

MIL-DTL-26500 (MS24264, MS24265 & MS24266 Class R) Series Electrical Connectors

The Cinch series of M26500 general purpose circular receptacle & plug connectors are intended for use in electrical control and power circuits of ground, rocket, missile, aircraft, and space environments.

Connector applications & environments other than listed above must be evaluated by the end user for suitability.

Appropriate Wires

The appropriate wire configurations as defined below are recommended to assure proper wire sealing within the connector specification defined environments.

Connector Contact Size	Range of wire insulation outside diameters	Wire gauge range for crimp to specified contact
20	.040 up to .090 in	No. 24, 22 or 20
16	.068 up to .130 in	No. 20, 18 or 16
12 or #12 (shielded)	.106 up to .170 in	No. 14 or 12
8 (shielded)	.095 up to .145 in	No. 22, 20 or 18

Contacts

When you order Cinch C48 Series connectors with contacts, the contact package contains enough contacts to complete the insert arrangement plus two spares. The package also includes sealing plugs for 15% of the contacts in the inserts, minimum of three.

To provide proper sealing, insert unwired contacts and sealing plugs in all unused holes.
(Use a #12 contact for a #1 shielded hole.)

To order contacts and sealing plugs separately use the part numbers in the table below.



Cinch Part Number Contacts		MS Part Number Contacts		Boeing Part Number Contacts		Contact Size	Wire Size Maximum	Current Rating
Pin	Socket	Pin	Socket	Pin	Socket	(Shielded)	AWG	Amps
C48-1226-02	C48-1227-02					No. 1*	**	3
C48-1226-54	C48-1227-54						****	1
C48-1226-55	C48-1227-55						*****	1
C48-2187-02	C48-2188-02					No. 2	***	7.5
		M32029/31-235	M39029/32-254	BACC47CN3S	BACC47CP3S	No. 12	12	41
							14	32
		M39029/31-229	M39029/32-248	BACC47CN2S	BACC47CP2S	No. 16	16	22
							18	16
							20	7.5
		M39029/31-627	M39029/32-260	BACC47CN1S	BACC47CP1S	No. 20	22	5.0
							24	3.0

* Fits into No. 12 power contact cavity.

** Accommodates cables RG174/U, RG179U, RG179A/U, RG187/U, RG188/U, RG161/U, as well as shielded wire. Can also accommodate Cable MIL-C-27500-22 KING (Extruded) or 22 AWG per MIL-C-7078 type II.

*** Accommodates Cable MIL-C-27500 KING; 20 KING; 18 KING (Extruded) or 22, 20, 18 AWG, per MIL-C-7078 type II.

**** For use with RG195/U and RG180/U, RG180A/U, and RG1808/U.

***** Accommodates Cables RG178/U, RG178A/U, RG1788/U, and RG196/U.

Grommet Seal Plugs

MS Part Number	Color Code	Size
MS27488-20-2	Red	20
MS27488-16-2	Green	16
MS27488-12-2	Orange	12



Insertion/Removal Tools

Insertion Tool	Removal Tool	Crimp Tool	Adjustable Turret	Contact Size
M81969/17-03	M81969/19-06	M22520/1-01	MS22520/1-02	No. 20
M81969/17-04	M81969/19-01	M22520/1-01	MS22520/1-02	No. 16
M81969/17-05	M81969/19-02	M22520/1-01	MS22520/1-02	No. 12



Crimp / Insertion / Removal tools are listed only for reference, tools are procured from tool manufacture or authorized distributor.

Caution

The installation & removal of contacts is a critical operation and shall only be accomplished by a skilled & properly trained operator. Improper installation & removal can damage the contact locking mechanism and/or the wire sealing grommet which will negatively impact the function & performance of the connector. Below is the Cinch recommended process:

Crimping of Contacts

- Select the appropriate crimp tool and ensure that the correct turret is used.
- Dry cycle the crimp tool to be sure the tool contact indenters are open.
- Adjust the crimp tool selector setting and the turret head for the wire size being used.
- Insert the contact, mating end first, into the turret head.
- Insert the stripped wire into the open back end of the contact & make sure the wire is inserted as far as it will go.
- Close/squeeze the tool handles completely to crimp the contact.
- Remove the crimped contact from the tool & check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

- Make sure that any required clamp, backshell or adapter is installed over the wire bundle in the correct orientation before beginning contact insertion.
- If there is a clamp, backshell or adapter already installed it must be unscrewed and slid back onto the wire bundle to gain access to the rear connector grommet.
- It is recommended to lubricate the top surface of the insulator/grommet with isopropyl alcohol prior to inserting any contact(s) to aid in the insertion of the contacts. The alcohol will evaporate so reapplication may be required.
- Select the correct insertion tool for the contact size (examine the tip of the tool and make sure it is not damaged or has any burrs), position the terminated contact and wire in the tool slot so that the end of the tool is butting up against the rear shoulder of the contact.
- When inserting multiple contacts in a connector, start inserting contacts from the inside/center and work outward.

- Identify the contact location in the connector for which the terminated contact is intended and align the tool with this hole. It is critical that the tool and the insulator surface of the contact hole cavity be at right angles to each other during the entire insertion cycle of the contact (failure to maintain perpendicularity may damage the ability of the contact to retain adequately locked in the connector).
- Insert the contact into the cavity with a slow even push until you can feel or hear a click at which point the contact will not travel any further.
- Withdraw the tool from the insulator cavity at a right angle until it is completely free and then gently pull back on the wire to verify that the contact is locked into position. Examine the front/mating face of the connector to see if the installation looks correct.
- Repeat the above process(s) until all the required contacts have been installed, then assemble and properly tighten any clamps, backshell or adapter that was required.

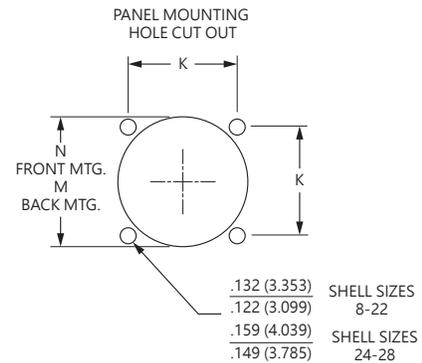
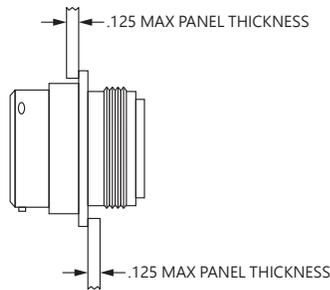
Removal / Extraction of Contacts

- Uncouple any clamp, backshell or adapter from the connector and slide it back over the wire bundle.
- Identify & select the appropriate removal tool for the contact size and then identify the contact to be removed from the mating side. Position the tool at a right to the surface and then insert the tool onto the contact and use a slow even force to push the tool downward (the tip of tool will touch the retention clip and release/open the retention clip away from the contact) do not continue to push the tool downward once the retention clip releases the contact.
- Next, while maintaining the tool in position, push the tool extraction plunger downward to remove/push the contact out from the rear of the insulator/grommet.
- Remove the tool from the contact cavity by pulling outward at a right angle.
- From the rear insulator side of the connector, grasp the wired contact that was pushed back and remove it from the insulator.

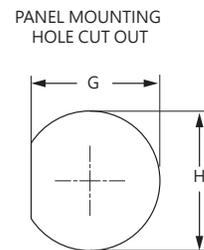
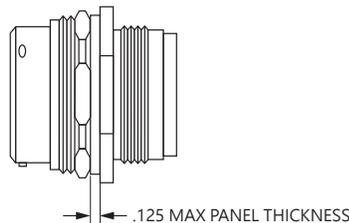
Typical Mounting

The typical panel mounting for Square Flange (MS24262) & Single Hole Mount (MS24265) style connectors is shown below.

Square-Flange Mount



Single-Hole Mount (Jam-Nut Mount)



Size	M		N		G		H		K	
	Minimum		Minimum		±0.005 (0.127)		±0.005 (0.127)		±0.005 (0.127)	
	in	mm	in	mm	in	mm	in	mm	in	mm
8	0.620	15.748	0.447	11.354	0.605	15.638	0.635	16.129	0.594	15.088
10	0.748	18.999	0.572	14.529	0.730	18.542	0.760	19.304	0.719	18.263
12	0.913	23.190	0.760	19.304	0.917	23.292	0.947	24.054	0.812	20.625
14	0.980	24.892	0.822	20.879	0.980	24.892	1.010	25.654	0.906	23.013
16	1.107	28.119	0.948	24.079	1.105	28.067	1.135	28.829	0.969	24.613
18	1.209	30.709	1.072	27.229	1.225	31.115	1.260	32.004	1.062	26.975
20	1.337	33.906	1.192	30.277	1.350	34.290	1.385	35.179	1.156	29.363
22	1.452	36.881	1.322	33.579	1.475	37.465	1.510	38.354	1.250	31.750
24	1.577	40.056	1.442	36.627	1.600	40.640	1.635	41.529	1.375	34.925
28	1.827	46.406	1.760	44.704	1.856	47.143	1.885	47.879	1.562	39.675

Recommended Minimum Torque for Jam Nut

Shell Size	8	10	12	14	16	18	20	22	24
Torque (inch/lb)	28	36	56	64.5	69	81	102	122.5	144

Mating of Cinch MIL-DTL-26500 (MS24264, MS24265 & MS24266 Class R) Series Electrical Connectors

The intended plug and receptacle connectors to be intermated must first verify:

- Both connectors are of the same coupling design, either bayonet-bayonet or threaded-threaded.
- One half of the mated pair must have pin contacts and the other must have socket contacts.
- Both connectors must be of the same polarity designation (N-N, 6-6, 7-7, 8-8, 9-9 or Y-Y)

Once the above are confirmed correct, the two mating faces shall be brought together and the polarity keys & keyways shall be aligned for engagement. This is often accomplished by rotating one of the connectors until the polarity keys/keyways engage/interlock. Then, while holding the receptacle firm, unless it already mounted, you then begin to slightly push while rotating the coupling ring on the plug connector as follows:

- For Bayonet connector coupling** you shall rotate the outer coupling ring clockwise 1/3 (120 degrees) turn until you can feel and/or hear a click which indicates the connector is mated fully. This is confirmed by visual verification that the 3 lines located in line with the 3 holes on the outer periphery of the coupling ring align with the 3 colored head rivets of the receptacle. This confirms the connector is fully mated.
- For Threaded connector coupling**, identify a colored band located on the receptacle past the threads. You shall then continue to rotate the outer coupling ring of the plug until the front edge of the coupling ring completely covers the colored band on the receptacle. This confirms the connector is fully mated and it is recommended that the coupling ring be lock-wired to a fixed feature to maintain full mating during vibration.