INDUSTRIAL & FIRE RESISTANT CABLES

Technical Product Matrix & Engineering Specifications

ARTAR KABLO SAN. VE TİC. LTD. ŞTİ.
Karaköy / Başakşehir / İstanbul — TURKEY
Tel: +90 212 251 59 59 | www.artarkablo.com.tr

Engineering Overview: Artar Kablo manufactures high-performance industrial automation, flexible control, screened instrumentation, heavy-duty PUR, spiral cables, and certified fire-resistant cables designed to guarantee signal and power integrity in mission-critical applications in compliance with EN, IEC, VDE, and DIN standards.

1. COMPREHENSIVE PRODUCT RANGE & TECHNICAL DATA MATRIX

CABLE TYPE	APPLICATION FIELD	STANDARD	CONDUCTOR	INSULATION / SHEATH	VOLTAGE	TEMP. RANGE	KEY PROPERTIES
LIYY / LIHH	Automation, office machines, indoor signal systems	VDE 0812 / EN 50290	Class 5 Bare Flexible Copper	PVC / HFFR (Halogen-Free Flame Retardant)	250V / 300-500V	-30°C / +70°C	High flexibility for narrow spaces
LIYCY / LIHCH	Process control, instrumentation with EMI protection	VDE 0812 / EN 50290	Class 5 Flexible Bare Copper	Tinned Copper Braid Screen + PVC / HFFR	250V / 300-500V	-30°C / +70°C	Optimal EMC electromagnetic shielding
YSLY / HSLH (Control-Flex)	Machine production, conveyor & assembly lines	VDE 0281 / IEC 60227	Class 5 Stranded Annealed Cu	Special Oil-Resistant PVC / HFFR Compound	300/500V / 0.6/1kV	-40°C / +80°C	Chemical, oil & mechanical resistance
YSLCY / HSLCH	Industrial machine tools, measuring & power supply	VDE 0281 / EN 50363	Class 5 Stranded Electrolytic Cu	Tinned Copper Braid Shield + PVC / HFFR	300/500V / 0.6/1kV	-30°C / +70°C	Braided screen against external noise
11YSL11Y (PUR Control)	Harsh chemical, oily, mining & hydraulic environments	VDE 0295 / IEC 60228	Class 5 Super-Flex Copper	Full Polyurethane (PUR) Outer Sheath	300/500V	-40°C / +80°C	Superior tear, abrasion & notch proof
ARTAR SPIRAL-FLEX	Robotics, crane lines, medical & expandable tools	IEC 60227 / VDE 0281	Class 5/6 Super-Flex Copper	Special Thermoplastic / PUR Orange/Grey	600V	-25°C / +70°C	1:4 Extension ratio, permanent memory
JE-H(st)H...Bd (Fire-Control)	Fire alarms, smoke extractors, emergency circuits	VDE 0815 / IEC 60331	Class 1/2 Solid/Stranded Cu	Silicone/Mica Tape + HFFR Sheath (Red/Grey)	300V / 300-500V	-40°C / +90°C	Circuit integrity under direct fire (FE180)

2. STANDARDS, ENVIRONMENTAL & SAFETY REGULATIONS GUIDE

IEC 60331-21/23 (Circuit Integrity FE180): Tests maintenance of circuit integrity under direct flame attack at 750°C to 950°C for 180 minutes without electrical breakdown.

DIN 4102-12 (System Function Integrity E30 - E90): Full installation test ensuring smoke extraction fans, emergency elevators, and fire sprinkler water pumps operate for 30 to 90 min.

EN 50200 / EN 50362 (Fire with Shock PH120): Evaluates cable operation under direct flame at 830°C to 950°C with continuous mechanical impact cycles every 5 min for 120 minutes.

EN 60754-1/2 & EN 61034-2 (Halogen-Free & Low Smoke): Zero emission of toxic/corrosive gases and high light transmittance (>60%) to safeguard human life and visibility during evacuation.

FIRE RATING / STANDARD	TEMPERATURE	DURATION	MECHANICAL SHOCK	RECOMMENDED PROJECT APPLICATION
FE180 (IEC 60331)	750°C - 950°C	180 min (3 Hours)	No	Emergency control panels, signal & power feeds
PH120 (EN 50200)	830°C - 950°C	120 min (2 Hours)	Yes (Periodic Impact)	Voice evacuation, emergency lighting & detection
E30 (DIN 4102-12)	Standard Fire Curve	30 min	Full System Test	Emergency exit signs, fire damper control units
E90 (DIN 4102-12)	Standard Fire Curve	90 min	Full System Test	Fire pumps, smoke extraction fans, emergency lifts

FIRE RESISTANT CABLES TESTING MATRIX

Flame, Thermal & Physical Impact Test Methods & Protocols

ARTAR KABLO SAN. VE TİC. LTD. ŞTİ.
Karaköy / Başakşehir / İstanbul — TURKEY
Tel: +90 212 251 59 59 | www.artarkablo.com.tr

METRIC / STANDARD	FE180	PH120	E30 / E60 / E90
Standard(s)	IEC 60331-21/23	TS/BS/EN 50200 EN 50362	DIN VDE 4102-12 DIN 4102-12
Temperature	**750°C**	**830 ± 40°C**	**Up to 1000°C**
Duration	180 min	120 min	30 min / 60 min / 90 min
Voltage	Up to 1 kV	Up to 1 kV	Up to 1 kV
Test Method	Flame applied to cable only	Flame & physical impact applied to cable	Flame applied to whole cable installation
Figure / Test Rig			
Explanation & Technical Scope	**IEC 60331-21/23:** Verifies test procedures for electric cables under fire conditions — Circuit integrity Part 21/23 without short circuit.	**EN 50200 / EN 50362:** Tests method of fire resistance for unprotected small/large cables for emergency circuits with shock.	**DIN 4102-12:** Specifies requirements & testing of circuit integrity in cable systems under real fire conditions (E30-E90).

BS 6387 PROTOCOL	CATEGORY C (CAT C)	CATEGORY W (CAT W)	CATEGORY Z (CAT Z)
Standard(s)	BS 6387 Protocol C	BS 6387 Protocol W	BS 6387 Protocol Z
Temperature	**950 ± 40°C**	**650 ± 40°C**	**950 ± 40°C**
Duration	180 min	30 min (15m fire + 15m water)	15 min
Voltage	Up to 1 kV		
Test Method	High temperature direct flame only	Flame & direct fire sprinkler water spray	Flame & mechanical shock every 30s
Figure / Test Rig			
Explanation & Technical Scope	**BS 6387 Protocol C:** Subjects cable under test to direct flame corresponding to 950°C for 180 min under rated voltage.	**BS 6387 Protocol W:** Direct flame at 650°C with simultaneous water spray simulating active sprinkler systems.	**BS 6387 Protocol Z:** Direct 950°C flame combined with indirect continuous mechanical shock cycles.