CGL

INDUSTRIAL POWER INPUT CONNECTORS UP TO 700 V

CL-3/1297

ITT Cannon

Contents

Introduction

The CGL series from ITT Cannon offers:

- DIN/VDE and IEC conform solutions for 200 – 500 V (First catalogue section page 3 – 17)
- DIN/VDE and IEC conform solutions for 700 V (second catalogue section page 18 – 26).
- CE conformity (all available versions conform to the specifications behind the European legislation, however no CE lettering on the connectors)

Power input connectors CGL are available in following shell styles:

Wall mounting receptacle with PG adapter
Cable connecting receptacle with PG adapter
Box mounting receptacle
Straight plug with PG adapter
Plug with 90° PG adapter

CGL power input connectors are preferably available with threaded coupling. However also a range of bayonet coupling connectors can be offered.

Basic Connector features versus relevant specifications

All plugs and receptacles are equipped with a first mate grounding contact securely linked to the connector shell. Early mate grounding safety option protects human live in case of mis-handling (e.g. unmating of the connector under load).

DIN/VDE 0627 5.4.3.
Draft: IEC512-25-1
DIN/VDE 0100 Part 410.
Avoidance of any safety hazard

For sealing reasons only PG adapters or the universal endbell can be applied (see page 10). Cable sealing is achieved by a normal gland nut.

DIN 40050
IP protection

Entire design of the connector including a. m. features and the shielding options guarantee CE conformity.

Draft: IEC512-25-1 (low voltage guideline)
EMI test specifications:
EN55011
EN50081
EN50082

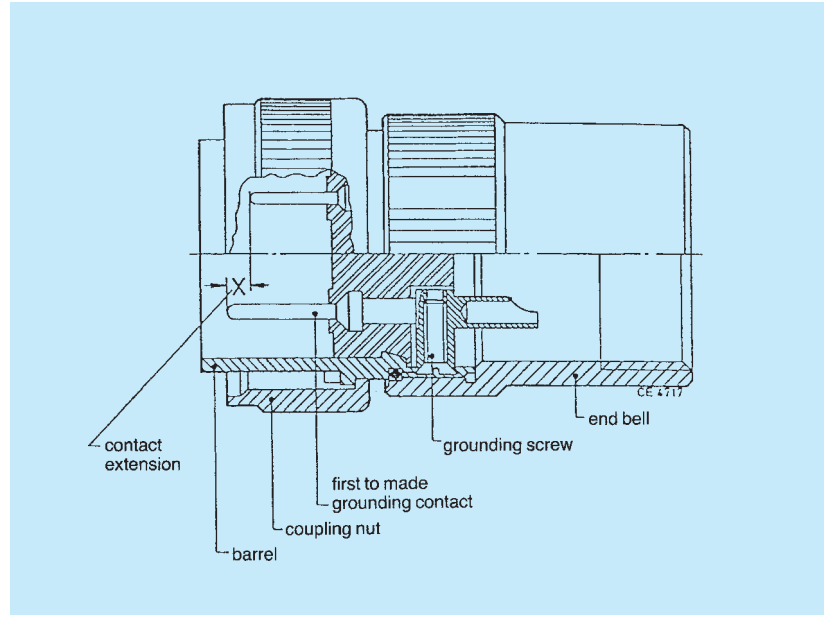
Features

CGL

- Thread coupling
- Mateable with all connectors acc. to MIL-C-5015 or with series CA and CA-COM
- Optional with solder or crimp contacts
- Ground contact conductively connected with shell is a first-to-mate contact
- High mechanical strength (shell parts of an aluminum alloy)
- Shell surface nickel plated
- Resilient insulator (polychloroprene) for extreme temperatures (– 55/125°C)
- Resistant against aggressive fluids (fuel, lubricants, etc.)
- Environmental – with PG adapter
- Min. 500 mating cycles
- Waterproof JP 65

CGL-Bayonet

- Bayonet coupling
- Mateable with all connectors acc. to VG 95234 or with series CA-Bayonet
- Optional with solder or crimp contacts
- Ground contact conductively connected with shell is a first-to-mate contact
- High mechanical strength (shell parts of an aluminum alloy)
- Shell surface nickel plated
- Resilient insulator (polychloroprene) for extreme temperatures (– 55/125°C)
- Resistant against aggressive fluids (fuel, lubricants, etc.)
- Environmental – with PG adapter
- Min. 500 mating cycles
- Waterproof JP 67



How to Order

First Step

Choose number of contacts and wire size

Second Step

Select contact arrangement, see pages 8 – 9
Please note that the order references are extensively alleged

Third Step

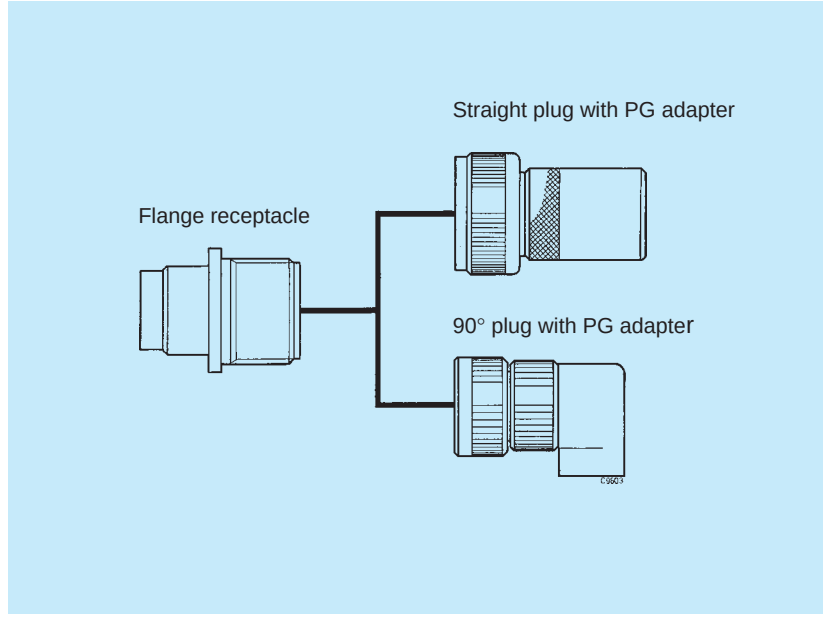
Select shell style,
see pages 10 – 15 for receptacles and plugs

Fourth Step

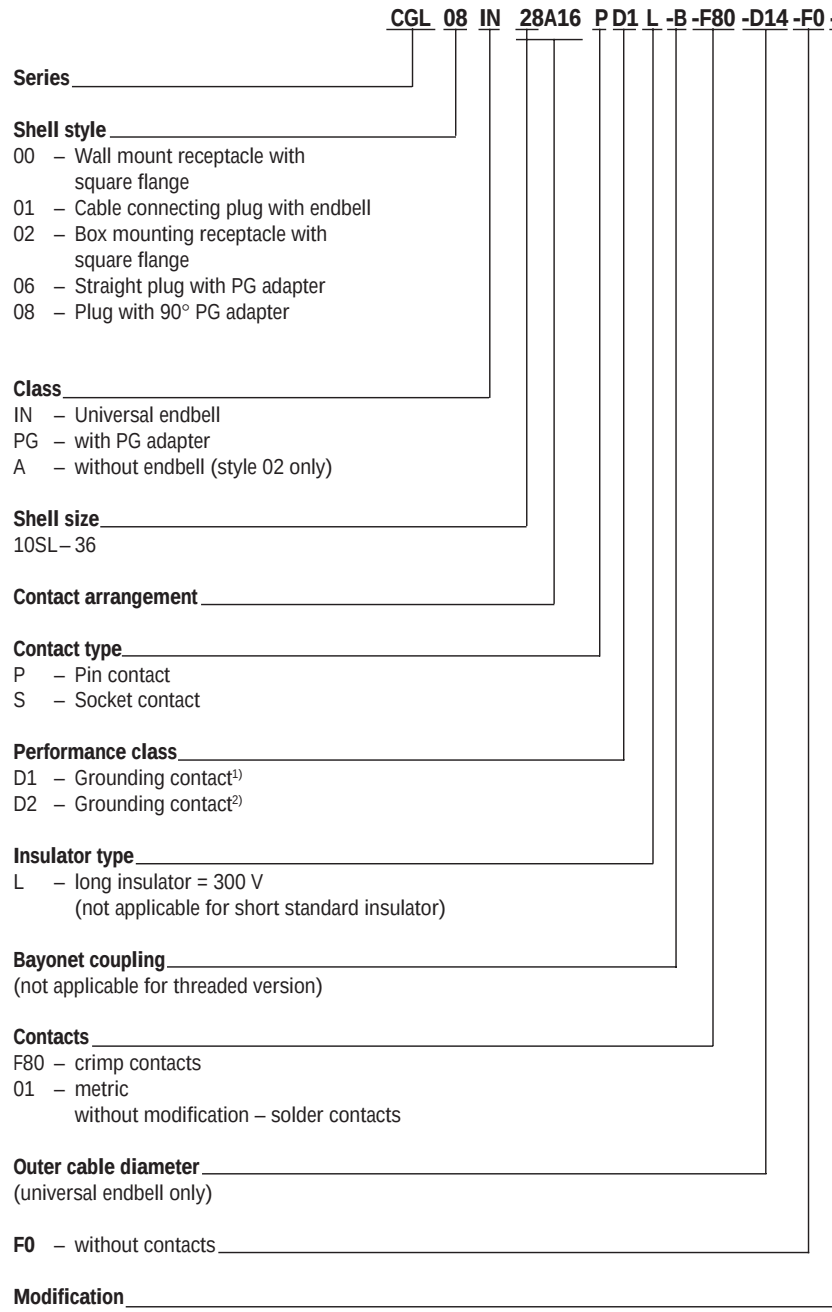
Combine shell style and contact arrangement, see Order Reference Explanation on page 5

Fifth Step

Choose Modification if required



Part Number Explanation



1) Grounding contact conductively linked to shell, e.g. in cavity D, but cavity may change according to layout

2) First-to-mate / last-to-break grounding contact in cavity D. Not connected to shell. Cavity can be determined by the customer.

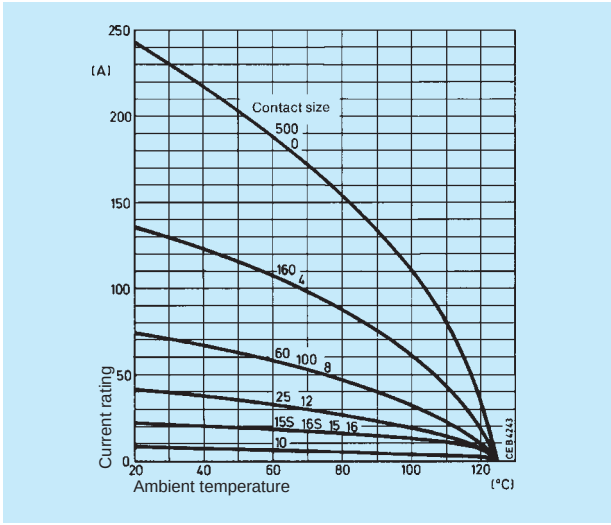
Electrical Data

Contact rating at 20°C (68°F)

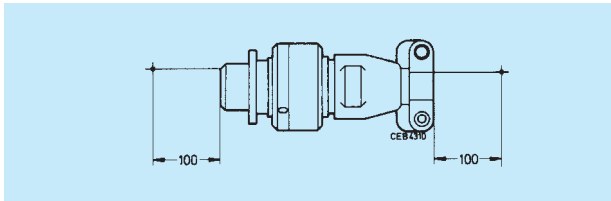
Contact size AWG/metric	Rated Current A max
-/10	8
16S/15S	22
16/15	22
12/25	41
8/60/100	74
4/160	135
0/500	245

Air and creepage paths, test and operating voltage see under Contact Arrangements on page 8 – 9

Current rating



Contact resistance
The contact resistance has to be tested acc. to VG 95319 Part 2, Test no 5.10.1



Contact size metric	AWG	Contact resistance mΩ max
10	–	12
15S/15	16S/16	6
25	12	3
60/100	8	1
160	4	0,3
500	0	0,2

Mechanical Features

Ambient temperature
– 55/1215°C (– 67/257°F)

Safety provisions
IP 67 acc. to DIN 40 050 (1 bar pressure within 12 hours) – bayonet coupling
IP 65 acc. to DIN 40 050 – threaded coupling

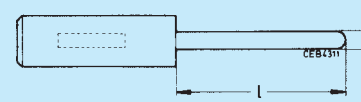
Vibration test
200 m/s² at 10 – 2000 hours

Mating cycles
min 500

Separating force per contact
The separating force has to be measured acc. to VG 95319 Part 2, Test No 5.7. using the required test gage.

Contact size metric	Separating force AWG	N min	Gage
10	–	0,3	G 0,99
15S/15	16S/16	1,0	G 1,56
25	12	1,5	G 2,36
60/100	8	3,0	G 3,58
160	4	4,0	G 5,69
500	0	8,5	G 9,04

Gage
see also VG 95234 Part 1

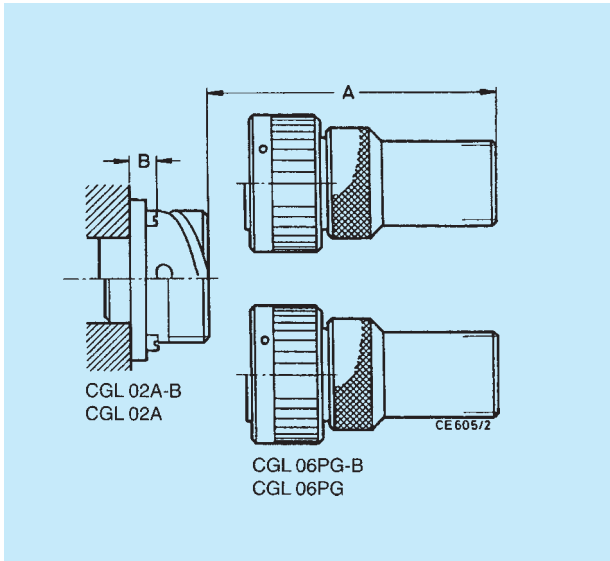


Gage	Contact dia. d +0,01	l –1
G 0.99	0,99 (.039)	7 (.276)
G 1.56	1,56 (.061)	9 (.354)
G 2.36	2,36 (.093)	12 (.472)
G 3.58	3,58 (.141)	13 (.512)
G 5.69	5,69 (.224)	13 (.512)
G 9.04	9,04 (.356)	13 (.512)

Contact retention
The contact retention has to be tested acc. to VG 95319 Part 2, Test No 5.4. Apply test force in mating direction.

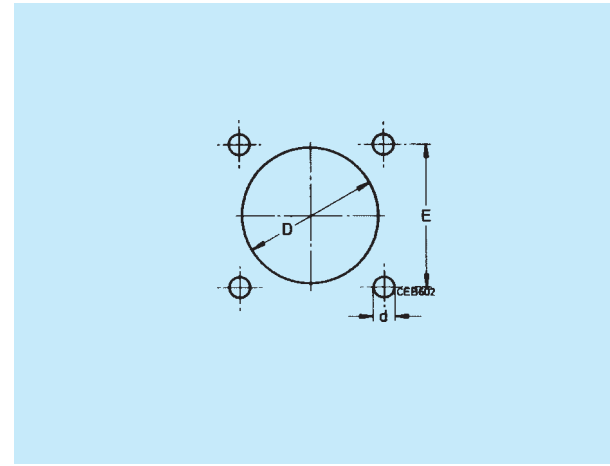
Contact size metric	AWG	Test force N
10	–	30
15S/15	16S/16	35
25	12	55
60/100	8	80
160	4	90
500	0	95

Separating and mating force



Shell size	A min.	B max
12S	80 (3.150)	7,2 (.283)
14S	80 (3.150)	7,2 (.283)
16S	80 (3.150)	7,2 (.283)
16	90 (3.543)	7,2 (.283)
18	90 (3.543)	7,2 (.283)
20	100 (3.937)	7,2 (.283)
22	100 (3.937)	8,0 (.315)
24	110 (4.331)	9,5 (.374)
28	110 (4.331)	9,5 (.374)

Monting dimension



Mounting holes for box mounting connectors
Style CGL02/CGL02-B

Shell size	CGL02/CGI02-B D H 12	d H 13	E ± 0.1
12S	16,4 (.646)	3,4 (.134)	20,6 (.811)
14S	19,7 (.776)	3,4 (.134)	23,0 (.906)
16S/16	22,9 (.902)	3,4 (.134)	24,6 (.969)
18	26,1 (1.028)	3,4 (.134)	27,0 (1.063)
20	29,5 (1.161)	3,4 (.134)	29,4 (1.157)
22	32,7 (1.287)	3,4 (.134)	31,8 (1.252)
24	36,0 (1.471)	3,9 (.154)	34,9 (1.374)
28	42,0 (1.654)	3,9 (.154)	39,7 (1.563)

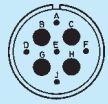
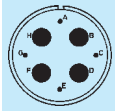
Coupling torques

The allowable coupling torques have to be tested under full bundle conditions of the connectors acc. to VG 95319 Part2, Test No 5.8.2.

Shell size	Allowable coupling torque Nm Opening Closing and opening max		min
	CGL	CGL-B	CGL/CGL-B
12S	2,8	2,8	0,23
14S	3,8	3,0	0,35
16S/16	6,0	3,5	0,46
18	9,0	4,0	0,58
20	10,0	4,5	0,7
22	13,0	5,0	0,8
24	16,0	6,0	0,8
28	20,0	7,0	0,92

Shell size	Contact arrangement	**Contact arrangement designation**	Contact number *Contact size*	Grounding contact in cavity (FMLB contact*)	Admissible operating voltage short insulator VAC	long insulator VAC	Available connectors
10SL		**10SL-3**	3 *16*	C (pin)	–	250	CGL02A10SL-3*-C1L-*** CGL06PG10SL-3*-C1L-*** CGL08PG10SL-3*-C1L-***
18		**18-10**	4 *12*	D (socket)	–	500	CGL02A18-10*-D1L-*** CGL06PG18-10*-D1L-*** CGL08PG10SL-10*-D1L-***
		**18-11**	5 *12*	C E (pin)	230	400	CGL02A18-11**-C1L-*** CGL02A18-11**-E1-*** CGL06PG18-11**-C1L-*** CGL06PG18-11**-E1-*** CGL08PG18-11**-C1L-*** CGL08PG18-11**-E1-***
20		**20-3**	3 *12*	B (pin)	380	–	CGL02A20-3*-B1-*** CGL06PG20-3*-B1-*** CGL08PG20-3*-B1-***
		**20-15**	7 *12*	E (pin)	230	–	CGL02A20-15*-E1-*** CGL06PG20-15*-E1-*** CGL08PG20-15*-E1-***
		**20-17**	6 1 x *16* 5 x *12*	C (pin)	230	–	CGL02A20-17*-C1-*** CGL06PG20-17*-C1*** CGL08PG20-17*-C1-***
22		**22-16**	9 6 x *16* 3 x *12*	D (pin)	230	–	CGL02A22-16*-D1-*** CGL06PG22-16*-D1-*** CGL08PG22-16*-D1-***
		**22-22**	4 8	D (socket)	–	500	CGL02A22-22*-D1L-*** CGL06PG22-22*-D1L-*** CGL08PG22-22*-D1L-***

*First Mate / Last Break Contact

Shell size	Contact arrangement	**Contact arrangement designation**	Contact number *Contact size*	Grounding contact in cavity (FMLB contact*)	Admissible operating voltage short insulator VAC	long insulator VAC	Available connectors
22		**22-23**	8 *12*	F (pin)	–	400	CGL02A22-23*-F1L-*** CGL06PG22-23*-F1L-*** CGL08PG22-23*-F1L-***
24		**24-10**	7 *8*	G (pin)	–	400	CGL02A24-10*-G1L-*** CGL06PG24-10*-G1L-*** CGL08PG24-10*-G1L-***
		**24-11**	8 6 x *12* 2 x *8*	G (pin)	230	–	CGL02A24-11*-G1-*** CGL06PG24-11*-G1-*** CGL08PG24-11*-G1-***
28		**28A16**	9 4 x *4* 5 x *16*	B (pin)	–	400	CGL02A28A16*-B1L-*** CGL06PG28A16*-B1L-***
36		**36A35**	8 4 x *0* 4 x *16*	D (pin)	–	400	CGL02A36A35*-D1L-***

*First Mate / Last Break Contact

Admissible Operating Voltage
The admissible operating voltages indicated in this catalogue are mainly based on customer information for certain projects.

The opposite table indicates the actual value for the air and creepage paths and can be used as a calculation basis in connection with the DIN/VDE 0110 issue 1989.

Bases and assumptions
The pollution degree for industrial plants is normally “3”.
However, the calculation of the admissible operating voltage is based on the pollution degree “2”, as the connectors are completely sealed and the contact parts are not subject to direct contamination or humidity.

Overvoltage category 230/400	III
Overvoltage category 700	III
Insulation class 230/400 V	III
Insulation class 700 V	II

Contact arrangement	Min. Air path Mating face* L-L	L-E	Min. Creepage path Mating face* L-L	L-E	Rated Voltage V Class
10SL-3	3,3 (.1299)	3,3 (.1299)	3,3 (.1299)	3,3 (.1299)	250
18-10	5,0 (.1968)	5,0 (.1968)	5,0 (.1968)	5,0 (.1968)	500
18-11	2,6 (.1023)	2,6 (.1023)	2,6 (.1023)	2,6 (.1023)	250
18-11	5,0 (.1968)	5,0 (.1968)	5,0 (.1968)	5,0 (.1968)	500
20-3	5,0 (.1968)	5,0 (.1968)	5,0 (.1968)	5,0 (.1968)	500
20-15	3,0 (.1181)	3,0 (.1181)	3,0 (.1181)	3,0 (.1181)	300
20-17	3,6 (.1417)	3,6 (.1417)	3,6 (.1417)	3,6 (.1417)	300
22-16	2,6 (.1023)	2,6 (.1023)	2,6 (.1023)	2,6 (.1023)	250
22-22	6,1 (.2401)	5,4 (.2126)	6,1 (.2401)	5,4 (.2126)	500
22-23	4,3 (.1693)	4,0 (.1575)	4,3 (.1693)	4,3 (.1693)	400
24-10	5,3 (.2087)	4,2 (.1653)	5,3 (.2087)	4,2 (.1653)	400
24-11	2,6 (.1023)	2,6 (.1023)	2,6 (.1023)	2,6 (.1023)	250
28A16	8,0 (.3150)	4,6 (.1811)	8,0 (.3150)	4,6 (.1811)	400
36A35	5,8 (.2283)	8,4 (.3307)	5,8 (.2283)	8,4 (.3307)	400

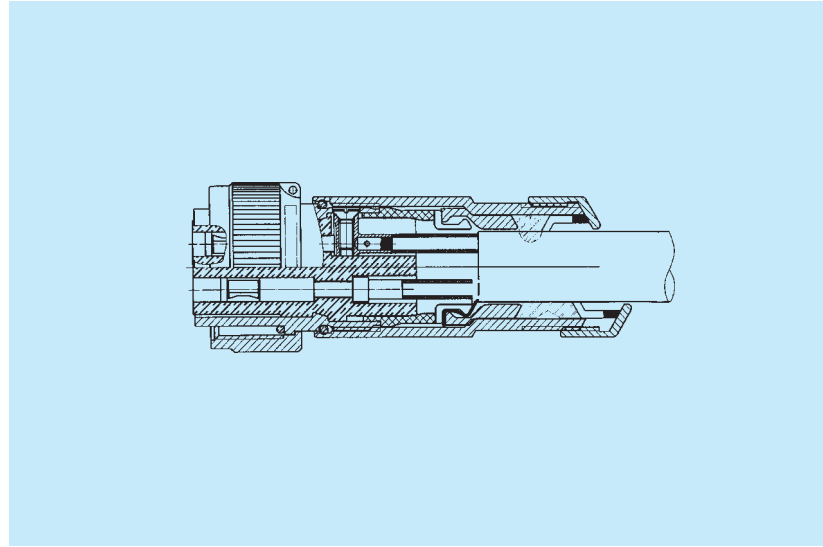
* For the calculation of the smaller air and creepage paths it is supposed that after termination of the contacts shrink boots are fixed to the crimp and conductor area, thus enlarging the creepage paths accordingly.

Connector with universal endbell

Straight plug

Connectors with universal endbell contribute to fulfill the EMC requirements (see Introduction page 2). They process shielded system cables, achieving fast and safe contact shielding and optimum sealing simultaneously.

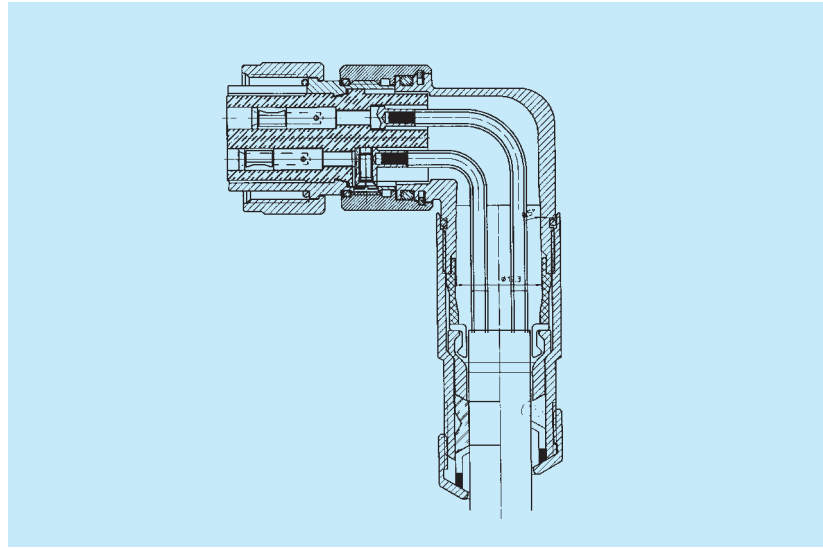
CGL06IN10SL-3*-IC7
CGL06IN18-10*-1DL-14
CGL06IN18-11*-1DL-14
CGL06IN22-22*-1D-18
CGL06IN22-23*-1FL-18



The outer dimension are same as CA06PG

90° Plug

CGL08IN10SL.3*-C1-7
CGL08IN18-10*-D1L-14
CGL08IN18-11*-D1L-14
CGL08IN22-22*-D1-18
CGL08IN22-23*-F1L-18



The outer dimension are same as CA06PG

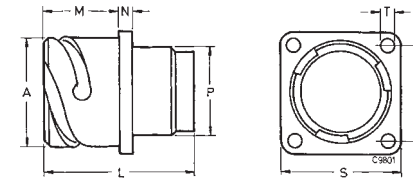
The straight connectors are available in March 1998, the 90° connectors in May 1998.

Box Mounting Receptacle, Class E

CGL02A-B

with bayonet coupling

CGL02-B is a box mounting receptacle for front panel mounting. It mates with plugs **CGL06-B** and **CGL08-B**

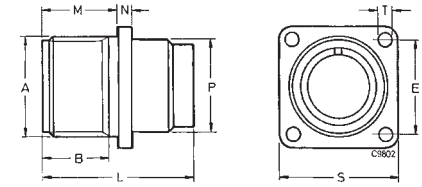


Part No. Pin insert	A – 0,15 (.006)	E ±0,1 (.004)	L ±0,3 (.012)	M + 0,4 (.016)	N ±0,2 (.008)	P max	S ±0,3 (.012)	T H13
CGL02A18-11P-C1L-B	30,8 (1.213)	27,0 (1.063)	46,0 (1.811)	19,0 (.748)	4,0 (.157)	25,6 (1.008)	35,0 (1.378)	3,2 (.126)
CGL02A18-11P-E1-B	30,8 (1.213)	27,0 (1.063)	33,8 (1.331)	19,0 (.748)	4,0 (.157)	25,6 (1.008)	35,0 (1.378)	3,2 (.126)
CGL02A20-3P-B1-B	34,2 (1.346)	29,4 (1.157)	33,8 (1.331)	19,0 (.748)	4,0 (.157)	29,0 (1.142)	38,0 (1.496)	3,2 (.126)
CGL02A20-17P-C1-B	34,2 (1.346)	29,4 (1.157)	33,8 (1.331)	19,0 (.748)	4,0 (.157)	29,0 (1.142)	38,0 (1.496)	3,2 (.126)
CGL02A22-22P-D1L-B	37,4 (1.472)	31,8 (1.252)	46,0 (1.811)	19,0 (.748)	4,0 (.157)	32,2 (1.268)	41,0 (1.614)	3,2 (.126)
CGL02A36A35P-D1L-B	59,6 (2.346)	49,2 (1.929)	46,0 (1.811)	22,4 (.882)	4,0 (.157)	54,1 (2.130)	63,5 (2.500)	4,3 (.169)

CGL02A

with threaded coupling

CGL02 is a box mounting receptacle for front panel mounting. It mates with plugs **CGL06** and **CGL08**



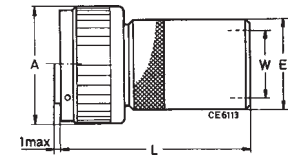
Part No. Pin insert	A Thread	B min	E ±0,1 (.004)	L max	M + 0,4 (.016)	N ±0,7 (.028)	P max	S ±0,3 (.012)	T + 0,2/– 0,1 (.008/.004)
CGL02A10SL-3P-C1L-*	5/8-24NEF-2A	9,5 (.374)	18,2 (.716)	35,0 (1.378)	14,2 (.559)	3,0 (.118)	15,9 (.626)	25,4 (1.000)	3,1 (.122)
CGL02A18-10P-D1L-*	1-1/8-18UNEF-2A	15,8 (.622)	27,0 (1.063)	46,0 (1.811)	19,0 (.748)	3,9 (.154)	25,4 (1.000)	35,0 (1.378)	3,1 (.122)
CGL02A18-11P-C1L-*	1-1/8-18UNEF-2A	15,8 (.622)	27,0 (1.063)	46,0 (1.811)	19,0 (.748)	3,9 (.154)	25,4 (1.000)	35,0 (1.378)	3,1 (.122)
CGL02A18-11P-E1-*	1-1/8-18UNEF-2A	15,8 (.622)	27,0 (1.063)	34,6 (1.362)	19,0 (.748)	3,9 (.154)	25,4 (1.000)	35,0 (1.378)	3,1 (.122)
CGL02A20-3P-B1-*	1-1/4-18UNEF-2A	15,8 (.622)	29,4 (1.157)	34,6 (1.362)	19,0 (.748)	3,9 (.154)	25,4 (1.000)	38,0 (1.496)	3,1 (.122)
CGL02A20-15P-E1-*	1-1/4-18UNEF-2A	15,8 (.622)	29,4 (1.157)	34,6 (1.362)	19,0 (.748)	3,9 (.154)	25,4 (1.000)	38,0 (1.496)	3,1 (.122)
CGL02A20-17P-C1-*	1-1/4-18UNEF-2A	15,8 (.622)	29,4 (1.157)	34,6 (1.362)	19,0 (.748)	3,9 (.154)	29,0 (1.142)	38,0 (1.496)	3,1 (.122)
CGL02A22-16P-D1-*	1-3/8-18UNEF-2A	15,8 (.622)	31,8 (1.252)	34,6 (1.362)	19,0 (.748)	3,9 (.154)	32,2 (1.268)	41,0 (1.614)	3,1 (.122)
CGL02A22-22P-D1L-*	1-3/8-18UNEF-2A	15,8 (.622)	31,8 (1.252)	46,0 (1.811)	19,0 (.748)	3,9 (.154)	32,2 (1.268)	41,0 (1.614)	3,1 (.122)
CGL02A22-23P-F1L-*	1-3/8-18UNEF-2A	15,8 (.622)	31,8 (1.252)	46,0 (1.811)	20,6 (.811)	3,9 (.154)	35,3 (1.390)	44,5 (1.752)	3,7 (.146)
CGL02A24-10P-G1L-*	1-3/8-18UNEF-2A	15,8 (.622)	34,9 (1.374)	46,0 (1.811)	20,6 (.811)	3,9 (.154)	35,3 (1.390)	44,5 (1.752)	3,7 (.146)
CGL02A24-11P-G1-*	1-3/8-18UNEF-2A	15,8 (.622)	34,9 (1.374)	46,0 (1.811)	20,6 (.811)	3,9 (.154)	35,3 (1.390)	44,5 (1.752)	3,7 (.146)
CGL02A28-A16P-B1L-*	1-1/2-18UNEF-2A	15,8 (.622)	39,7 (1.563)	46,0 (1.811)	20,6 (.811)	3,9 (.154)	41,2 (1.622)	44,5 (1.752)	3,7 (.146)

Straight Plug, Class PG

CGL06PG-B

with bayonet coupling

CGL06PG-B designates a straight plug for the use of heat shrink boots or PG terminations. It mates with receptacle **CGL02A-B**.

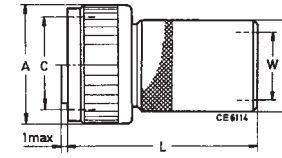


Part No. Socket insert	A max	E max	L max	W PG Thread
CGL06PG18-11S-C1L-B*	36,5 (1.437)	18 (.709)	70 (2.756)	PG21
CGL06PG18-11S-E1-B*	36,5 (1.437)	32 (1.260)	70 (2.756)	PG21
CGL06PG20-3S-B1-B*	39,9 (1.571)	32 (1.260)	70 (2.756)	PG21
CGL06PG20-17S-C1-B*	39,9 (1.571)	32 (1.260)	70 (2.756)	PG21
CGL06PG22-22S-D1L-B*	43,1 (1.697)	32 (3.228)	70 (2.756)	PG21
CGL06PG28A16S-B1L-B*	53,4 (2.102)	50 (1.969)	77 (3.031)	PG36
CGL06A36A35S-D1L-B*	53,4 (2.102)	60 (2.362)	99 (3.898)	PG42

CGL06PG

with threaded coupling

CGL06PG designates a straight plug for the use of heat shrink boots or PG terminations. It mates with receptacle **CGL02A**.



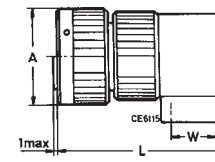
Part No. Socket insert	A max	C Thread	E	L max	W PG Thread
CGL06PG10SL-3S-C1L-*	22,8 (.898)	5/4-24NEF-F2B	18 (.707)	60 (2.362)	PG9
CGL06PG18-10S-D1L-*	36,5 (1.437)	1-1/8-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG18-11S-C1L-*	36,5 (1.437)	1-1/8-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG18-11S-E1-*	36,5 (1.437)	1-1/8-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG20-3S-B1-*	39,9 (1.571)	1-1/4-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG20-15S-E1-*	39,9 (1.571)	1-1/4-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG20-17S-C1-*	39,9 (1.571)	1-1/4-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG22-16S-D1-*	43,1 (1.697)	1-3/8-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG22-22S-D1L-*	43,1 (1.697)	1-3/8-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG22-23S-F1L-*	43,1 (1.697)	1-3/8-18NEF-2B	32 (1.260)	70 (2.756)	PG21
CGL06PG24-10S-G1L-*	46,6 (1.835)	1-1/2-18NEF-2B	40 (1.575)	72 (2.835)	PG29
CGL06PG24-11S-G1-*	46,6 (1.835)	1-1/2-18NEF-2B	40 (1.575)	72 (2.835)	PG29
CGL06PG28A16S-B1L-*	53,4 (2.102)	1-3/4-18NS-2B	50 (1.969)	77 (3.031)	PG36

90° Plug, Class PG

CGL08PG-B

with bayonet coupling

CGL08PG-B designates a 90° plug for the use of heat shrink boots or PG terminations. It mates with receptacle **CGL02A-B**.

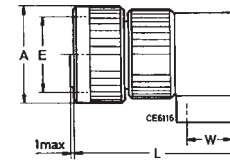


Best-Nr. Socket insert	A max.	L max.	W PG Thread
CGL08PG18-11S-C1L-B	36,5 (1.437)	77 (3.031)	PG16
CGL08PG18-11S-E1-B	36,5 (1.437)	77 (3.031)	PG16
CGL08PG20-3S-B1-B	39,9 (1.571)	77 (3.031)	PG16
CGL08PG20-17S-C1-B	39,9 (1.571)	82 (3.228)	PG21
CGL08PG22-22S-D1L-B	43,1 (1.697)	82 (3.228)	PG21

CGL08PG

with threaded coupling

CGL08PG designates a 90° plug for the use of heat shrink boots or PG terminations. It mates with receptacle **CGL02A**.

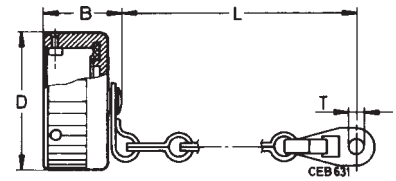


Part No. Socket insert	A max.	E Thread	L max.	W PG Thread
CGL08PG10SL-3S-C1L-*	22,8 (.898)	5/8-24NEF-2B	65 (2.559)	PG9
CGL08PG18-10S-D1L-*	36,5 (1.437)	1-1/8-18NEF-2B	77 (3.031)	PG16
CGL08PG18-11S-C1L-*	36,5 (1.437)	1-1/8-18NEF-2B	77 (3.031)	PG16
CGL08PG18-11S-E1-*	36,5 (1.437)	1-1/8-18NEF-2B	77 (3.031)	PG16
CGL08PG20-3S-B1-*	39,9 (1.571)	1-1/4-18NEF-2B	77 (3.031)	PG21
CGL08PG20-15S-E1-*	39,9 (1.571)	1-1/4-18NEF-2B	77 (3.031)	PG21
CGL08PG20-17S-C1-*	39,9 (1.571)	1-1/4-18NEF-2B	77 (3.031)	PG21
CGL08PG22-16S-D1-*	43,1 (1.697)	1-3/8-18NEF-2B	82 (3.228)	PG21
CGL08PG22-22S-D1L-*	43,1 (1.697)	1-3/8-18NEF-2B	82 (3.228)	PG21
CGL08PG22-23S-F1L-*	43,1 (1.697)	1-3/8-18NEF-2B	82 (3.228)	PG21

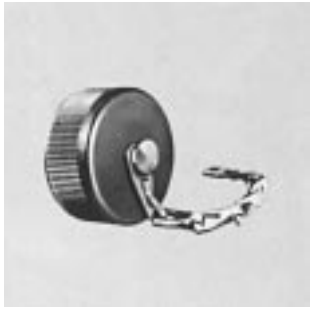
Accessories

Protective caps

for receptacles with bayonet coupling

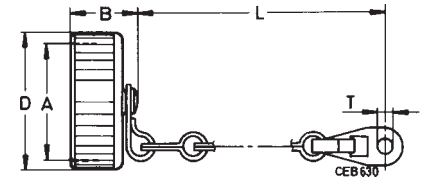


Part No.	Shell size	B ±0,3 (.012)	D max	L ±0,25 (.010)	T +0,25 (.010)
CA121003-701	10SL	19,5 (.768)	23,4 (.921)	100 (3.937)	4,3 (.169)
CA121003-702	12S	19,5 (.768)	26,6 (1.047)	100 (3.937)	4,3 (.169)
CA121003-703	14S	19,5 (.768)	29,8 (1.173)	100 (3.937)	4,3 (.169)
CA121003-704	16S	19,5 (.768)	32,6 (1.283)	100 (3.937)	4,3 (.169)
CA121003-705	16	24,5 (.965)	32,6 (1.283)	113 (4.449)	4,3 (.169)
CA121003-706	18	24,5 (.965)	36,7 (1.445)	113 (4.449)	4,3 (.169)
CA121003-707	20	24,5 (.965)	40,1 (1.579)	127 (5.000)	4,3 (.169)
CA121003-708	22	24,5 (.965)	43,3 (1.705)	127 (5.000)	4,3 (.169)
CA121003-709	24	24,5 (.965)	46,8 (1.843)	127 (5.000)	4,3 (.169)
CA121003-710	28	24,5 (.965)	52,6 (2.071)	169 (6.654)	5,5 (.216)
CA121003-711	32	24,5 (.965)	59,3 (2.335)	169 (6.654)	5,5 (.216)
CA121003-712	36	24,5 (.965)	65,5 (2.579)	169 (6.654)	5,5 (.216)



Protective caps

for receptacles with threaded coupling

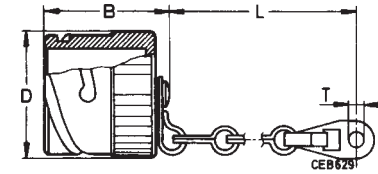


Part No.	Shell size	A Thread	B max	D max	L max	T +0,2
CA121003-601	10SL	5/8-20UNEF-2B	11,7 (.461)	20,2 (.795)	107 (4.213)	3,9 (.154)
CA121003-602	12S	3/4-20UNEF-2B	11,7 (.461)	23,4 (.921)	120 (4.724)	3,9 (.154)
CA121003-603	14S	7/8-20UNEF-2B	11,7 (.461)	26,6 (1.047)	120 (4.724)	3,9 (.154)
CA121003-604	16S,16	1-20UNEF-2B	11,7 (.461)	29,8 (1.173)	120 (4.724)	3,9 (.154)
CA121003-606	18	1-1/8-20NEF-2B	11,7 (.461)	32,9 (1.295)	120 (4.724)	3,9 (.154)
CA121003-607	20	1-1/4-18NEF-2B	11,7 (.461)	36,1 (1.421)	134 (5.276)	4,7 (.185)
CA121003-608	22	1-3/8-18NEF-2B	11,7 (.461)	39,4 (1.551)	134 (5.276)	4,7 (.185)
CA121003-609	24	1-1/2-18NEF-2B	11,7 (.461)	42,6 (1.677)	147 (5.787)	4,7 (.185)
CA121003-610	28	1-3/4-18NS-2B	13,3 (.524)	48,9 (1.925)	207 (8.150)	4,7 (.185)
CA121003-611	32	2-18NS-2B	13,3 (.524)	55,3 (2.177)	207 (8.150)	5,5 (.217)
CA121003-612	36	2-1/4-16UN-2B	13,3 (.524)	61,6 (2.425)	207 (8.150)	5,5 (.217)

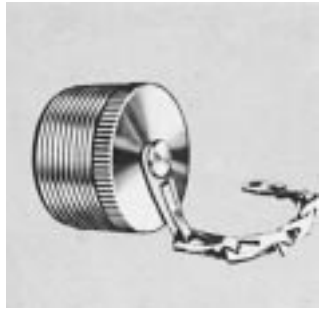
Accessories

Protective caps

for plugs
with bayonet coupling

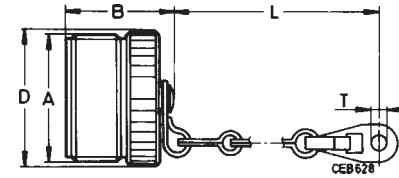


Part No.	Shell size	B max	D max	L ca.	T +0,5 (.020)
CA121004-701	10SL	29,0 (1.142)	20,7 (.815)	100 (3.937)	4,3 (.169)
CA121004-702	12S	29,0 (1.142)	23,9 (.941)	113 (4.449)	4,3 (.169)
CA121004-703	14S	29,0 (1.142)	27,1 (1.067)	113 (4.449)	4,3 (.169)
CA121004-704	16S	29,0 (1.142)	29,9 (1.177)	113 (4.449)	4,3 (.169)
CA121004-705	16	37,0 (1.457)	29,9 (1.177)	127 (5.000)	4,3 (.169)
CA121004-706	18	37,0 (1.457)	33,3 (1.311)	127 (5.000)	4,3 (.169)
CA121004-707	20	37,0 (1.457)	36,7 (1.445)	140 (5.512)	4,7 (.185)
CA121004-708	22	37,0 (1.457)	39,9 (1.571)	140 (5.512)	4,7 (.185)
CA121004-709	24	37,0 (1.457)	43,4 (1.709)	140 (5.512)	4,7 (.185)
CA121004-710	28	37,0 (.1457)	49,2 (1.937)	197 (7.756)	4,7 (.185)
CA121004-711	32	37,0 (.1457)	55,9 (2.201)	197 (7.756)	5,5 (.217)
CA121004-712	36	37,0 (.1457)	62,1 (2.445)	197 (7.756)	5,5 (.217)



Protective caps

for plugs
with threaded coupling



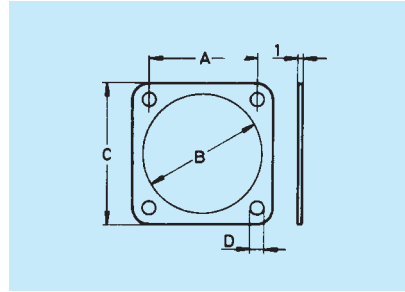
Part No.	Shell size	A Thread	B max	D max	L max	T +0,4 (.016)
CA121004-601	10SL	5/8-24NEF-2A	20,5 (.807)	16,7 (.657)	107 (4.213)	3,8 (.150)
CA121004-602	12S	3/4-20UNEF-2A	25 (.984)	19,8 (.780)	120 (4.724)	3,8 (.150)
CA121004-603	14S	7/8-20UNEF-2A	25 (.984)	23,0 (.906)	120 (4.724)	3,8 (.150)
CA121004-604	6S, 16	1-20UNEF-2A	25 (.984)	26,2 (1.031)	120 (4.724)	3,8 (.150)
CA121004-606	18	1-1/8-18NEF-2A	25 (.984)	29,4 (1.157)	120 (4.724)	3,8 (.150)
CA121004-607	20	1-1/4-18NEF-2A	25 (.984)	32,5 (1.280)	134 (5.276)	4,6 (.181)
CA121004-608	22	1-3/8-18NEF-2A	25 (.984)	35,7 (1.406)	134 (5.276)	4,6 (.181)
CA121004-609	24	1-1/2-18NEF-2A	25 (.984)	38,9 (1.531)	147 (5.787)	4,6 (.181)
CA121004-610	28	1-3/4-20NS-2A	25 (.984)	45,2 (1.780)	207 (8.150)	4,6 (.181)
CA121004-611	32	2-18NS-2A	25 (.984)	51,6 (2.031)	207 (8.150)	4,6 (.181)
CA121004-612	36	2-1/4-16UN-2A	25 (.984)	57,9 (2.280)	207 (8.150)	4,6 (.181)

Gaskets

for CGL02/CGL02-B

These sealing gaskets made of neoprene are used with flanged receptacles for sealing between the shell and the flange of the receptacle.

Part No.	Shell size	A ±0,1 (.004)	B +0,2 (.008)	C ±0,3 (.012)	D +0,2 (.008)
075-8513-000	12S/12	20,6 (.811)	18,9 (.744)	28,0 (1.102)	4,2 (.165)
075-8514-000	14S/14	23,0 (.906)	22,1 (.870)	30,0 (1.181)	4,2 (.165)
075-8515-000	16S/16	24,6 (.969)	25,3 (.996)	32,5 (1.280)	4,2 (.165)
075-8516-000	18	27,0 (1.063)	28,4 (1.118)	35,0 (1.378)	4,2 (.165)
075-8517-000	20	29,4 (1.157)	31,6 (1.244)	38,0 (1.496)	4,2 (.165)
075-8518-000	22	31,8 (1.252)	34,8 (1.370)	41,0 (1.614)	4,2 (.165)
075-8519-000	24	34,9 (1.374)	38,0 (1.496)	44,5 (1.752)	4,2 (.165)
075-8520-000	28	39,7 (1.563)	44,3 (1.744)	50,8 (2.000)	4,2 (.165)



Tools

Crimp contacts
For connectors of series CGL crimp contacts with AWG or metric termination size can also be delivered.

In order to wire, insert and extract the contacts, the below mentioned tools are rquired. All tools have to be ordered separately

Crimpwerkzeuge

For contacts 0,75 – 4,0 mm²/AWG 16 – 12		
Hand crimp tool (8-indent crimp)		**M22520/1-01**
Locator for M22520/1-01	0,75 – 1,5 mm² (AWG 16)	**CT120090-10/TH452**
	2,5 – 4,0 mm² (AWG 12)	**CT120090-10/TH452**
Hand crimp tool for ground contacts	0,75 – 1,5 mm² (AWG 16)	**CCT-CGF-E** (Pin and socket)
	2,5 – 4,0 mm² (AWG 12)	
Pneumatic bench press and semiautomatic crimp machine		upon request

For contacts 10 – 16 mm²/AWG 8 – 4	
Electro-hydraulic crimp tools	
● basic model, hand lever operated	**4608.00000.020**
● with electro-magnetic valve, push button operated	**4608.00000-00E**
● with electromagnetic valve and pressure switch device, push-button operated	**4608.00000.00C**
Hand pump	**4601-00000.330**
Foot pedal for hand pump	**4601.51000.330**
High pressure hose, 2 m	**4604.00000.020**
Crimp head	**4632.00000.601**

Hex crimp dies for crimp head		
AWG 8/10	upper part	**317-8531-000**
	lower part	**317-8531-001**
AWG 4/160	upper part	**317-8532-000**
	lower part	**317-8532-001**

Also for ground contacts

Contact insertion tools

0,75 – 1,5 mm²/AWG 16	
including groound contacts	**CIT-F8-16 oder CIT-16**
Guide pin	**226-1017-000**

2,5 – 4,0 mm²/AWG 12	
including ground contacts	**CIT-F80-12 or CIT-12**
Guide pin	**226-1018-000**

10 mm²/AWG 8	
including ground contact	**CIT-8**
Guide pin	**–**

10 – 16 mm²/AWG 4	
including ground contact	**CIT-4**
Guide pin	**–**

Guide pins

To insert socket contacts of size 15S/16/25 und 12 the following guide pins are to be used

Part No.	Contact size AWG	metric
226-1017-000	16S/16	15S/15
226-1018-000	12	25

Contact extraction tools

0,75 – 1,5 mm²/AWG 16	
including ground contacts	**CET-F8-16**

5,0 – 4,0 mm²/AWG 12	
including ground contacts	**CET-F80-12**

10 mm²/AWG 8	
including ground contact	**CET-8**

10 – 16 mm²/AWG 4	
including ground contact	**CET-4**

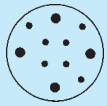
700 V Power Input Connector

Specification	CGL # I (14-8)	CGL # II (28-11)	CGL # III (36-11)
Electrical Conditions			
Operating Voltage	700 VDC	700 VDC	700 VDC
Insulation Category (DIN/VDE 0110)	II	II	II
Degree of Pollution (DIN/VDE 0110)	3	3	3
Rated Insulation Voltage (DIN/VDE 0110)	7,2 KV	7,2 KV	7,2 KV
Insulation Resistance		20 – 80 TΩ (Tera = 10^{12})	
Temperature Range	– 50 / 140° C	– 50 / 140° C	– 50 / 140° C
Current Rating			
Power contacts	22A	41A	100A
Signal contacts	7A	7A	7A
Mating cycles	500	500	500
Degree of Protection by Enclosure			
DIN 40 050	IP67 (mated condition)	IP67 (mated condition)	IP67 (mated condition)
Contact Arrangement/Plating/Termination			
Number of contacts	4 Power, 1 Ground, 4 Signal	3 Power, 1 Ground, 7 Signal	3 Power, 1 Ground, 7 Signal
Contact Plating	Silver	Silver	Silver
Winding Connection R/S/T	Crimp 1,5mm^2	Crimp 1,5/2,5/4/6mm^2 Solder 10 mm^2	Crimp 10/16/25mm^2 Solder 25 mm^2
Grounding (Pin first to mate last to break)	Crimp 1,5mm^2	Crimp 1,5/2,5/4/6mm^2	Crimp 10/16/25mm^2
Signal Contacts	Crimp 0,75mm^2	Crimp 1,5mm^2	Crimp 1,5mm^2
Insulator			
Material	Plastic (UL94-V0)	Plastic (UL94-V0)	Plastic (UL94-V0)
Design	Fully insulated pin contact for increased creepage distance	Fully insulated pin contact for increased creepage distance	Fully insulated pin contact for increased creepage distance
Contact Insertion Extraction Principle	Rear release	Rear release	Rear release
Sealing Gaskets			
Material	Fluor elastomere	Fluor elastomere	Fluor elastomere

700 V Power Input Connector

Specification	CGL # I (14-8)	CGL # II (28-11)	CGL # III (36-11)
Receptacle Housing			
Coupling System	Bayonet	Bayonet	Bayonet
Plating	Nickel	Nickel	Nickel
Safety Marking on the Lid	DIN 4844	DIN 4844	DIN 4844
Mounting Dimensions	25 x 25 mm	50 x 50 mm	70 x 70 mm
Mounting Holes Distance	20 x 20 mm	36 x 36 mm	54 x 54 mm
Polarisation	5 key way	5 key way	5 key way
Alternative Insert position	Optional	Optional	Optional
Material	Aluminium alloy	Aluminium alloy	Aluminium alloy
Straight plug			
Coupling System	Bayonet	Bayonet	Bayonet
Plating	Nickel	Nickel	Nickel
Adapter	Cable gland: PG13,5	Cable gland: PG 29	Cable gland: PG 36
Polarisation	5 key way	5 key way	5 key way
Alternative Insert position	Optional	Optional	Optional
Available Types	see pages 26 – 31	see pages 26 – 31	see pages 26 – 31
Tools			
Hand Crimp Tool	M22520/1-01	EUS101-2	–
Pneumatic Universal Tool	612 141	612 141	–
Crimp Turret	CT120090-99	CT120090-113	–
Hand Crimp Tool for Grounding Contact	CCT-CGF-E	CCT-CGF-E	–
Pneumatic Crimp Tool for Grounding Contacct	CPP-CGF-E	CPP-CGF-E	–
Hydraulic Crimp Tool	–	–	see page 17
Contact Insertion Tool	M81969/8-05 (for cont.#20) M81969/8-07 (for cont.#16) (alternate: CIET-20 for contact #20 CIET-16 for contact #16)	CIT12 CIT16	CIT4 CIT16
Contact Extraction Tool	M81969/8-06 (for cont.#20) M81969/8-08 (for cont.#16)	CT121586-300 (for cont.#12) M81969/8-10 (for cont.#16)	CT120090-56 (for cont.#4) M81969/8-10 (for cont.#16)

Contact Arrangements

Shell size	Conatct arrangement	**Contact arrangement designation**	Number of contacts *Contact size AWG*	Grounding contact in cavity	Admissible operating voltage VAC	Available connectors
14		**14-9**	9 5 x *16* 4 x *20*	D	700	CGL61PG14-9P CGL62A14-9P CGL66PG14-9S
28		**28-11**	11 4 x *12* 7 x *16*	D	700	CGL60A28-11P CGL61PG28-11P CGL62A28-11P CGL66PG28-11S
36		**36-11**	11 4 x *4* 7 x *16*	D	700	CGL60A36-11P CGL61PG36-11P CGL66PG36-11S CGL62A36-11P

Admissible Operating Voltage

The admissible operating voltages indicated in this catalogue are mainly based on customer information for certain projects.

The opposite table indicates the actual value for the air and creepage paths and can be used as a calculation basis in connection with the DIN/VDE 0110 issue 1989.

Bases and assumptions
The pollution degree for industrial plants is normally “3”

However, the calculation of the admissible operating voltage is based on the pollution degree “2“, as the connectors are completely sealed and the contact parts are not subject to direct contamination or humidity.

Overvoltage category 230/400	III
Overvoltage category 700	III
Insulation class 230/400 V	III
Insulation class 700 V	II

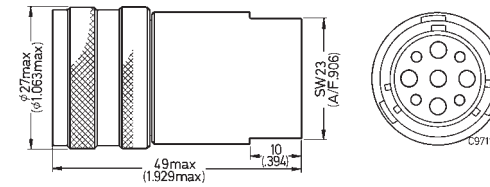
Contact Arrangement	Min Air path Mating face* L-L	L-E	Min Creepage path Mating face* L-L	L-E	Rated Voltage V Class
14-9	12,0 (.4724)	7,4 (.2913)	12,0 (.4724)	7,4 (.2913)	700
28-11	19,7 (.7756)	12,5 (.4921)	19,7 (.7756)	12,5 (.4921)	700
36-11	10,3 (.4055)	10,3 (.4055)	10,3 (.4055)	10,3 (.4055)	700

* For the calculation of the smaller air and creepage paths it is supposed that after termination of the contacts shrink boots are fixed to the crimp and conductor area, thus enlarging the creepage paths accordingly.

Straight Plug

CGL66PG14-9S-E1D-B-01

CGL66PG14-9S designates a straight plug. It mates with plugs **CGL61PG14-9P** and receptacles **CGL62A14-9P.**

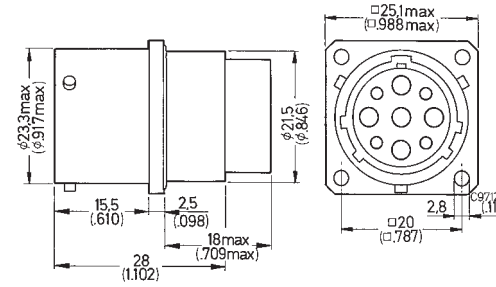


Materials	
Shell	Aluminum alloy, nickel plated
Coupling nut	Aluminum alloy, nickel plated
Socket contact, grounding contact	Copper alloy, silver / tin plated
Spring ring, spring washer	Stainless steel
Grounding screw	Steel, nickel plated
Insulator	PBT
O Ring	FKM Elastomere
Contact arrangement	9 socket contacts (1 grounding contact size 16, 4 contacts size 16, 4 contacts size 20)

Receptacle

CGL62A14-9P-E1D-B-01

CGL62A14-9P designates a receptacle.
It mates with straight plug **CGL66PG14-9S** .

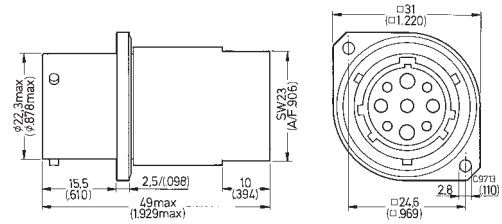


Materials	
Shell	Aluminum alloy, nickel plated
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Spring ring, bayonet pin	Stainless steel, passivated
Grounding screw	Steel, nickel plated
Insulator	PBT
O Ring	FKM Elastomere
Sealing	Fluor silicone
Contact arrangement	9 pin contacts (1 grounding contact size 16, 4 contacts size 16, 4 contacts size 20)

Straight Plug

CGL61PG14-9P-E1D-B01

CGL61PG14-9P designates a straight plug. It mates with plugs **CGL66PG14-9S** .



Materials

Shell, adapter, grounding screw	Aluminum alloy, nickel plated
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Spring ring, bayonet pin	Stainless steel, passivated
Insulator	PBT
O Ring	FKM Elastomer
Sealing	Fluor silicone

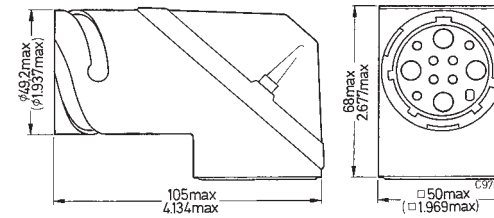
Contact arrangement

9 pin contacts
(1 grounding contact size 16, 4 contacts size 16,
4 contacts size 20)

Receptacle 90°

CGL60A28-11P-E1D-B-01

CGL60A28-11P designates a 90° receptacle. It mates with plugs **CGL66PG28-11S**.

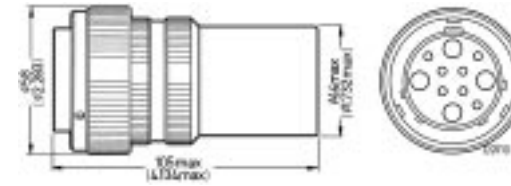


Materials	
Shell, cap	Aluminum alloy, zinc plated, with black chromate
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Screw	Steel, zinc plated, with black chromate
Grounding screw	Steel, nickel plated
Insulator	PBTP
Retaining	PBTB
O Ring	FKM Elastomere
Protection cap	Polyethylene
Contact arrangement	11 pin contacts (1 grounding contact size 12, 3 contacts size 12, 7 contacts size 16)

Straight Plug

CGL66PG28-11S-E1D-B-01

CGL66PG28-11S…designates a straight plug. It can be mated with receptacle **CGL60A28-11P** and straight plugs **CGL61PG28-11P** and **CGL62A28-11P** .

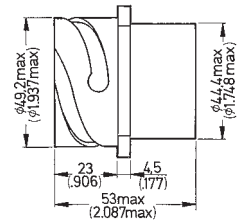


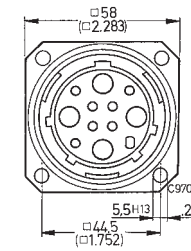
Materials	
Shell, adapter, coupling nut	Aluminum alloy, nickel plated
Socket contact, grounding contact	Copper alloy, silver plated and passivated
Spring ring	Stainless steel
Grounding screw	Steel
Insulator	PBTP
Retaining	PBTB
O Ring, Sealing	FKM Elastomere
Contact Arrangement	11 socket contacts (1 grounding contact size 12, 3 contacts size 12, 7 contacts size 16)

Receptacle

CGL62A28-11P-E1D-B-01

CGL62A28-11P designates a receptacle.
It mates with plug **CGL66PG28-11S**





Materials

Shell	Aluminum alloy, nickel plated
Pin contact, Grounding contact	Copper alloy, silver plated and passivated
Spring ring	Stainless steel, passivated
Grounding screw	Steel, nickel plated
Insulator	PBTP
Retaining	PBTB
O Ring	FKM Elastomere

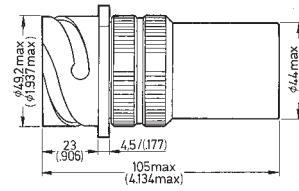
Contact Arrangement

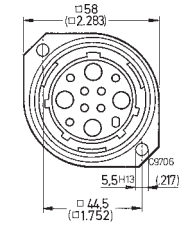
11 pin contacts
(1 grounding contact size 12, 3 contacts size 12,
7 contacts size 16)

Straight Plug

CGL61PG28-11P-E1D-B-01

CGL61PG28-11P designates a straight plug. It can be mated with plugs **CGL66PG28-11S**.





Materials

Shell, adapter	Aluminum alloy, nickel plated
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Spring ring	Stainless steel
Grounding screw	Steel
Insulator	PBTP
Retaining	PBTB
O Ring	FKM Elastomere

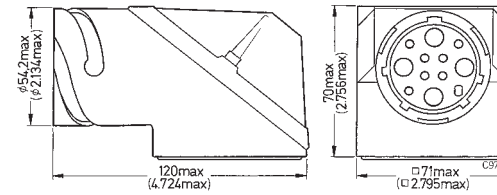
Contact arrangement

11 pin contacts
(1 grounding contactt size 12, 3 contacts size 12,
7 contacts size 16)

Receptacle 90°

CGL60A36-11P-E1D-B-01

CGL60A36-11P designates a 90° receptacle. It mates with plug **CGL66PG36-11S**.



Materials

Shell, cap	Aluminum alloy, zinc plated, with black chromate
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Spring ring	Stainless steel, passivated
Screw	Steel, zinc plated with black chromate
Grounding screw	Steel, nickel plated
Insulator	PBTP
Retaining	PBTB
O Ring	FKM Elastomere
Protection cap	Polyethylene

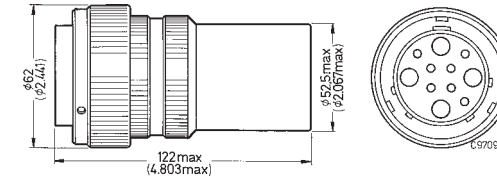
Contact Arrangement

11 pin contacts
(1 grounding contact size 4, 3 contacts size 4,
7 contacts size 16)

Straight Plug

CGL66PG36-11S-E1D-B-01

CGL66PG36-11S…designates a straight plug. It mates with straight plugs **CGL66PG36-11P.**



Materials

Shell, adapter, coupling nut	Aluminum alloy, nickel plated
Socket contact, grounding contact	Copper alloy, silver plated and passivated
Spring ring	Stainless steel
Grounding screw	Steel, nickel plated
Insulator	PBTP
Retaining	PBTB
O Ring, Sealing	FKM Elastomere

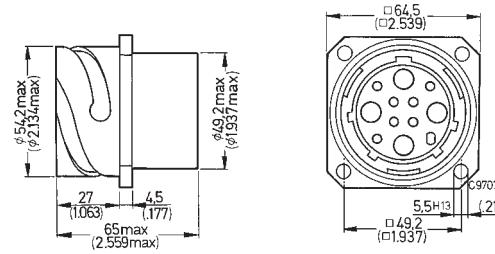
Contact Arrangement

11 socket contacts
(1 grounding contact size 4, 3 contacts size 4,
7 contacts size 16)

Receptacle

CGL62A36-11P-E1D-B-01

CGL62A36-11P…designates a receptacle. It mates with plug **CGL66PG36-11S**.

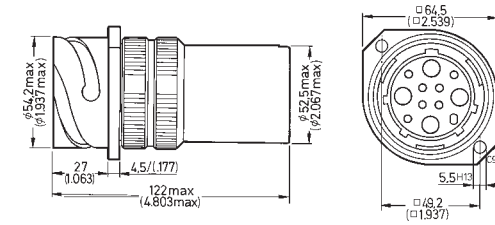


Materials	
Shell	Aluminum alloy, nickel plated, black anodized
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Grounding screw	Steel, nickel plated
Insulator	PBTP
Retaining	PBTB
O Ring	FKM Elastomere
Contact Arrangement	11 pin contacts (1 grounding contact size 4, 3 contacts size 4, 7 contacts size 16)

Straight Plug

CGL61PG36-11P-E1D-B01

CGL61PG36-11P..designates a straight plug. It mates with plug **CGL66PG36-11S**.



Materials	
Shell, adapter	Aluminum alloy, nickel plated
Pin contact, grounding contact	Copper alloy, silver plated and passivated
Grounding screw	Steel
Insulator	PBTP
Retaining	PBTB
O Ring	FKM Elastomere
Contact Arrangement	11 pin contacts (1 grounding contact size 4, 3 contacts size 4, 7 contacts size 16)