# Multipole connectors - T-TYPE enclosures Standard & Hygienic Series



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 manufacture 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 principal 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.

#### **CE marking**

As from 1 January 1997, in order to launch electrical products on the European market the manufacturer must ensure these bear the relevant CE mark, in line with the Low Voltage Directive 73/23/ EEC \* (implemented in Italy as L. D. 18-10-1977 no. 791) and its modification 93/68/EEC \* (implemented in Italy as L.D 25-11-1996 no. 626/96, published in the supplement to the Gazzetta Ufficiale of 14-12-1996).

The mark must be visible on the product or, if this is not possible, on the packaging, the instructions for use or on the warranty certificate. It acts as a declaration by the manufacturer that the product complies with all relevant EU directives regarding its field of application.

ILME products bear the CE mark on the actual product or its packaging.

preference:

(HD prefix)



The company's fundamental values are: **Product innovation**, original solutions, excellent **price-quality ratio**, acustomer-oriented **service**, ethical behaviour and respect for the environment.

To promote the continuing improvement of its qualitative **results**, ILME has always encouraged its collaborators to work with maximum **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.

with the basic safety requirements of the directive. Compliance with harmonised technical standards (i.e. ratified by CENELEC) also constitutes presumed compliance with the basic safety requirements of the directives. The CE marking of ILME products results from the declaration of

results from the declaration of conformity of the product to harmonised standards or international IEC standards.

Almost all ILME products fall within the field of application of the Low Voltage Directive. A declaration of conformity is required in order to be able to apply the CE mark. This declaration, to which the market is not directly entitled, must be made available to the controlling authorities (in Italy, the Ministry for Industry, Commerce and Handicraft) at all times. In it, the manufacturer declares the technical safety standard(s) followed in the manufacture of the product. These standards must be, in decreasing order of

- a European standard (EN prefix)- a European harmonisation document

 in the absence of reference standards, the manufacturer's internal

specifications guaranteeing compliance

- an international IEC standard - a national standard

Through the CE mark, ILME declares full compliance, not merely with the directive's basic safety requirements, but also with those international or national EU standards on which voluntary safety certification markings are based (e.g. IMQ and VDE). In this way, ILME intends to give the CE mark the value of self-certification in terms of safety, given the loss in legal value of voluntary certifications issued by third parties, ratified by directive 93/68/EEC \*.

Notwithstanding the above, practically all ILME products still bear voluntary conformity markings.

This EC declaration of conformity becomes null and void when the assembly of products includes one or more components not manufactured by us and without EC approval.

\* Note: The new legal reference for the Low Voltage Directive is 2006/95/EC which is the consolidated edition of Directive 73/23/EEC + Directive 93/68/EEC.

On 29th March 2014, the Official Gazette of the European Union published the new Low Voltage directive, 2014/35/EU of 26th February 2014, a rewritten version of directive 2006/95/EC, which will come into force on 20th April 2016.

The information contained in this catalogue is not binding and may be changed without notice

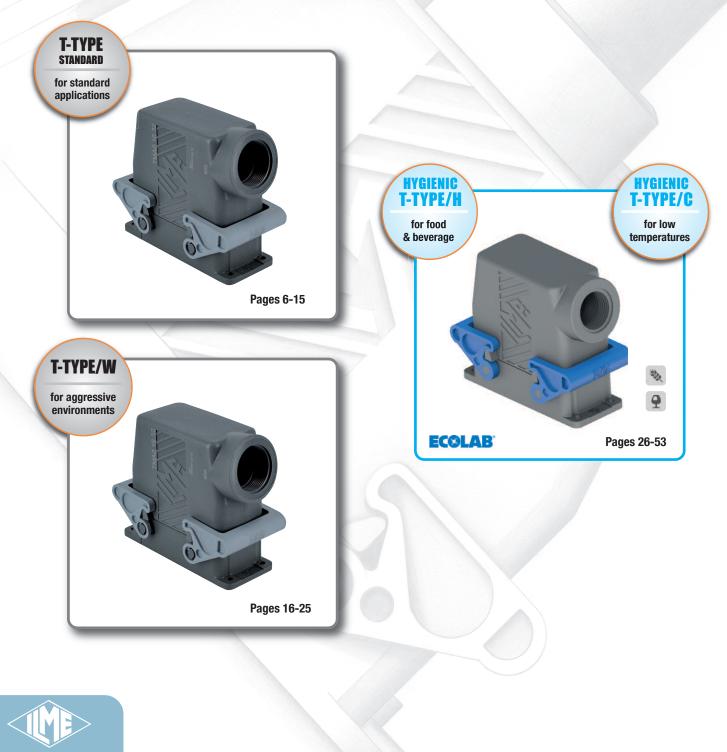




ISO 9001 certification: 2008 Design, manufacture and distribution of industrial electrical equipment (IAF 19, 29a) Certificate No. 50 100 11133

# **T-TYPE enclosures**

Standard & Aggressive environments, Hygienic applications



**International standards** 



T-TYPE enclosures have been **successfully** tested in accordance with the following international standards, guaranteeing their usage for numerous applications:

- EN 61984: Connectors Safety requirements and tests.
- ANSI/UL 50 (Enclosures for Electrical Equipment) equivalent to voluntary North American standard NEMA 250 (NEMA = National Electrical Manufactures Association) and the corresponding Canadian standard CSA C22.2 No. 94 (Special Purpose Enclosures) for degrees of protection used in North America and required by local installation codes (e.g. NFPA 70 National Electrical Code in the USA, CSA plant standards for Canada). The current type approval was obtained after passing a number of tests carried out in accordance with the standard, in particular: Type 12 (= NEMA 12) for internal use, similar to degree of protection IP54 according to IEC/EN 60529. (Only standard T-TYPE enclosures).
- EN 60529: Degrees of protection provided by enclosures (IP Code) for ratings IP65, IP66 and IP69 (where applicable).
- EN 62262: Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK Code ) for ratings IK09 (enclosures with levers), IK10 (enclosures without levers).
- IEC 60068-2-52: Environmental testing Part 2-52: Salt spray, cyclic: with 5% solution of sodium chloride (NaCl), solution Ph from 6.5 to 7.2;

**ENVIRONMENTAL CONDITIONS:** 35 °C for 2 hours; 40 °C for 168 hours with 93% relative humidity;

IME

NO. OF CYCLES: 4;

<u>**TEST PASSED:**</u> maintaining the IP degree of protection and with a contact resistance value  $\leq 150\%$  of the initial value or  $\leq 5 \text{ m}\Omega$ .

 IEC 60068-2-6: Environmental testing - Part 2-6: Vibrations (sinusoidal): with values 10Hz÷500Hz, 0.35 mm amplitude of displacement, 50m/s² (5g<sub>n</sub>), crossover point 60.1 Hz; <u>No. of cycles:</u> 10;

<u>TEST PASSED</u>: scanning 3 axes for 2 hours, with contact resistance value  $\leq 150\%$  of the initial value or  $\leq 5 \text{ m}\Omega$  and no micro-interruption ( $\geq 1 \text{ µs}$ ).

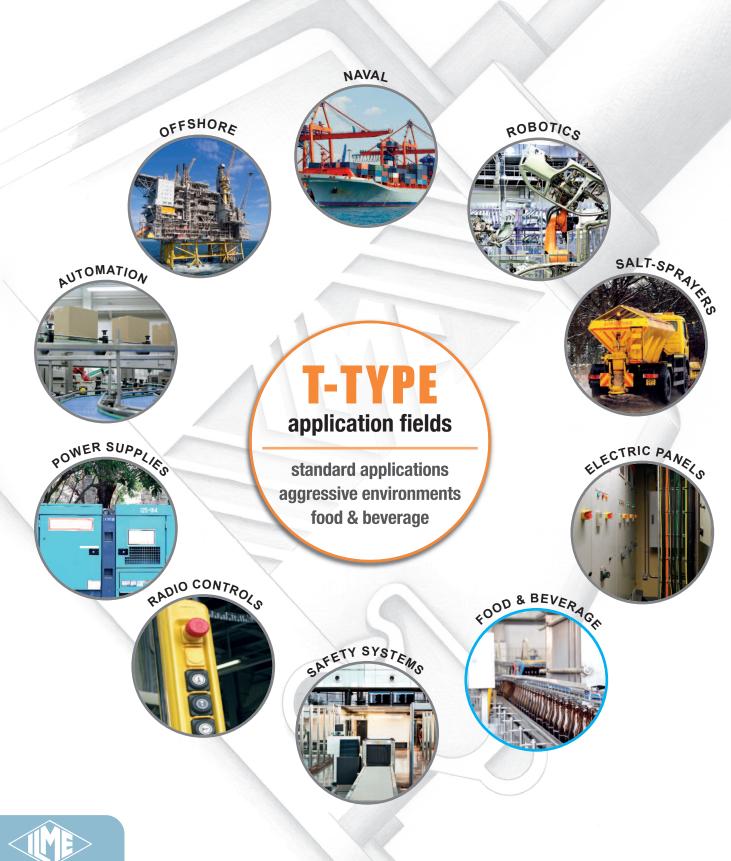
 IEC 60068-2-3: Environmental testing - Part 2-3: Warm damp: stationary at 40 °C, 93% relative humidity, 504 hours;

**<u>TEST PASSED</u>**: with contact resistance value  $\leq 150\%$  of the initial value or  $\leq 5 \text{ m}\Omega$  and no disruptive discharge (insulation resistance > 100 G $\Omega$ ).

 IEC 60068-2-30: Environmental testing - Part 2-30: Cyclic warm humid: 40 °C, 95% relative humidity, 12 hours at ambient temperature;
 NO. OF CYCLES: 21;

**<u>TEST PASSED</u>**: with contact resistance value  $\leq 150\%$  of the initial value or  $\leq 5 \text{ m}\Omega$  and no disruptive discharge (insulation resistance > 100 G $\Omega$ ).





#### **Resistance to chemicals comparison table**

D

Di-isononyl Phtalate

**Di-optyl Phtalate** 

The classification herewith provided is only a generic reference guide in order to enable a first selection. It is based on literature data provided by the suppliers of the raw materials used, which are related to tests carried out on specimens under test conditions which are not always homogeneous and involving accelerating techniques, therefore not necessarily describing real operational conditions. The actual behaviour of products in the field may therefore be positively or negatively influenced by several

variable environmental parameters such as temperature, relative humidity, simultaneous presence of a plurality of substances and their concentration, exposure time, dynamic or static application condition, and so on. The accuracy of transferring the indications given herein to the actual conditions of use is therefore merely indicative and does not imply any guarantee or responsibility by ILME.

	т-түре	r-type / W	т-түре / н	T-TYPE / C
Α	Ţ	Ŀ	T-T	Ŧ
Acetone (propanone)	Х	Х	Х	Х
Active chlorine	Х	х	Х	Х
Alum	۲	٠	٠	٠
Ammonia, 10% aqueous solution	٠	х	٠	•
Ammonia, liquid	Х	Х	٠	٠
Ammonium acetate	۲	Х	٠	•
Ammonium carbonate	۲		٠	Х
Ammonium chloride	۲	٠	٠	Х
Ammonium nitrate	۲	٠	٠	٠
Ammonium phosphate	٠		٠	٠
Ammonium sulphate	۲		٠	٠
Amyl alcohol				Х
Aniline			х	Х
Aqua regia (1:3 nitric acid : hydrochloric acid)	Х	Х	х	Х
Asphalt				Х
В				
Beer	•	٠	٠	٠
Benzene	Х		х	Х
Borax				
Boric acid				

Borax				
Boric acid	٠	٠	٠	٠
Boric acid, 10% aqueous solution	٠		٠	٠
Boric water (boric acid 3%)	٠	٠	٠	٠
Butane, gas				Х
Butane, liquid				Х

#### C

Calcium chloride	•	٠	٠	٠
Calcium chloride, 10% aqueous solution	٠	٠	٠	٠
Calcium chloride, diluted suspension	•	٠	٠	٠
Calcium nitrate	•	٠	٠	٠
Calcium sulphate	•	٠	х	٠
Caustic potash (potassium hydroxide) 10%	х	٠	٠	Х
Citric acid 50% aqueous solution	х	٠	٠	٠
Copper sulphate 10% aqueous solution	•	٠	٠	٠
Cresol			х	Х
Cresolic solution			х	Х
Cutting oil				Х
Cyclo-hexane				Х

Deca-hydro-naphtalene	Х	х	Х	Х
Di-exyl Phtalate	٠	Х	Х	Х

Legend • :

: Resistant

```
□ : Limited resistance
```

Diesel Oil				
Diluted Glucose	٠	٠	٠	٠
Diluted Glycerine		٠	٠	•
Diluted Glycol	٠	٠	٠	٠
Diluted Phenol			Х	Х
Diluted urea	٠	٠	٠	٠
E				
Ethanol (ethyl alcohol)	Х	Х	Х	
Ethyl alcohol	٠	•		•
Ethylene-glycol or propylene-glycol	•	٠	٠	•
F				
Fatty acids	٠	٠	٠	
Ferric chloride, 10% aqueous solution	Х	Х	Х	Х
Formalin (formaldehyde 40% aqueous solution)	Х	Х	٠	•
Fruit juices	٠	٠	•	٠
Fuel oils				Х
G				
Gaseous ammonia		Х		•

#### Gaseous ammonia Gaseous propane Х Х Glycerine • Grinding oil Х Gypsum (see calcium sulphate) • Х

#### Н

			Х
			х
х	٠	٠	
	Х	٠	х
		□ □ X ●	

#### 

Ink	•			
IRM oil 901	•	٠	•	•
IRM oil 902		٠	٠	Х
IRM oil 903	Х			
Isopropyl alcohol		٠		٠

#### Κ

Kitchen salt, aqueous solution	٠		

#### x : Not resistant

Т-ТҮРЕ / W Т-ТҮРЕ / H Т-ТҮРЕ / C

T-TYPE

• x x x

• • x x

## **Resistance to chemicals comparison table**

L	т-түре	T-TYPE / W	т-түре / н	T-TYPE / C
Lactic acid				•
Linseed oil	•	•	•	•
Liquid soap	x	•	•	•
Lubricating engine oil				x
Lubricating oil	•	•	•	х Х
		-	-	^
М				
Mercury	•	•	•	•
Methanol (methyl alcohol)	x	x	•	•
Methyl alcohol, diluted 50%			•	•
Mineral based oil	•	•	•	•
Mineral oils (un-tasteful)	•	•	•	•
Mothballs (naphthalene, paradichlorobenzene)			x	X
Muriatic acid, concentrated	X		X	X
	^		~	Λ
N				
n-Butanol (butyl alcohol)	•	•	•	•
Naphthalene		•	X	X
Normal (low octane) gasoline (petrol)				X
0				
Octane				Х
Oleic acid	٠			Х
Oxalic acid	٠			•
Ozone	х		Х	
Р				
Paraffin oil			٠	•
Petrol ether				
Petroleum	٠		٠	•
Petroleum spirit (dry cleaning)			х	Х
Potassium carbonate	۲	٠	٠	٠
Potassium chlorate	٠	٠	х	•
Potassium chloride	٠			•
Potassium cyanide, aqueous solution	۲		٠	•
Potassium di-chromate			٠	•
Potassium iodide				•
Potassium nitrate		х	Х	٠
Potassium persulphate		٠	Х	٠
Potassium sulphate				•
<u>S</u>				
Sea water	٠	•	•	٠
Silicon oil	•	•	•	Х
Soap solution		•	•	٠
Sodium bicarbonate (oxide)	•	٠	٠	•
Sodium carbonate (washing soda)	٠	٠	٠	•
Sodium chlorate	٠	٠	Х	٠
Sodium chloride (kitchen salt)	٠	٠	٠	٠
Legend ● : Resistant □ : Li	mited r	esista	ance	

	ш	E / W	E/H	E/C	
S	T-TYPE	T-TYPE / W	T-TYPE / H	T-TYPE / C	
Sodium disulphate, aqueous solution	٠	٠	٠	٠	
Sodium hydroxide (caustic soda)	х	х	٠	۲	
Sodium hydroxide 12,5% (liscivia)		Х	٠	٠	
Sodium Hypochlorite	Х	٠	٠	۲	
Sodium nitrate	٠	٠	٠	Х	
Sodium nitrite		٠	٠	Х	
Sodium perborate	٠	٠	٠	۲	
Sodium phosphate	٠	٠	٠	Х	
Sodium silicate	٠	Х	Х	۲	
Sodium sulphate	٠	٠	٠	۲	
Sodium sulphide	٠	٠	٠	٠	
Sodium Thiosulphate (photographic fixer)	٠	٠	٠	۲	
Solution for photographic processing	٠	٠	٠	٠	
Starch, aqueous (amylum)	٠	٠	٠	۲	
Stearic acid	٠	٠	٠	۲	
Succinic acid (butanedioic acid)	٠	٠	٠	٠	
Sulphur	٠		Х	Х	
Sulphur dioxide (sulphurous anhydride)		Х	Х		
Sulphuric acid, 2% aqueous solution	х				

т				
Tallow	٠	٠	٠	٠
Tar			Х	
Tartaric acid	٠	•	•	٠
Toluene	Х	Х	Х	Х
Transformer oil (dielectric)	٠	٠	٠	٠
Trichloroethylene	Х	Х	Х	Х
Trichresyl phosphate	٠	٠	Х	Х
Turpentine essence	х			Х
U				
Urine	٠	٠	٠	٠
V				
Vegetable oil	٠	٠	٠	•
Vinegar	Х			
W				

Water

White alcohol (isopropanol + ethanol)	٠	٠	٠	

•

Х Х Х Х

#### X

Xy	ene	

# **T-TYPE Standard**

#### For modular and standard inserts

# T-TYPE insulating enclosures for standard applications

**F-TYPE Standard** 





Alongside the wide range of traditional metallic enclosures for ILME multipole connectors, there 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 money saving** are the main features of these enclosures, as an outcome of careful product studies.

Valuable characteristics of these new versions of enclosures:

- **significant structural solidity** and mechanical robustness by virtue of **substantial thickness;**
- external dimensions of the bulkhead mounting housings are similar to those of the corresponding metallic enclosures; hole fixing centres are unchanged;
- pre-fastened gaskets for easier installation;
- wide space inside the enclosures for cables, with mounted connector inserts, similar to the corresponding "high construction" versions;
- possibility of making total insulation constructions (equivalent to Class II)  $\square$  ;
- **absence of powder paint** for environments in which these are not recommended (e.g. to avoid food contamination).

# T-TYPE STANDARD STANDARD APPLICATIONS

DATA SHEETS AT PAGES 8-15

- Enclosures in thermoplastic material, dark grey RAL 7012 colour, with high thicknesses providing structural solidity and durability.
- > Built-in polyurethane gaskets.
- > Locking levers in thermoplastic material colour grey RAL 7001.
- > M25, M32 and M40 threaded cable entries.
- > IP65 degree of protection according to EN 60529;
- > UL TYPE 12 degree of protection according to ANSI/UL50.
- Each enclosure carries its own part number, thread/size, conformity markings and UL type rating.
- ) Ambient temperature range: -40 °C / +90 °C.



IME

# **T-TYPE Standard**

#### For modular and standard inserts

#### FOCUS ON:

#### 1 Construction

By using the BC-MUL<sup>®</sup> moulding technique and use of MIL.BOX<sup>®</sup> 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 connector inserts to the enclosures are made of M3 threaded metal inserts.

With reference to metal construction enclosures, which to comply with the electrical installation safety norms, must be earthed via a metal connection to the grounding terminal of the inserts mounted inside the enclosures, the new series of enclosures offers a solution for **total insulation** constructions (equivalent to class II) where necessary. The thermoplastic material used is RAL 7012 dark grey colour and UL 94V-2 grade self-extinguishing and has passed glow wire testing in accordance with the IEC (EN) 60695-2-11 at 650 °C in compliance with intended uses.

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).

Manufactured from insulating material, they do not require **special reinforced insulation** as the metal versions do, for use with series **CME higher voltage** connector inserts (screw-type terminals).



Gaskets

T-Type standard sealing gaskets have been produced by means of the FIPFG technology (Formed-In-Place-Foam-Gasket). They have therefore been incorporated in the base flange on bulkhead mounting housings for easier installation.

- T-Type standard: Built-in polyurethane gaskets
- T-Type/W: Viton fluoroelastomer gaskets



The locking levers have been produced in self-extinguishing thermoplastic material, grey RAL 7001 colour.



#### 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 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.



Each enclosure carries its own part number and conformity markings.



page:

#### size "44.27"

**STANDARD APPLICATIONS** 

hoods with 2 pegs

inserts:

CDD         24           CQE         10           CSH         6           CCE         6           CNE, CSE         6           CSS         6           CT, CTE, CTSE *)         6           MIXO         2	poles + (a) poles + (a) poles + (a) poles + (a) poles + (a) poles + (a) modules	156-195 *
MIXO 2 CDS 9		156-195 * 6 **

\*) only for standard insulating version TCHI

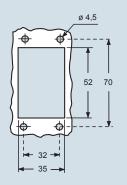
\* refer to CN.12 catalogue page \*\* refer to CDS catalogue page



**T-TYPE Standard** 

description bulkhead mounting housing with thermoplastic lever surface mounting housing with thermoplastic lever surface mounting housing with thermoplastic lever with pegs, side entry with pegs, side entry with pegs, top entry with pegs, top entry

panel cut-out for bulkhead mounting housing in mm







- ambient temperature limits -40 °C / +90 °C.

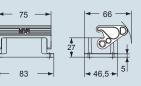
dimensions shown are not binding and may be changed without notice



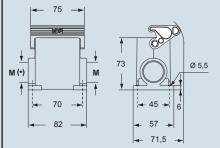
part No.	entry M
TCHI 06 L	
TMAP 06 L25	25
TMAP 06 L32	32

dimensions in mm





#### TMAP 06 L25 and TMAP 06 L32

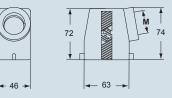


(•) The surface mounting, high construction housings are supplied with an open threaded entry (•) and diametrically opposite a closed threaded entry which can be opened by the user if required (with suitable tool).

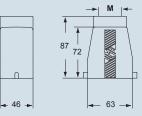


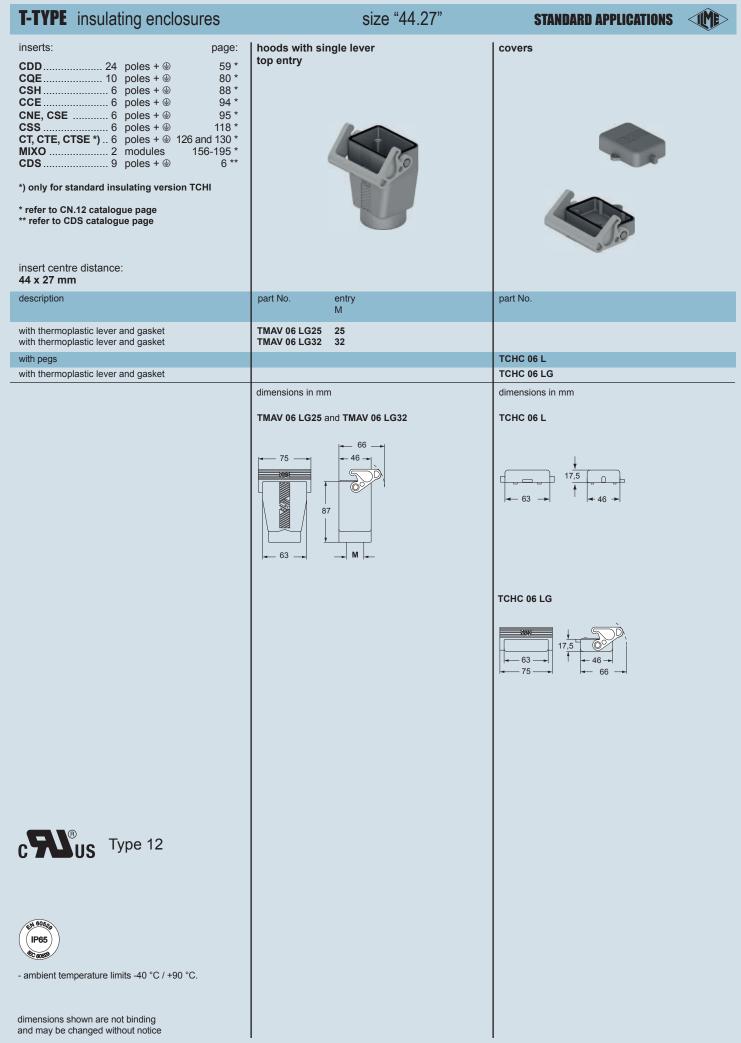
part No.	entry M
TMAO 06 L25 TMAO 06 L32	25 32
TMAV 06 L25 TMAV 06 L32	25 32
dimensions in mi	m

TMAO 06 L25 and TMAO 06 L32



#### TMAV 06 L25 and TMAV 06 L32





T-TYPE insulating enclosures	size "57.27"	STANDARD APPLICATIONS
inserts:page:CDD42 poles $+ \oplus$ 61 *CQE18 poles $+ \oplus$ 81 *CSH10 poles $+ \oplus$ 89 *CCE10 poles $+ \oplus$ 96 *CNE, CSE10 poles $+ \oplus$ 97 *CSS10 poles $+ \oplus$ 119 *CT, CTE, CTSE *)10 poles $+ \oplus$ 135 *CMCE3+2 (aux) poles $+ \oplus$ 135 *CX3+2 (aux) poles $+ \oplus$ 135 *CX8/24 poles $+ \oplus$ 151 *MIXO3 modules156-195 *CDS18 poles $+ \oplus$ 7 ***) only for standard insulating version TCHI* refer to CN.12 catalogue page** refer to CDS catalogue pageinsert centre distance:57 x 27 mm	housings with double lever	hoods with 4 pegs
description	part No. entry M	part No. entry M
bulkhead mounting housing with thermoplastic levers	TCHI 10	
surface mounting housing with thermoplastic levers surface mounting housing with thermoplastic levers	TMAP 10.25         25           TMAP 10.32         32	
with pegs, side entry with pegs, side entry		TMAO 10.25 25 TMAO 10.32 32
with pegs, top entry with pegs, top entry		TMAV 10.25 25 TMAV 10.32 32
panel cut-out for bulkhead mounting housing in mm	dimensions in mm	dimensions in mm
Ø 4,5 Ø 4,5 05 83 05 83 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TCHI 10 7 + 58 + 7 + 58 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 +	TMAO 10.25 and TMAO 10.32
	$\begin{array}{c} 113 \\ \hline \\ $	$\begin{array}{c} & & & \\ & &$
Type 12	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).	
- ambient temperature limits -40 °C / +90 °C.		

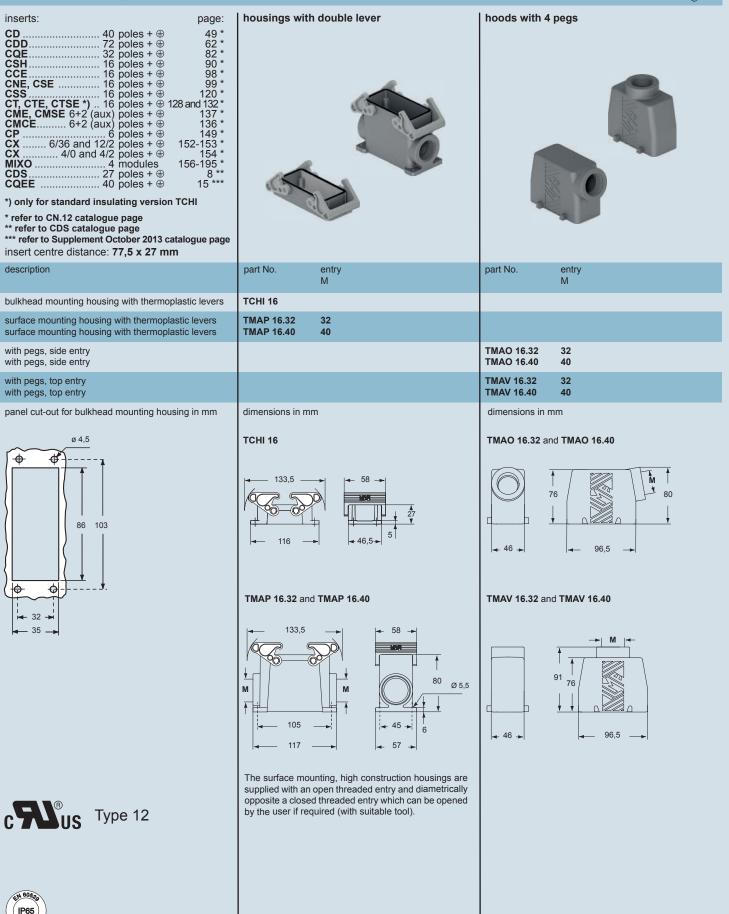
dimensions shown are not binding and may be changed without notice

T-TYPE insulating enclosures	size "57.27"	STANDARD APPLICATIONS
inserts:       page:         CDD       42 poles $+ \oplus$ 61 *         CQE       18 poles $+ \oplus$ 81 *         CSH       10 poles $+ \oplus$ 89 *         CCE       10 poles $+ \oplus$ 96 *         CNE, CSE       10 poles $+ \oplus$ 97 *         CSS       10 poles $+ \oplus$ 119 *         CT, CTE, CTSE *)       10 poles $+ \oplus$ 135 *         CMCE       3+2 (aux) poles $+ \oplus$ 135 *         CME       3+2 (aux) poles $+ \oplus$ 135 *         CX       8/24 poles $+ \oplus$ 151 *         MIXO       3 modules       156-195 *         CDS       18 poles $+ \oplus$ 7 **         *) only for standard insulating version TCHI       * refer to CN.12 catalogue page         ** refer to CDS catalogue page       insert centre distance: 57 x 27 mm	hoods with double lever top entry	covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TMAV 10 G25 25 TMAV 10 G32 32	
with 4 pegs		TCHC 10
with 2 thermoplastic levers and gasket		TCHC 10 G
	dimensions in mm TMAV 10 G25 and TMAV 10 G32	dimensions in mm TCHC 10
		$\begin{array}{c} \downarrow \\ \hline \\$
		TCHC 10 G
Type 12		
- ambient temperature limits -40 °C / +90 °C.		

dimensions shown are not binding and may be changed without notice

#### size "77.27"

STANDARD APPLICATIONS



- ambient temperature limits -40 °C / +90 °C.

dimensions shown are not binding and may be changed without notice

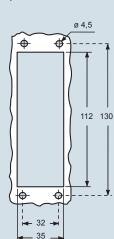
**T-TYPE Standard** 



- ambient temperature limits -40 °C / +90 °C.

dimensions shown are not binding and may be changed without notice

**T-TYPE Standard** 



**T-TYPE Standard** 





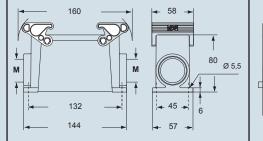
- ambient temperature limits -40 °C / +90 °C.

dimensions shown are not binding and may be changed without notice

#### TMAP 24.32 and TMAP 24.40

160

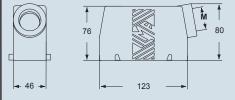
143



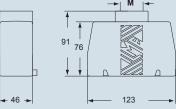
58

5

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).



#### TMAV 24.32 and TMAV 24.40



T-TYPE insulating enclosures	size "104.27"	STANDARD APPLICATIONS
inserts:page:CD64 poles + $\oplus$ 51 *CDD108 poles + $\oplus$ 64 *CQE46 poles + $\oplus$ 83 *CSH24 poles + $\oplus$ 91 *CCE24 poles + $\oplus$ 100 *CNE, CSE24 poles + $\oplus$ 101 *CSS24 poles + $\oplus$ 121 *CT, CTE, CTSE *)24 poles + $\oplus$ 129 and 133 *CME_CMSE 10+2 (aux) poles + $\oplus$ 139 *CMCE10+2 (aux) poles + $\oplus$ 138 *CME16+2 (aux) poles + $\oplus$ 138 *CMCE16+2 (aux) poles + $\oplus$ 145 *CMCE16+2 (aux) poles + $\oplus$ 155 *MIXO6 modules156-195 *CDS42 poles + $\oplus$ 9 **CQEE64 poles + $\oplus$ 16 ****) only for standard insulating version TCHI* refer to CN.12 catalogue page*** refer to CDS catalogue page*** refer to Supplement October 2013 catalogue page*** refer to Supplement October 2013 catalogue page*** refer to Supplement October 2013 catalogue page	hoods with double lever top entry	covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TMAV 24 G32 32 TMAV 24 G40 40	
with 4 pegs		TCHC 24
with 2 thermoplastic levers and gasket		TCHC 24 G
	TMAV 24 G32 and TMAV 24 G40	TCHC 24 17.5 $17.5$
		TCHC 24 G
CTUS Type 12		



- ambient temperature limits -40 °C / +90 °C.

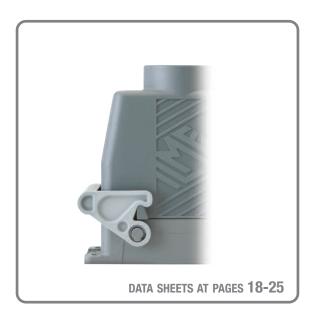
dimensions shown are not binding and may be changed without notice



## **Aggressive environments**

- Enclosures in thermoplastic material, dark grey RAL 7012 colour, with high thicknesses providing structural solidity and durability.
- > Built-in VITON fluoroelastomer sealing gaskets.
- > Locking levers in thermoplastic material colour grey RAL 7001.
- > M25, M32 and M40 threaded cable entries.
- > IP66 degree of protection according to EN 60529.
- > Each enclosure carries its own part number, thread size and conformity **markings**.
- > Ambient temperature range: -40 °C / +90 °C.

**NOTE:** As the characterizing element of the T-TYPE/W series is the **different sealing gasket** material, hoods and covers without sealing gaskets for these series are the same of T-Type Standard.















# **T-TYPE / W** Featuring an original design, T-TYPE/W construction types available are: surface mounting housings hoods bulkhead mounting with double entry of which one closed but threaded with levers housings hoods covers hoods with top entry with pegs (for housings) with levers (for hoods) with side entry single lever, side and top entry, for size "44.27" 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" double lever, side and top entry, for other sizes "57.27, 77.27, 104.27"

T-TYPE / W - For aggressive environments

17

T-TYPE / W insulating enclosures	size "44.27"	AGGRESSIVE ENVIRONMENTS
inserts:       page:         CDD       24       poles + ⊕       59 *         CQE       10       poles + ⊕       80 *         CSH       6       poles + ⊕       88 *         CCE       6       poles + ⊕       94 *         CNE, CSE       6       poles + ⊕       95 *         CSS       6       poles + ⊕       118 *         CT, CTE, CTSE *)       6       poles + ⊕       126 and 130 *         MIXO       2       modules       156-195 *         CDS       9       poles + ⊕       6 ***         *) only for standard insulating version THIW       * refer to CN.12 catalogue page         ** refer to CDS catalogue page       **	housings with single lever	hoods with 2 pegs
insert centre distance: 44 x 27 mm	VITON gasket	
description	part No. entry M	part No. entry M
bulkhead mounting housing with thermoplastic levers	THIW 06 L	
surface mounting housing with thermoplastic levers surface mounting housing with thermoplastic levers	TAPW 06 L25         25           TAPW 06 L32         32	
with pegs, side entry with pegs, side entry		TMAO 06 L25 25 TMAO 06 L32 32
with pegs, top entry with pegs, top entry		TMAV 06 L25 25 TMAV 06 L32 32
panel cut-out for bulkhead mounting housing in mm	dimensions in mm	dimensions in mm
	THIW 06 L $75 \rightarrow 66 \rightarrow 66 \rightarrow 75 \rightarrow 75 \rightarrow 75 \rightarrow 66 \rightarrow 75 \rightarrow 75$	TMAO 06 L25 and TMAO 06 L32 72 $72$ $74$ $74$ $74$ $74$ $74$ $74$ $74$ $74$
	TAPW 06 L25 and TAPW 06 L32 $75 \rightarrow 75 \rightarrow 73 \rightarrow 73 \rightarrow 73 \rightarrow 73 \rightarrow 73 \rightarrow 73 \rightarrow $	TMAV 06 L25 and TMAV 06 L32
(1966) (1966) (1969)		

- ambient temperature limits -40 °C/+90 °C

dimensions shown are not binding and may be changed without notice

T-TYPE / W insulating enclosures	size "44.27"	AGGRESSIVE ENVIRONMENTS
inserts:       page:         CDD	hoods with single lever top entry	covers
insert centre distance: 44 x 27 mm	VITON gasket	VITON gasket
description	part No. entry M	part No.
with thermoplastic lever and gasket with thermoplastic lever and gasket	TAVW 06 LG25 25 TAVW 06 LG32 32	
with pegs with thermoplastic lever and gasket		TCHC 06 L THCW 06 LG
	dimensioni in mm	dimensioni in mm
	TAVW 06 LG25 e TAVW 06 LG32	TCHC 06 L
		$\begin{array}{c} & \downarrow \\ \hline & & & \\ \hline \\ \hline$
		THCW 06 LG 17,5 $17,5$ $17,5$ $17,5$ $17,5$ $17,5$ $17,5$ $17,5$ $17,6$ $166$ $166$ $17,6$ $166$ $17,6$ $166$
<ul> <li>IP66</li> <li>ambient temperature limits -40 °C/+90 °C</li> </ul>		

dimensions shown are not binding and may be changed without notice

T-TYPE / W insulating enclosures	size "57.27"	AGGRESSIVE ENVIRONMENTS
inserts:       page:         CDD       42 poles $+ \oplus $ 61 *         CQE       18 poles $+ \oplus $ 81 *         CSH       10 poles $+ \oplus $ 89 *         CCE       10 poles $+ \oplus $ 96 *         CNE, CSE       10 poles $+ \oplus $ 97 *         CSS       10 poles $+ \oplus $ 119 *         CT, CTE, CTSE *) 10 poles $+ \oplus $ 127 and 131 *         CMSE       3+2 (aux) poles $+ \oplus $ 135 *         CMCE       3+2 (aux) poles $+ \oplus $ 135 *         CME       3+2 (aux) poles $+ \oplus $ 135 *         CME       3+2 (aux) poles $+ \oplus $ 151 *         MIXO       3 modules 156-195 *         CDS       18 poles $+ \oplus $ 7 **         *) only for standard insulating version THIW         * refer to CN.12 catalogue page         ** refer to CDS catalogue page         insert centre distance: 57 x 27 mm	housings with double lever	hoods with 4 pegs
description	part No. entry M	part No. entry M
bulkhead mounting housing with thermoplastic levers	THIW 10 TAPW 10.25 25	
surface mounting housing with thermoplastic levers surface mounting housing with thermoplastic levers	TAPW 10.25         25           TAPW 10.32         32	
with pegs, side entry with pegs, side entry		TMAO 10.25         25           TMAO 10.32         32
with pegs, top entry with pegs, top entry		TMAV 10.25         25           TMAV 10.32         32
panel cut-out for bulkhead mounting housing in mm	dimensions in mm	dimensions in mm
$\phi$	THIW 10 7 + 58 + 7 + 27 + 27 + 27 + 46,5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 +	TMAO 10.25 and TMAO 10.32
	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).	$ \begin{array}{c} & & & \\ & $
- ambient temperature limits -40 °C/+90 °C		

dimensions shown are not binding and may be changed without notice

T-TYPE / W insulating enclosures	size "57.27"	AGGRESSIVE ENVIRONMENTS
inserts:page:CDD $42 \text{ poles} + \oplus 61^*$ CQE $18 \text{ poles} + \oplus 81^*$ CSH $10 \text{ poles} + \oplus 89^*$ CCE $10 \text{ poles} + \oplus 96^*$ CNE, CSE $10 \text{ poles} + \oplus 97^*$ CSS $10 \text{ poles} + \oplus 119^*$ CT, CTE, CTSE *) $10 \text{ poles} + \oplus 127 \text{ and } 131^*$ CMSE $3+2$ (aux) poles $+ \oplus 135^*$ CMCE $3+2$ (aux) poles $+ \oplus 135^*$ CX $8/24$ poles $+ \oplus 151^*$ MIXO $3 \text{ modules} 156-195^*$ CDS $18 \text{ poles} + \oplus 7^{**}$ *) only for standard insulating version THIW* refer to CN.12 catalogue page*** refer to CDS catalogue page	hoods with double lever top entry	Covers
insert centre distance: <b>57 x 27 mm</b> description	part No. entry	part No.
with thermoplastic levers and gasket	M TAVW 10 G25 25	
with thermoplastic levers and gasket	TAVW 10 G32 32	
with 4 pegs		TCHC 10
with 2 thermoplastic levers and gasket		THCW 10 G
	dimensions in mm	dimensions in mm
	TAVW 10 G25 and TAVW 10 G32	TCHC 10
		$\begin{array}{c} & & & & \\ \hline \\ & & & \\ \hline \\ \hline$
		THCW 10 G



- ambient temperature limits -40 °C/+90 °C

<b>T-TYPE / W</b> insulating enclosures	size "77.27"	AGGRESSIVE ENVIRONMENTS
inserts: page: CD	housings with double lever	hoods with 4 pegs
description	part No. entry M	part No. entry M
bulkhead mounting housing with thermoplastic levers	THIW 16	
surface mounting housing with thermoplastic levers surface mounting housing with thermoplastic levers	TAPW 16.32 32 TAPW 16.40 40	
with pegs, side entry with pegs, side entry		TMAO 16.32         32           TMAO 16.40         40
with pegs, top entry with pegs, top entry		TMAV 16.32 32 TMAV 16.40 40
panel cut-out for bulkhead mounting housing in mm	dimensions in mm	dimensions in mm
	THIW 16 133,5 $ 58$ $ 27 116$ $+$ $46,5$ $ 51$	TMAO 16.32 and TMAO 16.40
	TAPW 16.32 and TAPW 16.40	TMAV 16.32 and TMAV 16.40
E BOOL	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).	★ 46 ★



- ambient temperature limits -40 °C/+90 °C

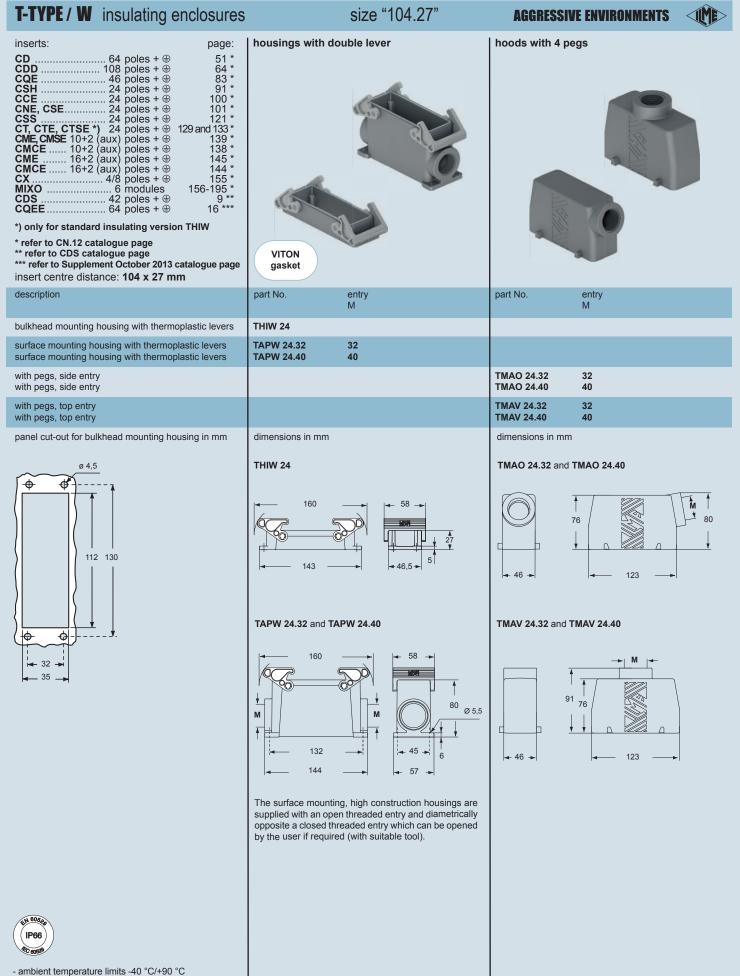
dimensions shown are not binding and may be changed without notice

T-TYPE / W insulating enclosures	size "77.27"	AGGRESSIVE ENVIRONMENTS
inserts:page:CD40 poles + $\oplus$ 49 *CDD72 poles + $\oplus$ 62 *CQE32 poles + $\oplus$ 82 *CSH16 poles + $\oplus$ 90 *CCE16 poles + $\oplus$ 98 *CNE, CSE16 poles + $\oplus$ 99 *CSS16 poles + $\oplus$ 120 *CT, CTE, CTSE *)16 poles + $\oplus$ 128 and 132 *CMCE6+2 (aux) poles + $\oplus$ 136 *CP6 poles + $\oplus$ 149 *CX6/36 and 12/2 poles + $\oplus$ 154 *MIXO4/0 and 4/2 poles + $\oplus$ 154 *MIXO40 poles + $\oplus$ 15 ***CQEE40 poles + $\oplus$ 15 **** refer to CN.12 catalogue page*** refer to CDS catalogue page*** refer to Supplement October 2013 catalogue page*** refer to distance: 77,5 x 27 mm	hoods with double lever top entry	Covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVW 16 G32 32 TAVW 16 G40 40	
with 4 pegs with 2 thermoplastic levers and gasket		TCHC 16 THCW 16 G
	dimensions in mm	dimensions in mm
	TAVW 16 G32 and TAVW 16 G40	TCHC 16
	91 91 96,5 96,5 91	$\begin{array}{c c} & & & & & \\ \hline & & & & \\ \hline & & & & \\ \hline & & & &$
		THCW 16 G
		17.5 17.5
- ambient temperature limits -40 °C/+90 °C		

dimensions shown are not binding and may be changed without notice

**T-TYPE / W - For aggressive environments** 

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dimensions shown are not binding and may be changed without notice

T-TYPE / W insulating enclosures	size "104.27"	AGGRESSIVE ENVIRONMENTS
inserts:       page:         CD       64 poles + $\oplus$ 51 *         CDD       108 poles + $\oplus$ 64 *         CQE       46 poles + $\oplus$ 83 *         CSH       24 poles + $\oplus$ 91 *         CCE       24 poles + $\oplus$ 100 *         CNE, CSE       24 poles + $\oplus$ 101 *         CSS       24 poles + $\oplus$ 101 *         CSS       24 poles + $\oplus$ 121 *         CT, CTE, CTSE *)       24 poles + $\oplus$ 129 and 133 *         CMCE       10+2 (aux) poles + $\oplus$ 138 *         CMCE       10+2 (aux) poles + $\oplus$ 138 *         CMCE       16+2 (aux) poles + $\oplus$ 144 *         CX       4/8 poles + $\oplus$ 155 *         MIXO       6 modules       156-195 *         CQEE       64 poles + $\oplus$ 16 ****         *) only for standard insulating version THIW       *	hoods with double lever top entry	covers
* refer to CN.12 catalogue page ** refer to CDS catalogue page *** refer to Supplement October 2013 catalogue page insert centre distance: 104 x 27 mm	VITON gasket	VITON gasket
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVW 24 G32 32 TAVW 24 G40 40	
with 4 pegs		TCHC 24
with 2 thermoplastic levers and gasket		THCW 24 G
	dimensions in mm	dimensions in mm
	TAVW 24 G32 and TAVW 24 G40	TCHC 24
		$\begin{array}{c c} & & & & & & \\ \hline & & & & & \\ \hline & & & & &$
		THCW 24 G



- ambient temperature limits -40 °C/+90 °C

# HYGIENIC







# **HYGIENIC**

# 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, T-Type/H and T-Type/C

- 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.

series 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:

- 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

- Full immersion of parts in detergent/disinfectant solutions.
- Water hardness of 200ppm CaCO<sub>3</sub>
- Concentrations tested 30% higher than those normally recommended
- 28 days total time at 20 °C (equivalent to the contact time that occurs in 6 years of daily cleaning)

SEE DECLARATION OF COMPATIBILITY AT PAGES 28-29

- Test solution renewed every 3-4 days for oxiding products
- Test results evaluation: ISO 40068-1 (esthetic appearance) and mass loss

## Cleanability and degrees of protection used in the food industry

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

The suitability of our 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 31, Table 1, Applications Zones). In addition to the Hygienic version, aluminium cases are also available with degrees of protection up to IP68 (check applicability).



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



#### 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: DEFECT QUALITY: COLOR VARIATION:

0 means - No detectable defect 0 means - Up to 10x magnification no detectable defect 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 Ttype/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

HYGIENIC

# HYGIENIC

# Requirements on materials in contact or that may 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 abovementioned **EU regulation n. 10/2011** specifies that **rubber and silicone** do not fall within the field of application of the regulation.

IME

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.





# HYGIENIC

## 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.

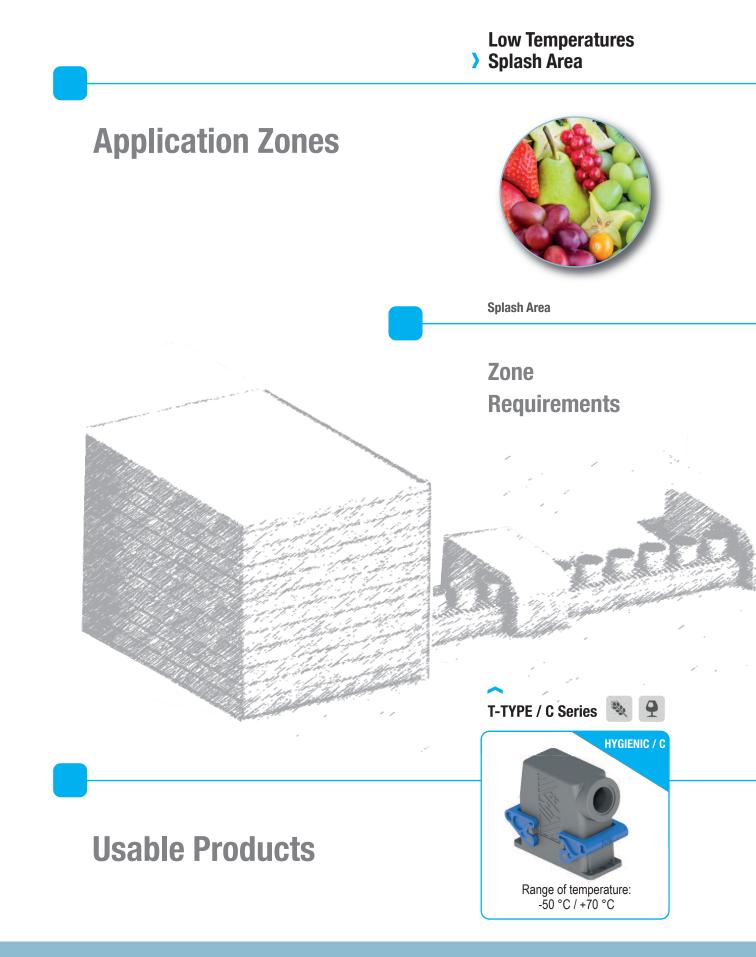
Application Zones	Zone Requirements	Usable Products	
<b>No Food Area:</b> Zone where there is <u>no contact risk</u> with food.	<u>No additional requirement</u> for the food industry.	Enclosures series T-Type, T-Type/W, C-Type, BIG, IP68, C7 IP67, W-Type, EMC, COB,	
<b>Splash Area:</b> Zone where <u>components may come into</u> <u>contact with food</u> but <u>there is no risk</u> that <u>the</u> <u>food</u> that came into contact with the components in this area <u>returns to the</u> <u>production cycle</u> .	In this zone, <u>components</u> also come into contact with cleaning agents used in the food industry and <u>must therefore be</u> <u>cleanable and resistant to the washing</u> <u>process</u> (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 27).	New <u>Hygienic</u> version enclosures series <u>T-Type/H and T-Type/C</u> .	
Food Area: Zone where <u>components may come into</u> <u>contact with food, with the risk</u> that <u>the food</u> that came into contact with the components in this area <u>returns to the production cycle</u> .	In this zone, in addition to complying with the cleanability and washing requirements, the <u>components</u> are also subject to a series of more <u>stringent requirements</u> aimed at making negligible the <u>risk of food</u> <u>contamination</u> in the process (see paragraph "Requirements on materials in contact or that can come into contact with food products", see page 30).	For more information about T-Type/C in special version, please contact our Offices.	

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

HYGIENIC



## **Food & Beverage Hygiene Requirements**



# Production linesSplash Area



#### **Splash Area**

Zone where <u>components may come into</u> <u>contact with</u> food but there is <u>no risk</u> 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 <u>no contact risk</u> with food.





#### **STANDARD Series**



HYGIENIC

# HYGIENIC

T-TYPE/H & T-TYPE/C



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 33, 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.

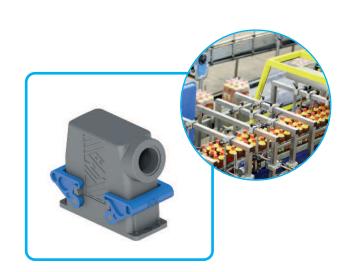


# **HYGIENIC**

## T-TYPE/H & T-TYPE/C

# **T-TYPE / H** Production lines applications

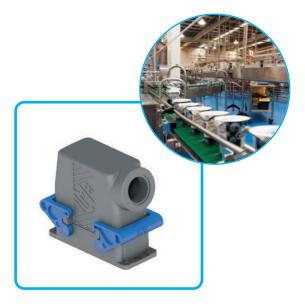
- Enclosures in thermoplastic material, dark grey RAL 7012 colour, with high thicknesses providing structural solidity and durability.
- Sealing gaskets made by HNBR rubber formulated in accordance with FDA Guideline 21 CFR §177.2600.
- $\ensuremath{\boldsymbol{\mathsf{\mathcal{S}}}}$  Levers in thermoplastic 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.



# **T-TYPE / C** 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.





DATA SHEETS AT PAGES 38-45

# **HYGIENIC**

## T-TYPE/H & T-TYPE/C

### FOCUS ON:

### 1 Construction

By using the BC-MUL<sup>®</sup> moulding technique together with the use of MIL.BOX<sup>®</sup> 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 by 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 protective earth terminal of the connector 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 RAL 7012 dark grey 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 rubber or SILICONE rubber** 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-extinguishing thermoplastic material**, blue RAL 5015 colour.

### 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.



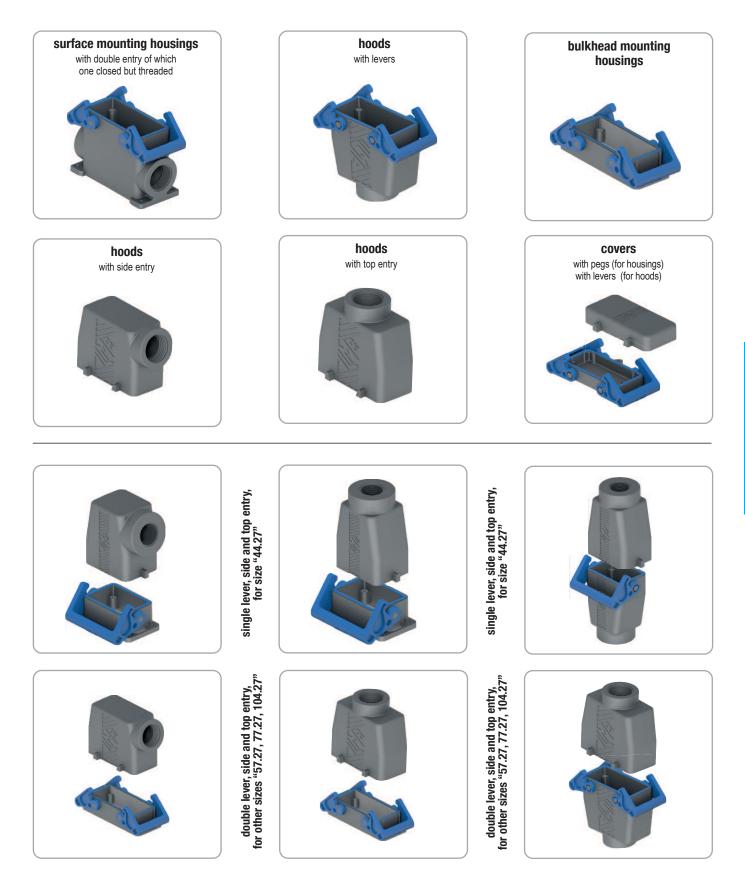
Each enclosure carries its own part number and conformity markings.





# **HYGIENIC**

Featuring an original design, T-TYPE/H & T-TYPE/C construction types available are:

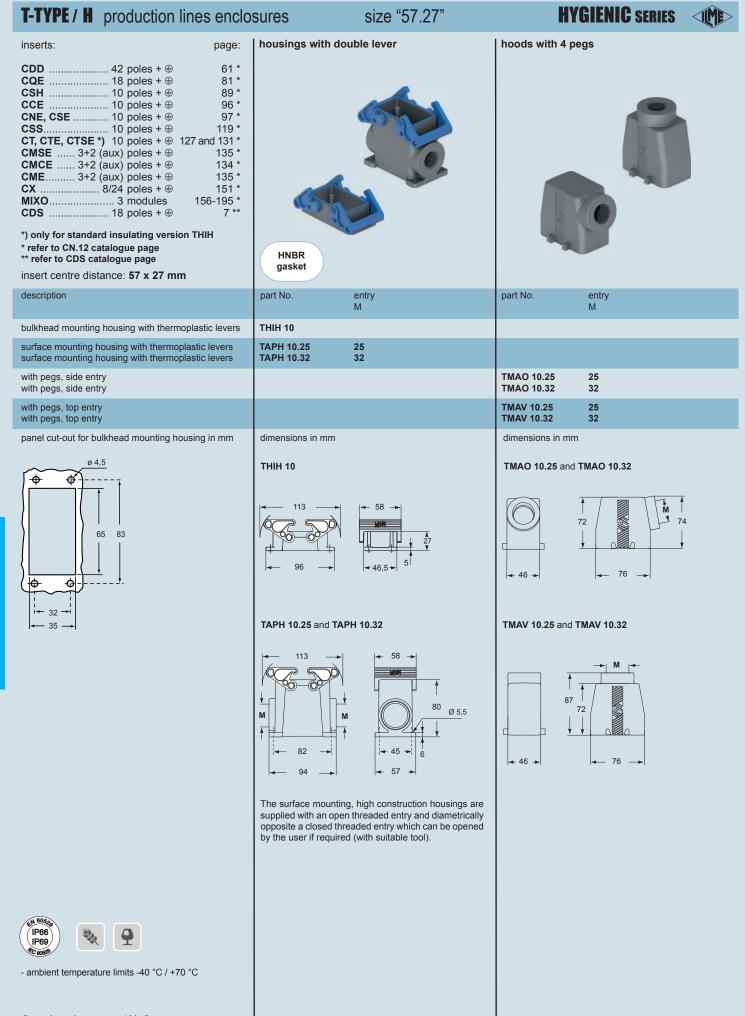


T-TYPE / H production lines enclo	sures size "44.27"	HYGIENIC SERIES
inserts:page:CDD24poles $+ \oplus $ 59 *CQE10poles $+ \oplus $ 80 *CSH6poles $+ \oplus $ 88 *CCE6poles $+ \oplus $ 94 *CNE, CSE6poles $+ \oplus $ 95 *CSS6poles $+ \oplus $ 118 *CT, CTE, CTSE *)6poles $+ \oplus $ 126 and 130 *MIXO2modules156-195 *CDS9poles $+ \oplus $ 6 *** refer to CN.12 catalogue page** refer to CDS catalogue pageinsert centre distance: 44 x 27 mm	housings with single lever	hoods with 2 pegs
description	part No. entry M	part No. entry M
bulkhead mounting housing with thermoplastic lever	THIH 06 L	
surface mounting housing with thermoplastic lever surface mounting housing with thermoplastic lever	TAPH 06 L25         25           TAPH 06 L32         32	
with pegs, side entry with pegs, side entry		TMAO 06 L25 25 TMAO 06 L32 32
with pegs, side entry with pegs, side entry		TMAV 06 L25 25 TMAV 06 L32 32
panel cut-out for bulkhead mounting housing in mm	dimensions in mm	dimensions in mm
$ \begin{array}{c}                                     $	THIH 06 L $75 \rightarrow 175 \rightarrow $	TMAO 06 L25 e TMAO 06 L32 72 74 72 7
Image: P66       Image: P66         Image: P66       I		

HYGIENIC T-TYPE/H

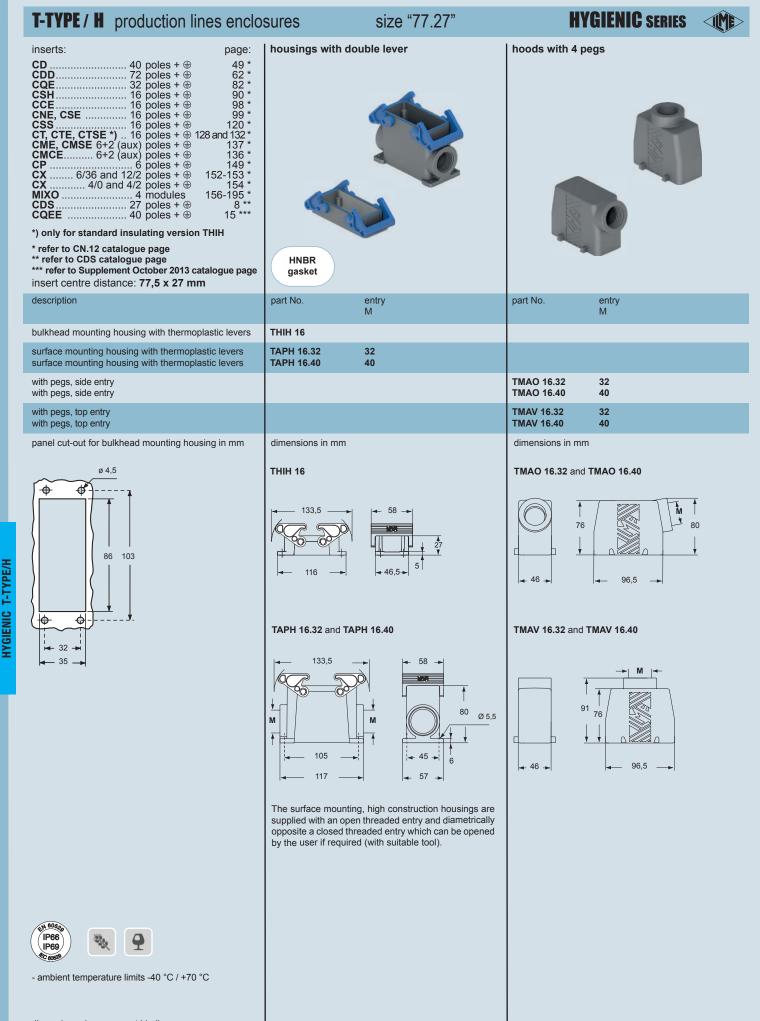
	sures size "44.27"	HYGIENIC SERIES
inserts:page:CDD24poles $+ \oplus $ 59 *CQE10poles $+ \oplus $ 80 *CSH6poles $+ \oplus $ 88 *CCE6poles $+ \oplus $ 94 *CNE, CSE6poles $+ \oplus $ 95 *CT, CTE, CTSE *)6poles $+ \oplus $ 118 *CT, CTE, CTSE *)6poles $+ \oplus $ 126 and 130 *MIXO2modules156-195 *CDS9poles $+ \oplus $ 6 ***) only for standard insulating version THIH* refer to CN.12 catalogue page** refer to CDS catalogue page	hoods with single lever top entry	covers
insert centre distance: 44 x 27 mm	HNBR gasket	HNBR gasket
description	part No. entry M	part No. entry M
with thermoplastic lever and gasket with thermoplastic lever and gasket	TAVH 06 LG25         25           TAVH 06 LG32         32	
with the second and a solution		TCHC 06 L
with thermoplastic lever and gasket		THCH 06 LG
	dimensions in mm TAVH 06 LG25 and TAVH 06 LG32 + 46 + 46 + 46 + 46 + 46 + 46 + 46 + 46	dimensions in mm TCHC 06 L 17.5 $17.5$
		THCH 06 LG 17,5 $17,5$ $17$
$\widetilde{P_{F66}^{000}} \qquad \widetilde{\mathbb{N}} \qquad \widehat{\mathbb{N}} \qquad \widehat{\mathbb{N}}$		

**HYGIENIC T-TYPE/H** 



T-TYPE / H production lines enclo	sures size "57.27"	HYGIENIC SERIES
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	hoods with double lever top entry	covers
*) only for standard insulating version THIH * refer to CN.12 catalogue page ** refer to CDS catalogue page insert centre distance: 57 x 27 mm	HNBR gasket	HNBR gasket
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVH 10 G25 25 TAVH 10 G32 32	
with 4 pegs with 2 thermoplastic levers and gasket		TCHC 10 THCH 10 G
	dimensions in mm	dimensions in mm
		THCH 10 G
		$113 \longrightarrow 113 \longrightarrow 113 \longrightarrow 113 \longrightarrow 117.5 \longrightarrow 126 \longrightarrow 113 \longrightarrow 126 \longrightarrow 12$
- ambient temperature limits -40 °C / +70 °C		

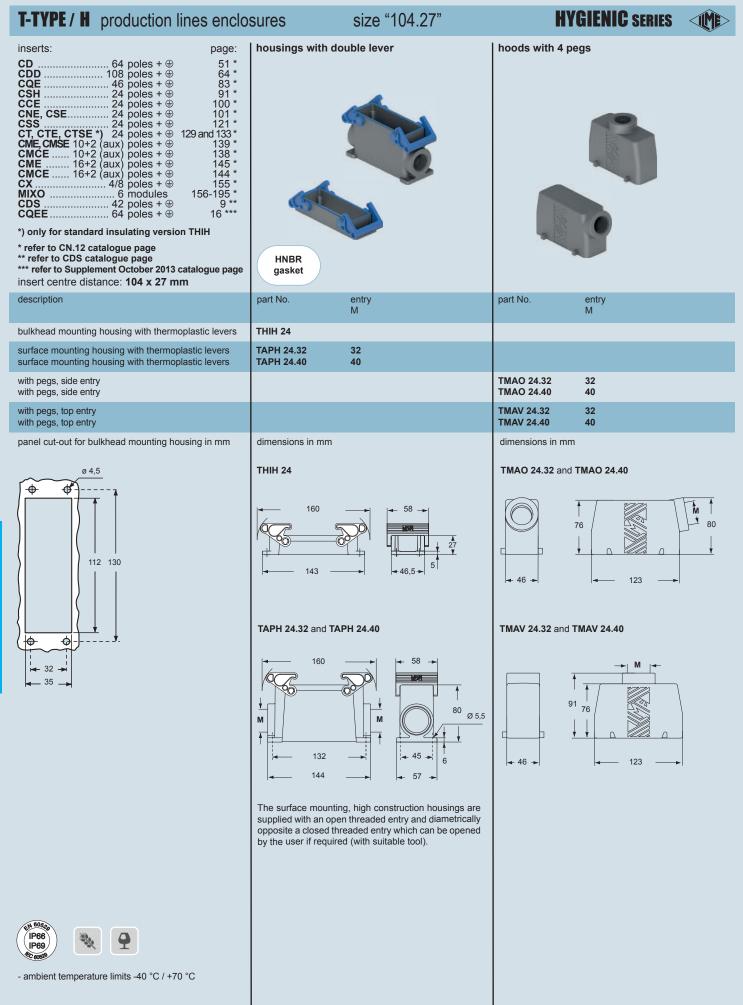
**HYGIENIC T-TYPE/H** 



T-TYPE / H production lines enclo	sures size "77.27"	HYGIENIC SERIES
inserts:page:CD40 poles + $\oplus$ 49 *CDD72 poles + $\oplus$ 62 *CQE32 poles + $\oplus$ 82 *CSH16 poles + $\oplus$ 90 *CCE16 poles + $\oplus$ 99 *CSS16 poles + $\oplus$ 120 *CT, CTE, CTSE *)16 poles + $\oplus$ 137 *CME, CMSE 6+2 (aux) poles + $\oplus$ 137 *CMCE6+2 (aux) poles + $\oplus$ 136 *CP6 poles + $\oplus$ 152-153 *CX6/36 and 12/2 poles + $\oplus$ 154 *CMSC27 poles + $\oplus$ 154 *CQEE40 poles + $\oplus$ 15****) only for standard insulating version THIH* refer to CN.12 catalogue page*** refer to CDS catalogue page*** refer to Supplement October 2013 catalogue page*** refer to Supplement October 2013 catalogue pageinsert centre distance:77,5 x 27 mm	hoods with double lever top entry	covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket with 4 pegs	TAVH 16 G32         32           TAVH 16 G40         40	TCHC 16
with 2 thermoplastic levers and gasket		THCH 16 G
	dimensions in mm TAVH 16 G32 and TAVH 16 G40	dimensions in mm TCHC 16
	91 91 96,5 M	$\begin{array}{c} & \downarrow \\ & \downarrow \\$
		THCH 16 G
- ambient temperature limits -40 °C / +70 °C		

dimensions shown are not binding and may be changed without notice

**HYGIENIC T-TYPE/H** 

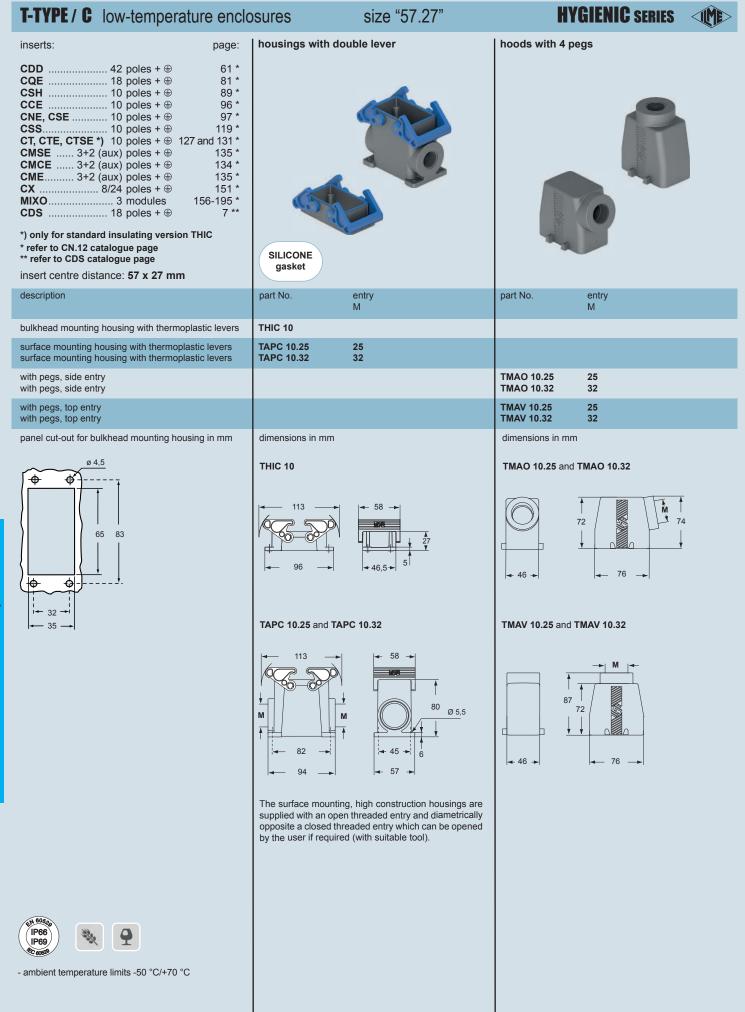


T-TYPE / H production lines enclo	sures size "104.27"	HYGIENIC SERIES
inserts:       page:         CD       64 poles + $\oplus$ 51 *         CDD       108 poles + $\oplus$ 64 *         CQE       46 poles + $\oplus$ 83 *         CSH       24 poles + $\oplus$ 91 *         CCE       24 poles + $\oplus$ 100 *         CNE, CSE       24 poles + $\oplus$ 101 *         CSS       24 poles + $\oplus$ 121 *         CT, CTE, CTSE *)       24 poles + $\oplus$ 139 *         CMECE       10+2 (aux) poles + $\oplus$ 139 *         CMECE       10+2 (aux) poles + $\oplus$ 138 *         CME       16+2 (aux) poles + $\oplus$ 145 *         CMCE       16+2 (aux) poles + $\oplus$ 156 *         MIXO       6 modules       156 * 195 *         MIXO       64 poles + $\oplus$ 16 ****         *) only for standard insulating version THIH       * refer to CN.12 catalogue page         *** refer to CDS catalogue page       *** refer to CDS catalogue page	hoods with double lever top entry	Covers
insert centre distance: <b>104 x 27 mm</b> description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVH 24 G32 32 TAVH 24 G40 40	
with 4 pegs	AVI 24 640 40	TCHC 24
with 2 thermoplastic levers and gasket		THCH 24 G
	dimensions in mm	dimensions in mm
	TAVH 24 G32 and TAVH 24 G40	TCHC 24
		$\begin{array}{c c} & & & & & \\ \hline & & & & \\ \hline & & & & \\ \hline & & & &$
		THCH 24 G

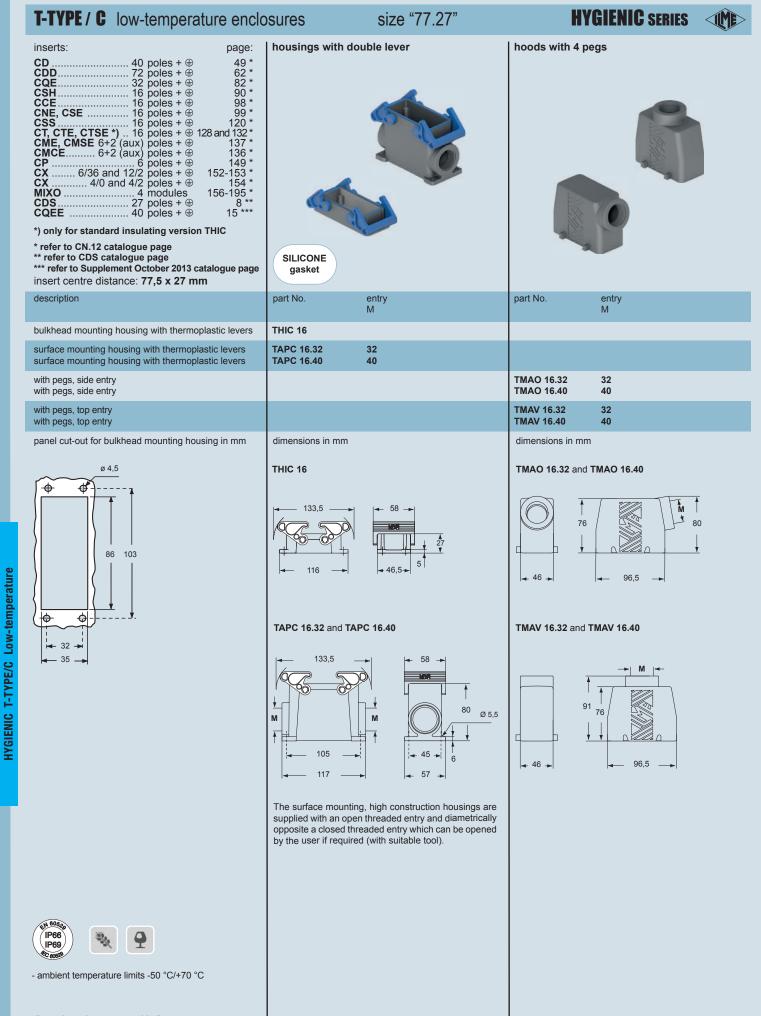
- ambient temperature limits -40  $^{\circ}\text{C}$  / +70  $^{\circ}\text{C}$ 

T-TYPE / C low-temperature enclo	sures size "44.27"	HYGIENIC SERIES (ME)
inserts:page:CDD24poles + $\oplus$ 59 *CQE10poles + $\oplus$ 80 *CSH6poles + $\oplus$ 88 *CCE6poles + $\oplus$ 94 *CNE, CSE6poles + $\oplus$ 91 *CT, CTE, CTSE *)6poles + $\oplus$ 118 *CT, CTE, CTSE *)6poles + $\oplus$ 126 and 130 *MIXO2modules156-195 *CDS9poles + $\oplus$ 6 *** only for standard insulating version THIC* refer to CN.12 catalogue page** refer to CDS catalogue page** refer to CDS catalogue page	housings with single lever	hoods with 2 pegs
description	part No. entry M	part No. entry M
bulkhead mounting housing with thermoplastic lever	THIC 06 L	
surface mounting housing with thermoplastic lever surface mounting housing with thermoplastic lever	TAPC 06 L25 25 TAPC 06 L32 32	
with pegs, side entry with pegs, side entry		TMAO 06 L25 25 TMAO 06 L32 32
con piolini, uscita verticale con piolini, uscita verticale		TMAV 06 L25 25 TMAV 06 L32 32
panel cut-out for bulkhead mounting housing in mm	dimensions in mm	dimensions in mm
ø 4,5	THIC 06 L	TMAO 06 L25 and TMAO 06 L32
<b>←</b> 35 <b>→</b>	TAPC 06 L25 and TAPC 06 L32	TMAV 06 L25 and TMAV 06 L32
	$\mathbf{M} \stackrel{\mathbf{v}}{(\mathbf{\cdot})} \qquad \mathbf{M} $	$\begin{array}{c c} & & & & \\ & & & \\ & & & \\ \hline & & \\ \hline & & & \\ \hline \\ \hline$
	(•) 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).	
- ambient temperature limits -50 °C/+70 °C		
dimensions shown are not binding and may be changed without notice		

T-TYPE / C low-temperature enclo	sures size "44.27"	HYGIENIC SERIES (ME)
inserts:page:CDD24poles + $\oplus$ 59 *CQE10poles + $\oplus$ 80 *CSH6poles + $\oplus$ 88 *CCE6poles + $\oplus$ 94 *CNE, CSE6poles + $\oplus$ 95 *CSS6poles + $\oplus$ 118 *CT, CTE, CTSE *)6poles + $\oplus$ 126 and 130 *MIXO2modules156-195 *CDS9poles + $\oplus$ 6 *** refer to CN.12 catalogue page**** refer to CDS catalogue page	hoods with single lever top entry	covers
insert centre distance: 44 x 27 mm	SILICONE gasket	SILICONE gasket
description	part No. entry M	part No.
with thermoplastic lever and gasket with thermoplastic lever and gasket	TAVC 06 LG25         25           TAVC 06 LG32         32	
with pegs		TCHC 06 L THCC 06 LG
with thermoplastic lever and gasket	dimensions in mm	dimensions in mm
	TAVC 06 LG25 and TAVC 06 LG32	TCHC 06 L
		$\begin{array}{c} & \downarrow \\ \hline & & 17,5 \\ \hline & & 63 \end{array}$
		THCC 06 LG 17,5
- ambient temperature limits -50 °C/+70 °C		



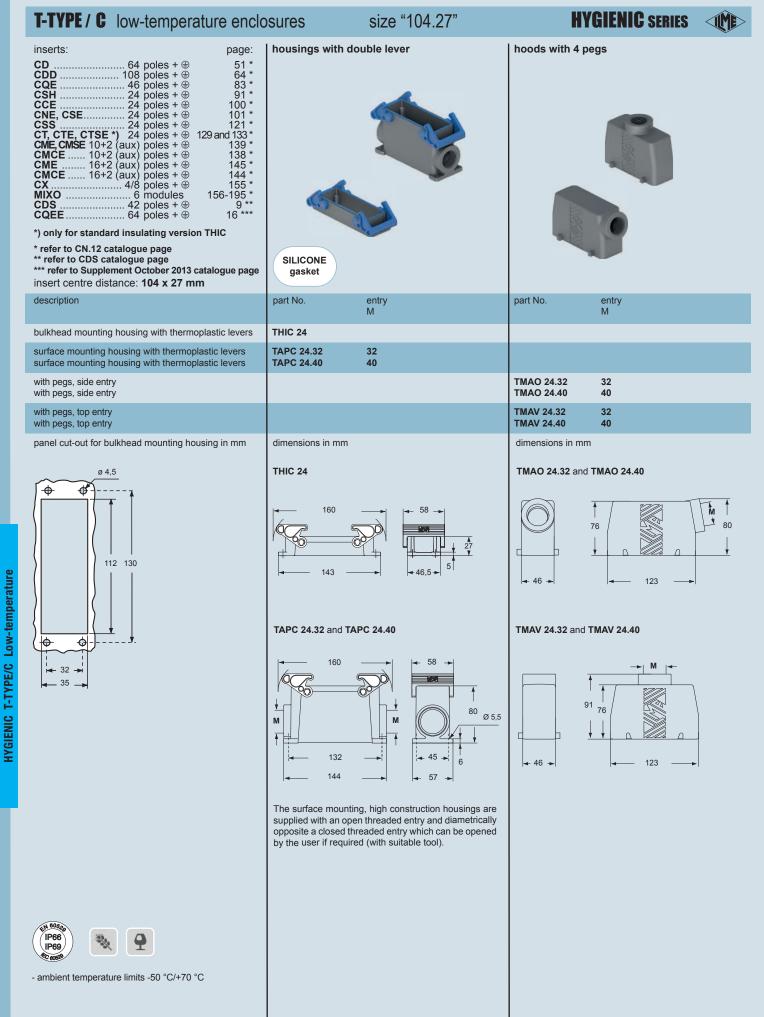
T-TYPE / C low-temperature enclo	osures size "57.27"	HYGIENIC SERIES (ME)
inserts:page:CDD $42 \text{ poles} + \oplus 61^*$ CQE $18 \text{ poles} + \oplus 81^*$ CSH $10 \text{ poles} + \oplus 99^*$ CCE $10 \text{ poles} + \oplus 97^*$ CSS $10 \text{ poles} + \oplus 97^*$ CSS $10 \text{ poles} + \oplus 119^*$ CT, CTE, CTSE *) 10 poles + $\oplus 127 \text{ and } 131^*$ CMSE $3+2$ (aux) poles + $\oplus 135^*$ CMCE $3+2$ (aux) poles + $\oplus 135^*$ CX $8/24 \text{ poles} + \oplus 135^*$ CX $8/24 \text{ poles} + \oplus 151^*$ MIXO $3 \text{ modules} 156-195^*$ CDS $18 \text{ poles} + \oplus 7^{**}$ *) only for standard insulating version THIC* refer to CN.12 catalogue page** refer to CDS catalogue pageinsert centre distance: 57 x 27 mm	hoods with double lever top entry	covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVC 10 G25 25 TAVC 10 G32 32	
with 4 pegs		TCHC 10 THCC 10 G
with 2 thermoplastic levers and gasket	dimensions in mm	dimensions in mm
	TAVC 10 G25 and TAVC 10 G32	TCHC 10 $76 \rightarrow 17.5$
		THCC 10 G
- ambient temperature limits -50 °C/+70 °C		



50

T-TYPE / C low-temperature enclo	sures size "77.27"	HYGIENIC SERIES
inserts:page:CD40 poles $+ \oplus 49^*$ CDD72 poles $+ \oplus 62^*$ CQE32 poles $+ \oplus 62^*$ CQE32 poles $+ \oplus 82^*$ CSH16 poles $+ \oplus 90^*$ CCE16 poles $+ \oplus 98^*$ CNE, CSE16 poles $+ \oplus 120^*$ CT, CTE, CTSE *)16 poles $+ \oplus 128$ and $132^*$ CME, CMSE $6+2$ (aux) poles $+ \oplus 128$ and $132^*$ CME, CMSE $6+2$ (aux) poles $+ \oplus 136^*$ CY6 poles $+ \oplus 152^{-153}^*$ CX6/36 and $12/2$ poles $+ \oplus 152^{-153}^*$ CX4/0 and $4/2$ poles $+ \oplus 154^*$ MIXO4 modules 156^{-195}^*CDS27 poles $+ \oplus 15^{***}$ *) only for standard insulating version THIC* refer to CN.12 catalogue page*** refer to Supplement October 2013 catalogue page*** refer to Supplement October 2013 catalogue pageinsert centre distance: 77,5 x 27 mm	hoods with double lever top entry	covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVC 16 G32         32           TAVC 16 G40         40	
with 4 pegs		TCHC 16
with 2 thermoplastic levers and gasket		THCC 16 G
	dimensions in mm	dimensions in mm
	TAVC 16 G32 and TAVC 16 G40	ТСНС 16
	91 91 96,5 96,5 91 96,5 91	
		THCC 16 G
		133,5 $17,5$ $96,5$ $+46$ $+58$
- ambient temperature limits -50 °C/+70 °C		

HYGIENIC T-TYPE/C Low-temperature



T-TYPE / C low-temperature enclo	osures size "104.27"	HYGIENIC SERIES
inserts:page:CD64 poles + $\oplus$ 51 *CDD108 poles + $\oplus$ 64 *CQE46 poles + $\oplus$ 83 *CSH24 poles + $\oplus$ 91 *CCE24 poles + $\oplus$ 100 *CNE, CSE24 poles + $\oplus$ 101 *CSS24 poles + $\oplus$ 121 *CT, CTE, CTSE *)24 poles + $\oplus$ 123 *CME, CMSE 10+2 (aux) poles + $\oplus$ 139 *CMCE10+2 (aux) poles + $\oplus$ 138 *CME16+2 (aux) poles + $\oplus$ 138 *CMCE16+2 (aux) poles + $\oplus$ 145 *CMCE16+2 (aux) poles + $\oplus$ 155 *MIXO6 modules156-195 *CDS42 poles + $\oplus$ 9 **CQEE64 poles + $\oplus$ 16 *****) only for standard insulating version THIC* refer to CN.12 catalogue page*** refer to Supplement October 2013 catalogue page**** refer to Supplement October 2013 catalogue pageinsert centre distance:104 x 27 mm	hoods with double lever top entry	covers
description	part No. entry M	part No.
with thermoplastic levers and gasket with thermoplastic levers and gasket	TAVC 24 G32         32           TAVC 24 G40         40	
with 4 pegs with 2 thermoplastic levers and gasket		TCHC 24 THCC 24 G
	dimensions in mm	dimensions in mm
	TAVC 24 G32 and TAVC 24 G40	TCHC 24
		$\begin{array}{c c} & & & & & \\ \hline \end{array} \\ \hline $ \\ \hline \end{array} \\ \\ \\ \hline \end{array} \\ \\ \hline \end{array} \\ \\ \\ \hline \end{array} \\ \\ \\ \\
		THCC 24 G

- ambient temperature limits -50 °C/+70 °C

dimensions shown are not binding and may be changed without notice

**HYGIENIC T-TYPE/C Low-temperature** 

### **Important Notes**

I.L.M.E. SpA 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 a single part** and tested to be compliant with the essential safety requirements of the EU Low Volage Directive 2006/95/EC and in particular the EN 61984 standard.

The design of this "modular" system guarantees that every approved 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:

- I.L.M.E. SpA cannot be held responsible for individual components in uses other than those described in this catalogue.

- I.L.M.E. SpA 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.



MULTIFULE CONNECTORS / NOLES	
	*****
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,





CN12 Multipole connectors



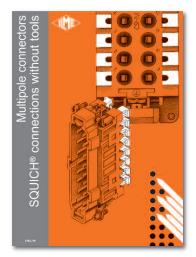
High density spring connection



**JEI® SERIES** Multipole connectors



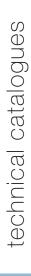
V-TYPE IP67 ENCLOSURES V-Type locking enclosures

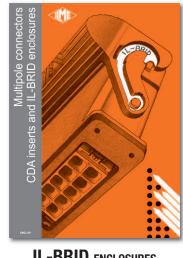


**CSH-SQUICH®** Connection without tools



BIG HOODS The space you have always wanted





IL-BRID ENCLOSURES & CDA INSERTS



**CK-CKS SERIES** With code pins



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