 °C, Ω/km	Single wire in air 30 °C, A	Multi-core bundle 30 °C, A
0.5	20	40.1	10	7
0.75	18	26.7	13	10
1	18	20	16	12
1.5	16	13.7	21	16
2.5	14	8.21	30	22

– Current ratings at 30 °C ambient in free air. Apply temperature and bundle grouping factors per applicable equipment standard.

Standards and approvals

✓ EN 50306-3 / EN 45545-2 HL1–HL3

✓ CE · RoHS 2 (2011/65/EU) · REACH

Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

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Email

info@tebaoflex.com

Web

tebaoflex.com/cables/thin-wall-screened-rolling-stock-cable



Typical values for this cable type, based on EN 50306-3 / EN 45545-2 HL1–HL3. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.