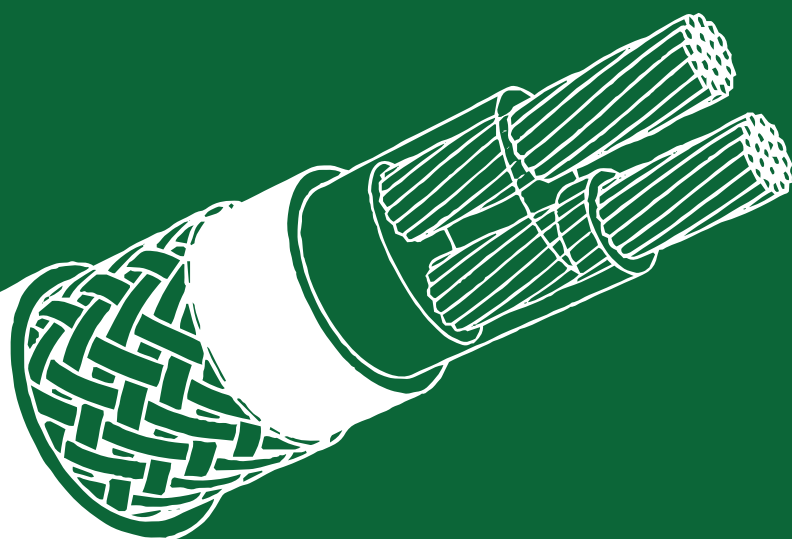


TIKA

C A B L E

**Oil, Gas &
Petrochemical**



Description

Oil, gas, and petrochemical plants operate in the most demanding environments — explosive atmospheres, corrosive chemicals, extreme temperatures, and constant vibration. Cables in this category are designed to meet the highest safety and reliability standards, including ATEX/IECEx for hazardous areas, NEK 606 for offshore platforms, and stringent fire performance requirements.

Products include instrumentation cables (screened pairs/triads) for process control signals, Intrinsically Safe (IS) cables with blue LSZH sheaths for hazardous Zone 0/1/2 areas, armoured control cables for ESD (Emergency Shutdown) systems, high-temperature silicone rubber cables for furnace and flare areas, and offshore marine cables (NEK 606/IEC 60092) for platforms and FPSOs.

Typical applications:

Refineries and petrochemical complexes

LNG terminals and gas processing plants

Offshore oil platforms and FPSO vessels

Drilling rigs and production facilities

Storage terminals and pipeline stations

Specification

Instrumentation Cable (Overall + Individual Screen)

Instrumentation cables are the nervous system of a process plant, carrying low-level analog signals from field sensors to the Distributed Control System (DCS) or Programmable Logic Controller (PLC). This cable features individually screened pairs or triads (to prevent crosstalk between circuits) plus an overall foil and drain wire screen (to reject external electromagnetic interference from nearby power cables or variable frequency drives). Copper conductors (typically 0.75mm² to 2.5mm²), polyethylene or XLPE insulation for excellent electrical properties, and a PVC or LSZH outer sheath provide reliable signal transmission over long distances. These cables are used for pressure transmitters, temperature sensors (thermocouples/RTDs), flow meters, level switches, and valve position feedback in refineries, chemical plants, and LNG facilities.

Intrinsically Safe (IS) Cable

Intrinsically Safe cables are specially designed for hazardous areas where explosive gases or dusts are present (Zone 0, 1, or 2). These cables feature a distinctive blue outer sheath as required by IEC 60079 standards, along with low capacitance and low inductance construction to limit the energy that can be stored and released in a fault condition. Even if the cable is damaged or cut, the energy available in the circuit is too low to cause an ignition spark. IS cables connect field instruments in hazardous areas to safety barriers or galvanic isolators in the safe area. Applications include gas detectors, pressure switches in process piping, level probes in fuel storage tanks, and solenoid valves on chemical injection skids. Using properly specified IS cables reduces the need for expensive explosion-proof enclosures.

Control Cable (Armoured / LSZH)

This heavy-duty control cable is used for high-integrity control circuits in petrochemical plants, including Emergency Shutdown (ESD) systems and fire and gas (F&G) systems. Featuring copper conductors, XLPE insulation, steel wire armour (SWA) for mechanical protection against impact and rodent attack, and a LSZH (Low Smoke Zero Halogen) outer sheath for fire safety, this cable is designed for the most demanding environments. The LSZH sheath ensures that in the event of a fire, no toxic hydrogen chloride gas is released — critical in enclosed control rooms and analyzer shelters. These cables carry shutdown commands to emergency valves, start/stop signals to critical pumps and compressors, and status feedback from safety devices. Reliability is paramount, as a single cable failure could cause an unplanned plant shutdown or, worse, prevent safe shutdown during an emergency.



Armoured Instrument Cable

High Temperature Cable (Silicon Rubber)

Standard PVC or XLPE cables cannot survive in high-temperature areas such as furnace zones, flare stacks, kilns, and heat treatment areas. This specialized cable features a tinned or nickel-plated copper conductor (to resist oxidation), silicon rubber insulation (continuous rating up to 180°C, intermittent up to 200°C), and a glass fiber braid or silicone rubber sheath. Some versions include a stainless steel wire armour for additional mechanical protection. These cables are used for thermocouple extension cables (Type K, J, T), burner management systems, furnace door limit switches, and high-temperature motor leads. In petrochemical plants, these cables ensure reliable operation in areas where ordinary cables would melt or become brittle within weeks.

Offshore / Marine Cable (NEK 606 / IEC 60092)

Offshore platforms, FPSOs (Floating Production Storage and Offloading vessels), and drilling rigs operate in the most demanding environment on earth — salt spray, constant vibration, extreme temperatures, and the ever-present risk of fire and explosion. Offshore cables are manufactured to NEK 606 (Norwegian standard) or IEC 60092 (marine standard), both of which require flame retardancy, halogen-free construction, mud resistance (for drilling areas), and oil resistance. These cables feature tinned copper conductors (to resist saltwater corrosion), XLPE or EPR insulation, a steel wire or galvanized steel braid armour (for mechanical strength), and a LSZH outer sheath. Applications include platform power distribution (11kV/33kV), wellhead control, blowout preventer (BOP) control systems, drilling equipment power, and platform lighting and communication. These cables must operate reliably for decades in one of the harshest industrial environments.



Control Cable

Overhead Conductors

Parameter	Instrumentation Cable	Intrinsically Safe (IS) Cable	Control Cable (Armoured/LSZH)	High Temp (Silicon Rubber)	Offshore Marine Cable (NEK 606)
Voltage Rating	300/500V	300/500V	0.6/1kV	300/500V or 0.6/1kV	0.6/1kV to 18/30kV
Conductor	Stranded tinned copper (Class 2)	Stranded tinned copper, low capacitance design	Stranded copper (Class 2)	Tinned or nickel-plated copper	Tinned copper (Class 2 or 5)
Conductor Size	0.5mm ² – 2.5mm ²	0.5mm ² – 1.5mm ²	1.0mm ² – 10mm ²	0.5mm ² – 16mm ²	1.5mm ² – 400mm ²
Construction	Pairs or triads (1 to 100 pairs)	Pairs or triads, blue sheath (IEC 60079)	Multicore (2 to 61 cores)	Single or multicore	Single core or 3-core
Insulation	Solid PE (high insulation resistance) or XLPE	Solid PE (low capacitance)	XLPE (for high temperature rating)	Silicon rubber (resists 180°C–200°C)	XLPE or EPR
Capacitance (max)	<150 pF/m (pair to pair)	<100 pF/m (critical for IS circuits)	Not specified	Not specified	Not specified
Inductance (max)	<0.8 µH/m	<0.6 µH/m	Not specified	Not specified	Not specified
Individual Screen	Aluminium/PET foil + drain wire (100% coverage)	Aluminium/PET foil + drain wire	None (or optional)	None	Optional
Overall Screen	Aluminium/PET foil + braid (optional)	Optional	Optional copper tape or braid	None	Braid (for control cables)
Armour	Steel wire armour (SWA) or steel tape	Steel wire armour (SWA)	Steel wire armour (SWA)	None (or glass braid)	Galvanized steel wire or braid
Sheath	PVC or LSZH (halogen free)	LSZH (blue, IEC 60079-14 compliant)	LSZH (halogen free, flame retardant)	Glass braid or silicone rubber	LSZH (NEK 606, mud resistant)
Halogen Content	Zero for LSZH version	Zero	Zero	Zero (glass braid)	Zero
Flame Retardancy	IEC 60332-3 (Cat A or C)	IEC 60332-3	IEC 60332-3	None (use in low fire risk areas)	IEC 60332-3, NEK 606 Cat A
Oil / Chemical Resistance	Good (LSZH)	Good (LSZH)	Excellent (LSZH)	Excellent (silicone)	Excellent (mud & oil resistant)
Max Conductor Temp	70°C (PVC), 90°C (XLPE)	70°C (PE)	90°C (XLPE)	180°C continuous, 200°C intermittent	90°C
Standards	IEC 60502-1, BS 5308, IEC 61034, IEC 60754	IEC 60079-14, BS 5308 Part 2	IEC 60502-1, BS 7835, IEC 60332-3	VDE 0250, BS 6007	NEK 606, IEC 60092
Hazardous Area Zone	Zone 2 (non-IS)	Zone 0, 1, 2 (IS circuits)	Zone 2	Non-hazardous (high temp only)	Zone 1, 2 (offshore)
Sheath Color	Black or dark grey	Blue (mandatory for IS)	Black or blue	Natural (white) or black	Black or grey

