

MIL-DTL-38999 Connectors

FOR MILITARY, AEROSPACE AND HARSH ENVIRONMENTS



MIL-DTL-38999 Series III, II, I, SJT, and Aquacon



38999

Amphenol
Aerospace

About Amphenol® Aerospace

Your Source for Interconnect Products

Amphenol
Aerospace

Amphenol Aerospace

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ABOUT AMPHENOL AEROSPACE:

Amphenol Aerospace, a Division of Amphenol Corporation, is one of the largest manufacturers of interconnect products in the world for the Military, Commercial Aerospace and Industrial markets. Amphenol designs, manufactures and markets circular and rectangular, electronic, fiber optic, EMI/EMP filter, and a variety of special applications connectors and interconnect systems.

Our state-of-the-art facility is nestled at the foothills of the Catskill Mountains in Sidney, NY. The Amphenol complex houses many technologies including CNC machining, die-casting, molding, impact and extruding, plating, screw machining and process controls. Our fully equipped material evaluation lab and engineering organization utilize the latest in computer aided design software and analysis tools, allowing us to design, test, and qualify advanced interconnect systems. Amphenol's interconnect products are supplied to thousands of OEMs worldwide and are supported by our worldwide sales and engineering force, including the largest global network of electronic distributors.



Customer-Centric:

Our **#1 priority** is our customers who deserve quality product on time.

Accountable:

Clear owners, clear actions, clear results.

Reliable:

What we build matters and quality is imperative.

Enthusiastic:

Challenges create rewarding opportunities. Enthusiasm is contagious and we will spread it.

QUALITY ASSURANCE:

Amphenol Aerospace has been awarded both AS9100 - Revision C and ISO9001:2008 Quality Assurance Certifications.

MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Availability and Identification Chart

38999

III
II
I
SJT
Access
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Series	Series	Series	Military	MIL-DTL-27599 JT/LJT Solder	Crimp	Hermetics			Service Rating	Total Contacts	Contact Size													
JT II	LJT I	TV III	III			Class H	Class Y	TV*			23 HD	22D	22M	22	20	16	16 (Cx)	12	12 (Coax)	10 (Power)	8 (Power)	8 (Coax)	8†† (Twinax)	4
		7-D2		P					M	2		2												
8-2				X	NA	P	P		M	2					2									
8-3				X					M	3					3									
	9-3			X																				
		9-5★							G	1													1	
8-6				X	X	P	P		M	6			6											
	9-6			X	X	P	P		M	7			7											
	9-7			X					M	9	9													
		9-9			X				N	9														
		9-12			◆				M	1								1						
	9-22			X					I	2					2									
8-35					X	P	P		M	6		6												
	9-35	9-35	A35		X	P	P	P	M	4				4										
8-44					X	P	P		M	2														
	9-44				X				M	4														
		9-94			◆				M	2														
8-97				X					M	4			2		2									
8-98				S	X	P	P		M	3														
	9-98	9-98	A98	X	X	P	P	P	I	1														
		11-1«		◆					I	2													1	
	11-2★	11-2★	B2		X	P**			I	2						2								
10-4					3				I	4					4									
	11-4	11-4	B4	X	2				I	5														
10-5				X	X	P	P		I	6														
	11-5	11-5	B5	X	X			P	I	1														
	11-6			S					II	1					6									
		11-12			◆													1						
10-13				X	X	P/S	P/S		M	13			13											
	11-13			X	X	P/S	P/S		M	19	19													
		11-19			X				N	19														
10-35					X	P/S	P/S		M	13		13												
	11-35	11-35	B35		X	P/S	P/S	P	M	4		4												
		11-54			X				II	6														
10-98				X	X	P/S	P/S		I	6					6									
	11-98	11-98	B98	X	X	P/S	P/S	P	I	7														
10-99					X	P	P		I	3														
	11-99	11-99	B99		X			P	II	3														
12-3				X	X	P	P		I	4														
	13-3				P				I	4														
12-4				X	X	P	P		I	4														
	13-4★	13-4★	C4	X	X	P	P	P	I	8														
12-8				X	X	P	P		I	8					8									
	13-8	13-8	C8	X	X	P	P	P	I	4														
		13-13							I, Fiber Optic	4						2**	2							
12-22					X	P/S	P/S		M	22			22											
	13-22			X	X	P/S	P/S		M	8		6						2						
		13-26			◆				N	32	32													
		13-32			◆				M	22		22												
12-35					X	P/S	P/S		M	4														
	13-35	13-35	C35		X	P/S	P/S	P	I	10														
		13-63			◆				I	10														
12-98				X	X	P/S	P/S		I	10					10									
	13-98	13-98	C98	X	X	P/S	P/S	P	I	10														

- X Completely tooled.
- + Majority of tooling is completed (contact Amphenol Aerospace for availability).
- ◆ Not tooled for 02-R.
- P Available with Pin contacts only
- S Available with Socket contacts only
- P/S Available with Pin contacts or Socket contacts
- ★ Ground plane proprietary option available. Arrg. 9-5 is exclusively ground plane type.
- Not Mil-Qualified.
- ◇ 21-75 is Mil-Qualified with twinax contacts only.
Note: MS connector 21-75 is supplied with size 8 twinax. Commercial connector 21-75 is supplied with size 8 coax.
- HD designates High Density 38999 Series III insert patterns which use size 23 contacts only. Not rated over 175°C.

- ^ Supplied with D38999/62-A for Twinax, D38999/62-B for Coax
- * Hermetic inserts - solder termination standard. (Contact Amphenol Aerospace for optional PCB or eyelet termination).
- ** Two size 16 contacts dedicated to fiber optics. See the Fiber Optic section for more information.
- *** For use in MIL-STD-1760 applications (see pages 75 and 76).
- † For RG 180/U and RG 195/U cables only.
- †† Size 8 Coax and Twinax are interchangeable.
- (2) Not Tooled for RP or 02RE
- (3) Pin inserts only, not tooled for RP or 02RE (Consult Amphenol Aerospace for avail.)
- (5) MS Connector 21-79 has provision for two size 8 coax contacts. Coax contacts are not supplied unless specified by customer.
- ≈ Patterns come with D38999/62 sealing boots
- « Must buy contacts rfrom Amphenol Socopex

MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Availability and Identification Chart

Series	Series	Series	Military	MIL-DTL-27599 JT/LJT Solder	Crimp	Hermetics			Service Rating	Total Contacts	Contact Size												
JT II	LJT I	TV III	III			Class H	Class Y	TV*			23 HD	22D	22M	22	20	16	16 (Cx)	12 (Coax)	10 (Power)	8 (Power)	8 (Coax)	8+ (Twinax)	4
		13-CB			S				M			4					2						
		15-AC			◆				M	26	24					2							
		15-AT			X				I	13	10						3						
		15-BA			◆				M	25	22					3							
14-4					2				I	4							4						
	15-4	15-4			2				I	4													
14-5				X	X	P	P		II	5						5							
	15-5*	15-5*	D5	X	X	P	P	P	I	15													
14-15				X	X	P	P		I	15													
	15-15	15-15	D15	X	X	P/S	P/S	P	I	18					14	1							
14-18				X	X	P/S	P/S		I	18					18								
	15-18	15-18	D18	X	X	P/S	P/S	P	I	19					19								
14-19				X	X				I	19					19								
	15-19	15-19	D19		X	P	P	P	I	19					19								
14-35					X	P	P		M	37		37											
	15-35	15-35	D35		X	P/S	P/S	P	M	37			37										
14-37				X	X	P	P		M	37			37										
	15-37			X	X	P	P		M	37			37										
		15-55			X				N	55	55												
14-68					2		P	P	I	8							8						
	15-68	15-68		X	X				I	12					8	4							
14-97					X	P	P		I	12					8	4							
	15-97	15-97	D97	X	X	P		P	M	39		38										1	
	17-2	17-2	E2		X				M	39		38										1	
		17-3	E3		X				M	39		38										1	
		17-EA			◆				M	19		10		3		2	4						
		17-EC			◆				M	41		32		9									
		17-EG			◆				M			16					4						
		17-EL			◆				M	18		16										2	
16-6					X	P	P		I	6							6						
	17-6	17-6	E6		X	P	P	P	I	6							6						
16-8				X	X	P	P		II	8							8						
	17-8*	17-8*	E8	X	X	P/S	P/S	P	N	11				8			2	1					
		17-11							I	13							13						
16-13					2				I	13													
	17-13	17-13			2				Coax	4								2			2		
	17-22	17-22*			◆				M	24		22									2		
	17-25	17-25			2				M	24		22									2		
16-26				X	X	P/S	P/S		I	26				26									
	17-26	17-26	E26	X	X	P/S	P/S	P	I	26				26									
16-35					X	P	P		M	55		55											
	17-35	17-35	E35	X	X	P	P	P	M	55		55											
16-42					X				M	42				42									
	17-42				P				M	42				42									
		17-52			X				M	2												2	
16-55				X	X	P/S	P/S		M	55			55										
	17-55			X	X	P/S	P/S		M	55			55										
		17-60			X				I/Coax	10		8									2		
		17-73			X				N	73	73												
16-99				X	X	P	P		I	23					21	2							
		17-99	E99	X	X	P	P		I	23					21	2							
		19-AD			X				Inst.	17					16							1	
		19-A4			◆				M	4												4	
		19-FA			◆				M	23		6			8	7	2						
18-11				X	X	P	P		II	11						11							
	19-11*	19-11*	F11	X	X	P	P	P	II	11						11							
		19-17			◆				M	17		10	1				4					2	
	19-18	19-18	F18		2				M	18		14										4	
		19-19	F19		2				M	18		14										4	
18-28				X	X				I	28				26		2							
	19-28	19-28	F28	X	P				I	28				26		2							
18-30				X	X				I	30					29		1						
	19-30	19-30		X	P				I	30					29		1						
		19-31			X				M	15		12					1				2		

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III

II

I

SJT

Access

Aquacon

MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Availability and Identification Chart

38999

III
II
I
SJT
Access
Aquacon

Series	Series	Series	Military	MIL-DTL-27599 JT/LJT Solder	Crimp	Hermetics			Service Rating	Total Contacts	Contact Size													
JT II	LJT I	TV III	III			Class H	Class Y	TV*			23 HD	22D	22M	22	20	16	16 (Cx)	12 (Coax)	10 (Power)	8 (Power)	8 (Coax)	8†† (Twinax)	4	
18-32				X	X	P/S	P/S		I	32					32									
	19-32	19-32	F32	X	X	P/S	P/S	P																
18-35					X	P	P		M	66		66												
	19-35	19-35	F35		X	P	P	P																
18-53				X	X				M	53				53										
	19-53				P																			
18-66				X	X	P	P		M	66			66											
	19-66				X	P	P																	
	19-67			X	3	S	S		M	67			67											
18-68					2				I	18							18							
	19-68	19-68			3																			
18-96					2				I	9							9							
		19-88			X				N	88	88													
20-1					X	P	P		M	79			79											
		21-AJ			◆				M															
		21-AZ								22		19									3			
	21-1				X	P/S	P/S		M															
20-2					X				M					65										
	21-2				X				M	65														
20-11					3				I															
	21-11★	21-11★	G11	X	X				I	11							11							
20-16				X	X	P/S	P/S		II															
	21-16★	21-16★	G16	X	X	P	P	P	II	16						16								
	21-25								I	25					25									
	21-27			X					I	27														
		21-29	G29		X				I	27						19	4	4						
20-35					X	P	P		M															
	21-35	21-35	G35		X	P/S	P/S	P	M	79		79												
20-39				X	X	P	P																	
	21-39	21-39	G39	X	X	P	P	P	I	39					37	2								
20-41				X	X	P	P																	
	21-41	21-41	G41	X	X	P/S	P/S	P	I	41					41									
		21-A48							M	4										4				
	21-75★	21-75★◇◇	G75		2				N	M	4										4	(4)		
		21-76★◇◇	G76^		2				N	M	4										4	(4)		
	21-79	21-79			2				II	19		17									2	(2)		
		21-121			X				N	121	121													
22-1					X	P/S	P/S		M	100			100											
	23-1				X	P	P																	
22-2				X	X	P	P		M	85				85										
	23-2			X	X	P	P																	
	23-6★	23-6★		X	P				M	6												6		
22-14					2	◆																		
	23-14	23-14			2	◆			I	14							14							
22-21				X	X	P	P																	
	23-21★	23-21★	H21	X	X	P	P	P	II	21						21								
22-32				X	X	P	P																	
	23-32			X	P				I	32					32									
	23-34			X					I	34					34									
22-35					X	P/S	P/S																	
	23-35	23-35	H35		X	P	P	P	M	100		100												
22-53					P																			
	23-53	23-53	H53	X	X	P/S	P/S	P	I	53					53									
		23-54			X				M	53		40				9	4							
22-55				X	X	P	P																	
	23-55	23-55	H55		X			P	I	55					55									
		23-63			◆				M	57		49					4	4						
	23-97			X					II	16						16								
	23-99			X					II	11						11								
		23-151		◆	X				N	151	151													
24-1					X	P	P																	
	25-1				X	P	P		M	128			128											
24-2					X																			
	25-2				X				M	100				100										
24-4					X	P	P																	
	25-4	25-4	J4		X			P	I	56					48	8								
	25-7	25-7	J7		X				M	Twx	99		97								2			

MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Availability and Identification Chart

Series	Series	Series	Military	MIL-DTL-27599 JT/LJT Solder	Crimp	Hermetics			Service Rating		Total Contacts	Contact Size													
JT II	LJT I	TV III	III			Class H	Class Y	TV*				23 HD	22D	22M	22	20	16	16 (Cx)	12 (Coax)	10 (Power)	8 (Power)	8 (Coax)	8†† (Twinax)	4	
		25-9≈	J9≈		X				M	Twx	99		97									2			
		25-8★	J8		◆					Twinax	8												8		
		25-10★≈	J10≈		◆					Twinax	8												8		
		25-11***	J11		2					N	11					2				9					
		25-16■			◆					M	8					6								2	
		25-17■			◆					M	42		36										6		
24-19■					X	P	P			I	19							19							
	25-19★	25-19★	J19		X			P		N	30					10	13		4				3		
	25-20■	25-20***	J20		2	◆				N	30					10	13		4				3		
		25-21***≈	J21≈		2	◆																	3		
24-24					X	P	P			I	24						12	12							
	25-24★	25-24★	J24		X	P	P			I	25					16		5				4			
	25-26■★				+					I	25														
24-29					X					I	29						29								
	25-29★	25-29★	J29	X	X																				
24-35					X	P	P			New															
	25-35	25-35	J35		X	P	P	P		M	128		128												
24-37					X					I	37						37								
	25-37★	25-37★	J37		X																				
		25-41■			◆					N	Inst.	41		22		3	11		2				3		
24-43■					3					I	43					23	20								
	25-43	25-43	J43	X	2	◆				I	46					40	4					2			
	25-46	25-46	J46		2	◆				I	46					40	4								
		25-47≈	J47≈		2	◆				I	46					40	4					2			
24-61				X	X	P	P			I	61			61											
	25-61	25-61	J61	X	X	P	P	P																	
		25-88			◆					Coax	8											8			
		25-90	J90		◆					I	46					40	4						2		
		25-91≈	J91≈		◆					I	46					40	4						2		
		25-187 ■			X					N	187	187													
		25-1A ■			◆					N	8					4								4	
		25-AT ■			X					M	60		31			12	13		2				2		
		25-F4 ■			X					M/I	66		49				13	4							

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II
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- X Completely tooling.
- + Majority of tooling is completed (contact Amphenol Aerospace for availability).
- ◆ Not tooling for 02-R.
- P Available with Pin contacts only
- S Available with Socket contacts only
- P/S Available with Pin contacts or Socket contacts
- ★ Ground plane proprietary option available. Arrg. 9-5, 26-62 is exclusively ground plane type.
- Not Mil-Qualified.
- ◆ 21-75 is Mil-Qualified with twinax contacts only.
- * Hermetic inserts - solder termination standard. (Contact Amphenol Aerospace for optional PCB or eyelet termination).
- ^ Supplied with D38999/62-A for Twinax, D38999/62-B for Coax

- HD High Density which use size 23 contacts only. Not rated over 175°C.
- ** Two size 16 contacts dedicated to fiber optics. See the Fiber Optic Section for more information.
- *** For use in MIL-STD-1760 applications (see pages 75 and 76).
- † For RG 180/U and RG 195/U cables only.
- †† Size 8 Coax and Twinax are interchangeable.
- (2) Not Tooled for RP or 02RE
- (3) Pin inserts only, not tooled for RP or 02RE (Consult Amphenol for avail.)
- (4) MS connector 21-75 is supplied with size 8 twinax.
- Commercial connector 21-75 is supplied with size 8 coax.
- (5) MS Connector 21-79 has provision for two size 8 coax contacts. Coax contacts are not supplied unless specified by customer.
- ≈ Patterns come with D38999/62 sealing boots

MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Availability and Identification Chart

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III

II

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TV SERIES III-PYLE

SELECT SHELL SIZE - SPECIAL INSERT ARRANGEMENT

(Not Mil-Spec Qualified)

Shell Size- Insert Arrg.	Crimp	Hermetics*	Service Rating	Total Contacts	Comments	Contact Size			
						22D	20	16	12
9-2	X		I	2	Formerly Pyle		2		
15-4	X		II	4	Formerly Pyle				4
15-25	X		M	25	Formerly Pyle	22		3	
17-20	X		M	20	Formerly Pyle	16			4
21-12	X		I	12	Formerly Pyle		3		9
21-21	X		M/Inst.	41	Improved sealing	32			9
21-99	X		M	16	Formerly Pyle	5			11
25-92	X		M	101	Formerly Pyle	92		9	
25-97	X		M	42	Formerly Pyle	26		3	13

LJT SERIES I-PYLE

SELECT SHELL SIZE - SPECIAL INSERT ARRANGEMENT AND SIZE

(Not Mil-Spec Qualified)

Shell Size- Insert Arrg.	Crimp	Service Rating	Total Contacts	Comments	Contact Size			
					22D	20	16	12
25-64	X		64	Formerly Pyle	40	8	10	6

- X Completely tooling.
 - + Majority of tooling is completed (contact Amphenol Aerospace for availability).
 - ◆ Not tooling for 02-R.
 - P Pin inserts only (contact Amphenol Aerospace for socket availability).
 - ★ Ground plane proprietary option available. Arrangement 9-5, 25-62 is exclusively ground plane type.
 - Not Mil-Qualified.
 - * Hermetic inserts - solder termination standard. (Contact Amphenol Aerospace for optional PCB or eyelet termination).
 - ** Two size 16 contacts dedicated to fiber optics. See the Fiber Optic section for more information.
 - *** For use in MIL-STD-1760 applications (pgs. 75 and 76).
 - † For RG 180/U and RG 195/U cables only.
 - †† Size 8 Coax and Twinax are interchangeable.
- Note: 25L-3 and 25L-7 use longer shells.
(PWR) Suffix at end of part number to replace coax, twinax, and fiber contacts with power contacts.

XL38999-NON-STANDARD SHELL SIZES

- Special Insert Arrangement

Shell Size- Insert Arrg.	Crimp	Hermetics*	Service Rating	Total Con- tacts	Contact Size				
					22D	20	8	4	0
25L-3	X		II	3			1	2	
25L-7	X		II	7			7		
33-3	X		II	3				1	2
33-5	X		II	5				5	
33-6	X		II	6			2	4	
37-5	X		II	4					4

(Insert arrangements requiring non-standard shells)

MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Arrangements

Front face of pin inserts illustrated

38999

Shell Size &
Insert Arrg. for:

Series II JT

Series I LJT

Series III TV

Service Rating

Number of Contacts

Contact Size

8-2	8-3	8-6	9-6	9-7	9-22	9-35	8-44	8-97	8-98	9-98	11-2
7-D2		9-5			9-9 HD	9-35		9-94		9-98	11-2
M	M	M	Grounded	M	M	N	I	M	M	I	I
2	2	3	1	6	7	9	2	6	4	2	2
22D	20	20	8 Twinax	22M	22M	23	20	22D	22	20	16

III

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Access

Aquacon

Shell Size &
Insert Arrg. for:

Series II JT

Series I LJT

Series III TV

Service Rating

Number of Contacts

Contact Size

10-4	10-5	11-6	10-13	11-19 HD	11-35	11-54	10-98	10-99	12-3	12-4
11-4	11-5						11-98	11-99	13-3	13-4
I	I	I	M	N	M	II	I	I	II	I
4	5	6	13	19	13	4	6	7	3	4
20	20	20	22M	23	22D	22D	20	20	16	16

Shell Size &
Insert Arrg. for:

Series II JT

Series I LJT

Series III TV

Service Rating

Number of Contacts

Contact Size

12-8	12-22			12-35		12-98			
13-8	13-22			13-35		13-98			
13-8		13-26	13-32 HD	13-35	13-63	13-98	13-CB	15-AC	15-AT
I	M	M	N	M	I	I	M	M	I
8	22	6 2	32	22	2 2	10	4 2	24 2	10 3
20	22M	22D 12	23	22D	16 12	20	22D 12	22D 16	22D 12

Shell Size &
Insert Arrg. for:

Series II JT

Series I LJT

Series III TV

Service Rating

Number of Contacts

Contact Size

14-4	14-5	14-15	14-18	14-19	14-35	14-37	
15-4	15-5	15-15	15-18	15-19	15-35	15-37	
15-4	15-5	15-15	15-18	15-19	15-25	15-35	15-55 HD
I	II	I	I	I	M	M	N
4	5	14 1	18	19	22 3	37	55
12	16	20 16	20	20	22D 16	22D	23

Shell Size &
Insert Arrg. for:

Series II JT

Series I LJT

Series III TV

Service Rating

Number of Contacts

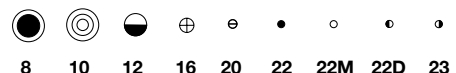
Contact Size

14-68	14-97					16-6	16-8
15-68	15-97					17-6	17-8
15-68	15-97	17-EA	17-EC	17-EG	17-2 17-3^	17-6	17-8
I	I	M	M	M	M	I	II
8	8 4	10 3 2 4	32 9	16 4	38 1	6	8
16	20 16	22D 20 16 12	22D 20	22D 12	22D 8 Twinax	12	16

HD: High Density HD38999 (use size 23 contacts only)

^ Supplied with D38999/62-A for Twinax, D38999/62-B for Coax

CONTACT LEGEND

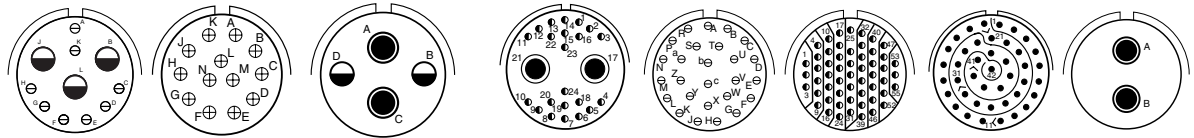


MIL-DTL-38999, Series I LJT, II JT, III TV, HD

Insert Arrangements

38999 Front face of pin inserts illustrated

III
II
I
SJT
Access
Aquacon



Shell Size &
Insert Arr. for:

Series II JT

Series I LJT

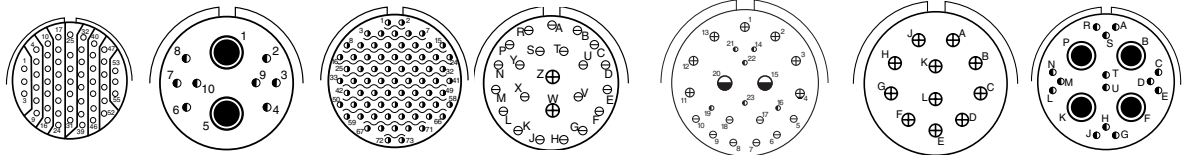
Series III TV

Service Rating

Number of Contacts

Contact Size

		16-13		16-26	16-35	16-42	
		17-13	17-22	17-25	17-26	17-35	17-42
	17-11	17-13	17-22	17-25	17-26	17-35	17-52
	N	I	Coax	M	I	M	M
	1	2	2	2	26	55	42
	12	12	12 Coax 8 Coax	22D 8 Coax	20	22D	22
	Coax Twinax	16					8 Twinax



Shell Size &
Insert Arr. for:

Series II JT

Series I LJT

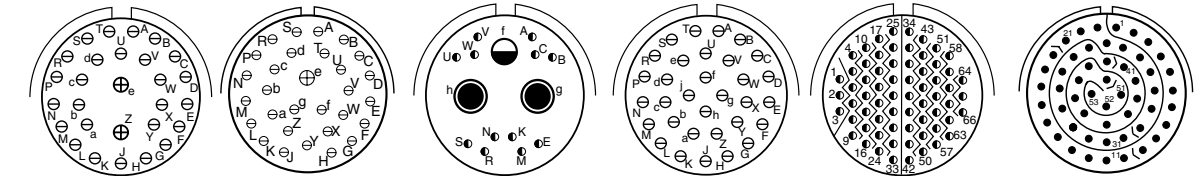
Series III TV

Service Rating

Number of Contacts

Contact Size

	16-55			16-99		18-11	
	17-55			17-99		19-11	19-18 19-19^
		17-60	17-73 HD	17-99	19-FA	19-11	19-18 19-19^
	M	I/Coax	N	I	M	II	M
	55	8	73	21	6	11	14
	22M	22D 8 Coax	23	20 16	22D 20 16 12	16	22D 8 Twinax



Shell Size &
Insert Arr. for:

Series II JT

Series I LJT

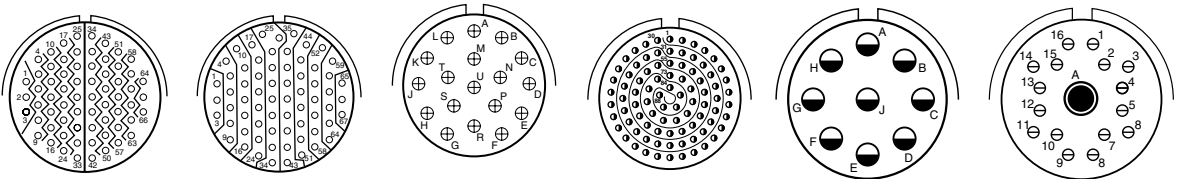
Series III TV

Service Rating

Number of Contacts

Contact Size

	18-28	18-30		18-32	18-35	18-53
	19-28	19-30		19-32	19-35	19-53
	19-28		19-31	19-32	19-35	
	M	I	M	1	M	M
	26	29	2	32	66	53
	20	20	8 Coax 12 22D	20	22D	22



Shell Size &
Insert Arr. for:

Series II JT

Series I LJT

Series III TV

Service Rating

Number of Contacts

Contact Size

	18-66		18-68		18-96	
	19-66	19-67	19-68			
			19-68	19-88 HD		19-AD
	M	M	I	N	I	Inst.
	66	67	18	88	9	16
	22M	22M	16	23	12	20
						8 Twinax



HD: High Density HD38999 (use size 23 contacts only)

^ Supplied with D38999/62-A for Twinax, D38999/62-B for Coax

MIL-DTL-38999, Series III TV

How to Order (Commercial)

38999

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Access

Aquacon

Series III

ALUMINUM 175°C		
3. SERVICE CLASS	DT-	Durmalon: 500 hrs. salt spray, -50dB@10GHz
	DZ-	Black Zinc: 500 hrs. salt spray, -50dB@10GHz
	RW-	Olive Drab Cadmium-500 hrs. salt spray, -65dB@10GHz
	RGW-	Olive Drab Cadmium (with Ground Plane)
ALUMINUM 200°C		
3. SERVICE CLASS	RF-	Electroless Nickel-48 hrs. salt spray, -65dB@10GHz
	RGF-	Electroless Nickel (with ground plane)
	RB-	Marine Bronze: 2,000 hr. salt spray, -65dB@10GHz
	DS-	AP-93 Tri-Nickel Alloy, Aluminum, 1000 Hr., 200°C, -65dB@100Hz*
COMPOSITE 175°C		
3. SERVICE CLASS	RW-	Olive Drab Cadmium-500 hrs. salt spray, -65dB@10GHz
	RGW-	Olive Drab Cadmium (with Ground Plane)
COMPOSITE 200°C		
3. SERVICE CLASS	RF-	Electroless Nickel-48 hrs. salt spray, -65dB@10GHz
	RGF-	Electroless Nickel (with ground plane)
STAINLESS STEEL 200°C		
3. SERVICE CLASS	RK-	Passivated (Firewall): 500 hrs. salt, -65dB@10GHz
	RKN-	Passivated (Non-Firewall): 500 hrs. salt, -65dB@10GHz
	RS-	Nickel Plated (Firewall): 500 hrs. salt, -65dB@10GHz
	RL-	Nickel Plated (Non-Firewall): 500 hrs. salt, -50dB@10GHz

4. SHELL SIZE & INSERT ARRANGEMENT

PAGE
2-5

First number represents Shell Size, second number is the Insert Arrangement.

Insert arrangements using multi-axial (i.e. coax, twinax, triax shielded) contacts should not be used in firewall applications. *Coaxial arrangements are not available in firewall classes.

5. CONTACT TYPE

P	500 Cycle Pin Contacts, if require Less Contacts place (LC) at the end of part number
S	500 Cycle Socket Contacts, if require Less Contacts place (LC) at the end of part number
H	1500 Cycle Pin Contacts
J	1500 Cycle Socket Contacts
X	Eyelet contacts, hermetics only

Jam Nut
Receptacle
(07, 24)



Flange
Mounting
Plug
(09)



Deep Reach
Receptacle
Consult
Amphenol
Aerospace



Solder Mount
Hermetic
Receptacle
(1, 25)



Jam Nut Receptacle - Solder

Military (MS20029), Commercial (LJT07)

PART NUMBER BUILDER Page 114-118

MILITARY
MS20029P

Commercial
LJT07P, LJT07T

Military qualified to MIL-DTL-27599

38999

III

II

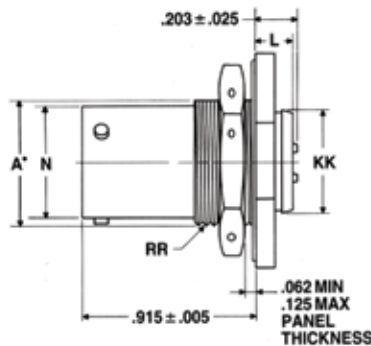
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SJT

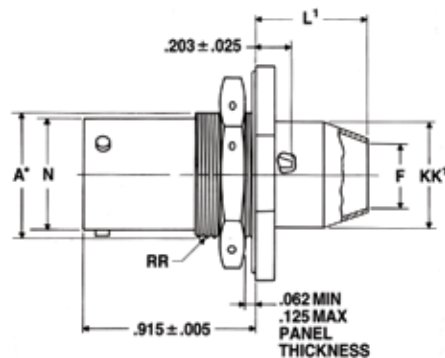
Access

Aquacon

Series I



Commercial
LJT07T-XX-XXX



Commercial **Military**
LJT07P-XX-XXX **MS20029P**

+ "D" shaped mounting hole dimensions

Shell Size	A+ +.000 -.010	C Max.	F Dia.	H Hex +.017 -.016	L Max.	L' Max.	N +.001 -.005	S ±.016	T+ +.010 -.000	KK +.011 -.000	KK' Dia. Max.	RR Thread Class 2A (Plated)
9	.669	1.199	.327	.875	.234	.625	.572	1.062	.697	.516	.608	.6875-24UNEF
11	.769	1.386	.444	1.000	.234	.625	.700	1.250	.822	.642	.734	.8125-20UNEF
13	.955	1.511	.558	1.188	.234	.625	.850	1.375	1.007	.766	.858	1.0000-20UNEF
15	1.084	1.636	.683	1.312	.234	.625	.975	1.500	1.134	.892	.984	1.1250-18UNEF
17	1.208	1.761	.808	1.438	.234	.625	1.100	1.625	1.259	1.018	1.110	1.2500-18UNEF
19	1.333	1.949	.909	1.562	.266	.625	1.207	1.812	1.384	1.142	1.234	1.3750-18UNEF
21	1.459	2.073	1.034	1.688	.266	.656	1.332	1.938	1.507	1.268	1.360	1.5000-18UNEF
23	1.580	2.199	1.159	1.812	.266	.750	1.457	2.062	1.634	1.392	1.484	1.6250-18UNEF
25	1.709	2.323	1.284	2.000	.266	.750	1.582	2.188	1.759	1.518	1.610	1.7500-18UNS

All dimensions for reference only.

PCB Wall Mounting Receptacle (Back Panel Mounting)

Commercial (LJTPQ00)

38999

III

II

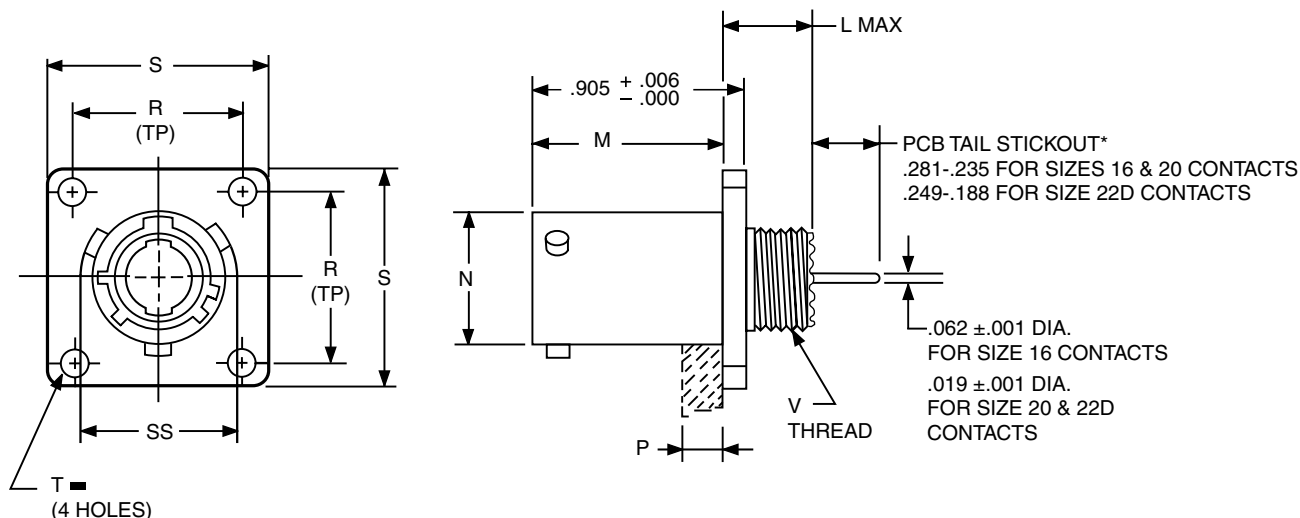
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SJT

Access

Aquacon

Series I



	1.	2.	3.	4.	5.
PART #	Shell Finish	Base Number	Coded Shell Size	Insert Arrg.	Contact Type/Alt. Keying
See chart below	88/91	569	70X	-35	P

HOW TO ORDER

1. SELECT A SHELL FINISH:

88	Designates olive drab cadmium plated connector shell
91	Designates electroless nickel plated connector shell

Consult Amphenol Aerospace for ordering of composite styles.

2. BASE NUMBER:

569	Base Number
------------	-------------

3. SELECT A CODED SHELL SIZE:

See chart below **701-709**, designates size 9-25 shell size. Example: **701** = Size 9 Shell

■ $\oplus$.005 DIA $\odot$

4. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
------------	--------------------------------------

5. CONTACT TYPE/ALTERNATE KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

Shell Size	Coded Shell Size	L Max.	M +.000 / -.005	N Dia.	P Max. Panel Thickness	R (TP)	S +.011 / -.010	T Dia. ±.005	V Thread Class 2A (Plated)	SS Dia. +.000 / -.016
9	701	.453	.820	.572	.234	.719	.938	.128	.4375-28 UNEF	.662
11	702	.453	.820	.700	.234	.812	1.031	.128	.5625-24 UNEF	.810
13	703	.453	.820	.850	.234	.906	1.125	.128	.6875-24 UNEF	.960
15	704	.453	.820	.975	.234	.969	1.219	.128	.8125-20 UNEF	1.085
17	705	.453	.820	1.100	.234	1.062	1.312	.128	.9375-20 UNEF	1.210
19	706	.453	.820	1.207	.234	1.156	1.438	.128	1.0625-18 UNEF	1.317
21	707	.484	.790	1.332	.204	1.250	1.562	.128	1.1875-18 UNEF	1.442
23	708	.484	.790	1.457	.204	1.375	1.688	.147	1.3125-18 UNEF	1.567
25	709	.484	.790	1.582	.193	1.500	1.812	.147	1.4375-18 UNEF	1.692

All dimensions for reference only.

Most common options are shown; other options are available.

PCB Wall Mounting Receptacle (Back Panel Mounting) (With Clinch Nuts)

Commercial (LJTPQ00)

38999

III

II

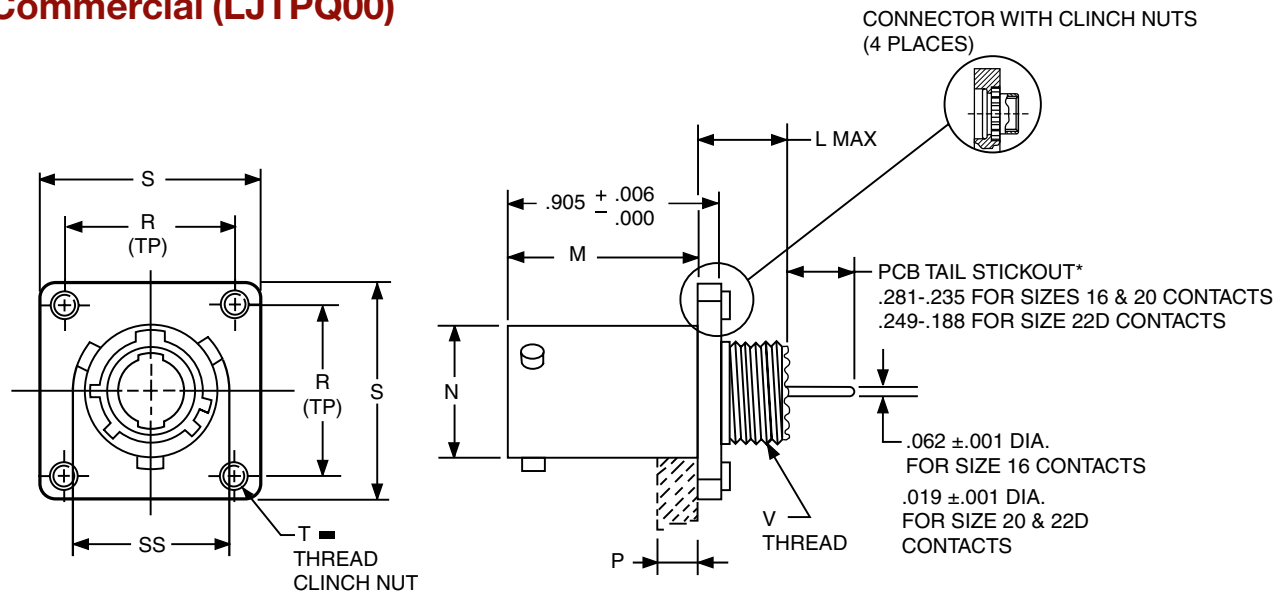
I

SJT

Access

Aquacon

Series I



	1.	2.	3.	4.	5.
PART #	Shell Finish	Base Number	Coded Shell Size	Insert Arrg.	Contact Type/Alt. Keying
See chart below	88/91	628	701	-35	P

HOW TO ORDER

1. SELECT A SHELL FINISH:

88	Designates olive drab cadmium plated connector shell
91	Designates electroless nickel plated connector shell

Consult Amphenol Aerospace for ordering of composite styles.

2. BASE NUMBER:

628	Base Number
------------	-------------

3. SELECT A CODED SHELL SIZE:

See chart below **701-709**, designates size 9-25 shell size. Example: **701**= Size 9 Shell

4. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
------------	--------------------------------------

5. CONTACT TYPE/ALTERNATE KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

⊕ .005 DIA (M)

Shell Size	Coded Shell Size	L Max.	M +.000 - .005	N Dia.	P Max. Panel Thickness	R (TP)	S +.011 - .010	T Thread	V Thread Class 2A (Plated)	SS Dia. +.000 - .016
9	701	.453	.820	.572	.234	.719	.938	.112-40UNJC-3B	.4375-28 UNEF	.662
11	702	.453	.820	.700	.234	.812	1.031	.112-40UNJC-3B	.5625-24 UNEF	.810
13	703	.453	.820	.850	.234	.906	1.125	.112-40UNJC-3B	.6875-24 UNEF	.960
15	704	.453	.820	.975	.234	.969	1.219	.112-40UNJC-3B	.8125-20 UNEF	1.085
17	705	.453	.820	1.100	.234	1.062	1.312	.112-40UNJC-3B	.9375-20 UNEF	1.210
19	706	.453	.820	1.207	.234	1.156	1.438	.112-40UNJC-3B	1.0625-18 UNEF	1.317
21	707	.484	.790	1.332	.204	1.250	1.562	.112-40UNJC-3B	1.1875-18 UNEF	1.442
23	708	.484	.790	1.457	.204	1.375	1.688	.138-32UNJC-3B	1.3125-18 UNEF	1.567
25	709	.484	.790	1.582	.193	1.500	1.812	.138-32UNJC-3B	1.4375-18 UNEF	1.692

All dimensions for reference only.

*Consult Amphenol for more information on ordering connectors with clinch nuts. There is also a 3mm clinch nut available (part number 88/91-628401/409)

Most common options are shown; other options are available.

PCB Box Mounting Receptacle (Back Panel Mounting)

Commercial (LJTP02)

38999

III

II

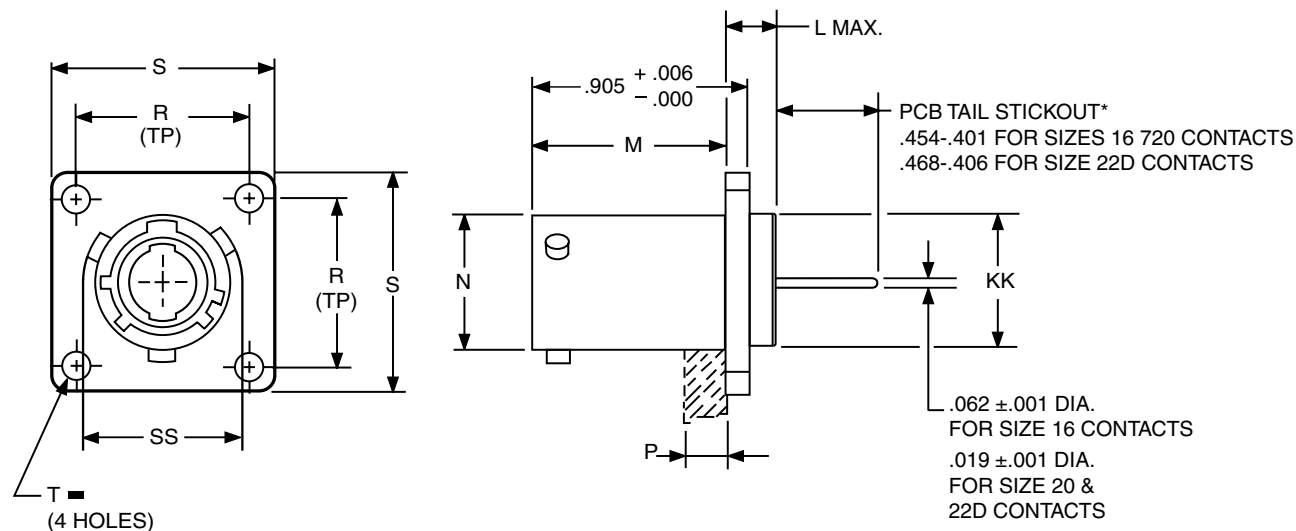
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SJT

Access

Aquacon

Series I



	1.	2.	3.	4.	5.
PART #	Shell Finish	Base Number	Coded Shell Size	Insert Arrg.	Contact Type/Alt. Keying
See chart below	88/91	569	71X	-35	P

HOW TO ORDER

1. SELECT A SHELL FINISH:

88	Designates olive drab cadmium plated connector shell
91	Designates electroless nickel plated connector shell

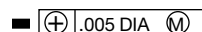
Consult Amphenol Aerospace for ordering of composite styles.

2. BASE NUMBER:

569	Base Number
------------	-------------

3. SELECT A CODED SHELL SIZE:

See chart below **711-719**, designates size 9-25 shell size. Example: **711** = Size 9 Shell



Shell Size	Coded Shell Size	L Max.	M +.000 - .005	N +.001 - .005	P Max. Panel Thickness	R (TP)	S +.011 - .010	T Dia. ±.005	KK Dia. +.006 - .005	SS Dia. +.000 - .016
9	711	.203	.820	.572	.234	.719	.938	.128	.433	.662
11	712	.203	.820	.700	.234	.812	1.031	.128	.557	.810
13	713	.203	.820	.850	.234	.906	1.125	.128	.676	.960
15	714	.203	.820	.975	.234	.969	1.219	.128	.801	1.085
17	715	.203	.820	1.100	.234	1.062	1.312	.128	.926	1.210
19	716	.203	.820	1.207	.234	1.156	1.438	.128	1.032	1.317
21	717	.234	.790	1.332	.204	1.250	1.562	.128	1.157	1.442
23	718	.234	.790	1.457	.204	1.375	1.688	.147	1.282	1.567
25	719	.234	.790	1.582	.193	1.500	1.812	.147	1.407	1.692

All dimensions for reference only.

Most common options are shown; other options are available.

4. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
------------	--------------------------------------

5. CONTACT TYPE/ALTERNATE KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

PCB Box Mounting Receptacle (Back Panel Mounting) (With Clinch Nuts)

Commercial (LJTP02)

38999

III

II

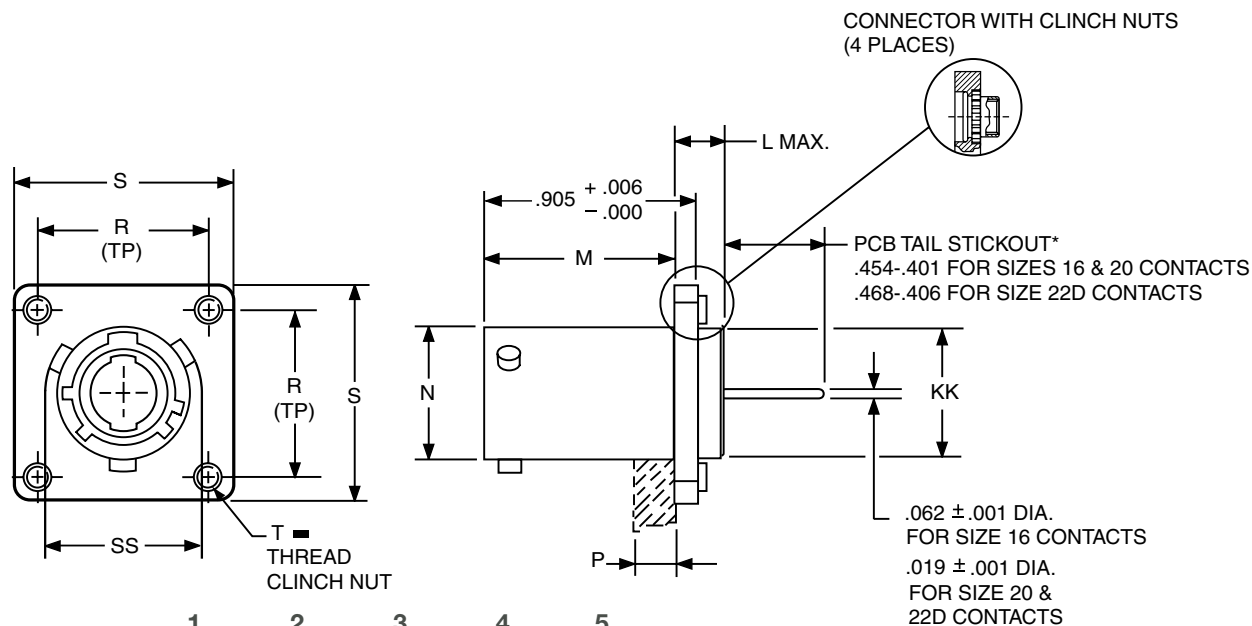
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SJT

Access

Aquacon

Series I



PART

See chart below

1.	2.	3.	4.	5.
Shell Finish	Base Number	Coded Shell Size	Insert Arrg.	Contact Type/Alt. Keying
88/91	628	71X	-35	P

HOW TO ORDER

1. SELECT A SHELL FINISH:

88	Designates olive drab cadmium plated connector shell
91	Designates electroless nickel plated connector shell

Consult Amphenol Aerospace for ordering of composite styles.

2. BASE NUMBER:

628	Base Number
-----	-------------

3. SELECT A CODED SHELL SIZE:

See chart below **711-719**, designates size 9-25 shell size. Example: **711** = Size 9 Shell

4. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
-----	--------------------------------------

5. CONTACT TYPE/ALTERNATE KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

⊕ .005 DIA M

Shell Size	Coded Shell	L Max.	M +.000 - .005	N +.001 - .005	P Max. Panel Thickness	R (TP)	S +.011 - .010	T Thread	KK Dia. +.006 - .005	SS Dia. +.000 - .016
9	711	.203	.820	.572	.234	.719	1.031	.112-40UNJC-3B	.433	.662
11	712	.203	.820	.700	.234	.812	1.125	.112-40UNJC-3B	.557	.810
13	713	.203	.820	.850	.234	.906	1.172	.112-40UNJC-3B	.676	.960
15	714	.203	.820	.975	.234	.969	1.281	.112-40UNJC-3B	.801	1.085
17	715	.203	.820	1.100	.234	1.062	1.375	.112-40UNJC-3B	.926	1.210
19	716	.203	.820	1.207	.234	1.156	1.469	.112-40UNJC-3B	1.032	1.317
21	717	.234	.790	1.332	.204	1.250	1.625	.112-40UNJC-3B	1.157	1.442
23	718	.234	.790	1.457	.204	1.375	1.750	.138-32UNJC-3B	1.282	1.567
25	719	.234	.790	1.582	.193	1.500	1.875	.138-32UNJC-3B	1.407	1.692

All dimensions for reference only.

*Consult Amphenol for more information on ordering connectors with clinch nuts. There is also a 3mm clinch nut available (part number 88/91-628410/419)

Most common options are shown; other options are available.

PCB Jam Nut Receptacle

Commercial (LJT07)

38999

III

II

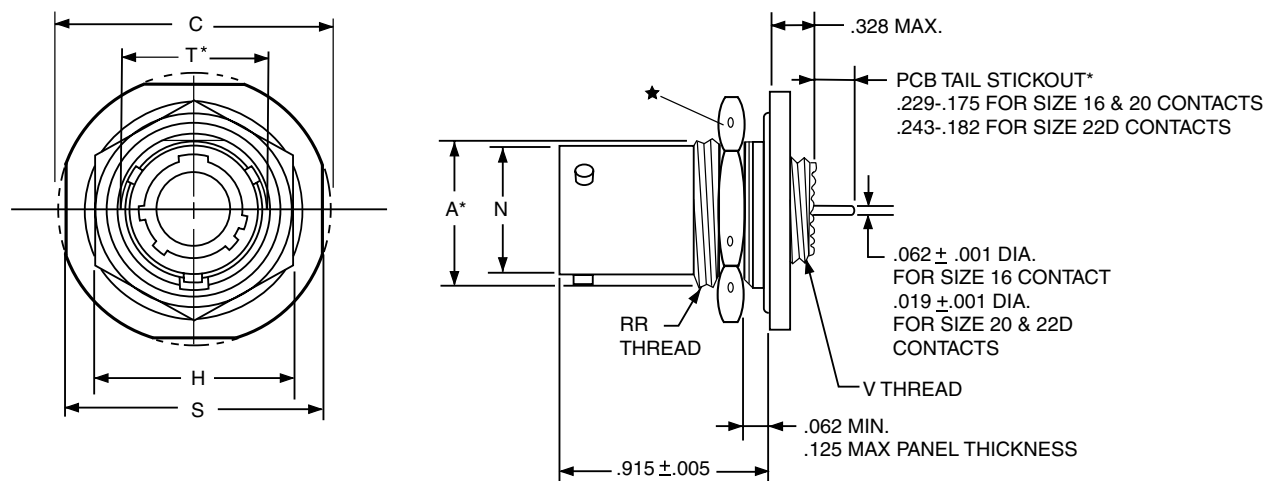
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SJT

Access

Aquacon

Series I



	1.	2.	3.	4.	5.
PART #	Shell Finish	Base Number	Coded Shell Size	Insert Arrg.	Contact Type/Alt. Keying
See chart below	88/91	569	72X	-35	P

HOW TO ORDER

1. SELECT A SHELL FINISH:

88	Designates olive drab cadmium plated connector shell
91	Designates electroless nickel plated connector shell

Consult Amphenol Aerospace for ordering of composite styles.

2. BASE NUMBER:

569	Base Number
-----	-------------

3. SELECT A CODED SHELL SIZE:

See chart below **721-729**, designates size 9-25 shell size.

Example: **721** = Size 9 Shell

4. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
-----	--------------------------------------

5. CONTACT TYPE/ KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

Shell Size	Coded Shell	A* +.000 -.010	C Max.	H Hex +.017 -.016	L Max.	N +.001 -.005	S ±.016	T* +.010 -.000	V Thread Class 2A (Plated)	RR Thread Class 2A (Plated)
9	721	.669	1.199	.875	.625	.572	1.062	.697	.4375-28 UNEF	.6875-24 UNEF
11	722	.769	1.386	1.000	.625	.700	1.250	.822	.5625-24 UNEF	.8125-20 UNEF
13	723	.955	1.511	1.188	.625	.850	1.375	1.007	.6875-24 UNEF	1.0000-20 UNEF
15	724	1.084	1.636	1.312	.625	.975	1.500	1.134	.8125-20 UNEF	1.1250-18 UNEF
17	725	1.208	1.761	1.438	.625	1.100	1.625	1.259	.9375-20 UNEF	1.2500-18 UNEF
19	726	1.333	1.949	1.562	.656	1.207	1.812	1.384	1.0625-18 UNEF	1.3750-18 UNEF
21	727	1.459	2.073	1.688	.750	1.332	1.938	1.507	1.1875-18 UNEF	1.5000-18 UNEF
23	728	1.580	2.199	1.812	.750	1.457	2.062	1.634	1.3125-18 UNEF	1.6250-18 UNEF
25	729	1.709	2.323	2.000	.750	1.582	2.188	1.759	1.4375-18 UNEF	1.7500-18 UNS

All dimensions for reference only.

Most common options are shown; other options are available.

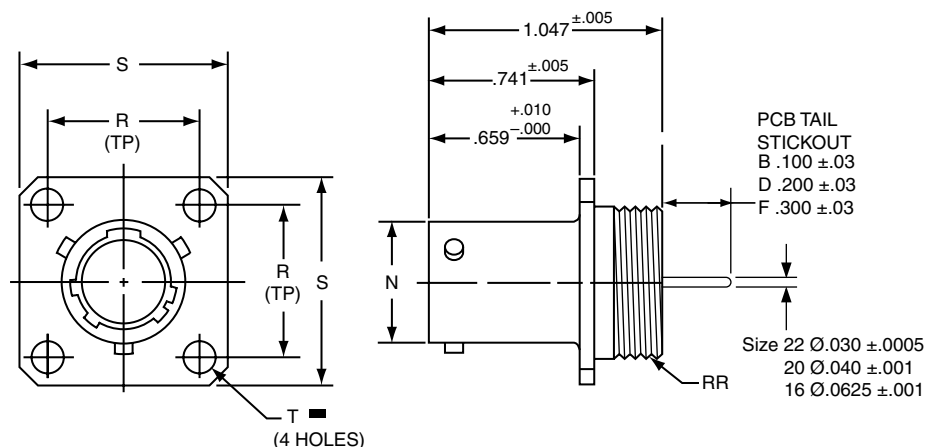
★ .059 dia. min. 3 lockwire holes.

Formed lockwire hole design (6 holes) is optional.

* "D" shaped mounting hole dimensions

PCB Hermetic Wall Mounting Receptacle

Commercial (LJT00)



	1.	2.	3.	4.	5.	6.
PART # See chart below	Base Number 10-626	Coded Shell Size 401	Insert Arrg. -35	Contact Type/ Alt. Keying Position P	Shell Finish 1	Tail Length B

HOW TO ORDER

1. BASE NUMBER:

10-626	Base Number for MIL-DTL-38999 Series III Hermetic with PCB Tail
---------------	--

2. SELECT A CODED SHELL SIZE:

See chart below **401-409**, designates size 9-25 shell size.

3. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
------------	--------------------------------------

4. CONTACT TYPE/ALTERNATE KEYING POSITIONS

Refer to page 118 for alternate rotation letters to use.

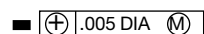
P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

5. SELECT A SHELL FINISH:

1	Hermetic seal, passivated Stainless Steel, 200°C
2	Hermetic seal, Stainless Steel w/Nickel Plate
3	Carbon Steel w/reflowed tin plate

6. SELECT A TAIL LENGTH:

B	.100±.03
D	.200±.03
F	.300±.03



Shell Size	Part Number	N Dia. +.001 -.005	R TP)	S ±.016	T Dia. ±.005	RR Thread Class 2A
9	10-626 401 -XXX	.572	.719	.938	.128	.6875-24 UNEF
11	402 -XXX	.700	.812	1.031	.128	.8125-20 UNEF
13	403 -XXX	.850	.906	1.125	.128	.9375-20 UNEF
15	404 -XXX	.975	.969	1.219	.128	1.0625-18 UNEF
17	405 -XXX	1.100	1.062	1.312	.128	1.1875-18 UNEF
19	406 -XXX	1.207	1.156	1.438	.128	1.3125-18 UNEF
21	407 -XXX	1.332	1.250	1.562	.128	1.4375-18 UNEF
23	408 -XXX	1.457	1.375	1.688	.147	1.5625-18 UNEF
25	409 -XXX	1.582	1.500	1.812	.147	1.6875-18 UNEF

All dimensions for reference only.

PCB Hermetic Jam Nut Receptacle

38999

III

II

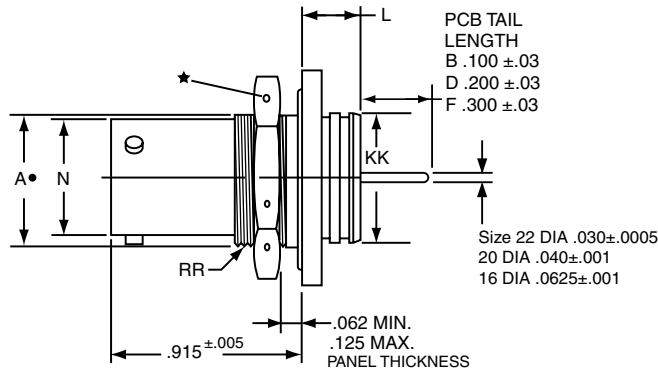
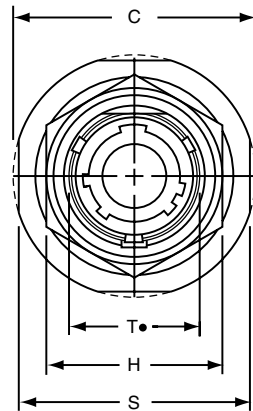
I

SJT

Access

Aquacon

Series I



	1.	2.	3.	4.	5.	6.
PART #	Base Number	Coded Shell Size	Insert Arrg.	Contact Type/ Alt. Keying Position	Shell Finish	Tail Length
See chart below	10-626	411	-35	P	1	B

HOW TO ORDER

1. BASE NUMBER:

10-626	Base Number for MIL-DTL-38999 Series III Hermetic with PCB Tail
---------------	---

2. SELECT A CODED SHELL SIZE:

See chart below **411-419**, designates size 9-25 shell size. Example: **411** = Size 9 Shell

3. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
------------	--------------------------------------

4. CONTACT TYPE/ KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

5. SELECT A SHELL FINISH:

1	Hermetic seal, passivated Stainless Steel, 200°C
2	Hermetic seal, Stainless Steel w/Nickel Plate
3	Carbon Steel w/reflowed tin plate

6. SELECT A TAIL LENGTH

B	.100±.03
D	.200±.03
F	.300±.03

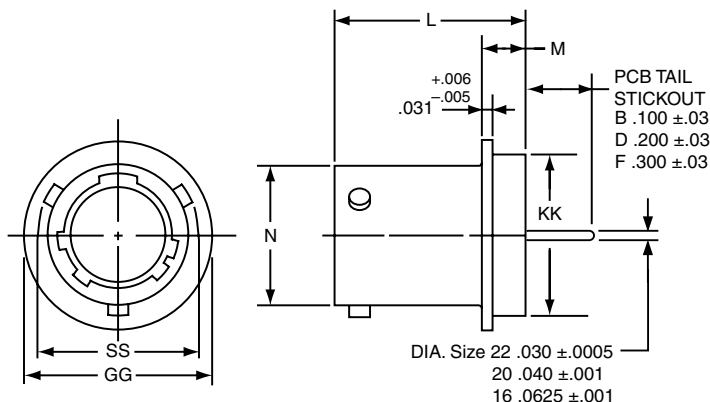
All dimensions for reference only.
Weld mounting hermetic receptacle also available.
Consult Amphenol for availability and dimensions.

Shell Size	Part Number	A+ +.000 -.010	C Max.	H Hex +.017 -.016	L Max.	N +.000 -.005	S ±.016	T+ +.010 -.000	KK +.011 -.000	RR Thread Class 2A (Plated)
9	10-626411 -XXX	.669	1.199	.875	.297	.572	1.062	.697	.642	.6875-24 UNEF
11	412 -XXX	.769	1.386	1.000	.297	.700	1.250	.822	.766	.8125-20 UNEF
13	413 -XXX	.955	1.511	1.188	.297	.850	1.375	1.007	.892	1.0000-20 UNEF
15	414 -XXX	1.084	1.636	1.312	.297	.975	1.500	1.134	1.018	1.1250-18 UNEF
17	415 -XXX	1.208	1.761	1.438	.297	1.100	1.625	1.259	1.142	1.2500-18 UNEF
19	416 -XXX	1.333	1.949	1.562	.328	1.207	1.812	1.384	1.268	1.3750-18 UNEF
21	417 -XXX	1.459	2.073	1.688	.328	1.332	1.938	1.507	1.392	1.5000-18 UNEF
23	418 -XXX	1.580	2.199	1.812	.328	1.457	2.062	1.634	1.518	1.6250-18 UNEF
25	419 -XXX	1.709	2.328	2.000	.328	1.582	2.188	1.759	1.642	1.7500-18 UNS

All dimensions for reference only.

PCB Hermetic Solder Mounting Receptacle

Commercial (LJTI)



	1.	2.	3.	4.	5.	6.
PART # See chart below	Base Number 10-626	Coded Shell Size 421	Insert Arrg. -35	Contact Type/ Alt. Keying Position P	Shell Finish 1	Tail Length B

HOW TO ORDER

1. BASE NUMBER:

10-626	Base Number for MIL-DTL-38999 Series III Hermetic with PCB Tail
---------------	---

2. SELECT A CODED SHELL SIZE:

See chart below **421-429**, designates size 9-25 shell size. Example: **421** = Size 9 Shell

3. SELECT AN INSERT ARRANGEMENT:

Refer to insert availability chart on page 2-5 and pin-out illustrations on pages 15-29.

-35	Designates Insert Arrangement Number
------------	--------------------------------------

4. CONTACT TYPE/ALTERNATE KEYING POSITIONS:

Refer to page 118 for alternate rotation letters to use.

P	Designates Pin Contacts in Normal Position
S	Designates Socket Contacts in Normal Position

5. SELECT A SHELL FINISH:

1	Hermetic seal, passivated Stainless Steel, 200°C
2	Hermetic seal, Stainless Steel w/Nickel Plate
3	Carbon Steel w/reflowed tin plate

6. SELECT A TAIL LENGTH:

B	.100±.03
D	.200±.03
F	.300±.03

All dimensions for reference only.
Weld mounting hermetic receptacle also available.
Consult Amphenol for availability and dimensions.

Shell Size	Part Number	N Dia. +.001 -.005	SS Dia. +.000 -.016	L +.011 -.000	M +.006 -.005	GG Dia. +.011 -.010	KK Dia. +.001 -.005
9	10-626 421 -XXX	.572	.662	.789	.125	.750	.672
11	422 -XXX	.700	.810	.789	.125	.844	.781
13	423 -XXX	.850	.960	.789	.125	.969	.906
15	424 -XXX	.975	1.085	.789	.125	1.094	1.031
17	425 -XXX	1.100	1.210	.789	.125	1.218	1.156
19	426 -XXX	1.207	1.317	.789	.125	1.312	1.250
21	427 -XXX	1.332	1.442	.789	.125	1.438	1.375
23	428 -XXX	1.457	1.567	.821	.156	1.563	1.500
25	429 -XXX	1.582	1.692	.821	.156	1.688	1.625

Series I, LJT Breakaway Fail Safe

Lanyard Release Plug How to Order, cont.

HOW TO ORDER-MILITARY FAIL SAFE MS27661

1. MS Number	2. Service Class	3. Shell Size	4. Finish	5. Insert Arrg.	6. Contact Style	7. Alternate Position
MS27661	T	17	B	35	P	A

1. MS27661 NUMBER

MS Number designates MIL-DTL-38999, Series I
LJT Lanyard Release Plug

2. SELECT A SERVICE CLASS

E	For environmental crimp applications (inactive for new design)
T	For environmental crimp applications with serrations on rear threads of shell

3. SELECT A SHELL SIZE

MIL-DTL-38999, sizes 11 through 25, see chart on page 141.

4. SELECT A FINISH

B	Designates corrosion resistant olive drab cadmium plated aluminum, 500 hour extended salt spray, EMI shielding effectiveness -50dB @ 10 GHz specification min., 175°C
F	Designates electroless nickel plated aluminum, 48 hour salt spray, EMI shielding effectiveness -65dB @ 10 GHz 500 specification min., 200°C

These are standard finishes. Consult Amphenol
Aerospace for variations.

5. SELECT AN INSERT ARRANGEMENT

MIL-DTL-38999, see insert identification chart on page 141.

6. SELECT A CONTACT STYLE

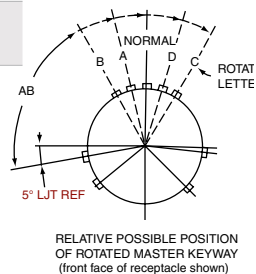
P	Designates Lanyard Release plug with pin contacts
S	Designates Lanyard Release plug with socket contacts

7. ALTERNATE KEYING POSITION

For alternate position of
connector (to prevent cross-mating)
see LJT key/keyway rotation below.
(No letter is required for normal)

LJT Key/Keyway Rotation

AB ANGLE OF ROTATION (Degrees)					
Shell Size	Normal	A	B	C	D
9	95°	77°	-	-	113°
11	95°	81°	67°	123°	109°
13	95°	75°	63°	127°	115°
15	95°	74°	61°	129°	116°
17	95°	77°	65°	125°	113°
19	95°	77°	65°	125°	113°
21	95°	77°	65°	125°	113°
23	95°	80°	69°	121°	110°
25	95°	80°	69°	121°	110°



HOW TO ORDER-COMMERCIAL FAIL SAFE 88-5388 OR 91-5388

1. Finish	2. Connector Type Identification	3. Shell Size & Insert Arrangement	4. Lanyard Length Code	5. Contact Type Alternate Rotation of Insert
88	5388	29	40	P

1. SELECT A FINISH

88	Designates corrosion resistant olive drab cadmium plate over nickel, 500 hour extended salt spray, EMI -50dB @ 10 GHz specification min., 175°C
91	Designates electroless nickel plated aluminum, optimum EMI shielding effectiveness -65dB @ 10 GHz specification min., 48 hour salt spray, 200°C

These are standard finishes. Consult Amphenol Aerospace,
Sidney, NY for variations.

2. CONNECTOR TYPE IDENTIFICATION

5388	Designates MIL-DTL-38999, Series I LJT Lanyard Release Plug
-------------	--

3. SELECT A SHELL SIZE & INSERT ARRANGEMENT

Shell sizes are MIL-DTL-38999, Series III from sizes 11 thru 25. The basic
part number selected specifies the insert arrangement. See Table I (page
141) for coded part number that correlates to insert arrangement.

4. SELECT A LANYARD LENGTH CODE

See Table II (page 141) for lanyard length code number.

5. SELECT A CONTACT TYPE/ALTERNATE ROTATION OF INSERT

P	Designates Lanyard Release plug with pin contacts
S	Designates Lanyard Release plug with socket contacts

When an alternate position of the connector is required to prevent cross-
mating, a different letter (other than P or S) is used. See
alternate positioning for LJT (to your left), then convert to Amphenol com-
mercial coding by the following chart below.

Pin Contacts		Socket Contacts	
MS Letter	Amphenol Letter	MS Letter	Amphenol Letter
P	P (normal)	S	S (normal)
PA	E	SA	F
PB	R	SB	T
PC	W	SC	X
PD	Y	SD	Z

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Series I, LJT Breakaway Fail Safe

Lanyard Release Plug Insert Availability

INSERT AVAILABILITY

Shell Size / Insert Arrangement	Service Rating	Total Contacts	Contact Size						
			22D	20	16	12	12 Coax	8 Coax*	8 Twinax
11-2	I	2			2				
11-35	M	13	13						
11-98	I	6		6					
13-4	I	4			4				
13-8	I	8		8					
13-35	M	22	22						
13-98	I	10		10					
15-5	II	5			5				
15-15	I	15		14	1				
15-18	I	18		18					
15-19	I	19		19					
15-35	M	37	37						
15-97	I	12		8	4				
17-6	I	6				6			
17-8	II	8			8				
17-26	I	26		26					
17-35	M	55	55						
17-99	I	23		21	2				
19-11	II	11			11				
19-32	I	32		32					
19-35	M	66	66						
21-11	I	11				11			
21-16	II	16			16				
21-35	M	79	79						
21-39	I	39		37	2				
21-41	I	41		41					
23-21	II	21			21				
23-35	M	100	100						
23-53	I	53		53					
23-54	M	53	40		9	4			
23-55	I	55		55					
25-4	I	56		48	8				
25-19	I	19				19			
25-20	N	30		10	13		4		3
25-24	I	24			12	12			
25-29	I	29			29				
25-35	M	128	128						
25-43	I	43		23	20				
25-46	I	46		40	4			2*	
25-61	I	61		61					

LJT Lanyard Separation Forces

Size	T-Straight Plug (lbs. max.)	U-15 Degree Pull (lbs. Max.)
9	Not Available	Not Available
11	15	20
13	20	25
15	25	30
17	30	35
19	35	45
21	45	55
23	55	65
25	65	75

* For RG 180/U and RG 195/U cables only. (Check Amphenol Aerospace, Sidney, NY for other cable applications). For availability of other insert arrangements and accessories consult Amphenol Aerospace.

TABLE I

INSERT ARRANGEMENT CODE

Basic Part Number	MIL-DTL-38999 Insert Arrangement
88/91-538808	11-99
06	11-35
07	11-98
10	13-4
11	13-8
13	13-98
14	13-35
18	15-5
22	15-18
19	15-19
20	15-35
27	17-6
28	17-8
29	17-26
30	17-35
31	17-99
37	19-11
39	19-32
40	19-35
47	21-11
48	21-16
49	21-35
50	21-41
51	21-39
57	23-21
58	23-35
59	23-53
60	23-55
66	25-19
74	25-4
67	25-29
68	25-35
69	25-43
70	25-61
71	25-46
72	25-2

TABLE II

LANYARD LENGTH CODES

Lanyard Length (in.) ±.250	MS	Commercial Code
4.000		40
4.250		41
4.500		42
4.750		43
5.000		50
5.250		51
5.500		52
5.750		53
6.000	No	60
6.250	Code	61
6.500		62
6.750	Std.	63
7.000	Length	70
7.250	6.250	71
7.500		72
7.750		73
8.000		80
8.250		81
8.500		82
8.750		83
9.000		90
9.250		91
9.500		92
9.750		93

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C

Series I, LJT Breakaway Fail Safe

Quick-Disconnect with Axial Pull of Lanyard

38999

Amphenol LJT Breakaway Fail Safe Connectors provide unequalled performance in environments requiring instant disengagement.

Designed to provide quick disconnect of a connector plug and receptacle with an axial pull on the lanyard, the "Breakaway" Fail Safe connector family offers a wide range of electrical and mechanical features:

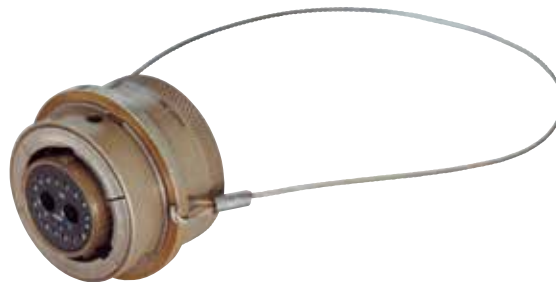
- Instant decoupling and damage free separation
- Completely intermateable with standard LJT receptacles
- Inventory support commonality through the use of standard insert arrangements and contacts

Breakaway un-mating is initiated by applying a pull force to the lanyard which causes the operating sleeve on the plug to move away from the receptacle. Coupling segments on the plug then move away from the mating receptacle while expanding, thus releasing the receptacle. After completion of the un-mating sequence, spring compression returns the sleeve and segments to their original positions. Un-mating of the plug may also be accomplished by normal rotation of the coupling ring without affecting the breakaway capability.

The LJT Breakaway Fail Safe connector features which provide EMI EMP shielding in excess of MIL-DTL-38999 Series I requirements:

- Solid metal-to-metal coupling
- EMI grounding fingers
- Conductive finishes

Contact Amphenol Aerospace for more information on breakaway, quick-disconnect connectors. Other Amphenol cylindrical families (MIL-DTL-38999 Series III, MIL-DTL-26482, MIL-DTL-83723) also offer breakaway quick-disconnect connectors.



LJT Breakaway Fail Safe

In addition to standard Breakaway connectors, Amphenol also manufactures custom breakaway connectors including those with:

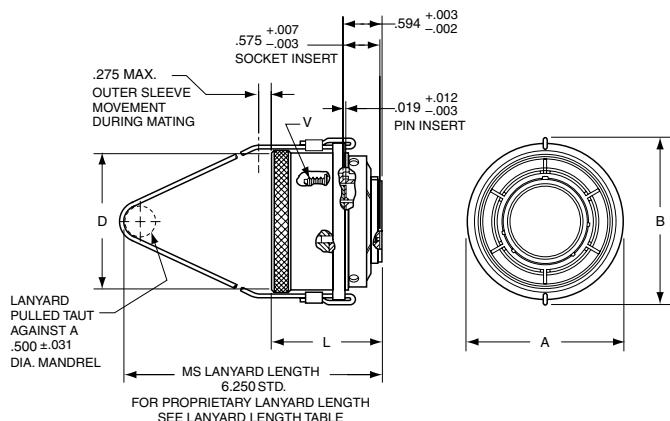
- Increased pull-force capability
- Custom lanyard lengths and backshells
- Low force separation capabilities
- Low insertion/separation force contacts
- Non-cadmium finishes

Custom JT Series Breakaway designs have been developed for special applications; however the LJT Series is recommended over the JT Series for the quick-disconnect breakaway style.

Lanyard Release Plug - Fail Safe

Military (MS27661)
Commercial (LJT 88-5388/91-5388)

To complete order number see page 141.



Shell Size	A Dia. Max.	B Max.	D Max. Accessory Dia.	L Max.	V Thread UNEF Class 2A (Plated)
11	1.393	1.797	.740	1.703	.5625-24
13	1.558	1.969	.926	1.703	.6875-24
15	1.669	2.078	1.051	1.703	.8125-20
17	1.797	2.203	1.176	1.703	.9375-20
19	1.926	2.323	1.300	1.703	1.0625-18
21	2.054	2.469	1.426	1.703	1.1875-18
23	2.183	2.594	1.551	1.703	1.3125-18
25	2.293	2.703	1.676	1.766	1.4375-18

All dimensions for reference only.

D



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SJT SHELL STYLES:

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Crimp Wall Mount Receptacle Back Panel Mount
SJTP00RT 147
Crimp Box Mounting Receptacle for Back Panel
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Crimp Jam Nut Receptacle SJT07RT 148
Crimp Straight Plug SJT06RT 149
Crimp Straight Plug with Grounding Fingers 149
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Hermetic Jam Nut Receptacle SJT07Y 150

ACCESSORIES:

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Amphenol SJT

Features, Specifications

Amphenol® SJT connectors combine unique design features of the scoop-proof LJT series within standard mounting dimensions of JT types. Available in a wide range of shell sizes, finishes, insert arrangements and accessories.

Components

Standard connectors use aluminum shells. Standard plating on shell components is cadmium over nickel with many optional finishes available. A dependable 5-key/keyway shell polarization with bayonet-lock coupling is incorporated to aid and assure positive mating.

The insert material is a high-temperature, rigid dielectric polymer providing excellent electrical characteristics. A fluorinated silicone interfacial seal is featured on the mating face of the pin inserts, assuring complete electrical isolation of the pins when connector halves are mated. Contrasting letter or number designations are used on the insert faces. A main joint gasket is installed in the receptacles for moisture sealing between connector halves.

Serrated and threaded shells, with a moisture sealing pilot for back shells, accept a wide range of accessories. Hermetic seal receptacles are available in carbon steel or stainless steel shells.

Contacts

Rear insertable/rear release crimp contacts are standard in SJT connectors. Power contacts are available in sizes 10, 12, 16, 20, 22M and 22D. All socket contacts are probe proof. Standard contact plating is 50 mμ minimum gold. Coaxial contacts are available in sizes 8, 12 and 16 to accommodate a wide range of coaxial cables; see Coaxial contact information in the High Speed Contact section of this catalog. Size 8 and 12 Twinax contacts are also available; see Concentric Twinax contact information in the High Speed Contact section of this catalog.

Optional Features

Special adaptations of the SJT are available for hermetic and high temperature applications. The SJTS high temperature connector is rated at 392°F. SJT hermetic receptacles are described on page 150.

Specials

Special types are available, such as connectors less contacts and circular rack and panel connectors with solderless wrap contacts. A complete listing of connector types, shell styles and service classes appears on page 146, How to Order. For further information on special application requirements, contact an Amphenol Sales Person or visit www.amphenol-aerospace.com for more information.



SJT features:

- 100% scoop-proof design – basic MIL-DTL-38999 Series I* lengths
- Standard mounting dimensions – MIL-DTL-38999, Series II** dimensions
- Compliance with European Specifications – PAN6433-2, LN29729, VG96912

CONTACT RATING

Contact Size	Test Current		Maximum Millivolt Drop Crimp*	Maximum Millivolt Drop Hermetic
	Standard	Hermetic		
22M	3	2	45	60
22D	5	3	73	85
22	5	3	73	85
20	7.5	5	55	60
16	13	10	49	85
12	23	17	42	85
10 Power	33	NA	33	NA

* When using silver plated wire

Contact Size	Crimp Well Data	
	Well Diameter	Min. Well Depth
22M	.028 ±.001	.141
22D	.0345 ±.0010	.141
22	.0365 ±.0010	.141
20	.047 ±.001	.209
16	.067 ±.001	.209
12	.100 ±.002	.209
10 (Power)	.137 ±.002	.355

SERVICE RATING**

Service Rating	Suggested Operating Voltage (Sea Level)		Test Voltage (Sea Level)	Test Voltage 50,000 Ft.	Test Voltage 70,000 Ft.	Test Voltage 110,000 Ft.
	AC (RMS)	DC				
M	400	550	1300 VRMS	550 VRMS	350 VRMS	200 VRMS
N	300	450	1000 VRMS	400 VRMS	260 VRMS	200 VRMS
I	600	850	1800 VRMS	600 VRMS	400 VRMS	200 VRMS
II	900	1250	2300 VRMS	800 VRMS	500 VRMS	200 VRMS

** Please note that the establishment of electrical safety factors is left entirely in the designer's hands, since he is in the best possible position to know what peak voltage, switching surges, transients, etc., can be expected in a particular circuit.

How to Order, Alternate Rotations

1.	2.	3.	4.	5.
Connector Type SJT, Shell Style, Service Class	Shell Size-Insert Arrangement.	Contact Type	Alternate Keying Position	Finish Variations Suffix
SJT00RT	18-66	P	A	(XXX)

		SJT SERIES		
		Standard Scoop-Proof Junior Tri-Lock	High Temperature	Back Panel Mounted
CONNECTOR TYPE & STYLE	Receptacle Crimp	Wall Mounting Receptacle (without rear accessories)	SJT00RT	SJTP00RT
		Box Mounting Receptacle (with grommet & nut) (can be supplied with strain relief integral)		SJTP02RE
		Jam Nut Receptacle (without rear accessories)	SJT07RT	
Plugs	Straight Plug	SJT06RT		
	Straight Plug with Grounding Fingers	SJTG06RT		
Fused compression glass sealed inserts. Leakage rate less than 1.0x10 ⁻⁶ cc/sec at 15 psi differential; with interfacial seal.				
Hermetic	Jam Nut Receptacle	SJT07Y		
	Solder Mounting Receptacle	SJTIY		

2. SHELL SIZE & INSERT ARRANGEMENT

SEE PAGE 146

First number represents Shell Size,
second number is the Insert Arrangement.

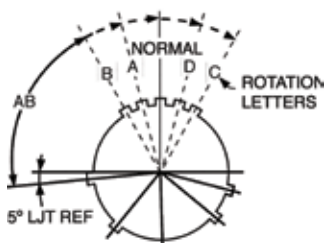
4. ALTERNATE KEYING POSITION

A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The AB angle for a given connector is the same whether it contains pins or sockets. Inserts are not rotated in conjunction with the master key/keyway.

AB angles shown are viewed from the front face of the connector. A receptacle is shown below. The angles for the plug are exactly the same, except the direction of rotation is opposite of that shown for the receptacle.

KEY/KEYWAY ROTATION AB ANGLE OF ROTATION (DEGREES)

Shell Size	Normal	A	B	C	D
8	95				
10	95	81	67	123	109
12	95	75	63	127	115
14	95	74	61	129	116
16	95	77	65	125	113
18	95	77	65	125	113
20	95	77	65	125	113
22	95	80	69	121	110
24	95	80	69	121	110



**RELATIVE POSSIBLE
POSITION OF ROTATED
MASTER KEYWAY
(front face of
receptacle shown)**

3. CONTACT TYPE

P	Pin Contacts
S	Socket Contacts

5. FINISH VARIATION SUFFIX

Finish	Suffix
Aluminum Shell Components Non-Hermetic	SJT/SJTG
Bright Cadmium Plated Nickel Base	Blank Default
Anodic Coating (Alumilite)	(005)
Chromate Treated (Iridite 14-2)	(011)
Olive Drab Cadmium Plate Nickel Base	(014)
Electroless Nickel Coating	(023)
Hermetic Connectors	
Carbon Steel Shell, Tin Plated Shell and Contacts	SJT()Y
Stainless Steel Shell, Gold Plated Contacts	Consult Amphenol

38999

III

II

I

SJT

Access

Aquacon

SJT

D

SJT

Insert Availability and Identification

38999

III

II

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SJT

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SJT

D

Shell Size	Crimp	Hermetics* Class Y	Service Rating	Total Contacts	Contact Size									
					22D	22M	22	20	16	12	12 (Coax)	10 (Power)	8 (Coax)	8††† (Twinax)
8-6	X		M	6		6								
8-35	X		M	6	6									
8-44	X		M	4			4							
8-98	X		I	3				3						
10-2	X		I	2					2					
10-4	□		I	4				4						
10-5	X		I	5				5						
10-13	X		M	13		13								
10-35	X		M	13	13									
10-98	X		I	6				6						
12-4	X		I	4					4					
12-8	X		I	8				8						
12-22	X		M	22		22								
12-35	X		M	22	22									
12-98	X	X	I	10				10						
14-5	X		II	5					5					
14-15	X		I	15				14	1					
14-18	X		I	18				18						
14-19	X	X	I	19				19						
14-35	X	X	M	37	37									
14-37	X	X	M	37		37								
14-97	X		I	12				8	4					
16-2	□		M	39	38									1**
16-6	X		I	6						6				
16-8	X		II	8					8					
16-13	□		I	13					13					
16-26	X		I	26				26						
16-35	X		M	55	55									
16-42	X		M	42			42							
16-55	X		M	55		55								
16-99	X	X	I	23				21	2					
18-11	X		II	11					11					
18-32	X		I	32				32						
18-35	X	X	M	66	66									
18-66	X	X	M	66		66								
20-1	X	X	M	79		79								
20-2	X		M	65			65							
20-11	X		I	11						11				
20-16	X		II	16					16					
20-35	X	X	M	79	79									
20-39	X		I	39				37	2					
20-41	X		I	41				41						
20-75	□		M	4									4††	
20-79	□		II	19	17								2†	
22-1	X	X	M	100		100								
22-2	X		M	85			85							
22-21	X		II	21					21					
22-35	X	X	M	100	100									
22-53	X		I	53				53						
24-1	X		M	128		128								
24-2	X		M	100			100							
24-4	X		I	56				48	8					
24-7	X		M	99	97									2**
24-11	□		N	11				2				9		
24-19	X		I	19						19				
24-20	□		N	30				10	13***		4			3
24-24	X		I	24					12	12				
24-29	X		I	29					29					
24-35	X		M	128	128									
24-37	X		I	37					37					
24-43	□		I	43				23	20					
24-46	□		I	46				40	4				2††	
24-61	X		I	61				61						

□ Not tooled for 02-RE

* Pin inserts only (contact Amphenol for socket availability).

** twinax contacts for MIL-C-17/176-00002 cable.

*** Two size 16 contacts dedicated to fiber optics. Consult Amphenol or Fiber Optic Section for more information.

† Must be ordered separately

†† Coax Contacts for RG180 or RG195 cable.

††† Size 8 Coax and Twinax are interchangeable.

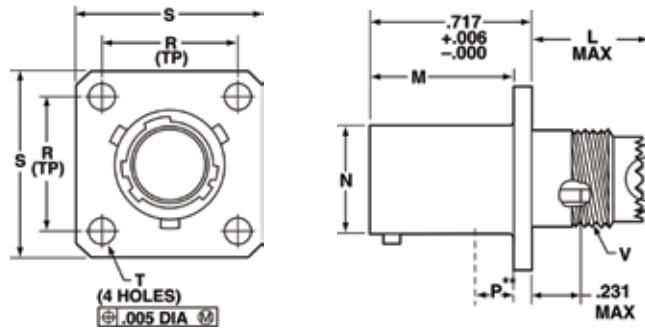
For availability of size 12 twinax contacts, consult Amphenol Aerospace.

SJT00RT – Crimp Wall Mounting Receptacle

PART NUMBER BUILDER Page 145

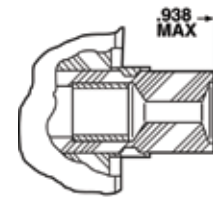
Commercial

SJT00RT



Note: Standard wall mount may be back panel mounted where panel thickness does not exceed these dimensions.
For thicker panel applications, SJTP00RT should be used.

Shell Size	L Max	M +.000 -.005	R (TP)	S ±.016	T ±.005	V Thread Modified			N +.001 -.005	P** Max
						Class 2A UNEF (Plated)	Modified Major Dia.			
8	.500	.632	.594	.812	.120	.4375-28	.421 –	.417	.473	.117
10	.500	.632	.719	.938	.120	.5625-24	.542 –	.538	.590	.117
12	.500	.632	.812	1.031	.120	.6875-24	.667 –	.663	.750	.117
14	.500	.632	.906	1.125	.120	.8125-20	.791 –	.787	.875	.117
16	.500	.632	.969	1.219	.120	.9375-20	.916 –	.912	1.000	.117
18	.500	.632	1.062	1.312	.120	1.0625-18	1.034 –	1.030	1.125	.117
20	.500	.602	1.156	1.438	.120	1.1875-18	1.158 –	1.154	1.250	.087
22	.500	.602	1.250	1.562	.120	1.3125-18	1.283 –	1.279	1.375	.087
24	.550	.602	1.375	1.688	.147	1.4375-18	1.408 –	1.404	1.500	.055



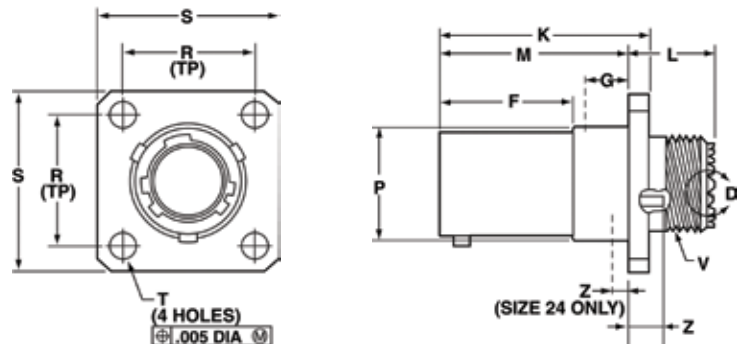
VIEW D ENLARGED
FOR COAXIAL USE ONLY

SJTP00RT – Crimp Wall Mounting Receptacle (Back Panel Mounting)

PART NUMBER BUILDER Page 145

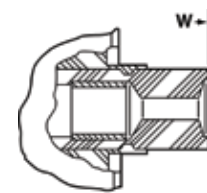
Commercial

SJTP00RT



Shell Size	F +.000 -.005	K +.006 -.000	L Max.	M +.000 -.005	R (TP)	S +.011 -.010	T ±.005	Z ±.031	V Thread Class 2A (Plated) UNEF	P Dia. +.001 -.005	W Max.	G Max.
8	.609	.945	.539	.860	.594	.812	.120	.062	.4375-28	.516	.812	.345
10	.609	.945	.539	.860	.719	.938	.120	.062	.5625-24	.633	.812	.345
12	.609	.945	.539	.860	.812	1.031	.120	.062	.6875-24	.802	.812	.345
14	.609	.945	.539	.860	.906	1.125	.120	.062	.8125-20	.927	.812	.345
16	.609	.945	.539	.860	.969	1.219	.120	.062	.9375-20	1.052	.812	.345
18	.609	.945	.539	.860	1.062	1.312	.120	.062	1.0625-18	1.177	.812	.345
20	.609	.945	.539	.860	1.156	1.438	.120	.062	1.1875-18	1.302	.812	.345
22	.609	.945	.539	.860	1.250	1.562	.120	.062	1.3125-18	1.427	.812	.345
24	.750	1.085	.493	1.000	1.375	1.688	.147	.078	1.4375-18	1.552	.781	.452

All dimensions for reference only.



VIEW D ENLARGED
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38999

III

II

I

SJT

Access

Aquacon

SJT

D

SJTP02RE – Crimp

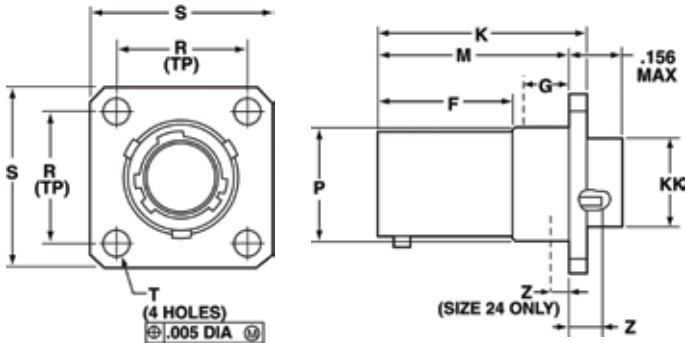
Box Mounting Receptacle (Back Panel Mounting)

38999

PART NUMBER BUILDER Page 145

Commercial

SJTP02RE



Shell Size	F +.000 -.005	K +.006 -.000	M +.000 -.005	R (TP)	S +.011 -.010	T ±.005	Z ±.031	P Dia. +.001 -.005	KK Dia. +.005 -.002	G Max.
8	.609	.945	.860	.594	.812	.120	.062	.516	.417	.345
10	.609	.945	.860	.719	.938	.120	.062	.633	.538	.345
12	.609	.945	.860	.812	1.031	.120	.062	.802	.663	.345
14	.609	.945	.860	.906	1.125	.120	.062	.927	.787	.345
16	.609	.945	.860	.969	1.219	.120	.062	1.052	.912	.345
18	.609	.945	.860	1.062	1.312	.120	.062	1.177	1.030	.345
20	.609	.945	.860	1.156	1.438	.120	.062	1.302	1.154	.345
22	.609	.945	.860	1.250	1.562	.120	.062	1.427	1.279	.345
24	.750	1.085	1.000	1.375	1.688	.147	.078	1.552	1.404	.452

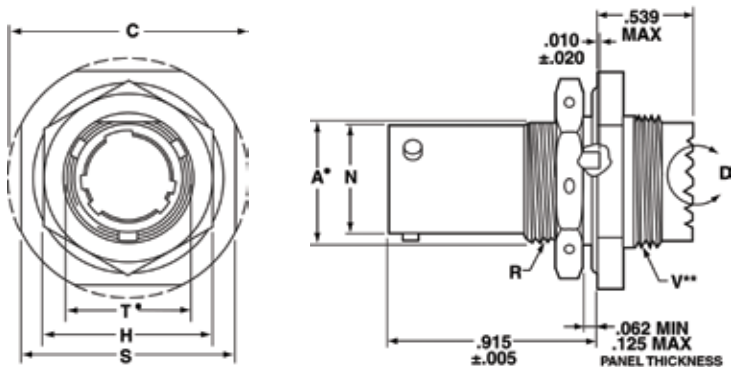
SJT07RT – Crimp

Jam Nut Receptacle

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Commercial

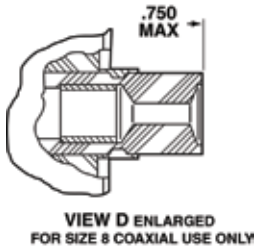
SJT07RT



- “D” shaped panel cut-out dimensions
- ** Oversize threads. Check accessory threads before ordering

Shell Size	A* +.000 -.010	H Hex +.017 -.016	S ±.016	V Thread Class 2A UNEF (Plated)	R Thread Class 2A UNEF (Plated)	N +.001 -.005	C Max.	T* +.010 -.000
8	.542	.750	.938	.5625-24	.5625-24	.473	1.078	.572
10	.669	.875	1.062	.6875-24	.6875-24	.590	1.203	.697
12	.830	1.062	1.250	.8125-20	.8750-20	.750	1.391	.884
14	.955	1.188	1.375	.9375-20	1.0000-20	.875	1.515	1.007
16	1.084	1.312	1.500	1.0625-18	1.1250-18	1.000	1.641	1.134
18	1.208	1.438	1.625	1.1875-18	1.2500-18	1.125	1.766	1.259
20	1.333	1.562	1.812	1.3125-18	1.3750-18	1.250	1.953	1.384
22	1.459	1.688	1.938	1.4375-18	1.5000-18	1.375	2.078	1.507
24	1.580	1.812	2.062	1.4375-18	1.6250-18	1.500	2.203	1.634

All dimensions for reference only.



D

SJT06RT/SJTG06RT – Crimp

Straight Plug/Straight Plug (with Grounding Fingers)

PART NUMBER BUILDER Page 145

Commercial

SJT06RT
SJTG06RT

38999

III

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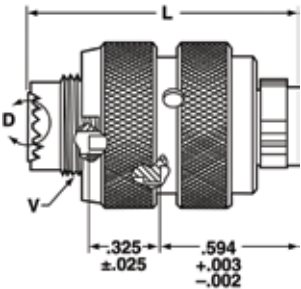
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SJT

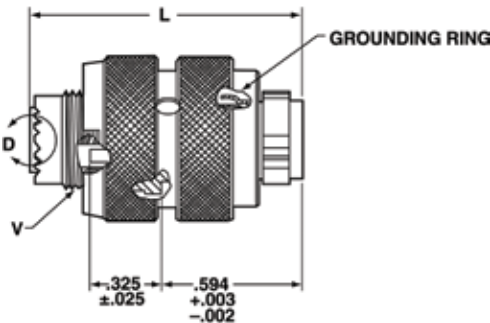
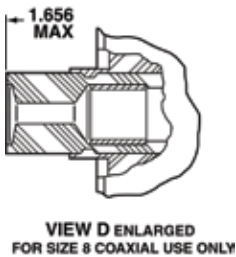
Access

Aquacon

SJT



SJT06RT



SJTG06RT



Shell Size	L Max	Q Dia. Max.	V Thread	
			Class 2A UNEF (Plated)	Modified Major Dia.
8	1.219	.734	.4375-28	.421 – .417
10	1.219	.844	.5625-24	.542 – .538
12	1.219	1.016	.6875-24	.667 – .663
14	1.219	1.141	.8125-20	.791 – .787
16	1.219	1.265	.9375-20	.916 – .912
18	1.219	1.391	1.0625-18	1.034 – 1.030
20	1.219	1.500	1.1875-18	1.158 – 1.154
22	1.219	1.625	1.3125-18	1.283 – 1.279
24	1.258	1.750	1.4375-18	1.408 – 1.404

All dimensions for reference only.

D

SJTIY – Hermetic

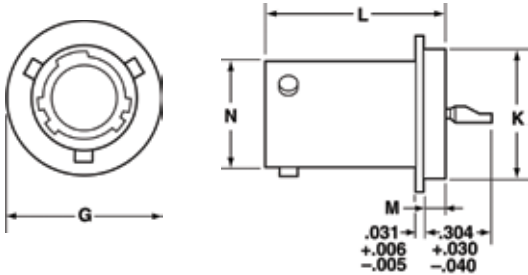
Solder Mounting Receptacle

38999

PART NUMBER BUILDER Page 145

Commercial

SJTIY



Shell Size	L +.011 -.000	M +.006 -.005	G Dia. +.011 -.010	K Dia. +.001 -.005	N +.001 -.005
8	.789	.125	.687	.562	.473
10	.789	.125	.797	.672	.590
12	.789	.125	.906	.781	.750
14	.789	.125	1.031	.906	.875
16	.789	.125	1.156	1.031	1.000
18	.789	.125	1.281	1.156	1.125
20	.789	.125	1.375	1.250	1.250
22	.821	.156	1.500	1.375	1.375
24	.821	.156	1.625	1.500	1.500

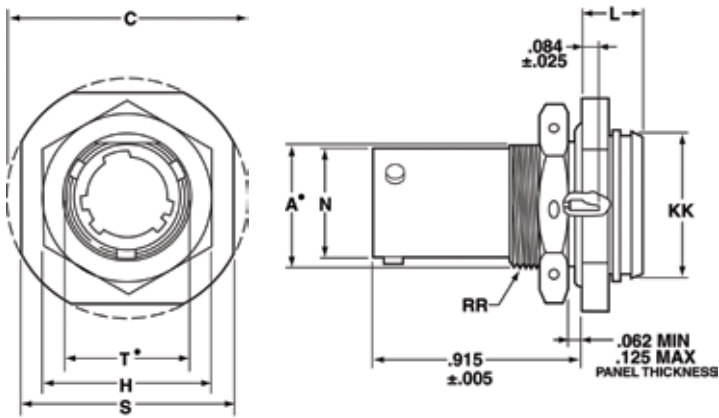
SJT07Y – Hermetic

Jam Nut Receptacle

PART NUMBER BUILDER Page 145

Commercial

SJT07Y



- “D” shaped panel cut-out dimensions

Shell Size	N +.001 -.005	C Max.	A* +.000 -.010	L Max.	H Hex +.017 -.016	S ±.016	KK +.011 -.000	RR Thread Class 2A UNEF (Plated)	T* +.010 -.000
8	.473	1.078	.542	.297	.750	.938	.642	.5625-24	.572
10	.590	1.203	.669	.297	.875	1.062	.766	.6875-24	.697
12	.750	1.391	.830	.297	1.062	1.250	.892	.8750-20	.884
14	.875	1.515	.955	.297	1.188	1.375	1.018	1.0000-20	1.007
16	1.000	1.641	1.084	.297	1.312	1.500	1.142	1.1250-18	1.134
18	1.125	1.766	1.208	.328	1.438	1.625	1.268	1.2500-18	1.259
20	1.250	1.953	1.333	.328	1.562	1.812	1.392	1.3750-18	1.384
22	1.375	2.078	1.459	.328	1.688	1.938	1.518	1.5000-18	1.507
24	1.500	2.203	1.580	.328	1.812	2.062	1.642	1.6250-18	1.634

All dimensions for reference only.

D

E



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AJOH Hermetic Square Flange Receptacle 161

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Contact Installation 164

Aquacon Immersible Connectors

Design Features

38999

The Amphenol® Aquacon Series of connectors has been designed to provide maximum service in oceanic or fluid immersion applications.

The AJ Aquacon offers the following features:

- 1500 PSI Capability
- “O” Ring Sealing, Thread
- Threaded Coupling
- Visual Mating Indication
- Design Flexibility

A specially designed aluminum bronze coupling nut and type 316 stainless steel shells resist corrosion and provide a pressure withstanding connector. Positive threaded coupling. “O” rings, and a color band visual indicator assure sealing and proper mating. A rear accessory thread provides for the use of EMI hardware or molding adapters.

Aquacon Connectors are available in a straight plug and two receptacle styles (see photos at right), with numerous MIL-DTL-38999 insert patterns

AJ Aquacons use JT (38999 type) inserts that incorporate contact sizes 22D, 22M, 22, 20 or 16. AS Aquacons use SJT (38999 type) inserts that incorporate size 12 contacts.

Hermetically sealed (1×10^{-6} cc/sec leakage rate) arrangements are also available.



STRAIGHT PLUG
AJ6 / AS6



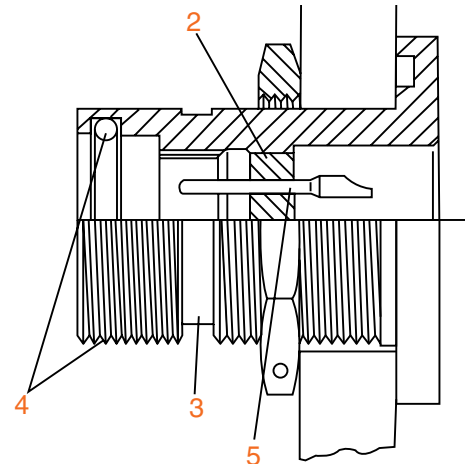
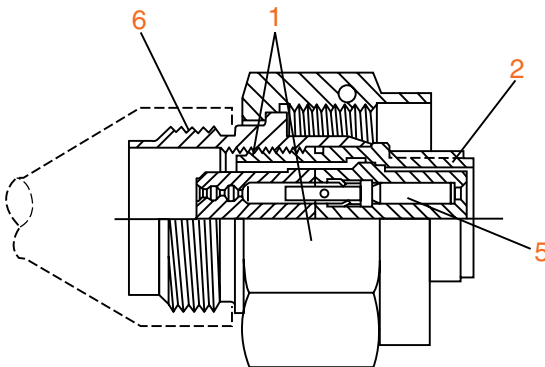
HERMETIC
JAM NUT RECEPTACLE
AJ7H/AS7H

NON-HERMETIC
JAM NUT RECEPTACLE
AJ7 / AS7



HERMETIC
SQUARE FLANGE
RECEPTACLE
AJ0H

DESIGN FEATURES OF AQUACON SERIES CONNECTORS



1. Corrosion resistant aluminum bronze coupling nut and stainless steel sleeve
2. Hermetic and non-hermetic inserts in MIL-DTL-38999 patterns. Glass or hard dielectric material.
3. Visual mating indicator
4. 1500 PSI sealing capability assured by threaded coupling and “O” ring
5. Pin or socket contacts in either plug or receptacle
6. Environmental resistant molded cable terminations with or without EMI accessory

Aquacon

E

Aquacon Series

Specifications, Alternate Positioning

AQUACON CONTACT RATINGS

Contact Size	Test Current		Maximum Millivolt Drop			Crimp Well Data		Solder Well Data		
	Standard	Hermetic	Crimp	Solder	Solder Hermetic	Diameter	Depth	Diameter	Depth	
22M	3	2	30	20	60	.029 ±.001	.141	.029	+ .004 - .000	.094
22D	5	–	40	–	–	.0345 ±.001	.141	–		–
22	5	3	40	20	85	.0365 ±.001	.141	.036	+ .004 - .000	.094
20	7.5	5	35	20	60	.047 ±.001	.209	.044	+ .004 - .000	.125
16	13	10	25	20	85	.067 ±.001	.209	.078	+ .004 - .002	.141
12	23	17	25	20	85	.100 ±.002	.209	.116 ±.004		.151

AQUACON SERVICE RATINGS

Service Rating	Suggested Operating Voltage (Sea Level)	
	AC (RMS)	DC
M	400	550
I	600	850
II	900	1250

The establishment of electrical safety factors is left entirely in the designer's hands, as he can best determine what peak voltage, switching surges, transients, etc. can be expected in a particular circuit.

ALTERNATE POSITIONING

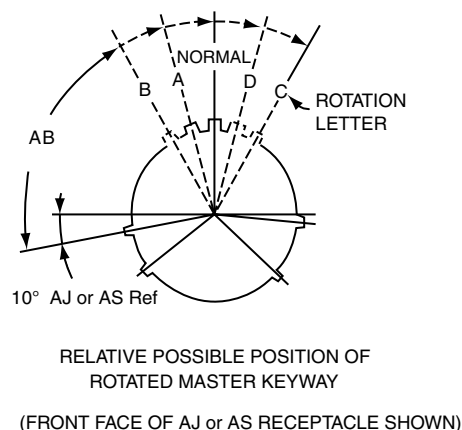
Alternate positioning of connectors allows connectors with identical insert arrangements to be mounted side by side by providing a positive means of eliminating inadvertent cross-mating or cross-plugging.

Alternate positioning of Aquacon Series is achieved by a rotation of the master key/keyway, relative to the insert, as part of the shell manufacturing operation.

Recommended practice is to use alternate position inserts only when necessary.

AQUACON MASTER KEY/KEYWAY ROTATION

Shell Size	AB Angle of Rotation (Degrees)				
	Normal	A	B	C	D
8	100	82			118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115



38999

III

II

I

SJT

Access

Aquacon

Aquacon

E

Aquacon Series

Insert Availability

38999

III
II
I
SJT
Access
Aquacon

Aquacon

Aquacon Shell Size	Solder	Crimp	Hermetic*	Service Rating**	Total Contacts	Contact Size					
						22D	22M	22	20	16	12
8-3	X		X	M	3				3		
8-6	X	X	X	M	6		6				
8-35		X	X	M	6	6					
8-44		X		M	4			4			
8-98		X	X	I	3				3		
10-5	X	X	X	I	5				5		
10-13	X	X	X	M	13		13				
10-35		X	X	M	13	13					
10-98	X	X	X	I	6				6		
12-3	X	X	X	II	3					3	
12-8	X	X	X	I	8				8		
12-35		X	X	M	22	22					
12-98	X	X	X	I	10				10		
14-5	X	X	X	II	5					5	
14-15	X	X		I	15				14	1	
14-18	X	X	X	I	18				18		
14-35		X	X	M	37	37					
14-37	X	X	X	M	37		37				
16-6†		X	X	I	6						6
16-8	X	X	X	II	8					8	
16-26	X	X	X	I	26				26		
16-35		X	X	M	55	55					
16-55	X	X	X	M	55		55				
18-11	X	X		II	11					11	
18-32	X	X	X	I	32				32		
18-35		X	X	M	66	66					
18-66	X	X	X	M	66		66				
20-1		X		M	79		79				
20-2		X		M	65			65			
20-16	X	X	X	II	16					16	
20-35		X		M	79	79					
20-39	X	X		I	39				37	2	
20-41	X	X	X	I	41				41		
22-2	X	X		M	85			85			
22-21	X	X	X	II	21					21	
22-32	X			I	32				32		
22-35		X		M	100	100					
22-55	X	X	X	I	55				55		
24-19†		X	X	I	19						19
24-24†		X		I	24					12	12
24-35		X		M	128	128					
24-61	X	X		I	61				61		

* Tooled for pin inserts only (contact Amphenol for socket availability).

** See specifications

† AS Aquacon version - these arrangements use SJT (38999 type) patterns that incorporate size 12 contacts. See how to order page 157.

Additional insert arrangements may be made available upon request.

Aquacon Series

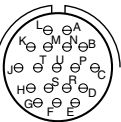
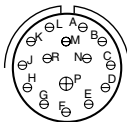
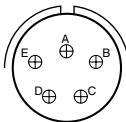
Insert Arrangements

Front face of pin inserts illustrated

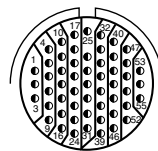
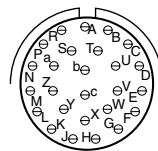
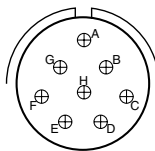
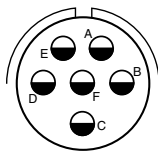
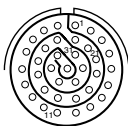
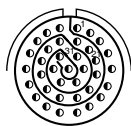
38999



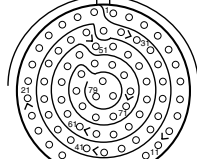
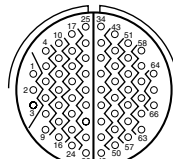
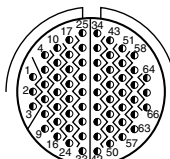
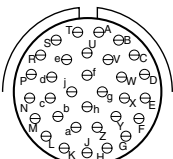
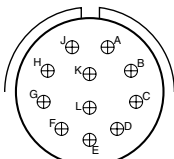
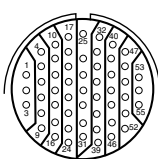
Insert Arrangement	8-3	8-6	8-35	8-44	8-98	10-5	10-13	10-35
Service Rating	M	M	M	M	I	I	M	M
Number of Contacts	3	6	6	4	3	5	13	13
Contact Size	20	22M	22D	22	20	20	22M	22D



Insert Arrangement	10-98	12-3	12-8	12-35	12-98	14-5	14-15		14-18
Service Rating	I	II	I	M	I	II	I		I
Number of Contacts	6	3	8	22	10	5	14	1	18
Contact Size	20	16	20	22D	20	16	20	16	20



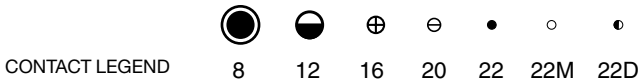
Insert Arrangement	14-35	14-37	16-6†	16-8	16-26	16-35
Service Rating	M	M	I	II	I	M
Number of Contacts	37	37	6	8	26	55
Contact Size	22D	22M	12	16	20	22D



Insert Arrangement	16-55	18-11	18-32	18-35	18-66	20-1
Service Rating	M	II	I	M	M	M
Number of Contacts	55	11	32	66	66	79
Contact Size	22M	16	20	22D	22M	22M

See page 153 for service ratings and contact sizes.

† AS Aquacon version - uses an SJT (38999 type) pattern with size 12 contacts. See how to order page 157.

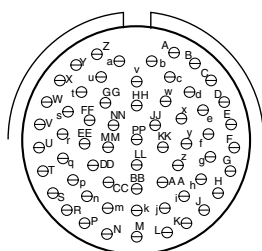
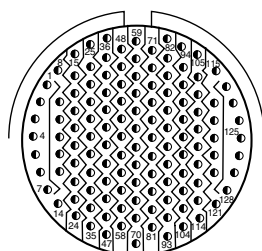
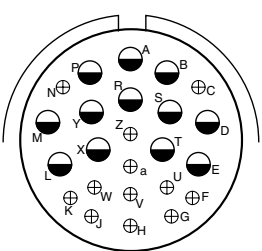
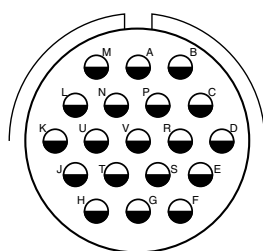
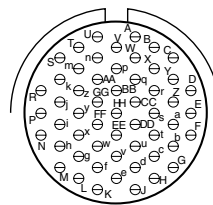
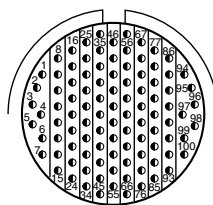
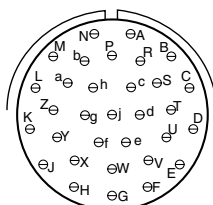
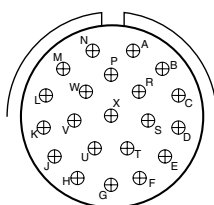
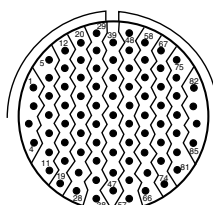
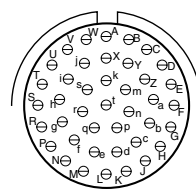
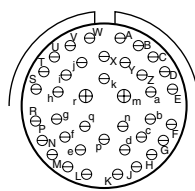
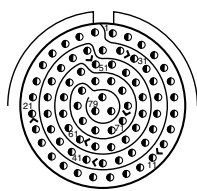
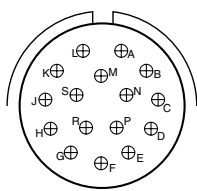
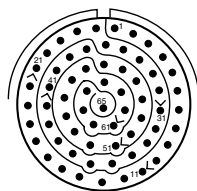


Aquacon

38999

III
II
I
SJT
Access
Aquacon

Aquacon



See page 153 for service ratings and contact sizes.
† AS Aquacon version - uses an SJT (38999 type) pattern with size 12 contacts. See how to order page 157.









8 12 16 20 22 22M 22D

1. Connector & Shell Style		2. Contact Type	3. Shell Size – Insert Arrangement	4. Contact Configuration	5. Insert Rotation	6. Special Variation
AJ6		R -	20-41	S	A	(445)

AQUACON IMMERSIBLE CONNECTORS			
		Aquacon with JT (38999 Type) Inserts	Aquacon with SJT (38999 Type) inserts- size 12 contacts only
CONNECTOR TYPE & STYLE	Receptacle Crimp		
	Jam Nut Receptacle	AJ7	AS7
	Plugs		
	Straight Plug	AJ6	AS6
Fused compression glass sealed inserts. Leakage rate less than 1.0x10 ⁻⁶ cc/sec at 15 psi differential; with interfacial seal.			
Hermetic	Jam Nut Receptacle	AJ7	AS7
	Square Flange	AJ0	

2. CONTACT TYPE

Receptacle	
C	Non-Removable Solder Termination
R	Removable Crimp Termination
H	Hermetic (Glass Seal) Solder Termination (Receptacles only)
Plug	
C	Non-Removable Solder Termination

5. ALTERNATE POSITIONING

Alternate positioning of Aquacon Series is achieved by a rotation of the master key/keyway, relative to the insert, as part of the shell manufacturing operation.

Recommended practice is to use alternate position inserts only when necessary.

AQUACON MASTER KEY/KEYWAY ROTATION

Shell Size	AB Angle of Rotation (Degrees)				
	Normal	A	B	C	D
8	100	82			118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115

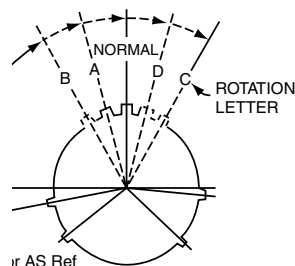
3. SELECT A SHELL SIZE & INSERT ARRANGEMENT SEE PAGES 2-5

Shell Size & Insert Arrangements are on pages 2-5. First number represents Shell Size, second number is the Insert Arrangement.

4. CONTACTS

P	Pin Contacts
S	Socket Contacts

Hermetics are available only in pin contacts.



RELATIVE POSSIBLE POSITION OF ROTATED MASTER KEYWAY

(↑ FACE OF AJ or AS RECEPTACLE SHOWN)

6. SPECIAL VARIATIONS

(168)	Rear Accessory Thread for Non-Hermetic Jam Nut Receptacle only.
(445)	Hex Coupling and Rear Accessory Threads for Straight Plug only.

Consult Amphenol Aerospace for other options and special variations available. See how to order protection caps on page 162.

AJ6 / AS6 Aquacon

Straight Plug

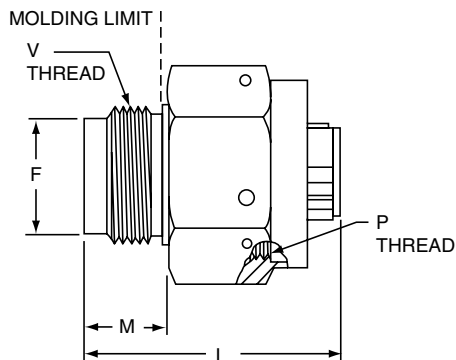
38999

PART NUMBER BUILDER Page 157

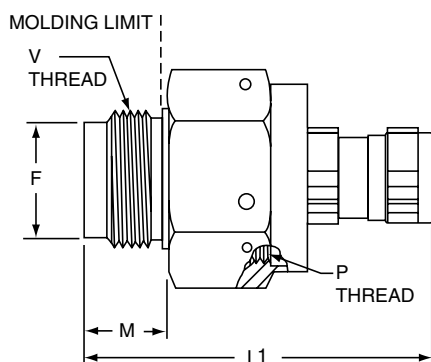
Commercial

AJ6X-
AS6X-

Aquacon



AJ6X-XX-XXX(445)



AS6X-XX-XXX(445)

AJ Aquacons use JT (38999 type) inserts that incorporate contact sizes 22D, 22M, 22, 20 or 16. AS Aquacons use SJT (38999 type) inserts that incorporate size 12 contacts

Shell Size	F Dia. +.000 -.005	L Max. (AJ)	L1 Max. (AS)	M ±.010	P Thread Class 2B	S Hex ±.016	V Thread Class 2A UNEF
8	.477	1.067	1.430	.360	.750-20 UNEF	.875	.5625-24
10	.602	1.067	1.430	.360	.875-20 UNEF	1.000	.6875-24
12	.727	1.062	1.430	.360	1.000-20 UNEF	1.125	.8125-20
14	.852	1.062	1.430	.360	1.125-18 UNEF	1.250	.9375-20
16	.977	1.062	1.430	.360	1.250-18 UNEF	1.375	1.0625-18
18	1.102	1.062	1.430	.360	1.375-18 UNEF	1.500	1.1875-18
20	1.227	1.312	1.680	.610	1.500-18 UNEF	1.625	1.3125-18
22	1.352	1.312	1.680	.610	1.625-18 UNEF	1.750	1.4375-18
24	1.477	1.312	1.680	.610	1.750-18 UNS	1.875	1.5625-18

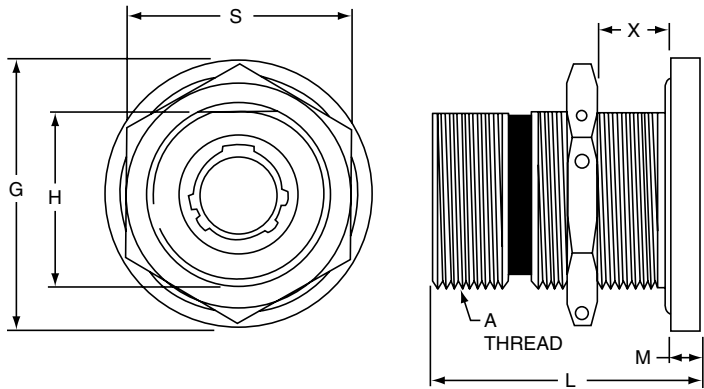
All dimensions for reference only.

AJ7H / AS7H Aquacon

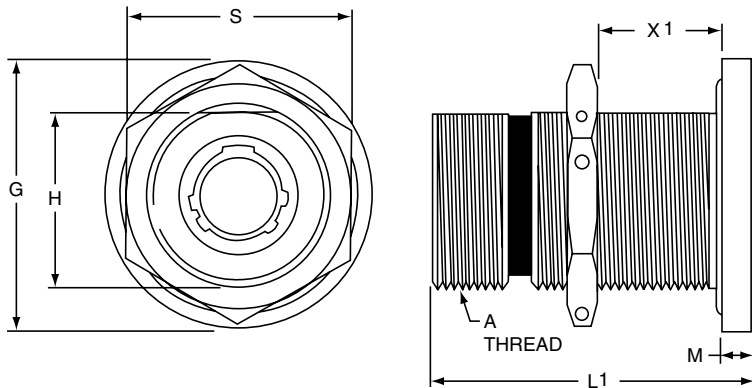
Hermetic Jam Nut Receptacle

Commercial

AJ7H-
AS7H-



AJ7H-XX-XXX(XXX)



AS7H-XX-XXX(XXX)

AJ Aquacons use JT (38999 type) inserts that incorporate contact sizes 22D, 22M, 22, 20 or 16. AS Aquacons use SJT (38999 type) inserts that incorporate size 12 contacts

Shell Size	A Thread Class 2A	G Dia.	H +.000 -.000	L ±.010 (Hermetic AJ)	L1 +.000 -.010 (Hermetic AS)	M	S Hex ±.016	X Bulkhead Thickness	X1 Bulkhead Thickness
								(AJ)	(AS)
8	.750-20 UNEF	1.125	.700	1.125	1.500	.125	.938	.03 – .31	.06 – .72
10	.875-20 UNEF	1.250	.825	1.125	1.500	.125	1.062	.03 – .31	.06 – .72
12	1.000-20 UNEF	1.406	.950	1.125	1.500	.125	1.188	.03 – .31	.06 – .72
14	1.125-18 UNEF	1.531	1.075	1.125	1.500	.125	1.312	.03 – .31	.06 – .72
16	1.250-18 UNEF	1.654	1.200	1.125	1.500	.125	1.438	.03 – .31	.06 – .72
18	1.375-18 UNEF	1.844	1.325	1.125	1.500	.125	1.562	.03 – .31	.06 – .72
20	1.500-18 UNEF	2.000	1.450	1.250	1.500	.188	1.688	.03 – .38	.06 – .65
22	1.625-18 UNEF	2.125	1.575	1.250	1.500	.188	1.812	.03 – .38	.06 – .65
24	1.750-18 UNS	2.250	1.700	1.250	1.500	.188	2.000	.03 – .38	.06 – .65

All dimensions for reference only.

AJ7 / AS7 Aquacon

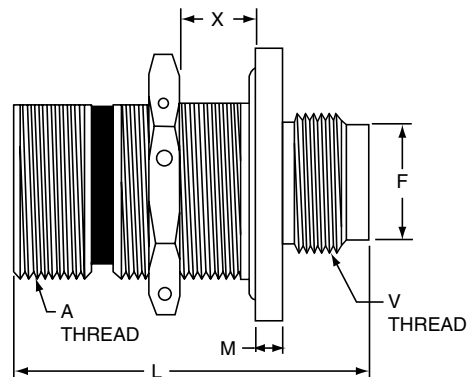
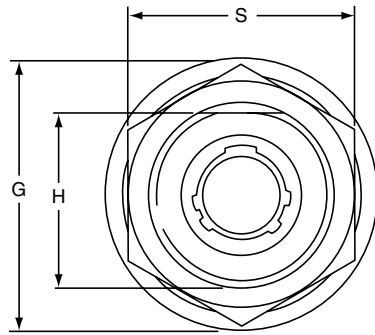
Jam Nut Receptacle

38999

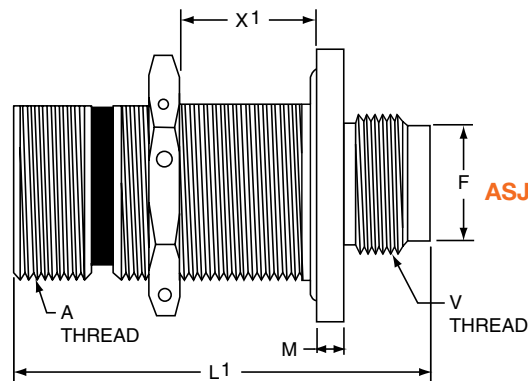
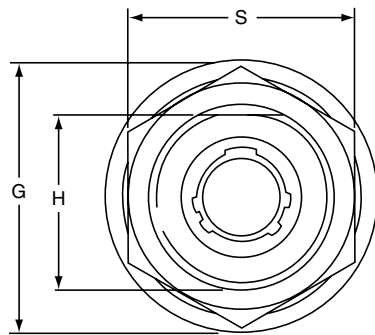
PART NUMBER BUILDER Page 157

Commercial

AJ7X-
ASJX-



AJ7X-XX-XXX(168)



ASJX-XX-XXX(168)

AJ Aquacons use JT (38999 type) inserts that incorporate contact sizes 22D, 22M, 22, 20 or 16. AS Aquacons use SJT (38999 type) inserts that incorporate size 12 contacts

Shell Size	A Thread Class 2A	F +.000 -.005	G Dia.	H +.000 -.005	L ±.010 (AJ)	L1 +.000 -.010 (AS)	M	S Hex ±.016	V Thread Class 2A UNEF	X Bulkhead Thickness	X1 Bulkhead Thickness
										(AJ)	(AS)
8	.750-20 UNEF	.477	1.125	.700	1.484	1.750	.125	.938	.5625-24	.03 – .31	.03 – .58
10	.875-20 UNEF	.602	1.250	.825	1.484	1.750	.125	1.062	.6875-24	.03 – .31	.03 – .58
12	1.000-20 UNEF	.727	1.406	.950	1.484	1.750	.125	1.188	.8125-20	.03 – .31	.03 – .58
14	1.125-18 UNEF	.852	1.531	1.075	1.484	1.750	.125	1.312	.9375-20	.03 – .31	.03 – .58
16	1.250-18 UNEF	.977	1.654	1.200	1.484	1.750	.125	1.438	1.0625-18	.03 – .31	.03 – .58
18	1.375-18 UNEF	1.102	1.844	1.325	1.484	1.750	.125	1.562	1.1875-18	.03 – .31	.03 – .58
20	1.500-18 UNEF	1.227	2.000	1.450	1.609	1.750	.188	1.688	1.3125-18	.03 – .38	.03 – .50
22	1.625-18 UNEF	1.352	2.125	1.575	1.609	1.750	.188	1.812	1.4375-18	.03 – .38	.03 – .50
24	1.750-18 UNS	1.477	2.250	1.700	1.609	1.750	.188	2.000	1.5625-18	.03 – .38	.03 – .50

All dimensions for reference only.

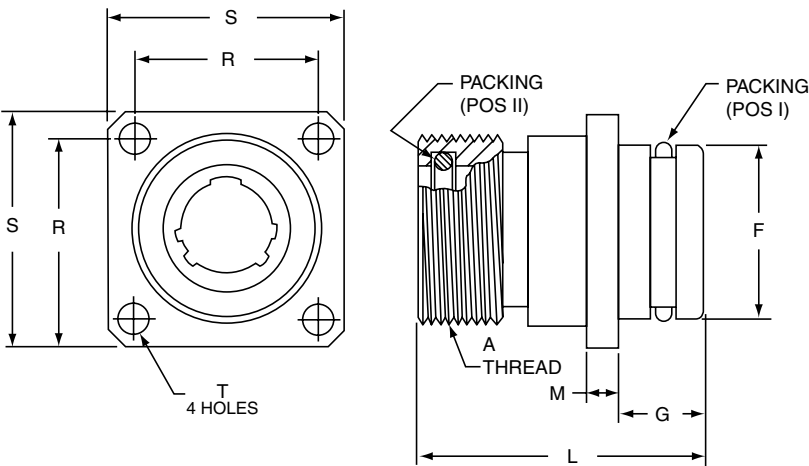
AJ0H Aquacon

Hermetic Square Flange Receptacle

PART NUMBER BUILDER Page 157

Commercial

AJOH-



AJ0H-XX-XXX(XXX)

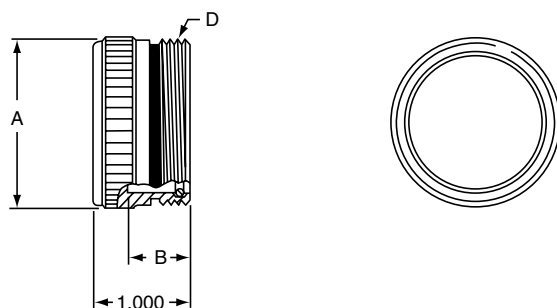
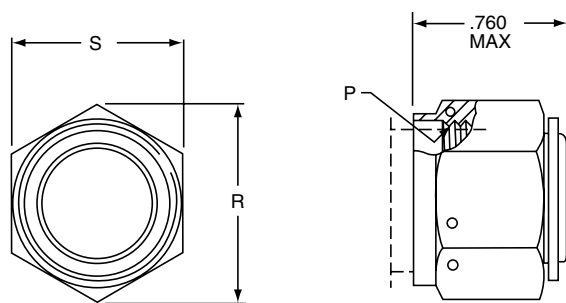
The Aquacon Hermetic Square Flange Receptacle is available in AJ style only which incorporates contact sizes 22D, 22M, 22, 20 or 16.

Shell Size	A Thread Class 2A	F Dia. +.000 --.001	G ±.030	L	M	R	S	T ±.005	Packing Pos I Part Number	Packing Pos II Part Number
8	.750-20 UNEF	.685	.344	1.125	.125	.719	.938	.128	10-90351-15	10-90351-14
10	.875-20 UNEF	.810	.344	1.125	.125	.812	1.031	.128	10-90351-17	10-90351-16
12	1.000-20 UNEF	.935	.344	1.125	.125	.906	1.125	.128	10-90351-19	10-90351-18
14	1.125-18 UNEF	1.060	.344	1.125	.125	.969	1.219	.128	10-90351-21	10-90351-20
16	1.250-18 UNEF	1.185	.344	1.125	.125	1.062	1.312	.128	10-90351-23	10-90351-22
18	1.375-18 UNEF	1.248	.344	1.125	.125	1.156	1.438	.128	10-90351-24	10-90351-24
20	1.500-18 UNEF	1.373	.375	1.219	.188	1.250	1.562	.128	10-90351-26	10-90351-26
22	1.625-18 UNEF	1.498	.375	1.219	.188	1.375	1.688	.147	10-90351-28	10-90351-28
24	1.750-18 UNS	1.623	.375	1.219	.188	1.500	1.812	.147	10-90351-29	10-90351-29

All dimensions for reference only.

Aquacon Series

Protection Caps



RECEPTACLE PROTECTION CAP 10-377664-XX

Shell Size	P Thread Class 2A	R Ref.	S Hex $+0.005$ -0.010
8	.750-20 UNEF	1.010	.875
10	.875-20 UNEF	1.155	1.000
12	1.000-20 UNEF	1.299	1.125
14	1.125-18 UNEF	1.443	1.250
16	1.250-18 UNEF	1.588	1.375
18	1.375-18 UNEF	1.732	1.500
20	1.500-18 UNEF	1.876	1.625
22	1.625-18 UNEF	2.021	1.750
24	1.750-18 UNS	2.165	1.875

PLUG PROTECTION CAP 10-399623-XX

Shell Size	A Dia. Max.	B $+0.031$ -0.000	D Thread Class 2A
8	.771	.625	.750-20 UNEF
10	.898	.625	.875-20 UNEF
12	1.010	.625	1.000-20 UNEF
14	1.137	.625	1.125-18 UNEF
16	1.264	.625	1.250-18 UNEF
18	1.392	.625	1.375-18 UNEF
20	1.519	.688	1.500-18 UNEF
22	1.646	.688	1.625-18 UNEF
24	1.744	.688	1.750-18 UNS

All dimensions for reference only.

HOW TO ORDER PROTECTION CAPS

Protection Cap Style	Cap Size (Correlates to Connector Shell Size)
For Receptacle Connector	10-377664 - 20
For Plug Connector	10-399623 - 20

38999

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Installation Instructions, Application Tools

MOLDING

Suggested method of assembly to cable for Aquacon plugs and cable connecting receptacles is molding. The mold sealing diameter has been designed to use a common mold for both plug and receptacle in a given shell size.

SEALING

In a mated condition, the red visual mating indicator band must be fully concealed by the plug coupling nut to assure a reliable, pressure rated sealed joint. Failure to fully tighten the coupling nut may allow leakage through the main joint seal. The red visual mating indicator is so located that only a full and proper mating of the plug and receptacle will cause the indicator to be fully hidden by the plug coupling nut.

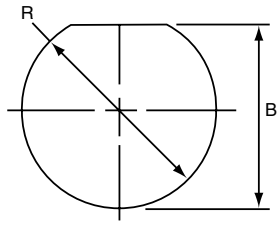


Red Visual Mating Indicator Band

MOUNTING SURFACES

The integrity of an "O" ring hydrostatic shell is dependent upon the flatness of the surface on which the receptacle is mounted. Surface finishes of 23 microns or less are recommended for "O" ring sealing areas when jam nut or through bulkhead receptacles are mounted.

MOUNTING CUTOUTS



Rear mount jam nut

Shell Size	B +.010 -.000	R +.010 -.000
8	.705	.759
10	.830	.884
12	.955	1.007
14	1.080	1.134
16	1.205	1.259
18	1.330	1.384
20	1.455	1.507
22	1.580	1.634
24	1.705	1.759

RECEPTACLE "O" RING RACKING REQUIREMENTS ARP 568 UNIFORM DASH NUMBER

38999

Shell Size	Main Joint Seal	Shell to Mounting Surface Seal
		Jam Nut
8	ARP-014	ARP-019
10	ARP-016	ARP-021
12	ARP-018	ARP-023
14	ARP-020	ARP-025
16	ARP-022	ARP-027
18	ARP-024	ARP-029
20	ARP-026	ARP-030
22	ARP-028	ARP-031
24	ARP-029	ARP-032

CONVERSION TABLE SALT WATER DEPTH TO HYDROSTATIC PRESSURE

Salt-Water Depth in Feet	Pounds per Sq. Inch	Salt-Water Depth in Feet	Pounds per Sq. Inch
10	4	2,000	890
25	11	2,500	1,113
50	22	3,000	1,335
75	33	4,000	1,780
100	45	5,000	2,225
200	89	6,000	2,670
250	111	7,000	3,115
300	134	7,500	3,338
400	178	8,000	3,560
500	223	9,000	4,005
600	267	10,000	4,450
750	334	15,000	6,675
800	356	20,000	8,900
1,000	445	25,000	11,125

APPLICATION TOOLING

Contact Size	Crimping Tool	Positioner	Insertion Tool*	Removal Tool*	Sealing Plug*	Color Code	Reference Publication
22M	M22520/2-01	M22520/2-09†	11-8674-24††	11-8675-24††	10-405996-22	Black	L-624
22D	M22520/2-01	M22520/2-09†	11-8674-24††	11-8675-24††	10-405996-22	Black	
22	M22520/2-01	M22520/2-09†	11-8674-22††	11-8675-22††	10-405996-22	Black	
20	M22520/1-01	M22520/1-04	11-8674-20††	11-8675-20††	10-405996-20	Red	
16	M22520/1-01	M22520/1-04	11-8674-16††	11-8675-16††	10-405996-16	Blue	
12	M22520/1-01	M2520/1-04	11-8674-12††	11-8675-12††	10-405996-12	Yellow	

* Amphenol Part Numbers

† Pin only. Use M22520/2-06 for socket contacts.

†† Contact Daniels Manufacturing Co. or Astro Tool Corp. for availability.

** Available online at www.amphenol-aerospace.com/termination-instructions

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Aquacon Series

Contact Installation

38999

CONTACT INSTALLATION

WIRE AND CABLE PREPARATION

1. Cut wire or cable to desired length. Strip insulation from end of wire in accordance with the following table. Hot wire stripping methods are recommended. Avoid nicking or cutting wire strands.

WIRE STRIP LENGTH IN INCHES

Contact Type	Contact Size					
	22M	22D	22	20	16	12
Solder	1/8	–	1/8	5/32	5/32	
Crimp	1/8 – 5/32			7/32 – 1/4		

SOLDER CONTACT TERMINATION

1. Clean conductors and pre-tin with a good grade 60/40 tin-lead solder to 1/16 inch.
2. Pre-tin contact solder well.
3. With connector in a suitable holding device, solder wells facing operator, and the cutaway portion of the wells up, insert pre-tinned conductor into contact well. Apply heat to closed side of wire well to make joint. Remove heat and allow joint to cool.
4. A resistance soldering unit of approximately 125 watts is recommended. If a soldering iron is used, do not exceed 20 watts for size 22M, 22D and 22 contacts; 80 watts for size 20; and 150 watts for size 16 and 12 contacts.
5. Wipe or brush excess flux from terminations.

CRIMP CONTACT TERMINATION

1. Select proper crimping tool and positioner from Application Tooling table on previous page.
2. Position wire in wire well. Wire must be visible in the inspection hole provided.
3. With the wire in place, insert the contact fully into the crimping tool. Squeeze the crimping tool handles to the full extent of their travel. The recommended crimping tools are the “full cycling” type and will not release until a complete crimp is made. Release pressure on handles and remove the completed crimped contact/wire assembly.

CONTACT INSERTION

1. Select proper insertion tool from Application Tooling table on previous page.
2. With contact/wire assembly properly positioned in the insertion tool, push forward, directly in line with the grommet hole, until the contact is felt to snap into place.
3. Remove insertion tool.
All unused contact positions must be filled with uncrimped contacts. In addition, sealing plugs (see Application Tooling table) should be inserted in all unused grommet holes.

CONTACT REMOVAL

1. Select proper removal tool from Application Tooling table on previous page.
2. Carefully insert removal tool until contact to be removed is released. Aquacon contacts are rear release, rear removable.
3. Remove contact.

F



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MIL-DTL-38999 Backshells

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Amphenol offers a full range of accessories that are designed to enhance the performance of Amphenol 38999 connectors, both military and non-military.

Backshells are an integral part of any circular connector when it comes to reliable cable connections. Amphenol divisions team up globally to provide a very large assortment of backshells for use with 38999 Series of connectors, as well as other circular series.

This Accessories and Tools section covers what is offered from Amphenol Aerospace, Sidney, NY. For MIL-DTL-38999 Series III, II, I and SJT (reference table of contents on preceding page).

The section of this catalog called "Backshells" covers the backshell and adapters that are provided through the Amphenol PCD/Amphenol India divisions. Please refer to this section for:

- Backshells for Connector Family "L", which includes MIL-DTL-38999 Series III and Series IV
- Backshells for Connector Family "K", which includes MIL-DTL-38999 Series I and Series II
- Backshells for Connector Family "J", which includes MIL-DTL-24682 (Matrix, Series 2), MIL-DTL-5015 (Matrix, MS3400 Series), MIL-DTL-83723 (Series I & III), MIL-DTL-81703 (Series III)



The variety of types of backshells and adapters covered in the Backshells section of this catalog include:

- Non-environmental backshells
- Environmental backshells
- Non-environmental EMI/RFI backshells
- Environmental EMI/RFI backshells
- Shrink boot adapters
- Crimp ring adapters
- Band lock adapters
- Pre-shield adapters

For more information contact:

Amphenol Aerospace: www.amphenol-aerospace.com (phone: 800-678-0141)
or visit www.backshellworld.com or email: sales@backshellworld.com

MIL-DTL-38999, Series III TV Receptacle Protection Cap

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III

II

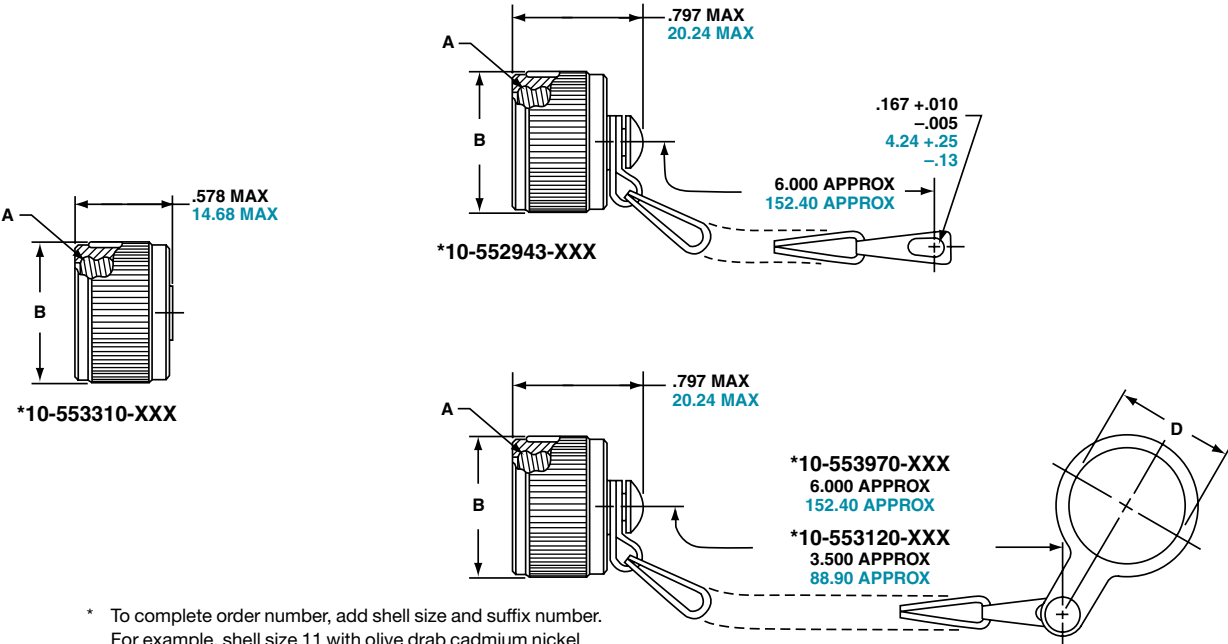
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SJT

Access

Aquacon

Accessories



* To complete order number, add shell size and suffix number.
For example, shell size 11 with olive drab cadmium nickel base, 10-552943-119

Inches

Millimeters

Shell Size	A Thread Class 2B 0.1P-0.3L-TS	B Dia. Max.	D Dia. +.010 –.000
9	.6250	.875	.703
11	.7500	1.000	.844
13	.8750	1.125	1.016
15	1.0000	1.250	1.141
17	1.1875	1.438	1.266
19	1.2500	1.500	1.391
21	1.3750	1.625	1.516
23	1.5000	1.750	1.641
25	1.6250	1.875	1.766

Shell Size	MS Shell Size Code	B Dia. Max.	D Dia. +.25 –.00
9	A	22.23	17.86
11	B	25.40	21.44
13	C	28.58	25.81
15	D	31.75	28.98
17	E	36.53	32.16
19	F	38.10	35.33
21	G	41.28	38.51
23	H	44.45	41.68
25	J	47.63	44.86

All dimensions for reference only.

TV SERIES III MS METAL PROTECTION CAPS

Shell Size	MS Shell Size Code	MS Receptacle Protection Cap
9	A	D38999/33W9X*
11	B	D38999/33W11X*
13	C	D38999/33W13X*
15	D	D38999/33W15X*
17	E	D38999/33W17X*
19	F	D38999/33W19X*
21	G	D38999/33W21X*
23	H	D38999/33W23X*
25	J	D38999/33W25X*

* To complete order number, replace X with applicable letter as follows:

R - designates eyelet type

N - designates washer type

MS metal protection caps are supplied with service class W which designates corrosion resistant olive drab cadmium plate aluminum.

Consult Amphenol Aerospace for more detailed information on ordering MS Metal protection caps.

Finish	10-No Suffix
Olive Drab, Cadmium, Nickel base	-XX9
Electroless Nickel	-XXG

Consult Amphenol Aerospace for availability of stainless steel protection caps.

TV SERIES III PLASTIC PROTECTION CAPS

Shell Size	Receptacle
9	10-70500-10
11	10-70500-12
13	10-70500-14
15	10-70500-16
17	10-70500-19
19	10-70500-20
21	10-70500-22
23	10-70500-24
25	10-70524-1

MIL-DTL-38999, Series III TV

Plug Protection Cap

38999

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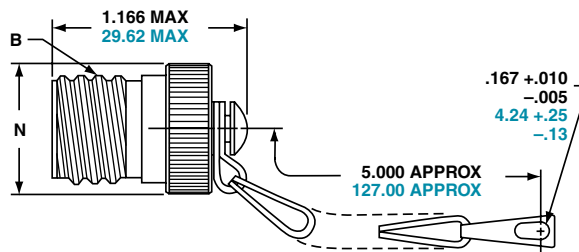
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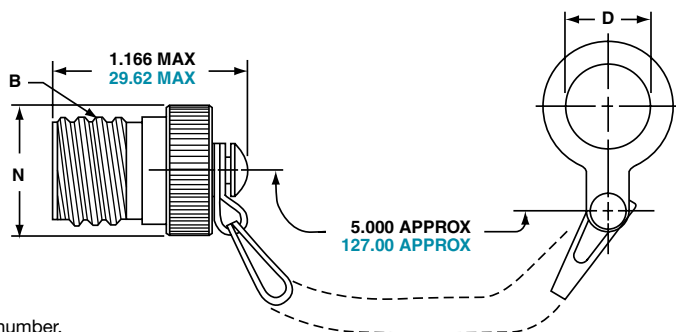
Aquacon

Accessories

*10-552944-XXX



*10-553998-XXX



* To complete order number, add shell size and suffix number.
For example, shell size 11 with olive drab cadmium nickel base, 10-552944-119

Inches

Shell Size	A Thread Class 2B 0.1P-0.3L-TS	D Dia. +.010 -.000	N Dia. Max.
9	.6250	.516	.895
11	.7500	.641	1.000
13	.8750	.766	1.171
15	1.0000	.891	1.299
17	1.1875	1.016	1.436
19	1.2500	1.141	1.543
21	1.3750	1.266	1.670
23	1.5000	1.343	1.787
25	1.6250	1.516	1.914

Millimeters

Shell Size	MS Shell Size Code	D Dia. +.25 -.00	N Dia. Max.
9	A	13.11	22.73
11	B	16.28	25.40
13	C	19.46	29.74
15	D	22.63	32.99
17	E	25.81	36.47
19	F	28.98	39.19
21	G	32.16	42.42
23	H	34.11	45.39
25	J	38.51	48.62

All dimensions for reference only.

TV SERIES III MS METAL PROTECTION CAPS

Shell Size	MS Shell Size Code	MS Plug Protection Cap
9	A	D38999/32W9X*
11	B	D38999/32W11X*
13	C	D38999/32W13X*
15	D	D38999/32W15X*
17	E	D38999/32W17X*
19	F	D38999/32W19X*
21	G	D38999/32W21X*
23	H	D38999/32W23X*
25	J	D38999/32W25X*

* To complete order number, replace X with applicable letter as follows:

R - designates eyelet type

N - designates washer type

MS metal protection caps are supplied with service class W which designates corrosion resistant olive drab cadmium plate aluminum.

Consult Amphenol Aerospace for more detailed information on ordering MS Metal protection caps.

Finish	10-No Suffix
Olive Drab, Cadmium, Nickel base	-XX9
Electroless Nickel	-XXG

Consult Amphenol Aerospace for availability of stainless steel protection caps.

TV SERIES III PLASTIC PROTECTION CAPS

Shell Size	Plug
9	10-70506-14
11	10-70506-16
13	10-70500-18
15	10-70500-20
17	10-70500-22
19	10-70500-24
21	10-70524-1
23	10-70506-28
25	10-70500-28

MIL-DTL-38999, Series III TV Dummy Receptacle

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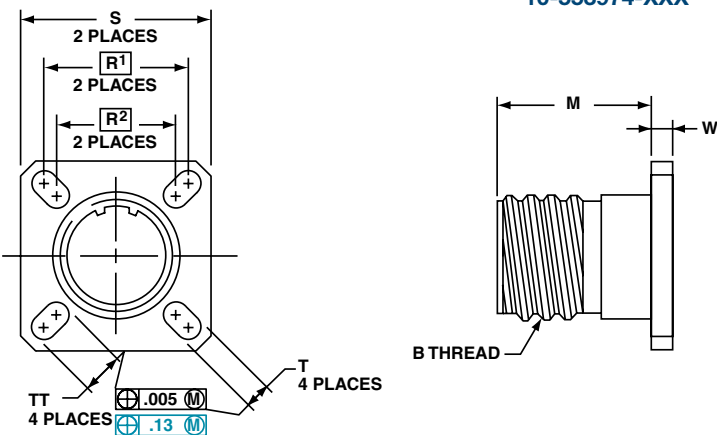
Access

Aquacon

Accessories

PART NUMBER REFERENCE.
SEE NOTE BELOW TO COMPLETE.

*10-553974-XXX



* To complete order number, add shell size and suffix number.
For example, shell size 11 with olive drab cadmium nickel base, 10-553974-119

Shell Size	MS Shell Size Coded	B Thread 0.1P-0.3L-TS (Plated)	M $\begin{smallmatrix} +.020 \\ -.000 \end{smallmatrix}$	$\boxed{R^1}$	$\boxed{R^2}$	S $\pm .010$	T $\begin{smallmatrix} \pm .008 \\ -.006 \end{smallmatrix}$	W $\pm .010$	TT $\begin{smallmatrix} \pm .008 \\ -.006 \end{smallmatrix}$
9	A	.6250	.822	.719	.594	.938	.128	.098	.216
11	B	.7500	.822	.812	.719	1.031	.128	.098	.194
13	C	.8750	.822	.906	.812	1.125	.128	.098	.194
15	D	1.0000	.822	.969	.906	1.219	.128	.098	.173
17	E	1.1875	.822	1.062	.969	1.312	.128	.098	.194
19	F	1.2500	.822	1.156	1.062	1.438	.128	.098	.194
21	G	1.3750	.791	1.250	1.156	1.562	.128	.125	.194
23	H	1.5000	.791	1.375	1.250	1.688	.154	.125	.242
25	J	1.6250	.791	1.500	1.375	1.812	.154	.125	.242

Inches

Finish	10-No Suffix	Shell Size	MS Shell Size Coded	M $\begin{smallmatrix} +.51 \\ -.00 \end{smallmatrix}$	$\boxed{R^1}$	$\boxed{R^2}$	S $\pm .25$	T $\begin{smallmatrix} +.20 \\ -.15 \end{smallmatrix}$	W $\pm .25$	TT $\begin{smallmatrix} +.20 \\ -.15 \end{smallmatrix}$
Olive Drab, Cadmium, Nickel Base	-XX9	9	A	20.88	18.26	15.09	23.83	3.25	2.49	5.49
Electroless Nickel	-XXG	11	B	20.88	20.62	18.26	26.19	3.25	2.49	4.93
		13	C	20.88	23.01	20.62	28.58	3.25	2.49	4.93
		15	D	20.88	24.61	23.01	30.96	3.25	2.49	4.93
		17	E	20.88	26.97	24.61	33.32	3.25	2.49	4.93
		19	F	20.88	29.36	26.97	36.53	3.25	2.49	4.93
		21	G	20.09	31.75	29.36	39.67	3.25	3.18	4.93
		23	H	20.09	34.93	31.75	42.88	3.91	3.18	6.15
		25	J	20.09	38.10	34.93	46.02	3.91	3.18	6.15

Millimeters

All dimensions for reference only. Designates true position dimensioning.

MIL-DTL-38999, Series III TV

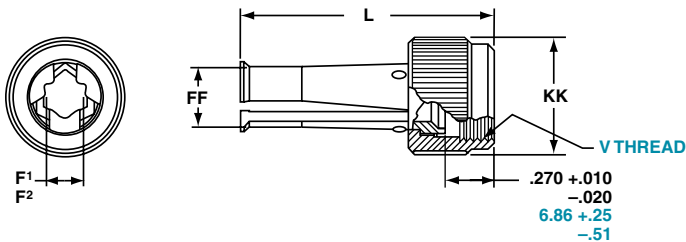
Cable Clamps

38999

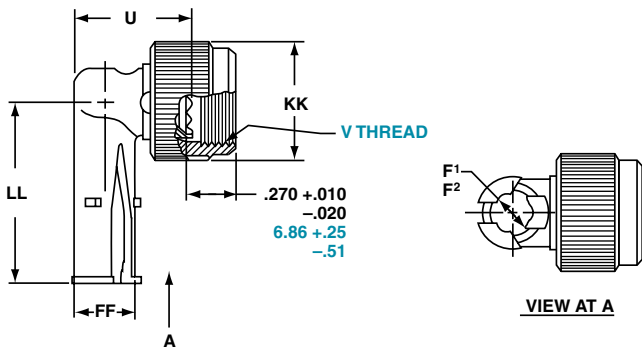
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- Access
- Aquacon

Accessories

Straight Style
***10-552681-XXX metal coupling**



90 Degree Elbow Style
***10-552682-XXX metal coupling**



* To complete order number, see suffix chart below. Examples:
 Clamp with metal coupling nut for shell size 11 with olive drab cadmium nickel base, 10-552681-119.

Inches

Shell Size	MS Shell Size Code	F ¹ Min. Dia. Cable	F ² Max. Dia. Cable	L Max.	U Max.	FF Dia. Max.	KK Dia. Max.	LL Max.
9	A	.094	.203	1.431	.656	.347	.629	1.015
11	B	.141	.250	1.431	.688	.394	.756	1.062
13	C	.172	.323	1.431	.750	.467	.883	1.125
15	D	.203	.422	1.431	.859	.566	1.011	1.328
17	E	.234	.500	1.431	.937	.644	1.138	1.392
19	F	.265	.562	1.431	1.000	.706	1.265	1.453
21	G	.297	.625	1.492	1.062	.769	1.393	1.609
23	H	.328	.703	1.492	1.141	.847	1.488	1.656
25	J	.359	.765	1.492	1.203	.909	1.616	1.719

Millimeters

Finish	10-No Suffix
Olive Drab, Cadmium Nickel Base	-XX9
Electroless Nickel	-XXG

Shell Size	MS Shell Size Code	F ¹ Min. Dia. Cable	F ² Max. Dia. Cable	L Max.	U Max.	V Thread Metric	FF Dia. Max.	KK Dia. Max.	LL Max.
9	A	2.39	5.16	36.35	16.66	M12X1-6H	8.81	15.98	25.78
11	B	3.58	6.35	36.35	17.48	M15X1-6H	10.01	19.20	26.97
13	C	4.37	8.20	36.35	19.05	M18X1-6H	11.86	22.43	28.58
15	D	5.16	10.72	36.35	21.82	M22X1-6H	14.38	25.68	33.73
17	E	5.94	12.70	36.35	23.80	M25X1-6H	16.36	28.91	35.36
19	F	6.73	14.27	36.35	25.40	M28X1-6H	17.93	32.13	36.91
21	G	7.54	15.88	37.90	26.97	M31X1-6H	19.53	35.38	40.87
23	H	8.83	17.86	37.90	28.98	M34X1-6H	21.51	37.80	42.06
25	J	9.12	19.43	37.90	30.56	M37X1-6H	23.09	41.05	43.66

F

38999, Series III TV Breakaway Fail Safe Backshells, Dummy Contacts, Wire Combs

Amphenol offers a full range of accessories that are designed to enhance the performance of Amphenol Breakaway connectors.

Low Profile Backshells in shell size 25 with the following features:

- Olive drab cadmium finish
- 90 degree termination
- Low profile design with three heights ranging from 1.010 to 1.660
- Rear access covers to help ease harness assembly and repairability
- Amphenol part numbers:
10-640000-XXX



BACKSHELLS ARE OFFERED FOR USE WITH BREAKAWAY
FAIL SAFE CONNECTORS IN THREE HEIGHTS

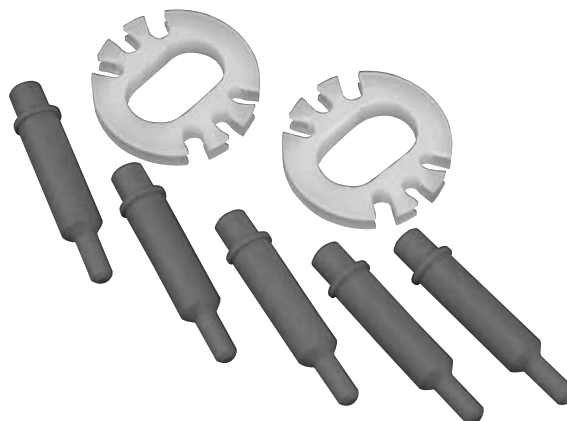
DUMMY CONTACTS

- Available in size 12 and size 8
- Provide a cost effective alternative for sealing unused contact cavities
- Size 8 part number: T3-4008-59P
- Size 12 part number: T3-4012-59P

WIRE COMBS

- Available for the 25-20 insert pattern to help to stabilize and prevent contact side loading
- Amphenol part number: 21-33626-XXX

For information on how to order these accessory products for Breakaway Fail Safe connectors, consult Amphenol Aerospace.



ACCESSORY PRODUCTS FOR BREAKAWAY CONNECTORS:
DUMMY CONTACTS AND WIRE COMBS

38999

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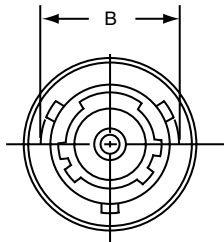
Accessories

MIL-DTL-38999, Series II JT

Plug Protection Cap

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- Access
- Aquacon

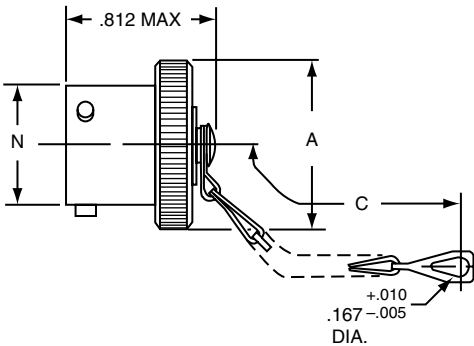


For MS stamping identification, accessories must be ordered by MS part number. If ordered by 10- part number, they will be stamped with said number.

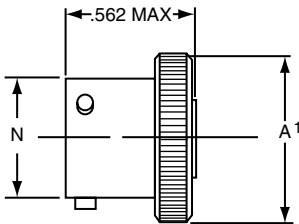
* To complete order number, add shell size and suffix number. For example, shell size 10 with cadmium plate, nickel base would be 10-241853-107, MS27510A10C or MS27510A10A.

Shell Size	A Dia. Max.	A ¹ Dia. Max.	B +.000 - .016	C Approx.	N Dia. +.001 - .005
8	.719	.703	.563	3.000	.473
10	.844	.828	.680	3.000	.590
12	1.000	.984	.859	3.500	.750
14	1.125	1.109	.984	3.500	.875
16	1.250	1.234	1.108	3.500	1.000
18	1.375	1.359	1.233	3.500	1.125
20	1.500	1.484	1.358	4.000	1.250
22	1.625	1.609	1.483	4.000	1.375
24	1.750	1.734	1.610	4.000	1.500

All dimensions for reference only.



***10-547138-XXX (MS27510XXXC)**



***10-241853-XXX (MS27510XXXA)**

Finish	10-Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5	CXXC	CXXA
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

SERIES II JT

PLASTIC PROTECTION CAPS

Shell Size	Plug
8	10-70500-10
9	10-70506-14
10	10-70506-14
11	10-70506-16
12	10-70506-16
13	10-70506-18
14	10-70506-18
15	10-70506-20
16	10-70506-20
17	10-70506-22
18	10-70506-22
19	10-70506-24
20	10-70506-24
21	10-70576-24
22	10-70576-24
23	10-70506-28
24	10-70506-28
25	10-558651-25

MIL-DTL-38999, Series II JT

Receptacle Protection Cap

38999

III

II

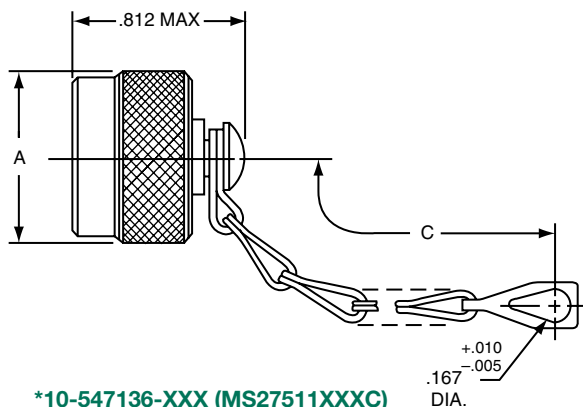
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SJT

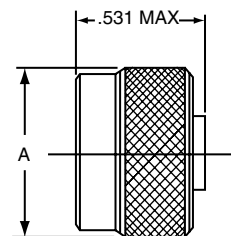
Access

Aquacon

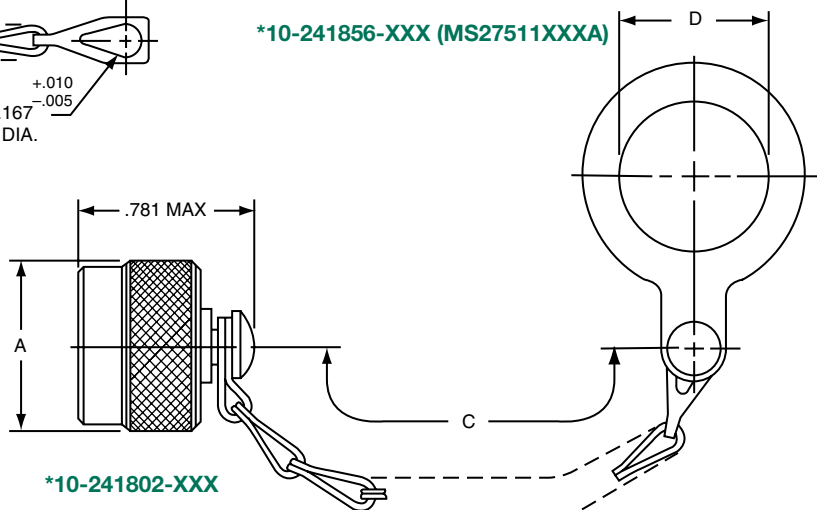
Accessories



***10-547136-XXX (MS27511XXXC)**



***10-241856-XXX (MS27511XXXA)**



***10-241802-XXX**

For MS stamping identification, accessories must be ordered by MS part number. If ordered by 10- part number, they will be stamped with said number.

* To complete order number, add shell size and suffix number.

For example, shell size 10 with cadmium plate, nickel base would be 10-241802-107, MS27511A10C, MS27511A10A

Shell Size	A Dia. Max.	C Approx.	D +.010 -.000
8	.719	3.000	.891
10	.844	3.000	1.016
12	1.000	3.500†	1.141
14	1.125	3.500	1.266
16	1.250	3.500	1.391
18	1.375	3.500	1.516
20	1.500	4.000	1.641
22	1.625	4.000	1.766
24	1.750	4.000	1.891

† 3.000 for MS27511

All dimensions for reference only.

SERIES II JT PLASTIC PROTECTION CAPS

Shell Size	Receptacle
8	10-70506-10S
9	10-70500-10
10	10-70506-12
11	10-70500-12
12	10-70506-14
13	10-70500-14
14	10-70506-16
15	10-70500-16
16	10-70506-18
17	10-70500-18
18	10-70506-20
19	10-70500-20
20	10-70506-22
21	10-70500-22
22	10-70506-24
23	10-70500-24
24	10-70576-24
25	10-70506-28

Finish	10-Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5	CXXC	CXXA
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

MIL-DTL-38999, Series II JT

MIL-DTL-38999, Series I LJT

Strain Relief (Crimp Type)

38999

III

II

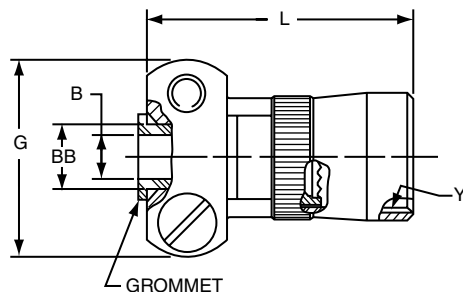
I

SJT

Access

Aquacon

Accessories



*10-405982-XXX (MS27506XXX-2 REFERENCE M85049/49)

For MS stamping identification, accessories must be ordered by MS part number.
If ordered by 10-part number, they will be stamped with said number.
*To complete order number, add shell size and suffix number.

Finish	10-Number Suffix	MS27506 Suffix	M85049/49 Suffix
Chromate Treat	-XX0		NA
Anodic Coating	-XX5	CXX-2	(-2-XXA)
Cadmium Plate Nickel Base	-XX7	AXX-2	NA
Olive drab, Cadmium, Nickel base	-XX9	BXX-2	(-2-XXW)
Electroless Nickel	-XXG	FXX-2	(-2-XXN)

For example: Shell size 10 with cadmium plate, nickel base would be 10-405982-107 or M85049/49-2-10W

Shell Size	B Dia. +.010 -.025	G Max.	L Max.	Y Thread (Modified)		BB Dia. +.000 -.011	Screw Size
				Size Class 2B	Modified Minor Dia.		
8	.125	.775	.984	.4375-28UNEF	.399 – .405	.250	6-32UNC
10	.188	.837	.984	.5625-24UNEF	.524 – .529	.312	6-32UNC
12	.312	.963	.984	.6875-24UNEF	.649 – .654	.438	6-32UNC
14	.375	1.087	1.234	.8125-20UNEF	.766 – .771	.562	6-32UNC
16	.500	1.150	1.234	.9375-20UNEF	.891 – .896	.625	6-32UNC
18	.625	1.400	1.234	1.0625-18UNEF	1.002 – 1.007	.750	8-32UNC
20	.625	1.400	1.234	1.1875-18UNEF	1.135 – 1.140	.750	8-32UNC
22	.750	1.587	1.359	1.3125-18UNEF	1.252 – 1.257	.938	8-32UNC
24	.800	1.681	1.281	1.4375-18UNEF	1.377 – 1.382	1.000	8-32UNC

All dimensions for reference only.

Note: For solder type cable clamp 10-241055-XXX (M85049/49) consult Amphenol Aerospace.

MIL-DTL-38999, Series I LJT

Plug Protection Cap

38999

III

II

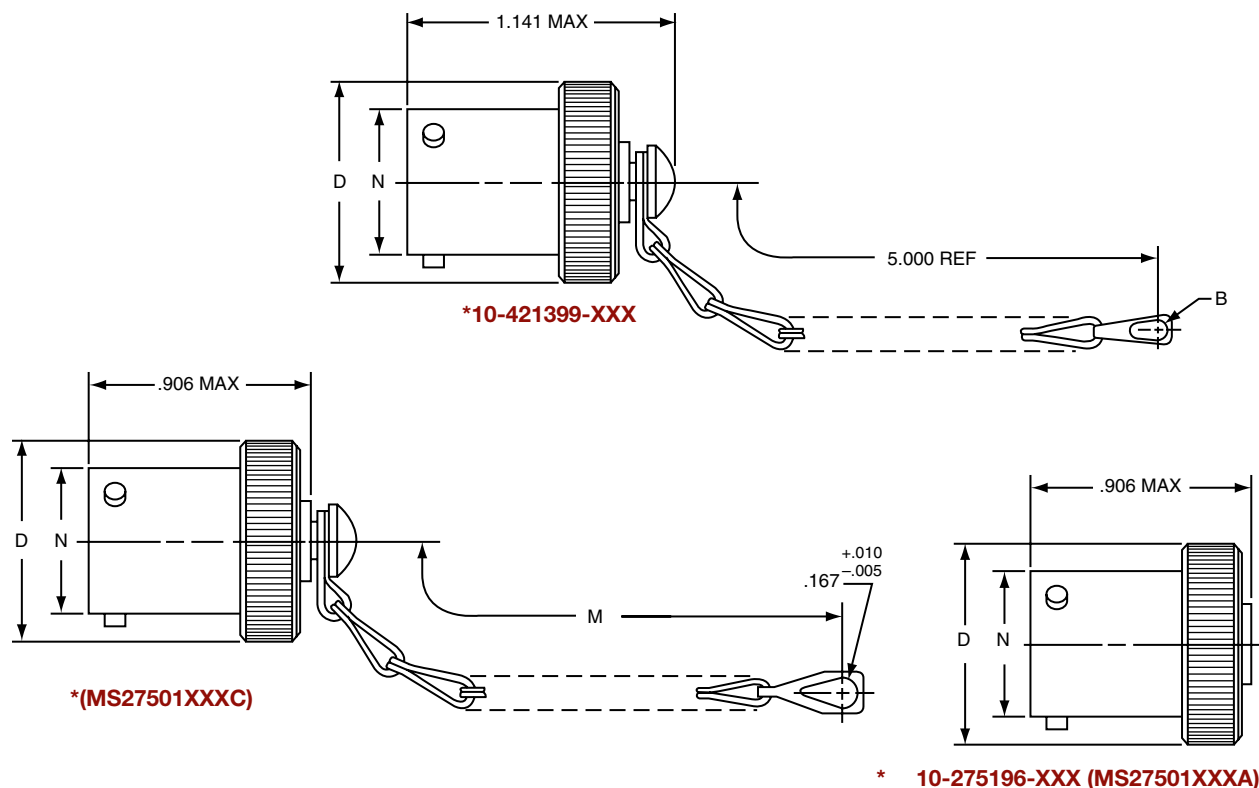
I

SJT

Access

Aquacon

Accessories



* To complete order number, add shell size and suffix number.

For example, shell size 11 with cadmium plate, nickel base would be 10-421399-117, MS27501A11C, MS27501A11A.

Shell Size	B Dia. Ref.	D Dia. Max.	M ±.250	N Dia. +.001 - .005
9	.180	.812	3.000	.572
11	.180	.938	3.000	.700
13	.180	1.062	3.500	.850
15	.180	1.188	3.500	.975
17	.180	1.312	3.500	1.100
19	.209	1.438	3.500	1.207
21	.209	1.562	4.000	1.332
23	.209	1.688	4.000	1.457
25	.209	1.812	4.000	1.582

Finish	10- Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5		
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

All dimensions for reference only.

SERIES I LJT PLASTIC PROTECTION CAPS

Shell Size	Plug
8	10-70500-10
9	10-70506-14
10	10-70506-14
11	10-70506-16
12	10-70506-16
13	10-70506-18
14	10-70506-18
15	10-70506-20
16	10-70506-20
17	10-70506-22
18	10-70506-22
19	10-70506-24
20	10-70506-24
21	10-70576-24
22	10-70576-24
23	10-70506-28
24	10-70506-28
25	10-558651-25

MIL-DTL-38999, Series I LJT

Receptacle Protection Cap

38999

III

II

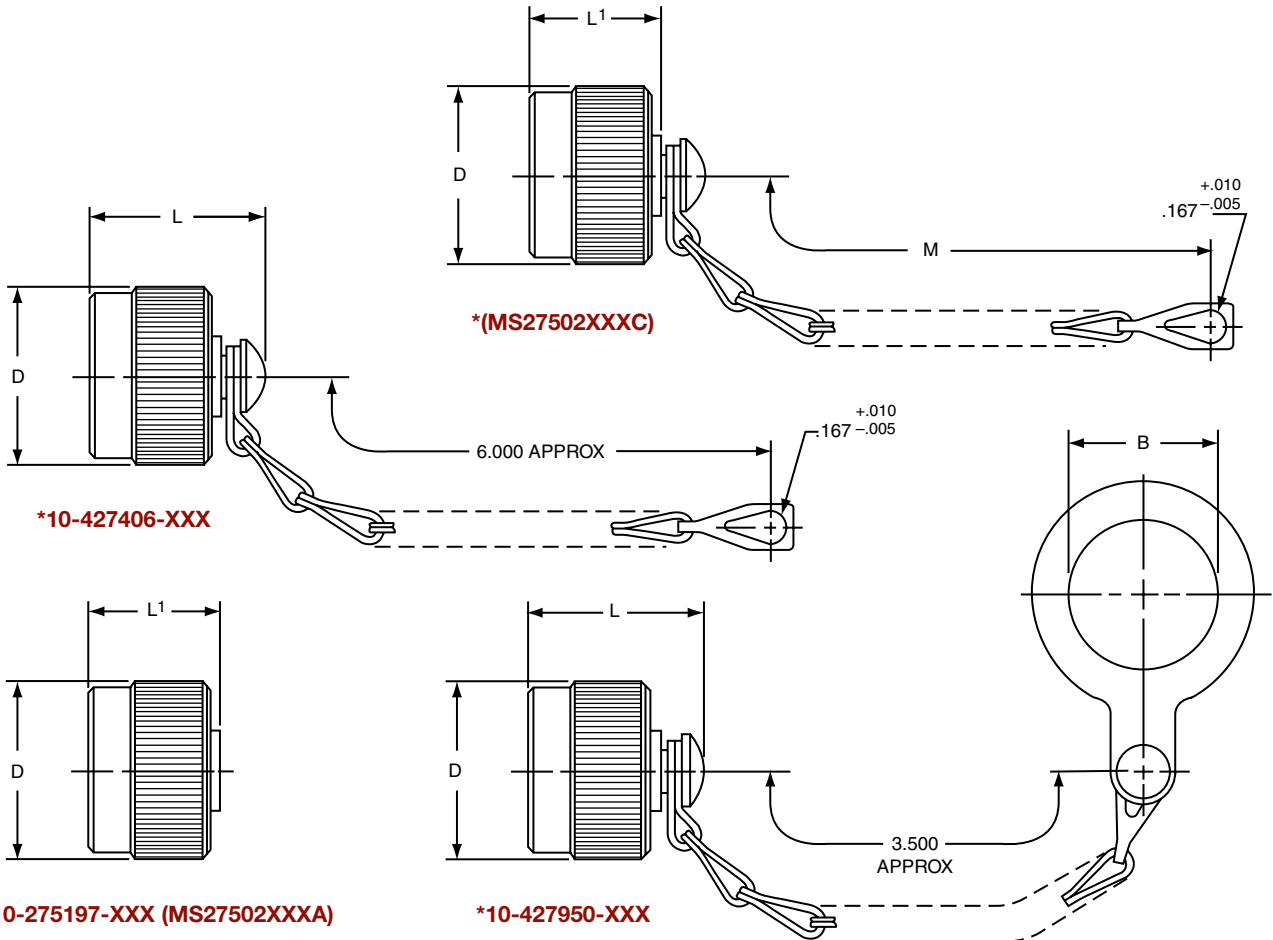
I

SJT

Access

Aquacon

Accessories



For MS stamping identification, accessories must be ordered by MS part number.
If ordered by 10- part number, they will be stamped with said number.
*To complete order number, add shell size and suffix number.
For example, shell size 11 with cadmium plate, nickel base would be 10-427406-117, MS27502A11C, MS27502A11A.

Shell Size	B Dia. $^{+.010}_{-.000}$	D Dia. Max.	L Max.	L' Max	M $\pm .250$
9	.703	.844	1.070	.844	3.000
11	.844	.969	1.070	.844	3.000
13	1.016	1.125	1.070	.844	3.500
15	1.141	1.250	1.070	.844	3.500
17	1.266	1.406	1.070	.844	3.500
19	1.391	1.500	1.070	.844	3.500
21	1.516	1.625	1.070	.844	4.000
23	1.641	1.750	1.070	.844	4.000
25	1.766	1.875	1.089	.875	4.000

Finish	10-Number Suffix	MS Number Suffix with chain	MS Number Suffix without chain
Chromate Treat	-XX0		
Anodic Coating	-XX5	CXXC	CXXA
Cadmium Plate Nickel Base	-XX7	AXXC	AXXA
Olive Drab, Cadmium, Nickel Base	-XX9	BXXC	BXXA
Electroless Nickel	-XXG	FXXC	FXXA

All dimensions for reference only.

SERIES I LJT PLASTIC PROTECTION CAPS

Shell Size	Receptacle
8	10-70506-10S
9	10-70500-10
10	10-70506-12
11	10-70500-12
12	10-70506-14
13	10-70500-14
14	10-70506-16
15	10-70500-16
16	10-70506-18
17	10-70500-18
18	10-70506-20
19	10-70500-20
20	10-70506-22
21	10-70500-22
22	10-70506-24
23	10-70500-24
24	10-70576-24
25	10-70506-28

MIL-DTL-38999, Series I LJT

Strain Relief (Solder Type)

38999

III

II

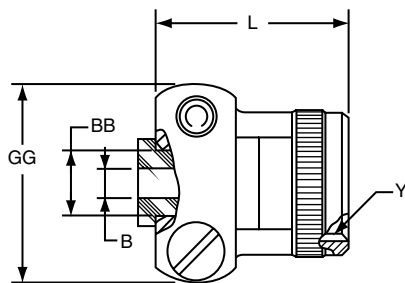
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SJT

Access

Aquacon

Accessories



***10-436792-XXX**

For military type cable clamp see MS27506 or M85049/49 on page 174.

*To complete order number, add shell size and suffix number.

Finish	10-Number Suffix
Chromate treat	-XX0
Anodic coating	-XX5
Cadmium Plate Nickel Base	-XX7
Olive Drab, Cadmium, Nickel Base	-XX9
Electroless Nickel	-XXG

For example: Shell size 11 with cadmium plate, nickel base would be 10-436792-117.

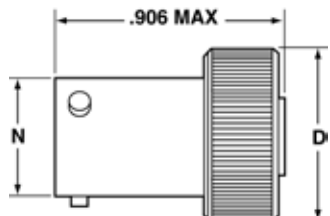
Shell Size	B Dia. +.010 -.025	L Max.	Y Thread Class 2B (Plated)	GG Max.	BB Dia. +.000 -.011
9	.125	.859	.4375-28 UNEF	.775	.250
11	.188	.859	.5625-24 UNEF	.837	.312
13	.312	.859	.6875-24 UNEF	.963	.438
15	.375	1.109	.8125-20 UNEF	1.087	.562
17	.500	1.109	.9375-20 UNEF	1.150	.625
19	.625	1.109	1.0625-18 UNEF	1.400	.750
21	.625	1.109	1.1875-18 UNEF	1.400	.750
23	.750	1.234	1.3125-18 UNEF	1.587	.938
25	.800	1.234	1.4375-18 UNEF	1.681	1.000

All dimensions for reference only.

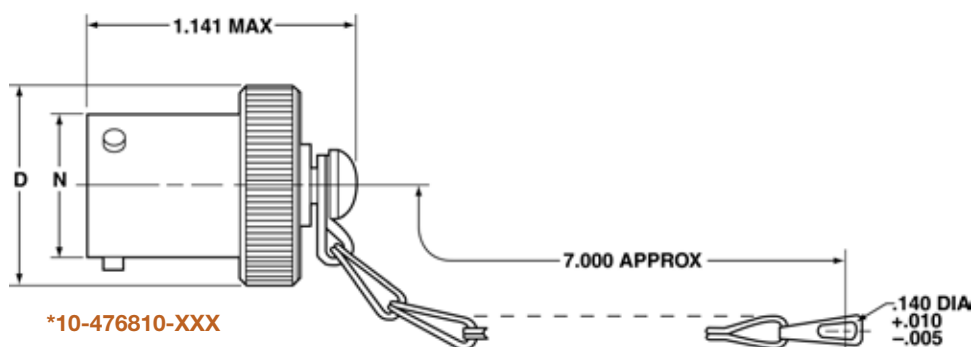
SJT – Accessories

Plug Protection Cap/Receptacle Protection Cap

PLUG PROTECTION CAP

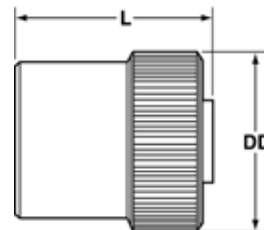


*10-476801-XXX



*10-476810-XXX

RECEPTACLE PROTECTION CAP



*10-325943-XXX

* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-476810-107.

Plug Shell Size	D Dia. Max.	N Dia. +.001 -.005
8	.688	.473
10	.812	.590
12	.969	.750
14	1.094	.875
16	1.219	1.000
18	1.344	1.125
20	1.469	1.250
22	1.594	1.375
24	1.719	1.500

All dimensions for reference only

* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-325943-107.

Receptacle Shell Size	DD Dia. Max.	L Max.
8	.734	.828
10	.844	.828
12	1.016	.828
14	1.141	.828
16	1.265	.828
18	1.391	.828
20	1.500	.828
22	1.625	.828
24	1.750	.859

SJT

PLASTIC PROTECTION CAPS

Protection Cap Finish	Suffix
Bright Cadmium Plated Nickel Base	XX7
Anodic Coating (Alumilite)	XX5
Chromate Treated (Iridite 14-2)	XX0
Olive Drab Cadmium Plate Nickel Base	XX9
Electroless Nickel Coating	XXG

Shell Size	Plug	Receptacle
8	10-70500-10	10-70506-10S
10	10-70500-14	10-70506-12
12	10-70500-16	10-70506-14
14	10-70500-18	10-70506-16
16	10-70500-20	10-70506-18
18	10-70500-22	10-70506-20
20	10-70500-24	10-70506-22
22	10-70524-1	10-70506-24
24	10-70506-28	10-70524-1

SJT – Accessories

Dummy Receptacle, Cable Clamp

38999

III

II

I

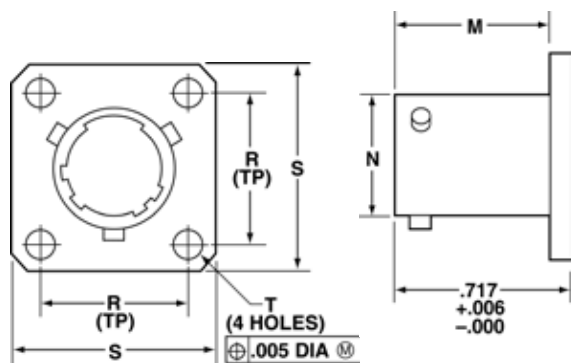
SJT

Access

Aquacon

Accessories

DUMMY RECEPTACLE



*10-476807-XXX

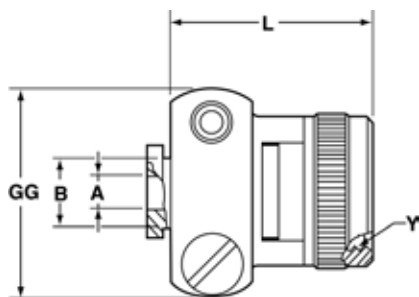
Dummy Receptacle Finish	Suffix
Bright Cadmium Plated Nickel Base	XX7
Anodic Coating (Alumilite)	XX5
Chromate Treated (Iridite 14-2)	XX0
Olive Drab Cadmium Plate Nickel Base	XX9
Electroless Nickel Coating	XXG

* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-476807-107.

Dummy Receptacle Shell Size	D Dia. Max.	L Max.
8	.734	.828
10	.844	.828
12	1.016	.828
14	1.141	.828
16	1.265	.828
18	1.391	.828
20	1.500	.828
22	1.625	.828
24	1.750	.859

All dimensions for reference only

CABLE CLAMP



*10-476808-XXX

Cable Clamp Finish	Suffix
Bright Cadmium Plated Nickel Base	XX7
Anodic Coating (Alumilite)	XX5
Chromate Treated (Iridite 14-2)	XX0
Olive Drab Cadmium Plate Nickel Base	XX9
Electroless Nickel Coating	XXG

* To complete order number, add shell size and suffix number. For example, shell size 10 with bright cadmium plated nickel base, 10-476808-107.

Cable Clamp Shell Size	A Dia. +.010 - .025	B Dia. +.000 - .011	L Max.	Y Thread Class 2B UNEF (Plated)	GG Max.
8	.125	.250	.922	.4375-28	.775
10	.188	.312	.922	.5625-24	.837
12	.312	.438	.922	.6875-24	.963
14	.375	.562	1.172	.8125-20	1.087
16	.500	.625	1.172	.9375-20	1.150
18	.625	.750	1.172	1.0625-18	1.400
20	.625	.750	1.172	1.1875-18	1.400
22	.750	.938	1.297	1.3125-18	1.587
24	.800	1.000	1.297	1.4375-18	1.681

All dimensions for reference only

MIL-DTL-38999, Series III TV, II JT, I LJT

Universal “Header Assembly” for Flex Print or PC Board

38999

III

II

I

SJT

Access

Aquacon

Accessories

MOUNTS TO ALL MIL-DTL-38999

The universal header assembly from Amphenol provides for easy separation of the connector from the board.

The header assembly is comprised of a short pin/socket contact. The tail end of the contact is soldered to the through hole of the flex or printed circuit board. The socket is embedded in the insulator, making electrical contact with the printed circuit tail of the connector.



HEADERS PROVIDE EASY SEPARATION OF THE CONNECTOR FROM THE PC BOARD.

FEATURES AND BENEFITS:

- Circular and square header assemblies available
- Cost and time savings in the manufacturing process
- Assemblies can be vapor phase or wave soldered to flex/printed circuit board
- Allows electrical testing when installed properly.
- Connector assemblies can be easily removed from and reattached to the header assembly.

MOUNTING APPLICATIONS

- Amphenol **square** universal headers are slotted to allow mounting to all series of MIL-DTL-38999 or MIL-DTL-26482 connectors without special alterations.
- Amphenol **circular** universal headers are designed to accommodate the rear flange of PCB Board Mount shells, series MIL-DTL-38999 connectors without special alterations.
- The header assembly can be attached to connectors with standard flange placement or directly to the circuit board.
- Connectors with dual flange mounting hardware can be provided to allow easy mounting to the panel or the header assembly.
 - Forward flange would mount the connector to the panel
 - Rear flange would be used to mount to the header assembly.
- Various types of captivated or loose attaching screws can be utilized for unique applications.

MOUNTING TO RECTANGULAR ARINC CONNECTORS

- Headers for ARINC connector arrangements accommodate up to 150 pins
- Consult Amphenol Canada, Ontario for ARINC configurations.

MATERIALS

- Body is molded or machined from FR-4.
- Electrical engagement areas of the header contact are plated with .00003 inches minimum of gold over .00005 inches minimum of nickel.

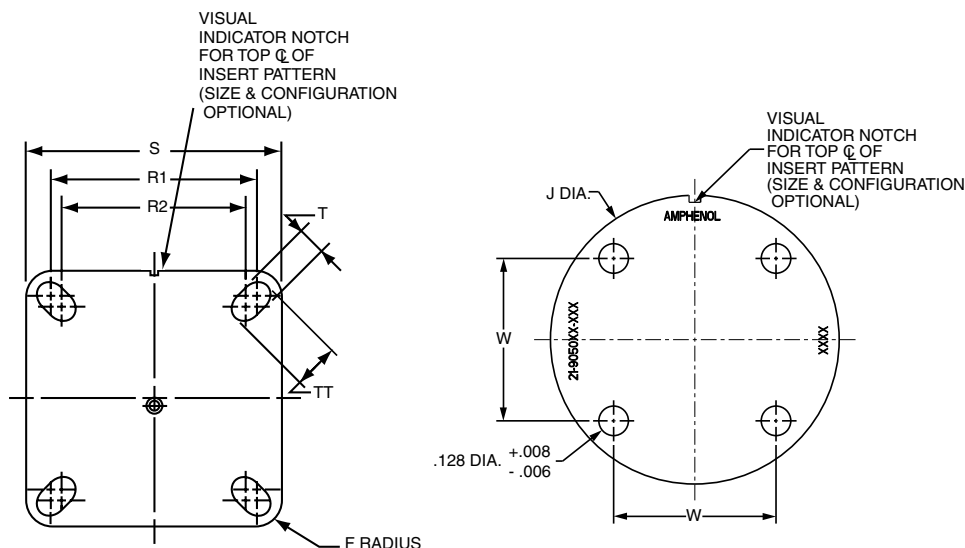
See drawing of standard header on next page.

* For information on Header Assemblies for MIL-DTL-26482 connector, consult Amphenol Aerospace.

MIL-DTL-38999, Series III TV, II JT, I LJT

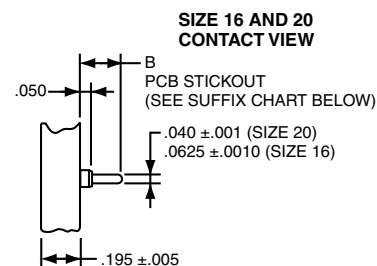
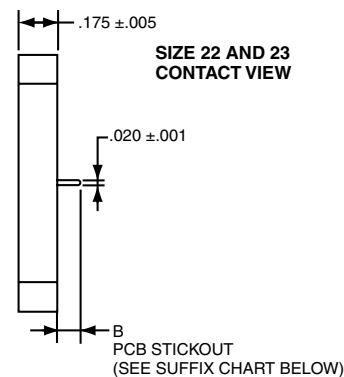
Universal “Header Assembly” for Flex Print or PC Board

The drawing below shows the standard header assembly for use with MIL-DTL-38999 connectors.



Square Assembly Part Number	Shell Size	F Radius	S ± .005	T + .008 - .006	R1 TP†	R2 TP†	TT + .008 - .006
21-904008-XX()	8/9	.094	.938	.128	.719	.594	.216
21-904010-XX()	10/11	.094	1.031	.128	.812	.719	.194
21-904012-XX()	12/13	.094	1.125	.128	.906	.812	.194
21-904014-XX()	14/15	.125	1.219	.128	.969	.906	.173
21-904016-XX()	16/17	.125	1.312	.128	1.062	.969	.194
21-904018-XX()	18/19	.125	1.438	.128	1.156	1.062	.194
21-904020-XX()	20/21	.125	1.562	.128	1.250	1.156	.194
21-904022-XX()	22/23	.125	1.688	.154	1.375	1.250	.242
21-904024-XX()	24/25	.125	1.812	.154	1.500	1.375	.242

† TP designates true position dimensioning.



NOTE:
Size 16 accepts .048 to .064 dia. PCB tails.
Size 20 accepts .037 to .043 dia. PCB tails.
Size 22 & 23 accepts .018 to .022 dia. PCB tails

Circular Assembly Part Number	Shell Size	J Dia. ± .005	W
21-905008-XX()	8/9	1.016	.532
21-905010-XX()	10/11	1.062	.601
21-905012-XX()	12/13	1.250	.703
21-905014-XX()	14/15	1.375	.791
21-905016-XX()	16/17	1.500	.875
21-905018-XX()	18/19	1.625	.975
21-905020-XX()	20/21	1.750	1.053
21-905022-XX()	22/23	1.875	1.145
21-905024-XX()	24/25	2.000	1.233

HOW TO ORDER INFORMATION FOR HEADER ASSEMBLY WITH MIL-DTL-38999 CONNECTORS

1. Series	2. Type	3. Shell Size & Insert Arr.	4. PCB Suffix
21-	9040	08-03	1

1. SERIES	2. TYPE
21- Header Assembly	9040 Square
	9050 Circular

3. SELECT A SHELL SIZE & INSERT ARRANGEMENT SEE PAGES 2-5

Shell Size & Insert Arrangements are on pages 2-5. First number represents Shell Size, second number is the Insert Arrangement. The dash is required. See MIL-STD-1560 or 1669 document for coordinates of inserts.

* Shell size designation for MIL-DTL-38999 Series I, II, III and IV and MIL-DTL-26482 Series 1 and 2.

4. CONTACT PCB STICKOUT		
Suffix	Shell Size*	Contact PCB Stickout Length B ± .015 Stickout
1	08	.120
1	09	.120
2	10	.185
3	12	.270
NA	14	
NA	15	
2	16	.185
3	16	.270
	18	
2	20	.185
3	20	.270
1	22	.120
2	22	.185
3	22	.270
1	23	.120
	24	
	25	

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Application Tools

The following data includes information pertaining to the application tools which have been established for crimping, inserting, and removing contacts incorporated in the TV, CTV and MIL-DTL-38999 Series III connectors. For additional information on coax, twinax and triax contact tools, see High Speed Contact section of this catalog.

All crimping tools included are the “full cycling” type and when used as specified in the installation instructions L-624 covering the TV, CTV and MS series connectors, will provide reliable crimped wire to contact terminations. There is a possibility of additional crimping tools other than those included being available at present or in the future for this specific application.

CRIMPING TOOLS

Contact Size/Type	Crimping Tool	Turret Die or Positioner
12 Pin and Socket	M22520/1-01	M22520/1-04
16 Pin and Socket	M22520/1-01 M22520/7-01	M22520/1-04 M22520/7-04
20 Pin and Socket	M22520/1-01 M22520/2-01 M22520/7-01	M22520/1-04 M22520/2-10 M22520/7-08
22, 22D, 22M Pin	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07
22, 22D, 22M Socket Series I, III	M22520/2-01 M22520/7-01	M22520/2-07 M22520/7-05
22D Socket Series II	M22520/2-01 M22520/7-01	M22520/2-06 M22520/7-06
8 Twinax Center Pin and Socket	M22520/2-01	M22520/2-37
8 Twinax Intermediate Outer Pin & Socket	M22520/5-01	M22520/5-200

Contact Size/Type	Crimping Tool	Turret Die or Positioner
8 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-31
8 Coaxial Outer Pin and Socket	M22520/5-01	M22520/5-05 Die Closure B
	M22520/5-01	M22520/5-41 Die Closure B
	M22520/10-01	M22520/10-07 Die Closure B
16 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-35
16 Coaxial Outer Pin and Socket	M22520/4-01	M22520/4-02
12 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-34
12 Coaxial Outer Pin and Socket	M22520/31-01	M22520/31-02
10 (Power)	TP-201423	

Where 2 or 3 tools are listed for a contact size, only one tool and its die or positioner are required to crimp the contact. The above crimping tools and positioners are available from the approved tool manufacturer.

INSERTION TOOLS

Use with Contact Size	Plastic Tools		Metal Tools			
	MS Part Number	Color	Angle Type		Straight Type Commercial Part No.	Color
			MS Part No.	Commercial Part No.		
10 (Power)	M81969/14-05*	Gray / (White)	M81969/8-11	†	†	Green
12	M81969/14-04*	Yellow / (White)	M81969/8-09	11-8674-12††	11-8794-12††	Yellow
16	M81969/14-03*	Blue / (White)	M81969/8-07	11-8674-16††	11-8794-16††	Blue
20	M81969/14-10*	Red / (Orange)	M81969/8-05	11-8674-20††	11-8794-20††	Red
22	M81969/14-09	Brown/White	M81969/8-03	11-8674-22††	11-8794-22††	Brown
22D, 22M	M81969/14-01*	Green / (White)	M81969/8-01	11-8674-24††	11-8794-24††	Black
8 Coaxial	None Required					
8 Twinax	None	None	None	None	None	Red

REMOVAL TOOLS

Use with Contact Size	Plastic Tools		Metal Tools				
	MS Part Number	Color	For Unwired Contacts Commercial Part No.	Angle Type		Straight Type Commercial Part No.	Color
				MS Part No.	Commercial Part No.		
10 (Power)	M81969/14-05*	(Gray) / White	†	M81969/8-12	†	†	Green / White
12	M81969/14-04*	(Yellow) / White	11-10050-11††	M81969/8-10	11-8675-12††	11-8795-12††	Yellow / White
16	M81969/14-03*	(Blue) / White	11-10050-10††	M81969/8-08	11-8675-16††	11-8795-16††	Blue / White
20	M81969/14-10*	(Orange) / Red	11-10050-9††	M81969/8-06	11-8675-20††	11-8795-20††	Red / Orange
22	M81969/14-09*	(Brown)/White	11-10050-8††	M81969/8-04	11-8675-22††	11-8795-22††	Brown/White
22D, 22M	M81969/14-01*	(Green) / White	11-10050-7††	M81969/8-02	11-8675-24††	11-8795-24††	Green / White
8 Coaxial	M81969/14-12	Green	None	None	11-9170††	DRK264-8†††	N/A
8 Twinax	M81969/14-12	Green	None	None	11-9170††	N/A	N/A

For information about contacts see page 30. The M81969/8, 11-8674, 11-8675, and 11-8794 metal contact insertion and removal tools will accommodate wires having the maximum outside diameter as follows: Contact size 12: dia. is .155, size 16: dia. is .109, size 20: dia. is .077, size 22D: dia. is .050. When wire diameters exceed those specified, the plastic tools must be used.

* Double end insertion/removal tool.

** Twinax insertion tools are available only in a straight type, metal version.

† To be determined.

†† Contact Daniels Manufacturing Co. or Astro Tool Corp. for availability.

††† Daniels Manufacturing Co. part number

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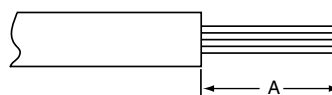
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Assembly Instructions

WIRE STRIPPING

1. Strip wire to required length. (See Figure at right). When using hot wire stripping, do not wipe melted insulation material on wire strands; with mechanical strippers do not cut or nick strands.
 2. See Table 1 for proper finished outside wire dimensions.
 3. Twist strands together to form a firm bundle.
 4. Insert stripped wire into contact applying slight pressure until wire insulation butts against wire well. Check inspection hole to see that wire strands are visible. If there are strayed wire strands, entire wire end should be re-twisted.
- When wire is stripped and properly installed into contact, the next step is to crimp the wire inside the contact by using the proper crimping tool.

STRIPPING DIMENSIONS



Wire Size	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

Table 1

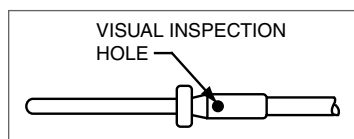
Contact Size	Wire Dimension (inches)**	
	Min.	Max.
10	.135	.162
12	.097	.142
16	.065	.109
20	.040	.077
22	.034	.060
22M, 22D	.030	.050

** Min. diameters to insure moisture proof assembly; max. diameters to permit use of metal removal tools.

CRIMPING

See table on preceding page for recommended M22520 series crimping tools, turret head or positioner selection settings according to contact size, part number and wire gauge size.

1. Insert stripped wire into contact crimp pot. Wire must be visible through inspection hole.
2. Using correct crimp tool and locator, cycle the tool once to be sure the indentors are open, insert contact and wire into locator. Squeeze tool handles firmly and completely to insure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully actuated.
3. Release crimped contact and wire from tool. Be certain the wire is visible through inspection hole in contact.



Examples of M22520 Series Crimping Tools:
Shown top: tool used for small size 22, 22D and 22M contacts.

Shown bottom: tool used for size 20, 16 or 12 contacts and has a positioner that can be dialed for each contact size.

CONTACT INSERTION

1. First remove hardware from the plug and receptacle and slide the hardware over wires in proper sequence.



2. Use proper plastic or metal insertion tool for corresponding contact. (Consult Insertion Tool table on preceding page). Slide correct tool (with plastic tool use colored end) over wire insulation and slide forward until tool bottoms against rear contact shoulder.



Plastic tool with contact in proper position.



Metal tool with contact.

3. Next align the tool and contact up to the properly identified cavity at rear of connector plug. Use firm, even pressure; do not use excessive pressure. It is recommended to start at the center cavity. Contact must be aligned with grommet hole and not inserted at an angle. Push forward until contact is felt to snap into position within insert.



Continued on next page.



Note: All plastic tools are double-ended. The colored side is the insertion tool and the white side is the removal tool.

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CONTACT INSERTION, CONT.

4. Remove tool and pull back lightly on wire, making sure contact stays properly seated and isn't dragged back with the tool. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.

5. After all contacts are inserted, fill any empty cavities with wire sealing plugs. (Refer to sealing plug charts for Series III on page 29, for Series I & II and SJT see page 30-31.

6. Reassemble plug or receptacle hardware - slide forward and tighten using connector pliers. Connector holding tools are recommended while tightening back accessories. When using strain relief, center wires at bar clamp. Slide clamp grommet into position and tighten clamp bar screws. When tightening screws, pressure should be applied in the same direction that clamp is threaded to rear threads of connector. When not using clamp grommet, build up wire bundle with vinyl tape so clamp bar will maintain pressure on wires.



CAUTION, when inserting or removing contacts, do not spread or rotate tool tips.



CONTACT REMOVAL

1. Remove hardware from plug or receptacle and slide hardware back along wire bundle.

2. Use proper plastic or metal removal tool for corresponding contact. (Consult Removal Tool table on page 167). Slide correct size tool over wire insulation.

3. Insert plastic or metal removal tool into contact cavity until tool tips enter rear grommet and come to a positive stop. Hold tool tip firmly against positive stop on contact shoulder. Grip wire and simultaneously remove tool and contact. (On occasion, it may be necessary to remove tool, rotate 90° and reinsert.)



Use white end of plastic tool for removal of contacts.



Removal of contacts with metal tool.