

TYPE OF ENCLOSURES

A large number of enclosure versions is available with different combinations of component materials, each one suitable for specific environmental installation conditions: standard, high temperature, aggressive, extremely aggressive, and electromagnetic compatibility. The principal parts are made in die cast aluminium (or zinc) alloy with a thermosetting powder coating or in self-extinguishing insulating thermoplastic material. They are resistant to impacts and strong mechanical stress.

The coupling's stability and protection against accidental openings are ensured by single or double locking devices comprising levers, springs and pegs – or screws or bayonets – in stainless steel, or entirely in plastic, or in a combination of both. Sealing is ensured by special gaskets that protect the connectors inside the enclosures against dust and aggressive agents. In general, the coupled enclosures with the appropriate user-selected connections guarantee IP44, IP65, IP66 and IP69 (IEC/EN 60529) degrees of protection and some series can reach IP67 and IP68 degree of protection. This catalogue provides for each enclosure the degree of protection and the conditions upon which it applies. The IP degree of protection of the complete connector coupling is the lowest of those assigned to each of the composing parts and is valid only when any cable entry is fitted with suitably rated cable entry device (not included) and upon connectors mated and locked.

STANDARD USE



C-TYPE

The classic choice



IL-BRID

Soft closing, strong hold



T-TYPE

The high-end plastic solution



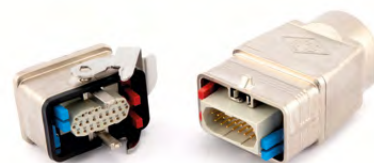
CK - MK - CKA - MKA

The most compact



CQ - MQ

Insulating



MIXO ONE

Modular by definition

WATERTIGHT IP67



V-TYPE IP66/IP67

Extra tough



C7 IP66/IP67

Vertical closing



CZ7 IP66/IP67

Rigid coupling

WATERTIGHT IP68



CGK - MGK IP68

High protection



IP68

The diving master

AGGRESSIVE ENVIRONMENTS



T-TYPE W

For aggressive environments



W-TYPE

A cornerstone against corrosion



E-Xtreme®

Protection and beyond

SPECIFIC USE



HYGIENIC

Safe for food



LS-TYPE

For Light and Sound



BIG HOODS

The space you have always needed



180 °C

The heat shield



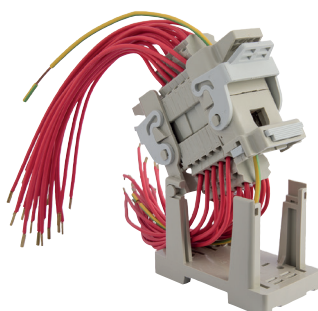
EMC

No interferences



CENTRAL LEVER

Easy access for robotics



COB

Functionality counts



HNM

High number of matings



830V*

High voltage version

* available upon request

APPLICATION SECTORS

ILME products apply in many different sectors, they are engineered and tested to provide specific solutions for different environments.



Safety systems



Electrical panels



Salt sprayers



Naval



Offshore



Robotics



Wind



Transportation



Remote controls



Stage equipments



Automation



Moulding

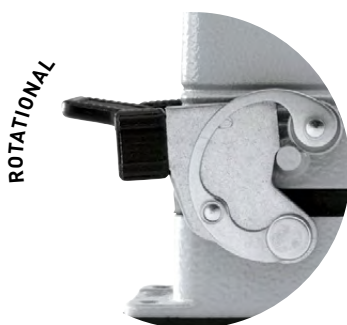


Food and beverage

LOCKING SYSTEMS

C-TYPE

Classic and flexible

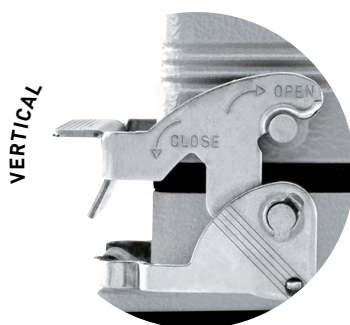


USED FOR ENCLOSURES:

- C-TYPE (IP65 or IP66)
- W-TYPE (IP65 or IP66) for aggressive environments
- 180 °C (IP65) for high temperatures with a completely metallic lever
- EMC (IP65 or IP66) for electromagnetic compatibility
- INSULATED 830V (IP65 or IP66) for CME 830V inserts

V-TYPE

Vertical closing up to IP67

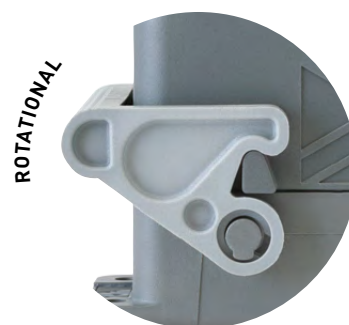


USED FOR ENCLOSURES:

- C7 (IP66/IP67) stainless steel levers
- CV (IP65 or IP66) stainless steel levers

T-TYPE

Thermoplastic lever



USED FOR ENCLOSURES:

- T-TYPE (IP65)
- T-TYPE/W (IP66/IP69)
- HYGIENIC: T-TYPE/H, T-TYPE/C (IP66/IP69)
- LS-TYPE (IP65)

IL-BRID

The coordinated effect of two works

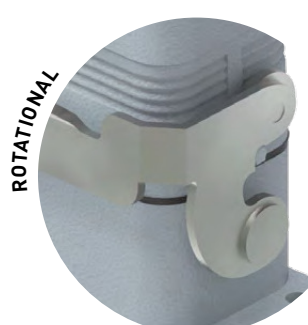


USED FOR ENCLOSURES:

- CZ - MZ IL-BRID (IP66)

CZ7 RIGID LEVER

Rigid locking lever in stainless steel



USED FOR ENCLOSURES:

- CZ7 - MZ7 (IP67)

TYPE OF COVERS

2-POSITION OPEN/CLOSED, HINGED

WHITE THERMOPLASTIC

LP / CP

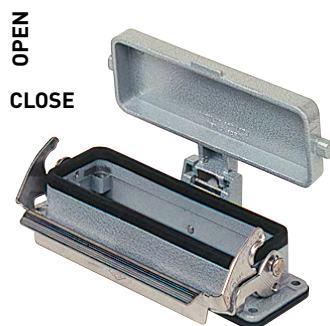


USED FOR ENCLOSURES:

- C-TYPE (housings with levers)
- CV (housings with lever)

METAL VERSION

LS / CS



USED FOR ENCLOSURES:

- C-TYPE (housings with levers)
- CV (housings with lever)

METAL VERSION

LS / CS



USED FOR ENCLOSURES:

- CZ7 housings with levers

SIMPLEX SELF-CLOSING, HINGED

BLACK THERMOPLASTIC

LSP



USED FOR ENCLOSURES:

- CV (housings with lever)

BLACK THERMOPLASTIC

LSP



USED FOR ENCLOSURES:

- CZ (housings with lever)

METAL VERSION

LS



USED FOR ENCLOSURES:

- CKA (housings with lever)

TYPE OF HOODS / HOUSINGS

C-TYPE



This series has been developed for application in electrical and electronic machinery, control units, electrical panels, control equipment, in industrial environments and in general, wherever a reliable and easily disconnectable connection is required for power and signal circuits.

Functional characteristics

- Wear of pins greatly reduced by the presence of rolls, that provide a smooth closure;
- resilience of double spring mechanism for automatic compensation of any coupling tolerance;
- the inserts of the CMCE series (except the 16+2 poles) and of the CMSH series may use standard enclosures also for uses of up to 830V.

- ✓ UL certified for USA and Canada for Type 4, 4X (outdoor use) and 12 (indoor use) degrees of protection (enclosure type rating), marked on the packaging.
IP65 or IP66/IP69 degrees of protection according to model.

Characteristics of materials for CH, CA and MH, MA, MF series

- Made of die cast aluminium alloy;
- with epoxy-polyester thermosetting powder coating;
- gaskets in anti-aging, oil-resistant, grease-resistant and fuel-resistant vinyl nitrile elastomer;
- locking device with levers, springs, rolls and pins in stainless steel;
- lever handles in self-extinguishing thermoplastic material reinforced with glass fibres, UL approved (for CH, CA and MH, MA enclosures);
- ambient temperature range: -40 °C / +125 °C.

V-TYPE IP67



This original design locking lever, due to the vertical closing movement, offers an IP66/IP67/IP69 degree of protection according to EN 60529 when fitted with a complete and coupled connector using ILME standard aluminium hoods (without adaptor) with die cast pegs.

Functional characteristics

- The friction on the pin is virtually zero as the locking lever exerts its pressure vertically, thus significantly reducing wear in case of frequent use;
- this locking lever can be used for applications with vibrations because it has no springs, hence resulting more rigid;
- this locking lever occupies a very small space during the closing phase;
- it is recommended in cases in which the weight of the cable tends to open elastic locking levers, like with vertically installed connectors and downwards cable exit;
- the absence of plastic parts provides better resistance in case of shocks and exposure to chemical contamination or risk of fire.

- ✓ UL certified for USA and Canada for Type 4, 4X (outdoor use) and 12 (indoor use) degrees of protection (enclosure type ratings), marked on the packaging.
IP66/IP67/IP69 degree of protection.

Characteristics of materials for C7, C7A and M7, M7A series

- Made of die cast aluminium alloy;
- with epoxy-polyester thermosetting powder coating;
- gaskets in anti-aging, oil-resistant, grease-resistant and fuel-resistant vinyl nitrile elastomer;
- locking device fully in stainless steel;
- ambient temperature range: -40 °C / +125 °C

T-TYPE AND T-TYPE/W



Alongside the wide range of traditional metallic enclosures for multipole connectors, ILME was a pioneer in offering a new series of enclosures in self-extinguishing thermoplastic material in the most common sizes of "44.27", "57.27", "77.27" and "104.27".

Functional characteristics

- Pre-fastened gaskets for easier installation;
- external dimensions of the bulkhead housing are similar to those of the corresponding metal enclosures and hole fixing centres are unchanged;
- ample space inside enclosures for cables, with mounted connectors, similar to the corresponding metal high construction versions;
- possibility of making completely insulated constructions (equivalent to Class II);
- absence of powder paint for environments in which these are not recommended;
- manufactured from insulating material, do not require special reinforced insulation as the metal versions do, for use with series CME 830V higher voltage connector inserts (screw-type terminals).

- ✓ UL Type 12 degree of protection (enclosure type rating) according to ANSI/UL 50E.
IP65 (T-Type standard),
IP66/IP69 (T-Type/W) degree of protection.

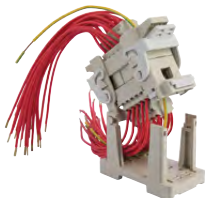
Characteristics of materials for T-TYPE and T-TYPE/W series

- Enclosures in thermoplastic material, dark grey RAL 7012 colour, with high thicknesses providing structural solidity and durability;
- **T-TYPE series: built-in polyurethane gaskets;**
- **T-TYPE/W series: built-in FKM fluoroelastomer sealing gaskets;**
- locking levers in thermoplastic material colour grey RAL 7001;
- M25, M32 and M40 threaded cable entries;
- each enclosure carries its own part number, thread/size, conformity markings and UL type rating;
- ambient temperature range: -40 °C / +90 °C.

✓ **T-TYPE/W series** have been developed for industrial applications with particularly aggressive external agents (e.g. salt atmospheres or environments).

Q 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.

COB



The COB system makes it possible to use multipole connectors within electrical panels without the traditional metallic enclosure, as environmental protection is assured by the electrical panel itself or other container.

Q Connectors must not be operated live.

Functional characteristics

- The system may be assembled on panels with window snap fastening device; on DIN EN 60715 rails, both lengthways and crossways to the support; on fixed panels using screws;
- reduction in cost and space with respect to metallic enclosures and traditional terminal boards;
- possibility of rewiring at the connector bench with connected devices;
- easy wiring inspection and tests with coupled connectors, thanks to rear access to the inserts via the turnover device;
- fast mounting in panels thanks to the snap fastening device on the DIN EN 60715 rails;
- sturdy support structure, specific to the size of each insert and does not require any preparation;
- broad passage for housing of conductor cables;
- mobile parts prearranged for the clamping of bundles of conductors of multipolar cables to prevent contact with the connector contacts

✓ IP20 degree of protection.

Characteristics of materials for COB system supports

- Self-extinguishing thermoplastic insulating materials, UL certified (COB supports, locking levers, hoods), compatible with the -40 °C / +125 °C operating temperature range of connector inserts;

IL-BRID



Through its original design, the IL-BRID locking lever combines the smoothness of the thermoplastic material with the sturdiness of the stainless steel spring; it has also a linear design which favours a quick wash without retaining external elements.

Functional characteristics

- **Soft closing:** in the first phase, the thermoplastic locking lever component comes into play: sliding the new locking lever on the pin reduces friction and wear. It is suitable in all applications with frequent opening and closing.
- **Strong hold:** after the first closing phase involving the plastic component, the stainless steel hook intervenes to guarantee higher resistance to mechanical stress.

✓ IP66/IP69 degree of protection.

✓ IP65 degree of protection versions with hinged cover.

Characteristics of materials for CZ and MZ series

- Made of die cast aluminium alloy;
- with epoxy-polyester powder coating;
- gaskets in anti-aging, oil-resistant, grease-resistant and fuel-resistant vinyl nitrile elastomer;
- locking device with levers and springs in stainless steel;
- lever handles in self-extinguishing thermoplastic material reinforced with glass fibres, UL approved (for CZ and MZ enclosures)

C7/CZ7 IP67



Enclosures with rigid stainless steel lever to assure an IP66/IP67/IP69 dust and watertight seal.

Functional characteristics

- **C7 series: V-TYPE stainless steel locking lever, vertical closing**
- sizes 44.27, 57.27, 77.27, 104.27
- with and without hinged cover (except size 57.27)
- bulkhead or surface mounting
- recommended in case of vibrations or heavy weight of cables

- **CZ7 series: stainless steel locking lever, rigid**

- sizes 49.16, 66.16
- with and without hinged cover
- bulkhead or surface mounting
- recommended in case of vibrations or heavy weight of cables.

✓ IP66/IP69, IP66/IP67/IP69 degrees of protection according to model.

Characteristics of materials for C7, CZ7 series

- Made of die cast aluminium alloy;
- with epoxy-polyester thermosetting powder coating;
- gaskets in anti-aging, oil-resistant, grease-resistant and fuel-resistant vinyl nitrile elastomer;
- locking device integrally in stainless steel;
- ambient temperature range: -40 °C / +125 °C.

IP68

For applications in the railway sector and whenever the following characteristics are demanded: high pressure, impact and corrosion resistance, with degree of protection IP68. They also guarantee a good shielding for electromagnetic compatibility.

Functional characteristics

- The IP66/IP68/IP69 degree of protection is ensured if the enclosures are correctly installed and the cable entry devices have equal or higher rating.

- ✓ UL certified for USA and Canada for Type 4, 4X (outdoor use) and Type 12 (indoor use) ratings, marked on the packaging.
IP69 degree of protection for tightness to pressurized water jets.

Characteristics of materials for CG and MG series

- Made of die cast aluminium alloy;
- with thermosetting epoxy powder coating;
- locking device with either screws or bayonets (types with suffix B).

180 °C

Series specifically developed for industrial applications where the temperatures can reach up to 180 °C.

Functional characteristics

- The aluminium die-cast unpainted enclosures are equipped with stainless steel V-TYPE levers and FKM red gaskets;
- available in the sizes "21.21", "44.27", "57.27", "77.27", "104.27", "77.62" and "104.62" to be used in combination with the ILME high-temperature connector inserts made by self-extinguishing thermoplastic material (>PPS< polyphenylene sulphide).

- ✓ UL certified for USA and Canada for Type 12 (indoor use) and Type 4 protection ratings, marked on the packaging label.
IP44 (size "21.21"), IP65 (other sizes) degree of protection according to EN IEC 60529.

Characteristics of materials for CK..R, CV..R, CH..R and MK..R, MV..R, MH..R, MF..R series

- Enclosure body made of die cast aluminium alloy;
- flange and interface sealing gaskets (as applicable in FKM, anti-aging heat resistant fluoroelastomer);
- stainless steel V-Type locking mechanism;
- single-block locking lever handles in stainless steel (for "21.21" sized CKA..R /MKA..R, "44.27" sized CV..R /MV..R, "77.62" sized CH..R 32.. /MHP..R 32.. and "104.62" sized CH..R 48.. /MHP..R 48.. versions).

E-Xtreme®

ILME patented titanium plasma protection. Corrosion proof enclosures, resistant up to 3.000 hours in salt spray tests.

Functional characteristics

- Metal hoods and housings intended for extremely demanding environments, with special protective treatment under painting.
Their special patented protective coating assures a high level of protection against the corrosion and erosion even in case of long-term exposure to salt mist;
- corrosion-proof aluminium with a special coating under the thermosetting powder coating colour RAL 7016 dark grey;
- FKM gasket (-40 °C...+180 °C) or silicone gasket (-60 °C...+180 °C);
- V-TYPE lever or C-TYPE lever, hoods with moulded pegs or riveted stainless steel bolts;
- durable protection against damage caused by stone chip, icing, salt mist, UV radiations and harsh gases.

- ✓ IP65, IP66/IP69, IP66/IP67/IP69, IP66/IP68/IP69 (CG-MG) degrees of protection according to EN IEC 60529 (in mated and locked condition), according to model.

Characteristics of materials for E-Xtreme® series

- Material: aluminium die-cast;
- painting: thermosetting epoxy powder coating;
- colour: RAL 7016 (dark grey);
- locking lever, springs and pegs: stainless steel;
- lever handle: C-Type polyamide; V-Type stainless steel;
- gasket: FKM;
- silicone-based compounds: free (except version for -60 °C... +180 °C);
- EN ISO 9227: 3.000 hours (V-Type lever and hood with moulded pegs); 2.000 hours (C-Type lever and hood with riveted stainless steel bolts).

BIG



The large dimensions of these innovative enclosures series have been chosen to offer customers an adequate space to store conductors.

Functional characteristics

- The width of the new enclosures is greater than that of previous versions: 66 mm compared to the 43 mm for standard enclosures.
- The height of BIG enclosures has also been increased to 100 mm for sizes "44.27" and "57.27" (standard versions for high models: 70 and 72 mm), and to 110 mm for sizes "77.27" and "104.27" (standard versions for high models: 76 mm).
- The cable compartment is now fully accessible during assembly (the connector insert is fully inserted in the lower half of the enclosure), offering three times the space compared to standard enclosures. This means it is possible to bend cables and pipes with greater bending radii.

Due to this important feature, the BIG enclosures are particularly suitable for MIXO modular inserts, being versatile and customizable, for multiple cable entries. Each insert, differentiated according to electric power or signal, pneumatic, optical fibre or Ethernet network current, may thus have the specific branching. One single large connector can replace what previously required two connectors.

IP66/IP69 degree of protection.

Characteristics of materials for CB and MB series

- Made of die cast aluminium alloy;
- with epoxy-polyester thermosetting powder coating;
- die cast integral pegs.

EMC



This series has been developed for industrial applications that require electromagnetic compatibility (EMC, Electromagnetic Compatibility) in accordance with the European standards that regulate the emission and immunity of the equipment.

Functional characteristics

- EMC enclosures maintain the robustness and reliability of standard types whilst possessing increased high frequency shielding characteristics.
- ✓ UL certified for USA and Canada for NEMA 4, NEMA 4X and NEMA 12 degrees of protection (enclosure type ratings) printed on the packaging. IP65/IP69 or IP66/IP69 degree of protection according to model.

Characteristics of materials for CK..S and MK..S series

- Chromate coating treatment, RoHS 2 conform of die casts with high surface conductivity;
- special gaskets in highly conductive material;
- single-block locking lever in stainless steel.

for CZ..S, CH..S, CA..S and MZ..S, MH..S, MA..S series

- Made of die cast aluminium alloy;
- chromate conversion coating treatment of die cast, RoHS 2 conform, with high surface conductivity;
- special gaskets in highly conductive material;
- locking device with levers, springs and pins in stainless steel;
- lever handles in self-extinguishing thermoplastic material reinforced with glass fibres, UL approved.

W-TYPE



This series has been developed for industrial applications with particularly aggressive external agents (e.g. salt atmospheres or environments).

Functional characteristics

- The enclosures do not have any internal tabs (with polarization function) thus they allow also the insertion of the CME inserts;
- enclosures have supplementary insulating strips inside for use with CME 830 V inserts;
- the inserts of CME series connectors (screw-type) have a lateral key coding that prevents installation in metal housings without such additional insulation.
- this version is distinguished by the black colour of the enclosures

✓ UL certified for USA and Canada for NEMA 4, NEMA 4X and NEMA 12 degrees of protection (enclosure type ratings) printed on the packaging. IP65/IP69 or IP66/IP69 degree of protection according to model.

Characteristics of materials for CK..W and MK..W series

- Chromate treated die cast;
- with epoxy thermosetting powder coating;
- gaskets in anti-aging FKM fluoroelastomer;
- single-block locking device in stainless steel

CZ..W, CH..W, CA..W series and MZ..W, MH..W, MA..W series

- Made of die cast aluminium alloy;
- Chromate conversion coating, RoHS 2 conform treatment of die casts;
- with epoxy thermosetting powder coating;
- gaskets in anti-aging FKM fluoroelastomer;
- locking device with levers, springs and pins in stainless steel;
- pegs with stainless steel coating;
- single-block lever handles in stainless steel (for CZ..W and MZ..W enclosures);
- lever handles in self-extinguishing thermoplastic material reinforced with glass fibres, UL approved (CH..W, CA..W and MH..W, MA..W versions);
- supplementary insulation inside enclosures

HYGIENIC

The Hygienic multipole connector enclosures version (series T-TYPE/H and T-TYPE/C) has been designed for installation on food industry machines and systems.

Functional characteristics

- 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 cleanliness 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.

Q 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.

Characteristics of materials for T-TYPE/H series

- 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.
- Locking levers in thermoplastic material, blue RAL 5015 colour.
- M25, M32 and M40 threaded cable entries.
- IP66/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 series

- 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;
- T-TYPE/C differs from T-TYPE/H 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.
- IP66/IP69 degree of protection according to EN 60529.

LS-TYPE

Series specifically developed for applications like event and stage technology.

Functional characteristics

- These enclosures can be installed beside stages. They do not have any bright components that would distract and simple plastic levers that are easy to replace.
- ✓ **UL certified for USA and Canada for NEMA 4, NEMA 4X and NEMA 12 degrees of protection (enclosure type ratings) printed on the packaging. IP65/IP69 degree of protection.**

Characteristics of materials for CH..N -MA..N and MH..N - MF..N LS-TYPE series

- Made of die cast aluminium alloy;
- powder-coated with RAL 9005;
- gaskets in anti-aging, oil resistant, grease resistant and fuel resistant vinyl nitrile elastomer;
- locking device with levers in black made of plastic;
- ambient temperature range -40 °C / +125 °C.

HNM

Connector enclosures designed to endure high number of matings, to be used in combination with HNM connector inserts and relevant HNM removable crimp contacts, extending the guaranteed number of matings up to 10 000.

Functional characteristics

- HNM Housing (bulkhead or surface mounting) equipped with ILME proprietary design V-Type locking lever, further improved with special treatment to reduce the wear due to friction at minimum.
- HNM Hoods equipped with riveted rolling pegs and special anti-friction lubrication treatment.
- Ensuring long life span in those applications where frequent connections and disconnections are expected exceeding the standard 500 mating cycles.

Characteristics of materials for RV, RH, RF, RAC HNM series

- Made of die cast aluminium alloy;
- coated with thermosetting powder coating, epoxy-polyester;
- gaskets in anti-aging, oil resistant, grease resistant and fuel resistant vinyl nitrile elastomer;
- V-Type single locking lever, stainless steel;
- ambient temperature range -40 °C / +125 °C

CENTRAL LEVER



Series specifically designed for industrial applications with limited installation space.

Functional characteristics

- These enclosures can be installed, placed side-by-side and handled in a single operation. Furthermore, the lever's shape reduces the effort required to uncouple the inner fittings.

✓ IP65 degree of protection.

Characteristics of materials

for CH..YC, CA..YC and MA..YC, CA..YX and MF..YX series

- Made of die cast aluminium alloy;
- with epoxy-polyester thermosetting powder coating;
- gaskets in anti-aging, oil-resistant, grease-resistant and fuel-resistant NBR vinyl nitrile elastomer;
- locking device with single stainless steel lever;
- stainless steel locking pegs with rollers, to reduce wear.

MIXO ONE



MIXO ONE is the aluminium housings system designed by ILME to accept the wide range of MIXO series single-sized modules.

Functional characteristics

- These robust connector enclosures (3 hood variants and 1 bulkhead mounting housing) transform each single MIXO module into a completely independent connector;
- the enclosures allow mounting of single MIXO module only in one guided way, to avoid incorrect match with the mating connector;
- the enclosures incorporate a pre-leading (first-make, last-break) PE connection terminal and contact, for the safest connector operation;
- the pins protruding from the bulkhead mounting housing act also as key guide, in cooperation with the corresponding keyway sockets in the hoods, to avoid incorrect 180° reversed mating with corresponding connector;
- the rigid locking lever is releasably mounted on moulded pegs that include stopping teeth;
- the hoods are split in two parts (front, rear), to allow MIXO module mounting and simplify the enclosure's PE connection. Supplied with four self-threading screws and self-retaining sealing gasket;
- the bulkhead mounting housing is supplied with the module locking frame and self-retaining flange gasket;
- four optional coding pins available;
- protection covers for hoods and housings available.

✓ cURus Type 4/4X/12 pending
IP65 degree of protection

Characteristics of materials

for CXA 01..., MXA 01... series

- Die cast aluminium alloy, nickel plated;
- gaskets in anti-aging, oil resistant, grease resistant and fuel resistant NBR vinyl nitrile elastomer;
- locking device with stainless steel single lever;
- module locking frame in stainless steel;
- self-threading assembly screws in stainless steel;
- optional coding pins CR CX... in self-extinguishing thermoplastic insulating material (UL 94V-0).

For CXP 01... covers

- Shock-proof self-extinguishing thermoplastic material (UL 94 V-0) suitable for outdoor exposure, either with pegs (for enclosures with locking lever and sealing gasket) or with locking lever and sealing gasket (for enclosures with pegs) both with eyelet-terminated string (for fastening to housings) or with loop-terminated cord (for fastening to hoods, around the incoming cable);
- locking device – if any – made by the same material of the cover.

CK - MK - CKA - MKA CQ - MQ



Thermoplastic and metallic enclosures size "21.21" for standard or aggressive environments and insulated version size "32.13"

Functional characteristics

- For use with all size "21.21" connector inserts;
- Connector inserts for use at SELV are prevented to be installed in metallic enclosures CKA-MKA, CGK-MGK (as they would not provide protective earth connection for the enclosure) thanks to a special key and keyway system in all "21.21" metallic enclosure. Insulating "21.21" enclosures accept all "21.21" inserts.
- CGK-MGK IP68 enclosures (currently IP66/IP68/IP69) available both with 2-screw locking or by 2-bayonet locking (types with suffix B).

✓ UL certified for USA and Canada for Type 4, 4X and 12 degrees of protection (enclosure type ratings, equivalent to NEMA rating), printed on the packaging.

IP44 degree of protection, IP66/IP67/IP69 by using the special fixing screw + gasket kit CKR 65(D) separately available, and suitable cable outlet device.

IP66/IP68/IP69 degree of protection for CGK-MGK enclosures equipped with **CKR 65(D)** kit.

Characteristics of materials

for CK, MK and CQ series

- In self-extinguishing light grey RAL 7035 or jet black RAL 9005 thermoplastic material for insulating (CQ series only available black) or metallic enclosures;
- metal enclosures in die cast zinc or aluminium alloy, according to model;
- metal enclosures with epoxy-polyester thermosetting powder coating;
- gaskets in anti-aging, oil-resistant, grease-resistant and fuel-resistant NBR vinyl nitrile elastomer;
- metallic enclosures with single-block locking lever in stainless or galvanized steel;
- insulating enclosures with single-block locking lever in self-extinguishing thermoplastic material.

ENCLOSURES FEATURES


Series	Version	Material	Size	Size ID	Cable entry		Locking device
CK / MK	Standard	Insulating	21.21	03	M20 - M25	Pg 11	single
CKX							
CKA / MKA	Standard	Metallic	21.21	03	M20 - M25	Pg 11	single
CKAX / MKAX	W (Aggressive environments)						
CKAXX / MKAXX	S (EMC) E (E-Xtreme®) R (High temperatures)						
CKG / MKG	Standard	Insulating	21.21	03	M20 - M25	Pg 11	single
CKAG / MKAG		Metallic			M20		
IP68 (CGK / MGK)	IP68	Metallic	21.21	03	M20 - M25	Pg 13,5	dual screw / bayonet
CQ / MQ	Standard	Insulating	32.13	08	M25x2	Pg 16 - Pg 21	single
	S (EMC)	Insulating metallized					
MIXO ONE (CXA, MXA)	EMC as standard	Metallic	—	—	M25 - M32	—	single
IL-BRID (CZ / MZ)	Standard	Metallic	49.16 66.16	15 25	M20 - M25	Pg 13,5 - Pg 21	single
			49.16 66.16	15 25	M20 - M25	Pg 16 - Pg 21	
			49.16 66.16	15 25	M20 - M25	Pg 16 - Pg 21	
CZ7 / MZ7	Standard W (Aggressive environments) S (EMC) E (E-Xtreme®)		49.16 66.16	15 25	M20 - M25	Pg 13,5 - Pg 21	
C-TYPE (CH / CA / CF MH / MA / MF)	Standard C-TYPE W (Aggressive environments) S (EMC) R (High temperatures) 830V (Insulated) E (E-Xtreme®)	Metallic	66.40	50	M25 - M40	Pg 21 - Pg 29	dual
			44.27	06	M20 - M40	Pg 13,5 - Pg 29	single
			57.27	10		Pg 16 - Pg 29	dual
			77.27	16	M25 - M50	Pg 21 - Pg 36	
			104.27	24			
			77.62	32	M32 - M50	Pg 29 - Pg 42	single / dual
			104.62	48			single

**CM/MM enclosures for 830V screw type connector inserts CME series available only upon request
(as well as the CME series inserts)**

- ¹⁾ Enclosures ensure IP degree of protection when coupled and locked with the locking lever. The cover (CS, CP) only provides mechanical protection without ensuring the IP degree of protection.
- ²⁾ .. LP versions with plastic cover have not the UL approval.
- ³⁾ Approved by CQC in combination with relevant CQC certified connector inserts as accessories that provide the declared IP degree of protection, their part. Nos. not showing up in the CQC Certificates.

Series	IP (EN 60529) ¹⁾	UL 50 Type (NEMA 250 type)	Certifications	Notes	Ambient temperature limit (°C)		From page
CK / MK	IP44 IP66/IP67/IP69 *	12 4 *, 4X *	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD	* with CKR 65 (D)	-40	+125	339
CKX			cUR _{US} , CQC ³⁾				344
CKA / MKA	IP44 IP66/IP67/IP69 *	12 4 *, 4X *	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD	* with CKR 65 (D)	-40	+125	349
CKAX / MKAX			cUR _{US} , CQC ³⁾ , DNV-GL, BV				350
CKAXX / MKAXX			cUR _{US} , CQC ³⁾				
CKG / MKG	IP66/IP67/IP69	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD	for DESINA® compliant connectors	-40	+125	347
CKAG / MKAG							353
IP68 (CGK / MGK)	IP66/IP68/IP69	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, ESTD		-40	+125	628
CQ / MQ	IP66/IP67/IP69	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD	with conductive gasket CR 08 EMC	-40	+125	366, 573
MIXO ONE (CXA, MXA)	IP65	12, 4, 4X	cUR _{US} , CQC ³⁾	for single size MIXO modules	-40	+125	369
IL-BRID (CZ / MZ)	IP66/IP69	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40 R = -40	+125 R = +180	374
	IP65			with hinged cover			374, 378
	IP44 (SIMPLEX) IP65 (SIMPLEX)			when not mated and locked with lever when mated and locked with the closing lever			375, 379
CZ7 / MZ7	IP66/IP67/IP69		cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD	enclosures ensure IP67 degree of protection when coupled with hoods or covers with moulded pegs			384, 385 519, 520 576, 577 586 540, 541
C-TYPE (CH / CA / CF MH / MA / MF)	IP44 IP66/IP69 IP65	12 12, 4, 4X ²⁾ 12, 4, 4X ²⁾	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40 R = -40	+125 R = +180	387

ENCLOSURES FEATURES


Series	Version	Material	Size	Size ID	Cable entry		Locking device
T-TYPE (TCH / TH / TMA / TA)	Standard (RAL 7012 grey) W (Aggressive environments) HYGIENIC (H) HYGIENIC (C)	Insulating	44.27	06	M25 - 32	—	single
			57.27	10			dual
			77.27	16	M32 - 40		
			104.27	24			
V-TYPE IP67 (C7I, C7P / M7P, ...)	IP67 stainless steel levers E (E-Xtreme®)	Metallic	44.27	06	M20 - 40	Pg 16 - 29	single
			57.27	10			dual
			77.27	16	M25 - 40	Pg 21 - 29	
			104.27	24			
V-TYPE (CVI L, CVP / MVP L, CVI, MVP, ...)	IP65/IP66 stainless steel levers R (High temperatures)	Metallic	44.27	06	M20 - 40	Pg 16 - 29	single
			57.27	10			dual
			77.27	16	M25 - 40	Pg 21 - 29	
			104.27	24			
BIG (CB / MB)	Standard W (Aggressive environments) E (E-Xtreme®)	Metallic	44.27	06	M20 - 50	—	single
			57.27	10			dual
			77.27	16			
			104.27	24			
IP68 (CG / MG)	Standard (inherently EMC) E (E-Xtreme®)	Metallic	44.27	06	M25 - 32	Pg 16 - 29	screw / bayonet
			57.27	10			
			77.27	16	M32 - 50	Pg 21 - 29	
			104.27	24			
Central lever (...YX / ...YC)	Standard	Metallic	44.27	06	M25 - 32	Pg 16 - 29	single central lever
			57.27	10			
			77.27	16	M32 - 40	Pg 21 - 29	
			104.27	24			
COB	Standard	Insulating	44.27	06	—	—	dual
			57.27	10			
			77.27	16 			
			104.27	24			
LS-TYPE (CHIN, CHPN / MHPN, ...)	Light and sound applications (Black colour)	Metallic Thermoplastic lever	44.27	06	M20 - 40	Pg 16 - 29	single
			57.27	10			dual
			77.27	16	M25 - 40	Pg 21 - 29	
			104.27	24			

**CM/MM enclosures for 830V screw type connector inserts CME series available only upon request
(as well as the CME series inserts)**

¹⁾ Enclosures ensure IP degree of protection when coupled and locked with the locking lever. The cover (CS, CP) only provides mechanical protection without ensuring the IP degree of protection.

²⁾ ... LP versions with plastic cover have not the UL approval.

³⁾ Approved by CQC in combination with relevant CQC certified connector inserts as accessories that provide the declared IP degree of protection, their part. Nos. not showing up in the CQC Certificates.

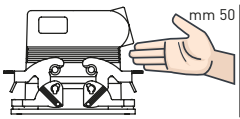
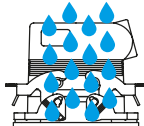
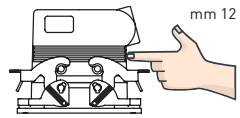
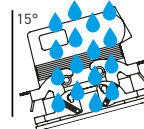
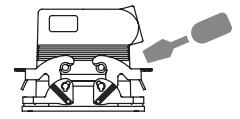
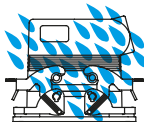
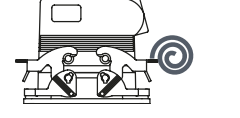
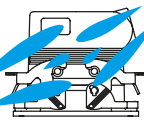
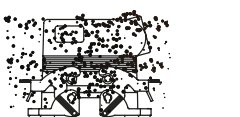
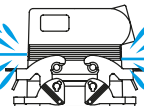
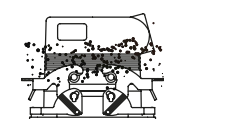
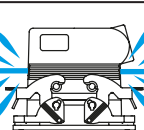
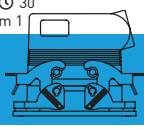
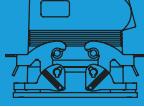
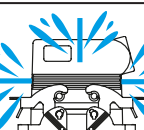
 49.16 (15) and 66.15 (25) with adapter CR xx/16.

Series	IP (EN 60529) ¹⁾	UL 50 Type (NEMA 250 type)	Certifications	Notes	Ambient temperature limit (°C)		From page
T-TYPE (TCH / TH / TMA / TA)	STD - IP65 W - IP66/IP69 T-TYPE/H - IP66/IP69 T-TYPE/C - IP66/IP69	12	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		STD -40 W -40 T-TYPE/H -40 T-TYPE/C -50	STD +90 W +90 T-TYPE/H +70 T-TYPE/C +70	480
V-TYPE IP67 (C7I, C7P / M7P, ...)	IP66/IP67/IP69	12, 4, 4X ²⁾	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40	+125	436
V-TYPE (CVI L, CVP / MVP L, CVI, MVP, ...)	IP65 IP66/IP69	12, 4, 4X ²⁾	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD	SIMPLEX with self-closing cover	-40	+125	444
BIG (CB / MB)	IP66/IP69	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40	+125	466
IP68 (CG / MG)	IP66/IP68/IP69	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40	+125	632
Central lever (...YX / ...YC)	IP65	12, 4, 4X	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40	+125	603
COB	IP20		cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40	+125	652
LS-TYPE (CHIN, CHPN / MHPN, ...)	IP65	12, 4, 4X ²⁾	cUR _{US} , CQC ³⁾ DNV-GL, BV, ESTD		-40	+125	618

THE DEGREE OF PROTECTION

The connector's housing, sealing and locking mechanism protect the connection from external influences such as mechanical shocks, foreign bodies, humidity, dust, water or other fluids such as cleansing and cooling agents, oils, etc. The degree of protection the housing offers is explained in the IEC 60529, DIN EN 60529, standards that categorize enclosures according to foreign body and water protection.

The following table shows the **IP (Ingress Protection) Ratings Guide**.

FIRST Index figure	Degree of protection SOLIDS		SECOND Index figure	Degree of protection WATER	
0		No protection	0		No protection
1		Protected against access to hazardous parts with the back of a hand and protected against solid foreign objects of Ø 50 mm and greater	1		Protected against vertically falling water drops
2		Protected against access to hazardous parts with a finger - protected against solid foreign objects of Ø 12,5 mm and greater	2		Protected against vertically falling water drops when enclosure tilted up to 15° (on either side of the vertical)
3		Protected against access to hazardous parts with a tool - protected against solid foreign objects of Ø 2,5 mm and greater	3		Protected against spraying water (at an angle up to 60° on either side of the vertical)
4		Protected against access to hazardous parts with a wire - protected against solid foreign objects of Ø 1,0 mm and greater	4		Protected against splashing water from any direction
5		Protected against access to hazardous parts with a wire dust-protected (no harmful dust deposit)	5		Protected against water jets from any direction
6		Protected against access to hazardous parts with a wire dust-tight (total protection against dust)	6		Protected against powerful water jets from any direction (similar to sea waves)
RATING EXAMPLE IP 6 5			7		Protected against the effects of temporary immersion in water at a maximum depth of 1 metre for 30 min
			8		Protected against the effects of continuous immersion in water at depth and/or duration upon agreement, more severe than for numeral 7
			9		Protected against high pressure and temperature water jets from any direction

Description according to IEC 60529

CHANGEOVER FROM PG THREADS TO METRIC

After 31st December 1999, the German safety standard DIN VDE 0619 (1987-09) and the standards it refers to - DIN 46319 for dimensions with metric threads and DIN 46320 (T1-T4), DIN 46255 and DIN 46259 for dimensions with Pg threads (Pg = Panzerrohr-Gewinde: literally "threads for armoured pipes") - were withdrawn and European standard EN 50262 "Metric cable glands for electrical installations" has been in force since 1st January 2000.

This standard defines the new sizes with metric threads for cable glands according to EN 60423 and establishes the safety prescriptions.

Conversely, it does not specify the dimensions, such as the size of the tightening wrench, the diagonal dimension, or the dimensions of the tightness seals, as was the case in the withdrawn DIN for Pg cable glands.

The standard came definitively into force on 1st April 2001, when the contrasting national standards were withdrawn.

It is valid in all member countries of CENELEC (European Electrical Standardisation Committee) and its publication has led to a broadening of the supply of enclosures for multi-pole connectors for industrial use, to include new enclosure versions with cable entry suitable for metric cable glands.

NOTE – In 2016 the new EN 62444:2013 standard "Cable glands for electrical installations" replaced the former to cover only cable gland with metric thread whose range is now M6 through M110 (previously up to M75).

Cable gland producers have introduced the new metric series to add to the Pg size series, to gradually replace the latter type. The transitional period indicated in the new standard should have ended on 1st March 2001, after which date the use of cable entry devices with Pg thread and, as a result, enclosures with Pg thread, should have ended in new installations. Nevertheless, both the cable entry devices and the relevant enclosures with Pg thread, may continue to be used as spare parts. For the mandatory **CE** marking of these items, observance of the safety conditions specified by the Low Voltage Directive is sufficient, however adherence to the safety requirements of EN 62444 provides presumption of conformity.

To distinguish hoods and surface-mounting housings with metric entries from the relevant Pg versions (identified with a C pre-code), the ILME metric types are identified with an M pre-code. The transposition table below indicates the correspondence rule adopted in most cases by ILME for creating the new metric versions.

Pg → metric transposition table

Pg	Metric
Pg 11	M20
Pg 13.5	M20
Pg 16	M20
Pg 21	M25
Pg 29	M32
Pg 36	M40
Pg 42	M50

Cable diameter for use with ILME cable glands

Ø in mm	Metric thread				
Series	20	25	32	40	50
AS M..P	6 - 12,5	10 - 18	14 - 24	15 - 24	23 - 30
AS M..E	8 - 12,5	13,5 - 18	17 - 24	—	—
AG M..T	6 - 8 - 10	11 - 14 - 17	19 - 21 - 24	26 - 29 - 32	35 - 38 - 41
AG M..I	5 - 12,5	9 - 18	14 - 25	18 - 32	24 - 38,5
AG M..R	6 - 8 - 10	11 - 14 - 17	19 - 21 - 24	—	—

For more information, please refer to the technical catalogue on www.ilme.com

COMBINATIONS BETWEEN ENCLOSURES AND INSERTS

Identification of enclosures

Connector inserts and their enclosures are numerous and therefore the search for the correct pairing of one with another may be complex.


To facilitate this operation (in addition to the normal part number) the definition of “**size**” has been introduced in this catalogue.

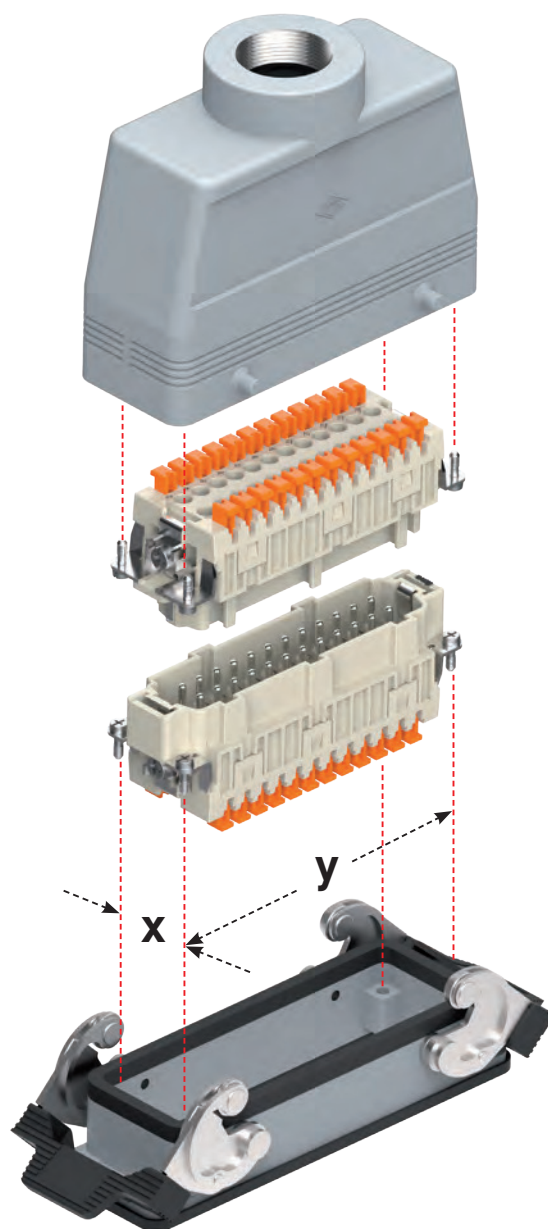
As indicated in the illustration on the left and in the table below, the size value refers to the “**x - y**” **fixing screw centre distance** which constitute a unique and shared element, since they are common to both the inserts and the enclosures.

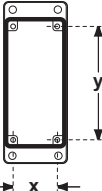
The following table shows all the sizes of the enclosures and the dimensions of the housings where the inserts will be fastened.

Enclosures size	Insert housing with x - y fixing screw centre distance
21.21	(21 x 21 mm) **
32.13	32 x 13 mm
49.16	49,5 x 16 mm
66.16	66 x 16 mm
66.40	66 x 16 mm (2 inserts)
44.27	44 x 27 mm
57.27	57 x 27 mm
77.27	77,5 x 27 mm
104.27	104 x 27 mm
77.62	77,5 x 27 mm (2 inserts)
104.62	104 x 27 mm (2 inserts)

** Dimensions relating to the insert cross-section size, not being able to identify a fixing screw centre distance, since all “21.21” sized inserts are provided with a single fixing screw.

 All pages that illustrate combinable articles (inserts and enclosures) carry references as per the examples illustrated on the opposite page.



<div>Enclosures size</div> <div>x • y</div> <div></div>	Rated current																			
	6A	10A	10A	10A	10A	10A	16A	16A	16A	16A	16A	16A	16A	35A	40A 16A 10A 6,5A	16A 10A	100A 40A 10A	80A 16A	200A 100A 70A 40A 16A 10A 5A 4A	
	Inserts Series																			
	CDSH NC	CK - CKS CKSH	CD - RD (HNM)	CT - CTS	CDD - RDD (HNM)	CDS CDSH	CDA - CDC - CSAH	CCE - RCE (HNM)	CNE	CSE CSS - CSH	CT - CTS - CTSE	CME	CMSE CMSH - CMCE	CP	CQ - CQE - CQEE RQEE (HNM)	CX	CX	CX	MIXO	
	Inserts polarity + ⊕																			
21.21		3 4	7 8 3/8												2 3 5 7 12 21					
32.13															4/2 8 17					
49.16			15				10												1*	
66.16			25		38		16													
66.40			50		76		32													
44.27	6				24 (HNM)	9		6 (HNM)	6	6	6 ■				10				2*	
55.27					42 (HNM)	18		10 (HNM)	10	10	10 ■	3+2	3+2		18	8/24			3*	
77.27			40 (HNM)	40 ■	72 (HNM)	27		16 (HNM)	16	16	16 ■	6+2	6+2	6	32 40 (HNM)		6/12 6/36 12/2	4/0 4/2	4*	
104.27			64 (HNM)	64 ■	108 (HNM)	42		24 (HNM)	24	24	24 ■	10+2 16+2 •	10+2		46 64 (HNM)		6/6	4/8	6*	
77.62			80		144	54		32	32	32	32 ■	12+4	12+4	12	64				8*	
104.62			128		216	84		48	48	48	48 ■	20+4 32+4 •	20+4 32+4		92				12*	

Legend

- ⌘ Polarity without earth ⊕ contact.
- Can only be mounted in bulkhead housings (6/10/16/24 polarity, also usable with BIG series hoods).
- Polarity not available in CMSH version.
- * Number of modular inserts that may be inserted in the enclosures.

Polarity values in **LIGHT GREY background** are obtained using double inserts.

Polarity values in **LIGHT BLUE background** must be mounted exclusively in insulated enclosures (CM - CMA and MM - MMA versions) or T-TYPE series.

Polarity values indicated as exponentials in the CME, CMSH - CMCE inserts identify the pilot contacts for advanced opening.

▲ Available upon request