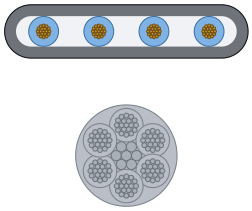
TVVB / TVVBG Elevator Travelling Flat Cable

SORIVO Product Series: **flat travelling cable** | TVVB · TVVBG (steel rope) | 300/500 V · 450/750 V | Class 5 copper · PVC · 2–66 cores



- PVC sheath, grey RAL 7001 — section drawn at 4 × 0.75 mm²
- Bare copper, Class 5 — 30 × 0.18 mm at 0.75 mm²
- Galvanised steel rope 6×19+IWS, Ø4.0+0.4 mm — drawn at 2× the section scale
- PVC insulation over a Class 5 conductor
- PVC filler between the cores

APPLICATION

Flat travelling cable for the moving loop between a lift car and the machine room or controller. It carries the car light, door operator, safety circuit and control signals through a run that bends millions of times over the life of the installation, in a shaft with no room for a round cable's bend radius.
The same construction serves cranes, hoists, transfer cars and production lines — anywhere a cable is suspended and flexed rather than laid.

CONSTRUCTION — TVVBG

Conductor
Bare copper, Class 5 to IEC 60228 / VDE 0295

Insulation
PVC, type TI 1 to GB/T 5023.1

Lay-up
One row (“一字”) or bunched (“梅花”)

Strength member
Galvanised steel rope 6×19+IWS, Ø4.0+0.4 mm, 12.4 kN min. breaking

Sheath
PVC, grey RAL 7001, flame retardant

G MEANS THE ROPE, NOT A GROUND CORE

In the Chinese type designation **G is the galvanised steel strength member** — TVVBG is “PVC insulated, PVC sheathed, flat, with steel rope”. It is not a green/yellow earth core and it is not “grounded”. The GB/T 5023.6 colour code (yellow, white, orange, light green, pink, plus numbers) deliberately has **no** green/yellow core; the HD 308 code used on the European equivalents does. The two codes are not interchangeable.

ROPE OR NO ROPE

Without a rope a one-row cable runs to 35 m at 1.6 m/s, a bunched one to 80 m at 4 m/s. Beyond that the rope is a requirement, not an option — see Table 6.

STANDARDS AND STATUS

- GB/T 5023.6-2006 — identical (IDT) to IEC 60227-6:2001; the type 60227 IEC 71f is the same cable as TVVB
- JB/T 8734.6-2016 — elevator cable, 300/500 V, flat PVC, up to 24 cores
- IEC 60227-6 — the international parent of the above
- EN 50214 — European flat lift cable, PVC or halogen-free
- GB/T 18380.1 / GB/T 18380.12 — the flame test cited by the two GB standards

TECHNICAL PARAMETERS

Rated Voltage
300/500 V up to 1 mm²; 450/750 V above 1 mm²

Test Voltage
2 500 V a.c. (H07VVH6-F practice: 3 000 V)

Conductor Temperature
70 °C continuous; 160 °C for 5 s in short circuit

Ambient, Moving
-15 °C to +70 °C

Ambient, Fixed
-30 °C to +70 °C

Lowest Laying Temperature
0 °C

Min. Bend Radius
4× thickness fixed, 5× moving, 10× on pulleys

Flame
IEC 60332-1-2 / GB/T 18380.12, single cable vertical

300/500 V	12.4 kN	66
450/750 V above 1 mm²	rope breaking load	cores, bunched

DIMENSIONS — WITH THE STEEL ROPE

Table 1 — one row (一字) and bunched (梅花), both TVVBG

CORES × MM²	WIDTH MM	THICKNESS MM	WEIGHT KG/KM
2 × 0.75	13.5 ± 1.0	4.2 ± 0.5	111
4 × 0.75	19.2 ± 1.0	4.2 ± 0.5	156
6 × 0.75	23.9 ± 1.5	4.2 ± 0.5	195
8 × 0.75	29.6 ± 1.5	4.2 ± 0.5	240
10 × 0.75	34.3 ± 2.0	4.2 ± 0.5	279
12 × 0.75	39.0 ± 2.0	4.2 ± 0.5	297
16 × 0.75	50.1 ± 2.0	4.2 ± 0.5	383
20 × 0.75	60.5 ± 2.5	4.2 ± 0.5	461
24 × 0.75	70.9 ± 2.5	4.2 ± 0.5	540

These rows are the rope-reinforced construction. The same core count laid without a rope is 8–9 mm narrower and 110–160 kg/km lighter — for 24 cores, 31.3 mm and 470 kg/km instead of 40.3 mm and 609 kg/km. Mixing the two sets describes a different product from the one in the title.

BUNCHED LAY-UP

Table 2 — above 24 cores the cores are bunched

CORES × MM²	WIDTH MM	THICKNESS MM	WEIGHT KG/KM
24 × 0.75	40.3 ± 2.0	8.4 ± 0.5	609
30 × 0.75	48.1 ± 2.0	7.8 ± 0.5	705
36 × 0.75	51.7 ± 2.0	8.4 ± 0.5	821
40 × 0.75	58.9 ± 2.0	7.8 ± 0.5	870
42 × 0.75	58.7 ± 2.0	8.4 ± 0.5	952
48 × 0.75	64.7 ± 2.5	8.4 ± 0.5	1 052
54 × 0.75	70.7 ± 2.5	8.4 ± 0.5	1 151
60 × 0.75	76.7 ± 2.5	8.4 ± 0.5	1 251

Bunched cable doubles the thickness for the same width, and thickness is what sets the bend radius and the shaft clearance. It buys core count, not a tighter bend. Above 60 cores the construction is quoted per project: the range claimed on the market reaches 66 and, from some makers, 80.

- **One row** — 2 to 24 cores, 0.5 to 2.5 mm². Thin, wide, the natural fit for a car roof where the cable lies flat.
- **Bunched** — 12 to 66 cores, 0.5 to 0.75 mm². Narrower and thicker, used when the number of circuits matters more than the profile.
- **450/750 V** — available from 1.5 to 25 mm² in the one-row construction; above 1 mm² the finer Class 6 conductor is the usual choice on the European equivalents.

Tolerances and weights are the manufacturer's values for this construction, ± on width and thickness, nominal on weight. A second maker publishing the same table is 0.4–1.7 mm wider and up to 12 % heavier; the two sets are never mixed.

CONDUCTOR AND RESISTANCE

Table 3 — Class 5, values identical to IEC 60228 Class 5

MM²	CONDUCTOR, N × Ø MM	DCR Ω/KM AT 20 °C	INSULATION RESISTANCE MΩ·KM
0.75	30 × 0.18	26.0	0.011
1.0	32 × 0.20	19.5	0.010
1.5	48 × 0.20	13.3	0.010
2.5	47 × 0.26	7.98	0.009
4	77 × 0.26	4.95	0.007
6	112 × 0.26	3.30	0.006
10	182 × 0.26	1.91	0.0056
16	301 × 0.26	1.21	0.046
25	456 × 0.26	0.78	0.0044

The 20 °C maxima in this table are the IEC 60228 Class 5 figures, which is the independent check that the conductor really is Class 5 and not a Class 2 strand. A higher resistance at the same cross-section means a coarser conductor, and a coarser conductor in a travelling cable is a shorter life.

THE STEEL ROPE

Table 4 — what "G" actually adds

PROPERTY	VALUE
Construction	6 × 19 + IWS, galvanised steel wire
Nominal rope diameter	4.0 + 0.4 mm
Wire diameter	0.26–0.28 mm (nominal < 0.4 ± 0.01 mm)
Minimum breaking load	12.4 kN
Elongation	< 1.0 %
Zinc coating	15–25 g/m², continuous, no cracking or flaking
Lay	Right hand lang lay; the core lay opposes the outer strands
Diameter growth, unlaid	< 0.43 mm

What is published is the rope, not the cable. 12.4 kN is the minimum breaking load of one rope in a tensile test. The number of ropes per construction, their position in the flat section, and the resulting tensile rating of the finished cable are set per construction drawing and are not published by any maker we could verify — so they are not stated here. Ask for the drawing.

> **A rope is not a substitute for a strain-relief clamp.** The rope carries the cable's own weight over the free length; it does not carry the load of a badly fixed cable gland. Terminate the rope in the strain relief at the car end, keep the copper cores free of tension, and the travelling loop stays round instead of flattening at the clamp.

WHAT THE ROPE COSTS

Table 5 — same core count, same maker, rope added

CORES × 0.75	TVVB WIDTH	TVVBG WIDTH	TVVB WEIGHT	TVVBG WEIGHT
24	31.3 mm	40.3 mm	470 kg/km	609 kg/km
36	43.5 mm	51.7 mm	691 kg/km	821 kg/km
48	55.5 mm	64.7 mm	891 kg/km	1 052 kg/km
60	67.5 mm	76.7 mm	1 090 kg/km	1 251 kg/km

Width grows 7.2 mm and weight 110–160 kg/km at every core count — the rope is a constant addition, not a proportional one. The 7.2 mm matters before the weight does: it is the difference between clearing the car roof and fouling it.

WHEN THE ROPE STOPS BEING OPTIONAL

Table 6 — free suspension length and travelling speed

LAY-UP	WITHOUT ROPE	WITH STEEL ROPE
One row (一字)	≤ 35 m at ≤ 1.6 m/s	> 80 m, up to 10 m/s
Bunched (梅花)	≤ 80 m at ≤ 4 m/s	> 80 m, up to 10 m/s

The same two numbers are read two ways, and both are right: 35 m / 1.6 m/s is the limit of a rope-free one-row cable *and* the threshold above which a rope is called for. One maker quotes 40 m and 2 m/s; three others agree on 35/1.6, which is what we state.

- **Bend radius** — 4× the thickness fixed, 5× free movement, 10× over a pulley or in a festoon. A second convention reads 6× the minor edge, or 4×D up to 25 mm and 6×D above. All of them are multiples of the *thickness*, never a fixed millimetre value.
- **Do not lay one cable on another.** Overlaying a flat travelling cable is the one installation practice every source warns against — the upper cable wears through the lower one's sheath at the bend.
- **Suspend it, do not guide it.** The loop has to hang free and twist as the car moves; a guide holding the flat face rigid puts all the bending into one line of the sheath.
- **Below 0 °C do not lay it.** The sheath is formulated to stay flexible to -15 °C in service, but installation at or below freezing cracks a PVC sheath that is being bent for the first time.

Disclaimer. The information in this datasheet is for guidance only and is subject to change without notice. Dimensions and masses are nominal and subject to manufacturing tolerance; confirm against the certificate of the delivered product. This document is uncontrolled once printed or forwarded — the current revision, issued under document number SORIVO-TM-LIFT-001, governs. © 2026 SORIVO. All rights reserved. Bending-cycle life, the ratio of cable length to travel height, and the tensile rating of the finished cable are not published by any maker we could verify and are not stated. Dimensions are for the rope-reinforced construction; the rope-free construction is narrower and lighter and is quoted separately.