

# MIL-DTL-5015 Compatible Environment Resistant Type.

RoHS2

D/MS E/F/R Series

DDK Ltd.

## RoHS Compliant

### OUTLINE

DDK'S D/MS E/F/R Series provides a set of moisture-resistant and oil-resistant connectors.

This series uses synthetic rubber for their inserts to cope with the various environments in which industrial machines are installed.

The products in the D/MS E/F/R series are compatible and comply with MIL-DTL-5015.

The F and R types prevent the entry of water moisture, cutting oil and other foreign substances into machines where those connectors are employed, helping enhance the reliability of the equipment.



Conforming Standard  
MIL-DTL-5015

Waterproof  
IP55

Lock Type  
Threaded Coupling

### FEATURES

- ◆ Synthetic rubber inserts.
- ◆ Grommet for moisture-proof.
- ◆ Grommet and cable clamp combination for extra strength to hold cable.
- ◆ Solder termination contacts.

### MATERIAL / FINISH



Item	Material / Finish
Contact	Copper Alloy / Silver Plating
Insert	Ethylene Propylene Rubber / Black
Shell	Aluminum Alloy / Zinc Plating , Trivalent Chromium Treatment (Black)

### APPLICATION

The D/MS E/F/R series is designed and manufactured for reliable performance in a broad range of electric / electronic equipment applications.

These include machine tools, communications, instrumentation and high current systems.

### Receptacle Connector

### Plug Connector



Wall Receptacle  
D/MS3100E

Cable Receptacle  
D/MS3101E

Box Receptacle  
D/MS3102 E / R



Straight Plug  
D/MS3106 E / F



Angle Plug  
D/MS3108 E / F

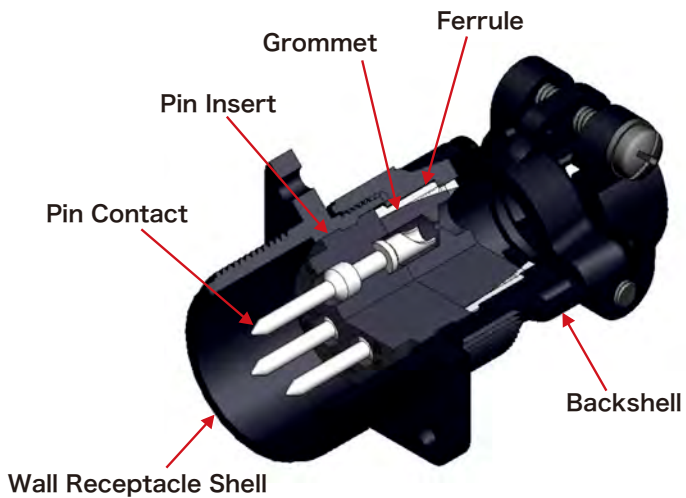
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▶ D/MS E/F/R Series

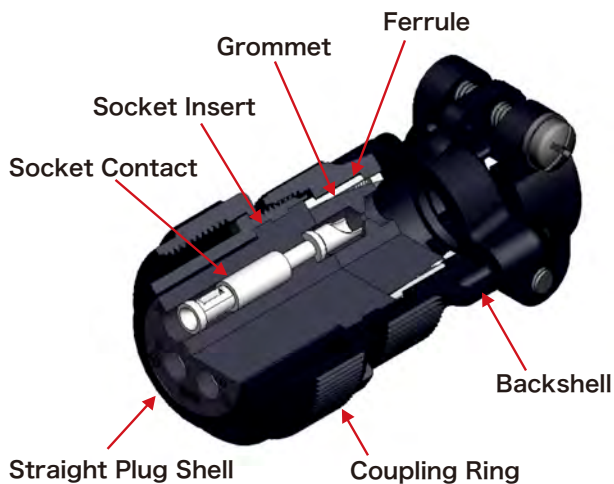
**Specification**

Insulation Resistance	More than 500M Ω at DC500V (at 25°C degree)
Temperature Range	-55°C to +125°C
Durability	500 cycle mating / unmating operations
Thermal Shock	MIL-STD-202 method 107 Temperature range of -55°C to +125°C
Humidity	Relative humidity : 95% ±3% Temperature : 71°C ±2°C Duration : 14 days(336hrs.)
Vibration	MIL-STD-1344 method 2005 10-500Hz or 10G units
Shock, Electrical	1-2 sine wave transient shock impulse of 50G units Duration: 10 micro sec(There must not be current interception.) Test Current / 100mA
Salt Spray	MIL-STD-1344 method 1001 Salt solution / 5% Temperature in tank / 35°C Duration: 48H

**Structural Explanation**



**Wall Receptacle Connector**  
D/MS3100E □□□□ - □□ P□ - □



**Straight Plug Connector**  
D/MS3106 □□□□□ - □□ S□ - □

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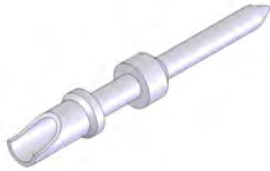
▶ D/MS E/F/R Series

**Contact**

---Solder Type---

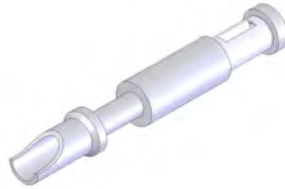
Pin Contact

DMSE - # □ □ P □



Socket Contact

DMSE - # □ □ S □



Note) Solder cup of the contact  
It varies according to contact size.  
# 0, # 4, # 8, straight (There is no cut)  
# 12, # 16, solder cup (There is a cut)

---Crimp Type---

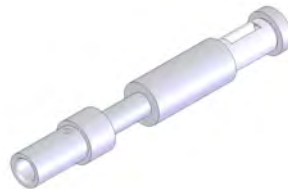
Pin Contact

DMSE - # □ □ P □ - C □



Socket Contact

DMSE - # □ □ S □ - C □



**Applicable Wire**

Contact Size	AWG	Sectional Area Capacitance (mm <sup>2</sup> )	Max. Conductor External Diameter (mm)
#16	#16 - #22	1.25	1.6
#12	#12 - #14	3.50	2.5
#8	#8 - #10	8.00	4.5
#4	#4 - #6	22.00	7.0
#0	#0 - #2	50.00	11.0

**Rated Current**

Contact Size	AWG	Max. Value per Contact(A)
#16	#16 - #22	13
#12	#12 - #14	23
#8	#8 - #10	46
#4	#4 - #6	80
#0	#0 - #2	150

**Rated Voltage**

Service Rating	Rated Voltage(V)	
	DC	AC (r.m.s)
INST	250	200
A	700	500
D	1250	900

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D/MS E/F/R Series

Insert Arrangement List

Contact Size



Front face of pin insert or rear face of socket insert illustrated.

Number of Contact	2		
Insert Arrangement			
Insert Number	10SL - 4	12S - 3	18 - 3
Contact Size	2 - #16	2 - #16	2 - #12
Service Rating	Serv. A	Serv. A	Serv. D

Number of Contact	3			
Insert Arrangement				
Insert Number	10SL - 3	14S - 7	16S - 5	16 - 10
Contact Size	3 - #16	3 - #16	3 - #16	3 - #12
Service Rating	Serv. A	Serv. A	Serv. A	Serv. A

Number of Contact	4				
Insert Arrangement					
Insert Number	14S - 2	16 - 9	18 - 10	22 - 22	32 - 17
Contact Size	4 - #16	2 - #16 / 2 - #12	4 - #12	4 - #8	4 - #4
Service Rating	Serv. INST.	Serv. A	Serv. A	Serv. A	Serv. D

Number of Contact	5			
Insert Arrangement				
Insert Number	14S - 5	16S - 8	18 - 11	28 - 5B
Contact Size	5 - #16	5 - #16	5 - #12	2 - #4 / 3 - #8
Service Rating	Serv. INST.	Serv. A	Serv. A	Serv. D ( A, B ) Serv. A ( C, D, E )

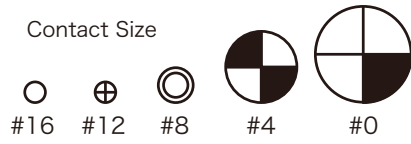
Note: Serv = Service Rating

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D/MS E/F/R Series

Insert Arrangement List

Contact Size



Front face of pin insert or rear face of socket insert illustrated.

Number of Contact	6		7		
Insert Arrangement					
Insert Number	14S - 6	36 - 3	16S - 1	20 - 15	24 - 10
Contact Size	6 - #16	3 - #0 / 3 - #12	7 - #16	7 - #12	7 - #8
Service Rating	Serv. INST.	Serv. D	Serv. A	Serv. A	Serv. A

Number of Contact	10		11
Insert Arrangement			
Insert Number	18 - 1	18 - 19	20 - 33
Contact Size	10 - #16	10 - #16	11 - #16
Service Rating	Serv.A (B,C,F,G) Serv.INST. (Others)	Serv. A	Serv. A

Number of Contact	14		17	19
Insert Arrangement				
Insert Number	20 - 27	22 - 19	20 - 29	22 - 14
Contact Size	14 - #16	14 - #16	17 - #16	19 - #16
Service Rating	Serv. A	Serv. A	Serv. A	Serv. A

Number of Contact	24	37	48
Insert Arrangement			
Insert Number	24 - 28	28 - 21	36 - 10
Contact Size	24 - #16	37 - #16	48 - #16
Service Rating	Serv. INST.	Serv. A	Serv. A

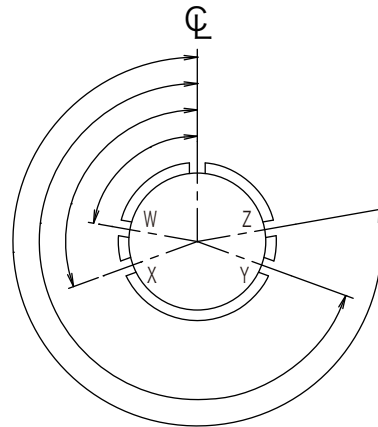
Note: Serv = Service Rating

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## D/MS E/F/R Series

### Alternate Insert Position

Insert No	Key / Keyway No.			
	W	X	Y	Z
10SL-3	-	-	-	-
10SL-4	-	-	-	-
12S-3	70°	145°	215°	290°
14S-2	-	120°	240°	-
14S-5	-	110°	-	-
14S-6	-	-	-	-
14S-7	90°	180°	270°	-
16S-1	80°	180°	270°	-
16S-5	70°	145°	215°	290°
16S-8	-	170°	265°	-
16-9	35°	110°	250°	325°
16-10	90°	180°	270°	-
18-1	70°	145°	215°	290°
18-3	35°	110°	250°	325°
18-10	-	120°	240°	-
18-11	-	170°	265°	-
18-19	-	120°	240°	-
20-15	80°	-	-	280°
20-27	35°	110°	250°	325°
20-29	80°	-	-	280°
20-33	-	-	-	-
22-14	80°	110°	250°	280°
22-19	80°	110°	250°	280°
22-22	-	110°	250°	-
24-10	80°	-	-	280°
24-28	80°	110°	250°	280°
28-5B	-	-	-	-
28-21	80°	110°	250°	280°
32-17	45°	110°	250°	-
36-3	70°	145°	215°	290°
36-10	80°	125°	235°	280°



Front face of Pin Insert or Rear face of socket insert


**D/MS E/F/R Series**
**Insert Specifications**

Insert No	No.of Contacts	Contact Size					Service Rating
		#0	#4	#8	#12	#16	
10SL	10SL-3					3	A
	10SL-4					2	A
12S	12S-3					2	A
14S	14S-2					4	INST
	14S-5					5	INST
	14S-6					6	INST
	14S-7					3	A
16S	16S-1					7	A
	16S-5					3	A
	16S-8					5	A
16	16-9				2	2	A
	16-10				3		A
18	18-1					10	A (B, C, F, G) / INST(Other)
	18-3				2		D
	18-10				4		A
	18-11				5		A
	18-19					10	A
20	20-15				7		A
	20-27					14	A
	20-29					17	A
	20-33					11	A
22	22-14					19	A
	22-19					14	A
	22-22			4			A
24	24-10			7			A
	24-28					24	INST
28	28-5B		2	3			A (C, D, E) / D (A, B)
	28-21					37	A
32	32-17		4				D
36	36-3	3			3		D
	36-10					48	A

Note : 10SL-3 and 10SL-4 arrangement available only with pin contacts in receptacle and socket contacts in plug ( Example : D/MS3102R10SL-3P(R1), D/MS3102R10SL-4P(R1),D/MS3106E10SL-3S(R1), D/MS3106E10SL-4S(R1))


**D/MS E/F/R Part Numbering System**

(Example part Number shown.)

**D/MS 3106 F 20 - 29 S W - BSS - 1(R1)****Applicable Cable Diameter**

0 : With non - waterproof cable clamp  
 1 ~ 8 : With waterproof cable clamp

**Backshell Style**

BSN : With non - waterproof straight backshell.  
 BSS : With waterproof straight backshell.  
 BSL : With waterproof Long straight backshell.  
 Omit : Applicable Cable Diameter  
 Refer to the following name of articles.  
 3100E / 3101E : With waterproof straight backshell,  
 grommet and ferrule.  
 3106E / F : With waterproof straight backshell,  
 grommet and ferrule.  
 3108E / F : With waterproof angle backshell,  
 grommet and ferrule.

**Alternate Insert Position**

Omit : Normal position  
 "W", "X", "Y", "Z" : Refer to page 7

**Contact Configuration (style)**

P : Solder pin contacts  
 S : Solder socket contacts  
 PC : Crimp pin contacts  
 SC : Crimp socket contacts

**Insert Arrangement : Refer to page 4 - 6****Shell Size**

10SL, 12S, 14S, 16S, 16, 18, 20, 22, 24, 28, 32, 36

**Service Class**

E : Environmental with rubber insert.  
 F : Environmental with rubber insert and gasket  
 R : Environmental with rubber insert and gasket  
 ( 3102 )  
 R : Environmental with rubber insert and  
 potting backshell( 3100, 3101, 3106 ).

**Shell Style**

3100 : Wall connecting receptacle (in-line receptacle)  
 3101 : Cable connecting receptacle (in-line receptacle)  
 3102 : Box mounting receptacle  
 3106 : Straight plug  
 3108 : 90 degree angle plug

**Connector Series**

D/MS : Trivalent Chromium Treatment (Black)



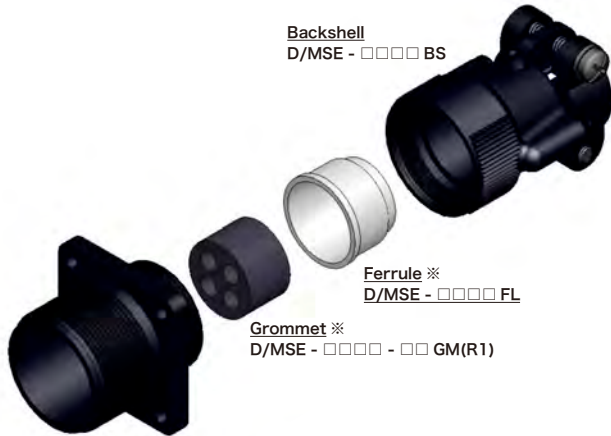
▶ D/MS E/F/R Series

**Wall Receptacle Connector**

D/MS3100E □□□□ - □□ P / S □ - □□□ - □ (R1)

※ Attached Articles

D/MS3100E □□□□ - □□ P / S □ - □ (R1)



D/MS3100E □□□□ - □□ P / S □ - BS □ - □ (R1)

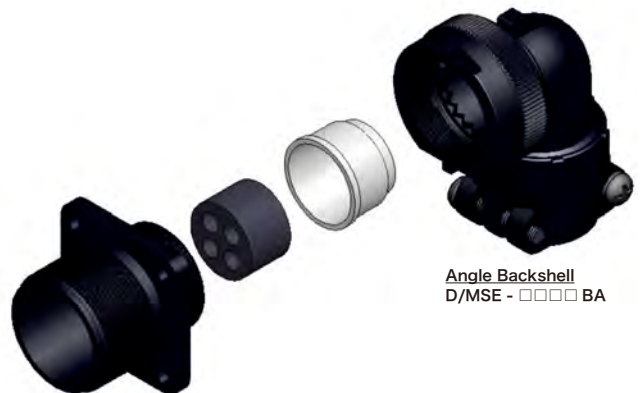


D/MS3100E □□□□ - □□ P / S □ - □ - BSN - □ (R1)



Waterproof Long Straight Backshell  
D/MSE - □□□□ BSSL(R1)

D/MS3100E □□□□ - □□ P / S □ - □ - BA - □ (R1)



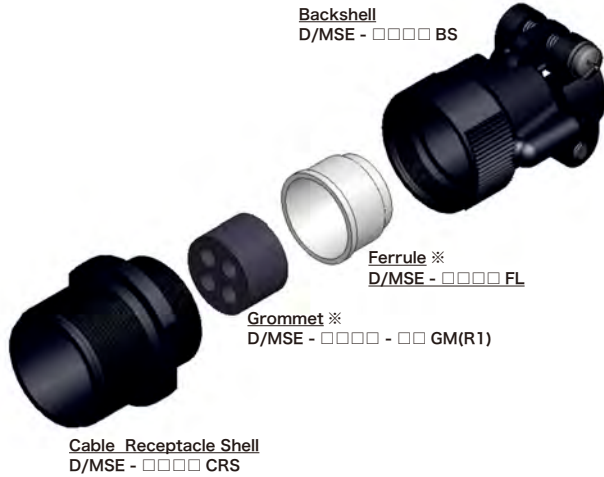
▶ D/MS E/F/R Series

**Cable Receptacle Connector**

D/MS3101E □□□□ - □□ P / S □ - □□□ - □ (R1)

※ Attached Articles

D/MS3101E □□□□ - □□ P / S □ - □



D/MS3101E □□□□ - □□ P / S □ - BS □ - □ (R1)



D/MS3101E □□□□ - □□ P / S □ - □ - BSN - □ (R1)



**Waterproof Long Straight Backshell**  
D/MSE - □□□□ BSSL(R1)

D/MS3101E □□□□ - □□ P / S □ - □ - BA - □ (R1)



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▶ D/MS E/F/R Series

**Box Mounting Receptacle Connector**

D/MS3102E □□□□ - □□□□ - □ (R1)

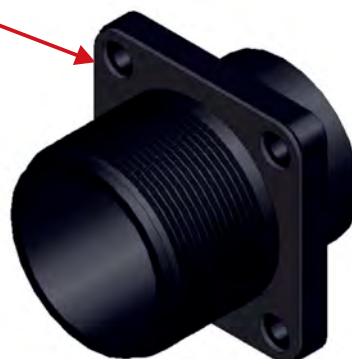
D/MS3102R □□□□ - □□□□ - □ (R1)( With Gasket )

D/MS3102E □□□□ - □□ P / S □ - □ (R1)



D/MS3102R □□□□ - □□ P / S □ - □ (R1)

Gasket



▶ D/MS E/F/R Series

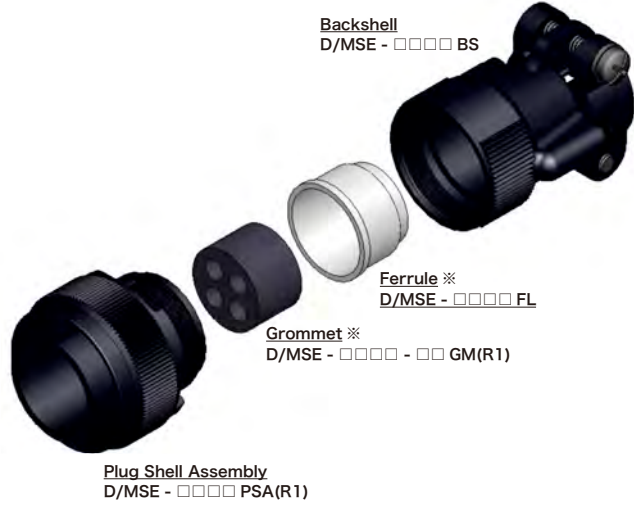
**Straight Plug Connector**

D/MS3106E □□□□ - □□□□ - □ (R1)

D/MS3106F □□□□ - □□□□ - □ (R1)( With Gasket )

※ Attached Articles

D/MS3106F □□□□ - □□ P / S □ - □ (R1)



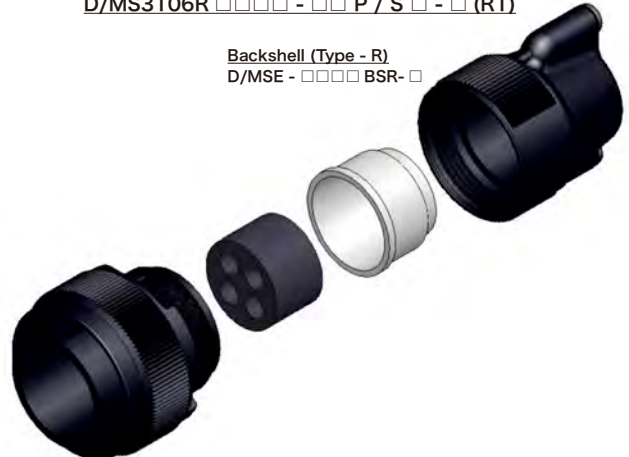
D/MS3106F □□□□ - □□ P / S □ - □ - BS □ - □ (R1)



D/MS3106E □□□□ - □□ P / S □ - □ - BSN - 0(R1)



D/MS3106R □□□□ - □□ P / S □ - □ (R1)



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### Angle Plug Connector

D/MS3108E □□□□ - □□□□ - □ (R1)

D/MS3108F □□□□ - □□□□ - □ (R1) ( With Gasket )

※ Attached Articles

D/MS3108F □□□□ - □□ P / S □ - □ (R1)

Angle Backshell  
D/MSE - □□□□ BA



Ferrule ※  
D/MSE - □□□□ FL

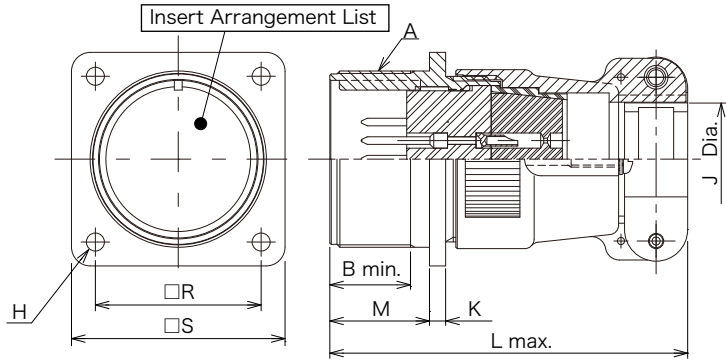
Grommet ※  
D/MSE - □□□□ - □□ GM(R1)

Plug Shell Assembly  
D/MSE - □□□□ PSA(R1)

▶ D/MS E/F/R Series

Wall Receptacle Connector

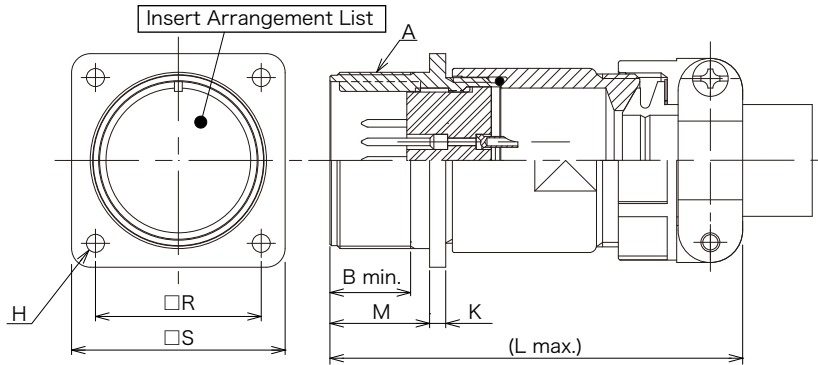
D/MS3100E □□□□ - □□□□ - □ (R1)



Shell Size	A	B	K±0.05	L	M <sup>+0.78</sup> <sub>0</sub>	R±0.12	S±0.5	φ H <sup>+0.25</sup> <sub>-0.12</sub>	φ J±0.3
10SL	5/8-24UNEF	11	2.2	51	14.5	18.26	25.40	3.0	8.0
12S	3/4-20UNEF	12	3.0	52	14.6	20.62	27.80	3.3	8.3
14S	7/8-20UNEF	11	2.9	54	14.6	23.01	30.18	3.3	11.1
16S	1-20UNEF	12	3.2	60	14.5	24.61	32.54	3.3	14.2
16	1-20UNEF	16	2.9	65	19.5	24.61	32.54	3.3	14.2
18	1 1/8-18UNEF	16	4.2	69	19.2	26.94	34.93	3.3	15.8
20	1 1/4-18UNEF	16	3.7	68	19.2	29.36	38.10	3.3	19.1
22	1 3/8-18UNEF	16	4.0	68	19.2	31.75	41.28	3.3	19.1
24	1 1/2-18UNEF	17	3.4	77	21.0	34.93	45.00	3.8	24.0
28	1 3/4-18UNS	18	3.4	75	21.3	39.67	50.80	3.8	24.0
32	2-18UNS	18	4.0	77	22.5	44.45	57.15	4.5	32.0
36	2 1/4-16UN	18	4.1	76	22.4	49.20	63.50	4.5	38.0

Wall Receptacle Connector

D/MS3100E □□□□ - □□□□ - BSS - □ (R1)



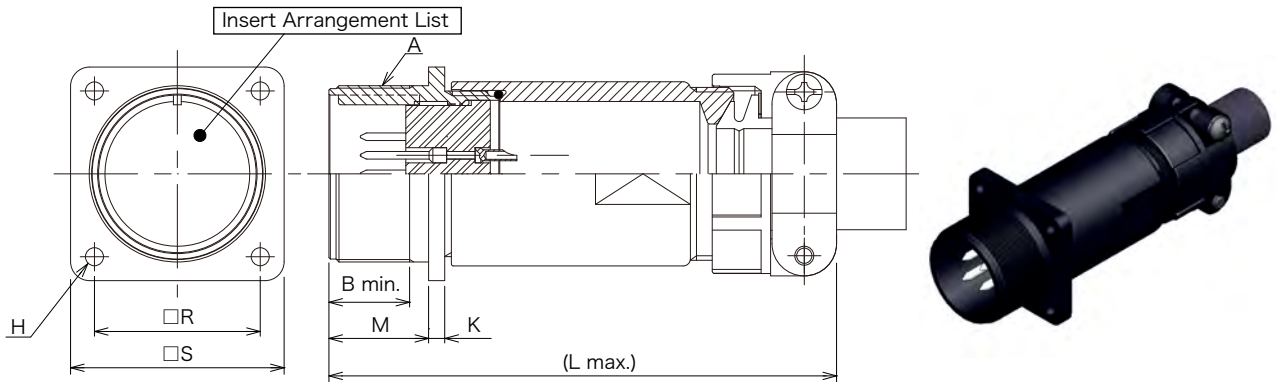
Shell Size	A	B	K±0.05	L	M <sup>+0.78</sup> <sub>0</sub>	R±0.12	S±0.5	φ H <sup>+0.25</sup> <sub>-0.12</sub>
10SL	5/8-24UNEF	11	2.2	56	14.5	18.26	25.40	3.0
12S	3/4-20UNEF	12	3.0	57	14.6	20.62	27.80	3.3
14S	7/8-20UNEF	11	2.9	64	14.6	23.01	30.18	3.3
16S	1-20UNEF	12	3.2	69	14.5	24.61	32.54	3.3
16	1-20UNEF	16	2.9	71	19.5	24.61	32.54	3.3
18	1 1/8-18UNEF	16	4.2	72	19.2	26.94	34.93	3.3
20	1 1/4-18UNEF	16	3.7	73	19.2	29.36	38.10	3.3
22	1 3/8-18UNEF	16	4.0	78	19.2	31.75	41.28	3.3
24	1 1/2-18UNEF	17	3.4	89	21.0	34.93	45.00	3.8
28	1 3/4-18UNS	18	3.4	95	21.3	39.67	50.80	3.8
32	2-18UNS	18	4.0	104	22.5	44.45	57.15	4.5
36	2 1/4-16UN	18	4.1	110	22.4	49.20	63.50	4.5

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Wall Receptacle Connector

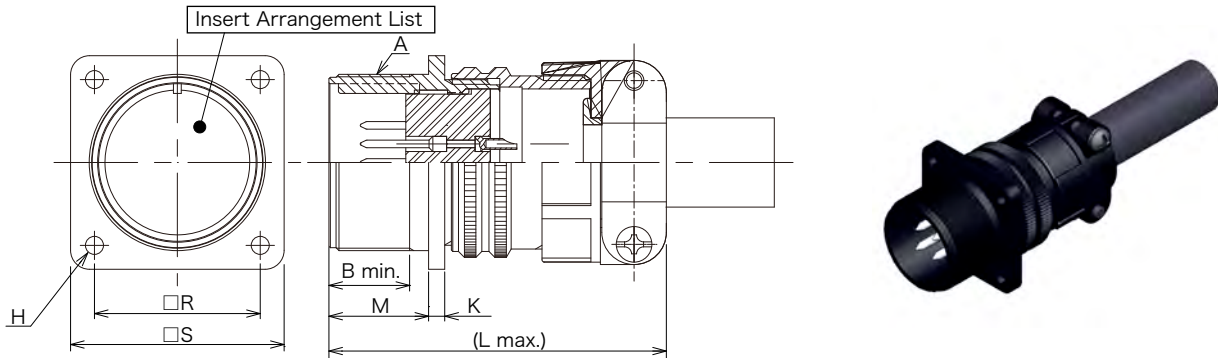
D/MS3100E □□□□ - □□□□ - BSL - □ (R1)



Shell Size	A	B	K±0.05	L	M <sup>+0.78</sup> <sub>0</sub>	R±0.12	S±0.5	φ H <sup>+0.25</sup> <sub>-0.12</sub>
10SL	5/8-24UNEF	11	2.2	76	14.5	18.26	25.40	3.0
12S	3/4-20UNEF	12	3.0	77	14.6	20.62	27.80	3.3
14S	7/8-20UNEF	11	2.9	84	14.6	23.01	30.18	3.3
16S	1-20UNEF	12	3.2	85	14.5	24.61	32.54	3.3
16	1-20UNEF	16	2.9	91	19.5	24.61	32.54	3.3
18	1 1/8-18UNEF	16	4.2	112	19.2	26.94	34.93	3.3
20	1 1/4-18UNEF	16	3.7	93	19.2	29.36	38.10	3.3
22	1 3/8-18UNEF	16	4.0	98	19.2	31.75	41.28	3.3
24	1 1/2-18UNEF	17	3.4	109	21.0	34.93	45.00	3.8
28	1 3/4-18UNS	18	3.4	115	21.3	39.67	50.80	3.8
32	2-18UNS	18	4.0	124	22.5	44.45	57.15	4.5
36	2 1/4-16UN	18	4.1	130	22.4	49.20	63.50	4.5

Wall Receptacle Connector

D/MS3100E □□□□ - □□□□ - BSN - □ (R1)



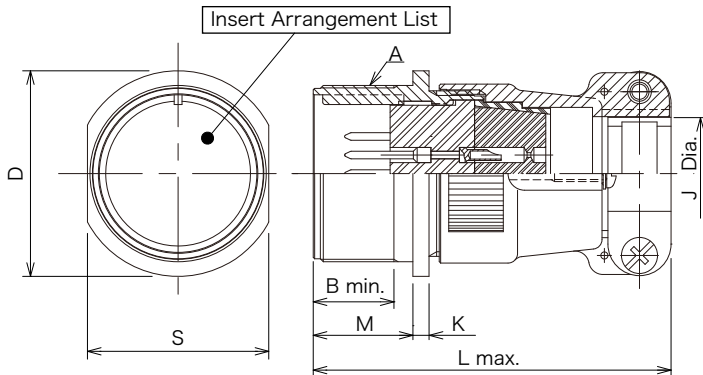
Shell Size	A	B	K±0.05	L	M <sup>+0.78</sup> <sub>0</sub>	R±0.12	S±0.5	φ H <sup>+0.25</sup> <sub>-0.12</sub>
10SL	5/8-24UNEF	11	2.2	50	14.5	18.26	25.40	3.0
12S	3/4-20UNEF	12	3.0	56	14.6	20.62	27.80	3.3
14S	7/8-20UNEF	11	2.9	55	14.6	23.01	30.18	3.3
16S	1-20UNEF	12	3.2	58	14.5	24.61	32.54	3.3
16	1-20UNEF	16	2.9	63	19.5	24.61	32.54	3.3
18	1 1/8-18UNEF	16	4.2	67	19.2	26.94	34.93	3.3
20	1 1/4-18UNEF	16	3.7	70	19.2	29.36	38.10	3.3
22	1 3/8-18UNEF	16	4.0	69	19.2	31.75	41.28	3.3
24	1 1/2-18UNEF	17	3.4	73	21.0	34.93	45.00	3.8
28	1 3/4-18UNS	18	3.4	75	21.3	39.67	50.80	3.8
32	2-18UNS	18	4.0	76	22.5	44.45	57.15	4.5
36	2 1/4-16UN	18	4.1	80	22.4	49.20	63.50	4.5

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▶ D/MS E/F/R Series

**Cable Receptacle Connector**

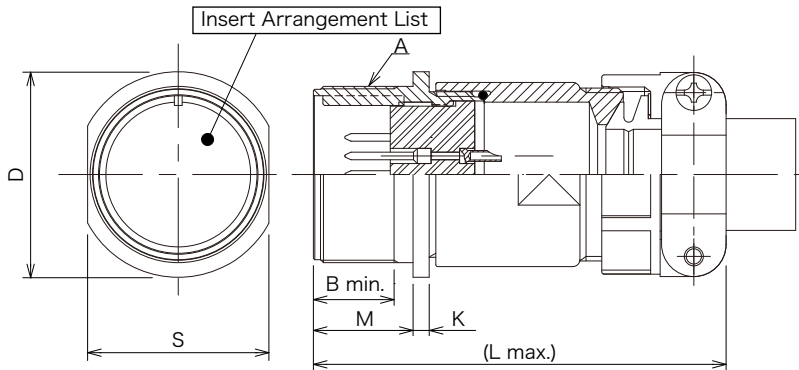
D/MS3101E □□□□ - □□□□ - □ (R1)



Shell Size	A	B	L	$\phi$ D $\pm$ 0.5	S $\pm$ 0.5	$\phi$ J $\pm$ 0.3
10SL	5/8-24UNEF	11	51	22.0	16.5	8.0
12S	3/4-20UNEF	12	52	25.0	19.3	8.3
14S	7/8-20UNEF	11	54	28.0	22.6	11.1
16S	1-20UNEF	12	60	31.0	25.5	14.2
16	1-20UNEF	16	65	31.0	25.5	14.2
18	1 1/8-18UNEF	16	69	33.9	28.7	15.8
20	1 1/4-18UNEF	16	68	37.0	32.0	19.1
22	1 3/8-18UNEF	16	68	40.0	35.0	19.1
24	1 1/2-18UNEF	17	77	43.3	38.2	24.0
28	1 3/4-18UNS	18	75	49.5	44.7	24.0
32	2-18UNS	18	77	55.5	50.8	32.0
36	2 1/4-16UN	18	76	62.3	57.3	38.0

**Cable Receptacle Connector**

D/MS3101E □□□□ - □□□□ - BSS - □ (R1)



Shell Size	A	B	L	$\phi$ D $\pm$ 0.5	S $\pm$ 0.5
10SL	5/8-24UNEF	11	56	22.0	16.5
12S	3/4-20UNEF	12	57	25.0	19.3
14S	7/8-20UNEF	11	64	28.0	22.6
16S	1-20UNEF	12	65	31.0	25.5
16	1-20UNEF	16	71	31.0	25.5
18	1 1/8-18UNEF	16	72	33.9	28.7
20	1 1/4-18UNEF	16	73	37.0	32.0
22	1 3/8-18UNEF	16	78	40.0	35.0
24	1 1/2-18UNEF	17	89	43.3	38.2
28	1 3/4-18UNS	18	95	49.5	44.7
32	2-18UNS	18	104	55.5	50.8
36	2 1/4-16UN	18	110	62.3	57.3

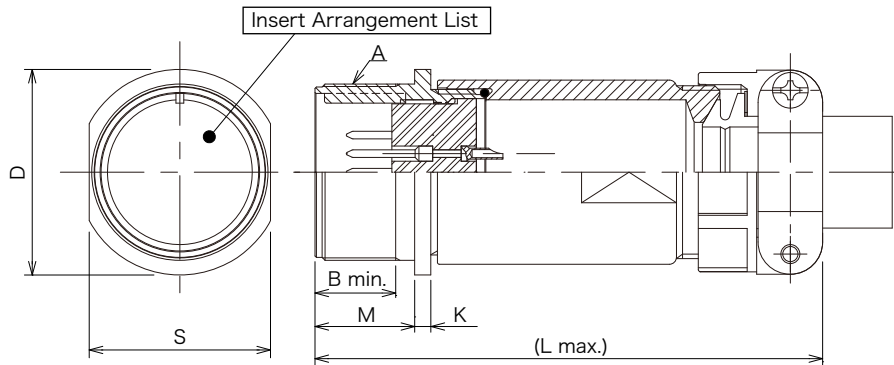
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▶ D/MS E/F/R Series

**Cable Receptacle Connector**

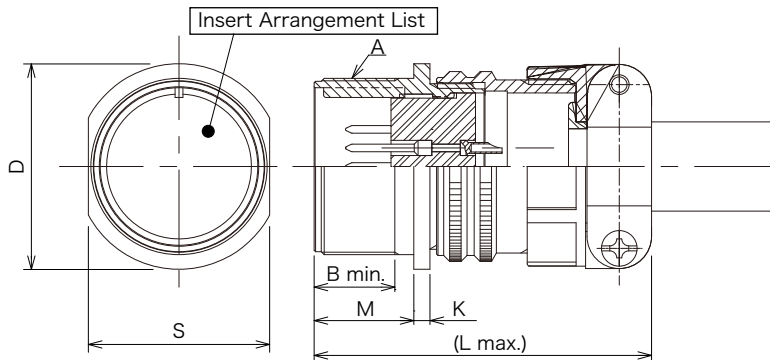
D/MS3101E □□□□ - □□□□ - BSL - □ (R1)



Shell Size	A	B	L	$\phi D \pm 0.5$	$S \pm 0.5$
10SL	5/8-24UNEF	11	76	22.0	16.5
12S	3/4-20UNEF	12	77	25.0	19.3
14S	7/8-20UNEF	11	84	28.0	22.6
16S	1-20UNEF	12	85	31.0	25.5
16	1-20UNEF	16	91	31.0	25.5
18	1 1/8-18UNEF	16	92	33.9	28.7
20	1 1/4-18UNEF	16	93	37.0	32.0
22	1 3/8-18UNEF	16	98	40.0	35.0
24	1 1/2-18UNEF	17	109	43.3	38.2
28	1 3/4-18UNS	18	115	49.5	44.7
32	2-18UNS	18	124	55.5	50.8
36	2 1/4-16UN	18	130	62.3	57.3

**Cable Receptacle Connector**

D/MS3101E □□□□ - □□□□ - BSN - □ (R1)



Shell Size	A	B	L	$\phi D \pm 0.5$	$S \pm 0.5$
10SL	5/8-24UNEF	11	50	22.0	16.5
12S	3/4-20UNEF	12	56	25.0	19.3
14S	7/8-20UNEF	11	55	28.0	22.6
16S	1-20UNEF	12	58	31.0	25.5
16	1-20UNEF	16	63	31.0	25.5
18	1 1/8-18UNEF	16	67	33.9	28.7
20	1 1/4-18UNEF	16	70	37.0	32.0
22	1 3/8-18UNEF	16	69	40.0	35.0
24	1 1/2-18UNEF	17	73	43.3	38.2
28	1 3/4-18UNS	18	75	49.5	44.7
32	2-18UNS	18	76	55.5	50.8
36	2 1/4-16UN	18	80	62.3	57.3

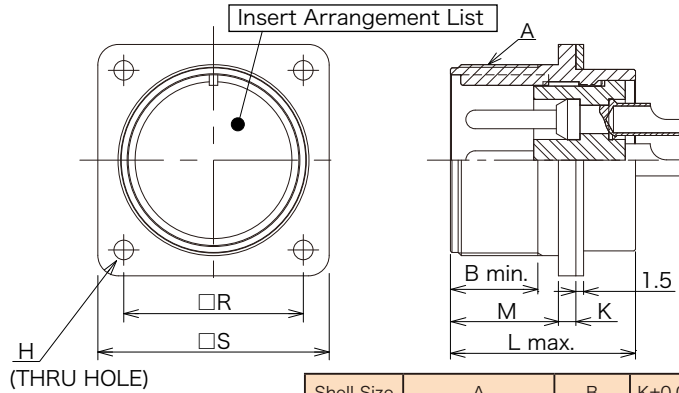
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▶ D/MS E/F/R Series

**Box Receptacle Connector**

D/MS3102E □□□□ - □□□□ - □ (R1)

D/MS3102R □□□□ - □□□□ - □ (R1)( With Gasket )

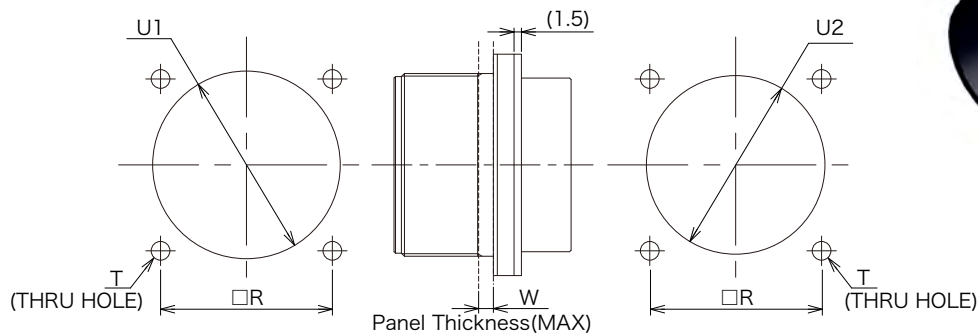


Shell Size	A	B	K±0.05	L	M <sup>+0.78</sup> <sub>0</sub>	R±0.12	S±0.5	φ H <sup>+0.25</sup> <sub>-0.12</sub>
10SL	5/8-24UNEF	11	2.2	25.0	14.5	18.26	25.40	3.0
12S	3/4-20UNEF	12	3.0	27.0	14.6	20.62	27.80	3.3
14S	7/8-20UNEF	11	2.9	26.5	14.6	23.01	30.18	3.3
16S	1-20UNEF	12	3.2	25.6	14.5	24.61	32.54	3.3
16	1-20UNEF	16	2.9	33.3	19.5	24.61	32.54	3.3
18	1 1/8-18UNEF	16	4.2	33.4	19.2	26.94	34.93	3.3
20	1 1/4-18UNEF	16	3.7	32.1	19.2	29.36	38.10	3.3
22	1 3/8-18UNEF	16	4.0	35.0	19.2	31.75	41.28	3.3
24	1 1/2-18UNEF	17	3.4	36.0	21.0	34.93	45.00	3.8
28	1 3/4-18UNS	18	3.4	36.7	21.3	39.67	50.80	3.8
32	2-18UNS	18	4.0	39.0	22.5	44.45	57.15	4.5
36	2 1/4-16UN	18	4.1	39.5	22.4	49.20	63.50	4.5

**Box Receptacle Connector**

D/MS3102E □□□□ - □□□□ - □ (R1)

D/MS3102R □□□□ - □□□□ - □ (R1)( With Gasket )



Shell Size	R±0.12	φ U1 <sup>+0.2</sup> <sub>0</sub>	φ U2 <sup>+0.2</sup> <sub>0</sub>	T	W
10SL	18.26	15.5	16.7	3.05	3.0
12S	20.62	16.8	19.9	3.05	3.0
14S	23.01	20.0	23.1	3.05	3.0
16S	24.61	23.0	26.3	3.05	3.0
16	24.61	22.9	26.3	3.05	3.0
18	26.94	27.0	29.4	3.05	3.0
20	29.36	30.0	32.6	3.05	3.0
22	31.75	33.0	35.8	3.05	3.0
24	34.93	36.3	39.0	3.75	3.0
28	39.67	43.0	45.3	3.75	3.0
32	44.45	48.3	51.6	4.40	3.0
36	49.23	54.3	57.9	4.40	3.0

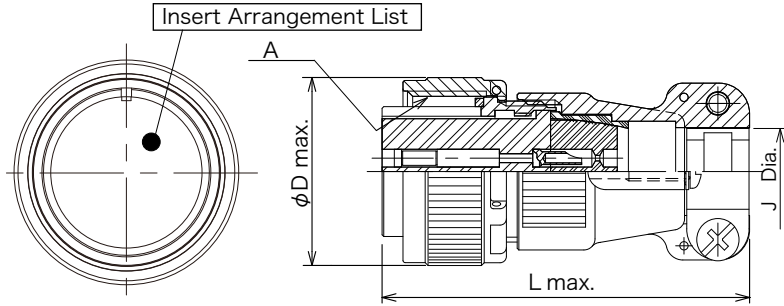
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▶ D/MS E/F/R Series

**Straight Plug Connector**

D/MS3106E □□□□ - □□□□ - □ (R1)

D/MS3106F □□□□ - □□□□ - □ (R1) ( With Gasket )

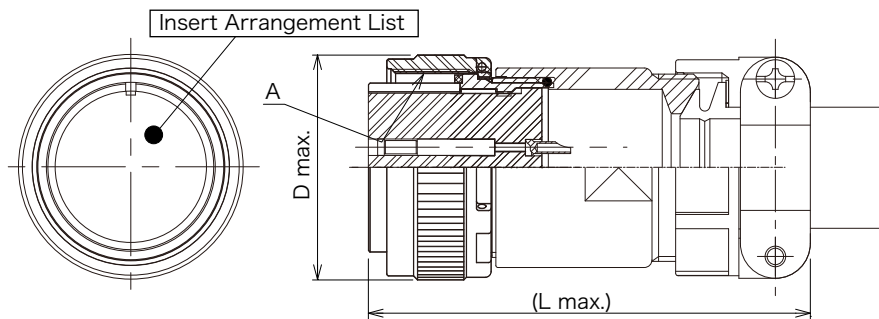


Shell Size	A	L	φ D	φ J±0.3
10SL	5/8-24UNEF	51	22.30	8.0
12S	3/4-20UNEF	51	26.25	8.3
14S	7/8-20UNEF	53	28.90	11.1
16S	1-20UNEF	59	31.90	14.2
16	1-20UNEF	63	31.90	14.2
18	1 1/8-18UNEF	67	33.80	15.8
20	1 1/4-18UNEF	67	37.55	19.1
22	1 3/8-18UNEF	68	40.85	19.1
24	1 1/2-18UNEF	76	43.70	24.0
28	1 3/4-18UNS	74	50.70	24.0
32	2-18UNS	74	57.20	32.0
36	2 1/4-16UN	72	63.40	38.0

**Straight Plug Connector**

D/MS3106E □□□□ - □□□□ - □ (R1)

D/MS3106F □□□□ - □□□□ - BSS - □ (R1) ( With Gasket )



Shell Size	A	L	φ D
10SL	5/8-24UNEF	56	22.30
12S	3/4-20UNEF	56	26.25
14S	7/8-20UNEF	62	28.90
16S	1-20UNEF	65	31.90
16	1-20UNEF	70	31.90
18	1 1/8-18UNEF	70	33.80
20	1 1/4-18UNEF	72	37.55
22	1 3/8-18UNEF	78	40.85
24	1 1/2-18UNEF	88	43.70
28	1 3/4-18UNS	93	50.70
32	2-18UNS	102	57.20
36	2 1/4-16UN	105	63.40

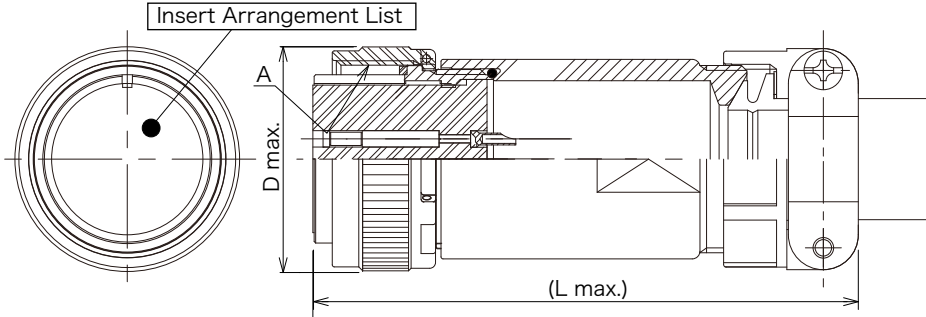
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▶ D/MS E/F/R Series

**Straight Plug Connector**

D/MS3106E □□□□ - □□□□ - □ (R1)

D/MS3106F □□□□ - □□□□ - BSL - □ (R1) ( With Gasket )



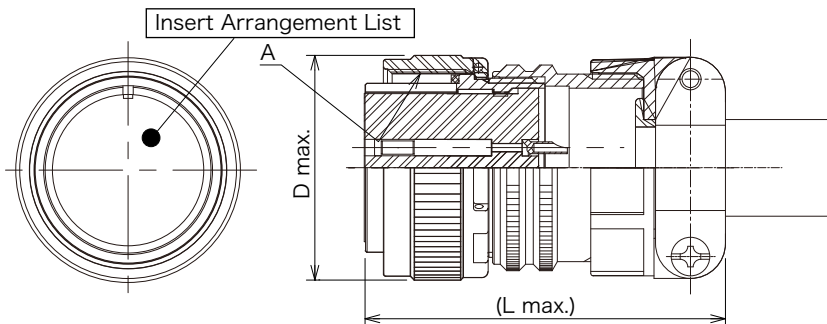
Shell Size	A	L	φ D
10SL	5/8-24UNEF	76	22.30
12S	3/4-20UNEF	76	26.25
14S	7/8-20UNEF	82	28.90
16S	1-20UNEF	85	31.90
16	1-20UNEF	90	31.90
18	1 1/8-18UNEF	90	33.80
20	1 1/4-18UNEF	92	37.55
22	1 3/8-18UNEF	98	40.85
24	1 1/2-18UNEF	108	43.70
28	1 3/4-18UNS	113	50.70
32	2-18UNS	122	57.20
36	2 1/4-16UN	125	63.40



**Straight Plug Connector**

D/MS3106E □□□□ - □□□□ - □ (R1)

D/MS3106F □□□□ - □□□□ - BSN - □ (R1) ( With Gasket )



Shell Size	A	L	φ D
10SL	5/8-24UNEF	50	22.30
12S	3/4-20UNEF	55	26.25
14S	7/8-20UNEF	63	28.90
16S	1-20UNEF	57	31.90
16	1-20UNEF	63	31.90
18	1 1/8-18UNEF	65	33.80
20	1 1/4-18UNEF	69	37.55
22	1 3/8-18UNEF	66	40.85
24	1 1/2-18UNEF	72	43.70
28	1 3/4-18UNS	73	50.70
32	2-18UNS	74	57.20
36	2 1/4-16UN	75	63.40

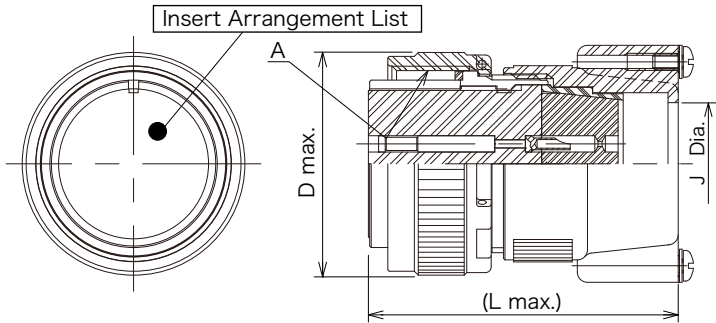


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► D/MS E/F/R Series

**Straight Plug Connector**

D/MS3106R □□□□ - □□□□ - □ (R1) ( With Gasket )

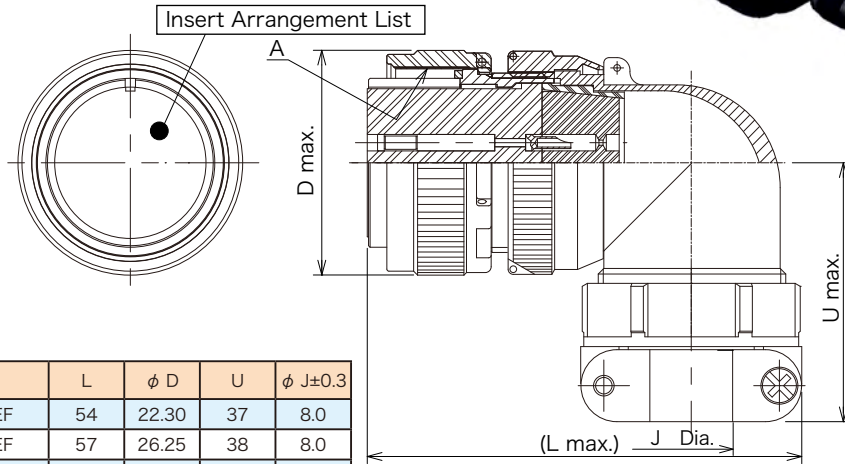


Shell Size	A	L	φ D	φ J±0.3
10SL	5/8-24UNEF	42	22.30	8.0
12S	3/4-20UNEF	43	26.25	8.3
14S	7/8-20UNEF	43	28.90	11.1
16S	1-20UNEF	47	31.90	14.2
16	1-20UNEF	51	31.90	14.2
18	1 1/8-18UNEF	55	33.80	15.8
20	1 1/4-18UNEF	55	37.55	19.1
22	1 3/8-18UNEF	56	40.85	19.1
24	1 1/2-18UNEF	61	43.70	24.0
28	1 3/4-18UNS	60	50.70	24.0
32	2-18UNS	60	57.20	32.0
36	2 1/4-16UN	58	63.40	38.0

**Angle Plug Connector**

D/MS3108E □□□□ - □□□□ - □ (R1)

D/MS3108F □□□□ - □□□□ - □ (R1) ( With Gasket )



Shell Size	A	L	φ D	U	φ J±0.3
10SL	5/8-24UNEF	54	22.30	37	8.0
12S	3/4-20UNEF	57	26.25	38	8.0
14S	7/8-20UNEF	59	28.90	40	11.0
16S	1-20UNEF	65	31.90	47	14.2
16	1-20UNEF	69	31.90	47	14.2
18	1 1/8-18UNEF	69	33.80	46	15.8
20	1 1/4-18UNEF	76	37.55	47	19.0
22	1 3/8-18UNEF	79	40.85	52	19.0
24	1 1/2-18UNEF	86	43.70	54	23.8
28	1 3/4-18UNS	85	50.70	56	23.8
32	2-18UNS	101	57.20	67	32.0
36	2 1/4-16UN	101	63.40	71	38.0

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▶ D/MS E/F/R Series

**Accessories**

---Backshell---

Backshell

D/MSE - □□□□ BS



Waterproof Straight Backshell

D/MSE - □□□□ BSS(R1)



Waterproof Long Straight Backshell

D/MSE - □□□□ BSSL(R1)



Straight Backshell

D/MSE - □□□□ BSN



Angle Backshell

D/MSE - □□□□ BA



Backshell (Type-R)

D/MSE - □□□□ BSR



Front Gasket of Receptacle

DMSE - □□□□ FG(R1)



Rear Gasket of Receptacle

DMSE - □□□□ RG(R1)



## ▶ D/MS E/F/R Series

**Accessories**

## ---Cable Clamp---

Cable Clamp

D/MS3057 - □□ A(R1)

Waterproof Cable Clamp

CE3057 - □□ A - □ -D(R1)



## ---Bushing---

Rubber Bushing

AN3420 - □□ (R1)

Environmental Bushing

CE3420 - □□ - □ (R1)



# D/MS E/F/R Part Numbering System

D/MS E/F/R Series  
MIL-DTL-5015

**D/MS 3106 F 20 - 29 S W - BSS - 1(R)1(**  
 $\frac{1}{1} \frac{2}{2} \frac{3}{3} \frac{4}{4} \frac{5}{5} \frac{6}{6} \frac{7}{7} \frac{8}{8} \frac{9}{9}$

## 1. Series

D/MS : Trivalent Chromium Treatment (Black)

## 2. Shell Style

- 3100 : Wall connecting receptacle (in-line receptacle)
- 3101 : Cable connecting receptacle (in-line receptacle)
- 3102 : Box mounting receptacle
- 3106 : Straight plug
- 3106R : Straight plug
- 3108 : 90 degree angle plug

## 3. Service Class(Connector Class)

- E : Environmental with rubber insert
- F : Environmental with rubber insert and gasket.
- R : Environmental with rubber insert and gasket (3102).
- R : Environmental with rubber insert and potting backshell (3100, 3101, 3106).

## 4. Shell Size

20 : 20 size  
Shell size 10SL, 14S, 16S through 36 available

## 5. Insert Arrangement

20-29 :20-29 Insert  
Refer to pages xx-xx for insert availability

## 6. Contact Configuration (style)

- P : Solder pin contacts
- S : Solder socket contacts
- PC : Crimp pin contacts
- SC : Crimp socket contacts

## 7. Insert Rotation

Omit : Normal position  
W,"X","Y","Z" : Refer to page 6

## 8. Backshell Style

- BSS : With waterproof straight backshell
- BSL : With Long waterproof backshell
- BSN : With non - waterproof straight backshell
- Omit : Refer to the following name of articles
- 3100E /3101E : With waterproof straight backshell grommet and ferrule
- 3106E / F / R : With waterproof straight backshell grommet and ferrule
- 3108E / F : With waterproof angle backshell grommet and ferrule

## 9. Applicable Cable Diameter

- 0 : With non - waterproof cable clamp (Refer to table 1)
- 1 ~ 8 : With waterproof cable clamp (Refer to table 2)

**Table 1**

Number	Cable Clamp P/N	Shell Size	Bushing Used	Applicable Cable Diameter
0	D/MS3057-4A(R1)	10SL, 12S	AN3420-4(R1)	φ 5.6 max
0	D/MS3057-6A(R1)	14S	AN3420-6(R1)	φ 7.9 max
0	D/MS3057-8A(R1)	16S, 16	AN3420-8(R1)	φ 11.1 max
0	D/MS3057-10A(R1)	18	AN3420-10(R1)	φ 14.3 max
0	D/MS3057-12A(R1)	20, 22	AN3420-12(R1)	φ 15.9 max
0	D/MS3057-16A(R1)	24, 28	AN3420-16(R1)	φ 19.1 max
0	D/MS3057-20A(R1)	32	AN3420-20(R1)	φ 23.8 max
0	D/MS3057-24A(R1)	36	AN3420-24(R1)	φ 31.8 max

AN3420-□□ is an accessory which is designed to tighten the cable.  
When you need thinner cable, you can duplicate or triplicate the rubber bushings.

**Table 2**

Number	Cable Clamp P/N	Shell Size	Bushing Used	Applicable Cable Diameter
1	CE3057-4A-1-D(R1)	10SL, 12S	CE3420-4-1(R1)	φ 3.6 - φ 5.6
1	CE3057-6A-1-D(R1)	14S	CE3420-6-1(R1)	φ 7.0 - φ 9.0
1	CE3057-8A-1-D(R1)	16S, 16	CE3420-8-1(R1)	φ 10.0 - φ 12.0
2	CE3057-8A-2-D(R1)		CE3420-8-2(R1)	φ 8.5 - φ 10.5
1	CE3057-10A-1-D(R1)		CE3420-10-1(R1)	φ 10.5 - φ 14.1
2	CE3057-10A-2-D(R1)	18	CE3420-10-2(R1)	φ 8.5 - φ 11.0
3	CE3057-10A-3-D(R1)		CE3420-10-3(R1)	φ 6.5 - φ 8.7
1	CE3057-12A-1-D(R1)		CE3420-12-1(R1)	φ 12.5 - φ 16.0
2	CE3057-12A-2-D(R1)		CE3420-12-2(R1)	φ 9.5 - φ 13.0
3	CE3057-12A-3-D(R1)	20, 22	CE3420-12-3(R1)	φ 6.8 - φ 10.0
7	CE3057-12A-7-D(R1)		CE3420-12-7(R1)	φ 14.5 - φ 17.0
1	CE3057-16A-1-D(R1)		CE3420-16-1(R1)	φ 15.0 - φ 19.1
2	CE3057-16A-2-D(R1)		CE3420-16-2(R1)	φ 13.0 - φ 15.5
4	CE3057-16A-4-D(R1)		J-06814 CZY005-GB-3(R1)	φ 19.1 - φ 21.5
6	CE3057-16A-6-D(R1)	24, 28	CE3420-16-6	φ 18.5 - φ 20.0
7	CE3057-16A-7-D(R1)		CE3420-16-7	φ 11.5 - φ 13.5
8	CE3057-16A-8-D(R1)		J-07369 CZY005-GB-6(MO)(R1)	φ 10.5 - φ 12.5
1	CE3057-20A-1-D(R1)		CE3420-20-1(R1)	φ 22.0 - φ 23.8
2	CE3057-20A-2-D(R1)	32	CE3420-20-2(R1)	φ 24.0 - φ 26.6
3	CE3057-20A-3-D(R1)		CZY005-GB-5(R1)	φ 21.0 - φ 22.5
1	CE3057-24A-1-D(R1)		CE3420-24-1(R1)	φ 30.0 - φ 32.5
2	CE3057-24A-2-D(R1)	36	CE3420-24-2(R1)	φ 27.5 - φ 29.6
3	CE3057-24A-3-D(R1)		AN3420-24(D246)(R1)	φ 29.0 - φ 31.0

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Your checking the latest specifications with our drawings would be highly appreciated.



## Crimp Tool for DDK D/MS-E/F/R Crimp Contacts

Contact P/N	Contact Size	Applicable Wire AWG	Crimp Tool Body		TOOL			Note				
			MILITARY P/N	DMC P/N	LOCATOR DDK P/N	GAGE	Semi-automatic DMC P/N					
DMSE-#12P □ -C1	#12	4mm <sup>2</sup>	M22520/1-01	AF8	357J-53229T (with stopper)	M22520/3-1 G125	WA27F					
DMSE-#12S □ -C1												
DMSE-#12P □ -C2	#12	AWG14-12	M22520/1-01	AF8								
DMSE-#12S □ -C2												
DMSE-#12P □ -C3	#12	AWG18-16	M22520/1-01	AF8								
DMSE-#12S □ -C3												
DMSE-S#16P □ -C1	#16	AWG18-16	M22520/1-01	AF8					357J-53230T (with stopper)		WA27F	Note: Stopper for 7 kinds of contacts will be attached to each locator part number.
DMSE-#16P □ -C1												
DMSE-L#16P □ -C1												
DMSE-SS#16S □ -C1												
DMSE-S#16S □ -C1												
DMSE-#16S □ -C1												
DMSE-L#16S □ -C1												
DMSE-S#16P □ -C2	#16	AWG18-22	M22520/1-01	AF8								
DMSE-#16P □ -C2												
DMSE-L#16P □ -C2												
DMSE-SS#16S □ -C2												
DMSE-S#16S □ -C2												
DMSE-#16S □ -C2												
DMSE-L#16S □ -C2												
DMSE-S#16P □ -C3	#16	AWG26-22	M22520/1-01	AF8								
DMSE-#16P □ -C3												
DMSE-L#16P □ -C3												
DMSE-SS#16S □ -C3												
DMSE-S#16S □ -C3												
DMSE-#16S □ -C3												
DMSE-L#16S □ -C3												

Note : DMC stands for Daniels Manufacturing Corporation.

## Crimp Tool for DDK D/MS-E/F/R Crimp Contacts

Contact P/N	Contact Size	Applicable Wire AWG	DMC P/N	DMC DIE ASSEMBLY P/N	LOKATOR DDK P/N
DMSE-#0P □ -C1	#0	AWG 0 50mm <sup>2</sup> AWG 2 (35mm <sup>2</sup> ) AWG 4 (25mm <sup>2</sup> ) 16mm <sup>2</sup>	WA23	WA23-5	357J-53244T
DMSE-#0P □ -C2					
DMSE-#0P □ -C3					
DMSE-#0P □ -C4					
DMSE-#0P □ -C5					
DMSE-#0S □ -C1					
DMSE-#0S □ -C2					
DMSE-#0S □ -C3					
DMSE-#0S □ -C4					
DMSE-#0S □ -C5					
DMSE-L#0P □ -C1					
DMSE-L#0P □ -C2					
DMSE-L#0P □ -C3					
DMSE-L#0P □ -C4					
DMSE-L#0P □ -C5					
DMSE-L#0S □ -C1	#4	AWG 0 50mm <sup>2</sup> AWG 2 (35mm <sup>2</sup> ) AWG 4 (25mm <sup>2</sup> )	WA23	WA23-5	357J-53245T
DMSE-L#0S □ -C2					
DMSE-L#0S □ -C3					
DMSE-L#0S □ -C4					
DMSE-L#0S □ -C5					
DMSE-#4P □ -C1					
DMSE-#4P □ -C2					
DMSE-#4P □ -C3					
DMSE-#4P □ -C4					
DMSE-#4S □ -C1					
DMSE-#4S □ -C2					
DMSE-#4S □ -C3					
DMSE-#4S □ -C4					
DMSE-L#4P □ -C1					
DMSE-L#4P □ -C2					
DMSE-L#4P □ -C3	#8	AWG 4 16mm <sup>2</sup> AWG 6 10mm <sup>2</sup>	WA23	WA23-4	357J-53246T
DMSE-L#4P □ -C4					
DMSE-L#4S □ -C1					
DMSE-L#4S □ -C2					
DMSE-L#4S □ -C3					
DMSE-L#4S □ -C4					
DMSE-#8P □ -C1					
DMSE-#8P □ -C2					
DMSE-#8P □ -C3					
DMSE-#8P □ -C4					
DMSE-#8S □ -C1					
DMSE-#8S □ -C2					
DMSE-#8S □ -C3					
DMSE-#8S □ -C4					
DMSE-L#8P □ -C1					
DMSE-L#8P □ -C2	#8	10mm <sup>2</sup> AWG 8 AWG 10 AWG 14/12	WA23	WA23-2	357J-53248T
DMSE-L#8P □ -C3					
DMSE-L#8P □ -C4					
DMSE-L#8S □ -C1					
DMSE-L#8S □ -C2					
DMSE-L#8S □ -C3					
DMSE-L#8S □ -C4					
DMSE-L#8P □ -C1					
DMSE-L#8P □ -C2					
DMSE-L#8P □ -C3					
DMSE-L#8P □ -C4					
DMSE-L#8S □ -C1					
DMSE-L#8S □ -C2					
DMSE-L#8S □ -C3					
DMSE-L#8S □ -C4					

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