Types of electrical cables: classification chart

Each cable can appear on several axes at once (function, voltage, construction, insulation, fire performance, installation). Armoured cable is a construction category.

Cable type	Main axis	Main purpose	Typical construction	Typical applications	Watch out for	Standard family / region
LV power cable	Function and voltage	Carries power up to about 1 kV	Copper or aluminium conductors, PVC or XLPE insulation, optional bedding, armour and sheath	Motors, panels, distribution boards, machines	Size and install to the wiring rules; PVC has the lower temperature rating	IEC 60502-1; BS 5467 and BS 6724 (UK armoured)
MV power cable	Function and voltage	Carries power from about 1 kV to 35 kV	XLPE or EPR insulation, conductor and insulation screens, metallic screen, sheath, optional armour	Substations, transformers, large motors	Needs MV design, terminations and testing skills	IEC 60502-2 (6 to 30 kV)
Control cable	Function	Carries commands and interlock signals	Multicore, small conductors (often 1.5 or 2.5 mm²), PVC sheath, screened or armoured when needed	PLC panels, contactors, relays, starters	Not for bulk power; screen it near noisy cables	Product standard and local code
Instrumentation cable	Function and signal quality	Carries small measurement signals	Twisted pairs or triads, individual and overall screens, drain wire, tough sheath	Sensors, transmitters, PLC, DCS, SCADA	Screen earthing and routing decide performance	Project specification and product standard
Communication and data cable	Function and protocol	Carries data	Twisted pair, coaxial or fibre; industrial jackets and screening	Ethernet, fieldbus, CCTV, plant networks	Must match protocol and distance; keep copper away from power	Network standard and product standard
Flexible and trailing cable	Mechanical duty	Moves with equipment	Class 5 or 6 conductors, rubber or special sheath	Cranes, robots, portable tools, site equipment	Flexing life varies by design; check bend radius	IEC 60228 Class 5 and 6; for example H07RN-F (EN 50525-2-21)
VFD (motor) cable	Application-specific	Connects a drive to a motor	Symmetrical cores and earths, copper tape or braid screen	Motors fed by variable frequency drives	Needs 360° screen termination at both ends	Drive maker's manual; no single universal standard
Fire-resistant cable	Fire performance	Keeps a circuit working in a fire	Mica-glass tape barrier, insulation, often an LSZH sheath	Emergency lighting, fire alarms, fire pumps	Must meet the specified test and survival time	IEC 60331
LSZH / LSOH cable	Fire emissions	Gives low smoke and no halogen acid gas	LSZH insulation, bedding or sheath	Tunnels, public buildings, offshore	Not automatically fire-resistant	IEC 60754, IEC 61034; BS 6724 (UK)
Armoured cable	Mechanical protection (construction)	Resists impact and crushing	Steel wire or tape (multicore) or aluminium wire (single-core AC) over bedding	Buried, outdoor and exposed plant routes	Needs the right glands and earthing	BS 5467, BS 6724, IEC 60502
Solar (PV) cable	Application-specific	Carries DC from solar modules	Single-core, flexible tinned copper, cross-linked halogen-free insulation and sheath	Solar strings and inverter links	Use PV-rated cable only (DC up to 1,500 V)	EN 50618 (H1Z2Z2-K)
Twin and Earth cable	Function and construction	Fixed wiring in buildings	Flat PVC cable with two insulated cores and a bare earth	Lighting and socket circuits in homes	Not for unprotected outdoor or damage-prone routes	BS 6004 (6242Y)

This is a classification chart, not a sizing or ampacity chart. Current capacity depends on conductor material, insulation, installation method, ambient temperature and grouping. Size cables to BS 7671 (UK) or your local code, and have a competent person check the design. Standards are region-specific (IEC, BS, NEC/UL) and are not interchangeable. Typical values only; confirm against the current standard and the cable datasheet. Last checked 15 November 2026. industrialbasics.com/types-of-electrical-cables/