

Waterproof Circular Connectors (MIL-DTL-5015 Compatible)

D/MS (D190) Series



◆ OUTLINE

D/MS(D190) series is a waterproof circular plug connector which is intermateable with D/MS series and CE02-2A series.

This connector is suitable for the outer connection between the industrial equipment such as a servo motor which needs to be moistureproof or waterproof.



Conforming Standard
MIL-DTL-5015

Waterproof
IP67

Lock Type
Threaded Coupling

◆ FEATURES

- Compatible with MIL-DTL-5015 and intermateable with D/MS series
- The insert assembly is common to D/MS A/B series and 73 sorts of insert arrangements are available.
- Mating with the box receptacle connector D/MS3102A, it will be waterproof rating IP67.
- The combination with CE02-2A can be waterproof. (Refer to insert arrangement availability in CE02-2A series catalog.)

◆ SPECIFICATIONS

Rated Voltage

Service Rating	Rated Voltage(V)		Minimum Length between Each Contacts	Minimum Creepage Distance
	DC	AC(r.m.s)		
INST	250	200	-	1.6mm
A	700	500	1.6mm	3.2mm
D	1250	900	3.2mm	4.8mm
E	1750	1250	4.8mm	6.4mm
B	2450	1750	6.4mm	7.9mm
C	4200	3000	7.9mm	25.4mm

Current Rating

Contact Size	Pin Contact Diameter	Current Capacity per Contact
#16	φ 1.6mm	13A
#12	φ 2.4mm	23A
#8	φ 3.6mm	46A
#4	φ 5.7mm	80A
#0	φ 9.1mm	150A

Applicable Cable Size

Contact Size	Minimum Bore of Solder Cup	Applicable Cable Size		
		AWG	Nominal Section Area	Maximum Conductor Dia.
#16	1.76 (mm)	#16 - #22	1.25mm ²	1.6mm
#12	2.85 (mm)	#12 - #14	3.50mm ²	2.5mm
#8	5.21 (mm)	#8 - #10	8.00mm ²	4.5mm
#4	8.33 (mm)	#4 - #6	22.00mm ²	7.0mm
#0	11.7 (mm)	#0 - #2	50.00mm ²	11.0mm

◆ MATERIAL / FINISH



Parts	Material / Finish
Contact	Copper Alloy/Silver Plating (Option Gold Plating)
Retaining Ring	Copper Alloy/Nickel Plating
Insert	Diallyl Phthalate Resin(Blue)
Gasket	Synthetic Rubber(Nitrile)
Shell	Aluminum Alloy/Zinc Plating, Trivalent Chromium Finish

▶ Insert Arrangement

Insert No.	Number of Contact	Service Rating	Contact Size				
			#0	#4	#8	#12	#16
10SL-3	3	A					3
10SL-4	2	A					2
12S-3	2	A					2
14S-1	3	A					3
14S-2	4	INST					4
14S-5	5	INST					5
14S-6	6	INST					6
14S-7	3	A					3
14S-9	2	A					2
16S-1	7	A					7
16S-5	3	A					3
16S-8	5	A					5
16-10	3	A				3	
18-1	10	A					4
		INST					6
18-4	4	D					4
18-5	3	D				2	1
18-8	8	A				1	7
18-10	4	A				4	
18-11	5	A				5	
18-12	6	A					6
18-19	10	A					10
18-20	5	A					5
18-21	3	A				3	
18-22	3	D					3
20-2	1	D	1				
20-4	4	D				4	
20-7	8	D					4
		A					4
20-15	7	A				7	
20-16	9	A				2	7
20-17	6	A				5	1
20-18	9	A				3	6
20-22	6	A			3		3
20-23	2	A			2		
20-27	14	A					14
20-29	17	A					17
22-2	3	D			3		
22-10	4	E					4
22-14	19	A					19
22-19	14	A					14
22-22	4	A			4		
22-23	8	D				1	
		A				7	
22-28	7	A				7	

Insert No.	Number of Contact	Service Rating	Contact Size				
			#0	#4	#8	#12	#16
24-2	7	D				7	
24-5	16	A					16
24-7	16	A				2	14
24-10	7	A			7		
24-11	9	A			3	6	
24-20	11	D				2	9
24-22	4	D			4		
24-28	24	INST					24
28-6	3	D		3			
28-10	7	D				1	
		A		2	2	2	
28-11	22	A				4	18
28-12	26	A					26
28-15	35	A					35
28-16	20	A					20
28-20	14	A				10	4
28-21	37	A					37
32-1	5	E				1	
		D	2			2	
32-2	5	E		3			2
32-5	2	D	2				
32-7	35	A				7	24
		INST					4
32-8	30	A				6	24
32-9	14	D		2			12
32A-10	54	A					54
32-17	4	D		4			
32-414	52	A					52
36-3	6	D	3			3	
36-4	3	D	1				
		A	2				
36-5	4	A	4				
36-9	31	A		1	2	14	14
36-10	48	A					48
36-73	73	A					73

▶ Insert Arrangement List

Front View of Pin Contact

Number of Contact	2					
Insert Arrangement						
Insert Number	20-2	10SL-4	12S-3	14S-9	20-23	32-5
Contact Size	1-#0	2-#16	2-#16	2-#16	2-#8	2-#0
Service Rating	D	A	A	A	A	D
Current Rating	150A	13A	13A	13A	46A	150A

Number of Contact	3							
Insert Arrangement								
Insert Number	10SL-3	14S-1	14S-7	16S-5	16-10	18-5	18-21	
Contact Size	3-#16	3-#16	3-#16	3-#16	3-#12	2-#12、1-#16	3-#12	
Service Rating	A	A	A	A	A	D	A	
Current Rating	13A	13A	13A	13A	23A	#12 : 23A #16 : 13A	23A	

Number of Contact	3			
Insert Arrangement				
Insert Number	18-22	22-2	28-6	36-4
Contact Size	3-#16	3-#8	3-#4	3-#0
Service Rating	D	D	D	D(A), A(BC)
Current Rating	13A	46A	80A	150A

Contact Size Symbol

Service Rating	INST	A	D	E	B	C
Rated Voltage AC(r.m.s.)	200	500	900	1,250	1,750	3,000
Rated Voltage DC	250	700	1,200	1,750	2,450	4,200
Contact Size	#16	#12	#8	#4	#0	
MAX Current /Contact	13	23	46	80	150	

▶ Insert Arrangement List

Number of Contact	4					
Insert Arrangement						
Insert Number	14S-2	18-4	18-10	20-4	22-10	22-22
Contact Size	4-#16	4-#16	4-#12	4-#12	4-#16	4-#8
Service Rating	INST	D	A	D	E	A
Current Rating	13A	13A	23A	23A	13A	46A

Number of Contact	4		
Insert Arrangement			
Insert Number	24-22	32-17	36-5
Contact Size	4-#8	4-#4	4-#0
Service Rating	D	D	A
Current Rating	46A	80A	150A

Number of Contact	5					
Insert Arrangement						
Insert Number	14S-5	16S-8	18-11	18-20	32-1	32-2
Contact Size	5-#16	5-#16	5-#12	5-#16	2-#0, 3-#12	3-#4, 2-#16
Service Rating	INST	A	A	A	E(A), D	E
Current Rating	13A	13A	23A	13A	# 0 : 150 ,#12 : 23A	#4 : 80A, #16 : 13A

Number of Contact	6				
Insert Arrangement					
Insert Number	14S-6	18-12	20-17	20-22	36-3
Contact Size	6-#16	6-#16	5-#12, 1-#16	3-#8, 3-#16	3-#0, 3-#12
Service Rating	INST	A	A	A	D
Current Rating	13A	13A	#12 : 23A #16 : 13A	# 8 : 46A #16 : 13A	# 0 : 150A, #16 : 23A

▶ Insert Arrangement List

Number of Contact	7					
Insert Arrangement						
Insert Number	16S-1	20-15	22-28	24-2	24-10	28-10
Contact Size	7-#16	7-#12	7-#12	7-#12	7-#8	2-#4, 2-#8, 3-#12
Service Rating	A	A	A	D	A	D(G), A
Current Rating	13A	23A	23A	23A	46A	#4 : 80A, #8 : 46A #12 : 23A

Number of Contact	8			9		
Insert Arrangement						
Insert Number	18-8	20-7	22-23	20-16	20-18	24-11
Contact Size	1-#12, 7-#16	8-#16	8-#12	2-#12, 7-#16	3-#12, 6-#16	3-#8, 6-#12
Service Rating	A	D(ABHG) , A(CDEF)	D(H) , A	A	A	A
Current Rating	#12 : 23A, #16 : 13A	13A	23A	#12 : 23A, #16 : 13A	#12 : 23A, #16 : 13A	#8 : 46A, #12 : 23A

Number of Contact	10		11	14	
Insert Arrangement					
Insert Number	18-1	18-19	24-20	20-27	22-19
Contact Size	10-#16	10-#16	2-#12, 9-#16	14-#16	14-#16
Service Rating	A(BCFG, INST)	A	D	A	A
Current Rating	13A	13A	#12 : 23A, #16 : 13A	13A	13A

Number of Contact	14	
Insert Arrangement		
Insert Number	28-20	32-9
Contact Size	10-#12, 4-#16	2-#4, 12-#16
Service Rating	A	D
Current Rating	#12 : 23A, #16 : 13A	#4 : 80A, #16 : 13A

Contact Size Symbol						
Service Rating	INST	A	D	E	B	C
Rated Voltage AC(r.m.s.)	200	500	900	1,250	1,750	3,000
Rated Voltage DC	250	700	1,200	1,750	2,450	4,200
Contact Size	#16	#12	#8	#4	#0	
MAX Current /Contact	13	23	46	80	150	

▶ Insert Arrangement List

Number of Contact	16		17	19	20
Insert Arrangement					
Insert Number	24-5	24-7	20-29	22-14	28-16
Contact Size	16-#16	2-#12, 14-#16	17-#16	19-#16	20-#16
Service Rating	A	A	A	A	A
Current Rating	13A	#12 : 23A, #16 : 13A	13A	13A	13A
Number of Contact	22	24	26	30	
Insert Arrangement					
Insert Number	28-11	24-28	28-12	32-8	
Contact Size	4-#12, 18-#16	24-#16	26-#16	6-#12, 24-#16	
Service Rating	A	INST	A	A	
Current Rating	#12 : 23A, #16 : 13A	13A	13A	#12 : 23A, #16 : 13A	
Number of Contact	31	35		37	
Insert Arrangement					
Insert Number	36-9	28-15	32-7	28-21	
Contact Size	1-#4, 2-#8, 14-#12, 14-#16	35-#16	7-#12, 28-#16	37-#16	
Service Rating	A	A	INST(ABHJ), A	A	
Current Rating	#4 : 80A #8 : 46A #12 : 23A #16 : 13A	13A	#12 : 23A #16 : 13A	13A	
Number of Contact	48	52	54	73	
Insert Arrangement					
Insert Number	36-10	32-414	32A-10	36-73	
Contact Size	48-#16	52-#16	54-#16	73-#16	
Service Rating	A	A	A	A	
Current Rating	13A	13A	13A	13A	

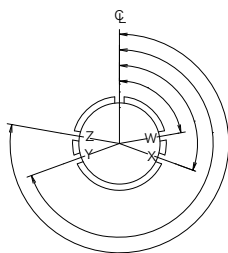
Contact Size Symbol

	#16	#12	#8	#4	#0
Service Rating	A	D	E	B	C
Rated Voltage AC(r.m.s.)	200	500	900	1,250	1,750
Rated Voltage DC	250	700	1,200	1,750	2,450
Contact Size	#16	#12	#8	#4	#0
MAX Current /Contact	13	23	46	80	150

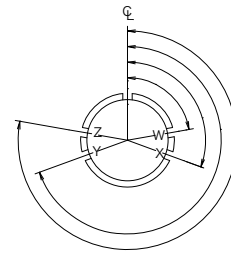
▶ Alternate Insert Position

Number of Contact	Insert Number	Alternate Insert Key			
		W	X	Y	Z
1	20-2	—	—	—	—
2	10SL-4	—	—	—	—
	12S-3	70	145	215	290
	14S-9	70	145	215	290
	20-23	35	110	250	325
	32-5	35	110	250	325
3	10SL-3	—	—	—	—
	14S-1	—	—	—	—
	14S-7	90	180	270	—
	16S-5	70	145	215	290
	16-10	90	180	270	—
	18-5	80	110	250	280
	18-21	—	—	—	—
	18-22	70	145	215	290
	22-2	70	145	215	290
	28-6	70	145	215	290
	36-4	70	148	215	290
4	14S-2	—	120	240	—
	18-4	35	110	250	325
	18-10	—	120	240	—
	20-4	45	110	250	—
	22-10	35	110	250	325
	22-22	—	110	250	—
	24-22	45	110	250	—
	32-17	45	110	250	—
	36-5	—	120	240	—
5	14S-5	—	110	—	—
	16S-8	—	170	265	—
	18-11	—	170	165	—
	18-20	90	180	270	—
	32-1	80	110	250	280
	32-2	70	145	215	290
6	14S-6	—	—	—	—
	18-12	80	—	—	280
	20-17	90	180	270	—
	20-22	80	—	—	280
	36-3	70	145	215	290

Number of Contact	Insert Number	Alternate Insert Key			
		W	X	Y	Z
7	16S-1	80	—	—	280
	20-15	80	—	—	280
	22-28	80	—	—	280
	24-2	80	—	—	280
	24-10	80	—	—	280
	28-10	80	110	250	280
8	18-8	70	—	—	290
	20-7	80	110	250	280
	22-23	35	—	—	—
9	20-16	80	110	250	280
	20-18	35	110	250	325
	24-11	35	110	250	325
10	18-1	70	145	215	290
	18-19	—	120	240	—
11	24-20	80	110	250	280
14	20-27	35	110	250	325
	22-19	80	110	250	280
	28-20	80	110	250	280
16	32-9	80	110	250	280
	24-5	80	110	250	280
16	24-7	80	110	250	280
	24-7	80	110	250	280
17	20-29	80	—	—	280
19	20-29	80	110	250	280
20	28-16	80	110	250	280
22	28-11	80	110	250	280
24	24-28	80	110	250	280
26	28-12	90	180	270	—
30	32-8	80	125	235	280
31	36-9	80	125	235	280
35	28-15	80	110	250	280
	32-7	80	125	235	280
37	28-21	80	110	250	280
48	36-10	80	125	235	280
52	32-414	80	110	250	280
54	32A-10	—	—	—	—
73	36-73	80	110	250	280



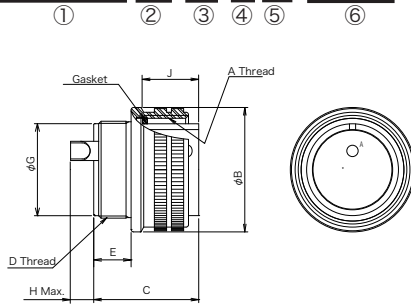
Front View of Pin Insert



Front View of Socket Insert

▶ Straight Plug

D/MS3106A20-29SW (D190)

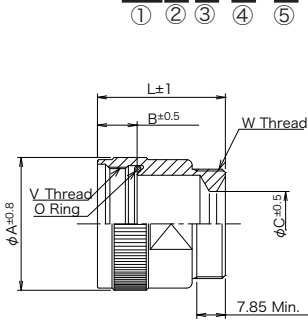


① Connector Style	3106A : Straight Plug
② Shell Size	10SL, 12S, 14S, 16S, 16, 18, 20, 22, 24, 28, 32 and 36
③ Insert Number	Refer to page 3 to 6.
④ Contact Style	P : Plug Contact S : Socket Contact.
⑤ Alternate Insert Key Position	Omit : Standard Position, W, X, Y, Z : Refer to page 7.
⑥ Deviation	(D190) Waterproof, without backshell.

Shell Size	A	B	C±0.5	D	E±0.3	G ^{+0.35} _{-0.25}	J±0.12
10SL	5/8-24UNEF-2B	22.00	23.30	9/16-24UNEF-2A	7.50	12.50	13.49
12S	3/4-20UNEF-2B	25.40	24.43	11/16-24UNEF-2A	8.43	15.60	13.49
14S	7/8-20UNEF-2B	28.57	24.34	3/4-20UNEF-2A	8.46	17.00	13.49
16S	1-20UNEF-2B	31.75	24.38	7/8-20UNEF-2A	8.38	20.05	13.49
16	1-20UNEF-2B	31.75	33.72	7/8-20UNEF-2A	11.76	20.26	18.26
18	1 1/8-18UNEF-2B	34.13	33.72	1-20UNEF-2A	11.74	23.50	18.26
20	1 1/4-18UNEF-2B	37.28	34.11	1 1/8-18UNEF-2A	12.16	26.80	18.26
22	1 3/8-18UNEF-2B	40.48	34.11	1 1/4-18UNEF-2A	12.15	29.90	18.26
24	1 1/2-18UNEF-2B	43.63	36.58	1 3/8-18UNEF-2A	13.42	32.90	18.26
28	1 3/4-18UNS-2B	50.00	37.03	1 5/8-18UNEF-2A	13.07	38.98	18.26
32	2-18UNS-2B	56.33	36.95	1 7/8-16UN-2A	13.14	45.30	18.26
36	2 1/4-16UN-2B	62.68	37.44	2 1/8-16UN-2A	13.60	51.60	18.26

▶ Waterproof Straight Backshell

CE02-18BS-S-D



① Shell Size	10SL, 12S, 14S, 16S, 16, 18, 20, 22, 24, 28, 32 and 36
② Model	B : Backshell
③ Type	S : Straight
④ Waterproof	S : IP67
⑤ Finish	Trivalent Chromium Finish(Black)

MATERIAL/FINISH

Aluminum Alloy / Black Trivalent Chromium Treatment

Shell Size	Part Number	L	A	B	C	D	V	W
10SL	CE02-10SLBS-S-D	20.0	18.6	6.5	6.6	17.9	9/16-24UNEF-2B	5/8-24UNEF-2A
12S	CE02-12SBS-S-D	20.0	21.6	6.5	6.6	20.8	11/16-24UNEF-2B	5/8-24UNEF-2A
14S	CE02-14SBS-S-D	25.0	22.3	7.4	9.8	20.4	3/4-20UNEF-2B	3/4-20UNEF-2A
16	CE02-16BS-S-D	28.0	26.5	7.9	13.0	23.4	7/8-20UNEF-2B	7/8-20UNEF-2A
18	CE02-18BS-S-D	31.0	30.5	10.5	16.3	26.7	1-20UNEF-2B	1-20UNEF-2A
20	CE02-20BS-S-D	35.0	35.0	10.9	17.8	31.6	1 1/8-18UNEF-2B	1 3/16-18UNEF-2A
22	CE02-22BS-S-D	35.0	36.5	10.9	17.8	32.4	1 1/4-18UNEF-2B	1 3/16-18UNEF-2A
24	CE02-24BS-S-D	40.5	40.0	12.2	21.0	36.6	1 3/8-18UNEF-2B	1 7/16-18UNEF-2A
28	CE02-28BS-S-D	45.0	47.2	11.9	21.0	40.0	1 5/8-18UNEF-2B	1 7/16-18UNEF-2A
32	CE02-32BS-S-D	50.0	51.4	10.0	25.8	47.0	1 7/8-16UN-2B	1 3/4-18UNEF-2A
36	CE02-36BS-S-D	55.0	58.4	10.0	33.8	53.1	2 1/8-16UN-2B	2-18UNS-2A

Waterproof Angle Backshell

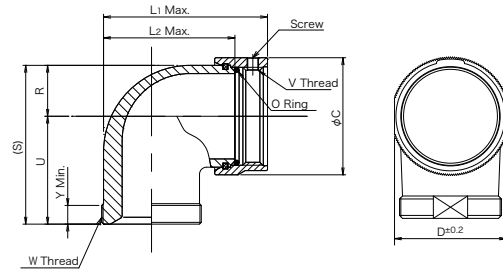
CE-18BA-S-D

① ② ③ ④

① Shell Size	10SL, 18, 20, 22, 24, 28 and 32
② Style	BA : Angle Backshell
③ Waterproof	S : Waterproof
④ Finish	D : Trivalent Chromium Finish (Black)

MATERIAL / FINISH

Aluminum Alloy/Black Trivalent Chromium Treatment



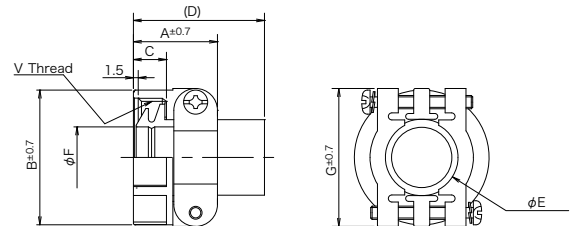
Shell Size	Part Number	L1	L2	C	D	R	U	(S)	V	W	Y
10SL	CE-10SLBA-S-D	30.6	22.5	21.7	20.3	7.9	21.0	(28.9)	9/16-24UNEF-2B	5/8-24UNEF-2A	7.5
18	CE-18BA-S-D	44.6	34.0	32.4	30.0	13.2	30.2	(43.4)	1-20UNEF-2B	1-20UNEF-2A	7.5
20	CE-20BA-S-D	50.5	39.6	36.0	33.6	15.0	33.3	(48.3)	1 1/8-18UNEF-2B	1 3/16-18UNEF-2A	7.5
22	CE-22BA-S-D	50.5	39.6	38.6	36.2	16.3	33.3	(49.6)	1 1/4-18UNEF-2B	1 3/16-18UNEF-2A	7.5
24	CE-24BA-S-D	60.1	47.9	42.4	40.0	18.2	36.5	(54.7)	1 3/8-18UNEF-2B	1 7/16-18UNEF-2A	7.5
28	CE-28BA-S-D	60.9	47.9	49.5	46.4	21.3	36.5	(57.8)	1 5/8-18UNEF-2B	1 7/16-18UNEF-2A	7.5
32	CE-32BA-S-D	69.1	55.1	55.3	52.8	24.6	44.5	(69.1)	1 7/8-16UNEF-2B	1 3/4-18UNEF-2A	8.5

Waterproof Cable Clamp

CE3057-10A-1-D

① ② ③

① Clamp Size	4A, 6A, 8A, 10A, 12A, 16A, 20A and 24A
② Bushing Size	Rubber Bushing (Refer to the Applicable Cable Size)
③ Finish	D : Trivalent Chromium Finish (Black)



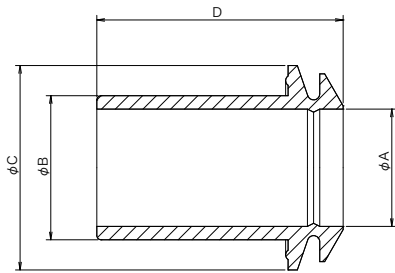
Part Number	Applicable Shell Size	A	B	C	(D)	E	F	G	V	Bushing P/N	Applicable Cable
CE3057-4A-1-D	10SL,12S	20.62	20.6	10.31	(41.3)	8.0	5.6	22.2	5/8-24UNEF-2B	CE3420-4-1	φ 3.6 ~ φ 5.6
CE3057-6A-1-D	14S	22.20	24.6	10.31	(41.3)	10.8	9.0	27.0	3/4-20UNEF-2B	CE3420-6-1	φ 7 ~ φ 9
CE3057-8A-1-D	16S,16	23.83	27.8	10.31	(41.3)	14.0	12.0	29.4	7/8-20UNEF-2B	CE3420-8-1	φ 10 ~ φ 12
CE3057-8A-2-D							10.5			CE3420-8-2	φ 8.5 ~ φ 10.5
CE3057-10A-1-D	18	23.83	30.1	10.31	(41.3)	15.8	14.1	31.7	1-20UNEF-2B	CE3420-10-1	φ 10.5 ~ φ 14.1
CE3057-10A-2-D							11.0			CE3420-10-2	φ 8.5 ~ φ 11
CE3057-10A-3-D							8.7			CE3420-10-3	φ 6.5 ~ φ 8.7
CE3057-12A-1-D	20	23.83	35.0	10.31	(41.3)	19.0	16.0	37.3	1 3/16-18UNEF-2B	CE3420-12-1	φ 12.5 ~ φ 16
CE3057-12A-2-D							13.0			CE3420-12-2	φ 9.5 ~ φ 13
CE3057-12A-3-D							10.0			CE3420-12-3	φ 6.8 ~ φ 10
CE3057-12A-7-D							17.0			CE3420-12-7	φ 14.5 ~ φ 17
CE3057-16A-1-D	24	26.19	42.1	10.31	(41.3)	23.8	19.1	42.9	1 7/16-18UNEF-2B	CE3420-16-1	φ 15 ~ φ 19.1
CE3057-16A-2-D							15.5			CE3420-16-2	φ 13 ~ φ 15.5
CE3057-16A-4-D							21.5			CZY005-GB-3	φ 19.1 ~ φ 21.5
CE3057-16A-6-D							20.0			CE3420-16-6	φ 18.5 ~ φ 20
CE3057-16A-7-D							13.5			CE3420-16-7	φ 11.5 ~ φ 13.5
CE3057-16A-8-D							12.5			CZY005-GB-5	φ 10.5 ~ φ 12.5
CE3057-20A-1-D	32	27.79	51.6	11.91	(43.0)	32.0	23.8	51.6	1 3/4-18UNS-2B	CE3420-20-1	φ 22 ~ φ 23.8
CE3057-20A-2-D							26.6			CE3420-20-2	φ 24 ~ φ 26.6
CE3057-20A-3-D							22.5			CE3420-20-3	φ 22 ~ φ 22.5
CE3057-24A-1-D	36	29.40	56.4	13.50	(45.8)	34.6	32.5	58.0	2-18UNS-2B	CE3420-24-1	φ 30 ~ φ 32.5
CE3057-24A-2-D							29.6			CE3420-24-2	φ 27.5 ~ φ 29.6

Note: Please make sure to use the cable which is within the specification of the applicable cable listed above. Please use the cable clamp together with the waterproof backshell.

Waterproof Rubber Bushing

CE3420-10-1

① ②



① Cable clamp Size	4, 6, 8, 10, 12, 16, 20 and 24
② Bushing Size	Refer to table 1.

Material

Synthetic Rubber (Black)

CE3420-□□-□ is a rubber bushing which is fixed into CE3057-□□ A-□-D cable clamp to tighten the cable for keeping a connector waterproof.

Table 1

Part Number	φ A	φ B	φ C	D	Friction Washer
CE3420-4-1	5.6	7.5	12.9	38.3	MS3057-4W
CE3420-6-1	9.0	10.9	15.7	36.4	MS3057-6W
CE3420-8-1	12.0	14.0	19.1	37.5	MS3057-8W
CE3420-8-2	10.5				
CE3420-10-1	14.1	15.5	22.2	38.5	MS3057-10W
CE3420-10-2	11.0				
CE3420-10-3	8.7				
CE3420-12-1	16.0	18.6	26.9	39.3	MS3057-12W
CE3420-12-2	13.0				
CE3420-12-3	10.0				
CE3420-12-7	17.0				
CE3420-16-1	19.1	23.4	33.2	40.0	MS3057-16W
CE3420-16-2	15.5				
CE3420-16-6	20.0				
CE3420-16-7	13.5				
CE3420-20-1	23.8	31.4	40.5	41.0	MS3057-20W
CE3420-20-2	26.6			40.2	
CE3420-24-1	32.5	34.6	45.5	41.0	MS3057-24W
CE3420-24-2	29.6				

Friction washer is not included.