

## CQE series

### TECHNICAL FEATURES

**CQE** connector inserts are designed for removable crimp contacts series **CC** (solid pin  $\varnothing$  2,5 mm), (including male pins **CC x.x AN** for advanced opening) with rated current up to **16A** per pole, and are the "high density" evolution of historic series **CCE**: in the same housing sizes, the number of pole (contact density) is increased as shown in this table:

Size	series CCE # of poles	series CQE # of poles	density increase
44.27	6 + ⊕	10 + ⊕	1,67
57.27	10 + ⊕	18 + ⊕	1,80
77.27	16 + ⊕	32 + ⊕	2,00
104.27	24 + ⊕	46 + ⊕	1,92
77.62	32 + ⊕ (2x16)	64 + ⊕ (2x32)	2,00
104.62	48 + ⊕ (2x24)	92 + ⊕ (2x46)	1,92

NOTE - The contact density is almost doubled in the same footprint by doubling the number of rows of contacts from 2 to 4. Except for size 77.27, which shows 4 rows of contacts seats equally dimensioned, central rows - due to space constraints to keep the required insulating distances towards the PE lateral contacts - are limited in number to one contact seat less than the peripheral rows.

This allows using the same size of connector housing for wiring almost twice the amount of circuits, or conversely to step down by one size the dimension of the connector housing to wire the same number of circuits, with cost and space efficiency. The only precaution is to suitably select the size of cable entry in case of increase of number of individual wires or diameter of a multi-core cable. Contact retention is operated by the retainers incorporated in the insulating body contact holder. Suitable removal tool **CQES**.

Inserts series		CQE
No. of poles <sup>1)</sup>	main contacts + ⊕	<b>10, 18, 32, 46, (64 = 2x32), (92 = 2x46)</b>
	auxiliary contacts	--
rated current <sup>2)</sup>		16A
EN IEC 61984 pollution degree 3	rated voltage	500V
	rated impulse voltage	6kV
	pollution degree	3
EN IEC 61984 pollution degree 2	rated voltage	830V
	rated impulse voltage	8kV
	pollution degree	2
UL/CSA certification	rated voltage AC/DC	600V
contact resistance		≤ 1 mΩ
insulation resistance		≥ 10 GΩ
ambient temperature limit (°C)	min	-40 °C
	max	+125 °C
degree of protection	with enclosures	<b>IP65, IP66/IP69, IP66/IP67/IP69, IP66/IP68/IP69</b> (according to type and model)
	without enclosures (in mated condition) - termination side on male and female inserts; - mating side on female inserts	<b>IP20</b> (IPXXB)
conductor connections		crimp (⊕ only: screw)
conductor cross-sectional area	mm <sup>2</sup>	0,14 - 2,5
	AWG	26 - 12
mechanical endurance (mating cycles)		≥ 500

1) Polarities shown in brackets may be obtained by using two inserts in their own double-sized housings

2) Please check the inserts derating diagrams to establish the actual maximum operating current according to the ambient temperature, the conductor cross-sectional area, the polarity of the connector, and any external constraint that may derive e.g. by the continuous operating temperature sustained by the chosen conductor sheathing or by end-product safety standards fixing max allowed temperature rise on terminals (e.g. 30 K, 45 K or 50 K)

# Special voltages for CQE series

When all the contacts are used, CQE connector inserts may be used at rated voltage up to 500V (first column) pollution degree 3, in accordance with the standard EN 61984. If the number of contacts is reduced and the contacts accordingly assigned, these connectors may be used at higher voltages.

This is possible because the decrease in the number of contacts leads to an increase clearances and creepage distances.

When the contacts are arranged as shown below, the inserts may be used at rated voltages of 690V (second column) and 1000V (third column) pollution degree 3, in accordance with the standard EN 61984.

CQE

For use up to 500V pollution degree 3	For use up to 690V pollution degree 3	For use up to 1000V pollution degree 3
<p>diagrams contacts side (front view)</p>	<p>diagrams contacts side (front view)</p>	<p>diagrams contacts side (front view)</p>
<p><b>CQE 10 - 10 + ⊕</b></p> <p>F M</p>	<p><b>CQE 10 - 4 + ⊕</b></p> <p>F M</p>	<p><b>CQE 10 - 2 + ⊕</b></p> <p>F M</p>
<p><b>CQE 18 - 18 + ⊕</b></p> <p>F M</p>	<p><b>CQE 18 - 8 + ⊕</b></p> <p>F M</p>	<p><b>CQE 18 - 4 + ⊕</b></p> <p>F M</p>
<p><b>CQE 32 - 32 + ⊕</b></p> <p>F M</p>	<p><b>CQE 32 - 14 + ⊕</b></p> <p>F M</p>	<p><b>CQE 32 - 8 + ⊕</b></p> <p>F M</p>
<p><b>CQE 46 - 46 + ⊕</b></p> <p>F M</p>	<p><b>CQE 46 - 20 + ⊕</b></p> <p>F M</p>	<p><b>CQE 46 - 12 + ⊕</b></p> <p>F M</p>
<p><b>Legend:</b></p> <ul style="list-style-type: none"> <li>● working contact</li> <li>○ without contact</li> <li>M = male insert</li> <li>F = female insert</li> </ul>		

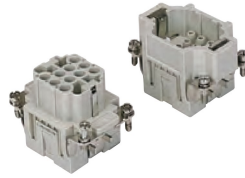
# CQE 10 poles + ⊕ 16A - 500V

enclosures: size "44.27"	page:
C-TYPE IP65 or IP66/IP69	387 - 392
C7 IP67, single lever	436 - 437
V-TYPE IP65 or IP66/IP69, single lever	444 - 447
BIG hoods	466 - 467
T-TYPE IP65 insulating	480 - 481
T-TYPE / W IP66/IP69 insulating	489
HYGIENIC T-TYPE / H IP66/IP69	501
HYGIENIC T-TYPE / C IP66/IP69, -50 °C	506
W-TYPE for aggressive environments	521
E-Xtreme® corrosion proof	530 - 531, 542, 550 - 551
EMC	578
Central lever	603 - 605
LS-TYPE	618 - 619
IP68	632 - 635

panel supports:	page:
COB	652 - 653

- for applications requiring higher voltages, please see the special voltage application section on page 167

## inserts, crimp connections



## 16A crimp contacts standard or for advanced opening silver and gold plated



STANDARD

ADVANCED OPENING

description	part No.	part No.	part No.
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without contacts (to be ordered separately)  
female inserts for female contacts  
male inserts for male contacts

CQEF 10  
CQEM 10

### 16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

### 16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

### 16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

CCFA 0.3	CCFD 0.3
CCFA 0.5	CCFD 0.5
CCFA 0.7	CCFD 0.7
CCFA 1.0	CCFD 1.0
CCFA 1.5	CCFD 1.5
CCFA 2.5	CCFD 2.5
CCFA 3.0	CCFD 3.0
CCFA 4.0	CCFD 4.0

silver plated

gold plated

CCMA 0.3	CCMD 0.3
CCMA 0.5	CCMD 0.5
CCMA 0.7	CCMD 0.7
CCMA 1.0	CCMD 1.0
CCMA 1.5	CCMD 1.5
CCMA 2.5	CCMD 2.5
CCMA 3.0	CCMD 3.0
CCMA 4.0	CCMD 4.0

CC 0.5 AN
CC 0.7 AN
CC 1.0 AN
CC 1.5 AN
CC 2.5 AN

+ for basic or high thickness gold plating, please refer to page 675

- characteristics according to EN 61984:

**16A 500V 6kV 3**  
**16A 830V 8kV 2**

- cULus (UL for USA and Canada), SIB, ccc, DNV-GL

- ERIC certified

- rated voltage according to UL/CSA: 600V

- insulation resistance: ≥ 10 GΩ

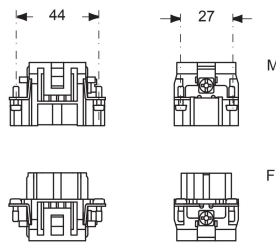
- ambient temperature limit: -40 °C ... +125 °C

- made of self-extinguishing thermoplastic resin UL 94V-0

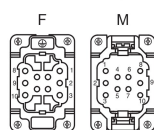
- mechanical life: ≥ 500 cycles

- contact resistance: ≤ 1 mΩ

- for max. current load see the connector inserts derating diagram below; for more information see page 28



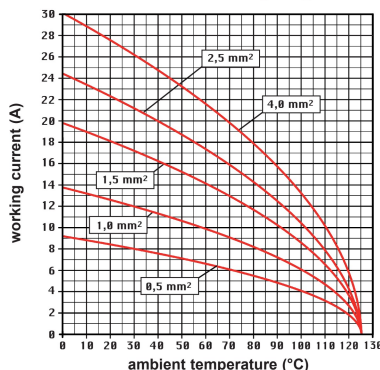
contacts side (front view)



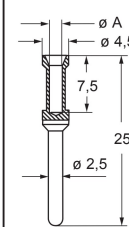
CR CPQ coding pins  
(page 689)



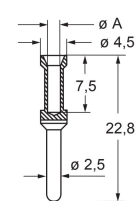
CQE 10 poles connector inserts  
Maximum current load derating diagram



### CCF and CCM



### CC...AN



- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 708 - 741)

### CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot width ø A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

# CQE 18 poles + $\oplus$ 16A - 500V

enclosures: size "57.27"	page:
C-TYPE IP65 or IP66/IP69	393 - 401
C7 IP67, two levers	438
V-TYPE IP65 or IP66/IP69, single lever	448 - 453
BIG hoods	468 - 469
T-TYPE IP65 insulating	482 - 483
T-TYPE / W IP66/IP69 insulating	490
HYGIENIC T-TYPE / H IP66/IP69	502
HYGIENIC T-TYPE / C IP66/IP69, -50 °C	507
W-TYPE for aggressive environments	522
E-Xtreme® corrosion proof	532 - 533, 543, 552 - 553
EMC	579
Central lever	606 - 608
LS-TYPE	620 - 621
IP68	636 - 639
panel supports: COB	page: 652 - 653

## inserts, crimp connections



## 16A crimp contacts standard or for advanced opening silver and gold plated



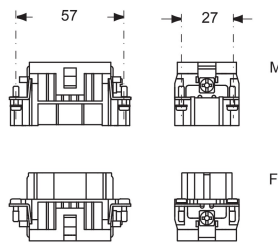
STANDARD

ADVANCED OPENING

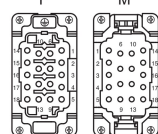
- for applications requiring higher voltages, please see the special voltage application section on page 167

description	part No.	part No.	part No.
without contacts (to be ordered separately)			
female inserts for female contacts	<b>CQEF 18</b>		
male inserts for male contacts	<b>CQEM 18</b>		
<b>16A female contacts</b>			
0,14-0,37 mm <sup>2</sup> AWG 26-22 one groove	<b>CCFA 0.3</b>	<b>silver plated</b>	<b>CCFD 0.3</b>
0,5 mm <sup>2</sup> AWG 20 with no grooves	<b>CCFA 0.5</b>		<b>gold plated+</b>
0,75 mm <sup>2</sup> AWG 18 one groove (back side)	<b>CCFA 0.7</b>		<b>CCFD 0.5</b>
1 mm <sup>2</sup> AWG 18 one groove	<b>CCFA 1.0</b>		<b>CCFD 0.7</b>
1,5 mm <sup>2</sup> AWG 16 two grooves	<b>CCFA 1.5</b>		<b>CCFD 1.0</b>
2,5 mm <sup>2</sup> AWG 14 three grooves	<b>CCFA 2.5</b>		<b>CCFD 1.5</b>
3 mm <sup>2</sup> AWG 12 one wide groove	<b>CCFA 3.0</b>		<b>CCFD 2.5</b>
4 mm <sup>2</sup> AWG 12 with no grooves	<b>CCFA 4.0</b>		<b>CCFD 3.0</b>
			<b>CCFD 4.0</b>
<b>16A male contacts</b>			
0,14-0,37 mm <sup>2</sup> AWG 26-22 one groove	<b>CCMA 0.3</b>		<b>CCMD 0.3</b>
0,5 mm <sup>2</sup> AWG 20 with no grooves	<b>CCMA 0.5</b>		<b>CCMD 0.5</b>
0,75 mm <sup>2</sup> AWG 18 one groove (back side)	<b>CCMA 0.7</b>		<b>CCMD 0.7</b>
1 mm <sup>2</sup> AWG 18 one groove	<b>CCMA 1.0</b>		<b>CCMD 1.0</b>
1,5 mm <sup>2</sup> AWG 16 two grooves	<b>CCMA 1.5</b>		<b>CCMD 1.5</b>
2,5 mm <sup>2</sup> AWG 14 three grooves	<b>CCMA 2.5</b>		<b>CCMD 2.5</b>
3 mm <sup>2</sup> AWG 12 one wide groove	<b>CCMA 3.0</b>		<b>CCMD 3.0</b>
4 mm <sup>2</sup> AWG 12 with no grooves	<b>CCMA 4.0</b>		<b>CCMD 4.0</b>
<b>16A male crimp contacts for advanced opening</b>			
0,5 mm <sup>2</sup> AWG 20 with no grooves	<b>CC 0.5 AN</b>		* for basic or high thickness gold plating, please refer to page 675
0,75 mm <sup>2</sup> AWG 18 one groove (back side)	<b>CC 0.7 AN</b>		
1 mm <sup>2</sup> AWG 18 one groove	<b>CC 1.0 AN</b>		
1,5 mm <sup>2</sup> AWG 16 two grooves	<b>CC 1.5 AN</b>		
2,5 mm <sup>2</sup> AWG 14 three grooves	<b>CC 2.5 AN</b>		

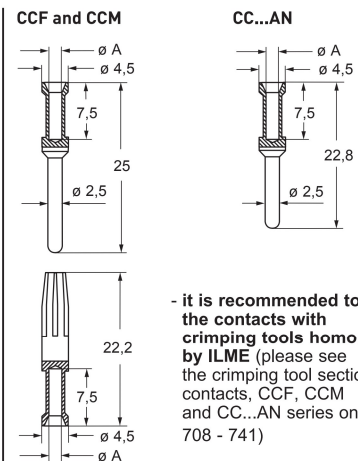
- characteristics according to EN 61984:  
**16A 500V 6kV 3**  
**16A 830V 8kV 2**
- certified
- rated voltage according to UL/CSA: 600V
- insulation resistance:  $\geq 10$  G $\Omega$
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life:  $\geq 500$  cycles
- contact resistance:  $\leq 1$  m $\Omega$
- for max. current load see the connector inserts derating diagram below; for more information see page 28



contacts side (front view)



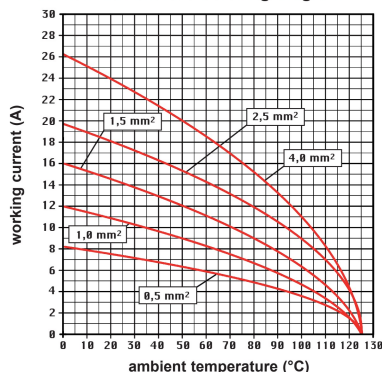
CR CPQ coding pins (page 689)



- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 708 - 741)

CCF, CCM and CC...AN contacts		
conductor section mm <sup>2</sup>	conductor slot $\varnothing$ A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

CQE 18 poles connector inserts  
Maximum current load derating diagram



# CQE 32 poles + ⊕ 16A - 500V

enclosures: size "77.27"	page:
C-TYPE IP65 or IP66/IP69	402 - 411
C7 IP67, two levers	439 - 440
V-TYPE IP65 or IP66/IP69, single lever	454 - 458
BIG hoods	470 - 471
T-TYPE IP65 insulating	484 - 485
T-TYPE / W IP66/IP69 insulating	491
HYGIENIC T-TYPE / H IP66/IP69	503
HYGIENIC T-TYPE / C IP66/IP69, -50 °C	508
W-TYPE for aggressive environments	523
E-Xtreme® corrosion proof	534 - 535, 544, 554 - 555
EMC	580
Central lever	609 - 611
LS-TYPE	622 - 623
IP68	640 - 643

panel supports: COB	page: 652 - 653
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- for applications requiring higher voltages, please see the special voltage application section on page 167

## inserts, crimp connections



## 16A crimp contacts standard or for advanced opening silver and gold plated



STANDARD

ADVANCED OPENING

description	part No.	part No.	part No.
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without contacts (to be ordered separately)  
female inserts for female contacts  
male inserts for male contacts

CQEF 32  
CQEM 32

### 16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

### 16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

### 16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

CCFA 0.3	CCFD 0.3
CCFA 0.5	CCFD 0.5
CCFA 0.7	CCFD 0.7
CCFA 1.0	CCFD 1.0
CCFA 1.5	CCFD 1.5
CCFA 2.5	CCFD 2.5
CCFA 3.0	CCFD 3.0
CCFA 4.0	CCFD 4.0

silver plated

gold plated

CCMA 0.3	CCMD 0.3
CCMA 0.5	CCMD 0.5
CCMA 0.7	CCMD 0.7
CCMA 1.0	CCMD 1.0
CCMA 1.5	CCMD 1.5
CCMA 2.5	CCMD 2.5
CCMA 3.0	CCMD 3.0
CCMA 4.0	CCMD 4.0

CC 0.5 AN
CC 0.7 AN
CC 1.0 AN
CC 1.5 AN
CC 2.5 AN

+ for basic or high thickness gold plating, please refer to page 675

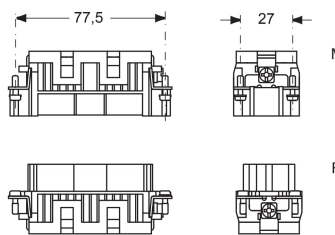
- characteristics according to EN 61984:

**16A 500V 6kV 3**  
**16A 830V 8kV 2**

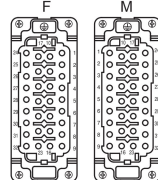
- (UL for USA and Canada),

- certified

- rated voltage according to UL/CSA: 600V
- insulation resistance: ≥ 10 GΩ
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life: ≥ 500 cycles
- contact resistance: ≤ 1 mΩ
- for max. current load see the connector inserts derating diagram below; for more information see page 28



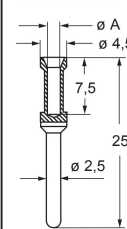
contacts side (front view)



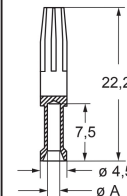
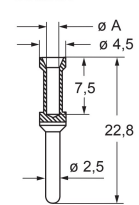
CR CPQ coding pins (page 689)



### CCF and CCM



### CC...AN

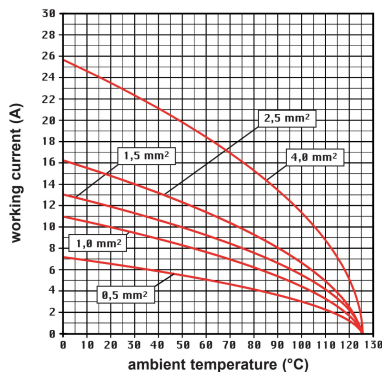


- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 708 - 741)

### CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot ø A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

CQE 32 poles connector inserts  
Maximum current load derating diagram



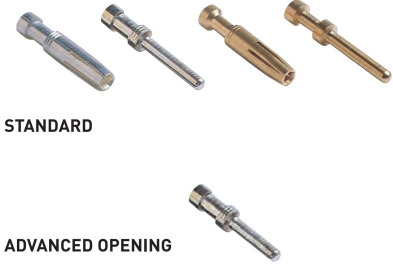
# CQE 46 poles + ⊕ 16A - 500V

enclosures: size "104.27"	page:
C-TYPE IP65 or IP66/IP69	412 - 423
C7 IP67, two levers	441 - 442
V-TYPE IP65 or IP66/IP69, single lever	459 - 463
BIG hoods	472 - 473
T-TYPE IP65 insulating	486 - 487
T-TYPE / W IP66/IP69 insulating	492
HYGIENIC T-TYPE / H IP66/IP69	504
HYGIENIC T-TYPE / C IP66/IP69, -50 °C	509
W-TYPE for aggressive environments	524
E-Xtreme® corrosion proof	536 - 537, 545, 556 - 557
EMC	581
Central lever	612 - 614
LS-TYPE	624 - 625
IP68	644 - 647
panel supports:	page:
COB	652 - 653

inserts, crimp connections



16A crimp contacts  
standard or for advanced opening  
silver and gold plated



- for applications requiring higher voltages, please see the special voltage application section on page 167

description	part No.	part No.	part No.
-------------	----------	----------	----------

without contacts (to be ordered separately)  
female inserts for female contacts  
male inserts for male contacts

CQEF 46  
CQEM 46

16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

CCFA 0.3
CCFA 0.5
CCFA 0.7
CCFA 1.0
CCFA 1.5
CCFA 2.5
CCFA 3.0
CCFA 4.0

CCFD 0.3
CCFD 0.5
CCFD 0.7
CCFD 1.0
CCFD 1.5
CCFD 2.5
CCFD 3.0
CCFD 4.0

silver plated

gold plated+

16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

CCMA 0.3
CCMA 0.5
CCMA 0.7
CCMA 1.0
CCMA 1.5
CCMA 2.5
CCMA 3.0
CCMA 4.0

CCMD 0.3
CCMD 0.5
CCMD 0.7
CCMD 1.0
CCMD 1.5
CCMD 2.5
CCMD 3.0
CCMD 4.0

16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

CC 0.5 AN
CC 0.7 AN
CC 1.0 AN
CC 1.5 AN
CC 2.5 AN

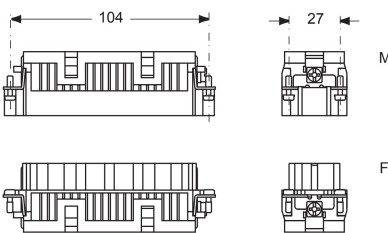
\* for basic or high thickness gold plating, please refer to page 675

- characteristics according to EN 61984:

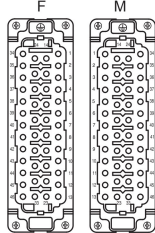
**16A 500V 6kV 3**  
**16A 830V 8kV 2**

- certified

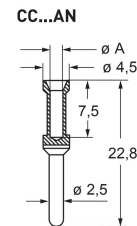
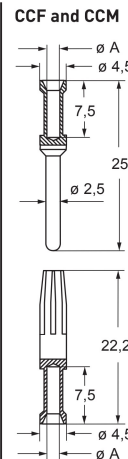
- rated voltage according to UL/CSA: 600V
- insulation resistance: ≥ 10 GΩ
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life: ≥ 500 cycles
- contact resistance: ≤ 1 mΩ
- for max. current load see the connector inserts derating diagram below; for more information see page 28



contacts side (front view)



CR CPQ coding pins  
(page 689)

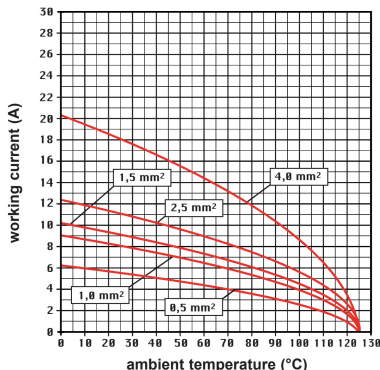


- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 708 - 741)

CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot ø A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

CQE 46 poles connector inserts  
Maximum current load derating diagram



# CQE 64 poles + ⊕ 16A - 500V

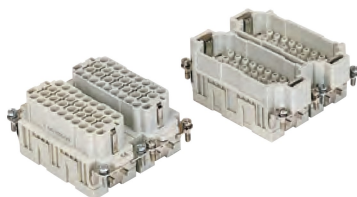
enclosures:  
size "77.62"

page:

C-TYPE IP65 or IP66/IP69  
W-TYPE for aggressive environments  
E-Xtreme® corrosion proof

424 - 429  
525  
546

## inserts, crimp connections



## 16A crimp contacts standard or for advanced opening silver and gold plated



STANDARD

ADVANCED OPENING

- for applications requiring higher voltages, please see the special voltage application section on page 167

description	part No.	part No.	part No.	part No.
-------------	----------	----------	----------	----------

without contacts (to be ordered separately)  
female inserts for female contacts, No. (1-32) and (33-64)  
male inserts for male contacts, No. (1-32) and (33-64)

CQEF 32                      CQEF 32 N  
CQEM 32                      CQEM 32 N

### 16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

CCFA 0.3	CCFD 0.3
CCFA 0.5	CCFD 0.5
CCFA 0.7	CCFD 0.7
CCFA 1.0	CCFD 1.0
CCFA 1.5	CCFD 1.5
CCFA 2.5	CCFD 2.5
CCFA 3.0	CCFD 3.0
CCFA 4.0	CCFD 4.0

silver plated

gold plated

### 16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

CCMA 0.3	CCMD 0.3
CCMA 0.5	CCMD 0.5
CCMA 0.7	CCMD 0.7
CCMA 1.0	CCMD 1.0
CCMA 1.5	CCMD 1.5
CCMA 2.5	CCMD 2.5
CCMA 3.0	CCMD 3.0
CCMA 4.0	CCMD 4.0

### 16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

CC 0.5 AN
CC 0.7 AN
CC 1.0 AN
CC 1.5 AN
CC 2.5 AN

+ for basic or high thickness gold plating, please refer to page 675

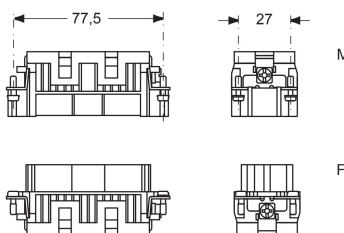
- characteristics according to EN 61984:

**16A 500V 6kV 3**  
**16A 830V 8kV 2**

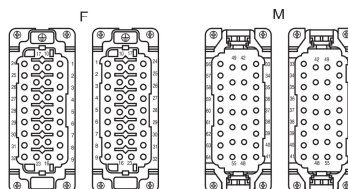
- cULus (UL for USA and Canada),

- certified

- rated voltage according to UL/CSA: 600V
- insulation resistance: ≥ 10 GΩ
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life: ≥ 500 cycles
- contact resistance: ≤ 1 mΩ
- for max. current load see the connector inserts derating diagram below; for more information see page 28



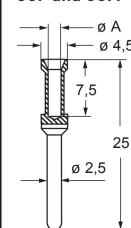
contacts side (front view)



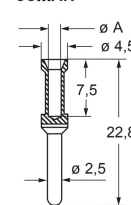
CR CPQ coding pins (page 689)



### CCF and CCM



### CC...AN

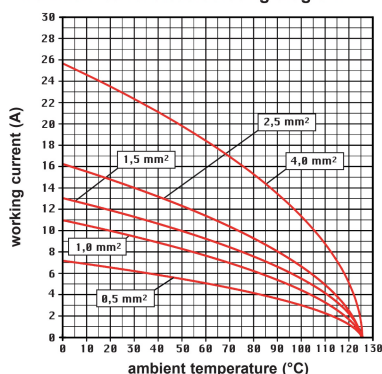


- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 705 - 741)

### CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot ø A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

CQE 64 poles connector inserts  
Maximum current load derating diagram



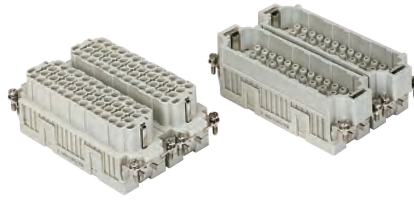
# CQE 92 poles + $\oplus$ 16A - 500V

enclosures:  
size "104.62"

page:

C-TYPE IP65 or IP66/IP69	430
W-TYPE for aggressive environments	526
E-Xtreme® corrosion proof	547

## inserts, crimp connections



## 16A crimp contacts standard or for advanced opening silver and gold plated



STANDARD

ADVANCED OPENING

- for applications requiring higher voltages, please see the special voltage application section on page 167

description	part No.	part No.	part No.	part No.
-------------	----------	----------	----------	----------

without contacts (to be ordered separately)  
female inserts for female contacts, No. (1-46) and (47-92)  
male inserts for male contacts, No. (1-46) and (47-92)

<b>CQEF 46</b>	<b>CQEF 46 N</b>
<b>CQEM 46</b>	<b>CQEM 46 N</b>

### 16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

<b>CCFA 0.3</b>	<b>CCFD 0.3</b>
<b>CCFA 0.5</b>	<b>CCFD 0.5</b>
<b>CCFA 0.7</b>	<b>CCFD 0.7</b>
<b>CCFA 1.0</b>	<b>CCFD 1.0</b>
<b>CCFA 1.5</b>	<b>CCFD 1.5</b>
<b>CCFA 2.5</b>	<b>CCFD 2.5</b>
<b>CCFA 3.0</b>	<b>CCFD 3.0</b>
<b>CCFA 4.0</b>	<b>CCFD 4.0</b>

silver plated

gold plated+

### 16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

<b>CCMA 0.3</b>	<b>CCMD 0.3</b>
<b>CCMA 0.5</b>	<b>CCMD 0.5</b>
<b>CCMA 0.7</b>	<b>CCMD 0.7</b>
<b>CCMA 1.0</b>	<b>CCMD 1.0</b>
<b>CCMA 1.5</b>	<b>CCMD 1.5</b>
<b>CCMA 2.5</b>	<b>CCMD 2.5</b>
<b>CCMA 3.0</b>	<b>CCMD 3.0</b>
<b>CCMA 4.0</b>	<b>CCMD 4.0</b>

### 16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

<b>CC 0.5 AN</b>
<b>CC 0.7 AN</b>
<b>CC 1.0 AN</b>
<b>CC 1.5 AN</b>
<b>CC 2.5 AN</b>

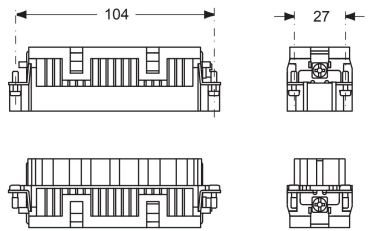
\* for basic or high thickness gold plating, please refer to page 675

- characteristics according to EN 61984:

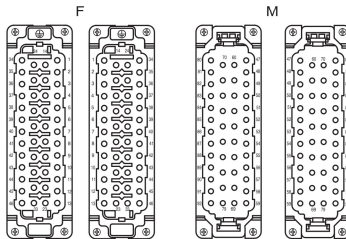
**16A 500V 6kV 3**  
**16A 830V 8kV 2**

- certified

- rated voltage according to UL/CSA: 600V
- insulation resistance:  $\geq 10$  G $\Omega$
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life:  $\geq 500$  cycles
- contact resistance:  $\leq 1$  m $\Omega$
- for max. current load see the connector inserts derating diagram below; for more information see page 28



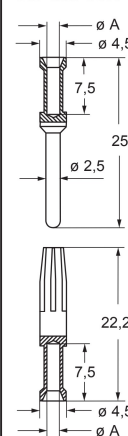
contacts side (front view)



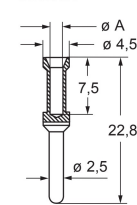
CR CPQ coding pins (page 689)



### CCF and CCM



### CC...AN

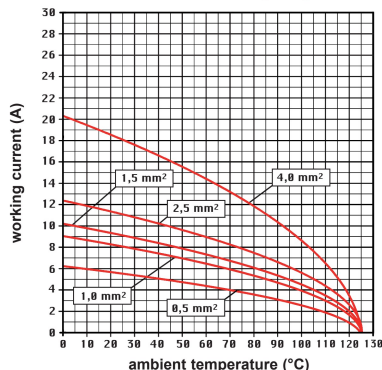


- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 705 - 741)

### CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot $\phi$ A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

### CQE 92 poles connector inserts Maximum current load derating diagram





## CQEE series

### TECHNICAL FEATURES

CQEE

Connector inserts series **CQEE** are the logical extension of the existing series CQE for removable crimp contacts series CC (16A max, available both in gold plated and in silver plated version) that include the CC...AN pin contacts with anticipated opening (first-to-break) and delayed closing (last-to-make).

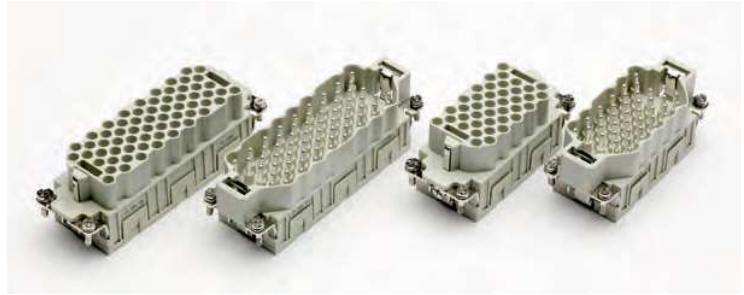
Compared with the connector inserts of the same size of series CQE, connector inserts series **CQEE** provide a sensibly higher number of contacts: 64P+⊕ instead of 46P+⊕ for size 104.27 (+39%), 40P+⊕ instead of 32P+⊕ for size 77.27 (+25%).

With the same number of circuits, it is conversely possible to reduce the size of the connector inserts and of the related hood and housing, thus reducing the overall cost.

Connector inserts series **CQEE** may replace in the same size (77.27, 104.27) and with the same contact density (40P+⊕ and 64P+⊕) the corresponding inserts of series CD for removable crimp contacts series CD (10A max).

This may be particularly useful when, as a function of the intended use, it is required:

- to use the connector at a higher rated voltage: CQEE covers use at 500V / 6kV / 3 where CD stops at 250V / 4kV / 3;
- to assign a larger current-carrying capacity, both due to the lower contact resistance (1 mΩ instead of 3 mΩ) and the larger wire size available for series CC compared with series CD contacts;
- to use wires with the larger cross-sectional area of 4 mm<sup>2</sup> / AWG 12, in order to contain the percent voltage drop [%] in circuits fed with extra-low voltage and with comparatively high currents, or in circuits of considerable length;
- to use crimp contacts with inherently higher mechanical robustness;
- to use anticipated pin contacts CC...AN (e.g. for the remote signaling of the "OPEN" or "CLOSED" status of the connector).



## CQEE series

### TECHNICAL FEATURES

CQEE

Inserts series		CQEE
No. of poles	main contacts + ⊕	<b>40 + ⊕, 64 + ⊕</b>
rated current <sup>1)</sup>		16A
EN 61984 pollution degree 3	rated voltage	500V
	rated impulse voltage	6kV
	pollution degree	3
EN 61984 pollution degree 2	rated voltage	830V
	rated impulse voltage	6kV
	pollution degree	2
UL/CSA certification	rated voltage AC/DC	600V
contact resistance		≤ 1 mΩ
insulation resistance		≥ 10 GΩ
ambient temperature limit (°C)	min	-40 °C
	max	+125 °C
degree of protection	with enclosures (according to version)	<b>IP65, IP66</b> /IP69, IP66/ <b>IP67</b> /IP69, IP66/ <b>IP68</b> /IP69 (according to type and model)
	without enclosures (in mated condition)	<b>IP20</b> (IPXXB)
conductor connections		crimp (only ⊕: screw)
conductor cross-section (CC contact series)	mm <sup>2</sup>	0,14 ..... 4,0
	AWG	26 - 12
stripping length	mm	7,5
mechanical endurance (mating cycles)		≥ 500

<sup>1)</sup> Please check the inserts derating diagrams to establish the actual maximum operating current according to the ambient temperature, the conductor cross-sectional area, the polarity of the connector, and any external constraint that may derive e.g. by the continuous operating temperature sustained by the chosen conductor sheathing or by end-product safety standards fixing max allowed temperature rise on terminals (e.g. 30 K, 45 K or 50 K)

# CQEE 40 poles + ⊕ 16A - 500V

enclosures: size "77.27"	page:
C-TYPE IP65 or IP66/IP69	402 - 411
C7 IP67, two levers	439 - 440
V-TYPE IP65 or IP66/IP69, single lever	454 - 458
BIG hoods	470 - 471
T-TYPE IP65 insulating	484 - 485
T-TYPE / W IP66/IP69 insulating	491
HYGIENIC T-TYPE / H IP66/IP69	503
HYGIENIC T-TYPE / C IP66/IP69, -50 °C	508
W-TYPE for aggressive environments	523
E-Xtreme® corrosion proof	534 - 535, 544, 554 - 555
EMC	580
Central lever	609 - 611
LS-TYPE	622 - 623
IP68	640 - 643
panel supports:	page:
COB	652 - 653

## inserts, crimp connections



## 16A crimp contacts standard or for advanced opening silver and gold plated



STANDARD

ADVANCED OPENING

description	part No.	part No.	part No.
-------------	----------	----------	----------

without contacts (to be ordered separately)  
female inserts for female contacts  
male inserts for male contacts

**CQEEF 40**  
**CQEEM 40**

### 16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

CCFA 0.3  
CCFA 0.5  
CCFA 0.7  
CCFA 1.0  
CCFA 1.5  
CCFA 2.5  
CCFA 3.0  
CCFA 4.0

silver plated

CCFD 0.3  
CCFD 0.5  
CCFD 0.7  
CCFD 1.0  
CCFD 1.5  
CCFD 2.5  
CCFD 3.0  
CCFD 4.0

gold plated

### 16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

CCMA 0.3  
CCMA 0.5  
CCMA 0.7  
CCMA 1.0  
CCMA 1.5  
CCMA 2.5  
CCMA 3.0  
CCMA 4.0

CCMD 0.3  
CCMD 0.5  
CCMD 0.7  
CCMD 1.0  
CCMD 1.5  
CCMD 2.5  
CCMD 3.0  
CCMD 4.0

### 16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

CC 0.5 AN  
CC 0.7 AN  
CC 1.0 AN  
CC 1.5 AN  
CC 2.5 AN

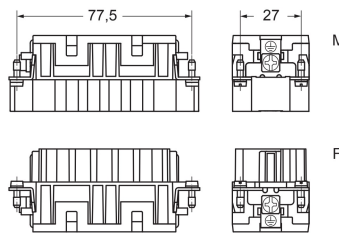
+ for basic or high thickness gold plating, please refer to page 675

- characteristics according to EN 61984:

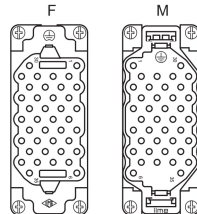
**16A 500V 6kV 3**

- cULus (UL for USA and Canada), certified

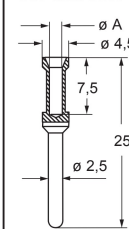
- rated voltage according to UL/CSA: 600V
- insulation resistance: ≥ 10 GΩ
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life: ≥ 500 cycles
- contact resistance: ≤ 1 mΩ
- for max. current load see the connector inserts derating diagram below; for more information see page 28



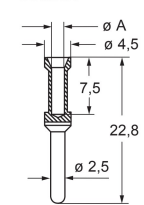
contacts side (front view)



### CCF and CCM



### CC...AN

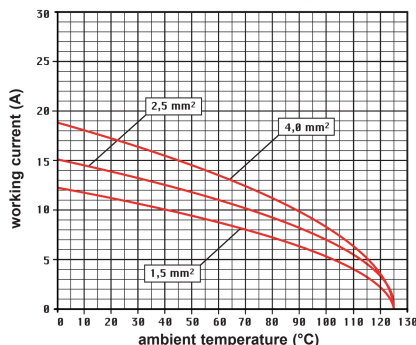


- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 708 - 741)

### CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot ø A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

**CQEE 40 poles connector inserts  
Maximum current load derating diagram**



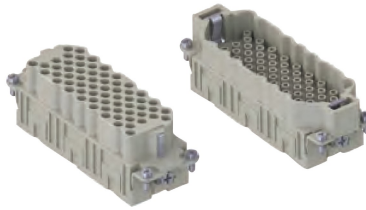
CR CPQ coding pins  
(page 689)



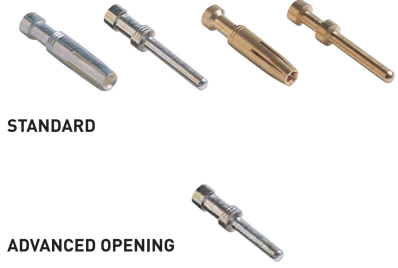
# CQEE 64 poles + ⊕ 16A - 500V

enclosures: size "104.27"	page:
C-TYPE IP65 or IP66/IP69	412 - 423
C7 IP67, two levers	441 - 442
V-TYPE IP65 or IP66/IP69, single lever	459 - 463
BIG hoods	472 - 473
T-TYPE IP65 insulating	486 - 487
T-TYPE / W IP66/IP69 insulating	492
HYGIENIC T-TYPE / H IP66/IP69	504
HYGIENIC T-TYPE / C IP66/IP69, -50 °C	509
W-TYPE for aggressive environments	524
E-Xtreme® corrosion proof	536 - 537, 545, 556 - 557
EMC	581
Central lever	612 - 614
LS-TYPE	624 - 625
IP68	644 - 647
panel supports: COB	page: 652 - 653

inserts, crimp connections



16A crimp contacts  
standard or for advanced opening  
silver and gold plated



description	part No.	part No.	part No.
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without contacts (to be ordered separately)  
female inserts for female contacts  
male inserts for male contacts

**CQEEF 64**  
**CQEEM 64**

16A female contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

16A male contacts

0,14-0,37 mm <sup>2</sup>	AWG 26-22	one groove
0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves
3 mm <sup>2</sup>	AWG 12	one wide groove
4 mm <sup>2</sup>	AWG 12	with no grooves

16A male crimp contacts for advanced opening

0,5 mm <sup>2</sup>	AWG 20	with no grooves
0,75 mm <sup>2</sup>	AWG 18	one groove (back side)
1 mm <sup>2</sup>	AWG 18	one groove
1,5 mm <sup>2</sup>	AWG 16	two grooves
2,5 mm <sup>2</sup>	AWG 14	three grooves

<b>CCFA 0.3</b>	silver plated	<b>CCFD 0.3</b>	gold plated+
<b>CCFA 0.5</b>		<b>CCFD 0.5</b>	
<b>CCFA 0.7</b>		<b>CCFD 0.7</b>	
<b>CCFA 1.0</b>		<b>CCFD 1.0</b>	
<b>CCFA 1.5</b>		<b>CCFD 1.5</b>	
<b>CCFA 2.5</b>		<b>CCFD 2.5</b>	
<b>CCFA 3.0</b>		<b>CCFD 3.0</b>	
<b>CCFA 4.0</b>		<b>CCFD 4.0</b>	

<b>CCMA 0.3</b>	silver plated	<b>CCMD 0.3</b>	gold plated+
<b>CCMA 0.5</b>		<b>CCMD 0.5</b>	
<b>CCMA 0.7</b>		<b>CCMD 0.7</b>	
<b>CCMA 1.0</b>		<b>CCMD 1.0</b>	
<b>CCMA 1.5</b>		<b>CCMD 1.5</b>	
<b>CCMA 2.5</b>		<b>CCMD 2.5</b>	
<b>CCMA 3.0</b>		<b>CCMD 3.0</b>	
<b>CCMA 4.0</b>		<b>CCMD 4.0</b>	

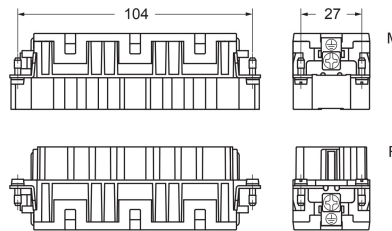
<b>CC 0.5 AN</b>	silver plated	* for basic or high thickness gold plating, please refer to page 675
<b>CC 0.7 AN</b>		
<b>CC 1.0 AN</b>		
<b>CC 1.5 AN</b>		
<b>CC 2.5 AN</b>		

- characteristics according to EN 61984:

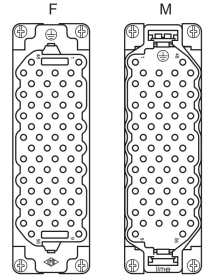
**16A 500V 6kV 3**

- cULus (UL for USA and Canada),   
- certified

- rated voltage according to UL/CSA: 600V
- insulation resistance: ≥ 10 GΩ
- ambient temperature limit: -40 °C ... +125 °C
- made of self-extinguishing thermoplastic resin UL 94V-0
- mechanical life: ≥ 500 cycles
- contact resistance: ≤ 1 mΩ
- for max. current load see the connector inserts derating diagram below; for more information see page 28



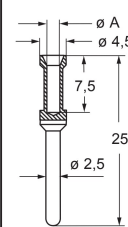
contacts side (front view)



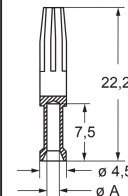
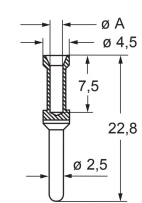
CR CPQ coding pins  
(page 689)



CCF and CCM



CC...AN



- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 16A contacts, CCF, CCM and CC...AN series on pages 708 - 741)

CCF, CCM and CC...AN contacts

conductor section mm <sup>2</sup>	conductor slot ø A (mm)	conductors stripping length (mm)
0,14-0,37	0,9	7,5
0,5	1,1	7,5
0,75	1,3	7,5
1,0	1,45	7,5
1,5	1,8	7,5
2,5	2,2	7,5
3	2,55	7,5
4	2,85	7,5

CQEE 64 poles connector inserts  
Maximum current load derating diagram

