

MIL-DTL-38999 Series III Hermetic Connectors



Now MIL-DTL-38999 Series III Qualified

Stainless steel high density glass sealed hermetic connector designed for use in sensors, actuators, valves and other critical environment.

QPL ■ MIL-DTL-38999 qualified.
45 qualified layouts.

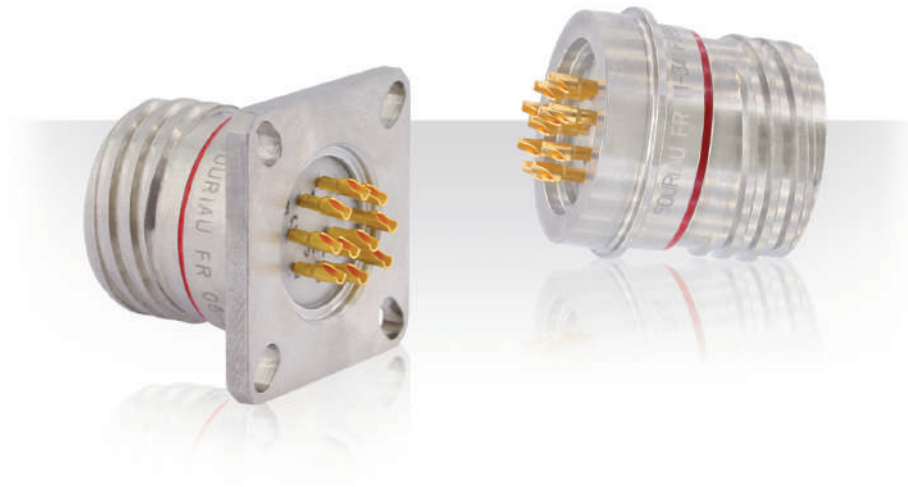
Hermetic ■ Leak rate $<1.10^{-7}$ atm.cm³/s
Low profile: 30% space saving

Versatility ■ High density.
Quick and robust mating.
High temperature and vibration withstanding.

Large offer ■ Solder flange, square flange, jam nut.
Solder cup, PC tail, eyelet contacts.
Passivated stainless steel, nickel plating.

Description

- Thread coupling connector
- MIL-DTL-38999 Series III qualified EN3645 compliant
- Glass sealed hermetic:
 - . high hermeticity performance
 - . compact low profile
- Various mounting styles:
 - . compact solder mount receptacle
 - . easy to install square flange receptacle
 - . easy to replace jam nut receptacle
- Signal and power contacts - up to size #4
- Special fuel tank versions for long term fuel immersion
- 230V qualified versions where higher voltage is used to reduce cable weight
- Solder cup, PC tail or eyelet contacts



Technical features

Mechanical

- **Shell:**
Class Y: passivated stainless steel
Class N: nickel plated stainless steel
- **Seals:**
Silicone elastomer
- **Contact:**
Gold plated ferrous alloy
- **Endurance:**
500 mating/unmating operations

Electrical

- **Max current rating per contact:**

Contact size	22D	20	16	12	8	4
Rating (A)	3	5	10	17	33	60

- **Dielectric withstanding voltage:**

Service	Sea level	30 000 m
M	1 300 Vrms	800 Vrms
I	1 800 Vrms	1 000 Vrms
II	2 300 Vrms	1 000 Vrms

- **Insulation resistance:**
5000 MΩ (under 500 Vdc)

Environmental

- **Operating temperature:**
-65°C to 200°C
- **Hermeticity:**
Leak rate < 1.10⁻⁷ atm.cm³/s
(helium gas test)
- **Salt spray:**
Class Y: 500 hours
Class N: 48 hours

Contact layouts

09 / A

35

6#22D
Service M

98

3#20
Service I

11 / B

02

2#16
Service I

04

4#20
Service I

05

5#20
Service I

35

13#22D
Service M

98

6#20
Service I

99

7#20
Service I

13 / C

04

4#16
Service I

08

8#20
Service I

35

22#22D
Service M

98

10#20
Service I

- Contact #22D
- Contact #20
- Contact #16
- Contact #12
- Contact #8 Power

15 / D

05

5#16
Service II

15

1#16, 14#20
Service I

18

18#20
Service I

19

19#20
Service I

35

37#22D
Service M

97

4#16, 8#20
Service I

17 / E

06

6#12
Service I

08

8#16
Service II

26

26#20
Service I

35

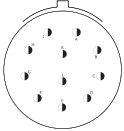
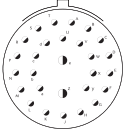
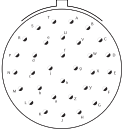
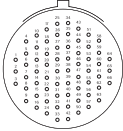
55#22D
Service M

99

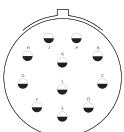
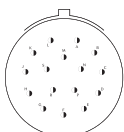
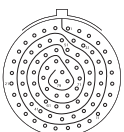
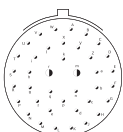
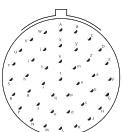
2#16, 21#20
Service I

Contact layouts

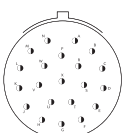
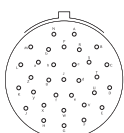
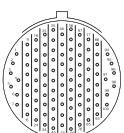
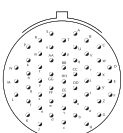
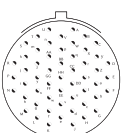
19 / F

11  11#16 Service II	28  26#20, 2#16 Service I	32  32#20 Service I	35  66#22D Service M
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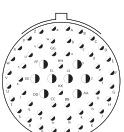
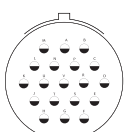
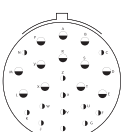
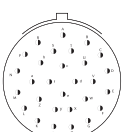
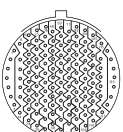
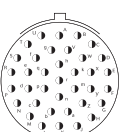
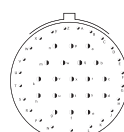
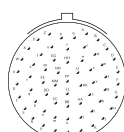
21 / G

11  11#12 Service I	16  16#16 Service II	35  79#22D Service M	39  2#16, 37#20 Service I	41  41#20 Service I
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23 / H

21  21#16 Service II	32  32#20 Service I	35  100#22D Service M	53  53#20 Service I	55  55#20 Service I
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25 / J

04  48#20, 8#16 Service I	19  19#12 Service I	24  12#16, 12#12 Service I	29  29#16 Service I	35  128#22D Service M	37  37#16 Service II	43  23#20, 20#16 Service I	61  61#20 Service I
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Contact layouts (matrix)

Shell size	Layout	D38999 QPL	8D type 21 Spec. 600*	8D Spec. 022*	8D Spec. 840 & 850*	8D Spec. A76*	Number of contacts					
							#22D	#20	#16	#12	#8	#4
09 / A	09-35	Q		OK	OK		6					
	09-98	Q		OK	OK			3				
11 / B	11-02	Q			OK				2			
	11-04	Q			OK			4				
	11-05	Q			OK			5				
	11-12	OK		Available on request, please consult us						1		
	11-22	OK		Available on request, please consult us			4					
	11-35	Q		OK	OK	OK	13					
	11-98	Q			OK			6				
	11-99	Q			OK	OK		7				
13 / C	13-03	OK		Available on request, please consult us					3			
	13-04	Q	OK		OK				4			
	13-08	Q			OK			8				
	13-26	OK		Available on request, please consult us			6			2		
	13-35	Q		OK	OK		22					
	13-98	Q			OK			10				
15 / D	15-05	Q		Available on request, please consult us					5			
	15-15	Q		Available on request, please consult us				14	1			
	15-18	Q			OK			18				
	15-19	Q		OK	OK			19				
	15-35	Q		OK	OK	OK	37					
	15-97	Q		Available on request, please consult us				8	4			
17 / E	17-06	Q	OK	OK						6		
	17-08	Q	OK		OK				8			
	17-20	OK		Available on request, please consult us			16			4		
	17-26	Q			OK			26				
	17-35	Q		OK	OK	OK	55					
	17-99	Q		Available on request, please consult us				21	2			
19 / F	19-11	Q		Available on request, please consult us					11			
	19-28	Q		Available on request, please consult us				26	2			
	19-32	Q		Available on request, please consult us				32				
	19-35	Q			OK		66					
21 / G	21-11	Q								11		
	21-16	Q		Available on request, please consult us					16			
	21-35	Q		OK	OK		79					
	21-39	Q		Available on request, please consult us				37	2			
	21-41	Q			OK			41				
	21-48	OK	OK								4	
	21-59	OK		Available on request, please consult us			55			4		
23 / H	23-21	Q			OK				21			
	23-32	Q		Available on request, please consult us				32				
	23-35	Q			OK		100					
	23-53	Q			OK			53				
	23-54	OK		Available on request, please consult us			40		9	4		
	23-55	Q			OK			55				
25 / J	25-04	Q			OK			48	8			
	25-19	Q								19		
	25-24	Q		Available on request, please consult us					12	12		
	25-29	Q			OK				29			
	25-35	Q		Available on request, please consult us			128					
	25-37	Q		Available on request, please consult us					37			
	25-43	Q		Available on request, please consult us				23	20			
	25-44	OK		Available on request, please consult us					4			4
25-61	Q		Available on request, please consult us				61					

OK = SOURIAU's layout

Q = SOURIAU's qualified layout

* see next page for specifications details

Connector part numbers

MIL-DTL-38999 part number

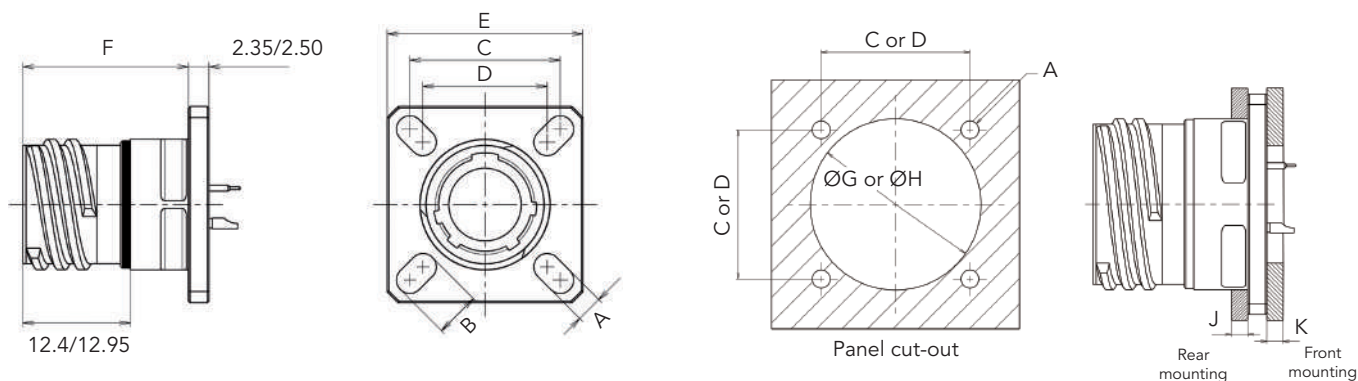
Basic Series	D38999	21	Y	A	35	P	N
Shell style:							
21: Square flange receptacle							
23: Jam nut receptacle							
25: Solder mount receptacle							
27: Weld mount receptacle							
Class:							
Y: Passivated stainless steel							
N: Nickel plated stainless steel							
Shell size:							
09=A, 11=B, 13=C, 15=D, 17=E, 19=F, 21=G, 23=H, 25=J							
Contact layout:							
See pages 3 & 4							
Contact type:							
P: Male solder cup							
C: Male PC tail contacts							
X: Male eyelet contacts							
Orientation:							
N, A, B, C, D, E							

SOURIAU part number

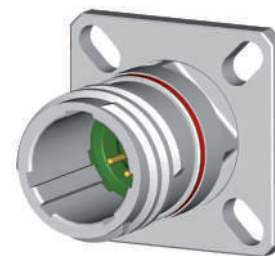
Basic Series	8D	0	Y	13	35	P	N	022
Shell style:								
0: Square flange receptacle								
1: Solder mount receptacle								
4: Weld mount receptacle								
7: Jam nut receptacle								
Class:								
Y: Passivated stainless steel								
N: Nickel plated stainless steel								
Shell size:								
09, 11, 13, 15, 17, 19, 21, 23, 25								
Contact layout:								
See pages 3 & 4								
Contact type:								
P: Male solder cup								
C: Male PC tail contacts								
X: Male eyelet contacts								
Orientation:								
N, A, B, C, D, E								
Specification:								
022: Fuel tank version								
840: Short PCB contact								
850: Long PCB contact								
600: 230V qualified connector (layouts 13-04, 17-06, 17-08 & 21-48 - orientation T & V)								
A76: Fuel tank version with crimp removable contacts - Jam nut only								

Dimensions

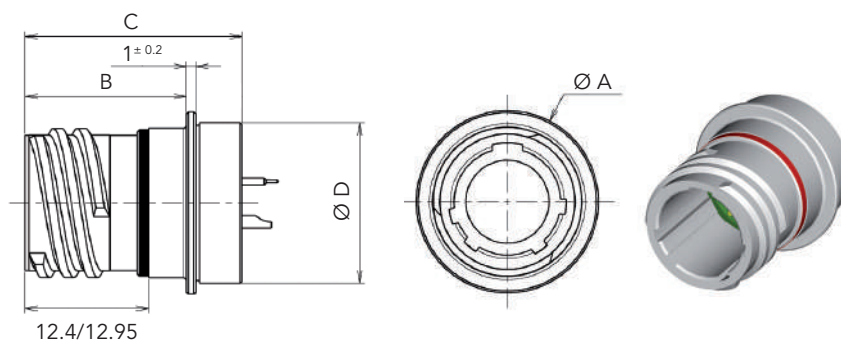
Square flange receptacle (type 21)



Shell size	A ± 0.20	B ± 0.20	C	D	E ± 0.30	F max	ØG Front mounting	ØH Rear mounting	J max	K max
A (9)	3.25	5.49	18.26	15.09	23.80	20.40	13.11	16.66	2.5	3.2
B (11)		4.93	20.62	18.26	26.20		15.88	20.22		
C (13)		23.01	20.62	28.60	19.05		23.42			
D (15)		4.39	24.61	23.01	31.00		23.01	26.59		
E (17)		26.97	24.61	33.30	25.81		30.96			
F (19)		4.93	29.36	26.97	36.50		28.98	32.94		
G (21)		31.75	29.36	39.70	32.16		36.12			
H (23)	3.91	6.15	34.93	31.75	42.90	34.93	39.29			
J (25)			38.10	34.93	46.00	37.69	42.47			



Solder mounting receptacle (type 25)

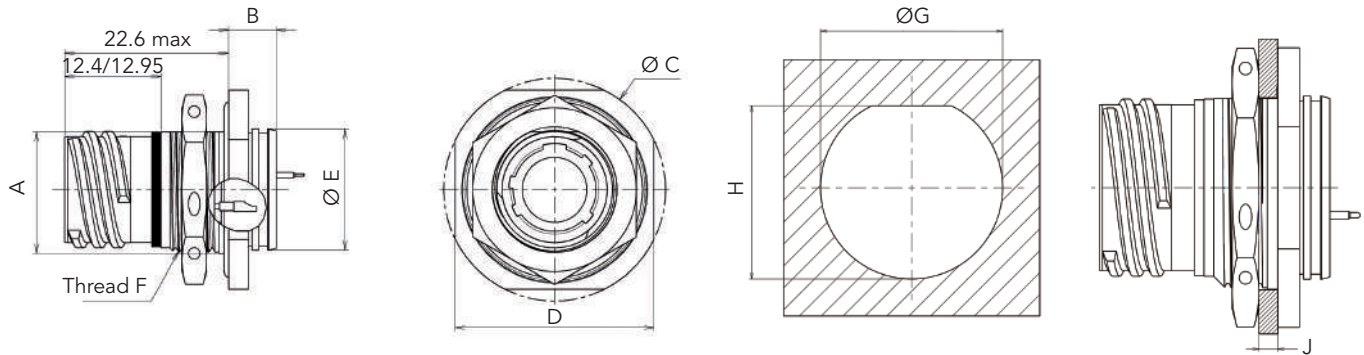


Shell size	Ø A max	B max	C max	D max
A (9)	19.40	17.20	23.80	17.10
B (11)	21.80			19.90
C (13)	24.90			23.10
D (15)	28.10			26.20
E (17)	31.30			29.40
F (19)	33.60			31.80
G (21)	36.80			35.00
H (23)	40.00	24.60	38.20	38.20
J (25)	43.20			41.30

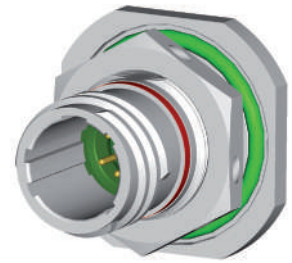
Note: All dimensions are in millimeters (mm)

Dimensions

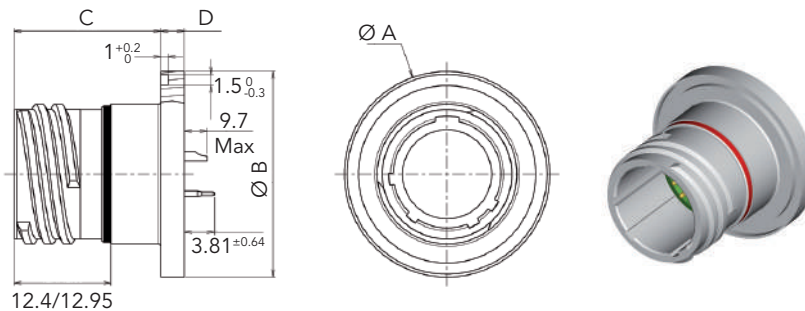
Jam nut receptacle (type 23)



Shell size	A flat ^{+0.10} / _{-0.15}	B max	ØC ± 0.30	D ± 0.40	ØE ± 0.30/0	F thread	ØG ^{+0.25} / ₀	H	J
A (9)	16.53	9.10	30.20	27.00	16.30	M17 x 1-6g	17.60	16.70 ^{+0.10} / _{-0.06}	3.2
B (11)	19.07		34.90	31.80	19.40	M20 x 1-6g	20.96	19.59 ⁰ / _{-0.25}	
C (13)	23.82		38.10	34.90	22.70	M25 x 1-6g	25.65	24.26 ⁰ / _{-0.25}	
D (15)	26.97		41.30	38.10	25.90	M28 x 1-6g	28.83	27.56 ⁰ / _{-0.25}	
E (17)	30.15		44.50	41.30	29.00	M32 x 1-6g	32.01	30.73 ⁰ / _{-0.25}	
F (19)	33.32	9.70	49.20	46.00	32.20	M35 x 1-6g	35.18	33.91 ⁰ / _{-0.25}	
G (21)	36.50		52.40	49.20	35.40	M38 x 1-6g	38.35	37.08 ⁰ / _{-0.25}	
H (23)	39.67		55.60	52.40	38.60	M41 x 1-6g	41.53	40.26 ⁰ / _{-0.25}	
J (25)	42.85		58.70	55.60	41.70	M44 x 1-6g	44.70	43.43 ⁰ / _{-0.25}	



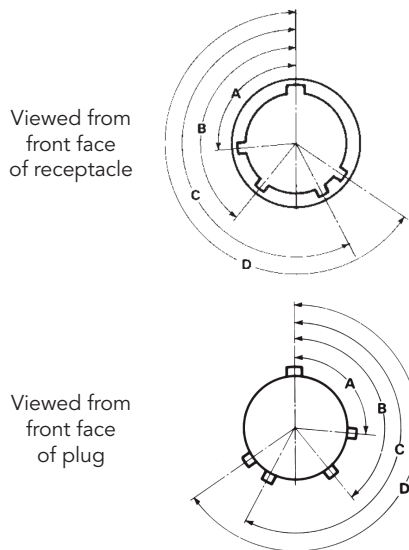
Weld mounting receptacle (type 27)



Shell size	Ø A ^{+0.3} / ₀	Ø B ± 0.3	C max	D ± 0.2
A (9)	24.70	23.90	23.20	3.20
B (11)	27.80	27.00		
C (13)	31.00	30.20		
D (15)	34.20	33.40		
E (17)	36.40	35.60		
F (19)	40.10	39.30	24.00	4.00
G (21)	43.70	42.90		
H (23)	47.90	47.10		
J (25)	50.10	49.30		

Note: All dimensions are in millimeters (mm)

Orientations



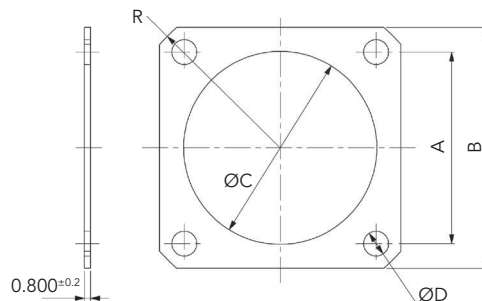
Shell size	Angles	N	A	B	C	D	E	T	V
9 (A)	A°	105	102	80	35	64	91	-	-
	B°	140	132	118	140	155	131		
	C°	215	248	230	205	234	197		
	D°	265	320	312	275	304	240		
11 (B) 15 (D)	A°	95	113	90	53	119	51	-	-
	B°	141	156	145	156	146	141		
	C°	208	182	195	220	176	184		
	D°	236	292	252	255	298	242		
13 (C)	A°	95	113	90	53	119	51	70	75
	B°	141	156	145	156	146	141	136	138
	C°	208	182	195	220	176	184	218	224
	D°	236	292	252	255	298	242	261	268
17 (E) 21 (G)	A°	80	135	49	66	62	79	58	85
	B°	142	170	169	140	145	153	162	150
	C°	196	200	200	200	180	197	188	191
	D°	293	310	244	257	280	272	316	307
19 (F) 23 (H) 25 (J)	A°	80	135	49	66	62	79	-	-
	B°	142	170	169	140	145	153		
	C°	196	200	200	200	180	197		
	D°	293	310	244	257	280	272		

Gaskets & O'rings

Shell size	Gasket for receptacle Type 0 (not delivered with connector)		O ring for receptacle Type 7 (delivered with connector)	
	Part number	Material	Part number	Material
09 (A)	85995541	Fluorosilicone	AS3582-019	Silicone
11 (B)	85995542	Fluorosilicone	AS3582-022	Silicone
13 (C)	85995543	Fluorosilicone	AS3582-024	Silicone
15 (D)	85995544	Fluorosilicone	AS3582-026	Silicone
17 (E)	85995545	Fluorosilicone	AS3582-028	Silicone
19 (F)	85995546	Fluorosilicone	AS3582-128	Silicone
21 (G)	85995547	Fluorosilicone	AS3582-130	Silicone
23 (H)	85995548	Fluorosilicone	AS3582-132	Silicone
25 (J)	85995549	Fluorosilicone	AS3582-134	Silicone

Gasket for square flange receptacle

Shell size	9	11	13	15	17	19	21	23	25
A±0.2	23.83	26.19	28.58	30.96	33.32	36.53	39.67	42.88	46.02
B±0.2	18.26	20.62	23.01	24.61	26.97	29.36	31.75	34.92	38.10
R±0.2	15.90	16.90	18.90	20.40	22.20	23.90	25.90	28.40	30.40
ØC±0.2	14.60	17.80	21.60	24.80	28.00	30.70	33.90	37.10	40.20
ØD±0.4	3.20							3.70	



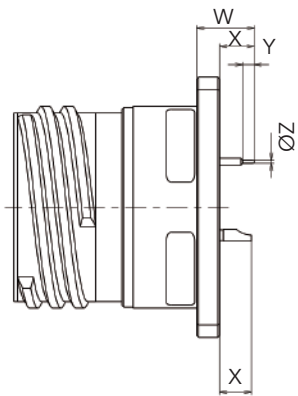
Maximum connector weight (in grams)

Shell size	09 (A)	11 (B)	13 (C)	15 (D)	17 (E)	19 (F)	21 (G)	23 (H)	25 (J)
Square flange receptacle	23	28	35	41	57	60	65	75	91
Jam nut receptacle	39	53	63	73	92	106	118	132	154
Solder mount receptacle	21	25	31	38	53	55	57	68	83

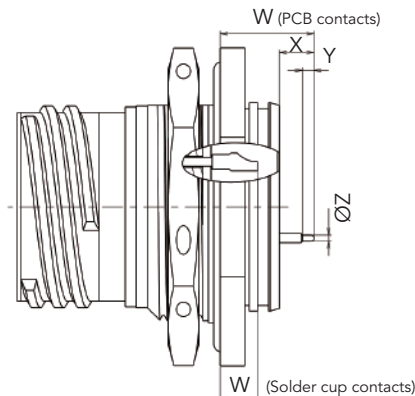
Note: All dimensions are in millimeters (mm)

Contact variations

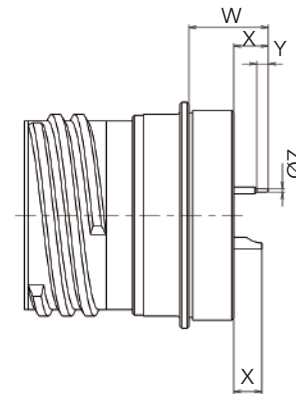
Contact variations summary



Type 21: Square flange receptacle



Type 23: Jam nut receptacle



Type 25: Solder mount receptacle

Type of contact	Specification	Type of shell	Contact size	W max	X min	Y min	ØZ max	
Solder cup (P)	D38999	21	20 & 22	N/A	3.45	N/A	N/A	
		23	20 & 22	4.5	N/A	N/A	N/A	
		25	20 & 22	N/A	2.3	N/A	N/A	
PCB (C)	D38999	21	16	6.65	3.45	N/A	N/A	
			20			0.89	0.71	
			22			0.89	0.38	
		23	16	11.5	3.3	N/A	N/A	
			20			0.89	0.71	
			22			0.89	0.38	
		25	16	10.75	3.4	N/A	N/A	
			20	12.15		0.89	0.71	
			22	13.55		0.89	0.38	
	840 (8D)	21	20	8.13	4.81	4.26	0.64	
			22	7.39	4.08	3.57	0.55	
			23	20	11.87	4.36	4.26	0.60
		22	20	10.67	3.16	5.51	0.55	
			25	20	10.22	4.46	4.26	0.64
			22	9.49	3.73	3.58	0.55	
		850 (8D)	21	20	13.08	9.76	5.76	0.64
				22	10.77	7.45	7.11	0.55
			23	20	15.37	7.89	6.01	0.64
22	16.27			8.76	9.01	0.47		
25	20		15.17	9.41	6.11	0.64		
	22		12.86	7.10	7.11	0.55		

Note: for other contact length, please consult us.

Note: All dimensions are in millimeters (mm)

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