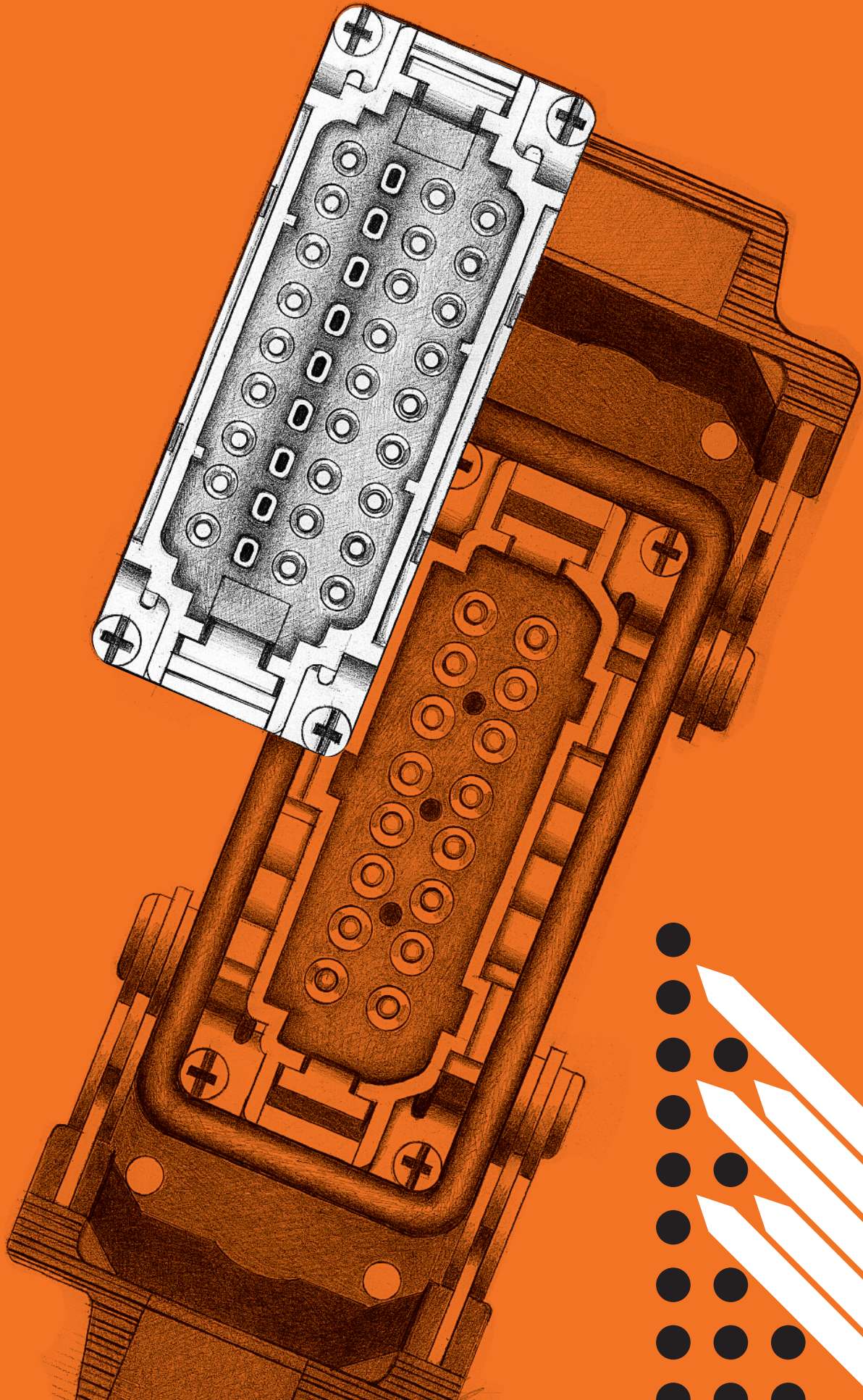


Multipole connectors - CDS inserts high density spring connection



The Company and the Product

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

ILME reflects the traditional **entrepreneurial spirit of Lombardy**, and has enjoyed continuous expansion for over half a century. The company has carved an important role for itself in the main world markets, also operating directly in the countries that have assumed world leadership in the field of automation, including Germany and Japan.

In the **electrical connection** sector with applications in industrial automation, characterised by **top performance** and utmost **reliability needs**, ILME is today the acknowledged partner of many leading companies worldwide.

The company's fundamental values are:

product innovation, original solutions, excellent **price-quality ratio**, a customer-oriented **sense of service**, ethical behaviour and an environmentally-friendly approach.



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

The company focuses on a series of benefits to the user, including research into the most suitable materials, high quality and safe cabling, a rapid turnaround and readily available services.

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 marking, in line with the Low Voltage Directive 73/23/EEC * (implemented in Italy as law 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). Said marking must be placed on the product - or, if this is not possible, on the packaging, the instructions for use or the warranty certificate - and acts as a declaration by the manufacturer that the product complies with all relevant EU directives.

ILME products bear the CE marking on the product or packaging.

Almost all ILME products fall under the Low Voltage Directive. A declaration of compliance is required before applying the CE marking. This document, to which the market is not directly entitled, must be made available to the control authorities (in Italy the Ministry for Industry, Commerce and Handicraft) at all times.

In it, the manufacturer declares the technical safety standard(s) followed to manufacture the product. These standards must be, in decreasing order of preference:

- a European standard (EN prefix)
- a European harmonisation document (HD prefix)
- an international IEC standard
- a national standard
- in the absence of reference standards, the manufacturer's internal specifications, guaranteeing compliance with the directive's basic safety requirements.

Compliance with harmonised technical standards (i.e. ratified by the CENELEC) constitutes presumed conformity to the directive's basic safety requirements.

The CE marking of ILME products results from said products' declaration of conformity to harmonised standards or international IEC standards.

Through the CE marking, 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 award the CE marking 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.

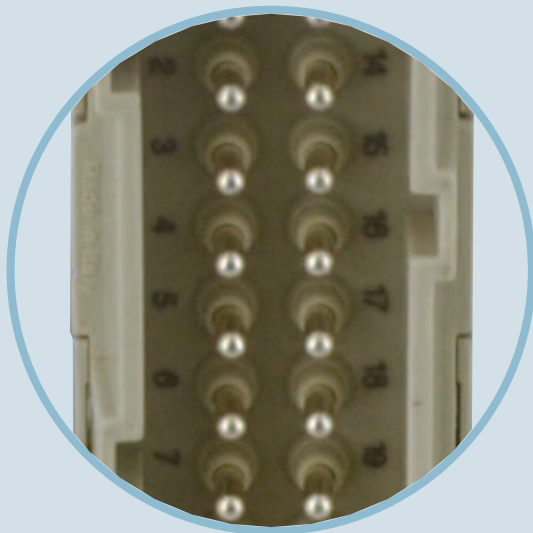
* Note:

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.

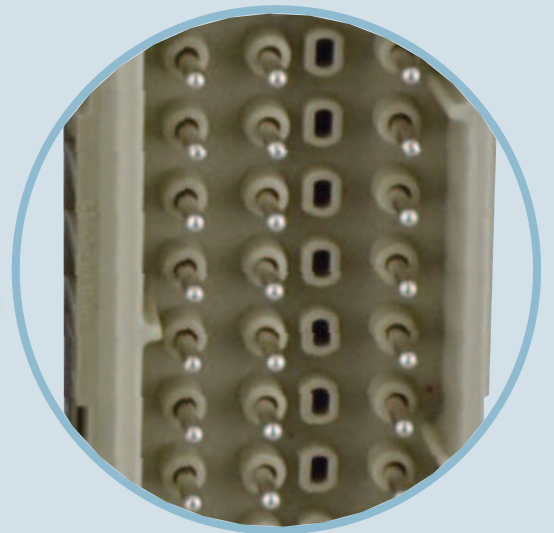
NEW

HIGH DENSITY

**STANDARD
16A**



**CDS
HIGH DENSITY
10A**



**10A
spring connection**

CDS Series

The originality of multipole connectors represents one of the core values of ILME, a leading company in this segment.

The continuous demand for a greater number of poles and of smaller dimensions has led to the design and manufacture of the new CDS series, which offers single connectors with a maximum number of 84 poles that occupy the same space of standard connectors with screw/spring connection.

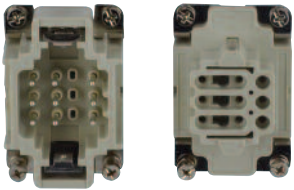
The compact spring connection enables the occupied space to be reduced and avoids using "CRIMP" solutions that require the use of special tools.

STANDARD 16A

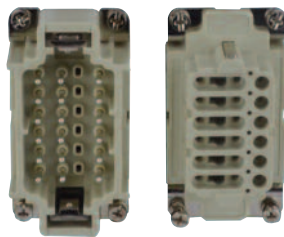
CDS - HIGH DENSITY 10A

06 poles	→	09 poles	→	+50%
10 poles	→	18 poles	→	+80%
16 poles	→	27 poles	→	+70%
24 poles	→	42 poles	→	+75%
32 poles	→	54 poles	→	+70%
48 poles	→	84 poles	→	+75%

CDS - 9 poles



CDS - 18 poles



CDS - 27 poles



CDS - 42 poles



The new **CDS series**, which is an evolution as compared to the compact CKS series, offers the following advantages:

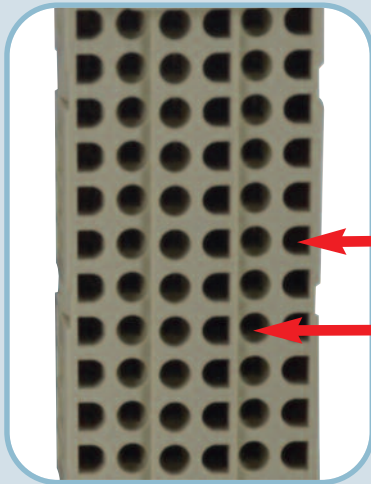
- Greater pole density as compared to existing connectors with screw terminals for enclosures of the same size
- Possibility of using wires up to 2.5 mm² (AWG 14) and availability of a useful section 1.5 mm² (AWG 16) for flexible wires with crimp ferrule
- A screwdriver with a 3.5 x 0.5 mm blade is the only tool required to insert the wire into the contact or open the spring connection
- No special wire preparation other than stripping
- Offers an excellent fastening solution and a great resistance to strong vibrations
- Allows conductivity tests under load to be carried out through the screwdriver insertion hole, without uncoupling the inserts.

Electrical characteristics compliant with EN 61984:

- rated current: 10A
- rated voltage: 400V
- rated impulse withstand voltage: 6kV
- pollution degree: 3

The new inserts are available in **standard versions with silver plated brass contacts** and can be used within a temperature range of -40 °C/+125 °C.

The insertion of the screwdriver is facilitated by the particular shape of the hole, which ensures that the operation is always performed correctly.



Screwdriver slots, for the opening of spring terminals

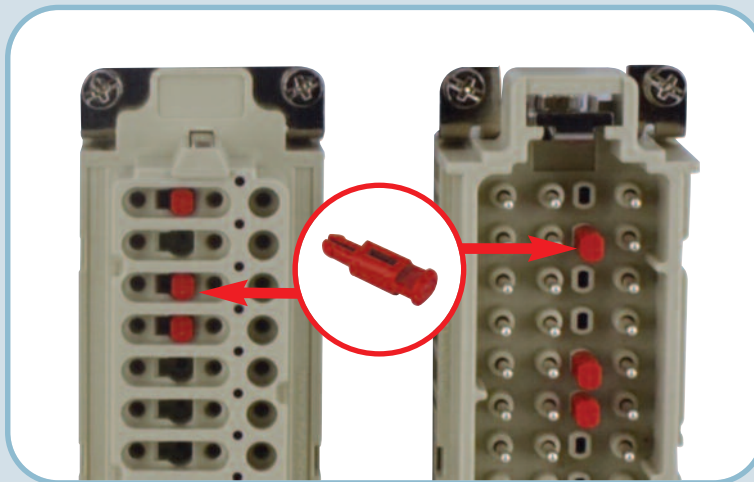
Slots for conductors



It is possible to insert in the front area the new CR CDS coding pin that enables the polarisation of inserts in a wide range of combinations.

This means that it is possible to install side by side identical connectors with different functions.

The new CR CDS coding pins can also be used in combination with other CR 20 / CRM / CRF / CR 72 metal pins instead of insert fixing screws in order to increase the number of possible combinations.



Each position of the coding pin used on the female insert must correspond to an unused position on the male insert.

The required number of coding pins, depending on the size of connectors, and the maximum number of possible codings is shown in the following table.

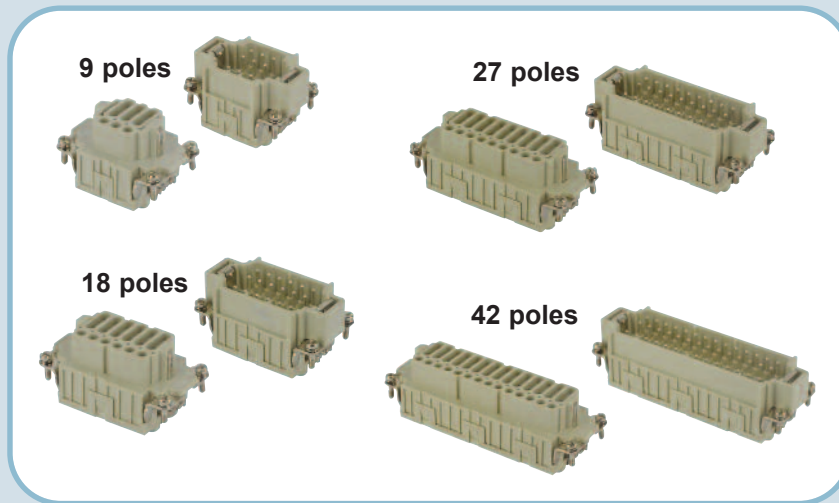
CDS series - Coding with CR CDS pins

Size of connectors	Slots for coding pins (M) = male insert (F) = female insert	Required coding pins for each coupling	Possible codings
9P+⊕	3 (M) + 3 (F)	3	$2^3 - 2^{(1)} = 6$
18P+⊕	6 (M) + 3 (F)	6	$2^6 - 2 = 62$
27P+⊕	9 (M) + 9 (F)	9	$2^9 - 2 = 510$
42P+⊕	14 (M) + 14 (F)	14	$2^{14} - 2 = 16.382$

⁽¹⁾ This excludes the two codings where all the coding pins are on one side only (male or female insert) because they are ineffective.

The new inserts have the following polarities:

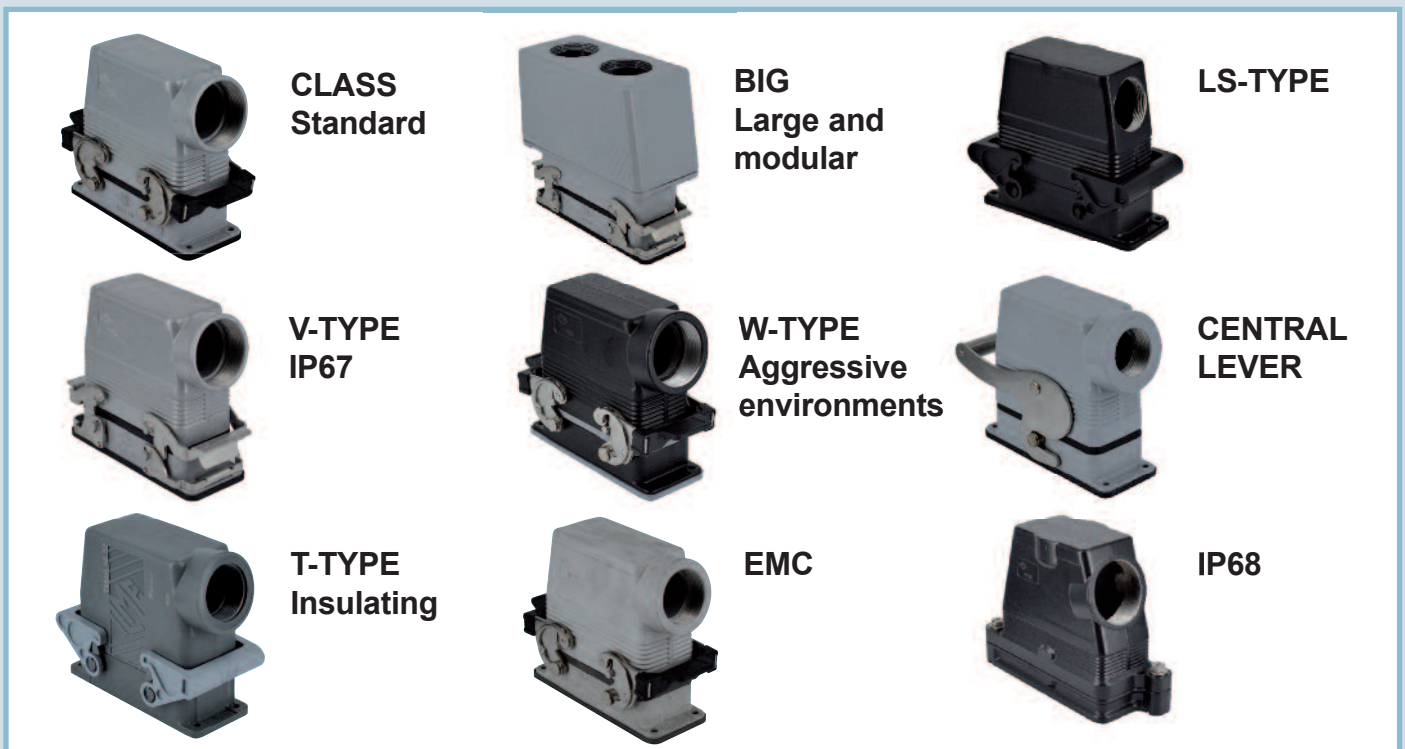
- "44.27" : **9 poles** having the same size of an insert with 6 poles and screw/spring connection
- "57.27" : **18 poles** having the same size of an insert with 10 poles and screw/spring connection
- "77.27" : **27 poles** having the same size of an insert with 16 poles and screw/spring connection
- "104.27": **42 poles** having the same size of an insert with 24 poles and screw/spring connection
- "77.62" : **54 poles** having the same size of an insert with 32 poles and screw/spring connection (using a 27-pole standard insert and an insert with numbering 28-54)
- "104.62": **84 poles** having the same size of an insert with 48 poles and screw/spring connection (using a 42-pole standard insert and an insert with numbering 43-84)



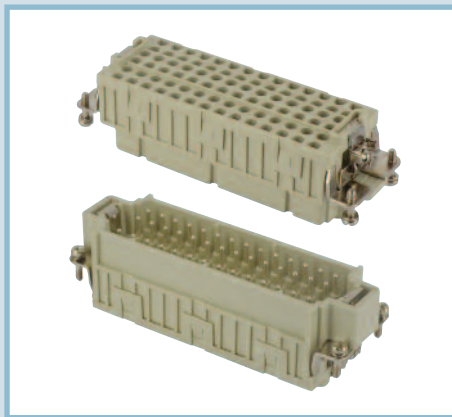
The part No. are:

- **9 poles:** CDSM 09 and CDSF 09
- **18 poles:** CDSM 18 and CDSF 18
- **27 poles:** CDSM 27 and CDSF 27
- **42 poles:** CDSM 42 and CDSF 42
- **54 poles:** CDSM 27 and CDSF 27 N (respectively standard insert with 27 poles and insert with numbering 28-54)
- **84 poles:** CDSM 42 and CDSF 42 N (respectively standard insert with 42 poles and insert with numbering 43-84)

CDS series can be used with the whole range of ILME enclosures



spring connection contacts



description

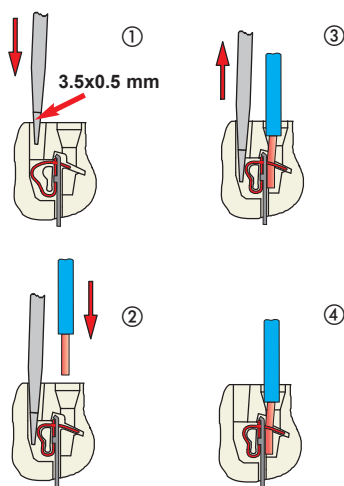
inserts series: CDS

In this layout the wires are connected to the female and male insert contacts by means of a spring terminal.

This type of connection offers the following advantages:

- no special wire preparation
- a screwdriver with a 3.5 x 0.5 mm blade is the only tool required to insert the wire in the contact
- offers an excellent fastening solution and a great resistance to strong vibrations
- allows rigid and flexible wires with sections between 0.14 and 2.5 mm² to be used (both with non-prepared conductors and those prepared with ferrule)
- allows conductivity tests under load to be carried out through the screwdriver insertion section, without splitting the insert
- greatly reduces insert preparation and cabling times

Connection with spring terminal



inserts series		CDS
No. of poles ¹⁾	main contacts + ⊕	9, 18, 27, 42, (54), (84)
	auxiliary contacts	--
rated current ²⁾		10A
EN 61984 pollution degree 3	rated voltage	400V
	rated impulse withstand voltage	6kV
	pollution degree	3
EN 61984 pollution degree 2	rated voltage	400V/690V
	rated impulse withstand voltage	6kV
	pollution degree	2
contact resistance		≤ 1 mΩ
insulation resistance		≥ 10 GΩ
ambient temperature limit (°C)	min	-40
	max	+125
degree of protection	with enclosures	IP65, IP66, IP67, IP68, IP69K (according to type)
	without enclosures	IP20
conductor connections		spring
conductor cross-section	mm ²	0.14 - 2.5 (for wires with crimped ferrule, usable section: up to 1.5 mm ² (AWG 16))
	AWG	26 - 14
mechanical endurance (rating cycles)		≥ 500

1) Polarities shown in brackets may be achieved by using two inserts in their own double housings.

2) Please check the insert load curves to establish the actual maximum operating current according to the ambient temperature.

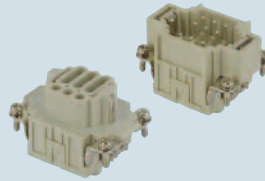
enclosures:
size "44.27" page:

C-TYPE IP65/IP66	218 - 221 *
C7 IP67 stainless steel lever	254 *
V-TYPE IP65/IP66 stainless steel lever	260 - 262 *
T-TYPE IP65 insulating	282 *
JEI [®] zinc-plated steel lever	288 - 289 *
BIG hoods	304 - 306 *
W-TYPE for aggressive environment ..	329 *
EMC	348 *
central lever	360 - 361 *
IP68	374 - 377 *
LS-TYPE	4 - 5 **

panel supports: page:
COB

* refer to catalogue page CN.12
** refer to catalogue page LS-TYPE

inserts,
spring terminal connections



NEW

description part No.

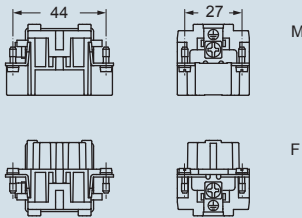
spring terminal
female inserts with female contacts
male inserts with male contacts

CDSF 09
CDSM 09

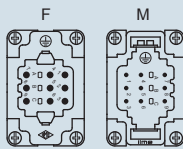
- characteristics according to EN 61984:

- 10A 400V 6kV 3**
- insulation resistance: $\geq 10 \text{ G}\Omega$
- ambient temperature limit: $-40 \text{ }^\circ\text{C} \dots +125 \text{ }^\circ\text{C}$
- made of self-extinguishing thermoplastic resin UL 94 V0
- mechanical life: ≥ 500 cycles
- contact resistance: $\leq 1 \text{ m}\Omega$

dimensions in mm

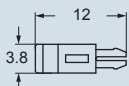


contacts side (front view)

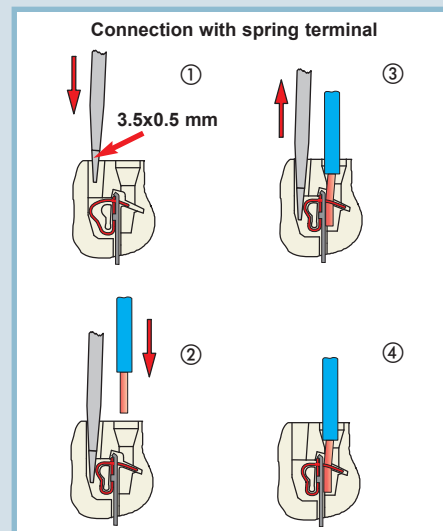


- inserts for conductors section:
0.14 - 2.5 mm² - AWG 26 - 14
- for wires with crimped ferrule, usable section:
up to 1.5 mm² (AWG 16)
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding
and may be changed without notice



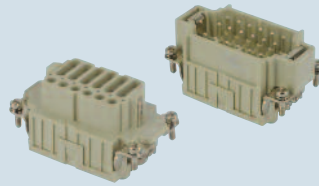
enclosures:
size "57.27" page:

C-TYPE IP65/IP66 222 - 227 *
 C7 IP67 stainless steel lever 255 *
 V-TYPE IP65/IP66 stainless steel lever 264 - 267 *
 T-TYPE IP65 insulating 283 *
 JE[®] zinc-plated steel lever 290 - 291 *
 BIG hoods 308 - 311 *
 W-TYPE for aggressive environment .. 330 *
 EMC 349 *
 central lever 362 - 363 *
 IP68 378 - 381 *
 LS-TYPE 6 - 7 **

panel supports: page:
COB 410 - 411 *

* refer to catalogue page CN.12
 ** refer to catalogue page LS-TYPE

inserts,
spring terminal connections



NEW

description part No.

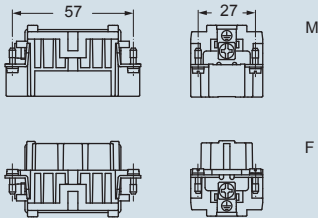
spring terminal
female inserts with female contacts
male inserts with male contacts

CDSF 18
CDSM 18

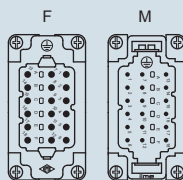
- characteristics according to EN 61984:

- 10A 400V 6kV 3**
- insulation resistance: ≥ 10 GΩ
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94 V0
- mechanical life: ≥ 500 cycles
- contact resistance: ≤ 1 mΩ

dimensions in mm

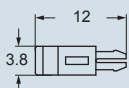


contacts side (front view)

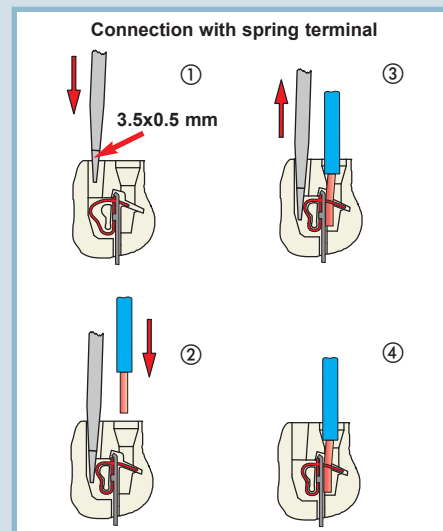


- inserts for conductors section:
0.14 - 2.5 mm² - AWG 26 - 14
- for wires with crimped ferrule, usable section:
up to 1.5 mm² (AWG 16)
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding
and may be changed without notice



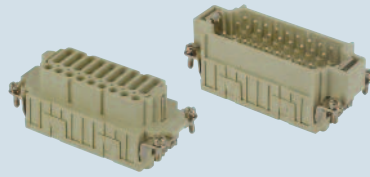
enclosures:
size "77.27" page:

C-TYPE IP65/IP66	228 - 234 *
C7 IP67 stainless steel lever	256 *
V-TYPE IP65/IP66 stainless steel lever	268 - 271 *
T-TYPE IP65 insulating	284 *
JEI® zinc-plated steel lever	292 - 293 *
BIG hoods	312 - 315 *
W-TYPE for aggressive environment ..	331 *
EMC	350 *
central lever	364 - 365 *
IP68	382 - 385 *
LS-TYPE	8 - 9 **

panel supports: page:
COB

* refer to catalogue page CN.12
** refer to catalogue page LS-TYPE

inserts,
spring terminal connections



NEW

description part No.

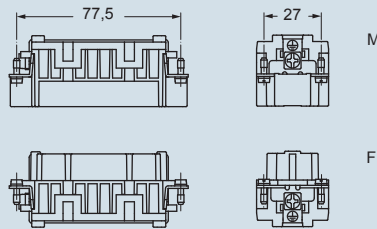
spring terminal
female inserts with female contacts
male inserts with male contacts

CDSF 27
CDSM 27

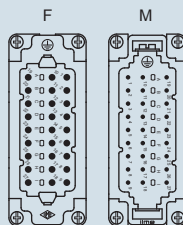
- characteristics according to EN 61984:

- 10A 400V 6kV 3**
- insulation resistance: $\geq 10 \text{ G}\Omega$
- ambient temperature limit: $-40 \text{ }^\circ\text{C} \dots +125 \text{ }^\circ\text{C}$
- made of self-extinguishing thermoplastic resin UL 94 V0
- mechanical life: ≥ 500 cycles
- contact resistance: $\leq 1 \text{ m}\Omega$

dimensions in mm

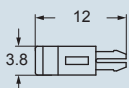


contacts side (front view)

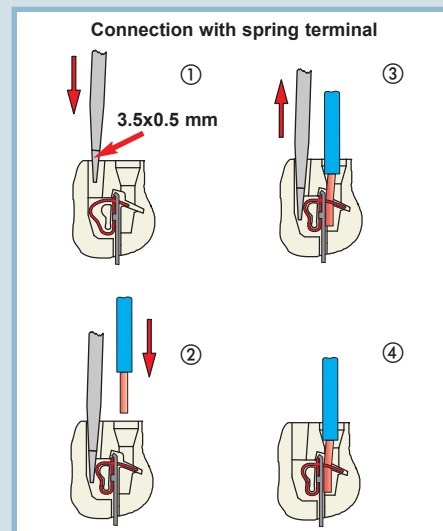


- inserts for conductors section:
0.14 - 2.5 mm² - AWG 26 - 14
- for wires with crimped ferrule, usable section:
up to 1.5 mm² (AWG 16)
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding
and may be changed without notice



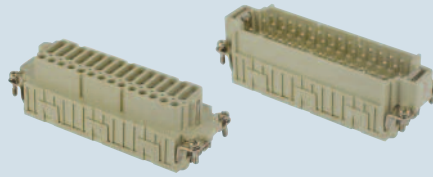
enclosures:
size "104.27" page:

C-TYPE IP65/IP66	236 - 243 *
C7 IP67 stainless steel lever	257 *
V-TYPE IP65/IP66 stainless steel lever	272 - 275 *
T-TYPE IP65 insulating	285 *
JEI [®] zinc-plated steel lever	294 - 295 *
BIG hoods	316 - 319 *
W-TYPE for aggressive environment ..	332 *
EMC	351 *
central lever	366 - 368 *
IP68	386 - 389 *
LS-TYPE	10 - 11 **

panel supports: page:
COB

* refer to catalogue page CN.12
** refer to catalogue page LS-TYPE

inserts,
spring terminal connections



NEW

description

part No.

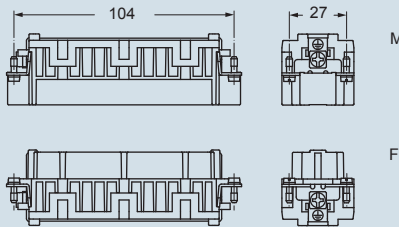
spring terminal
female inserts with female contacts
male inserts with male contacts

CDSF 42
CDSM 42

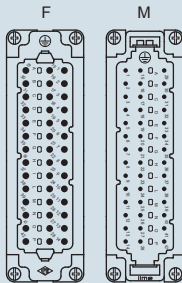
- characteristics according to EN 61984:

- 10A 400V 6kV 3**
- insulation resistance: $\geq 10 \text{ G}\Omega$
- ambient temperature limit: $-40 \text{ }^\circ\text{C} \dots +125 \text{ }^\circ\text{C}$
- made of self-extinguishing thermoplastic resin UL 94 V0
- mechanical life: ≥ 500 cycles
- contact resistance: $\leq 1 \text{ m}\Omega$

dimensions in mm

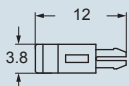


contacts side (front view)

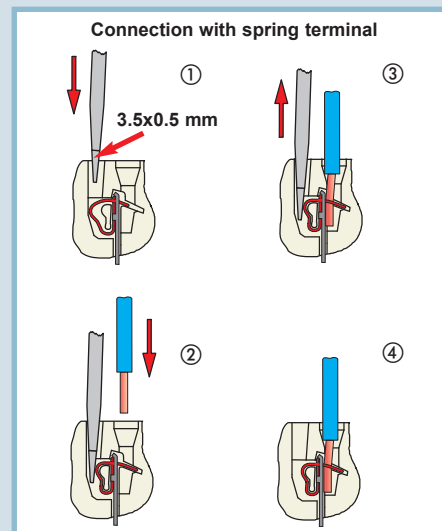


- inserts for conductors section:
0.14 - 2.5 mm² - AWG 26 - 14
- for wires with crimped ferrule, usable section:
up to 1.5 mm² (AWG 16)
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding
and may be changed without notice



enclosures:
size "77.62"

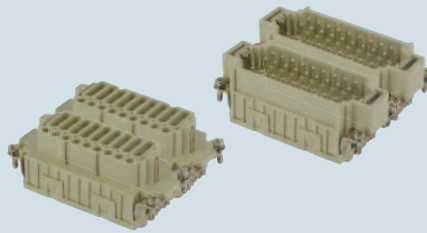
page:

C-TYPE IP65/IP66 244 - 247 *

W-TYPE for aggressive environment .. 333 *

* refer to catalogue page CN.12

inserts,
spring terminal connections



NEW

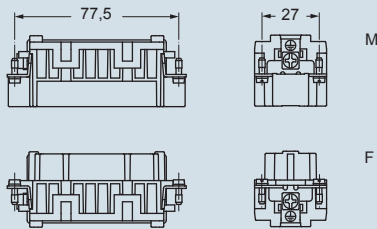
description	part No.	part No.
spring terminal female inserts with female contacts, No. (1-27) and (28-54) male inserts with male contacts, No. (1+27) and (28+54)	CDSF 27 CDSM 27	CDSF 27 N CDSM 27 N

- characteristics according to EN 61984:

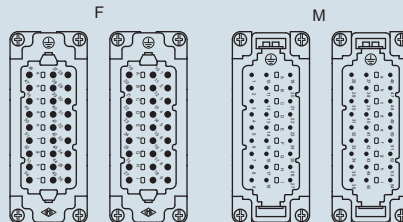
10A 400V 6kV 3

- insulation resistance: $\geq 10 \text{ G}\Omega$
- ambient temperature limit: $-40 \text{ }^\circ\text{C} \dots +125 \text{ }^\circ\text{C}$
- made of self-extinguishing thermoplastic resin UL 94 V0
- mechanical life: ≥ 500 cycles
- contact resistance: $\leq 1 \text{ m}\Omega$

dimensions in mm

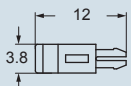


contacts side (front view)

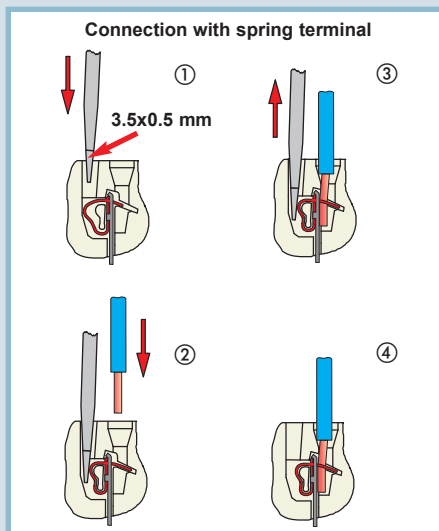


- inserts for conductors section:
0.14 - 2.5 mm² - AWG 26 - 14
- for wires with crimped ferrule, usable section:
up to 1.5 mm² (AWG 16)
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding
and may be changed without notice



enclosures:
size "104.62"

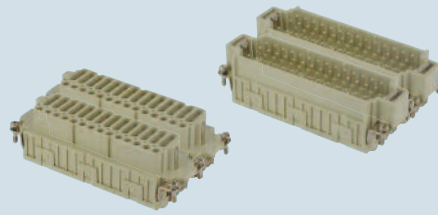
page:

C-TYPE IP65/IP66 248 *

W-TYPE for aggressive environment .. 334 *

* refer to catalogue page CN.12

inserts,
spring terminal connections



NEW

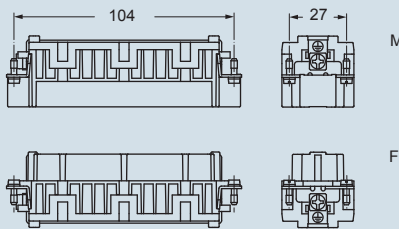
description	part No.	part No.
spring terminal female inserts with female contacts, No. (1-42) and (43-84) male inserts with male contacts, No.(1-42) and (43-84)	CDSF 42 CDSM 42	CDSF 42 N CDSM 42 N

- characteristics according to EN 61984:

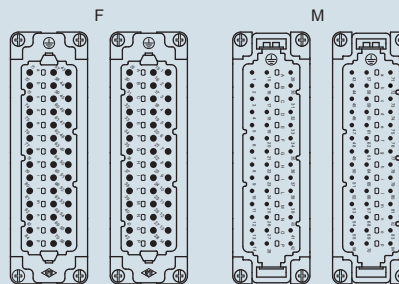
10A 400V 6kV 3

- insulation resistance: $\geq 10 \text{ G}\Omega$
- ambient temperature limit: $-40 \text{ }^\circ\text{C} \dots +125 \text{ }^\circ\text{C}$
- made of self-extinguishing thermoplastic resin UL 94 V0
- mechanical life: ≥ 500 cycles
- contact resistance: $\leq 1 \text{ m}\Omega$

dimensions in mm

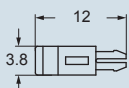


contacts side (front view)

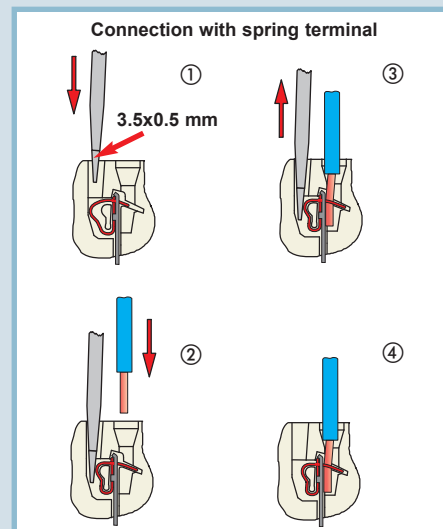


- inserts for conductors section:
0.14 - 2.5 mm² - AWG 26 - 14
- for wires with crimped ferrule, usable section:
up to 1.5 mm² (AWG 16)
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding
and may be changed without notice



IMPORTANT NOTES

ILME designs and manufactures complete solutions for heavy duty electrical power connections.

The connector, although offered to the user as a variety of elements (usually inserts and enclosures) in order to allow 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 Voltage 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 cannot guarantee by themselves the best functionality on installation, as this depends also on their correct “put 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 “put **into service**” 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 on 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 of insertion and retention of the contacts themselves.

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 or other accessories with at least equivalent 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, remember that:

- ILME cannot be held responsible for use of individual components and/or for uses other than those described in this catalogue.
- ILME cannot be held responsible for inadequate connector selection in relation to application environmental conditions (e.g.: influence of ambient temperature, moisture, corrosion due to 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.



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