CMA Serie

Push-Pull or Quick-Releasable Connector

… For an optimum data transfer in harsh environments !

Catalog

Release 2.0 - JUIN 2016

www.bernier.tm.fr

BERNIER

Description

BERNIER designed the CMA line specially for equipment in harsh environments. The CMA connectors are available equipped with 04, 06, 10, 14 and 22 contacts, their toughness and ergonomics are apreciated in a wide range of applications.

Applications


Radios


Accessories


Intercoms


Crypted data

Push-Pull
Ergonomics
Stainless steel
EMI RFI Protection
Multi-Contacts
Watertightness


Optronic devices

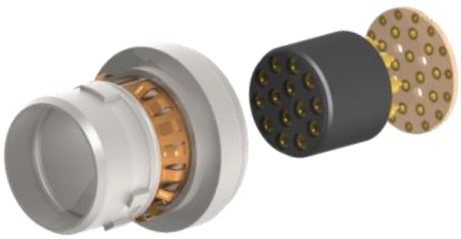

Future soldier


Ruggedized computers


Tactical equipements

The Right Solution for your projects

CMA connectors are appreciated for their flexibility to fit customer specifications.
Our Design team is able to propose versions answering to your needs. Reinforcements can be applied in case of use in harder climatic, ergonomic and electromagnetic conditions.
The CMA line evolution led by BERNIER has come to integrate electronic modules in the connector shell to carry wireless functions or to make adaptators towards other industrial or military connectors.
Caps and backshells can also be improved to bring a better ergonomics on your configuration.



EMC reinforcements

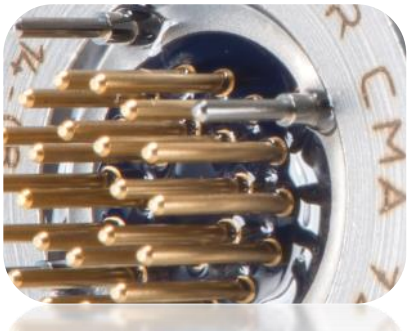
Options are available in order to reinforce the EMC specifications.

Ground ring « 360° »

CMA standard receptacles are equipped with a ground ring giving a high EMC level. This function developed by Bernier brings a better continuity between the connectors shells and a protection on 360°

Conductive O rings

The receptacle Fluorosilicon Oring can be switched to a conductive version to establish a better conductivity between the connector and the panel.



Ground pin

One or several ground pins inserted in the connector shell can be set to link the chassis ground directly to the PCB.

Climatic and mechanical characteristics

	Push-Pull version	'L' Quick releasable Version
Unlocking system	Manual action on ring	Axial force (30N ≤ F ≤ 70N)
Operating temperature Range	-55°C to +125°C	
Endurance	10 000 operations 5000 operations (22 contacts)	2000 Operations
Sealing performance	IP68 (Mated and unmated)	
Corrosion resistance	Salt fog : 96 hours, 250 hours, 500 hours depending material	
Vibration	55 Hz to 2000 Hz, 10g (6 hours)	
Fluids resistance	Oils and hydrocarbons	

The Push-Pull version and the quick-releasable version mate on the same receptacle

Electrical characteristics

	04 contacts version	06 contacts version	10,14 contacts version	22 contacts version
Working voltage	100 V_{max}		60 V_{max}	
Current rating per contact	4 A_{max}	4 A_{max} (2cts) 1,5 A_{max} (4cts)	1,5 A_{max}	2 A_{max}
Gauge (AWG)	18	18 (2cts) 22 (4cts)	22	26
Contact type	Solder buckets / For PCB			
Contact resistance	≤ 10 mOhms			
Insulation resistance	>1000 MOhms under 500 V_{DC}			
Crosstalk	80 dB at 8 kHz			-
Dielectric	500 $V_{AC\ RMS}$ at 50 Hz			
EMI RFI Protection	Yes			

Material and plating

	Matérials	Plating
Connector shell	Stainless steel Navy stainless steel / Bronze	Sandblasting or Black Chrome
Insulator	Thermosetting (04,06,10,14 cts) PBT (22 cts)	-
Contacts	Copper alloy	Gold over nickel
Ground ring	Beryllium Copper	-
Backshell shell	Aluminium alloy	Black Chrome or Black Anodizing

Weights

Connectors

Type	Weight (Max)
CMA 1 (Extension)	20 g
CMA 3 (Panel through)	23 g
CMA 5 (Push-Pull plug)	30 g
CMA 6 (Dummy receptacle)	16 g
CMA 7 (Receptacle)	18.5 g

Stainless steel version

Elbow parts

Type	Weight (Max)
CMA RA8	21 g
CMA RA82	18 g

Elbow and straight backshells

Type	Weight (Max)
CMA RAI-XX	9.6 g
CMA RA7-XX	26 g
CMA RA18-XX	14 g
CMA RA09-XX	6 g
CMA RA81-XX	28 g

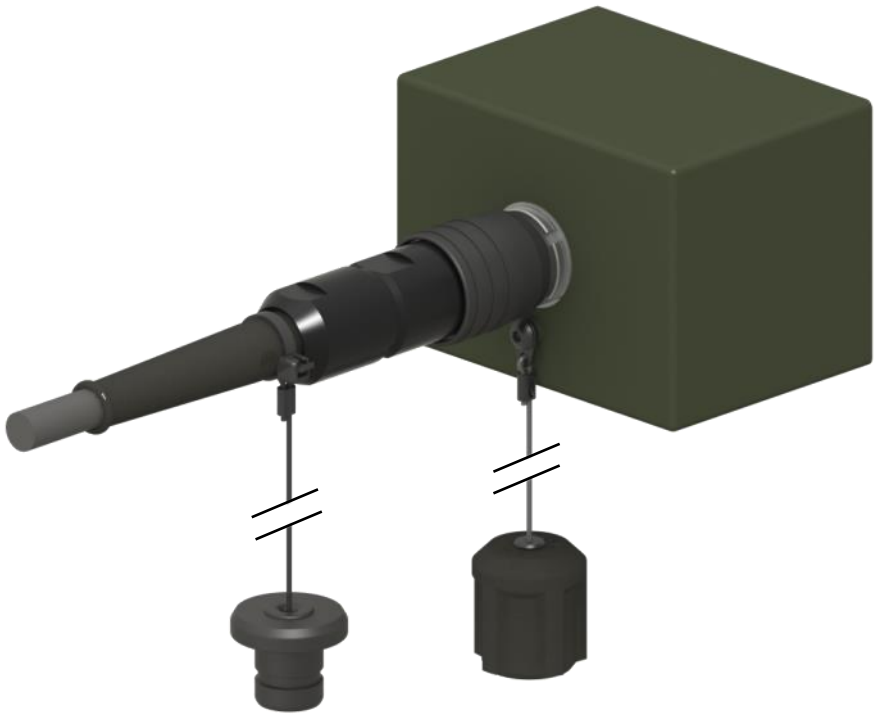
Caps

Type	Weight (Max)
Thermoplastic plug cap (CMA BA06 ...)	4.5 g
Metallic plug cap (CMA BA65 …)	12 g
Elastomer extension cap (CMA BA94 ...)	6 g
Elastomer receptacle cap (CMA BA86-35MC …)	6 g
Metallic receptacle cap (CMA BA73 …)	38 g

Compatibility matrix

	Extension Type 1	Panel through Type 3	Dummy receptacle Type 6	Receptacle Types 7 and R7	Elbow part 90°	Elbow part 105°	Straight backshell	Elbow backshell 90°	Thermo-plastic plug cap	Metallic plug cap
Plug Type 5	●	●	●	●	●	●	●	●	●	●
Panel plug Types 11,18	●	●	●	●	-	-	-	-	●	●
Elbow part 90°	●	●	-	-	-	-	●	-	-	-
Elbow part 105°	●	●	-	-	-	-	●	-	-	-
Straight backshell	●	●	-	-	●	●	-	-	-	-
Elbow backshell 90°	●	●	-	-	-	-	-	-	-	-
Elastomer cap	●	●	●	●	-	-	-	-	-	-
Metallic cap	●	●	●	●	-	-	-	-	-	-

Attention : The mating connectors must have the same number of contacts and the same keyway.
Special case : A 10 contacts plug can mate a 14 contacts receptacle.



Keyways

Receptacle

Front view

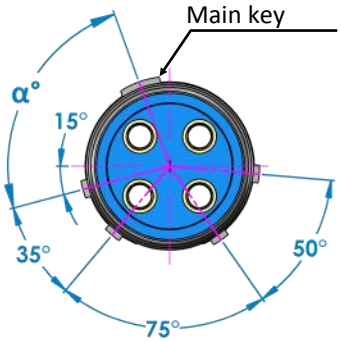
Plug

The keyways depend on the main key position. Positions of the 4 small keys, contacts and flats of the receptacle remain the same.

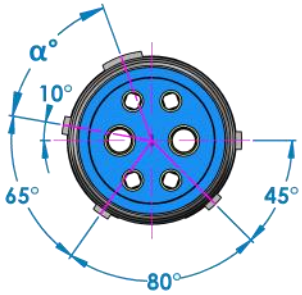
		Keyways						
		N	W	X	Y	Z	P *	T
Angle α	04 contacts	105°	95°	115°	85°	125°	-	**
	06 contacts	80°	70°	90°	60°	100°	-	**
	10-14 contacts	95°	85°	105°	75°	115°	138°	**
	22 contacts	80°	70°	90°	60°	100°	-	**

*** Keyway P allows the possibility to make 'double keyways' plug ex: CMA 5NP14 mating a N keyway receptacle AND a P keyway receptacle**
**** Keyway T mates with all keyways—tooling.**

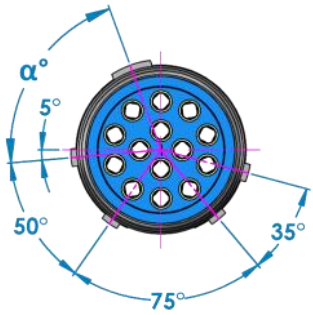
Receptacle - Extension



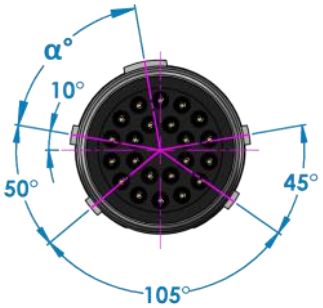
04 contacts



06 contacts

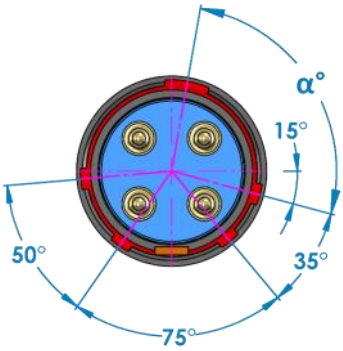


10 - 14 contacts

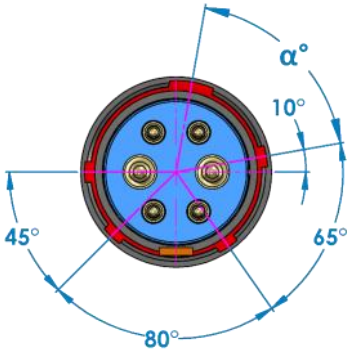


22 contacts

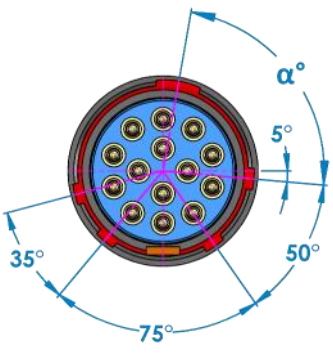
Plug



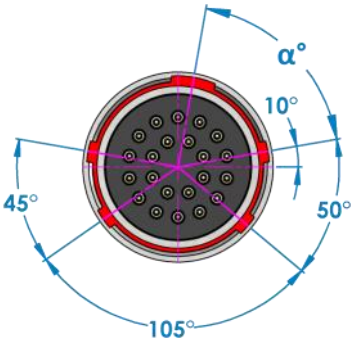
04 contacts



06 contacts



10 - 14 contacts



22 contacts

Items mounted on cable

Straight backshell with sleeve

Straight backshell

Elbow backshell 90°

Elbow part 90°
Option

Elbow part 105°
Option

Push-Pull Plug
Type 5

Quick-releasable plug
Type 5

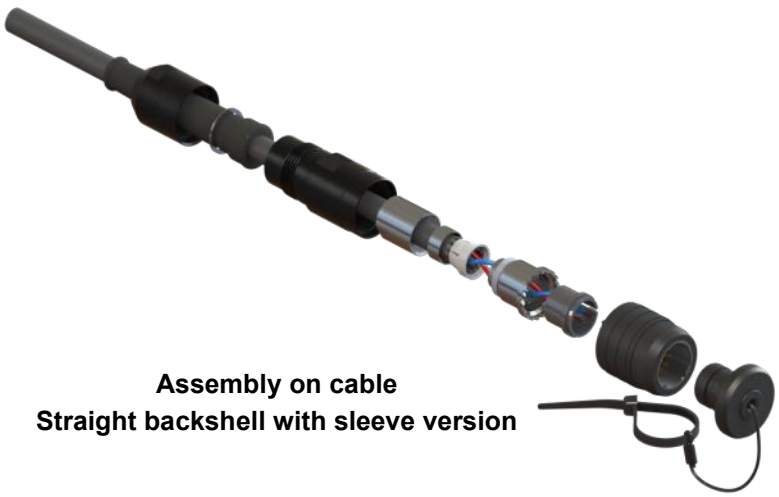
Extension
Type 1

Thermo-plastic plug cap

Metallic plug cap

Elastomer extension cap

Metallic extension cap



Assembly on cable
Straight backshell with sleeve version

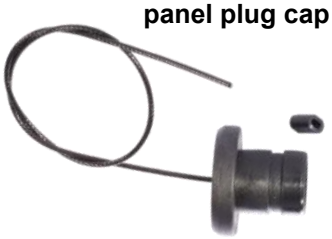
A backshell (necessary for cable assembling) must be ordered at the same time than a connector and the reverse

Items mounted on panel

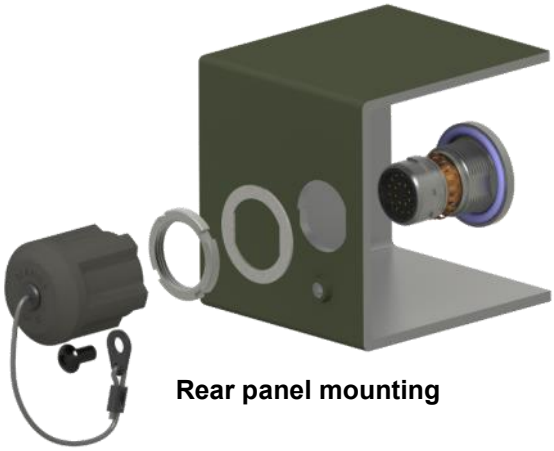
Elastomer receptacle cap

Push-pull metallic receptacle cap

Thermo-plastic panel plug cap



Metallic panel plug cap



Rear panel mounting

Rear panel mounting

Receptacle
Type 7

Dummy receptacle
Type 6

Panel through *
Type 3

Panel plug without locking
Type 11

Quick-releasable panel plug
Type 19

Shutter

Front panel mounting

Receptacle
Type R7

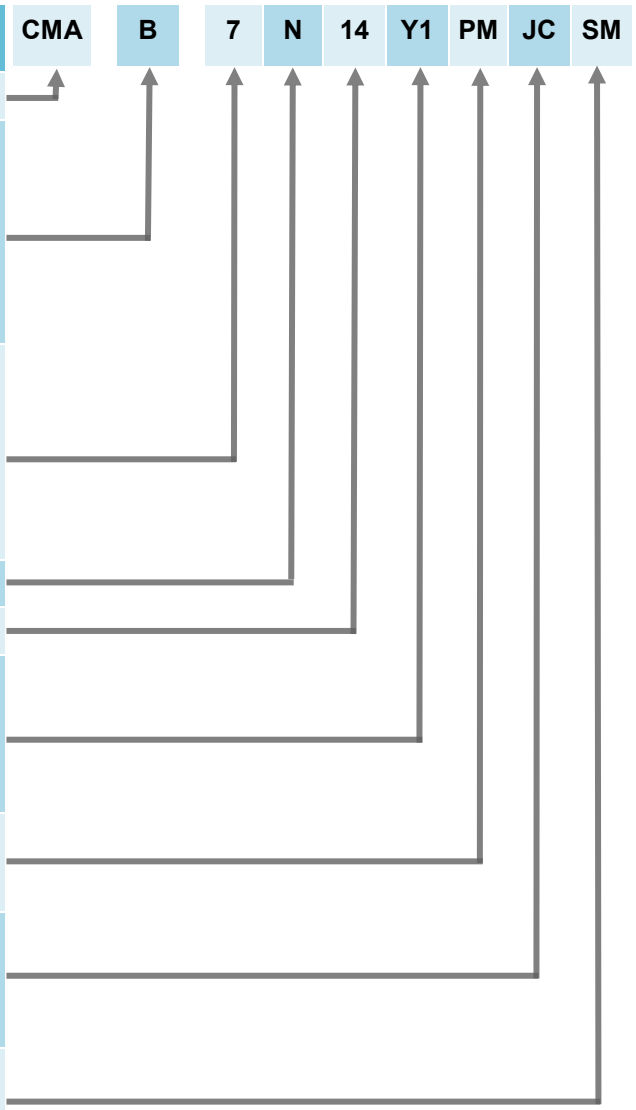
Push-Pull panel plug
Type 18

Quick-releasable panel plug
Type 18

*** can accept backshell (See items mounted on cable)**

Connectors

Description	Code
Serie	**CMA**
Aspect : 'Nothing mentionned' : Sandblasted version Black version (by default for type 5) **Locking (Type 5, 18) :** 'Nothing mentionned' : Push-pull version Quick-releasable version with spring clip Quick-releasable version without locking	 **B** **L** **SC**
Connector Type : Extension Panel Through Plug Dummy receptacle Receptacle Panel Plug	 **1** **3** **5** **6** **2, 7, R7** **11, 17, 18, 19**
Keyways	**N, W, X, Y, Z, P, T**
Number of contacts	**04, 06, 10, 14, 22**
Contacts : 'Nothing mentionned' : Solder cup For PCB Type 7, R7 For PCB Type 5, 18	 **Y1, Y1.2, Y1.3, Y2, Y3, Y4, Y4.1, Y4.2 Y8, Y8.1** **Y, YA**
Ground pin 1 ground pin 4 ground pins	 **PM** **PM4S**
Panel Oring, conductive Oring option 'Nothing mentionned' : Fluorosilicon Oring Fluorosilicon charged with Ni/Graph Oring Fluorosilicon charged with Silver/Alu Oring	 **JC** **JC1**
Material : 'Nothing mentionned' : Stainless steel Marine stainless steel 250 Hours Salt fog Navy Bronze 500 Hours Salt fog	 **SM** **BM**



Part numbers

Elbow parts for types 1, 3, 5

Description	Code
Serie	CMA
Elbow part	RA8, RA82

CMA RA8

Backshell for types 1, 3, 5

Description	Code
Serie	CMA
Backshell	RA02, RA7, RA18, RA24, RA09, RA81, RAIXX
Outer diameter	See chapter « Elbow part and backshells »

CMA RA7 - 70

Caps

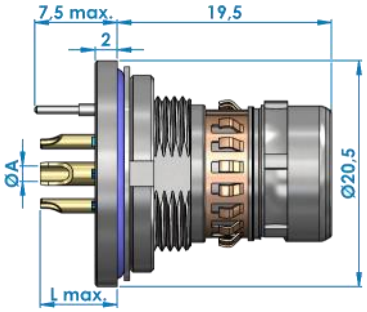
Description	Code
Serie	CMA
Caps	BA
Type of caps	See chapter « Caps »
Type of fixing : Black covered stainless steel micro-cable 'Nothing mentionned' : Nylon cord	MC
Fixing length (mm)	See chapter « caps »
Termination	See chapter « caps »

CMA BA 06 MC - 200 ST

Type 7 with solder cup contacts

Ex: CMA 7N06PM

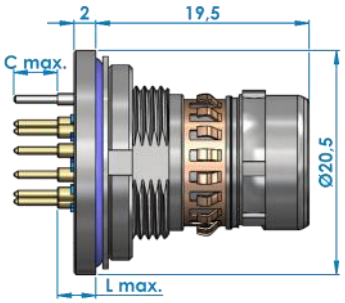
Number of contacts	ΦA	L max
04	AWG 18	7.1
06 2 contacts 4 contacts	 AWG 18 AWG 22	 7.1 7.1
10	AWG 22	7.1
14	AWG 22	9.1
22	AWG 26	7.1



Type 7 with contacts for PCB

Ex: CMA 7N10Y1PM

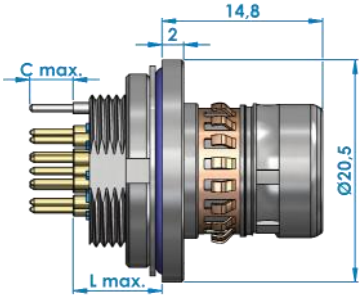
Contact type	L max	C max
Y1	3.5	4
Y1.2	3.5	2.6
Y1.3	3.5	1.5
Y2	9.5	4
Y3	12.5	4
Y4	3.2	2
Y4.1	3.2	1.3
Y4.2	3.2	1.7
Y8	5.5	4
Y8.1	5.5	2.6



Type R7 rear panel mounting (can't be dismounted by the outside of the equipment)

Ex: CMA R7N14Y1PM

Contact type	L max	C max
Y1	8.2	4
Y1.2	8.2	2.6
Y1.3	8.2	1.5
Y2	14.2	4
Y3	17.2	4
Y4	7.9	2
Y4.1	7.9	1.3
Y4.2	7.9	1.7
Y8	10.2	4
Y8.1	10.2	2.6

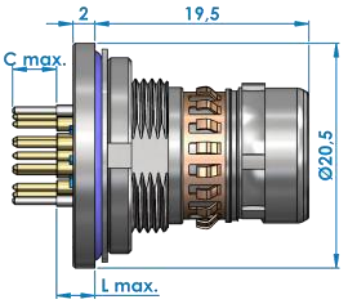


Version R7 with solder cup contacts possible

Type 7 with 4 ground pins set on 360° 'PM4S'

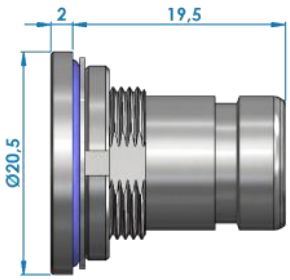
Ex: CMA 7N14Y1PM4S

Contact type	L max	C max
Y1	3.5	4
Y1.2	3.5	2.6
Y1.3	3.5	1.5
Y2	9.5	4
Y3	12.5	4
Y4	3.2	2
Y4.1	3.2	1.3
Y4.2	3.2	1.7
Y8	5.5	4
Y8.1	5.5	2.6



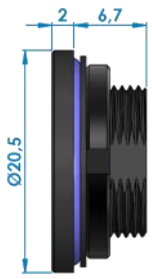
Type 6 for plug fixing, for all plugs

Ex: CMA 6



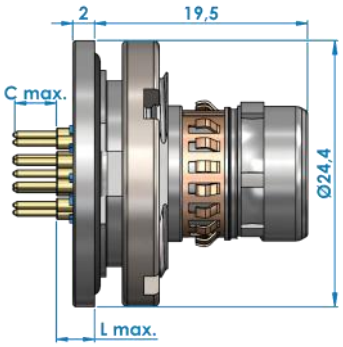
Watertight shutter for CMA Type 7 panel cut

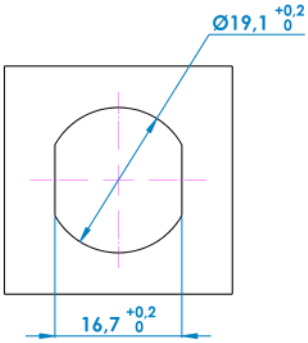
Ex: CMA B598N



Type 7 fitting the MIL-C-55116 receptacle panel cut

Contact type	L max	C max
Y1	3.5	4
Y1.2	3.5	2.6
Y1.3	3.5	1.5
Y2	9.5	4
Y3	12.5	4
Y4	3.2	2
Y4.1	3.2	1.3
Y4.2	3.2	1.7
Y8	5.5	4
Y8.1	5.5	2.6

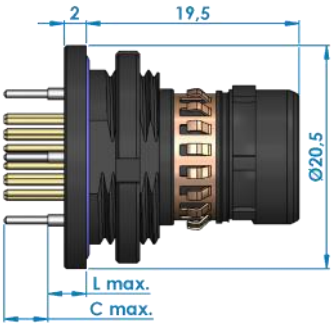


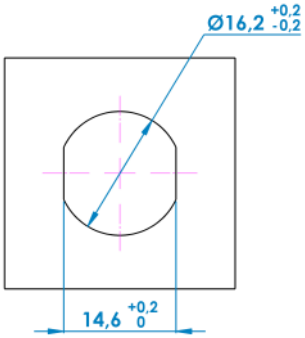


Type 2 fitting the Serie JDX receptacle panel cut with 4 ground pins

Ex: CMA B 2N22Y1PM4

Contact type	L max	C max
Y1	3.5	4
Y2	9.5	4

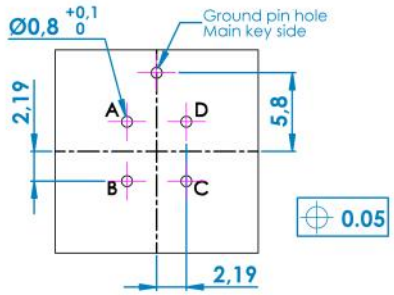




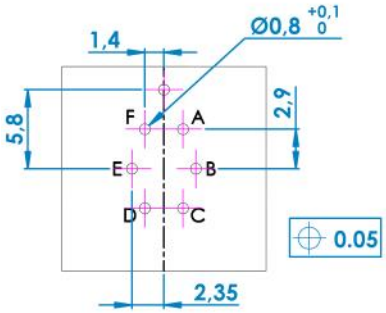
PCB holing and panel cuts

PCB holing, welding side, through pins

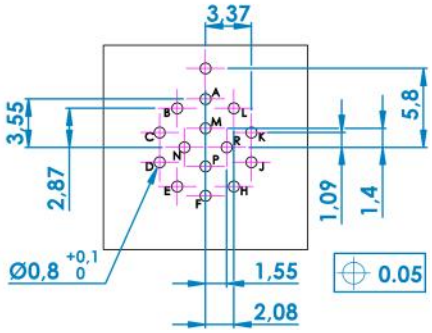
04 Contacts 1 PM



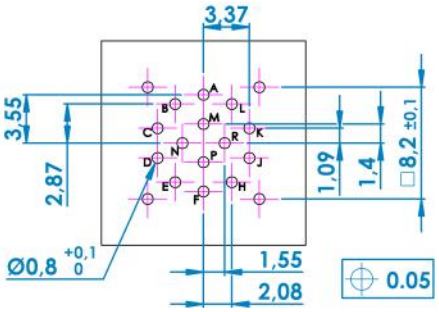
06 Contacts 1 PM



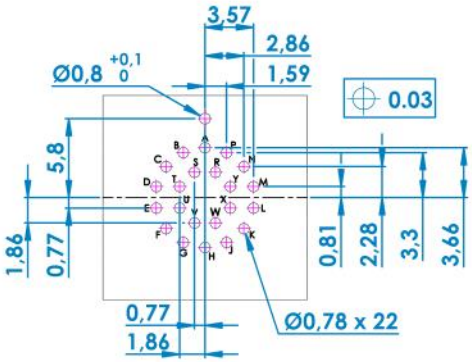
10 - 14 Contacts 1 PM



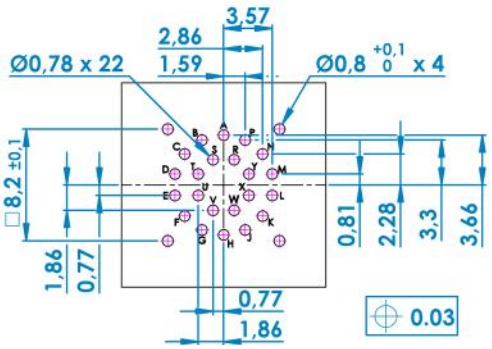
10 - 14 Contacts with 4 pins PM4S



22 Contacts 1 PM

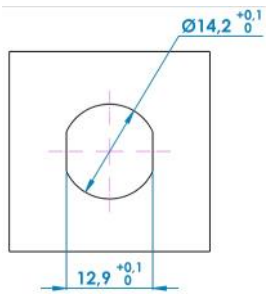


22 Contacts with 4 pins PM4S

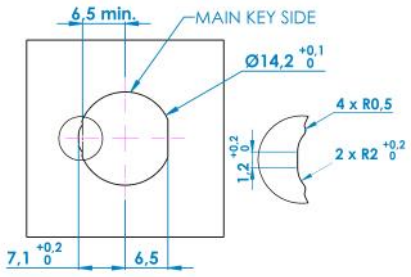


Panel cuts for types 7 and R7

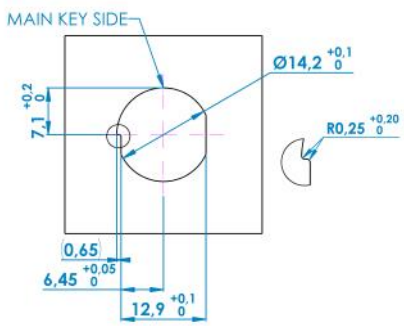
For a receptacle alone 04, 06, 10, 14 contacts



For several CMA receptacles mounted on 1 PCB



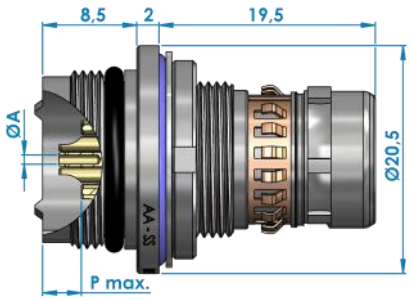
For 22cts receptacle



Front view side — Maximum panel thickness for CMA receptacles : 3.5mm

◆ Type 3 With solder cup contacts

Number of contacts	ΦA	P max
04	AWG 18	5.2
06 (2 contacts) (4 contacts)	 AWG 18 AWG 22	 5.2 5.2
10	AWG 22	5.2
14	AWG 22	5.2
22	AWG 26	5.5



Ex: CMA 3N14

Type 11 Quick-releasable with solder cup contacts

Number of contacts	ΦA	L max
04	AWG 18	4.9
06 2 contacts 4 contacts	 AWG 18 AWG 22	 4.9 4.9
10	AWG 22	4.9
14	AWG 22	6.9
22	AWG 26	4

Ex: CMA B L 11N04

Version 11 Quick-releasable panel plug with contacts for PCB possible

Type 11 No locking system with contacts for PCB

Contact type
Y5

Ex: CMA 11N14Y5

Type 17 Quick-releasable with contacts for PCB

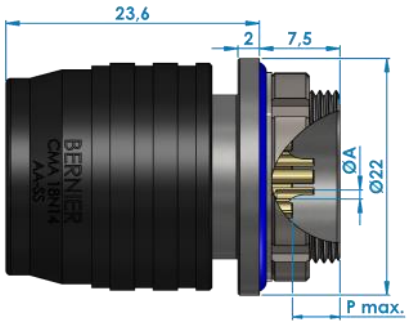
Contact type	L max	C max
Y	1.7	1.2
YA	3.7	3.2

Ex: CMA L 17Y14YAPM

Version 17 Quick-releasable panel plug with solder cup contacts possible

Type 18 Push-Pull with solder cup contacts

Number of contacts	ΦA	P max
04	AWG 18	4.7
06 (2 contacts) (4 contacts)	 AWG 18 AWG 22	 4.7 4.7
10	AWG 22	4.7
14	AWG 22	4.7
22	AWG 26	7.1

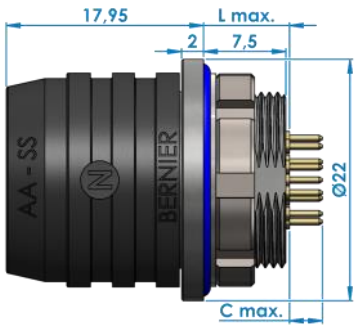


Ex: CMA 18N14

Version 18 Push-Pull panel plug with contacts for PCB possible

Type 18 Quick-releasable with contacts for PCB

Contact type	L max	C max
Y	6.2	1.2
YA	8.2	3.2

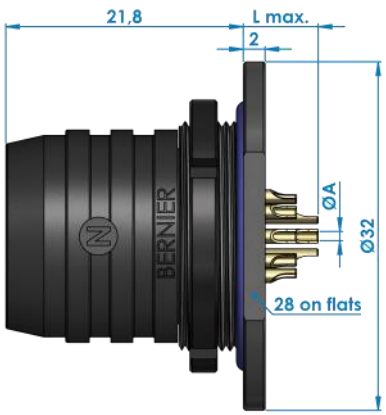


Ex: CMA L 18N14YA

Version 18 Quick releasable panel plug with solder cup contacts possible

Type 19 Quick-releasable with solder cup contacts

Number of contacts	ΦA	L max
04	AWG 18	5
06 (2 contacts) (4 contacts)	 AWG 18 AWG 22	 5 5
10	AWG 22	5
14	AWG 22	7
22	AWG 26	3.9

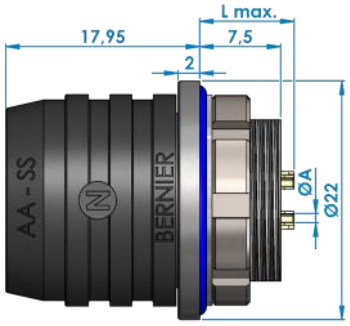


Ex: CMA B L 19N14

Version 19 Quick-releasable panel plug with contacts for PCB possible

Type 18 Quick-Releasable ‘SC’ No locking system with solder cup contacts

Number of contacts	ΦA	L max
04	AWG 18	8.9
06 (2 contacts) (4 contacts)	 AWG 18 AWG 22	 8.9 8.9
10	AWG 22	8.9
14	AWG 22	11
22	AWG 26	7.9

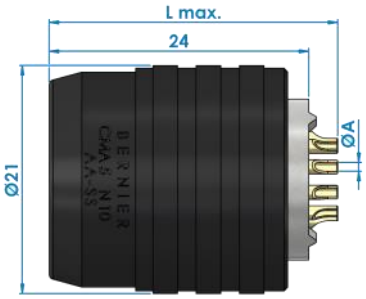


Ex: CMA SC 18N06

Version 18 No locking system with contacts for PCB possible

Type 5 Push-Pull plug with solder cup contacts

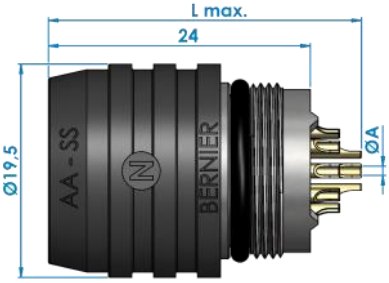
Number of contacts	ΦA	L max
04	AWG 18	27.2
06		
(2 contacts)	AWG 18	27.2
(4 contacts)	AWG 22	27.2
10	AWG 22	27.2
14	AWG 22	29.2
22	AWG 26	25.7



Ex: CMA 5N10

Type 5 Quick releasable plug with solder cup contacts

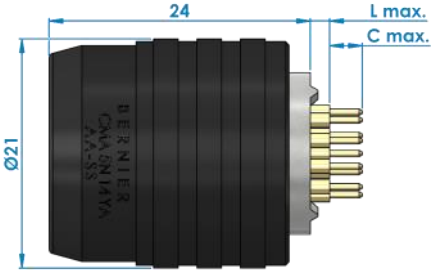
Number of contacts	ΦA	L max
04	AWG 18	27.2
06		
(2 contacts)	AWG 18	27.2
(4 contacts)	AWG 22	27.2
10	AWG 22	27.2
14	AWG 22	29.2
22	AWG 26	25.7



Ex: CMA L 5N14

Type 5 Push-Pull plug with contacts for PCB

Contact type	L max	C max
Y	-0.3	1.2
YA	1.8	3.2

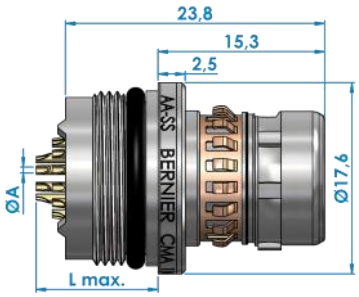


Ex: CMA 5N14YA

Version 5 Quick releasable plug with contact for PCB possible

Type 1 Extension with solder cup contacts

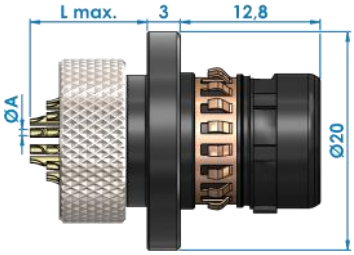
Number of contacts	ΦA	L max
04	AWG 18	11.4
06 (2 contacts) (4 contacts)	 AWG 18 AWG 22	 11.4 11.4
10	AWG 22	11.4
14	AWG 22	13.4
22	AWG 26	11.4



Ex: CMA 1N22

Type 1 extension with solder cup contacts and integrated backshell

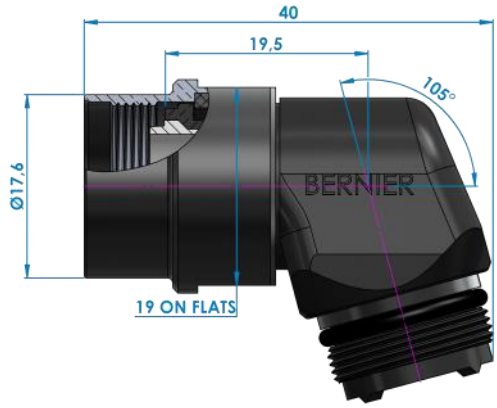
Number of contacts	ΦA	L max
04	AWG 18	10.9
06 (2 contacts) (4 contacts)	 AWG 18 AWG 22	 10.9 10.9
10	AWG 22	10.9
14	AWG 22	12.9
22	AWG 26	10.9



Ex: CMA 1N22SP

Elbow part with a 105° angle

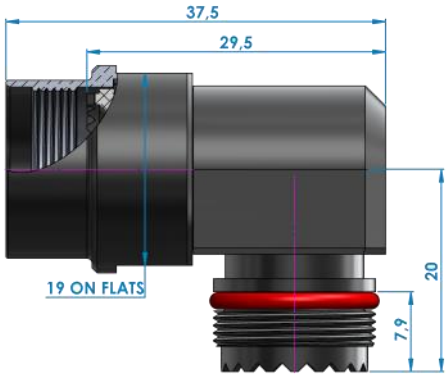
CMA RA8



Orientation choice by angle of 20° set when tightening the backshell

Elbow part with a 90° angle

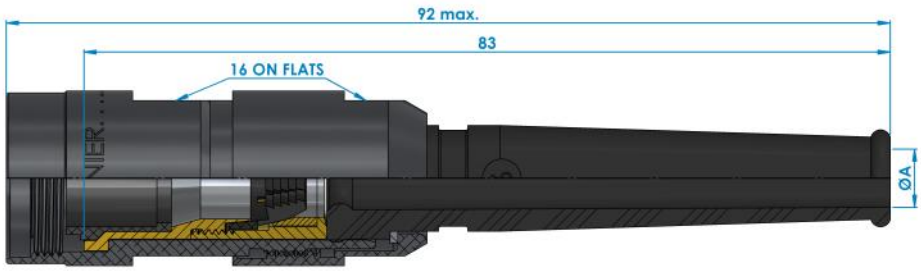
CMA RA82



Orientation choice by angle of 20° set when tightening the backshell

Straight backshell with sleeve

Size XX	ΦA
45	4.5
55	5.5
60	6
70	7
80	8

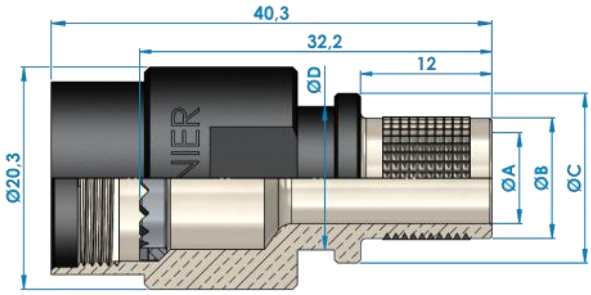


CMA RA7-XX

Cable clamp and sleeve included

Straight backshell with knurling

Size XXX	ΦA	ΦB	ΦC	ΦD
52	5.2	8.5	13.5	11.5
64	6.4	9.6	13.9	11.5
79	7.9	11.2	15.5	13.1
95	9.5	12.8	17.1	14.8
111	11.1	14.3	18.7	16.3
127	12.7	15.9	20.3	17.7

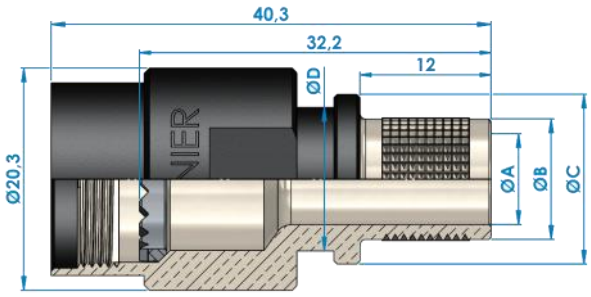


CMA RA18-XXX

Backshell for cable assembling with metallic collar and heat-shrink boot (not included)

Straight backshell with knurling

Size XX	ΦA	ΦB	ΦC	ΦD
52	5.2	8.3	15.5	13.1
64	6.4	9.4	15.5	13.1
79	7.9	11	15.5	13.1
83	8.3	11	15.5	13.1



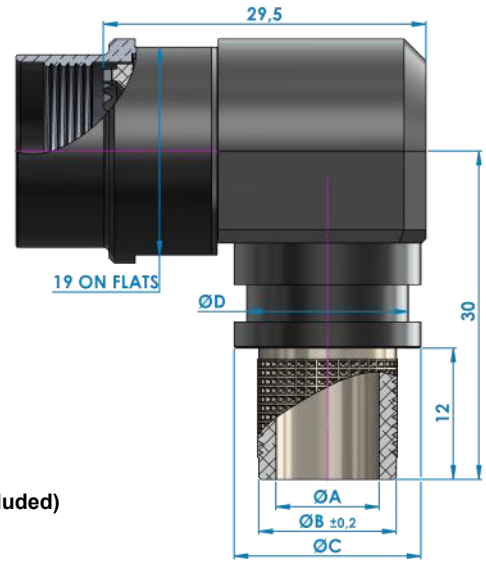
CMA RA24-XX

Diameters C and D don't change.

Backshell for overmolding or cable assembling with metallic collar and heat shrink boot (not included)

Elbow backshells with knurling

Size XXX	ΦA	ΦB	ΦC	ΦD
52	5.2	8.5	13.5	11.5
64	6.4	9.6	13.9	11.5
79	7.9	11.2	15.5	13.1
95	9.5	12.8	17.1	14.8
111	11.1	14.3	18.7	16.3
127	12.7	15.9	20.3	17.7

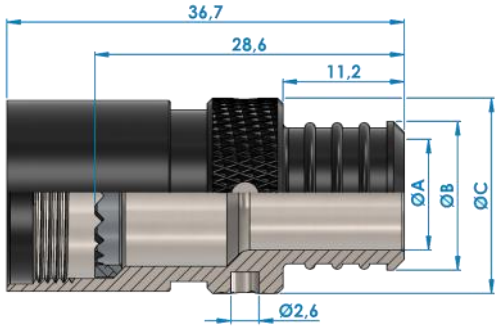


CMA RA81-XXX

Backshell for cable assembling with metallic collar and heat-shrink boot (not included)

Straight backshell with knurling

Taille XX	ΦA	ΦB	ΦC
10	10	13.7	18

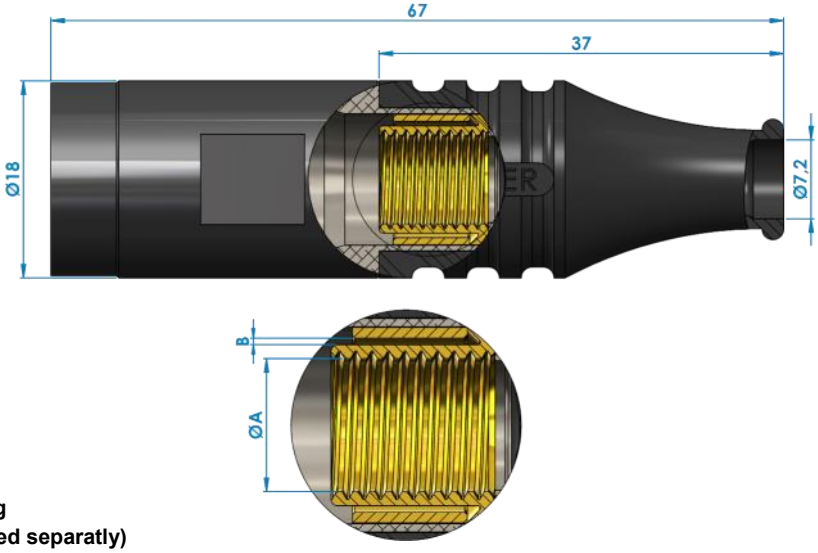


CMA RA02-XX

Backshell for cable assembling with metallic collar and heat-shrink boot (not included)

Unremovable straight backshell

Size XX	ΦA	B
01	9.25	0.2
02	10.25	0.5
03	10.6	0.4



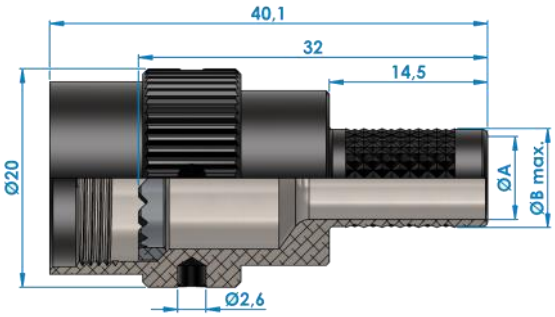
CMA RAIXX

Backshell with a crimping operation during assembling to fit with accuracy to the cable (Crimping tools supplied separatly)

Straight backshell with knurling

CMA RA17-XX

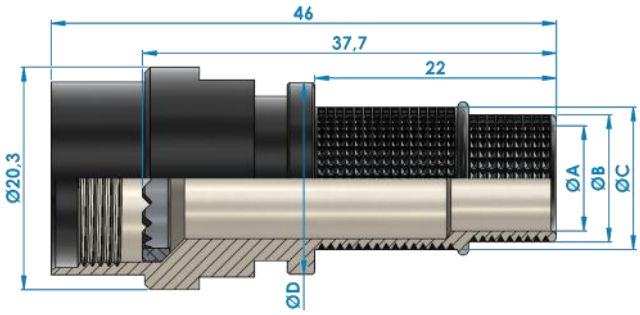
Size XX	ΦA	ΦB
76	7.6	9.3



Straight backshell with double knurling

CMA RA19-XX

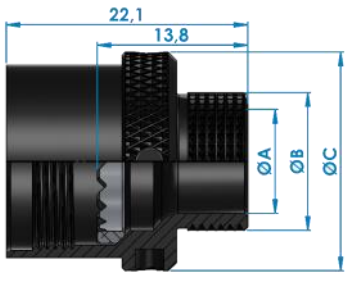
Size XX	ΦA	ΦB	ΦC	ΦD
95	9.5	11.6	13	17.5



Short backshell

CMA RA09-XX

Size XX	ΦA	ΦB	ΦC
95	9.5	12.6	20



Backshells for cable assembling with metallic collar and heat-shrink boot (not included)

Plug caps

Ex: CMA BA06MC

With...	Thermo-plastic *Watertight*		Metallic black *Watertight*	
	Cord	Microcable	Cord	Microcable
Ferule*	CMA BA06-200ST	CMA BA06MC-200ST	CMA BA65-200ST	CMA BA65MC-200ST
Plastic clamp	CMA BA06	CMA BA06MC	CMA BA65T	CMA BA65MCT

*** Ferule is delivered separatly to crimp it during cable assembling with the best fixing length.**

Note that for plugs without locking system (SC type) a special cap is necessary, please contact us.

Stock cap
CMA BASFIL

Caps for receptacles types 3, 6 and 7

Ex: CMA BA86-35MC

Avec...	Elastomer cap *Watertight*		Push-Pull metallic cap * *Watertight*	
	Cord	Microcable	Cord	Microcable
Metallic ring	CMA BA86	CMA BA86-35MC	CMA BA100xxxEM	CMA BA100xxxMCEM
Crimped eyelet for M3	CMA BA98	CMA BA98MC	Contact us	Contact us
90° crimped eyelet for M3 screw	CMA BA81	CMA BA81MC	Contact us	Contact us
Eyelet for M3 screw	CMA BA91	CMA BA91MC	Contact us	Contact us
Specific eyelet attached to 3 caps	CMA BA84	CMA BA84MC	Contact us	Contact us

*** Metallic cap part number contains the keyway and the number of contacts (xxx) of the connector it covers ex : CMA BA100W22MCEM**

For type R7 receptacle, you must consider the extension cap with an above panel fixing.

Stock cap
CMA BA20

Please contact us for part number confirmation

Nylon cord is nearing obsolescence ! (Microcable is recommanded for new projects)

Extension caps

Ex: CMA BA11MC

Ex: CMA BA100N22MC-200ST

Avec...	Elastomer cap		Push-pull Métallic cap* *Watertight*	
	Cord	Microcable	Cord	Microcable
Ferule**	CMA BA94-200ST	CMA BA94MC-200ST	CMA BA100xxx-200ST	CMA BA100xxxMC-200ST
Plastic clamp	CMA BA11	CMA BA11MC	CMA BA100xxxT	CMA BA100xxxMCT

*** Metallic cap part number contains the keyway and the number of contacts (xxx) of the connector it covers ex : CMA BA100W22MCEM**

**** Ferule is delivered separatly to crimp it during cable assembling with the best fixing length.**

Stock cap
CMA BA20

Terminations

Some terminations can accept several lanyards

Plastic clamp

Ferule

Metallic ring

Eyelet for M3 screw

Crimped eyelet for M3 screw

90° crimped eyelet for M3 screw

Nylon cord is nearing obsolescence ! (Microcable is recommanded for new projects)

Connectors with electronic functions integrated

User authentification module

Crypto / Shunt

Wireless module

Bluetooth antenna

Memory key

Several memory sizes available

Adaptator

CMA—Industrial connector (RJ45, USB, HDMI, ...)

Special connectors

Plug with special shapes for rackable system

CMA 14N06

Panel plug with removable insulator

Used on maintenance of crypto device

105° Elbow adaptator with point to point cabling

CMA plug - CMA extension

Panel throughs

Similar to CMA RA7-XX backshell construction

B456

For cable shield continuity and heat-shrink boot

B459

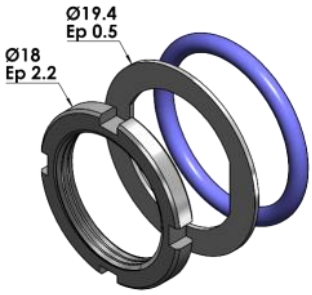
Development of products in the CMA environment

Double cap for BNC receptacle and antenna connector

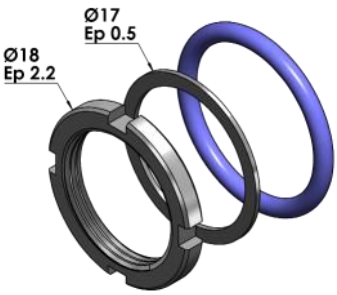
B598

Accessories

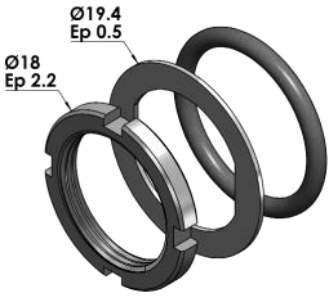
Kits with Oring Washer and Nut for receptacle type 7 and R7	Part numbers
Kit Oring-Washer-Nut (standard)	BEN000ME000
Kit Oring-Circular washer-Nut	BEN000ME001
Kit conductive Oring-Washer-Nut (JC fluorosilicon charged Nickel-Graphite)	BEN000ME002
Kit conductive Oring-Washer-Nut (JC1 fluorosilicon charged Silver-Aluminium)	BEN000ME003



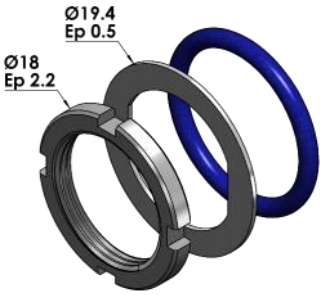
BEN000ME000



BEN000ME001

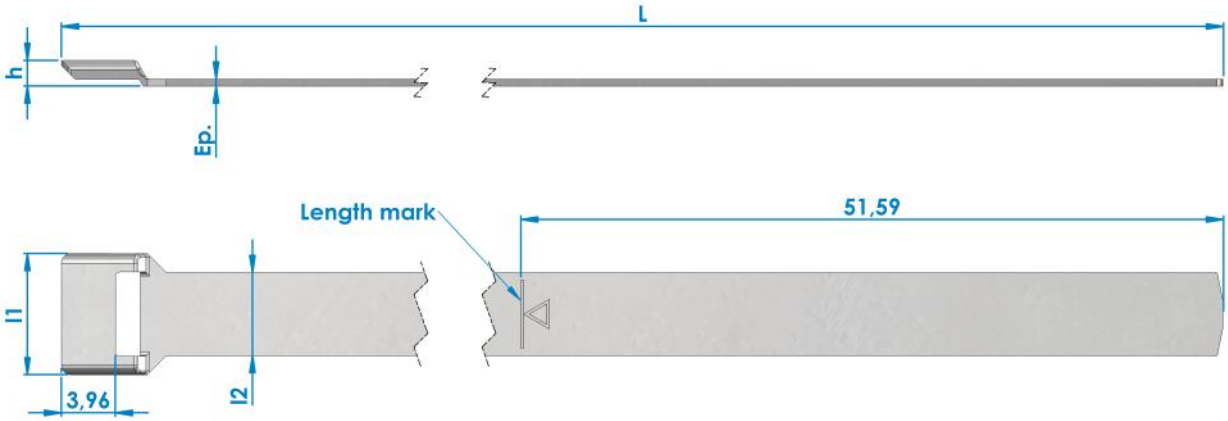


BEN000ME002



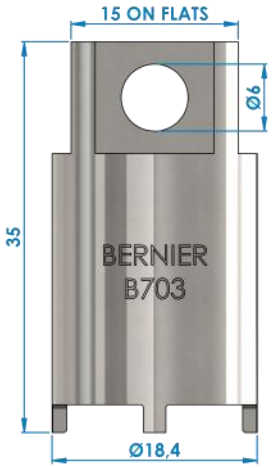
BEN000ME003

Metallic clamp for backshells	PN	L (mm)	h (mm)	l1 (mm)	l2 (mm)	Ep. (mm)
Metallic clamp width 6.10mm	B593	362.1	1.88	8.9	6.1	0.51
Metallic clamp width 3.17mm	B452	206.4	1.35	5	3.1	0.4

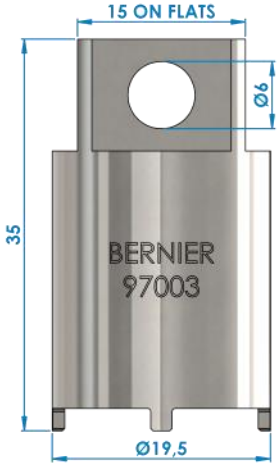


Tools

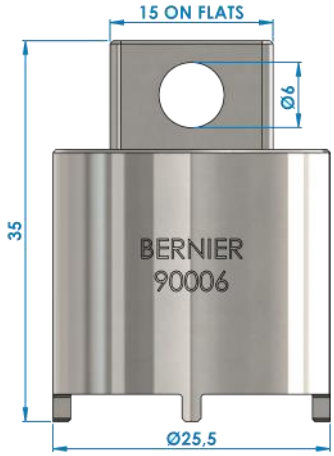
Tightening tools	Part numbers
Tightening key for receptacles type 7	B703
Tightening key for receptacle type 2 and panel plugs type 18	97003
Tightening key for panel plugs types 11, 17 and 19	90006
Tightening key for panel plugs type 18	BAC000MEGR2



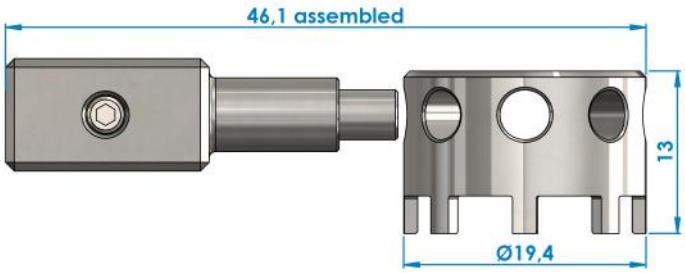
B703



97003



90006



BAC000MEGR2

Tightening torque

Connector material	Torque For receptacle types 3, 7 and R7	Torque For backshells
Stainless steel	9 N.m	6 N.m
Bronze	11 N.m	6.1 N.m
Navy stainless steel	9 N.m	6 N.m

Tools

Mechanical counter part	Part number
Antirotation plug to tighten the backshell on extension with xx contacts	BOUExxMENA01
Antirotation receptacle to tighten the backshell on plug with xx contacts	BOUFxxMENA01

Ex: BOUE14MENA01

Ex: BOUF14MENA01

Electrical counter part	Part number
Panel plug to test all keyways receptacle and extension	CMA 12TxxYA (xx : number of contacts)
Receptacle to test all keyways plug	CMA 7TxxY1 (xx : number of contacts)

CMA 12T14YA

CMA 7T14Y1

Available with solder cup contacts

Tools

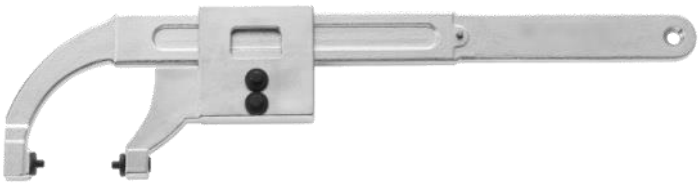
For cap installation	Part numbers
Tool to crimp the ferule on microcable	BOU000MESE01
Tool to crimp the ferule on the nylon cord	B705

BOU000MESE01

B705

Tools

For the backshell tightening	Part numbers
Tool to crimp the metallic clamp width 6.10mm	BOU000MESE02
Tool to crimp the metallic clamp width 3.17mm	BOU000MESE03
Crimping jaws for CMA RAI-XX backshell	B458
Pneumatic tool for the crimping jaws B458	RH50
Tightening tool for CMA RA02-XX backshell	B704



B704

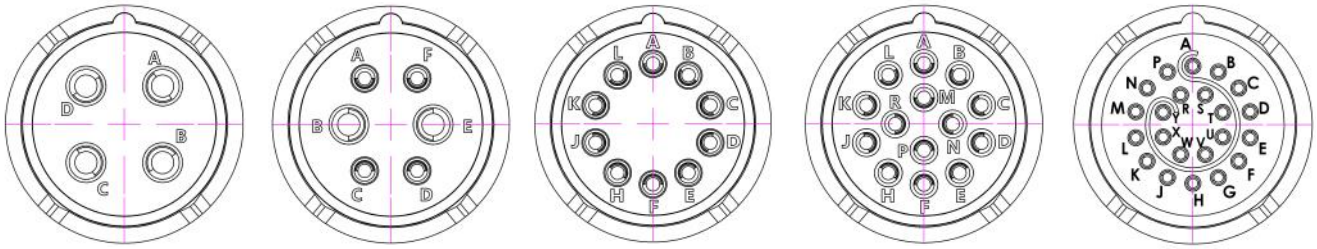
BOU000MESE02

B458

RH50

Contacts position on plugs

Welding side view

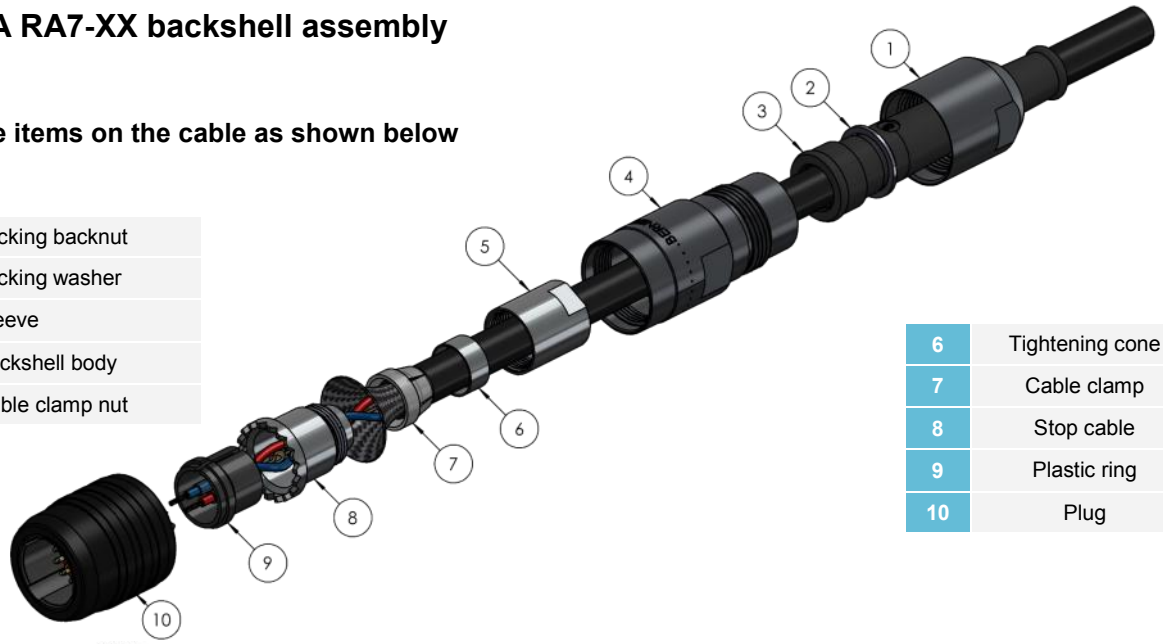


04 Contacts | 06 Contacts | 10 Contacts | 14 contacts | 22 Contacts

For types 1, 3 and 7 : consider the reverse

CMA RA7-XX backshell assembly

Slide items on the cable as shown below



1	Locking backnut
2	Locking washer
3	Sleeve
4	Backshell body
5	Cable clamp nut

6	Tightening cone
7	Cable clamp
8	Stop cable
9	Plastic ring
10	Plug

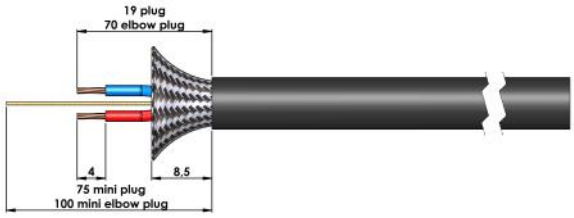


Fig. A

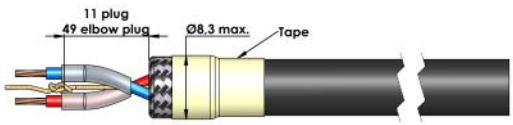


Fig. B

A– Prepare the cable following Fig.A and Fig.B. The 'elbow plug' is the addition of an elbow part CMA RA8 between items 9 and 10.
B– To facilitate soldering operation, mate item 10 on counterpart tool BOUExxMENA01 (xx number of contacts).
C– Solder the wires (protection with heat-shrinkboots recommended).
D– Make a knot strongly tightened with the cable cord and introduce the knot in the slot of the plastic ring 9, cut extra nylon cord.
E– Bring the plastic ring 9 on the head of plug 10.
F– Slide the stop cable 8 on the plastic ring 9.
G– Spread the cable shield on the stop cable 8 and maintain it with the cable clamp 7.
H– Cut the extra cable shield.
I– Slide the tightening cone 6, then the cable clamp nut 5 and screw it on the stop cable 8.
J– Screw the backshell body 4 on the head of plug 10 mounted on the counterpart tool BOUExxMENA01.
K– Introduce the end of the sleeve 3 inside the backshell body 4. Put the locking washer in its place on the sleeve 3.
L– Screw the locking nut 1 on the backshell body 4 with a dynamometric key, tightening torque : 6N.m

ATTENTION : These information are only for information, procedure may vary following the type of cable and the number of contacts.

Cabling overview for CMA RA18-XXX and CMA RA24-XXX backshells

1

-Prepare cable and backshell items (metallic clamp and heat shrink boot not included in the backshell part number)
-Solder the cable wires on the connector contacts

2

-Tighten (with the recommanded torque) the backshell on the connector.
-Tighten the metallic clamp to fix the cable shield on the backshell knurled area.
-Cover with a heat shrink boot, a molded part or proceed an overmolding operation.

Cabling overview of CMA RAIXX backshells

1

-Prepare cable and backshell items
-Solder the cable wires on the connector contacts

2

-Tighten (with the recommanded torque) the backshell on the connector.
-Bring the assembly 'Ferrule-shield-cable ' in position inside the backshell pulling on the cable.
-Proceed the crimping operation following the datasheet and the recommended tools.

3

-Bring the Orings and the elastomer sleeve in position.

Cabling overview of CMA RA81-XXX backshells

1

-Prepare cable and backshell items
-Solder the cable wires on the connector contacts

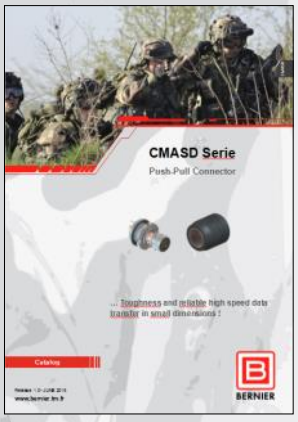
2

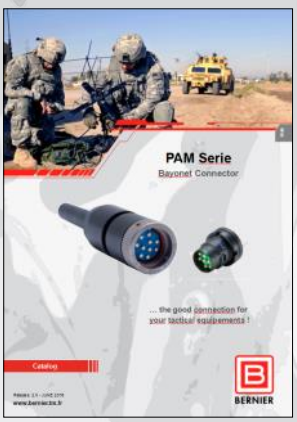
-Tighten (with the recommanded torque) the backshell free ring on the connector giving the orientation wanted. (Orientation of the elbow by angle of 20°).
-Tighten the metallic clamp to fix the cable shield on the backshell knurled area.
-Cover with a heat shrink boot, a molded part or proceed an overmolding operation.

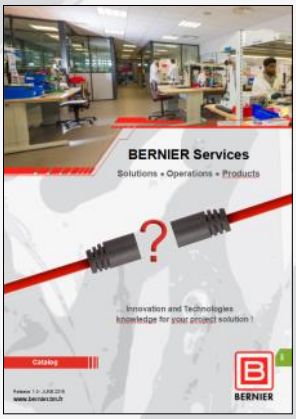
Catalogs

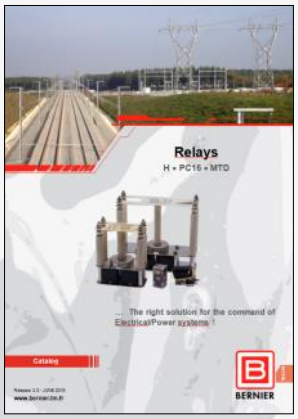
Ask for our other catalogs :

CMA









Find more on

www.bernier.tm.fr

All information contained in this catalogue can be changed without prior notice

Dimensions in mm

BERNIER Relais et Connecteurs 2 rue du Languedoc 91220 BRETIGNY SUR ORGE FRANCE
Tel : 33 (0)1 60 84 21 40 Fax : 33 (0)1 60 84 43 81 info@bernier.tm.fr

BERNIER