

MIL-C-5015 Compatible Environment Resistant Type



C

D/MS E/F/R

DDK's D/MS 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 series are compatible and comply with MIL-C-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.

FEATURE

- Synthetic rubber inserts
- Grommet for moisture-proof
- Unified backshell with cable clamp
- Grommet and cable clamp combination for extra strength to hold cable
- Solder termination contacts

MATERIAL/FINISH

Contact	Copper alloy / Silver plating
Insulator	Chloroprene rubber
Shell	Aluminum alloy / Zinc plating, Trivalent Chromium finish (Black)

D/MS E/F/R Series

SPECIFICATION

Wire size

Contact size	AWG		
#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

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Contact size

Contact size	Max. value per contact
#16	13A
#12	23A
#8	46A
#4	80A
#0	150A

Service rating

Service rating	Operating voltage	
	DC	AC(rms)
INST	250	200
A	700	500
D	1250	900
E	1750	1250
B	2450	1750
C	4200	3000

Maximum total current connectors is same as the allowable current for wire bundles as specified in MIL-W-5088.

Service rating

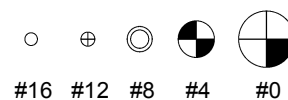
Insulation resistance	5,000M ohm min.(at 25C degree)
Temperature range	-55C degree to 125C degree
Thermal shock	MIL-STD-202 Method 107 Temperature range of -55C degree to 125C degree
Humidity	Relative humidity: 95% +/-3% Temperature: 71C degree +/-2C degree Duration: 14 days (336hrs.)
Vibration	MIL-STD-1344 Method 2005 10-500Hz or 10G units
Shock, Electrical	1-2 sine wave transient shock Impulse of 50G units Duration: 11 +/-1 micro sec. Test current: 100mA
Salt spray	MIL-STD-1344 Method 1001 Salt solution: 5% Duration: 48 hours
Durability	500 cycle mating/ unmating operatings

D/MS E/F/R Series

Insert Arrangements-Front View of Pin Insert

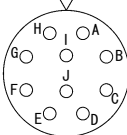
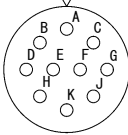
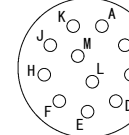
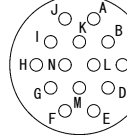
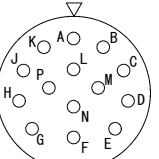
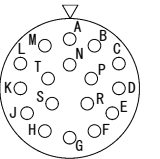
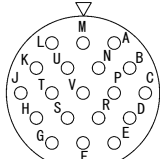
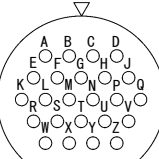
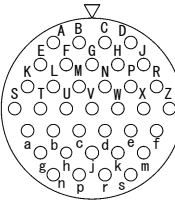
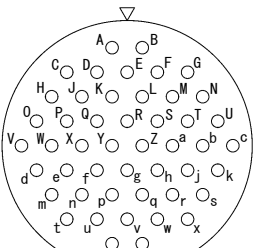
2 Contacts			3 Contacts		
10SL-4 2-#16 Serv. A	12S-3 2-#12 Serv. A	18-3 2-#12 Serv. D	10SL-3 3-#16 Serv. A	14S-7 3-#16 Serv. A	16S-5 3-#16 Serv. A
3 Contacts	4 Contacts				
16-10 3-#12 Serv. A	14S-2 4-#16 Serv. INST	16-9 2-#16 2-#12 Serv. A	18-10 4-#12 Serv. A	22-22 4-#8 Serv. A	
4 Contacts	5 Contacts		6 Contacts		
32-17 4-#4 Serv. D	14S-5 5-#16 Serv. INST	16S-8 5-#16 Serv. A	18-11 5-#12 Serv. A	14S-6 6-#16 Serv. INST	
6 Contacts	7 Contacts				
36-3 3-#0 3-#12 Serv. D	16S-1 7-#16 Serv. A	20-15 7-#12 Serv. A	24-10 7-#8 Serv. A		

Contact Sizes



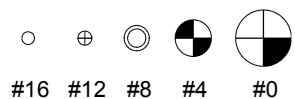
D/MS E/F/R Series

Insert Arrangements-Front View of Pin Insert

10 Contacts		11 Contacts		14 Contacts			
 <p>18-1 10-#16 Serv. A(B,C,F,G) Serv. INST(Others)</p>		 <p>18-19 10-#16 Serv. A</p>		 <p>20-33 11-#16 Serv. A</p>		 <p>20-27 14-#16 Serv. A</p>	
14 Contacts		17 Contacts		19 Contacts		24 Contacts	
 <p>22-19 14-#16 Serv. A</p>		 <p>20-29 17-#16 Serv. A</p>		 <p>22-14 19-#16 Serv. A</p>		 <p>24-28 24-#16 Serv. INST</p>	
37 Contacts		48 Contacts					
 <p>28-21 37-#16 Serv. A</p>		 <p>36-10 48-#16 Serv. A</p>					

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Contact Sizes

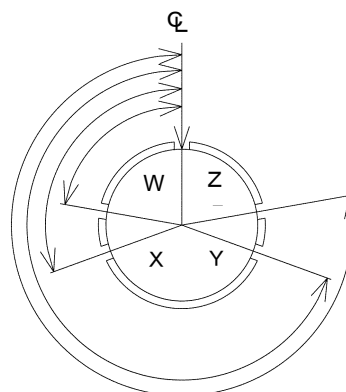


D/MS E/F/R Series

Unit : mm

Alternate Insert Positions

Insert No.	Alternate Key Positions			
	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°	—	—	280°
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°
28-21	80°	110°	250°	280°
32-17	45°	110°	250°	—
36-3	70°	145°	215°	290°
36-10	80°	125°	235°	280°



Front View of Pin Insert

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D/MS E/F/R Series

Unit : mm

Insert Specifications

Insert No.	No. of Pins	Contact Sizes				
		#0	#4	#8	#12	#16
10SL						
10SL-3	3					3
10SL-4	2					2
12S						
12S-3	2					2
14S						
14S-2	4					4
14S-5	5					5
14S-6	6					6
14S-7	3					3
16S						
16S-1	7					7
16S-5	3					3
16S-8	5					5
16						
16-9	4				2	2
16-10	3				3	
18						
18-1	10					10
18-3	2				2	
18-10	4				4	
18-11	5				5	
18-19	10					10
20						
20-15	7				7	
20-27	14					14
20-29	17					17
20-33	11					11
22						
22-14	19					19
22-19	14					14
22-22	4			4		
24						
24-10	7			7		
24-28	24					24
28						
28-21	37					37
32						
32-17	4		4			
36						
36-3	6	3			3	
36-10	48					48

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D/MS E/F/R Series

D/MS3106E20-29SW

SHELL STYLE

3100E : Wall Receptacle
 3101E : Cable Receptacle
 3102E/R : Box Receptacle
 3106E/F : Straight Plug
 3106R : Straight Plug
 3108E/F : Angle Plug

ALTERNATE INSERT POSITION

Omit: Standard Key Position
 W,X,Y or Z : Alternate Key Position

CONTACT STYLE

P: Pin contact
 S: Socket Contact

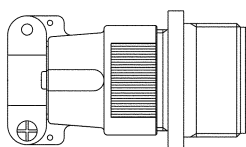
SHELL SIZE/ INSERT ARRANGEMENT

See page 3 and 4

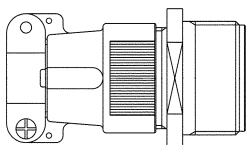


Receptacle Connector

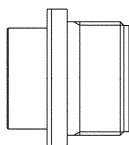
D/MS 3100E



D/MS 3101E

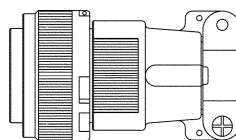


D/MS 3102E
D/MS 3102R

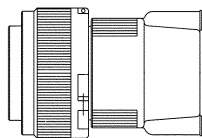


Plug Connector

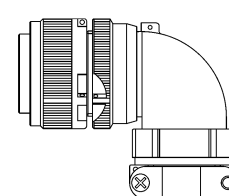
D/MS 3106E
D/MS 3106F



D/MS 3106R



D/MS 3108E
D/MS 3108F



D/MS E/F/R Series

Unit : mm

D/MS3106F20-29PWG-C(-)

D/MS-Chromate Finish

SHELL STYLE
 3100E : Wall Mount Receptacle
 3101E : Cable Receptacle
 3102E/R : Box Mount Receptacle
 3106E/F/R : Straight Plug
 3108E/F : Right Angle Plug

Shell Size/Insert Arrangement

CONTACT STYLE
 P:Pin Contacts
 S:Socket Contacts

DEVIATION
 (D313)-Less Back Shell & Accessories
 (D129)-PCB Contacts [3102, Only]

*1 Crimp contacts ordered seperately

Omit:Silver Plated Solder Contacts
 "G" Gold Plated Solder Contacts

ALTERNATE INSERT ROTATION
 Omit:Standard Key Position
 W, X, Y, Z: Alternate Key Rotation

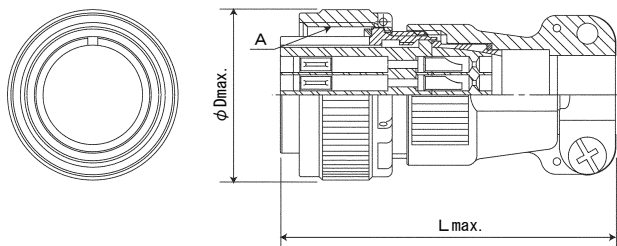
Note
 *1 : Consult DDK

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 D/MS E/F/R

■ Straight Plug

D/MS3106E (Less Gasket)

D/MS3106F (With Gasket)



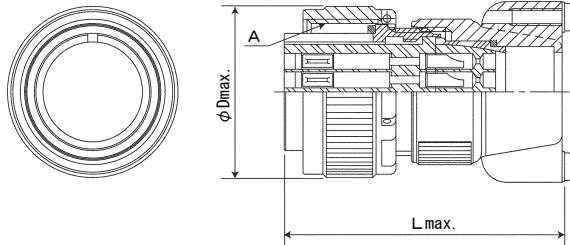
Shell Size	A	L	φ D
10SL	5/8-24UNEF	51.9	22.30
12S	3/4-20UNEF	52.1	26.25
14S	7/8-20UNEF	54.3	28.90
16S	1-20UNEF	59.4	31.90
16	1-20UNEF	66.4	31.90
18	1 1/8-18UNEF	69.2	33.80
20	1 1/4-18UNEF	68.0	37.55
22	1 3/8-18UNEF	70.9	40.85
24	1 1/2-18UNEF	77.2	43.70
28	1 3/4-18UNS	77.6	50.70
32	2-18UNS	75.5	57.20
36	2 1/4-16UN	75.0	63.40

D/MS E/F/R Series

Unit : mm

■ Straight Plug

D/MS3106R

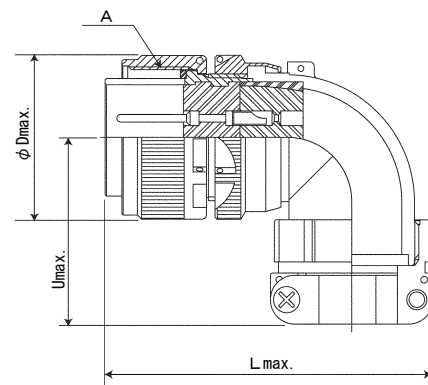
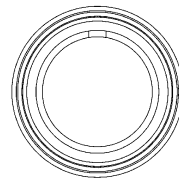


Shell Size	A	L	φ D
10SL	5/8-24UNEF	43.6	22.30
12S	3/4-20UNEF	43.4	26.25
14S	7/8-20UNEF	43.8	28.90
16S	1-20UNEF	47.4	31.90
16	1-20UNEF	54.4	31.90
18	1 1/8-18UNEF	55.9	33.80
20	1 1/4-18UNEF	55.2	37.55
22	1 3/8-18UNEF	59.2	40.85
24	1 1/2-18UNEF	63.0	43.70
28	1 3/4-18UNS	63.6	50.70
32	2-18UNS	61.5	57.20
36	2 1/4-16UN	61.0	63.20

■ Angle Plug

D/MS3108E (Less Gasket)

D/MS3108F (With Gasket)



Shell Size	A	L	φ D	U
10SL	5/8-24UNEF	55.6	24.60	38.1
12S	3/4-20UNEF	55.6	27.00	38.1
14S	7/8-20UNEF	58.7	29.40	40.5
16S	1-20UNEF	61.1	31.75	42.9
16	1-20UNEF	70.6	31.75	42.9
18	1 1/8-18UNEF	52.2	34.10	45.2
20	1 1/4-18UNEF	82.6	37.30	50.0
22	1 3/8-18UNEF	82.6	40.50	50.8
24	1 1/2-18UNEF	94.5	43.70	54.0
28	1 3/4-18UNS	94.5	50.00	55.6
32	2-18UNS	106.4	56.40	65.9
36	2 1/4-16UN	109.1	62.70	69.1

D/MS E/F/R Series

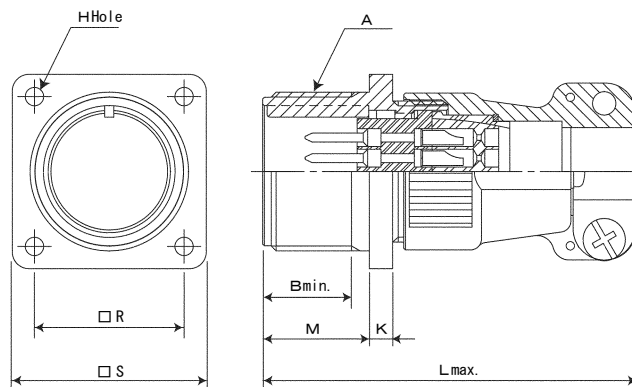
Unit : mm

Wall Mounting Receptacle

D/MS3100E

Shell Size	A	B	K ±0.05	L	M ^{+0.78} ₀	R ±0.12	S ±0.5	φ H ^{+0.25} _{-0.12}
10SL	5/8-24UNEF	12.0	2.2	52.0	14.5	18.26	25.40	3.0
12S	3/4-20UNEF	12.0	3.0	54.1	14.6	20.62	27.80	3.3
14S	7/8-20UNEF	11.0	2.9	56.3	14.6	23.01	30.18	3.3
16S	1-20UNEF	12.0	3.2	63.0	14.5	24.61	32.54	3.3
16	1-20UNEF	16.0	2.9	67.7	19.5	24.61	32.54	3.3
18	1 1/8-18UNEF	16.0	4.2	70.2	19.2	26.94	34.93	3.3
20	1 1/4-18UNEF	16.0	3.7	69.3	19.2	29.36	38.10	3.3
22	1 3/8-18UNEF	16.0	4.0	70.8	19.2	31.75	41.28	3.3
24	1 1/2-18UNEF	17.0	3.4	78.4	21.0	34.93	45.00	3.8
28	1 3/4-18UNS	18.0	3.4	78.5	21.3	39.67	50.80	3.8
32	2-18UNS	18.0	4.0	77.5	22.5	44.45	57.15	4.5
36	2 1/4-16UN	18.0	4.1	77.4	22.4	49.20	63.50	4.5

C
D/MS E/F/R



D/MS E/F/R Series

Unit : mm

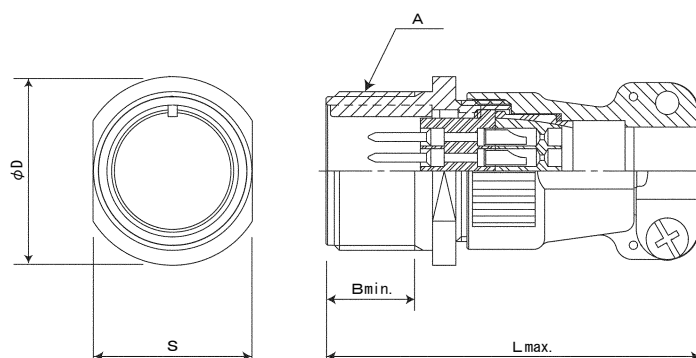
Cable Connecting Receptacle

D/MS3101E

C

D/MS E/F/R

Shell Size	A	B	L	$\phi D \pm 0.5$	$S \pm 0.5$
10SL	5/8-24UNEF	12.0	52.0	22.0	16.5
12S	3/4-20UNEF	12.0	54.1	25.0	19.3
14S	7/8-20UNEF	11.0	56.3	28.0	22.6
16S	1-20UNEF	12.0	63.0	31.0	25.5
16	1-20UNEF	16.0	67.7	31.0	25.5
18	1 1/8-18UNEF	16.0	70.2	33.9	28.7
20	1 1/4-18UNEF	16.0	69.3	37.0	32.0
22	1 3/8-18UNEF	16.0	70.8	40.0	35.0
24	1 1/2-18UNEF	17.0	78.4	43.3	38.2
28	1 3/4-18UNS	18.0	78.5	49.5	44.7
32	2-18UNS	18.0	77.5	55.5	50.8
36	2 1/4-16UN	18.0	77.4	62.3	57.3



D/MS E/F/R Series

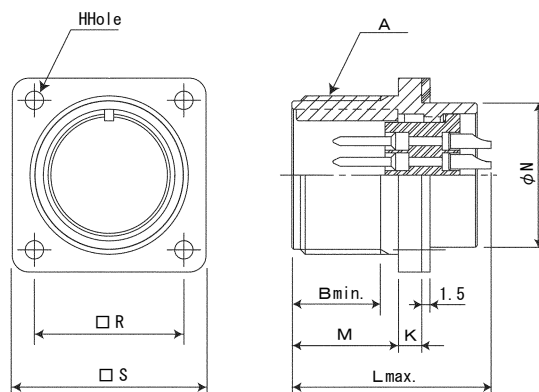
Unit : mm

Box Mounting Receptacle

D/MS3102E (Less Gasket)

D/MS3102R (With Gasket)

Shell Size	A	B	K ±0.5	L	M ^{+0.78} ₀	N ±0.5	R ±0.12	S ±0.5	φ H ^{+0.25} _{-0.12}
10SL	5/8-24UNEF	12.0	2.2	25.0	14.5	14.5	18.26	25.40	3.0
12S	3/4-20UNEF	12.0	3.0	27.0	14.6	15.8	20.62	27.80	3.3
14S	7/8-20UNEF	11.0	4.1	26.5	14.6	19.0	23.01	30.18	3.3
16S	1-20UNEF	12.0	3.3	25.6	14.5	22.0	24.61	32.54	3.3
16	1-20UNEF	16.0	4.9	33.3	19.5	22.0	24.61	32.54	3.3
18	1 1/8-18UNEF	16.0	4.2	33.4	19.2	26.0	26.94	34.93	3.3
20	1 1/4-18UNEF	16.0	3.7	32.1	19.2	29.0	29.36	38.10	3.3
22	1 3/8-18UNEF	16.0	4.0	35.0	19.2	32.0	31.75	41.28	3.3
24	1 1/2-18UNEF	17.0	3.4	36.0	21.0	35.3	34.93	45.00	3.8
28	1 3/4-18UNS	18.0	3.8	36.7	21.3	42.0	39.67	50.80	3.8
32	2-18UNS	18.0	4.0	39.0	22.5	47.3	44.45	57.15	4.5
36	2 1/4-16UN	18.0	4.1	39.5	22.4	53.3	49.20	63.50	4.5



C
D/MS E/F/R

D/MS E/F/R Series

Unit : mm

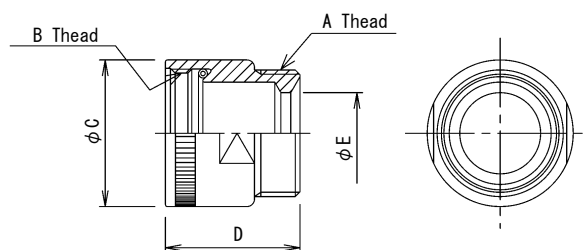
Back Shells (Short)

D/MSE-□□BSS

Material/Finish.....Aluminum alloy/Zinc Plating, Trivalent chromate (Black)

C
D/MS E/F/R

P/N	A Thread	B Thread	ϕC	D	ϕE
D/MSE-10SLBSS	5/8-24 UNEF-2A	9/16-24 UNEF-2B	18.6	21.5	6.6
D/MSE-12SBSS	5/8-24 UNEF-2A	5/8-24 UNEF-2B	20.0	22.0	6.6
D/MSE-14SBSS	3/4-24 UNEF-2A	3/4-24 UNEF-2B	22.3	27.0	9.8
D/MSE-16BSS	7/8-20 UNEF-2A	7/8-20 UNEF-2B	26.5	27.0	13.0
D/MSE-18BSS	1-20 UNEF-2A	1-20 UNEF-2B	30.4	27.0	16.2
D/MSE-20BSS	1 3/16-18 UNEF-2A	1 1/8-18 UNEF-2B	34.5	30.0	17.8
D/MSE-22BSS	1 3/16-18 UNEF-2A	1 1/4-18 UNEF-2B	36.4	35.0	17.8
D/MSE-24BSS	1 7/16-18 UNEF-2A	1 3/8-18 UNEF-2B	40.0	39.5	21.0
D/MSE-28BSS	1 7/16-18 UNEF-2A	1 5/8-18 UNEF-2B	47.2	45.0	21.0
D/MSE-32BSS	1 3/4-18 UNS-2A	1 7/8-16 UN-2B	51.4	50.0	25.8
D/MSE-36BSS	2-1/8 UNS-2A	2 1/8-16 UN-2B	58.4	57.0	33.8



D/MS E/F/R Series

Unit : mm

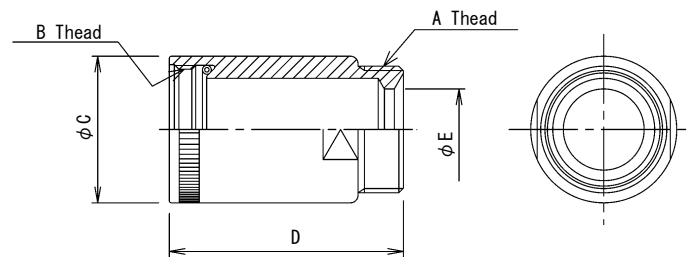
Back Shells (Long)

D/MSE-□□BSSL

Material/Finish.....Aluminum alloy/Zinc Plating, Trivalent chromate (Black)

C
D/MSE/F/R

P/N	A Thread	B Thread	φ C	D	φ E
D/MSE-10SLBSSL	5/8-24 UNEF-2A	9/16-24 UNEF-2B	18.6	41.5	6.6
D/MSE-12SBSSL	5/8-24 UNEF-2A	5/8-24 UNEF-2B	20.0	42.0	6.6
D/MSE-14SBSSL	3/4-24 UNEF-2A	3/4-24 UNEF-2B	22.3	47.0	9.8
D/MSE-16BSSL	7/8-20 UNEF-2A	7/8-20 UNEF-2B	26.5	47.0	13.0
D/MSE-18BSSL	1-20 UNEF-2A	1-20 UNEF-2B	30.4	47.0	16.2
D/MSE-20BSSL	1 3/16-18 UNEF-2A	1 1/8-18 UNEF-2B	34.5	50.0	17.8
D/MSE-22BSSL	1 3/16-18 UNEF-2A	1 1/4-18 UNEF-2B	36.4	55.0	17.8
D/MSE-24BSSL	1 7/16-18 UNEF-2A	1 3/8-18 UNEF-2B	40.0	59.5	21.0
D/MSE-28BSSL	1 7/16-18 UNEF-2A	1 5/8-18 UNEF-2B	47.2	65.0	21.0
D/MSE-32BSSL	1 3/4-18 UNS-2A	1 7/8-16 UN-2B	51.4	70.0	25.8
D/MSE-36BSSL	2-1/8 UNS-2A	2 1/8-16 UN-2B	58.4	77.0	33.8



D/MS E/F/R Series

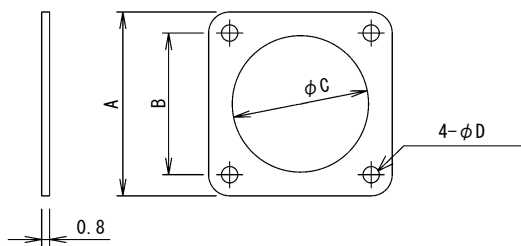
Unit : mm

Front Mounting Gaskets

D/MSE-□□RG

P/N	Shell Size	A	B	ϕC	ϕD
D/MSE-10SLRG	10SL	25.4	18.3	15.1	3.1
D/MSE-12SRG	12S	27.8	20.6	16.5	3.1
D/MSE-14SRG	14S	30.2	23.0	19.9	3.1
D/MSE-16RG	16S, 16	32.5	24.6	22.0	3.1
D/MSE-18RG	18	34.9	26.9	25.9	3.1
D/MSE-20RG	20	38.1	29.4	29.0	3.1
D/MSE-22RG	22	41.2	31.8	31.9	3.1
D/MSE-24RG	24	44.5	34.9	34.6	3.7
D/MSE-28RG	28	50.8	39.7	42.0	3.8
D/MSE-32RG	32	57.2	44.5	47.3	4.5
D/MSE-36RG	36	63.5	49.2	53.3	4.5

Dimensions are for reference, only.



Rear Mounting Gaskets

D/MSE-□□FG

P/N	Shell Size	A	B	ϕC	ϕD
D/MSE-10SLFG	10SL	25.4	18.3	15.8	3.1
D/MSE-12SFG	12S	27.8	20.6	19.0	3.1
D/MSE-14SFG	14S	30.2	23.0	22.2	3.1
D/MSE-16FG	16S, 16	32.5	24.6	25.4	3.1
D/MSE-18FG	18	34.9	26.9	28.5	3.1
D/MSE-20FG	20	38.1	29.4	31.7	3.1
D/MSE-22FG	22	41.2	31.8	34.9	3.1
D/MSE-24FG	24	44.5	34.9	38.1	3.7
D/MSE-28FG	28	50.8	39.7	45.5	3.8
D/MSE-32FG	32	57.2	44.5	51.0	4.5
D/MSE-36FG	36	63.5	49.2	57.1	4.5

Dimensions are for reference, only.

