

# 8D Aluminum Series



## Applications

High density connectors for all military and aeronautical purposes with severe vibration environment

## Standards

MIL-C 38999 Series III - QPL approved  
Pr EN 3645



## Description

- High density connector from 1 to 128 contacts
- Sizes 22D, 20, 16, 12, # 16 coax and # 8 triax
- A quick screw coupling with anti-decoupling mechanism
- 100 % scoop proof
- An EMI/RFI reinforced shielding with grounding fingers

## Characteristics

### Mechanical

- Shell : aluminum alloy
- Plating :
  - olive green cadmium (W)
  - nickel (F)
- Insulator : thermoplastic or thermoset
- Grommet and seal : silicone elastomer
- Contact : copper alloy
- Plating : gold over nickel
- Endurance :
  - 500 mating/unmating operations
- Shock : high impact as per MIL-S 901
- Vibration :
  - sine 60 g with temperature cycling and simulated accessory (36 hours)
  - random :
    - 44.1 grms at high temperature
    - 49.5 grms at ambient temperature
- Contact retention (mini force in N) :
  - size 22 D : 45 N      - size 20 : 67 N
  - size 16 : 111 N      - size 12 : 111 N
  - size 8 : 111 N

### Electrical

- Test voltage (Vrms)

Service	sea level	at 21000 m
M	1300	800
N	1000	600
I	1800	1000
II	2300	1000

- Contact resistance :
  - resistance of wire included in measurement :
  - size 22 D : 14.6 mΩ      - size 16 : 3.8 mΩ
  - size 20 : 7.3 mΩ      - size 12 : 1.7 mΩ
  - size 8 : 3 mΩ
- Insulation resistance : ≥ 5000 MΩ (at 500 Vdc)
- Contact rating :
  - size 22 D : 5 A      - size 16 : 13 A
  - size 20 : 7.5 A      - size 12 : 23 A
  - size 8 : 45 A
- Shell continuity : - olive green plating : 2.5 mΩ  
- nickel plating : 1 mΩ
- Shielding : - 65 db to 10 GHz (F)  
- 50 db to 10 GHz (W)  
- 85 db to 1 GHz (F and W)
- Triaxial contact : # 8
  - bandwidth : 0 - 20 MHz
  - voltage rating : 500 Vac maxi.  
125 Vac at 21000 m
  - voltage drop :
    - inner and middle contact ≤ 55 mV under 1A
    - outer contact ≤ 75 mV under 12A

### Climatic

- Temperature range :
  - cadmium plating (W) -65°C +175°C
  - nickel plating (F) -65°C +200°C
- Sealing : mated connectors meet altitude immersion requirements of MIL-C 38999
- Salt spray to : MIL-STD 1344 method 1001
  - 500 hours (version W)
  - 48 hours (version F)
- Damp heat : MIL-C 38999 - 10 cycles (24 hours)

### Resistance to fluids

- To MIL-C 38999 standard :
- Gasoline : JP5 (OTAN F44)
  - Mineral hydraulic 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-C 25769 diluted
  - De-icing fluid : MIL-A 8243
  - Extinguishing fluid : chlorobromethane
  - Cooling fluid : Coolanol

## Ordering information

### Part numbers

basic series	8 D 0 - 11 W 35 P N ***									
shell type	0 - square flange receptacle 7 - jam nut receptacle 5 - plug with RFI shielding									
designator	- - connectors with crimp contacts L - receptacle with long spill (male and female # 22D) C - receptacle with short spill (male and female # 22D - # 20 - # 16) S - receptacle with specific spill (male and female # 22D) W - receptacle with male contacts size 22D for wire wrap (3 wraps) T - receptacle with male contacts size 20 for wire wrap (2 wraps)									
shell size	09-11-13-15-17-19-21-23-25									
plating	W - olive green cadmium F - nickel									
contact layout	- see table p 120									
contact type	P - male      A - male connector supplied less contact or with specific contacts S - female      B - female connector supplied less contact or with specific contacts									
polarization	N- normal A-B-C-D-E - see table p 109 046 tinned straight spill									

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## MIL-C 38999 part numbers

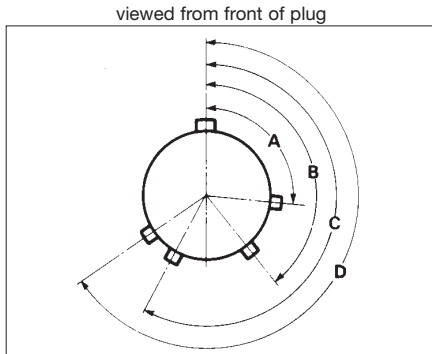
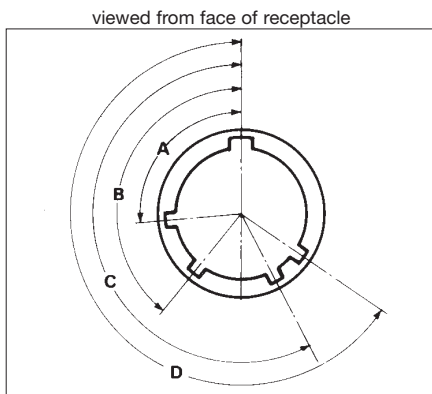
<b>basic series</b>	<b>D 38999/</b>										<b>20</b>	<b>W</b>	<b>B</b>	<b>35</b>	<b>P</b>	<b>N</b>	
<b>shell type</b>	<b>20</b> - square flange receptacle <b>24</b> - jam nut receptacle <b>26</b> - plug with RFI shielding																
<b>plating</b>	<b>W</b> - olive green cadmium <b>F</b> - nickel																
<b>shell size</b>	<b>A to J</b>																
	09	11	13	15	17	19	21	23	25								
	A	B	C	D	E	F	G	H	J								
<b>contact layout</b>	- see table p 109																
<b>contact type</b>	<b>P</b> - male <b>S</b> - female		<b>A</b> - male connector supplied less contact or with specific contacts <b>B</b> - female connector supplied less contact or with specific contacts														
<b>polarization</b>	<b>N</b> - normal <b>A-B-C-D-E</b> - see table below																

## Backshells

<b>basic series</b>											<b>8D</b>	<b>102</b>	<b>B</b>	<b>02</b>	
<b>shell size</b>	09	11	13	15	17	19	21	23	25						
<b>index number</b>	101	102	103	104	105	106	107	108	109						
<b>plating</b>	<b>B</b> - olive green cadmium <b>F</b> - nickel														
<b>backshell type</b>	<b>01</b> - backnut <b>02</b> - straight cable clamp <b>03</b> - elbow cable clamp <b>13</b> - backshell for heat shrink sleeving														

**NOTE :** Backshells will be marked with supplier's part number. Labels will bear both part numbers : supplier's and Souriau's.

## Polarization



shell size	MS 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	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
		B°	141	156	145	156	146	141
		C°	208	182	195	220	176	184
		D°	236	292	252	255	298	242
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	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
19	F	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
21	G	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
23	H	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
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

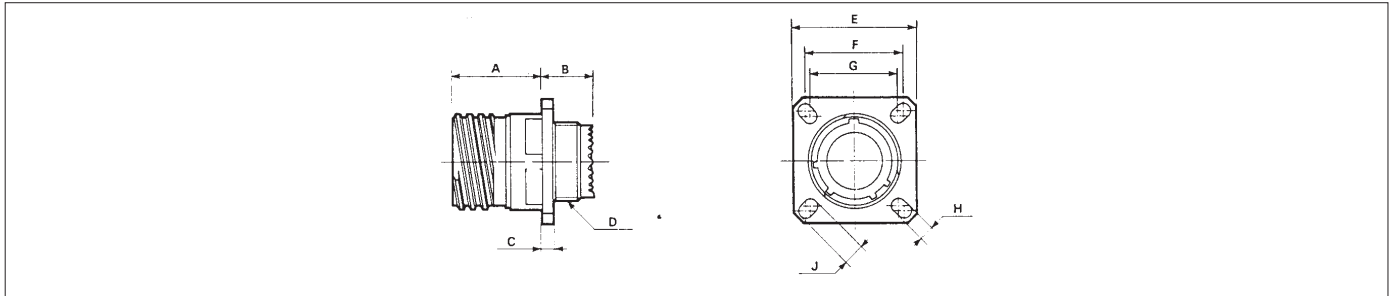
Note : Polarization A.B.C.D.E. consult us.

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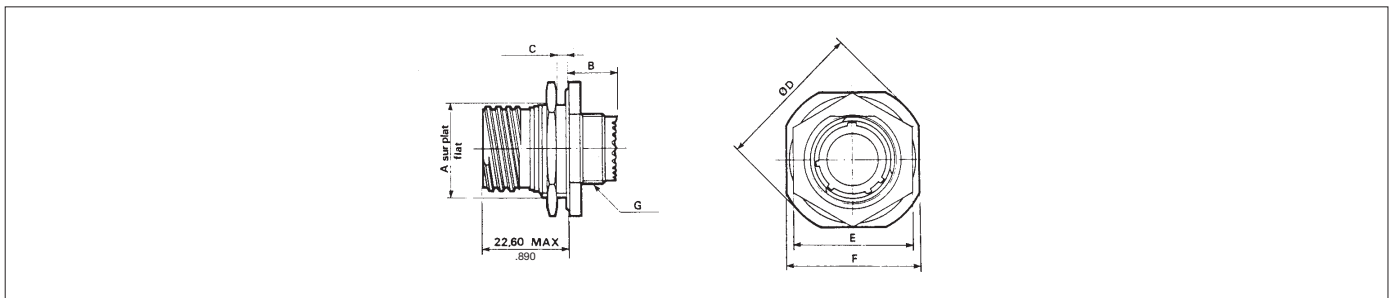
## Dimensions

### Receptacle type 0



shell size	MS shell size	A Max	B Max	C Max	D Thread	E	F	G	H	J
9	A	20.90 .823	10.60 .417	2.50 .098	M 12x 1-6g	23.80 .937	18.26 .719	15.09 .594	3.25 .128	5.49 .216
11	B	20.90 .823	10.60 .417	2.50 .098	M 15 x 1-6g	26.20 1.031	20.62 .812	18.26 .719	3.25 .128	4.93 .194
13	C	20.90 .823	10.60 .417	2.50 .098	M 18 x 1-6g	28.60 1.126	23.01 .906	20.62 .812	3.25 .128	4.93 .194
15	D	20.90 .823	10.60 .417	2.50 .098	M 22x 1-6g	31.00 1.220	24.61 .969	23.01 .906	3.25 .128	4.39 .173
17	E	20.90 .823	10.60 .417	2.50 .098	M 25 x 1 -6g	33.30 1.311	26.97 1.062	24.61 .969	3.25 .128	4.93 .194
19	F	20.90 .823	10.60 .417	2.50 .098	M 28 x 1-6g	36.50 1.437	29.36 1.156	26.97 1.062	3.25 .128	4.93 .194
21	G	20.10 .791	11.40 .449	3.20 .126	M 31 x 1-6g	39.70 1.563	31.75 1.250	29.36 1.156	3.25 .128	4.93 .194
23	H	20.10 .791	11.40 .449	3.20 .126	M 34x 1-6g	42.90 1.689	34.93 1.375	31.75 1.250	3.91 .154	6.15 .242
25	J	20.10 .791	11.40 .449	3.20 .126	M 37x 1-6g	46.00 1.811	38.10 1.500	34.93 1.375	3.91 .154	6.15 .242

### Receptacle type 7

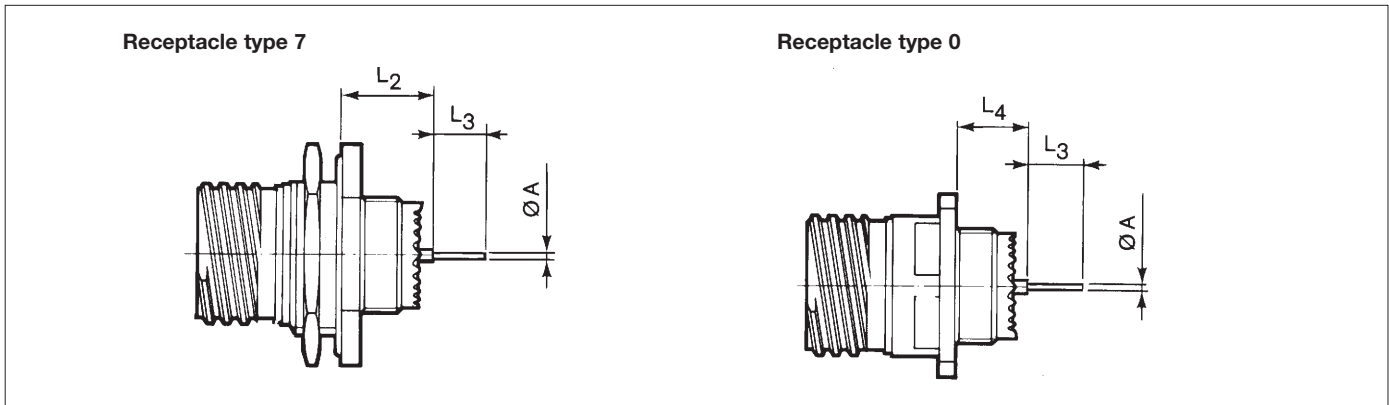


shell size	MS shell size	A	B Max	C Max	D Max	E Max	F	G Thread
9	A	16.53 .651	9.90 .390	3.20 .126	30.50 .126	24.00 .945	27.00 1.063	M 12x1-6g
11	B	19.07 .751	9.90 .390	3.20 .126	35.20 .126	27.00 1.063	31.80 1.252	M 15x 1-6g
13	C	23.82 .938	9.90 .390	3.20 .126	38.40 .126	32.00 1.260	34.90 1.374	M 18x1-6g
15	D	26.97 1.062	9.90 .390	3.20 .126	41.60 .126	36.00 1.417	38.10 1.500	M 22x1-6g
17	E	30.15 1.187	9.90 .390	3.20 .126	44.80 .126	37.00 1.457	41.30 1.626	M 25x1-6g
19	F	33.32 1.312	9.90 .390	3.20 .126	49.50 .126	41.00 1.614	46.00 1.811	M 28x1-6g
21	G	36.50 1.437	9.90 .390	3.20 .126	52.70 .126	46.00 1.811	49.20 1.937	M 31x1-6g
23	H	39.67 1.562	9.90 .390	3.20 .126	55.90 .126	50.00 1.969	52.40 2.063	M 34x1-6g
25	J	42.85 1.687	9.90 .390	3.20 .126	59.00 .126	51.23 2.017	55.60 2.189	M 37x1-6g

# 8D Aluminum Series



## Receptacle with straight spill contacts



Shell size		9	11	13	15	17	19	21	23	25
A	# 22D	0.70 .028	0.70 .028	0.70 .028	0.70 .028	0.70 .028	0.70 .028	0.70 .028	0.70 .028	0.70 .028
	# 20	0.50 .020	0.50 .020	0.50 .020	0.50 .020	0.50 .020	0.50 .020	0.50 .020	0.50 .020	0.50 .020
	# 16	1.15 .045	1.15 .045	1.15 .045	1.15 .045	1.15 .045	1.15 .045	1.15 .045	1.15 .045	1.15 .045
L2CM	#22D	min	10.52 .414	10.52 .414	10.34 .407	10.34 .407	10.34 .407	10.34 .407	10.34 .407	10.34 .407
		Max	11.46 .451	11.46 .451	11.28 .444	11.28 .444	11.28 .444	11.28 .444	11.28 .444	11.28 .444
L2CF	#22D	min	10.19 .401	10.19 .401	10.01 .394	10.01 .394	10.01 .394	10.01 .394	10.01 .394	10.01 .394
		Max	11.46 .451	11.46 .451	11.28 .444	11.28 .444	11.28 .444	11.28 .444	11.28 .444	11.28 .444
L2CM	#20	min	10.69 .421	10.69 .421	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414
		Max	11.63 .458	11.63 .458	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451
L2CF	#20	min	10.69 .421	10.69 .421	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414
		Max	11.63 .458	11.63 .458	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451
L2CM	#16	min	10.69 .421	10.69 .421	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414
		Max	11.63 .458	11.63 .458	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451
L2CF	#16	min	10.69 .421	10.69 .421	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414	10.51 .414
		Max	11.63 .458	11.63 .458	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451	11.45 .451
L3	PL #22D	8.50 .335	8.50 .335	8.50 .335	8.50 .335	8.50 .335	8.50 .335	8.50 .335	8.50 .335	8.50 .335
	PC #22D	4.00 .157	4.00 .157	4.00 .157	4.00 .157	4.00 .157	4.00 .157	4.00 .157	4.00 .157	4.00 .157
	PC #20	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201
	PC #16	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201	5.10 .201
L4CM	#22D	min	9.48 .373	9.48 .373	9.48 .373	9.48 .373	9.48 .373	9.48 .373	9.59 .421	9.59 .421
		Max	10.58 .417	10.58 .417	10.58 .417	10.58 .417	10.58 .417	10.58 .417	10.69 .421	10.69 .421
L4CF	#22D	min	9.15 .360	9.15 .360	9.15 .360	9.15 .360	9.15 .360	9.15 .360	9.26 .365	9.26 .365
		Max	10.58 .417	10.58 .417	10.58 .417	10.58 .417	10.58 .417	10.58 .417	10.69 .421	10.69 .421
L4CM	#20	min	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.76 .384	9.76 .384
		Max	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.86 .428	10.86 .428
L4CF	#20	min	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.76 .384	9.76 .384
		Max	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.86 .428	10.86 .428
L4CM	#16	min	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.76 .384	9.76 .384
		Max	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.86 .428	10.86 .428
L4CF	#16	min	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.65 .380	9.76 .384	9.76 .384
		Max	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.75 .423	10.86 .428	10.86 .428

CM : male contact

CF : female contact

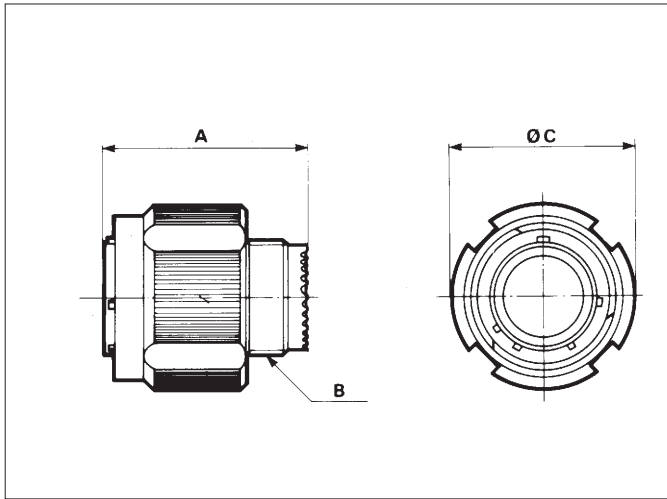
PL : long spill

PC : short spill

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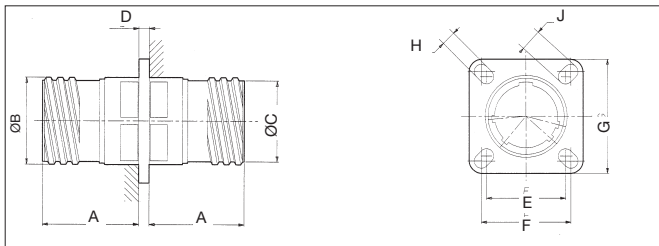


## Plug type 5



shell size	MS shell size	A Max	B Thread	C Max
9	A	31.00 1.220	M 12 x 1 - 6g	21.80 .858
11	B	31.00 1.220	M 15 x 1 - 6g	25.00 .984
13	C	31.00 1.220	M 18 x 1 - 6g	29.40 1.157
15	D	31.00 1.220	M 22 x 1 - 6g	32.50 1.280
17	E	31.00 1.220	M 25 x 1 - 6g	35.70 1.406
19	F	31.00 1.220	M 28 x 1 - 6g	38.50 1.516
21	G	31.00 1.220	M 31 x 1 - 6g	41.70 1.642
23	H	31.00 1.220	M 34 x 1 - 6g	44.90 1.768
25	J	31.00 1.220	M 37 x 1 - 6g	48.00 1.890

## Through bulkhead receptacle (Special SHTP)



shell size	A Max	B	C	D Max	E	F	G	H	J
9	20.90 .823	15.72 .619	14.43 .568	2.26 .089	15.09 .594	18.26 .719	23.80 .937	3.25 .128	5.49 .216
11	20.90 .823	18.90 .744	17.60 .693	2.26 .089	18.26 .719	20.62 .812	26.20 1.031	3.25 .128	4.93 .194
13	20.90 .823	22.07 .869	20.78 .818	2.26 .089	20.62 .812	23.01 .906	28.60 1.126	3.25 .128	4.93 .194
15	20.90 .823	25.25 .994	23.95 .943	2.26 .089	23.01 .906	24.61 .969	31.00 1.220	3.25 .128	4.39 .173
17	20.90 .823	30.00 1.181	28.35 1.116	2.26 .089	24.61 .969	26.97 1.062	33.30 1.311	3.25 .128	4.93 .194
19	20.90 .823	31.57 1.243	29.95 1.179	2.26 .089	26.97 1.062	29.36 1.156	36.50 1.437	3.25 .128	4.93 .194
21	20.10 .791	34.75 1.368	33.12 1.304	2.97 .177	29.36 1.156	31.75 1.250	39.70 1.563	3.25 .128	4.93 .194
23	20.10 .791	37.92 1.193	36.30 1.429	2.97 .117	31.75 1.250	34.93 1.375	42.90 1.689	3.91 .154	6.15 .242
25	20.10 .791	41.10 1.678	39.47 1.554	2.97 .117	34.93 1.375	38.10 1.500	46.00 1.811	3.91 .154	6.15 .242

## Part number

basic series **SN1843-13 W •• PS N**

shell size 09-11-13-15-17-19-21-23-25

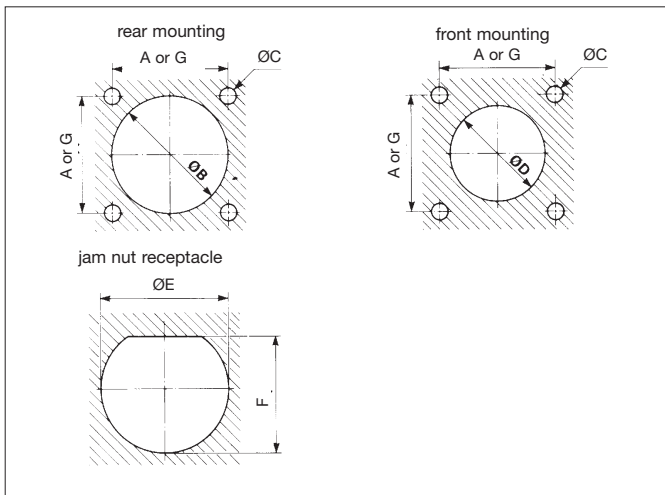
plating W - olive green cadmium

contact layout please consult us

contact type male/female contact

polarization

## Panel cut-out



shell size	9 A	11 B	13 C	15 D	17 E	19 F	21 G	23 H	25 J
A	18.26 .719	20.62 .812	23.01 .906	24.61 .969	26.97 1.062	29.36 1.156	31.75 1.250	34.93 1.375	38.10 1.500
G	15.09 .594	18.26 .719	20.62 .812	23.01 .906	24.61 .969	26.97 1.062	29.36 1.156	31.75 1.250	34.94 1.376
B min	16.66 .656	20.22 .796	23.42 .922	26.59 1.047	30.96 1.219	32.94 1.297	36.12 1.422	39.29 1.547	42.47 1.672
C	3.25 .128	3.25 .128	3.25 .128	3.25 .128	3.25 .128	3.25 .128	3.25 .128	3.91 .154	3.91 .154
D min	13.11 .516	15.88 .625	19.05 .750	23.01 .906	25.81 1.016	28.98 1.141	32.16 1.266	34.93 1.375	37.69 1.484
E	17.78 .700	20.96 .825	25.65 1.010	28.83 1.135	32.01 1.260	35.18 1.385	38.35 1.510	41.53 1.635	44.70 1.760
F	17.02 .670	19.59 .771	24.26 .955	27.56 1.085	30.73 1.210	33.91 1.335	37.08 1.460	40.26 1.585	43.43 1.710

Maxi thickness of panel mounting for square flange receptacle - type 0  
 - front mounting : 3.2 mm Max.  
 - rear mounting : 2.5 mm Max.