ICON Chem

... ensures the safety and functionality of your plant in aggressive environments

- Instrumentation cables designed for applications in extreme conditions with the possibility of contact with aggressive media, such as oils and chemicals.

- ICON Chem quality products are available with the proven lead sheath as well as the ecologically sound multi layer sheath, consisting of aluminium tape, laminated to a polyethylene and polyamide sheath (LEONI code “ALNYC-Sheath”).

- ICON Chem cables were designed according to the latest standard for instrumentation cables (EN 50288-7).
The ICON product range

<table>
<thead>
<tr>
<th>Properties</th>
<th>Sheath</th>
<th>PVC</th>
<th>PVC arctic grade</th>
<th>PVC</th>
<th>LSZH</th>
<th>PE</th>
<th>LSZH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation</td>
<td>PVC</td>
<td>PVC</td>
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<td>LSZH</td>
<td>PE</td>
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</tr>
</tbody>
</table>

**Electrical properties**
- Operating voltage: 300 V
- Insulation resistance: 100 MΩ x km, 500 MΩ x km
- Temperature range – operation:
  - -30 °C up to +50 °C
  - -5 °C up to +50 °C
- Temperature range – installation:
  - -30 °C up to +70 °C

**Chemical and physical properties**
- Oil resistance: improved, on request
- Zero halogen: limited
- Resistance to chemicals: depending on national regulations

**Reaction to fire**
- Single cable burning test: IEC 60332-1-2
- Lapped cable test: IEC 60332-3-24
- Light transmittance: IEC 61034
- Fire resistance acc. to: IEC 60331-1

**Installation & environmental properties**
- Suitable for direct burial
- Cable bending radius: 7.5 x diameter, 10 x diameter, 15 x diameter
- Suitability for tensile loads: improved, on request
- Suitability for pressure and impact loads: on request
- Resistance against rodents: improved, on request
- Protection against inducing currents: on request

As a result of the wide range of environmental conditions encountered within the different industrial applications, the demands made on cables vary. In the oil refining and chemical industries in particular, it is necessary to allow for environmental influences resulting from aggressive media in liquid or gaseous form. ICON Chem instrumentation cables for applications involving aggressive media such as oil and chemicals reliably protect the functioning of a system, even (and in particular) under extreme conditions.

ICON Chem quality products can be equipped with the tried and tested lead sheath and with the ecologically sound polymide sheath. (LEONI Kerpen designation: ALNYC sheath) The sophisticated laminated ALNYC sheath consisting of aluminium tape in conjunction with a PE and polyamide sheath. (LEONI Kerpen designation: ALNYC sheath.) The sophisticated laminated ALNYC sheath offers protection against moisture, electromagnetic interference and organic and inorganic media. It permits a cable design in which the use of aluminium tape offers additional electromagnetic shielding to be dispensed with, a feature which saves weight as well as costs and material.

Reliable protection can thus also be ensured in fields in which weight and dimensions of the cable play a significant role. The low bending radius also provides for better installation properties which, in addition to ensuring high quality, ultimately allows costs for transport, accessories and installation to be reduced.

The durability of the laminated ALNYC sheath has been proved and certified on the basis of tests conducted with various media by an independent institute (see table below).

As a matter of course, ICON Chem cables are designed acc. to EN 50288-7, the latest standard for instrumentation cables.

### Chemical and physical properties

#### Oil resistance

- Improved, on request

#### Zero halogen

- Limited

#### Resistance to chemicals

- Depending on national regulations

### Reaction to fire

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### Installation & environmental properties

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See two examples of our ICON Chem cable designs for extreme environmental conditions:

![Cable Design](image1.png)

**Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
<td>For thermovoltage transmission of type K thermocouples in and around process control. Mainly used for direct burial, chemical, rodent and termite resistant. Recommended for direct burial, especially in presence of oil and aggressive chemical substances. Recommended for direct burial, especially in presence of oil and aggressive chemical substances. For transmission of analogue and digital signals in instrument and control systems; 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, especially in presence of oil and aggressive chemical substances.</td>
</tr>
<tr>
<td><strong>Conductor</strong></td>
<td>Solid compensating wires type KCB acc. to IEC 60584 part 3, size of 0.5 mm²</td>
</tr>
<tr>
<td><strong>Insulation</strong></td>
<td>Polyethylene PE</td>
</tr>
<tr>
<td><strong>Wrapping</strong></td>
<td>At least 1 layer of lastic tape</td>
</tr>
<tr>
<td><strong>Collective screen</strong></td>
<td>One side plastic coated aluminium foil (min. thickness 0.15 mm)</td>
</tr>
<tr>
<td><strong>Inner sheath</strong></td>
<td>One side plastic coated aluminium foil (min. thickness 0.15 mm, longitudinally applied over a tinned copper wire (0.5 mm²)), tough bonded at the overlap and with high density polyethylene sheath, black and cover of heat stabilized polyamide, black</td>
</tr>
<tr>
<td><strong>Metal sheath</strong></td>
<td>Lead sheath</td>
</tr>
<tr>
<td><strong>Inner sheath</strong></td>
<td>Polyvinyl chloride PVC, black</td>
</tr>
<tr>
<td><strong>Armour</strong></td>
<td>Galvanised round steel wires</td>
</tr>
<tr>
<td><strong>Outer sheath</strong></td>
<td>High density polyethylene, green</td>
</tr>
<tr>
<td><strong>Cable type</strong></td>
<td>ICON Chem 34013 MA</td>
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