Plugs & Receptacles
Roughneck™ multi-pin and single pole connectors

CROUSE-HINDS SERIES

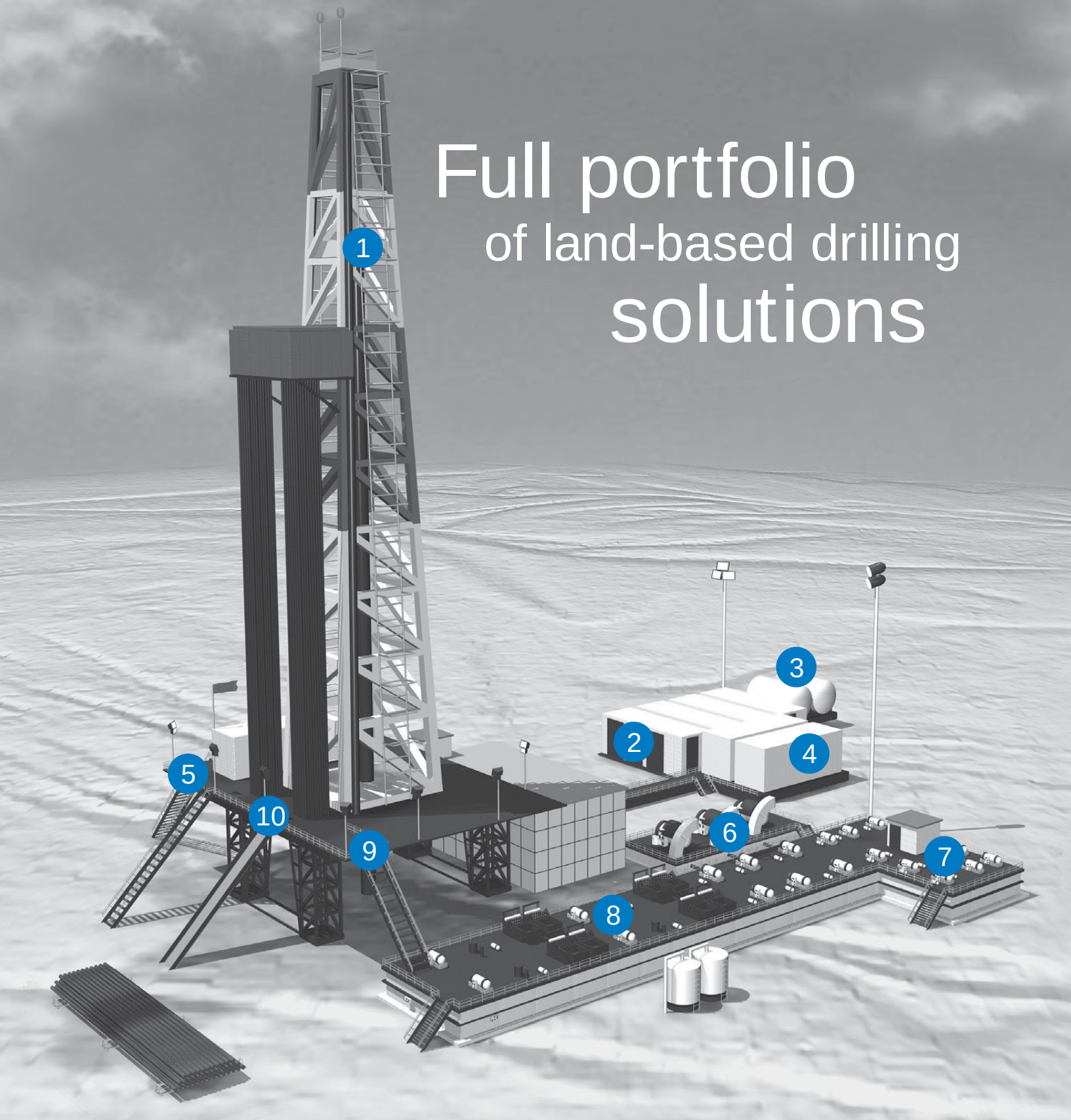
Introducing

Roughneck™ connectors

Heavy duty control, instrumentation and single pole power

EATON
Powering Business Worldwide

Full portfolio of land-based drilling solutions



1. Derrick/Mast
2. VFD/Generators
3. Fuel Tank
4. Motor Control/VFD/SCR House
5. Doghouse/ Operator's House
6. Power/Pump Station
7. Shale Shaker
8. Mud Tanks/Pumps
9. Drawworks & Top Drive
10. Drilling Floor

Introducing

Roughneck™ Connectors

Heavy duty control and instrumentation, single pole power

Rig Loca
1, 2, 4, 5,

Crouse-Hinds Drilling Solutions

Single pole power

5 10 15 20 25 30 35 40 45 50 55 60 65 70
# of pins

Roughneck™ Single Pole Series

Secure, single pole power, rated to 1135A for use in hazardous and normal locations. Ideal for delivering power to the top drive.

Rig Location
1, 2, 4, 5, 6, 9, 10

Roughneck™ Quick Connect

Quick connect, high amperage, single conductor connectors built to take heavy abuse while providing a simple, secure and safe connection.

Rig Location
2, 4, 5, 6, 9, 10

Cam-Lok™ Single Pole Series

Quickly connect and disconnect power systems safely. Used for motors, generators, indoor and outdoor lighting distribution panels, and numerous other power applications.

Rig Location
1, 2, 4, 5, 6, 9, 10

Low to medium amp power

5 10 15 20 25 30 35 40 45 50 55 60 65 70
# of pins

PowerGard™ Series

Supplies power to lighting systems, lighting panels and portable hand tools on land-based rigs.

Rig Location
1, 2, 3, 4, 5, 6, 7, 8, 9, 10

PowerMate™ Series

Supplies power to portable devices such as motor generator sets, compressors, heating and cooling, welders and lighting from 30 to 200A.

Rig Location
2, 4, 5

IEC 309 GHG 51 Series

Supplies power to portable devices with requirements of 16 to 125A and features an integrated AC3 rated disconnect switch. Reinforced polyester construction offers reliability from -20° to +55°C.

Rig Location
7, 8, 9

Multi-pin control

5 10 15 20 25 30 35 40 45 50 55 60 65 70
# of pins

Roughneck™ Multi-pin Series

Heavy duty control and instrumentation multi-pin connectors for hazardous and harsh industrial use.

Rig Location
1, 2, 4, 5, 9, 10

Connectors for harsh/heavy industrial areas

Connectors for hazardous areas

Custom connections
for land-based drilling

Overview

Introducing Roughneck 5
Catalog guide (by number of contacts in insert) 6

CZ & CRIG Series
Harsh/heavy industrial connectors

Technical reference 8
CZ Series, 12 shell overview 10
CZ Series, 12 shell full connector ordering information 12
CZ Series, 16 shell overview 14
CZ Series, 16 shell full connector ordering information 16
CZ Series, 20 shell overview 18
CZ Series, 20 shell full connector ordering information 20
CZ Series, 24 shell overview 22
CZ Series, 24 shell full connector ordering information 24
CZ Series, 28 shell overview 26
CZ Series, 28 shell full connector ordering information 28
CRIG Single Pole Series, full overview 30
CRIG Single Pole Series, full connector ordering information 32

CEX Series
Hazardous-rated connectors

Technical reference 34
CEX Series, 12 shell overview 36
CEX Series, 12 shell full connector ordering information 38
CEX Series, 16 shell overview 40
CEX Series, 16 shell full connector ordering information 42
CEX Series, 20 shell overview 44
CEX Series, 20 shell full connector ordering information 46
CEX Series, 24 shell overview 48
CEX Series, 24 shell full connector ordering information 50
CEX Series, 28 shell overview 52
CEX Series, 28 shell full connector ordering information 54
CEX Single Pole Series, full overview 56
CEX Single Pole Series, full connector ordering information 58

Individual components

Harsh/heavy industrial components

CZ Series, component parts ordering information 60-65

Hazardous components

CEX Series, component parts ordering information 66-67

Appendix

Tool reference 69
Insert index 70
12 shell, insert alternative clocking options 71
16 shell, insert alternative clocking options 72
20 shell, insert alternative clocking options 73
24 shell, insert alternative clocking options 74
28 shell, insert alternative clocking options 75

Introducing Roughneck™

Multi-pin and single pole connectors for hazardous and harsh industrial environments

Applications:

Heavy duty control and instrumentation, single pole power for hazardous and normal locations

Features & benefits:

- Intermateable with other brands (CZ & CRIG)
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment improves installation time
- Easily accessible wire terminals
- Multi-lam style contacts on single pole connectors deliver reliable continuity
- Ample wiring space within shells
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant
- Hex grip on hazardous and normal location connectors facilitates torquing

Catalog guide

Service voltage ratings

MIL-DTL-5015 specifications

Service voltage	Non-circuit breaking DC volts RMS	Non-circuit breaking AC volts RMS
A	700	500
D	1250	900
E	1750	1250
B	2450	1750

NEC ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600

Number of contacts	Insert suffix	Shell size	313 MCM (120)	444 MCM (185)	500 MCM (240)	646-777 MCM (300-400)	Voltage	CZ page #	CEX page #
1	-313	C24	1	…	…	…	1000V	32	58
	-386	C24	…	…	…	1	1000V	32	58
	-444	C24	…	1	…	…	1000V	32	58
	-535	C24	…	…	1	…	1000V	32	58

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
3	-327	12	…	3	…	…	D	12	38
	-330	12	…	3	…	…	D	12	38

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	4 AWG (25.0)	1/0 AWG (55.0)	4/0 AWG (120.0)	Voltage	CZ page #	CEX page #	
4	-314	12	…	…	4	…	…	…	…	D	12	38	
	-316	12	…	…	4	…	…	…	…	D	12	38	
	-333	12	4	…	…	…	…	…	…	D	12	38	
	-328	16	…	…	…	4	…	…	…	D	16	42	
	-322	12	…	…	4	…	…	…	…	D	12	38	
	-322	16	…	…	…	…	4	…	…	D	16	42	
	-38	16	…	…	…	…	4	…	…	D	16	42	
	-40	C20	…	…	…	…	…	4	…	D	20	46	
	-26	C24	…	…	…	…	…	…	4	D	24	50	
	-38	C24	…	…	…	…	…	…	4	D	24	50	

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	4/0 AWG (120.0)	Voltage	CZ page #	CEX page #	
5	-324	12	…	5	…	…	D	12	38	
	-48	C24	…	2	…	3	A (12 AWG); D (4/0 AWG)	24	50	

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	4 AWG (25.0)	4/0 AWG (120.0)	Voltage	CZ page #	CEX page #	
7	-310	12	…	7	…	…	…	…	A	12	38	
	-354	12	…	7	…	…	…	…	A	12	38	
	-359	20	…	…	…	7	…	…	E	20	46	
	-348	12	7	…	…	…	…	…	A	12	38	
	-378	16	7	…	…	…	…	…	D	16	42	
	-H44	C28	…	…	1	3	…	3	D	28	54	

Number of contacts	Insert suffix	Shell size	12 AWG (4.0)	1/0 AWG (55.0)	350 MCM (XXXX)	Voltage	CZ page #	CEX page #	
8	-43	C28	4	…	4	D (350 MCM); E (12 AWG)	28	54	
	-53	C24	4	4	…	A (12 AWG); B (1/0 AWG)	24	50	

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (14.0)	10 AWG (6.0)	8 AWG (10.0)	4 AWG (25.0)	Voltage	CZ page #	CEX page #
10	-334	12	10	…	…	…	…	A	12	38
	-355	12	10	…	…	…	…	A	12	38
	-376	16	…	6	4	…	…	D	16	42
	-381	16	…	6	4	…	…	D	16	42

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (14.0)	10 AWG (6.0)	8 AWG (10.0)	4 AWG (25.0)	Voltage	CZ page #	CEX page #
12	-375	20	…	…	12	…	…	D	20	46

Catalog guide

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (14.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
16	-325	16	16	…	…	…	D	16	42

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
19	-312	16	…	19	…	…	A	16	42
	-355	16	19	…	…	…	A	16	42
	-377	16	…	19	…	…	A	16	42
	-376	20	…	19	…	…	D	20	46
	-388	20	…	19	…	…	D	20	46

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
20	-332	20	…	20	…	B Center, A Outer	20	46
	-334	20	16	…	4	D	20	46
	-387	20	…	20	…	B Center, A Outer	20	46

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
22	-331	20	20	…	2	E (8 AWG); D (16 AWG)	20	46

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
27	-335	16	24	3	…	…	A	16	42

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
37	-321	16	37	…	…	…	A	16	42
	-350	20	…	37	…	…	A	20	46
	-386	20	…	37	…	…	A	20	46
	-371	24	37	…	…	…	D	24	50

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
42	-339	28	…	42	…	…	D	28	54

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
47	-354	20	45	2	D (8 AWG); A (16 AWG)	20	46

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
58	-352	24	…	58	…	…	A	24	50
	-384	24	…	58	…	…	A	24	50

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
68	-313	20	68	…	…	…	A	20	46

Number of contacts	Insert suffix	Shell size	16 AWG (1.5)	12 AWG (4.0)	10 AWG (6.0)	8 AWG (10.0)	Voltage	CZ page #	CEX page #
100	-313	24	100	…	…	…	A	24	50

CZ and CRIG Series

Multi-pin and single pole connectors for harsh/heavy industrial areas

Technical reference

Applications:

Heavy duty control and instrumentation, single pole power for harsh/heavy industrial areas

Certifications:

CZ Series

- UL recognized: UL1977
  CSA: C22.2 No. 182.3
- CE marked

CRIG Series

- UL recognized: UL486A-486B
  CSA: C22.2 No. 65-13
- CE marked

Environmental:

- IP68; NEMA 4X, 6P
- Ambient temperature:
  Suitable for use from -60°C to +55°C

Materials and finish:

- Contacts
  - Silver plated copper, crimp style and solder style
  - Nickel plated brass, pressure style
  - Multi-lam style contacts on single poles
  - Optional gold plated contacts (crimp only)
- Shells
  - High tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Inserts
  - Rigid insert: thermoplastic material
  - Resilient insert: silicone rubber

General specifications

Property	Standard	Test method
Humidity resistance	MIL-DTL-5015/MIL-STD-1344	Method 1002, Type I
Moisture resistance	MIL-DTL-5015/MIL-STD-1344	Method 1002, Type II, Test Condition A
Ingress	IEC60529	IPX8
Corrosion resistance	MIL-STD-1344	Meets Method 1001.1, Test Condition B
Dust resistance	IEC60529	IP6X
Vibration	MIL-DTL-5015/MIL-STD-1344	Method 2005, Test Condition II
Contact retention	MIL-DTL-5015/MIL-STD-1344	Method 2007.1

Electrical ratings

Overview of shell options with voltage ratings

Shell size	# of contacts	Contact size	Voltage rating
12	3 - 10	16 AWG - 10 AWG	A, D
16	4 - 37	16 AWG - 8 AWG	A, D
20	7 - 68	16 AWG - 8 AWG	A, B, D, E
24	37 - 100	16 AWG - 12 AWG	A, D
C24	1 - 4	313 MCM - 777 MCM	1000V
28	42	12 AWG	D
C28	7-8	12 AWG - 350 MCM	D, E

The voltage rating is specific to the contact configuration of the insert used. For individual insert voltage ratings, please reference catalog guide on pages 6-7.

Service voltage ratings

MIL-DTL-5015 specifications

	Non-circuit breaking	
Service voltage	DC volts RMS	AC volts RMS
A	700	500
D	1250	900
E	1750	1250
B	2450	1750

NEC ratings

	Non-circuit breaking	Circuit breaking
Service voltage	DC volts RMS	AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600

Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
16 AWG	18
12 AWG	30
10 AWG	40
8 AWG	55
4 AWG	95
1/0 AWG	155
4/0 AWG	225
313 MCM	636
350 MCM (solder)	325
444 MCM	796
535 MCM	898
777 MCM	1135

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

Consult the N.E.C. General Wiring Guidelines, Article 310 prior to installing cable. Guidelines around wire temperature rating, ambient temperature correction factors and the number of conductors may limit the maximum amperage of the individual conductors.

12 Shell

Applications:

Heavy duty control and instrumentation

Certifications:

- UL recognized: UL1977 CSA: C22.2 No. 182.3
- CE marked

Environmental:

- IP68
- NEMA 4X, 6P

Ambient temperature:

- -60°C to +55°C

Construction:

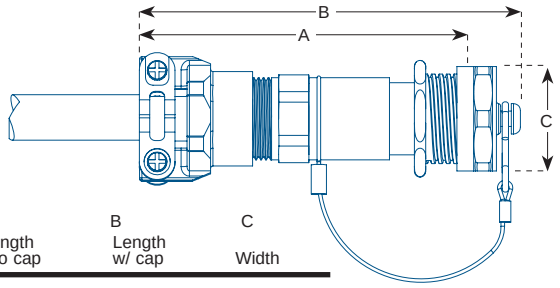
- Contacts - silver plated copper, crimp or solder style; nickel plated brass, pressure style; optional gold plated (crimp only)
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Rigid insulators - thermoplastic
- Resilient inserts - silicone rubber

Features & benefits:

- Intermateable with other brands
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment allows for easy installation
- Easily accessible wire terminals
- Ample wiring space within shells
- Double-lead thread coupling
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant

Cable mounted receptacle with mechanical clamp

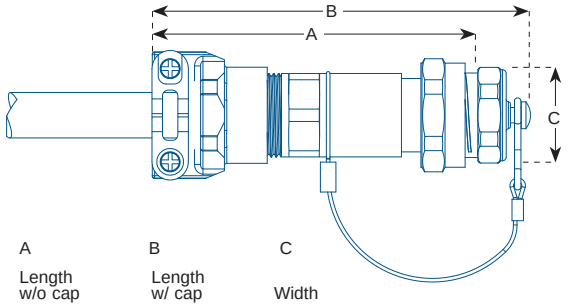
Base P/N
CZREM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.125	6.750	1.953
Long	8.375	9.000	

Cable mounted plug with mechanical clamp

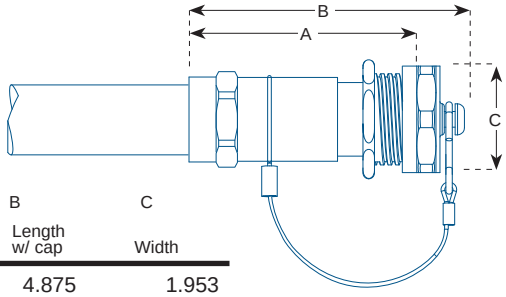
Base P/N
CZPEM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.125	6.71875	1.86
Long	8.375	8.96875	

Receptacle with conduit adapter

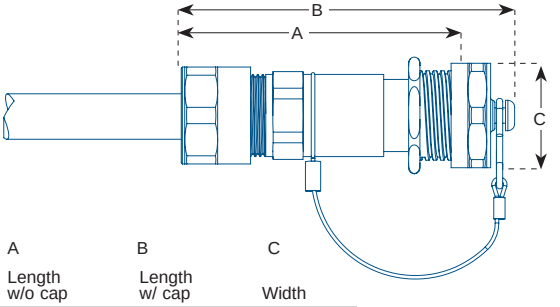
Base P/N
CZRET



A Length w/o cap	B Length w/ cap	C Width
4.250	4.875	1.953

Cable mounted receptacle with gland nut

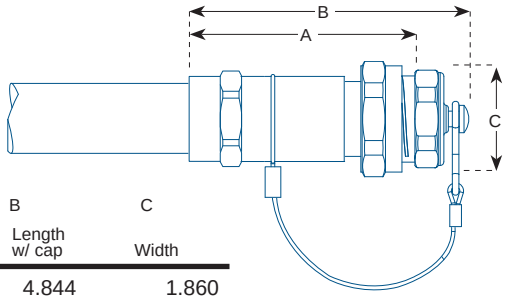
Base P/N
CZRED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.375	6.000	1.953125
Long	7.625	8.250	

Plug with conduit adapter

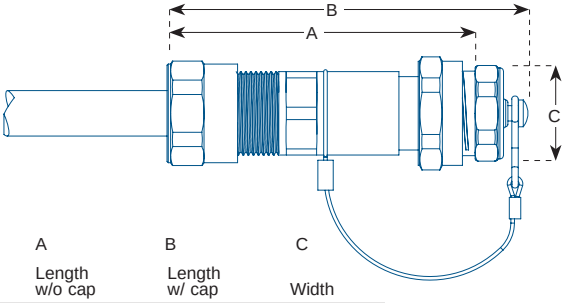
Base P/N
CZPET



A Length w/o cap	B Length w/ cap	C Width
4.250	4.844	1.860

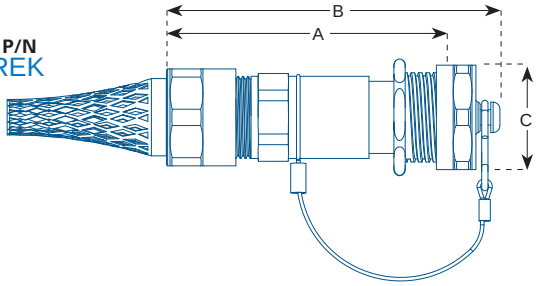
Cable mounted plug with gland nut

Base P/N
CZPED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.375	5.969	1.86
Long	7.625	8.219	

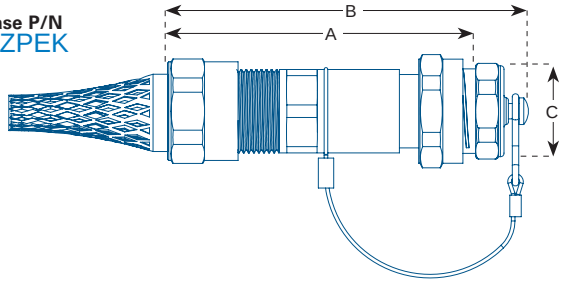
Base P/N
CZREK



Cable mounted receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.375	6.000	1.953
Long	7.625	8.250	

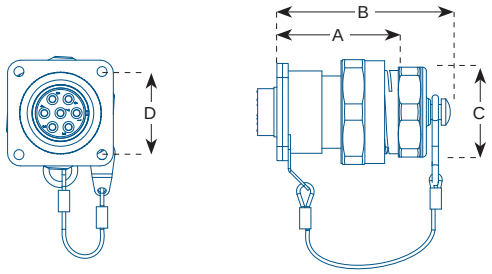
Base P/N
CZPEK



Cable mounted plug with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.375	5.969	1.860
Long	7.625	8.219	

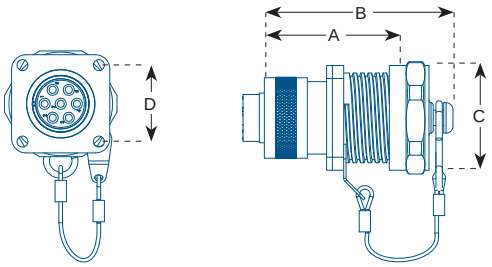
Base P/N
CZPEP



Panel mounted plug

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.375	2.969	1.860	1.266	.1875

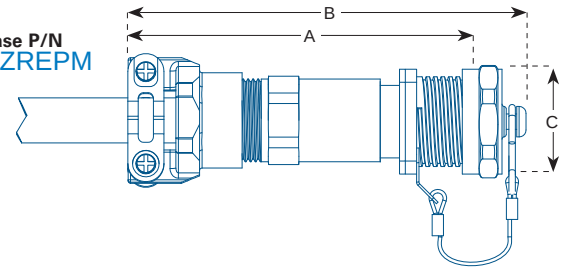
Base P/N
CZREP



Panel mounted receptacle

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.328	2.938	1.750	1.375	0.166

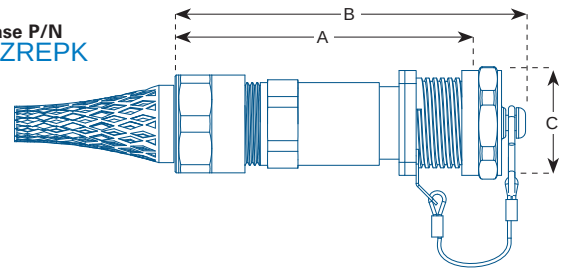
Base P/N
CZREPM



Cable mounted square flange receptacle with mechanical clamp

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	6.125	6.750	1.750	1.375	0.166
Long	8.375	9.000			

Base P/N
CZREPK



Cable mounted square flange receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	5.375	6.000	1.75	1.375	0.166
Long	7.625	8.250			

CZ series– 12 Shell

Example: CZ-PEKL-0812-310PN

CZ P E K L 08

Series	
CZ	Non-hazardous rated connector

Base call out	
P	Plug
R	Receptacle

Environmental cover	
E	Environmental cover
L	No cover

Cable hardware	
K	In-line cable mount w/ basketweave clamp
M	In-line cable mount w/ mechanical clamp
D	In-line cable mount w/ gland nut
P	Panel mount

Adapter length	
L	Long
BLANK	Standard or panel mount

Coupling nut	
BLANK	Standard coupling nut
J	Jack nut

Grommet code	
BLANK	Panel mount
See table below	In-line cable mount

Grommet	Cable diameter	
	in.	mm.
03	.125 - .188	1.6 - 3.2
04	.125 - .250	3.2 - 6.4
06	.250 - .375	6.4 - 9.5
08	.375 - .500	9.5 -12.7
10	.500 - .625	12.7 - 15.9
12	.625 - .750	15.9 - 19.1
14	.750 - .875	19.1 - 22.2

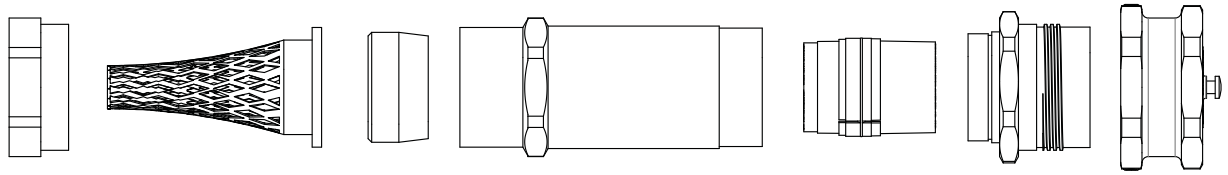
Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
16 AWG	18
12 AWG	30
10 AWG	40

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600



Cable hardware | Grommet | Cable adapter | Insert | Skirt | Environmental cover

12 310 P N

Shell size

12	Connector shell size

Insert configuration

See all configurations below

Contact gender

P	Male pin
S	Female socket

Contact connection type

N	Crimp
R	Pressure

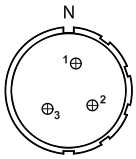
Plating

BLANK	Silver (crimp or solder) Nickel (pressure)
K	Gold (crimp only)

Key position

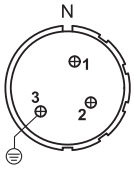
BLANK	0 degrees

See appendix p. 67 for clocking options



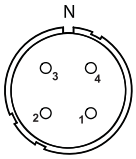
327

# Contacts	3
AWG	12
Service voltage rating	D



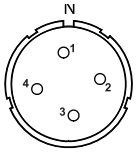
330*

# Contacts	3
AWG	12
Service voltage rating	D



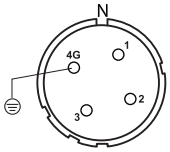
314

# Contacts	4
AWG	10
Service voltage rating	D



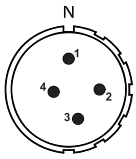
316

# Contacts	4
AWG	10
Service voltage rating	D



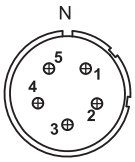
322

# Contacts	4
AWG	10
Service voltage rating	D



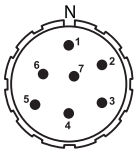
333

# Contacts	4
AWG	16
Service voltage rating	D



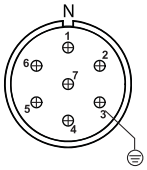
324

# Contacts	5
AWG	12
Service voltage rating	D



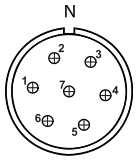
348

# Contacts	7
AWG	16
Service voltage rating	A



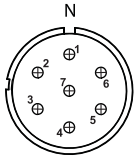
310

# Contacts	7
AWG	12
Service voltage rating	A



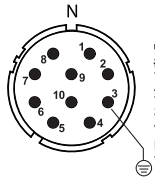
354

# Contacts	7
AWG	12
Service voltage rating	A



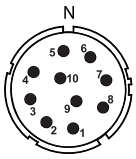
354D

# Contacts	7
AWG	12
Service voltage rating	A



334

# Contacts	10
AWG	16
Service voltage rating	A



355

# Contacts	10
AWG	16
Service voltage rating	A

***Made to order item. Consult factory for availability and lead time.**

Contact Symbol	○	●	⊕	○	◉	◉	⊕	△	□	◇	○	⊗
AWG	18	16	12	10	8	4	1/0	4/0	313 MCM	444 MCM	535 MCM	777 MCM

16 Shell

Applications:
Heavy duty control and instrumentation

Certifications:
- UL recognized: UL1977 CSA: C22.2 No. 182.3
- CE marked

Environmental:
- IP68
- NEMA 4X, 6P

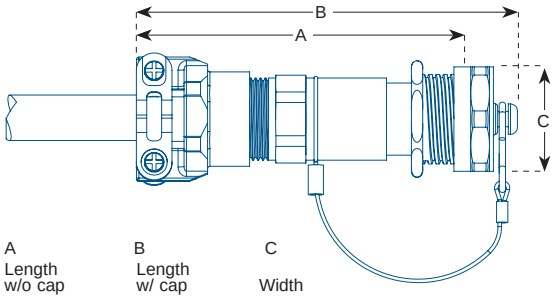
Ambient temperature:
- -60°C to +55°C

Construction:
- Contacts - silver plated copper, crimp or solder style; nickel plated brass, pressure style; optional gold plated (crimp only)
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Rigid insulators - thermoplastic
- Resilient inserts - silicone rubber

Features & benefits:
- Intermateable with other brands
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment allows for easy installation
- Easily accessible wire terminals
- Ample wiring space within shells
- Double-lead thread coupling
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant

Cable mounted receptacle with mechanical clamp

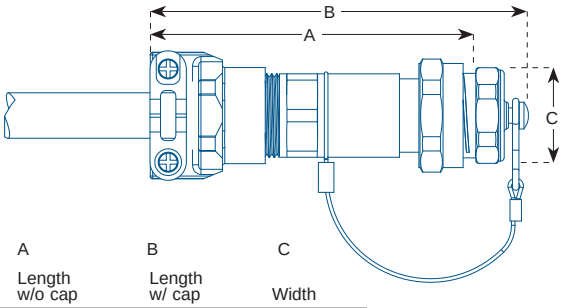
Base P/N
CZREM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.438	7.063	2.484
Long	8.688	9.313	

Cable mounted plug with mechanical clamp

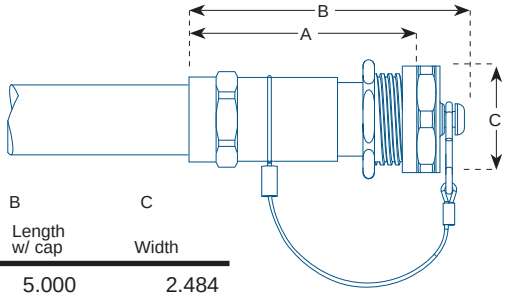
Base P/N
CZPEM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.438	7.031	2.440
Long	8.688	9.281	

Receptacle with conduit adapter

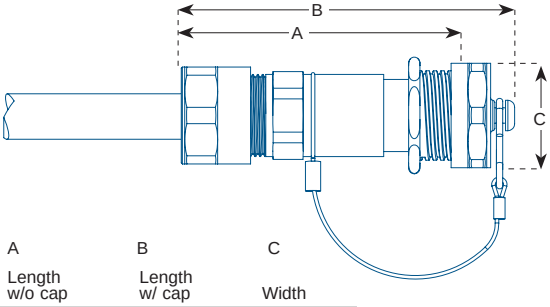
Base P/N
CZRET



A Length w/o cap	B Length w/ cap	C Width
4.375	5.000	2.484

Cable mounted receptacle with gland nut

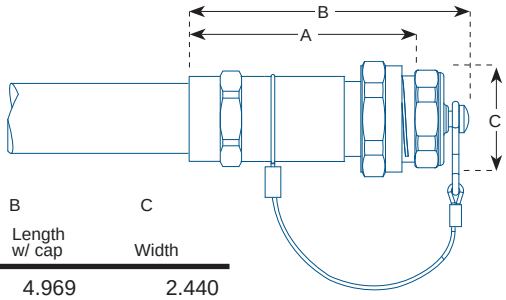
Base P/N
CZRED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.625	6.250	2.484
Long	7.875	8.500	

Plug with conduit adapter

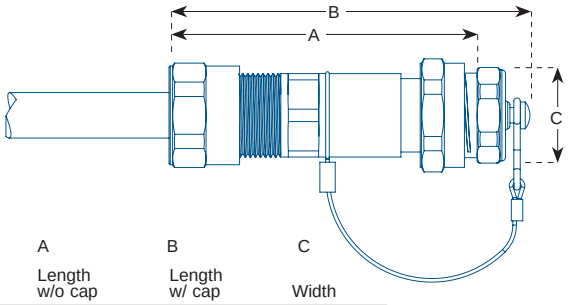
Base P/N
CZPET



A Length w/o cap	B Length w/ cap	C Width
4.375	4.969	2.440

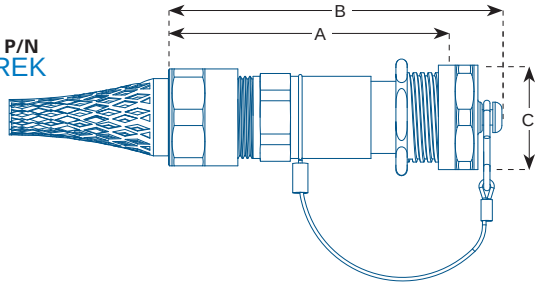
Cable mounted plug with gland nut

Base P/N
CZPED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.625	6.219	2.440
Long	7.875	8.469	

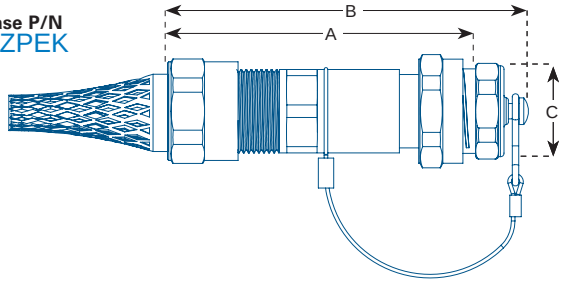
Base P/N
CZREK



Cable mounted receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.625	6.250	2.484
Long	7.875	8.500	

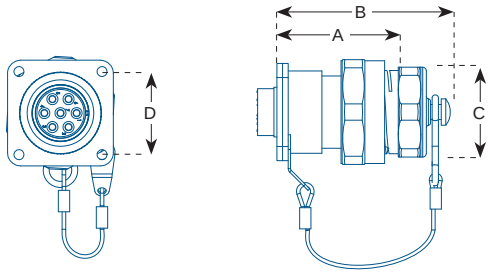
Base P/N
CZPEK



Cable mounted plug with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	5.625	6.219	2.440
Long	7.875	8.469	

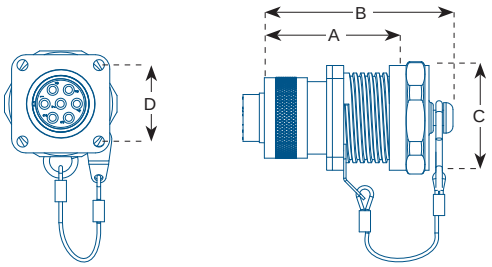
Base P/N
CZPEP



Panel mounted plug

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.406	3.000	2.440	1.688	0.194

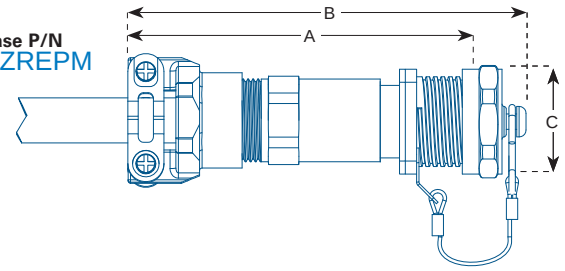
Base P/N
CZREP



Panel mounted receptacle

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.328	2.938	2.250	1.688	0.194

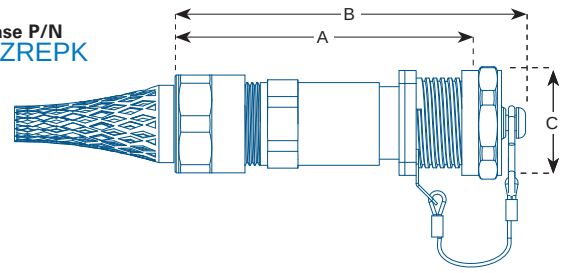
Base P/N
CZREPM



Cable mounted square flange receptacle with mechanical clamp

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	6.438	7.063	2.250	1.688	0.194
Long	8.688	9.312			

Base P/N
CZREPK



Cable mounted square flange receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	5.625	6.250	2.250	1.688	0.194
Long	7.875	8.500			

CZ series – 16 Shell

Example: CZ-PEKL-1016-381PN

CZ P E K L 10

Series	
CZ	Non-hazardous rated connector

Base call out	
P	Plug
R	Receptacle

Environmental cover	
E	Environmental cover
L	No cover

Cable hardware	
K	In-line cable mount w/ basketweave clamp
M	In-line cable mount w/ mechanical clamp
D	In-line cable mount w/ gland nut
P	Panel mount

Adapter length	
L	Long
BLANK	Standard or panel mount

Coupling nut	
BLANK	Standard coupling nut
J	Jack nut

Grommet code	
BLANK	Panel mount
See table below	In-line cable mount

Grommet	Cable diameter	
	in.	mm.
08	.375 - .500	9.5 - 12.7
10	.500 - .625	12.7 - 15.9
12	.625 - .750	15.9 - 19.1
14	.750 - .875	19.1 - 22.2
16	.875 - 1.000	22.2 - 25.4
18	1.000 - 1.125	25.4 - 28.6
20	1.125 - 1.250	28.6 - 31.8

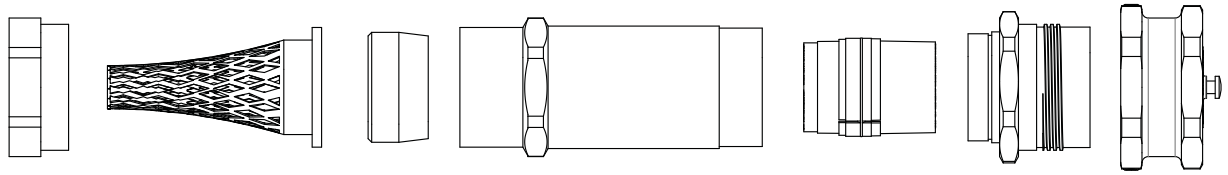
Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
16 AWG	18
12 AWG	30
10 AWG	40
8 AWG	55
4 AWG	95

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600



Cable hardware | Grommet | Cable adapter | Insert | Skirt | Environmental cover

16 381 P N

Shell size

16	Connector shell size

Insert configuration

See all configurations below

Contact gender

P	Male pin
S	Female socket

Contact connection type

N	Crimp
R	Pressure

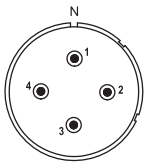
Plating

BLANK	Silver (crimp or solder) Nickel (pressure)
K	Gold (crimp only)

Key position

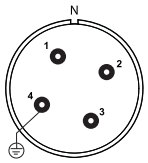
BLANK	0 degrees

See appendix p. 68 for clocking options



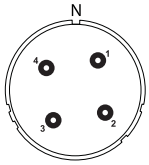
328

# Contacts	4
AWG	8
Service voltage rating	D



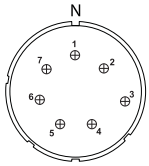
38

# Contacts	4
AWG	4
Service voltage rating	D



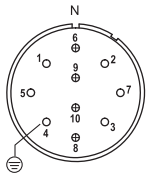
322

# Contacts	4
AWG	4
Service voltage rating	D



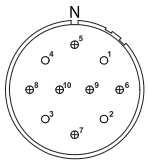
378

# Contacts	7
AWG	12
Service voltage rating	D



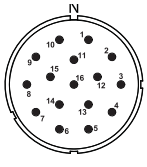
376

# Contacts	6	4
AWG	12	10
Service voltage rating	D	



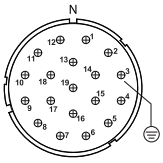
381

# Contacts	6	4
AWG	12	10
Service voltage rating	D	



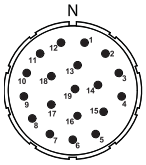
325

# Contacts	16
AWG	16
Service voltage rating	D



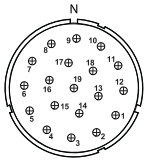
312

# Contacts	19
AWG	12
Service voltage rating	A



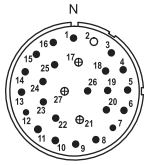
355

# Contacts	19
AWG	16
Service voltage rating	A



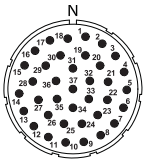
377

# Contacts	19
AWG	12
Service voltage rating	A



335

# Contacts	24	3
AWG	16	12
Service voltage rating	A	



321

# Contacts	37
AWG	16
Service voltage rating	A

Contact Symbol	○	●	⊕	○	◉	◉	⊕	△	□	◇	○	⊗
AWG	18	16	12	10	8	4	1/0	4/0	313 MCM	444 MCM	535 MCM	777 MCM

20 Shell

Applications:
Heavy duty control and instrumentation

Certifications:
- UL recognized: UL1977 CSA: C22.2 No. 182.3
- CE marked

Environmental:
- IP68
- NEMA 4X, 6P

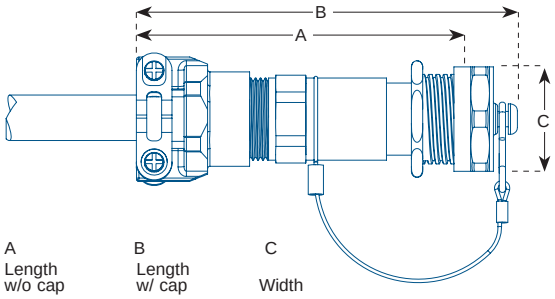
Ambient temperature:
- -60°C to +55°C

Construction:
- Contacts - silver plated copper, crimp or solder style; nickel plated brass, pressure style; optional gold plated (crimp only)
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Rigid insulators - thermoplastic
- Resilient inserts - silicone rubber

Features & benefits:
- Intermateable with other brands
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment allows for easy installation
- Easily accessible wire terminals
- Ample wiring space within shells
- Double-lead thread coupling
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant

Cable mounted receptacle with mechanical clamp

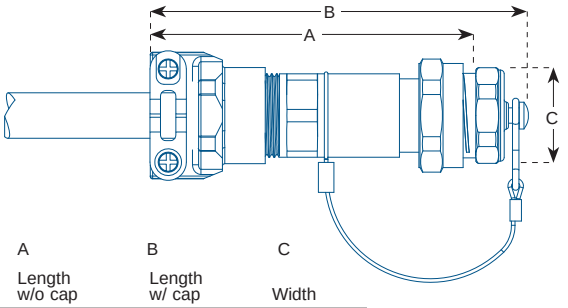
Base P/N
CZREM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.000	7.625	3.020
Long	9.250	9.875	

Cable mounted plug with mechanical clamp

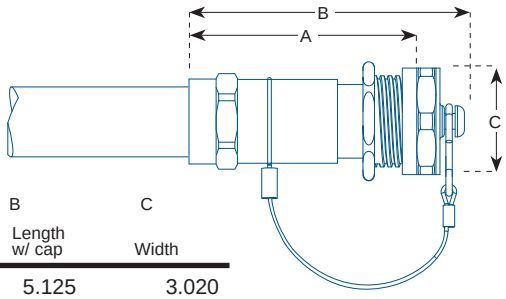
Base P/N
CZPEM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.000	7.594	3.020
Long	9.250	9.844	

Receptacle with conduit adapter

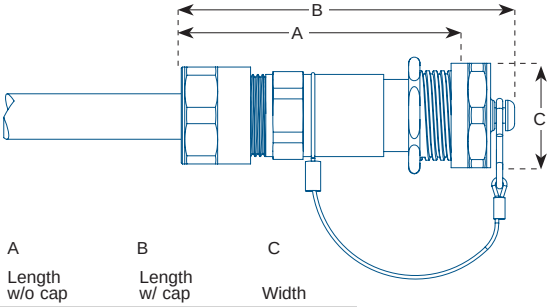
Base P/N
CZRET



A Length w/o cap	B Length w/ cap	C Width
4.500	5.125	3.020

Cable mounted receptacle with gland nut

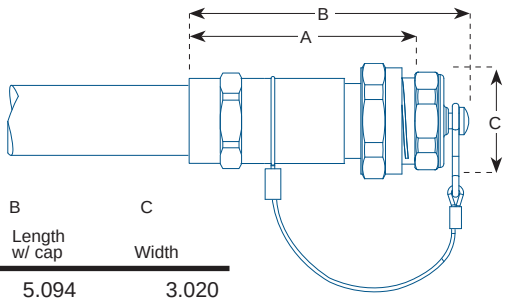
Base P/N
CZRED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.125	6.750	3.020
Long	8.375	9.000	

Plug with conduit adapter

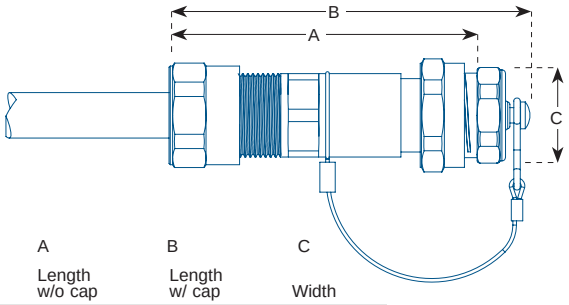
Base P/N
CZPET



A Length w/o cap	B Length w/ cap	C Width
4.500	5.094	3.020

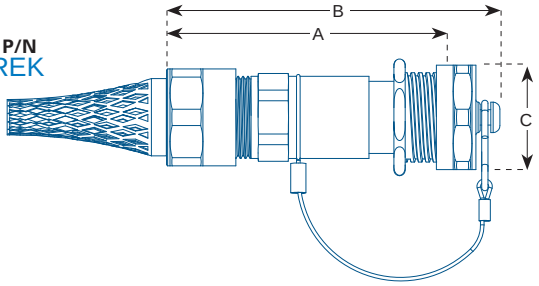
Cable mounted plug with gland nut

Base P/N
CZPED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.125	6.719	3.020
Long	8.375	8.969	

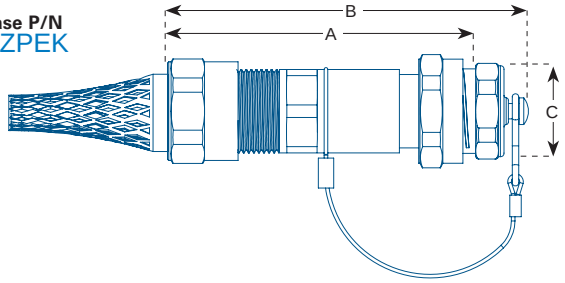
Base P/N
CZREK



Cable mounted receptacle with basketweave

Adapter Length	A Length w/o cap	B Length w/ cap	C Width
Short	6.125	6.750	3.020
Long	8.375	9.000	

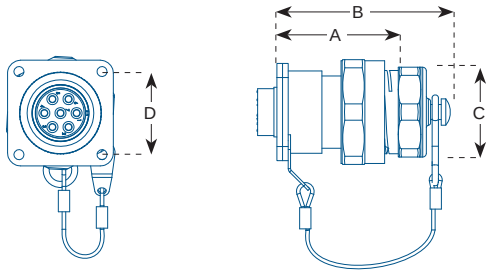
Base P/N
CZPEK



Cable mounted plug with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.125	6.719	3.020
Long	8.375	8.969	

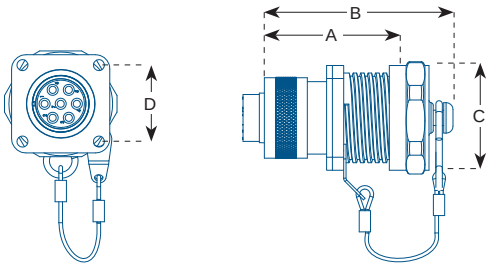
Base P/N
CZPEP



Panel mounted plug

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.438	3.031	3.020	2.094	0.277

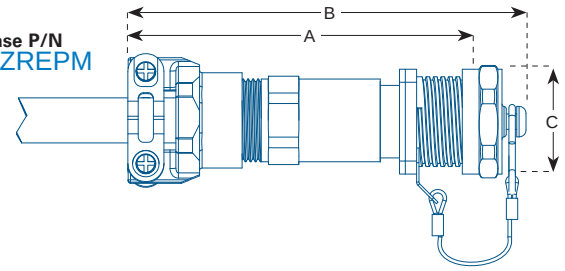
Base P/N
CZREP



Panel mounted receptacle

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.328	2.938	2.75	2.094	0.219

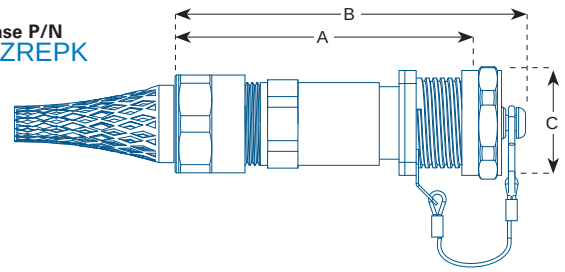
Base P/N
CZREPM



Cable mounted square flange receptacle with mechanical clamp

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	7.000	7.625	2.75	2.094	0.219
Long	9.250	9.875			

Base P/N
CZREPK



Cable mounted square flange receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	6.125	6.750	2.750	2.094	0.219
Long	8.375	9.000			

CZ series– 20 Shell

Example: CZ-PEKL-1620-376PN

CZ P E K L 16

Series	
CZ	Non-hazardous rated connector

Base call out	
P	Plug
R	Receptacle

Environmental cover	
E	Environmental cover
L	No cover

Cable hardware	
K	In-line cable mount w/ basketweave clamp
M	In-line cable mount w/ mechanical clamp
D	In-line cable mount w/ gland nut
P	Panel mount

Adapter length	
L	Long
BLANK	Standard or panel mount

Coupling nut	
BLANK	Standard coupling nut
J	Jack nut

Grommet code	
BLANK	Panel mount
See table below	In-line cable mount

Grommet	Cable diameter	
	in.	mm.
10	0.500 - 0.625	12.7 - 15.9
12	0.625 - 0.750	15.9 - 19.1
14	0.750 - 0.875	19.1 - 22.2
16	0.875 - 1.000	22.2 - 25.4
18	1.000 - 1.125	25.4 - 28.6
20	1.125 - 1.250	28.6 - 31.8
22	1.250 - 1.375	31.8 - 34.9
24	1.375 - 1.500	34.9 - 38.1
26	1.500 - 1.625	38.1 - 41.3

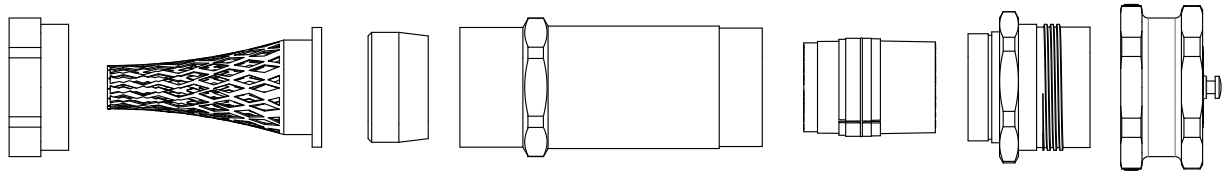
Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
16 AWG	18
12 AWG	30
10 AWG	40
8 AWG	55
4 AWG	95
1/0 AWG	155

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600



Cable hardware | Grommet | Cable adapter | Insert | Skirt | Environmental cover

20 376 P N

Shell size

20	Connector shell size
C20	C length shell size

Insert configuration

See all configurations below

Contact gender

P	Male pin
S	Female socket

Key position

BLANK	0 degrees

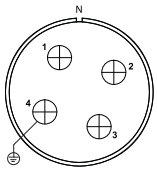
See appendix p. 69 for clocking options

Contact connection type

N	Crimp
R	Pressure

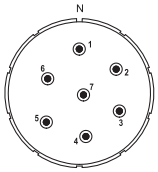
Plating

BLANK	Silver (crimp or solder) Nickel (pressure)
K	Gold (crimp only)



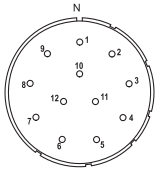
40

# Contacts	4
AWG	1/0
Service voltage rating	D



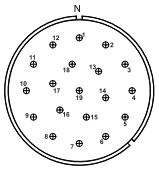
359*

# Contacts	7
AWG	8
Service voltage rating	E



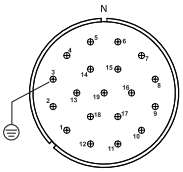
375

# Contacts	12
AWG	10
Service voltage rating	D



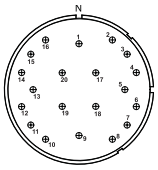
376

# Contacts	19
AWG	12
Service voltage rating	D



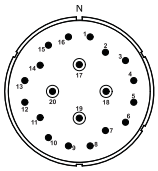
388

# Contacts	19
AWG	12
Service voltage rating	D



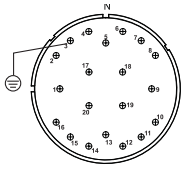
332

# Contacts	20
AWG	12
Service voltage rating	B Center A Outer



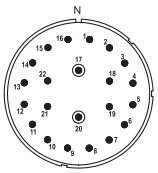
334

# Contacts	16	4
AWG	16	8
Service voltage rating	D	



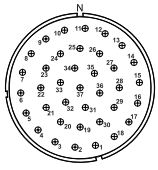
387

# Contacts	20
AWG	12
Service voltage rating	B Center A Outer



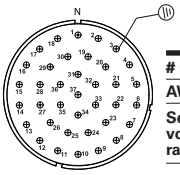
331*

# Contacts	20	2
AWG	16	8
Service voltage rating	D (16 AWG) E (8 AWG)	



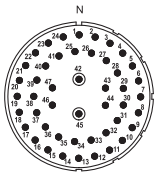
386

# Contacts	37
AWG	12
Service voltage rating	A



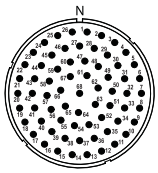
350

# Contacts	37
AWG	12
Service voltage rating	A



354*

# Contacts	45	2
AWG	16	8
Service voltage rating	D (8 AWG) A (16 AWG)	



313

# Contacts	68
AWG	16
Service voltage rating	A

***Made to order item. Consult factory for availability and lead time.**

Contact Symbol	○	●	⊕	○	◉	◉	⊕	△	□	◇	○	⊗
AWG	18	16	12	10	8	4	1/0	4/0	313 MCM	444 MCM	535 MCM	777 MCM

24 Shell

Applications:
Heavy duty control and instrumentation

Certifications:
- UL recognized: UL1977 CSA: C22.2 No. 182.3
- CE marked

Environmental:
- IP68
- NEMA 4X, 6P

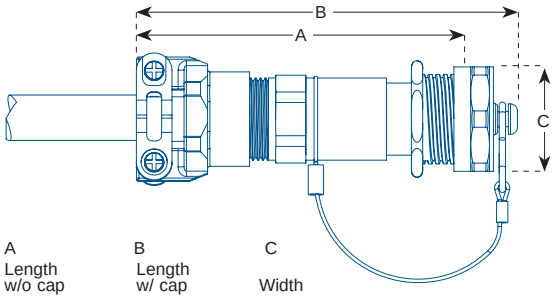
Ambient temperature:
- -60°C to +55°C

Construction:
- Contacts - silver plated copper, crimp or solder style; nickel plated brass, pressure style; optional gold plated (crimp only)
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Rigid insulators - thermoplastic
- Resilient inserts - silicone rubber

Features & benefits:
- Intermateable with other brands
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment allows for easy installation
- Easily accessible wire terminals
- Ample wiring space within shells
- Double-lead thread coupling
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant

Cable mounted receptacle with mechanical clamp

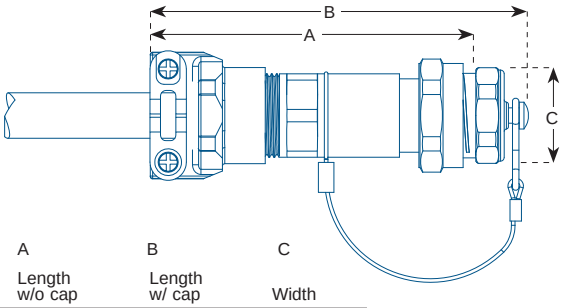
Base P/N
CZREM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.562	8.188	3.563
Long	9.813	10.438	

Cable mounted plug with mechanical clamp

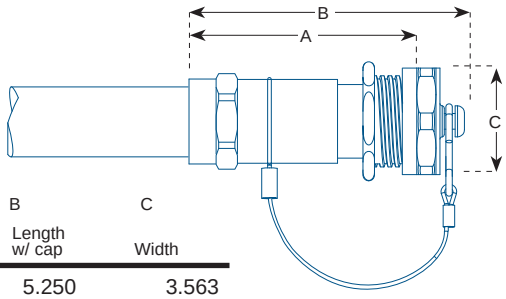
Base P/N
CZPEM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.563	8.156	3.600
Long	9.813	10.406	

Receptacle with conduit adapter

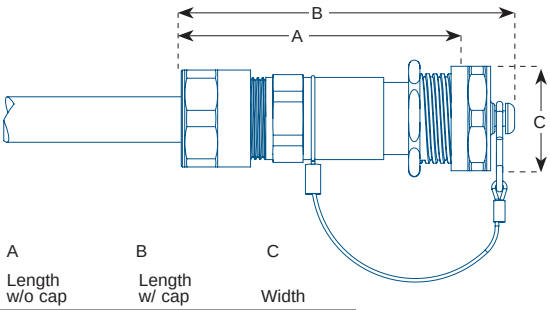
Base P/N
CZRET



A Length w/o cap	B Length w/ cap	C Width
4.625	5.250	3.563

Cable mounted receptacle with gland nut

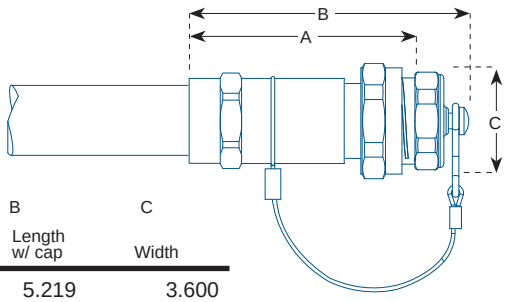
Base P/N
CZRED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.625	7.250	3.563
Long	8.875	9.500	

Plug with conduit adapter

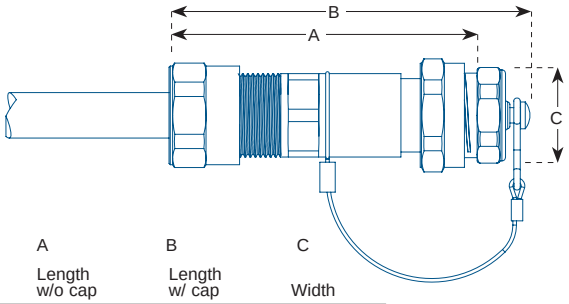
Base P/N
CZPET



A Length w/o cap	B Length w/ cap	C Width
4.625	5.219	3.600

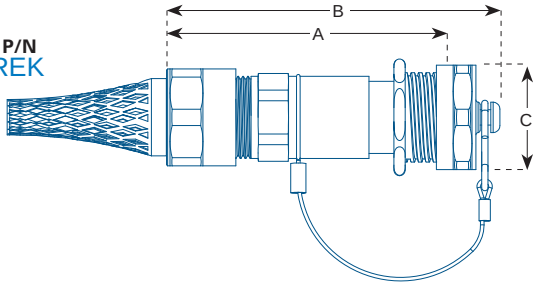
Cable mounted plug with gland nut

Base P/N
CZPED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.625	7.219	3.600
Long	8.875	9.469	

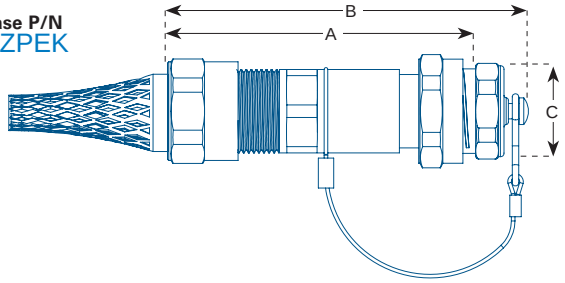
Base P/N
CZREK



Cable mounted receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.625	7.250	3.563
Long	8.875	9.500	

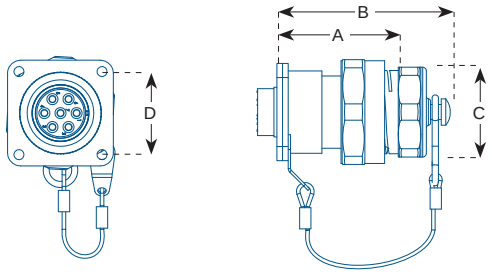
Base P/N
CZPEK



Cable mounted plug with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	6.625	7.219	3.600
Long	8.875	9.469	

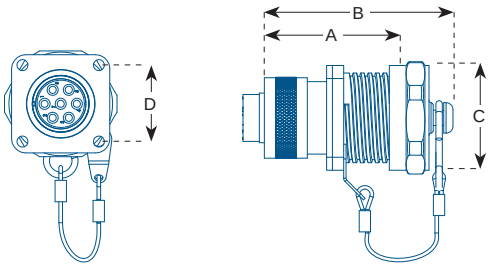
Base P/N
CZPEP



Panel mounted plug

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.469	3.063	3.600	2.531	0.344

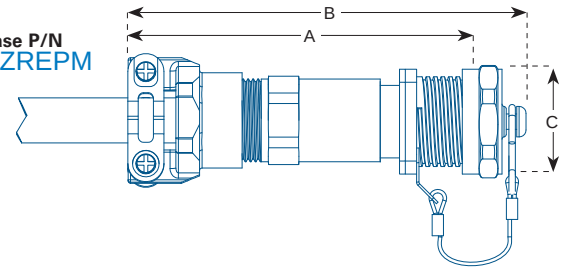
Base P/N
CZREP



Panel mounted receptacle

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.328	2.938	3.250	2.531	0.281

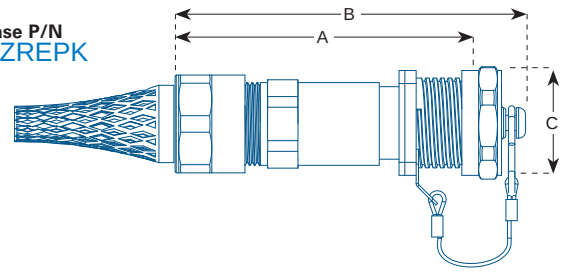
Base P/N
CZREPM



Cable mounted square flange receptacle with mechanical clamp

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	7.563	8.188	3.250	2.531	0.281
Long	9.813	10.438			

Base P/N
CZREPK



Cable mounted square flange receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	6.625	7.250	3.250	2.531	0.281
Long	8.875	9.500			

CZ series– 24 Shell

Example: CZ-PEKL-1624-371PN

CZ P E K L 16

Series	
CZ	Non-hazardous rated connector

Base call out	
P	Plug
R	Receptacle

Environmental cover	
E	Environmental cover
L	No cover

Cable hardware	
K	In-line cable mount w/ basketweave clamp
M	In-line cable mount w/ mechanical clamp
D	In-line cable mount w/ gland nut
P	Panel mount

Adapter length	
L	Long
BLANK	Standard or panel mount

Coupling nut	
BLANK	Standard coupling nut
J	Jack nut

Grommet code	
BLANK	Panel mount
See table below	In-line cable mount

Grommet	Cable diameter	
	in.	mm.
16	0.875 - 1.000	22.2 - 25.4
18	1.000 - 1.125	25.4 - 28.6
20	1.125 - 1.250	28.6 - 31.8
22	1.250 - 1.375	31.8 - 34.9
24	1.375 - 1.500	34.9 - 38.1
26	1.500 - 1.625	38.1 - 41.2
28	1.625 - 1.750	41.2 - 44.4
30	1.750 - 1.875	44.4 - 47.6

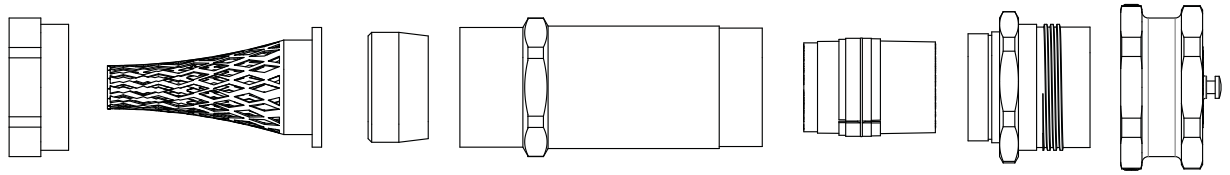
Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
16 AWG	18
12 AWG	30
1/0 AWG	155
4/0 AWG	225

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600



Cable hardware | Grommet | Cable adapter | Insert | Skirt | Environmental cover

24 371 P N

Shell size

24	Connector shell size
C24	C length shell size

Insert configuration

See all configurations below

Contact gender

P	Male pin
S	Female socket

Contact connection type

N	Crimp
R	Pressure

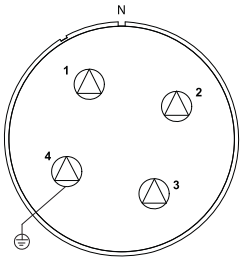
Plating

BLANK	Silver (crimp or solder) Nickel (pressure)
K	Gold (crimp only)

Key position

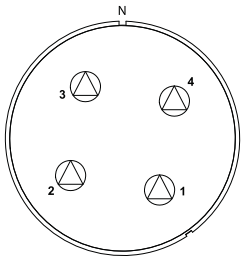
BLANK	0 degrees

See appendix p. 70 for clocking options



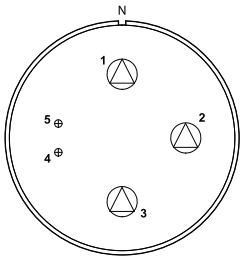
26

# Contacts	4
AWG	4/0
Service voltage rating	D



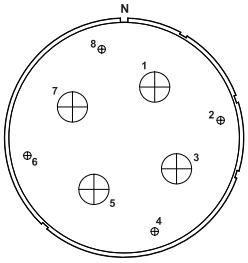
38

# Contacts	4
AWG	4/0
Service voltage rating	D



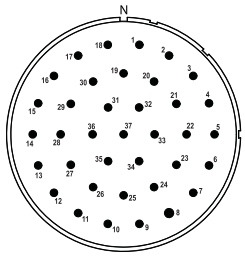
48*

# Contacts	2	3
AWG	12	4/0
Service voltage rating	A	D



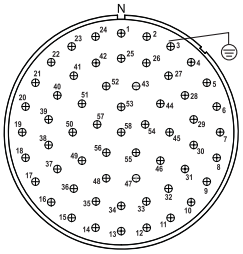
53

# Contacts	4	4
AWG	12	1/0
Service voltage rating	A	B



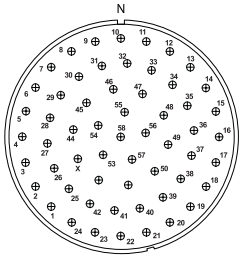
371

# Contacts	37
AWG	16
Service voltage rating	D



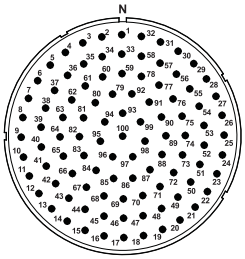
352

# Contacts	58
AWG	12
Service voltage rating	A



384

# Contacts	58
AWG	12
Service voltage rating	A



313

# Contacts	100
AWG	16
Service voltage rating	A

***Made to order item. Consult factory for availability and lead time.**

Contact Symbol	○	●	⊕	○	◉	◉	⊕	△	□	◇	○	⊗
AWG	18	16	12	10	8	4	1/0	4/0	313 MCM	444 MCM	535 MCM	777 MCM

28 Shell

Applications:
Heavy duty control and instrumentation

Certifications:
- UL recognized: UL1977 CSA: C22.2 No. 182.3
- CE marked

Environmental:
- IP68
- NEMA 4X, 6P

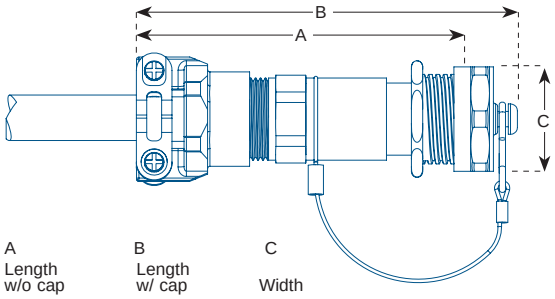
Ambient temperature:
- -60°C to +55°C

Construction:
- Contacts - silver plated copper, crimp or solder style; nickel plated brass, pressure style; optional gold plated (crimp only)
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Rigid insulators - thermoplastic
- Resilient inserts - silicone rubber

Features & benefits:
- Intermateable with other brands
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment allows for easy installation
- Easily accessible wire terminals
- Ample wiring space within shells
- Double-lead thread coupling
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant

Cable mounted receptacle with mechanical clamp

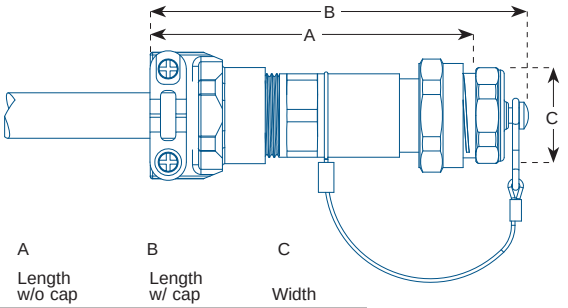
Base P/N
CZREM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	8.125	8.750	4.063
Long	10.125	10.750	

Cable mounted plug with mechanical clamp

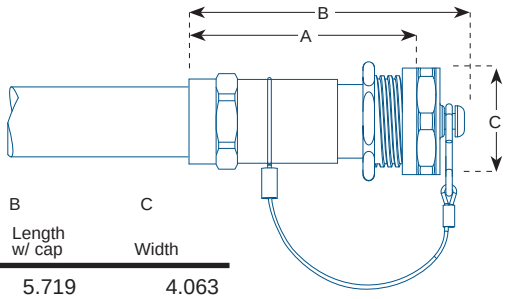
Base P/N
CZPEM



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	8.125	8.719	4.134
Long	10.125	10.719	

Receptacle with conduit adapter

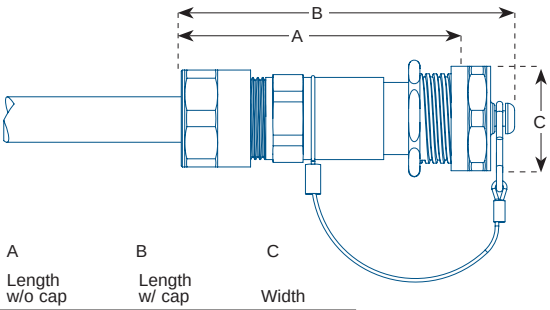
Base P/N
CZRET



A Length w/o cap	B Length w/ cap	C Width
5.094	5.719	4.063

Cable mounted receptacle with gland nut

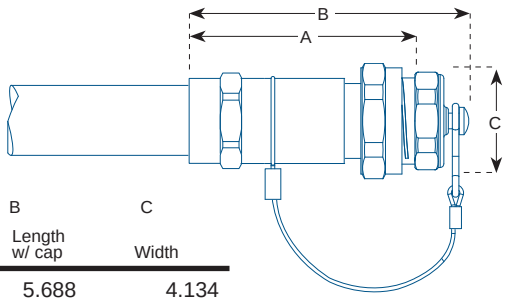
Base P/N
CZRED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.750	4.063
Long	9.125	9.750	

Plug with conduit adapter

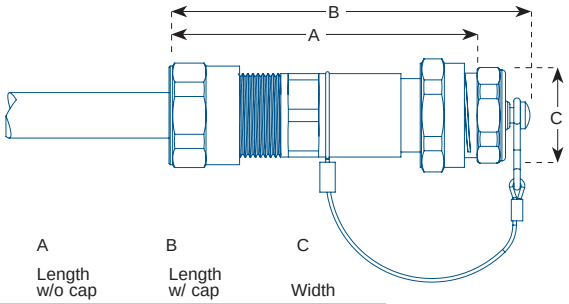
Base P/N
CZPET



A Length w/o cap	B Length w/ cap	C Width
5.094	5.688	4.134

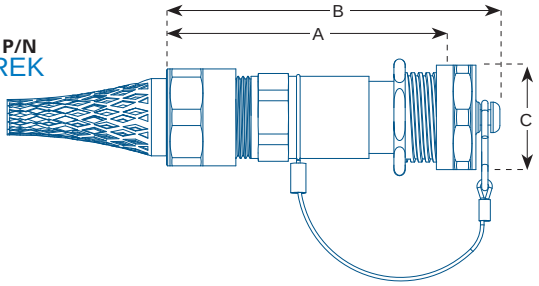
Cable mounted plug with gland nut

Base P/N
CZPED



Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.719	4.134
Long	9.125	9.719	

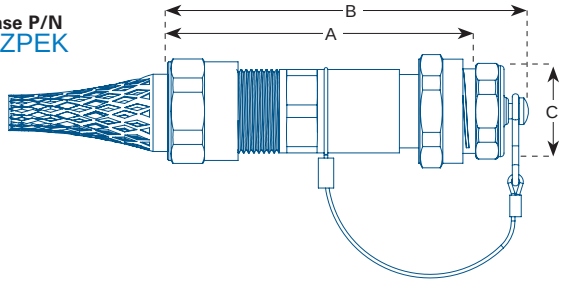
Base P/N
CZREK



Cable mounted receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.750	4.063
Long	9.125	9.750	

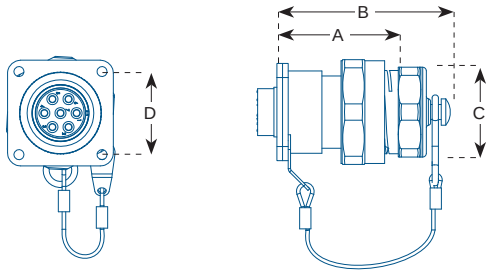
Base P/N
CZPEK



Cable mounted plug with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.719	4.134
Long	9.125	9.719	

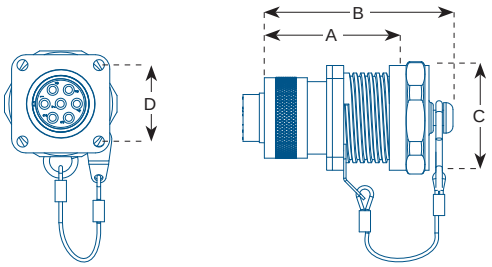
Base P/N
CZPEP



Panel mounted plug

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.469	3.063	4.134	3.031	0.344

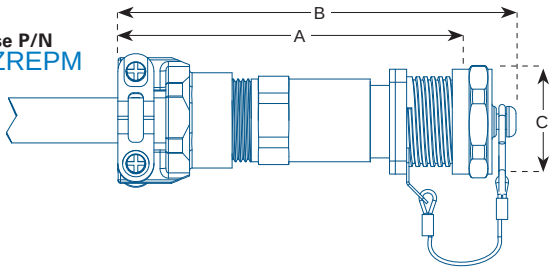
Base P/N
CZREP



Panel mounted receptacle

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.328	2.938	3.750	3.031	0.344

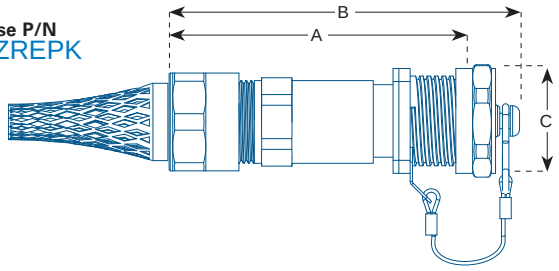
Base P/N
CZREPM



Cable mounted square flange receptacle with mechanical clamp

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	8.125	8.750	3.750	3.031	0.344
Long	10.125	10.750			

Base P/N
CZREPK



Cable mounted square flange receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	7.125	7.750	3.750	3.031	0.344
Long	9.125	9.750			

CZ series– 28 Shell

Example: CZ-PEKL-2428-339PN

CZ P E K L 24

Series	
CZ	Non-hazardous rated connector

Base call out	
P	Plug
R	Receptacle

Environmental cover	
E	Environmental cover
L	No cover

Cable hardware	
K	In-line cable mount w/ basketweave clamp
M	In-line cable mount w/ mechanical clamp
D	In-line cable mount w/ gland nut
P	Panel mount

Coupling nut	
BLANK	Standard coupling nut
J	Jack nut

Adapter length	
L	Long
BLANK	Standard or panel mount

Grommet code	
BLANK	Panel mount
See table below	In-line cable mount

Grommet	Cable diameter	
	in.	mm.
24	1.375 - 1.500	34.9 - 38.1
26	1.500 - 1.625	38.1 - 41.3
28	1.625 - 1.750	41.3 - 44.5
30	1.750 - 1.875	44.5 - 47.6
32	1.875 - 2.000	47.6 - 50.8
34	2.000 - 2.125	50.8 - 54.0
36	2.125 - 2.250	54.0 - 57.2
38	2.250 - 2.375	57.2 - 60.3
40	2.375 - 2.500	60.3 - 63.5
42	2.500 - 2.625	63.5 - 66.7
44	2.625 - 2.750	66.7 - 69.9
46	2.750 - 2.875	69.9 - 73.0

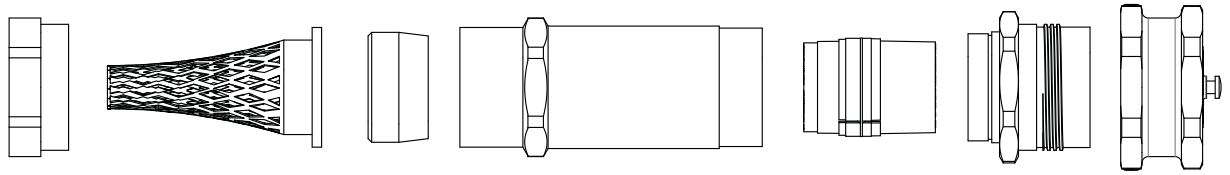
Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
12 AWG	30
10 AWG	40
8 AWG	55
4/0 AWG	225
350 MCM	325

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600



Cable hardware | Grommet | Cable adapter | Insert | Skirt | Environmental cover

28 339 P N

Shell size

28	Connector shell size
C28	C length shell size

Insert configuration

See all configurations below

Contact gender

P	Male pin
S	Female socket

Contact connection type

BLANK	Solder
N	Crimp

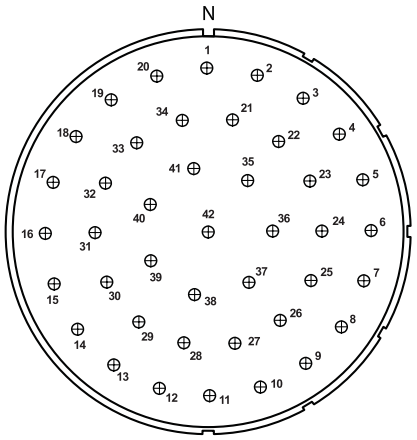
Plating

BLANK	Silver (crimp or solder) Nickel (pressure)
K	Gold (crimp only)

Key position

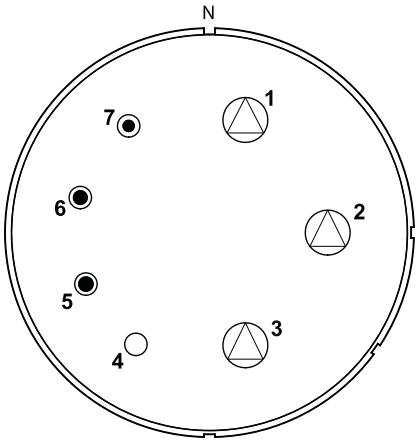
BLANK	0 degrees

See appendix p. 71 for clocking options



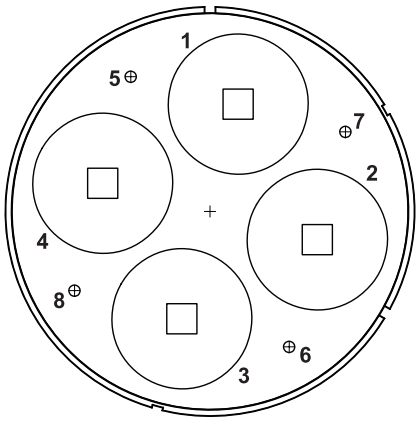
339

# Contacts	42
AWG	12
Service voltage rating	D



H44
(V.F.D. insert)

# Contacts	3	3	1
AWG	4/0	8	10
Service voltage rating		D	



43

# Contacts	4	4
AWG	12	350 MCM
Service voltage rating	D (350 MCM) E (12 AWG)	

Contact Symbol	○	●	⊕	○	◉	◉	⊕	△	□	□	◇	○	⊗
AWG	18	16	12	10	8	4	1/0	4/0	313 MCM	350 MCM	444 MCM	535 MCM	777 MCM

C24 Shell

Applications:
Heavy duty single pole power

Certifications:

- UL recognized: UL486A-486B
  CSA: C22.2 No. 65-13
- CE marked

Ambient temperature:

- -60°C to +55°C

Environmental:

- IP68
- NEMA 4X, 6P

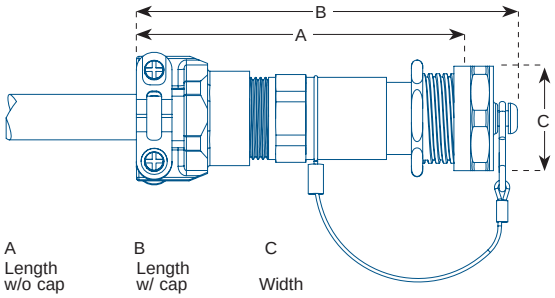
Construction:

- Contacts - silver plated copper, multi-lam style
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, olive drab color
- Rigid insulator - thermoplastic

Features & benefits:

- Intermateable with other brands
- Exclusive visual mating alignment allows for easy installation
- Easily accessible wire terminals
- Ample wiring space within shells
- Multi-lam contacts standard on single pole connectors
  - Reduced insertion and removal forces
  - Improved resistance/heat rise performance
- Double-lead thread coupling
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- Impact-resistant
- Colored shells available for phase marking identification

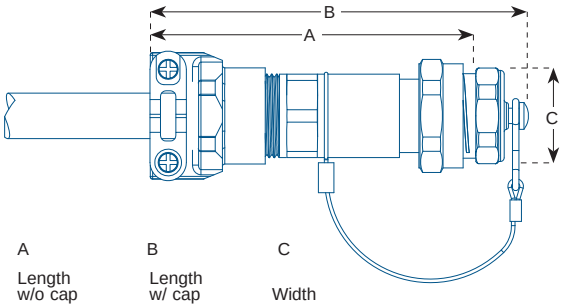
Cable mounted receptacle with mechanical clamp



Base P/N
CRIG15

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	8.063	8.688	3.563
Long	10.313	10.938	

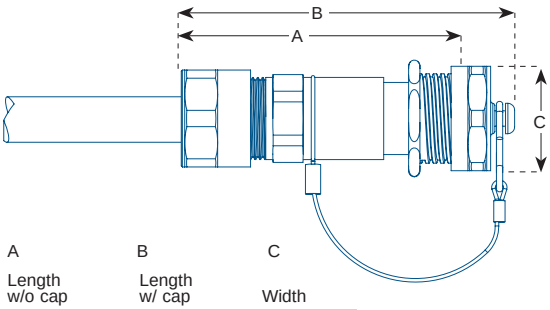
Cable mounted plug with mechanical clamp



Base P/N
CRIG10

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	8.063	8.656	3.600
Long	10.313	10.906	

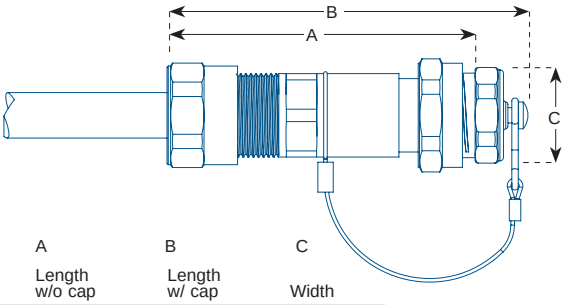
Cable mounted receptacle with gland nut



Base P/N
CRIG15

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.750	3.563
Long	9.375	10.000	

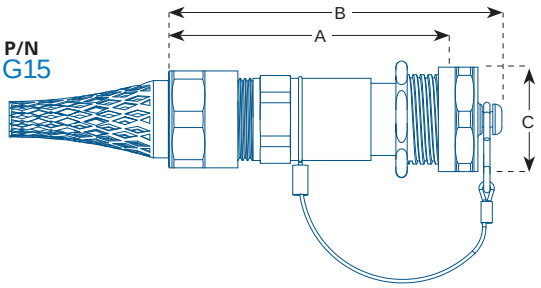
Cable mounted plug with gland nut



Base P/N
CRIG10

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.719	3.600
Long	9.375	9.969	

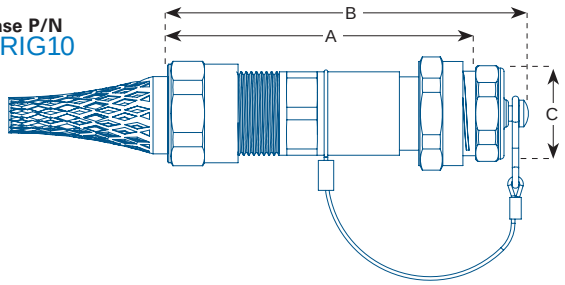
Base P/N
CRIG15



Cable mounted receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.750	3.563
Long	9.375	10.000	

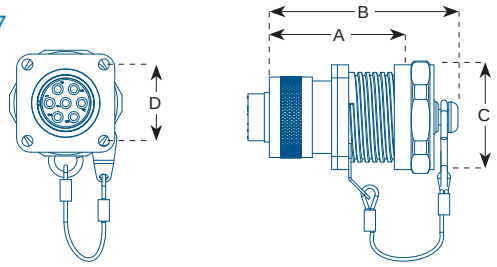
Base P/N
CRIG10



Cable mounted plug with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width
Short	7.125	7.719	3.600
Long	9.375	9.969	

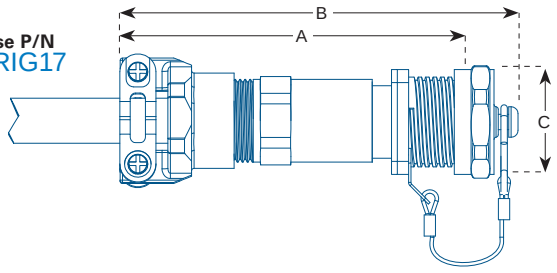
Base P/N
CRIG17



Panel mounted receptacle

A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
2.828	3.438	3.250	2.531	0.281

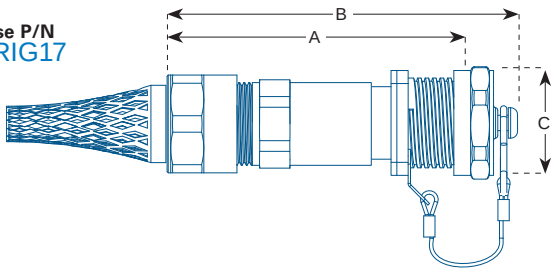
Base P/N
CRIG17



Cable mounted square flange receptacle with mechanical clamp

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	8.063	8.688	3.250	2.531	0.281
Long	10.313	10.938			

Base P/N
CRIG17



Cable mounted square flange receptacle with basketweave

Adapter length	A Length w/o cap	B Length w/ cap	C Width	D Ctr. - ctr. mount hole	Diameter Mount hole
Short	7.125	7.750	3.250	2.531	0.281
Long	9.375	10.000			

CRIG single pole series– C24 Shell

Example: CRIG10P724MBL

CRIG **10** **P**

Series	
CRIG	Non-hazardous rated connector

Contact type	
BLANK	Standard
H	H Series

Base call out	
10	Plug (cable mount)
15	Receptacle (cable mount)
17	Sq. flange receptacle (cable/panel mount)

Contact gender	
P	Dead front pin
S	Socket contact

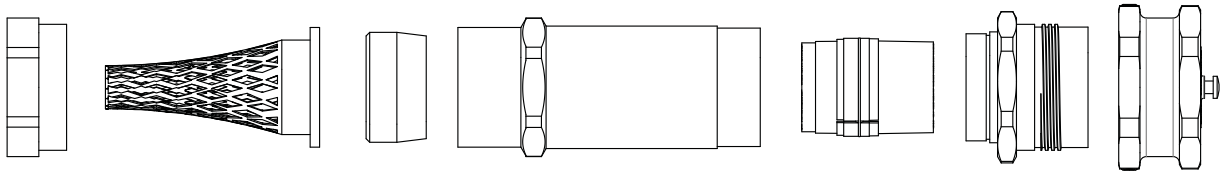
Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating*
313 MCM	636
444 MCM	796
535 MCM	898
777 MCM	1135

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600



Cable hardware | Grommet | Cable adapter | Insert | Skirt | Environmental cover

7 24 M BL

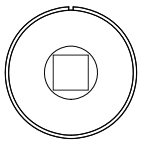
Cable size/entry	
2	313 kcmil cable
4	444 kcmil cable
5	535 kcmil cable
7	646 - 777 kcmil cable
R	Panel mount - bus bar entry (connector style 17 only)
N	Panel mount - direct cable entry
	See all configurations below

Cable hardware	
BLANK	If R or N are chosen in"Cable Size/Entry" category on left
K	Basketweave clamp
M	Mechanical clamp
D	Gland nut

Special color code	
BLANK	No special color
BL	Blue
OR	Orange
Y	Yellow
BR	Brown
R	Red
W	White
BK	Black
G	Green

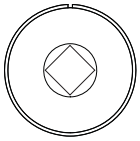
Coupling nut	
BLANK	Glove nut
ST	Standard

Grommet	Cable diameter	
	in.	mm.
BLANK	If R or N are chosen in"Cable Size/Entry" category above	
16	0.875 - 1.000	22.2 - 25.4
18	1.000 - 1.125	25.4 - 28.6
20	1.125 - 1.250	28.6 - 31.8
22	1.250 - 1.375	31.8 - 34.9
24	1.375 - 1.500	34.9 - 38.1
26	1.500 - 1.625	38.1 - 41.2
28	1.625 - 1.750	41.2 - 44.4
30	1.750 - 1.875	44.4 - 47.6



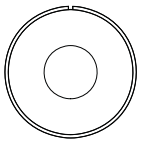
313

# Contacts	1
AWG	313 MCM
Service voltage rating	1000V
Current rating	636A



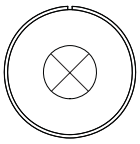
444

# Contacts	1
AWG	444 MCM
Service voltage rating	1000V
Current rating	796A



535

# Contacts	1
AWG	535 MCM
Service voltage rating	1000V
Current rating	898A



386

# Contacts	1
AWG	777 MCM
Service voltage rating	1000V
Current rating	1135A

Contact Symbol	○	•	⊕	○	◉	●	⊕	△	□	◇	○	⊗
AWG	18	16	12	10	8	4	1/0	4/0	313 MCM	444 MCM	535 MCM	777 MCM

CEX Series

Multi-pin and single pole connectors for hazardous areas

Technical reference

Applications:

Heavy duty control and instrumentation, single pole power for hazardous areas

Certifications:

- CE marked
- AEx listed for US Ex Zone 1 Applications (ETL)
- Listed for Canada Ex Zone 1 Applications (ETL)
- ATEX Group II Category 2 certified (ETL)
- IECEx Zone 1 Certified (ETL)
- EAc Certified (Russia)
- INMETRO Certified (Brazil)

Ambient temperature rating:

- Certified for use at: -60°C to +55°C

Environmental:

- IP66, IP68
- NEMA 4X, 6P

Materials and finish:

- Contacts
  - Silver plated copper, crimp style and solder style
  - Nickel plated brass, pressure style
  - Multi-lam style contacts on single poles
  - Optional gold plated contacts (crimp only)
- Shells
  - High tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, black color
- Inserts
  - Rigid insert: thermoplastic material
  - Resilient insert: silicone rubber

CE

Application standards

Property	Standard
Flame-proof enclosure	IEC60079-1
Increased safety	IEC60079-7
Dust ignition protection	IEC60079-31
Impact resistance	IEC60079-0
Dielectric test	IEC60079-7
Ingress	EN:60529
Contact retention	MIL STD 1344

Electrical ratings

Shell options with voltage ratings

Shell size	# of contacts	Contact size	Voltage rating
12	3 - 10	16 AWG - 10 AWG	A, D
16	4 - 37	16 AWG - 8 AWG	A, D
20	7 - 68	16 AWG - 8 AWG	A, B, D, E
24	37 - 100	16 AWG - 12 AWG	A, D
C24	1 - 4	313 MCM - 777 MCM	1000V
C28	7 - 8	12 AWG - 350 MCM	D, E

The voltage rating is specific to the contact configuration of the insert used. For individual insert voltage ratings, please reference catalog guide on pages 6-7.

NEC service voltage ratings

Service voltage	Non-circuit breaking DC volts RMS	Circuit breaking AC volts RMS
A	250	240
D	600	600
E	600	600
B	600	600

Contact amperage ratings

Contact size (AWG / MCM)	Non-circuit breaking current rating @ 55°C*
16 AWG	18
12 AWG	30
10 AWG	40
8 AWG	55
4 AWG	73
1/0 AWG	130
4/0 AWG	198
313 MCM	502
350 MCM (solder)	290A (C24-43)
444 MCM	722
535 MCM	815
777 MCM	1030

* Cable current rating must meet or exceed the ratings of the contacts to utilize connector at fully rated current.

Consult the N.E.C. General Wiring Guidelines, Article 310 prior to installing cable. Guidelines around wire temperature rating, ambient temperature correction factors and the number of conductors may limit the maximum amperage of the individual conductors.

Potting compound specifications

Specifications:

The CEX product line is certified with Chico Liquid Seal, a proprietary formula that enables the customer to install product within a wide ambient temperature range (10°C to 30°C+). Typical gel times average approximately 2 hours or less, enabling quick installation (see gel times below).

Within controlled environments, Epoxies Etc. Flame retardant Epoxy Resin may also be used. (model # 50-3150 RFR with Catalyst 190 or model # 50-3149 RFRBK with Catalyst 192)

All potted CEX series product ships direct to the customer in a kit with the required amount of compound and does not require a separate compound order.

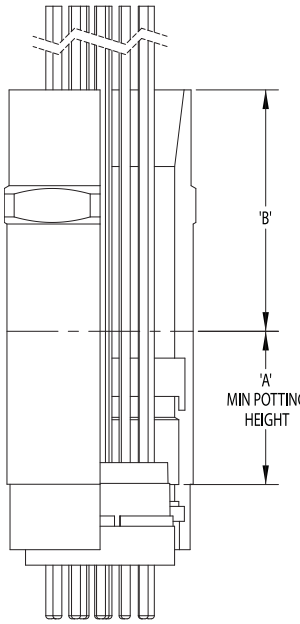


Figure A

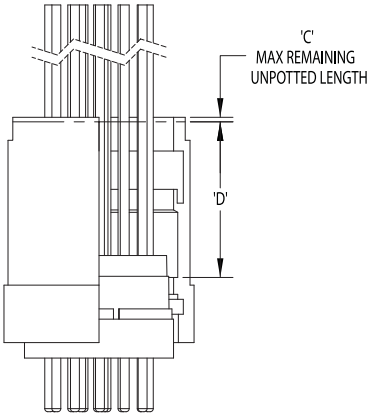


Figure B

For full assembly and potting instructions please reference installation instructions (IF 1683) prior to assembly

The following CEX series product types require potting compound during installation.

CEX potted connectors: (compound ships with connector)

- CEX 17-1: panel mount adapters
- CEX 13-2/4: Plugs with the mechanical clamp or basket weave
- CEX 15-2/4: Connectors with the mechanical clamp or basketweave option

Alternative gland options can be used in place of potting compound on the plugs and connectors

CEX gland connectors: (no compound required)

- CEX 13-3: Plug with Eex d gland
- CEX 15-3: Connector with Eex d gland
- CEX 17-3: Connector with Eex d gland and square flange for a panel mount option

Chico Liquid Seal: gel time

Volume of compound poured (ml)	Gel time (hours) at specific temperatures				
	50° (10°C)	59° (15°C)	68° (20°C)	77° (25°C)	86° (30°C)
50	15.0	3.5	2.3	2.0	1.5
150	10.5	2.9	1.8	1.3	0.9
250	6.9	2.1	1.3	0.4	0.6

Chico Liquid Seal: energize time

Volume of compound poured (ml)	Energize time (hours) at specific temperatures				
	50° (10°C)	59° (15°C)	68° (20°C)	77° (25°C)	86° (30°C)
50	48.0	36.0	24.0	18.0	10.0
150	45.0	33.0	20.0	16.0	6.0
250	39.0	28.0	14.0	10.0	5.0

Potting compound fill rates:

Cable adapter potting (Figure A)

Shell size	Minimum potting height "A"	Maximum unpotted length "B"	Minimum volume (ml)
12	1.7" (42.2 cm)	1.4" (35.6 cm)	33.0
16	1.7" (42.2 cm)	3.4" (86.4 cm)	63.0
20	1.7" (42.2 cm)	3.4" (86.4 cm)	102.0
24	1.7" (42.2 cm)	3.4" (86.4 cm)	181.0
28	1.7" (42.2 cm)	3.4" (86.4 cm)	209.0

Panel mount potting (Figure B)

Shell size	Minimum potting height D	Maximum unpotted length "C"	Minimum volume (ml)
12	1.7" (42.2 cm)	0.375" (9.5 cm)	33.0
16	1.7" (42.2 cm)	0.375" (9.5 cm)	63.0
20	1.7" (42.2 cm)	0.375" (9.5 cm)	102.0
24	1.7" (42.2 cm)	0.375" (9.5 cm)	181.0
28	1.7" (42.2 cm)	0.375" (9.5 cm)	209.0

CEX series multi-pin

12 Shell

Applications:
Hazardous location control and instrumentation

Certifications:
- CE marked
- AEx listed for US Ex Zone 1 Applications (ETL)
- Listed for Canada Ex Zone 1 Applications (ETL)
- ATEX Group II Category 2 certified (ETL)
- IECEx Zone 1 Certified (ETL)
- EAc Certified (Russia)
- INMETRO Certified (Brazil)

Ambient temperature rating:
- Certified for use at: -60°C to +55°C

Environmental:
- IP66, IP68
- NEMA 4X, 6P

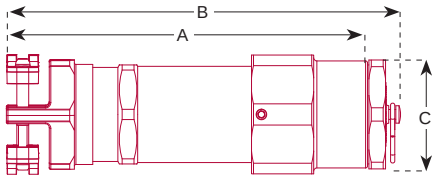
Construction:
- Contacts - silver plated copper, crimp or solder style; nickel plated brass, pressure style; optional gold plated (crimp only)
- Shells - high tensile strength aluminum; hard anodic coating per MIL-A-8625, Type III, black color
- Rigid insulators - thermoplastic
- Resilient inserts - silicone rubber

Features & benefits:
- Reversible inserts are compatible with all panel mount, in-line, male and female shells
- Exclusive visual mating alignment
- Easily accessible wire terminals
- Ample wiring space within shells
- Reversible 8-point diamond cord grip relieves strain on conductors (patent pending)
- Suited for use with Type P cable
- EX cable glands available through Crouse-Hinds
- Hexagon shell design with easy wrenching surfaces ensures adequate torquing
- Impact-resistant

CE

Cable mounted plug with mechanical clamp

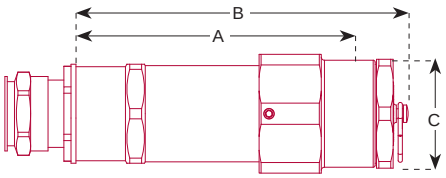
Base P/N
CEX132



A Length w/o cap	B Length w/ cap	C Width
7.14	8.00	1.75

Cable mounted plug with EX cable gland

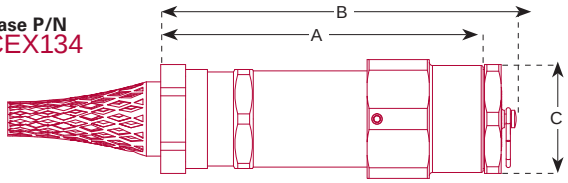
Base P/N
CEX133



A Length w/o cap	B Length w/ cap	C Width
5.71	6.57	1.75

Cable mounted plug with basketweave

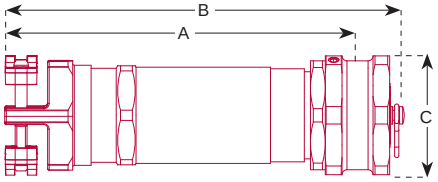
Base P/N
CEX134



A Length w/o cap	B Length w/ cap	C Width
6.18	7.04	1.75

Cable mounted receptacle with mechanical clamp

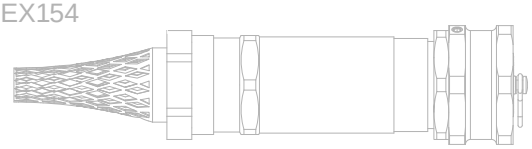
Base P/N
CEX152



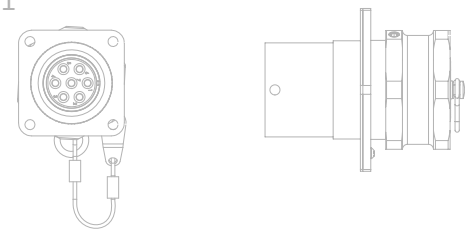
A Length w/o cap	B Length w/ cap	C Width
7.50	8.13	2.00

CEX153

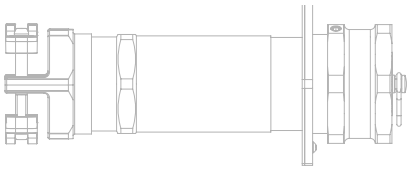
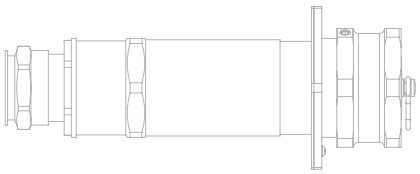
CEX154



CEX171



CEX172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