



RỒNG VÀNG
TECHNOLOGY



High-Speed Transmission Connectors ALHS Series (MIL-DTL-38999, series III)

www.rong-vang-technology.vn



Description

This catalog is primarily for high-speed contact solutions used in ALHS Series connectors.

The main features of the ALHS series connectors are fully consistent with the features of the MIL-DTL-38999 Series III connectors.

Connectors are designed for use with quadrax contacts (100 or 150 Ohm).

Connectors are supplied without contacts. Contacts are supplied on separate order.



Technical features

Electrical

Contact resistance:	#22D: $\leq 12.0\text{ m}\Omega$ #16: $\leq 2.5\text{ m}\Omega$ #12: $\leq 1.5\text{ m}\Omega$
Current rating:	#22D: $\leq 5.0\text{ A}$ #16: $\leq 13.0\text{ A}$ #12: $\leq 23.0\text{ A}$
EMI shielding:	At 1GHz: minimum attenuation 85dB (F and W) At 10GHz: minimum attenuation 65dB (F) At 10GHz: minimum attenuation 50dB (W)
Insulation resistance:	Normal: $\geq 5000\text{ M}\Omega$ damp heat: $\geq 100\text{ M}\Omega$
Electrical continuity between shells:	W class: $\leq 2.5\text{ m}\Omega$ F class: $\leq 1.0\text{ m}\Omega$
Voltage Rating:	500 Vrms max. @ sea level
Quadrax size 8 contact:	Bandwidth: Up to 1.25 GHz Data Rate: Exceeding 2.5 Gbps
Withstanding voltage:	1000 VAC rms between all inner contacts @ sea level 500 VAC rms between inner and outer contacts @ sea level

Mechanical

Shell:	Aluminum alloy
Plating:	W class: Olive green cadmium plating F class: Electroless nickel plating
Insulator:	Thermo-set plastic
Grommet and seal:	Silicon rubber
Contact:	Copper alloy with gold plated
Endurance:	500 cycles
Vibration Sine:	60g, with temperature cycling and simulated accessory (36 hours)
Vibration Random:	44.1 grms in high temperature 49.5 grms in ambient temperature
Shock:	At 3 ms half sinusoid, peak value of acceleration: 300g
Contact retention:	#22D - 45N; #16 - 111N; #12 - 111N; #8 - 111N



Environmental

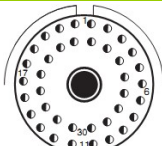
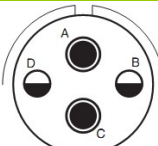
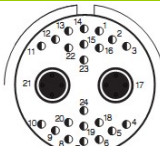
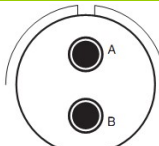
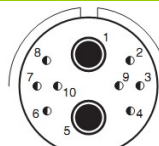
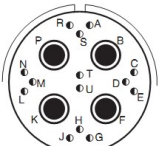
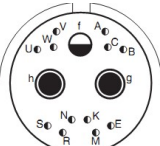
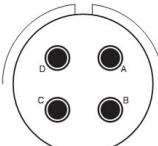
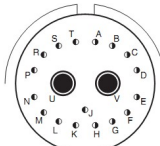
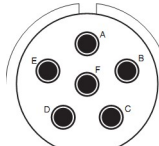
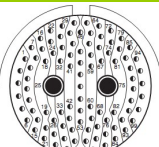
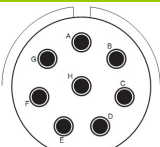
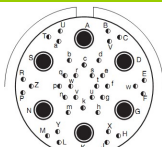
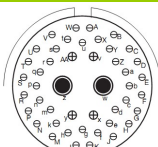
Operating temperature:	W class: -65°C ~ +175°C F class: -65°C~+200°C
Salt spray:	According to method from MIL-DTL-38999 F class: 48h W class: 500h
Seal:	Comply with the request of MIL-DTL-38999 low-pressure immersion
Damp heat:	10 cycles in 24 hours according to MIL-DTL-38999
Fluid resistant:	Various fuels, coolant and solvent

Ordering Information

Basic series	ALHS/	20	W	A	5	A	N
Type of connector:							
20 = Square flange receptacle							
24 = Jam nut receptacle							
26 = Plug							
Material/Finish:							
W = Aluminum/Olive green cadmium plating							
F = Aluminum/Electroless nickel plating							
Shell size: A (09), E (17), F (19), G (21), H (23), J (25)							
Contact layout (See below)							
Type of contact:							
A = Connector supplied less crimp pin contact (connector marking: P + orientation)							
B = Connector supplied less crimp socket contact (connector marking: S + orientation)							
AP = Receptacle supplied less PCB pin contact (connector marking: PP + orientation)							
BP = Receptacle supplied less PCB socket contact (connector marking: SP + orientation)							
Orientation:							
N = Normal							
A, B, C, D, E = Alternative							

Please note: Any contacts are supplied by separate order

Contact layout

A		E				
05		02	22	25	52	60
						
1#8 Grounded		38#22D 1#8	2#12 2#8	22#22D 2#8	2#8	8#22D 2#8
F		G			H	
18	31	75	79			
						
14#22D 4#8	12#22D 1#12 4#8	4#8	17#22D 2#8	6#8		
J						
07	08	17	46			
						
36#22D 6#8	8#8	36#22D 6#8	40#22D 4#16 2#8			



8



12



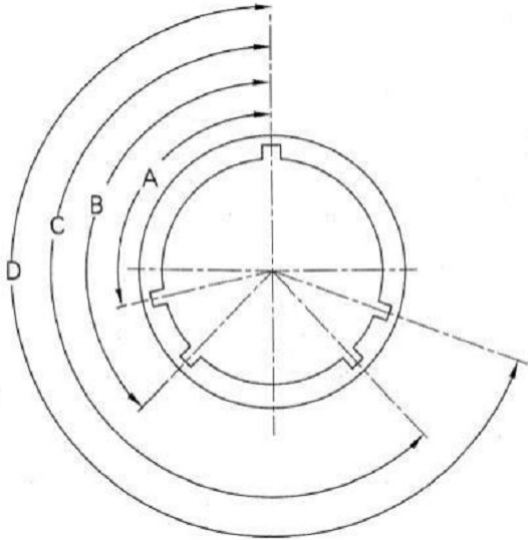
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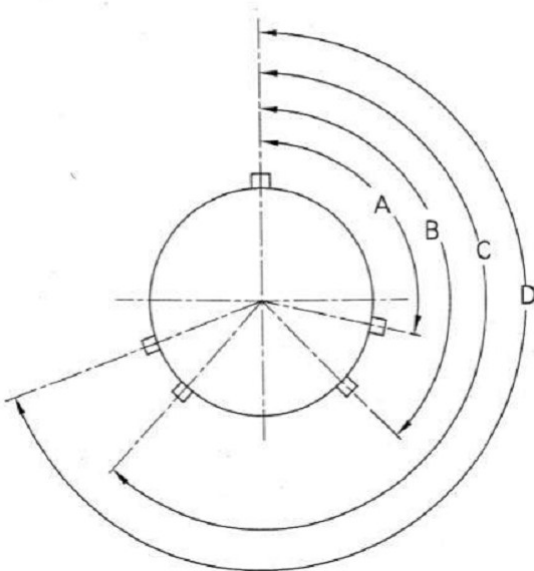
22D

Orientation

Receptacle



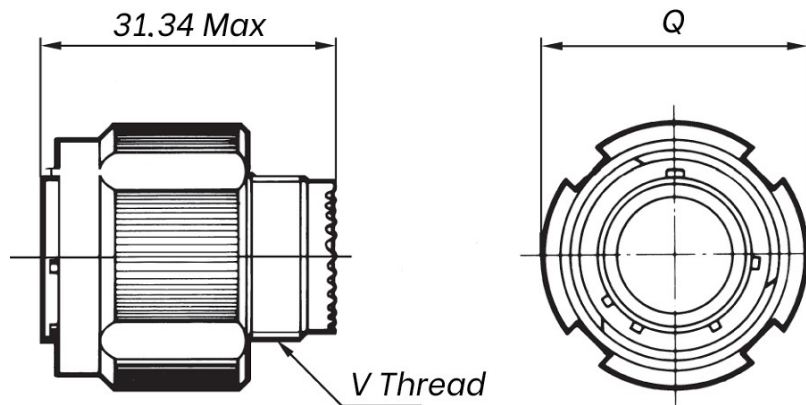
Plug



Shell size	Angle	N	A	B	C	D	E
9	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
17	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	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	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	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	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

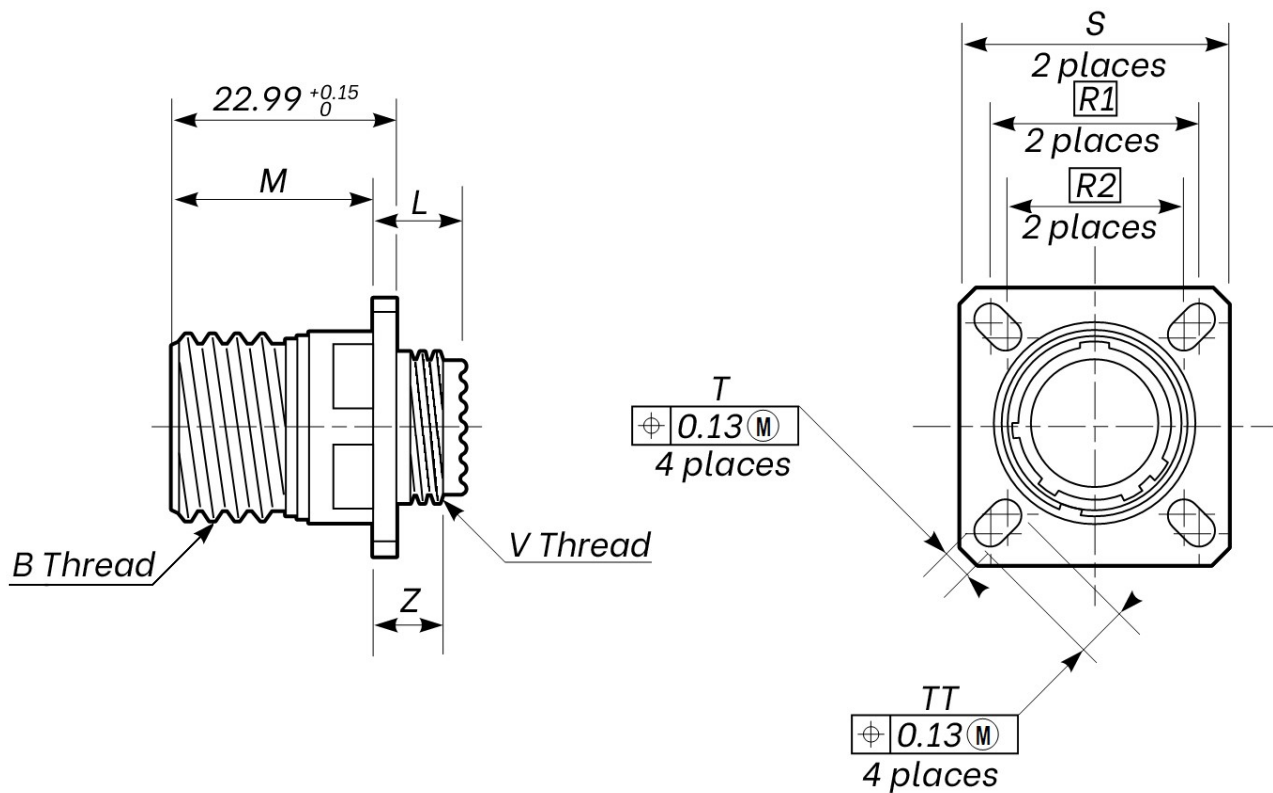
Dimensions

Straight plugs



Shell size		B Thread Class 2A 0.1P-0.3L-TS	Q Max	V Thread
A	9	.6250	21.82	M12x1-6g
E	17	1.1875	35.33	M25x1-6g
F	19	1.2500	38.10	M28x1-6g
G	21	1.3750	41.28	M31x1-6g
H	23	1.5000	44.45	M34x1-6g
J	25	1.6250	47.63	M37x1-6g

Square flange receptacles

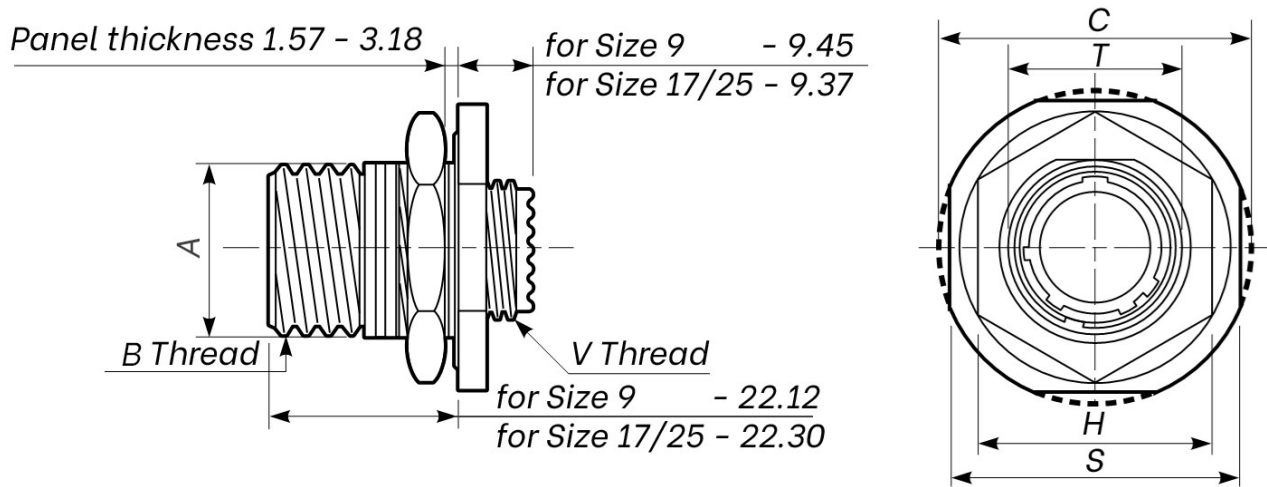


Shell size		B Thread Class 2A 0.1P-0.3L-TS	L Max	M -0.13/0	R1	R2
A	9	.6250	11.91	20.83	18.26	15.09
E	17	1.1875	11.91	20.83	26.97	24.61
F	19	1.2500	11.91	20.83	29.36	26.97
G	21	1.3750	12.70	20.07	31.75	29.36
H	23	1.5000	12.70	20.07	34.93	31.75
J	25	1.6250	12.70	20.07	38.10	34.93
Shell size		S ± 0.25	T -0.13/+0.2	Z Max	TT -0.13/+0.2	V Thread
A	9	23.83	3.25	3.89	5.49	M12x1-6g
E	17	33.32	3.25	3.89	4.93	M25x1-6g
F	19	36.53	3.25	3.89	4.93	M28x1-6g
G	21	39.67	3.25	4.65	4.93	M31x1-6g
H	23	42.88	3.91	4.65	6.15	M34x1-6g
J	25	46.02	3.91	4.65	6.15	M37x1-6g

Maximum panel thickness for rear panel mounting:

- 5,18 mm from size up 21 to 25
- 5,94 mm from size up 9 to 19

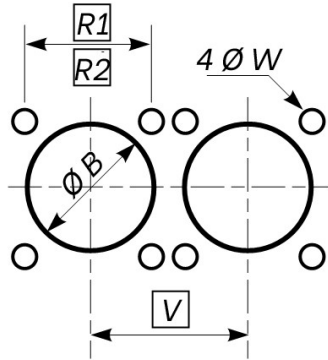
Jam nut receptacles



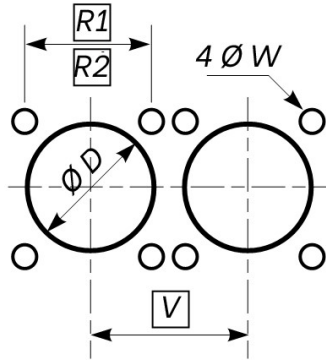
Shell size		B Thread Class 2A 0.1P-0.3L-TS	A -0.25/0	C Max	H Hex -0.41/+0.43
A	9	.6250	16.99	30.45	22.23
E	17	1.1875	30.68	44.73	36.52
F	19	1.2500	33.86	49.50	39.67
G	21	1.3750	37.06	52.65	42.87
H	23	1.5000	40.00	55.85	46.02
J	25	1.6250	43.41	59.00	50.80
Shell size		S -0.25/+0.28	T 0/+0.25	V Thread	Hex nut Max torque (Nm)
A	9	26.97	17.70	M12x1-6g	4.1
E	17	41.28	31.98	M25x1-6g	9.8
F	19	46.02	35.15	M28x1-6g	10.9
G	21	49.23	38.28	M31x1-6g	12.7
H	23	52.37	41.50	M34x1-6g	13.8
J	25	55.58	44.68	M37x1-6g	15.0

Panel cut-out

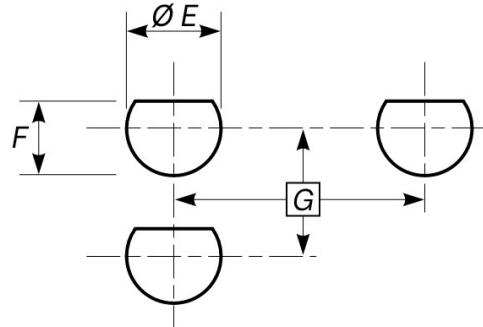
*Squar flange receptacle
rear panel mounting*



*Squar flange receptacle
front panel mounting*



*Jam nut receptacle
rear panel mounting*



Shell size		R1	R2	V Mini	Ø W -0.25/0	G Mini
A	9	18.26	15.09	24.60	3.25	27.80
E	17	26.97	24.61	36.50	3.25	43.30
F	19	29.36	26.97	39.30	3.25	47.00
G	21	31.75	29.36	42.50	3.25	50.60
H	23	34.93	31.75	45.70	3.81	54.20
J	25	38.10	34.93	48.80	3.81	59.70

Shell size		Ø E Mini	F -0.25/0	Ø B Mini	Ø D Mini
A	9	17.70	17.02	16.66	13.11
E	17	31.98	30.73	30.96	25.81
F	19	35.16	33.91	32.94	28.98
G	21	38.28	37.08	36.12	32.16
H	23	41.50	40.26	39.29	34.93
J	25	44.68	43.43	42.47	37.69



Crimp Contacts. Ordering Information

Contact size	Contact type	Part number
# 22D	Pin	M39029/58-360
	Socket	M39029/56-348
# 16	Pin	M39029/58-364
	Socket	M39029/56-352
# 12	Pin	M39029/58-365
	Socket	M39029/56-353

PCB Contacts. Ordering Information

Contact type	Size	PC tail type	Part Number	PC tail type	Part Number
Pin	# 22D	Short PC tail 5.0 mm	TD050-245	Long PC tail 8.5 mm	TD085-389
	# 16		TD050-240		TD085-246
	# 12		TD050-238		TD085-282
Socket	# 22D	Short PC tail 5.0 mm	TD050-256	Long PC tail 8.5 mm	TD085-390
	# 16		TD050-263		TD085-526
	# 12		TD050-403		

Quadrax Contacts & Quadrax Cables

Bandwidth: up to 1.25 GHz

Data Rate: Exceeding 2.5 Gbps

Voltage Rating: 500 V rms max. at sea level

Dielectric Withstanding Voltage:

- 1000 VAC rms between all inner contacts at sea level
- 500 VAC rms between inner and outer contacts at sea level



Quadrax Contacts # 8, 100 Ohm (Crimp)

Part Number	Contact type	Cable Accommodation
ALL384-021	Pin	Draka Fileca F4703-3, Draka Fileca F4704-4, PIC Wire E50424
ALL385-021	Socket	Filotex ET 2PC236, Filotex ET2PF870, ABS0972, Tensolite 23450/04090X-4(LD)
ALL384-051	Pin	Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), 24443/C20714X-4(LD), 24450/0120X-4(LD), NF24-2Q100, TYCO CEC-RWC-18664, GORE GSC-01-81869-01, 24443/03166X-4(LD),
ALL385-051	Socket	Thermax T956-4T200, Pic Wire E51424, Thermax MX100Q-24, NF24Q100-01-200C, PIC E50424
ALL384-061	Pin	Tensolite NF22Q100, NF22Q100-01, Thermax 956-5,
ALL385-061	Socket	Draka Fileca F4704-5, GORE RCN 7688, ABS1503 KD 24
ALL384-071	Pin	Tensolite NF26Q100, NF26Q100-01,
ALL385-071	Socket	NF26-2Q100, PIC E50426
ALL384-141	Pin	S280W502-4
ALL385-141	Socket	
ALL384-151	Pin	Draka Fileca F4704-6, Gore RCN 8672
ALL385-151	Socket	
ALL384-161	Pin	Tensolite NF24Q100-01
ALL385-161	Socket	
ALL384-171	Pin	Gore RCN8513, JSFY18-3
ALL385-171	Socket	
ALL384-191	Pin	Tensolite NF24Q100, NF24Q100-01
ALL385-191	Socket	for 2.5 Gbps applications
ALL384-281	Pin	ABS1503KD24, F-4703
ALL385-281	Socket	
ALL384-391	Pin	Gore RCN9034, NF24Q100-01
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ALL384-421	Pin	Gore RCN8752
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ALL384-431	Pin	Madison 1016423
ALL385-431	Socket	



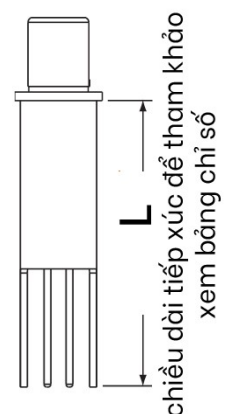
Quadrax Contacts # 8, 150 Ohm (Crimp)

Part Number	Contact type	Cable Accommodation
ALL450-001	Pin	Gore RCN8328, Tensolite 26473/02006X-4(LD)
ALL451-001	Socket	
ALL450-011	Pin	Tensolite 26473/02006X-4(LD)
ALL451-011	Socket	
ALL384-035	Pin	Tensolite 26473/02006X-4(LD)
ALL385-035	Socket	
ALL450-051	Pin	Harbour Data Master Q150-24 (19), Tensolite 24483/02006X-4 (LD)
ALL451-051	Socket	
ALL450-061	Pin	Gore RCN7625
ALL451-061	Socket	
ALL384-201	Pin	Gore RCN8328
ALL385-201	Socket	
ALL384-271	Pin	Gore RCN7625
ALL385-271	Socket	

PC tails Quadrax Contacts

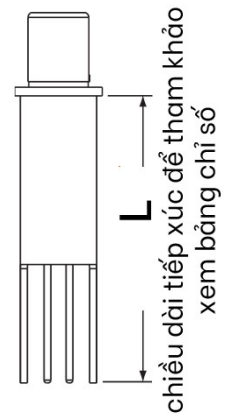
Quadrax Contacts # 8 (PC tails), 100 Ohm

Part Number	Contact type	L, Contacts Length, mm
ALL398-391	Pin	9.14
ALL398-491	Pin	10.62
ALL398-751	Pin	10.87 ± 0.38
ALL398-231	Pin	12.55
ALL398-741	Pin	14.02 ± 0.38
ALL398-521	Pin	14.78
ALL398-661	Pin	14.73 ± 0.38
ALL398-191	Pin	15.37
ALL398-141	Pin	15.62
ALL398-761	Pin	16.43 ± 0.38
ALL398-531	Pin	16.92
ALL398-371	Pin	17.07
ALL398-721	Pin	17.50 ± 0.38
ALL398-511	Pin (100/150 Ohm)	17.75
ALL398-111	Pin	17.98
ALL398-581	Pin	18.31
ALL398-771	Pin	18.80 ± 0.38
ALL398-241	Pin	18.82
ALL398-271	Pin	18.82
ALL398-461	Pin	19.33



Quadrax Contacts # 8 (PC tails), 100 Ohm

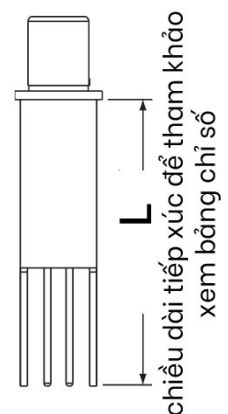
Part Number	Contact type	L, Contacts Length, mm
ALL398-691	Pin	19.56 ± 0.38
ALL398-221	Pin	19.69
ALL398-551	Pin (Pretinned)	20.02
ALL398-251	Pin	20.02
ALL398-731	Pin	20.02 ± 0.38
ALL398-281	Pin	20.47
ALL398-561	Pin	20.70
ALL398-631	Pin	20.70 ± 0.38
ALL398-431	Pin	20.80
ALL398-301	Pin	21.23
ALL398-091	Pin (Pretinned)	21.34
ALL398-121	Pin	21.82
ALL398-031	Pin	22.00
ALL398-681	Pin	22.00 ± 0.38
ALL398-351	Pin	22.12
ALL398-501	Pin	22.23
ALL398-471	Pin	22.58
ALL398-341	Pin	22.89
ALL398-381	Pin	23.22
ALL398-641	Pin	23.57 ± 0.38
ALL398-671	Pin	23.57 ± 0.38
ALL398-601	Pin	23.85
ALL398-361	Pin	23.85
ALL398-591	Pin (100/150 Ohm)	23.85
ALL398-311	Pin	23.88
ALL398-541	Pin	24.03
ALL398-481	Pin	24.66
ALL398-701	Pin	25.17 ± 0.38
ALL398-401	Pin	25.63
ALL398-021	Pin (Pretinned)	26.29
ALL398-291	Pin	26.29
ALL398-651	Pin	26.29 ± 0.38
ALL398-421	Pin	29.69
ALL398-621	Pin	30.38 ± 0.38
ALL398-611	Pin	34.70





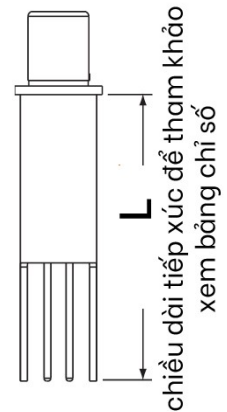
Quadrax Contacts # 8 (PC tails), 100 Ohm

Part Number	Contact type	L, Contacts Length, mm
ALL397-391	Socket	9.14
ALL397-491	Socket	10.62
ALL397-751	Socket	10.87 ± 0.38
ALL397-231	Socket	12.55
ALL397-741	Socket	14.02 ± 0.38
ALL397-521	Socket	14.78
ALL397-661	Socket	14.73 ± 0.38
ALL397-191	Socket	15.37
ALL397-141	Socket	15.62
ALL397-761	Socket	16.43 ± 0.38
ALL397-531	Socket	16.92
ALL397-371	Socket	17.07
ALL397-721	Socket	17.50 ± 0.38
ALL397-511	Socket (100/150 Ohm)	17.75
ALL397-111	Socket	17.98
ALL397-581	Socket	18.31
ALL397-771	Socket	18.80 ± 0.38
ALL397-241	Socket	18.82
ALL397-271	Socket	18.82
ALL397-461	Socket	19.33
ALL397-691	Socket	19.56 ± 0.38
ALL397-221	Socket	19.69
ALL397-551	Socket (Pretinned)	20.02
ALL397-251	Socket	20.02
ALL397-731	Socket	20.02 ± 0.38
ALL397-281	Socket	20.47
ALL397-561	Socket	20.70
ALL397-631	Socket	20.70 ± 0.38
ALL397-431	Socket	20.80
ALL397-301	Socket	21.23
ALL397-091	Socket (Pretinned)	21.34
ALL397-121	Socket	21.82
ALL397-031	Socket	22.00
ALL397-681	Socket	22.00 ± 0.38
ALL397-351	Socket	22.12
ALL397-501	Socket	22.23
ALL397-471	Socket	22.58
ALL397-341	Socket	22.89
ALL397-381	Socket	23.22
ALL397-641	Socket	23.57 ± 0.38



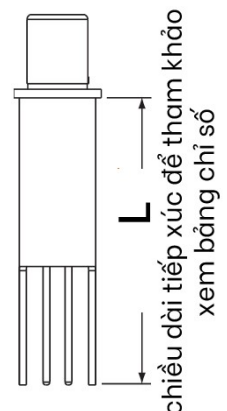
Quadrax Contacts # 8 (PC tails), 100 Ohm

Part Number	Contact type	L, Contacts Length, mm
ALL397-671	Socket	23.57 ± 0.38
ALL397-601	Socket	23.85
ALL397-361	Socket	23.85
ALL397-591	Socket (100/150 Ohm)	23.85
ALL397-311	Socket	23.88
ALL397-541	Socket	24.03
ALL397-481	Socket	24.66
ALL397-701	Socket	25.17 ± 0.38
ALL397-401	Socket	25.63
ALL397-021	Socket (Pretinned)	26.29
ALL397-291	Socket	26.29
ALL397-651	Socket	26.29 ± 0.38
ALL397-421	Socket	29.69
ALL397-621	Socket	30.38 ± 0.38
ALL397-611	Socket	34.70



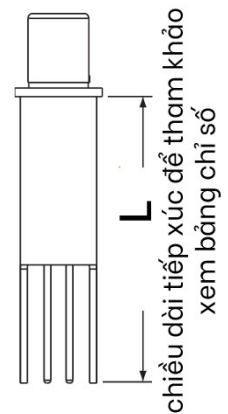
Quadrax Contacts # 8 (PC tails), 150 Ohm

Part Number	Contact type	L, Contacts Length, mm
ALL452-051	Pin (mates to ALL450/51 series)	12.55
ALL398-451	Pin	12.55
ALL398-071	Pin (Pretinned)	12.55
ALL452-061	Pin (mates to ALL450/51 series)	14.78
ALL398-511	Pin	17.75
ALL398-081	Pin (Pretinned)	19.81
ALL398-131	Pin (Pretinned)	19.81
ALL398-151	Pin	20.70
ALL398-211	Pin (Pretinned)	20.70
ALL452-021	Pin (mates to ALL450/51 series)	20.70
ALL452-031	Pin (Pretinned) (mates to ALL450/51 series)	20.70
ALL398-411	Pin	22.00
ALL452-041	Pin (mates to ALL450/51 series)	22.00
ALL398-591	Pin	23.85
ALL452-071	Pin (mates to ALL450/51 series)	23.85
ALL452-011	Pin (mates to ALL450/51 series)	26.29
ALL398-061	Pin	26.29



Quadrax Contacts # 8 (PC tails), 150 Ohm

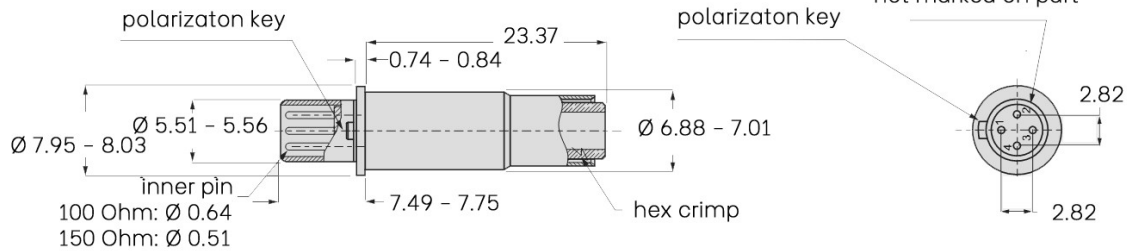
Part Number	Contact type	L, Contacts Length, mm
ALL453-051	Socket (mates to ALL450/51 series)	12.55
ALL397-451	Socket	12.55
ALL397-071	Socket (Pretinned)	12.55
ALL453-061	Socket (mates to ALL450/51 series)	14.78
ALL397-511	Socket	17.75
ALL397-081	Socket (Pretinned)	19.81
ALL397-131	Socket (Pretinned)	19.81
ALL397-151	Socket	20.70
ALL397-211	Socket (Pretinned)	20.70
ALL453-021	Socket (mates to ALL450/51 series)	20.70
ALL453-031	Socket (Pretinned) (mates to ALL450/51 series)	20.70
ALL397-411	Socket	22.00
ALL453-041	Socket (mates to ALL450/51 series)	22.00
ALL397-591	Socket	23.85
ALL453-071	Socket (mates to ALL450/51 series)	23.85
ALL453-011	Socket (mates to ALL450/51 series)	26.29
ALL397-061	Socket	26.29



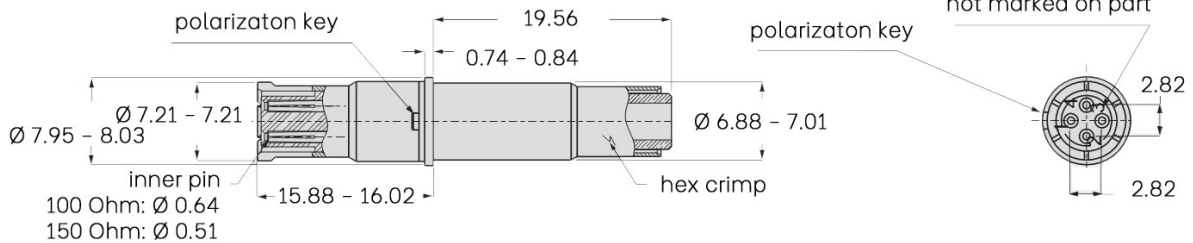
Dimensions

Quadrax Contacts # 8

Pin Contact ALL384-051, ALL384-021, ALL450-001



Socket Contact ALL385-051, ALL385-021, ALL451-001



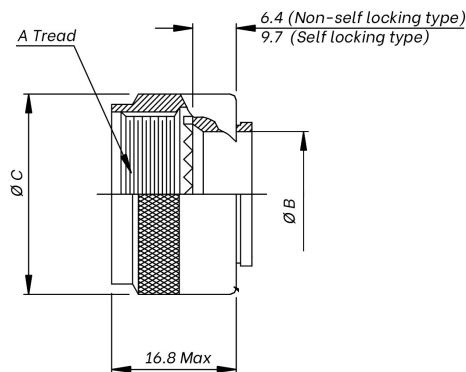
Cable Accommodation	Pin for 38999, series 3	Socket for 38999, series 3
Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, PIC E50424 24443/03130X-4(LD), 24443/C20714X-4(LD), 24450/0120X-4(LD), NF24-2Q100, TYCO CEC-RWC-18664, GORE GSC-01-81869-01, 24443/03166X-4(LD), Thermax T956-4T200, Pic Wire E51424, Thermax MX100Q-24, NF24Q100-01-200C	ALL384-051	ALL385-051
Draka Fileca F4703-3, Draka Fileca F4704-4, Filotex ET 2PC236, Filotex ET2PF870, PIC Wire E50424, ABS0972, Tensolite 23450/04090X-4(LD)	ALL384-021	ALL385-021
Gore RCN8328 Tensolite 26473/02006X-4(LD)	ALL450-001	ALL451-001

Backshells

Ordering Information

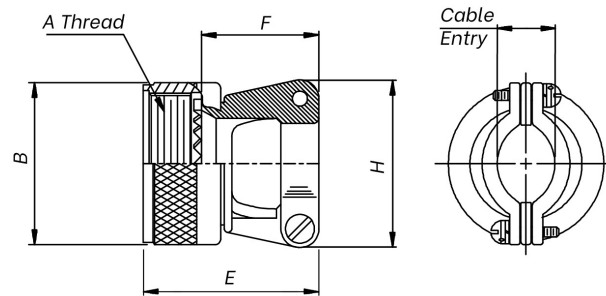
Basic series	AL85049/	38	–	15	N
Type:					
14 = Backnut					
38 = Straight cable clamp					
39 = Elbow, 90°, cable clamp					
124 = Straight cable clamp					
126 = Elbow, 90°, cable clamp					
Coupling:					
S: Self locking type					
–: Non self locking type					
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25					
Material/Finish:					
W = Aluminum/Olive green cadmium plating					
N = Aluminum/Electroless nickel plating					
S = 300 Series Steel, Passivated (need consultation)					

Backnuts, AL85049/14



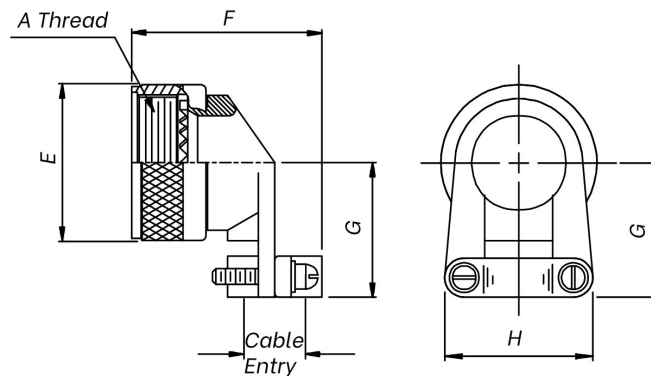
Shell size		A Thread	Ø B Max	Ø C Max
A	09	M12 X 1 - 6H	6.8	21.8
B	11	M15 X 1 - 6H	10.0	23.9
C	13	M18 X 1 - 6H	12.8	29.5
D	15	M22 X 1 - 6H	16.0	32.5
E	17	M25 X 1 - 6H	19.2	35.8
F	19	M28 X 1 - 6H	21.5	38.6
G	21	M31 X 1 - 6H	24.7	41.7
H	23	M34 X 1 - 6H	27.8	45.0
J	25	M37 X 1 - 6H	31.0	48.0

Straight cable clamps, AL85049/38



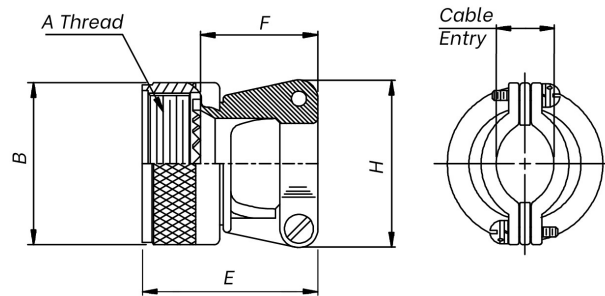
Shell size		A Thread	Ø B Max	Ø E Max	F Max	H Max	Cable Entry
A	09	M12 X 1 - 6H	21.8	30.73	23.1	21.6	2.5 – 5.9
B	11	M15 X 1 - 6H	25.0	30.73	23.1	22.9	3.9 – 5.9
C	13	M18 X 1 - 6H	29.4	33.27	25.7	27.9	4.8 – 8.3
D	15	M22 X 1 - 6H	32.5	34.29	26.9	29.2	6.6 – 11.6
E	17	M25 X 1 - 6H	35.7	36.83	29.5	33.0	7.2 – 15.6
F	19	M28 X 1 - 6H	38.5	43.43	35.8	38.1	8.3 – 16.1
G	21	M31 X 1 - 6H	41.7	45.97	38.4	40.6	8.7 – 17.7
H	23	M34 X 1 - 6H	44.9	49.53	42.2	43.2	9.7 – 20.9
J	25	M37 X 1 - 6H	48.0	52.07	44.7	45.7	10.6 – 21.7

Elbow, 90°, cable clamps, AL85049/39



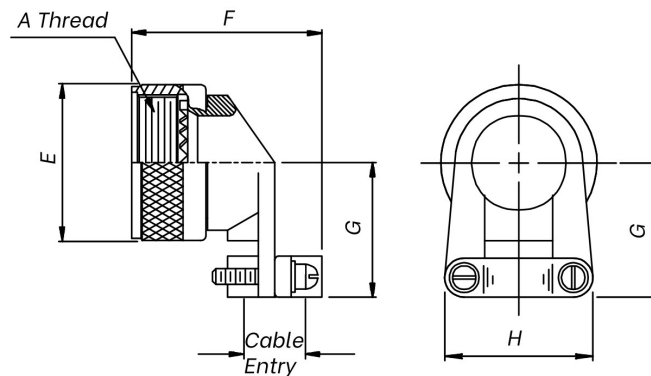
Shell size		A Thread	Ø E Max	F Max	G Max	H Max	Cable Entry
A	09	M12 X 1 - 6H	21.8	30.5	25.4	21.6	2.5 – 5.9
B	11	M15 X 1 - 6H	25.0	30.5	27.9	22.9	3.9 – 5.9
C	13	M18 X 1 - 6H	29.4	35.6	27.9	27.9	4.8 – 8.3
D	15	M22 X 1 - 6H	32.5	36.8	31.8	29.2	6.6 – 11.6
E	17	M25 X 1 - 6H	35.7	40.6	33.0	33.0	7.2 – 15.6
F	19	M28 X 1 - 6H	38.5	43.2	34.3	38.1	8.3 – 16.1
G	21	M31 X 1 - 6H	41.7	47.0	40.6	40.6	8.7 – 17.7
H	23	M34 X 1 - 6H	44.9	49.5	44.5	43.2	9.7 – 20.9
J	25	M37 X 1 - 6H	48.0	53.3	47.0	45.7	10.6 – 21.7

Straight cable clamps, AL85049/124



Shell size		A Thread	Ø B Max	Ø E Max	F Max	H Max	Cable Entry
A	09	M12 X 1 - 6H	21.8	26.7	19.6	22.4	2.5 – 5.6
B	11	M15 X 1 - 6H	25.0	22.6	22.6	23.9	3.9 – 6.7
C	13	M18 X 1 - 6H	29.4	32.8	25.7	28.4	4.8 – 8.7
D	15	M22 X 1 - 6H	32.5	32.8	25.7	30.2	6.6 – 11.7
E	17	M25 X 1 - 6H	35.7	35.8	28.7	36.6	7.2 – 13.8
F	19	M28 X 1 - 6H	38.5	42.2	35.1	39.6	8.3 – 15.6
G	21	M31 X 1 - 6H	41.7	45.5	38.4	42.9	8.7 – 17.7
H	23	M34 X 1 - 6H	44.9	48.5	41.4	44.5	9.7 – 19.8
J	25	M37 X 1 - 6H	48.0	51.8	44.7	47.8	10.6 – 21.6

Elbow, 90°, cable clamps, AL85049/126

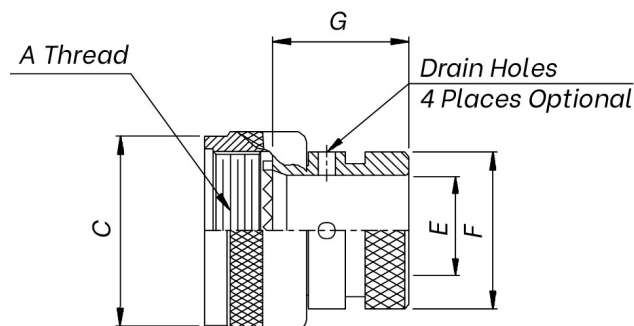


Shell size		A Thread	Ø E Max	F Max	G Max	H Max	Cable Entry
A	09	M12 X 1 - 6H	21.8	29.0	20.6	22.4	2.5 – 5.6
B	11	M15 X 1 - 6H	25.0	31.0	22.1	23.9	3.9 – 6.7
C	13	M18 X 1 - 6H	29.4	36.1	23.6	28.4	4.8 – 8.7
D	15	M22 X 1 - 6H	32.5	37.6	25.1	30.2	6.6 – 11.7
E	17	M25 X 1 - 6H	35.7	41.1	27.7	36.6	7.2 – 13.8
F	19	M28 X 1 - 6H	38.5	44.2	31.2	39.6	8.3 – 15.6
G	21	M31 X 1 - 6H	41.7	47.2	33.0	42.9	8.7 – 17.7
H	23	M34 X 1 - 6H	44.9	50.5	34.5	44.5	9.7 – 19.8
J	25	M37 X 1 - 6H	48.0	53.6	36.1	47.8	10.6 – 21.6

Adapters. Ordering Information

Basic series	AL85049/	69	-15	W	D
Type:					
20 = Crimp Ring Adapter, Straight, Spin Coupling without Ring, crimp rings are supplied on separate order					
69 = Shrink Boot Adapter, Straight, Spin Coupling					
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25					
Material/Finish:					
W = Aluminum/Olive green cadmium plating					
N = Aluminum/Electroless nickel plating					
Option (for 69 type, only):					
D = Drain Hole					
Omit for none					

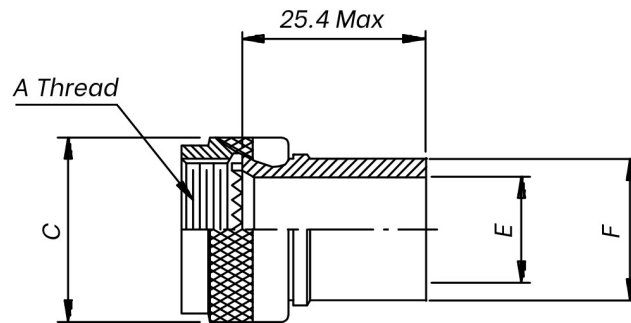
Shrink Boot Adapters, AL85049/69



Shell size	A Thread	Ø C Max	Ø E Max	Ø F Max	G Max
A 09	M12 X 1 - 6H	15.24	6.4	13.5	18.0
B 11	M15 X 1 - 6H	18.21	9.5	15.4	18.0
C 13	M18 X 1 - 6H	21.18	12.7	19.7	18.0
D 15	M22 X 1 - 6H	25.14	15.9	21.3	18.0
E 17	M25 X 1 - 6H	28.12	19.1	24.5	18.0
F 19	M28 X 1 - 6H	31.09	20.6	26.5	18.0
G 21	M31 X 1 - 6H	34.06	23.8	30.9	18.0
H 23	M34 X 1 - 6H	36.90	27.0	34.4	18.0
J 25	M37 X 1 - 6H	39.80	30.2	36.7	18.0



Crimp Ring Adapters, AL85049/20



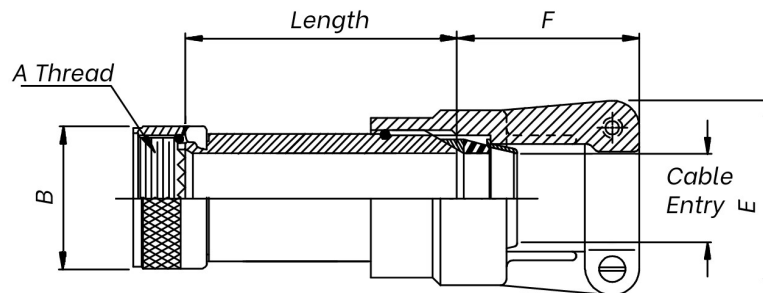
Shell size		A Thread	Ø C Max	Ø E Max	F Max	AL85049/26-2 Crimp Ring
A	09	M12 X 1 - 6H	19.1	6.7	8.8	8
B	11	M15 X 1 - 6H	21.6	8.7	12.6	10
C	13	M18 X 1 - 6H	25.4	11.1	13.0	12
D	15	M22 X 1 - 6H	27.9	14.3	16.0	14
E	17	M25 X 1 - 6H	31.8	17.4	19.3	16
F	19	M28 X 1 - 6H	35.6	20.6	22.6	18
G	21	M31 X 1 - 6H	38.1	23.8	25.7	20
H	23	M34 X 1 - 6H	41.9	26.6	28.7	22
J	25	M37 X 1 - 6H	44.5	28.6	30.5	24

Please note: crimp rings are supplied on separate order

EMI/RFI Backshells. Ordering Information

Basic series	AL85049/	18	-15	N	05	A
Type:						
18 = Environmental EMI/RFI Backshell, Straight, Spin Coupling						
19 = Non-Environmental EMI/RFI Backshell, Straight, Spin Coupling						
78 = Environmental EMI/RFI Backshell, 45°, Spin Coupling						
79 = Environmental EMI/RFI Backshell, 90°, Spin Coupling						
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25						
Material/Finish:						
W = Aluminum/Olive green cadmium plating						
N = Aluminum/Electroless nickel plating						
Clamp Size: 01 – 10 (see tables below)						
Length Code (omit for standard), for Straight Backshells only (see tables below)						

Environmental EMI/RFI Backshells, AL85049/18

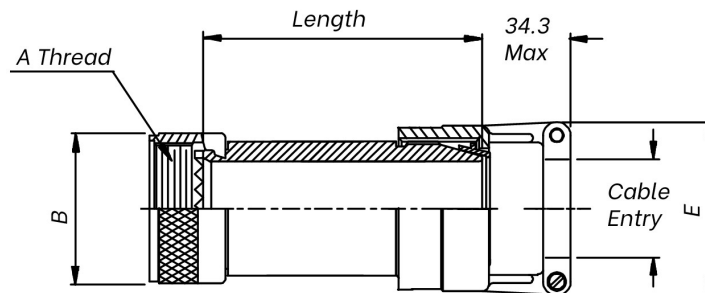


Shell size	A Thread	Ø B Max	E Max	F Max	Clamp Size
A 09	M12 X 1 - 6H	19.1	19.8	31.8	01 – 02
B 11	M15 X 1 - 6H	21.6	24.6	31.8	01 – 03
C 13	M18 X 1 - 6H	25.4	27.0	31.8	02 – 04
D 15	M22 X 1 - 6H	29.2	29.4	31.8	02 – 05
E 17	M25 X 1 - 6H	31.8	31.8	33.3	02 – 06
F 19	M28 X 1 - 6H	35.6	34.9	34.9	03 – 07
G 21	M31 X 1 - 6H	39.4	38.1	38.1	03 – 08
H 23	M34 X 1 - 6H	41.9	41.3	41.3	03 – 09
J 25	M37 X 1 - 6H	47.0	44.5	41.3	04 – 10

Clamp Size	Cable Entry	Length Code	Shell Sizes	Length Max
01	1.6 – 3.2	Std.	9 - 25	38.1
02	3.2 – 6.4	A	9 - 25	63.5
03	6.4 – 9.5	B	15 - 25	88.9
04	9.5 – 12.7	C	21 - 25	114.3
05	12.7 – 15.9			
06	15.9 – 19.1			
07	19.1 – 22.2			
08	22.2 – 25.4			
09	25.4 – 28.6			
10	28.6 – 31.8			



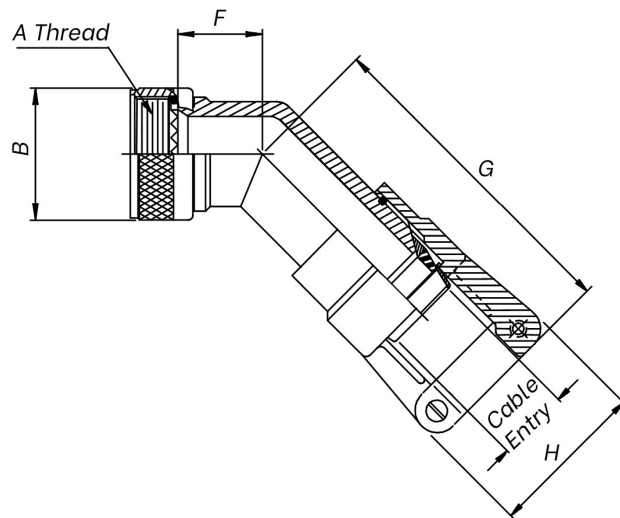
Non-Environmental EMI/RFI Backshells, AL85049/19



Shell size		A Thread	Ø B Max	E Max	Clamp Size
A	09	M12 X 1 - 6H	19.1	20.3	01 – 02
B	11	M15 X 1 - 6H	21.6	25.4	01 – 03
C	13	M18 X 1 - 6H	25.4	27.9	02 – 04
D	15	M22 X 1 - 6H	27.9	30.5	02 – 05
E	17	M25 X 1 - 6H	31.8	31.8	02 – 06
F	19	M28 X 1 - 6H	35.6	35.6	03 – 07
G	21	M31 X 1 - 6H	38.1	38.1	03 – 08
H	23	M34 X 1 - 6H	41.9	41.9	03 – 09
J	25	M37 X 1 - 6H	43.2	44.5	04 – 10

Clamp Size	Cable Entry	Length Code	Shell Sizes	Length Max
01	1.6 – 3.2	Std.	9 - 25	38.1
02	3.2 – 6.4	A	9 - 25	63.5
03	6.4 – 9.5	B	15 - 25	88.9
04	7.9 – 12.7	C	21 - 25	114.3
05	11.1 – 15.9			
06	14.3 – 19.1			
07	17.4 – 22.2			
08	20.6 – 25.4			
09	23.8 – 28.6			
10	27.0 – 31.8			

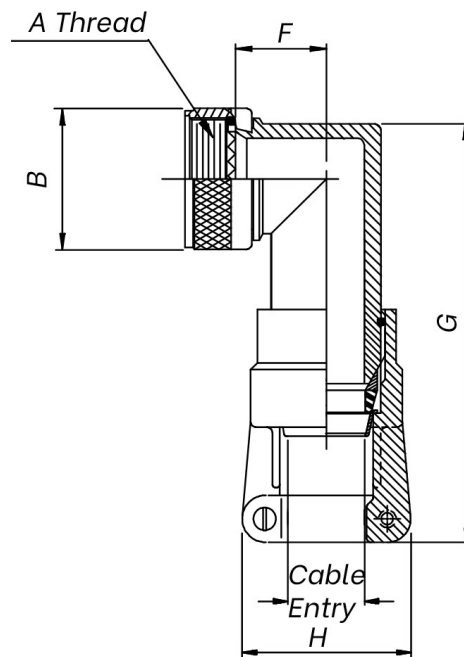
Environmental EMI/RFI Backshells, AL85049/78



Shell size		A Thread	Ø B Max	F ± 1.6	G ± 1.6	H Max	Clamp Size
A	09	M12 X 1 - 6H	19.1	10.1	78.4	20.3	01 – 02
B	11	M15 X 1 - 6H	21.6	11.6	80.0	25.4	01 – 03
C	13	M18 X 1 - 6H	25.4	13.2	81.5	27.9	02 – 04
D	15	M22 X 1 - 6H	29.2	14.9	83.8	30.5	02 – 05
E	17	M25 X 1 - 6H	31.8	17.2	86.6	31.8	02 – 06
F	19	M28 X 1 - 6H	35.6	22.0	91.4	35.6	03 – 07
G	21	M31 X 1 - 6H	39.4	22.0	91.4	38.1	03 – 08
H	23	M34 X 1 - 6H	41.9	24.3	95.2	41.9	03 – 09
J	25	M37 X 1 - 6H	47.0	24.3	95.2	44.5	04 – 10

Clamp Size	Cable Entry
01	1.6 – 3.2
02	3.2 – 6.4
03	6.4 – 9.5
04	9.5 – 12.7
05	12.7 – 15.9
06	15.9 – 19.1
07	19.1 – 22.2
08	22.2 – 25.4
09	25.4 – 28.6
10	28.6 – 31.8

Environmental EMI/RFI Backshells, AL85049/79

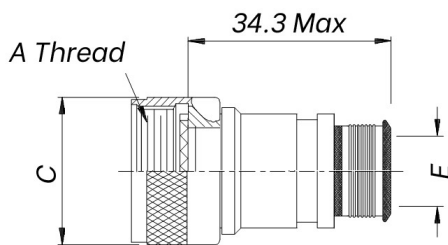


Shell size	A Thread	Ø B Max	F ± 1.6	G ± 1.6	H Max	Clamp Size
A 09	M12 X 1 - 6H	19.1	11.1	79.8	20.3	01 – 02
B 11	M15 X 1 - 6H	21.6	13.5	82.8	25.4	01 – 03
C 13	M18 X 1 - 6H	25.4	13.9	83.3	27.9	02 – 04
D 15	M22 X 1 - 6H	29.2	16.2	85.1	30.5	02 – 05
E 17	M25 X 1 - 6H	31.8	20.9	87.4	31.8	02 – 06
F 19	M28 X 1 - 6H	35.6	23.2	91.7	35.6	03 – 07
G 21	M31 X 1 - 6H	39.4	23.2	91.7	38.1	03 – 08
H 23	M34 X 1 - 6H	41.9	27.0	94.5	41.9	03 – 09
J 25	M37 X 1 - 6H	47.0	27.0	94.5	44.5	04 – 10

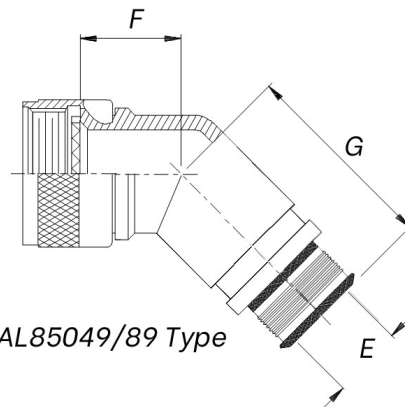
Clamp Size	Cable Entry
01	1.6 – 3.2
02	3.2 – 6.4
03	6.4 – 9.5
04	9.5 – 12.7
05	12.7 – 15.9
06	15.9 – 19.1
07	19.1 – 22.2
08	22.2 – 25.4
09	25.4 – 28.6
10	28.6 – 31.8

Band Lock Adapters. Ordering Information

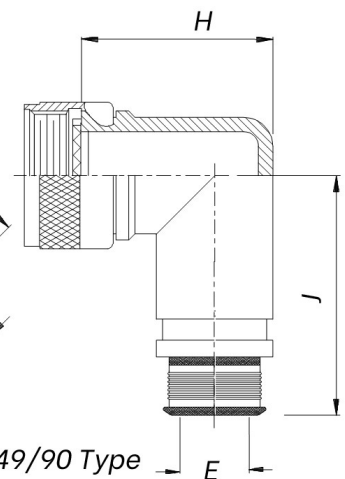
Basic series	AL85049/	88	-15	N	09	A
Type:						
88 = Band Lock Adapter, Straight, Self-Lock						
89 = Band Lock Adapter, 45°, Self-Lock						
90 = Band Lock Adapter, 90°, Self-Lock						
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25						
Material/Finish:						
W = Aluminum/Olive green cadmium plating						
N = Aluminum/Electroless nickel plating						
Clamp Size (see tables below)						
Length Code (see tables below), for Straight Backshells only						



AL85049/88 Type



AL85049/89 Type



AL85049/90 Type

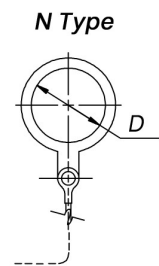
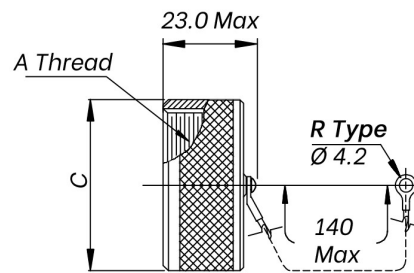
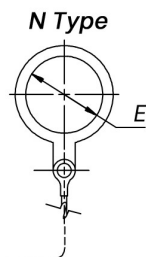
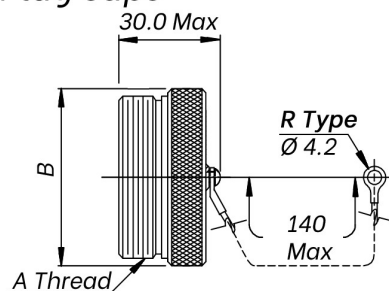
Shell size		A Thread	Ø C Max	Ø E ± 0.3		F Max	G Max	H Max	J Max
				Size 02	Size 03				
A	09	M12 X 1 - 6H	21.8	not apply	6.4	25.7	29.5	34.9	36.0
B	11	M15 X 1 - 6H	25.1	not apply	7.9	26.2	30.2	36.5	37.6
C	13	M18 X 1 - 6H	29.5	7.9	11.1	26.9	30.7	39.7	39.4
D	15	M22 X 1 - 6H	32.5	11.1	14.3	27.4	31.5	42.8	41.0
E	17	M25 X 1 - 6H	35.8	12.7	15.9	28.2	32.0	44.5	42.6
F	19	M28 X 1 - 6H	38.6	15.9	19.1	28.4	32.3	47.6	44.0
G	21	M31 X 1 - 6H	41.7	15.9	20.6	29.2	33.0	49.2	45.6
H	23	M34 X 1 - 6H	45.0	17.5	23.8	29.7	33.8	52.4	47.2
J	25	M37 X 1 - 6H	48.0	19.1	25.4	30.5	34.3	54.0	48.7

Protection caps

Ordering Information

Basic series	D38999/	32	W	09	R
Type:					
32 = Plug caps					
33 = Receptacle caps					
Material/Finish:					
W = Aluminum/Olive green cadmium plating					
F = Aluminum/Electroless nickel plating					
Shell size: 09, 11, 13, 15, 17, 19, 21, 23, 25					
Accessories:					
N = With stainless steel rope and ring					
R = With stainless steel rope and eyelet					

Plug caps



Receptacle caps

Shell size	A Thread	Ø B Max	Ø C Max	D Min	E Min
A 09	.6250-0.1P-0.3L-TS	23.0	23.0	17.6	13.0
B 11	.7500-0.1P-0.3L-TS	26.0	28.0	22.0	18.0
C 13	.8750-0.1P-0.3L-TS	31.0	31.0	25.1	20.0
D 15	1.0000-0.1P-0.3L-TS	33.0	32.0	29.9	23.0
E 17	1.1875-0.1P-0.3L-TS	37.0	37.0	32.0	26.0
F 19	1.2500-0.1P-0.3L-TS	40.0	39.0	36.3	29.0
G 21	1.3750-0.1P-0.3L-TS	44.0	42.0	38.3	32.0
H 23	1.5000-0.1P-0.3L-TS	46.0	45.0	42.6	34.0
J 25	1.6250-0.1P-0.3L-TS	50.0	49.0	44.5	39.0

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