



8D Series

MIL-DTL-38999 Series III



Description

- High contact density
- Screw coupling
- Contact protection: 100% Scoop proof
- Shell size from 9 to 25
- Accessories available (protective caps, backshells, etc...)
- RFI - EMI shielding and shell to shell continuity
- Hermetic
- Protected by cadmium, nickel, green zinc cobalt or black zinc nickel plating

Applications

- Civil and Military Aerospace
- Marine and Offshore Equipment
- Defense and Ground Military
- Industrial

Standards

- MIL-DTL-38999 Series III
- EN3645
- BACC63CT/CU; BACC63DB/DC

Technical features

Mechanical

- **Shell:**
Aluminum, composite, stainless steel, bronze
- **Shells plating:**
 - . Aluminum shell:
 - Cadmium olive drab (W)
 - Nickel (F)
 - Black zinc nickel (Z)
 - Green zinc cobalt (ZO)
 - . Composite shell:
 - Cadmium olive drab (J)
 - Nickel (M)
 - Without plating (X)

- . Stainless steel shell:
 - Passivated (K)
 - Nickel (S)
 - . Titanium shell:
 - Without plating (TT)
 - Nickel (TF)
 - . Bronze shell:
 - Without plating
 - **Insulator:** Thermoplastic
 - **Grommet and interfacial seal:** Silicone elastomer
 - **Contacts:** Copper alloy
 - **Contacts plating:** Gold over nickel plated
 - **Endurance:**
 - . 500 mating/unmating operations whatever the material used
 - . 1500 mating/unmating operations with composite connectors + specifics contacts
 - **Shock:** 300g, 3 ms according EN 2591-D2 method A
 - **Vibration:**
 - . Sinus:
 - . 10 à 2000 Hz, 3x12 hrs (60g, 140 - 2000 Hz) with T° cycling
 - . Random:
 - . 50 to 2000 Hz, 2x8 Hrs (1g2/ Hz, 100 - 2000Hz) at T° max.
 - . 25 to 2000 Hz, 2x8 Hrs (5g2/ Hz, 100 - 300Hz) at ambient T°
- Test with accessories in acc with EN2591-D3

• Contact retention:

Contacts size	22	20	16	12	8	4
Min force in N	44	67	111	111	111	200

Weight comparison

Example for a plug shell size 15

Materials	Weight	
Stainless steel	58.80 g	42% lighter
Titanium	33.90 g	
Aluminum	20.35 g	40% lighter
Composite	14.30 g	30% lighter



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Electrical

• Test voltage rating (Vrms)

Service	sea level	at 21000 m
M	1 300	800
N	1 000	600
I	1 800	1 000
II	2 300	1 000

• Contact resistance

Contacts size	22	20	16	12	8	4
Resistance mΩ	14.6	7.3	3.8	3.5	3	2

• Insulation resistance:

≥ 5 000 MΩ (under 500 Vdc)

• Contact rating:

Contacts size	22	20	16	12	8	4
Rating (A)	5	7.5	13	23	45	80

• Shell continuity

- . Aluminum shell:
 - Cadmium olive drab (W): 2.5 Ω
 - Nickel (F): 1 Ω
 - Black zinc nickel (Z): 2.5 Ω
 - Green zinc cobalt (ZO): 2.5 Ω
- . Composite shell:
 - Cadmium olive drab (J): 3 Ω
 - Nickel (M): 3 Ω
- . Stainless steel shell:
 - Passivated (K): 10 Ω
 - Nickel (S): 1 Ω
- . Titanium shell:
 - Without plating (TT): 10 Ω
 - Nickel (TF): 1 Ω
- . Bronze shell:
 - Without plating: 5 Ω

• Shielding:

- . Aluminum shell:
 - F: 65 db at 10 GHz
 - F: 85 db at 1 GHz
 - W: 50 db at 10 GHz
 - Z & ZC: Consult us
- . Composite shell:
 - J: 90 db at 10 GHz
 - M: 85 db at 1 GHz
- . Stainless steel shell:
 - K: 45 db at 10 GHz
 - S: 65 db at 10 GHz
- . Titanium shell:
 - TT: 45 db at 10 GHz
 - TF: 65 db at 10 GHz
- . Bronze shell:
 - 85 db at 10 GHz

Climatics

• Temperature range:

- . Aluminum shell:
 - W: -65°C +175°C
 - F: -65°C +200°C
 - Z: -65°C +200°C
 - ZC: -65°C +175°C
- . Composite shell:
 - J: -65°C +175°C
 - M: -65°C +200°C
 - Without plating (X): -65°C +175°C
- . Stainless steel shell:
 - K: -65°C +200°C
 - S: -65°C +200°C
- . Titanium shell:
 - TT: -65°C +200°C
 - TF: -65°C +200°C
- . Bronze shell:
 - Without plating: -65°C +175°C

• Sealing:

Mated connectors meet altitude immersion requirements of MIL-DTL-38999.

• Salt spray:

- . Aluminum shell:
 - W: 500 Hrs
 - F: 48 Hrs
 - Z: 500 Hrs
 - ZC: 250 Hrs
- . Composite shell:
 - J: 2000 Hrs
 - M: 2000 Hrs
 - Without plating (X): 2000 Hrs
- . Stainless steel shell:
 - K: 500 Hrs
 - S: 48 Hrs
- . Titanium shell:
 - TT: 500 Hrs
 - TF: 48 Hrs
- . Bronze shell:
 - Without plating: 500 Hrs

Resistance to fluids

• According to MIL-DTL-38999 standard

- . Gasoline: JP5 (OTAN F44)
- . Mineral hydrolic fluid: MIL-H-5606 (OTAN H515)
- . Synthetic hydraulic fluid: Skydrol 500 B4

• LD4 (SAE AS 1241)

- . Mineral lubricating: MIL-L-7870A (OTAN 0142)
- . Synthetic lubricating: MIL-L-23699 (OTAN 0156), MIL-L-7808
- . Cleaning fluid: MIL-DTL-25769 diluted
- . De-icing fluid: MIL-A-8243
- . Extinguishing fluid: Chlorobrométhane
- . Cooling fluid: Coolanol

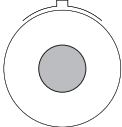
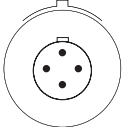
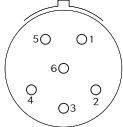
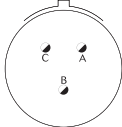
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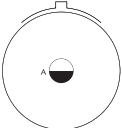
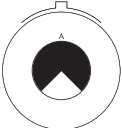
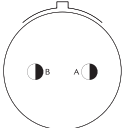
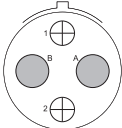
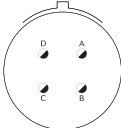
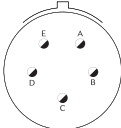
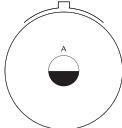
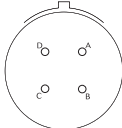
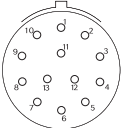
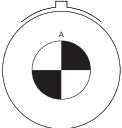
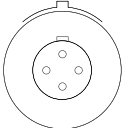
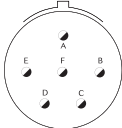
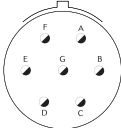
Contact layouts

09 / A

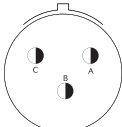
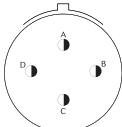
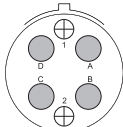
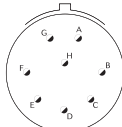
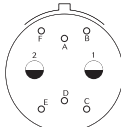
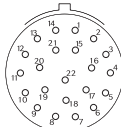

01  1 Optical position	05  1#8 Quadrax	35  6#22D Service M	98  3#20 Service I
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-  Contact #22D
-  Contact #20
-  Contact #16
-  Contact #12
-  Contact #10
-  Contact #8 Triax
-  Contact #8 Power
-  Contact #8 Quadrax
-  Contact ELIO® (optical fiber)
-  Contact #4 Power

11 / B

01  1#12 Service II all series excepted JVS	01  1#8 Coax Service I only for JVS	02  2#16 Service I	02  2 Optical positions	04  4#20 Service I	05  5#20 Service I	12  1#12 Service II only for JVS	22  4#22D Service M
35  13#22D Service M	80  1#8 Triax Service I	81  1#8 Quadrax	98  6#20 Service I	99  7#20 Service I			

13 / C

03  3#16 Service I	04  4#16 Service I	04  4 Optical positions	08  8#20 Service I	26  2#12 6#22D Service M	35  22#22D Service M	98  10#20 Service I
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 ELIO® fiber optic  Ethernet Quadrax

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Contact layouts

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
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17 / E

02 38#22D 1#8 Triax Service M	06 6#12 Service I	08 8#16 Service II	20 4#12 16#22D Service M	22 2#12 2#8 Triax Service M	26 26#20 Service I	35 55#22D Service M	75 2#8 Triax Service M	
80 2#12 2#8 Quadrax	81 38#22D 1#8 Quadrax	82 2#8 Quadrax	99 2#16 21#20 Service I					

19 / F

08 8 Optical positions	11 11#16 Service II	18 14#22D 4#8 Triax Service M	28 26#20 2#16 Service I	32 32#20 Service I	35 66#22D Service M	53* 53#22D	84 14#22D 4#8 Quadrax
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ELIO® fiber optic
 Ethernet Quadrax
 * Pending layout

8D Series

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Contact layouts

21 / G

11 11#12 Service I	16 16#16 Service II	20* 18#20 2#8 Quadrax	35 79#22D Service M	39 2#16 37#20 Service I	41 41#20 Service I	42 2#4 Power Service I	48 4#8 Power Service I
59 55#22D 4#12 Service M	72 2#4 Power 6#16 Service I	75 4#8 Triax Service M	77 17#22D 2#8 Coax Service M	78 17#22D 2#8 Quadrax	84 4#8 Quadrax		

23 / H

21 21#16 Service II	32 32#20 Service I	35 100#22D Service M	53 53#20 Service I	54 4#12, 9#16 40#22D Service M	55 55#20 Service I
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Contact layouts

25 / J							
<p>04</p> <p>8#16 48#20 Service I</p>	<p>07</p> <p>2#8 Triax 97#22D Service M</p>	<p>08</p> <p>8#8 Triax Service M</p>	<p>11</p> <p>2#20 9#10 Service N</p>	<p>17</p> <p>36#22D 6#8 Triax</p>	<p>19</p> <p>19#12 Service I</p>	<p>20*</p> <p>10#20, 13#16 4#12 Coax 3#8 Triax Service N</p>	<p>24</p> <p>12#16 12#12 Service II</p>
<p>24</p> <p>24 Optical positions</p>	<p>29</p> <p>29#16 Service I</p>	<p>35</p> <p>128#22D Service M</p>	<p>37</p> <p>37#16 Service I</p>	<p>41</p> <p>22#22D, 3#20 11#16, 2#12 3#8 Triax Service M</p>	<p>43</p> <p>23#20 20#16 Service I</p>	<p>44</p> <p>4#4 Power 4#16 Service I</p>	<p>46</p> <p>40#20, 4#16 2#8 Coax Service I</p>
<p>61</p> <p>61#20 Service I</p>	<p>80</p> <p>10#20 13#16 4#12 Coax 3#8 Quadrax</p>	<p>81</p> <p>22#22D 3#20, 11#16 2#12 3#8 Quadrax</p>	<p>82</p> <p>97#22D 2#8 Quadrax</p>	<p>86</p> <p>40#20 4#16 2#8 Quadrax</p>	<p>87</p> <p>36#22D 6#8 Quadrax</p>	<p>88</p> <p>8#8 Quadrax</p>	<p>90</p> <p>40#20, 4#16 2#8 Twinax Service I</p>

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MIL-DTL-38999 Series III



Contact layouts (matrix)

Shell size	Layout	MIL-DTL-38999 (QPL) Aluminum, Stainless steel & Composite	8D Titanium	JVS (CECC) Bronze connectors	Hermetics	EN3645	BACC63 CT/CI DB/DC	Number of contacts	#22D	#20	#16	#12	#10	#8	#4 Power	Optical posi- tions
09 / A	09-01							1								1
	09-05 (1)	Consult us	Consult us	Consult us				1						1 Qdx		
	09-35							6	6							
	09-98							3		3						
11 / B	11-01							1				1				
	11-01							1						1 Coax		
	11-02							2			2					
	11-02							2								2
	11-04							4		4						
	11-05							5		5						
	11-12							1				1				
	11-22							4	4							
	11-35							13	13							
	11-80							1						1 Triax		
	11-81							1						1 Qdx		
11-98							6		6							
11-99							7		7							
13 / C	13-03							3								
	13-04							4			4					
	13-04							4								4
	13-08							8		8						
	13-26							8	6			2				
	13-35							22	22							
13-98							10		10							
15 / D	15-05							5			5					
	15-15							15		14	1					
	15-18							18		18						
	15-19							19		19						
	15-35							37	37							
	15-97							12		8	4					
17 / E	17-02							39	38					1 Triax		
	17-06							6				6				
	17-08							8			8					
	17-20							20	16			4				
	17-22							4				2		2 Triax		
	17-26							26		26						
	17-35							55	55							
	17-75							2						2 Triax		
	17-80							4				2		2 Qdx		
	17-81							39	38					1 Qdx		
17-82							2						2 Qdx			
17-99							23		21	2						
19 / F	19-08							8								8
	19-11							11			11					
	19-18							18	14					4 Triax		
	19-28							28		26	2					
	19-32							32		32						
	19-35							66	66							
	19-53							53	53							
19-84							18	14					4 Qdx			

Souriau's layout
 Souriau's layout & Layout according to corresponding norm
 (1) Grounded insert only
 #8 Pow: Power; Qdx: Quadrax; Twx: Twinax

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MIL-DTL-38999 Series III



Contact layouts (matrix)

Shell size	Layout	MIL-DTL-38999 (QPL) Aluminum, Stainless steel & Composite	8D Titanium	JVS (CECC) Bronze connectors	Hermetics	EN3645	BACC63 CT/CI DB/DC	Number of contacts	#22D	#20	#16	#12	#10	#8	#4 Power	Optical posi- tions	
21 / G	21-11							11				11					
	21-16							16			16						
	21-20							20		18					2 Qdx		
	21-35							79	79								
	21-39							39		37	2						
	21-41							41		41							
	21-42							2							2		
	21-48							4							4 Pow		
	21-59							59	55			4					
	21-72							8							2		
	21-75							4							4 Triax		
	21-77							19	17						2 Coax		
21-78							19	17						2 Qdx			
21-84							4							4 Qdx			
23 / H	23-21							21			21						
	23-32							32		32							
	23-35							100	100								
	23-53							53		53							
	23-54							53	40		9	4					
	23-55							55		55							
25 / J	25-04							56		48	8						
	25-07							99	97						2 Triax		
	25-08			(2)				8							8 Triax		
	25-11							11		2			9				
	25-17							42	36						6 Triax		
	25-19							19				19					
	25-20	(3)		(4)		(5)	(6)	30		10	13	4			3 Triax		
	25-24							24			12	12					
	25-24							24								24	
	25-29							29			29						
	25-35							128	128								
	25-37							37			37						
	25-41							41	22	3	11	2			3 Triax		
	25-43							43		23	20						
	25-44							8			4				4		
	25-46							46		40	4				2 Coax		
	25-61							61		61							
	25-80							30			10	13	4		3 Qdx		
25-81							41	22	3	11	2			3 Qdx			
25-82							99	97						2 Qdx			
25-86							46		40	4				2 Qdx			
25-87							42	36						6 Qdx			
25-88							8							8 Qdx			
25-90							46		40	4				2 Twx			

- Souriau's layout
- Souriau's layout & Layout according to corresponding norm
- (2) For CECC, layout 25-08 only delivered without contact
- (3) For Aluminum & Stainless steel only
- (4) For classes F, W, S, K only
- (5) For classes F, W, K only
- (6) Qualified BACC63DB/DC only
- #8 Pow: Power; Qdx: Quadrax; Twx: Twinax



8D Series

D38999 Aluminum Series

Connector part numbers

Basic Series	8D	0	-	11	W	35	P	N	-	-	L
Shell style:											
<ul style="list-style-type: none"> 0: Square flange receptacle 1: In line receptacle 7: Jam nut receptacle 5: Plug with RFI shielding 											
<i>Also available:</i>											
<ul style="list-style-type: none"> . Square flange receptacle with clinch nuts (see page 80) . Jam nut receptacle with double flange (see page 83) 											
Type:											
<ul style="list-style-type: none"> None: Connectors with standard crimp contacts. L: Receptacle with long PC tail (male and female size #22D, #20). C: Receptacle with short PC tail (male and female #22D, #20, #16). S: Receptacle with specific PC tail (male et female #22D) W: Receptacle with male contacts #22D for wire wrap (3 wraps) T: Receptacle with male contacts #20 for wire wrap (2 wraps) P: Receptacle with solder cup - only available for Reinforced sealing Series (see page 75) - male and female size #22D; male #16 & #12; female #16 & #12 and male female #20 please consult us 											
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25											
Plating:											
<ul style="list-style-type: none"> W: Olive drab cadmium F: Nickel ZC: Green zinc cobalt Z: Black zinc nickel 											
Contact layout: See pages 13 to 16											
Contact type:											
<ul style="list-style-type: none"> P: Pin A: Connector supplied less pin contact or with specific contacts (connector marking: A + orientation) S: Socket B: Connector supplied less socket contact or with specific contacts (connector marking: B + orientation) 											
Orientation: N, A, B, C, D, E (see page 64)											
Specification:											
<ul style="list-style-type: none"> 046: Tinned straight PC tail 251: Connector provided with power contacts (layouts with contact #8) 022: Fuel tank 											
Special custom:											
<ul style="list-style-type: none"> None: Standard plastic cap M: Antistatic plastic cap L: For P or S contact type only, connectors delivered without contacts, connectors marking P or S plus orientation 											

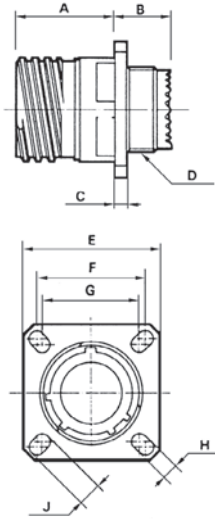
8D Series

D38999 Aluminum Series



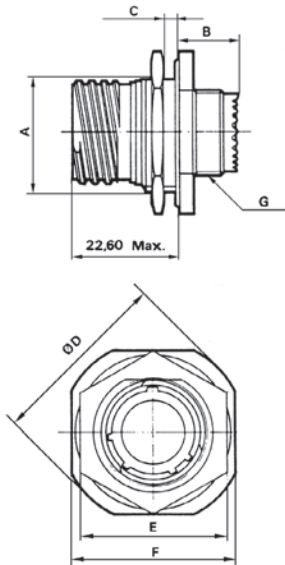
Dimensions

Receptacle type 0



Shell size	A Max	B Max	C Max	D Thread	E ± 0.3	F	G	H ± 0.2	J ± 0.2
09 (A)	20.9	10.72	2.5	M12 x 1-6g	23.8	18.26	15.09	3.25	5.49
11 (B)				M15 x 1-6g	26.2	20.62	18.26		4.93
13 (C)				M18 x 1-6g	28.6	23.01	20.62		4.4
15 (D)				M22 x 1-6g	31	24.61	23.01		4.93
17 (E)				M25 x 1-6g	33.3	26.97	24.61		
19 (F)	20.1	11.54	3.2	M28 x 1-6g	36.5	29.36	26.97	3.91	6.15
21 (G)				M31 x 1-6g	39.7	31.75	29.36		
23 (H)				M34 x 1-6g	42.9	34.93	31.75		
25 (J)				M37 x 1-6g	46	38.1	34.93		

Receptacle type 7



Shell size	A ± 0.15	B Max	C Max	D Max	E Max	F ± 0.4	G Thread
09 (A)	16.53	9.9	3.2	30.5	23	27	M12 x 1-6g
11 (B)	19.07			35.2	26	31.8	M15 x 1-6g
13 (C)	23.82			38.4	31	34.9	M18 x 1-6g
15 (D)	26.97			41.6	34	38.1	M22 x 1-6g
17 (E)	30.15			44.8	37	41.3	M25 x 1-6g
19 (F)	33.32			49.5	41	46	M28 x 1-6g
21 (G)	36.50			52.7	46	49.2	M31 x 1-6g
23 (H)	39.67			55.9	47	52.4	M34 x 1-6g
25 (J)	42.85			59	51.23	55.6	M37 x 1-6g

Recommended coupling torque on panel for jam nut receptacle (type 7)

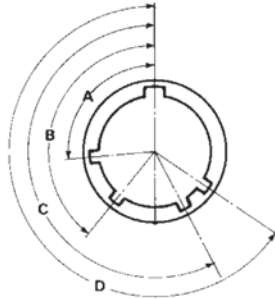
Shell	09 (A)	11 (B)	13 (C)	15 (D)	17 (E)	19 (F)	21 (G)	23 (H)	25 (J)
Coupling torque (± 0.5 N.m)	4	5	7	8	9	10	12	13	14

Note: All dimensions are in millimeters (mm)

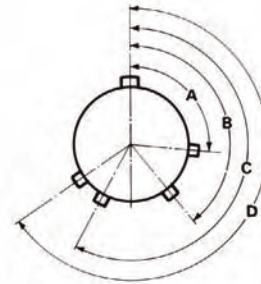
8D Series Common Section



Orientations



Viewed from front face of receptacle

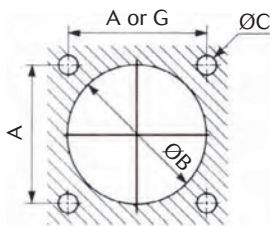


Viewed from front face of plug

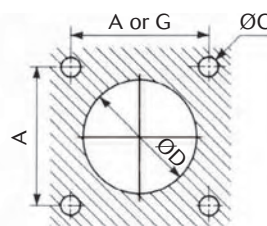
Shell size	Angles	N	A	B	C	D	E
9 (A)	A°	105	102	80	35	64	91
	B°	140	132	118	140	155	131
	C°	215	248	230	205	234	197
	D°	265	320	312	275	304	240
11 (B), 13 (C) & 15 (D)	A°	95	113	90	53	119	51
	B°	141	156	145	156	146	141
	C°	208	182	195	220	176	184
	D°	236	292	252	255	298	242
17 (E), 19 (F), 21 (G), 23 (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

Panel cut-out

Square flange receptacle (Type 0)

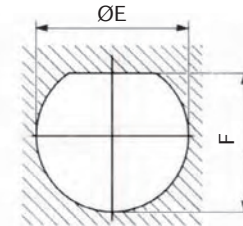


Rear mounting



Front mounting

Jam nut receptacle (Type 7)



Shell size	A	G	B min.	C ± 0.13	D min.	E ± 0.25	F
9 (A)	18.26	15.09	16.66	3.25	13.11	17.78	17.02
11 (B)	20.62	18.26	20.22		15.88	20.96	19.59
13 (C)	23.01	20.62	23.42		19.05	25.65	24.26
15 (D)	24.61	23.01	26.59		23.01	28.83	27.56
17 (E)	26.97	24.61	30.96		25.81	32.01	30.73
19 (F)	29.36	26.97	32.94		28.98	35.18	33.91
21 (G)	31.75	29.36	36.12		32.16	38.35	37.08
23 (H)	34.93	31.75	39.29	3.91	34.93	41.53	40.26
25 (J)	38.10	34.94	42.47		37.69	44.70	43.43

Max. thickness panel for receptacle: Type 0: front mounting = 3.2 mm, rear mounting = 2.5 mm
Type 7: 3.2 mm

Note: All dimensions are in millimeters (mm)