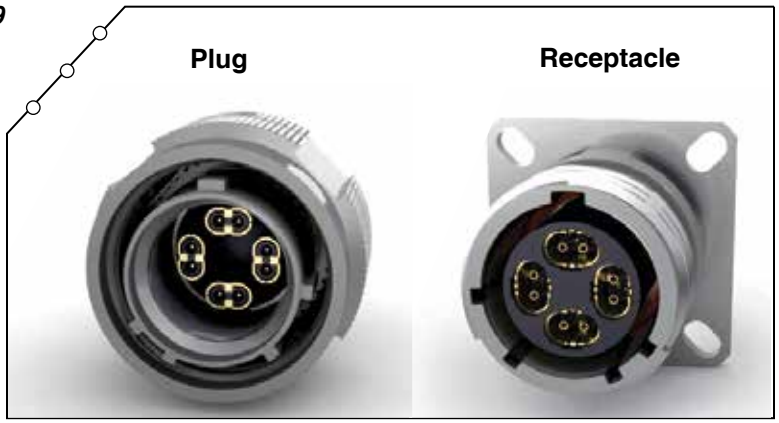
OCS (Oval Contact System) Connectors

Amphenol Aerospace offers the High Performance Interconnect Solution for your High Speed Needs.

The OCS* (Oval Contact System) is the newest 38999 Interconnect Product offering that provides many advantages for high speed data transmission.



Four of Amphenol's OCS Contacts fit into the 38999 Connector shell size 13.

OCS Features and Benefits

- High Density: A wide variety of insert arrangements available
- Patterns range from (1) to (21), 100 Ohm differential pairs capable of delivering data transfer speeds of 10Gbps per pair
- MIL-DTL-38999 shell styles available from size 9 to 25
- Front release rear removable contact system for easy repair
- Solder or PCB tail contacts available
- Meets environmental requirements of MIL-DTL-38999
- Uses off-the-shelf Mil Spec backshells

OCS Mechanical/Physical Properties

- Mating Cycles 500 (min.)
- Operating temperature –65C to 175C
- Contact materials and platings consistent w/ AS39029

OCS Signal Integrity Performance

- Data rate: 10Gbps per pair
- Insertion loss: <0.3 dB up to 5 GHz
- Return loss: >20 dB up to 5 GHz
- NEXT and FEXT: >40 dB up to 5 GHz
- Differential to common mode conversion: >50 dB up to 5 GHz

Cable for OCS Connectors

See back for description.

Applications for OCS Connectors

High Speed Applications; for use with but not limited to, the following electrical protocols*:

- 10G Base T
- HDMI
- Fibre Channel (AI)
- 40G Base-T
- SATA 2.0, 3.0
- Serial RapidIO
- PCI Express 3.0

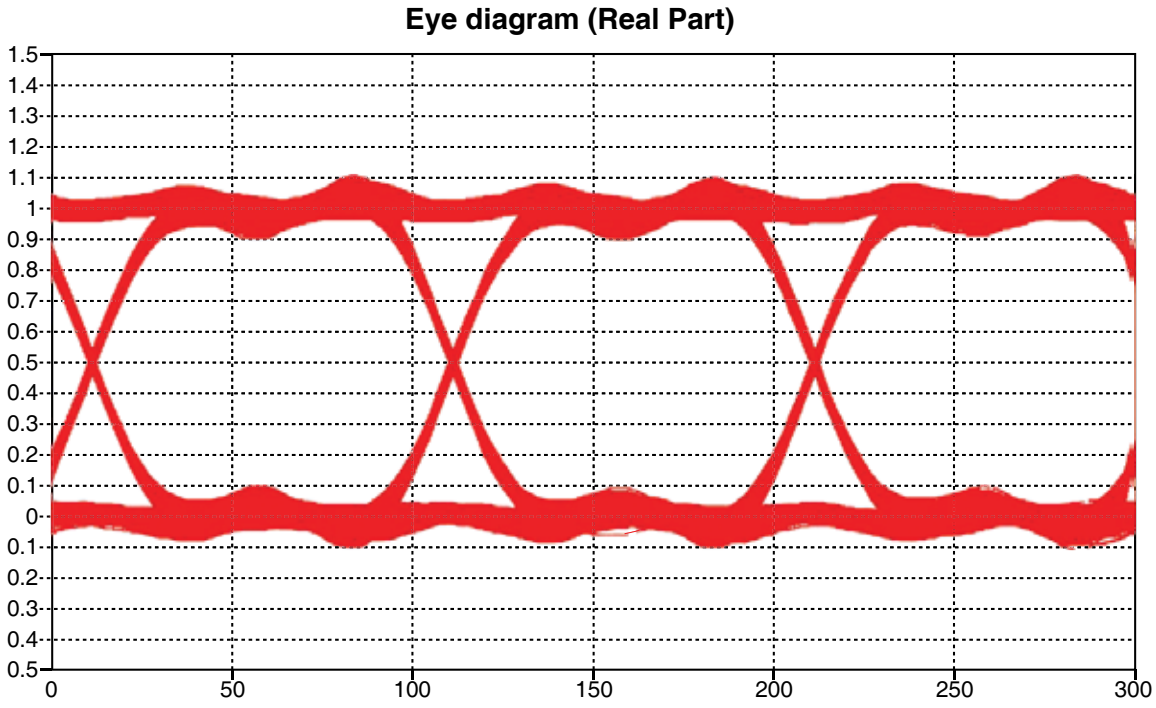
* Cable selection may limit data rate of above protocols.

Amphenol XXXX
HIGH SPEED SOLUTIONS

For further information,
Contact our product manager,
Sandra Wildenstein
Phone: 607-563-5379
Email: swildenstein@amphenol-aao.com

OCS (Oval Contact System) Connectors

OCS Contact Eye Pattern @ 10 Gbps

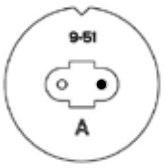


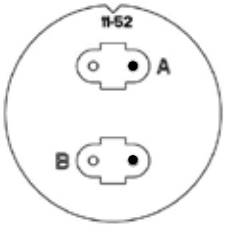
Individually Shielded Twinax cable is recommended for use with the OCS connectors. Other type of wires can be used but will not be compatable with the rear accessory supplied with the connectors. In such cases a banding style strain relief with a sealing boot should be used and must be purchased separately.

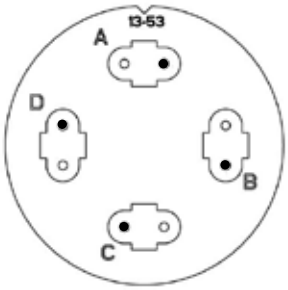
Cable Order Designator	Cable Part Number	Pairs	Conductor (AWG)	Impedance (Ohms)
D	Tensolite 24463/9P025X-2(LD)	1	24	100
E	Thermax MX100-24	1	24	100
F	PIC E10224	1	24	100
G	Amphenol Spectra-strip 160-0099-991	1	24	100

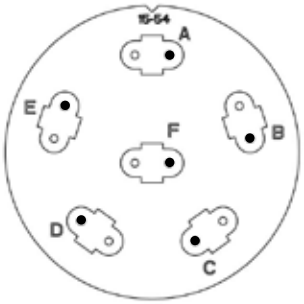
OCS (Oval Contact System) Connectors

Insert Arrangements - Front face of pins illustrated

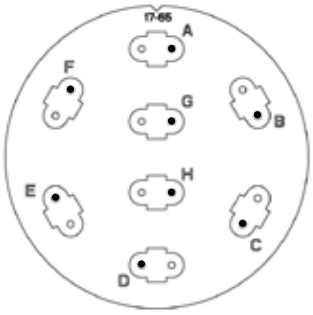


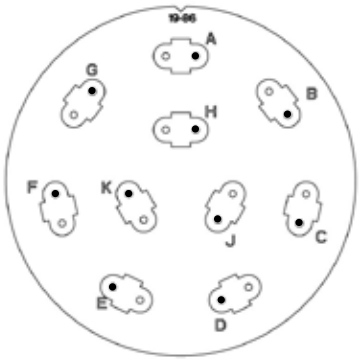


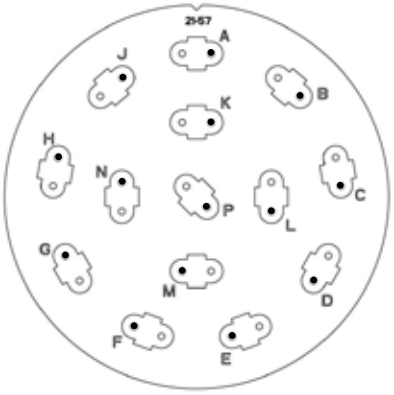




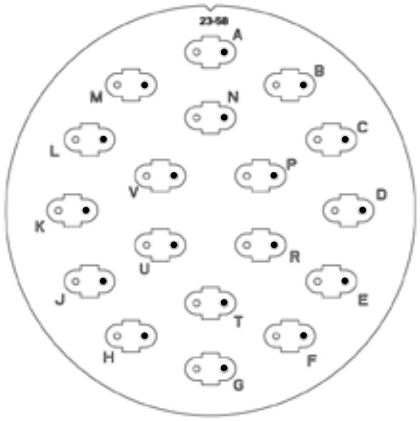
Insert Arrangement	9-51	11-52	13-53	15-54
# of Contacts	1	2	4	6

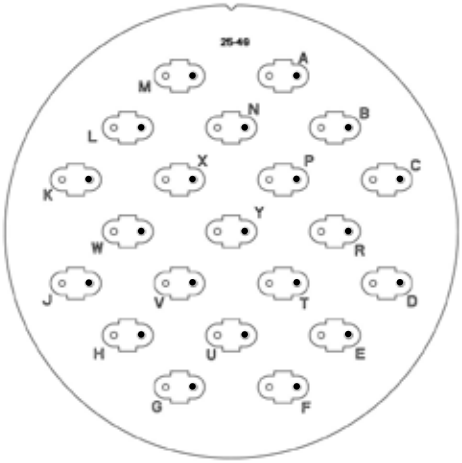






Insert Arrangement	17-65	19-86	21-57
# of Contacts	8	10	14





Insert Arrangement	23-58	25-49
# of Contacts	18	21

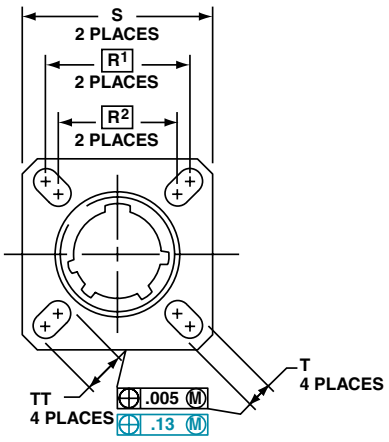
● - Designates pin 1 location within the OCS contact assembly

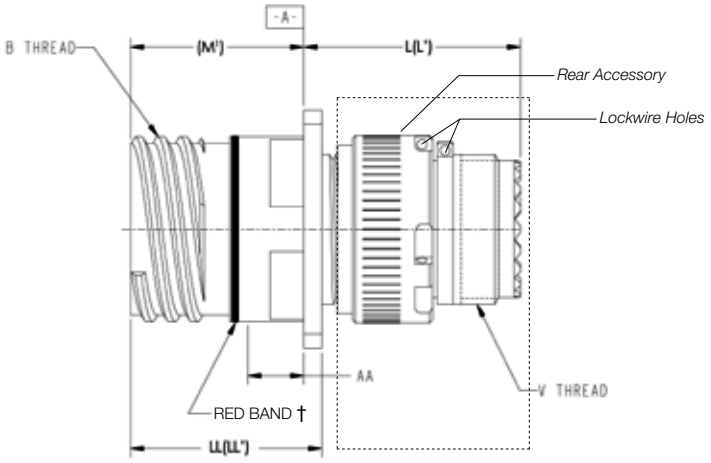
OCS (Oval Contact System) Connectors

TVP00 - Crimp, Metal

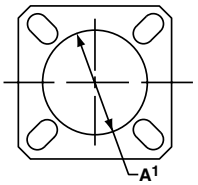
CTVP00 - Crimp, Composite

Wall Mounting Receptacle

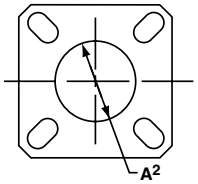




PANEL HOLE DIMENSIONS



BACK PANEL MOUNTING



FRONT PANEL MOUNTING

Inches

Shell Size	B Thread Class 2A 0.1P-0.3L-TS (Plated)	L Max. (TV)	L' Max. (CTV)	M +.000 –.005 (TV)	M¹ +.000 –.005 (CTV)	R¹	R²	S Max.	T ±.008	A¹ Back Panel Mount	A² Front Panel Mount	AA Max. Panel Thick-ness	LL +.006 –.000 (TV)	LL' ±.005 (CTV)	TT ±.008	V Thread Metric
9	.6250	1.039	1.086	.820	.773	.719	.594	.948	.128	.655	.516	.234	.905	.908	.216	M12X1-6g
11	.7500	1.039	1.086	.820	.773	.812	.719	1.043	.128	.796	.625	.234	.905	.908	.194	M15X1-6g
13	.8750	1.039	1.086	.820	.773	.906	.812	1.137	.128	.922	.750	.234	.905	.908	.194	M18X1-6g
15	1.0000	1.039	1.086	.820	.773	.969	.906	1.232	.128	1.047	.906	.234	.905	.908	.173	M22X1-6g
17	1.1875	1.039	1.086	.820	.773	1.062	.969	1.323	.128	1.219	1.016	.234	.905	.908	.194	M25X1-6g
19	1.2500	1.039	1.086	.820	.773	1.156	1.062	1.449	.128	1.297	1.141	.234	.905	.908	.194	M28X1-6g
21	1.3750	1.069	1.118	.790	.741	1.250	1.156	1.575	.128	1.442	1.266	.204	.905	.904	.194	M31X1-6g
23	1.5000	1.069	1.118	.790	.741	1.375	1.250	1.701	.154	1.547	1.375	.204	.905	.904	.242	M34X1-6g
25	1.6250	1.069	1.118	.790	.741	1.500	1.375	1.823	.154	1.672	1.484	.204	.905	.904	.242	M37X1-6g

All dimensions for reference only. † Red band indicates fully mated

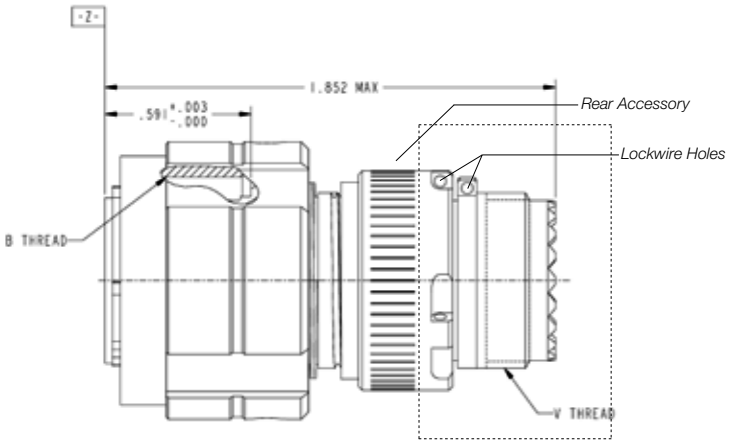
The rear accessory shown above is provided kitted with each connector and is for environmental sealing. The grommet included is insert arrangement specific, shown at right is the 13-53 pattern.

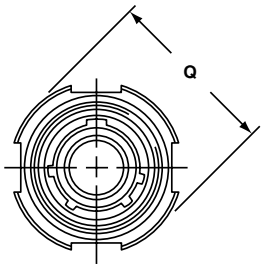
OCS (Oval Contact System) Connectors

TV06R - Crimp, Metal

CTV06R - Crimp, Composite

Straight Plug





Inches

Shell Size	B Thread 0.1P-0.3L-TS-2B (Plated)	Q Dia. Max.	V Thread Metric
9	.6250	.858	M12X1-6g
11	.7500	.984	M15X1-6g
13	.8750	1.157	M18X1-6g
15	1.0000	1.280	M22X1-6g
17	1.1875	1.406	M25X1-6g
19	1.2500	1.516	M28X1-6g
21	1.3750	1.642	M31X1-6g
23	1.5000	1.768	M34X1-6g
25	1.6250	1.890	M37X1-6g

All dimensions for reference only.

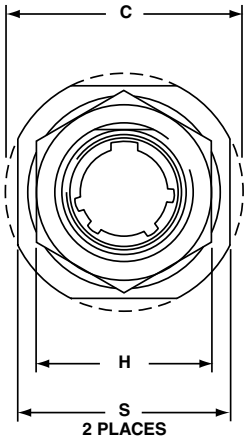
The rear accessory shown above is provided kitted with each connector and is for environmental sealing. The grommet included is insert arrangement specific, shown at right is the 13-53 pattern.

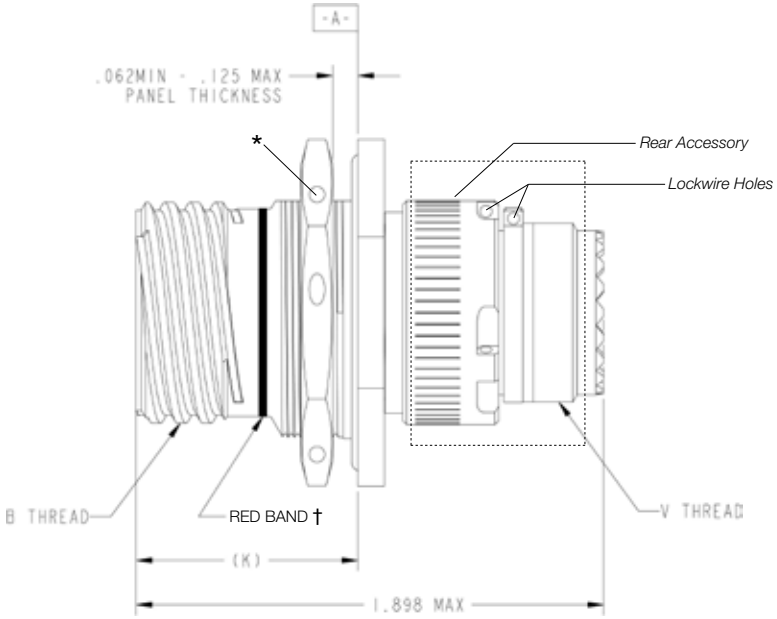
OCS (Oval Contact System) Connectors

TV07R - Crimp, Metal

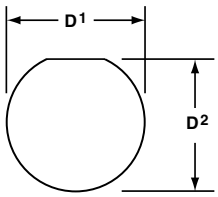
CTV07R - Crimp, Composite

Jam Nut Receptacle





PANEL HOLE DIMENSIONS



JAM NUT D-HOLE MOUNTING

Inches

Shell Size	B Thread Class 2A 0.1P-0.3L-TS (Plated)	C Max.	D[1] +.010 –.000	D[2] +.000 –.010	H Hex +.017 –.016	K Ref.	S ±.010	V Thread Metric
9	.6250	1.199	.693	.657	.875	.871	1.062	M12X1-6g
11	.7500	1.386	.825	.770	1.000	.871	1.250	M15X1-6g
13	.8750	1.511	1.010	.955	1.188	.878	1.375	M18X1-6g
15	1.0000	1.636	1.135	1.085	1.312	.878	1.500	M22X1-6g
17	1.1875	1.761	1.260	1.210	1.438	.878	1.625	M25X1-6g
19	1.2500	1.949	1.385	1.335	1.562	.878	1.812	M28X1-6g
21	1.3750	2.073	1.510	1.460	1.688	.878	1.938	M31X1-6g
23	1.5000	2.199	1.635	1.585	1.812	.878	2.062	M34X1-6g
25	1.6250	2.323	1.760	1.710	2.000	.878	2.188	M37X1-6g

All dimensions for reference only.

† Red band indicates fully mated

* .059 dia min., 3 lockwire holes Formed lockwire hole design (6 holes) is optional

The rear accessory shown above is provided kitted with each connector and is for environmental sealing. The grommet included is insert arrangement specific, shown at right is the 13-53 pattern.

OCS (Oval Contact System) Connectors
How to Order

1. Connector Type	2. Shell Style	3. Service Class	4. **Shell Size** – Insert Arrangement	5. Contact Type	6. Alternate Keying Position	7. Cable Order Designator/ Cable Length in inches
TVP	**00**	**RZW**	**13 –53**	**P**	**B**	**A ( )**

Step 1. Select a Connector Type

TV	Tri-Start Series Connector with metal shells
TVP	Back panel mounted receptacle with metal shells
CTV	Tri-Start Series Connector with composite shells
CTVP	Back panel mounted receptacle with composite shells

Step 2. Select a Shell Style

00	Wall mount receptacle
06	Straight plug
07	Jam nut receptacle

Step 3. Select a Service Class

Threaded Shell Style	Integral Shell Style*	Description
RZF	**RYF**	Electroless nickel plated
RGZF	**RGYF**	Electroless nickel plated ground plane
RZW	**RYW**	Olive drab cadmium plate
RGZW	**RGYW**	Olive drab cadmium plated ground plane
RZB	**RYB**	NiAlBronze
RGZB	**RGYB**	NiAlBronze ground plane
RZK	**RYK**	Corrosion resistance stainless steel
RGZK	**RGYK**	Stainless steel ground plane
ZDT	**YDT**	Durmalon plated, Nickel-PTFE alternative to cadmium
GZDT	**GYDT**	Groundplane Durmalon

*** Integral Shell Style** - an integral backshell connector style that eliminates the need for costly backshell accessories, and allows the user to attach the shield of their cable directly to the connector. The integral shell style also provides superior EMI shielding and ease for overmold applications.

Step 4. Select a Shell Size and Insert Arrangement

Shell Size and Insert Arrangement are together. First number represents Shell Size, second number is the Insert Arrangement. Currently 13-53 is available only; however, consult Amphenol for availability of other shell sizes in the near future.

For more information on Tri-Start, MIL-DTL-38999 Series III connectors see the 38999 section in the Amphenol combined circular catalog, 12-C( ).

Step 5. Select Contact Type

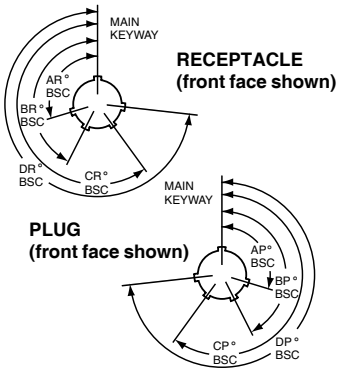
P	Pin contacts
S	Socket contacts

Step 6. Select an Alternate Keying Position

Locksmith keying–rotation of minor keys. See Series III Alternate Positions below "N" not required for normal position

Tri-Start Alternate Positions

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



Shell Size	Key & Keyway Arrangement Identification Letter	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
13	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242

Step 7. Select a Cable

If ordering the OCS Connector with cable, first identify the cable designator letter (from table on page 2). Use that designator letter in the part number, for example: A = MX10G-24HP. Follow the letter with cable length needed in inches.

Example part number: TVP00RZF-13-53P(D24)

└Designate Length in inches

Removal Tool How to Order

Order removal tool for OCS contacts by part number 10-6460C1-001

Amphenol HIGH-SPEED SOLUTIONS