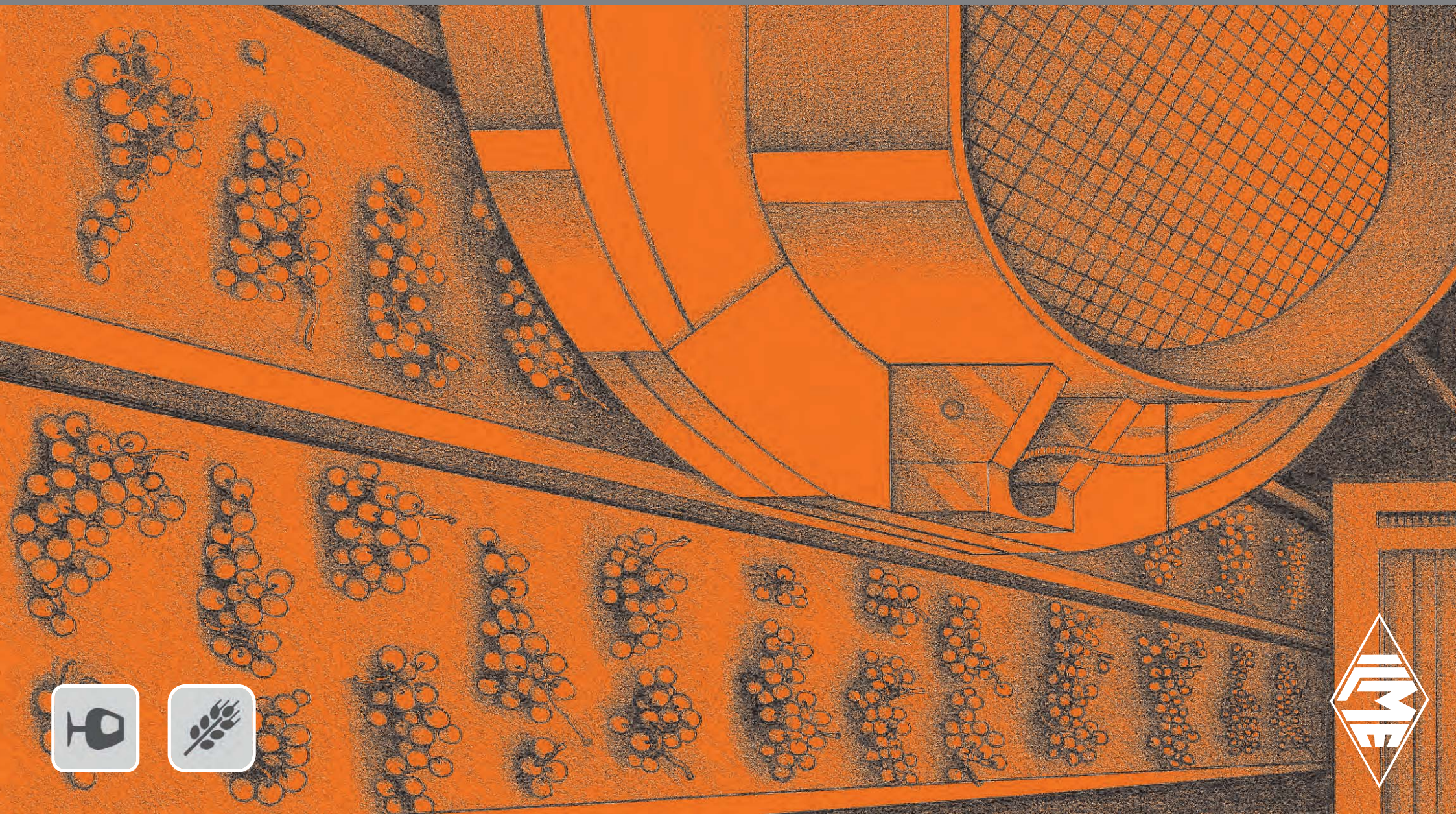
ENGLISH

# Multipole connectors
## Food & Beverage



## The Company and the Product

**I.L.M.E. SpA - INDUSTRIA LOMBARDA MATERIALE ELETTRICO** - has been operating in Milan since 1938, in particular in the electrotechnical sector for the manufacturing of equipment for industrial installations.

ILME reflects the traditional entrepreneurial spirit of Lombardy, and has enjoyed **continuous expansion** for over half a century. The company has carved an important role for itself in the main world markets, also operating directly in the countries that have assumed world leadership in the field of automation, including Germany and Japan. In the electrical connection sector with applications in industrial automation, characterised by top performance and utmost reliability needs, ILME is today the acknowledged partner of many leading companies worldwide.

The company's fundamental **values** are: product innovation, original solutions, excellent price-quality ratio, a customer-oriented sense of service, ethical behaviour and an environmentally-friendly approach. To promote the continuing **improvement** of its qualitative results, ILME has always encouraged its collaborators to work with utmost responsibility and participation. The company **focuses** on a series of benefits to the user, including research into the most suitable materials, high quality and safe cabling, a rapid turnaround and readily available services.

Certification ISO 9001: 2008
Design, manufacture and distribution of industrial electrical equipment (IAF 19, 29a)
Certificate N° 50 100 11133

# Multipole connectors

## Food & Beverage

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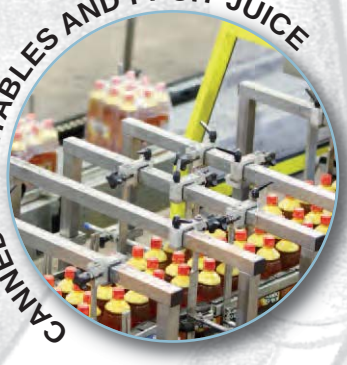
# Applications' Overview

DAIRY

PASTA

PASTRIES AND BAKERY PRODUCTS

CANNED VEGETABLES AND FRUIT JUICE



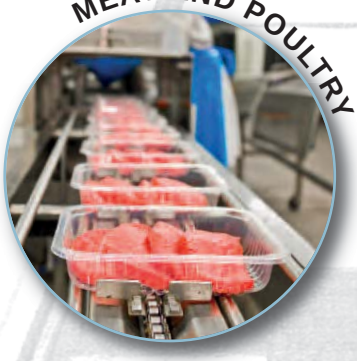
**HYGIENIC**

food & beverage applications

WINE AND SPIRITS

PET FOOD

MEAT AND POULTRY



## Requirements

# Resistance of materials to detergents/disinfectants used in the food industry

The new **ILME T-Type/H and T-Type/C** enclosure materials have been selected to guarantee compatibility with the principal alkaline or acid detergents and disinfectants used in the food industry. In particular, series T-Type/H and T-Type/C enclosures have been tested according to protocol **F&E/P3-E n. 40-1 by Ecolab,** leading multinational in the detergent sector, to verify their compatibility with the following cleaning fluids:

- **Acid foaming detergents: P3-topax 52, P3-topmaxx 520 and P3-topax 56.**
- **Alkaline foaming detergents: P3-topax 19 and Ecofoam Basic.**
- **Strong alkaline foaming detergents: P3-topax 36 and P3-topax 30.**
- **Alkaline-chloride foaming detergents-disinfectants: P3-topax 66, Ecofoam CL and P3-topax M95.**
- **Non-foaming peracetic based disinfectants: P3-oxonia active, P3-topactive OKTO and P3-topactive DES.**
- **Neutral disinfectants: P3-topax 990 and P3-topax 91.**

### ECOLAB F&E/P3-E n. 40-1 Test Protocol

SEE DECLARATION OF COMPATIBILITY AT PAGES 4-5

- Full immersion of parts in detergent / disinfectant solutions.
- Water hardness of 200ppm $CaCO_3$.
- Tests performed at concentrations 30% higher than those normally recommended in technical data sheets.
- Test duration (each detergent): 28 days at 20 °C (equivalent to 6 years of daily cleaning).
- Test solution renewed every 3-4 days for oxidizing products (P3-oxonia active, P3-topactive OKTO, P3-topax 66).
- Test results evaluation: ISO 4068-1 (esthetic appearance and mass loss).

# Cleanability and degrees of protection used in the food industry

Series T-Type/H and T-Type/C enclosures have been designed to facilitate cleaning of surfaces that could potentially come into contact with food. For this purpose **Series T-Type/H and T-Type/C** enclosures have **IP66 and IP69 degrees of protection as per IEC 60529 Edition 2.2 (2013-08)** to allow jet washing, as typically used in the food industry.

The suitability of ILME products for the **cleanability** requirements stated by Machinery Directive 2006/42/EC for both Splash and Food Area zones (EN 1672-2 and EN ISO 14159) **depends on the specific installation of ILME products on the machine and must be evaluated by the machine manufacturer** (see page 7, Table 1, Applications Zones). In addition to the Hygienic version, aluminium enclosures are also available with degrees of protection up to IP68 (check for possible applicability).

**Declaration of compatibility - By courtesy of ECOLAB s.r.l.**

# DECLARATION OF COMPATIBILITY

between ECOLAB hygiene products
and ILME enclosures for multipole connectors

## For the completely safe cleaning of your plant

**The ideal partner for Industrial Connections for power supply of plug connected devices, connections for auxiliary circuits and automation control:**

**T-type H and T-type C enclosures**

**Supplier of hygiene solutions for Food and Beverage industries**

***Products***

***Equipments***


***Services***

The declaration proves the high resistance of these enclosures to Ecolab products commonly and worldwide used in Food and Beverage Industries.

**ILME S.p.a.**
Via Marco Antonio Colonna, 9 - 20149 Milano (MI)
**www.ilme.com**

**Ecolab s.r.l.**
Via Paracelso 6 – 20864 Agrate Brianza (MB)
**www.it.ecolab.eu**

**Declaration of compatibility - By courtesy of ECOLAB s.r.l.**

ECOLAB

## Compatible products with T-type/C and T-type/H ILME enclosures

See below for the test procedure

| PRODUCT | % | T-TYPE ENCLOSURE | DEFECT QUANTITY | DEFECT QUALITY | COLOR VARIATION |
|---|---|---|---|---|---|
| P3-topax 52 | 6 | C and H | 0 | 0 | 0 |
| P3-topax 19 | 6 | C and H | 0 | 0 | 0 |
| P3-topax 36 | 6 | C and H | 0 | 0 | 0 |
| P3-topax 91 | 6 | C and H | 0 | 0 | 0 |
| P3-topax 990 | 6 | C and H | 0 | 0 | 0 |
| P3-oxonia active | 1 | C and H | 0 | 0 | 0 |
| P3-topactive okto | 3 | C and H | 0 | 0 | 0 |
| P3-topax 66 | 6 | C and H | 0 | 0 | 0 |

DEFECT QUANTITY: 0 means - No detectable defect
DEFECT QUALITY: 0 means - Up to 10x magnification no detectable defect
COLOR VARIATION: 0 means - Unchanged, no discoloration

## Test procedure

- Test performed by Ecolab Technical Application Service
- Ecolab reference method 40.1 – ISO 4068-1 for the evaluation
- Full immersion of parts in detergent/disinfectant solutions
- Water hardness of 200ppm CaCO3
- 8 days total time at 20°C (equivalent to the contact time that occurs in 6 years of daily cleaning)
- Concentrations tested 30% higher than those normally recommended
- Test solution renewed every 3-4 days for oxidizing products (P3-oxonia active, P3-topactive OKTO, P3-topax 66)

## Final statement

- The Ecolab Technical Application Service Italy certifies that the ILME enclosures for multipole connectors T-type/C and T-type/H are perfectly compatible with the above listed Ecolab detergents and disinfectants used in a concentration 30% higher than those normally recommended.

January 2015

# Requirements on materials in contact or that can come into contact with food products

Materials have been selected to satisfy the requirements of **EHEDG Guideline n° 32** "Materials of construction for food equipment in contact with food" and point 2.1.1, letter a) in Annex I of the **Machinery Directive 2006/42/EC.** Paragraph 91 of the **Guide to the application of Machinery Directive 2006/42/EC** specifies that the reference at Annex I, point 2.1.1, letter a) of the directive must be considered as a reference to **EC regulation n. 1935/2004** and **directive 2002/72/EC.**

**EU commission regulation n. 10/2011** dated 14 January 2011, concerning plastic material and objects designed for contact with food products, is a specific measure as provided for by article 5, paragraph 1 of the above-mentioned **EC regulation n. 1935/2004.**

It defines specific regulations for plastic materials and objects in order to guarantee their use in safe conditions and supersedes commission **directive 2002/72/EC** dated 6 August 2002 on plastic materials and objects designed for contact with food products. Art. 2, section 2 of the above-mentioned **EU regulation n. 10/2011** specifies that **rubber and silicone** do not fall within the field of application of the regulation.

EU regulation n. 10/2011 provides for the use of materials in positive lists of technological monomers, additives and adjuvants and the passing of global and specific migration tests in food simulants.

ILME **T-Type/C** series enclosure materials have been selected according to **EU n. 10/2011** regulation requirements and each component has been tested according to **EU regulation n. 10/2011** and **EC regulation n. 1935/2004.**

Furthermore, T-Type/C series gasket materials have been formulated according to **FDA Guideline 21 CFR §177.2600** and T-Type enclosures and levers materials complying with **FDA, 21 CFR, §177.1520** (a)(3)(i)(c)(1), (b) and (c)3.1a.

## Hygiene Requirements

# Risk Assessment and Critical Control Points in the food industry

Companies that work in the food sector must implement **HACCP,** i.e. Hazard Analysis and Critical Control Points system **(EC Regulation 852/2004** on food product hygiene in force since 01/01/2006) and can voluntarily apply for various certificates (ISO 22000, BRC, ISF, etc.).

All those involved in primary food production (harvesting, milking, breeding), its preparation, transformation, manufacturing, packaging, storage, transport, distribution, handling, sales or supply, including consumer catering, are required to implement an HACCP system, i.e. a series of procedures aimed at preventing food contamination hazards. HACCP is based on monitoring food processing points where biological, chemical or physical contamination hazards may arise. In 2006, HACCP was made mandatory for companies that deal with the food for animals (production of raw materials, mixtures and additives).

A company required to implement HACCP can initially be divided into three zones from the point of view of food risk. The choice of the zone in which the wiring and connectors are installed depends on the risk assessment the manufacturer must conduct as per **Machinery Directive 2006/42/EC** which, in chapter 2.1, sets out the additional requirements for the food industry.

**Table 1. According to UNI EN 1672-2:2009 - Food processing machinery - Basic concepts - Part 2: Hygiene requirements**

| Application Zones | Zone Requirements | Usable Products |
|---|---|---|
| **No Food Area:** Zone where there is no contact risk with food. | No additional requirement for the food industry. | Enclosures series T-Type, T-Type/W, C-Type, BIG, IP68, C7 IP67, W-Type, EMC, COB, … |
| **Splash Area:** Zone where components may come into contact with food but there is no risk that the food that came into contact with the components in this area returns to the production cycle. | In this zone, components also come into contact with cleaning agents used in the food industry and must therefore be cleanable and resistant to the washing process (see “Resistance of materials to detergents/disinfectants used in the food industry” and “Cleanability and degrees of protection used in the food industry”, see page 3). | New Hygienic version enclosures series T-Type/H and T-Type/C. |
| **Food Area:** Zone where components may come into contact with food, with the risk that the food that came into contact with the components in this area returns to the production cycle. | In this zone, in addition to complying with the cleanability and washing requirements, the components are also subject to a series of more stringent requirements aimed at making negligible the risk of food contamination in the process (see paragraph “Requirements on materials in contact or that can come into contact with food products”, see page 6). | **For more information about T-Type/C in special version, please contact our Offices.** |

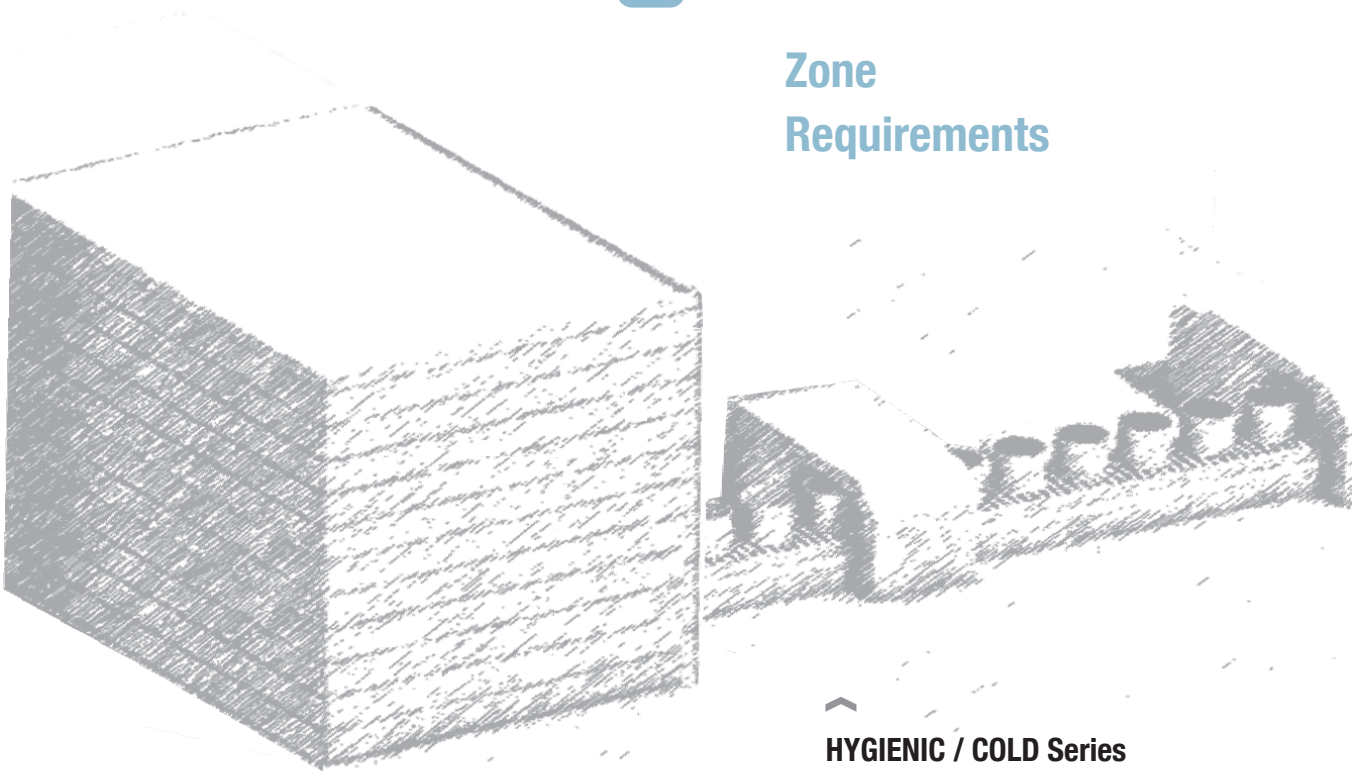
# Hygiene Requirements

## Low-temperature ❱ Splash Area

## Application Zones

Splash Area

## Zone Requirements



HYGIENIC / COLD Series

## Usable Products


Range of temperature:
-50 °C / +70 °C

## Production lines

### ❱ Splash Area

**Splash Area**

**Zone where components can come into contact with food but there is no risk that the food that came into contact with the components in this area returns to the production cycle.**

### ❱ No Food Area

**No Food Area**

**Zone where there is no contact risk with food.**

### HYGIENIC / H Series


Insulating enclosures with resistance of materials to detergents / disinfectants

### STANDARD Series


Metal or insulating enclosures, up to 200A inserts

www.ilme.com

## Hygienic enclosures for multipole connectors

# The evolution of T-Type insulating enclosures meets food and beverage requirements

The new Hygienic multi-pole connector enclosures version **(series T-Type/H and T-Type/C)** has been designed for installation on food industry machines and systems.

For this purpose, the following improvements to the T-Type series have been made in order to satisfy the requirements laid down by chapter 2.1 of **Machinery Directive 2006/42/EC** for the machines on which they are installed:

- material cleanability and resistance to the cleaning and sanitising agents normally used in the food industry;
- materials in terms of the requirements for accidental contact with food products.

**The T-Type/H and T-Type/C series enclosures fit different sealing gaskets.** For T-Type/H series enclosures, the sealing gasket is in HNBR rubber, a material with excellent resistance to both acidic and alkaline detergents as well as any animal and vegetable fats it could come into contact with in food industry applications.

For T-Type/C series enclosures, the sealing gasket is made by silicone rubber, a material with good resistance to acidic and alkaline detergents as well as animal and vegetable fats. It is also characterised by its improved resistance to low temperatures (series suitable for uses as low as -50 °C), conditions that can arise in food industries that use the cold chain.

A dedicated variant of this new Hygienic version may be used where a high risk of accidental contact with food is occuring during production (see page 7, Table 1, Application Zones, Food Area). For more information about this possible special version, please contact our Offices.

In accordance with the requirements set forth in **EHEDG Guideline n. 32** “Materials of construction for food equipment in contact with food” (EHEDG = European Hygienic Engineering & Design Group), the closing levers and sealing gaskets are coloured blue to easily identify any accidental contaminations in food products and to facilitate the visual identification of their complete cleanliness.

HYGIENIC food & beverage applications

IP66 IP69

ECOLAB Everywhere It Matters.

# Hygienic enclosures for multipole connectors

## GENERAL FEATURES ❱

### 1 Construction

By using the BC-MUL® moulding technique together with the use of MIL.BOX® material, **these enclosures are structurally solid and mechanically robust,** due to their increased thickness. They are particularly resistant to the main pollutants present in industrial environments. The lever enclosure pegs are built into the enclosures.

The methods for fastening the connectors to the enclosures are made of M3 threaded metal inserts.

With reference to metal construction, which to comply with electrical installation safety norms, must be earthed via a metal connection to the grounding terminal ⏚ of the inserts inside the enclosure, **the new series of enclosures offers a solution for total insulation constructions (equivalent to class II) where necessary.**

The thermoplastic material used is dark grey RAL 7012 colour and has passed **glow wire** testing in accordance with the IEC (EN) 60695-2-11 at **650 °C** in compliance with intended uses.

### 2 Gaskets

Gaskets have been produced in **HNBR or SILICON** and have been incorporated in the base flange on bulkhead mounting housings for easier installation.

### 3 Levers

The locking levers have been produced in **self-extinguishable thermoplastic material** coloured blue RAL 5015.

### 4 Dimensions

The internal dimensions allow mounting of all connector inserts in their relevant sizes. The external dimensions of the bulkhead mounting housings are similar to those of the corresponding metallic enclosures; hole fixing centres are unchanged. Hoods offer an inner cabling space similar to that of the “high” construction models of the corresponding metal enclosures. Other characteristics are in compliance with the applicable safety standard for electrical connectors, **IEC/EN 61984.**

### 5 Cable entries

The housing and hood cable entries are available with metric thread, respectively:

- **M25 or M32** for smaller sizes “44.27” and “57.27”.
- **M32 or M40** for larger sizes “77.27” and “104.27”.

The surface mounting, high construction housings are supplied with an open threaded entry and diametrically opposite a closed threaded entry which can be opened by the user if required (with suitable tool).

The recent standard **IEC/EN 61076-7-100** regarding metric cable entries for multipole electrical connectors for heavy duty uses, which standardises some main dimensions for entries and their related accessories (gaskets, pressure nuts), have been carefully considered in the product design.

### 6 Markings

Each enclosure carries its own part number and conformity markings.

## HYGIENIC T-Type / H Enclosures ❯

### Production lines applications

- ❯ **Enclosures** in **thermoplastic material, dark grey RAL 7012 colour,** with high thicknesses providing structural solidity and durability.
- ❯ Sealing gaskets made by **HNBR rubber formulated in accordance with FDA Guideline 21 CFR §177.2600.**
- ❯ **Levers** in **thermoplastic material, blue RAL 5015 colour.**
- ❯ **M25, M32 and M40** threaded cable entries.
- ❯ **IP66 and IP69** degree of protection according to **EN 60529.**
- ❯ Each enclosure carries its own part number, thread/size and conformity **markings**.
- ❯ Ambient temperature range: **-40 °C / +70 °C.**

**HYGIENIC**
food & beverage applications

**IP66**
**IP69**

## ❮ HYGIENIC T-Type / C Enclosures

### Low-temperature applications

- ❯ **The Hygienic T-Type/C Series enclosures** have been **specifically designed** for food and beverage ambient temperature as low as -50 °C **(range: -50 °C / +70 °C).**
- ❯ **Enclosures** in **thermoplastic material, dark grey RAL 7012 colour,** with high thicknesses providing structural solidity and durability.
- ❯ This version differs from the Hygienic T-Type/H one for the **sealing gaskets** made by in accordance with **FDA Guideline 21 CFR §177.2600.**
- ❯ ILME **T-Type/C** Series enclosure materials have been selected according to **EU n. 10/2011** regulation requirements and each component has been tested according to **EU regulation n. 10/2011** and **EC regulation n. 1935/2004.**

**NOTE:** As the characterizing elements of the Hygienic Series are the different **sealing gasket material** and the **different locking lever,** hoods and covers without sealing gaskets and locking levers are the same of series T-Type Standard.

## Featuring an original design, construction types available are:

**surface mounting housings**
with double entry of which one closed but threaded

**hoods**
with levers

**bulkhead mounting housings**

**hoods**
with side entry

**hoods**
with top entry

**covers**
with pegs (for housings) - with levers (for hoods)

**single lever, side and top entry, for size “44.27”**

**double lever, side and top entry, for other sizes “57.27, 77.27, 104.27”**

# Hygienic enclosures for multipole connectors

## Insulating Series Enclosures ❯
## HOUSINGS in thermoplastic material

IP66/IP69 degree of protection

HYGIENIC food & beverage applications

IP66 IP69

### ❯ HYGIENIC T-Type / H ❯ Production lines applications — HOUSINGS

| Dimensions of inserts/ enclosures | BULKHEAD MOUNTING | |
|---|---|---|
| | WITH 1 LEVER  | WITH 2 LEVERS  |
| 44.27 | THIH 06 L | |
| 57.27 | | THIH 10 |
| 77.27 | | THIH 16 |
| 104.27 | | THIH 24 |

### ❯ HYGIENIC T-Type / C ❯ Low-temperature applications — HOUSINGS

| Dimensions of inserts/ enclosures | BULKHEAD MOUNTING | |
|---|---|---|
| | WITH 1 LEVER  | WITH 2 LEVERS  |
| 44.27 | THIC 06 L | |
| 57.27 | | THIC 10 |
| 77.27 | | THIC 16 |
| 104.27 | | THIC 24 |

# Hygienic enclosures for multipole connectors

## Insulating Series Enclosures ❯
## HOUSINGS & COVERS in thermoplastic material

IP66/IP69 degree of protection

HYGIENIC food & beverage applications

IP66 IP69

### ❯ HYGIENIC T-Type / H ❯ Production lines applications — HOUSINGS & COVERS

| | SURFACE MOUNTING | | | COVERS | |
|---|---|---|---|---|---|
| | WITH 1 LEVER | WITH 2 LEVERS | | FOR 1 LEVER | FOR 2 LEVERS |
| Dimensions of inserts/ enclosures |  |  | Thread |  |  |
| 44.27 | TAPH 06 L25 | | (M25)* | TCHC 06 L | |
| 57.27 | | TAPH 10.25 | (M25)* | | TCHC 10 |
| 77.27 | | TAPH 16.32 | (M32)** | | TCHC 16 |
| 104.27 | | TAPH 24.32 | (M32)** | | TCHC 24 |

### ❯ HYGIENIC T-Type / C ❯ Low-temperature applications — HOUSINGS & COVERS

| | SURFACE MOUNTING | | | COVERS | |
|---|---|---|---|---|---|
| | WITH 1 LEVER | WITH 2 LEVERS | | FOR 1 LEVER | FOR 2 LEVERS |
| Dimensions of inserts/ enclosures |  |  | Thread |  |  |
| 44.27 | TAPC 06 L25 | | (M25)* | TCHC 06 L | |
| 57.27 | | TAPC 10.25 | (M25)* | | TCHC 10 |
| 77.27 | | TAPC 16.32 | (M32)** | | TCHC 16 |
| 104.27 | | TAPC 24.32 | (M32)** | | TCHC 24 |

*Version M32 also available
**Version M40 also available

# Hygienic enclosures for multipole connectors

## Insulating Series Enclosures ❱
## HOODS in thermoplastic material

IP66/IP69 degree of protection

HYGIENIC food & beverage applications

IP66 IP69

### ❱ HYGIENIC T-Type / H ❱ Production lines applications — HOODS

| Dimensions of inserts enclosures | FOR 1 LEVER | FOR 2 LEVERS | FOR 1 LEVER | FOR 2 LEVERS | Thread |
|---|---|---|---|---|---|
| |  |  |  |  | |
| 44.27 | TMAO 06 L25 | | TMAV 06 L25 | | (M25)* |
| 57.27 | | TMAO 10.25 | | TMAV 10.25 | (M25)* |
| 77.27 | | TMAO 16.32 | | TMAV 16.32 | (M32)** |
| 104.27 | | TMAO 24.32 | | TMAV 24.32 | (M32)** |

### ❱ HYGIENIC T-Type / C ❱ Low-temperature applications — HOODS

| Dimensions of inserts enclosures | FOR 1 LEVER | FOR 2 LEVERS | FOR 1 LEVER | FOR 2 LEVERS | Thread |
|---|---|---|---|---|---|
| |  |  |  |  | |
| 44.27 | TMAO 06 L25 | | TMAV 06 L25 | | (M25)* |
| 57.27 | | TMAO 10.25 | | TMAV 10.25 | (M25)* |
| 77.27 | | TMAO 16.32 | | TMAV 16.32 | (M32)** |
| 104.27 | | TMAO 24.32 | | TMAV 24.32 | (M32)** |

* Version M32 also available
** Version M40 also available

# Hygienic enclosures for multipole connectors

## Insulating Series Enclosures ❯
## HOODS & COVERS in thermoplastic material

IP66/IP69 degree of protection

HYGIENIC food & beverage applications

IP66 IP69

## ❯ HYGIENIC T-Type / H ❯ Production lines applications — HOODS & COVERS

| | HOODS | | | COVERS | |
|---|---|---|---|---|---|
| | WITH 1 LEVER | WITH 2 LEVERS | | WITH 1 LEVER | WITH 2 LEVERS |
| |  |  | |  |  |
| Dimensions of inserts/ enclosures | | | Thread | | |
| 44.27 | TAVH 06 LG25 | | (M25)* | THCH 06 LG | |
| 57.27 | | TAVH 10 G25 | (M25)* | | THCH 10 G |
| 77.27 | | TAVH 16 G32 | (M32)** | | THCH 16 G |
| 104.27 | | TAVH 24 G32 | (M32)** | | THCH 24 G |

## ❯ HYGIENIC T-Type / C ❯ Low-temperature applications — HOODS & COVERS

| | HOODS | | | COVERS | |
|---|---|---|---|---|---|
| | WITH 1 LEVER | WITH 2 LEVERS | | WITH 1 LEVER | WITH 2 LEVERS |
| |  |  | |  |  |
| Dimensions of inserts/ enclosures | | | Thread | | |
| 44.27 | TAVC 06 LG25 | | (M25)* | THCC 06 LG | |
| 57.27 | | TAVC 10 G25 | (M25)* | | THCC 10 G |
| 77.27 | | TAVC 16 G32 | (M32)** | | THCC 16 G |
| 104.27 | | TAVC 24 G32 | (M32)** | | THCC 24 G |

*Version M32 also available
**Version M40 also available

# Standard enclosures for multipole connectors

## T-TYPE ❯

**For standard applications**

Alongside the wide range of traditional metallic enclosures for ILME multipole connectors, it is now available a **new series of enclosures in self-extinguishing** thermoplastic material in the most common sizes ("44.27", "57.27", "77.27" and "104.27"). **Quality and low cost** are the main features of these enclosures, as an outcome of careful product studies. Valuable characteristics of these new enclosures:

- **significant structural solidity** and mechanical robustness by virtue of **substantial thickness;**
- **resistance to the main chemical agents,** found in industrial environments;
- **pre-fastened gaskets** for easier installation.

## ❮ T-TYPE / W

**For aggressive environments**

The characteristics of the T-TYPE / W Series are:

- enclosures in **thermoplastic material, dark grey RAL 7012 colour,** with high thicknesses providing structural solidity and durability;
- built-in **Viton fluoroelastomer gaskets;**
- levers in grey **RAL 7001** colour **thermoplastic material;**
- **M25, M32 and M40** threaded cable entries;
- **IP66** degree of protection according to **EN 60529;**
- each enclosure carries its own part number and conformity thread **markings.**

## STANDARD ❯

A large number of enclosure versions are available with **different combinations of component materials,** each one suitable to a specific installation: normal environmental conditions, high temperature environments, aggressive environments and environments that require electromagnetic compatibility. The coupling stability and protection against accidental opening are assured by single or double closing devices comprising levers, springs and pegs in stainless steel or entirely in plastic (CK and MK series). Sealing is assured by special gaskets that protect the contact groups inside the enclosures against dust and aggressive agents.

## ❮ BIG

**Large modular enclosures, more entries and space for cables**

**The BIG Series,** based on the wide-ranging experience achieved by ILME, **introduce a significant change in the design of hoods and has been specifically designed to meet the new requirements of the wiring market. The large dimensions** of these innovative enclosures have been chosen to offer customers **an adequate space to store conductors.**

## V-TYPE IP67 ❱

**Due to the vertical closing movement, the new lever offers an IP66/IP67 protection** (according to EN 60529) when fitted with a complete and coupled connector and used **with ILME standard hoods in die cast aluminum with pegs (without adaptor). The tight seal after closure and the simplicity of the movement are the key features that only ILME has managed to combine into a single lever.**

## ❰ IP68

The hoods with IP68 protection rating are particularly suitable for any application requiring high resistance to pressure, impact and corrosion. They also ensure a good screening for electromagnetic compatibility, resistance to vibrations in compliance with **EN 61373** standard and to pressurised water.

## AGGRESSIVE ENVIRONMENTS ❱

The Heavy Duty Series are specifically **designed for industrial applications where particularly aggressive external** agents are present (i.e.: salty environments, etc.). The series are available in 10 different sized enclosure ranges.

## ❰ EMC ENCLOSURES

The EMC Enclosure's surfaces are treated to make them extremely conductive while maintaining the necessary corrosion resistance. The bulkhead mounting housing has a **special conductive gasket.** For best results the surface underneath the gasket should be conductive. Since the use of this enclosure system presupposes the use of shielded cables, the hood should comprise a special cable gland with anchoring device for the cable shield.

## COB SYSTEMS ❱

The COB Systems allow to use multipole connectors within electric panels **without the traditional metallic housing,** as protection is assured by the electric panel itself or other boxes.
The COB systems may be assembled in the three following ways:
- on panels by the window snap fastening device;
- on DIN EN 60715 rails, both lengthways and crossways to the support;
- on fixed panels by using screws.

## Inserts for multipole connectors

Inserts are made of **self-extinguishing thermoplastic resin UL 94 V-0,** normally used for applications in a maximum ambience temperature of **125 °C**. Different conductor connection techniques are available: **screw, crimp or flexible spring.** The contacts are in **silver or gold plated brass.** Inserts are numbered on both sides by laser printing or moulded.

There is a **large number of versions of inserts** selected on the basis of the rated voltage (from 50V to 5000V), the rated current (from 5A to 200A max), the number of poles, the different load combinations required (power and signal poles within the same insert). Inserts are **approved** in accordance with the approval marks including UL, CSA, CCC, GL and GOST.

**CQEE**
**16A High density CRIMP Contacts**

**CX 6/6**
**16A/100A CRIMP Contacts**

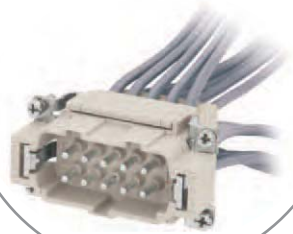
**CD-CDD**
**10A CRIMP Contacts**

**CNE**
**SCREW Contacts**

**CSH - SQUICH®**
**SPRING Contacts with actuator**

**CDS**
**High Density SPRING Contacts**

**CSS**
**Double SPRING**



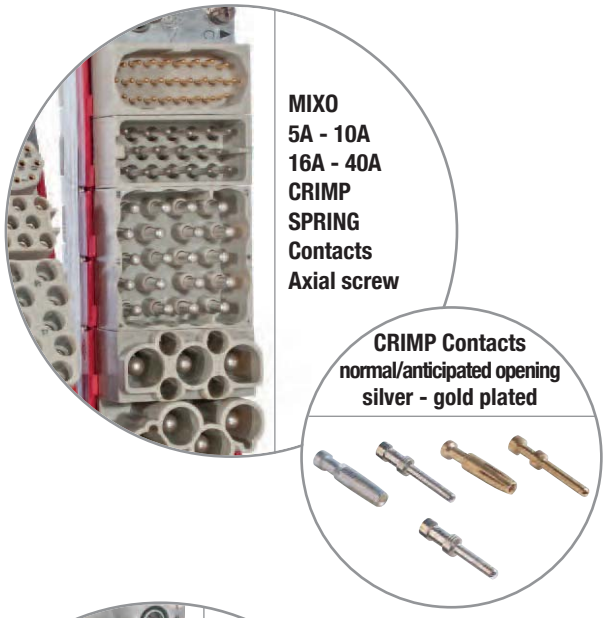
**CQ**
**10A/16A/40A CRIMP Contacts**

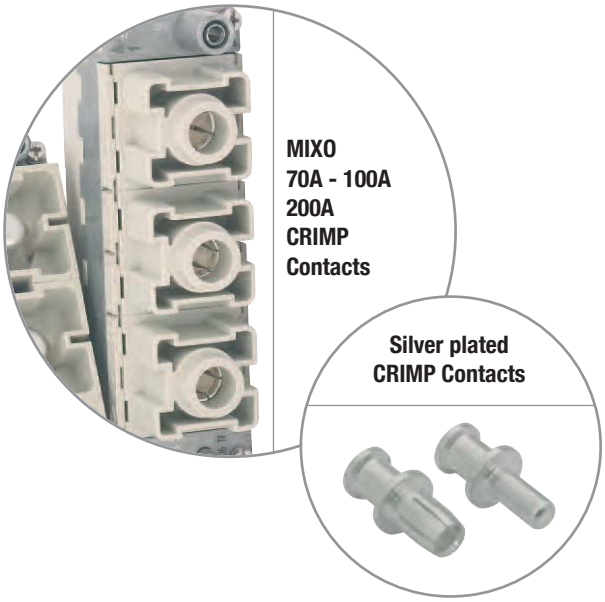
**CKS**
**SPRING Contacts**

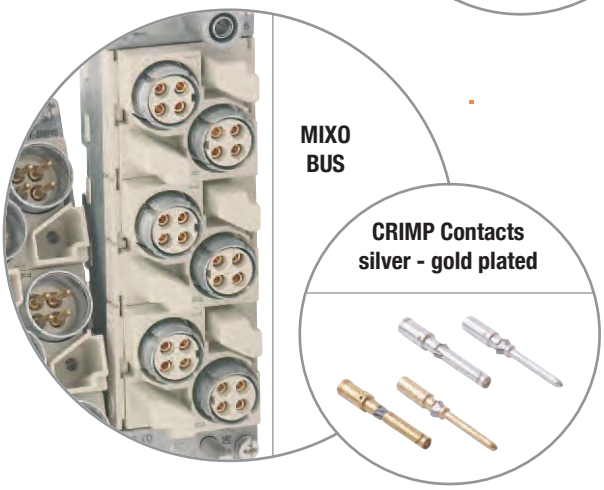
## MIXO Inserts for multipole connectors

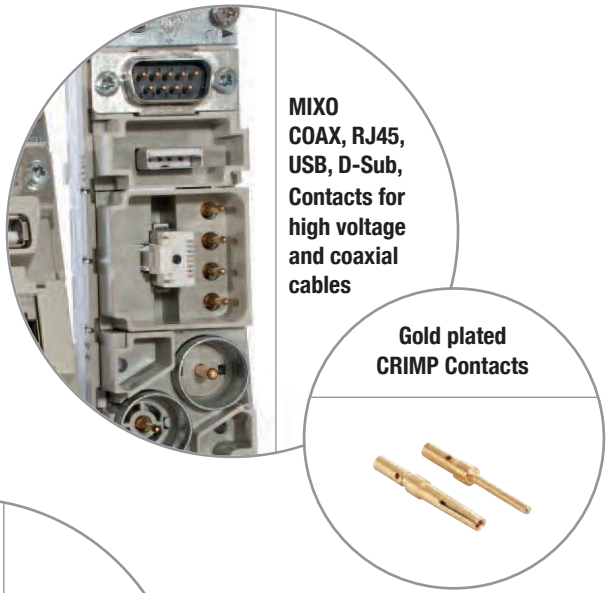
The MIXO Series range is a **system of modular units** for special applications that uses traditional enclosures. Each enclosure can house **different types of connections** such as: electrical signals and contacts for the conduction of compressed air and liquids with pressure values up to 8 bar, fibre optic connectors, connectors for Ethernet networks, USB and coaxial connectors.

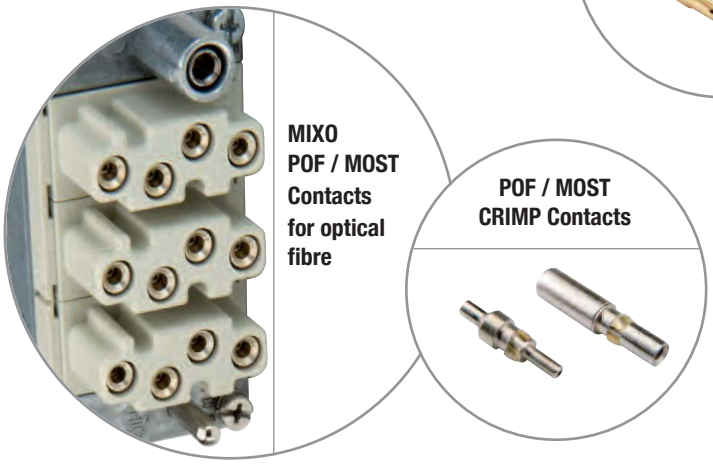
The insert compartments are made up by installing several modules next to one another in order to form a single **compact block** that is then mounted on metal frames with mandatory housings. Once the modules have been inserted and locked with the special tabs, the connector can be inserted into the enclosure.



# Accessories for multipole connectors

## FIBRE OPTIC SC CONTACTS ❯

The new adaptor **CLK 04 SC** enables the use of **fibre optic SC contacts**, up to 4 SC contacts per connector, for indoor or outdoor heavy duty industrial applications, with ILME connector enclosures size "21.21" series **CKA** (IP66/IP67, metallic, both C-Type, grey-painted, for normal environments, and W-TYPE black-painted, for aggressive environments, only the hood models provided with sealing gasket), series **CGK/MGK** (IP66/IP68, metallic, either Pg or metric-threaded cable outlet) and series **CK** (IP66/IP67, insulating, only the hood models provided with sealing gasket).

The fibre optic SC contacts (genderless, to be purchased separately) are available both for multi-mode fibres (50/125 µm or 62,5/125 µm) and single-mode fibre (9/125 µm). The fibre optic SC contacts are also available for the hard-clad silica (HCS) or polymer-clad fibre (PCF) 200/230 µm fibre optic cables and for the less demanding, with shorter transmission distance covered, but more cost effective POF Ø 1 mm applications, available with crimp technique version (crimping tool required).

## ❮ SHIELDED CONNECTORS

The new CX 1/2 BD Insert Adaptors allow to use round shielded connectors series MIXO BUS (multiaxial, for balanced cables with multiple pairs) or coaxial connectors (for coaxial cables) even in compact enclosures size "21.21" **CKA/MKA or CGK/MGK.**

This insert can be used to assemble MIXO coaxial connectors **CX 01 BM/BF** for coaxial cables with a typical impedance of 75 Ω and **CX 01 BCM/BCF** for coaxial cables with a typical impedance of 50 Ω, or **MIXO BUS CX 04 BM/BF** multiaxial shielded connectors with 4 poles + shield and the new **CX 08 BM/BF** shielded connectors with 8 poles + shield, providing **seats for 2 additional optional contacts** series CD for the connection of a SELV (very low safety voltage) supply line.

## ❮ RJ45 CONNECTORS

RJ45 connectors are available both in modular versions and for enclosures series CK-CKA in **Ethernet Category 5 and Category $6_A$.**

# Important Notes

ILME designs and manufactures complete solutions for Heavy Duty electrical power connections.

The connector (although offered to the user as a variety of elements, usually inserts and enclosures, to allow the selection of the ideal combination) has been **designed as complete connector** and tested to be compliant with the essential safety requirements of the EU Low Voltage Directive 2006/95/EC and in particular the EN 61984 standard.

The design of this "whole" system guarantees that every allowed combination of inserts, enclosures and accessories cannot result as improper.

The products in this catalogue alone cannot guarantee the best functionality upon installation, as this depends also on their correct **"installation into service"** which must be performed in compliance with the applicable system safety standards and according to the "rule of the art".

Therefore the effectiveness of the installation of the connector depends on the choices of the end user who must also take into account the following safety requirements.

Connectors must **not be connected or disconnected when live or under load.**

After wiring the inserts it is necessary to **verify the continuity of the protective earth connections.**

The correct coupling of the inserts is guaranteed only if they are installed (with the four fixing screws supplied) inside the corresponding enclosures or onto compatible accessories in this catalogue. I.L.M.E. SpA is not responsible for any different application.

Wiring of **screw-type terminal connections** must be carried out applying the correct tightening torque in order to avoid false contacts or damage to the conductor, the screw or the terminal.

**Crimping tools** and contacts used should preferably be supplied by the same manufacturer to avoid difficulties with the insertion and retention of the contacts themselves.

Correct wiring of spring-clamp connection inserts is guaranteed only when the correct screwdriver indicated in the specific catalogue, or possibly on the insert, is used.

Avoid forcing the contacts during **connection and disconnection.**

Connectors must be coupled and uncoupled in the axial direction with respect to the contacts, without bending and pulling the attached conductor bundles or cables.

Installation of two **inserts side by side**, in enclosures with two bays, must respect the polarity drawing marked on the insert (or the contact side view, as shown in this catalogue) to avoid inverted coupling.

The installation of two or more identical connectors side by side is recommended only with the use of coding pins in order to avoid mismatched couplings.

In order to keep the declared degree of protection (IP code), enclosures must be completed with cable glands and/or other accessories with at least an equal protection rating.

Moreover, the IP protection rating (according to EN 60529) is guaranteed when the enclosures, complete with inserts, are coupled and locked with their locking levers (or devices).

Finally, Please note:

- ILME cannot be held responsible for individual components in uses other than those described in this catalogue.

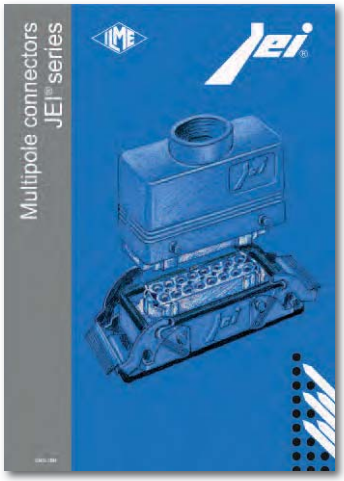
- ILME cannot be held responsible for incorrect connector selection in relation to the environmental conditions of the application (e.g.: influence of ambient temperature, moisture, environmental pollution, etc.).

Connector inserts and their enclosures are generally compatible with similar/equivalent products from other manufacturers, according to the last samples tested.

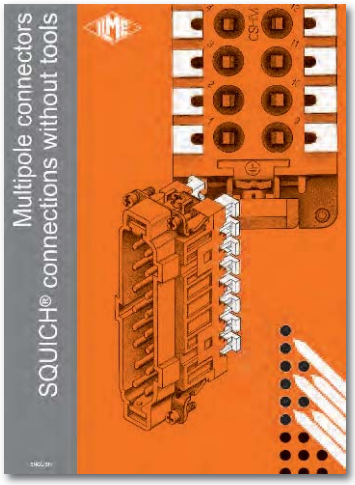
Full compatibility cannot be guaranteed in the event of technical changes made by other manufacturers. In particular, maximum performance of IP68 enclosures (Series CG) cannot be guaranteed when coupled with other manufacturers' products.

I.L.M.E. SpA takes no responsibility in verifying whether the components herein contained comply with any specific regulations of fields of application.

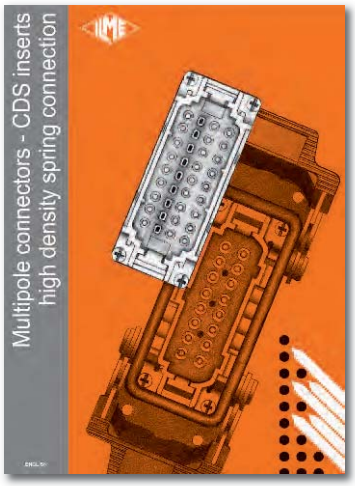

**CN12**
Multipole connectors



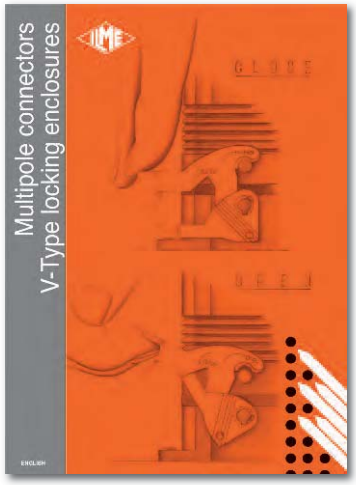

**JEI® SERIES**
Multipole connectors



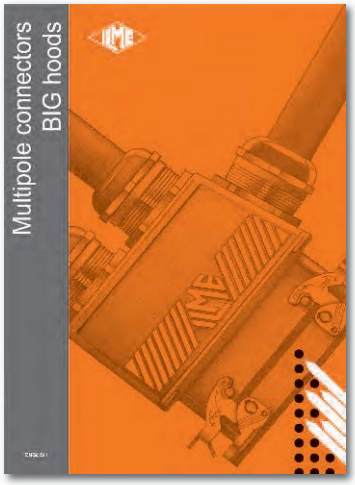

**CSH-SQUICH®**
Connection without tools



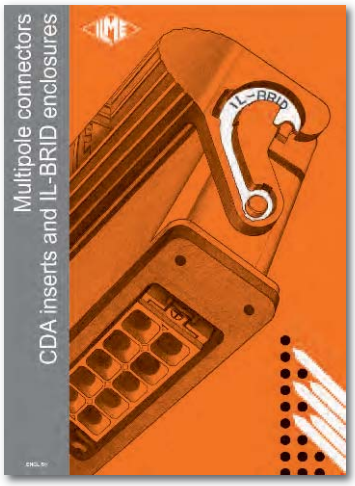

**CDS**
High density spring connection



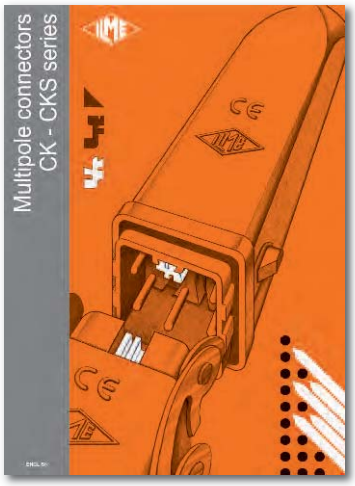

**V-TYPE IP67 ENCLOSURES**
V-Type locking enclosures




**BIG HOODS**
The space you have always wanted




**IL-BRID ENCLOSURES & CDA INSERTS**




**CK-CKS SERIES**
With code pins

technical catalogues

www.ilme.com

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