



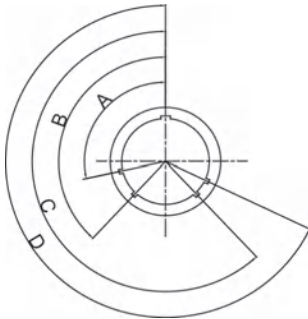
MIL-DTL-38999 III Series Connector

Brief Introduction

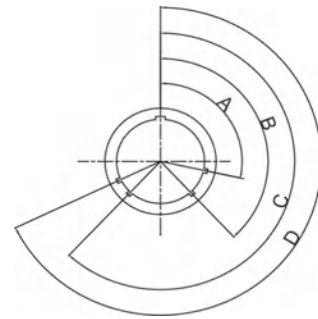
- Quick lock thread with anti-loosening mechanism
- 100% Scoop-proof to ensure no damage to the contacts in a blind mating application
- With grounding reeds to strengthen emi/rfi shielding
- Excellent performance of shock & vibration resistance
- Good performance of fluid resistance
- Widely used in aerospace, aviation & military system, especially for high impact vibration environment



MIL-DTL-38999 III Master Keyway/ Keying Positions



Receptacle Mate View



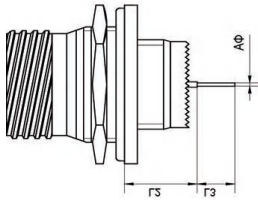
Plug Mate View

Shell No.	Shell No. Code	Keying Angle	N	A	B	C	D	E
9	A	A ⁰	105	102	80	35	64	91
		B ⁰	140	132	118	140	155	131
		C ⁰	215	248	230	205	234	197
		D ⁰	265	320	312	275	304	240
11,13,15	B,C,D	A ⁰	95	113	90	53	119	51
		B ⁰	141	156	145	156	146	141
		C ⁰	208	182	195	220	176	184
		D ⁰	236	293	252	255	298	242
17,19,21, 23,25	E,F,G, H,J	A ⁰	80	135	49	66	62	79
		B ⁰	142	170	169	140	145	153
		C ⁰	196	200	200	200	180	197
		D ⁰	293	310	244	257	280	272

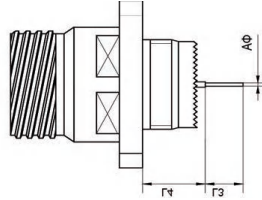


Straight to PCB Termination and Size

38999/24 Type Receptacle



38999/20 Type Receptacle

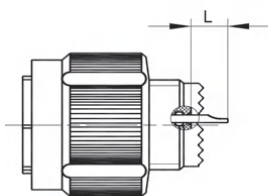


Straight to PCB Termination Contact Specification		L3	A
#22D	long straight to PCB termination contact PL SL	8.50	0.70
	short straight to PCB termination contact PC SC	4.00	
#20	long straight to PCB termination contact PL SL	8.50	0.70
	short straight to PCB termination contact PC SC	5.10	
#16	long straight to PCB termination contact PL SL	8.50	1.15
	short straight to PCB termination contact PC SC	5.10	

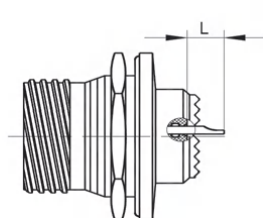
Length for Different Size Contact			Shell No. 9, 11	Shell No. 13, 15, 17, 19	Shell No. 21, 23, 25
	inserted contact				
L2	#22D pin	min.	10.52	10.34	
		max.	11.46	11.28	
	#22D socket	min.	10.19	10.01	
		max.	11.46	11.28	
	#20 or #16 pin, socket	min.	10.69	10.51	
		max.	11.63	11.45	
L4	#22D pin	min.	9.48		9.59
		max.	10.58		10.69
	#22D socket	min.	9.15		9.26
		max.	10.58		10.69
	#20 or #16 pin, socket	min.	9.65		9.76
		max.	10.75		10.86

Solder Contact Termination Size

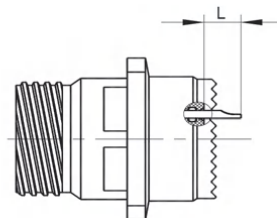
26 Type Plug



24 Type Receptacle



20 Type Receptacle



Note : L means the distance between the contact solder cup and the sealing wire



MIL-DTL-38999 III Series Small Circular Connector With Environment High Density Resistance

Material

- Shell : aluminum alloy, stainless steel, titanium alloy
- Finish : olive drab cadmium (W), chemical nickel plating (F)
stainless steel passivation (K), stainless steel nickel plating (S)
titanium alloy electroless (TT)
- Insulation Mounting Plate : thermoplastic
- Seal Ring : silicone rubber elastomer
- Contact : copper alloy
- Finish : nickel plated with gold

Mechanical Performance

- Sinusoidal Vibration : 10–50Hz, velocity 254mm/sec
50–140Hz, double –amplitude 1.5mm
140–2000Hz, acceleration 588m/s²
- Random Vibration : high temperature 96(m/s²)²/ Hz 408 m/s², 100 ~ 1000Hz
- Random Vibration : environment temperature 480(m/s²)²/ Hz, 100 ~ 300Hz
- Shock : 2940m/s² 3ms
- Durability : 500 mating cycles
- Contact Retentivity (Min.) :
#22D : 44N
#20 : 67N
#16 : 111N
#12 : 111N
#8 coaxial : 111N
#8 triax : 111N

Electrical Performance

- Dielectric Strength (Vr.m.s) (Inserted Condition)

Rated Condition	M	N	I	II
seal level	1300	1000	1800	2300
21000m	800	600	1000	1000

- Contact Resistance (to lead silver conductor) & Rated Current

Contact No.	Insertion Diameter	Contact Resistance mΩ	Rated Current A
#22D	φ 0.762	14.6	5
#20	φ 1.02	7.3	7.5
#16	φ 1.588	3.8	13
#12	φ 2.39	1.8	23
#10	φ 3.18	1.0	33
#8	φ 3.61	0.6	46
#6	φ 4.52	0.5	60
#4	φ 5.72	0.3	80

Electrical Performance

- Insulation Resistance : $\geq 5000\Omega(500V \text{ DC})$
- Electrical Conductivity Between the Shells
Olive drab cadmium plating (w) : 2.5Mv chemical nickel plating : 1mv
Stainless steel passivation (k) : 10mv stainless steel with nickel plating (s) : 1mv
Titanium alloy electroless (TT) : 10mV
- Shielding :
100MHz : 90dB(F,W,S) 80dB(K,TT)
1GHz : 85dB(F,W,S) 65dB(K,TT)
10GHz : 65dB(F,S) 50dB(W) 45dB(K,TT)
- Coaxial Contact :
Frequency : 0-1GHz characteristic impedance : 50 Ω
VSWR ≤ 1.3
- Triax Contact :
Bandwidth : 0-20MHz
Rated voltage : 500V AC (max.)
125V AC in 21000m
Voltage drop : inner & middle contact : $\leq 55\text{mV}$ in 1A
Outer contact : $\leq 75\text{mV}$ in 12A

Environment Performance

- Temperature Range : olive drab cadmium plating (W) : -65°C ~ +175°C
chemical nickel plating (F, K, S, TT) : -65°C ~ +200°C
- Salt Spray : 500h (W, K) 48h (F, S) 1000h (TT)
- Humidity Resistance : 24h each cycle, 10 cycles
- Fluid Resistance : hydraulic oil, refrigerating fluid, and other 12 solvents

Name :

D38999/ 20 W B 35 P N -U

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Series No.: D38999
- ② Shell Type : 20 – wall square flange receptacle
24 – jam nut mount receptacle
26 – straight plug
- ③ Finish : W – olive drab cadmium plating, $-65^{\circ}\text{C} \sim +175^{\circ}\text{C}$
F – chemical nickel plating, $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
K – stainless steel passivation, $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
S – stainless steel nickel plating, $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
TT – titanium alloy electroless, $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
- ④ Shell No. : 9 11 13 15 17 19 21 23 25
Shell No. Code : A B C D E F G H J
- ⑤ Contact Arrangement
- ⑥ Contact Style : P – standard crimping pin
A – no pin or customized pin
PH – solder cup pin
PC – short type straight to PCB termination pin
PL – long type straight to PCB termination pin
- S – standard crimping socket
B – no socket or customized socket
SH – solder cup socket
SC – short type straight to PCB termination socket
SL – long type straight to PCB termination socket

- ⑦ Master Keyway/Keying Position : N-normal A, B, C, D
⑧ Marking Instruction : U--left plug, No mark--right plug

Note 1. See PCB hole size for the PCB hole

Note 2. If order the terminal accessory with products together, please write "product model + terminal accessory model" in the purchase order, also the terminal accessory can be ordered separately.

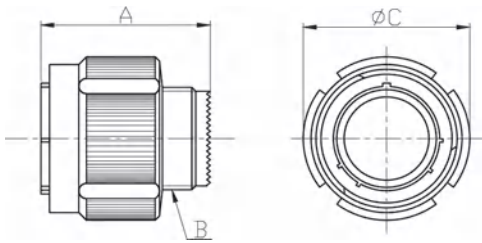
Note 3. #8 default to solder contact when the contact type is PH or SH. If change #8 solder contact to #8 coaxial contact, just put " /G "behind the model. Also changing to #8 triax contact, put /G1 behind the model.

Note 4. Wall sealing receptacle can only use pin contact, while the plug should adopt socket contact for the mating usage with receptacle.

Each wall sealing receptacle should use two plugs, left and right plug, left plug with a U mark and right plug without mark.

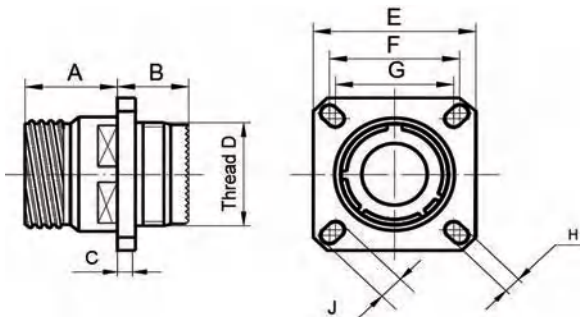
D38999/26 Plug Outline Dimensions

D	3	8	9	9	9	/	2	6	W					
---	---	---	---	---	---	---	---	---	---	--	--	--	--	--

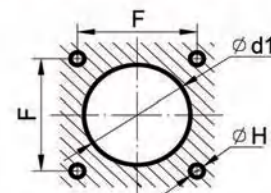


Shell No.	Shell No. Code	A max		Thread B	C max
9	A	31.00	A	M12 1-6g	21.80
11	B	31.00	B	M15 × 1-6g	25.00
13	C	31.00	C	M18 × 1-6g	29.40
15	D	31.00	D	M22 × 1-6g	32.50
17	E	31.00	E	M25 × 1-6g	35.70
19	F	31.00	F	M28 × 1-6g	38.50
21	G	31.00	G	M31 × 1-6g	41.70
23	H	31.00	H	M34 × 1-6g	44.90
25	J	31.00	J	M37 × 1-6g	48.00

D38999/20 Square Flange Receptacle

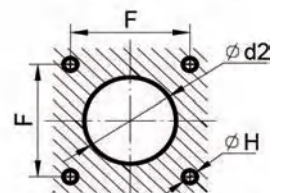


Rear Panel Mounting Hole Size



Panel Thickness 2.5mm Max.

Front Panel Mounting Hole Size



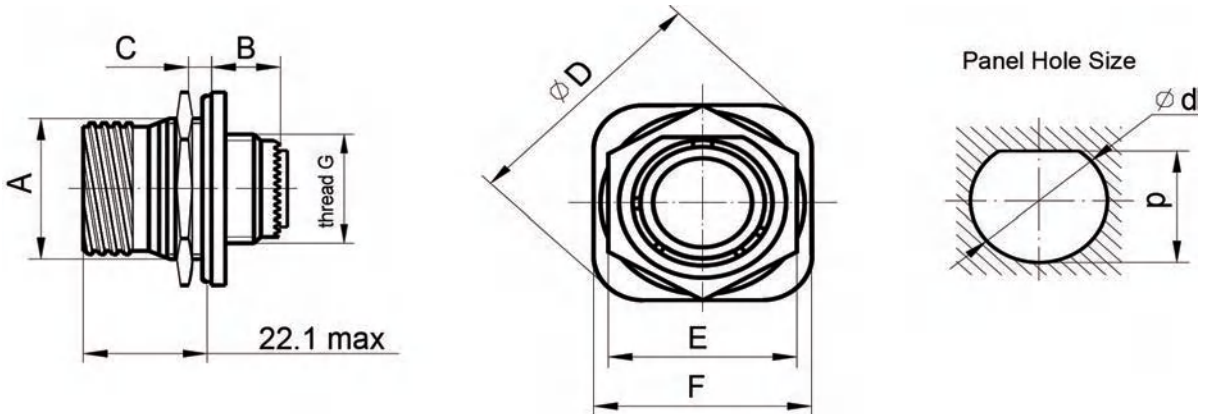
Panel Thickness 3.2mm Max.



D 3 8 9 9 9 / 2 0 W

Shell No.	Shell No. Code	A max	B max	C max	Thread D	E		F	G	H	J	d1	d2
9	A	20.80	10.90	2.50	M12 × 1-6g	23.80	A	18.26	15.09	3.25	5.49	16.66	13.11
11	B	20.80	10.90	2.50	M15 × 1-6g	26.20	B	20.62	18.26	3.25	4.93	20.22	15.88
13	C	20.80	10.90	2.50	M18 × 1-6g	28.60	C	23.01	20.62	3.25	4.93	23.42	19.05
15	D	20.80	10.90	2.50	M22 × 1-6g	31.00	D	24.61	23.01	3.25	4.39	26.59	23.01
17	E	20.80	10.90	2.50	M25 × 1-6g	33.30	E	26.97	24.61	3.25	4.93	30.96	25.81
19	F	20.80	10.90	2.50	M28 × 1-6g	36.50	F	29.36	26.97	3.25	4.93	32.94	28.98
21	G	20.10	11.60	3.20	M31 × 1-6g	39.70	G	31.75	29.36	3.25	4.93	36.12	32.16
23	H	20.10	11.60	3.20	M34 × 1-6g	42.90	H	34.93	31.75	3.91	6.15	39.29	34.93
25	J	20.10	11.60	3.20	M37 × 1-6g	46.00	J	38.10	34.93	3.91	6.15	42.47	37.69

D38999/24 Jam Nut Mounting Receptacle



D 3 8 9 9 9 / 2 4 W

Shell No.	Shell No. Code	A	B max	C max	D max		E max	F	Thread G	d	p
9	A	16.53	10.1	3.20	30.50	A	24.00	27.00	M12 × 1-6g	17.78	17.02
11	B	19.07	10.1	3.20	35.20	B	27.00	31.80	M15 × 1-6g	20.96	19.59
13	C	23.82	10.1	3.20	38.40	C	32.00	34.90	M18 × 1-6g	25.65	24.26
15	D	26.97	10.1	3.20	41.60	D	36.00	38.10	M22 × 1-6g	28.83	27.56
17	E	30.15	10.1	3.20	44.80	E	37.00	41.30	M25 × 1-6g	32.01	30.73
19	F	33.32	10.6	3.20	49.50	F	41.00	46.00	M28 × 1-6g	35.18	33.91
21	G	36.50	10.6	3.20	52.70	G	46.00	49.20	M31 × 1-6g	38.35	37.08
23	H	39.67	10.6	3.20	55.90	H	50.00	52.40	M34 × 1-6g	41.53	40.26
25	I	42.85	10.6	3.20	59.00	J	51.23	55.60	M37 × 1-6g	44.70	43.43



MIL-DTL-38999 III Series Small Circular Sealing Connector With Environment High Density Resistance

Material

- Shell : stainless steel
- Finish : stainless steel passivation (E)
 stainless steel with nickel plating (N)
- Sealed Insulation Medium : glass

Environment Performance

- Temperature Range : stainless steel passivation (E) : -65°C ~ +200°C
 stainless steel with nickel plating (N) : -65°C ~ +200°C
- Salt Spray : 500h (E) 48h (N)
- Tightness : $1 \times 10^{-3} \text{Pa} \cdot \text{cm}^3/\text{s}$

Name :

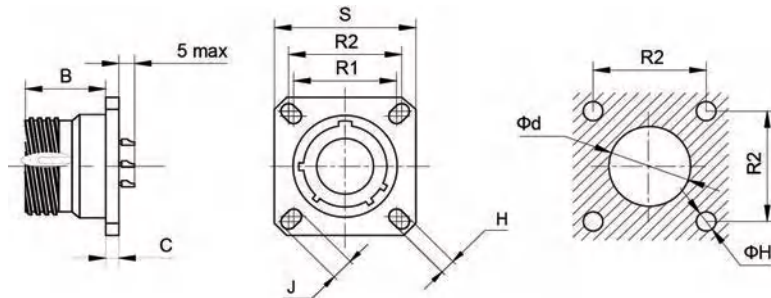
D38999/	21	Y	B	35	P	N
①	②	③	④	⑤	⑥	⑦

- ① Serial No. : D38999
- ② Shell Type : 21 – square flange mount sealing receptacle
 23 – jam nut mount sealing receptacle
 25 – solder mount sealing receptacle
 27 – tin solder mount sealing receptacle
- ③ Finish : Y – stainless steel passivation
 N – stainless steel with nickel plating
- ④ Shell No. : 9 11 13 15 17 19 21 23 25
Shell No. Code : A B C D E F G H J
- ⑤ Contact Arrangement
- ⑥ Contact Style : P – solder pin
 X – pin contact with connecting grommet (gas sealing type)
- ⑦ Master Keyway/ Keying Position : N–normal A, B, C, D, E



Outline Dimensions

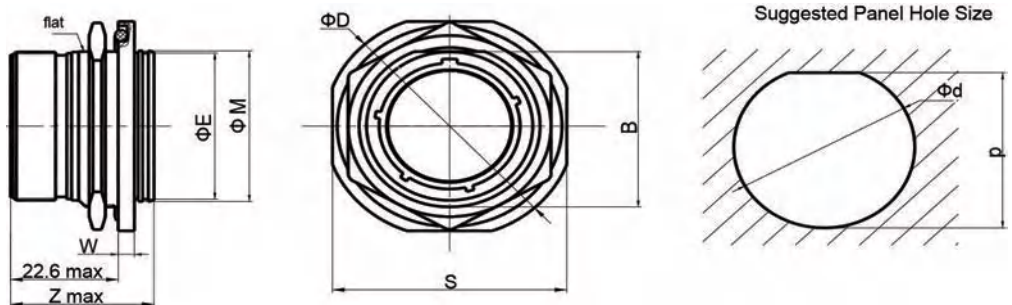
D38999/21 Square Flange Receptacle



D 3 8 9 9 9 / 2 1 Y

Shell No.	B max	C	J	H		R1	R2	S	d ^{+0.2} ₀
9	21.4	2.50	5.49	3.25	A	15.09	18.26	23.8	8.0
11	21.4	2.50	4.93	3.25	B	18.26	20.62	26.2	11.3
13	21.4	2.50	4.93	3.25	C	20.62	23.01	28.6	14.2
15	21.4	2.50	4.39	3.25	D	23.01	24.61	31.0	17.3
17	21.4	2.50	4.93	3.25	E	24.61	26.97	33.3	20.5
19	21.4	2.50	4.93	3.25	F	26.97	29.36	36.5	22.8
21	21.4	2.50	4.93	3.25	G	29.36	31.75	39.7	25.9
23	21.4	2.50	6.15	3.91	H	31.75	34.93	42.9	29.1
25	21.4	2.50	6.15	3.91	J	34.93	38.10	46.0	32.3

D38999/23 Jam Nut Mount Receptacle

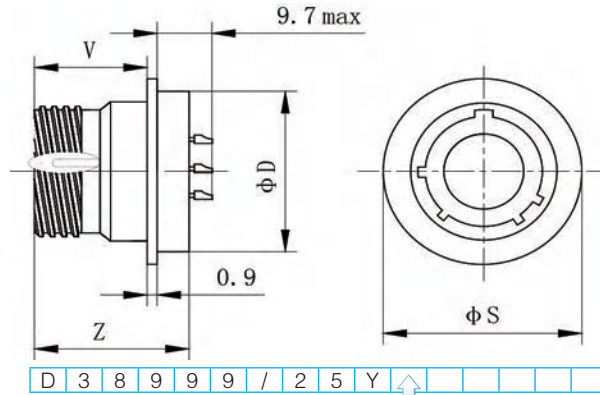


D 3 8 9 9 9 / 2 1 Y

Shell No.	Z max	D	S	W	B		E	M	P	d
9	29.2	30.2	27.0	2.6	16.6	A	15.3	16.4	17.02	17.78
11	29.2	34.9	31.8	2.6	19.1	B	18.4	19.5	19.59	20.96
13	29.2	38.1	34.9	2.6	23.9	C	21.6	22.8	24.26	25.65
15	29.2	41.3	38.1	2.6	27.0	D	24.8	26.0	27.56	28.83
17	29.2	44.5	41.3	2.6	30.2	E	28.0	29.1	30.73	32.01
19	30.1	49.2	46.0	3.4	33.3	F	31.2	32.3	33.91	35.18
21	30.1	52.4	46.0	3.4	36.55	G	34.3	35.5	37.08	38.35
23	30.1	55.6	52.4	3.4	39.7	H	37.5	39.7	40.26	41.53
25	30.1	58.7	55.6	3.4	42.9	J	40.7	42.9	43.43	44.70

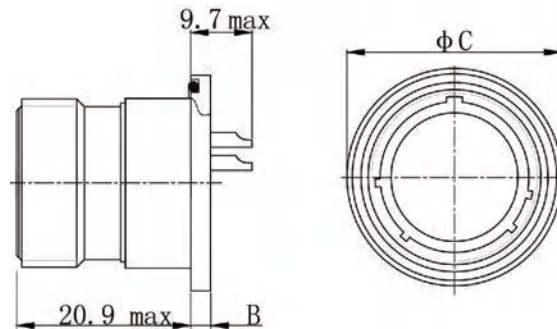


D38999/25 Solder Mount Gas Sealing Receptacle



Shell No.	Z max	V max		S	D
9	23.8	17.2	A	19.4	17.1
11	23.8	17.2	B	21.8	19.9
13	23.8	17.2	C	24.9	23.1
15	23.8	17.2	D	28.1	26.2
17	23.8	17.2	E	31.3	29.4
19	23.8	17.2	F	33.6	31.8
21	23.8	17.2	G	36.8	35.0
23	24.6	17.2	H	40.0	38.2
25	24.6	17.2	J	43.2	41.3

D38999/27 Fusion Solder Mount Sealing Receptacle



Shell No.	Shell No. Code		ϕC max	B ± 0.2
9	A	A	25.0	3.2
11	B	B	28.1	3.2
13	C	C	31.3	3.2
15	D	D	34.5	3.2
17	E	E	36.7	3.2
19	F	F	40.4	3.2
21	G	G	44.0	3.2
23	H	H	48.2	4.0
25	J	J	50.4	4.0



MIL-DTL-38999 III Series Small Circular Wall Mount Connector With Environment High Density Resistance

Material

- Shell : stainless steel
Finish : stainless steel passivation (Y)
 stainless steel with nickel plating (N)
- Sealed Insulating Medium : glass

Temperature Performance

- Temperature Range : stainless steel passivation (Y) : $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
 stainless steel with nickel plating (N) : $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
- Salt Spray : 500h (Y) 48h (N)
- Tightness : $1 \times 10^{-3} \text{Pa} \cdot \text{cm}^3/\text{s}$

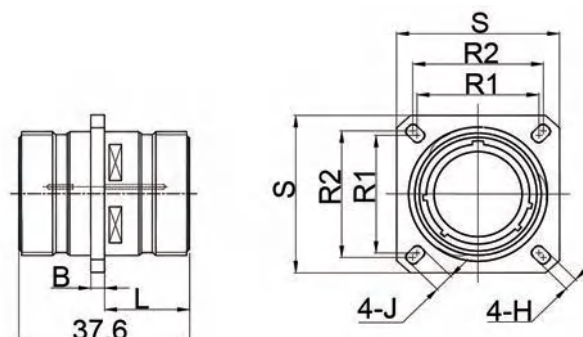
Name :

D38999/ 20 Y B 35 C N
① ② ③ ④ ⑤ ⑥ ⑦

- ① Serial No. : D38999
- ② Shell Type : 20 – wall square flange wall mount receptacle
 24 – wall square flange receptacle
- ③ Finish : Y – glass sealing, stainless steel outer shell passivation, $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
 N – glass sealing, stainless steel outer shell with nickel plating, $-65^{\circ}\text{C} \sim +200^{\circ}\text{C}$
- ④ Shell No. : 9 11 13 15 17 19 21 23 25
Shell No. Code : A B C D E F G H J
- ⑤ Contact Arrangement
- ⑥ Contact Style : C – wall mount pin
- ⑦ Master Keyway/ Keying Position : N–normal A, B, C, D, E

Outline Dimensions

D38999/20 Wall Square Flange Wall Mount Receptacle

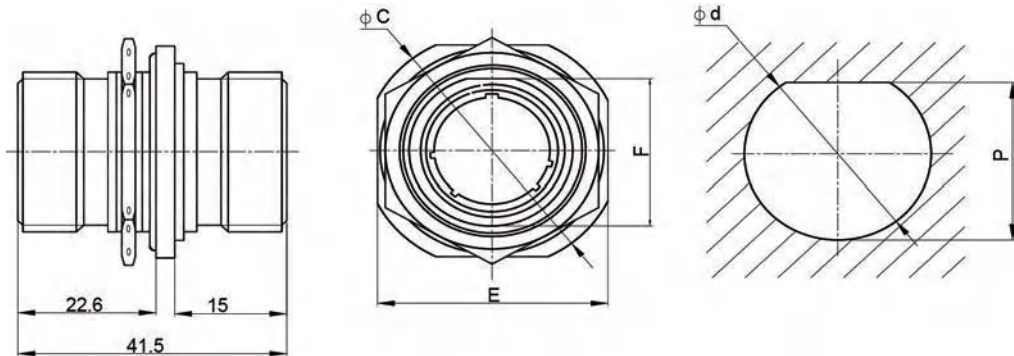




D 3 8 9 9 9 / 2 0 Y

Shell No.	Shell No. Code	L	B	S		R1	R2	H	J
9	A	19.5	3.2	23.8	A	15.09	18.26	3.25	5.49
11	B	19.5	3.2	26.2	B	18.26	20.62	3.25	4.93
13	C	19.5	3.2	28.6	C	20.62	23.01	3.25	4.93
15	D	19.5	3.2	31.0	D	23.01	24.61	3.25	4.93
17	E	19.5	3.2	33.3	E	24.61	26.97	3.25	4.93
19	F	19.5	3.2	36.5	F	26.97	29.36	3.25	4.93
21	G	18.7	3.2	39.7	G	29.36	31.75	3.25	4.93
23	H	18.7	3.2	42.9	H	31.75	34.93	3.91	6.15
25	J	18.7	3.2	46.0	J	34.93	38.10	3.91	6.15

D38999/24 Jam Nut Wall Mount Sealing Receptacle



D 3 8 9 9 9 / 2 0 Y

Shell No.	Shell No. Code	ϕC	E		F	$\phi d^{+0.2}_0$	p
9	A	30.5	27.0	A	16.53	17.78	17.02
11	B	35.2	31.8	B	19.07	20.96	19.59
13	C	38.4	34.9	C	23.82	25.65	24.26
15	D	41.6	38.1	D	26.97	28.83	27.56
17	E	44.8	41.3	E	30.15	32.01	30.73
19	F	49.5	46.0	F	33.32	35.18	33.91
21	G	52.7	49.2	G	36.50	38.35	37.08
23	H	55.9	52.4	H	39.67	41.53	40.26
25	J	59.0	55.6	J	42.85	44.70	43.43



MIL-DTL-38999 III Series Small Circular Span Wire Separating Connector With Environment High Density Resistance

Material

- Shell : aluminum alloy
Finish : olive drab cadmium plating (W)
- Span Wire : multistrand of stainless steel wire rope

Mechanical Performance

- Durability : 500 times
- Vibration : 10Hz ~ 2000Hz , 1.0g²m/Hz
- External Bending Moment : 28.3 N • m
- Shock : 300g
- Span Wire Tolerance : 900N
- Separating Force : normal axis direction 160 ~ 400N
- 15 degree angle to normal axis direction 160 ~ 445N

Electrical Performance

- Voltage : 250V
- Dielectric Strength : 1000V

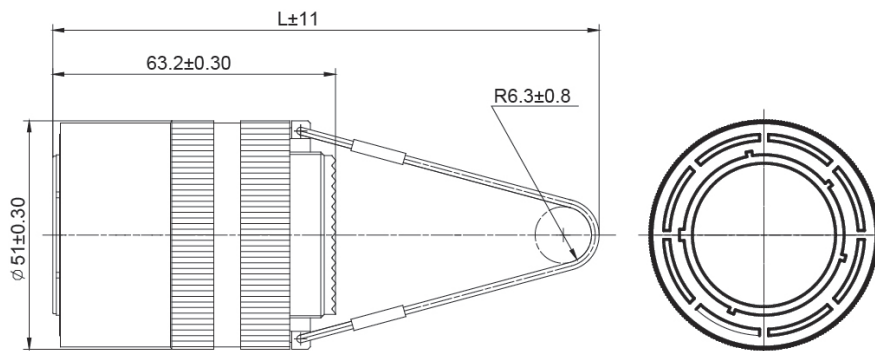
Environment Performance

- Environment Temperature : -65°C ~ +175°C
- Salt Spray : 500h
- Rainfall Test : rainfall speed $2^{+0.3}_{-0.2}$ mm/min
raindrop diameter 0.5mm-4.5mm
rainfall time 40 min
- Tightness : with water & rain proof while insertion

Name :

D38999/ 31 W E 20 P N 1
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Serial No. : D38999
- ② Shell Type : #31-25 shell span wire separating plug
- ③ Class : W- olive drab cadmium plating, -65°C ~ +175°C
- ④ Span Wire Length Code : E F G H I J K L
Span Wire Length : 153 166 178 191 203 216 229 242
- ⑤ Contact Arrangement
- ⑥ Contact Style : P – standard crimping pin A – no pin or customized pin
- ⑦ Master Keyway/ Keying Position : N-normal A, B, C, D, E
- ⑧ Type Code : type 1, type 2, type 3, type 4, type 5, type 6



MIL-DTL-38999 III Series Small Circular Span Wire Separating Connector With Environment High Density Resistance

Brief Introduction

- Quick lock thread with anti-loosening mechanism
- 100% scoop-proof to ensure no damage to the contacts in a blind mating application
- With grounding reeds to strengthen EMI/RFI shielding
- 25% lighter than the general aluminum shell type

Material

- Shell : carbon fiber reinforced thermoplastic material
Finish : olive drab cadmium plating (J) nickel plating (M)
- Insulation Mounting Plate : thermoplast
- Seal Ring : silicon rubber elastomer
- Contact : copper alloy
- Finish : nickel with gold plating

Mechanical Performance

- Durability : 1500 mating cycles

Electrical Performance

- Electrical Conductivity Between the Shell : 3mV
- Shielding : 100MHz : 90dB 1GHz : 85dB
 10GHz(M) : 65dB 10GHz(J) : 50dB

Environment Performance

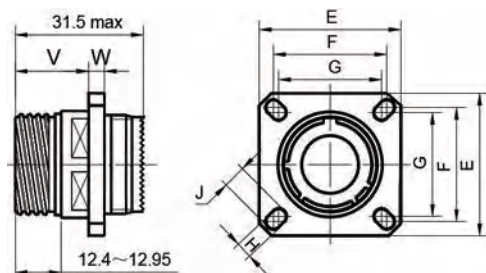
- Temperature Range : olive drab cadmium plating (J) : -65°C ~ +175°C
nickel plating (M) : -65°C ~ +200°C
- Salt Spray : 2000h

Name :

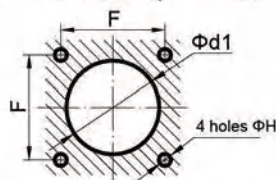
D38999/ 20 J B 35 H N
① ② ③ ④ ⑤ ⑥ ⑦

- ① Serial No. : D38999
- ② Shell Type : 20 – wall square flange wall mount receptacle
26 – straight shielding plug
- ③ Finish : J – composite with olive drab cadmium plating (electric conduction)
M – composite with chemical nickel plating (electric conduction)
- Shell No. : 9 11 13 15 17 19 21 23 25
- ④ Shell No. Code : A B C D E F G H J
- ⑤ Contact Arrangement
- ⑥ Contact Style : P–pin (1500 mating cycles)
S–socket (1500 mating cycles)
A – no pin or customized pin
B – no socket or customized socket
- ⑦ Master Keyway/ Keying Position : N–normal A, B, C, D, E

D38999/20 Square Flange Receptacle

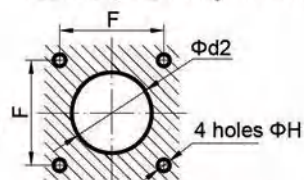


Rear Panel Mounting Hole Size



Panel Thickness 2.5mm Max

Front Panel Mounting Hole Size

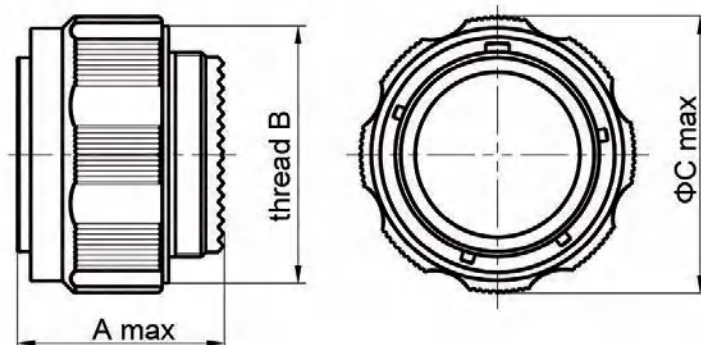


Panel Thickness 3.2mm Max

D	3	8	9	9	9	/	2	0	J					
---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

Shell No.	Shell No. Code	E ± 0.3	F	G	H ± 0.2		J ± 0.2	V+1.4	W	d1	d2
9	A	23.80	18.26	15.09	3.25	A	5.49	19.5	3.65 ~ 2.1	16.66	13.11
11	B	26.20	20.62	18.26	3.25	B	4.93	19.5	3.65 ~ 2.1	20.22	15.88
13	C	28.60	23.01	20.62	3.25	C	4.93	19.5	3.65 ~ 2.1	23.42	19.05
15	D	31.00	24.61	23.01	3.25	D	4.39	19.5	3.65 ~ 2.1	26.59	23.01
17	E	33.30	26.97	24.61	3.25	E	4.93	19.5	3.65 ~ 2.1	30.96	25.81
19	F	36.50	29.36	26.97	3.25	F	4.93	19.5	3.65 ~ 2.1	32.94	28.98
21	G	39.70	31.75	29.39	3.25	G	4.93	18.7	4.35 ~ 2.1	36.12	32.16
23	H	42.90	34.93	31.75	3.91	H	6.15	18.7	4.35 ~ 2.1	39.29	34.93
25	J	46.00	38.10	34.93	3.91	J	6.15	18.7	4.35 ~ 2.1	42.47	37.69

D38999/26 Plug



D	3	8	9	9	9	/	2	6	J						
---	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--

Shell No.	Shell No. Code	A		Thread B	C
9	A	31.00	A	M12 × 1–6g	21.80
11	B	31.00	B	M15 × 1–6g	25.00
13	C	31.00	C	M18 × 1–6g	29.40
15	D	31.00	D	M22 × 1–6g	32.50
17	E	31.00	E	M25 × 1–6g	35.70
19	F	31.00	F	M28 × 1–6g	38.50
21	G	31.00	G	M31 × 1–6g	41.70
23	H	31.00	H	M34 × 1–6g	44.90
25	J	31.00	J	M37 × 1–6g	48.00

Standard Terminal Accessory

M85049/ 14

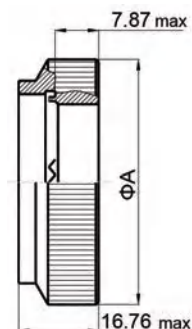
M85049/ 14 = 11 N
① ② ③ ④ ⑤

- ① Serial No. : M85049/
② Terminal Shell Accessory Type : 14—straight crimping sleeve
③ No Code — non self-locking
S — self-locking
④ Shell No. : 9 11 13 15 17 19 21 23 25
⑤ Coating : N—nickel plating (only for air force and aviation device)
W — olive drab cadmium plating
S —stainless steel passivation
TT—titanium alloy electroless

Stereogram



Outline Dimension



M 8 5 0 4 9 / 1 4 -

Shell No.	Φ A max
9	21.8
11	25.0
13	29.29
15	32.49
17	35.71
19	38.50
21	41.71
23	44.91
25	47.98



M85049/ 38

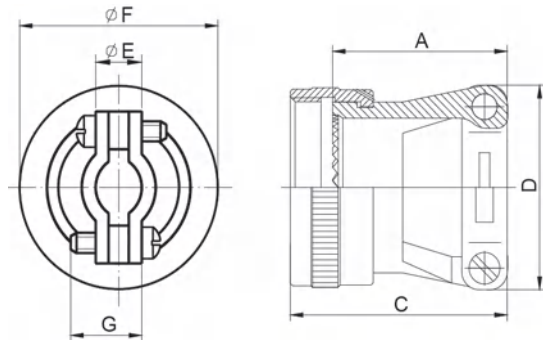
M85049/ ① 38 ② — ③ 11 ④ N ⑤

- ① Serial No. : M85049/
 ② Terminal shell Accessory Type : 38—straight cable clamp
 ③ No Code — non self-locking
 S — self-locking
 ④ Shell No. : 9 11 13 15 17 19 21 23 25
 ⑤ Finish : A — black anodization
 N — nickel plating
 W — olive drab cadmium plating
 S — stainless steel passivation
 TT — titanium alloy electroless

Stereogram



Outline Dimension



M 8 5 0 4 9 / 3 8 —

Shell No.	A max	C max	D max	F max	Adapted Cable Diameter		G
					min	max	
9	22.5	29.5	17.00	9	2.49	5.94	13.50
11	22.5	29.5	20.00	11	3.90	5.94	13.50
13	24.0	30.5	23.00	13	4.83	8.33	16.30
15	25.5	31.5	26.30	15	6.60	11.61	20.00
17	27.5	33.5	29.30	17	7.19	15.60	20.00
19	29.3	36.0	32.30	19	8.26	16.10	20.00
21	34.3	40.5	37.30	21	8.71	17.73	22.50
23	34.3	40.5	40.30	23	9.68	20.90	26.50
25	34.3	40.5	43.30	25	10.62	21.67	29.50



M85049/ 39

M85049/ 39 = 11 N
① ② ③ ④ ⑤

① Serial No. : M85049/

② Terminal Shell Accessory Type : 39 – 90° cable clamp

③ No Code — non self-locking

S — self-locking

④ Shell No. : 9 11 13 15 17 19 21 23 25

⑤ Finish : A – black anodization

N – nickel plating

W – olive drab cadmium plating

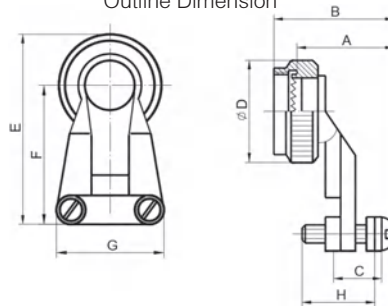
S – stainless steel passivation

TT – titanium alloy electroless

Stereogram



Outline Dimension



M 8 5 0 4 9 / 3 9 -



Shell No.	A max	B max	Adpated Cable Diameter C			D max	E max	F max	G max	H
9	26.0	33.5	2.49	5.94	9	16.5	26.00	19.00	16.50	13.50
11	26.0	33.5	3.90	5.94	11	20.0	29.00	20.00	19.50	13.50
13	30.0	33.5	4.83	8.33	13	23.0	34.00	24.00	22.50	16.30
15	31.0	34.5	6.60	11.61	15	27.0	38.00	26.00	26.00	20.00
17	31.5	35.0	7.19	15.60	17	30.0	41.00	27.00	29.00	20.00
19	32.0	35.5	8.26	16.10	19	33.0	46.00	31.00	32.00	20.00
21	33.0	36.5	8.71	17.74	21	36.0	49.00	32.00	37.00	22.50
23	35.0	38.5	9.68	20.90	23	39.0	54.00	36.00	40.00	26.50
25	35.0	38.5	10.62	21.67	25	42.0	59.00	39.00	43.00	29.50



Protective Cover

D38999/ 33 W 9 R
 ① ② ③ ④ ⑤

① Serial Code : D38999/

② Cover Style : 33 – use for receptacle; 32 – use for plug

③ Finish: F – Nickel plating

W – olive drab cadmium plating

K – stainless steel passivation

TT – titanium alloy electroless

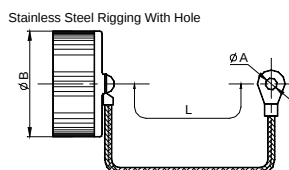
④ Shell No. : 9 11 13 15 17 19 21 23 25

⑤ Protective Cover Type : R – Stainless Steel Rigging with hole;

N – Stainless Steel Rigging with loop;

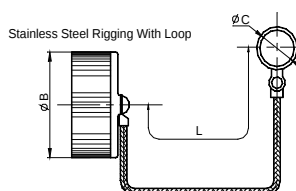
Outline Dimension

Protective Cover for Receptacle



Shell No.	American Standard No.	A min	B max	L
9	D38999/33W9R	3.90	22.86	127.00
11	D38999/33W11R	3.90	27.96	127.00
13	D38999/33W13R	3.90	30.48	127.00
15	D38999/33W15R	3.90	31.75	127.00
17	D38999/33W17R	3.90	36.83	127.00
19	D38999/33W19R	3.90	38.10	127.00
21	D38999/33W21R	3.90	41.91	127.00
23	D38999/33W23R	3.90	44.45	127.00
25	D38999/33W25R	3.90	48.26	127.00

Protective Cover for Receptacle



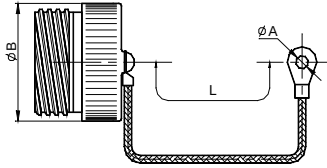
Shell No.	American Standard No.	C min	B max	L
9	D38999/33W9N	12.93	22.86	127.00
11	D38999/33W11N	17.78	27.96	127.00
13	D38999/33W13N	19.27	30.48	127.00
15	D38999/33W15N	22.60	31.75	127.00
17	D38999/33W17N	25.62	36.83	127.00
19	D38999/33W19N	36.27	38.10	127.00
21	D38999/33W21N	31.97	41.91	127.00
23	D38999/33W23N	42.62	44.45	127.00
25	D38999/33W25N	44.45	48.26	127.00



Outline Dimension

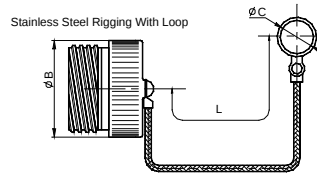
Protective Cover for Plug

Stainless Steel Rigging With Hole



Shell No.	American Standard No.	A min	B max	L
9	D38999/32W9R	3.90	22.86	127.00
11	D38999/32W11R	3.90	27.96	127.00
13	D38999/32W13R	3.90	30.48	127.00
15	D38999/32W15R	3.90	31.75	127.00
17	D38999/32W17R	3.90	36.83	127.00
19	D38999/32W19R	3.90	38.10	127.00
21	D38999/32W21R	3.90	41.91	127.00
23	D38999/32W23R	3.90	44.45	127.00
25	D38999/32W25R	3.90	48.26	127.00

Protective Cover for Plug



Shell No.	American Standard No.	C min	B max	L
9	D38999/32W9N	12.93	22.86	127.00
11	D38999/32W11N	17.78	27.96	127.00
13	D38999/32W13N	19.27	30.48	127.00
15	D38999/32W15N	22.60	31.75	127.00
17	D38999/32W17N	25.62	36.83	127.00
19	D38999/32W19N	28.95	38.10	127.00
21	D38999/32W21N	31.97	41.91	127.00
23	D38999/32W23N	34.03	44.45	127.00
25	D38999/32W25N	38.32	48.26	127.00



■ View of Mating Face of Pin Insert

Series I Shell No.	Series II Shell No.	Series III Shell No.	Series IV Shell No.
09	09 A	08	35 Condition M  6#22D 98 Condition I  3#20  #22D contact  #12 contact  #8coaxial contact  #20contact  #12coaxial Contact  #8striax contact  #16contact  #10contact
11	11 B	10	35 Condition M  13#22D 05 Condition I  5#20 08b Condition M  8#22D 01 Condition II  1#12 98 Condition I  6#20 02 Condition I  2#16 99 Condition I  7#20 04 Condition I  4#20 08a Condition M  4#20 4#22D
13	13 C	12	35 Condition M  22#22D 26 Condition M  2#12 6#22D 98 Condition I  10#20 03 Condition I  3#16 08 Condition I  8#20 04 Condition I  4#16
15	15 D	14	35 Condition M  37#22D 19 Condition I  19#20 05 Condition II  5#16 15 Condition I  1#16 14#20 18 Condition I  18#20 97 Condition I  4#16 8#20 14 Condition M  6#16 8#22D 03 Condition II  1#16 2#12
17	17 E	16	35 Condition M  55#22D 26 Condition I  26#20 06 Condition I  6#12 08 Condition II  8#16 99 Condition I  2#16 21#20 75 Condition I  2#8 42 Condition M  42#22D 20a Condition N  2#8 2#20 16#22D 30 Condition N  3#20 3#10

Note 5: The default terminal methods is crimp-fit on #8 point when the connector model with contact type PH, SH.



Contact Arrangement

■ View of Mating Face of Pin Insert

Series I Shell No.	Series III Shell No.	Series II Shell No.				
19	19 F	18	35 66#22D Condition M 	11 11#16 Condition II 	18 4#8 14#22D Condition M 	28 2#16 26#20 Condition I
			30 1#16 29#20 Condition I 	32 32#20 Condition I 	45 67#22D Condition M 	14 6#12 8#20 Condition I
			96 9#12 Condition I 	○ #22Dcontact ● #12contact ● #8coaxial contact ◐ #20contact ◑ #12 coaxial contact ◑ #8triax contact ◐ #16contact ◑ #10contact		
21	21 G	20	35 79#22D Condition M 	11 11#12 Condition II 	16 16#16 Condition II 	24 24#20 Condition I
			25 25#20 Condition I 	27 27#20 Condition I 	39 2#16 37#20 Condition I 	41 41#20 Condition I
			75 4#8 Condition I 	29 3#12 26#20 Condition I 	02 79#22D Condition M 	04 4#10 Condition N
23	23 H	22	35 100#22D Condition M 	21 21#16 Condition II 	32 32#20 Condition I 	34 34#20 Condition I

Note 1: They are all standard spectrum on this article

Note 2: We can design the spectrum with contacts #4, #6, and #8 according to customer requirement.

Note 3: It can't use in series II & Aerospace level glass-sinter connector when arrangement with #8 contacts.

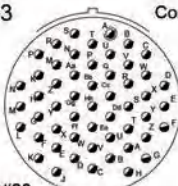
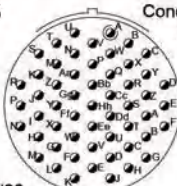
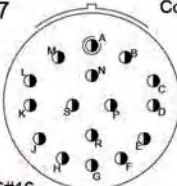
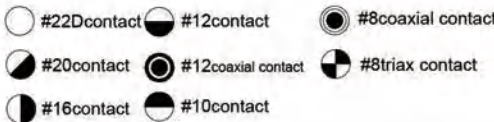
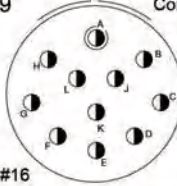
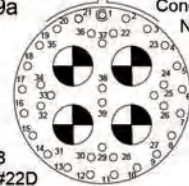
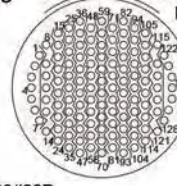
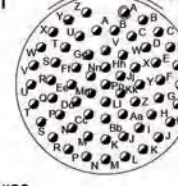
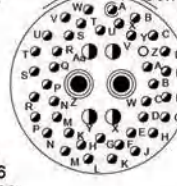
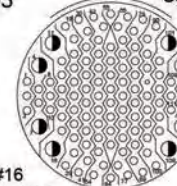
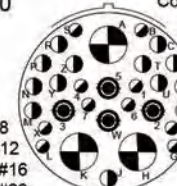
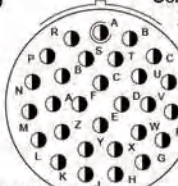
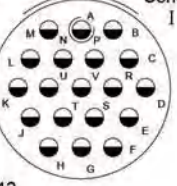
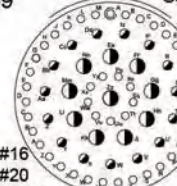
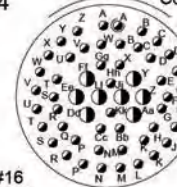
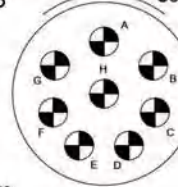
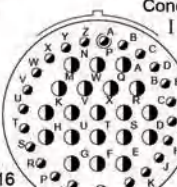
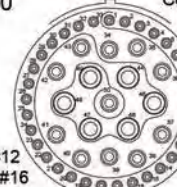
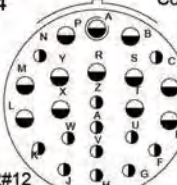
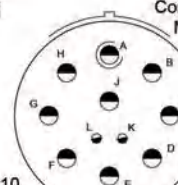
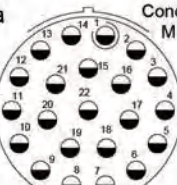
Note 4: Instructions : M-1300V, N-1000V, II-2300V

Note 5: The default terminal methods is crimp-fit on #8 point when the connector model with contact type PH, SH.



Contact Arrangement

■ View of Mating Face of Pin Insert

Series I Shell No.	Series III Shell No.	Series II Shell No.						
23	23 H	22	36  Condition I 36#20	53  Condition I 53#20	55  Condition I 55#20	97  Condition I 16#16		
			99  Condition II 11#16	39a  Condition N 4#8 35#22D				
25	25 J	24	35  Condition M 128#22D	61  Condition I 61#20	46  Condition I 2#8 4#16 40#20	93  Condition M 8#16 110#22D		
			20  Condition N 3#8 4#12 13#16 10#20	29  Condition I 29#16	19  Condition I 19#12	69  Condition I 10#16 15#20 44#22D		
			04  Condition I 8#16 48#20	08  Condition I 8#8	43  Condition I 20#16 23#20	50  Condition M 6#12 11#16 33#22D		
			24  Condition I 12#12 12#16	11  Condition M 9#10 2#20	22a  Condition M 22#12 <td colspan="2"></td>			

Note 1: They are all standard spectrum on this article

Note 2: We can design the spectrum with contacts #4, #6, and #8 according to customer requirement.

Note 3: It can't use in series II & Aerospace level glass-sinter connector when arrangement with #8 contacts.

Note 4: Instructions : M-1300V, N-1000V, II-2300V

Note 5: The default terminal methods is crimp-fit on #8 point when the connector model with contact type PH, SH.

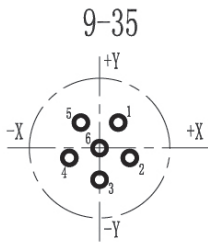


Contact Arrangement on PCB

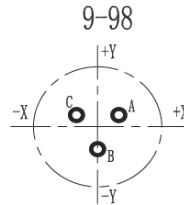
relevant shell No change to 08,10,12.....that is series II PCB contact arrangement

hole diameter on PCB, #22D contact min diameter is 0.99mm, #20contacts min diameter is 1mm, #16 contact min diameter is 1.3mm. (just for reference) contacts identification sign–front view for pin insulation board

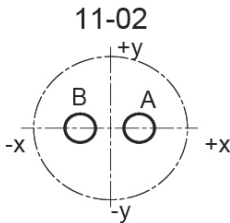
Coordinate Units:mm



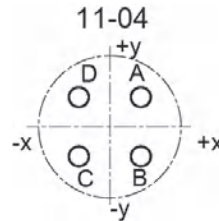
Contact	Coordinate	
	X	Y
1	+1.14	+1.98
2	+1.98	-1.14
3	0.00	-2.29
4	-1.98	-1.14
5	-1.14	+1.98
6	0.00	0.00



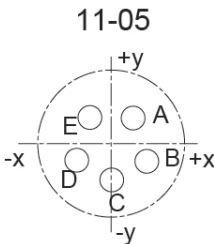
Contact	Coordinate	
	X	Y
A	+1.65	+0.97
B	0.00	-1.91
C	-1.65	+0.97



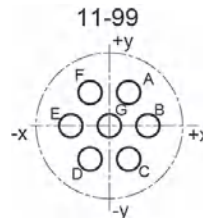
Contact	Coordinate	
	X	Y
A	+2.41	0.00
B	-2.41	0.00



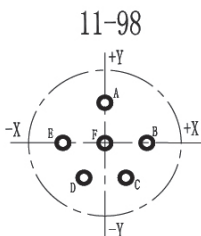
Contact	Coordinate	
	X	Y
A	+1.65	+1.65
B	+1.65	-1.65
C	-1.65	-1.65
D	-1.65	+1.65



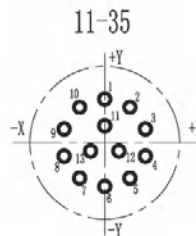
Contact	Coordinate	
	X	Y
A	+1.65	+1.42
B	+2.87	-1.65
C	0.00	-3.30
D	-2.87	-1.65
E	-1.65	+1.42



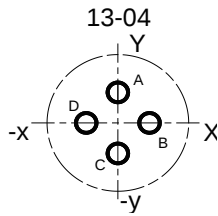
Contact	Coordinate	
	X	Y
A	+1.65	+2.87
B	+3.30	0.00
C	+1.65	-2.87
D	-1.65	-2.87
E	-3.30	0.00
F	-1.65	+2.87
G	0.00	0.00



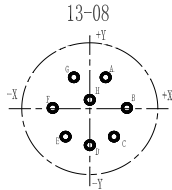
Contact	Coordinate	
	X	Y
A	0.00	+3.30
B	+3.30	0.00
C	+1.65	-2.87
D	-1.65	-2.87
E	-3.30	0.00
F	0.00	0.00



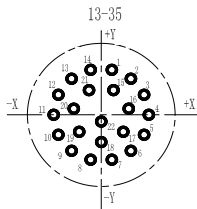
Contact	Coordinate	
	X	Y
1	0.00	+3.71
2	+2.16	+3.00
3	+3.51	+1.14
4	+3.51	-1.14
5	+2.16	-3.00
6	0.00	-3.71
7	-2.16	-3.00
8	-3.51	-1.14
9	-3.51	+1.14
10	-2.16	+3.00
11	0.00	+1.42
12	+1.24	-0.90
13	-1.24	-0.90



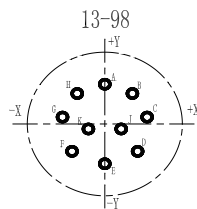
Contact	Coordinate	
	X	Y
A	0.00	+3.81
B	+3.71	+0.90
C	0.00	-2.11
D	-3.71	+0.90



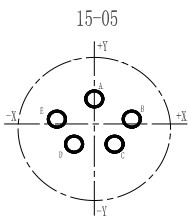
Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y
A	+1.65	+3.99	E	-3.05	-3.05
B	+4.32	0.00	F	-4.32	0.00
C	+3.05	-3.05	G	-1.65	+3.99
D	0.00	-4.32	H	0.00	+1.12



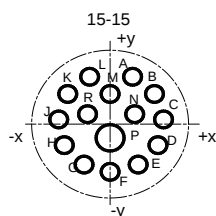
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
1	+1.14	+5.00	9	-3.20	-4.01	17	+2.36	-1.91
2	+3.20	+4.01	10	-4.62	-2.24	18	0.00	-3.05
3	+4.62	+2.24	11	-5.16	0.00	19	-2.36	-1.91
4	+5.16	0.00	12	-4.62	+2.24	20	-2.97	+0.66
5	+4.62	-2.24	13	-3.20	+4.01	21	-1.14	+2.72
6	+3.20	-4.01	14	-1.14	+5.00	22	0.00	-0.76
7	+1.14	-5.00	15	+1.14	+2.72			
8	-1.14	-5.00	16	+2.97	+0.66			



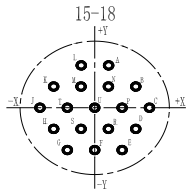
Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y
A	0.00	+4.95	F	-4.17	-2.67
B	+3.18	+3.81	G	-4.90	+0.76
C	+4.90	+0.76	H	-3.18	+3.81
D	+4.17	-2.67	J	+1.65	-0.38
E	0.00	-3.43	K	-1.65	-0.38



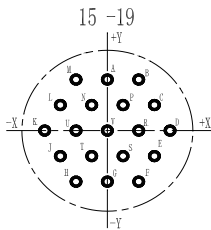
Contact	Coordinate	
	X	Y
A	0.00	+2.54
B	+4.42	+0.61
C	+2.39	-3.76
D	-2.39	-3.76
E	-4.42	+0.61



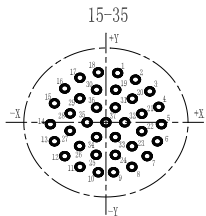
Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y
A	+2.54	+5.72	J	-6.20	+0.36
B	+5.13	+3.56	K	-5.13	+3.56
C	+6.20	+0.36	L	-2.54	+5.72
D	+5.54	-2.87	M	0.00	+3.56
E	+3.20	-5.31	N	+2.79	+1.02
F	0.00	-6.22	P	0.00	-1.96
G	-3.20	-5.31	R	-2.79	+1.02
H	-5.54	-2.87			



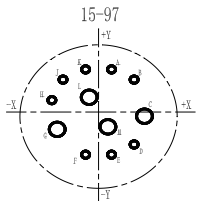
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.65	+6.40	H	-4.95	-2.87	R	+1.65	-2.87
B	+4.95	+2.87	J	-6.60	0.00	S	-1.65	-2.87
C	+6.60	0.00	K	-4.95	+2.87	T	-3.30	0.00
D	+4.95	-2.87	L	-1.65	+6.40	U	0.00	0.00
E	+3.30	-5.72	M	-1.65	+2.87			
F	0.00	-5.72	N	+1.65	+2.87			
G	-3.30	-5.72	P	+3.30	0.00			



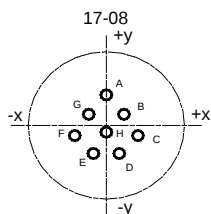
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+5.72	H	-3.30	-5.72	R	+3.30	0.00
B	+3.30	+5.72	J	-4.95	-2.87	S	+1.65	-2.87
C	+4.95	+2.87	K	-6.60	0.00	T	-1.65	-2.87
D	+6.60	0.00	L	-4.95	+2.87	U	-3.30	0.00
E	+4.95	-2.87	M	-3.30	+5.72	V	0.00	0.00
F	+3.30	-5.72	N	-1.65	+2.87			
G	0.00	-5.72	P	+1.65	+2.87			



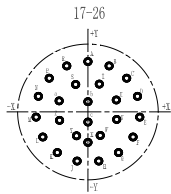
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
1	+1.14	+6.65	14	-6.76	-0.25	27	-4.32	-1.27
2	+3.12	+5.51	15	-6.45	+2.03	28	-4.32	+1.02
3	+5.36	+4.06	16	-5.36	+4.06	29	-3.12	+3.02
4	+6.45	+2.03	17	-3.12	+5.51	30	-1.14	+4.37
5	+6.76	-0.25	18	-1.14	+6.65	31	+1.14	+1.88
6	+6.27	-2.49	19	+1.14	+4.37	32	+2.29	-0.10
7	+5.08	-4.45	20	+3.12	+3.02	33	+1.14	-2.08
8	+3.30	-5.90	21	+4.32	+1.02	34	-1.14	-2.08
9	+1.14	-6.65	22	+4.32	-1.27	35	-2.29	-0.10
10	-1.14	-6.65	23	+3.12	-3.23	36	-1.14	+1.88
11	-3.30	-5.90	24	+1.14	-4.37	37	0.00	-0.10
12	-5.08	-4.45	25	-1.14	-4.37			
13	-6.27	-2.49	26	-3.12	-3.23			



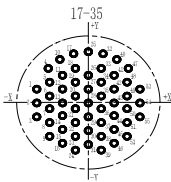
Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y
A	+1.65	+5.94	G	-5.26	-2.41
B	+4.52	+4.52	H	-5.94	+1.65
C	+5.84	-0.58	J	-4.52	+4.52
D	+4.52	-4.52	K	-1.65	+5.94
E	+1.65	-5.94	L	-1.19	+2.06
F	-2.26	-5.97	M	+1.19	-2.06



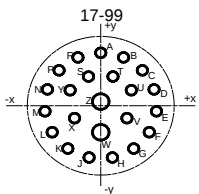
Contact	Coordinate	
	X	Y
A	0.00	+5.99
B	+3.25	+2.18
C	+5.84	-1.98
D	+2.39	-5.49
E	-2.39	-5.49
F	-5.84	-1.98
G	-3.25	+2.18
H	0.00	-1.32



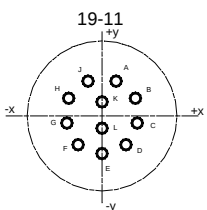
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+8.15	K	-4.80	-6.60	V	+4.53	-0.91
B	+3.33	+7.44	L	-7.06	-4.09	W	+3.02	-3.84
C	+6.07	+5.44	M	-8.10	-0.86	X	0.00	-5.16
D	+7.75	+2.51	N	-7.75	+2.51	Y	-3.02	-3.84
E	+8.10	-0.86	P	-6.07	+5.44	Z	-4.53	-0.91
F	+7.06	-4.09	R	-3.33	+7.44	a	-4.45	+2.39
G	+4.80	-6.60	S	-1.78	+4.50	b	0.00	+1.65
H	+1.70	-7.98	T	+1.78	+4.50	c	0.00	-1.65
J	-1.70	-7.98	U	+4.45	+2.39			



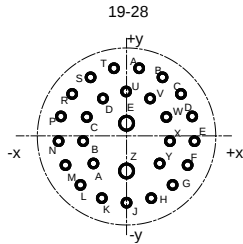
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
1	-7.92	+2.18	20	-1.98	+1.04	39	+1.98	-8.10
2	-7.92	-0.10	21	-1.98	-1.24	40	+4.37	+7.09
3	-7.92	-2.39	22	-1.98	-3.53	41	+3.96	+4.47
4	-6.15	+5.61	23	-1.98	-5.82	42	+3.96	+2.18
5	-5.94	+3.33	24	-1.98	-8.10	43	+3.96	-0.10
6	-5.94	+1.04	25	0.00	+8.36	44	+3.96	-2.39
7	-5.94	-1.24	26	0.00	+4.47	45	+3.96	-4.67
8	-5.94	-3.53	27	0.00	+2.18	46	+3.96	-6.96
9	-5.94	-5.82	28	0.00	-0.10	47	+6.15	+5.61
10	-4.37	+7.09	29	0.00	-2.39	48	+5.94	+3.33
11	-3.96	+4.47	30	0.00	-4.67	49	+5.94	+1.04
12	-3.96	+2.18	31	0.00	-6.96	50	+5.94	-1.24
13	-3.96	-0.10	32	+2.26	+8.03	51	+5.94	-3.53
14	-3.96	-2.39	33	+1.98	+5.61	52	+5.94	-5.82
15	-3.96	-4.67	34	+1.98	+3.33	53	+7.92	+2.18
16	-3.96	-6.96	35	+1.98	+1.04	54	+7.92	-0.10
17	-2.26	+8.03	36	+1.98	-1.24	55	+7.92	-2.39
18	-1.98	+5.61	37	+1.98	-3.53			
19	-1.98	+3.33	38	+1.98	-5.82			



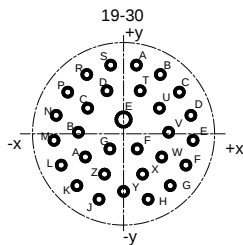
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+8.15	J	-1.70	-7.98	T	+1.78	+4.50
B	+3.33	+7.44	K	-4.80	-6.60	U	+4.45	+2.39
C	+6.07	+5.44	L	-7.06	-4.09	V	+3.81	-1.91
D	+7.75	+2.51	M	-8.10	-0.86	W	0.00	-4.09
E	+8.10	-0.86	N	-7.75	+2.51	X	-3.81	-1.91
F	+7.06	-4.09	P	-6.07	+5.44	Y	-4.45	+2.39
G	+4.80	-6.60	R	-3.33	+7.44	Z	0.00	+0.64
H	+1.70	-7.98	S	-1.78	+4.50			



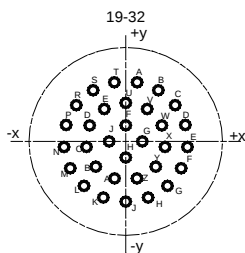
Contact	Coordinate		Contact	Coordinate	
A	+2.67	+6.60	G	-6.99	-1.35
B	+6.35	+3.35	H	-6.35	+3.35
C	+6.99	-1.35	J	-2.67	+6.60
D	+4.55	-5.46	K	0.00	+2.67
E	0.00	-7.14	L	0.00	-2.34
F	-4.55	-5.46			



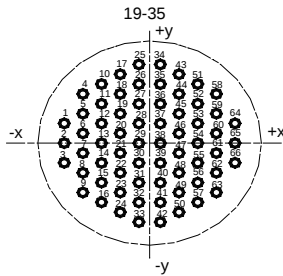
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.68	+8.97	L	-6.15	-6.73	X	+5.79	-0.84
B	+4.80	+7.75	M	-8.15	-4.06	Y	+4.42	-3.84
C	+7.26	+5.51	N	-9.07	-0.84	Z	0.00	-4.85
D	+8.76	+2.49	P	-8.76	+2.41	a	-4.42	-3.84
E	+9.07	-0.84	R	-7.26	+5.51	b	-5.79	-0.84
F	+8.15	-4.06	S	-4.80	+7.75	c	-5.31	+2.41
G	+6.15	-6.73	T	-1.68	+8.97	d	-3.15	+4.90
H	+3.30	-8.51	U	0.00	+5.84	e	0.00	+1.57
J	0.00	-9.12	V	+3.15	+4.90			
K	-3.30	-8.51	W	+5.31	+2.41			



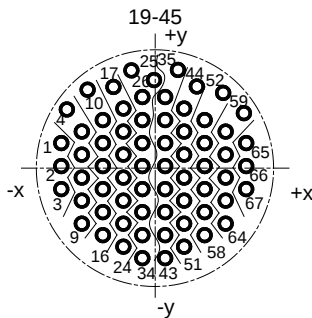
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.65	+8.79	L	-8.00	-4.01	X	+2.44	-5.16
B	+4.72	+7.59	M	-8.92	-0.84	Y	0.00	-7.37
C	+7.16	+5.33	N	-8.64	+2.36	Z	-2.44	-5.16
D	+8.64	+2.36	P	-7.16	+5.33	a	-4.90	-2.97
E	+8.92	-0.84	R	-4.72	+7.59	b	-5.79	+0.20
F	+8.00	-4.01	S	-1.65	+8.79	c	-4.60	+3.28
G	+5.99	-6.63	T	+2.13	+5.51	d	-2.13	+5.51
H	+3.15	-8.38	U	+4.60	+3.28	e	0.00	+1.83
J	-3.15	-8.38	V	+5.79	+0.20	f	+1.75	-1.93
K	-5.99	-6.63	W	+4.90	-2.97	g	-1.75	-1.93



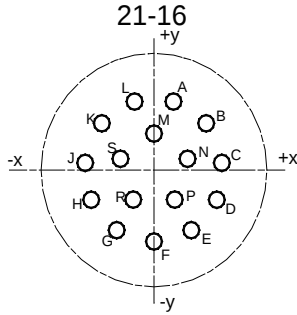
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.68	+8.97	M	-8.15	-4.06	Z	+1.65	-5.61
B	+4.80	+7.75	N	-9.07	-0.84	a	-1.65	-5.61
C	+7.26	+5.51	P	-8.76	+2.49	b	-4.42	-3.84
D	+8.76	+2.49	R	-7.26	+5.51	c	-5.79	-0.84
E	+9.07	-0.84	S	-4.80	+7.75	d	-5.31	+2.41
F	+8.15	-4.06	T	-1.68	+8.97	e	-3.15	+4.90
G	+6.15	-6.73	U	0.00	+5.84	f	0.00	+2.44
H	+3.30	-8.51	V	+3.15	+4.90	g	+2.44	0.00
J	0.00	-9.12	W	+5.31	+2.41	h	0.00	-2.44
K	-3.30	-8.51	X	+5.79	-0.80	j	-2.44	0.00
L	-6.15	-6.73	Y	+4.42	-3.84			



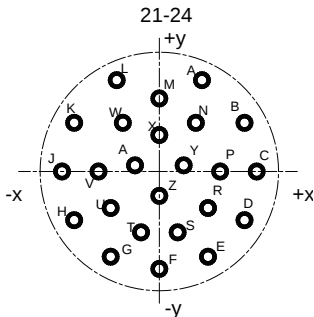
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
1	-9.07	+2.29	23	-3.12	-5.72	45	+3.12	+3.43
2	-9.07	0.00	24	-3.12	-8.00	46	+3.12	+1.14
3	-9.07	-2.29	25	-1.14	+9.14	47	+3.12	-1.14
4	-7.09	+5.72	26	-1.14	+6.86	48	+3.12	-3.43
5	-7.09	+3.43	27	-1.14	+4.57	49	+3.12	-5.72
6	-7.09	+1.14	28	-1.14	+2.29	50	+3.12	-8.00
7	-7.09	-1.14	29	-1.14	0.00	51	+5.11	+6.86
8	-7.09	-3.43	30	-1.14	-2.29	52	+5.11	+4.57
9	-7.09	-5.72	31	-1.14	-4.57	53	+5.11	+2.29
10	-5.11	+6.86	32	-1.14	-6.86	54	+5.11	0.00
11	-5.11	+4.57	33	-1.14	-9.14	55	+5.11	-2.29
12	-5.11	+2.29	34	+1.14	+9.14	56	+5.11	-4.57
13	-5.11	0.00	35	+1.14	+6.86	57	+5.11	-6.86
14	-5.11	-2.29	36	+1.14	+4.57	58	+7.09	+5.72
15	-5.11	-4.57	37	+1.14	+2.29	59	+7.09	+3.43
16	-5.11	-6.86	38	+1.14	0.00	60	+7.09	+1.14
17	-3.12	+8.00	39	+1.14	-2.29	61	+7.09	-1.14
18	-3.12	+5.72	40	+1.14	-4.57	62	+7.09	-3.43
19	-3.12	+3.43	41	+1.14	-6.86	63	+7.09	-5.72
20	-3.12	+1.14	42	+1.14	-9.14	64	+9.07	+2.29
21	-3.12	-1.14	43	+3.12	+8.00	65	+9.07	0.00
22	-3.12	-3.43	44	+3.12	+5.72	66	+9.07	-2.29



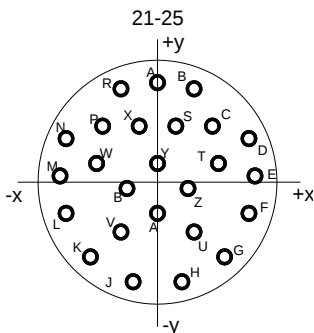
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
1	-9.07	+2.06	24	-3.12	-8.23	47	+3.12	+0.91
2	-9.07	-0.23	25	-2.24	+9.14	48	-3.12	-1.37
3	-9.07	-2.51	26	0.00	+8.61	49	+3.12	-3.66
4	-7.72	+5.41	27	-1.14	+6.63	50	+3.12	-5.94
5	-7.09	+3.20	28	-1.14	+4.34	51	+3.12	-8.23
6	-7.09	+0.91	29	-1.14	+2.06	52	+6.20	+7.11
7	-7.09	-1.37	30	-1.14	-0.23	53	+5.11	+4.34
8	-7.09	-3.66	31	-1.14	-2.51	54	+5.11	+2.06
9	-7.09	-5.94	32	-1.14	-4.80	55	+5.11	-0.23
10	-6.20	+7.11	33	-1.14	-7.09	56	+5.11	-2.51
11	-5.11	+4.34	34	-1.14	-9.37	57	+5.11	-4.80
12	-5.11	+2.06	35	+2.24	+9.14	58	+5.11	-7.09
13	-5.11	-0.23	36	+1.14	+6.61	59	+7.72	+5.41
14	-5.11	-2.51	37	+1.14	+4.34	60	+7.09	+3.20
15	-5.11	-4.80	38	+1.14	+2.06	61	+7.09	+0.91
16	-5.11	-7.09	39	+1.14	-0.23	62	+7.09	-1.37
17	-3.96	+7.65	40	+1.14	-2.51	63	+7.09	-3.66
18	-3.12	+5.49	41	+1.14	-4.80	64	+7.09	-5.94
19	-3.12	+3.20	42	+1.14	-7.09	65	+9.07	+2.06
20	-3.12	+0.91	43	+1.14	-9.37	66	+9.07	-0.23
21	-3.12	-1.37	44	+3.96	+7.65	67	+9.07	-2.51
22	-3.12	-3.66	45	+3.12	+5.49			
23	-3.12	-5.94	46	+3.12	+3.20			



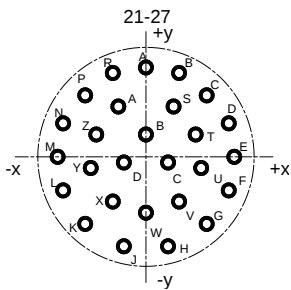
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+3.00	+8.18	G	-4.62	-7.37	N	+3.91	+1.57
B	+6.88	+5.36	H	-7.82	-3.81	P	+2.39	-3.10
C	+8.66	+0.91	J	-8.66	+0.91	R	-2.39	-3.10
D	+7.82	-3.81	K	-6.88	+5.36	S	-3.91	+1.57
E	+4.62	-7.37	L	-3.00	+8.18			
F	0.00	-8.71	M	0.00	+4.45			



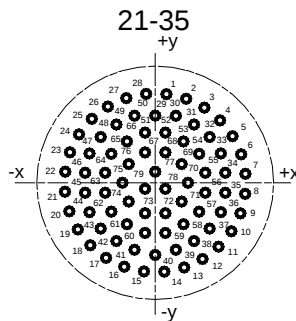
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+4.45	+9.53	J	-10.16	0.00	T	-1.91	-6.35
B	+8.90	+5.08	K	-8.90	+5.08	U	-5.08	-3.81
C	+10.16	0.00	L	-4.45	+9.53	V	-6.35	0.00
D	+8.90	-5.08	M	0.00	+7.62	W	-3.81	+5.08
E	+5.08	-8.90	N	+3.81	+5.08	X	0.00	+3.81
F	0.00	-10.16	P	+6.35	0.00	Y	+2.54	+0.64
G	-5.08	-8.90	R	+5.08	-3.81	Z	0.00	-2.54
H	-8.90	-5.08	S	+1.91	-6.35	a	-2.54	+0.64



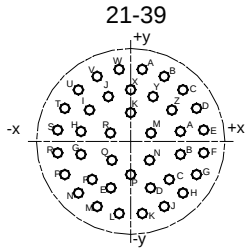
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+10.16	K	-6.99	-7.62	V	-3.81	-5.08
B	+3.81	+9.53	L	-9.53	-3.18	W	-6.35	+1.91
C	+5.72	+5.72	M	-10.16	+0.64	X	-1.91	+5.72
D	+9.53	+4.45	N	-9.53	+4.45	Y	0.00	+1.91
E	+10.16	+0.64	P	-5.72	+5.72	Z	+3.18	-0.64
F	+9.53	-3.18	R	-3.81	+9.53	a	0.00	-3.18
G	+6.99	-7.62	S	+1.91	+5.72	b	-3.18	-0.64
H	+2.54	-10.16	T	+6.35	+1.91			
J	-2.54	-10.16	U	+3.81	-5.08			



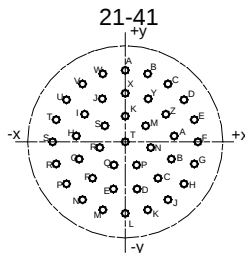
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+10.16	K	-6.99	-7.62	V	+3.81	-5.08
B	+3.81	+9.53	L	-9.53	-3.81	W	0.00	-6.35
C	+6.99	+6.99	M	-10.16	0.00	X	-3.81	-5.08
D	+9.53	+3.81	N	-9.53	+3.81	Y	-6.35	+3.81
E	+10.16	0.00	P	-6.99	+6.99	Z	-5.72	+2.54
F	+9.53	-3.81	R	-3.81	+9.53	a	-3.18	+5.72
G	+6.99	-7.62	S	+3.18	+5.72	b	0.00	+2.54
H	+2.54	-10.16	T	+5.72	+2.54	c	+2.54	-0.64
J	-2.54	-10.16	U	+6.35	-1.27	d	-2.54	-0.64



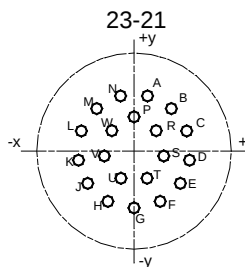
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y		X	Y
1	+1.35	+10.82	21	-10.85	-1.22	41	-2.49	-8.18	61	-3.40	-5.05
2	+3.71	+10.26	22	-10.85	+1.22	42	-4.67	-7.11	62	-5.28	-3.53
3	+5.90	+9.19	23	-10.31	+3.58	43	-6.55	-5.59	63	-6.02	-1.22
4	+7.77	+7.67	24	-9.27	+5.77	44	-7.90	-3.58	64	-6.02	+1.22
5	+9.27	+5.77	25	-7.77	+7.67	45	-8.43	-1.22	65	-5.28	+3.53
6	+10.31	+3.58	26	-5.90	+9.19	46	-8.43	+1.22	66	-3.40	+5.05
7	+10.85	+1.22	27	-3.71	+10.26	47	-7.90	+3.58	67	-1.22	+3.71
8	+10.85	-1.22	28	-1.35	+10.82	48	-6.55	+5.59	68	+1.22	+3.71
9	+10.31	-3.58	29	0.00	+8.20	49	-4.67	+7.11	69	+3.18	+2.29
10	+9.27	-5.77	30	+2.49	+8.18	50	-2.49	+8.18	70	+3.94	0.00
11	+7.77	-7.67	31	+4.67	+7.11	51	-1.22	+6.12	71	+3.18	-2.29
12	+5.90	-9.19	32	+6.55	+5.59	52	+1.22	+6.12	72	+1.22	-3.71
13	+3.71	-10.26	33	+7.90	+3.58	53	+3.40	+5.05	73	-1.22	-3.71
14	+1.35	-10.82	34	+8.43	+1.22	54	+5.28	+3.53	74	-3.18	-2.29
15	-1.35	-10.82	35	+8.43	-1.22	55	+6.02	+1.22	75	-3.94	0.00
16	-3.71	-10.26	36	+7.90	-3.58	56	+6.02	-1.22	76	-3.18	+2.29
17	-5.90	-9.19	37	+6.55	-5.59	57	+5.28	-3.53	77	0.00	+1.35
18	-7.77	-7.67	38	+4.67	-7.11	58	+3.40	-5.05	78	+1.22	-0.74
19	-9.27	-5.77	39	+2.49	-8.18	59	+1.22	-6.12	79	-1.22	-0.74
20	-10.31	-3.58	40	0.00	-8.81	60	-1.22	-6.12			



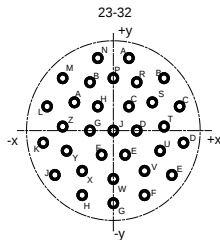
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.65	+10.44	P	-9.42	-4.80	d	+2.84	-6.73
B	+4.80	+9.42	R	-10.44	-1.65	e	-2.84	-6.73
C	+7.47	+7.47	S	-10.44	+1.65	f	-5.51	-4.80
D	+9.42	+4.80	T	-9.42	+4.80	g	-7.11	-1.88
E	+10.44	+1.65	U	-7.47	+7.47	h	-7.11	+1.45
F	+10.44	-1.65	V	-4.80	+9.42	i	-5.90	+4.55
G	+9.42	-4.80	W	-1.65	+10.44	j	-3.20	+6.50
H	+7.47	-7.47	X	0.00	+7.49	k	0.00	+4.17
J	+4.80	-9.42	Y	+3.20	+6.50	m	+2.90	+1.22
K	+1.65	-10.44	Z	+5.90	+4.55	n	+2.69	-2.72
L	-1.65	-10.44	a	+7.11	+1.45	p	0.00	-4.80
M	-4.80	-9.42	b	+7.11	-1.88	q	-2.69	-2.72
N	-7.47	-7.47	c	+5.51	-4.80	r	-2.90	+1.22



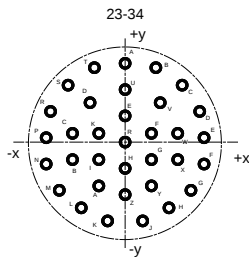
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+10.60	R	-10.09	-3.28	f	-4.78	-5.39
B	+3.28	+10.09	S	-10.60	0.00	g	-6.73	-2.55
C	+6.23	+8.58	T	-10.09	+3.28	h	-7.15	+0.87
D	+8.58	+6.23	U	-8.58	+6.23	i	-5.92	+4.09
E	+10.09	+3.28	V	-6.23	+8.58	j	-3.35	+6.38
F	+10.60	0.00	W	-3.28	+10.09	k	0.00	+3.81
G	+10.09	-3.28	X	0.00	+7.20	m	+2.98	+2.38
H	+8.58	-6.23	Y	+3.35	+6.38	n	+3.71	-0.85
J	+6.23	-8.58	Z	+5.92	+4.09	p	+1.66	-3.43
K	+3.28	-10.09	a	+7.15	+0.87	q	-1.66	-3.43
L	0.00	-10.60	b	+6.73	-2.55	r	-3.71	-0.85
M	-3.28	-10.09	c	+4.78	-5.39	s	-2.98	+2.38
N	-6.23	-8.58	d	+1.73	-6.99	t	0.00	0.00
P	-8.58	-6.23	e	-1.73	-6.99			



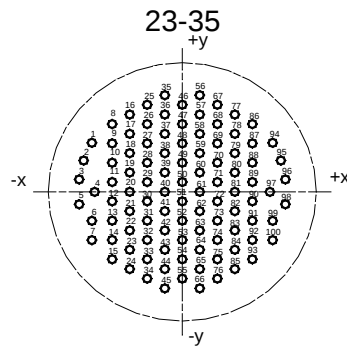
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+3.25	+9.78	H	-4.65	-9.19	R	+4.06	+3.71
B	+7.34	+7.24	J	-8.33	-6.07	S	+5.44	-0.90
C	+9.80	+3.12	K	-10.16	-1.65	T	+2.39	-4.93
D	+10.16	-1.65	L	-9.80	+3.12	U	-2.39	-4.93
E	+8.33	-6.07	M	-7.34	+7.24	V	-5.44	-0.90
F	+4.65	-9.19	N	-3.25	+9.78	W	-4.06	+3.71
G	0.00	-10.31	P	0.00	+6.22	X	0.00	0.00



Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+2.54	+11.43	M	-8.26	+8.26	Z	-8.26	+0.64
B	+8.26	+8.26	N	-2.54	+11.43	a	-6.35	+4.45
C	+10.80	+3.81	P	0.00	+8.26	b	-3.81	+7.62
D	+11.43	-1.91	R	+3.81	+7.62	c	+2.54	+3.81
E	+9.53	-6.99	S	+6.35	+4.45	d	+3.81	0.00
F	+5.08	-10.16	T	+8.26	+0.64	e	+1.91	-3.81
G	0.00	-11.43	U	+7.62	-3.18	f	-1.91	-3.81
H	-5.08	-10.16	V	+5.08	-6.35	g	-3.81	0.00
J	-9.53	-6.99	W	0.00	-7.62	h	-2.54	+3.81
K	-11.43	-1.91	X	-5.08	-6.35	j	0.00	0.00
L	-10.80	+3.81	Y	-7.62	-3.18			



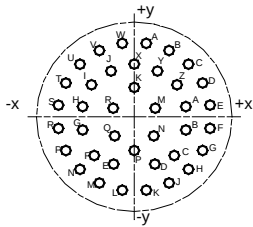
Contact	Coordinate		Contact	Coordinate		Ccontact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+11.43	N	+11.43	-3.18	b	-7.62	-2.54
B	+4.45	+10.80	P	-11.43	+0.64	c	-7.62	+1.27
C	+8.26	+8.26	R	-10.80	+4.45	d	-5.08	+5.72
D	+10.80	+4.45	S	-8.26	+8.26	e	0.00	+3.81
E	+11.43	+0.64	T	-4.45	+10.80	f	+3.81	+1.27
F	+11.43	-3.18	U	0.00	+7.62	g	+3.81	-2.54
G	+9.53	-6.99	V	+5.08	+5.72	h	0.00	-3.81
H	+6.35	-9.53	W	+7.62	+1.27	i	-3.81	-2.54
J	+2.54	-11.43	X	+7.62	-2.54	k	-3.81	+1.27
K	-2.54	-11.43	Y	+3.81	-6.35	r	0.00	0.00
L	-6.35	-9.53	Z	0.00	-7.62			
M	-9.53	-6.99	a	-3.81	-6.35			



Contact	Coordinate		Contact	Coordinate		Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y		X	Y		X	Y
1	-10.87	+6.12	21	-6.32	-2.41	41	-2.11	-2.41	61	+2.11	0.00	81	+6.32	0.00
2	-11.86	+3.91	22	-6.32	-4.83	42	-2.11	-4.83	62	+2.11	-2.41	82	+6.32	-2.41
3	-12.40	+1.55	23	-6.32	-7.24	43	-2.11	-7.24	63	+2.11	-4.83	83	+6.32	-4.83
4	-10.54	0.00	24	-6.32	-9.65	44	-2.11	-9.65	64	+2.11	-7.24	84	+6.32	-7.24
5	-12.40	-1.55	25	-4.22	+10.87	45	-2.11	-12.07	65	+2.11	-9.65	85	+6.32	-9.65
6	-10.87	-3.61	26	-4.22	+8.46	46	0.00	+10.87	66	+2.11	-12.07	86	+8.43	+8.46
7	-10.87	-6.02	27	-4.22	+6.05	47	0.00	+8.46	67	+4.22	+10.87	87	+8.43	+6.05
8	-8.43	+8.46	28	-4.22	+3.63	48	0.00	+6.05	68	+4.22	+8.46	88	+8.43	+3.63
9	-8.43	+6.05	29	-4.22	+1.22	49	0.00	+3.63	69	+4.22	+6.05	90	+8.43	+1.22
10	-8.43	+3.63	30	-4.22	-1.19	50	0.00	+1.22	70	+4.22	+3.63	90	+8.43	-1.19
11	-8.43	+1.22	31	-4.22	-3.61	51	0.00	-1.19	71	+4.22	+1.22	91	+8.43	-3.61
12	-8.43	-1.19	32	-4.22	-6.02	52	0.00	-3.61	72	+4.22	-1.19	92	+8.43	-6.02
13	-8.43	-3.61	33	-4.22	-8.43	53	0.00	-6.02	73	+4.22	-3.61	93	+8.43	-8.43
14	-8.43	-6.02	34	-4.22	-10.85	54	0.00	-8.43	74	+4.22	-6.02	94	+10.87	+6.12
15	-8.43	-8.43	35	-2.11	+12.07	55	0.00	-10.85	75	+4.22	-8.43	95	+11.86	+3.91
16	-6.32	+9.65	36	-2.11	+9.65	56	+2.11	+12.07	76	+4.22	-10.85	96	+12.40	+1.55
17	-6.32	+7.24	37	-2.11	+7.24	57	+2.11	+9.65	77	+6.32	+9.65	97	+10.54	0.00
18	-6.32	+4.83	38	-2.11	+4.83	58	+2.11	+7.24	78	+6.32	+7.24	98	+12.40	-1.55
19	-6.32	+2.41	39	-2.11	+2.41	59	+2.11	+4.83	79	+6.32	+4.83	99	+10.87	-3.61
20	-6.32	0.00	40	-2.11	0.00	60	+2.11	+2.41	80	+6.32	+2.41	100	+10.87	-6.02

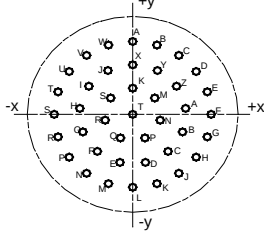


21-39



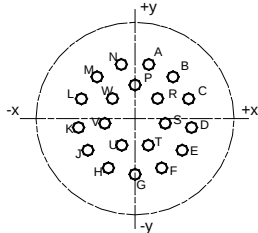
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.65	+10.44	P	-9.42	-4.80	d	+2.84	-6.73
B	+4.80	+9.42	R	-10.44	-1.65	e	-2.84	-6.73
C	+7.47	+7.47	S	-10.44	+1.65	f	-5.51	-4.80
D	+9.42	+4.80	T	-9.42	+4.80	g	-7.11	-1.88
E	+10.44	+1.65	U	-7.47	+7.47	h	-7.11	+1.45
F	+10.44	-1.65	V	-4.80	+9.42	i	-5.90	+4.55
G	+9.42	-4.80	W	-1.65	+10.44	j	-3.20	+6.50
H	+7.47	-7.47	X	0.00	+7.49	k	0.00	+4.17
J	+4.80	-9.42	Y	+3.20	+6.50	m	+2.90	+1.22
K	+1.65	-10.44	Z	+5.90	+4.55	n	+2.69	-2.72
L	-1.65	-10.44	a	+7.11	+1.45	p	0.00	-4.80
M	-4.80	-9.42	b	+7.11	-1.88	q	-2.69	-2.72
N	-7.47	-7.47	c	+5.51	-4.80	r	-2.90	+1.22

21-41



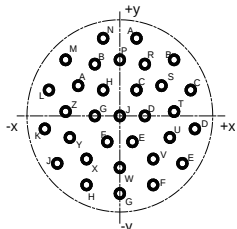
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+10.60	R	-10.09	-3.28	f	-4.78	-5.39
B	+3.28	+10.09	S	-10.60	0.00	g	-6.73	-2.55
C	+6.23	+8.58	T	-10.09	+3.28	h	-7.15	+0.87
D	+8.58	+6.23	U	-8.58	+6.23	i	-5.92	+4.09
E	+10.09	+3.28	V	-6.23	+8.58	j	-3.35	+6.38
F	+10.60	0.00	W	-3.28	+10.09	k	0.00	+3.81
G	+10.09	-3.28	X	0.00	+7.20	m	+2.98	+2.38
H	+8.58	-6.23	Y	+3.35	+6.38	n	+3.71	-0.85
J	+6.23	-8.58	Z	+5.92	+4.09	p	+1.66	-3.43
K	+3.28	-10.09	a	+7.15	+0.87	q	-1.66	-3.43
L	0.00	-10.60	b	+6.73	-2.55	r	-3.71	-0.85
M	-3.28	-10.09	c	+4.78	-5.39	s	-2.98	+2.38
N	-6.23	-8.58	d	+1.73	-6.99	t	0.00	0.00
P	-8.58	-6.23	e	-1.73	-6.99			

23-21

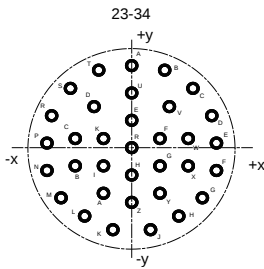


Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+3.25	+9.78	H	-4.65	-9.19	R	+4.06	+3.71
B	+7.34	+7.24	J	-8.33	-6.07	S	+5.44	-0.90
C	+9.80	+3.12	K	-10.16	-1.65	T	+2.39	-4.93
D	+10.16	-1.65	L	-9.80	+3.12	U	-2.39	-4.93
E	+8.33	-6.07	M	-7.34	+7.24	V	-5.44	-0.90
F	+4.65	-9.19	N	-3.25	+9.78	W	-4.06	+3.71
G	0.00	-10.31	P	0.00	+6.22	X	0.00	0.00

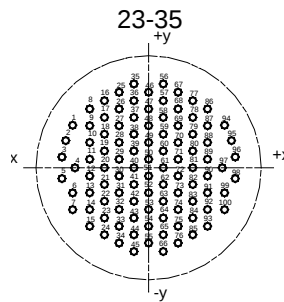
23-32



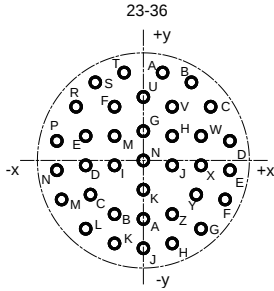
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+2.54	+11.43	M	-8.26	+8.26	Z	-8.26	+0.64
B	+8.26	+8.26	N	-2.54	+11.43	a	-6.35	+4.45
C	+10.80	+3.81	P	0.00	+8.26	b	-3.81	+7.62
D	+11.43	-1.91	R	+3.81	+7.62	c	+2.54	+3.81
E	+9.53	-6.99	S	+6.35	+4.45	d	+3.81	0.00
F	+5.08	-10.16	T	+8.26	+0.64	e	+1.91	-3.81
G	0.00	-11.43	U	+7.62	-3.18	f	-1.91	-3.81
H	-5.08	-10.16	V	+5.08	-6.35	g	-3.81	0.00
J	-9.53	-6.99	W	0.00	-7.62	h	-2.54	+3.81
K	-11.43	-1.91	X	-5.08	-6.35	j	0.00	0.00
L	-10.80	+3.81	Y	-7.62	-3.18			



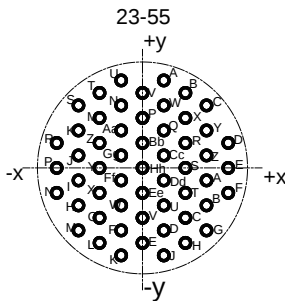
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	Y	X		X	Y		X	Y
A	0.00	+11.43	N	+11.43	-3.18	b	-7.62	-2.54
B	+4.45	+10.80	P	-11.43	+0.64	c	-7.62	+1.27
C	+8.26	+8.26	R	-10.80	+4.45	d	-5.08	+5.72
D	+10.80	+4.45	S	-8.26	+8.26	e	0.00	+3.81
E	+11.43	+0.64	T	-4.45	+10.80	f	+3.81	+1.27
F	+11.43	-3.18	U	0.00	+7.62	g	+3.81	-2.54
G	+9.53	-6.99	V	+5.08	+5.72	h	0.00	-3.81
H	+6.35	-9.53	W	+7.62	+1.27	i	-3.81	-2.54
J	+2.54	-11.43	X	+7.62	-2.54	k	-3.81	+1.27
K	-2.54	-11.43	Y	+3.81	-6.35	r	0.00	0.00
L	-6.35	-9.53	Z	0.00	-7.62			
M	-9.53	-6.99	a	-3.81	-6.35			



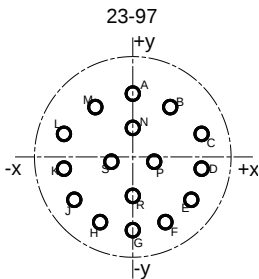
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y		X	Y		X	Y
1	-10.87	+6.12	21	-6.32	-2.41	41	-2.11	-2.41	61	+2.11	0.00	81	+6.32	0.00
2	-11.86	+3.91	22	-6.32	-4.83	42	-2.11	-4.83	62	+2.11	-2.41	82	+6.32	-2.41
3	-12.40	+1.55	23	-6.32	-7.24	43	-2.11	-7.24	63	+2.11	-4.83	83	+6.32	-4.83
4	-10.54	0.00	24	-6.32	-9.65	44	-2.11	-9.65	64	+2.11	-7.24	84	+6.32	-7.24
5	-12.40	-1.55	25	-4.22	+10.87	45	-2.11	-12.07	65	+2.11	-9.65	85	+6.32	-9.65
6	-10.87	-3.61	26	-4.22	+8.46	46	0.00	+10.87	66	+2.11	-12.07	86	+8.43	+8.46
7	-10.87	-6.02	27	-4.22	+6.05	47	0.00	+8.46	67	+4.22	+10.87	87	+8.43	+6.05
8	-8.43	+8.46	28	-4.22	+3.63	48	0.00	+6.05	68	+4.22	+8.46	88	+8.43	+3.63
9	-8.43	+6.05	29	-4.22	+1.22	49	0.00	+3.63	69	+4.22	+6.05	90	+8.43	+1.22
10	-8.43	+3.63	30	-4.22	-1.19	50	0.00	+1.22	70	+4.22	+3.63	90	+8.43	-1.19
11	-8.43	+1.22	31	-4.22	-3.61	51	0.00	-1.19	71	+4.22	+1.22	91	+8.43	-3.61
12	-8.43	-1.19	32	-4.22	-6.02	52	0.00	-3.61	72	+4.22	-1.19	92	+8.43	-6.02
13	-8.43	-3.61	33	-4.22	-8.43	53	0.00	-6.02	73	+4.22	-3.61	93	+8.43	-8.43
14	-8.43	-6.02	34	-4.22	-10.85	54	0.00	-8.43	74	+4.22	-6.02	94	+10.87	+6.12
15	-8.43	-8.43	35	-2.11	+12.07	55	0.00	-10.85	75	+4.22	-8.43	95	+11.86	+3.91
16	-6.32	+9.65	36	-2.11	+9.65	56	+2.11	+12.07	76	+4.22	-10.85	96	+12.40	+1.55
17	-6.32	+7.24	37	-2.11	+7.24	57	+2.11	+9.65	77	+6.32	+9.65	97	+10.54	0.00
18	-6.32	+4.83	38	-2.11	+4.83	58	+2.11	+7.24	78	+6.32	+7.24	98	+12.40	-1.55
19	-6.32	+2.41	39	-2.11	+2.41	59	+2.11	+4.83	79	+6.32	+4.83	99	+10.87	-3.61
20	-6.32	0.00	40	-2.11	0.00	60	+2.11	+2.41	80	+6.32	+2.41	100	+10.87	-6.02



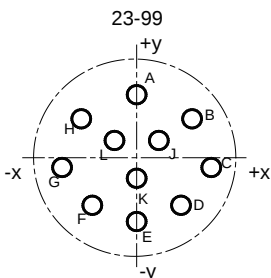
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+2.54	+11.43	N	-11.43	-1.27	b	-3.81	-6.99
B	+6.35	+10.16	P	-11.43	+2.54	c	-6.99	-4.45
C	+8.90	+6.99	R	-8.90	+6.69	d	-7.62	-0.64
D	+11.43	+2.54	S	-6.35	+10.16	e	-7.62	+3.18
E	+11.43	-1.27	T	-2.54	+11.43	f	-3.81	+6.69
F	+10.80	-5.08	U	0.00	+8.26	g	0.00	+3.81
G	+7.62	-8.90	V	+3.81	+6.99	h	+3.81	+3.18
H	+3.81	-10.80	W	+7.62	+3.18	j	+3.81	-0.64
J	0.00	-11.43	X	+7.62	-0.64	k	0	-3.81
K	-3.81	-10.80	Y	+6.99	-4.45	i	-3.81	-0.64
L	-7.62	-8.90	Z	+3.81	-6.99	m	-3.81	+3.18
M	-10.80	-5.08	a	0.00	-7.62	n	0.00	0.00



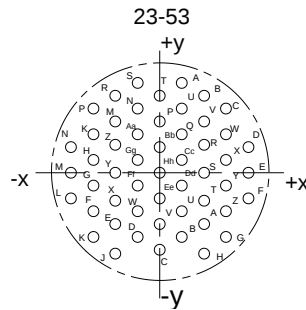
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+2.84	+11.56	W	+2.84	+8.26	r	+5.72	+3.30
B	+5.72	+9.91	X	+5.72	+6.60	s	+5.72	0.00
C	+8.53	+8.26	Y	+8.53	+4.95	t	+5.72	-3.30
D	+11.43	+3.30	Z	+8.53	+1.65	u	+2.84	-4.95
E	+11.43	0.00	a	+8.53	-1.65	v	0.00	-6.60
F	+11.43	-3.30	b	+8.53	-4.95	w	-2.84	-4.95
G	+8.53	-8.26	c	+5.72	-6.60	x	-5.72	-3.30
H	+5.72	-9.91	d	+2.84	-8.26	y	-5.72	0.00
J	+2.84	-11.56	e	0.00	-9.91	z	-5.72	+3.30
K	-2.84	-11.56	f	-2.84	-8.26	AA	-2.84	+4.95
L	-5.72	-9.91	g	-5.72	-6.60	BB	0.00	+3.30
M	-8.53	-8.26	h	-8.53	-4.95	CC	+2.84	+1.65
N	-11.43	-3.30	i	-8.53	-1.65	DD	+2.84	-1.65
P	-11.43	0.00	j	-8.53	+1.65	EE	0.00	-3.30
R	-11.43	+3.30	k	-8.53	+4.95	FF	-2.84	-1.65
S	-8.53	+8.26	m	-5.72	+6.60	GG	-2.84	+1.65
T	-5.72	+9.91	n	-2.84	+8.26	HH	0.00	0.00
U	-2.84	+11.56	p	0.00	+6.60			
V	0.00	+9.91	q	+2.84	+4.95			



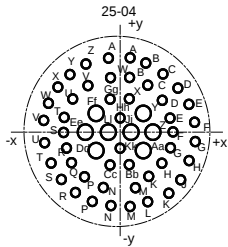
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+8.74	G	0.00	-10.31	N	0.00	+3.96
B	+5.33	+6.86	H	-4.65	-9.19	P	+3.05	-0.76
C	+9.80	+3.12	J	-8.33	-6.07	R	0.00	-5.54
D	+10.16	-1.65	K	-10.16	-1.65	S	-3.05	-0.76
E	+8.33	-6.07	L	-9.80	+3.12			
F	+4.65	-9.19	M	-5.33	+6.86			



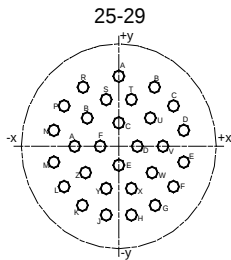
Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y
A	0.00	+10.26	G	-10.26	0.00
B	+7.62	+6.86	H	-7.62	+6.86
C	+10.26	0.00	J	+3.05	+3.81
D	+6.10	-5.33	K	0.00	-1.52
E	0.00	-7.62	L	-3.05	+3.81
F	-6.10	-5.33			



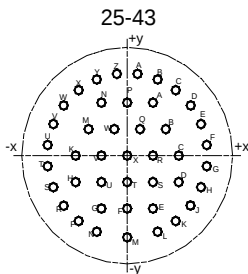
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+2.84	+11.56	W	+8.53	+4.95	t	+5.72	-3.30
B	+5.72	+9.91	X	+8.53	+1.65	u	+2.84	-4.95
C	+8.53	+8.26	Y	+8.53	-1.65	v	0.00	-6.60
D	+11.43	+3.30	Z	+8.53	-4.95	w	-2.84	-4.95
E	+11.43	0.00	a	+5.72	-6.60	x	-5.72	-3.30
F	+11.43	-3.30	b	+2.84	-8.26	y	-5.72	0.00
G	+8.53	-8.26	c	0.00	-9.91	z	-5.72	+3.30
H	+5.72	-10.41	d	-2.84	-8.26	AA	-2.84	+4.95
J	-5.72	-10.41	e	-5.72	-6.60	BB	0.00	+3.30
K	-8.53	-8.26	f	-8.53	-4.95	CC	+2.84	+1.65
L	-11.43	-3.30	g	-8.53	-1.65	DD	+2.84	-1.65
M	-11.43	0.00	h	-8.53	+1.65	EE	0.00	-3.30
N	-11.43	+3.30	k	-8.53	+4.95	FF	-2.84	-1.65
P	-8.53	+8.26	m	-5.72	+6.60	GG	-2.84	+1.65
R	-5.72	+9.91	n	-2.84	+8.26	HH	0.00	0.00
S	-2.84	+11.56	p	0.00	+6.60			
T	0.00	+9.91	q	+2.84	+4.95			
U	+2.84	+8.26	r	+5.72	+3.30			
V	+5.72	+6.60	s	+5.72	0.00			



Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.75	+13.49	W	-12.52	+5.21	t	-9.58	+3.35
B	+5.16	+12.57	X	-10.77	+8.28	u	-7.90	+6.38
C	+8.23	+10.80	Y	-8.23	+10.80	v	-5.38	+8.74
D	+10.77	+8.28	Z	-5.16	+12.57	w	-2.18	+10.08
E	+12.52	-5.21	a	-1.75	+13.49	x	+1.75	+6.68
F	+13.49	+1.75	b	+2.18	+10.08	y	+4.37	+3.78
G	+13.49	-1.75	c	+5.38	+8.74	z	+6.55	0.00
H	+12.52	-5.21	d	+7.90	+6.38	AA	+4.37	-3.78
J	+10.77	-8.28	e	+9.58	+3.35	BB	+1.75	-6.68
K	+8.23	10.80	f	+10.46	0.00	CC	-1.75	-6.68
L	+5.16	-12.57	g	+9.58	-3.35	DD	-4.37	-3.78
M	+1.75	-13.49	h	+7.90	-6.38	EE	-6.55	0.00
N	-1.75	-13.39	k	+5.38	-8.74	FF	-4.37	+3.78
P	-5.16	-12.57	m	+2.18	-10.08	GG	-1.75	+6.68
R	-8.23	-10.80	n	-2.18	-10.08	HH	0.00	+3.35
S	-10.77	-8.28	p	-5.38	-8.74	JJ	+2.18	0.00
T	-12.52	-5.21	q	-7.90	-6.38	KK	0.00	-3.35
U	-13.49	-1.75	r	-9.58	-3.35	LL	-2.18	0.00
V	-13.49	+1.75	s	-10.46	0.00			



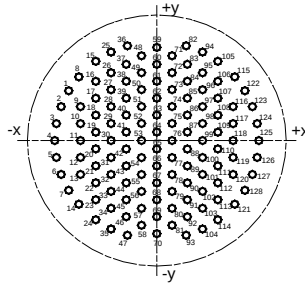
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	0.00	+12.22	L	-10.03	-7.04	X	+2.31	-7.37
B	+6.55	+10.31	M	-11.91	-2.77	Y	-2.31	-7.37
C	+10.03	+7.04	N	-11.91	+2.77	Z	-6.10	-4.60
D	+11.91	+2.77	P	-10.03	+7.04	a	-8.10	0.00
E	+11.91	-2.77	R	-6.55	+10.31	b	-5.79	+4.93
F	+10.03	-7.04	S	-2.31	+8.15	c	0.00	+4.09
G	+6.68	-10.31	T	+2.31	+8.15	d	+3.40	0.00
H	+2.31	-11.99	U	+5.79	+4.93	e	0.00	-3.30
J	-2.31	-11.99	V	+8.10	0.00	f	-3.40	0.00
K	-6.68	-10.31	W	+6.10	-4.60			



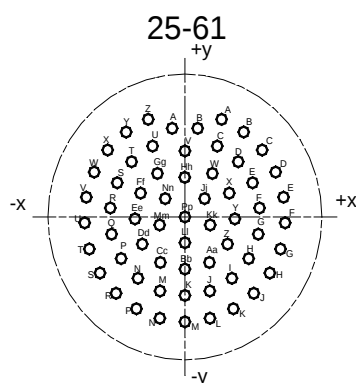
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+1.75	+13.49	S	-12.52	-5.21	h	-8.74	-4.37
B	+5.16	+12.57	T	-13.49	-1.75	k	-8.74	0.00
C	+8.23	+10.80	U	-13.49	+1.75	m	-6.55	+4.37
D	+10.77	+8.28	V	-12.52	+5.21	n	-4.37	+8.74
E	+12.52	+5.21	W	-10.77	+8.28	p	0.00	+8.74
F	+13.49	+1.75	X	-8.23	+10.80	q	+2.18	+4.37
G	+13.49	-1.75	Y	-5.16	+12.57	r	+4.37	0.00
H	+12.52	-5.21	Z	-1.75	+13.49	s	+4.37	-4.37
J	+10.77	-8.28	a	+4.37	+8.74	t	-0.00	-4.37
K	+8.23	-10.80	b	+6.55	+4.37	u	-4.37	-4.37
L	+5.16	-12.57	c	+8.74	0.00	v	-4.37	0.00
M	0.00	-13.49	d	+8.74	-4.37	w	-2.18	+4.37
N	-5.16	-12.57	e	+4.37	-8.74	x	0.00	0.00
P	-8.23	-10.80	f	0.00	-8.74			
R	-10.77	-8.28	g	-4.37	-8.74			



25-35



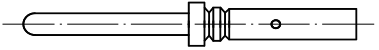
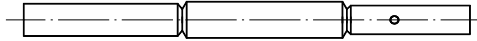
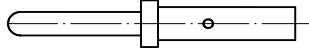
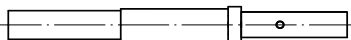
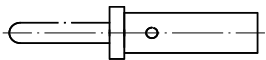
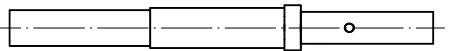
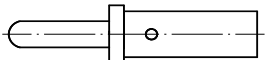
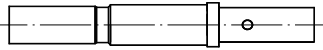
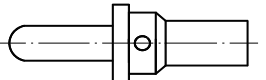
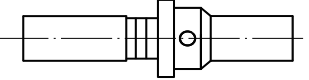
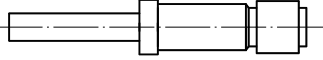
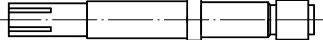
Contact	Coordinate		Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y		X	Y
1	-12.17	+7.09	33	-6.32	-7.24	65	0.00	-1.19	97	+6.32	+4.83
2	-13.21	+4.83	34	-6.32	-9.65	66	0.00	-3.61	98	+6.32	+2.41
3	-13.87	+2.41	35	-6.32	-12.07	67	0.00	-6.02	99	+6.32	0.00
4	-14.10	0.00	36	-4.06	+13.49	68	0.00	-8.43	100	+6.32	-2.41
5	-13.87	-2.41	37	-4.22	+10.85	69	0.00	-10.85	101	+6.32	-4.83
6	-13.21	-4.83	38	-4.22	+8.43	70	0.00	-14.10	102	+6.32	-7.24
7	-12.17	-7.09	39	-4.22	+6.02	71	+2.11	+12.07	103	+6.32	-9.65
8	-10.77	+9.07	40	-4.22	+3.61	72	+2.11	+9.65	104	+6.32	-12.07
9	-10.54	+4.83	41	-4.22	+1.19	73	+2.11	+7.24	105	+8.43	+11.28
10	-10.54	+2.41	42	-4.22	-1.19	74	+2.11	+4.83	106	+8.43	+8.43
11	-10.54	0.00	43	-4.22	-3.61	75	+2.11	+2.41	107	+8.43	+6.02
12	-10.54	-2.41	44	-4.22	-6.02	76	+2.11	0.00	108	+8.43	+3.61
13	-10.54	-4.83	45	-4.22	-8.43	77	+2.11	-2.41	109	+8.43	+1.19
14	-10.77	-9.07	46	-4.22	-10.85	78	+2.11	-4.83	110	+8.43	-1.19
15	-8.43	+11.28	47	-4.22	-13.26	79	+2.11	-7.24	111	+8.43	-3.61
16	-8.43	+8.43	48	-2.11	+12.07	80	+2.11	-9.65	112	+8.43	-6.02
17	-8.43	+6.02	49	-2.11	+9.65	81	+2.11	-12.07	113	+8.43	-8.43
18	-8.43	+3.61	50	-2.11	+7.24	82	+4.06	+13.49	114	+8.43	-10.85
19	-8.43	+1.19	51	-2.11	+4.83	83	+4.22	+10.85	115	+10.77	+9.07
20	-8.43	-1.19	52	-2.11	+2.41	84	+4.22	+8.43	116	+10.54	+4.83
21	-8.43	-3.61	53	-2.11	0.00	85	+4.22	+6.02	117	+10.54	+2.41
22	-8.43	-6.02	54	-2.11	-2.41	86	+4.22	+3.61	118	+10.54	0.00
23	-8.43	-8.43	55	-2.11	-4.83	87	+4.22	+1.19	119	+10.54	-2.41
24	-8.43	-10.85	56	-2.11	-7.24	88	+4.22	-1.19	120	+10.54	-4.83
25	-6.32	+12.60	57	-2.11	-9.65	90	+4.22	-3.61	121	+10.77	-9.07
26	-6.32	+9.65	58	-2.11	-12.07	90	+4.22	-6.02	122	+12.17	+7.09
27	-6.32	+7.24	59	0.00	+13.26	91	+4.22	-8.43	123	+13.21	+4.83
28	-6.32	+4.83	60	0.00	+10.85	92	+4.22	-10.85	124	+13.87	+2.41
29	-6.32	+2.41	61	0.00	+8.43	93	+4.22	-13.26	125	+14.10	0.00
30	-6.32	0.00	62	0.00	+6.02	94	+6.32	+12.60	126	+13.87	-2.41
31	-6.32	-2.41	63	0.00	+3.61	95	+6.32	+9.65	127	+13.21	-4.83
32	-6.32	-4.83	64	0.00	+1.19	96	+6.32	+7.24	128	+12.17	-7.09



Contact	Coordinate		Contact	Coordinate		Contact	Coordinate	
	X	Y		X	Y		X	Y
A	+4.98	+12.70	Y	-7.98	+11.05	v	0.00	+8.59
B	+7.98	+11.05	Z	-4.98	+12.70	w	+3.73	+5.66
C	+10.49	+8.71	a	-1.73	+11.53	x	+6.02	+3.10
D	+12.32	+5.84	b	+1.73	+11.53	y	+6.78	-0.25
E	+13.39	+2.57	c	+4.39	+9.22	z	+5.79	-3.53
F	+13.61	-0.76	d	+7.24	+7.19	AA	+3.33	-5.92
G	+12.98	-4.17	e	+9.19	+4.45	BB	0.00	-6.78
H	+11.53	-7.29	f	+10.13	+1.17	CC	-3.33	-5.92
J	+9.35	-9.93	g	+9.96	+2.24	DD	-5.79	-3.53
K	+6.58	+11.94	h	+8.66	-5.41	EE	-6.78	-0.25
L	+3.40	-13.18	i	+6.38	-7.98	FF	-6.02	+3.10
M	0.00	-13.64	j	+3.38	-9.63	GG	-3.73	+5.66
N	-3.40	-13.18	k	0.00	-10.21	HH	0.00	+5.08
P	-6.58	-11.94	m	-3.38	-9.63	JJ	+2.67	+2.39
R	-9.35	-9.93	n	-6.38	-7.98	KK	+3.43	-1.04
S	-11.53	-7.29	p	-8.66	-5.41	LL	0.00	-3.35
T	-12.98	-4.17	q	-9.96	-2.24	MM	-3.43	-1.04
U	-13.61	-0.76	r	-10.13	+1.17	NN	-2.67	+2.39
V	-13.39	+2.57	s	-9.19	+4.45	PP	0.00	0.00
W	-12.32	+5.84	t	-7.24	+7.19			
X	-10.49	+8.71	u	-4.39	+9.22			

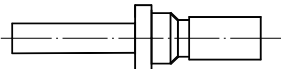
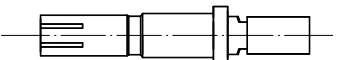
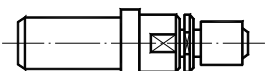
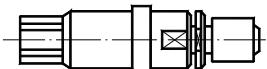
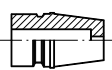
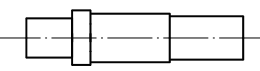
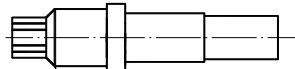
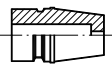


Contact Figure

Contact No.	Contact Type	Standard Parts No.	Contact Diagram
#22D	Pin	J1216/58-360	
	Socket	J1216/56-348	
#20	Pin	J1216/58-363	
	Socket	J1216/56-351	
#16	Pin	J1216/58-364	
	Socket	J1216/56-352	
#12	Pin	J1216/58-365	
	Socket	J1216/56-353	
#8	Pin	—	
	Socket	—	
	Sleeve ⁽¹⁾	—	
#16 Coaxial	Pin	J1216/76-424	
	Socket	J1216/77-428	



Contact Figure

Contact No.	Contact Type	Standard Parts No.	Contact Diagram
#12 Coaxial	Pin	J1216/28-211 ⁽¹⁾	
	Socket	J1216/75-416 ⁽¹⁾	
#8 Coaxial	Pin	J1216/60-367	
	Socket	J1216/59-366	
	Sleeve	—	
#8 Triax	Pin	J1216/90-529	
	Socket	J1216/91-530	
	Sleeve	—	

Press- it Contact Dimensions

Contact No.	Contact Style	Pin Head Diameter ϕ mm	Cable Section Area				Wire Insulating Outer Diameter	
			AWG		mm2			
			min	max	min	max	min	max
#22D	pin / socket	0.76	26	22	0.13	0.33	0.76	1.37
#20	pin / socket	1.02	24	20	0.21	0.52	1.02	2.11
#16	pin / socket	1.59	20	16	0.52	1.31	1.65	2.77
#12	pin / socket	2.39	14	12	2.08	3.31	2.46	3.61
#8	pin / socket	3.61	—	8	—	8.37	4.50	6.50
#16 coaxial	pin / socket	1.59	SFF-50-1.5-1		SYV-50-2-1		1.65	2.60
#12 coaxial	pin / socket	2.39	SFF-50-1.5-1		SYV-50-2-1		2.40	2.60
#8 coaxial	pin / socket	5.54	SFF-95-3				—	2.80
#8 triax	pin / socket	5.54	SEFF-78-1-51				3.15	3.40