Moistureproof Receptacle Type Conforming to MIL-C-5015

DDK's CE02-2A series provides a set of vibration-resistant, moistureproof, and oilproof receptacle connectors. This series uses synthetic rubber for its front inserts to cope with the various environments in which industrial machines are installed. The products in the CE02-2A series are compatible with those in the DMS series and comply to MIL-C-5015. They prevent the entry of water moisture, cutting oil, and other foreign matter into machines where these connectors are employed, helping enhance the reliability of the machines. Typically, their best applications are in servo motors, machine tools, and equipment relating to factory automation as well as in extremely dusty environments. For plug connectors to mate with these receptacle connectors, DDK recommends that you use the CE02-6A series or the DMS (D190) series available from DDK.

FEATURE

- The products in the CE02-2A series are interchangeable with those in the DMS series, because both are indentical in installation dimensions.
- The inserts are of a three-piece design. Their contacts will not break when used under normal operating conditions.
- The inserts, which are made of silicone rubber, may be used at temperature of up to 125℃
- Coupling a receptacle connector in the CE02-2A series with a plug connector in the CE02-6A series or the DMS (D190) series allows the entire joint between the two connectors to be moistureproof.

MATERIAL/FINISH

Shell	Aluminum alloy/Zinc plating, Olive drab chromate finish
Front insert	Silicone rubber
Middle insert	PPS resin
Rear insert	PPS resin
Contact	Copper alloy/Silver plating
Flange gasket	Silicone rubber

Wire Size

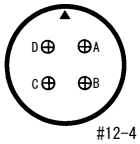
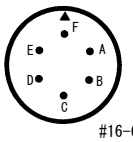
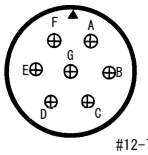
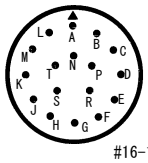
Contact Size	AWG
#16	#16–#22
#12	#12–#14
#8	#8–#10

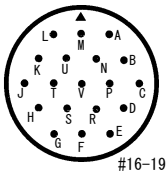
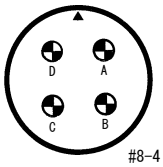
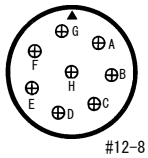
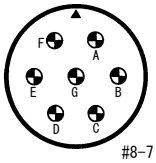
SPECIFICATION

Current rating	Contact size	#16	#12	#8
	Max.value/Per contact	13A	23A	26A
Voltage rating	AC (rms)	250V	350V	350V
	DC	350V	500V	500V
Dielectric withstanding voltage	AC (rms), 1minute	1,000V	1,500V	1,500V
Contact resistance	less than mΩ	5mΩ max.		
Operating temperature		−40℃ to +125℃		

Insert Arrangements

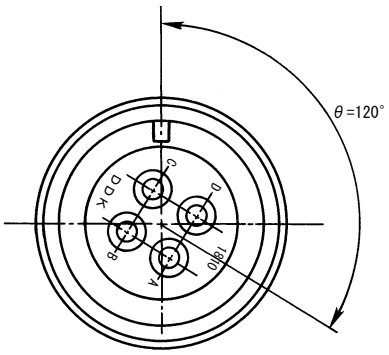
The inserts in the CE02-2A series are indentical to those in the DMS series. Only the pin inserts are shown below.

InsertNo.	18-10	18-12	20-15	22-22
Arrangements	 #12-4	 #16-6	 #12-7	 #16-17

InsertNo.	22-14	22-22	22-23	24-10
Arrangements	 #16-19	 #8-4	 #12-8	 #8-7

Note : Each of the inserts in the CE02 series is viewed from its coupling side; all keys are set at their standard positions.

Alternate Insert Positions



Front View of Pin Insert
(for Model CE2-2A18-10P □)

Insert No.	Contact Size/ No of Contact	Non-standard key positions θ			
		W	X	X	Z
18-10P	#12/4	—	120°	240°	—
18-12P	#16/6	80°	—	—	280°
20-15P	#12/7	80°	—	—	280°
20-29P	#16/17	80°	—	—	280°
22-14P	#16/19	80°	110°	250°	280°
22-22P	#8/4	—	110°	250°	—
22-23P	#12/8	35°	—	250°	—
24-10P	#8/7	80°	—	—	280°

When more than one connector (of the same model) is used in a single device, the key positions should be changed as shown in order to prevent the wrong connectors from being coupled together.

Unit : mm

CE02-2A 20-29PWS

SHELL STYLE
2A : Receptacle

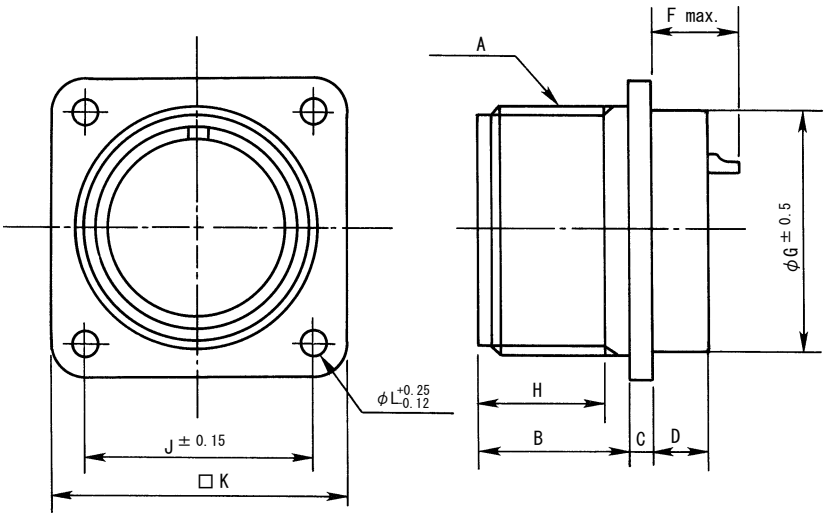
SHELL SIZE
18, 20, 22, 24

INSERT ARRANGEMENT
See page 3

FLANGE GASKET
Omit : Less Gasket
S : With Gasket

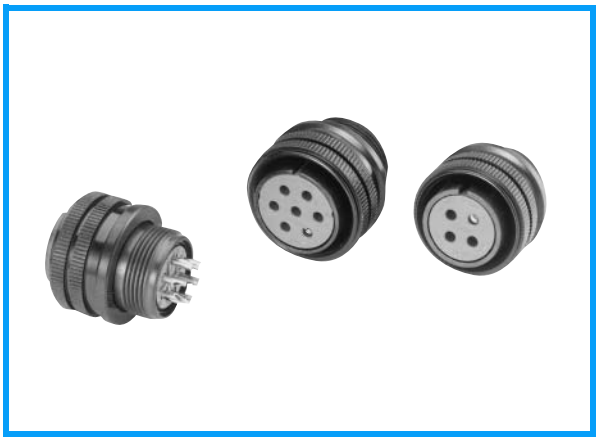
ALTERNATE INSERT POSITION
Omit : Standard position.
W,X,Y,Z : Altenate position.

CONTACT STYLE
P : Pin



Part Number	Threads A	B	C	D	F	G	H	J	K	L
CE02-2A18-10P	1 1/8-18UNEF-2A	19.2	3.35	7.44	13.8	25.4	15.88	26.97	34.9	3.05
CE02-2A18-12P					11.5					
CE02-2A20-15P	1 1/4-18UNEF-2A	19.2	3.35	7.44	13.8	28.6	15.88	29.36	38.1	3.05
CE02-2A20-29P					11.5					
CE02-2A22-14P	1 3/8-18UNEF-2A	19.2	3.35	7.44	11.5	31.8	15.88	31.75	41.3	3.05
CE02-2A22-22P					16.9					
CE02-2A22-23P					13.8					
CE02-2A24-10P	1 1/2-18UNEF-2A	20.8	3.35	7.44	15.4	34.9	15.88	34.93	44.4	3.73

Moistureproof Plug Type
Conforming to MIL-C-5015 and JIS-B-6015



The CE02 series circular connectors are designed to protect connections to electrical equipment from moisture, oil and surges in current which may damage electronic circuitry. The CE02 series is intermateable with MIL- C-5015 style connectors such as the DMS series available from DDK.

APPLICATION

Factory automation equipment, machines, electri-calequipment in industrial outside applications where :

- Electrical connection must be protected against exposure to moisture, oil, or dust.
- The equipment contains electronic circuits which need to be protected by a first-make, last-break contact.

FEATURE

- First-make, last-break contact to prevent damage to electronic circuitry.
- Intermateable with MIL-C-5015 style connectors commonly used on existing factory automation and other electrical equipment.
- Designed to offer protection against moisture and oil. A gasket located between the coupling ring and receptacle shell seals the connection. Available water resistant backshells and cable clamps complete the sealed connection. Plug connector is also designed to accept conduit fittings. When used in this method and mated to DDK's CE02-2A series connectors, the entire connection system from the cable to the inside of the equipment is sealed from moisture, oil, and dust.

MATERIAL/FINISH

Shell	Aluminum alloy/Zinc plating,Olive drab chromate finish
Coupling ring	Aluminum alloy/Zinc plating, Olive drab chromate finish
Insert	Diallyl phthalate/Blue
Contact	Copper alloy/Silver plating
Retaining ring	Copper alloy/Zinc plating, Olive drab chromate finish
Ground lug	Copper alloy/Silver plating
Gasket	Nitrile butadiene rubber/Black

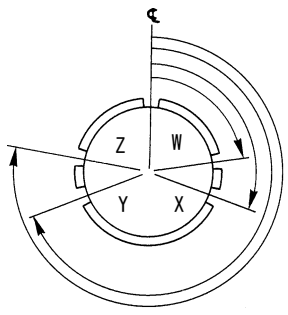
Wire Size

Contact Size	Wire Size
#16	AWG#16–#22
#12	AWG#12–#14
#8	AWG#8–#10

Specification

Current rating	Contact size	#16	#12	#8
	Max.value per contact	13A	23A	46A
Voltage rating	Service rating	A		D
	AC (rms)	500V		900V
	DC	700V		1250V
Withstanding voltage	AC (rms)	2000V		2800V
Insulation resistance	More than 5000MΩ at 500V DC			
Contact resistance	Contact size	#16	#12	#8
	less than mΩ	6	3	2
	Test current	13A	23A	46A
Operating temperature	−55℃ to +125℃			

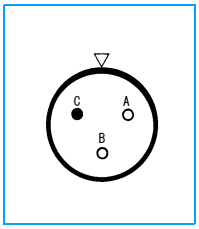
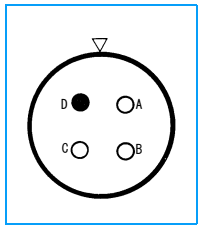
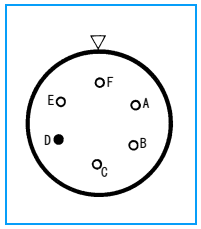
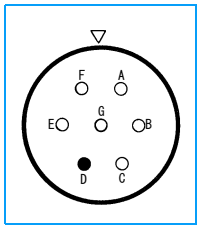
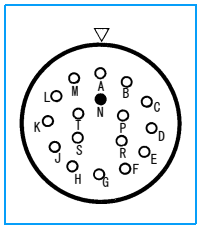
Alternate Insert Positions

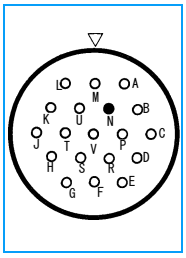
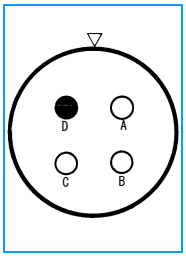
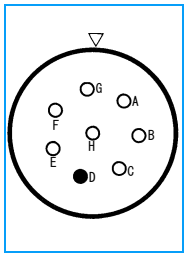
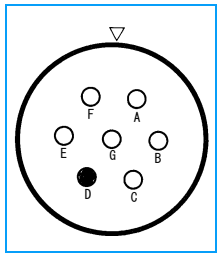
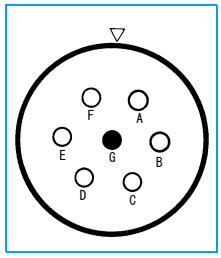


Front View of Socket Insert

Insert No.	Contact size/ Number	W	X	Y	Z
10SL-3	#16/3	—	—	—	—
18-10	#12/4	—	120°	240°	—
18-12	#16/6	80°	—	—	280°
20-15	#12/7	80°	—	—	280°
20-29	#16/17	80°	—	—	280°
22-14	#16/19	80°	—	—	280°
22-22	#8/4	—	110°	250°	—
22-23	#12/8	35°	—	250°	—
24-10	#8/7	80°	—	—	280°

Insert Arrangements

Insert No.	10SL-3	18-10	18-12	20-15	20-29
Arrangements					
Contact Size	#16	#12	#16	#12	#16
No. of Contacts	3	4	6	7	17
Grounding Contact Position	C Terminal	D Terminal	D Terminal	D Terminal	N Terminal
Service Rating	A	A	A	A	A
Current Capacity	13A (29.4A)	23A (62.5A)	13A (43.6A)	23A (83.7A)	13A (81.7A)

Insert No.	22-14	22-22	22-23	24-10 (D)	24-10 (G)
Arrangements					
Contact Size	#16	#8	#12	#8	#8
No. of Contacts	19	4	8	7	7
Grounding Contact Position	N Terminal	D Terminal	D Terminal	D Terminal	G Terminal
Service Rating	A	A	D (H), A (Others)	A	A
Current Capacity	13A (88.9A)	46A (125.1A)	23A (90.1A)	46A (167.4A)	46A (167.4A)

Unit : mm

CE02-6A18-12DSW

SHELL STYLE
6A : Straight Plug

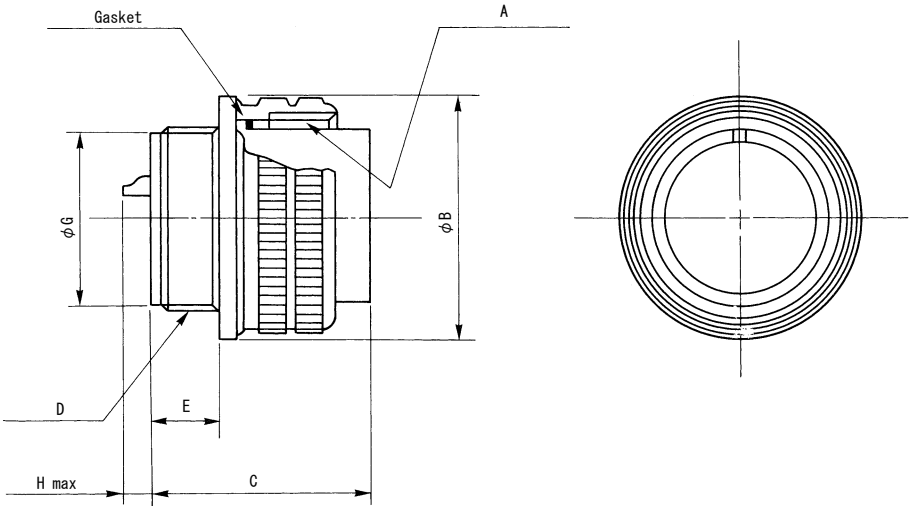
SHELL SIZE
10SL, 18, 20, 22, 24

INSERT ARRANGEMENT
See page 3

ALTERNATE INSERT POSITION
Omit : Standard position
W,X,Y,Z : Alternate position

CONTACT STYLE
S : Socket

PREMATING CONTACT POSITION
Refer to insert arrangements



Shell Size	Coupling Threads A	B	C	Rear Threads D	E	G
10SL	5/8-24UNEF	22.22	23.30	9/16-24UNEF-2A	7.50	12.5
18	1 1/8-18UNEF	34.13	33.72	1-20UNEF-2A	11.74	23.5
20	1 1/4-18UNEF	37.28	34.11	1 1/8-18UNEF-2A	12.16	26.8
22	1 3/8-18UNEF	40.48	34.11	1 1/4-18UNEF-2A	12.15	29.9
24	1 1/2-18UNEF	43.67	36.58	1 3/8-18UNEF-2A	13.42	32.9

	Contact Size			
	#16	#12	#8	#8 (shell size 24)
H	7.0	7.5	10.0	8.5