KVV / KVVR / KVVP PVC Insulated and Sheathed Control Cable

SORIVO Product Series: **PVC insulated control cable** | Rated Voltage 450/750 V | Standard GB/T 9330-2020 | Cores 2–61 | Cross-Sections 0.5–10 mm²



Schematic cross-section — not to scale. Outer diameter is stated on the construction drawing for the ordered construction.

APPLICATION

For control, interlock, measurement and signalling circuits in switchgear, motor control centres, PLC panels and plant wiring at 450/750 V, for fixed installation in trays, conduits, ducts and trenches.

CONSTRUCTION

Conductor
Annealed copper, Class 1 solid or Class 2 stranded (GB/T 3956); Class 5 for KVVR

Insulation
PVC compound

Core lay-up
Laid-up cores with filler; colour or numbered identification

Screen (KVVP / KVVP2)
Copper wire braid or copper tape over the core bundle

Armour (KVV22)
Steel tape between inner and outer sheath

Sheath
PVC compound, black as standard

MODEL DESIGNATION

K control cable · **V** PVC insulation · **V** PVC sheath · **R** flexible, Class 5 conductor · **P / P2** copper wire braid / copper tape screen · **22** steel tape armour

KEY FEATURES

- Single voltage class — 450/750 V, no 300/500 V variant in this family
- Class 1, 2 or 5 copper conductors to GB/T 3956
- Copper braid (KVVP) or copper tape (KVVP2) screen; steel tape armour (KVV22)
- 3000 V AC withstand test on every production length

STANDARDS

- GB/T 9330-2020 — plastic insulated control cables (replaces GB/T 9330.1/.2/.3-2008)
- GB/T 3956-2008 — conductors of insulated cables
- GB/T 19666-2019 — flame-retardant classes ZA / ZB / ZC (optional)

TECHNICAL PARAMETERS

Rated Voltage (U_0/U)
450/750 V AC, 50 Hz

Cores
2 to 61, depending on cross-section

Cross-Sections
0.5 / 0.75 / 1.0 / 1.5 / 2.5 / 4 / 6 / 10 mm²

Conductor Temperature
+70 °C continuous · +160 °C short circuit (≤5 s)

Bending Radius
≥ 6 × D unarmoured · ≥ 12 × D armoured or tape screened

Withstand Test
3000 V AC, 5 minutes, every production length

BADGES

450/750 V	2–61	+70 °C
single voltage class	cores	continuous

MODEL DESIGNATION

Table 1 — Types and what each one is for

MODEL	DESCRIPTION	CONDUCTOR	SCREEN OR ARMOUR
KVV	Copper conductor, PVC insulated, PVC sheathed — basic type for fixed installation	Class 1 or 2	None
KVV22	As KVV with steel tape armour between inner and outer sheath	Class 1 or 2	Steel tape (22)
KVVP	As KVV with copper wire braid screen over the laid-up cores	Class 1 or 2	Copper braid (P)
KVVP2	As KVV with copper tape screen over the laid-up cores	Class 1 or 2	Copper tape (P2)
KVVR	Flexible control cable for hand forming and repeated bending	Class 5	None
KVVRP	Flexible control cable with copper wire braid screen	Class 5	Copper braid (P)
KVVRP2	Flexible control cable with copper tape screen	Class 5	Copper tape (P2)
KVVR22	Flexible control cable with steel tape armour	Class 5	Steel tape (22)
KVVP2-22	Copper tape screened and steel tape armoured, rigid or flexible	Class 1, 2 or 5	Copper tape + steel tape

Flame-retardant versions are ordered by adding the class to the model designation — ZA-, ZB- or ZC-class per GB/T 19666-2019 with the matching flame-retardant PVC compound. Fire-resistant types are prefixed N-, low-smoke halogen-free types WDZ-.

CORE RANGE

Table 2 — Typical core counts by cross-section

CROSS-SECTION mm²	CORE COUNT	NOTES
0.5	2–61	widest core range in the family
0.75	2–61	—
1.0	2–61	—
1.5	2–37	—
2.5	2–24	—
4	2–14	—
6	2–10	—
10	2–10	upper limit set by finished diameter

The core range narrows as the cross-section grows because the finished diameter and the buildability of the core bundle set the limit, not the conductor standard. Screened and armoured types are available across the same cross-sections, with the screen or armour adding to the outer diameter.

> **Standard reference.** GB/T 9330-2020 replaced GB/T 9330.1-2008, GB/T 9330.2-2008 and GB/T 9330.3-2008 and is the current standard for plastic insulated control cables. A document that cites GB/T 9330.2-2008 is quoting a withdrawn edition.

CONSTRUCTION AND PERFORMANCE

Table 3 — General information, electrical ratings and environment

ITEM	VALUE
Product name	KVV / KVVR / KVVP PVC insulated and sheathed control cable
Standard	GB/T 9330-2020, plastic insulated control cables
Conductor standard	GB/T 3956-2008, conductors of insulated cables
Rated voltage (U_0/U)	450/750 V AC, 50 Hz — the only voltage class of this family
Conductor	Annealed copper: Class 1 solid or Class 2 stranded for KVV; Class 5 for KVVR
Cross-sections	0.5 / 0.75 / 1.0 / 1.5 / 2.5 / 4 / 6 / 10 mm²
Core counts	2 to 61 depending on cross-section — see Table 2
Insulation	PVC compound
Sheath	PVC compound, black as standard; other colours on request
Core identification	Colour-coded up to five cores; white cores with black numerals from six cores upward; green/yellow protective conductor where specified
Screen (KVVP / KVVRP)	Copper wire braid over the laid-up core bundle
Screen (KVVP2 / KVVRP2)	Copper tape over the laid-up core bundle
Armour (KVV22 / KVVR22)	Steel tape between inner and outer sheath
Withstand test	3000 V AC, 50 Hz, 5 minutes, applied to every production length
Conductor temperature	+70 °C continuous; +160 °C short circuit (≤5 s)
Ambient / installation	-15 °C working ambient; not to be installed below 0 °C
Bending radius	≥ 6×D unarmoured and unscreened; ≥ 12×D armoured or tape screened
Flame performance	Single-core vertical flame test to IEC 60332-1 as standard; ZA / ZB / ZC classes to GB/T 19666-2019 on request
Outer diameter	Depends on core count, cross-section and screen or armour; stated on the construction drawing

Bending radius. The 12 × D figure for taped and armoured constructions is the one most often ignored: pulling a copper-tape screened or steel-tape armoured cable round a 6 × D bend crushes the tape or armour, and the damage is invisible from outside the sheath.

What the 3000 V test is and is not. It is the finished-cable routine test applied to every production length — a check that this length has no gross insulation defect. It is not a statement of the dielectric strength of the PVC compound, which is a material property and is not quoted as a product parameter. Insulation resistance is measured separately on the finished cable and recorded per production length.

ROUTINE TESTS

Table 4 — Tests on every production length

ITEM	SCOPE
Conductor resistance	Measured per length and compared with the GB/T 3956 limit for the class and cross-section
Insulation resistance	Measured on the finished cable at the specified test voltage
Voltage test	3000 V AC, 5 minutes, on every production length
Dimensional and marking check	Insulation and sheath thickness, outer diameter, core identification and sheath marking against the construction drawing

MARKING

Table 5 — What appears on the sheath and printed on the sheath

ITEM	CONTENT
Sheath marking	Manufacturer name, model designation, rated voltage 450/750 V, core count × cross-section, standard number GB/T 9330-2020, and the length marking

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-KVV-001, governs. © 2026 SORIVO. All rights reserved. Final selection should be based on the installation method and the project specification; the construction drawing governs the delivered build.