ICON® Safe

ICON Safe

… offers protection for saving lives and safeguarding investments.

- Instrumentation cables for applications with special requirements in case of fire, i.e. the protection of human life and high-value material assets as well as the maintenance of functionality.
- ICON Safe quality products guarantee these requirements with a high degree of reliability thanks to well-tested designs and high-tech LSZH compounds especially developed by the Business Unit Industrial Projects.
- Properties, such as smoke density, the maintenance of functionality, reduced flame propagation, zero halogen content etc. are certified by independent test laboratories.
- ICON Safe instrumentation cables are designed according to the latest standard for instrumentation cables (EN 50288-7).

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ICON® Safe Instrumentation Cables

Halogens found in cables and other components such as fluorine, chlorine, bromine and iodine are highly reactive elements. When they burn, they form highly corrosive toxic gases which can cause considerable injury to persons and damage to equipment and systems as well as structural damage (as a result of the formation of halogen acid when they come into contact with water).

This is why, in the form of ICON Safe, we provide specialized instrumentation cables for applications with stringent safety requirements in case of fire aimed at protecting human life, high-value material assets and cable performance.

If, in case of fire, your applications require preventive protection for persons, minimum smoke development in order not to obstruct escape routes and rescue operations, low propagation of flames to other parts of the building via cables and the prevention of consequential structural damage, the extensive ICON Safe portfolio is always the right choice to make.

ICON Safe quality products guarantee this through high reliability thanks to tried and tested designs as well as high-tech LSZH (Low Smoke Zero Halogen) compounds specially developed by the Business Unit Industrial Projects.

ICON Safe stands for properties such as low flue gas density, protection of cable performance, reduced flame propagation and freedom from halogens.

These properties are constantly being certified by independent test laboratories.

It goes without saying that ICON Safe instrumentation cables are designed according to the latest standard EN 50288-7 and meet the requirements of IEC 60332-3, IEC 60331, IEC 61034 and other relevant standards.

ICON® Safe

Ranking for marked criteria as			
excellent	+++	limited	○
improved	++	depending on national regulations	■
good	+		
complied	●	on request	✉

The ICON product range

Properties		Sheath	PVC							PVC arctic grade				PVC								LSZH		PE	LSZH			
		Insulation	PVC							PVC		XLPE		XLPE											XLPE + MICA		Silicone	
			ICON Base 10200 M0	ICON Chem 30200 MH	ICON Base 10204 M0	ICON Base 10210 M0	ICON Chem 30211 M0	ICON Base Pro 60400 M2	ICON Base Pro 60410 M2	ICON Arctic 40200 MN	ICON Arctic 40210 MN	ICON Arctic 40100 MN	ICON Arctic 40110 MN	ICON Base 10100 M1	ICON Chem 30100 MH	ICON Base 10104 M1	ICON Base 10110 M1	ICON Base 10120 M1	ICON Base 10130 M1	ICON Chem 30111 M1	ICON Chem 30113 M1	ICON Safe 20100 M3	ICON Safe 20110 M3	ICON Safe 20120 M3	ICON Chem 30113 M9	ICON Safe 20B10 M3	ICON Safe 20B10 M3	ICON Safe 20510 M3	ICON Safe 20B10 M3
Electrical properties																												
operating voltage	300 V		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	500 V		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
insulation resistance	100 MΩ x km		●	●	●	●	●	●	●	●	●																	
	300 MΩ x km																										●	●
	5000 MΩ x km											●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Temperature range – installation																												
	–30 °C up to +50 °C									●	●	●	●															
	–5 °C up to +50 °C					●	●	●	●					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Temperature range – operation																												
	–60 °C up to +70 °C									●	●	●	●															
	–30 °C up to +70 °C		●	●	●	●	●																					
	–30 °C up to +80 °C																			●				●				
	–30 °C up to +90 °C													●	●	●	●	●	●	●		●	●		●	●	●	●
	–30 °C up to +105 °C							●	●																			
Chemical and physical properties																												
oil resistance			+	+++	+	+	+++	+	+	+	+	+	+	+	+++	+	+	+	+	+++	+++	○	○	○	+++	○	○	○	○
zero halogen																						●	●	●	●	●	●	●	●
resistance to chemicals			+	+	+	+	+++	+	+	+	+	+	+	+	+++	+	+	+	+	+++	+++	+	+	+	+++	+	+	+	+
Reaction to fire																												
single cable burning test	IEC 60332-1-2		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
bunched cable test	IEC 60332-3-24 (Cat. C)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●		●	●	●	●
light transmittance	IEC 61034, >60 %																					●	●	●		●	●	●	●
fire resistance acc. to	IEC 60331-21																									●	●	●	●
	BS 6387 Cat. CWZ																									✉	✉	●	●
Installation & environmental properties																												
suitable for direct burial					■	++	++		++		++		++			■	++	++	++		++		++	++	++		++		++
cable bending radius	7.5 x diameter		●	●	●	●		●		●		●		●	●			●				●		●		●		●	
	10 x diameter					●			●		●		●			●	●		●				●				●		●
	15 x diameter						●													●	●					●			
suitability for tensile loads			○	○	○	+++	+++	○	+++	○	+++	○	+++	○	○	○	○	+	+++	+++	+++	○	+++	+	+++	○	+++	○	+++
suitability for pressure and impact loads						+++	+++		+++		+++		+++				+++	+	+++	+++	+++		+++	+	+++		+++		+++
resistance against rodents						++	++		++		++		+++				+++		++	++	++		++		++		++		++
protection against inducing currents						++	++		++		++		+++				+++		++	++	++		++		++		++		++

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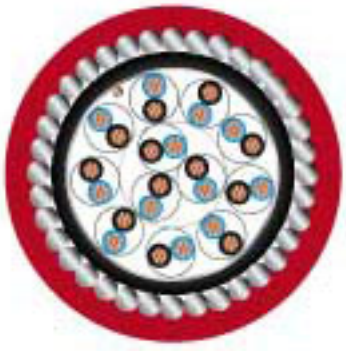
See two examples of our ICON Safe cable designs which assure circuit integrity in case of fire:



Characteristics

Application	For transmission of analogue and digital signals in instrument and control systems, where maintenance of circuit integrity in case of fire is required; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e. g. the public mains electricity supply. Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations. Recommended for use as fire protection measure for people and important material assets.	For transmission of analogue and digital signals in instrument and control systems, where maintenance of circuit integrity in case of fire is required; allowed for use in zone 1 and zone 2 group II classified areas (IEC 60079-14); not allowed for direct connection to low impedance source, e. g. the public mains electricity supply. Recommended for indoor and outdoor installation, on racks, trays, in conduits, in dry and wet locations; for direct burial. Recommended for use as fire protection measure for people and important material assets.
Conductor	plain annealed copper wire, 7 stranded, size: 0.5 mm^2	plain annealed copper wire, 7 stranded, size: 1.5 mm^2
Insulation	cross-linked polyethylene XLPE over the MICA-tape wrapped conductor	silicone rubber
Wrapping	at least 1 layer of plastic tape	at least 1 layer of plastic tape
Collective screen	aluminium / PETP tape over 7-stranded tinned copper drain wire	aluminium / PETP tape over 7-stranded tinned copper drain wire
Inner sheath	low smoke, zero halogen flame retardant compound LSZH, black	low smoke, zero halogen flame retardant compound LSZH, black
Armour	galvanised steel wire braid, opt. coverage 80 % (min)	galvanized round steel wires
Outer sheath	low smoke, zero halogen flame retardant compound LSZH, red	low smoke, zero halogen flame retardant compound LSZH, red
Cable type	ICON Safe 20B20 M3	ICON Safe 20510 M3

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