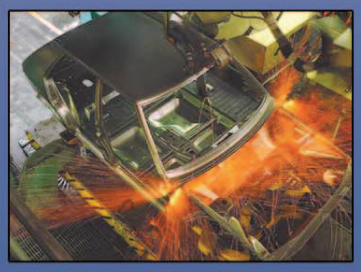
Amphenol® 97 Series Standard Cylindrical Connector

12-022-14

MIL-5015 Style Connectors widely used for:

- **Factory Automation, Robotics**
- **Machine Tool, Instrumentation**
- **Welding Equipment**
- **Medical Equipment**

Amphenol® 97 Series Connectors are UL recognized and CSA recognized.



Amphenol

97 series solder type
how to order

Example of part number for solder type connectors is given below.

97 – 3101 A – 28 – 21 S Y (847) (639)

Series Number
97 - Like MS but Amphenol®

Shell Type
3100 Wall Receptacle
3101 Cable Receptacle
3102 Box Receptacle
3106 Straight Plug
3107 Quick Disconnect Plug
3108 Angle Plug

Shell Construction
A - Solid Backshell
B - Split Backshell

Shell Size
8S, 10SL, 12S, 14S, 14, 16S, 16
18, 20, 22, 24, 28, 32, 36

Insert Configuration Number
See insert availability listing - pages 4 & 5, and see insert arrangement illustrations - pages 6-11.

Shell Finish Suffix
Omit for standard O.D. cadmium finish
(604) Gray anodized
(608) Black anodized
(621) Black zinc alloy
(624) Green zinc alloy
(639) Clear cadmium
(640) Conductive black zinc alloy
(689) Electroless nickel

OR

RoHS Compliant Suffix
(946) Black zinc alloy plating plus solder contact less pre-filled cup

Deviation from standard A&B construction
Omit this suffix if standard construction is desired
(115) Small flange receptacle
(426) Gold over silver plating on contacts
(438) Construction for potting (see page 30 for additional deviations)
(936) Connector plug with safety wire holes in coupling nut
Consult Amphenol, Sidney, NY for other deviations.

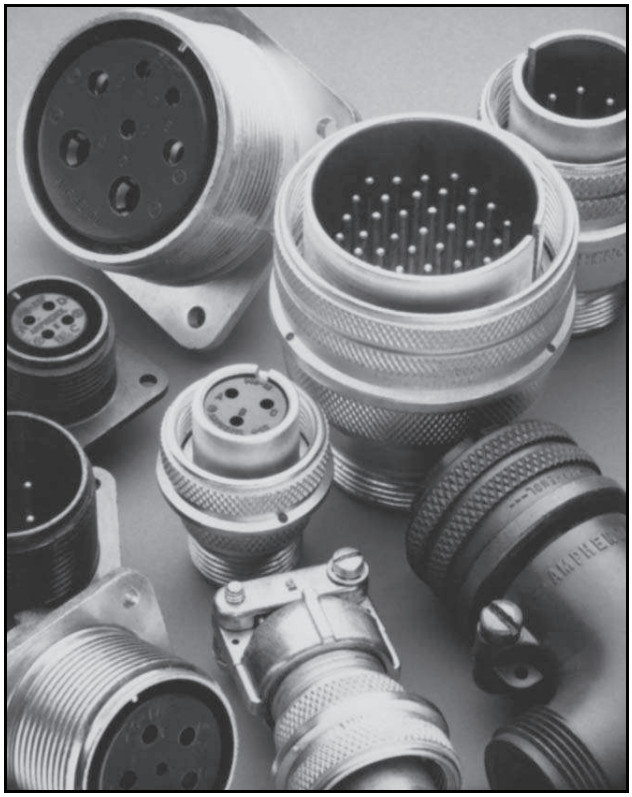
Alternate Insert Positions
Omit for standard position
W, X, Y or Z for alternate positions, depending on insert (see page 12 for positions available)

Contact Type
P = Pin
S = Socket

Note: Accessories for 97 Series Connectors should be ordered with matching connector plating. See accessory pages 33-39.

Amphenol® 97 Series Connectors
provide the interconnection solution for low cost, general duty applications

Amphenol offers the 97 Series Connector Family - A general duty standard cylindrical connector, MIL-5015 style.



The 97 Series is a widely used connector series for the automotive, robotics, machine tool and welding industries, as well as numerous other commercial applications from heavy equipment to ECG monitoring cables.

Shell components are fabricated from high grade aluminum alloy to provide strength and environmental protection. This family of connectors offers a wide variety of shell styles, contact patterns and accessory options.

The Amphenol® 97 Series design features and benefits:

- **Low cost, general duty non-environmental**
- **Environmental capability with the 417 suffix plus 9767 cable clamp (see page 34)**
- **Solder or crimp termination**
- **UL Recognized, CSA Recognized**
- **Wide selection of shell styles and insert patterns**
- **Wide selection of connector finishes - cadmium or non-cadmium (environmentally friendly zinc alloy)**
- **Threaded coupling, hard dielectric inserts**
- **Solid or split shell construction**
- **Accessories for both individual wire seal and jacketed cable**

RoHS COMPLIANT PRODUCT AVAILABLE – Consult Amphenol Industrial Operations.

For additional information on Amphenol® 97 Series connectors, or for special application requirements, contact your local Amphenol sales office, authorized distributor, or -

Amphenol Corporation
Amphenol Industrial Operations
40-60 Delaware Avenue
Sidney, New York 13838-1395
Telephone: 607-563-5011
Fax: 607-563-5157
Web site: www.amphenol-industrial.com

Guide to Selecting a Connector

In selecting a connector, it first must be determined if a non-environmental 97 A or B Series 5015 type is required or if an environmental MS-5015 Class E, F, or R type* is required.
If determined that the general duty, non-environmental 97 series is the choice - then this catalog is appropriate to your needs

The following 8 steps apply to formulation of a part number.**

1 How many wires are you going to connect? What gauge?

These two questions are important, because they indicate which insert you need. There are literally hundreds to choose from.

The insert arrangements for solder contact connectors are illustrated on pages 6-11. The inserts most often used are highlighted on these pages.

Here's an example of how to choose an insert arrangement. Say you want to connect eight 16-ga. wires, - first find the section of arrangements containing 8 contacts. Insert number 20-7 is the one you want because it contains eight 16-ga. contacts and it is one of the most often used. The one you choose might depend on your space or voltage requirements. The voltage capacity of each insert is listed under its diagram.

If you have more than one wire size to connect, the method is essentially the same. Actually, the insert configurations for multiple-size wires are a lot more flexible than they appear. That's because you can always solder a smaller wire to a larger contact. However, soldering a large wire to a small contact isn't recommended because of size and current requirements.

2 What if several identical connectors have different functions?

Here's a situation to watch out for. You have four identical receptacles on a panel. One carries high current loads. The others have low current functions. A plug mated with the wrong receptacle (cross-mating) could ruin your valuable equipment.

To avoid cross-mating, you can order identical inserts positioned in both the plugs and receptacles at various angles from standard. These variations from standard position are called alternate insert positions, and are described on page 12.

3 What kind of receptacle do you need?

For Wall Mounting Use a wall receptacle, type 3100. The elongated back of this receptacle extends through thick wall material. It is threaded to accept standard hardware fittings.

For Unmounted Applications Use the cable receptacle, type 3101.

For Box or Panel Mounting Use the box receptacle, type 3102. This receptacle's back is short to conserve space. It is not threaded on the back end and is used when no accessories such as clamps are needed.

4 What kind of plug do you need?

For ordinary situations The straight plug, type 3106 meets most connector requirements. However . . .

when space is critical you may want to consider using an angle plug, type 3108. This type plug lets the cable enter your equipment at a right angle.

5 Do you need a plug with a Solid or Split back shell?

You can get both straight and angle plugs in solid or split back shell designs. With the solid shell you have greater strength and you save space. On the other hand, the split shell design lets you quickly inspect the solder terminals when you need to. This feature could be important if you'll be subjecting the connector to rough handling and heavy use.

The designation to use for solid shell construction is the letter A. This designation letter goes immediately after the main shell type number: for example, 3106A or 3108A.
The designation for split shell construction is the letter B; for example, 3106B or 3108B.

Because of application, receptacles are made in solid backshell construction only. Their designation is 3100A, 3101A. (See how to order for solder contact connectors, page 19.

6 Which connector gets the socket? - the receptacle or the plug?

You're at the point where you designate which inserts are used with which shells. Either pin or socket inserts can be used with plugs or receptacles.

Here's a good rule of thumb. Order the sockets for the connector at the "hot" side of the circuit. By having sockets at the power source, there's little chance that a wayward finger or screwdriver will short the circuit or cause personal injury.

The designation for sockets is simply S in a part number, following the insert code number. For pins, the designation is P. Therefore, the 20-7P insert would have pin contacts, while the 20-7S insert would have socket contacts.

7 What type of plating is preferred?

If you prefer the standard olive cadmium, non-reflective, electrically conductive finish, then no suffix number is required. Other plating variations are available, including environmentally friendly zinc alloy. See how to order instructions for the various plating finishes offered for 97 Series solder connectors on page 19.

8 Do you need any accessories?

Accessories - cable clamps, protection caps and chains, conduit adapters, and panel gaskets are shown on pages 33-39.

* If an environmental type MIL-5015 E, F or R Class is required, then the catalog that should be consulted is 12-020, MS/Standard MIL-5015 Cylindrical Connectors. See www.amphenol-industrial.com for on-line catalogs or contact Amphenol, Sidney, NY.

** These steps are for solder type connectors which are described in detail on pages 3-19. If a crimp type connector is needed, the same steps apply, however, you should consult pages 20-29 for details on 97 Series connectors with crimp contacts.

Amphenol® 97 Series Connectors with solder contacts


MS3100A


MS3107A


MS3101A


MS3107B


MS3102A


MS3108A


MS3106A


MS3108B


MS3106B

DESIGN CHARACTERISTICS

- **Medium to heavy weight cylindrical**
- **Durable, field-proven design**
- **Single key/keyway polarization**
- **Threaded coupling, hard dielectric inserts**
- **Non-rotating contacts**
- **Operating temperatures from –55°C to +125°C**
- **Cost effective**
- **Intermateable and intermountable with existing 97 Series and MIL-5015 connectors**
- **Underwriters Laboratories approved recognition File E115497**
- **Canadian Standards Association Certification File LR69183**

CUSTOMER OPTIONS

- **Solid or split shell construction**
- **Six shell styles**
- **128 contact arrangements, from 1 to 52 circuits**
- **Alternate insert positioning**
- **High temperature and potting constructions**
- **Special plating finishes including black and green zinc alloy**
- **Optional gold plating on MS contacts**
- **Thermocouple arrangements available**

Connector components are fabricated from high grade aluminum alloy, with a conductive cadmium plate finish and an olive drab chromate after-treatment. Some cable clamps are a zinc alloy with an olive drab/green chromate finish. See how to order page 19 for other finish variations.

Contacts are silver plated with pre-tinned solder cups. Optional gold over silver plating is also available. Inserts for solder style contacts are diallyl-phthalate.

Users should be aware that classes “A” and “B” of MIL-5015 have been cancelled, and these products are no longer qualified.

97 series solder type
insert availability

Insert Number	Total Contacts	Mechanical Spacing		Service Rating	Contact Size				
		Inches	mm		0	4	8	12	16
8S-1◆	1	1/16	1.57	INST.					1
10SL-3	3	1/16	1.57	A					3
10SL-4	2	1/16	1.57	A					2
12SL-844◆*	4	1/16	1.57	A					4
12S-3	2	1/16	1.57	A					2
12-5◆	1	1/8	3.18	D				1	
12S-6◆*	2	1/16	1.57						2 Thermo-couple
14S-1†	3	1/16	1.57	A					3
14S-2	4			INST.					4
14S-4◆†	1	1/8	3.18	D					1
14S-5	5			INST					5
14S-6	6			INST.					6
14S-7	3	1/16	1.57	A					3
14S-9†	2	1/16	1.57	A					2
16S-1	7	1/16	1.57	A					7
16S-4◆	2	1/8	3.18	D					2
16S-5	3	1/16	1.57	A					3
16S-6◆†	3	1/16	1.57	A					3
16-7	3	1/16	1.57	A			1		2
16S-8	5	1/16	1.57	A					5
16-9	4	1/16	1.57	A				2	2
16-10	3	1/16	1.57	A				3	
16-11◆†	2	1/16	1.57	A				2	
16-12	1	1/16	1.57	A		1			
16-13	2	1/16	1.57	A				2 Thermo-couple	
18-1	10	1/16	1.57	A					4
				INST.					6
18-3†	2	1/8	3.18	D				2	
18-4	4	1/8	3.18	D					4
18-5◆	3	1/8	3.18	D				2	1
18-8	8	1/16	1.57	A				1	7
18-9◆	7			INST.				2	5
18-10†	4	1/16	1.57	A				4	
18-11	5	1/16	1.57	A				5	
18-12†	6	1.16	1.57	A					6
18-13	4	1/16	1.57	A			1	3	
18-16	1	5/16	7.92	C				1	
18-19†	10	1/16	1.57	A					10
18-20	5	1/16	1.57	A					5
18-22†	3	1/8	3.18	D					3
18-29◆†	5	1/16	1.57	A					5
18-420*	1							1 Hi-Volt-age**	
20-3†	3	1/8	3.18	D				3	

Insert Number	Total Contacts	Mechanical Spacing		Service Rating	Contact Size				
		Inches	mm		0	4	8	12	16
20-4	4	1/8	3.18	D				4	
20-6†	3	1/8	3.18	D					3
20-7	8	1/8	3.18	D					4
		1/16	1.57	A					4
20-8	6			INST.			2		4
20-11†	13			INST.					13
20-14	5	1/16	1.57	A			2	3	
20-15	7	1/16	1.57	A				7	
20-16	9	1/16	1.57	A				2	7
20-17	6	1/16	1.57	A				5	1
20-18	9	1/16	1.57	A				3	6
20-19†	3	1/16	1.57	A			3		
20-21	9	1/16	1.57	A				1	8
20-23	2	1/16	1.57	A			2		
20-24	4	1/16	1.57	A			2		2
20-27	14	1/16	1.57	A					14
20-29	17	1/16	1.57	A					17
20-33	11	1/16	1.57	A					11
22-1†	2	1/8	3.18	D			2		
22-2	3	1/8	3.18	D			3		
22-4†	4	1/16	1.57	A			2	2	
22-5	6	1/8	3.18	D				2	4
22-8†	2	3/16	4.75	E				2	
22-9	3	3/16	4.75	E				3	
22-10	4	3/16	4.75	E					4
22-11	2	1/4	6.35	B					2
22-12	5	1/8	3.18	D			2		3
22-13†	5	1/8	3.18	D					1
		1/16	1.57	A				4	
22-14	19	1/16	1.57	A					19
22-15	6	3/16	4.75	E					1
		1/16	1.57	A				5	
22-16†	9	1/16	1.57	A				3	6
22-18	8	1/8	3.18	D					5
		1/16	1.57	A					3
22-19	14	1/16	1.57	A					14
22-20†	9	1/16	1.57	A					9
22-22	4	1/16	1.57	A			4		
22-23	8	1/8	3.18	D				1	
		1/16	1.57	A				7	

Not all insert arrangements are currently available for environmental individual wire seal. Consult Amphenol, Sidney, NY for availability.

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number. See how to order, page 19.

** Hi-Voltage = 17KVAC/24KVDC

◆ Molded-in pin (MIP) insert requires (910) deviation. See how to order, pg. 19.

97 series solder type
insert availability, cont.

Insert Number	Total Contacts	Mechanical Spacing		Service Rating	Contact Size				
		Inches	mm		0	4	8	12	16
22-26*	7	1/8	3.18					2	5
22-27	9	1/8	3.18	D			1		
		1/16	1.57	A					8
22-28†	7	1/16	1.57	A				7	
22-34	5	1/8	3.18	D				3	2
24-2	7	1/8	3.18	D				7	
24-5†	16	1/16	1.57	A					16
24-6	8	1/8	3.18	D				3	
		1/16	1.57	A				5	
24-7	16	1/16	1.57	A				2	14
24-9†	2	1/16	1.57	A		2			
24-10	7	1/16	1.57	A			7		
24-11	9	1/16	1.57	A			3	6	
24-12	5	1/16	1.57	A		2		3	
24-16	7	1/8	3.18	D			1		3
		1/16	1.57	A				3	
24-19†	12	1/16	1.57						12
24-20◆	11	1/8	3.18	D				2	9
24-21	10	1/8	3.18	D			1		9
24-22◆	4	1/8	3.18	D			4		
24-27	7	3/16	4.75	E					7
24-28	24	1/16	1.57	INST.					24
28-1	9	1/8	3.18	D			1	2	
		1/16	1.57	A			2	4	
28-2	14	1/8	3.18	D				2	12
28-3	3	3/16	4.75	E			3		
28-6†	3	1/8	3.18	D		3			
28-8	12	1/16	1.57	A					9
		1/8	3.18	D					1
		3/16	4.75	E				2	
28-9	12	1/8	3.18	D				6	6
28-10	7	1/8	3.18	D				1	
		1/16	1.57	A		2	2	2	
28-11	22	1/16	1.57	A				4	18
28-12	26	1/16	1.57	A					26
28-15†	35	1/16	1.57	A					35
28-16†	20	1/16	1.57	A					20
28-17	15	1/4	6.35	B					1
		1/8	3.18	D					3
		1/16	1.57	A					11
28-18	12	5/16	7.92	C					1
		1/8	3.18	D					5
		1/16	1.57	A					2
				INST.					4
28-19	10	1/4	6.35	B					2
		1/8	3.18	D					2
		1/16	1.57	A				4	2

Insert Number	Total Contacts	Mechanical Spacing		Service Rating	Contact Size				
		Inches	mm		0	4	8	12	16
28-20	14	1/16	1.57	A				10	4
28-21	37	1/16	1.57	A					37
32-5†	2	1/8	3.18	D	2				
32-6	23	1/16	1.57	A		2	3	2	16
32-7	35	1/16	1.57	A				7	24
				INST.					4
32-8†	30	1/16	1.57	A				6	24
32-13	23	1/8	3.18	D				5	18
32-17	4	1/8	3.18	D		4			
32-414	52	1/16	1.57	A					52
36-1†	22	1/8	3.18	D				4	18
36-5	4	1/16	1.57	A	4				
36-6	6	1/16	1.57	A	2	4			
36-7	47	1/16	1.57	A				7	40
36-8	47	1/16	1.57	A				1	46
36-9	31	1/16	1.57	A		1	2	14	14
36-10	48	1/16	1.57	A					48
36-15	35	1/16	1.57	A					34
		1/8	3.18	D					1
36-403*	52	1/16	1.57	A					52

Not all insert arrangements are currently available for environmental individual wire seal. Consult Amphenol, Sidney, NY for availability.

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number. See how to order, page 19.

◆ Molded-in pin (MIP) insert requires (910) deviation. See how to order, pg. 19.

97 series solder type
insert arrangements

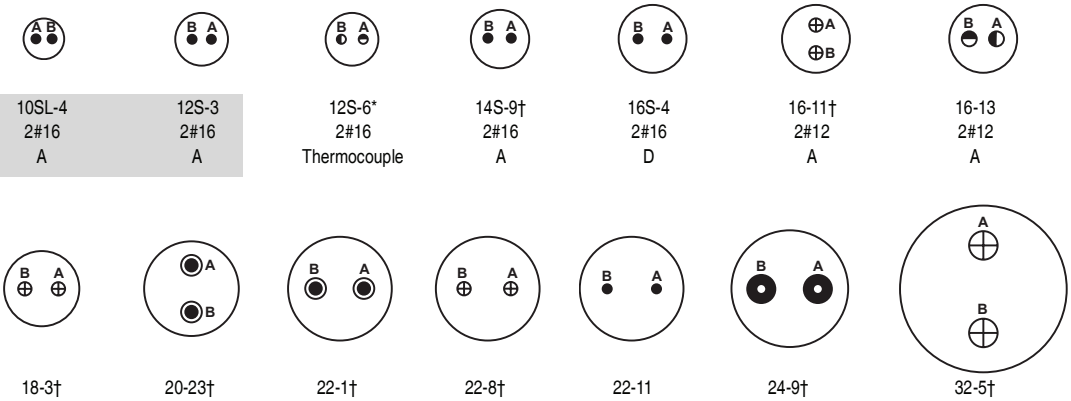
Front view of pin insert or rear of socket insert illustrated.

Items highlighted are most popular and most readily available.

1 Contact

Insert Arrangement	8S-1	12-5	14S-4†	16-12	18-16	18-420*
Contacts	1#16	1#12	1#16	1#4	1#12	1#12
Service Rating	INST.	D	D	A	C	High Voltage 17KVAC/24KVDC

2 Contacts

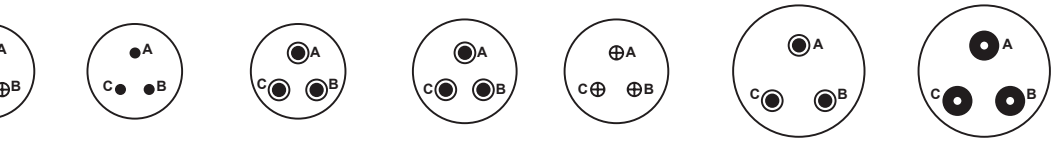


Insert Arrangement	10SL-4	12S-3	12S-6*	14S-9†	16S-4	16-11†	16-13
Contacts	2#16	2#16	2#16	2#16	2#16	2#12	2#12
Service Rating	A	A	Thermocouple	A	D	A	A

Insert Arrangement	18-3†	20-23†	22-1†	22-8†	22-11	24-9†	32-5†
Contacts	2#12	2#8	2#8	2#12	2#16	2#4	2#0
Service Rating	D	A	D	E	B	A	D

3 Contacts

Insert Arrangement	10SL-3	14S-1†	14S-7	16S-5†	16S-6†	16-7	16-10	18-5	18-22†
Contacts	3#16	3#16	3#16	3#16	3#16	1#8, 2#16	3#12	2#12, 1#16	3#16
Service Rating	A	A	A	A	A	A	A	D	D



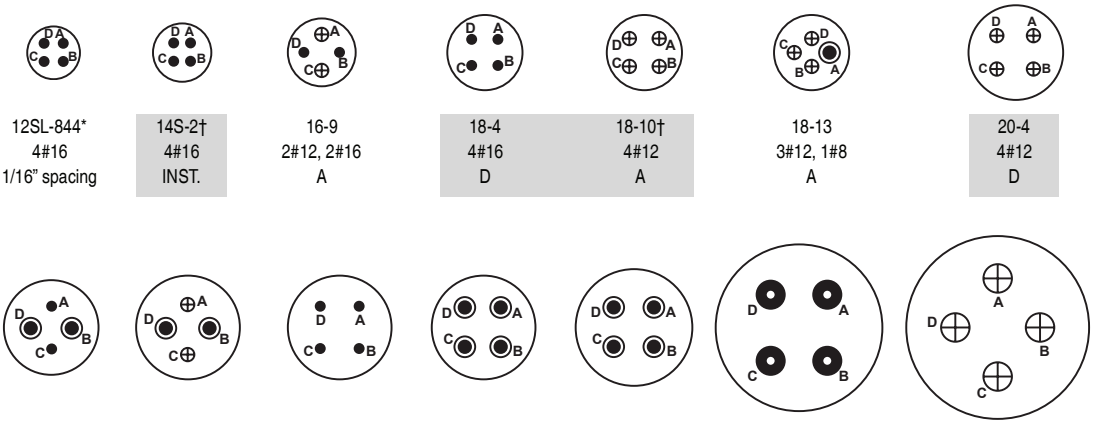
Insert Arrangement	20-3†	20-6†	20-19†	22-2	22-9	28-3	28-6†
Contacts	3#12	3#16	3#8	3#8	3#12	3#8	3#4
Service Rating	D	D	A	D	E	E	D

97 series solder type
insert arrangements, cont.

Front view of pin insert or rear of socket insert illustrated.

Items highlighted are most popular and most readily available.

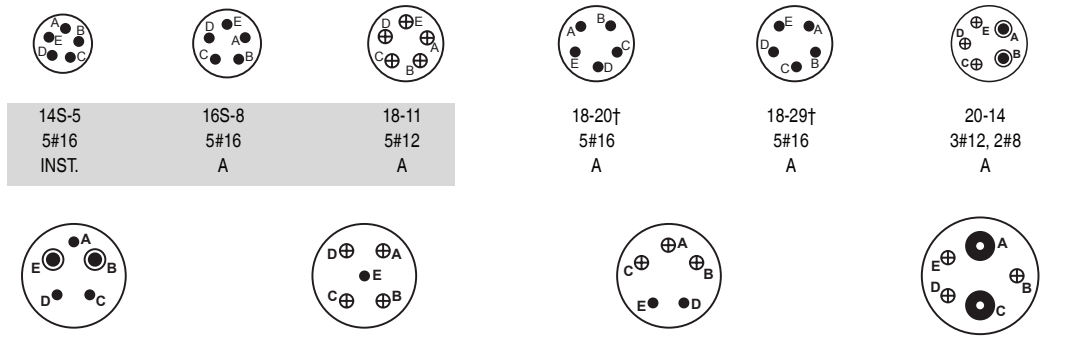
4 Contacts



	12SL-844*	14S-2†	16-9	18-4	18-10†	18-13	20-4
Insert Arrangement	12SL-844*	14S-2†	16-9	18-4	18-10†	18-13	20-4
Contacts	4#16	4#16	2#12, 2#16	4#16	4#12	3#12, 1#8	4#12
Service Rating	1/16" spacing	INST.	A	D	A	A	D

	20-24	22-4†	22-10	22-22	24-22	32-17	36-5
Insert Arrangement	20-24	22-4†	22-10	22-22	24-22	32-17	36-5
Contacts	2#8, 2#16	2#8, 2#12	4#16	4#8	4#8	4#4	4#0
Service Rating	A	A	E	A	D	D	A

5 Contacts



	14S-5	16S-8	18-11	18-20†	18-29†	20-14
Insert Arrangement	14S-5	16S-8	18-11	18-20†	18-29†	20-14
Contacts	5#16	5#16	5#12	5#16	5#16	3#12, 2#8
Service Rating	INST.	A	A	A	A	A

	22-12	22-13†	22-34†	24-12
Insert Arrangement	22-12	22-13†	22-34†	24-12
Contacts	2#8, 3#16	1#16, 4#12	3#12, 2#16	2#4, 3#12
Service Rating	D	E = D; A, B, C, D = A	D	A

MIL-SPEC SERVICE RATING

		INST.	A	D	E	B	C
Limiting Operating	DC	250	700	1250	1750	2450	4200
Voltages at Sea Level	AC (rms)	200	500	900	1250	1750	3000

See notes 1 and 2 under TEST CURRENT.
INST. service normally for low voltage and currents.

Effective Creepage (nominal)	Inch	1/16	1/8	3/16	1/4	5/16	1
	mm	1.57	3.18	4.75	6.35	7.92	25.40
Mechanical Spacing (nominal)	Inch		1/16	1/8	3.16	1/4	5/16
	mm		1.57	3.18	4.75	6.35	7.92

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number. See how to order, page 19.

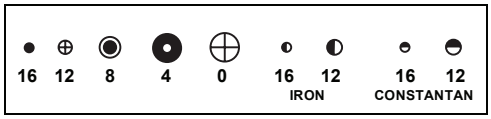
TEST CURRENT

Contact Size	16	12	8	4	0
Amperes	13	23	46	80	150

NOTE 1: Transients were not considered in calculating these values.

NOTE 2: Limiting operating voltages at 50,000 feet altitude are approximately 25% of the sea level values.

CONTACT LEGEND



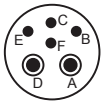
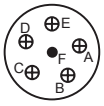
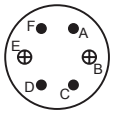
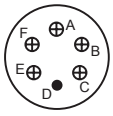
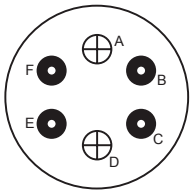
97 series solder type
insert arrangements, cont.

Front view of pin insert or rear of socket insert illustrated.

Items highlighted are most popular and most readily available.

6 Contacts

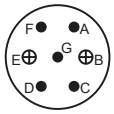
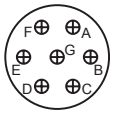


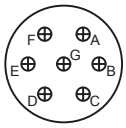
Insert Arrangement	14S-6	18-12†	20-8	20-17	22-5	22-15	36-6
Contacts	6#16	6#16	4#16, 2#8	5#12, 1#16	2#12, 4#16	5#12, 1#16	2#0, 4#4
Service Rating	INST.	A	INST.	A	D	D = E; A, B, C, E, F = A	A

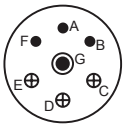
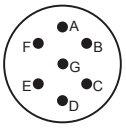
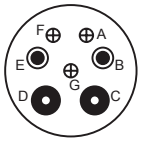
7 Contacts



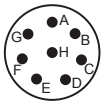
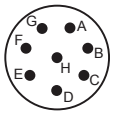
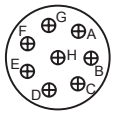
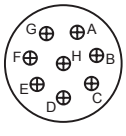
Insert Arrangement	16S-1	18-9	20-15	22-26*	22-28†
Contacts	7#16	5#16, 2#12	7#12	2#12, 5#16	7#12
Service Rating	A	INST.	A	1/8" spacing	A



Insert Arrangement	24-2	24-10	24-16	24-27	28-10
Contacts	7#12	7#8	3#16, 1#8, 3#12	7#16	3#12, 2#8, 2#4
Service Rating	D	A	A, B, F, G = D; C, D, E = A	E	G = D; all others = A

8 Contacts

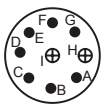
Insert Arrangement	18-8	20-7	22-18	22-23	24-6
Contacts	1#12, 7#16	8#16	8#16	8#12	8#12
Service Rating	A	A, B, H, G = D; C, D, E, F = A	A, B, H, F, G = D; all others = A	H = D; all others = A	A, G, H = D; all others - A

97 series solder type
insert arrangements, cont.

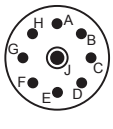
Front view of pin insert or rear of socket insert illustrated.

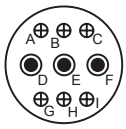
Items highlighted are most popular and most readily available.

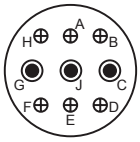
9 Contacts



Insert Arrangement	20-16	20-18	20-21	22-16†	22-20†
Contacts	7#16, 2#12	3#12, 6#16	1#12, 8#16	3#12, 6#16	9#16
Service Rating	A	A	A	A	A

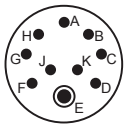


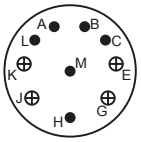




Insert Arrangement	22-27	24-11	28-1
Contacts	1#8, 8#16	3#8, 6#12	3#8, 6#12
Service Rating	J = D; all others = A	A	A, J, E = D; all others = A

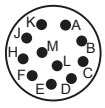
10 Contacts

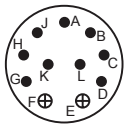




Insert Arrangement	18-1	18-19	24-21	28-19
Contacts	10#16	10#16	1#8, 9#16	4#12, 6#16
Service Rating	B, C, F, G = A; all others = INST.	A	D	H, M = B; A, B = D; all others = A

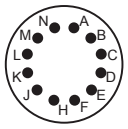
11 Contacts

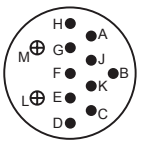


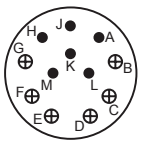


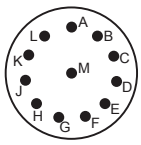
Insert Arrangement	20-33	24-20
Contacts	11#16	2#12, 9#16
Service Rating	A	D

12 Contacts









Insert Arrangement	24-19†	28-8	28-9	28-18
Contacts	12#16	2#12, 10#16	6#12, 6#16	12#16
Service Rating	1/16" spacing	L, M = E; B = D; all others = A	D	M = C; A, B = A C, D, E, F = INST.; all others = D

13 Contacts

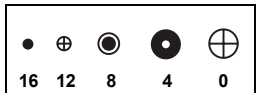
20-11†
13#16
INST.

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number. See how to order, page 19.

See Service Rating and Test Current information on page 7.

CONTACT LEGEND

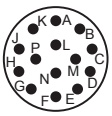


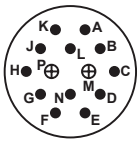
97 series solder type
insert arrangements, cont.

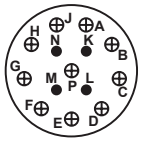
Front view of pin insert or rear of socket insert illustrated.

Items highlighted are most popular and most readily available.

14 Contacts

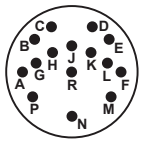






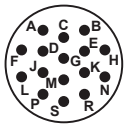
Insert Arrangement	20-27	22-19	28-2	28-20
Contacts	14#16	14#16	2#12, 12#16	10#12, 4#16
Service Rating	A	A	D	A

15 Contacts



28-17
15#16
R = B; M, N, P = D;
all others = A

16 Contacts

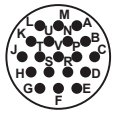


Insert Arrangement	24-5†	24-7
Contacts	16#16	2#12, 14#16
Service Rating	A	A

17 Contacts

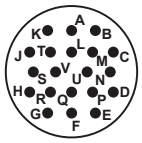
20-29
17#16
A

19 Contacts



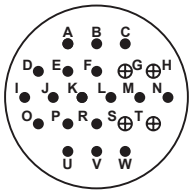
22-14
19#16
A

20 Contacts



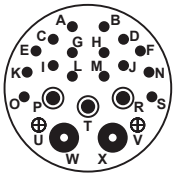
Insert Arrangement	28-16†
Contacts	20#16
Service Rating	A

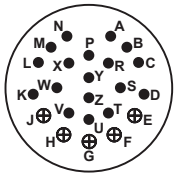
22 Contacts



Insert Arrangement	28-11	36-1†
Contacts	4#12, 18#16	4#12, 18#16
Service Rating	A	D

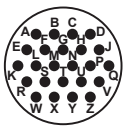
23 Contacts





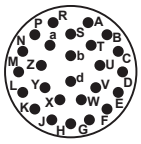
Insert Arrangement	32-6	32-13
Contacts	2#4, 3#8, 2#12, 16#16	5#12, 18#16
Service Rating	A	D

24 Contacts



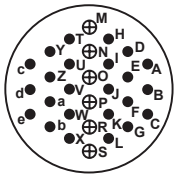
Insert Arrangement	24-28
Contacts	24#16
Service Rating	INST.

26 Contacts



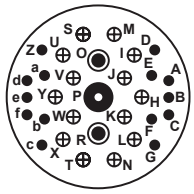
28-12
26#16
A

30 Contacts



32-8†
6#12, 24#16
A

31 Contacts



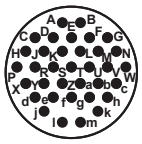
36-9
1#4, 2#8, 14#12, 14#16
A

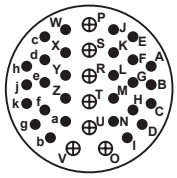
97 series solder type
insert arrangements, cont.

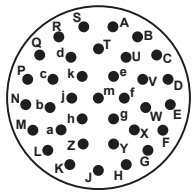
Front view of pin insert or rear of socket insert illustrated.

Items highlighted are most popular and most readily available.

35 Contacts

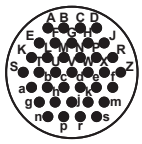






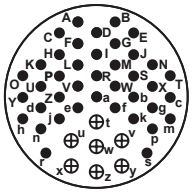
Insert Arrangement	28-15†	32-7	36-15
Contacts	35#16	7#12, 28#16	35#16
Service Rating	A	A, B, h, j = INST.; all others = A	m = D; all others = A

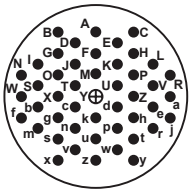
37 Contacts



Insert Arrangement	28-21
Contacts	37#16
Service Rating	A

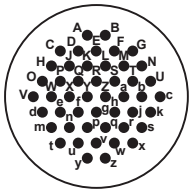
47 Contacts





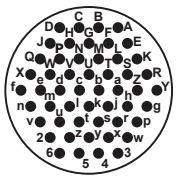
Insert Arrangement	36-7	36-8
Contacts	7#12, 40#16	1#12, 46#16
Service Rating	A	A

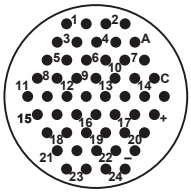
48 Contacts



Insert Arrangement	36-10
Contacts	48#16
Service Rating	A

52 Contacts





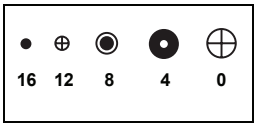
Insert Arrangement	32-414*	36-403*
Contacts	52#16	52#16
Service Rating	A	A

† Inactive for new military design, but available for replacement or for non-military purposes.

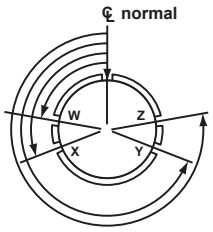
* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number. See how to order, page 19.

See Service Rating and Test Current information on page 7.

CONTACT LEGEND



97 series solder type
alternate insert positioning



FRONT FACE OF PIN INSERT

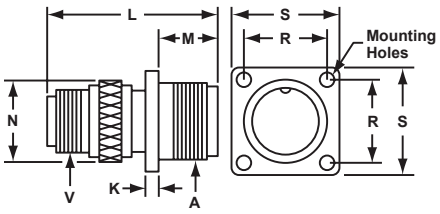
Insert Arrangement	Degrees			
	W	X	Y	Z
12S-3	70	145	215	290
14S-2	–	120	240	–
14S-5	–	110	–	–
14S-7	90	180	270	–
14S-9	70	145	215	290
16S-1	80	–	–	280
16S-4	35	110	250	325
16S-5	70	145	215	290
16S-6	90	180	270	–
16-7	80	110	250	280
16S-8	–	170	265	–
16-9	35	110	250	325
16-10	90	180	270	–
16-11	35	110	250	325
16-13	35	110	250	325
18-1	70	145	215	290
18-3	35	110	250	325
18-4	35	110	250	325
18-5	80	110	250	280
18-8	70	–	–	290
18-9	80	110	250	280
18-10	–	120	240	–
18-11	–	170	265	–
18-12	80	–	–	280
18-13	80	110	250	280
18-19	–	120	240	–
18-20	90	180	270	–
18-22	70	145	215	290
18-29	90	180	270	–
20-3	70	145	215	290
20-4	45	110	250	–
20-6	70	145	215	290
20-7	80	110	250	280
20-8	80	110	250	280
20-14	80	110	250	280
20-15	80	–	–	280
20-16	80	110	250	280
20-17	90	180	270	–
20-18	35	110	250	325
20-19	90	180	270	–
20-21	35	110	250	325
20-23	35	110	250	325
20-24	35	110	250	325
20-27	35	110	250	325
20-29	80	–	–	280

Insert Arrangement	Degrees			
	W	X	Y	Z
22-1	35	110	250	325
22-2	70	145	215	290
22-4	35	110	250	325
22-5	35	110	250	325
22-8	35	110	250	325
22-9	70	145	215	290
22-10	35	110	250	325
22-11	35	110	250	325
22-12	80	110	250	280
22-13	35	110	250	325
22-14	80	110	250	280
22-15	80	110	250	280
22-16	80	110	250	280
22-18	80	110	250	280
22-19	80	110	250	280
22-20	35	110	250	325
22-22	–	110	250	–
22-23	35	–	250	–
22-27	80	–	250	280
22-28	80	–	–	280
22-34	80	110	250	280
24-2	80	–	–	280
24-5	80	110	250	280
24-6	80	110	250	280
24-7	80	110	250	280
24-9	35	110	250	325
24-10	80	–	–	280
24-11	35	110	250	325
24-12	80	110	250	280
24-16	80	110	250	280
24-20	80	110	250	280
24-21	80	110	250	280
24-22	45	110	250	–
24-27	80	–	–	280
24-28	80	110	250	280
28-1	80	110	250	280
28-2	35	110	250	325
28-3	70	145	215	290
28-6	70	145	215	290
28-8	80	110	250	280
28-9	80	110	250	280
28-10	80	110	250	280
28-11	80	110	250	280
28-12	90	180	270	–
28-15	80	110	250	280
28-16	80	110	250	280
28-17	80	110	250	280
28-18	70	145	215	290
28-19	80	110	250	280
28-20	80	110	250	280
28-21	80	110	250	280
32-5	35	110	250	325
32-6	80	110	250	280
32-7	80	125	235	280
32-8	80	125	235	280
32-13	80	110	250	280
32-17	45	110	250	–
32-414*	80*	110*	250*	280*
36-1	80	110	250	280
36-5	–	120	240	–
36-6	35	110	250	325
36-7	80	110	250	280
36-8	80	110	250	280
36-9	80	125	235	280
36-10	80	125	235	280
36-15	60	125	245	305

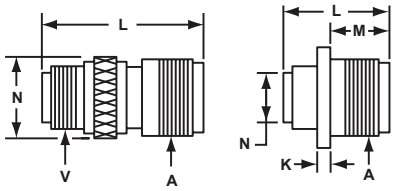
*Rotates opposite above illustration.

97 series solder type
receptacles

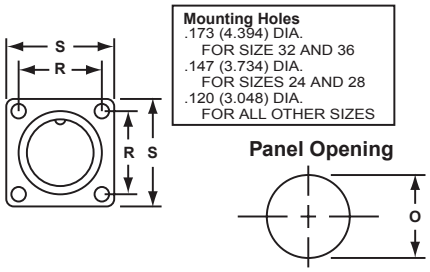
MS3100A wall mount receptacle
Solid shell construction is strong and conserves space. Includes integral polarizing key in front. Back shell is threaded for standard MS/AN fittings.



MS3101A cable receptacle
Solid shell construction is strong and conserves space. Includes integral polarizing key in front shell. Machined back shell is threaded for standard MS/AN fittings. Can be unscrewed for inspection or soldering.



MS3102A box receptacle
Solid shell designed for open wiring. Mounts directly on chassis, equipment or panel. Includes internal polarized key in front shell.



MS3100A and MS3101A

Connector Size	A Coupling Thread	K Ref.		L Max.		M Ref.		N Ref.		O Ref.		R Ref.		S Ref.		V Fitting Threads
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	
8S	1/2-28	5/64	1.98	1-1/4	31.75	9/16	14.27	17/32	13.49	.562	14.27	19/32	15.06	7/8	22.23	1/2-28
10S	5/8-24	5/64	1.98	1-5/16	33.32	9/16	14.27	5/8	15.88	.688	17.48	23/32	18.24	1	25.40	1/2-28
10SL	5/8-24	5/64	1.98	1-9/32	32.53	9/16	14.27	3/4	19.05	.812	20.62	23/32	18.24	1	25.40	5/8-24
12S	3/4-20	5/64	1.98	1-15/32	37.29	9/16	14.27	25/32	19.84	.812	20.62	13/16	20.62	1-3/32	27.76	5/8-24
12	3/4-20	5/64	1.98	1-27/32	46.81	3/4	19.05	25/32	19.84	.812	20.62	13/16	20.62	1-3/32	27.76	5/8-24
14S	7/8-20	5/64	1.98	1-15/32	37.39	9/16	14.27	7/8	22.23	.938	23.83	29/32	23.01	1-3/16	30.15	3/4-20
14	7/8-20	5/64	1.98	1-55/64	47.04	3/4	19.05	7/8	22.23	.938	23.83	29/32	23.01	1-3/16	30.15	3/4-20
16S	1 -20	5/64	1.98	1-15/32	37.39	9/16	14.27	1	25.40	1.062	26.97	31/32	24.59	1-9/32	32.54	7/8-20
16	1 -20	1/8	3.18	1-57/64	47.85	3/4	19.05	1	25.40	1.062	26.97	31/32	24.59	1-9/32	32.54	7/8-20
18	1-1/8-18	1/8	3.18	1-63/64	50.24	3/4	19.05	1-1/8	28.58	1.188	30.18	1-1/16	26.97	1-3/8	34.93	1 -20
20	1-1/4-18	1/8	3.18	1-57/64	47.85	3/4	19.05	1-1/4	31.75	1.312	33.32	1-5/32	29.36	1-1/2	38.10	1-3/16-18
22	1-3/8-18	1/8	3.18	1-63/64	50.24	3/4	19.05	1-3/8	34.93	1.438	36.53	1-1/4	31.75	1-5/8	39.67	1-3/16-18
24	1-1/2-18	1/8	3.18	2-1/4	57.15	13/16	20.62	1-1/2	38.10	1.562	36.67	1-3/8	34.43	1-3/4	44.45	1-7/16-18
28	1-3/4-18	1/8	3.18	2-1/4	57.15	13/16	20.62	1-3/4	44.45	1.812	46.02	1-9/16	39.67	2	50.80	1-7/16-18
32	2 -18	1/8	3.18	2-3/8	60.33	7/8	22.23	2-1/32	51.59	2.062	52.37	1-3/4	44.45	2-1/4	57.15	1-3/4-18
36	2-1/4-16	1/8	3.18	2-3/8	60.33	7/8	22.23	2-1/4	57.15	2.312	58.72	1-15/16	49.20	2-1/2	63.50	2 -18

MS3102A

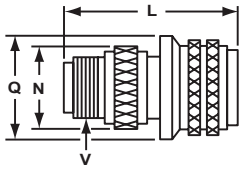
Connector Size	A Coupling Thread	K Ref.		L Max.		M Ref.		N Ref.		O Ref.		R Ref.		S Ref.	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
8S	1/2-28	5/64	1.98	55/64	21.82	9/16	14.27	7/16	11.10	.562	14.27	19/32	15.06	7/8	22.23
10S	5/8-24	5/64	1.98	55/64	21.82	9/16	14.27	1/2	12.70	.688	17.48	23/32	18.24	1	25.40
10SL	5/8-24	5/64	1.98	61/64	24.21	35/64	13.87	11/16	17.48	.812	20.62	23/32	18.24	1	25.40
12S	3/4-20	5/64	1.98	31/32	24.61	9/16	14.27	11/16	17.45	.812	20.62	13/16	20.62	1-3/32	27.76
12	3/4-20	5/64	1.98	1-21/64	33.73	3/4	19.05	11/16	17.45	.812	20.62	13/16	20.62	1-3/32	27.76
12SL	3/4-20	5/64	1.98	27/32	21.44	35/64	13.87	11/16	17.45	.938	23.83	13/16	20.62	1-3/32	27.76
14S	7/8-20	5/64	1.98	61/64	24.21	9/16	14.27	3/4	19.05	.938	23.83	29/32	23.01	1-3/16	30.15
14	7/8-20	5/64	1.98	1-11/32	34.14	3/4	19.05	3/4	19.05	.938	23.83	29/32	23.01	1-3/16	30.15
16S	1 -20	5/64	1.98	61/64	24.21	9/16	14.27	7/8	22.23	1.062	26.97	31/32	24.59	1-9/32	32.54
16	1 -20	1/8	3.18	1-3/8	34.92	3/4	19.05	7/8	22.23	1.062	26.97	31/32	24.59	1-9/32	32.54
18	1-1/8-18	1/8	3.18	1-3/8	34.92	3/4	19.05	1	25.40	1.188	30.18	1-1/16	26.97	1-3/8	34.93
20	1-1/4-18	1/8	3.18	1-3/8	34.92	3/4	19.05	1-1/8	28.58	1.312	33.32	1-5/32	29.36	1-1/2	38.10
22	1-3/8-18	1/8	3.18	1-3/8	34.92	3/4	19.05	1-1/4	31.75	1.438	36.53	1-1/4	31.75	1-5/8	41.28
24	1-1/2-18	1/8	3.18	1-3/8	34.92	13/16	20.62	1-3/8	34.93	1.562	39.67	1-3/8	34.93	1-3/4	44.45
28	1-3/4-18	1/8	3.18	1-3/8	34.92	13/16	20.62	1-5/8	41.28	1.812	46.02	1-9/16	39.67	2	50.80
32	2 -18	1/8	3.18	1-15/32	37.31	7/8	22.23	1-29/32	48.41	2.062	52.37	1-3/4	44.45	2-1/4	57.15
36	2-1/4-16	1/8	3.18	1-15/32	37.31	7/8	22.23	2-1/8	53.98	2.312	58.72	1-15/16	49.20	2-1/2	63.50

97 series solder type
plugs with solid shells

MS3106A

Connector Size	L Max.		N Ref.		Q Max.		V Fitting Threads
	Inch	mm	Inch	mm	Inch	mm	
8S	1-1/4	31.75	17/32	13.49	3/4	19.05	1/2-28
10S	1-5/16	33.32	5/8	15.88	7/8	22.23	1/2-28
10SL	1-3/8	34.93	3/4	19.05	7/8	22.23	5/8-24
12S	1-7/16	36.50	25/32	19.84	1	25.40	5/8-24
12	1-7/8	47.63	25/32	19.84	1	25.40	5/8-24
12SL	1-31/64	37.69	7/8	22.23	1	25.40	3/4-20
14S	1-15/32	37.13	7/8	22.23	1-1/8	28.58	3/4-20
14	1-7/8	47.47	7/8	22.23	1-1/8	28.58	3/4-20
16S	1-15/32	37.13	1	25.40	1-1/4	31.75	7/8-20
16	1-7/8	47.47	1	25.40	1-1/4	31.75	7/8-20
18	1-31/32	49.88	1-1/8	28.57	1-11/32	34.11	1 -20
20	1-7/8	47.50	1-1/4	31.75	1-15/32	37.29	1-3/16-18
22	1-31/32	49.88	1-3/8	34.93	1-19/32	40.46	1-3/16-18
24	2-1/4	57.15	1-1/2	38.10	1-23/32	43.64	1-7/16-18
28	2-1/4	57.15	1-3/4	44.45	1-31/32	49.99	1-7/16-18
32	2-3/8	60.33	2-1/32	51.59	2-7/32	56.34	1-3/4-18
36	2-3/8	60.33	2-1/4	57.15	2-15/32	62.69	2 -18

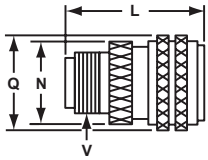
MS3106A straight plug
Sturdy, simple to assemble. Coupling ring machined from solid aluminum bar stock for high tensile strength. Mates with all types of MS receptacles. Front shell includes polarizing keyway. Back shell is threaded for standard MS/AN fittings.



MS3107A

Connector Size	L Max.		N Ref.		Q Max.		V Fitting Threads
	Inch	mm	Inch	mm	Inch	mm	
10S	1-5/16	33.32	5/8	15.88	7/8	22.23	1/2-28
10SL	1-3/8	34.92	3/4	19.05	7/8	22.23	5/8-24
12S	1-7/16	36.50	25/32	19.84	1	25.40	5/8-24
12	1-7/8	47.63	25/32	19.84	1	25.40	5/8-24
14S	1-15/32	37.13	7/8	22.23	1-1/8	38.58	3/4-20
14	1-7/8	47.47	7/8	22.23	1-1/8	28.58	3/4-20
16S	1-15/32	37.13	1	25.40	1-1/4	31.75	7/8-20
16	1-7/8	47.47	1	25.40	1-1/4	31.75	7/8-20
18	1-31/32	49.88	1-1/8	28.58	1-11/32	34.11	1 -20
20	1-7/8	47.50	1-1/4	31.75	1-15/32	37.29	1-3/16-18
22	1-31/32	49.88	1-3/8	34.93	1-19/32	40.46	1-3/16-18
24	2-1/4	57.15	1-1/2	38.10	1-23/32	43.64	1-7/16-18
28	2-1/4	57.15	1-3/4	44.45	1-31/32	49.99	1-7/16-18

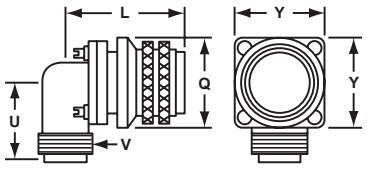
MS3107A quick-disconnect plug
For fast connect/disconnect applications. Front shell has polarizing keyway. Mates with all types of MS receptacles. Back shell is threaded for standard MS/AN fittings



MS3108A

Connector Size	L Ref.		Q Max.		U Ref.		V Fitting Threads	Y Ref.	
	Inch	mm	Inch	mm	Inch	mm		Inch	mm
10S	1-1/4	31.75	7/8	22.23	7/8	22.23	1/2-28	25/32	19.84
10SL	1-5/16	33.32	7/8	22.23	1	25.40	5/8-24	1-1/16	26.97
12S	1-3/8	34.93	1	25.40	1	25.40	5/8-24	1-1/16	26.97
12SL	1-3/8	34.93	1	25.40	1	25.40	3/4-20	1-1/16	26.97
12	1-13/64	30.56	1	25.40	1	25.40	5/8-24	1-1/16	26.97
14S	1-3/8	34.93	1-1/8	28.58	1	25.40	3/4-20	1-1/16	26.97
14	1-13/16	46.02	1-1/8	28.58	1	25.40	3/4-20	1-1/16	26.97
16S	1-1/2	38.10	1-1/4	31.75	1-1/8	28.58	7/8-20	1-5/16	33.32
16	1-15/16	49.20	1-1/4	31.75	1-1/8	28.58	7/8-20	1-5/16	33.32
18	1-15/16	49.20	1-11/32	34.11	1-1/8	28.58	1 -20	1-5/16	33.32
20	2-1/16	52.37	1-15/32	37.29	1-5/16	33.32	1-3/16-18	1-5/8	42.28
22	2-1/16	52.37	1-19/32	40.46	1-5/16	33.32	1-3/16-18	1-5/8	42.28
24	2-15/32	62.69	1-23/32	43.64	1-1/2	38.10	1-7/16-18	2	50.80
28	2-15/32	62.69	1-31/32	49.99	1-1/2	38.10	1-7/16-18	2	50.80

MS3108A angle plug
For use where space in front of panel or wall is at a premium. Swivel ring and plate combination allow cable take off at any angle relative to front shell polarizing key. Back shell is threaded for standard MS/AN fittings.



97 series solder type
plugs with split shells

MS3106B

Connector Size	L Max.		Q Max.		V Fitting Threads	Y Ref.	
	Inch	mm	Inch	mm		Inch	mm
14S	1-11/16	42.85	1-1/8	28.58	3/4-20	1-5/32	29.36
16S	1-11/16	42.85	1-1/4	31.75	7/8-20	1-1/4	31.75
18	2-1/16	52.37	1-11/32	34.11	1 -20	1-41/64	41.66
20	2-1/8	53.98	1-15/32	37.29	1-3/16-18	1-13/16	46.02
22	2-1/8	53.98	1-19/32	40.46	1-3/16-18	1-15/16	49.20
24	2-9/32	57.94	1-23/32	43.64	1-7/16-18	2-1/16	52.37
28	2-9/32	57.94	1-31/32	49.99	1-7/16-18	2-5/16	58.72
32	2-5/16	58.72	2-7/32	56.34	1-3/4-18	2-19/32	65.86
36	2-11/32	59.51	2-15/32	62.69	2 -18	2-27/32	72.21

MS3107B

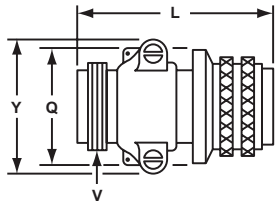
Connector Size	L Max.		Q Max.		V Fitting Threads	Y Ref.	
	Inch	mm	Inch	mm		Inch	mm
14S	1-11/16	42.85	1-1/8	28.58	3/4-20	1-5/32	29.36
16S	1-11/16	42.85	1-1/4	31.75	7/8-20	1-1/4	31.75
18	2-1/16	52.37	1-11/32	34.11	1 -20	1-41/64	41.66
20	2-1/8	53.99	1-15/32	37.29	1-3/16-18	1-13/16	46.02
22	2-1/8	53.99	1-19/32	40.46	1-3/16-18	1-15/16	49.20
24	2-9/32	57.94	1-23/32	43.64	1-7/16-18	2-1/16	52.37
28	2-9/32	57.94	1-31/32	49.99	1-7/16-18	2-5/16	58.72

MS3108B

Connector Size	L Ref.		Q Max.		U Ref.		V Fitting Threads	X Ref.	
	Inch	mm	Inch	mm	Inch	mm		Inch	mm
10S	1-3/8	34.93	7/8	22.23	7/8	22.23	1/2-28		
10SL	1-1/2	38.10	7/8	22.23	1	25.40	5/8-24		
12S	1-9/16	39.67	1	25.40	1	25.40	5/8-24	1/2	12.70
12	1-7/8	47.63	1	25.40	1	25.40	5/8-24	1/2	12.70
14S	1-23/32	43.64	1-1/8	28.58	1-1/16	26.97	3/4-20	21/32	16.66
14	1-15/16	49.20	1-1/8	28.58	1-1/16	26.97	3/4-20	21/32	16.66
16S	1-3/4	44.45	1-1/4	31.75	1-1/8	28.58	7/8-20	1-1/2	38.10
16	2-1/8	53.98	1-1/4	31.75	1-1/8	28.58	7/8-20	1-1/2	38.10
18	2-5/32	54.75	1-11/32	34.11	1-3/16	30.15	1 -20	1-41/64	41.66
20	2-3/8	60.33	1-15/32	37.29	1-5/16	33.32	1-3/16-18	1-13/16	46.02
22	2-13/32	61.11	1-19/32	40.46	1-5/16	33.32	1-3/16-18	1-15/16	49.20
24	2-5/8	66.68	1-23/32	43.64	1-7/16	36.50	1-7/16-18	2-1/16	52.37
28	2-5/8	66.68	1-31/32	49.99	1-7/16	36.50	1-7/16-18	2-5/16	58.72
32	2-13/16	71.42	2-7/32	56.34	1-3/4	44.45	1-3/4-18	2-19/32	65.86
36	2-27/32	72.21	2-15/32	62.69	1-15/16	49.20	2 -18	2-27/32	72.21

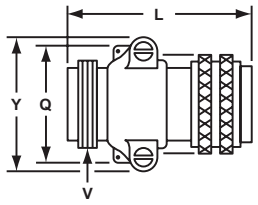
MS3106B straight plug

Used for unusual conduit applications where soldering and inspection is the prime requirement. Back shell is threaded for all standard MS/AN fittings.



MS3107B quick-disconnect plug

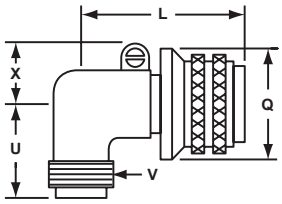
For fast connect/disconnect applications. Front shell has polarizing keyway. Mates with all types of MS receptacles. Back shell is threaded for standard MS/AN fittings



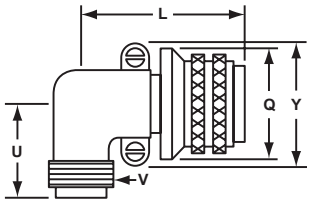
MS3108B angle plug

Lightweight, roomy cavity, split longitudinally for convenient solder or inspection. Front shell is keyed to allow the 90° angle housing to be rotated and locked at any 45° increment.

Sizes 10S thru 14



Sizes 16S thru 40



97 series solder type
availability and weight reference

Insert Number	Wall Receptacles MS3100	Cable Receptacles MS3101	Box Receptacles MS3102	Straight Plugs MS3106		Quick Disconnect Plugs MS3107		Angle Plugs MS3108		Total Contacts
	Solid Shell	Solid Shell	Solid Shell	Solid Shell	Split Shell	Solid Shell	Split Shell	Solid Shell	Split Shell	
	A	A	A	A	B	A	B	A	B	
8S-1	.02	.01	.01	.02						1
10SL-3P	.03	.03	.02							3
10SL-3S				.03		.03		.06	.05	3
10SL-4P†	.02	.02	.02							2
10SL-4S†				.03		.03		.06	.05	2
12S-3	.04	.03	.03	.03		.03		.07	.07	2
12-5	.05	.04	.03	.06		.06		.09	.08	1
12S-6*	.04	.03	.03	.04		.04		.07	.08	2
12SL-844P*			.03							4
12SL-844S*				.05		.06		.08		4
14S-1†	.05	.04	.03	.06	.06	.06	.06	.08	.08	3
14S-2	.05	.04	.03	.06	.06	.06	.06	.08	.08	4
14S-4†	.05	.04	.03	.06	.06	.06	.06	.08	.08	1
14S-5	.05	.04	.04	.06	.06	.06	.06	.08	.08	5
14S-6	.05	.04	.04	.06	.06	.06	.06	.08	.08	6
14S-7	.05	.04	.03	.06	.06	.06	.06	.08	.08	3
14S-9†	.05	.04	.03	.06	.06	.07	.06	.08	.08	2
16S-1	.06	.05	.05	.07	.07	.08	.07	.14	.11	7
16S-4	.06	.05	.04	.07	.07	.07	.07	.12	.10	2
16S-5†	.06	.05	.04	.07	.07	.07	.07	.12	.10	3
16S-6†	.06	.05	.04	.07	.07	.09	.07	.12	.10	3
16-7	.08	.08	.07	.09		.07		.15	.14	3
16S-8	.06	.05	.04	.07	.07	.09	.07	.12	.10	5
16-9	.08	.07		.09		.09	.10	.12	.13	4
16-10	.08	.08	.07	.09		.09		.15	.14	3
16-11†	.08	.07	.07	.09		.11		.14	.13	2
16-12	.10	.09	.08	.11		.08		.16	.15	1
16-13	.07	.07	.06	.08		.11		.14	.13	2
18-1	.10	.10	.08	.11	.13	.12	.13	.16	.15	10
18-3†	.10	.10	.08	.12	.13	.11	.13	.16	.15	2
18-4	.09	.09	.07	.11	.13	.12	.13	.16	.15	4
18-5	.10	.10	.08	.12	.13	.13	.13	.16	.15	3
18-8	.10	.10	.08	.12	.14	.12	.14	.16	.15	8
18-9	.11	.10	.09	.12	.14	.13	.14	.17	.16	7
18-10†	.11		.09	.13	.14	.13	.14	.17	.16	4
18-11	.11	.11	.09	.13	.15	.11	.15	.18	.17	5
18-12†	.10	.09	.08	.11	.13	.13	.13	.16	.15	6
18-13	.12	.12	.10	.13	.15	.13	.15	.18	.17	4
18-16	.09	.09	.07	.11	.13	.11	.13	.15	.14	1
18-19†	.10	.10	.08	.11	.13	.11	.13	.16	.15	10
18-20†	.09	.09	.07	.11	.13	.11	.13	.15	.15	5
18-22†	.09	.09	.07	.11	.13		.13	.16	.15	3
18-29†	.10		.08	.11	.13	.11	.13	.16	.15	5
18-420†*	.10	.10	.08	.12	.13	.12	.13	.16	.16	1
20-3†	.14	.13	.10	.15	.16	.15	.16	.24	.19	3

Where no weight is shown, insert is not available in that shell type.

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number.

Weights are for connectors with socket contacts.
Connectors with pin contacts weigh slightly less.
If a weight appears in the column, the shell is available.
Weight is shown in lbs.

97 series solder type
availability and weight reference, cont.

Insert Number	Wall Receptacles MS3100	Cable Receptacles MS3101	Box Receptacles MS3102	Straight Plugs MS3106		Quick Disconnect Plugs MS3107		Angle Plugs MS3108		Total Contacts
	Solid Shell	Solid Shell	Solid Shell	Solid Shell	Split Shell	Solid Shell	Split Shell	Solid Shell	Split Shell	
	A	A	A	A	B	A	B	A	B	
20-4	.14	.13	.10	.15	.16	.15	.16	.24	.19	4
20-6†	.12	.11	.09	.13	.15	.14	.15	.23	.18	3
20-7	.13	.12	.09	.14	.15	.14	.15	.23	.18	8
20-8	.15	.14	.12	.16	.18	.16	.18	.26	.20	6
20-11†	.14	.13	.11	.15	.17	.15	.17	.25	.20	13
20-14	.16	.15	.13	.17	.19	.17	.19	.27	.21	5
20-15	.15	.14	.12	.16	.18	.16	.18	.26	.21	7
20-16	.14	.13	.10	.15	.16	.15	.16	.24	.19	9
20-17	.15	.14	.11	.16	.17	.16	.17	.25	.20	6
20-18	.14	.13	.11	.15	.17	.15	.17	.25	.19	9
20-19†	.16	.15	.13	.17	.19	.17	.19	.27	.21	3
20-21	.13	.12	.10	.14	.16	.14	.16	.24	.19	9
20-23†	.15	.14	.11	.16	.17	.16	.17	.25	.20	2
20-24	.15	.14	.11	.16	.17	.16	.17	.25	.20	4
20-27	.13	.12	.10	.14	.16	.14	.16	.24	.19	14
20-29	.14	.13	.11	.15	.17	.15	.17	.25	.20	17
20-33	.13	.12	.09	.14	.18	.18	.18	.23	.18	11
22-1†	.16	.16	.13	.18	.19	.18	.19	.27	.23	2
22-2	.17	.17	.14	.19	.20	.19	.20	.29	.24	3
22-4†	.21	.17	.14	.19	.20	.19	.20	.28	.23	4
22-5	.15	.14	.12	.17	.18	.17	.18	.26	.21	6
22-8†	.15	.14	.11	.16	.18	.16	.18	.26	.21	2
22-9	.15	.15	.12	.17	.18	.17	.18	.26	.21	3
22-10	.14	.13	.10	.15	.17	.15	.17	.25	.20	4
22-11	.14	.13	.10	.15	.17	.15	.17	.25	.20	2
22-12	.16	.16	.13	.18	.19	.18	.19	.27	.23	5
22-13†	.16	.15	.12	.17	.18	.17	.18	.27	.22	5
22-14	.15	.14	.11	.16	.18	.16	.18	.26	.21	19
22-15	.16	.14	.13	.17	.19	.17	.19	.27	.22	6
22-16†	.16	.15	.12	.17	.18	.17	.18	.27	.22	9
22-18	.14	.13	.10	.15	.17	.15	.17	.25	.20	8
22-19	.15	.14	.11	.16	.18	.16	.18	.26	.21	14
22-20†	.14	.14	.11	.16	.17	.16	.17	.25	.21	9
22-22	.19	.19	.16	.21	.26	.21	.22	.30	.25	4
22-23	.17	.16	.13	.18	.20	.18	.20	.28	.23	8
22-26†	.15	.14	.11						.19	7
22-27	.15	.15	.12	.17	.18	.17	.18	.27	.22	9
22-28†	.17	.16	.13	.18	.20	.18	.20	.28	.23	7
22-34†	.15	.15	.12	.17	.18	.17	.18	.26	.22	5
24-2	.20	.19	.16	.22	.24	.22	.24	.39	.29	7
24-5†	.18	.17	.14	.20	.22	.20	.22	.37	.27	16
24-6	.20	.19	.16	.22	.24	.22	.27	.39	.29	8
24-7	.19	.18	.14	.21	.23	.21	.23	.38	.27	16
24-9†	.22	.21	.17	.24	.25	.24	.25	.41	.30	2
24-10	.26	.25	.21	.28	.30	.28	.30	.45	.34	7

Where no weight is shown, insert is not available in that shell type.

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number.

Weights are for connectors with socket contacts. Connectors with pin contacts weigh slightly less.

If a weight appears in the column, the shell is available.

Weight is shown in lbs.

97 series solder type
availability and weight reference, cont.

Insert Number	Wall Receptacles MS3100	Cable Receptacles MS3101	Box Receptacles MS3102	Straight Plugs MS3106		Quick Disconnect Plugs MS3107		Angle Plugs MS3108		Total Contacts
	Solid Shell	Solid Shell	Solid Shell	Solid Shell	Split Shell	Solid Shell	Split Shell	Solid Shell	Split Shell	
	A	A	A	A	B	A	B	A	B	
24-11	.24	.22	.19	.26	.27	.26	.27	.43	.32	9
24-12	.23	.22	.19	.25	.27	.25	.27	.42	.32	5
24-16	.20	.19	.15	.22	.24	.22	.24	.39	.28	7
24-19†	.18	.17	.13	.20	.22			.37	.36	12
24-20	.19	.17	.14	.21	.22	.21	.22	.38	.27	11
24-21	.19	.17	.14	.21	.23	.21	.23	.38	.27	10
24-22	.22	.21	.18	.24	.26	.24	.26	.41	.30	4
24-27	.17	.16	.13	.20	.21	.20	.21	.36	.26	7
24-28	.19	.18	.14	.21	.22	.21	.22	.38	.27	24
28-1	.29	.27	.24	.30	.32	.30	.32	.44	.36	9
28-2	.24	.22	.19	.25	.27	.25	.27	.40	.32	14
28-3	.26	.24	.21	.28	.30	.28	.30	.42	.34	3
28-6†	.30	.28	.25	.31	.33	.31	.33	.45	.38	3
28-8	.23	.22	.18	.25	.27	.25	.27	.39	.31	12
28-9	.25	.24	.20	.27	.29	.27	.29	.41	.33	12
28-10	.31	.29	.26	.33	.35	.33	.35	.47	.39	7
28-11	.25	.24	.20	.27	.29	.27	.29	.41	.33	22
28-12	.24	.22	.19	.26	.28	.26	.28	.40	.32	26
28-15†	.25	.23	.20	.26	.28	.26	.28	.40	.32	35
28-16†	.24	.22	.19	.25	.27	.25	.27	.39	.31	20
28-17	.23	.22	.18	.25	.27	.25	.27	.39	.31	15
28-18	.23	.22	.18	.25	.27	.25	.27	.39	.31	12
28-19	.24	.22	.19	.26	.28	.26	.28	.40	.32	10
28-20	.27	.25	.22	.29	.31	.29	.31	.43	.35	14
28-21	.25	.23	.20	.26	.28	.26	.28	.40	.32	37
32-5†	.36	.35	.32	.38	.40				.48	2
32-6	.39	.38	.35	.41	.43				.51	23
32-7	.33	.33	.29	.36	.38				.45	35
32-8†	.32	.32	.29	.35	.37				.44	30
32-13	.32	.31	.28	.34	.36				.44	23
32-17	.37	.37	.34	.40	.42				.49	4
32-414†	.35	.35	.31	.38	.40				.48	52
36-1†	.41	.39	.34	.41	.43				.52	22
36-5	.54	.52	.47	.54	.56				.65	4
36-6	.55	.53	.49	.55	.57				.67	6
36-7	.44	.41	.37	.44	.45				.55	47
36-8	.40	.38	.34	.41	.42				.52	47
36-9	.50	.47	.43	.50	.51				.61	31
36-10	.41	.39	.34	.41	.43				.53	48
36-15	.40	.37	.38	.40	.41				.51	35
36-403†*	.40	.36	.33	.40	.41				.51	52

Where no weight is shown, insert is not available in that shell type.

† Inactive for new military design, but available for replacement or for non-military purposes.

* "MS" number not assigned. Use "97" prefix in place of "MS" in completing catalog number.

Weights are for connectors with socket contacts. Connectors with pin contacts weigh slightly less.

If a weight appears in the column, the shell is available.

Weight is shown in lbs.