



AMPLIMITE Subminiature D Connectors

RoHS
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connectivity

Introduction

AMPLIMITE family of Subminiature D connectors is the industry's most extensive and versatile. These subminiature D connectors have become the most popular type of input/output (I/O) connectors in use today. Established and proven, they are rugged, easily used and have been widely adopted in standards for serial communications, telecommunications and local area networks (LANS).

This family of connectors consists of:

- Standard Subminiature D Connectors, Cable Mount and Board Mount

Standard AMPLIMITE connectors come in two series, HD-20 and HD-22, each having five sizes related to the size of the shell. The shell sizes, numbering from one to five, are identical for each series, while the number of positions differ. Depending on the size of the contacts, it is possible to have different numbers of contact cavities in a given shell size.

HD-20 connectors use size 20 contacts, which are based on .040 [1.02] pin diameters with contact centerlines of .109 x .112 [2.77 x 2.85]. This size is the more common variety.

HD-22 connectors use size 22 contacts, based on .030 [0.76] pin diameters on centerlines of .090 x .078 [2.29 x 1.98] for shell sizes 1, 2 and 3; .095 x .078 [2.41 x 1.98] for shell size 4; and .095 x .082 [2.41 x 2.08] for shell size 5. The smaller pin diameter of the HD-22 series allow roughly 65% more contacts to be held in a given shell size. For example, shell size three holds 25 contacts in an HD-20 connector and 44 contacts in an HD-22 connector.

Choosing a subminiature D connector requires evaluating application requirements and deciding which of the many options available best suits your needs. It is due to this wealth of choices to satisfy and performance and costs requirements that makes the subminiature D connector family the world's most popular choice.

Need more information?

Call Technical Support at the numbers listed below.

Technical Support is staffed with specialists well versed in all TE Connectivity products. They can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- TE Authorized Distributor Locations

For information on application tooling call the Tooling Assistance Hotline:
1-800-722-1111

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Restriction on the use of Hazardous Substances (RoHS)

At TE, we're ready to support your RoHS requirements. We've assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials. Part numbers in this catalog are identified as:

RoHS Compliant — Part numbers in this catalog are RoHS Compliant, unless marked otherwise. These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

NOTE: For purposes of this Catalog, included within the definition of RoHS Compliant are products that are clearly "Out of Scope" of the RoHS Directive such as hand tools and other non-electrical accessories.

NOTE: Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced at right.

Getting the Information You Need

Our comprehensive on-line RoHS Customer Support Center provides a forum to answer your questions and support your RoHS needs. A RoHS FAQ (Frequently Asked Questions) is available with links to more detailed information. You can also submit RoHS questions and receive a response within 24 hours during a normal work week. The Support Center also provides:

- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above
- So whatever your questions when it comes to RoHS, we have the answers at www.te.com/leadfree

RoHS
Customer
Support
Center 

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AMPLIMITE .050 Series Connector (.050 x .100 [1.27 x 2.54] Centerline) Series III

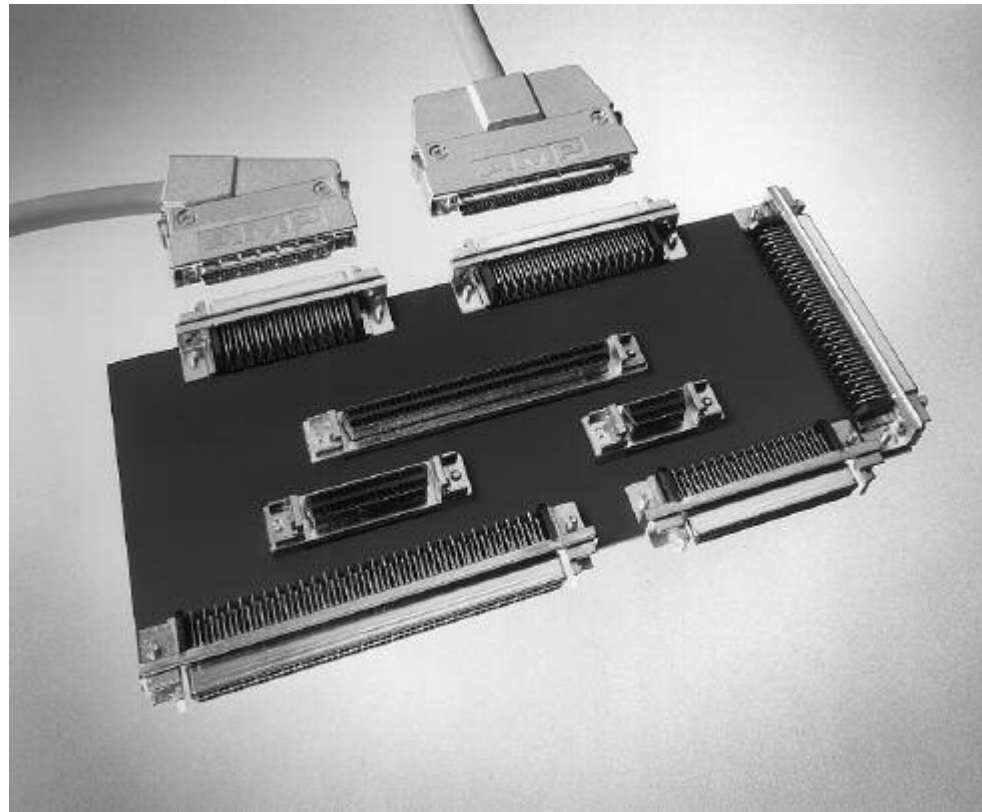
Product Facts

- Compatible with SCSI-2, SCSI-3, EIA RS-232, ISO-11569*, HIPPI, IPI-2 and IEE 802.3 MII standards
- High-density D type interface
- 20 through 100 contact positions
- Tab plug contacts and tuning-fork receptacle contacts, with reliable two-point (redundant) contact; contact normal force is not dependent on plastic housing support
- Excellent EMI/RFI protection
- Shields mate before contacts, with ground mating first and breaking last
- Squeeze-to-release latches or jackscrew hardware
- Board connectors compatible with standard thru-hole flow solder and surface-mount reflow solder processes (Series III)
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed and complies with UL 1863, Communication Circuit Accessories  File No. E81956
- Certified by Canadian Standards Association,  File No. 1088108 (LR 7189A-207)

- Produced under a Quality Management System certified to ISO 9001 

A copy of the certificate is available upon request

*26-position cable assembly with spring latches



Introduction

Shielded AMPLIMITE .050 Series connectors offer a high-density D type interface. Featuring .050 x .100 [1.27 x 2.54] contact centerline spacing, these compact and reliable connectors are available in 20 through 120 positions. Their construction offers exceptional EMI/RFI shielding effectiveness.

Shielded AMPLIMITE .050 Series Connectors, Series III, are approved to SCSI-2, SCSI-3, EIA RS-232, ISO-11569*, IPI-2, HIPPI, and IEE 802.3 MII standards.

Connectors are available in cable-mount and panel mount versions and vertical and right-angle mount pcb headers plus vertical mount with ACTION PIN contacts. The headers feature high temperature housings for reflow soldering processes.

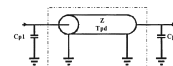
Cable and panel connectors use insulation displacement contacts for fast termination of discrete, round-to-flat laminated, and ribbon cable.

Series I, II and III intermateability:

Only the 50 and 68 position sizes are intermateable between Series I, II, and III.

Backshells are available with either a straight or angled cable exit. Hardware includes a choice of integral squeeze-to-release latches or jackscrews.

Unshielded, All-Plastic Cable Plugs are available in 50 through 100 positions and offer an economical answer to your connector needs on applications where EMI/RFI protection is not a factor.



AMP Single Line and Multi Line Models are available for AMPLIMITE Subminiature D Type connectors at www.te.com/simulation.

AMPLIMITE .050 Series Connector (.050 x .100 [1.27 x 2.54] Centerline) Series III (Continued)

Product Facts

- **Compact design, profile for the right-angle header 1.230 x .588 [31.24 x 14.94], vertical header 1.230 x .433 [31.24 x 11.00], right-angle stacked headers 1.230 x .803 [31.24 x 20.40]**
- **Housings and covers made of UL 94V-0 rated thermoplastic**
- **Header footprint for right-angle and stacked configurations is .100 x .050 [2.54 x 1.27] staggered centerlines**
- **Header footprint for vertical configuration is .100 x .075 [2.54 x 1.90] staggered centerlines**
- **Right-angle and stacked headers feature integral boardlocks for positive board retention and grounding**
- **Vertical headers feature 8 below the board, retentive contact legs for mechanical retention before and after soldering**
- **Vertical headers feature polarized grounding posts to assure correct header-to-board orientation**
- **Stacked headers reduce overall total header volume by 48% and PC board area by 38%**
- **Stacked headers offer optional contact shield for additional EMI/RFI protection**
- **Plugs preloaded with insulation displacement contacts (IDC) provide fast, reliable and economical terminations**
- **Choice of three keying positions, plus non-keyed inserts for assurance against mismatch mating**

Shielded AMPLIMITE .050 Series, Slimline Connectors answer today's industry requirement for higher density in a smaller overall package. The present line consists of 26 position, shielded right-angle and vertical PCB receptacle headers, 26 position right-angle stacked PCB receptacle header, and mating 26 position plug connectors. All header, plug and backshell housings are made of UL 94V-0 rated thermoplastic. PCB headers are compatible with surface mount reflow solder processes. Right-angle and stacked PCB headers feature contact footprints on .100 x .050 [2.54 x 1.27] staggered centerlines and vertical header footprints are on .100 x .075 [2.54 x 1.90] staggered centerlines.

The compact design of the **right-angle header** package measures only 1.230 W x .588 D x .300 H [31.24 W x 14.94 D x 7.62 H] for maximum board real estate conservation. Right-angle PCB headers feature integral boardlocks for positive board retention and grounding.

Vertical headers feature 8 below the board, retentive contact legs for mechanical retention before and after soldering. Polarized grounding posts provide correct header-to-board orientation. The complete package occupies an area only 1.230 W x .325 D x .433 H [31.24 W x 8.26 D x 11.00 H].

Right-angle stacked headers provide 52 contacts in a package only .635 [16.13] high, allowing parallel (board-over-board) board spacing of .800 [20.32].

Centerlines between the top connector and the bottom connector measure .335 [8.51] when compared to .400 [10.06] on the standard .050 Series stacked headers. This results in an overall reduction of total header volume, in comparison to the standard AMPLIMITE .050 Series header, of 48%, and a comparative reduction in PC board area of 38%.

Stacked header board retention and stabilization is provided by two boardlocks and four grounding posts. In addition, an optional rear contact shield is available for additional EMI/RFI protection.

The mating plug connector consists of a thermoplastic housing, preloaded with insulation displacement contacts (IDC) for fast, reliable terminations that offer greater applied cost savings. TE offers a choice of termination equipment to meet your production requirements.

The backshell hardware kit includes a two-piece, aesthetically designed, thermoplastic cover over an inner and outer shield and two, high strength #2-56 male jackscrews with insulated heads (easy finger grip caps) to secure mated connectors.

The AMPLIMITE .050 Series, Slimline family of connectors offers **keyed coupling**. This feature reduces the problem of mismatch mating of plug and receptacle, particularly in stacked applications. There are three possible keying arrangements, plus unkeyed inserts to assure maximum options for multiple connector applications.

To meet Standard Applications the following 106 ohm, black jacketed cable assemblies are available. For AMPLIMITE .050 Series cable assemblies that meet other impedance requirements or other lengths consult TE.

AMPLIMITE .050 Series Cable Assemblies, Series III



SCSI-2



SCSI-1 to SCSI-2



RS-232 (Alternate)



RS-232 (Alternate) to RS-232



IPI-2 and HIPPI

Application	Assembly	Part Numbers		
		2 Feet	2 Meters	3 Meters
SCSI-2	50 pos. .050 Series Plug to 50 pos. .050 Series Plug	750254-1	5750254-2	750254-3
SCSI-2*	68 pos. .050 Series Plug to 68 pos. .050 Series Plug	—	5750732-2	5750732-4
RS-232 (Alternate)	26 pos. .050 Series Plug to 26 pos. .050 Series Plug	—	750255-2	750255-3

Application	Assembly	Part Numbers		
		5 Meters	15 Meters	25 Meters
IPI-2 and HIPPI	100 pos. .050 Series Plug to 100 pos. .050 Series Plug	749755-2	—	—

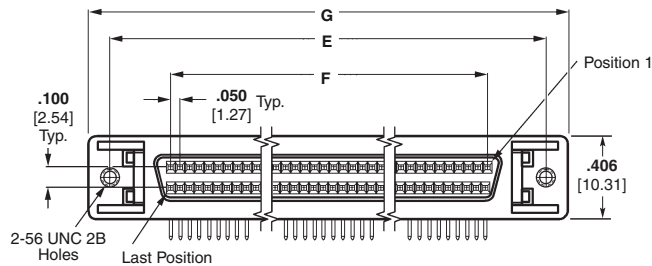
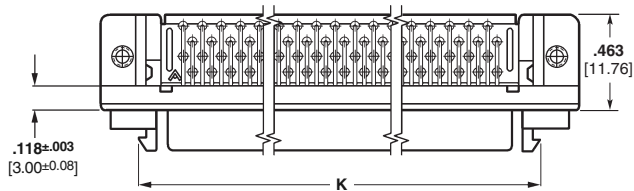
*This version has spring latches. Consult TE for availability of jackscrew version.

Note: .050 centerline ribbon cable assemblies are available in single or double ended versions. These assemblies are made using AMPLIMITE .050 Series panel mount connectors, AMPLIMITE .050 Series all-plastic connectors and AMP-LATCH Novo receptacles. Consult TE.

SCSI—Small Computer Systems Interface
 HIPPI—High Performance Parallel Interface
 IPI—Intelligent Peripheral Interface

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Right-Angle Receptacle Headers, Series III



Materials:

- Housing** — Thermoplastic, 94V-0 rated, black. SMT compatible
- Shell** — Steel, plated bright nickel over copper
- Bracket** — Zinc, plated nickel over copper
- Contacts** — Phosphor bronze, duplex plated [.000030] 0.00076 min. gold on mating end; tin on solder end; all under-plated nickel

Technical Documents:

- Product Specifications** — 108-1228
- Application Specifications** — 114-40029

Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

No. of Pos.	Dimensions				Part Numbers						
	E	F	G	K	w/ Rails and Latchblocks		w/o Rails, w/ Latchblocks		w/o Rails, w/o Latchblocks		
					With .100 [2.54] Solder Tails		With .100 [2.54] Solder Tails		With .100 [2.54] Solder Tails		With .120 [3.05] Solder Tails
					Without Boardlocks	With Boardlocks	Without Boardlocks	With Boardlocks	Without Boardlocks	With Boardlocks	With Boardlocks
40	1.580 40.13	.950 24.13	1.815 46.10	1.415 35.94	—	1761028-2	—	5787082-3	—	5787170-4*	—
50	1.830 46.48	1.200 30.48	2.065 52.45	1.665 42.29	5787190-5	1761028-3	5787394-5	5787082-5	—	5787170-5*	5787362-5*
50	1.830 46.48	1.200 30.48	2.065 52.45	1.665 42.29	—	5787266-5*	—	5787395-5*	—	—	—
68	2.280 57.91	1.650 41.91	2.515 63.88	2.115 53.72	5787190-7	1761028-4	5787394-7	5787082-7	5787169-7*	5787170-7*	5787362-7*
100	3.080 78.23	2.450 62.23	3.315 84.20	2.915 74.04	—	1761028-5	—	5787082-9	5787169-9*	5787170-9*	5787362-9*

*Has 4-40 threaded mating holes (2 places), for use with female screwlock Part No. 750644-1.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Vertical Receptacle Headers With Through-Hole Tails, Series III



Materials:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

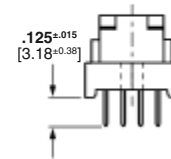
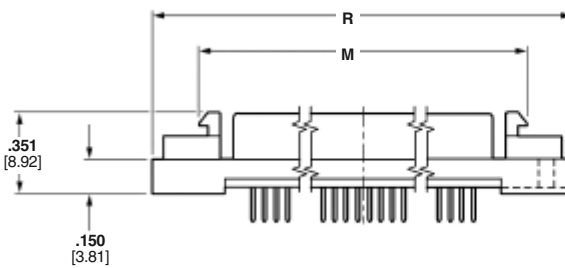
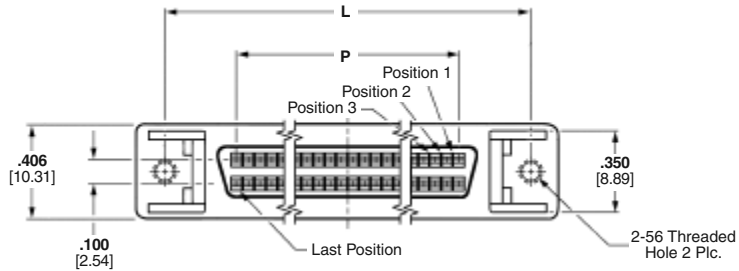
Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin on solder end; all under-plated nickel

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out, unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.



Part Number 749069-5



Part Number 749721-5



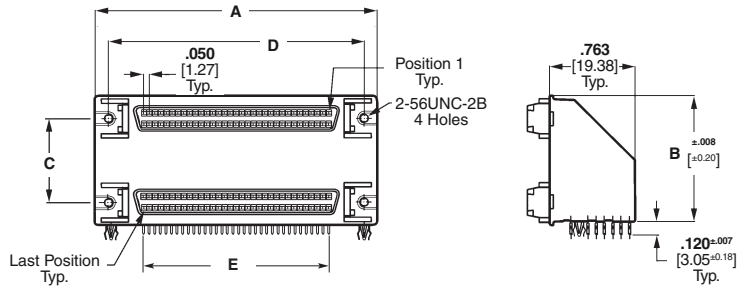
Part Number 749070-7

No. of Pos.	Dimensions				Part Numbers		
	L	M	P	R	w/ Rails & Latchblocks	w/ Latchblocks	Plain
20	1.080 27.43	.915 23.24	.450 11.43	1.315 33.40	5749069-1	—	—
26	1.230 31.34	1.065 27.05	.600 15.24	1.465 37.21	5749069-2	—	—
28	1.280 32.51	1.115 28.32	.650 16.51	1.515 38.48	—	5749721-3	—
40	1.580 40.13	1.415 35.94	.950 24.13	1.815 46.10	5749069-4	—	—
50	1.830 46.48	1.665 42.29	1.200 30.48	2.065 52.45	5749069-5	5749721-5	5749070-5
68	2.280 57.91	2.115 53.72	1.650 41.91	2.515 63.88	5749069-7	5749721-7	5749070-7
80	2.580 65.53	2.415 61.34	1.950 49.53	2.815 71.50	5749069-8	—	—
100	3.080 78.23	2.915 74.04	2.450 62.23	3.315 84.20	5749069-9	—	5749070-9

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Vertical Receptacle Headers With Through-Hole Tails, Series III (Continued)

.120 [3.05] Solder Tail Length



Rails and Latch Blocks

Materials:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin on solder end; all under-plated nickel

Related Product Data:

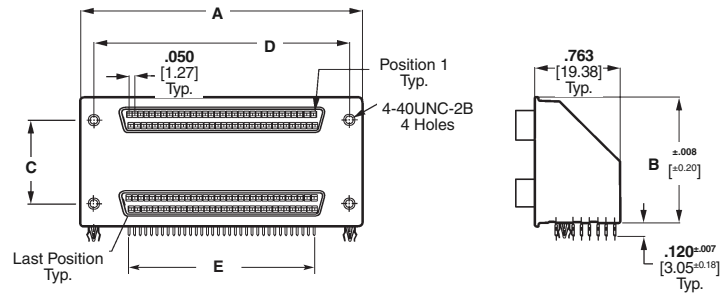
Required Hardware—page 26

Technical Documents:

Product Specifications—108-1228-1

Application Specifications—114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



Flat Top Configuration

Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

No. of Pos.	Dimensions					Part No.
	A	B	C	D	E	
50/50	2.085 52.96	.874 22.20	.500 12.70	1.830 46.48	1.200 30.48	5787656-1
68/68	2.535 64.39	1.124 28.55	.750 19.05	2.280 57.91	1.650 41.91	5787678-1
68/68	2.535 64.39	1.124 28.55	.750 19.05	2.280 57.91	1.650 41.91	5787679-1*

*Flat-top configuration.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Vertical Receptacle Headers, Series III, with ACTION PIN Contacts (.050 x .100 [1.27 x 2.54] Centerlines)

Product Facts

- Recognized under the Component Program of the Underwriters Laboratories, Inc., File No. E28476

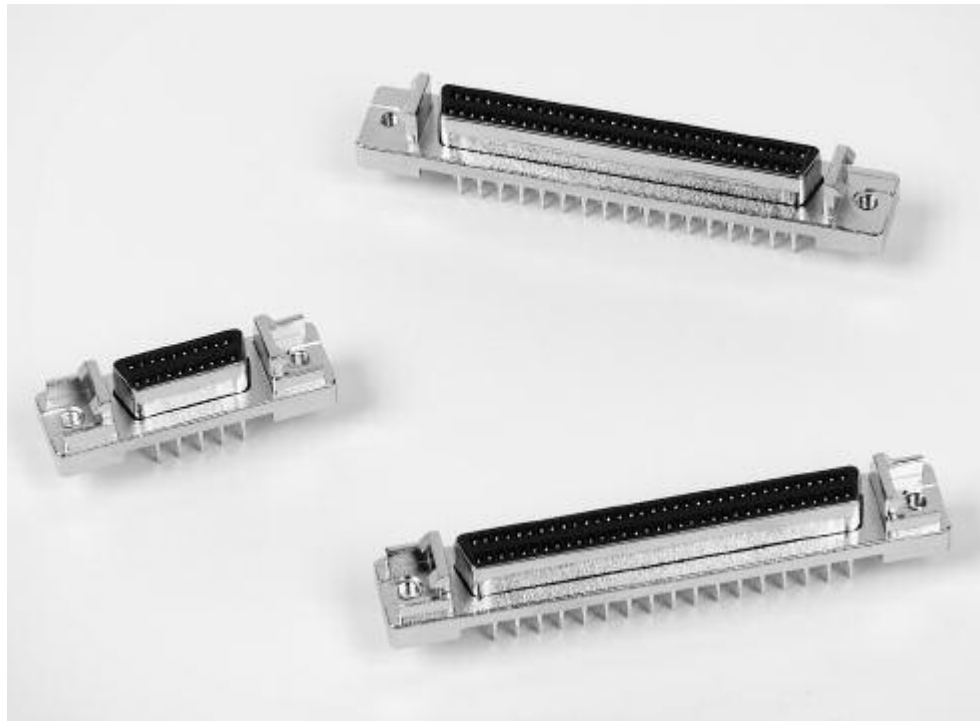


- Certified by Canadian Standards Association, File No. 1088108 (LR 7189A-207)



- Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request



Shielded AMPLIMITE .050 Series headers with ACTION PIN contacts offer a high-density D type interface, and a solderless board-mount interconnection. These vertical mount headers are available in 20, 26, 50, 68 and 100 contact sizes. Choice of configurations includes; headers with rails and latch blocks, with latch blocks only, and without rails and latch blocks.

ACTION PIN contact tails are available in two lengths; .173 [4.39] for pc boards with a nominal thickness of .062 [1.56] to .093 [2.36], and .280 [7.11] for pc boards with a nominal thickness of .125 [3.18] to .200 [5.08].

AMPLIMITE .050 Series headers with ACTION PIN contacts are compatible with SCSI-2, SCSI-3, EIA RS-232, IPI-2 and HIPPI standards.

Principle of the AMPLIMITE .050 Series Compliant ACTION PIN Contact

When an AMPLIMITE .050 Series compliant ACTION PIN contact is inserted into a plated-through-hole, two spring members are compressed, exerting force against the hole for a gas-tight connection. The diameter of the hole is smaller than the diagonal size of the pin.

The beam characteristics of the pin are designed so that a plastic, as well as an elastic, deformation takes place during insertion. The two spring members compress to different degrees to accommodate hole tolerances. The compliant pin also reduces strain on the board. With a rigid pin, the elastic strain energy is stored entirely in the board, leading to damage of the plated-through holes. With the

AMPLIMITE .050 Series compliant ACTION PIN contact, the residual force of the elastic deformation maintains stored energy to produce a gas-tight contact zone between the pin and the plated-through-hole. This ensures long term electrical and mechanical reliability of the interconnection.

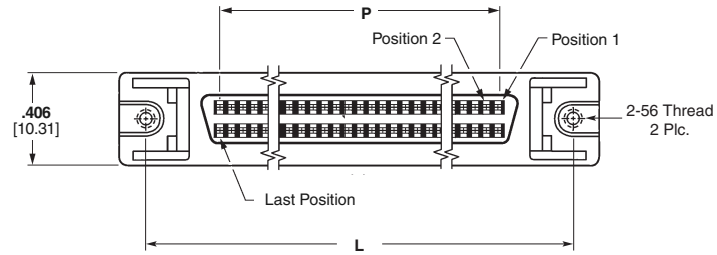
Technical Documents:

Product Specification—
108-1228-2

Application Specification—
114-40029

Instruction Sheets—
408 6923—AMP Manual Arbor Frame Assembly
408 9027—AMP Adapter Kit for Greenerd Frame Assemblies 3A and 3B
408 9757—Seating Instructions and Tooling
408 6927—Recommendations for pc board support

AMPLIMITE .050 Series Vertical Receptacle Headers, with ACTION PIN Tails, Series III



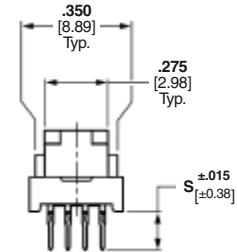
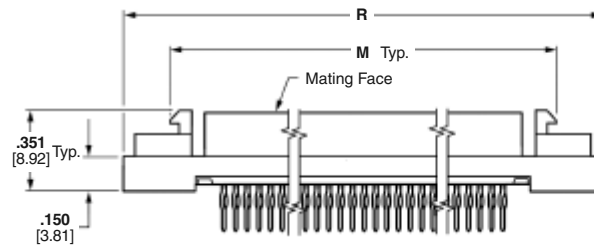
Materials:

Housings—Thermoplastic, 94V-0 rated, black, SMT compatible

Shell—Carbon steel, plated bright tin over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin on solder end; all under-plated nickel



Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

Technical Documents:

Product Specifications—
108-1228-2

Application Specifications—
114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



Part Number 786554-1

Part Number 786554-7

Part Number 786155-7

No. of Pos.	Dimensions					Part Numbers		
	L	M	P	R	S	w/ Rails & Latchblocks	w/ Latchblocks	Plain
20	1.080 27.43	.915 23.24	.450 11.43	1.315 33.40	.173 4.39	5786554-1	—	—
26	1.230 31.34	1.065 27.05	.600 15.24	1.465 37.21	.173 4.39	5786554-2	—	—
50	1.830 46.48	1.665 42.29	1.200 30.48	2.065 52.45	.173 4.39	5786554-5	5786155-5	5786555-5
					.280 7.11	5786556-5	—	—
68	2.280 57.91	2.115 53.72	1.650 41.91	2.515 63.88	.173 4.39	5786554-7	5786155-7	5786555-7
					.280 7.11	—	786155-7	5786557-7
100	3.080 78.23	2.915 74.04	2.450 62.23	3.315 84.20	.173 4.39	5786554-9	—	5786555-9
120	3.580 90.93	3.415 86.74	2.950 74.93	3.815 96.90	.173 4.39	1-5786554-0	—	—

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Cable Plug Connectors, Series III

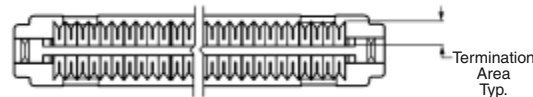
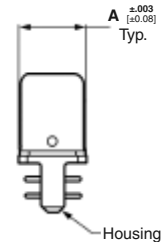
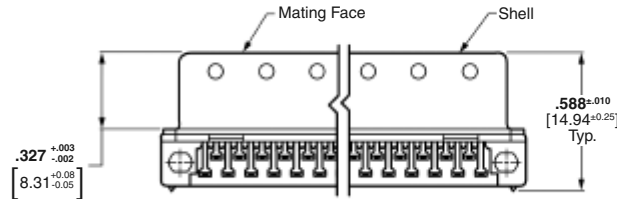
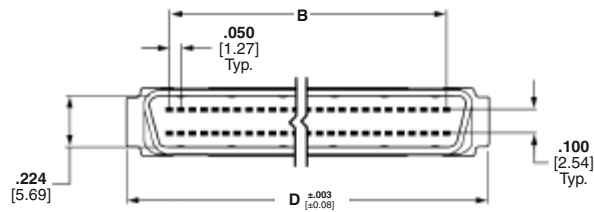
Shielded Plugs



Shielded Plug



Wire Lacing Termination Covers



Shielded Plug with Unassembled Wire Lacing Termination Covers

Materials:

Housing and Covers—

Thermoplastic, 94V-0 rated, black or gray

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, tin on termination end, all underplated .nickel

Shell—Steel, plated tin-nickel alloy over nickel over min. copper

Recommended wire size—

28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter.

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Instruction Sheet—408-9427

Connector With Unassembled Wire Lacing Termination Covers

No. of Pos.	Dimensions			Part Numbers	
	A	B	D	.032-.036 [0.81-0.91] Outer Wire Dia. Black	.029-.031 [0.74-0.79] Outer Wire Dia. Gray
26	.293 7.44	.600 15.24	.979 24.87	5750913-2	1-5750913-2
50	.293 7.44	1.200 30.48	1.579 40.11	5750913-5	1-5750913-5
68	.293 7.44	1.650 41.91	2.029 51.54	5750913-7	1-5750913-7
100	.373 9.47	2.450 62.23	2.829 71.86	—	1-5750913-9

- Notes:** 1. Plug connector requires backshell kit for complete assembly. Refer to pages 16-19 for backshell kit part numbers.
2. For termination, cover closing and wire lacing tooling, see page 14.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Cable Plug Connectors, Series III (Continued)

Shielded Plugs

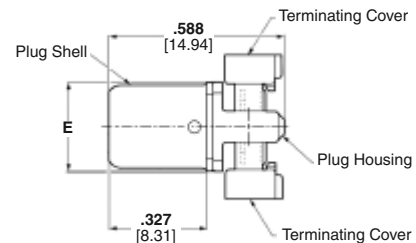
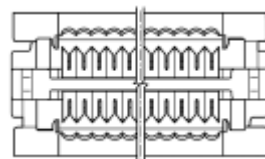
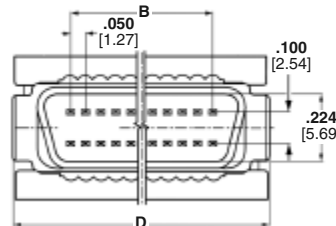
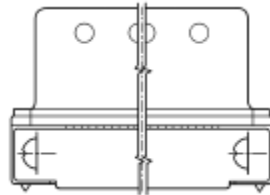
(Continued)



Shielded Plug with Unassembled Standard Termination Covers



Shielded Plug with Assembled Standard Termination Covers



Shielded Plug with Assembled or Unassembled Standard Termination Covers

Materials:

Housing and Covers—

Thermoplastic, 94V-0 rated, black

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, tin on termination end, all underplated nickel

Shell—Steel, plated tin-nickel alloy over nickel over copper

Recommended wire size³ —

28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter.

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Instruction Sheet—408-9427

Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

Connectors With Standard Termination Covers

No. of Pos.	Dimensions			Part Numbers	
	B	D	E	w/Rails & Latchblocks	w/Latchblocks
20	.450 11.43	.829 21.06	.293 7.44	5749111-1	5749621-1
26	.600 15.24	.979 24.87	.293 7.44	1-5749111-0	5749621-2
28	.650 16.50	1.029 26.14	.293 7.44	—	5749621-3
40	.950 24.13	1.329 33.76	.293 7.44	5749111-3	5749621-4
50	1.200 30.48	1.579 40.11	.293 7.44	5749111-4	5749621-5
68	1.650 41.91	2.029 51.54	.293 7.44	5749111-6	5749621-7
80	1.950 49.53	2.329 59.16	.373 9.47	5749111-7	5749621-8
100	2.450 62.23	2.829 71.86	.373 9.47	5749111-8	5749621-9
120	2.950 74.93	3.329 84.56	.373 9.47	5749111-9	1-5749621-0

- Notes:**
1. Plug connector requires backshell kit for complete assembly and must use round jacketed cable (discrete or laminated). Refer to pages 16-19 for backshell kit part numbers.
 2. For termination tooling, see pages 28 & 29.
 3. The CHAMPOMATOR 2.5 Automatic Termination Machine will accept diameters as low as .023 [0.58].

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Cable Plug Connectors, Series III (Continued)

AMPLIMITE .050 Series Connectors, Series III

AMPLIMITE .050 Series Connector Application Tooling for Use with Wire Lacing Termination Covers

Manual Arbor Frame Assembly—Part No. 58024-1

Equipped with Cover Lacing Assembly—**Part No. 91293-1** (Includes Seating Bars for 50 and 100 Positions). See Table 3 for Seating Bar Part Numbers.

Extra Lacing Stations available for use with Lacing Assembly—**Part No. 91293-1** Order Lower Tooling Assembly—**Part No. 543481-1**



Arbor Frame, Part No. 58024-1
Equipped with
Cover Lacing Assembly,
Part No. 91293-1



Lower Tooling Assembly
Part No. 543481-1



Miniature Applicator Frame Assembly
Part No. 91295-1
Equipped with Cover Closing Kit
Part No. 543508-1

Note: AMP Manual Miniature Applicator Frame Assembly, Cover Closing Kit, and Staple Insertion Kit each must be ordered separately by part number.



Seatings Bars

Table Number 3

No. of Pos.	Seating Bar Part No.
26	543494-2
40	543494-3
50	543494-1
68	543502-2
100	543502-1

Note: All Tooling must be ordered separately by part number.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Cable Receptacle Connectors, Series III

Shielded Receptacles



Shielded Receptacle with Assembled Termination Covers

Materials:

Housing and Covers—

Thermoplastic, 94V-0 rated, black

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, tin on termination end, all underplated nickel

Shell—Steel, plated bright tin over copper

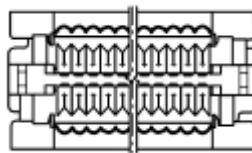
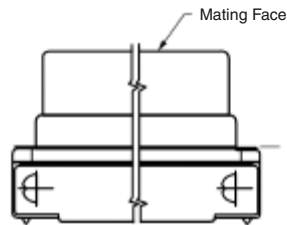
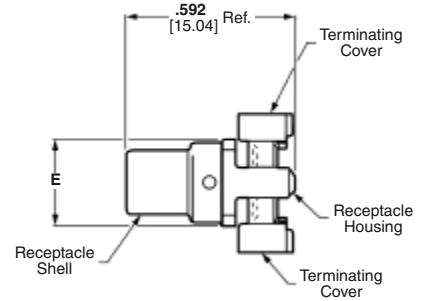
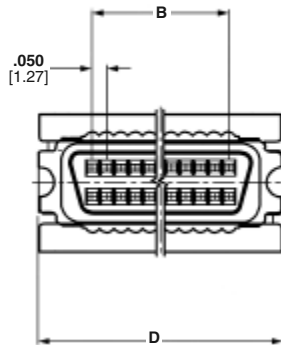
Recommended wire size—

28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter.

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029



No. of Pos.	Dimensions			Part Numbers	
	B	D	E	Connectors With Standard Termination Covers	
				Assembled Covers	Unassembled Covers
40	.950 24.13	1.329 33.76	.293 7.44	—	—
50	1.200 30.48	1.579 40.11	.293 7.44	5749210-5	5749699-5
68	1.650 41.91	2.029 51.54	.293 7.44	5749210-7	5749699-7
100	2.450 62.23	2.829 71.86	.373 9.47	—	5749699-8

- Notes:**
1. Receptacle connector requires backshell kit for complete assembly. Refer to pages 16-19 for backshell kit part numbers.
 2. For termination, cover closing and wire lacing tooling, see page 14.
 3. For Termination Tooling other than Wire Lacing see pages 28 & 29.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Shielded Backshell Kits, With Jackscrews, Series III



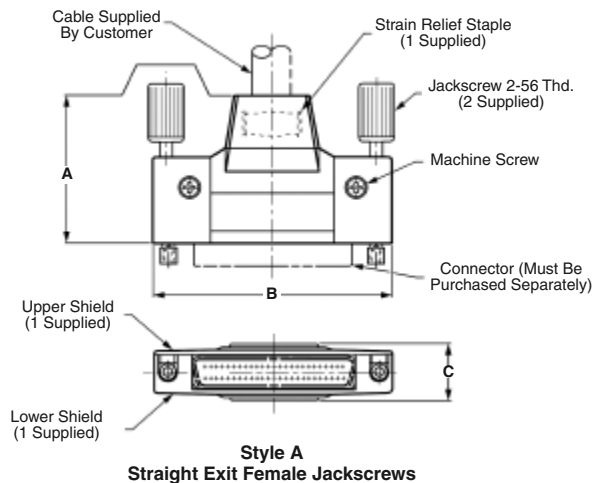
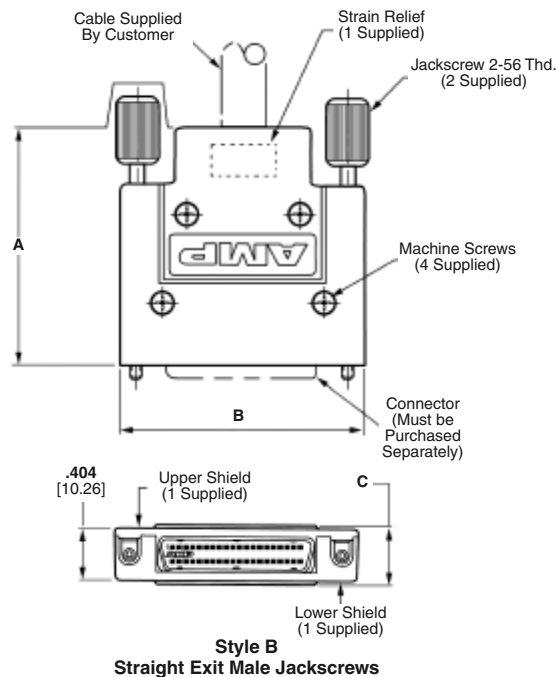
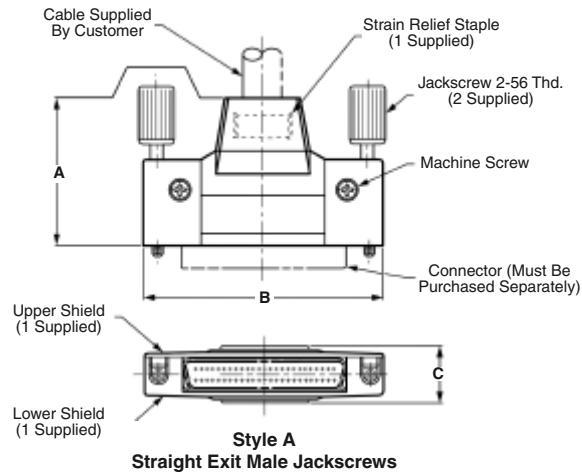
**Straight Exit
Male Jackscrews
Style A**



**Straight Exit
Male Jackscrews
Style B**



**Straight Exit
Female Jackscrews
Style A**



Materials:

Jackscrews—Stainless steel or steel, black electroless nickel plated

Jackscrew Caps—Polyolefin or PVC, black

2-56 Screws—Stainless steel

Backshell—Zinc, plated nickel over copper

Strain Relief Staple—Steel, plated tin over nickel

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Instruction Sheet—408-9427

AMPLIMITE .050 Series Shielded Backshell Kits, With Jackscrews, Series III (Continued)

No. of Pos.	Style	Dimensions			Pkg.	Max. O.D.	Male with #2-56 Threads	Female with #2-56 Threads
		A	B	C				
40	B	1.822	1.830	.456	Bulk	.450 11.43	5787543-1	5787543-7
		46.25	46.48	11.58	Bulk	.400 10.16	5787543-2	5787543-8
					Bulk	.350 8.89	5787543-3	5787543-9
50	A	1.270	2.085	.480	Individual	.400 10.16	5749080-1	—
		32.26	52.96	12.19	Bulk	.400 10.16	5749080-2	—
68	B	1.887	2.645	.660	Bulk	.550 13.97	5750752-3	—
		47.93	67.18	16.76	Individual	.550 13.97	5786152-3	—
100	A	1.822	2.525	.564	Individual	.500 12.70	5749854-1	—
		46.28	64.14	14.33	Individual	.500 12.70	5749854-1	—
		2.082	3.325	.615	Individual	.500 12.70	5749854-1	—
		52.88	84.46	15.62	Individual	.500 12.70	5749854-1	—
		1.695	3.325	.595	Individual	.500 12.70	5749854-1	—
		43.05	84.46	15.11	Individual	.500 12.70	5749854-1	—

Notes: 1. Each backshell kit includes upper and lower backshells, two male or female jackscrews, one strain relief staple and two or four #2-56 screws. All are packaged unassembled.
2. For Staple Insertion Tooling see page 29.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Shielded Backshell Kits, With Spring Latches, Series III



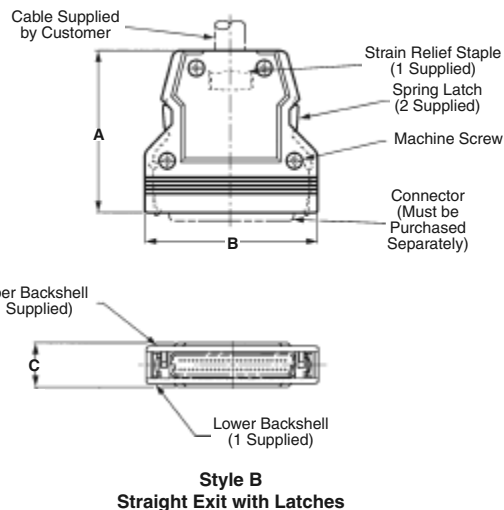
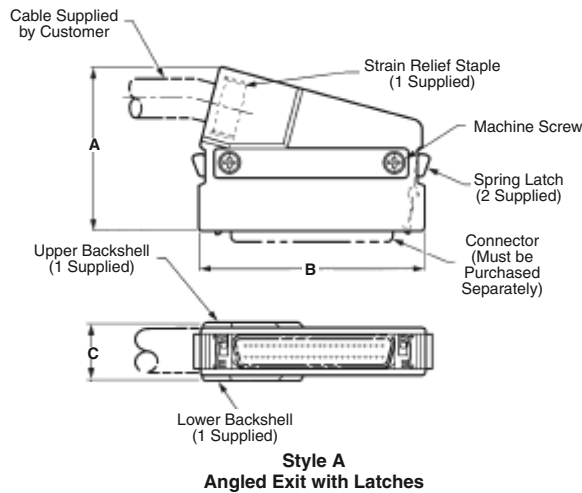
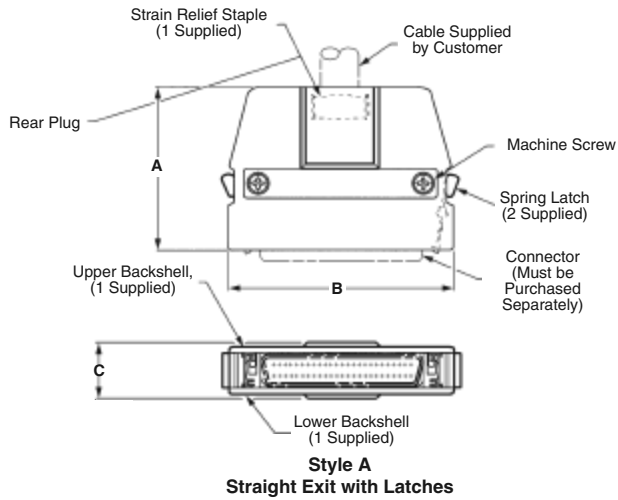
**Style A
Straight Exit
with Latches**



**Style A
Angled Exit
with Latches**



**Style B
Straight Exit
with Latches**



Materials:

Backshell—Zinc, plated nickel over copper

Spring Latch—Stainless steel

2-56 Screws—Stainless steel

Strain Relief Staple—Steel, plated tin over nickel

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Instruction Sheet—408-9427

Note: Extra pin contact protection is provided by rails on the receptacle, which facilitate a straight-out unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.

AMPLIMITE .050 Series Shielded Backshell Kits, With Spring Latches, Series III (Continued)

No. of Pos.	Style	Dimensions			Pkg.	Max. O.D.	Straight Exit with Latches	Angled Exit with Latches
		A	B	C				
20	A	1.290 32.77	1.215 30.86	.400 10.16	Individual	.270 6.86	5749190-1	5749199-1
26	A	1.290 32.77	1.365 34.67	.400 10.16	Individual	.270 6.86	—	5749609-1
	B	1.290 32.77	1.335 33.91	.400 10.16	Individual	.270 6.86	749608-2	—
40	A	1.290 32.77	1.715 43.56	.400 10.16	Individual	.320 8.13	—	5749201-1
						.320 8.13	5749192-1	—
50	A	1.395 35.43	1.965 49.91	.480 12.19	Individual	.400 10.16	—	5749202-2
					Bulk	.400 10.16	5749202-3	—
					Individual	.355 9.02	5749193-1	—
	B	1.800 45.72	1.965 49.91	.492 12.50	Individual	.400 10.16	5749193-2	—
					Bulk	.480 12.19	5749889-3	—
					Individual	.480 12.18	5749889-4	—
68	A	1.405 35.69	2.415 61.34	.520 13.21	Individual	.400 10.16	—	5749204-1
						.440 11.18	5749195-2	5749204-2
80	A	1.600 40.64	2.715 68.96	.565 14.35	Individual	.420 10.67	—	5749205-1
						.500 12.70	749196-2	—
100	A	1.725 43.82	3.215 81.66	.615 15.62	Individual	.500 12.70	5749197-1	5749206-1
120	A	1.725 43.82	3.715 94.36	.665 16.89	Individual	.550 13.97	5749198-1	5749207-1

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Shielded Enclosure Kits, With Male Jackscrews, Series III

68-Position

Material and Finish:

Backshells—Zinc

Boot—PVC, black

Jackscrews—Stainless steel and PVC, black

Staple—Carbon steel, plated tin over nickel

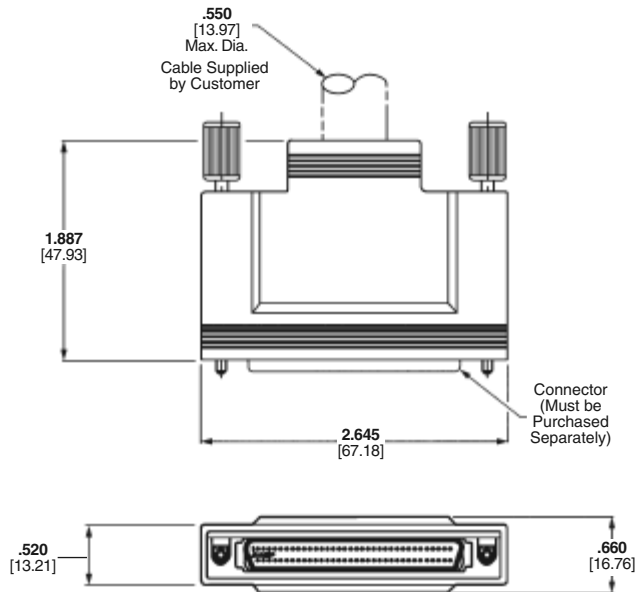
Screws—Stainless steel, #2-56 threads



Technical Documents:

Product Specifications—108-1228

Application Specifications—
114-40029



No. of Pos.	Part Number	
	Male 2-56 Jackscrews	Male 4-40 Jackscrews
68	5750752-1	5750752-2

- Notes:**
1. Each enclosure kit contains two backshells, one boot, two jackscrews, one staple and two screws. All are packaged unassembled.
 2. For staple insertion tooling see page 29.
 3. Meets SCSI-3 standards.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Panel Mount Receptacle Assemblies Without Rails, With Latch Blocks, Series III



Materials:

Housing and Termination Covers—Thermoplastic, 94V-0 rated, black

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

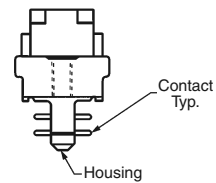
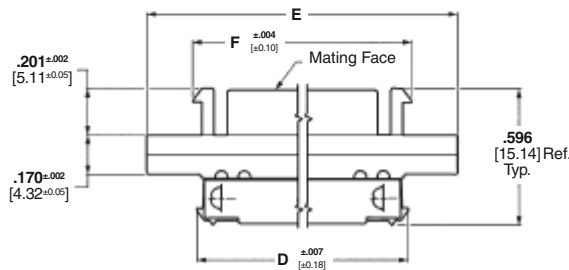
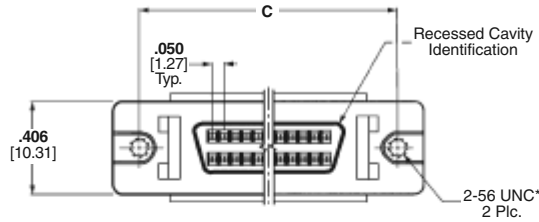
Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, bright tin in termination area, all nickel underplated

Recommended wire size—28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter or .050 [1.27] centerline, 28 AWG [0.08-0.09mm²] stranded, PVC, flat ribbon cable.

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029



Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

No. of Pos.	Dimensions				Part Numbers		
	C	D	E	F	Connectors With Assembled Standard Termination Covers	Connectors With Unassembled Wire Lacing Termination Covers	
						.032-.036 [0.81-0.91] Outer Wire Dia.	.029-.031 [0.74-0.79] Outer Wire Dia.
50	1.830 46.48	1.629 41.38	2.065 52.45	1.665 42.29	1-749656-1	5-786862-5	6-786862-5
50	1.830 46.48	1.629 41.38	2.065 52.45	1.665 42.29	5-750640-1*	5-786865-5*	—
68	2.280 57.91	2.079 52.81	2.515 63.88	2.115 53.72	1-749656-2	—	—
120	3.580 90.93	3.379 85.83	3.815 96.90	3.415 86.74	6-749656-0	—	—

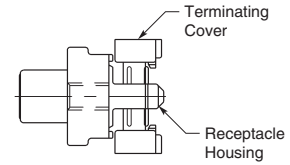
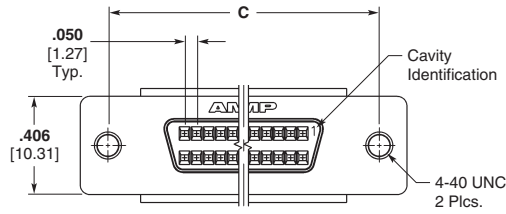
*Part Numbers 5-750640-1 and 5-786865-5 have 4-40 threaded holes. All others have 2-56 threaded holes.

Note: For termination, cover closing and wire lacing tooling, see page 14.
For termination tooling other than wire lacing see pages 28 & 29.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Panel Mount Flat Top Receptacle Assemblies Without Rails and Latch Blocks, Series III

AMPLIMITE .050 Series Connectors, Series III



Materials:

Housing and Termination Covers—

Thermoplastic, 94V-0 rated, black

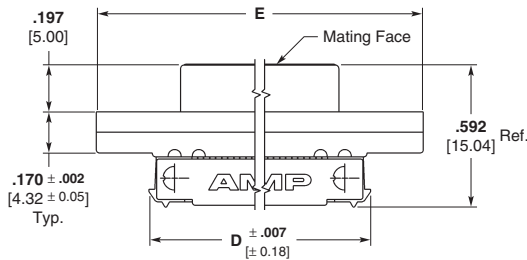
Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin on solder end; all nickel underplated

Recommended wire size—

28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter or .050 [1.27] centerline, 28 AWG [0.08-0.09mm²] stranded, PVC, flat ribbon cable



Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Pos. No. of	Dimensions			Part Numbers
	C	D	E	Connectors With Assembled Standard Termination Covers
50	1.830 46.48	1.629 41.38	2.065 52.45	5-749877-5
68	2.280 57.91	2.079 52.81	2.515 63.88	5-749877-7
100	3.080 78.23	2.879 73.13	3.315 84.20	5-749877-9

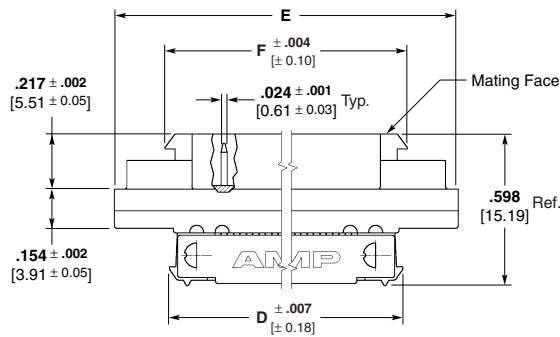
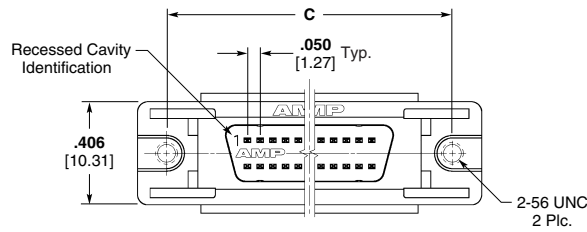
Note: For termination, cover closing and wire lacing tooling, see page 14. For termination tooling other than wire lacing see pages 28 & 29.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Panel Mount Plug Assemblies With Rails, Latch Blocks, Series III



Plug



Materials:

Housing and Termination Covers—

Thermoplastic, 94V-0 rated, black

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, bright tin in termination area, all nickel underplated

Recommended wire size—

28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter or .050 [1.27] centerline, 28 AWG [0.08-0.09mm²] stranded, PVC, flat ribbon cable.

Technical Documents:

Product Specifications—108-1228

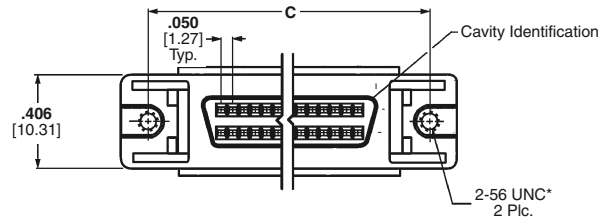
Application Specifications—114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out, unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.

No. of Positions	Dimensions				Part Numbers
	C	D	E	F	
50	1.830 46.48	1.629 41.38	2.065 52.45	1.665 42.29	5-749878-5
68	2.280 57.91	2.079 52.81	2.515 63.88	2.115 53.72	5-749878-7
100	3.080 78.23	2.879 73.13	3.315 84.20	2.915 74.04	5-749878-9

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Panel Mount Plug Assemblies With Rails, Latch Blocks, Series III (Continued)



Materials:

Housing and Termination Covers—

Thermoplastic, 94V-0 rated, black

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, bright tin in termination area, all nickel underplated

Recommended wire size—

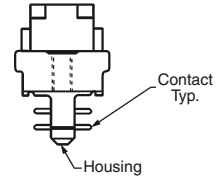
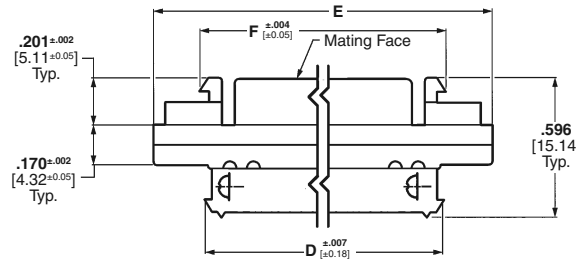
28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter or .050 [1.27] centerline, 28 AWG [0.08-0.09mm²] stranded, PVC, flat ribbon cable.

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out, unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

No. of Pos.	Dimensions				Part Numbers
	C	D	E	F	Connectors With Assembled Standard Termination Covers
20	1.080 27.43	.879 22.33	1.315 33.40	.915 23.24	5-749611-2
26	1.230 31.24	1.029 26.14	1.465 37.21	1.065 27.05	5-749611-1
50	1.830 46.48	1.629 41.38	2.065 52.45	1.665 42.29	5-749611-5
50	1.830 46.48	1.629 41.38	2.065 52.45	1.665 42.29	5-750450-1*
100	3.080 78.23	2.879 73.13	3.315 84.20	2.915 74.04	5-749611-9

*Part Number 750450-1 has 4-40 threaded holes. All others have 2-56 threaded holes.

Note: For termination, cover closing and wire lacing tooling, see page 14.
For termination tooling other than wire lacing see pages 28 & 29.

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Plug Assemblies Unshielded for .025 [0.64] Centerline Ribbon Cable, Series III

Plug Assembly



Materials:

Housing and Termination Covers—Thermoplastic, 94V-0 rated, black

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, bright tin on termination end, all over nickel underplating

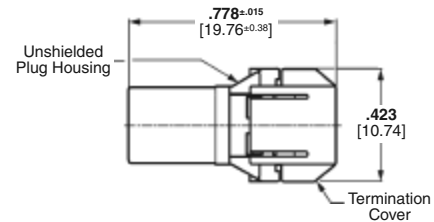
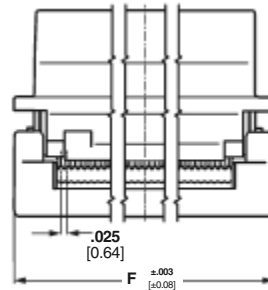
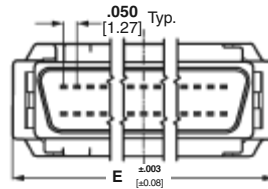
Recommended wire size— .025 [0.64] centerline, 30 AWG [0.05mm²] solid or 7 strand, PVC, flat ribbon cable.

Note: Cable must be approved by TE Engineering.

Technical Documents for 5786090-7 only:

Product Specifications—108-1359

Application Specifications—114-40049



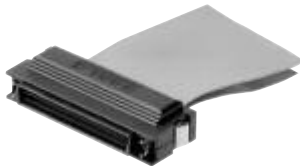
No. of Pos.	Dimensions		Part No.
	E	F	
50	1.578 40.07	1.578 40.07	5390377-5 ¹
68	2.029 51.54	2.023 51.30	5786090-7

Note: Termination Tooling: Manual Arbor Press Part No. 91085-2 or Pneumatic Press Part No. 91112-3, Universal Base Tool Part No. 768338-4, and Connector Specific Kit Part No. 679235-2. Refer to page 29.

¹ Accepts 32 AWG Flat Ribbon Cable. Selection of compatible ribbon cable is the responsibility of the user.

Note: Refer to TE Customer drawings and Application Spec for PCB & panel layouts.

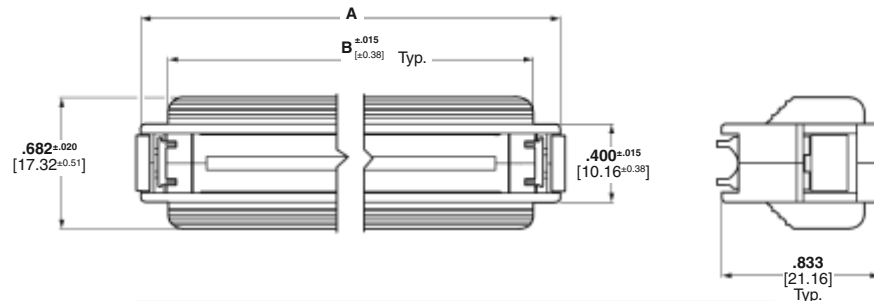
Backshell Kit for 5786090-7 .025 [0.64] Unshielded Plug



Materials:

Backshell—Thermoplastic, 94V-0 rated, black

Spring Latches—Stainless steel



No. of Pos.	Kit Part No.	Dimensions	
		A	B
68	787032-7	2.415 [61.34]	2.125 [53.48]

Strain Relief for 5786090-7 .025 [0.64] Unshielded Plug

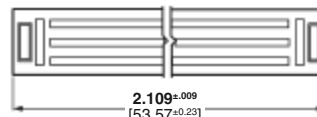
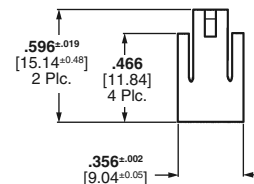
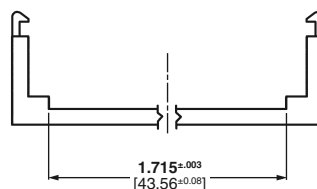
68-Position

Part No. 787043-7

Materials:

Thermoplastic, 94V-0 rated, black

Note: Pull tab Part No. 88450-8 can be used with this strain relief. Must be ordered separately.



Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Hardware and Dust Covers, Series III

Screwlock Kits

Materials:

Stainless steel (female)
Steel, zinc plated black (male)

Related Product Data:

Used with the following connectors:

Right-Angle Receptacle Header—page 7

Vertical Receptacle Header—pages 8-11

Panel Mount Plug and Receptacle Headers—pages 21 & 22

Technical Documents:

Product Specifications—108-1228

Application Specifications—114-40029



Male
Part No. 749086-1
(Includes two screwlocks)



Female
(Includes two screwlocks)

Dim. A	Dim. B	Individual Kits Part No.	Bulk Part No.
.562 14.27	.157 3.99	749087-1	—
.380 9.65	.157 3.99	749087-2 ¹	749087-3
.562 14.27	.165 4.19	749087-4	749087-8

¹ Recommended for right-angle board mount connectors.

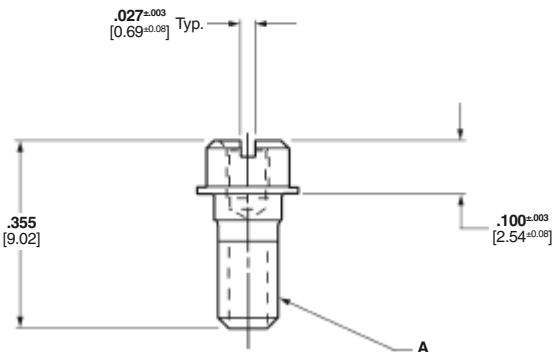
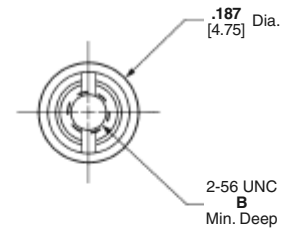
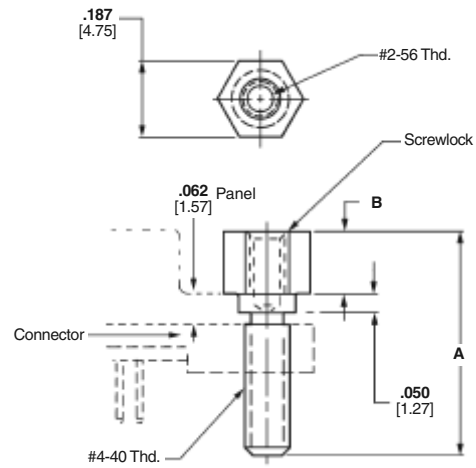
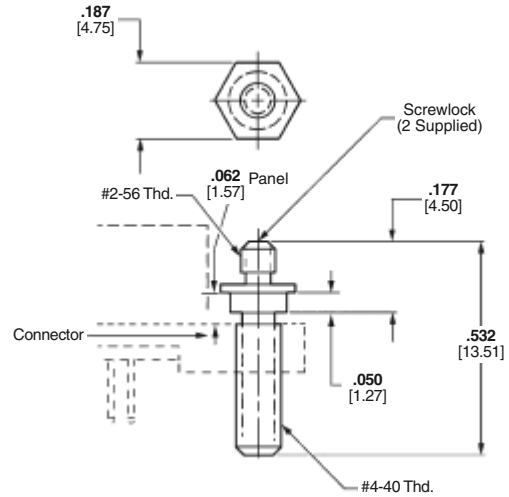


Female
(Includes two screwlocks)

Thread Size		Kits Part No.	Bulk Part No.
A	B		
4-40	.110 2.79	750644-1	—
2-56	.090 2.29	786585-2	786585-3

Recommended for pc board mount of panel mount connectors with latches or latches and rails. Permits cable connectors to be spring latch-type or jackscrew-type

Note: All part numbers are RoHS compliant.



AMPLIMITE .050 Series Performance Specifications and Technical Documents

Performance Specifications for Right-Angle, Vertical and .050 Centerline Cable Products

- Mating Cycles (Durability):** 500 max.
- Current Rating (30°C T-Rise):** 1A max., 50% energized
- Termination Resistance (Mated):** 25 milliohms max.
- Insulation Resistance:** 1000 megohms min.
- Dielectric Withstanding Voltage:** 500 VAC
- Header Processing Temperature:** +220°C max. for 3 minutes
- Temperature Range:** -55°C to 105°C

Performance Specifications for .025 [1.27] Centerline Ribbon Cable Product. Same as above except:

- Current Rating (30°C T-Rise):** 1A max. center four contacts energized (two from top row, two from bottom row)
- Termination Resistance (Mated):** 50 milliohms max.

Product Specifications:

- 108-1228 AMPLIMITE .050 Series Printed Circuit Board Mounted and Cable Applied
- 108-1359 AMPLIMITE .050 Series .025 [0.64] Centerline Connectors
- 108-1228 AMPLIMITE .050 Series Stacked Connectors
- 108-1228-2 AMPLIMITE .050 Series ACTION PIN Connectors
- 108-1228-3 AMPLIMITE .050 Series SBus Connectors

Application Specifications:

- 114-40029 AMPLIMITE .050 Series Printed Circuit Board Mounted and Cable Applied Connectors
- 114-40049 AMPLIMITE .050 Series .025 [0.64] Centerline Connectors

Instruction Sheets:

- 408-6923 AMP Manual Arbor Frame Assembly
- 408-6927 TE Design Recommendations for Printed Circuit Board Support Fixture
- 408-9200 AMP Single Wire Insertion Tool
- 408-9822 Wire Termination Tooling Kit for CHAMPOMATOR 2.5 Machine
- 408-9820 AMP Cover Closing and Staple Inserter Kits
- 408-9663 AMP Mass Insertion Tool
- 408-9750 AMP Cover Lacing Fixture
- 408-9757 AMP Tooling Assembly for ACTION PIN Receptacles
- 408-9817 AMP Manual Miniature Applicator Frame Assembly
- 408-9427 Round-to-Flat Cable Termination
- 408-9875 AMP Universal Base Tool for .025 [0.64] \mathcal{C} Connectors
- 408-9892 AMP Tool Kit for .025 [0.64] \mathcal{C} Connectors

Customer Manuals:

- 409-5839 CHAMPOMATOR 2.5 Machine
- 409-5791 Control Unit for CHAMPOMATOR 2.5 Machine

AMPLIMITE .050 Series Application Tooling, Series III

Discrete Wire Application Tooling

To meet medium to high volume production of discrete wire terminations, TE offers the following tooling:

The CHAMPOMATOR Model 2.5 Bench Terminating Machine—**Part No. 354786-1**, used in conjunction with Control Module—**Part No. 852423-□**, and Tie Bar—**Part No. 762637-□** (Table No. 1).



Control Module
Part No. 852423-1 120 VAC
852423-2 100 VAC
852423-3 230 VAC

CHAMPOMATOR 2.5 Machine Tool Kit
Part No. 354786-1

Note: The CHAMPOMATOR 2.5 Machine includes plug and receptacle nests, as well as wire setup gauge.

Table Number 1

Connector Size	Tie Bar Part No.
20 Pos.	762637-1
26 Pos.	1-762637-1
28 Pos.	1-762637-2
40 Pos.	762637-3
50 Pos.	762637-4
60 Pos.	762637-5
68 Pos.	762637-6
80 Pos.	762637-7
100 Pos.	762637-9
120 Pos.	1-762637-0

Discrete Wire Application Tooling

For low to medium volume production use the AMP Arbor Frame Assembly—**Part No. 58024-1** equipped with Applicator—**Part No. 91291-1** for .032-.035 [0.81-0.89] Conductor Insulation O.D. and Applicator—**Part No. 91291-2** for .029-.032 [0.74-0.81] Conductor Insulation O.D.

Note: AMP Arbor Frame Assembly and Applicator Kit must be ordered separately.



Arbor Frame
Part No. 58024-1
Equipped with
Applicator Part No. 91291-□

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Application Tooling, Series III (Continued)

**Cover Closing/
Termination Tooling**

**Manual Miniature Applicator
Frame Assembly—
Part No. 91295-1**

This Frame requires Cover Closing Kit—**Part No. 543508-1**

Cable Staple Tooling

To provide cable strain relief use Manual Miniature Applicator Frame Assembly—**Part No. 91295-1**. This Frame requires Staple Insertion Kit—**Part No. 543515-1** to install staples into lower backshells of connector kits and assemblies.



**Staple Insertion Kit
Part No. 543515-1
(For use with Miniature Applicator
Frame Assembly
Part No. 91295-1)**

**Miniature Applicator Frame Assembly
Part No. 91295-1
Equipped with Cover Closing Kit
Part No. 543508-1**

**AMPLIMITE .050 Series
Connector Application
Tooling for Use with Wire
Lacing Terminating Covers**

**Manual Arbor Frame
Assembly—Part No. 58024-1**

Equipped with Cover Lacing Assembly—**Part No. 91293-1 (Includes Seating Bars for 50 and 100 Positions)**. See Table 3 for Seating Bar Part Numbers.

Extra Lacing Stations available for use with Lacing Assembly—**Part No. 91293-1** Order Lower Tooling Assembly—**Part No. 543481-1**



**Arbor Frame, Part No. 58024-1
Equipped with
Cover Lacing Assembly, Part No. 91293-1**

Note: AMP Manual Miniature Applicator Frame Assembly, Cover Closing Kit, and Staple Insertion Kit each must be ordered separately by part number.



Seating Bars

Table Number 3

No. of Pos.	Seating Bar Part No.
26	543494-2
50	543494-1
68	543502-2
100	543502-1

Notes: All Tooling must be ordered separately by part number. Two seating bars required per tool assembly.

**Termination Tooling for
.025 [0.64] Centerline
Ribbon Cable**

Used with Manual Arbor Tool **Part No. 91085-2**, or Pneumatic Arbor Tool **Part No. 91112-3** and Universal Base Tool **Part No. 768338-4**.

No. of Pos.	Plug/Receptacle Upper Tooling Kit
50	679235-2
68	



**Lower Tooling Assembly
Part No. 543481-1**

Note: All part numbers are RoHS compliant.

Shielded AMPLIMITE .050 Series Slimline Connectors

Product Facts

- Compact design, profile for the right-angle header 1.230 x .588 [31.24 x 14.94], vertical header 1.230 x .433 [31.24 x 11.00], right-angle stacked headers 1.230 x .803 [31.24 x 20.40]
- Housings and covers made of UL 94V-0 rated thermoplastic
- Headers are compatible with surface mount reflow solder processes
- Header footprint for right-angle and stacked configurations is .100 x .050 [2.54 x 1.27] staggered centerlines
- Right-angle and stacked headers feature integral boardlocks for positive board retention and grounding
- Stacked headers reduce overall total header volume by 48% and PC board area by 38%
- Stacked headers offer optional contact shield for additional EMI/RFI protection
- Plugs preloaded with insulation displacement contacts (IDC) provide fast, reliable and economical terminations
- Aesthetically designed backshell kits feature easy-to-use finger grip jackscrews to secure mated connectors
- Listed and complies with UL 1863, Communication Circuit Accessories, File No. E81956
- Certified by Canadian Standards Association File No. 1088108 (LR 7189A-207)
- Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request



Shielded AMPLIMITE .050 Series, Slimline Connectors answer today's industry requirement for higher density in a smaller overall package. The present line consists of 26 position, shielded right-angle, 26 position right-angle stacked PCB receptacle header, and mating 26 position plug connectors. All header, plug and backshell housings are made of UL 94V-0 rated thermoplastic. PCB headers are compatible with surface mount reflow solder processes. Right-angle and stacked PCB headers feature contact footprints on .100 x .050 [2.54 x 1.27] staggered centerlines.

The compact design of the **right-angle header** package measures only 1.230 W x .588 D x .300 H [31.24 W x 14.94 D x 7.62 H] for maximum board real estate conservation. Right-angle PCB headers feature integral

boardlocks for positive board retention and grounding.

Right-angle stacked headers provide 52 contacts in a package only .635 [16.13] high, allowing parallel (board-over-board) board spacing of .800 [20.32]. Centerlines between the top connector and the bottom connector measure .335 [8.51] when compared to .400 [10.16] on the standard .050 Series stacked headers. This results in an over-all reduction of total header volume, in comparison to the standard AMPLIMITE .050 Series header, of 48%, and a comparative reduction in PC board area of 38%.

Stacked header board retention and stabilization is provided by two boardlocks and four grounding posts. In addition, an optional rear contact shield is available for additional EMI/RFI protection.

The mating plug connector consists of a thermoplastic housing, preloaded with insulation displacement contacts (IDC) for fast, reliable terminations that offer greater applied cost savings. TE offers a choice of termination equipment to meet your production requirements.

The backshell hardware kit includes a two-piece, aesthetically designed, thermoplastic cover over an inner and outer shield and two, high strength #2-56 male jackscrews with insulated heads (easy finger grip caps) to secure mated connectors.

The AMPLIMITE .050 Series, Slimline family of connectors offers **keyed coupling**. This feature eliminates the problem of mismatch mating of plug and receptacle, particularly in stacked applications.

Shielded AMPLIMITE .050 Series Slimline Connectors (Continued)

Right-Angle Header, Receptacle



Part No. 750823-1

Material and Finish

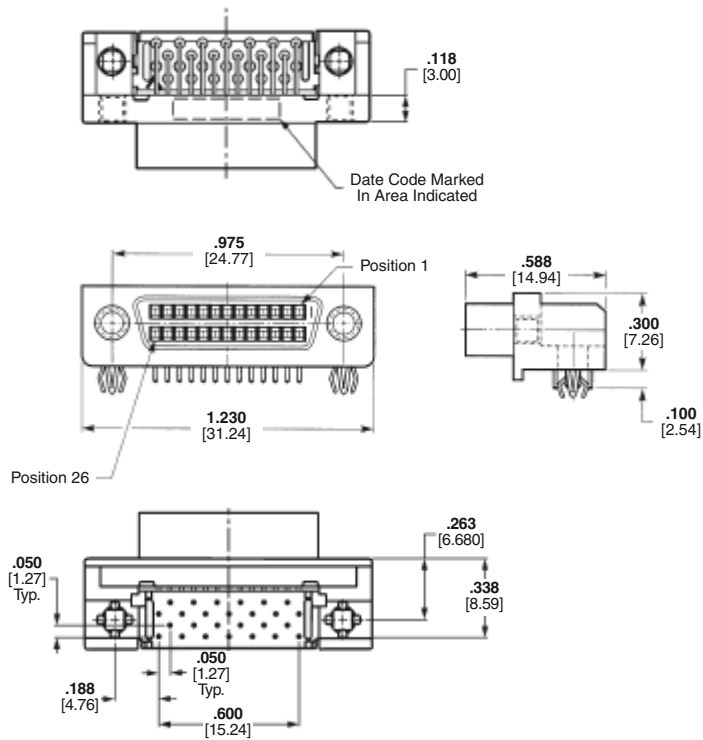
Housing—UL 94V-0 rated thermo-plastic, black

Bracket—Zinc, plated tin or tin over copper

Metal-Shell—Carbon steel, plated tin over copper

Boardlocks—Copper alloy, tin plated

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, tin plated on solder end, all over nickel



Notes:

1. Rear panel mounting only.
2. Female screwlocks to be used with connectors mounted to panels having a thickness of .047 [1.19].
3. **See Application Specification 114-40036 for the most up-to-date detailed panel cutout and recommended PC Board hole pattern.**
4. Female screwlocks are not included with receptacles and must be ordered separately. See page 33 for screwlock kit information.

Note: All part numbers are RoHS compliant.

Shielded AMPLIMITE .050 Series Slimline Connectors (Continued)

AMPLIMITE .050 Series Connectors, Series III

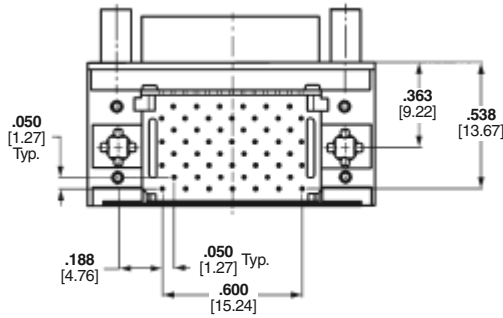
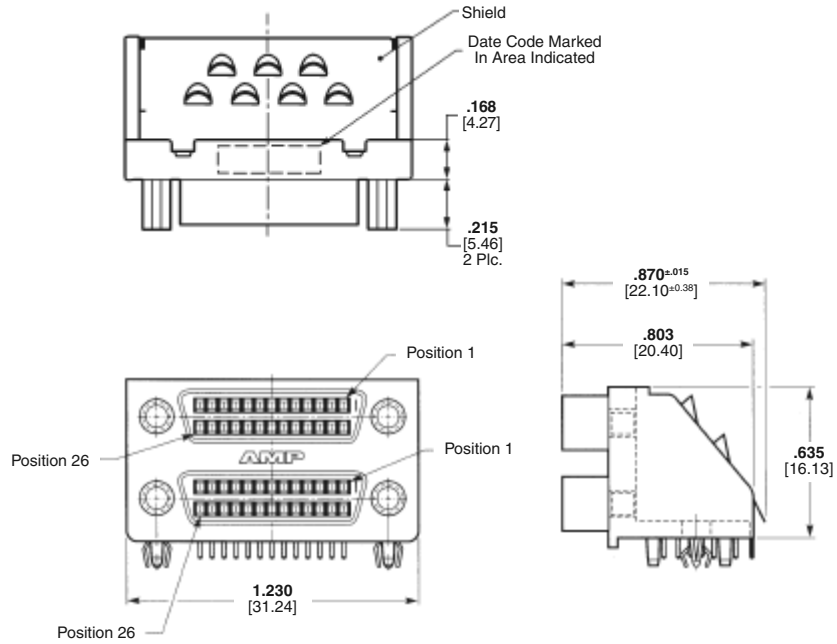
Shielded Right-Angle Stacked Header, Receptacle



With Shielding



Without Shielding



Shielded Header with Rear Contact Shield

Material and Finish:

- Housing**—UL 94V-0 rated thermo-plastic, black
- Bracket**—Zinc, plated tin over copper
- Metal-Shell**—Carbon steel, plated tin over copper
- Boardlocks**—Copper alloy, tin plated
- Contact Shield**—Phosphor bronze, plated tin
- Contacts**—Phosphor bronze, duplex plated .000030 [0.00076] min. on mating end, tin plated on solder end, all over nickel

No. of Positions	Part Numbers			
	Std. Rcpt. without Rear Contact Shield		Rcpt. with Rear Contact Shield ³	
	Keyed ¹	Unkeyed ²	Keyed ¹	Unkeyed ²
26/26	—	5786200-1	5750821-1	5750820-1

¹Lower header unkeyed with 4-40 threaded holes, upper header keyed in keying position 1. See page 33 for keying code.
²Both headers unkeyed with 4-40 threaded holes.
³Receptacle includes a metal contact shield for added RFI protection to the rear of the receptacle assembly.

Note: See Application Specification 114-40036 for the most up-to-date detailed panel cutout and recommended PC Board hole pattern.

Note: All part numbers are RoHS compliant.

Shielded AMPLIMITE .050 Series Slimline Connectors (Continued)

Cable Connector, Plug



Part No. 750833-1

Material and Finish:

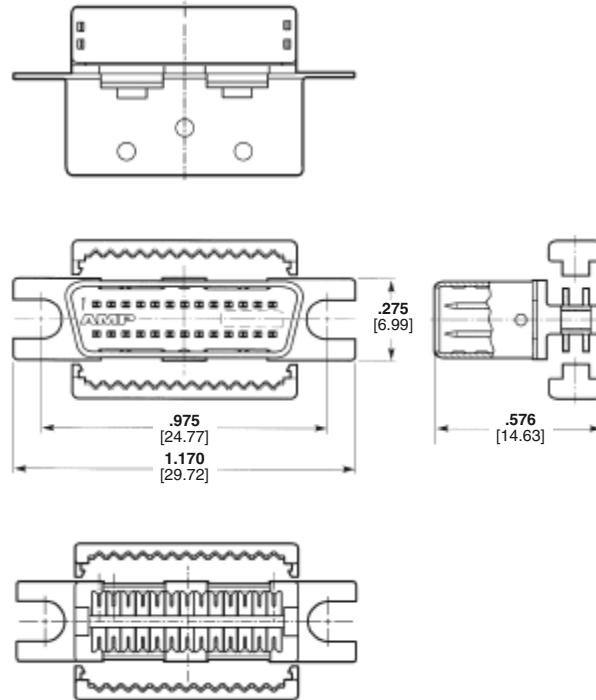
Housing and Termination Covers—UL 94V-0 rated thermoplastic, black

Shell—Steel, plated bright tin over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, bright tin on termination end, all underplated nickel

Bracket—Zinc, plated nickel over copper

Recommended Wire Size—28 AWG [0.08 mm²] with max. O.D. .032 [0.813]. PVC or polyolefin insulation.



Note: Cable Connectors must be used with Backshell Kits. See page 34.

Keying Code, Receptacle



Keying Code, Plug



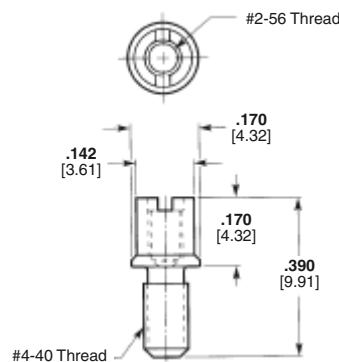
Position 1 (Up)

Accessories

Female Screwlock Kit

Material—Stainless Steel

Note: Female screwlocks to be used with connectors mounted to panels having a thickness of .047 [1.19]



Part No.	Packaging
750831-1	Individually Packed Kit (2 Screwlocks per kit)

*Minimum order is 510 kits.

Note: All part numbers are RoHS compliant.

Shielded AMPLIMITE .050 Series Slimline Connectors (Continued)

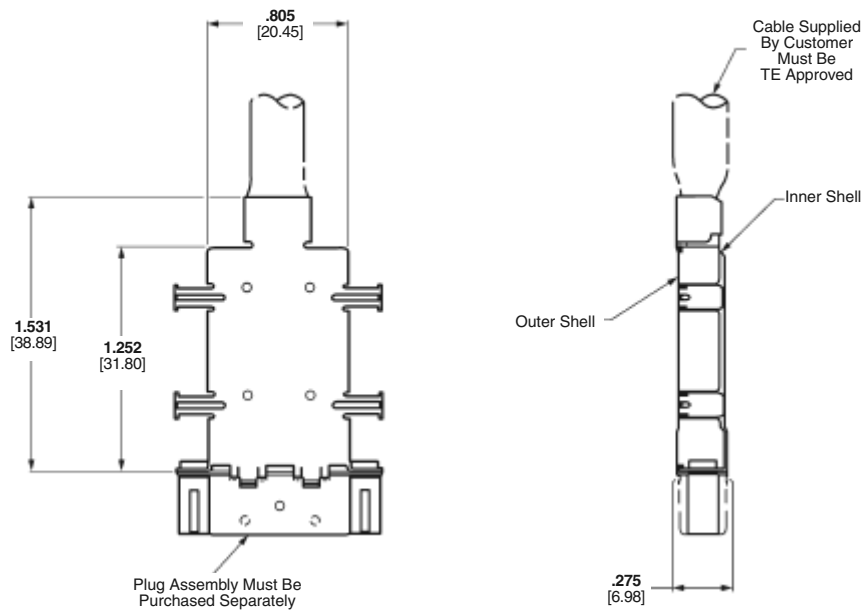
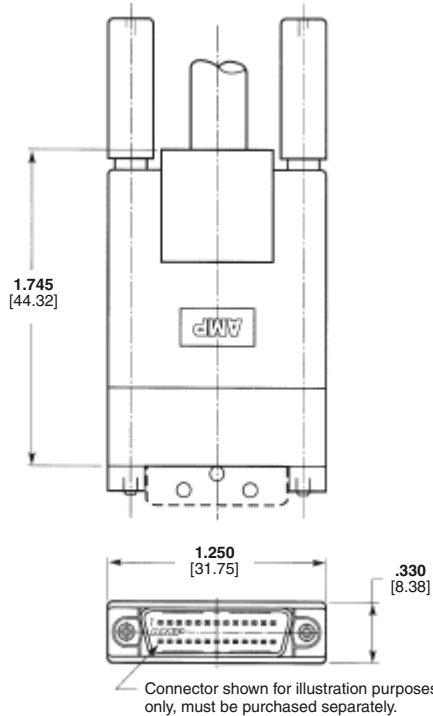
Backshell Kits



AMPLIMITE .050 Series Connectors, Series III

Material and Finish:

- Backshells**—Copper-nickel alloy
- Jackscrews**—Steel, plated tin over copper, handles covered with ABS, gray
- Keyed and Unkeyed Inserts**—Zinc, plated tin over copper
- Outside Covers**—ABS, gray



Backshell Kits

Unkeyed Kit Part No.	Cable Dia.	Packaging*
750850-1	.250-.280	Individually Packed Kit
750850-2	6.35-7.11	Bulk Packed Kit
750850-3	.280-.310	Individually Packed Kit

*Bulk packaging—100 kits per box.

Note: All part numbers are RoHS compliant.

Shielded AMPLIMITE .050 Series Slimline Connectors, Application Tooling

Discrete Wire Application Tooling

To meet medium to high volume production of discrete wire terminations, TE offers the following tooling:

The CHAMPOMATOR Model 2.5 Bench Terminating Machine—**Part No. 354786-1**, used in conjunction with Control Module—**Part No. 852423-□**, and Tie Bar—**Part No. 1-762637-3**.

Note: CHAMPOMATOR 2.5 Machine and Control Module must be ordered separately by part number.



Control Module
Part No. 852423-1 120 VAC
852423-2 100 VAC
852423-3 230 VAC

CHAMPOMATOR 2.5 Machine
Part No. 354786-1

26 Position Tie Bar
1-762637-3

Wire Setup Gauge

Wire Insulation Dia.		Part No.
in.	mm	
.026-.028	0.66-0.71	763382-3
.029-.031	0.74-0.79	763382-4
.032-.035	0.81-0.89	763382-5

Discrete Wire Application Tooling

For low to medium volume production use the TE Arbor Tool—**Part No. 58024-1** equipped with Applicator—**Part No. 91291-1** and Special Locator—**Part No. 543506-1**.



Arbor Tool
Part No. 58024-1
Equipped with
Applicator Part No.
91291-1



Staple Insertion Kit
Part No. 543515-1
(For use with Miniature Applicator
Frame Assembly
Part No. 91295-1)

Cable-to-Shell Staple Tooling (For discrete wire jacketed cable only)

To meet medium to high volume production use TE Pneumatic Crimper—**Part No. 312522-3** equipped with Die Holder Assembly—**Part No. 58449-1** and Die—**Part No. 90437-1** to crimp outer backshells onto inner backshells of connector kits and assemblies.

For low volume use Manual Arbor Tool—**Part No. 91085-2**, equipped with Backshell Crimper Assembly Tool—**Part No. 856684-1**.



Pneumatic Bench Tool
No. 312522-3
(Requires Die Set Holder
No. 58449-1)



Miniature Applicator Frame Assembly
Part No. 91295-1
Equipped with Cover Closing Kit
Part No. 543508-1

Backshell Tooling and Cover Tooling

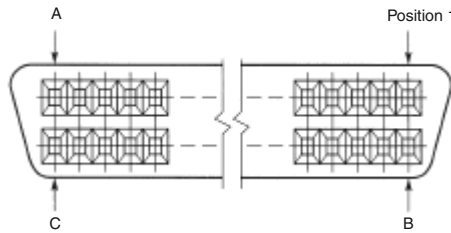
To assemble backshell into plastic housing use Manual Miniature Applicator Frame Assembly—**Part No. 91295-1** equipped with **Part No. 543521-1**. To assemble upper cover on lower cover use **Part No. 91295-1** equipped with **Part No. 543522-1**.

For tooling information call
Tooling Assistance Center
1-800-722-1111.

Note: All part numbers are RoHS compliant.

Shielded AMPLIMITE .050 Series Contact Arrangements, Performance Specifications, Technical Documents—Slimline Connectors

Contact Arrangements



Note: Mating face of receptacle is shown, plug is mirror image.

No. of Pos.	Position No.		
	A	B	C
26	13	14	26

Performance Specifications

Mating Cycles (Durability): 500 max.
Current Rating (30°C T-Rise): 1A max., 50% loading
Termination Resistance (Mated): 25 milliohms max.
Insulation Resistance: 1000 megohms min.
Dielectric Withstanding Voltage: 500 VAC
Header Processing Temperature: +220°C max. for 3 minutes
Temperature Range: -55°C to +105°C

Technical Documents

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-1366 Shielded AMPLIMITE .050 Series, Slimline Connectors

Application Specifications describe requirements for using the product in its intended application and/or termination information. They are intended for the Packaging and Design Engineer and the Setup person.

114-40036 Shielded AMPLIMITE .050 Series, Slimline Connectors

Instruction Sheets provide instructions for assembling or applying product. They are intended for Manufacturing Assembler or Operator.

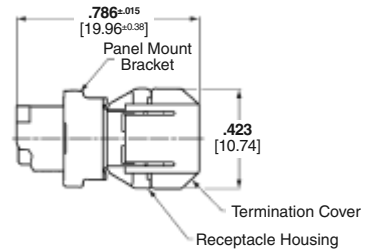
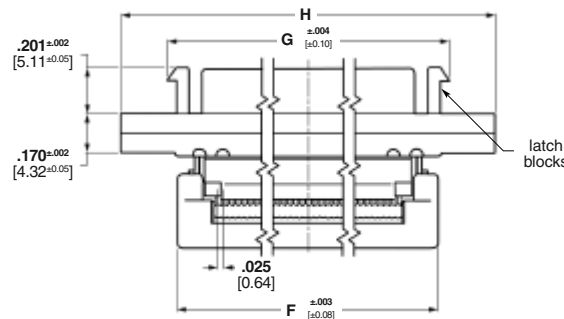
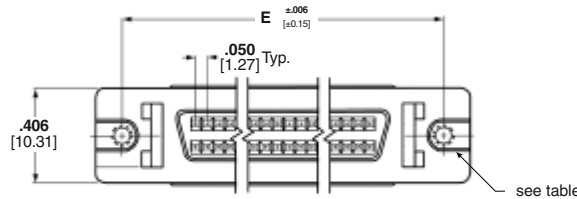
- 408-9663 Mass Insertion Tooling—**Part No. 91291-□**
- 408-6923 AMP Manual Arbor Frame—**Part No. 58024-1**
- 408-9701 Wire Termination Tooling Kit for CHAMPOMATOR 2.5 Machine—**Part No. 1-762661-4**
- 408-7777 AMP Manual Arbor Frame w/Slide—**Part No. 91085-2**
- 408-9746 Crimper Assembly—**Part No. 856684-1**
- 408-9200 Single Wire Insertion Tool—**Part No. 58430-1**
- 408-9721 Die Holder Assembly for Pneumatic Crimper—**Part No. 58449-□**
- 408-9788 Die Assembly—**Part No. 90437-1**
- 408-9898 Backshell and Cover Tooling Assemblies—**Part No. 543521-1** and **543522-1**

Customer Manuals provide information on TE termination equipment. They are intended for Manufacturing Assemblers or Operators.

- 409-5786 CHAMPOMATOR 2.5 Machine
- 409-5791 CHAMPOMATOR 2.5 Control Module—**Part No. 852423-□**
- 409-5822 Pneumatic Crimper—**Part No. 312522-3**
- 409-5843 Pneumatic Power Unit

Note: All part numbers are RoHS compliant.

AMPLIMITE .050 Series Panel Mount Receptacle Assemblies for .025 [0.64] Centerline Ribbon Cable, Series III



Materials:

Housing and Termination Covers—

Thermoplastic, 94V-0 rated, black

Shell—Steel, plated bright tin over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin on solder end; all nickel underplated

Recommended wire size—
 .025 [0.64] centerline, 30 AWG [0.05mm²] and 32 AWG [0.03mm²] solid or 7 strand, PVC, flat ribbon cable. Selection of compatible ribbon cable is the responsibility of the user.

Technical Documents:

See customer drawings for Product Performance criteria.

■ **Recognized under the Component Program of Underwriters Laboratories, Inc., File No. E28476**



■ **Certified by Canadian Standards Association, File No. LR 7189**



No. of Pos.	Dimensions				Gold Plating	Mating Hardware	Part No.
	E	F	G	H			
50	1.831 46.50	1.602 40.70	N/A	2.066 52.47	15μ	w/ 4-40 threaded holes	1-5390378-5
	1.831 46.50	1.602 40.70	N/A	2.066 52.47	30μ	w/ 4-40 threaded holes	5390378-5
	1.831 46.50	1.602 40.70	1.664 42.27	2.066 52.47	flash	w/ latch blocks and 4-40 threaded holes	2-5390399-5
	1.831 46.50	1.602 40.70	1.664 42.27	2.066 52.47	15μ	w/ latch blocks and 4-40 threaded holes	1-5390399-5
	1.831 46.50	1.602 40.70	1.664 42.27	2.066 52.47	30μ	w/ latch blocks and 4-40 threaded holes	5390399-5
	1.831 46.50	1.602 40.70	1.664 42.27	2.066 52.47	30μ	w/ latch blocks and 2-56 threaded holes	5390379-5
68	2.281 57.93	2.018 51.50	N/A	2.516 63.90	15μ	w/ 4-40 threaded holes	1-5390378-7
	2.281 57.93	2.018 51.50	N/A	2.516 63.90	30μ	w/ 4-40 threaded holes	5390378-7
	2.281 57.93	2.018 51.50	2.114 53.70	2.516 63.90	flash	w/ latch blocks and 4-40 threaded holes	2-5390399-7
	2.281 57.93	2.018 51.50	2.114 53.70	2.516 63.90	15μ	w/ latch blocks and 4-40 threaded holes	1-5390399-7
	2.281 57.93	2.018 51.50	2.114 53.70	2.516 63.90	30μ	w/ latch blocks and 4-40 threaded holes	5390399-7
	2.281 57.93	2.018 51.50	2.114 53.70	2.516 63.90	30μ	w/ latch blocks and 4-40 threaded holes	5390399-7

Note: Termination Tooling: Manual Arbor Press Part No. 91085-2 or Pneumatic Press Part No. 91112-3, Universal Base Tool Part No. 768338-4, and Connector Specific Kit Part No. 1490479-1.

Note: All part numbers are RoHS compliant.

Right-Angle Posted Connectors

Right-Angle Posted Connectors



Connector Density	Type	Style and Shell Finish	No. of Contact Positions	Footprint	Mating Hardware	Board Mounting	Contact Plating (Mating Area/Solder Tails)	Post Length	
HD-22	Plug and Receptacle	Front Metal-Shell, Tin Plated (Pg. 52)	15	.350 [8.89]	Threaded Inserts	Boardlocks	Duplex (0.000030 [0.00076] Gold/Tin)	.125 [3.18]	
			26		Female Screwlocks		Duplex (Gold Flash/Tin)		
			44		Standard Screws		Duplex (.000030 [0.00076] Gold/Tin)		
			62		Female Screwlocks		Duplex (Gold Flash/Tin)		
			78						
HD-20	Plugs and Receptacles	Full Metal-Shell With and Without Grounding Indents, Tin Plated (Pgs. 71, 139, 155)	9	.454 [11.53]	Standard Screws	.120 [3.05] Dia. Holes	Duplex (.000030 [0.00076] Gold/Tin)	.125 [3.18]	
			15		Female Screwlocks		Duplex (Gold Flash/Tin)		
			25				Duplex (Gold Flash/Tin)		
			37				Duplex (Gold Flash/Tin)		
			50				Duplex (Gold Flash/Tin)		
		Front Metal-Shell With Grounding Indents, Tin Plated (Pgs. 55-58, 60-63, 65-67, 131, 134, 138, 143, 150)	9	.318 [8.08]	.120 [3.05] Dia. Holes	.125 [3.18] Dia. Holes	Boardlocks	Duplex (.000030 [0.00076] Gold/Tin)	.125 [3.18]
			15		Threaded Inserts			Duplex (Gold Flash/Tin)	
			25		Female Screwlocks			Duplex (Gold Flash/Tin)	
			37		Female Screwlocks			Duplex (Gold Flash/Tin)	
					Female Screwlocks			Duplex (Gold Flash/Tin)	
All-Plastic (Pgs. 68-70, 132, 133, 135, 136)	9	.318 [8.08]	.120 [3.05] Dia. Holes	.125 [3.18] Dia. Holes	Boardlocks	Duplex (.000030 [0.00076] Gold/Tin)	.125 [3.18]		
	15		Threaded Inserts			Duplex (Gold Flash/Tin)			
	25		Threaded Inserts			Duplex (Gold Flash/Tin)			
	37		Female Screwlocks			Duplex (Gold Flash/Tin)			

Right-Angle Posted Connectors (Continued)

Product Facts:

- Flame retardant thermoplastic housing material, UL 94V-0 rated
- HD-20 right-angle connectors are available in 9, 15, 25 and 37 positions (Shell Sizes 1 thru 4) in both plug and receptacle versions; some versions available in 50 position, (Shell Size 5)
- HD-20 stacked connectors are available in 9/9, 15/15, 25/25, and 37/37 positions (Shell Sizes 1 thru 4) in receptacle over receptacle, plug over plug and combination versions
- HD-22 right-angle receptacle connectors are available in 15, 26, 44, 62 and 78 positions (Shell Sizes 1 thru 5)
- Low cost front metal-shell design compatible with full metal-shell connectors
- Integral boardlock versions secure posted connectors to pc boards prior to soldering

- HD-20 and HD-22 connector contacts are available in plating types to satisfy different applications
- HD-22 right-angle posted connectors are designed for high temperature applications
- Integral fixed 4-40 threaded inserts and screwlocks are available in both HD-20 and HD-22 connectors
- Connectors are intermate-able with any size 20 or 22 subminiature D connectors dimensionally complying with MIL-C-24308

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Right-Angle Posted Connectors

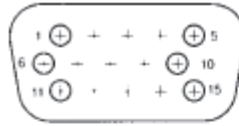
Right-Angle Stacked Connectors (Centerline-to-centerline height .750 [19.05])

Connector Density	Type	Style and Shell Finish	No. of Contact Positions	Footprint	Mating Hardware	Board Mounting	Contact Plating (Mating Area/Solder Tails)	Post Length
HD-20	Receptacle over Receptacle							
	Plug over Plug	Front Metal-Shell, Tin Plated (Pgs. 144-149, 151)	9/9 15/15 25/25 37/37 (Std.)	See Customer Drawings	Threaded Inserts	.120 [3.05] Dia. Holes	Duplex (.000030 [0.00076] Gold/Tin) Gold/Tin (.000010 [0.00025] Gold/Tin)	.125 [3.18]
	Receptacle over Plug				Female Screwlocks	Boardlocks	Duplex (Gold Flash/Tin)	
	Plug over Receptacle							

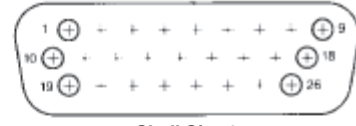
HD-22 and HD-20 Commercial Connectors (AMPLIMITE)

Contact Arrangements

HD-22 Inserts



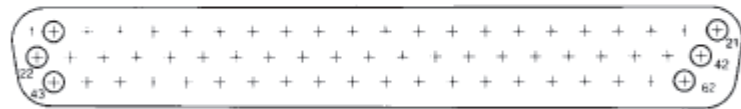
Shell Size 1
(15 Position)



Shell Size 2
(26 Position)



Shell Size 3
(44 Position)

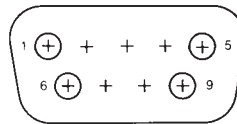


Shell Size 4
(62 Position)

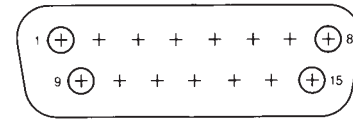


Shell Size 5
(78 Position)

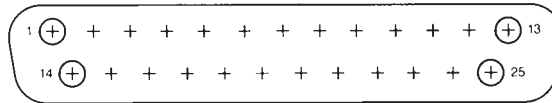
HD-20 Inserts



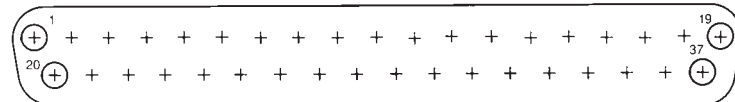
Shell Size 1
(9 Position)



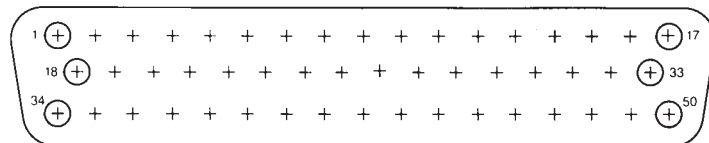
Shell Size 2
(15 Position)



Shell Size 3
(25 Position)



Shell Size 4
(37 Position)



Shell Size 5
(50 Position)

Note: Mating face of plug is shown, receptacle is mirror-image.

HD-22 and HD-20 Connectors Performance Characteristics

Cable Connectors

	Connector Type		
	HDP-22	HDE-20	HDP-20
Electrical Characteristics			
Contact Current Rating (One pair of contacts)	22 AWG [0.4mm ²] Wire 5.0 amperes	20 AWG [0.6mm ²] 3 amperes	20 AWG [0.6mm ²] 7.5 amperes
Termination Resistance	15 milliohms (max.)	30 milliohms (max.)	15 milliohms (max.)
Dielectric Withstanding Voltage	1000 VAC min.	1000 VAC min.	1000 VAC min.
Insulation Resistance	5000 megohms min.	5000 megohms min.	5000 megohms min.
Mechanical Characteristics			
Contact Insertion Force	3 lb. max. [13.34 N max.]	N/A	3 lb. max. [13.34 N max.]
Contact Retention	5 lb. min. [22.24 N min.]	7 lb. min. [31.14 N min.]	10 lb. min. [44.48 N min.]
Contact Mating Force (Per contact circuit pair)	8 oz. max. [2.22 N max.]	8 oz. max. [2.22 N max.]	8 oz. max. [2.22 N max.]
Contact Unmating Force (Per contact circuit pair)	.75 oz. min. [0.209 N min.]	.75 oz. min. [0.209 N min.]	.75 oz. min. [0.209 N min.]
Tensile Strength	22 AWG—12 lb. [0.4mm ² —53.4 N] 24 AWG—8 lb. [0.2mm ² —35.6 N] 26 AWG—4.5 lb. [0.15mm ² —20.02 N] 28 AWG—2.7 lb. [0.08mm ² —12.01 N]	20 AWG—9.5 lb. [0.6mm ² —42.3 N] 22 AWG—6 lb. [0.4mm ² —26.7 N] 24 AWG—4 lb. [0.2mm ² —17.79 N] 26 AWG—2.5 lb. [0.15mm ² —11.12 N] 28 AWG—2.5 lb. [0.08mm ² —11.12 N] 30 AWG—1 lb. [0.05mm ² —4.45 N]	20 AWG—20 lb. [0.6mm ² —89 N] 22 AWG—12 lb. [0.4mm ² —53.4 N] 24 AWG—8 lb. [0.2mm ² —35.6 N] 26 AWG—4.5 lb. [0.15mm ² —20.02 N] 28 AWG—2.7 lb. [0.08mm ² —12.01 N]
Durability	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles
Environmental Characteristics			
Vibration	Random 20 G's rms max.	Random 20 G's rms max.	Random 20 G's rms max.
Physical Shock	50 G's Duration 11 ms	50 G's Duration 11 ms	50 G's Duration 11 ms

Board Mount Connectors

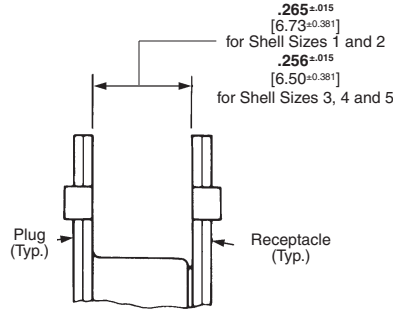
	Connector Type
	HD-20
Electrical Characteristics	
Single Contact Current Rating (30°C Rise) Duration 11 ms	18 AWG 6.0 amperes 24 AWG 4.3 amperes 28 AWG 2.9 amperes
Termination Resistance	15 milliohms* (max.)
Dielectric Withstanding Voltage	1000 VAC min.**
Insulation Resistance	5000 megohms min.

*Stacked Connectors—30 milliohms (max.)
**Stacked Connectors—500 VAC min.

	Connector Type		
	HD-20		
Mechanical Characteristics			
Durability	.000030 [0.00076] gold—500 cycles Gold Flash—100 cycles		
Connector Mating and Unmating Force (lbs. max. over [N max.])	Size	HD-20 Without Grounding Indents	HD-20 With Grounding Indents
	1	4.5 [20.02]	30.0 [133.5]
	2	7.5 [33.4]	33.0 [146.8]
	3	12.5 [55.6]	37.0 [164.6]
	4	18.5 [82.3]	40.0 [177.9]
5	25.0 [111.2]	44.0 [195.7]	

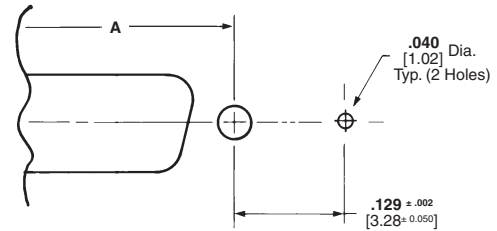
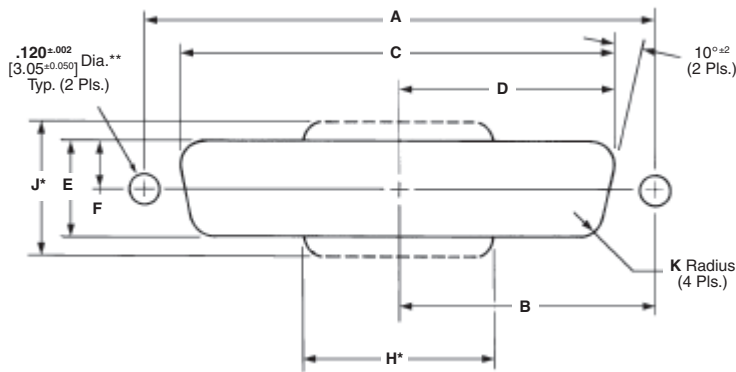
Plug/Receptacle Mating and Panel Mounting Specifications

Plug/Receptacle Mating



The .265 [6.73] dimension is required to assure full mating of connector halves. This dimension must be taken into consideration when determining the method of mounting, panel thickness, etc.

Panel Mounting



Cutout for Rear Mount and Short Latching Block

Note: Cutouts are for either plug or receptacle, front or rear panel mount.

Most plugs and receptacles can be mounted to a panel from either the front or rear, using a variety of accessory hardware. Posted receptacles are rear panel mounted only. Typical examples are shown below.

Shell Size (Pos.)	Mounting Method Front/Rear Panel	Dimensions								
		A	B	C	D	E	F	H*	J*	K
1 (9)	Front	.984 24.99	.492 12.50	.874 22.20	.437 11.10	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	.984 24.99	.492 12.50	.806 20.47	.403 10.24	.449 11.41	.225 5.72	.550 13.97	.750 19.05	.132 3.35
2 (15)	Front	1.312 33.33	.656 16.66	1.202 30.53	.601 15.27	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	1.312 33.33	.656 16.66	1.134 28.80	.567 14.40	.449 11.41	.225 5.72	.730 18.54	.750 19.05	.132 3.35
3 (25)	Front	1.852 47.04	.926 23.52	1.743 44.27	.872 22.15	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	1.852 47.04	.926 23.52	1.674 42.52	.837 21.26	.449 11.41	.225 5.72	1.275 32.39	.750 19.05	.132 3.35
4 (37)	Front	2.500 63.50	1.250 31.75	2.391 60.73	1.196 30.38	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	2.500 63.50	1.250 31.75	2.326 59.08	1.163 29.54	.449 11.41	.225 5.72	1.920 46.05	.750 16.13	.132 3.35
5 (50)	Front	2.406 61.11	1.203 30.56	2.297 58.34	1.149 29.19	.623 15.82	.312 7.93	—	—	.083 2.11
	Rear	2.406 61.11	1.203 30.56	2.218 56.34	1.109 28.17	.555 14.10	.278 7.06	1.753 44.52	.750 19.05	.132 3.35



Typical Front-Panel Mounted Subminiature D Plug





Typical Rear-Panel Mounted Subminiature D Receptacle

*Panel cutout configuration with H and J dimensions provides clearance for mounting connectors with cable clamps.
 **This dimension is .190^{+0.002} [4.83^{+0.05}] when posted connectors with fixed female screwlocks are rear-panel mounted.

AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors Hybrid and Mixed Styles

Product Facts

- Stacked pcb connectors save board real estate
- Wide choice of configurations available
- Front Metal-Shells for EMI/RFI shielding
- Housings made of UL 94V-0 rated thermoplastic
- Plug connectors have built-in grounding indents
- Choice of 4-40 threaded insert or female screwlock mating hardware
- Hybrid styles provide maximum selectivity and permit mixing of signal speeds
- Packaged in plastic trays for ease of handling
- Recognized under the Component Program of the Underwriters Laboratories, Inc.  File No. 28476
- Certified by Canadian Standards Association, File No. LR 7189 

See customer drawings for pcb layouts.



AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors are members of the complete line of AMPLIMITE Subminiature D Connector family which has been accepted by the electronic industry for their rugged design and ease of application.

Stacked connectors add the advantage of reducing overall board real estate normally consumed by individual pcb connectors. The versatility of the AMPLIMITE HD-20 line enables you to select the stacked connector best suited for your specific application.

AMPLIMITE HD-20 Stacked Connectors, Series II offer a high degree of performance and a reduced cost. The line consists of:

- Receptacle over Receptacle in 9/9, 15/15, 25/25 and 37/37 contact positions

- Plug over Plug in 9/9, 15/15, 25/25 and 37/37 contact positions
- Receptacle over Plug in 9/9, 15/15, 25/25 and 37/37 contact positions
- Plug over Receptacle in a total of 9/9, 15/15, 25/25 and 37/37 contact positions

Configurations are available with a choice of mounting hardware—4-40 threaded inserts and female screwlocks.

Hybrid and Mixed Styles

AMPLIMITE Hybrid and Mixed Stacked Connectors combine a variety of subminiature D connector configurations into a single connector. This permits mixing signal speeds with a substantial reduction in pc board real estate.

All AMPLIMITE Stacked and Mixed PCB Connectors fea-

ture front metal-shells for EMI/RFI shielding, with housings made of UL 94V-0 approved material. The series offers gold plating in 30µ", 10µ" and gold flash on the mating end and tin plating on the termination end, with the entire contact nickel underplated.

Due to the versatility of the AMPLIMITE Hybrid and Mixed lines of connectors any combination with an AMPLIMITE HD-20 Connector as the top connector, HD-22 High Density, and AMPLIMITE .050 Series as the bottom connector can be provided based on your application requirements. Contact TE for additional information.

AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors Hybrid and Mixed Styles (Continued)

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Shell—Steel, tin plated

Contacts:

Pins—Brass

Sockets—Phosphor bronze

Contact Plating:

A—Gold flash on mating end, tin on solder tails with overall nickel plating underneath

B—.000010 [0.00025] gold on mating end, tin on solder tails with overall nickel underplate

C—.000030 [0.00076] gold on mating end, tin on solder tails with overall nickel underplate

Boardlocks—Brass, tin plated

Female Screwlocks—Brass, nickel plated

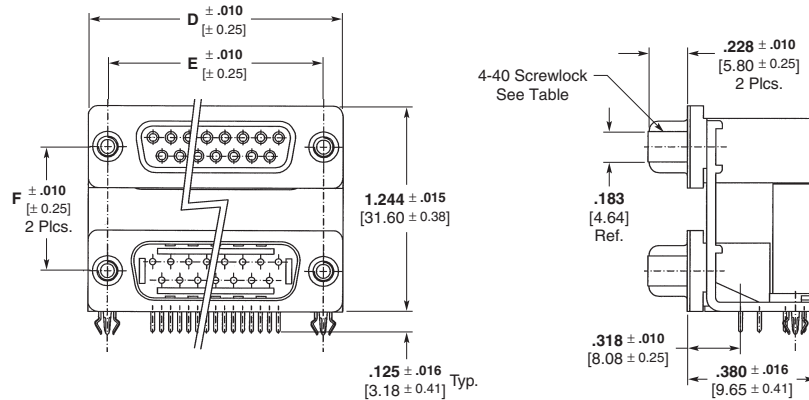
Threaded Inserts—Brass, tin plated

Brackets—Zinc

Technical Documents:

Product Specification
108-57517

See customer drawings for printed circuit board layouts.



Upper D-Sub	Lower D-Sub	Dimensions			Contact Finish	Mounting Hardware	Part Number
		D	E	F			
9p Plug / 9p Plug	A	1.22	.984	.750	A	4-40 inserts	1734279-1
		30.95	24.99	19.05	B	4-40 inserts	1734279-2
		1.22	.984	.750	C	4-40 inserts	1734279-3
	C	1.22	.984	.750	A	4-40 fem s/l	1734280-1
		30.95	24.99	19.05	C	4-40 fem s/l	1734280-3
		1.22	.984	.750	A	4-40 inserts	1734282-1
9p Plug / 9p Rcpt.	A	1.22	.984	.750	B	4-40 inserts	1734282-2
		30.95	24.99	19.05	C	4-40 inserts	1734282-3
		1.22	.984	.750	A	4-40 inserts	1734285-1
9p Rcpt. / 9p Rcpt.	A	1.22	.984	.750	B	4-40 inserts	1734285-2
		30.95	24.99	19.05	C	4-40 inserts	1734285-3
		1.22	.984	.750	A	4-40 fem s/l	1734286-1
9p Rcpt. / 9p Plug	A	1.22	.984	.750	B	4-40 fem s/l	1734286-2
		30.95	24.99	19.05	C	4-40 fem s/l	1734286-3
		1.22	.984	.750	A	4-40 inserts	1734207-1
15p Plug / 15p Plug	A	1.22	.984	.750	B	4-40 inserts	1734207-2
		30.95	24.99	19.05	C	4-40 inserts	1734207-3
		1.55	1.31	.750	A	4-40 inserts	1-1734279-1
15p Plug / 15p Rcpt.	A	1.55	1.31	.750	B	4-40 inserts	1-1734279-2
		39.30	33.30	19.05	C	4-40 inserts	1-1734279-3
		1.55	1.31	.750	A	4-40 inserts	1-1734282-1
15p Plug / 15p Rcpt.	A	1.55	1.31	.750	B	4-40 inserts	1-1734282-2
		39.30	33.30	19.05	C	4-40 inserts	1-1734282-3
		1.55	1.31	.750			

Continued on next page

Note: All part numbers are RoHS compliant.

AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors Hybrid and Mixed Styles

Upper D-Sub	Lower D-Sub	Dimensions			Contact Finish	Mounting Hardware	Part Number
		D	E	F			
15p Rcpt. / 15p Rcpt.		1.55	1.31	.750	A	4-40 inserts	1-1734285-1
		39.30	33.30	19.05			
		1.55	1.31	.750	B	4-40 inserts	1-1734285-2
		39.30	33.30	19.05			
		1.55	1.31	.750	C	4-40 inserts	1-1734285-3
		39.30	33.30	19.05			
1.55	1.31	.750	A	4-40 fem s/l	1-1734286-1		
39.30	33.30	19.05					
15p Rcpt. / 15p Plug		1.55	1.31	.750	B	4-40 fem s/l	1-1734286-2
		39.30	33.30	19.05			
		1.55	1.31	.750	C	4-40 fem s/l	1-1734286-3
		39.30	33.30	19.05			
		1.55	1.31	.750	A	4-40 inserts	1-1734207-1
		39.30	33.30	19.05			
1.55	1.31	.750	B	4-40 inserts	1-1734207-2		
39.30	33.30	19.05					
25p Plug / 25p Plug		1.55	1.31	.750	C	4-40 inserts	1-1734207-3
		39.30	33.30	19.05			
		2.09	1.85	.750	A	4-40 inserts	2-1734279-1
		53.10	47.04	19.05			
		2.09	1.85	.750	B	4-40 inserts	2-1734279-2
		53.10	47.04	19.05			
2.09	1.85	.750	C	4-40 inserts	2-1734279-3		
53.10	47.04	19.05					
25p Plug / 25p Rcpt.		2.09	1.85	.750	A	4-40 inserts	2-1734282-1
		53.10	47.04	19.05			
		2.09	1.85	.750	B	4-40 inserts	2-1734282-2
		53.10	47.04	19.05			
		2.09	1.85	.750	C	4-40 inserts	2-1734282-3
		53.10	47.04	19.05			
2.09	1.85	.750	A	4-40 inserts	2-1734285-1		
53.10	47.04	19.05					
25p Rcpt. / 25p Rcpt.		2.09	1.85	.750	B	4-40 inserts	2-1734285-2
		53.10	47.04	19.05			
		2.09	1.85	.750	C	4-40 inserts	2-1734285-3
		53.10	47.04	19.05			
		2.09	1.85	.750	A	4-40 fem s/l	2-1734286-1
		53.10	47.04	19.05			
2.09	1.85	.750	B	4-40 fem s/l	2-1734286-2		
53.10	47.04	19.05					
25p Rcpt. / 25p Plug		2.09	1.85	.750	C	4-40 fem s/l	2-1734286-3
		53.10	47.04	19.05			
		2.09	1.85	.750	A	4-40 inserts	2-1734207-1
		53.10	47.04	19.05			
		2.09	1.85	.750	B	4-40 inserts	2-1734207-2
		53.10	47.04	19.05			
2.09	1.85	.750	C	4-40 inserts	2-1734207-3		
53.10	47.04	19.05					
37p Plug / 37p Plug		2.73	2.500	.750	A	4-40 inserts	3-1734279-1
		69.34	63.50	19.05			
		2.73	2.500	.750	B	4-40 inserts	3-1734279-2
		69.34	63.50	19.05			
		2.73	2.500	.750	C	4-40 inserts	3-1734279-3
		69.34	63.50	19.05			
2.73	2.500	.750	A	4-40 inserts	3-1734282-1		
69.34	63.50	19.05					
37p Plug / 37p Rcpt.		2.73	2.500	.750	B	4-40 inserts	3-1734282-2
		69.34	63.50	19.05			
		2.73	2.500	.750	C	4-40 inserts	3-1734282-3
		69.34	63.50	19.05			

Continued on next page

Note: All part numbers are RoHS compliant.

AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors
Hybrid and Mixed Styles (Continued)

Upper D-Sub	Lower D-Sub	Dimensions			Contact Finish	Mounting Hardware	Part Number
		D	E	F			
37p Rcpt. / 37p Rcpt.		2.73 69.34	2.500 63.50	.750 19.05	A	4-40 inserts	3-1734285-1
		2.73 69.34	2.500 63.50	.750 19.05	B	4-40 inserts	3-1734285-2
		2.73 69.34	2.500 63.50	.750 19.05	C	4-40 inserts	3-1734285-3
		2.73 69.34	2.500 63.50	.750 19.05	A	4-40 fem s/l	3-1734286-1
		2.73 69.34	2.500 63.50	.750 19.05	B	4-40 fem s/l	3-1734286-2
		2.73 69.34	2.500 63.50	.750 19.05	C	4-40 fem s/l	3-1734286-3
37p Rcpt. / 37p Plug		2.73 69.34	2.500 63.50	.750 19.05	A	4-40 inserts	3-1734207-1
		2.73 69.34	2.500 63.50	.750 19.05	B	4-40 inserts	3-1734207-2
		2.73 69.34	2.500 63.50	.750 19.05	C	4-40 inserts	3-1734207-3

HD-20 Subminiature D Stacked PCB Connectors

Note: All part numbers are RoHS compliant.

AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors Hybrid and Mixed Styles

HD-20 Front Metal Shell, Right-Angle AMPLIMITE Connectors

Material and Finish:

Housings and Pin Spacer—94V-0 rated thermoplastic, black

Contacts:

Sockets—Phosphor bronze or brass

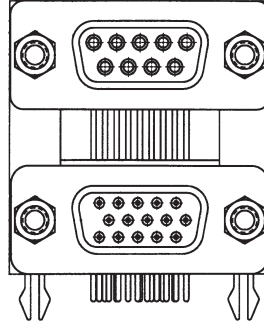
Contact Plating—

Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Shell—Steel, tin plated

Boardlocks—Copper alloy, plated tin

Bracket—Steel



9 Position HD-20 Receptacle over
15 Position HD-22 Receptacle
Part No. 1734870-1 (without Female Screwlocks)
Part No. 1-1734870-1 (as shown, with Female Screwlocks)

Note: All part numbers are RoHS compliant.

AMPLIMITE HD-20 Subminiature D Stacked PCB Connectors Hybrid and Mixed Styles (Continued)

HD-20 Front Metal Shell, Right-Angle Connectors

Material and Finish:

Housing—94V-0 rated PBT, see table

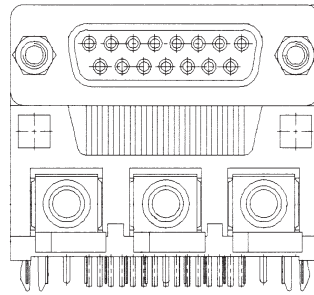
Contacts—Phosphor bronze or brass

HD22 Receptacle

Contact Plating—

Gold flash on contact area, tin on solder tail area, all over nickel underplated

Audio Jack—.000100 [.00254] min. tin over nickel underplate



**15 Position HD-20 Receptacle
over 3 Position Audio Plug**

Description	Part Number	PC 99
With female screwlocks & color-coded audio ¹	1734287-2	—
With color-coded audio ¹	1-1734287-2	—
With color-coded audio ¹	—	1-1734287-3
With female screwlocks & back cover & color-coded audio ¹	—	2-1734287-3
With female screwlocks & color-coded audio ¹	—	3-1734287-3

¹ Color coded audio:
Audio line in — light blue
Audio line out — lime
Microphone — pink

HD-20 Subminiature D Stacked PCB Connectors

High-Rise Connectors

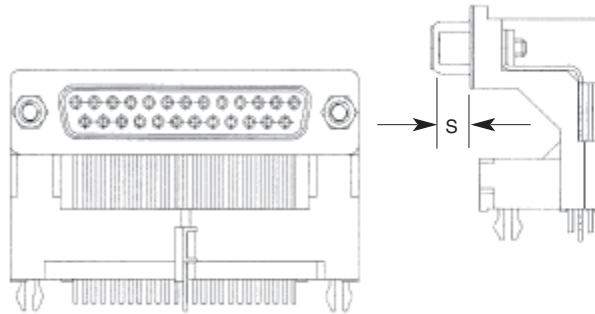
Material and Finish:

Housing—94V-0 rated thermoplastic, burgundy

Contacts—Phosphor bronze

Contact Plating:

A—.000010 [.000254] gold on mating area, tin on solder tails, all over nickel




**High-Rise 25 Position
HD-20 Receptacle**

Dimension S	Plating Code	Part Number	PC 99
.236 6.00	A	—	2-1734024-3

Note: All part numbers are RoHS compliant.

AMPLIMITE 2000 Subminiature D Connectors

Product Facts

- Flame retardant housings, rated up to 105°C
- Front metal-shell design
- Duplex plated gold flash or .000015 [0.00038] min. gold on mating end, tin on solder end, all over nickel underplate
- With boardlocks and 4-40 threads or female screwlocks
- Designed to Office Class II
- 9, 15 & 25 right-angle plugs and receptacles
- Recognized under the Component Program of the Underwriters Laboratories, Inc.  File No. E28476

See customer drawings for circuit board layout.



AMPLIMITE 2000

Subminiature D connectors represent the latest breakthrough in economical Subminiature D connector design.

Presently available in the more popular sizes — 9-, 15- and 25-receptacles and plugs with a .318 [8.08] printed circuit board footprint, the AMPLIMITE 2000 connector line features front metal-shell RFI/EMI protection, flame retardant housings with integral 4-40 threads, boardlocks, and duplex plated gold-over-nickel contacts.

AMPLIMITE 2000 Subminiature Connectors (Continued)

HD-20 Front Metal Shell Right-Angle Connectors

Material and Finish:
Housing—94V-0 rated thermoplastic, black

Shell—Steel, nickel plated

Contacts:

Pins—Brass

Sockets—Phosphor bronze

Contact Plating:

A—Gold flash on mating end, tin on solder tails with overall nickel underplate

B—.000015 [0.00038] gold on mating end, tin on solder tails with overall nickel underplate

Boardlocks—Brass, tin or tin plated

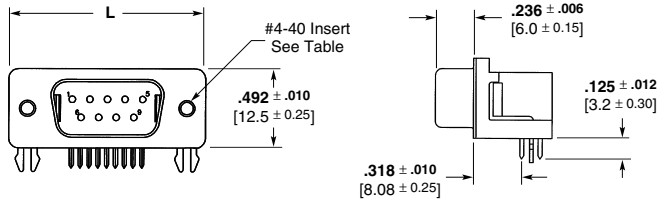
Female Screwlocks—Brass, nickel plated

Threaded Inserts—Brass, nickel plated

Technical Documents:

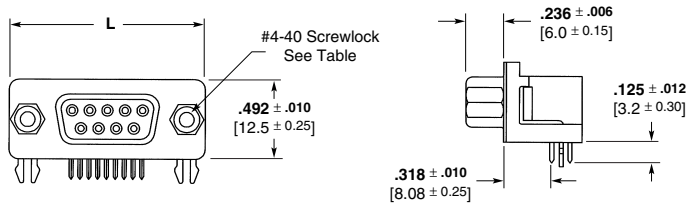
Product Specification

108-57541



Typical Plug

Shell Size	Contact Finish	Dimension L Ref.	With Female Screwlocks	With 4-40 Threaded Inserts
9	A	1.210	1734351-1	1734352-1
	B	30.80	1734351-2	1734352-2
15	A	1.540	—	1734360-1
	B	39.20	—	1734360-2
25	A	2.090	Pending Obs.	Pending Obs.
	B	53.10	Pending Obs.	Pending Obs.



Typical Receptacle

Shell Size	Contact Finish	Dimension L Ref.	With Female Screwlocks	With 4-40 Threaded Inserts
9	A	1.210	1734354-1	1734348-1
	B	30.80	1734354-2	1734348-2
15	A	1.540	1734357-1	1734355-1
	B	39.20	1734357-2	1734355-2
25	A	2.090	1734349-1	1734350-1
	B	53.10	1734349-2	1734350-2

Note: All part numbers are RoHS compliant.

HD-20 and HD-22 Slimline Connectors

2 Rows of Solderetails

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Shell—Low carbon steel, nickel plated

Contacts—Phosphor bronze or brass

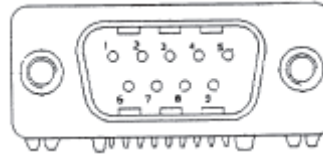
Contact Plating—Gold flash on mating area; .000100 [0.00254] min. tin on solder tail area; overall .000050 [0.00127] min. nickel underplate

Boardlocks—Brass, tin plated over nickel underplate

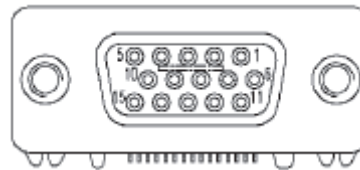
Threaded Inserts—Brass, nickel plated

Technical Documents:

Product Specification
108-57541



9 Position Plug
Part Number 1734340-1



15 Position VESA Receptacle HD-22
Part Number 1734341-1

1 Row of Solderetails

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Shell—Low carbon steel, nickel plated

Contacts—Brass

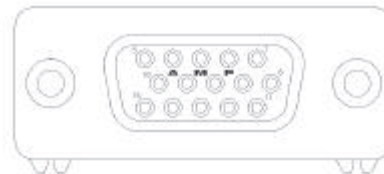
Contact Plating—.000015 [0.00038] min. gold on mating area; .000100 [0.00254] min. tin on solder tail area; overall .000050 [0.00127] min. nickel underplate

Boardlocks—Brass, tin plated over nickel underplate

Threaded Inserts—Brass, nickel plated

Technical Documents:

Product Specification
108-57541



15 Position VESA Receptacle HD-22
Part Number 1734335-1

Note: All part numbers are RoHS compliant.

HD-22 Right-Angle Posted Subminiature D Connectors

Product Facts

- Flame retardant thermoplastic housing material, UL94V-0 rated
- Low cost front metal shell design compatible with full metal-shell connectors
- Integral boardlock versions secure connectors to pc boards prior to soldering
- Contacts available in platings to satisfy different applications
- Integral threaded inserts and screwlocks available
- Recognized under the Component Program of Underwriters Laboratories, Inc., File No. E28476



HD-22 Front Metal Shell .350 [8.89] PCB Footprint



Plug



Receptacle

HD-22 Right-Angle Posted Subminiature D Connectors (Continued)

Material and Finish:

Housing—94V-0 rated thermoplastic, black

▲ VESA Std. 15-position Receptacle Housing Material—Thermoplastic 94V-0 blue per VESA Std.

Shell—Steel, nickel plated

Contacts

Pins—Brass

Sockets—Phosphor bronze

Contact Plating—

Gold flash, .000010 [0.00025] or .000030 [0.00076] on mating end, tin on solder tails with overall nickel underplate

Boardlocks—Brass, tin plated

Female Screwlocks—Brass, nickel plated

Threaded Inserts—Brass, nickel plated

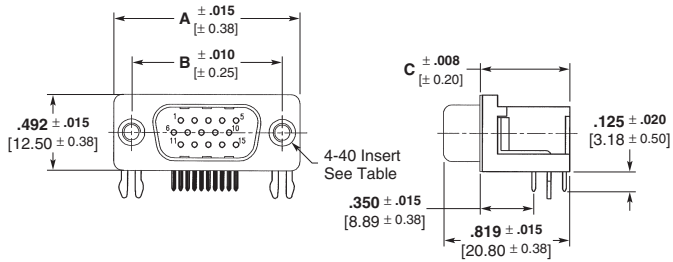
Technical Documents:

Product Specification—108-1092

Application Specification—114-13198

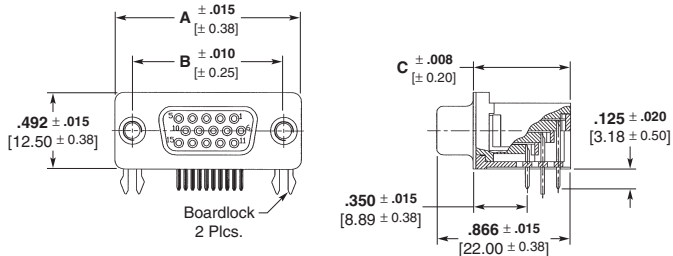
See customer drawings for printed circuit board layouts.

■ Recognized under the Component Program of Underwriters Laboratories, Inc., File No. E28476

Right-Angle Plug

No. of Contact Positions	Dimensions			Mounting Hardware	PCB Mounting Style	Part Numbers		
	A	B	C			Gold Flash	15µ" Gold	30µ" Gold
15	1.212	.984	.582	4-40 inserts	board locks	—	5749767-2	5749767-1
	30.81	24.99	14.80	4-40 screw locks	board locks	5749768-3	5749768-2	5749768-1
26	1.543	1.312	.583	4-40 inserts	board locks	5749769-3	5749769-2	5749769-1
	39.20	33.32	14.81	4-40 screw locks	board locks	5749771-3	5749771-2	5749771-1
44	2.089	1.852	.593	4-40 inserts	board locks	5749639-3	5749639-2	5749639-1
	53.05	47.04	15.06	4-40 screw locks	board locks	5749234-3	5749234-2	—
62	2.732	2.500	.593	4-40 inserts	board locks	5749234-3	5749234-2	—
	69.40	63.50	15.06	4-40 screw locks	board locks	5749234-3	5749234-2	—
78	2.638	2.400	.693	4-40 inserts	board locks	5749234-3	5749234-2	—
	67.00	61.00	17.60	4-40 screw locks	board locks	5749234-3	5749234-2	—



Right-Angle Receptacle

No. of Contact Positions	Dimensions			Mounting Hardware	PCB Mounting Style	Part Numbers		
	A	B	C			Gold Flash	15µ" Gold	30µ" Gold
15	1.212	.984	.630	4-40 inserts	board locks	1-1734530-1	1-1734530-2	1-1734530-3
	30.81	25.00	16.00	4-40 screw locks	board locks	1734530-1	1734530-2	1734530-3
▲ 15 VESA	1.212	.984	.630	4-40 inserts	board locks	1734344-1	—	2-1734344-3
	30.81	25.00	16.00	4-40 screw locks	board locks	Pending Obs.	Pending Obs.	Pending Obs.
26	1.543	1.311	.593	4-40 inserts	board locks	2-5748481-3	2-5748481-2	5748481-5
	39.20	44.32	15.06	4-40 screw locks	board locks	2-5748481-5	2-5748481-4	5748481-6
44	2.089	1.852	.583	4-40 inserts	board locks	2-5748482-4	2-5748482-3	5748482-5
	53.05	47.04	14.81	4-40 screw locks	board locks	—	2-5748482-5	—
62	2.732	2.500	.583	4-40 inserts	board locks	2-5748394-4	2-5748394-3	5748394-5
	69.40	63.50	14.81	4-40 screw locks	board locks	2-5748394-6	2-5748394-5	5748394-6
78	2.638	2.400	.693	4-40 inserts	board locks	2-5748483-1	2-5748483-0	5748483-5
	67.00	61.00	17.60	4-40 screw locks	board locks	—	2-5748483-2	5748483-6

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Right-Angle Posted Connectors 318 Mount

Post Size—.026 [0.66] Dia. Plug



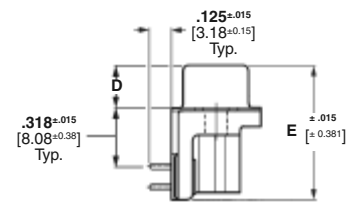
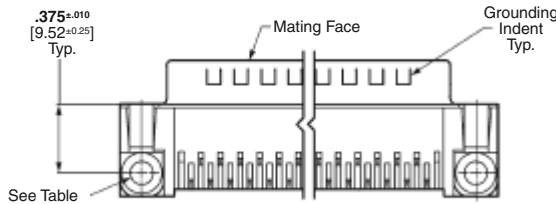
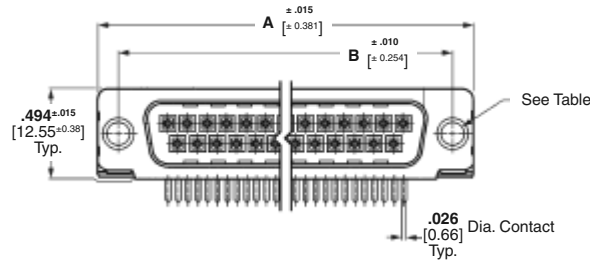
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Pin Contacts (Posted)**—Brass, duplex plated as follows:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010
- See customer drawings for printed circuit board layouts.

- **Recognized under the Component Program of Underwriters Laboratories, Inc., File No. E28476**
- **Certified by Canadian Standards Association, File No. LR 7189**



Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Plug Part Numbers					
							Without Boardlocks			With Boardlocks		
							With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	.235 5.97	.733 18.62	A	5747250-2	5747250-4	5747250-6	5747840-2	5747840-4	5747840-6
						B	—	5747250-3	—	5747840-3	5747840-5	
2	15	1.541 39.14	1.312 33.33	.235 5.97	.733 18.62	A	5747236-2	5747236-4	5747236-6	5747841-2	5747841-4	5747841-6
						B	—	5747236-4	—	5747841-3	—	
3	25	2.088 53.04	1.852 47.04	.230 5.84	.738 18.75	A	5747238-2	5747238-4	5747238-6	5747842-2	5747842-4	5747842-6
						B	5747238-2	5747238-3	—	5747842-3	5747842-5	
4	37	2.729 69.32	2.500 63.50	.230 5.84	.740 18.80	A	—	5747252-4	—	5747843-2	5747843-4	5747843-6
						B	—	—	—	5747843-3	—	

- Notes:**
- All plug connectors are preloaded with size 20 DF posted pin contacts.
 - Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Right-Angle Posted Connectors 318 Mount (Continued)

Post Size—.026 [0.66] Dia. Receptacle



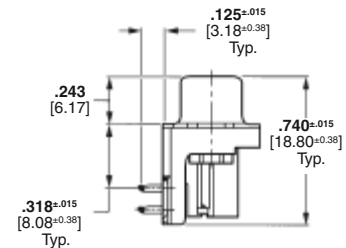
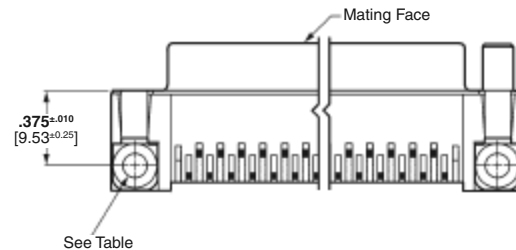
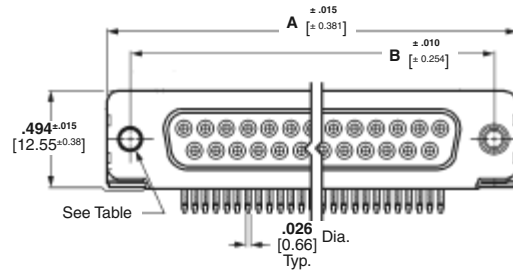
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Socket Contacts (Posted)**—Phosphor bronze, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Receptacle Part Numbers					
					Without Boardlocks			With Boardlocks		
					With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	A	5745781-2	5745781-4	5745781-6	5747844-2	5747844-4	5747844-6
				B	—	5745781-3	—	—	5747844-3	5747844-5
2	15	1.541 39.14	1.312 33.33	A	5745782-2	5745782-4	5745782-6	—	5747845-4	5747845-6
				B	—	—	—	—	5747845-3	5747845-5
3	25	2.088 53.04	1.852 47.04	A	5745783-2	5745783-4	5745783-6	5747846-2	5747846-4	5747846-6
				B	—	5745783-3	5745783-5	—	5747846-3	5747846-5
4	37	2.729 69.32	2.500 63.50	A	5745784-2	5745784-4	5745784-6	—	5747847-4	5747847-6

- Notes:**
- All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 - Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Right-Angle Posted Connectors 318 Mount (Continued)

Post Size—.026 [0.66] Dia.

Plug



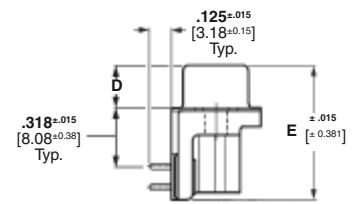
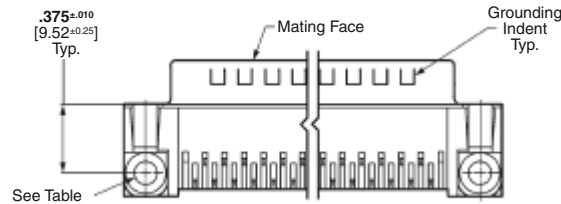
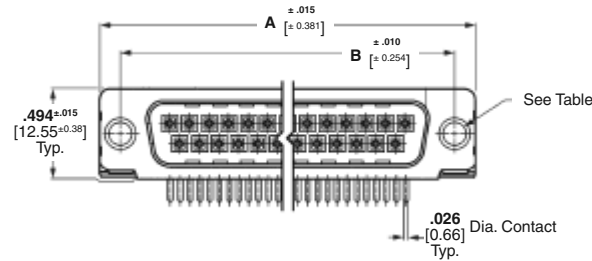
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, compatible with standard wave, vapor phase, and infra-red reflow (SMT) soldering, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Pin Contacts (Posted)**—Brass, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Plug Part Numbers With Boardlocks	
		A	B	D	E		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213	.984	.235	.733	A	5788792-1	5788793-1
		30.81	24.99	5.97	18.62	B	5788792-2	5788793-2
3	25	2.088	1.852	.230	.738	A	5788794-1	5788795-1
		53.04	47.04	5.84	18.75	B	5788794-2	—

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

.318 [8.08] Board Mount Footprint

HD-20 Front Metal-Shell Right-Angle Posted Connectors 318 Mount (Continued)

Post Size—.026 [0.66] Dia.

Receptacle



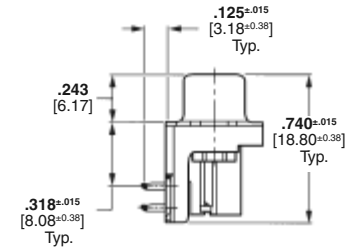
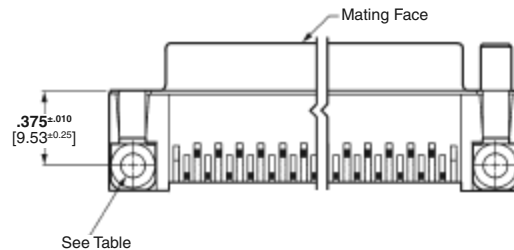
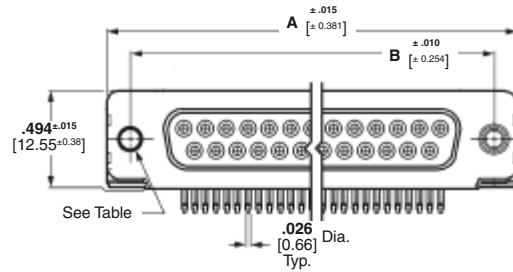
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, compatible with standard wave, vapor phase, and infra-red reflow (SMT) soldering, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Socket Contacts (Posted)**—Phosphor bronze, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

- Technical Documents:**
- Product Specification**—108-40025
- Application Specification**—114-40010

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Receptacle Part Numbers		
		A	B		Without Boardlocks		With Boardlocks
					With Fixed Female Screwlocks	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	A	5788803-1	5788796-1	5788797-1
				B	—	5788796-2	5788797-2
2	15	1.541 39.14	1.312 33.33	A	—	5788798-1	5788799-1
				B	—	5788798-1	—
3	25	2.088 53.04	1.852 47.04	A	—	5788800-1	5788801-1
				B	—	5788800-2	5788801-2
4	37	2.729 69.32	2.500 63.50	A	—	5788802-1	—

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Full Metal-Shell Right-Angle Posted Connectors 454 Mount

Post Size—.025 [0.64] Sq.

Receptacle



Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black

Contacts (Posted):

Pin—Brass
Socket—Phosphor bronze

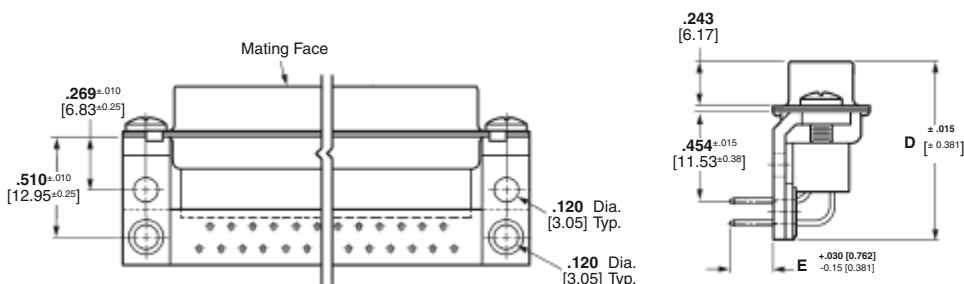
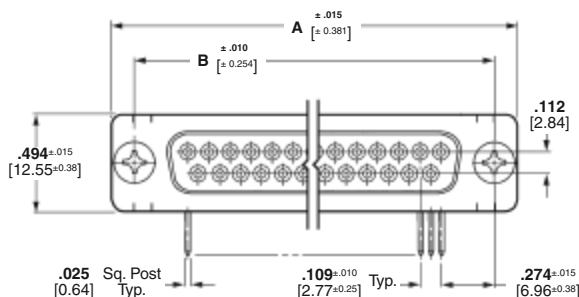
Contact Plating:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

Product Specification—108-40025
Application Specification—114-40013

See customer drawings for printed circuit board layouts.



Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Number
		A	B	D	E		
1	9	1.213 30.81	.984 24.99	.915 23.24	.125 3.18	A	5745438-4
					.220 5.59	B	5745438-3
2	15	1.541 39.14	1.312 33.33	.915 23.24	.125 3.18	A	5745439-4
					.220 5.59	A	5745439-2
3	25	2.088 53.04	1.852 47.04	.919 23.34	.125 3.18	A	5745440-4
					.220 5.59	B	5745440-1
4	37	2.729 69.32	2.500 63.50	.919 23.34	.125 3.18	A	5745441-4
					.220 5.59	B	—

- Notes:**
- All connectors are preloaded with size 20 DF posted contacts; plugs with pin contacts and receptacles with socket contacts.
 - .125 [3.18] post length is recommended for pc board thickness of .093 [2.36] max.; .220 [5.59] post length is recommended for pc board thickness of .125 [3.18] max.

Note: All part numbers are RoHS compliant.

HD-20 Full Metal-Shell Right-Angle Posted Connectors 454 Mount (Continued)

Post Size—.025 [0.64] Sq.

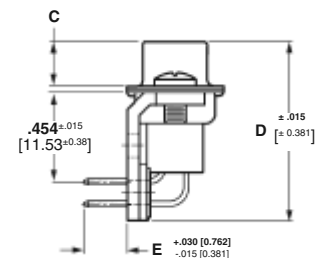
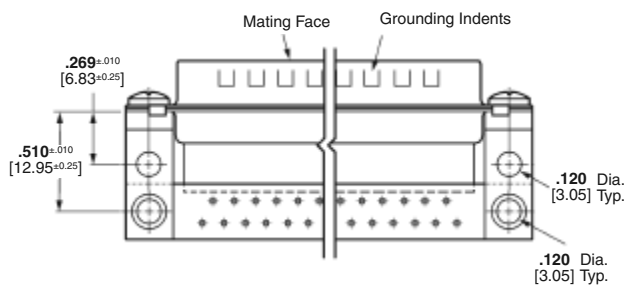
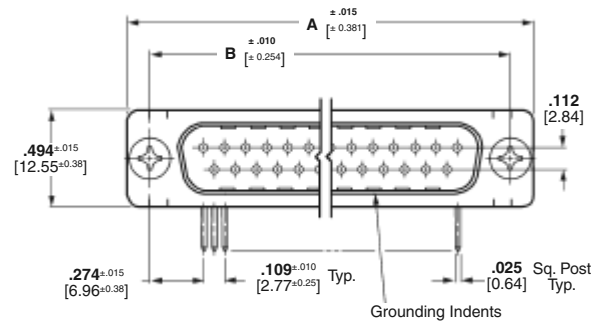
Plug



Without Grounding Indents



With Grounding Indents



Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black

Contacts (Posted):
Pin—Brass
Socket—Phosphor bronze

Contact Plating:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:
Product Specification—108-40025
Application Specification—114-40013

Shell Size	No. of Contact Positions	Dimensions					Contact Finish (Plating Code)	Part Numbers With Grounding Indents
		A	B	C	D	E		
1	9	1.213 30.81	.984 24.99	.235 5.97	.915 23.24	.125 3.18	A	5745434-8
						.220 5.59	B	—
2	15	1.541 39.14	1.312 33.33	.235 5.97	.915 23.24	.125 3.18	A	5745435-8
						.220 5.59	A	—
3	25	2.088 53.04	1.852 47.04	.230 5.84	.919 23.34	.125 3.18	A	—
						.220 5.59	B	5745436-3
4	37	2.729 69.32	2.500 63.50	.230 5.84	.919 23.34	.125 3.18	A	5745437-8
						.220 5.59	B	5745437-3

Notes: 1. All connectors are preloaded with size 20 DF posted contacts; plugs with pin contacts and receptacles with socket contacts.
 2. .125 [3.18] post length is recommended for pc board thickness of .093 [2.36] max.; .220 [5.59] post length is recommended for pc board thickness of .125 [3.18] max.

Note: All part numbers are RoHS compliant.

.454 [11.53] Board Mount Footprint

HD-20 Front Metal-Shell Right-Angle Posted Connectors 478 Mount

Post Size—.026 [0.66] Dia. Plug



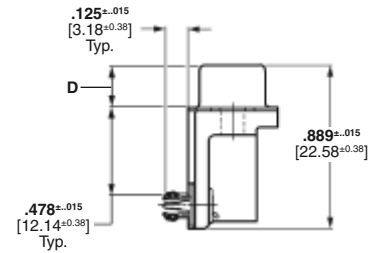
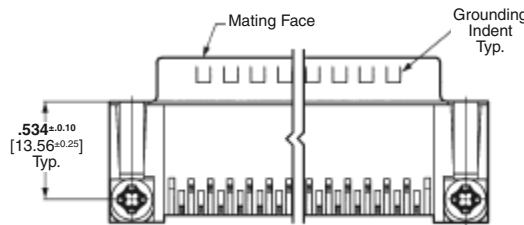
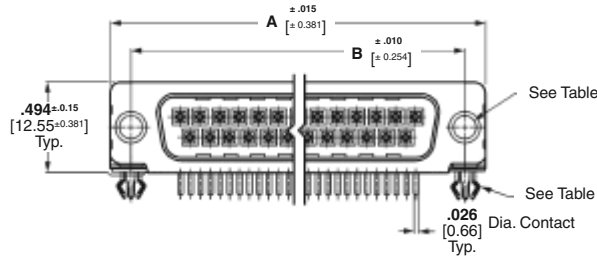
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Pin Contacts (Posted)**—Brass, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Plug Part Number With Boardlocks	
		A	B	D		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	.235 5.97	A	5747848-4	—
3	25	2.088 53.04	1.852 47.04	.230 5.84	A	—	5747850-6

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

.478 [12.14] Board Mount Footprint

HD-20 Front Metal-Shell Right-Angle Posted Connectors 478 Mount (Continued)

Post Size— .026 [0.66] Dia. Receptacle



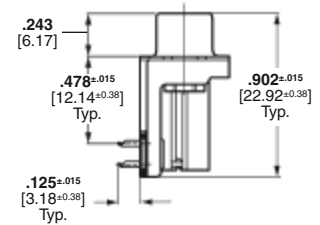
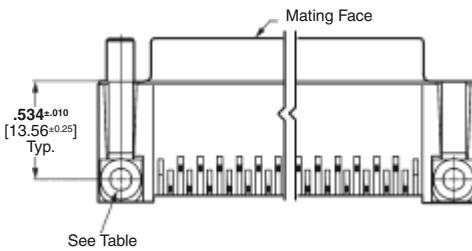
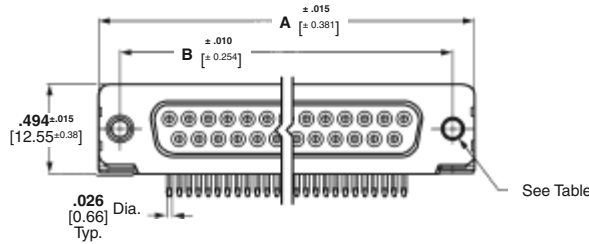
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Socket Contacts (Posted)**—Phosphor bronze, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Receptacle Part Numbers	
		A	B		Without Boardlocks	With Boardlocks
1	9	1.213 30.81	.984 24.99	A	5747418-4 With Threaded Inserts	5747852-4 With Threaded Inserts

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Full Metal-Shell Right-Angle Posted Connectors 545 Mount

Post Size—.025 [0.64] Sq.

Plug



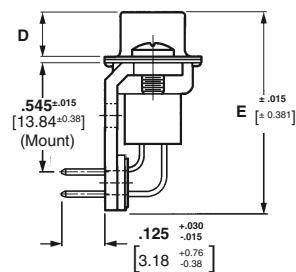
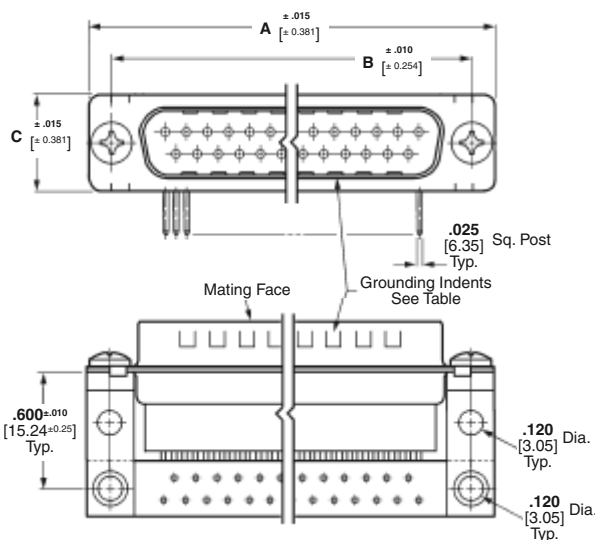
Without Grounding Indents



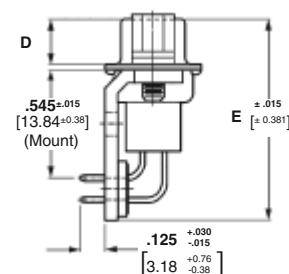
With Grounding Indents



With 4-40 Female Screwlocks



With Standard Mounting Screws



With 4-40 Female Screwlocks

Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Female Screwlock—Steel, zinc plated

Pin Contacts (Posted)—Brass, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

Product Specification—108-40025

Application Specification—114-40013

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Pos.	Dimensions					Contact Finish (Plating Code)	Plug Part Numbers		
		A	B	C	D	E		Without Grounding Indents	With Grounding Indents	
		With Standard Mounting Screws*	With Standard Mounting Screws	With Female Screwlocks						
1	9	1.213 30.81	.984 24.99	.494 12.55	.235 5.99	1.025 26.04	A	5745351-2	5745351-4	5747197-4
2	15	1.541 39.14	1.312 33.33	.494 12.55	.235 5.99	1.025 26.04	A B	— 5745352-1	5745352-4	—
3	25	2.088 53.04	1.852 47.04	.494 12.55	.230 5.84	1.029 26.14	A	—	—	5747022-2
4	37	2.729 69.32	2.500 63.50	.494 12.55	.230 5.84	1.029 26.14	A	—	5745354-4	—
5	50	2.635 66.93	2.406 61.11	.605 15.37	.230 5.84	1.149 29.19	A	—	5745355-4	5747497-4

*These plugs can be made available with female screwlocks, consult TE.

- Notes:**
- All plugs are preloaded with size 20 DF posted pin contacts.
 - Recommended pc board thickness is .093 [2.36] max.
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

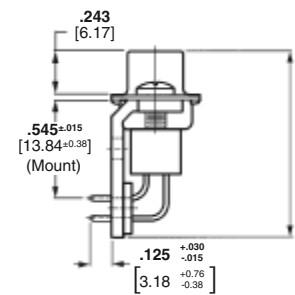
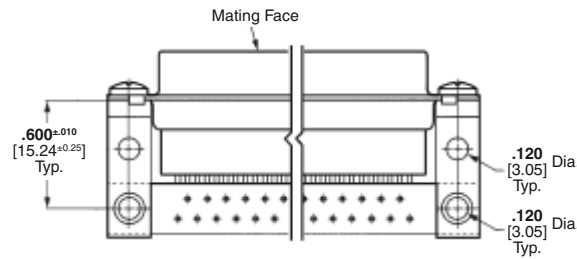
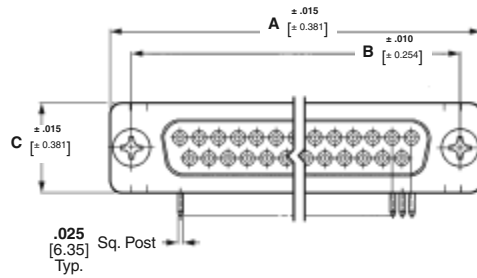
HD-20 Full Metal-Shell Right-Angle Posted Connectors 545 Mount (Continued)

Post Size—.025 [0.64] Sq.

Receptacle



With 4-40 Female Screwlocks



Material and Finish:

- Shell**—Steel, tin plated
- Insert**—94V-0 rated thermoplastic, black
- Female Screwlock**—Steel, zinc plated
- Socket Contacts (Posted)**—Phosphor bronze, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40013

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Receptacle Part Numbers	
		A	B	C	E		With Standard Mounting Screws	With Female Screwlocks
1	9	1.213	.984	.494	1.033	A	5745112-2	5747020-2
		30.81	24.99	12.55	26.24	B	—	5747020-1
2	15	1.541	1.312	.494	1.033	A	5745113-2	5747021-2
		39.14	33.33	12.55	26.24			
3	25	2.088	1.852	.494	1.033	A	5745114-2	5745536-2
		53.04	47.04	12.55	26.24			
4	37	2.729	2.500	.494	1.033	A	5745115-2	—
		69.32	63.50	12.55	26.24			
5	50	2.635	2.406	.605	1.153	A	5745116-2	5747193-2
		66.93	61.11	15.37	29.29	B	5745116-1	5747193-1

- Notes:**
1. All receptacles are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .093 [2.36] max.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Right-Angle Posted Connectors 590 Mount

Post Size—.026 [0.66] Dia. Plug



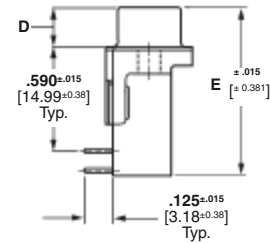
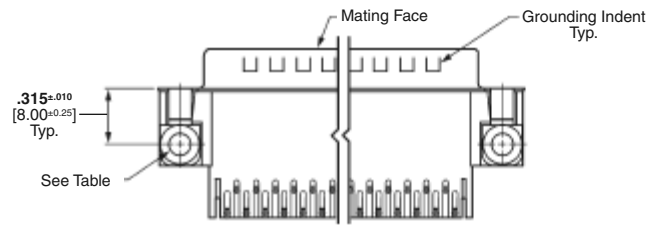
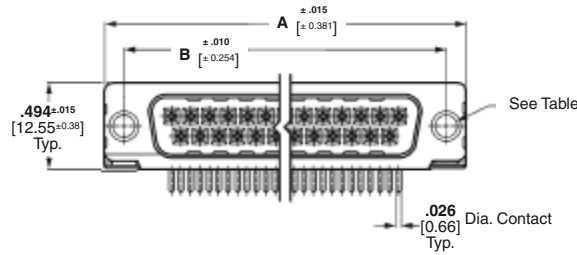
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Pin Contacts (Posted)**—Brass, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010

.590 [14.99] Board Mount Footprint

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Plug Part Numbers		
		A	B	D	E		Without Boardlocks		With Boardlocks
							With Threaded Inserts	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	.235 5.97	.965 24.51	A	5745990-4	5747832-4	5747832-6
						B	5745990-3	5747832-3	—
2	15	1.541 39.14	1.312 33.33	.235 5.97	.965 24.51	A	—	5747833-4	5747833-6
						B	—	—	—
3	25	2.088 53.04	1.852 47.04	.230 5.84	.970 24.64	A	5745994-4	5747834-4	5747834-6
						B	—	—	—
4	37	2.729 69.32	2.500 63.50	.230 5.84	.972 24.69	A	—	5747835-4	5747835-6
						B	—	—	—

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Right-Angle Posted Connectors 590 Mount (Continued)

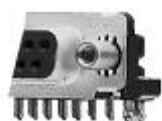
Post Size—.026 [0.66] Dia. Receptacle



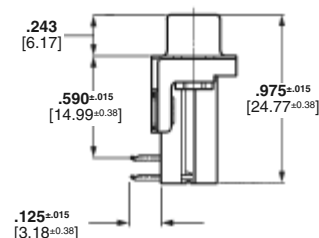
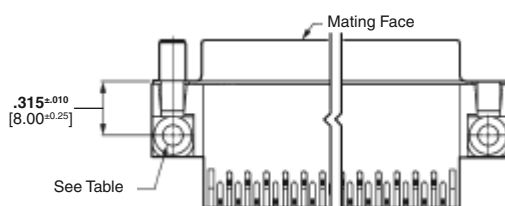
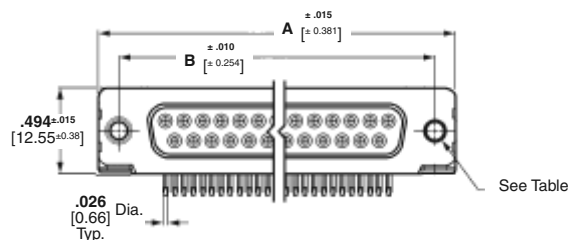
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin plated
- Socket Contacts (Posted)**—Phosphor bronze, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

- Product Specification**—108-40025
- Application Specification**—114-40010

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Receptacle Part Numbers			
		A	B		Without Boardlocks		With Boardlocks	
					With Threaded Inserts	With Fixed Female Screwlocks	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	A	5745988-4	5745988-6	5747836-4	5747836-6
2	15	1.541 39.14	1.312 33.33	A	5745984-4	—	5747837-4	—
3	25	2.088 53.04	1.852 47.04	A	—	5745992-6	5747838-4	5747838-6
				B	5745992-3	—	5747838-3	—
4	37	2.729 69.32	2.500 63.50	A	5745996-4	—	5747839-4	—

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Right-Angle Posted Connectors 318 Mount

Receptacle—With Boardlocks



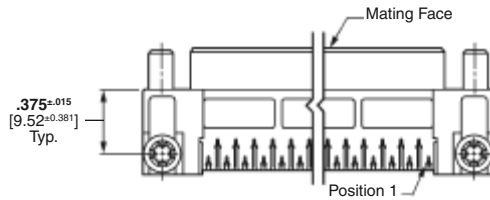
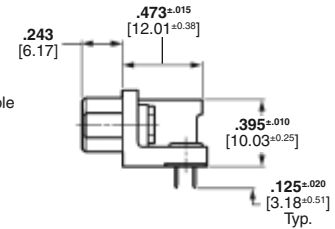
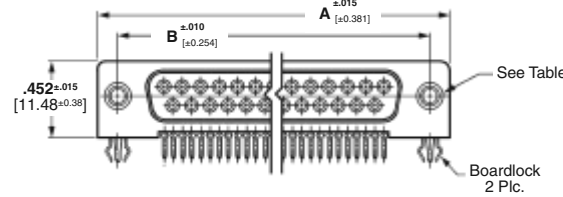
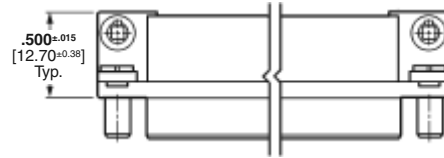
With Threaded Insert



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlock—Copper alloy, tin plated

Socket Contacts (Posted)—

Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

Product Specification—108-1226

Application Specification—114-40027

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers	
		A	B		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.222 31.04	.984 24.99	A	—	5748979-1
3	25	2.090 53.09	1.852 47.04	A	5748901-1	5748981-1

Consult TE for availability.

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .062 [1.58].
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Right-Angle Posted Connectors 318 Mount (Continued)

Plug



With Threaded Insert

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

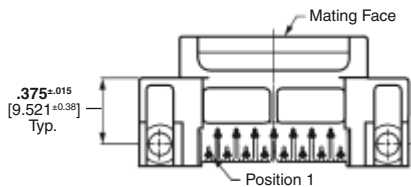
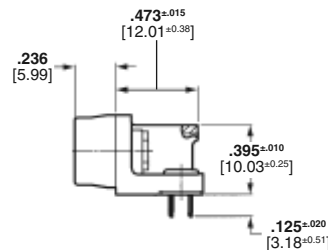
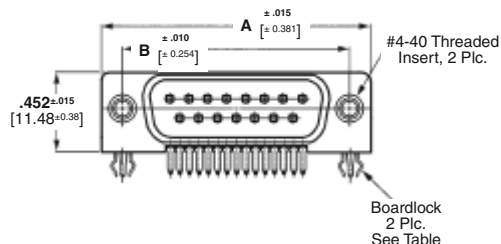
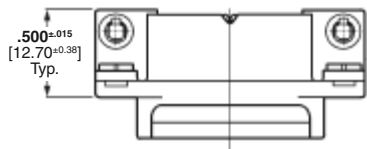
Threaded Inserts—Zinc

Boardlock—Copper alloy, tin plated

Pin Contacts (Posted)—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—.000010 [0.00025] min. gold on mating end, tin on termination end, with entire contact nickel underplated



Technical Documents:

Product Specification—108-1226

Application Specification—114-40027

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers	
		A	B		With Threaded Inserts With Boardlocks	Without Boardlocks
2	15	1.550 39.37	1.312 33.32	A	5748904-1	—
3	25	2.090 53.09	1.852 47.04	B	—	5748865-3

Consult TE for availability.

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58].
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Right-Angle Posted Connectors 318 Mount (Continued)

Post Size—.026 [0.66] Dia. **Receptacle—Without Boardlocks**

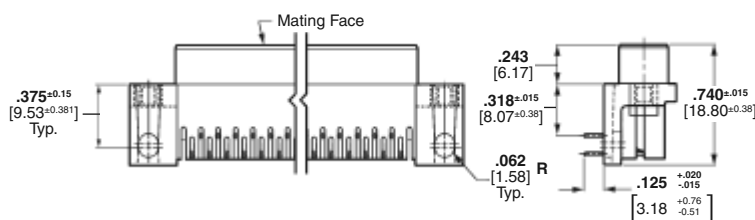
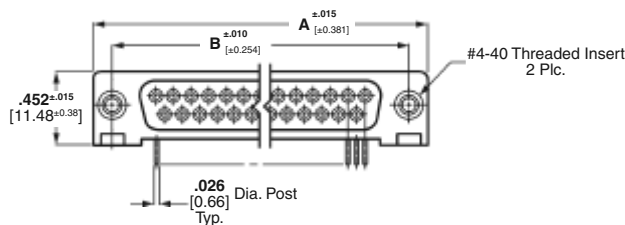

With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock


Material and Finish:
Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Zinc, chromate coated

Female Screwlocks—Zinc, chromate coated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:
Product Specification—108-40025

Application Specification—114-40015

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers		
		A	B		With Threaded Inserts	With Fixed Female Screwlocks	With .125 [3.18] Mounting Holes
1	9	1.213 30.81	.984 24.99	A	5745394-2	5745395-2	—
				B	—	—	5745131-1
2	15	1.541 39.14	1.312 33.32	A	—	5745396-2	5745396-2
				B	—	—	—
3	25	2.088 53.04	1.852 47.04	A	5745392-2	5745397-2	5745132-2
				B	—	—	—

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .093 [2.36].
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Right-Angle Posted Connectors 590 Mount

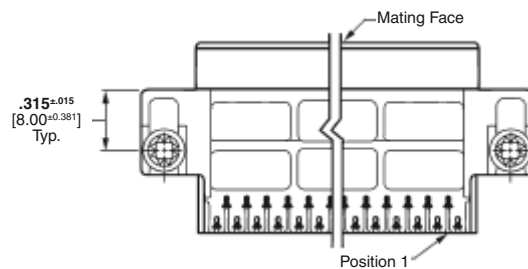
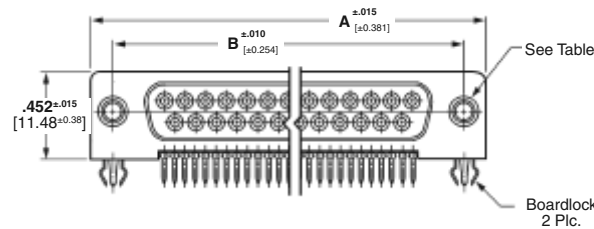
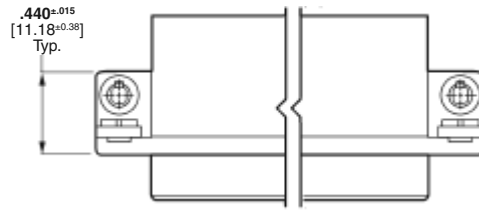
Receptacle—With Boardlocks



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlock—Copper alloy, tin plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

Product Specification—108-1226

Application Specification—114-40027

See customer drawings for printed circuit board layouts.

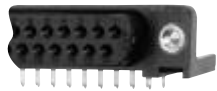
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers	
		A	B		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	B	5748907-2	—
3	25	2.088 53.04	1.852 47.04	A	5748909-1	5748989-1

- Notes:**
- All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 - Recommended pc board thickness is .062 [1.58].
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

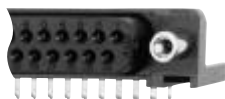
Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Right-Angle Posted Connectors 590 Mount (Continued)

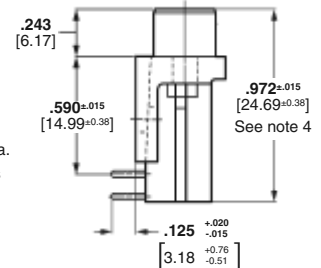
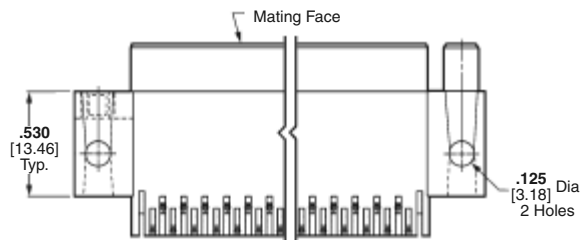
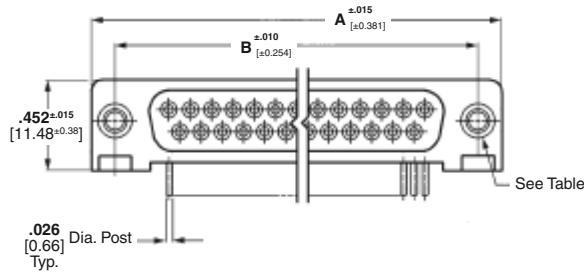
Post Size—.026 [0.66] Dia. **Receptacle—Without Boardlocks**



With Threaded Insert



With Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Zinc, chromate coated

Female Screwlocks—Zinc, chromate coated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—0.00030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

Product Specification—108-40025

Application Specification—114-40015

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers		
		A	B		With Threaded Inserts	With Fixed Female Screwlocks	With .125 [3.18] Mounting Holes
1	9	1.213	.984	A	5747459-4	5747459-6	5747459-2
		30.81	24.99	B	5747459-3	5747459-5	5747459-1
2	15	1.541	1.312	A	5747460-4	5748948-1	5747460-2
		39.14	33.32	B	5747460-3	5747460-5	5747460-1
3	25	2.088	1.852	A	5747461-4	5747461-6	5747461-2
		53.04	47.04	B	5747461-3	5747461-5	5747461-1
4	37	2.729	2.500	A	5747462-4	5747462-6	5747462-2
		69.32	63.50	B	—	—	—
5	50	2.635	2.406	A	—	—	5206973-1
		66.93	61.11	B	—	—	5206973-2

- Notes:**
- All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 - Recommended pc board thickness is .093 [2.36] max.
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.
 - Dimension is 1.120 [28.45] for size 5 d-sub.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Right-Angle Posted Connectors 590 Mount (Continued)

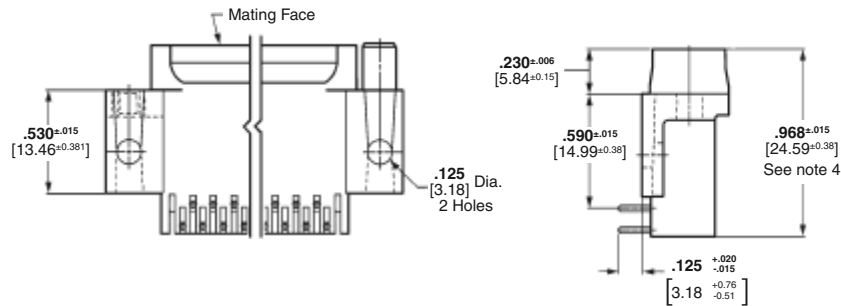
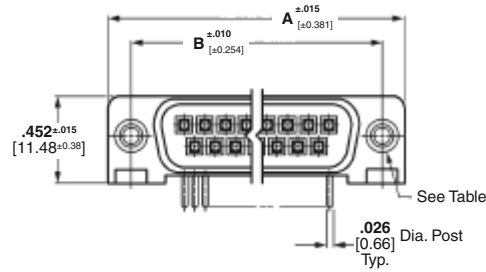
Post Size—.026 [0.66] Dia. **Plug—Without Boardlocks**



With Threaded Insert



With Female Screwlocks



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Zinc, chromate coated

Female Screwlocks—Zinc, chromate coated

Pin Contacts (Posted)—Brass, duplex plated as follows:
A—0.00030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Technical Documents:

Product Specification—108-40025

Application Specification—114-40015

See customer drawings for printed circuit board layouts.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers		
		A	B		With Threaded Inserts	With Fixed Female Screwlocks	With .125 [3.18] Mounting Holes
1	9	1.213	.984	A	5747467-4	—	5747467-2
		30.81	24.99	B	—	—	5747467-1
2	15	1.541	1.312	A	5748872-1	5748952-1	5747468-2
		39.14	33.32	B	—	—	5748826-1
3	25	2.090	1.852	A	5748873-1	5748953-1	5748826-1
		53.09	47.04	B	—	—	5748826-2
4	37	2.729	2.500	A	—	—	5747470-2
		69.32	63.50	B	—	—	5206971-1
5	50	2.635	2.406	A	—	—	5206971-1
		66.93	61.11	B	—	—	5206971-2

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .093 [2.36] max.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.
 4. Dimension is 1.115 [28.32] for size 5 d-sub, GPL244.

Note: All part numbers are RoHS compliant.

Right-Angle Mounting Connectors — European Standard Footprint



Material and Finish:

Front Shell—Steel, tin plated

Housing—Black glass-filled polyester

Flammability—UL 94V-0

Contact Material—

Pin—Phosphor bronze

Socket—Phosphor bronze

Contact Area Plating—0.76µm Gold

Current Rating—6A max.

Insulation Resistance—
5000 MΩ min.

Dielectric Strength—1000V AC min.

Temperature Rating—
-55°C to +105°C

Plug with Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	338168-2	1-338168-2	3-338168-2	2-338168-2	4-338168-2
15	338169-2	1-338169-2	3-338169-2	2-338169-2	4-338169-2
25	338170-2	1-338170-2	3-338170-2	2-338170-2	4-338170-2
37	338171-2	1-338171-2	3-338171-2	2-338171-2	4-338171-2

Socket with Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	106505-2	1-106505-2	3-106505-2	2-106505-2	4-106505-2
15	106506-2	1-106506-2	3-106506-2	2-106506-2	4-106506-2
25	106507-2	1-106507-2	3-106507-2	2-106507-2	4-106507-2
37	106508-2	1-106508-2	3-106508-2	2-106508-2	4-106508-2

Plug without Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	5-338168-2	6-338168-2	8-338168-2	7-338168-2	9-338168-2
15	5-338169-2	6-338169-2	8-338169-2	7-338169-2	9-338169-2
25	5-338170-2	6-338170-2	8-338170-2	7-338170-2	9-338170-2
37	5-338171-2	6-338171-2	8-338171-2	7-338171-2	9-338171-2

Socket without Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	5-106505-2	6-106505-2	8-106505-2	7-106505-2	9-106505-2
15	5-106506-2	6-106506-2	8-106506-2	7-106506-2	9-106506-2
25	5-106507-2	6-106507-2	8-106507-2	7-106507-2	9-106507-2
37	5-106508-2	6-106508-2	8-106508-2	7-106508-2	9-106508-2

Note: All part numbers are RoHS compliant.

Right-Angle Mounting Connectors — Eurostyle Footprint



Material and Finish:

Front Shell—Steel, tin plated

Housing—Grey thermoplastic PBTP

Flammability—UL 94V-0

Contact Material—

Pin—Copper alloy

Socket—Copper alloy

Contact Area Plating—Nickel/Gold
(>250 mating cycles)

Current Rating—2.2A

Insulation Resistance—
5000 MΩ min.

Dielectric Strength—1000V AC

Temperature Rating—
-55°C to +125°C

Plug with Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	5-1393480-9	8-1393480-5	1393481-5	7-1393480-4	9-1393480-4
15	6-1393480-0	8-1393480-6	3-1392010-3	7-1393480-5	9-1393480-5
25	On Enquiry	8-1393480-7	1393481-6	7-1393480-6	9-1393480-6
37	On Enquiry	8-1393480-8	3-1392010-4	7-1393480-7	On Enquiry

Socket with Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	5-1393480-5	8-1393480-1	9-1393480-9	6-1393480-7	9-1393480-0
15	5-1393480-6	8-1393480-2	1393481-1	6-1393480-8	9-1393480-1
25	5-1393480-7	8-1393480-3	1393481-2	6-1393480-9	9-1393480-2
37	On Enquiry	8-1393480-4	3-1392010-7	7-1393480-0	On Enquiry

Plug without Boardlocks — Solder Termination

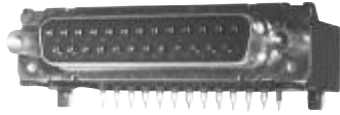
No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	2-1393480-1	4-1393480-0	5-1393480-2	3-1393480-2	On Enquiry
15	2-1393480-2	4-1393480-1	5-1393480-3	3-1393480-3	On Enquiry
25	2-1393480-3	4-1393480-2	5-1393480-4	2-1392010-8	On Enquiry
37	2-1393480-4	4-1393480-3	3-1392010-5	3-1392010-6	On Enquiry

Socket without Boardlocks — Solder Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	1-1393480-7	3-1393480-6	4-1393480-7	2-1393480-8	On Enquiry
15	1-1393480-8	3-1393480-7	4-1393480-8	2-1393480-9	On Enquiry
25	1-1393480-9	3-1393480-8	4-1393480-9	3-1393480-0	On Enquiry
37	2-1393480-0	3-1393480-9	5-1393480-0	3-1392010-8	On Enquiry

Note: All part numbers are RoHS compliant.

Standard Density Press Fit Termination, Right-Angle Mounting — European Standard Footprint



Material and Finish:

Front Shell—Steel, tin plated
Housing—Black thermoplastic PBTP/PPS
Flammability—UL 94V-0
Contact Material—
Pin—Copper alloy
Socket—Copper alloy
Contact Area Plating—Nickel/Gold (>250 mating cycles)
Current Rating—2.2A
Insulation Resistance—5000 M Ω min.
Dielectric Strength—1000V AC
Temperature Rating—-55°C to +125°C

Plug with Boardlocks — Press Fit Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	—	3-1393481-2	3-1393481-8	2-1393481-5	On Enquiry
15	—	3-1393481-3	3-1393481-9	2-1393481-6	On Enquiry
25	—	3-1393481-4	2-1393497-7	2-1393481-7	On Enquiry
37	—	2-1392010-7	4-1393481-0	2-1393481-8	On Enquiry

Socket with Boardlocks — Press Fit Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	—	2-1393481-9	3-1393481-6	2-1393481-1	On Enquiry
15	—	3-1393481-0	2-1393497-4	2-1393481-2	On Enquiry
25	—	3-1393481-1	2-1393497-5	2-1393481-3	On Enquiry
37	—	2-1392010-6	2-1393497-6	2-1393481-4	On Enquiry

Standard Density Press Fit Termination, Right-Angle Mounting — Eurostyle Footprint



Material and Finish:

Front Shell—Steel, tin plated
Housing—Black thermoplastic PBTP/PPS
Flammability—UL 94V-0
Contact Material—
Pin—Copper alloy
Socket—Copper alloy
Contact Area Plating—Nickel/Gold (>250 mating cycles)
Current Rating—2.2A
Insulation Resistance—5000 M Ω min.
Dielectric Strength—1000V AC
Temperature Rating—-55°C to +125°C

Plug with Boardlocks — Press Fit Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	—	On Enquiry	3-1393482-0	1-1393482-4	2-1393482-1
15	—	On Enquiry	3-1393482-2	3-1393497-0	4-1483489-2
25	—	On Enquiry	3-1393482-4	1-1393482-5	On Enquiry
37	—	On Enquiry	3-1393482-5	3-1393497-1	On Enquiry

Socket with Boardlocks — Press Fit Termination

No of Ways	3mm Hole	4-40 Inserts	4-40 Screwlocks	M3 Inserts	M3 Screwlocks
9	—	1-1393482-6	2-1393482-2	1-1393482-2	2-1393482-0
15	—	1-1393482-8	2-1393482-4	1-1393482-3	On Enquiry
25	—	3-1392010-9	2-1393482-6	9-1393487-2	On Enquiry
37	—	4-1392010-0	2-1393482-8	2-1393497-9	On Enquiry

Note: All part numbers are RoHS compliant.

Subminiature D Connectors for Cable Mounting

This guide illustrates the preferred range of Subminiature D Connectors for cable mounting.

Please refer to our general catalogs or our website www.te.com for details of additional ranges, connec-

tor styles, plating options and performance levels.

Standard Density Crimp Termination

Connector Housings

Material and Finish:

Front Shell—Steel, tin plated

Housing—Black glass-filled thermo-plastic

Flammability—UL 94V-0

Current Rating—3.7A max.

Insulation Resistance—5000 M Ω min.

Dielectric Strength—1000V AC min.

Temperature Rating—-55°C to +105°C



Plug Connector Housing

No of Ways	Part Number
9	167292-1
15	167293-1
25	167294-1
37	167295-1
50	167296-1

Socket Connector Housing

No of Ways	Part Number
9	164531-4
15	164532-4
25	164533-4
37	164534-4
50	164535-4

Crimp Contacts

Material and Finish:

Contact Material—

Pin—Brass

Socket—Phosphor bronze

Contact Area Plating—0.76 μ m Gold

Additional contacts on page 105



Male Contact for Plug Connector Housing

Wire Size	Reel of 12500 Contacts (1)	Reel of 500 Contacts (2)	Bag of 100 Loose Contacts (3)
20-24 AWG	166053-1	5-166053-1	166293-1
24-28 AWG	166054-1	5-166054-1	166294-1

Female Contact for Socket Connector Housing

Wire Size	Reel of 12500 Contacts (1)	Reel of 500 Contacts (2)	Bag of 100 Loose Contacts (3)
20-24 AWG	166051-1	5-166051-1	166291-1
24-28 AWG	166052-1	5-166052-1	166292-1

Application Tooling

(1) Reel of 12500 Contacts

Use applicator Part Number 1238049 with suitable press.

(2) Reel of 500 Contacts

Use Mini Reel-Fed CERTI-LOK (Hand tools for applying and/or extracting electrical connectors) Part Number 169424-1

(3) Loose Piece Contacts

Premium: Use CERTI-CRIMP II (Hand compression electrical connector crimping tools) — Part Number 91503-1

Commercial: Use SDE die — Part Number 58448-2 with suitable ancillary equipment

Insertion / Extraction Tool

Use Part Number 1579007-9

Standard Density Solder Cup Termination

Industrial

Material and Finish:

Front Shell—Steel, tin plated

Housing—Grey thermoplastic PBTP

Flammability—UL 94V-0

Contact Material—Copper alloy

Contact Area Plating—Nickel/Pd/Gold (>250 mating cycles)

Current Rating—3A

Insulation Resistance—5000 M Ω min.

Dielectric Strength—1000V AC min.

Temperature Rating—-55°C to +125°C



Plug Connector

No of Ways	Part Number
9	3-1393483-8
15	3-1393483-9
25	4-1393483-0
37	4-1393483-1

Socket Connector

No of Ways	Part Number
9	4-1393483-7
15	4-1393483-8
25	4-1393483-9
37	5-1393483-0

Note: All part numbers are RoHS compliant.

HD-20 Straight Posted Connectors





Straight Posted Connectors

Product Selection Guide

Connector Density	Type	Post Style	Style and Shell Finish	No. of Contact Positions	Mating Hardware	Contact Plating (Mating Area/Solder Tails)	Post Length	Profile
HD-20	Plugs and Receptacles	Straight	Full Metal-Shell With and Without Grounding Indents, Tin Plated (pgs. 78 and 79)	9	.120 [3.05] Dia. Holes	Duplex (.000030 [0.00076] Gold/Tin)	.125 [3.18]	High
				15	Clinch Nuts	Duplex (Gold Flash/Tin)	.188 [4.78]	
				25				
				37				
				50				
				9	.120 [.318] Dia. Holes	Duplex (.000030 [0.00076] Gold/Tin)	.125 [3.18]	
	15	Threaded Inserts Retention Inserts	Duplex (Gold Flash/Tin)	.170 [4.32]				
	25							
	37							
	All-Plastic (pgs. 82-85)				9	.120 [3.05] Dia. Holes	Duplex (.000030 [0.00076] Gold/Tin)	.125 [3.18]
					15	Threaded Inserts	Duplex (Gold Flash/Tin)	.170 [4.32]
					25			
37								
50								
All-Plastic (pg. 89)					Receptacles			9
	15	Threaded Inserts	Duplex (Gold/Tin)	.228 [5.79]				
	25							
	37							
	50							
	All-Plastic (pg. 89)	Receptacles						9
15					Threaded Inserts	Duplex (.000010 [0.000254] Gold Flash/Tin)		
25								
37								
50								
HD-22					Plugs and Receptacles	Straight	Front Metal-Shell With Grounding Indents, Nickel Plated (pg. 86)	15
	26	Threaded Inserts	Duplex (.000015 [0.00038] Gold/Tin)					
	44							
	62							
	78							
	All-Plastic (pg. 86)							15
26					Threaded Inserts	Duplex (.000015 [0.00038] Gold/Tin)		
44								
62								
78								
All-Plastic (pg. 86)								15
	26	Threaded Inserts	Duplex (.000015 [0.00038] Gold/Tin)					
	44							
	62							
	78							

HD-20 Straight Posted Connectors (Continued)

Product Facts

- Flame retardant thermo-plastic housing material, UL 94V-0 rated
- HD-20 straight posted connectors are available in 9, 15, 25, 37 and 50 positions (Shell Sizes 1 thru 5)
- HD-20 straight posted connectors in Full Metal-Shell, Front Metal-Shell and All-Plastic versions
- HD-20 connectors with ACTION PIN contacts are available in low, medium and high profiles with integral standoffs
- ACTION PIN contact connectors for both .093 [2.36] and .062 [1.58] min. thick pc board application
- Various straight posted connectors offer a choice of through-holes, 4-40 threaded inserts or 4-40 fixed female screwlocks
- Choice of contact platings
- Integral boardlock feature secures connector to pc board prior to soldering
- Connectors are intermateable with any size 20 or 22 subminiature D connectors dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- CSA Certified, File No. LR 16455 HD-20 Products 

Section Contents

Straight Posted Connectors	
HD-20 Full Metal-Shell	
Straight Posted Connectors	78, 79
HD-20 Front Metal-Shell	
Straight Posted Connectors	80, 81
HD-20 All-Plastic Straight Posted Connectors	82-85
HD-22 Subminiature D Connectors	86
HD-20 Front Metal-Shell Straight Posted	
Connectors with ACTION PIN Contacts	87, 88
HD-20 All-Plastic Straight Posted Connectors	
with ACTION PIN Contacts	89

HD-20 Full Metal-Shell Straight Posted Connectors

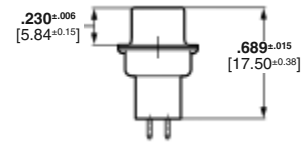
Plug



Without Grounding Indents



With Grounding Indents



See customer drawings for pcb layouts.

Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black

Pin Contacts (Posted)—Brass, plated as follows:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Technical Documents:

Product Specification—108-40025

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Plug Part Numbers		
		A	B	C	D*		Without Grounding Indents	With Grounding Indents	With Clinch Nuts
1	9	1.213 30.81	.984 24.99	.494 12.55	.125 3.18	A	—	5745410-1	5749014-1
					.188 4.78	B	5745182-2	—	
2	15	1.541 39.14	1.312 33.33	.494 12.55	.125 3.18	A	—	5745411-1	—
					.188 4.78	B	5745186-2	—	
3	25	2.088 53.04	1.852 47.04	.494 12.55	.125 3.18	A	—	5745412-1	5745959-1
					.188 4.78	A	—	5745412-7	—
4	37	2.729 69.32	2.500 63.50	.494 12.55	.125 3.18	A	—	5745413-1	—
					.188 4.78	A	—	5745414-1	—
5	50	2.635 66.93	2.406 61.11	.605 15.37	.125 3.18	A	—	5745414-1	—
					.188 4.78	A	—	5745414-7	—

*.125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.58-2.36] max.; .188 [4.78] post length is for recommended pc board thickness of .125 [3.18].

- Notes:**
- All plugs are preloaded with size 20 DF posted pin contacts.
 - Special loading of contacts can be arranged upon request.
 - Longer post lengths available, consult TE.

Note: All part numbers are RoHS compliant.

HD-20 Full Metal-Shell Straight Posted Connectors (Continued)

Receptacle



With Clinch Nuts



Material and Finish:

- Shell**—Steel, tin plated
- Insert**—94V-0 rated thermoplastic, black
- Clinch Nuts**—Steel, zinc plated
- Socket Contacts (Posted)**—Phosphor bronze, plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated
 - B**—Gold flash on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

See customer drawings for pcb layouts.

Technical Documents:

Product Specification—108-40025

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Receptacle Part Numbers	
		A	B	C	D*		With .120 [3.05] Mounting Holes	With Clinch Nuts
1	9	1.213 30.81	.984 24.99	.494 12.55	.125 3.18	A	5745183-1	5747190-2
					.188 4.78	B	5745183-2	5747190-1
					.188 4.78	A	5745183-7	5747190-4
					.125 3.18	B	—	—
2	15	1.541 39.14	1.312 33.33	.494 12.55	.125 3.18	A	5745185-1	5745820-1
					.188 4.78	B	—	5745820-2
					.125 3.18	A	5745185-7	—
					.188 4.78	B	—	—
3	25	2.088 53.04	1.852 47.04	.494 12.55	.125 3.18	A	5745187-1	5745886-1
					.188 4.78	B	—	5745886-2
					.125 3.18	A	5745187-7	—
					.188 4.78	B	5745187-8	—
4	37	2.729 69.32	2.500 63.50	.494 12.55	.125 3.18	A	5745189-1	5747315-1
					.188 4.78	A	5745189-7	—
					.125 3.18	A	5745191-1	5747302-1
					.188 4.78	A	5745191-7	—

*.125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.58-2.36] max.; .188 [4.78] post length is for recommended pc board thickness of .093-.125 [2.36-3.18].

- Notes:**
1. All receptacles are preloaded with size 20 DF posted socket contacts.
 2. Special loading of contacts can be arranged upon request.
 3. Longer post lengths available, consult TE.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Straight Posted Connectors

Plug



With Grounding Indents



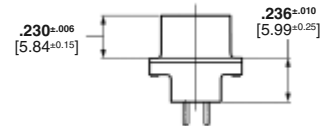
With Threaded Insert



With Fixed Female Screwlock



With Retention



See customer drawings for pcb layouts.

Straight Posted Connectors

Material and Finish:

Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Zinc

Pin Contacts (Posted)—Brass, plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Technical Documents:

Product Specification—108-40025

Application Specification—114-40023

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Plug Part Numbers				
		A	B	C*		With Standard Mounting Holes	With 4-40 Threaded Inserts	With Retention 4-40 Inserts (for .062 [1.58] PCB)	With Fixed Female Screwlocks	With Retention 4-40 Screwlocks (for .062 [1.58] PCB)
1	9	1.213 30.81	.984 24.99	.125 3.18	A	5747871-2	5747871-8	2-5748003-0	1-5747871-4	—
				.170 4.32	A	5747871-4	—	—	1-5747871-3	—
				.170 4.32	A	5747872-4	—	—	1-5747872-6	—
2	15	1.541 39.14	1.312 33.33	.125 3.18	A	—	5747872-8	—	—	5748026-1
				.170 4.32	A	5747872-4	—	—	1-5747872-6	—
				.125 3.18	A	5745968-2	5745968-8	2-5747704-0	1-5745968-4	5748027-1
3	25	2.090 53.09	1.852 47.04	.125 3.18	B	—	5745968-7	—	1-5745968-3	—
				.170 4.32	A	5745968-4	—	—	1-5745968-6	—
				.170 4.32	B	—	—	—	1-5745968-5	—
4	37	2.732 69.39	2.500 63.50	.125 3.18	A	5747375-2	5747375-8	—	—	5787686-1

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications

- Notes:**
- All plugs are preloaded with size 20 DF posted pin contacts.
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.
 - PC board hole size is .121^{±.002} [3.07^{±0.0508}] for all retention inserts and screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Straight Posted Connectors (Continued)

Receptacle



With Standard Mounting Holes



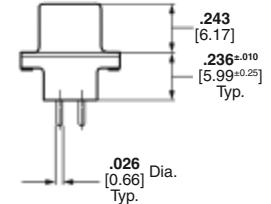
With Threaded Insert



With Fixed Female Screwlock



With Retention



See customer drawings for pcb layouts.

Material and Finish:

- Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Threaded Inserts**—Brass, unplated
- Female Screwlocks**—Zinc

- Socket Contacts (Posted)**—Phosphor bronze, plated as follows:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

- Technical Documents:**
Product Specification—108-40025
Application Specification—114-40023

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Receptacle Part Numbers				
		A	B	C*		With Standard Mounting Holes	With 4-40 Threaded Inserts	With Retention 4-40 Inserts (for .062 [1.58] PCB)	With Fixed Female Screwlocks	With Retention 4-40 Screwlocks (for .062 [1.58] PCB)
1	9	1.216 30.89	.984 24.99	.125 3.18	A	5747150-2	5747150-8	2-5747706-0	1-5747150-4	5750678-1
				B	—	5747150-7	—	1-5747150-3	—	
				.170 4.32	A	5747150-4	—	—	1-5747150-6	—
				B	—	5747150-9	—	—		
2	15	1.541 39.14	1.312 33.33	.125 3.18	A	5747299-2	5747299-8	2-5747707-0	1-5747299-4	5787683-1
				B	—	5747299-7	—	—	—	
				.170 4.32	A	5747299-4	—	—	1-5747299-6	—
				B	—	—	—	—		
3	25	2.090 53.09	1.852 47.04	.125 3.18	A	5745967-2	5745967-8	2-5747708-0	1-5745967-4	5748612-1
				B	—	5745967-7	1-5745967-0	—	—	
				.170 4.32	A	5745967-4	1-5745967-0	—	1-5745967-6	—
				B	—	—	—	1-5745967-5	—	
4	37	2.732 69.39	2.500 63.50	.125 3.18	A	5747301-2	5747301-8	2-5747709-0	1-5747301-4	5787685-1
				B	—	5747301-7	—	—	—	
				.170 4.32	A	—	—	—	1-5747301-6	—
				B	—	—	—	—		

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications

- Notes:**
- All receptacles are preloaded with size 20 DF posted socket contacts.
 - Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.
 - Pc board hole size is .121±.002 [3.07±0.0508] for all retention inserts and screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Straight Posted Connectors

Plug



With Standard Mounting Hole

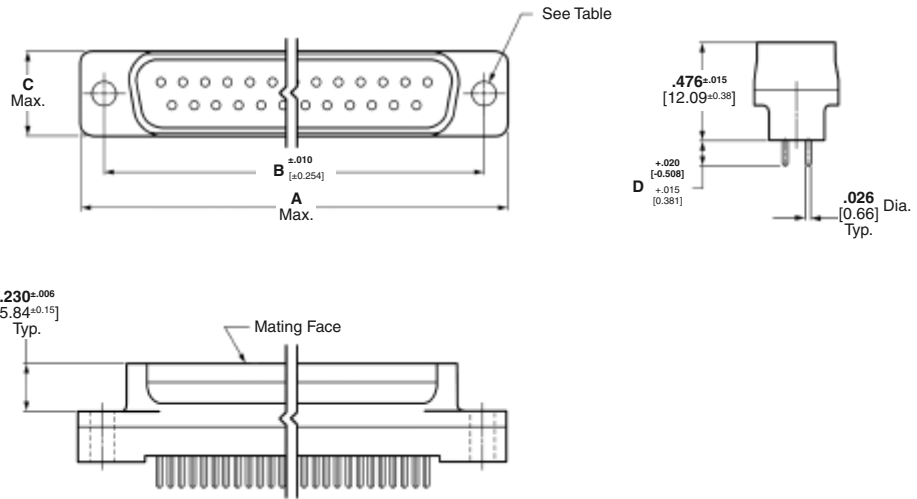


With Threaded Insert



With Fixed Female Screwlock

Straight Posted Connectors



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Brass, nickel plated

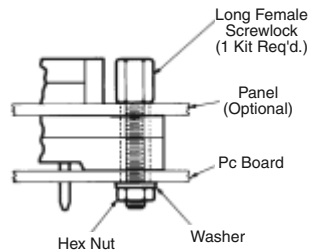
Pin Contacts (Posted)—Brass, plated as follows:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

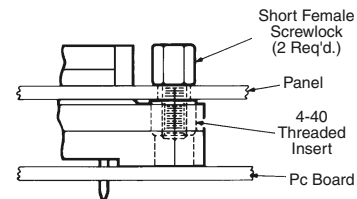
B—Gold flash on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

See customer drawings for pcb layouts.

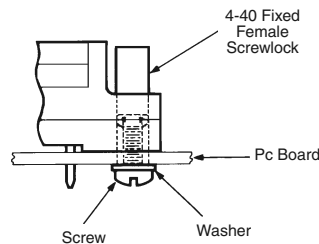
Typical Applications



Application of connector with standard mounting holes using Long Female Screwlock Kit No. 207719



Application of connector with 4-40 Threaded Inserts using Short Female Screwlocks included in Kit No. 207952



Application of connector with 4-40 Fixed Female Screwlocks. (See table on next page.)

Note: Hardware parts in illustrations above are not included with the connectors listed in the table on page 83. They are to be supplied by the Customer or, where applicable, purchased separately from TE using the part nos. specified.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Straight Posted Connectors (Continued)

Plug
(Continued)

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Plug Part Numbers		
		A	B	C	D*		With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.228 32.72	.984 24.99	.420 10.67	.125 3.18	A	5208006-2	5745051-2	5745071-2
					.170 4.32	B	5208006-1	5745051-1	5745071-1
2	15	1.546 39.27	1.312 33.33	.420 10.67	.125 3.18	A	5208007-2	5745052-2	5745072-2
					.170 4.32	B	—	5745052-1	—
3	25	2.095 53.21	1.852 47.04	.420 10.67	.125 3.18	A	5208008-2	5745053-2	5745073-2
					.170 4.32	B	5208008-1	—	5745073-1
4	37	2.737 69.52	2.500 63.50	.420 10.67	.125 3.18	A	—	—	5745074-2
					.170 4.32	B	5208009-1	—	5745074-1
5	50	2.643 67.13	2.406 61.11	.527 13.39	.125 3.18	A	5208010-2	—	—
						B	—	—	—

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications.

- Notes:**
1. All plugs are preloaded with size 20 DF posted pin contacts.
 2. It is recommended that these connectors be secured with appropriate hardware to a pc board and/or panel.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Straight Posted Connectors

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Straight Posted Connectors (Continued)

Receptacle



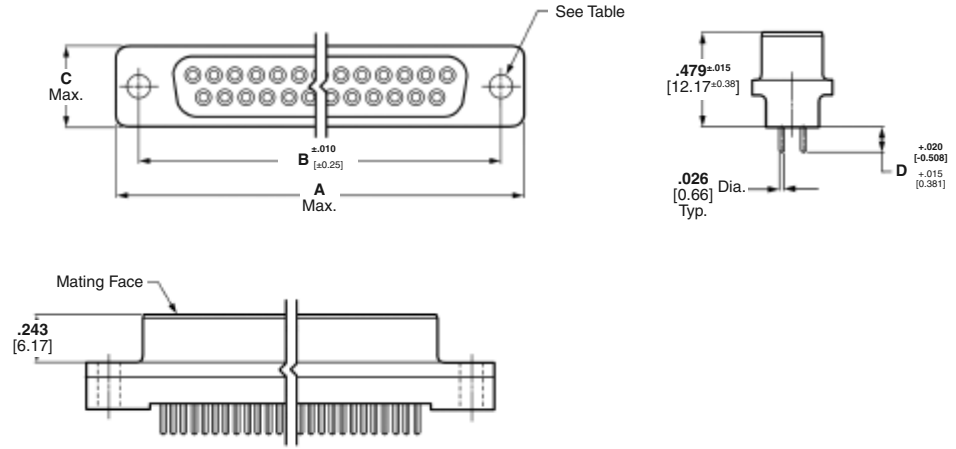
With Standard Mounting Hole



With Threaded Insert



With Fixed Female Screwlock



See customer drawings for pcb layouts.

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

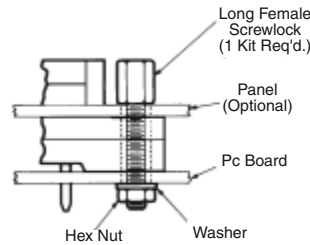
Female Screwlocks—Brass, nickel plated

Socket Contacts (Posted)—Phosphor bronze, plated as follows:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

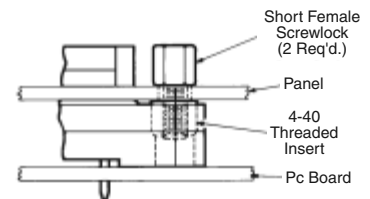
Technical Documents:

Product Specification—108-40025

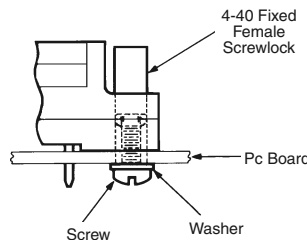
Typical Applications



Application of connector with standard mounting holes using Long Female Screwlock Kit No. 207719



Application of connector with 4-40 Threaded Inserts using Short Female Screwlocks included in Kit No. 207952



Application of connector with 4-40 Fixed Female Screwlocks. (See table on next page.)

Note: Hardware parts in illustrations above are not included with the connectors listed in the table on page 85. They are to be supplied by the Customer or, where applicable, purchased separately from TE using the part nos. specified.

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Straight Posted Connectors (Continued)

Receptacle
(Continued)

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Receptacle Part Numbers		
		A	B	C	D*		With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.228 32.72	.984 24.99	.420 10.67	.125 3.18	A	5207826-4	5207841-4	5745076-4
					.170 4.32	B	5207826-3	5207841-3	5745076-3
2	15	1.546 39.27	1.312 33.33	.420 10.67	.125 3.18	A	5207827-4	5745057-4	5745077-4
					.170 4.32	B	5207827-3	5745057-3	5745077-3
3	25	2.095 53.21	1.852 47.04	.420 10.67	.125 3.18	A	5207828-4	5745058-4	5745078-4
					.170 4.32	B	5207828-3	5745058-3	5745078-3
4	37	2.737 69.52	2.500 63.50	.420 10.67	.125 3.18	A	5207829-4	5745059-4	5745079-4
					.170 4.32	A	—	—	5745079-6
5	50	2.643 67.13	2.406 61.11	.527 13.39	.125 3.18	A	—	—	5745080-4
					.170 4.32	A	—	—	5745080-6

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications.

- Notes:**
1. All receptacles are preloaded with size 20 DF posted socket contacts.
 2. It is recommended that these connectors be secured with appropriate hardware to a pc board and/or panel.
 3. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-22 Straight Subminiature D Connectors

Material and Finish:

Housing—94V-0 rated thermoplastic, black

▲ VESA Std. 15-position Receptacle Housing Material—Thermoplastic 94V-0 blue per VESA Std.

Shell—Steel, nickel plated

Contacts

Pins—Brass

Sockets—Phosphor bronze

Contact Plating—

Gold flash, .000010 [0.00025] or .000030 [0.00076] on mating end, tin on solder tails with overall nickel underplate

Boardlocks—Brass, tin plated

Female Screwlocks—Brass, nickel plated

Threaded Inserts—Brass, tin plated

Technical Documents:

Product Specification—108-1092

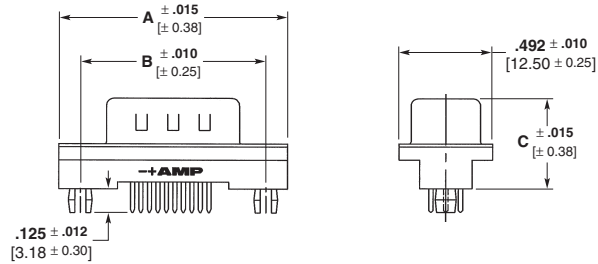
Application Specification—114-13199

See customer drawings for printed circuit board layouts.

■ Recognized under the Component Program of Underwriters Laboratories, Inc., File No. E28476

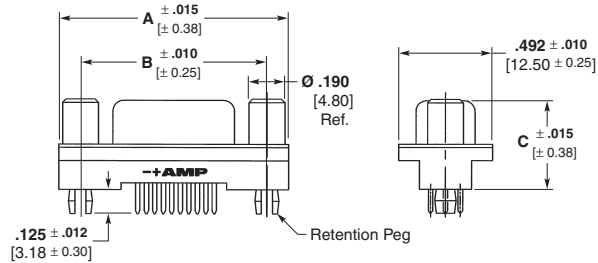


■ Certified by Canadian Standards Association, File No. LR 7189



Vertical Plug

No. of Contact Positions	Dimensions			Mounting Hardware	PCB Mounting Style	Part Numbers		
	A	B	C			Gold Flash	15μ" Gold	30μ" Gold
15	1.212	.984	.476	4-40 inserts	retention pegs	5750489-4	5750489-3	5750489-1
	30.80	25.00	12.10	4-40 inserts	—	5749798-4	5749798-3	5749798-1
78	2.640	2.500	.476	4-40 inserts	—	5749019-6	5749019-5	5749019-1
	67.00	63.50	12.10					



Vertical Receptacle

No. of Contact Positions	Dimensions			Mounting Hardware	PCB Mounting Style	Part Numbers		
	A	B	C			Gold Flash	15μ" Gold	30μ" Gold
15	1.212	.984	.465	4-40 inserts	—	—	5749374-7	5749374-1
	30.80	25.00	11.80	4-40 screw locks	—	5786356-4	5786356-3	5786356-1
	1.212	.984	.465	4-40 inserts	retention pegs	—	—	5749374-3
	30.80	25.00	11.80	4-40 screw locks	retention pegs	—	5786382-3	5786382-1
26	1.543	1.310	.465	4-40 inserts	—	5749030-4	5749030-3	5749030-1
	39.20	33.30	11.80	4-40 screw locks	retention pegs	5788623-4	5788623-3	—
62	2.732	2.500	.465	4-40 inserts	—	3-5747786-4	—	5747786-6
78	2.638	2.400	.476	4-40 inserts	—	1-5748831-0	5748831-9	5748831-1
	67.00	61.00	12.10					

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Straight Posted Connectors With ACTION PIN Contacts

Receptacle



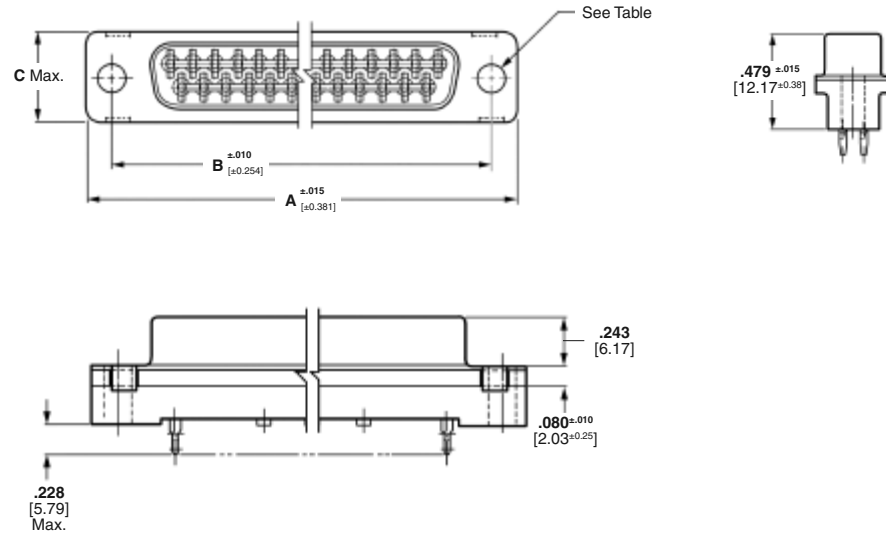
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



See customer drawings for pcb layouts.

Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Zinc

ACTION PIN Contacts—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

Technical Documents:

Product Specification—108-40014

Application Specification—114-40026

For .062 [1.57] min. Thick Pc Boards

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Receptacle Part Numbers			Seating Tool Part No.
		A	B	C		With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.213 30.81	.984 24.99	.509 12.93	A	—	—	—	91164-2
2	15	1.541 39.14	1.312 33.33	.509 12.93	A	—	—	—	91165-2
3	25	2.088 53.04	1.852 47.04	.509 12.93	B	—	—	5748688-1	91168-2
5	50	2.635 66.93	2.406 61.11	.620 15.75	A	—	5748485-2	—	91167-2

For .093 [2.36] min. Thick Pc Boards

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Receptacle Part Numbers			Seating Tool Part No.
		A	B	C		With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.213 30.81	.984 24.99	.509 12.93	A	5747089-2	5747090-2	5747091-2	91164-2
2	15	1.541 39.14	1.312 33.32	.509 12.93	A	5747140-2	5747141-2	5747142-2	91165-2
3	25	2.088 53.04	1.852 47.04	.509 12.93	A	5745922-2	5745925-2	5745928-2	91168-2
4	37	2.729 69.32	2.500 63.50	.509 12.93	A	5747713-2	5747714-2	5747715-2	91166-2
					B	—	5747714-1	—	
5	50	2.635 66.93	2.406 61.11	.620 15.75	A	5747143-2	5747144-2	5747145-2	91167-2

- Notes:**
1. All receptacles are preloaded with straight posted ACTION PIN socket contacts.
 2. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HD-20 Front Metal-Shell Straight Posted Connectors With ACTION PIN Contacts (Continued)

Plug



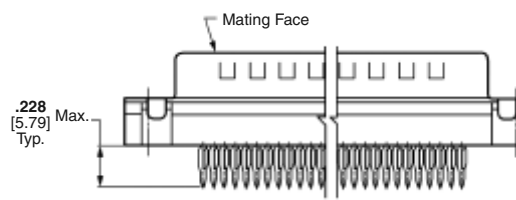
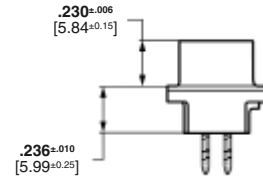
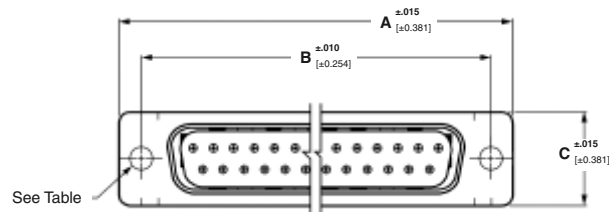
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



See customer drawings for pcb layouts.

Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Zinc

ACTION PIN Contacts—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

For .093 [2.36] min. Thick Pc Board

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Plug Part Numbers			Seating Tool Part No.
		A	B	C		With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.213 30.81	.984 24.99	.494 12.55	A	—	5786830-1	5787176-1	58274-3
2	15	1.541 39.14	1.312 33.32	.494 12.55	A	—	—	5787177-1	58274-6
3	25	2.088 53.04	1.852 47.04	.494 12.55	A	5748146-2	5748146-4	5748146-6	58274-1
4	37	2.732 69.39	2.500 63.50	.494 12.55	A	5788458-1	5786534-1	5750060-1	58274-5
5	50	2.635 66.93	2.406 61.11	.605 15.37	A	—	5749892-1	—	58273-1

- Notes:** 1. All plugs are preloaded with straight posted ACTION PIN pin contacts.
2. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Technical Documents:

Product Specification—108-40014

Application Specification—114-40026

Note: All part numbers are RoHS compliant.

HD-20 All-Plastic Straight Posted Connectors With ACTION PIN Contacts

Receptacles (Low and High Profile)



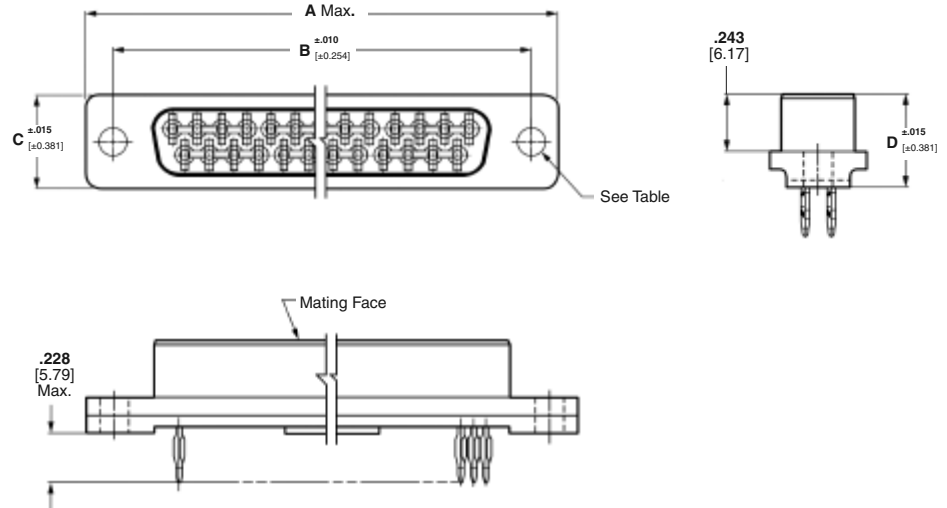
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



See customer drawings for pcb layouts.

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Brass, nickel plated

ACTION PIN Contacts—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

Technical Documents:

Product Specification—108-40014

Shell Size	No. of Contact Positions	Dimensions				Profile	Contact Finish (Plating Code)	Receptacle Part Numbers						Seating Tool Part No.
		A	B	C	D			For .093 [2.36] (min.) Thick Pc Boards			For .062 [1.57] (min.) Thick PC Boards			
								With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With .120 [3.05] Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.221 31.01	.984 24.99	.410 10.41	.395 10.03	Low	A	—	—	5745454-2	—	—	—	91164-1
						High	A	—	—	5745455-2	—	—	—	91164-3
2	15	1.546 39.27	1.312 33.32	.410 10.41	.395 10.03	Low	A	—	—	5745456-2	—	—	—	91165-1
						High	A	—	—	—	—	5745612-2	—	—
3	25	2.095 53.21	1.852 47.04	.410 10.41	.395 10.03	Low	A	—	—	5745458-2	—	—	—	91168-1
						High	A	—	—	5745458-1	—	—	—	—
4	37	2.737 69.52	2.500 63.50	.410 10.41	.395 10.03	Low	A	—	—	5745459-2	5745589-2	—	—	91166-1
						High	A	—	—	5745461-2	—	—	—	—

- Notes:** 1. All receptacles are preloaded with straight posted ACTION PIN socket contacts.
2. Male screw retainers are used as mating hardware for connectors with 4-40 female screwlocks.

Note: All part numbers are RoHS compliant.

HDP-20 Crimp Snap-In Contact Connectors

Cable Connectors



Product Selection Guide

Connector				Contacts		
Type	Insert Material	Shell Type Material and Finish	Mounting	Type	Termination	Plating
Plug (pg. 92)	94V-0 Rated Thermoplastic Black	Zinc Plated Steel Without Grounding Indents	.120 [3.05] Dia. Holes Clinch Nut, 4-40 Threads	Pins (pgs. 100, 101)	Crimp Posted	Duplex (.000030 [0.00076] Gold and Tin)
		Tin Plated Steel Without Grounding Indents				Duplex (Gold Flash and Tin)
		Tin Plated Steel With Grounding Indents				Select (.000030 [0.00076] Gold and Gold Flash)
Receptacle (pg. 93)	94V-0 Rated Thermoplastic Black	Zinc Plated Steel	.120 [3.05] Dia. Holes Clinch Nuts, 4-40 Threaded	Sockets (pgs. 100, 101)	Crimp Posted	Duplex (.000030 [0.00076] Gold and Tin)
		Tin Plated Steel				Duplex (Gold Flash and Tin)
						Select (.000030 [0.00076] Gold and Gold Flash)

HDP-20 Crimp Snap-In Contact Connectors (Continued)

Product Facts

- Shell sizes offer wide choice of contact positions—9, 15, 25, 37 and 50
- Lower cost, commercial version of the military approved series
- Tin or zinc plated shells, with or without grounding indents
- Crimp snap-in contacts allows loading of only the number of contacts being used
- Available with shielding hardware and shielding enclosure kits
- Numerous cable clamps and mating hardware options
- Low cost, high performance, precision-formed crimp contacts

- Machine applied terminations assure highest production rates at lowest applied cost
- Intermateable with any size 20 Subminiature D connector dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories, File No. E81956
- Certified by Canadian Standards Association, File No. LR 1088108 (LR 7189-207)

Section Contents

Plug and Receptacle Connectors 92, 93
 Basic Shielding Hardware Kits 94, 95
 Shielding Hardware Enclosure Kits 96, 97
 Preassembled Shielded Connector Kits 98
 Ferrules for Shielding Hardware Kits 99
 Contacts 100, 101
 Application Tooling 102

Unshielded Cable Clamps	Shielded Cable Clamps and Shielding Hardware and Enclosure Kits	Mounting and Mating Hardware
<p>One-Piece Cable Clamp 180°/120° Quik-Snap (pg. 134)</p> <p>Box and Lid Straight/90° Exit (pg. 137)</p> <p>Box and Lid with Male Screw Retainers (pg. 137)</p> <p>Clam Shell Straight/45° Exit (pg. 138)</p> <p>Clam Shell Straight/45° Exit with Male Screw Retainers (pg. 138)</p>	<p>Straight Exit RFI/EMI Shields for Jacketed Cable (pgs. 139, 142)</p> <p>90° Exit Die Cast RFI/EMI Shields for Jacketed Cable (pg. 142)</p> <p>Basic Shielding Hardware Kits (pgs. 94, 95)</p> <p>Shielding Hardware Enclosure Kits (pgs. 96, 97)</p>	<p>Keying Plug (pg. 155)</p> <p>Male Screw Retainers (pgs. 146, 147)</p> <p>Female Screwlocks (pg. 148)</p> <p>Locking Posts and Slide Latches (pgs. 149, 151)</p> <p>Spring Latch, Two-Piece (pg. 152)</p> <p>Latching Blocks (pgs. 153, 154)</p> <p>Standoff Bushings (pg. 155)</p>

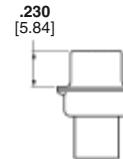
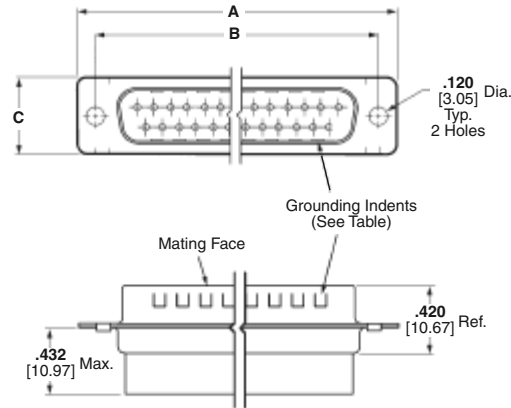
Contact Retention Features



HDP-20 Crimp Snap-In Contact Connectors (Continued)



Plug

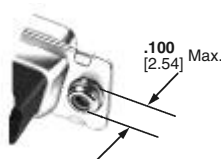


Material and Finish:
Shell—Steel, zinc or tin plated
Insert—94V-0 rated thermoplastic, black

Mounting Holes:
Standard—.120 [3.05] Dia.
Clinch Nut—4-40 threads with self-locking feature

- Related Product Data:**
- Contact Arrangements**—page 40
 - Performance Characteristics**—page 41
 - Contacts**—pages 100, 101
 - Application Tooling**—page 102
 - Mateable Connectors:**
 - HDE**—pages 110-123
 - HDP**—pages 90-102
 - HD-20 Board Mount**—pages 54-71, 78-85, 87-89
 - Mating/Panel Mounting**—page 42
 - Cable Clamps**—pages 132, 133, 135-137, 140, 141, 144, 145
 - Mating Hardware**—pages 146-150, 153, 155

- Technical Documents:**
- Product Specification**—108-40005
 - Application Specifications**—114-10000, 114-40030



Clinch Nut
(Plug and Receptacle)

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

HDP-20 Crimp Snap-In Contact Connectors (Continued)

Receptacle



Shell Size	No. of Contact Positions	Dimensions			Insert Material	Mounting Method	Plug Part Numbers			Receptacle Part Nos.	
		A	B	C			Zinc Plated Shell	Tin Plated Shell		Zinc Plated Shell	Tin Plated Shell
								Without Grounding Indents	With Grounding Indents		
1	9	1.213 30.81	.984 24.99	.494 12.55	94V-0	Standard	205204-9	205204-8	205204-4	205203-8	205203-3
						Clinch Nut	—	1658642-2	1658642-1	—	1658643-1
2	15	1.541 39.14	1.312 33.33	.494 12.55	94V-0	Standard	205206-9	205206-8	205206-3	205205-7	205205-2
						Clinch Nut	—	—	5745908-2	—	1658644-1
3	25	2.088 53.04	1.852 47.04	.494 12.55	94V-0	Standard	5205208-1	207464-7	207464-2	5205207-1	207463-1
						Clinch Nut	—	—	5745036-2	207516-6	207516-5
4	37	2.729 69.32	2.500 63.50	.494 12.55	94V-0	Standard	205210-8	205210-7	205210-3	205209-7	205209-2
						Clinch Nut	—	—	745135-4	—	5207661-3
5	50	2.635 66.93	2.406 61.11	.605 15.37	94V-0	Standard	1658641-3	1658641-1	1658641-2	1658640-2	1658640-1
						Clinch Nut	—	—	5745883-2	—	5745884-1

Note: Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.



Clinch Nut
(Plug and Receptacle)

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Note: All part numbers are RoHS compliant.

HDP-20 Basic Shielding Hardware Kits

Plug



Each kit contains:

- Connector
- Inner shield
- Outer shield

Contacts and ferrules must be purchased separately.

Material and Finish:

Connector Shells—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Contacts—pages 100, 101

Application Tooling—page 102

Mateable Connectors:

HDE—pages 110-123

HDP—pages 90-102

HD-20 Board Mount—

pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 42

Mating Hardware—pages 146-150, 153, 155

Ferrules—page 99

Technical Documents:

Product Specifications—

108-40005

108-40030

Application Specifications—

114-10000

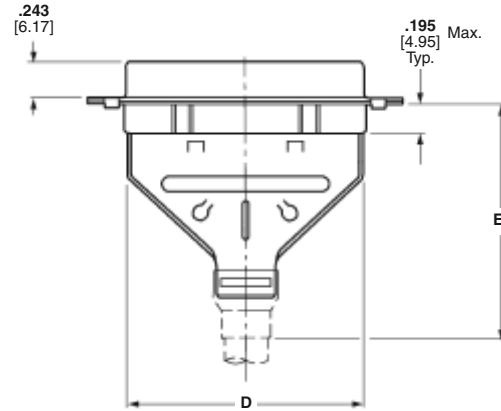
114-40030

Instruction Sheet—408-9010

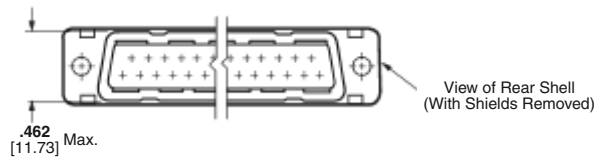
Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

HDP-20 Basic Shielding Hardware Kits (Continued)

Receptacle



Clinch Nut
(Plug and Receptacle)



Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Outer Dia. Range	Max. Inner Cable Bundle Dia.†	Mounting Method	Plug Kit Numbers	Receptacle Kit Numbers
		D	E					
1	9	.700	1.535	.165-.455	.350	Standard	1658645-1	1658646-1
		17.78	38.99			Clinch Nut	5748526-1	5748536-1
2	15	1.024	1.535	.165-.455	.350	Standard	1658647-1	5747539-1
		26.01	38.99			Clinch Nut	5750636-1	5787908-1
3	25	1.576	1.535	.165-.455	.350	Standard	1658648-1	1658649-1
		40.03	38.99			Clinch Nut	—	1658662-1
4	37	2.215	1.892	.338-.562	.450	Standard	1658650-1	1658651-1
		56.26	48.06			Clinch Nut	5786929-1	—
5	50	2.120	1.876	.338-.480	.450	Standard	1658652-1	1658653-1
		53.85	47.65					

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.
 2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.
 †Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

HDP-20 Shielding Hardware Enclosure Kits



Plug

Each Kit Contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Contacts and ferrules must be purchased separately.

Material and Finish:

Connector Shells—Steel, tin plated.

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Zinc alloy

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Contacts—pages 100, 101

Application Tooling—page 102

Mateable Connectors:

HDE—pages 110-123

HDP—pages 90-102

HD-20 Board Mount—

pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 42

Mating Hardware—pages 146-150, 153, 155

Ferrules—page 99

Technical Documents:

Product Specifications—

108-40005

108-40030

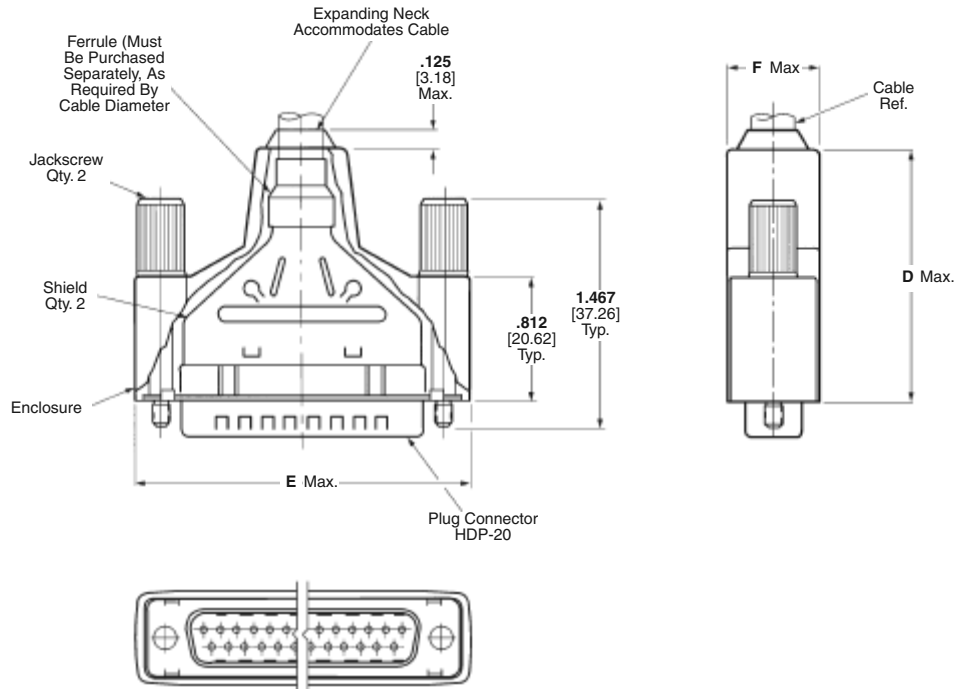
Application Specifications—

114-10000

114-40030

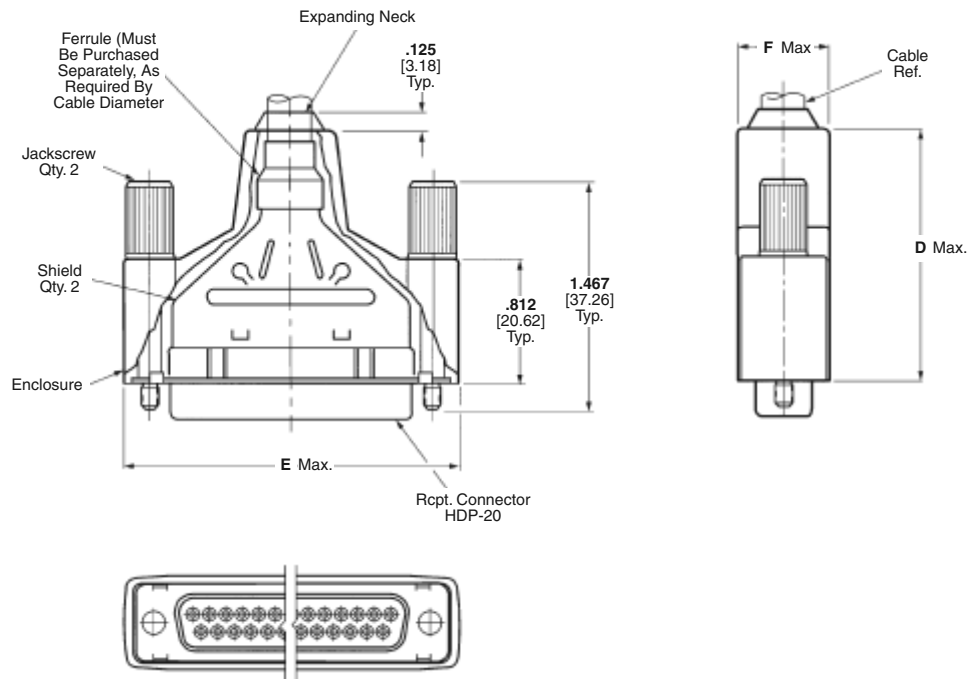
Instruction Sheet—408-9172

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.



HDP-20 Shielding Hardware Enclosure Kits (Continued)

Receptacle



Cable Connectors

Shell Size	No. of Contact Positions	Dimensions			Recommended Cable Outer Diameter Range	Max. Inner Cable Bundle Dia.†	Insert Material	Kit Numbers		Shielding Enclosure Expansion Tool	
		D	E	F				Plug	Receptacle	Cable O.D. (Max.)	Part Number
1	9	1.660	1.355	.630	.190-.330 4.83-8.38	.330 8.38	94V-0	1658655-1	1658654-1	.330 8.38	58241-4
		42.16	34.42	16.00							
2	15	1.660	1.685	.630	.190-.330 4.83-8.38	.330 8.38	94V-0	1658657-1	1658656-1	.450 11.43	58241-1
		42.16	42.80	16.00							
3	25	1.660	2.210	.630	.217-.435 5.51-11.05	.350 8.89	94V-0	1658659-1	1658658-1	.572 14.52	58241-2
		42.16	56.13	16.00							
4	37	2.010	2.865	.730	.338-.562 8.59-14.28	.450 11.43	94V-0	5747958-1	1658660-1	.450 11.43	58241-1
		51.05	72.77	18.54							
5	50	2.010	2.775	.730	.338-.562 8.59-14.28	.450 11.43	94V-0	1658661-1	5747959-1	.450 11.43	58241-1
		51.05	70.49	18.54							

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.
 2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.
 †Maximum cable diameter after jacket and braid removed.

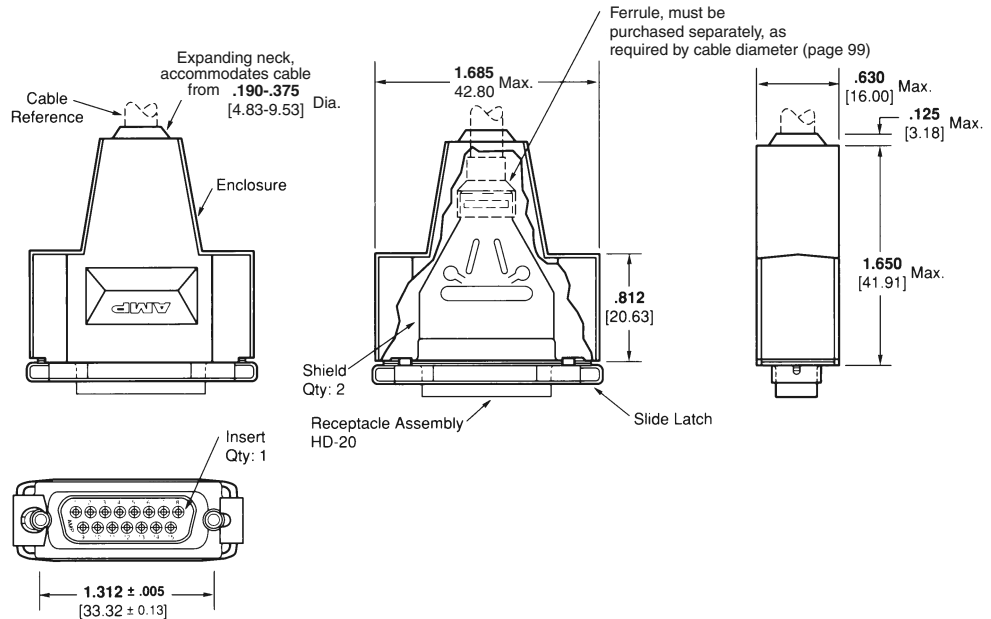
Note: All part numbers are RoHS compliant.

Shielded Connector, Preassembled Kit

Designed to meet the requirements of Local Area Networking, this Subminiature D Shielded Connector Kit is available with slide latches attached to the receptacle. The receptacle is shielded and covered with a durable plastic enclosure. This shielding decreases emissions and provides an effective EMI/RFI barrier.

Preassembled connector kits are available in Subminiature D, shell size 2, 15-position configuration and accept crimp, snap-in HD-20 contacts. Contacts are available separately and allow for selective positioning.

Other sizes and styles can be made available, consult TE.



**Receptacle
Part No. 749246-1**

Material and Finish:

Inserts—94V-0 rated nylon, black

Enclosures—Elastomer, styrene polyolefin, or PVC, black

Shields and Shells—Carbon steel per ASTM A109, plated with .000200 [0.00508] min. tin over .000050 [0.00127] min. copper

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Contacts—pages 100, 101

Application Tooling—page 102

Ferrules—page 99

Technical Documents:

Product Specifications—108-40005, 108-40030, 108-40032

Application Specifications—114-10000 & 114-40030

Note: All part numbers are RoHS compliant.

HDP-20 Ferrules for Shielding Hardware Kits

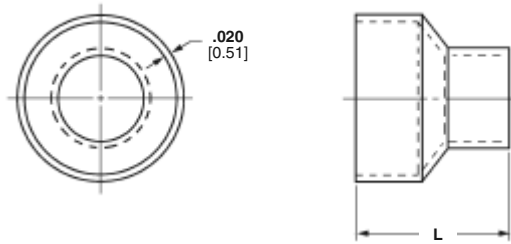
Ferrules for Shielding Hardware Kits



Stepped



Straight



Material and Finish:

Steel (annealed), tin plated

Related Product Data:

Shielding Hardware and Enclosure Kits—pages 94-98

Technical Documents:

Instruction Sheets—

408-9507
408-9508
408-9243
408-9242

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

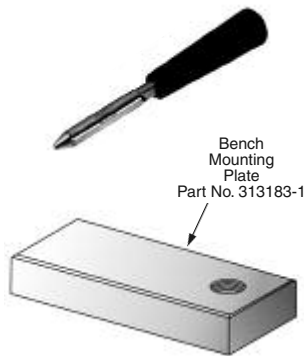
Shell Sizes	Style	L Dim.	Cable Diameter	Part Numbers	
				Ferrule	Die Sets*
1-3	Stepped	.440 11.18	.165-.190 4.19-4.83	3-747579-0	543424-3
1-3	Stepped	.440 11.18	.190-.217 4.83-5.51	3-747579-0	543424-2
1-3	Stepped	.440 11.18	.217-.246 5.51-6.25	3-747579-0	543424-8
1-3	Stepped	.440 11.18	.246-.284 6.25-7.21	3-747579-2	543424-1
1-3	Stepped	.440 11.18	.284-.324 7.21-8.23	3-747579-2	543424-7
1-3	Stepped	.440 11.18	.324-.375 8.23-9.53	3-747579-4	543424-6
1-3	Straight	.440 11.18	.375-.437 9.53-11.10	2-747579-7	543424-5
1-3	Straight	.440 11.18	.400-.460 10.16-11.56	3-747579-6	543424-4
4-5	Stepped	.625 15.88	.230-.265 5.84-6.73	2-747580-4	543425-2
4-5	Stepped	.625 15.88	.338-.385 8.59-9.78	2-747580-3	543425-1
4-5	Stepped	.625 15.88	.375-.432 9.53-10.97	2-747580-1	58238-1
4-5	Stepped	.625 15.88	.422-.490 10.72-12.45	3-747580-1	58237-2
4-5	Straight	.625 15.88	.480-.562 12.19-14.28	2-747580-2	58237-1

*Die sets used with Hand Crimping Tool Part No. 543344-1 or Pneumatic Bench Tool Part No. 312522-3 equipped with Die Set Holder Part No. 58449-1.

Application Tooling for Shielding Hardware Kits



Hand Crimping Tool
No. 543344-1
(Requires Die Sets, see table above.)



Shielding Enclosure Expansion Tools
Part No. 58241-1 (.450 [11.43])†
58241-2 (.572 [14.53])†
58241-4 (.330 [8.38])†
†Maximum Cable Diameter (Instruction Sheet—408-9172)

Pneumatic Bench Tool
No. 312522-3
(Requires Die Set Holder No. 58449-1.)



Note: All part numbers are RoHS compliant.

HDP-20 Connector Contacts, Precision Formed

Contact Size 20 DF Pin Diameter .040 [1.02]

Material and Finish:

Pin—Brass

Socket—Phosphor bronze

Plated

A—Select—Gold flash over nickel on entire contact, with additional .000030 [0.00076] gold on mating end

B—Duplex—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

C—Gold flash over nickel on entire contact

D—Duplex—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Performance Characteristics—page 41

Connectors used with:
HDP—pages 92-97

Application Tooling—page 102

Technical Documents:

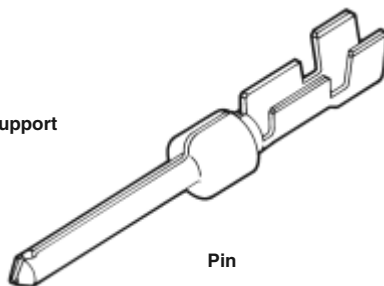
Product Specification—108-40005

Application Specifications—114-10000
114-40030

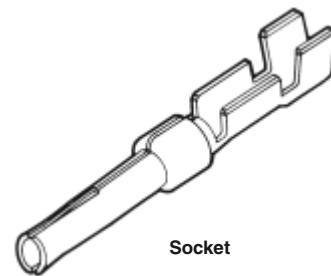
Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Crimp Snap-In Contacts

With Insulation Support



Pin



Socket

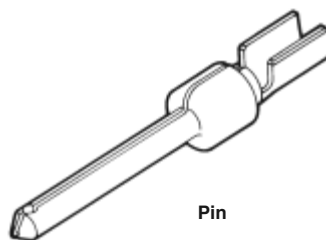
Wire Size Range AWG [mm ²]	Ins. Dia. Max.	Contact Finish (Plating Code)	Contact Part Numbers				Hand Tools for Loose Form Contacts		
			Pin		Socket		PRO-CRIMPER II Hand Tool	CERTI-CRIMP II Hand Tool (Color Code)	Applicators* for Strip Form Contacts
			Strip Form	Loose Form	Strip Form	Loose Form			
28-24 0.08-0.2	.040 1.02	A	66507-3	66507-9	66505-3	66505-9	58448-2	91503-1 (Blue Dot)	466423-4** 466901-1***
		B	1658540-4	1658540-5	1658538-2	—			
		C	66507-4	1-66507-0	66505-4	1-66505-0			
		D	1658540-1	1658540-2	1658538-3	1658538-1			
26-22 0.15-0.4	.040 1.27	A	66682-2	66682-4	66683-2	66683-4	—	91549-1 (Black Dot)	466963-1***
		B	5066682-9	—	1-5066683-0	—			
		C	745254-3	745254-7	745253-3	745253-7			
		D	1658544-3	—	1658543-3	—			
24-20 0.2-0.6	.060 1.52	A	745254-2	745254-6	745253-2	745253-6	58448-2	91503-1 (Red Dot)	466422-4** 466900-1***
		B	1658539-1	1658539-3	1658537-3	1658537-4			
		C	66506-4	1-66506-0	66504-4	1-66504-0			
		D	1658539-2	1658539-4	1658537-1	1658537-2			

*For Part Nos. of Special Applicators and Applicators for other model machines, call the TE Tooling Assistance Center at **1-800-722-1111**.

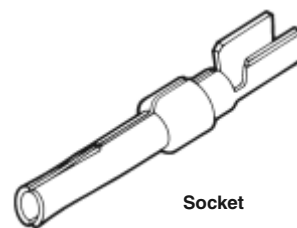
**For use with AMP-O-ELECTRIC Model "G" Terminating Machine.

***For use with AMP-O-MATIC Model II Stripper-Crimper Machine.

Without Insulation Support



Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Max.	Contact Finish (Plating Code)	Contact Part Numbers		Hand Tools for Loose Form Contacts	
			Pin	Socket	CERTI-CRIMP II Hand Tool (Color Code)	Applicators* for Strip Form Contacts
			Strip Form	Strip Form		
28-24 0.08-0.2	.068 1.73	A	205310-2	205311-3	91548-1 (Blue Dot)	466903-1***
		A	205202-2	205201-3		
24-20 0.2-0.6	.068 1.73	C	205202-6	205201-6	91548-1 (Red Dot)	466902-1***
		A	745229-2	745230-2		
		B	1658541-1	1658542-2		
22-18 0.4-0.8	.068 1.73	C	745229-5	745230-5	91513-1 (Green Dot)	466996-1***
		D	—	1658542-1		

Note: Wire insulation diameter is limited by the connector housing cavity and clearance for the insertion/extraction tool.

*For Part Nos. of Special Applicators and Applicators for other model machines, call the TE Tooling Assistance Center at **1-800-722-1111**.

***For use with AMP-O-MATIC Model II Stripper-Crimper Machine.

Note: All part numbers are RoHS compliant.

HDP-20 Connector Contacts, Precision Formed (Continued)

**Contact Size 20 DF
Pin Diameter .040 [1.02]**

Material and Finish:

Pin—Brass

Socket—Phosphor bronze

Plated:

A—Duplex plated .000030 [0.00076] gold on mating end, with entire contact .000050 [0.00127] min. nickel under-plated

B—Duplex plated gold flash on mating end, with entire contact .000050 [0.00127] min. nickel underplated

Related Product Data:

Performance Characteristics—
page 41

Connectors used with:
HDP—pages 92, 93

Technical Documents:

Product Specification—108-40005

Application Specifications—
114-10000
114-40030

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

**Contact Size 20 DF
Pin Diameter .040 [1.02]**

Material and Finish:

Pin—Brass

Socket—Phosphor bronze

Plated—Gold flash over nickel on entire contact, with additional .000030 [0.00076] gold on mating end

Related Product Data:

Performance Characteristics—
page 41

Connectors used with:
HDP—pages 92-97

Technical Documents:

Product Specification—108-40005

Application Specification—
114-40030

**Insertion/Extraction Tool
No. 91285-1**

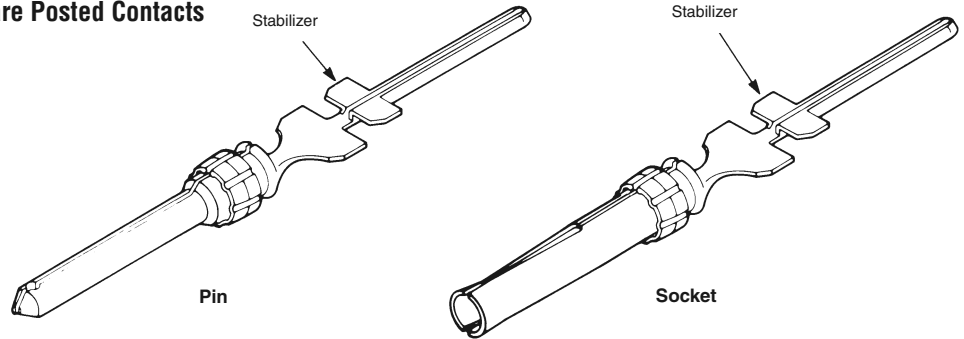
This tool includes interchangeable tips to Insert/Extract:

Size 22, 28-22 AWG [0.08-0.4 mm²]

Size 20, Posted Contacts

(Instruction Sheet—408-9404)

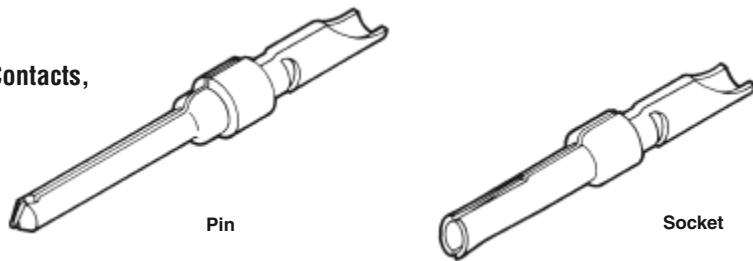
**.025 [0.64]
Square Posted Contacts**



Contact Finish (Plating Code)	Loose Form Contact Numbers							
	.125 [3.18] Post Length*		.188 [4.78] Post Length*		.427 [10.85] Post Length*		.651 [16.54] Post Length*	
	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket
A	—	5-745288-5	5-745287-4	7-745288-0	4-745287-7	5-745288-8	5-745287-0	6-745288-1
B	—	—	—	—	—	7-745288-2	—	7-745288-2

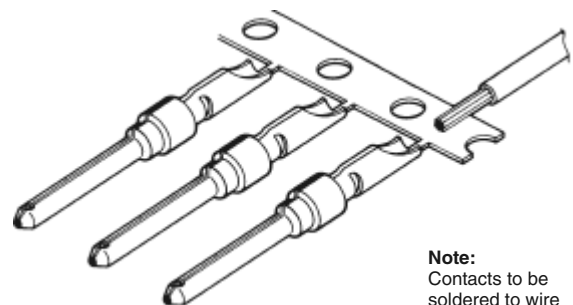
*Length of post extending from rear of HDP-20 metal-shell connector.

**Solder Cup Contacts,
Snap-In**



18 AWG Max. Wire (.046 [1.17] Max. Conductor Diameter)

Strip Form Contact Number		Loose Form Contact Number	
Pin	Socket	Pin	Socket
66570-2	66569-2	66570-3	66569-3



Note: Contacts to be soldered to wire before being inserted into housing

Note: All part numbers are RoHS compliant.

HDP-20 Application Tooling

HDP-20 contacts may be applied by a variety of hand tools and machines. For low production runs, repairs and prototype work, we offer either our premium CERTI-CRIMP Hand Tool or our commercial PRO-CRIMPER II Hand Tool. For medium-volume production, you have the choice of our AMP-O-ELECTRIC Model "G" Terminating Machine, our new Model "M" Terminating Machine, or our AMP-O-MATIC Model II Stripper-Crimper Machine. The Stripper-Crimper is typically used for terminating the wires of jacketed cable. All three machines can be bench mounted.

For production requirements ranging from non-stop high volumes to countless series of short runs, our popular AMPOMATOR CLS IV+ fully-automated lead-making machine is an ideal choice.

For further information about these or other TE hand tools and machines, call the TE Tooling Assistance Center at **1-800-722-1111**.



AMPOMATOR CLS IV+ Lead-Making Machine

This versatile machine now incorporates two AMP-O-ELECTRIC Model "G" Terminating Units. Basically, it produces single-wire leads in lengths from 1.62 [41.2] to 1000 [25 400]. It measures, cuts, strips and terminates wire sizes from 26 to 10 AWG [0.12 to 6 mm²] stranded and 26 to 16 AWG [0.12 to 1.4 mm²] solid. Production rates range up to 4800 leads per hour for 3 [76.2] lengths.

The machine is microprocessor controlled, and programmed and operated with

an easy-to-follow, menu-driven touchscreen. It can retain data for up to 200 lead assemblies. Off-line programming is also possible with optional software OffLine-Plus for Windows 95, **Part No. 189263-2**.

Air requirement is 90 psi [6.21] bar minimum at 15 scfm [0.0071 m³/s]. Power requirement is single-phase 220 VAC, 50 or 60 Hz, 25 A.

For further information request Catalog 124324.

Note: All part numbers are RoHS compliant.

HDP-22 Crimp Snap-In Contact Connectors



Product Selection Guide

Connector				Contacts			
Type	Insert Material	Shell Type Material and Finish	Mounting	Type	Termination	Plating	
Plug (pg. 105)	94V-0 Rated Thermoplastic, Black	Tin Plated Steel with Grounding Indents	.120 [3.05] Dia. Holes	➤	Pin (pg. 109)	Crimp	Duplex (.000030 [0.00076] Gold and Tin)
							Duplex (Gold Flash and Tin)
Receptacle (pg. 105)	94V-0 Rated Thermoplastic, Black	Tin Plated Steel	.120 [3.05] Dia. Holes	➤	Socket (pg. 109)	Crimp	Duplex (0.000030 [0.00076] Gold and Tin)
							Duplex (Gold Flash and Tin)

HDP-22 Crimp Snap-In Contact Connectors (Continued)

Product Facts:

- Approximately 65% higher density than HD-20 connectors
- Lower cost, commercial version of the military approved Series 90 family
- Available with shielding overmold hardware and shielding enclosure kits
- Capable of using numerous standard HD-20 cable clamps and mating hardware

- Low cost, high performance, precision-formed crimp contacts
- Intermateable with any size 22 Subminiature D connector dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories,  File No. E81956
- Certified by Canadian Standards Association, File No. LR 1088108  (LR 7189-207)

Section Contents

Plug and Receptacle Connectors 105
 Basic Shielding Hardware Kits 106
 Shielding Hardware Enclosure Kits 107
 Ferrules for Shielding Hardware Kits 108
 Contacts 109
 Application Tooling 108, 109

Unshielded Cable Clamps	Shielded Cable Clamps and Shielding Hardware and Enclosure Kits	Mounting and Mating Hardware
One-Piece All Plastic Cable Clamp 180°/120° Exit (Quik-Snap) (pg. 133)	Straight Exit RFI/EMI Shields for Jacketed Cable (pg. 141)	Male Screw Retainers (pgs. 146, 147)
Box and Lid Straight/90° Exit (pg. 137)	90° Exit RFI/EMI Die Cast Shields For Jacketed Cable (pg. 142)	Female Screwlocks (pg. 148)
Box and Lid Straight/90° Exit with Male Screw Retainers (pg. 137)	Basic Shielding Hardware Kits (pg. 106)	Locking Posts and Slide Latches (pgs. 149, 151)
Clam Shell Straight/45° Exit (pg. 138)	Shielding Hardware Enclosure Kits (pg. 107)	Two-Piece Spring Latch (pg. 152)
Clam Shell Straight/45° Exit with Screw Retainers (pg. 138)	Crimp & Split Ring Ferrules (pgs. 143-145)	Latching Blocks (pgs. 153, 154)

Contact Retention Features



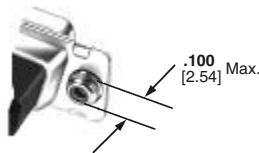
HDP-22 Crimp Snap-In Contact Connectors (Continued)



Plug
(With Grounding Indents)



Receptacle



Clinch Nut
(Plug and Receptacle)

Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black
 Contacts and ferrules must be purchased separately.

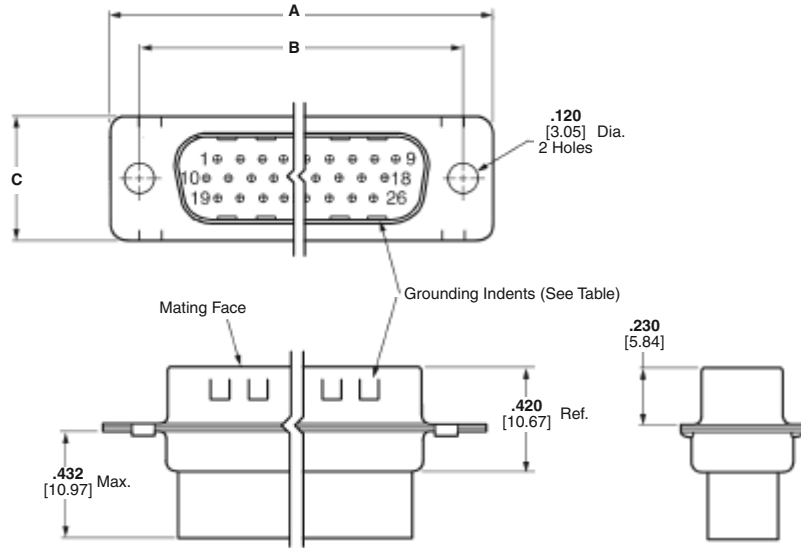
Related Product Data:

- Contact Arrangements**—page 40
- Performance Characteristics**—page 41
- Contacts**—page 109
- Ferrules**—page 108
- Mating/Panel Mounting**—page 42
- Cable Clamps**—pages 132, 133, 135-137, 140, 141, 144, 145
- Mating Hardware**—pages 146-150, 153, 155

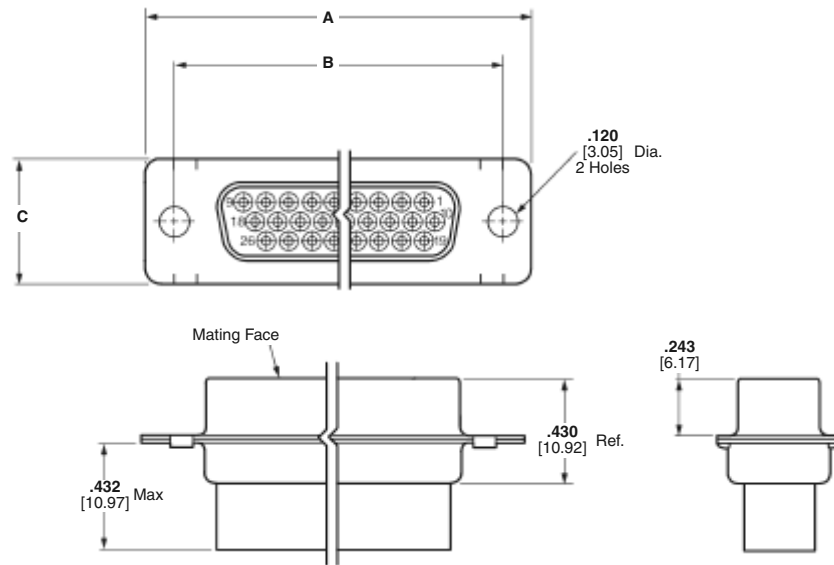
Technical Documents:

- Application Specification**—114-10001
- Product Specification**—108-1268
- Instruction Sheets**—408-9381
- Note:** Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions			Part Numbers			
		A	B	C	With Grounding Indents		With Clinch Nuts	
					Plug	Plug	Receptacle	Receptacle
1	15	1.213 30.81	.984 24.99	.494 12.55	748364-1	1658691-1	1658681-1	1658690-1
2	26	1.541 39.14	1.312 33.33	.494 12.55	1658671-1	5749717-1	1658682-1	5788816-1
3	44	2.088 53.84	1.852 47.04	.494 12.55	1658672-1	—	1658683-1	5786583-1
4	62	2.729 69.32	2.500 63.50	.494 12.55	1658673-1	6658293-1	1658684-1	—
5	78	2.635 66.93	2.406 61.11	.605 15.37	1658674-1	—	1658685-1	5788817-1

Note: Plugs accept size 22 DF pin contacts and receptacles accept size 22 DF socket contacts.

Note: All part numbers are RoHS compliant.

HDP-22 Crimp Snap-In Contact Connectors (Continued)

Basic Shielding Hardware Kits



Plug



Receptacle

Each kit contains:

- Connector
- Inner shield
- Outer shield

Contacts and ferrules must be purchased separately.

Material and Finish:

- Connector Shell**—Steel, tin plated
- Connector Insert**—94V-0 rated thermoplastic, black
- Shields**—Steel, tin plated

Related Product Data:

- Contact Arrangements**—page 40
- Performance Characteristics**—page 41
- Contacts**—page 109
- Ferrules**—page 108
- Application Tooling**—pages 108 & 109

Mateable Connectors—pages 105 & 107

Mating Hardware—pages 146-150, 153, 155

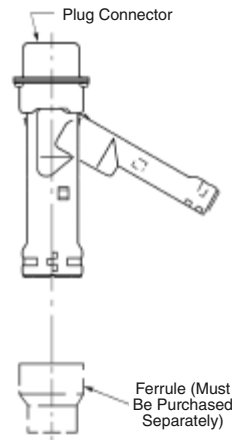
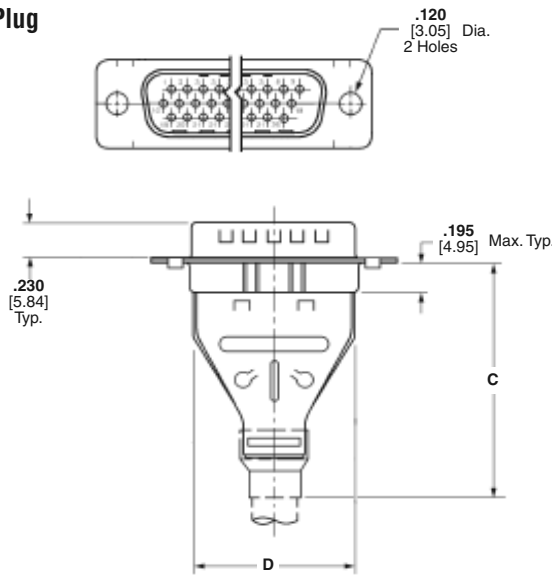
Mating/Panel Mounting—page 42

Technical Documents:

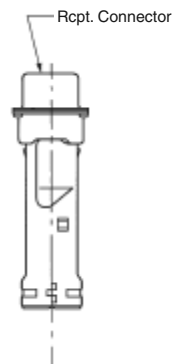
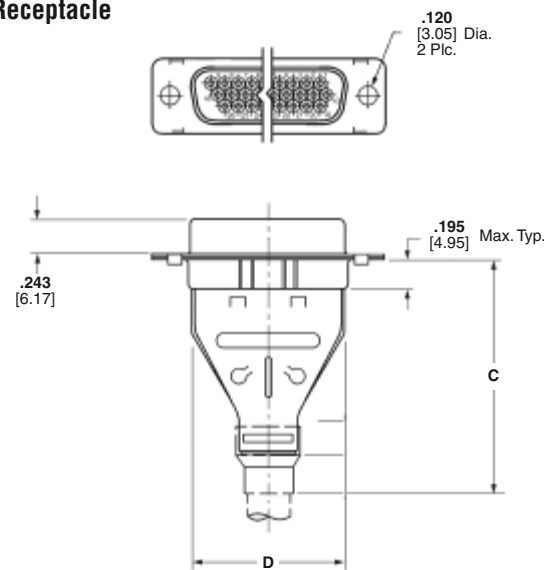
- Application Specifications**—114-10001
- Product Specification**—108-1268
- Instruction Sheet**—408-9381, 408-9010

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Outer Dia. Range	Max. Inner Cable Bundle Dia.†	Kit Numbers	
		C	D			Plug	Receptacle
1	15	1.535 38.99	.700 17.78	.165-.455 4.19-11.56	.350 8.89	1658675-1	5748634-1
2	26	1.535 38.99	1.024 26.01	.165-.455 4.19-11.56	.350 8.89	1658676-1	1658687-1
3	44	1.535 38.99	1.576 40.03	.165-.455 4.19-11.56	.350 8.89	1658677-1	5748636-1
4	62	1.892 48.06	2.215 56.26	.338-.562 8.59-14.28	.450 11.43	5748471-1	—
5	78	1.876 47.65	2.120 53.85	.338-.490 8.59-12.45	.450 11.43	5748472-1	—

Notes: 1. Plugs accept size 22 DF pin contacts and receptacles accept size 22 DF socket contacts.
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.
†Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

HDP-22 Crimp Snap-In Contact Connectors (Continued)

Shielding Hardware Enclosure Kits



Plug



Receptacle

Each kit contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Contacts and ferrules must be purchased separately.

Material and Finish:

- Connector Shell**—Steel, tin plated
- Connector Insert**—94V-0 rated thermoplastic, black
- Shields**—Steel, tin plated
- Enclosure**—PVC, black
- Jackscrews**—Zinc alloy

Related Product Data:

- Contact Arrangements**—page 40
- Performance Characteristics**—page 41
- Contacts**—page 109
- Ferrules**—page 108

Application Tooling—pages 108 & 109

Mateable Connectors—pages 105 & 106

Mating Hardware—pages 146-150, 153-155

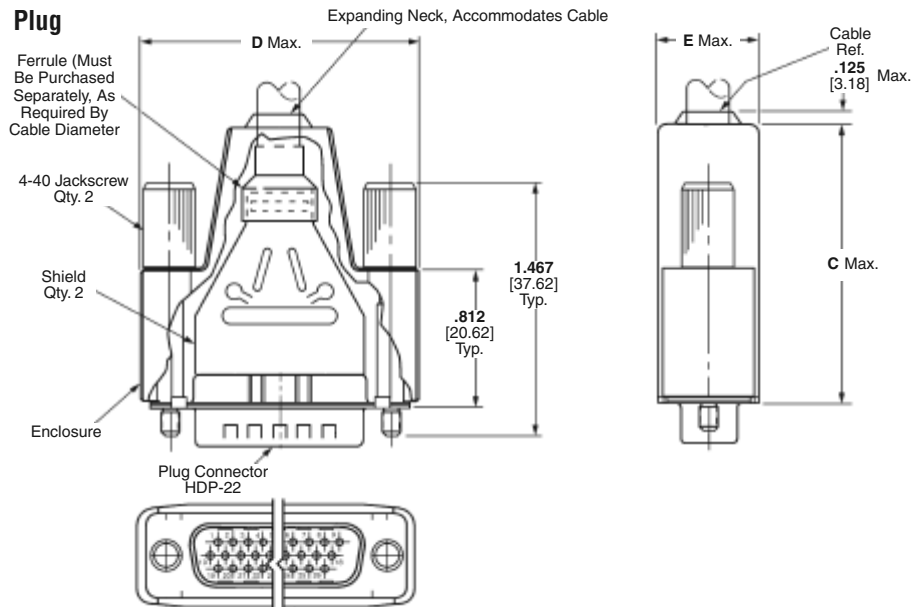
Mating/Panel Mounting—page 42

Technical Documents:

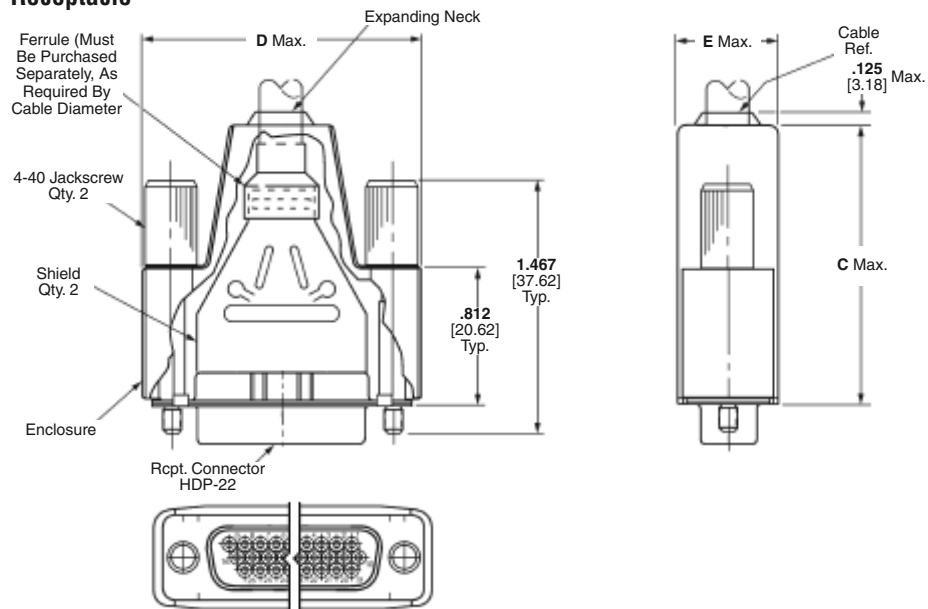
- Application Specifications**—114-10001
- Product Specification**—108-1268
- Instruction Sheet**—408-9381
408-9172

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions			Recommended Cable Outer Diameter	Max. Inner Cable Bundle Dia.†	Kit Numbers		Shielding Enclosure Expansion Tool	
		C	D	E			Plug	Receptacle	Cable O.D. (Max.)	Part Number
1	15	1.640 41.66	1.355 34.42	.630 16.00	.190-.330 4.83-8.38	.330 8.38	1658678-1	1658688-1	.330 8.38	58241-4
2	26	1.640 41.66	1.685 42.80	.630 16.00	.190-.330 4.83-8.38	.330 8.38	1658679-1	1658689-1		
3	44	1.640 41.66	2.205 56.01	.630 16.00	.217-.435 5.51-11.05	.350 8.89	1658680-1	5748641-1	.450 11.43	58241-1
4	62	2.010 51.05	2.860 72.64	.730 18.54	.338-.562 8.59-14.28	.450 11.43	5748476-1	5748642-1	.572 14.52	58241-2
5	78	2.010 51.05	2.770 70.36	.730 18.54	.338-.490 8.59-12.45	.450 11.43	5748477-1	—		

Notes: 1. Plugs accept size 22 DF pin contacts and receptacles accept size 22 DF socket contacts.
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

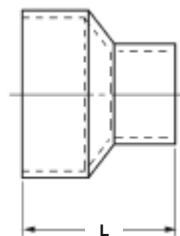
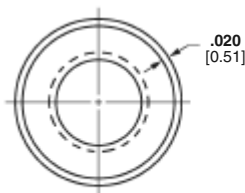
HDP-22 Crimp Snap-In Contact Connectors (Continued)

Ferrules for Shielding Hardware Kits


Stepped



Straight



Cable Connectors

Material and Finish:

Steel (annealed), tin plated

Related Product Data:
Shielding Hardware and Enclosure Kits—pages 106 & 107

Technical Documents:
Instruction Sheets—

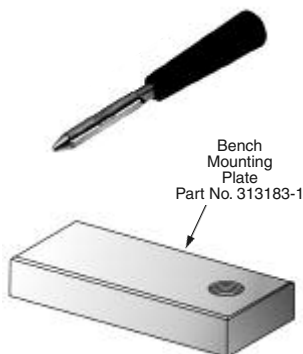
 408-9507
 408-9508
 408-9243
 408-9242

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Shell Sizes	Style	L Dim.	Cable Diameter	Part Numbers	
				Ferrule	Die Sets*
1-3	Stepped	.440 11.18	.165-.190 4.19-4.83	3-747579-0	543424-3
1-3	Stepped	.440 11.18	.190-.217 4.83-5.51	3-747579-0	543424-2
1-3	Stepped	.440 11.18	.217-.246 5.51-6.25	3-747579-0	543424-8
1-3	Stepped	.440 11.18	.246-.284 6.25-7.21	3-747579-2	543424-1
1-3	Stepped	.440 11.18	.284-.324 7.21-8.23	3-747579-2	543424-7
1-3	Stepped	.440 11.18	.324-.375 8.23-9.53	3-747579-4	543424-6
1-3	Straight	.440 11.18	.375-.437 9.53-11.05	7-747579-7	543424-5
1-3	Straight	.440 11.18	.400-.460 10.16-11.56	3-747579-6	543424-4
4-5	Stepped	.625 15.88	.230-.265 5.84-6.73	2-747580-4	543425-2
4-5	Stepped	.625 15.88	.338-.385 8.59-9.78	2-747580-3	543425-1
4-5	Stepped	.625 15.88	.375-.432 9.53-10.97	2-747580-1	58238-1
4-5	Stepped	.625 15.88	.422-.490 10.72-12.45	3-747580-1	58237-2
4	Straight	.625 15.88	.480-.562 12.19-14.28	2-747580-2	58237-1

*Die sets used with Hand Crimping Tool Part No. 543344-1 or Pneumatic Bench Tool Part No. 312522-3 equipped with Die Set Holder Part No. 58449-1.

Application Tooling for Shielding Hardware Kits

Hand Crimping Tool
 No. 543344-1
 (Requires Die Sets, see table above.)

Shielding Enclosure Expansion Tools
 Part No. 58241-1 (.450 [11.43])†
 58241-2 (.572 [14.53])†
 58241-4 (.330 [8.38])†
 †Maximum Cable Diameter
 (Instruction Sheet—408-9507)

Pneumatic Bench Tool
 No. 312522-3
 (Requires Die Set Holder No. 58449-1.)

Note: All part numbers are RoHS compliant.

HDP-22 Crimp Snap-In Contact Connectors (Continued)

Material

Pin—Brass

Socket—Phosphor bronze

Finish

A—Duplex plated .000030 [0.00076] gold on mating end, tin on crimp barrel, with entire contact nickel underplated

B—Duplex plated gold flash on mating end, tin on crimp barrel, entire contact nickel underplated

Related Product Data:

Performance Characteristics—page 41

Connectors used with—pages 105-107

Technical Documents:

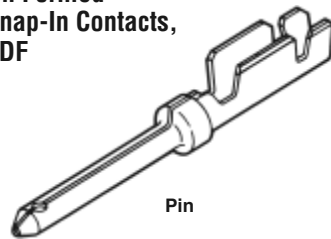
Application Specification—114-10001

Product Specification—108-1268

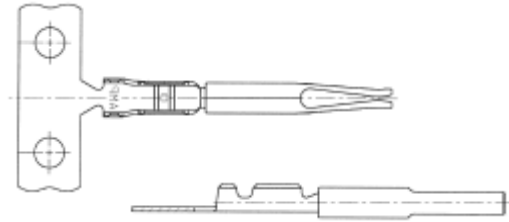
Instruction Sheet—408-9381

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Precision Formed Crimp Snap-In Contacts, Size 22 DF



Pin



Socket

Wire Size AWG mm ²	Insulation Diameter Max.	Contact Finish (Plating Code)	Contact Part Numbers				Hand Tools for Loose Form Contacts	
			Pin		Socket		PRO-CRIMPER II Hand Tool	CERTI-CRIMP II Hand Tool
			Strip Form	Loose Form	Strip Form	Loose Form		
28-22 0.4-0.08	.040 1.02	A	1658670-1	1658670-2	1658686-1	1658686-2	90800-1	91520-1
		B	1658670-3	1658670-4	1658686-3	1658686-4		

Notes: 1. Strip form contacts shipped 20,000 pieces/reel.

Insertion/Extraction Tool No. 91285-1 (Instruction Sheet—408-9404)

This tool contains interchangeable tips to Insert/Extract Size 22, 28-22 AWG [0.08-0.4 mm²] Crimp Contacts Size 20, 28-20 AWG [0.08-0.4 mm²] Crimp Contacts Size 20, Posted Contacts

Application Tooling



Applicators

To accommodate the broad range of wire termination products that TE produces, most TE terminating machines are designed for use with interchangeable applicators. The basic styles are quickly interchangeable to minimize costly down times, and feature dial-in wire and insulation crimp-height settings. Special applicators are now available for use with the AMP Crimp Quality Monitor, for measuring the crimp height of each termination as it is made, plus evaluating the quality of each crimp.

For further information, request Catalog 65404.

For applicator part numbers, call the TE Tooling Assistance Center at **1-800-722-1111**.



AMP-O-LECTRIC MODEL "G" Terminating Machine

A totally new design of our most popular machine for bench-top operation. It features a quiet and highly-reliable direct motor drive, electronic controls for ease of setup and operation, and improved guarding and lighting for operator convenience and safety. All versions also include either manual or automatic precision adjustment for crimp height. Power requirement is 120 or 220 VAC, 50 or 60 Hz.

For further information, request Catalog 65828.



AMP-O-MATIC Model II Stripper-Crimper Machine

This machine automatically strips as well as terminates individual wires. Similar to the AMP-O-LECTRIC Model "G" machine, applicators are quickly interchangeable, and it includes precision adjustment for crimp height. All adjustments can be made from the front of the machine without special tools. Power requirement is 120 VAC. Air requirement is 80-100 psi [5.52-6.89 bar], 3.5 scfm [0.00165 m³/s].

For further information request Catalog 65004.



PRO-CRIMPER II Hand Tool Part No. 90800-1

Features interchangeable die sets and ratchet control that provides full die closure to help eliminate partial crimps. The new design is more durable, and requires dramatically less hand force.

For further information, request Catalog 82276.

Note: All part numbers are RoHS compliant.

HDE-20 IDC Connectors for Discrete Wire and Jacketed Cable





Product Selection Guide

Connector				Contacts Pre-Loaded*		
Type	Insert Material	Shell Type Material and Finish	Mounting	Type	Termination	Plating
Plug						
All-Plastic (pg. 112)	94V-0 Rated Thermoplastic, Black	Tin Plated Steel	.120 [3.05] Dia. Holes	Pins	Insulation Displacement * Interchangeable crimp snap-in contacts available, see page 121	Duplex (.000030 [0.00076] Gold and Tin)
Metal-Shell (pg. 114)						Duplex (Gold Flash and Tin)
Receptacle						
All-Plastic (pg. 113)	94V-0 Rated Thermoplastic, Black	Tin Plated Steel	.120 [3.05] Dia. Holes	Sockets	Insulation Displacement * Interchangeable crimp snap-in contacts available, see page 121	Duplex (.000030 [0.00076] Gold and Tin)
Metal-Shell (pg. 115)						Duplex (Gold Flash and Tin)

HDE-20 IDC Connectors for Discrete Wire and Jacketed Cable (Continued)

Product Facts

- Insulation displacement contacts preloaded in housings
- No wire stripping
- Post plated contacts with no bare edges
- Duplex plated contacts—gold on mating end and tin on crimp end
- Patented contact ensures reliable termination of a wide range of wire sizes and insulation diameters
- Removable contacts for replacement and repair

- Selective loading of contacts available
- Crimp snap-in contacts available for making jumpers between circuits
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories, File No. E81956 
- Certified by Canadian Standards Association, File No. 1088108 (LR 7189-207) 

Section Contents

All-Plastic Plug and Receptacle Connectors	112, 113
Metal-Shell Plug and Receptacle Connectors	114, 115
Basic Shielding Hardware Kits	116, 117
Shielding Hardware Enclosure Kits	118, 119
Ferrules for Shielding Hardware Kits	120
Interchangeable Contacts, Crimp Snap-In	121
Application Tooling	122, 123

Typical Application Rates

Tool	Rate
Pistol Style	7.4 Sec./Line
Arbor Tool	5.0 Sec./Line
CHAMPOMATOR Machine	2.8 Sec./Line

Note: Rates are based on total time to complete a double ended 25 position Jacketed Cable Assembly

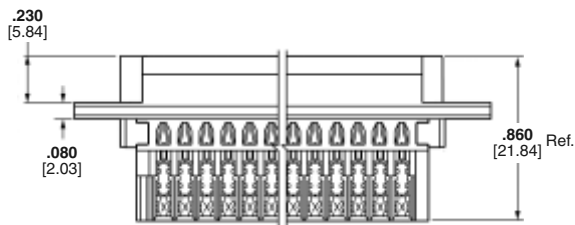
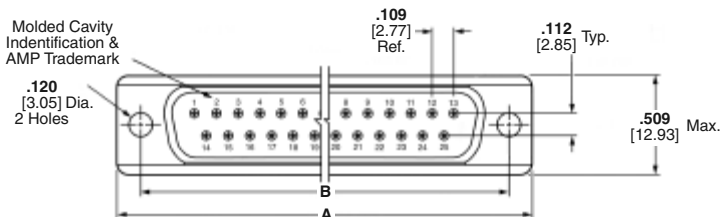
Unshielded Cable Clamps	Shielded Cable Clamps and Shielding Hardware and Enclosure Kits	Mounting and Mating Hardware
<p>One-Piece, All-Plastic Cable Clamp, 180°/120° Exit (Quik-Snap) (pg. 133)</p> <p>Unshielded Cable Clamps Straight/90° Exit (pg. 132)</p> <p>Slide-On Back Cover (pg. 136)</p>	<p>Straight Exit RFI/EMI Shields for Jacketed Cable (pg. 142)</p> <p>90° Exit Die Cast RFI/EMI Shields for Jacketed Cable (pg. 142)</p> <p>Basic Shielding Hardware Kits (pgs. 116, 117)</p> <p>Shielding Hardware Enclosure Kits (pgs. 118, 119)</p>	<p>Male Screw Retainers (pgs. 146, 147)</p> <p>Female Screwlocks (pg. 148)</p> <p>Locking Posts and Slide Latches (pgs. 149, 151)</p> <p>Spring Latches, (pg. 152)</p> <p>Latching Blocks, (pgs. 153, 154)</p> <p>Keying Plug (pg. 155)</p>

HDE-20 All-Plastic IDC Connectors

Plug



Plug



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—0.00030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Interchangeable Crimp Snap-In Contacts—page 121

Application Tooling—pages 121-123

Mateable Connectors:

HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 42

Cable Clamps—pages 132, 133, 135-137, 139, 140, 144, 145

Mating Hardware—pages 146-150, 153, 155

Technical Documents:

Product Specification—108-40011

Application Specifications—114-40002
114-40003

Instruction Sheet—408-6621

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers	
		A	B		Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire Plug	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire Plug
1	9	1.213 30.81	.984 24.99	A	—	745203-2
				B	—	1-745203-1
2	15	1.541 39.14	1.312 33.33	A	—	745207-7
				B	—	—
3	25	2.090 53.09	1.852 47.04	A	745211-9	745211-7
				B	—	745211-8
4	37	2.732 69.39	2.500 63.50	A	—	745215-7
				B	—	—

- Notes:**
1. All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
 2. HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
 3. Individual conductor strands should be larger than .005 inch [0.127] diameter.
 4. Extraction Tool Part No. 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.
 5. For terminating more than one wire, or a drain wire, use crimp contacts on page 121.

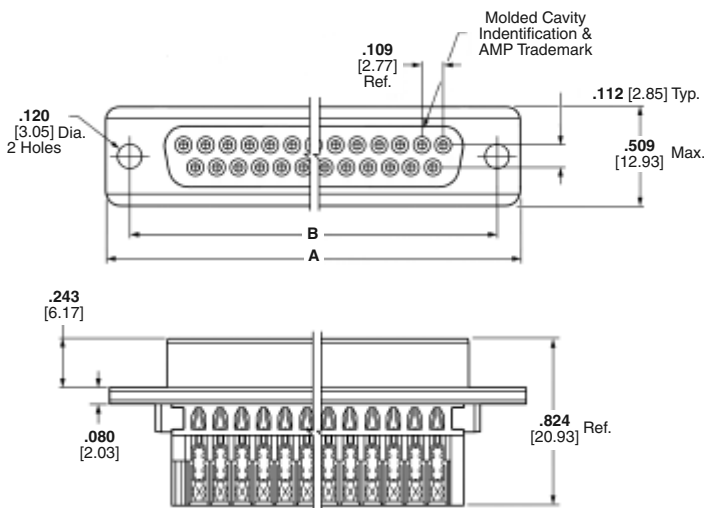
Note: All part numbers are RoHS compliant.

HDE-20 All-Plastic IDC Connectors (Continued)

Receptacle



Receptacle



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A— $.000030$ [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Interchangeable Crimp Snap-In Contacts—page 121

Application Tooling—pages 121-123

Mateable Connectors:

HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 42

Cable Clamps—pages 132, 133, 135-137, 139, 140, 144, 145

Mating Hardware—pages 146-150, 153, 155

Technical Documents:

Product Specification—108-40011

Application Specifications—114-40002
114-40003

Instruction Sheet—408-6621

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

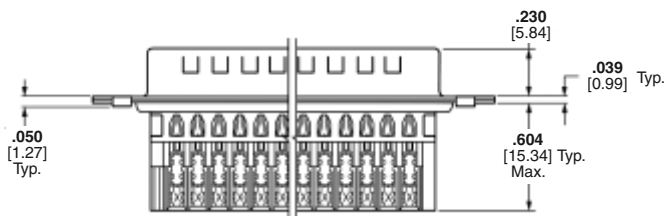
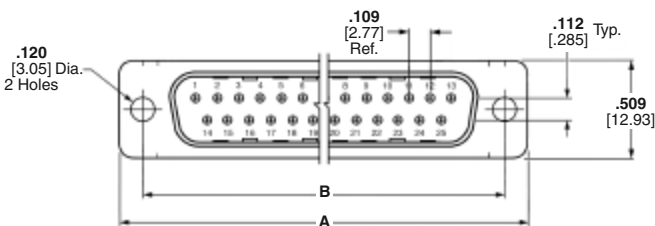
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers
		A	B		Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire Receptacle
1	9	1.213 30.81	.984 24.99	A	745201-7
				B	745201-9
2	15	1.541 39.14	1.312 33.33	A	745205-7
				B	745209-7
3	25	2.090 53.09	1.852 47.04	A	745209-7
				B	745209-8

- Notes:**
1. All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of $.015$ [0.38] and a max. wire insulation dia. of $.060$ [1.52].
 2. HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
 3. Individual conductor strands should be larger than $.005$ inch [0.127] diameter.
 4. Extraction Tool Part No. 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.
 5. For terminating more than one wire, or a drain wire, use crimp contacts on page 121.

Note: All part numbers are RoHS compliant.

HDE-20 Metal-Shell IDC Connectors

Plug



Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze

Contact Finish—Duplex plated:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated
B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Interchangeable Crimp Snap-In Contacts—page 121

Application Tooling—pages 121-123

Mateable Connectors:

HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 42

Cable Clamps—pages 132, 133, 135-137, 138, 140, 144, 145

Mating Hardware—pages 146-150, 153, 155

Technical Documents:

Product Specification—108-40011

Application Specifications—114-40002
114-40003

Instruction Sheet—408-6645

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

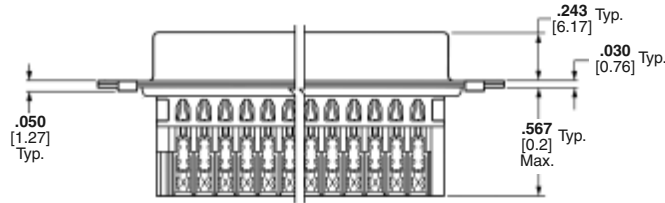
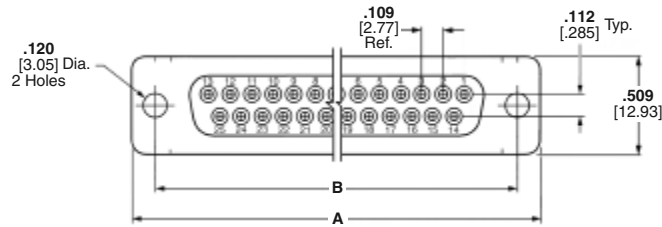
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers		
					Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact Identification No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
					Plug	Plug	Plug
1	9	1.213 30.81	.984 24.99	A	1-745492-7	1-745492-8	1-745492-9
				B	—	2-745492-0	—
2	15	1.541 39.14	1.312 33.33	A	1-745494-7	1-745494-5	—
				B	—	1-745494-6	—
3	25	2.088 53.04	1.852 47.04	A	1-745496-9	1-745496-7	2-745496-0
				B	—	1-745496-8	—
4	37	2.729 69.32	2.500 63.50	A	1-745498-6	1-745498-5	—
				B	—	1-745498-7	—

- Notes:**
- All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
 - Connectors can be made available with clinch nuts, contact TE.
 - HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
 - Individual conductor strands should be larger than .005 inch [0.127] diameter.
 - Extraction Tool Part No. 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.
 - For terminating more than one wire, or a drain wire, use crimp contacts on page 121.

Note: All part numbers are RoHS compliant.

HDE-20 Metal-Shell IDC Connectors (Continued)

Receptacle



Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze

Contact Finish—Duplex plated:
A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Interchangeable Crimp Snap-In Contacts—page 121

Application Tooling—pages 121-123

Mateable Connectors:

HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 42

Cable Clamps—pages 132, 133, 135-137, 139, 140, 144, 145

Mating Hardware—pages 146-150, 153, 155

Technical Documents:

Product Specification—108-40011

Application Specifications—114-40002
114-40003

Instruction Sheet—408-6645

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers		
					Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact Identification No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
					Receptacle	Receptacle	Receptacle
1	9	1.213 30.81	.984 24.99	A	1-745491-6	1-745491-7	1-745491-9
				B	—	1-745491-8	—
2	15	1.541 39.14	1.312 33.33	A	1-745493-6	1-745493-4	—
				B	—	1-745493-5	—
3*	25	2.088 53.04	1.852 47.04	A	1-745495-7	1-745495-8	1-745495-9
				B	—	2-745495-0	—
4	37	2.729 69.32	2.500 63.50	A	1-745497-6	1-745497-5	—
				B	—	1-745497-7	—

* RS-232, size 3 connector, for 26-22 [0.15-0.4mm²] AWG wire select loaded circuits 1-8,15,17, 20 and 22, Plug Part No. 747740-1, Receptacle Part No. 747741-1, gold flash contacts.

- Notes:**
- All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
 - Connectors can be made available with clinch nuts, contact TE.
 - HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
 - Individual conductor strands should be larger than .005 inch [0.127] diameter.
 - Extraction Tool Part No. 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.
 - For terminating more than one wire, or a drain wire, use crimp contacts on page 121.

Note: All part numbers are RoHS compliant.

HDE-20 Basic Shielding Hardware Kits



Each kit contains:

- Connector
- Inner shield
- Outer shield

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

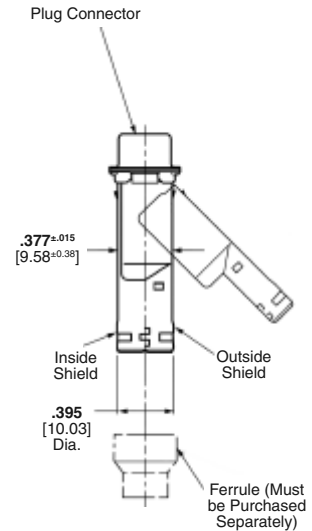
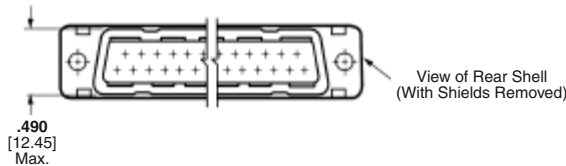
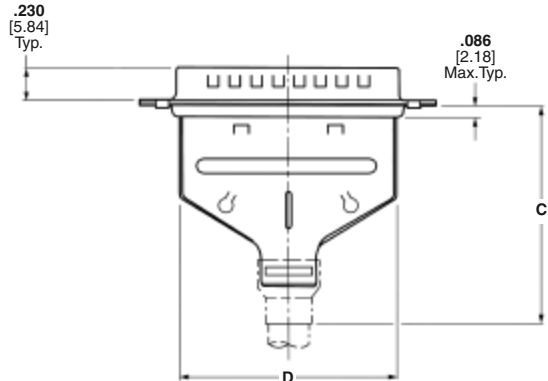
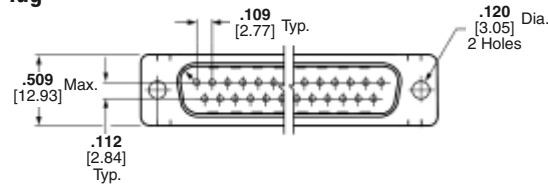
Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Plug



Technical Documents:

Product Specifications—

108-40011

108-40030

Application Specifications—

114-40002

114-40003

114-40006

Instruction Sheet—408-9010

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Application Tooling—pages 121-123

Mateable Connectors:

HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating Hardware—pages 146-150, 153, 155

Mating/Panel Mounting—page 42

Shell Size	No. of Contact Pos.	Dimensions		Recommended Cable Outer Dia. Range	Max. Inner Cable Bundle Dia.†	Contact Finish (Plating Code)	Connector Part Numbers		
							Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact I.D. No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
							Plug	Plug	Plug
1	9	1.520 38.61	.678 17.22	.165-.455 4.19-11.56	.350 8.89	A	—	747515-7	—
							747531-7	747531-8	—
2	15	1.520 38.61	1.002 25.45	.165-.455 4.19-11.56	.350 8.89	A B	—	747531-9	—
							747547-8	747547-9	—
3	25	1.520 38.61	1.550 39.37	.165-.455 4.19-11.56	.350 8.89	A B	—	1-747547-0	—
							—	—	—
4	37	1.867 47.42	2.205 56.01	.338-.562 8.59-14.28	.450 11.43	A B	—	—	—
							—	1-747563-0	—

Note: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

HDE-20 Basic Shielding Hardware Kits (Continued)



Each kit contains:

- Connector
- Inner shield
- Outer shield

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—0.00030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Application Tooling—pages 121-123

Mateable Connectors:

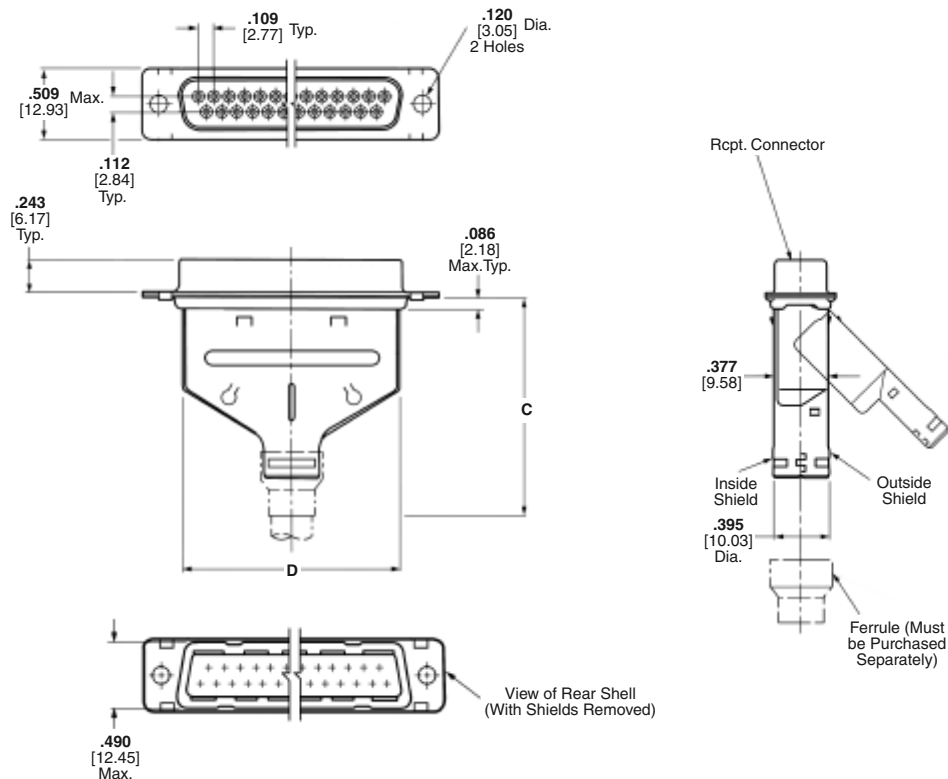
HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating Hardware—pages 146-150, 153, 155

Mating/Panel Mounting—page 42

Receptacle



Technical Documents:

Product Specifications—

108-40011

108-40030

Application Specifications—

114-40002

114-40003

114-40006

Instruction Sheet—408-9010

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Shell Size	No. of Contact Pos.	Dimensions		Recommended Cable Outer Dia. Range	Max. Inner Cable Bundle Dia.†	Contact Finish (Plating Code)	Connector Part Numbers				
							C	D	Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact I.D. No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
									Receptacle	Receptacle	Receptacle
1	9	1.520 38.61	.678 17.22	.165-.455 4.19-11.56	.350 8.89	A	—	747516-7	747516-8		
							—	747516-9	—		
2	15	1.520 38.61	1.002 25.45	.165-.455 4.19-11.56	.350 8.89	A	—	747532-7	—		
							—	747532-8	—		
3	25	1.520 38.61	1.550 39.37	.165-.455 4.19-11.56	.350 8.89	A	—	747548-8	—		
							—	747548-9	—		
4	37	1.867 47.42	2.205 56.01	.338-.562 8.59-14.28	.450 11.43	B	747564-8	747564-9	—		
							—	—	—		

Note: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

HDE-20 Shielding Hardware Enclosure Kits


Each kit contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Ferrules must be purchased separately.

Material and Finish:
Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Zinc alloy

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:
Contact Arrangements—page 40

Performance Characteristics—page 41

Application Tooling—pages 121-123

Mateable Connectors:
HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating Hardware—pages 146-150, 153, 155

Mating/Panel Mounting—page 42

Plug

Technical Documents:
Product Specifications—

108-40011

108-40030

Application Specifications—

114-40002

114-40003

114-40006

114-40008

Instruction Sheet—408-9172

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Shell Size	No. of Contact Pos.	Dimensions			Recommended Cable Outer Dia. Range	Max. Inner Cable Bundle Dia.†	Contact Finish (Plating Code)	Kit Part Numbers			Shielding Enclosure Expansion Tool	
		C	D	E				Contact I.D. No. 1	Contact I.D. No. 2	Contact I.D. No. 3	Cable O.D. (Max.)	Part No.
								for 30-26 AWG [0.05-0.15mm ²]	for 26-22 AWG [0.15-0.4mm ²]	for 22-20 AWG [0.4-0.6mm ²]		
1	9	1.640 41.66	1.355 34.42	.630 16.00	.190-.330 4.83-8.38	.330 8.38	A	—	1-747944-5	—	.330 8.38	58241-4
							B	—	1-747944-6	—		
2	15	1.640 41.66	1.685 42.80	.630 16.00	.190-.330 4.83-8.38	.330 8.38	A	—	1-747946-5	—	.450 11.43	58241-1
							B	—	1-747946-6	—		
3	25	1.640 41.66	2.210 56.13	.630 16.00	.217-.435 5.51-11.05	.350 8.89	A	1-747948-5	1-747948-6	—	.572 14.52	58241-2
							B	—	1-747948-8	1-747948-9		
4	37	2.010 51.05	2.865 72.77	.730 18.54	.338-.562 8.59-14.28	.450 11.43	A	1-747950-4	1-747950-5	—	.572 14.52	58241-2
							B	—	1-747950-6	—		

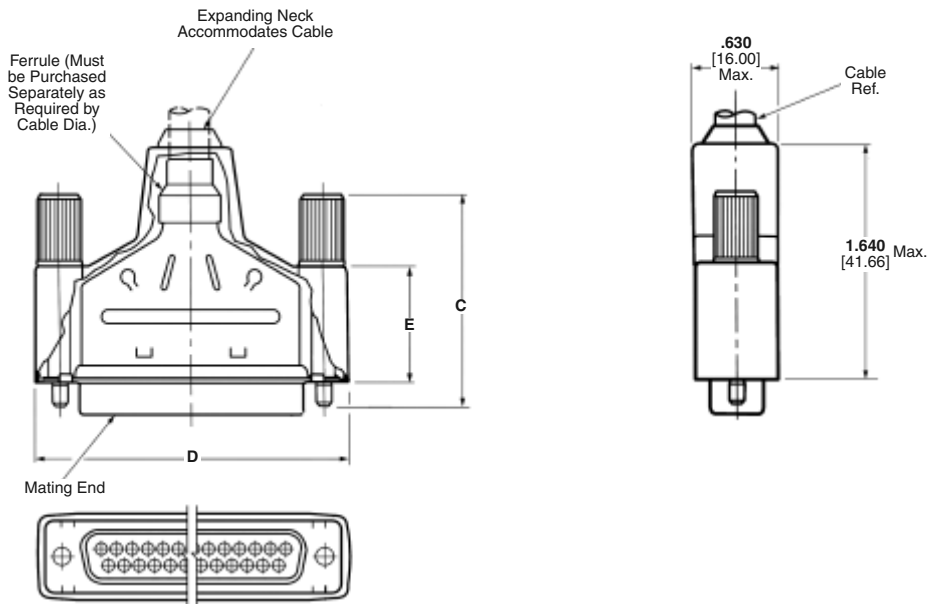
†Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

HDE-20 Shielding Hardware Enclosure Kits (Continued)



Receptacle



Each kit contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Zinc alloy

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Related Product Data:

Contact Arrangements—page 40

Performance Characteristics—page 41

Application Tooling—pages 121-123

Mateable Connectors:

HDP—pages 90-97

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating Hardware—pages 146-150, 153, 155

Mating/Panel Mounting—page 42

Technical Documents:

Product Specifications—

108-40011

108-40030

Application Specifications—

114-40002

114-40003

114-40006

114-40008

Instruction Sheet—408-9172

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Shell Size	No. of Contact Pos.	Dimensions			Recommended Cable Outer Dia. Range	Max. Inner Cable Bundle Dia.†	Contact Finish (Plating Code)	Kit Part Numbers		Shielding Enclosure Expansion Tool	
		C	D	E				Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²]	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²]	Cable O.D. (Max.)	Part No.
								Receptacle	Receptacle		
1	9	1.640	1.355	.630	.190-.330	.330	A	1-747943-5	1-747943-6	.330	58241-4
		41.66	34.42	16.00				4.83-8.38	8.38		
2	15	1.640	1.685	.630	.190-.330	.330	A	1-747945-5	—	8.38	—
		41.66	42.80	16.00				4.83-8.38	8.38		
3	25	1.640	2.210	.630	.217-.435	.350	A	1-747947-5	1-747947-6	.450	58241-1
		41.66	56.13	16.00				5.51-11.05	8.89		
4	37	2.010	2.865	.730	.338-.562	.450	A	—	—	.572	58241-2
		51.05	72.77	18.54				8.59-14.28	11.43		

†Maximum cable diameter after jacket and braid removed.

Note: All part numbers are RoHS compliant.

HDE-20 Crimp Snap-In Contact Connectors

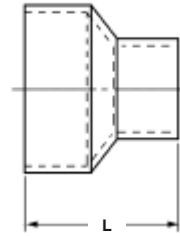
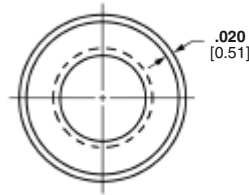
Ferrules for Shielding Hardware Kits



Stepped



Straight



Material and Finish:

Steel (annealed), tin plated

Related Product Data:

Shielding Hardware and Enclosure Kits—pages 116-119

Technical Documents:

Instruction Sheets—

408-9242
408-9243
408-9507
408-9508

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

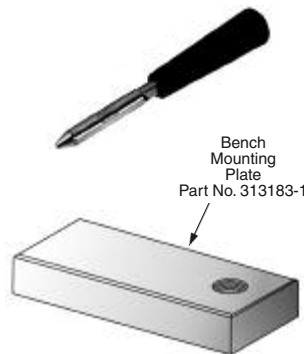
Shell Sizes	Style	L Dim.	Cable Diameter	Part Numbers	
				Ferrule	Die Sets*
1-3	Stepped	.440 11.18	.165-.190 4.19-4.83	3-747579-0	543424-3
1-3	Stepped	.440 11.18	.190-.217 4.83-5.51	3-747579-0	543424-2
1-3	Stepped	.440 11.18	.217-.246 5.51-6.25	3-747579-0	543424-8
1-3	Stepped	.440 11.18	.246-.284 6.25-7.21	3-747579-2	543424-1
1-3	Stepped	.440 11.18	.284-.324 7.21-8.23	3-747579-2	543424-7
1-3	Stepped	.440 11.18	.324-.375 8.23-9.53	3-747579-4	543424-6
1-3	Straight	.440 11.18	.375-.435 9.53-11.05	2-747579-7	543424-5
1-3	Straight	.440 11.18	.400-.455 10.16-11.56	3-747579-6	543424-4
4	Stepped	.625 15.88	.230-.265 5.84-6.73	2-747580-4	543425-2
4	Stepped	.625 15.88	.338-.385 8.59-9.78	2-747580-3	543425-1
4	Stepped	.625 15.88	.375-.432 9.53-10.97	2-747580-1	58238-1
4	Stepped	.625 15.88	.422-.490 10.72-12.45	3-747580-1	58237-2
4	Straight	.625 15.88	.480-.562 12.19-14.28	2-747580-2	58237-1

*Die sets used with Hand Crimping Tool Part No. 543344-1 or Pneumatic Bench Tool Part No. 312522-3 equipped with Die Set Holder Part No. 58449-1.

Application Tooling for Shielding Hardware Kits



Hand Crimping Tool
No. 543344-1
(Requires Die Sets, see table above.)



Shielding Enclosure Expansion Tools
Part No. 58241-1 (.450 [11.43])†
58241-2 (.572 [14.53])†
58241-4 (.330 [8.38])†
†Maximum Cable Diameter
(Instruction Sheet—408-9507)

Pneumatic Bench Tool
No. 312522-3
(Requires Die Set Holder No. 58449-1.)



Note: All part numbers are RoHS compliant.

HDE-20 Contacts, Precision Formed

Material and Finish:

Phosphor bronze, duplex plated as follows:

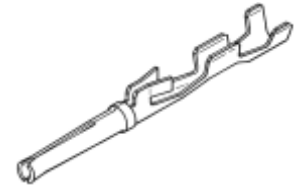
A—Duplex plated .000030 [0.00076] gold on mating end, tin on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin on termination end, with entire contact nickel underplated

Interchangeable Contacts, Crimp Snap-In



Pin



Socket

Related Product Data:

Performance Characteristics—page 41

Connectors used with:
HDE—pages 112-119

Technical Documents:

Product Specifications—
108-40011
108-40030

Application Specifications—
114-40002
114-40003
114-40006
114-40008

Instruction Sheet—408-6738

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

Wire Size Range AWG mm ²	Code*	Insulation Diameter		Contact Finish (Plating Code)	Contact Part Numbers	
		Single Wire	Two Wire		Pin Strip Form	Socket Strip Form
26-22 0.15-0.4	4	.054	.039	A	—	1-745269-1
		1.37	0.99	B	1-745266-0	1-745269-0
22-18 0.4-0.8	3	.075	.054	A	1-745267-0	1-745270-1
		1.91	1.37	B	—	1-745270-0

* A Code indicating accepted wire size range is stamped inside insulation crimp barrel of each contact.

Notes: 1. Extraction Tool No. 91232-1 is used to remove pin and socket contacts.
2. Strip form contacts shipped 10,000 pieces/reel.

Note: All part numbers are RoHS compliant.

HDE-20 Application Tooling

Hand Tools with Modular Heads

Technical Documents:

Instruction Sheets—

408-6790
408-9414
408-6789

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Hotline: **1-800-722-1111**.

A modular interchangeable head provides versatility to these tools. Along with the head used to terminate Subminiature D connectors, heads are available to terminate other TE product lines.

The head used to terminate the Subminiature D, HDE connectors can be used with a manual pistol grip tool, an air pistol grip tool and a bench mount power assembly. These tools terminate one unstripped wire per cycle and index the connector to the next terminating position. The head rotates to permit optimum access to the wiring area.

Manual Pistol Grip Tool



Handle and Head Tool Assembly No. 608868-1
Handle No. 58074-1
Head Assembly No. 58063-2

This tool is manually actuated, using modular heads.

Air Pistol Grip Tool



Handle No. 58075-1
Head Assembly No. 58063-2

Air actuated, utilizing modular heads.

Bench Mounted Tools with Modular Heads

Bench Mount Pneumatic Power Assembly



Bench Assembly No. 58338-1
Head Assembly No. 58063-2

This tool is air actuated with either a foot or knee switch.

Bench Mount Electric Power Assembly



Head Assembly No. 58063-2

This tool electrically powered and actuated by a foot switch.

Note: All part numbers are RoHS compliant.

HDE-20 Application Tooling (Continued)

Product Facts

- Low applied costs
- Automatic termination of jacketed cable
- Automatic continuity check and shorts test
- Single- or double-ended assemblies
- Microprocessor controlled with touch input screen
- Stored program capability
- Selective termination of connector positions
- Rapid tooling changeover for different connector types
- Handles a variety of TE insulation-displacement connectors
- Terminates both multicolor and single-color wires
- Remote programming capability
- Straight or right-angle wire dress
- Control Module 852423-1 120 VAC



CHAMPOMATOR 3A Terminating Machine

This machine is the high-productivity way to terminate multiconductor, jacketed cable with a variety of TE connectors having insulation displacement contacts. It automatically sorts the wires, and terminates them in a programmed sequence. The sequence may use all or some of the connector contacts, such as for various RS-232 wiring patterns.

All cable assemblies are tested for continuity and shorts.

The machine is microprocessor controlled, and programmed by a touch input screen. The easy programming simplifies the process and reduces training requirements. The machine's internal storage capability can retain up to 50 cable assemblies, which can be easily retrieved by number or name. Production monitoring and diagnostics can also be accessed through the touch screen.

Contact TE for the tooling required for your specific applications.

Technical Documents:

Instruction Sheets

408-7777 Manual Arbor Tool

Note: Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.



Control Module
No. 852423-1

CHAMPOMATOR 2.5 Machine
No. 354786-4

CHAMPOMATOR 2.5 Terminating Machine

This is a compact, semi-automatic bench machine. It is microprocessor controlled, and programmed using a membrane switch keyboard. The potential machine rate is one pair of wires per second. Contact TE for the tooling required for your specific applications.

The CHAMPOMATOR Model 2.5 Bench Terminating Machine—**Part No. 354786-4** is used in conjunction with Control Module—**Part No. 852423-1**.

Contact TE for application specific requirements.

Manual Arbor Tool



Arbor Tool No. 91085-2
Applicators:

Wire O.D. .041-.060 [1.04-1.52]—No. 543157-1 (tool mount), 543426-1 (termination tool)

Wire O.D. .040 [1.02] and smaller—No. 543157-1 (tool mount), 543426-2 (termination tool)

Manual Arbor Tool

The arbor tool with applicator is used to terminate jacketed cable. Wires are neatly routed and trimmed to length with the cable jacket close to the connector. 400 to 800 terminated wires per hour are typical.

Note: All part numbers are RoHS compliant.

Subminiature D Connectors HDF-20 for Flat Ribbon Cable

Product Facts

- Available in all 5 standard shell sizes
- Visual inspection of termination possible
- Fluted cover provides positive alignment of cable prior to termination
- Wide range of application tooling
- Patented insulation displacement contact latches into the connector cover
- Contact design provides a “gas-tight” termination
- Contacts accept 28 AWG [0.08mm²] solid and stranded, and 26 AWG [0.15mm²] solid and stranded round conductor flat ribbon cable on .050 [1.27] centers
- Qualified to Battelle Level III environment
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 
- Listed and complies with UL 1863, Communication Circuit Accessories File No. E81956 

Plug — Low Profile Metal Shell



Receptacle — Low Profile Metal Shell



No. of Pos. & (Shell Size)	Cable Stabilizer Part No.	Plug Part Nos.		Receptacle Part Nos.	
		With Standard Mounting Holes	With 4-40 Threaded Inserts	With Standard Mounting Holes	With 4-40 Threaded Inserts
9 (1)	747275-4	1658613-4	1658608-4	1658612-4	1658610-4
15 (2)	747275-3	1658613-3	1658608-3	1658612-3	1658610-3
25 (3)	747275-2	1658613-2	1658608-2	1658612-2	1658610-2
37 (4)	747275-1	1658613-1	1658608-1	1658612-1	1658610-1
50 (5)	746785-1	—	1658607-1	—	1658606-1

Note: All assemblies are supplied with housing and cover pre-assembled. Optional cable stabilizer must be ordered separately.

Material

Front Shell—Steel, tin or tin plated

Housing, Cover & Cable Stabilizer—Thermoplastic, 94V-0, black

Threaded Inserts—Brass, unplated

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin on termination end with entire contact underplated .000050 [0.00127] min. nickel

Related Product Data

Contact Arrangement—page 40

Performance Characteristics—page 41

Mateable Receptacles:

HDF-20 Metal-Shell—page 124

HDE—pages 110-121 (Sizes 1-4 only)

HDP—pages 90-109

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Mating/Panel Mounting—page 126

Ribbon Cable—page 125

Accessories:

Commoning Strip—page 146

Mating Hardware—pages 146-150, 153 & 154

Application Tooling—page 127

Technical Documents

Product Specification—108-40012

Note: All part numbers are RoHS compliant.

HDF-20 Low Profile All-Plastic Connectors (for Round Conductor Flat Ribbon Cable)

Material and Finish

Housing, Cover & Cable

Stabilizer—Black thermoplastic, 94V-0 rated

Threaded Inserts—Brass, unplated

Pin Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin on termination end, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Contact Arrangement—page 40

Performance Characteristics—page 41

Mateable Receptacles:

HDF-20 All-Plastic—page 124

HD-20 Board Mount—pages 54-71, 78-85, 87-89

HDE All-Plastic—pages 147, 148

Mating/Panel Mounting—page 126

Ribbon Cable—page 125

Accessories:

Mating Hardware—pages 146-150, 153, 155

Application Tooling—page 127

Technical Documents

Product Specifications—

108-40012 HDF-20 Low Profile Connectors

Plug Assemblies



Housing and Covers are Preassembled; Cable Stabilizer is Separate.

Receptacle Assemblies



Housing and Covers are Preassembled; Cable Stabilizer is Separate.

No. of Contact Pos. & (Shell Size)	Optional Cable Stabilizer Part No.	Plug Assembly Part No.		Receptacle Assembly Part No.	
		With Standard Mounting Holes	With Threaded Inserts	With Standard Mounting Holes	With Threaded Inserts
9 (1)	747275-4	1658615-4	1658611-4	1658614-4	1658609-4
15 (2)	747275-3	1658615-3	1658611-3	1658614-3	1658609-3
25 (3)	747275-2	1658615-2	1658611-2	1658614-2	1658609-2
37 (4)	747275-1	1658615-1	—	1658614-1	1658609-1

Note: All assemblies are supplied with housing and cover pre-assembled. Optional cable stabilizer must be ordered separately.

Ribbon Cable Parameters

No. of Conductors	28 AWG [0.08mm ²] Part No.		26 AWG [0.15mm ²] Part No.
	Length Per Reel		Length Per Reel
	100 Ft. [30.5m]	500 Ft. [152.4m]	500 Ft. [152.4m]
9	1-57040-2	1-971111-2	57034-2
15	1-57040-5	1-971111-5	57034-5
25	57040-2	971111-2	57034-9
37	1-57040-8	1-971111-8	1-57034-3
50	57040-6	971111-6	1-57034-5

Note: All part numbers are RoHS compliant.

HDF-20 Plugs/Receptacles Mating and Panel Mounting Specifications

Plug/Receptacle Mating



The .265/.256 [6.73/6.50] dimensions are required to assure full mating of connector halves. These dimensions must be taken into consideration when determining the method of mounting, panel thickness, etc.

Panel Mounting

Plugs and receptacles can be mounted to a panel from either the front or rear, using a variety of accessory hardware. Typical examples are shown below.

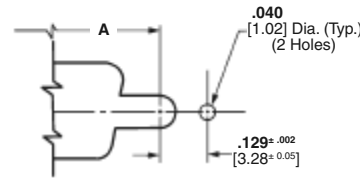


Typical Front-Panel Mounted HDF-20 Plug



Typical Rear-Panel Mounted HDF-20 Plug

Panel Cutouts



Cutout for Rear Mount and Short Latching Blocks

Shell Size (Pos.)	Mounting Method Front/Rear Panel	Dimensions								
		A	B	C	D	E	F	H*	J*	K
1 (9)	Front	.984 24.99	.492 12.50	.874 22.20	.437 11.10	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	.984 24.99	.492 12.50	.806 20.47	.403 10.24	.449 11.41	.225 5.72	13.97	19.05	.132 3.35
2 (15)	Front	1.312 33.33	.656 16.66	1.202 30.53	.601 15.27	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	1.312 33.33	.656 16.66	1.134 28.80	.567 14.40	.449 11.41	.225 5.72	18.54	19.05	.132 3.35
3 (25)	Front	1.852 47.04	.926 23.52	1.743 44.27	.872 22.15	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	1.852 47.04	.926 23.52	1.674 42.52	.842 21.39	.449 11.41	.225 5.72	32.39	19.05	.132 3.35
4 (37)	Front	2.500 63.50	1.250 31.75	2.391 60.73	1.196 30.38	.513 13.03	.257 6.53	—	—	.083 2.11
	Rear	2.500 63.50	1.250 31.75	2.326 59.08	1.163 29.54	.449 11.41	.225 5.72	46.05	16.13	.132 3.35
5 (50)	Front	2.406 61.11	1.203 30.56	2.297 58.34	1.149 29.19	.623 15.82	.312 7.93	—	—	.083 2.11
	Rear	2.406 61.11	1.203 30.56	2.218 56.34	1.109 28.17	.555 14.10	.278 7.06	44.52	19.05	.132 3.35

*Panel cutout configuration with H and J dimensions provides clearance for mounting connectors with cable clamps.

HDF-20 Application Tooling

Application Tooling



Hand Tool Kit No. 768340-1




Consists of a hand tool frame, a universal base assembly, a bench mount kit, and connector-specific tooling for AMP-LATCH Standard and Novo Receptacles, Card-Edge Connectors, and AMPLIMITE HDF-20 Connectors.

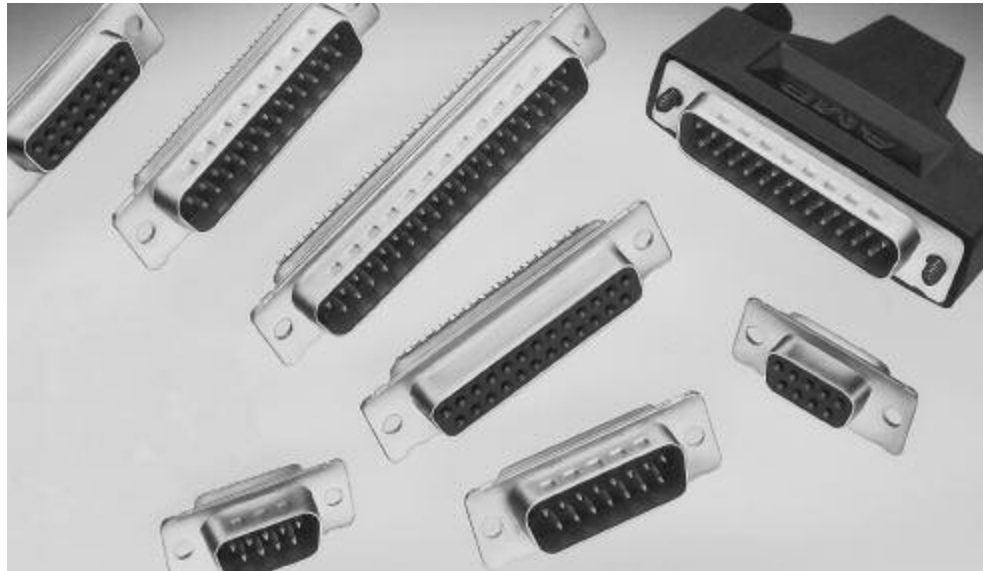
Note: For 50-position HDF connectors, you must also order Connector-Specific Kit No. 768350-1.

Note: All part numbers are RoHS compliant.

HD-20 Solder Cup Connectors

Product Facts

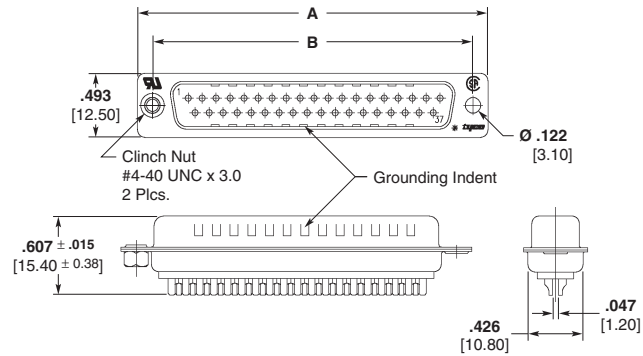
- Preloaded duplex-plated solder cup contacts
- Shell finish in choice of standard zinc or tin
- Two-piece 94V-0 rated plastic insert
- Anti-solderwicking contact design
- Intermateable with other subminiature D connectors
- Available in 9, 15, 25 and 37 position (shell sizes 1-4) plugs and receptacles
- Easy application without special application tools
- Shields offer full EMI shielding and ESD insulation
- Crimped shield termination for low impedance
- Shield crimp provides strain relief
- Shields may be post molded or covered with enclosures
- Recognized under the Component Program of Underwriters Laboratories, Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., connectors for use in data, signal, control & Power Applications — components,  File No. E127344
- Certified by Canadian Standards Association,  File No. LR 97981



HD-20 Solder Cup Connectors (Continued)



Plug



Material and Finish:

Shell—Steel, tin or zinc plated

Insert—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze; duplex plated with gold flash on mating end, tin on solder cup, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 110-119

HDF—pages 124-126

HDP—pages 90-101

HD-20 Solder Cup—pages 128-130

HD-20 Board Mount—pages 54-71, 78-85, 87-89

Cable Clamps—pages 132, 133, 135-137, 140, 141, 144, 145

Mating Hardware—pages 146-150, 151-154

Technical Documents:

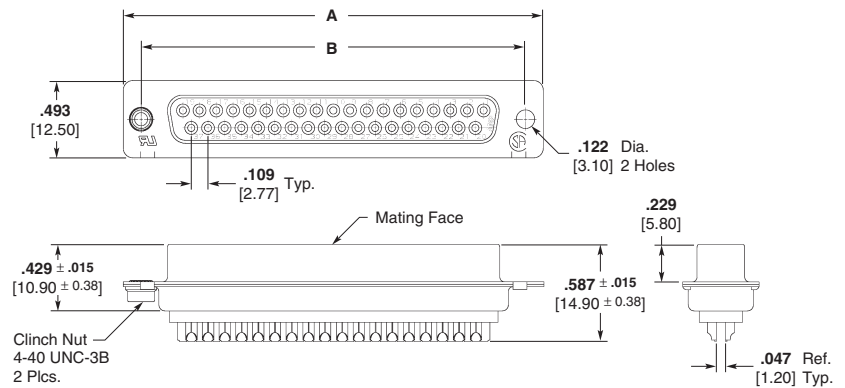
Product Specification

108-40031

Instruction Sheet

408-9193

Receptacle



Shell Size	No. of Contact Positions	Dimensions		Plug Part Numbers		Receptacle Part Numbers	
		A	B	Tin Plated Shell	Zinc Plated Shell	Tin Plated Shell	Zinc Plated Shell
1	9	1.210	.984	5-747904-2	5-747904-2	5-747905-2	5-747905-2
		30.80	24.99				
2	15	1.544	1.313	5-747908-2	5-747908-2	5-747909-2	5-747909-2
		39.20	33.32				
3	25	2.089	1.853	5-747912-2	5-747912-2	5-747913-2	5-747913-2
		53.01	47.04				
4	37	2.734	2.502	5-747916-2	5-747916-2	5-747917-2	747917-4
		69.40	63.50				

Note: All part numbers are RoHS compliant.

HD-20 Solder Cup Shielding Hardware Enclosure Kits

Plug and Receptacles



Each kit contains

- Connector with preloaded, nonremovable contacts
- Shield
- Enclosure
- Two jackscrews

Material and Finish:

Connector Shell—Steel, tin plated

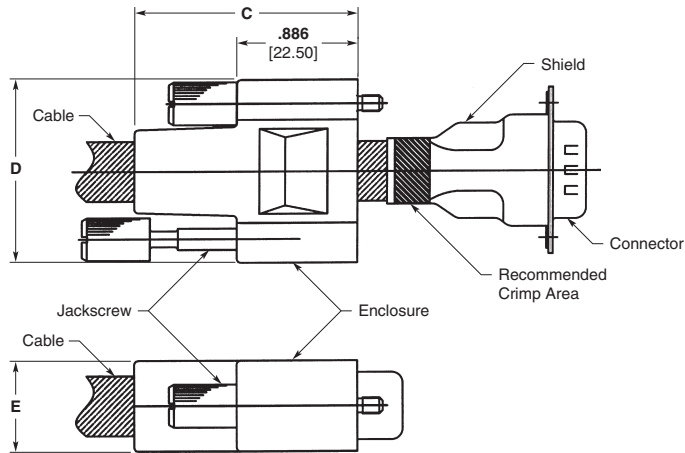
Connector Insert—94V-0 rated thermoplastic, black

Shields—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Brass, zinc coated

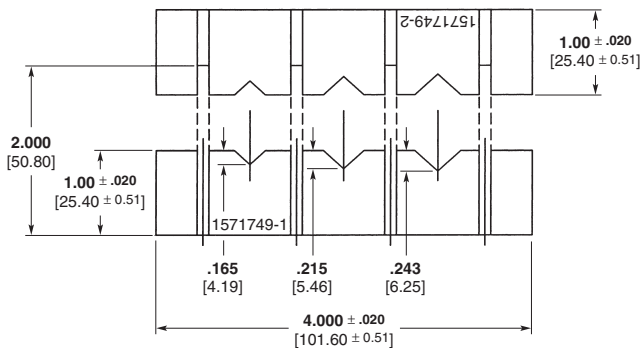
Contacts—Phosphor bronze; duplex plated with gold flash on mating end, tin on solder cup, with entire contact nickel underplated



Shell Size	No. of Contact Positions	Dimensions			Cable Insulation Diameter	Kit Part Numbers		Shielding Enclosure Expansion Tool	
		C	D	E		Plug	Receptacle	Cable O.D. (Max.)	Part Number
1	9	1.64 41.67	1.33 33.74	.659 16.74	.217-.270 5.51-6.86	1571650-4	1571654-4	.355 9.02	58241-4
					.270-.324 6.86-8.23	1571650-5	1571654-5		
					.324-.385 8.23-9.78	1571650-6	1571654-6		
2	15	1.64 41.67	1.65 41.86	.659 16.74	.217-.270 5.51-6.86	1571651-4	1571655-4	.355 9.02	58241-4
					.270-.324 6.86-8.23	1571651-5	1571655-5		
					.324-.385 8.23-9.78	1571651-6	1571655-6		
3	25	1.64 41.67	2.20 55.86	.659 16.74	.217-.270 5.51-6.86	1571652-4	1571656-4	.465 11.56	58241-1
					.270-.324 6.86-8.23	1571652-5	1571656-5		
					.324-.385 8.23-9.78	1571652-6	1571656-6		
4	37	2.35 59.67	2.82 71.63	.659 16.74	.455-.480 11.58-12.19	1571653-2	1571657-2	.562 14.28	58241-2

Note: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

HD-20 Solder Cup Shielding Hardware Crimping Tool



Assembled Tooling: Part Number 1571750-1
Individual Tools (for customer fabrication):
1571749-1 & 1571749-2

Note: All part numbers are RoHS compliant.

Accessories

Numerous accessories are available for strain relief and cable clamping, shielding, connector-to-connector mating, connector-to-connector pc board mounting, and keying. These accessories are illustrated and tabled on the following pages.

To help discern the accessories available for a particular connector type, refer to the Product Selection Guide at the beginning of the connector section. Also, the connector the accessory is used with is listed under the Related Product Data heading next to the accessory listing.



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Unshielded Cable Clamps

Material and Finish:

Cable Clamp Housing—
Thermoplastic, black

Cable Clamp Wedge Set—
Thermoplastic, black

4-40 Mounting Screws—
Steel, zinc plated

Related Product Data:

Connectors used with:
HDE Metal-Shell—pages 114 & 115
HDP Metal-Shell—pages 90-102

Other accessory capabilities:
Spring Latches (Two Piece)—
page 152

Technical Documents:

Instruction Sheet—408-9238

Universal Cable Clamps for Jacketed Cable



For Shell Size 3
Cable Dia. Range—190-530 [4.83-13.46]
Individual Kit No.—747824-1

- Notes:** 1. All parts are packaged unassembled.
2. Each kit is comprised of two cable clamp halves, two cable clamp wedge sets and two mounting crews.

Material and Finish:

Cable Clamp Housing—
Thermoplastic, gray

4-40 Mounting Screws—
Steel, zinc plated

4-40 Housing Screws & Hex Nuts
—Steel, zinc plated

Related Product Data:

Connectors used with:
HDE All-Plastic—pages 112 & 113
HDE Metal-Shell—pages 114 & 115
HDP Metal-Shell—pages 90-102

Other accessory capabilities:
Spring Latches (Two Piece)—
page 152

Technical Documents:

Instruction Sheet—408-7555

Straight/90° Exit



Shell Size	Dimensions		Cable Dia. (Max.)	Cable Clamp Kit No. Individual
	A	B		
2	1.550	.826	.350	5206471-1
	39.37	20.98	8.89	
3	2.090	.826	.335	5206472-1
			8.51	
			.460	
4	2.738	.826	.675	5745081-1
			69.55	
5	2.644	.938	.775	5745082-1
			67.16	

- Notes:** 1. All parts are packaged unassembled.
2. Straight or 90° cable exit is achieved by inserting AMP-TY Cable Ties through cable tie openings and clamping the cable to one housing half only.

Note: All part numbers are RoHS compliant.

Unshielded Cable Clamps (Continued)

The TE Quik-Snap Backshell Kit is a one-piece, all-plastic cable clamp kit designed for use with either the AMPLIMITE HDP-20, HDP-22, or HDE, all-plastic or metal-shell connectors.

Kits are available for connector sizes 1, 2, 3, and 4 with a cable exit option of 180° or 120°.

Each kit contains:

- 1-Hinged, plastic clamp
- 2-Self-tapping screws
- 1-Strain relief clip
- 1-Cable exit gate plug (Used to close unused exit)

(For metal-shell connector applications an optional kit with 2 retainer clips and screws is available.)

Material and Finish:

- Cover**—Polypropylene, black
- Strain Relief Clip**—Stainless steel
- Retainer Clip**—Stainless steel
- Screws**—Carbon steel, zinc plated
- Cable Gate**—Polypropylene, Black

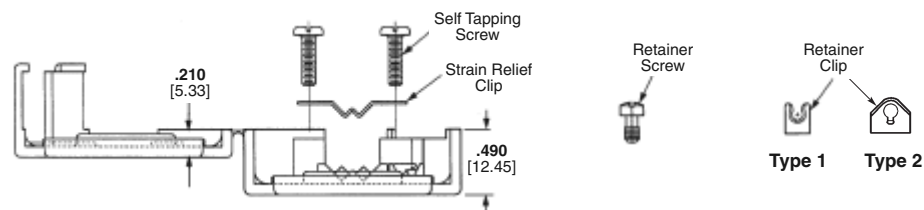
Related Product Data:

- Connectors used with:**
- HDP Metal-Shell**—pages 90-102
- HDE All-Plastic**—pages 112 & 113
- HDE Metal-Shell**—pages 114 & 115

Technical Documents:

- Instruction Sheet**—408-7837

One-Piece, All-Plastic Cable Clamp for Jacketed Cable, 180°/120° Exit (HDP and HDE) (Quik-Snap)



Shell Size	Cable Dia. Range (Ref.)	Dimension A	Kit Number* with Retainer Screws and Clips	Kit Number*** without Retainer Screws and Clips	Packaging
1	.075-.250 1.91-6.35	.785 19.94	5749914-1	—	Bulk Pkg.
			5749914-2	5750100-1	Unit Kit
			5749914-4**	—	Unit Kit
3	.180-.460 4.57-11.68	1.650 41.91	5749626-2	5750078-1	Unit Kit
			5749916-2	—	Bulk Pkg.
4	.250-.550 6.35-13.97	2.285 58.04	5749916-2	—	Unit Kit

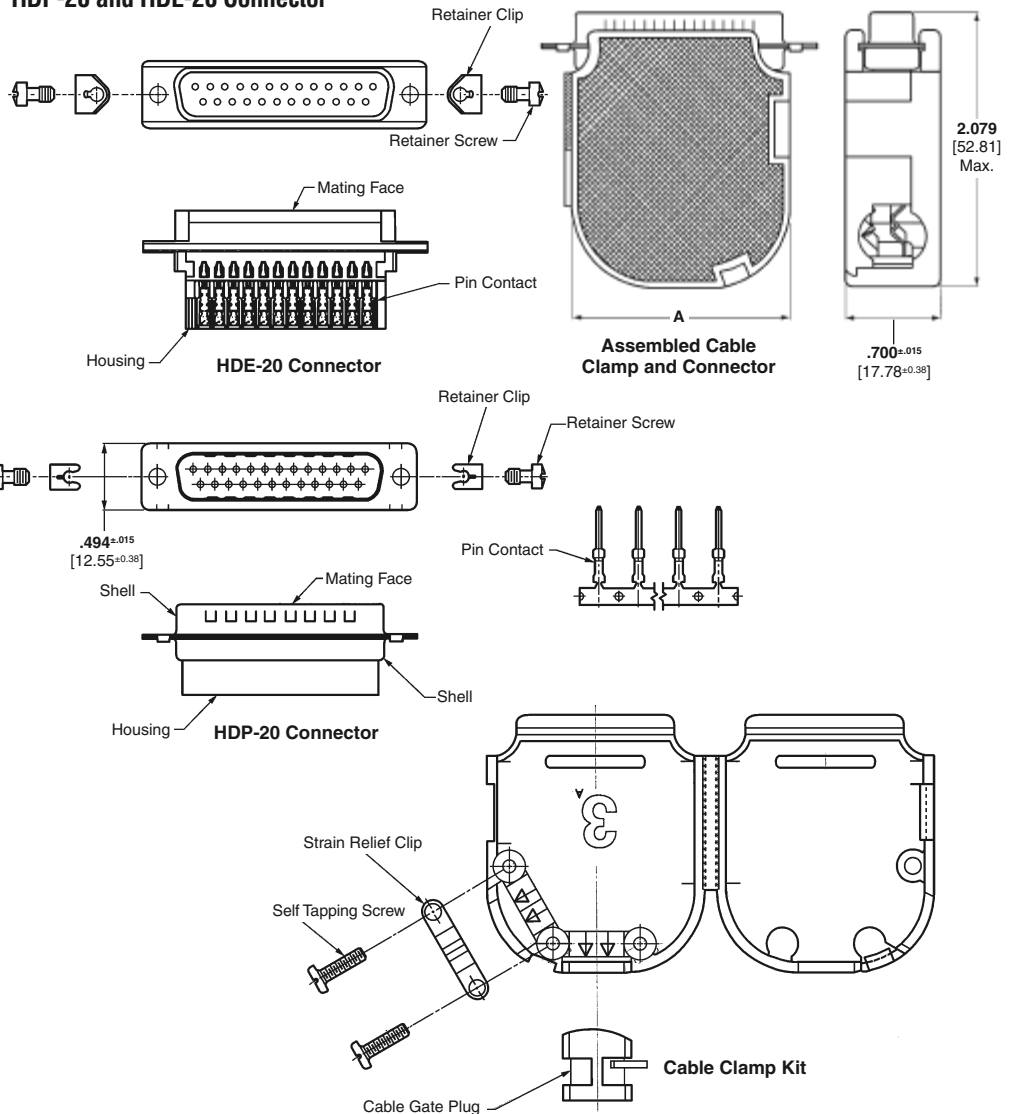
*For metal-shell connectors only.
 **Type 2 Retainer Clip
 ***For Metal-Shell or All-Plastic Connectors

Note: All part numbers are RoHS compliant.

Unshielded Cable Connector and Clamp Kits

The AMPLIMITE Quik-Snap Backshell and Connector kit presents a complete package for your unshielded subminiature D connector needs. Kits are available for Shell Sizes 1, 2 and 3, and are packaged 25 and 100 kits per unit.

One-Piece, All-Plastic Cable Clamp for Jacketed Cable, 180°/120° Exit and HDP-20 and HDE-20 Connector



Each kit contains:

- 1-Hinged Plastic Clamp
- 2-Retention Screws
- 2-Retention Clips
- 1-Cable Gate Plug
- 1-Strain Relief Clip
- 2-Self Tapping Screws
- 1-Connector and Contacts

Material and Finish:

- Cover**—Polypropylene, black
- Retention Screws**—Steel, zinc plated
- Retention Clips**—Stainless steel
- Cable Gate Plug**—Polypropylene, Black
- Strain Relief Clip**—Stainless steel
- Self Tapping Screws**—Steel, zinc plated
- Contacts**—Brass (HDP Pins), Phosphor Bronze (All Others), plated gold flash on the mating end, .000100 [0.00254] min. tin or tin on the terminating end, all over .000030 [0.00076] min. nickel underplating
- Housing**—Polyester or nylon, glass-filled, UL rated 94V-0, black
- Shell**—Steel, plated .000200 [0.00508] min. tin over .000050 [0.00127] min. copper

Technical Documents:

HDE Connectors:
Instruction Sheets—
 408-6621

Application Specifications—
 114-40002
 114-40003

HDP Connectors:
Application Specifications—
 114-10000
 114-40030

Cable Clamps:
Instruction Sheet—408-9544

Retention Clips:
Instruction Sheet—408-7837

Unshielded Cable Clamp Kits with HDP-20 Connectors

Shell Size	Cable Dia. Range (Ref.)	Dimension A	Plug Kit Part No.	Receptacle Kit Part No.	Packaging
1	.075-.250 1.91-6.35	.785 19.94	749808-8	749812-7	100/pack
2	.170-.380 4.32-9.65	1.110 28.19	749808-9	—	100/pack
3	.180-.460 4.58-11.68	1.650 41.91	749808-7	1-749812-1	100/pack

Unshielded Cable Clamp Kits with HDE-20 All-Plastic Connectors

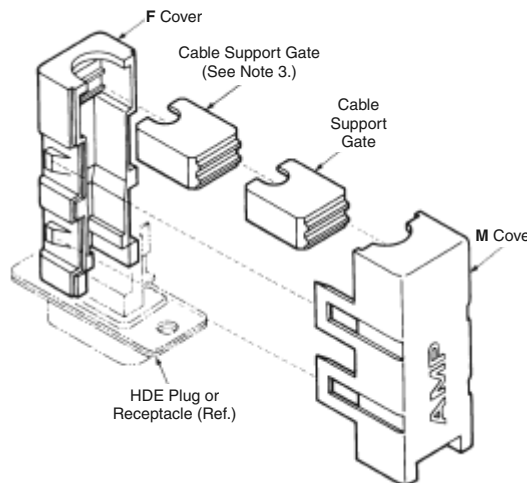
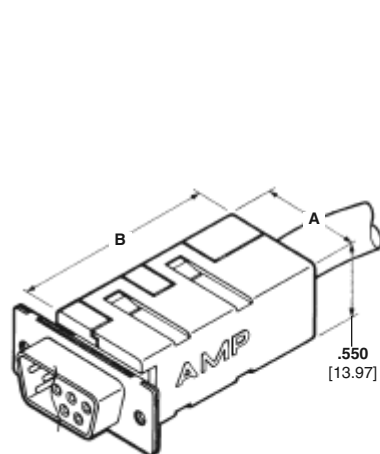
Shell Size	Cable Dia. Range (Ref.)	Dimension A	Plug Kit Part No.	Receptacle Kit Part No.	Packaging
3	.180-.460 4.58-11.68	1.650 41.91	749809-9	749813-8	100/pack

Note: All part numbers are RoHS compliant.

Unshielded Cable Clamps

Low Profile Cable Clamps feature a two-piece construction which allows the two cover halves to be snapped together, no hardware is required for assembly. They can be used on plugs or receptacles and will not interfere with commonly used mating hardware. Sufficient Cable Support Gates (or a Cable Support Gate Latch) are supplied with each cable clamp kit to achieve adjustable clamping over a wide range of jacketed cable diameters.

Straight Exit Low Profile for Jacketed Cable



Material

Black thermoplastic

Related Product Data:

Connectors used with:
HDE All-Plastic—pages 112 & 113
HDE Metal-Shell—pages 114 & 115

Other accessory capabilities:
Male Screw Retainers—
 pages 146 & 147

Female Screwlocks—page 148

Locking Posts and Slide Latches—
 pages 149-151

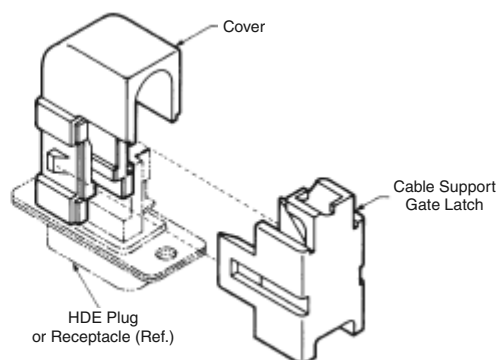
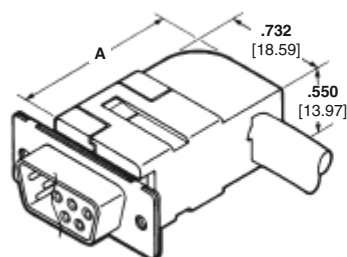
Latching Blocks—pages 153 & 154

Shell Size	Dimensions		Cable Dia. (Max.)	Cable Clamp Kit No.	
	A	B		Individual	Bulk Packed*
1	.732 18.59	When used On Plug: 1.582 40.18 When used on Receptacle: 1.533 38.94	.330 8.38	745547-1	745547-2
2	1.056 26.82	When used On Plug: 1.582 40.18 When used on Receptacle: 1.533 38.94	.425 10.80	745553-1	745553-2
3	1.604 40.74	When used On Plug: 1.700 43.18 When used on Receptacle: 1.651 41.94	.550 13.97	745560-1	745560-2

*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of two cover halves (F and M) and an assortment of cable support gates.
 3. Cable support gate must be used as shown for small diameter cable.

90° Exit Low Profile for Jacketed Cable



Shell Size	Dimension A		Cable Dia. (Max.)	Cable Clamp Kit No.
	When used on Plug	When used on Receptacle		Individual
1	1.290 32.77	1.241 31.52	.330 8.38	745550-1

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a cover half and an assortment of cable support gate latches.

Note: All part numbers are RoHS compliant.

Unshielded Cable Clamps (Continued)

Material

Black thermoplastic

Slide-On Back Covers

Related Product Data:

Connectors used with:

HDE All-Plastic—pages 112 & 113

HDE Metal-Shell—pages 114 & 115

Other accessory capabilities:

RFI/EMI Metal Shields—

pages 141 & 142

Male Screw Retainers—

pages 146 & 147

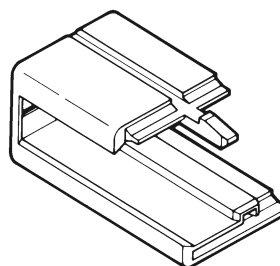
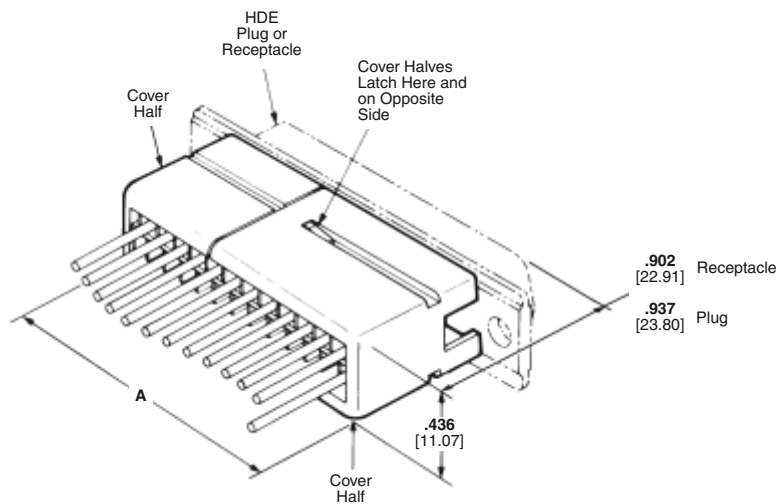
Locking Posts and Slide Latches—

pages 149-151

Latching Blocks—pages 153 & 154

Technical Documents:

Instruction Sheet—408-6658



Back Cover Half
(See Note 2.)

Shell Size	Dim. A	Back Cover Kit No. Individual
1	.610 15.49	745530-1
2	.934 23.72	745530-2
3	1.482 37.64	745530-3
4	2.134 54.20	745530-4

- Notes:** 1. All parts are packaged unassembled.
2. Each slide-on back cover kit includes two identical cover halves which snap together over the connector.

Note: All part numbers are RoHS compliant.

Unshielded Cable Clamps (Continued)

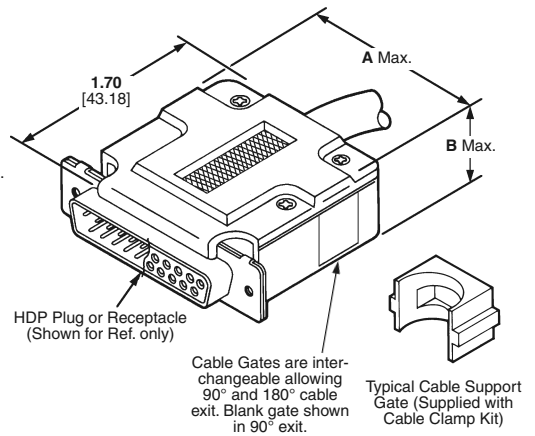
Box and Lid Cable Clamps can be used on either plugs or receptacles and will not interfere with commonly used hardware. Their hinged construction allows easy assembly to a harness. A wide range of cable diameters are accommodated through the use of cable support gates, supplied with each cable clamp.

Cable clamps are available in kits with appropriate hardware for convenient plug/receptacle mating. See below for kits with Male Screw Retainers.

Box and Lid Straight/90° Exit



Shell Size 1 & 2



Shell Size 3 & 4 & 5

Material and Finish:

Cable Clamp Housing—Thermoplastic, black with textured finish

Gates—Thermoplastic, black

Flat Head Screws—Steel, black, zinc plated

Related Product Data:

Connectors used with:
HDP Metal-Shell—pages 90-102

Other accessory capabilities:
Male Screw Retainers—pages 146 & 147

Female Screwlocks—page 148

Locking Posts and Slide Latches—pages 149-151

Spring Latches (Two Piece)—page 152

Latching Blocks—pages 153 & 154

Technical Documents:

Instruction Sheet—408-7555

Material and Finish:

Cable Clamp Housing—Thermoplastic, black with textured finish

Gates—Thermoplastic, black

Flat Head Screws—Steel, black, zinc plated

Male Screw—Steel, zinc plated yellow chromate

Retaining Clip—Stainless steel

Related Product Data:

Connectors used with:
HDP Metal-Shell—pages 90-102

Technical Documents::

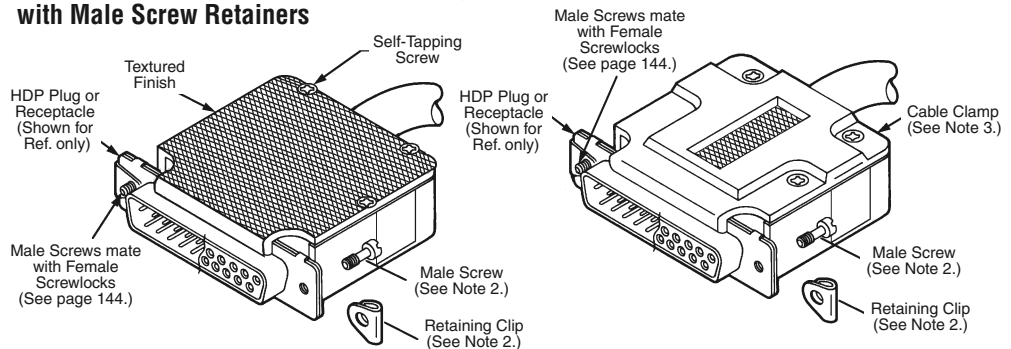
Instruction Sheets—
408-7555
408-7837

Shell Size	Dimensions		Cable Dia. Max. (Ref.)		Cable Clamp Kit No.	
	A	B	Straight Cable Exit	90° Cable Exit	Individual	Bulk Packed*
1	.755 19.18	.630 16.00	.160 4.06	.160 4.06	207467-1	207467-2
2	1.078 27.38	.630 16.00	.320 8.13	.320 8.13	207470-1	—
3	1.620 41.15	.770 19.56	.390 9.91	.390 9.91	207345-1	207345-2
4	2.268 57.61	.770 19.56	.640 16.26	.405 10.29	207473-1	207473-2
5	2.178 55.32	.880 22.35	.490 12.45	.490 12.45	207476-1	—

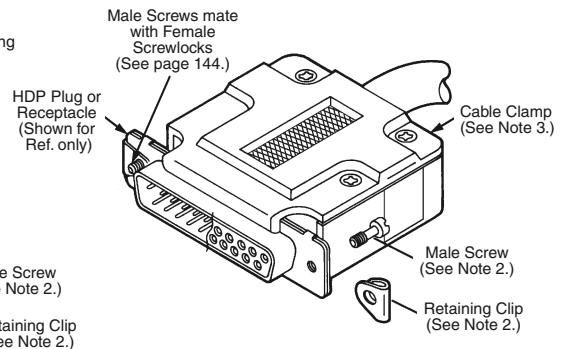
*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Cable diameter is adjustable by changing cable support gates. Use the flat side of cable support gates for discrete wire, and the semicircle side for jacketed cable.
 3. Cable clamp assemblies are available in kits with male screw retainers, see below.

Box and Lid Straight/90° Exit Cable Clamp Kits with Male Screw Retainers



Shell Size 1 & 2



Shell Size 3 & 4 & 5

Shell Size	Cable Clamp Kit No.
1	5207908-1
2	5207908-4
3	5207908-7
4	1-5207908-0
5	1-5207908-3

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a cable clamp and male screw retainer hardware (2 each). Male screw retainers are also available in kit form, see page 146.
 3. For ordering cable clamps separately, see above.

Note: All part numbers are RoHS compliant.

Unshielded Cable Clamps (Continued)

Straight/45° Exit Cable Clamps can be used on either a plug or receptacle and will not interfere with commonly used hardware, such as Male Screw Retainers, Female Screw-locks or Spring Latches and Latching Blocks. Their hinged construction allows easy assembly to a harness. Also, the straight or 45° angle of the cable exit is achieved by merely positioning the Cable Support Gate for the desired angle prior to installing the assembly onto the plug or receptacle. Adjustable screws are used to tighten cable strain reliefs.

Cable Clamp assemblies are available in kits with appropriate hardware for convenient plug/receptacle mating.

Material and Finish:

- Cable Clamp Housing**—Thermoplastic, black with textured finish
- Gates**—Thermoplastic, black
- Pan Head Screws, 6-32 Set Screw and 6-32 Square Nut**—Steel, zinc plated (sizes 1 and 2 include self-tapping screws only)

Related Product Data:

- Connectors used with:**
- HDP Metal-Shell**—pages 90-102
- Other accessory capabilities:**
- Male Screw Retainers**—pages 146 & 147
- Female Screwlocks**—page 148
- Locking Posts and Slide Latches**—pages 149-151
- Spring Latches (Two Piece)**—page 152
- Latching Blocks**—pages 153 & 154

Technical Documents:

Instruction Sheet—408-7555

Material and Finish:

- Cable Clamp Housing**—Thermoplastic, black with textured finish
- Gates**—Thermoplastic, black
- Pan Head Screws, 6-32 Set Screw and 6-32 Square Nut**—Steel, zinc plated (sizes 1 and 2 include self-tapping screws only)
- Male Screw**—Steel, zinc plated yellow chromate
- Retaining Clip**—Stainless steel

Related Product Data:

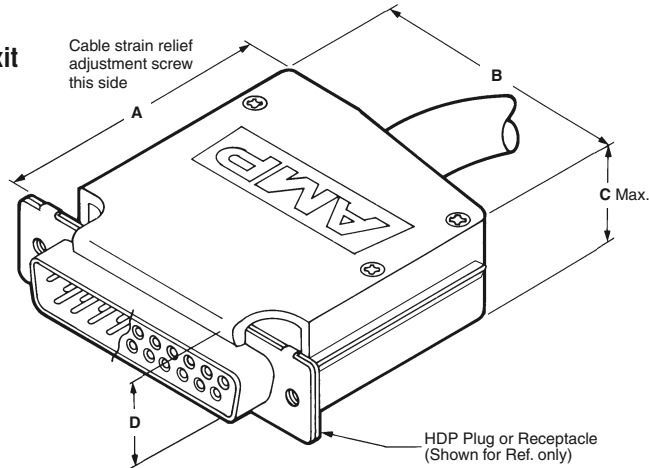
Connectors used with:
HDP Metal-Shell—pages 90-102

Technical Documents:

Instruction Sheets—408-7555
408-7837

Note: All part numbers are RoHS compliant.

Clam Shell Straight/45° Exit

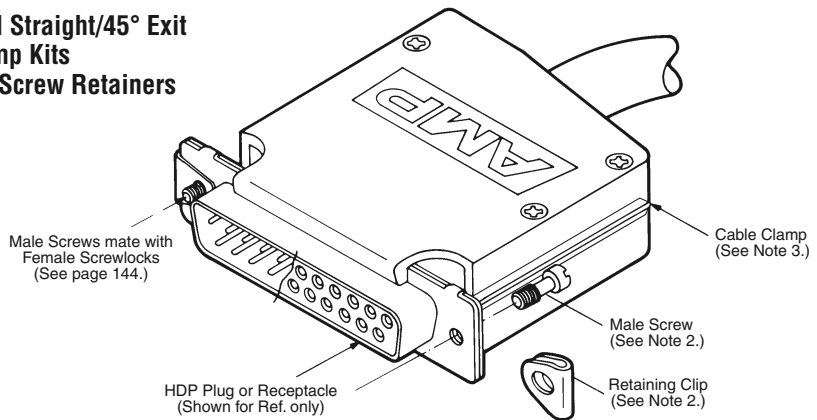


Shell Size	Dimensions				Cable Dia. (Max.)	Short Cable Clamp Part No.		Standard Cable Clamp Part No.	
	A	B	C	D		Individual	Bulk Packed*	Individual	Bulk Packed*
1	1.625	.750	.640	.640	.256	—	—	5205729-1	5205729-3
	41.28	19.05	16.26	16.26	6.30	—	—	—	—
2	1.250	1.073	.600	.640	.320	5206393-1	—	—	—
	31.75	27.25	15.24	16.26	8.13	—	—	5205730-1	5205730-3
3	1.625	1.073	.640	.640	.320	—	—	5205730-1	5205730-3
	41.28	27.25	16.26	16.26	8.13	—	—	—	—
3	1.250	1.615	.600	.640	.420	5206390-1	5206390-3	—	—
	31.75	41.02	15.24	16.26	10.67	—	—	5205718-1	5205718-4
4	1.625	1.615	.640	.640	.420	—	—	5205718-1	5205718-4
	41.28	41.02	16.26	16.26	10.67	—	—	—	—
4	1.625	2.263	.640	.640	.490	—	—	5205731-1	—
	41.28	57.48	16.26	16.26	12.45	—	—	—	—

*Each part is individually bulk packed for multiple assembly orders.

- Notes:**
1. All parts are packed unassembled.
 2. Quantity of pan head screws supplied with cable clamp assembly varies with shell size.
 3. Cable clamps are available in kits with male screw retainers, see below.
 4. All pan head screws have combination cross-recessed and slotted heads.

Clam Shell Straight/45° Exit Cable Clamp Kits with Male Screw Retainers



Shell Size	Short Cable Clamp Kit No.		Standard Cable Clamp Kit No.	
	Individual	Bulk Packed*	Individual	Bulk Packed*
1	—	—	5206478-1	—
2	—	—	5206478-2	—
3	1-5206478-2	2-5206478-6	5206478-3	2-5206478-2
4	—	—	5206478-4	—
5	—	—	5206478-5	—

*Each part is individually bulk packed for multiple assembly orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a cable clamp and male screw retainer hardware (2 each). Male screw retainers are also available in kit form, see page 146.
 3. For ordering cable clamps separately, see above.

Unshielded Cable Clamps (Continued)

Material and Finish:

Cable Clamp Housing—
Nylon, black

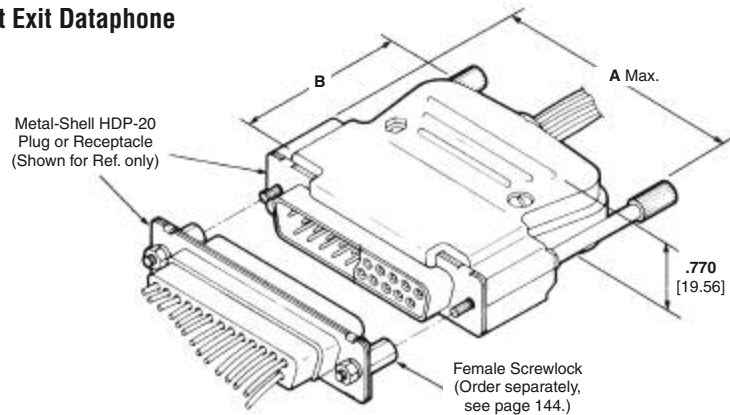
4-40 Fillister Head Screws & Hex Nuts—Steel, clear zinc plated

Jackscrews—Steel, black zinc plated

Related Product Data:

Connectors used with:
HDP Metal-Shell—pages 90-102

Straight Exit Dataphone



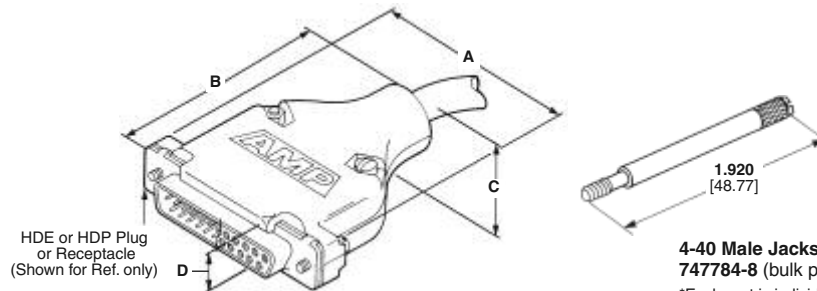
Shell Size	Dimensions		Max. Cable Dia. (without Gate)	Max. Cable Dia. (with Gate)	Cable Gate Identification*	Thread Size	Cable Clamp Kit No.
	A	B					
2	1.575 40.01	1.312 33.32	.400 10.16	.200 5.08	2A	4-40	5745122-2
				.260 6.60	2B		
				.320 8.13	2C		
3	2.115 53.72	1.421 36.09	.500 12.70	.250 6.35	3A	4-40	5745121-2
				.340 8.64	3B		
				.420 10.67	3C		

*Molded-in identification (as shown in chart above) is provided on cable support gates to facilitate proper selection with regard to shell size and maximum acceptable cable diameter.

- Notes:** 1. All parts are packaged unassembled.
2. Cable diameter is adjustable by changing cable support gates.

Straight Exit for Jacketed Cable (Two-Piece)

This cable clamp allows cable to be fully prepared and terminated before the clamp is installed.



Material and Finish:

Cable Clamps—ABS black

4-40 Fillister Head Screws and Hex Nuts—Steel, zinc plated

4-40 Mounting Screws—Steel, zinc plated

Jackscrews—Stainless steel, passivated

Related Product Data:

Ferrules—pages 143-145

Connectors used with:

HDE Metal-Shell—pages 114 & 115

HDP Metal-Shell—pages 90-102

Other accessory capabilities:

Spring Latch (Two-Piece)—
page 152

Technical Documents:

Instruction Sheet—408-6609

Cable Clamp Kits with Grommets

Shell Size	Dimensions				Cable O.D. Range	No. of Grommets Per Set	Kit Numbers
	A	B	C	D			
1	1.215 30.86	1.910 48.51	.570 14.48	.630 16.00	.185-.320 4.70-8.13	4	5748678-1
2	1.545 39.24	1.910 48.51	.620 15.75	.620 15.75	.185-.320 4.70-8.13	4	5748678-2
3	2.090 53.09	1.920 48.77	.680 17.27	.640 16.26	.255-.470 6.48-11.94	6	5748678-3
4	2.738 69.55	1.920 48.77	.800 20.32	.620 15.75	.255-.470 6.48-11.94	6	5748678-4
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.54	.255-.470 6.48-11.94	6	5748678-5

- Notes:** 1. All parts are packaged unassembled.
2. Jackscrews must be purchased separately.
3. Split-ring and crimp ferrules are shown on pages 143-145.
4. Shielded cable clamps will not accept connector housings with clinch nuts.

Note: All part numbers are RoHS compliant.

Unshielded Cable Clamps (Continued)

Straight/90° Exit Cable Clamps can be used on a plug or receptacle and will not interfere with commonly used mating hardware. Their three-piece construction allows easy assembly to a cable harness. Also, the same cable clamp components are used for both straight and 90° cable exit applications. This is accomplished by simply positioning the Male and Female Panels on the Yoke for the desired angle.

Material

Black thermoplastic

Related Product Data:

Connectors used with:

HDE All-Plastic—pages 112 & 113

HDE Metal-Shell—pages 114 & 115

HDP Metal-Shell—pages 90-102

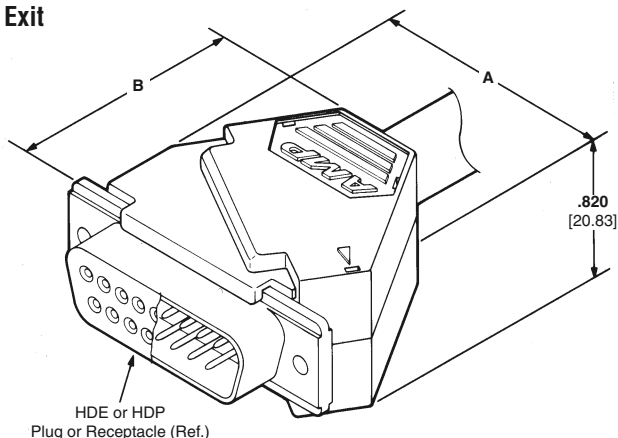
Other accessory capabilities:

Female Screwlocks—page 148

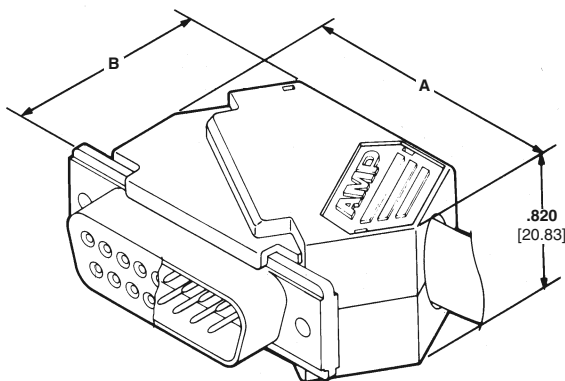
Locking Posts and Slide Latches—pages 149-151

Latching Blocks—pages 153 & 154

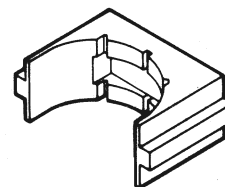
Straight/90° Exit



Straight Cable Exit Application



90° Cable Exit Application



Typical Cable Support Gate
(Supplied with Cable Clamp Kit)

Shell Size	Cable Clamp Configuration	Dimensions		Cable Dia.	Cable Clamp Kit No. Individual
		A	B		
3	Straight Exit	1.906	1.672	.550	745306-1
	90° Exit	2.066	1.396		
4	Straight Exit	2.424	1.820	.750	745311-1
	90° Exit	2.638	1.596		

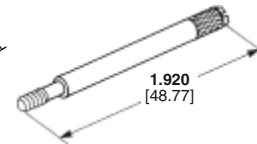
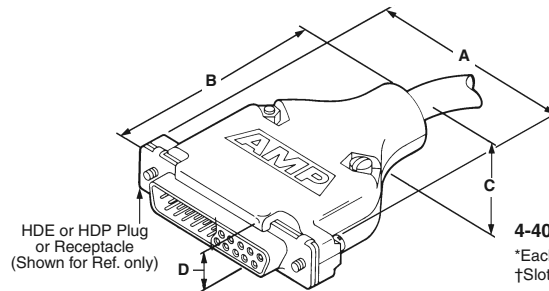
- Notes:**
1. All parts are packaged unassembled.
 2. Each cable clamp assembly includes a yoke, male panel, female panel and four cable support gates. The cable diameter is adjustable by changing the cable support gates.

Note: All part numbers are RoHS compliant.

Shielded Cable Clamps

Straight Exit RFI/EMI Shields for Jacketed Cable (Two-Piece)

This RFI/EMI shield allows cable to be fully prepared and terminated to the connector before the shield is installed. During installation, the shield of the jacketed cable is folded back and compressed into the cable opening of the RFI/EMI shield. For greater cable support and/or shielding effectiveness, split-ring and crimp ferrules are available (pages 143-145).



4-40 Male Jackscrew Kit Nos.: 747784-8 (bulk packed)*†
 *Each part is individually bulk packed for multiple kit orders.
 †Slotted for screwdriver use.

Material and Finish:

- Die Cast Shield**—Zinc alloy, plated bright nickel over bright copper
- Metal-Plated Plastic Shield**—Thermoplastic, plated nickel over copper
- 4-40 Fillister Head Screws and Hex Nuts**—Steel, zinc plated
- 4-40 Mounting Screws**—Steel, zinc plated
- Jackscrews**—Stainless steel, passivated

Related Product Data:

- Ferrules**—pages 143-145
- Connectors used with:**
- HDE Metal-Shell**—pages 114 & 115
- HDP Metal-Shell (Tin plated only)**—pages 90-102
- Other accessory capabilities:**
- Spring Latch (Two-Piece)**—page 152

Technical Documents:

- Product Specification**—108-40032
- Instruction Sheet**—408-6609

Shell Size	Dimensions				Cable O.D. (Max.)	Die Cast Shield Kit Numbers	Metal-Plated Plastic Shield Kit Numbers	Grommet Sets		Part Number
	A	B	C	D				Cable O.D. Range	No. of Grommets Per Set	
1	1.215 30.86	1.910 48.51	.550** 13.97	.620** 15.75	.200 5.08	5745171-2	5745854-5	—	—	—
					.250 6.35	5745171-1	5745854-3	—	—	—
					.370 9.40	5745171-5	5745854-1	.185-.320 4.70-8.13	4	747746-1
					.225 5.72	5745172-3	5747099-7	—	—	—
2	1.545 39.24	1.910 48.51	.620 15.75	.620 15.75	.300 7.62	5745172-2	5747099-5	—	—	—
					.375 9.53	5745172-1	5747099-3	.185-.320 4.70-8.13	4	747746-1
					.430 10.92	1-5745172-3	5747099-1	—	—	—
					.280 7.11	5745173-5	5745833-9	—	—	—
3	2.090 53.09	1.920 48.77	.680 17.27	.620** 15.75	.350 8.89	5745173-4	5745833-7	—	—	—
					.430 10.92	5745173-3	5745833-5	—	—	—
					.480 12.19	5745173-2	5745833-4	—	—	—
					.530 13.46	5745173-1	5745833-1	.255-.470 6.48-11.94	6	747973-1
4	2.738 69.55	1.920 48.77	.800 20.32	.620 15.75	.350 8.89	5745174-5	5747100-9	—	—	—
					.425 10.80	5745174-4	5747100-7	—	—	—
					.500 12.70	5745174-3	—	—	—	—
					.530 13.46	2-5745174-7	—	.255-.470 6.48-11.94	6	747973-1
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.55	.575 14.61	5745174-2	5747100-3	—	—	—
					.650 16.51	5745174-1	5747100-1	—	—	—
					.375 9.53	5745175-6	—	—	—	—
					.450 11.43	5745175-5	—	—	—	—
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.55	.525 13.34	5745175-4	—	.255-.470 6.48-11.94	6	747973-1
					.600 15.24	5745175-3	—	—	—	—
					.675 17.15	5745175-2	—	—	—	—
					.750 19.05	5745175-1	5747098-1	—	—	—

Cable Clamp Kits with Grommets

Shell Size	Dimensions				Cable O.D. Range	No. of Grommets Per Set	Kit Numbers	
	A	B	C	D			Die Cast Shield With Grommets	Metal-Plated Plastic Shield With Grommets
1	1.215 30.86	1.910 48.51	.550** 13.97	.620** 15.75	.185-.320 4.70-8.13	4	5748676-1	5748677-1
2	1.545 39.24	1.910 48.51	.620 15.75	.620 15.75	.185-.320 4.70-8.13	4	5748676-2	5748677-2
3	2.090 53.09	1.920 48.77	.680 17.27	.620** 15.75	.255-.470 6.48-11.94	6	5748676-3	5748677-3
4	2.738 69.55	1.920 48.77	.800 20.32	.620 15.75	.255-.470 6.48-11.94	6	5748676-4	5748677-4
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.54	.255-.470 6.48-11.94	6	5748676-5	5748677-5

- Notes:**
- All parts are packaged unassembled.
 - Jackscrews must be purchased separately.
 - Split-ring and crimp ferrules are shown on pages 143-145.
 - Shielded cable clamps will not accept connector housings with clinch nuts.

** The following dimensions apply to metal-plated plastic cable clamps: Size 1: C = .570 [14.48], D = .630 [16.0] Size 3: D = .640 [16.26]

Note: All part numbers are RoHS compliant.

Both the straight exit and the 90° exit die cast RFI/EMI shield allows cable to be fully prepared and terminated to the connector before the shield is installed. During installation, the shield of the jacketed cable is folded back and compressed into the cable opening of the RFI/EMI shield. For greater cable support and/or shielding effectiveness, splitting and crimp ferrules are available (pages 143-145).

Material and Finish:

Shield—Zinc alloy, plated nickel over copper

4-40 Pan Head Screws & Latch Screws (90° Exit Only)—Steel, zinc plated

One-Piece Slide Latch (90° Exit Only)—Stainless steel

Related Product Data:

Ferrules—pages 143-145

Connectors used with:

HDE Metal-Shell—pages 114 & 115

HDP Metal-Shell (Tin plated only)—pages 90-102

Technical Documents:

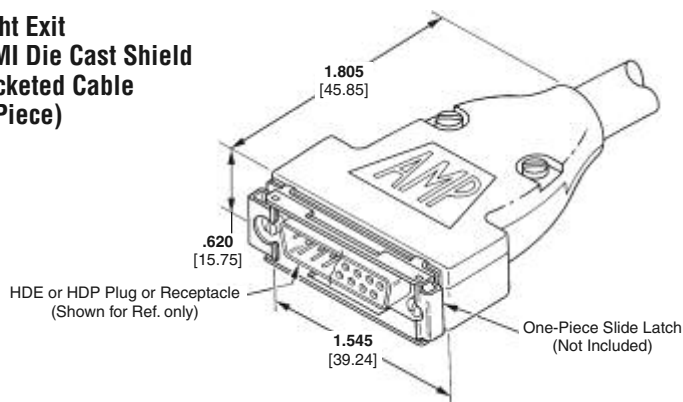
Product Specification—

108-40032

Instruction Sheet—408-6769

Shielded Cable Clamps (Continued)

Straight Exit RFI/EMI Die Cast Shield for Jacketed Cable (Two-Piece)



Shell Size	No. of Positions	ID Letter	Cable Dia. w/Ferrules	Part Number	Grommet Kit
2	15	E	.260-.300 6.60-7.72	5745919-3	—
		H	.190-.375 4.83-9.53	5745919-2	747746-1*
		K	.190-.430 4.83-10.92	5745919-1	—

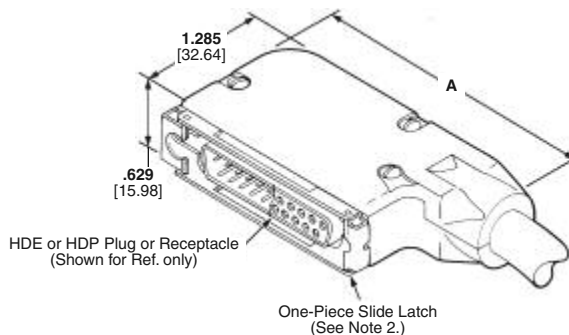
*Cable Dia. Range using Grommet is .185-.320 [4.70-8.13].

Notes: 1. All parts packaged unassembled.

2. Each kit comprised of a two-piece shield with 2 pan head screws.

3. Split-ring and crimp ferrules are shown on pages 143-145.

90° Exit RFI/EMI Die Cast Shields for Jacketed Cable (Two-Piece)



Shell Size	Dimension A	Cable Dia. w/Ferrules	Shield with Slide Latch Kit Numbers (See Note 2)	Shield without Slide Latch Kit Numbers (See Note 3)	Grommet Kit
2	2.310 58.67	.185-.225 4.70-6.48	5745652-4	—	—
		.260-.300 6.60-7.62	5745652-3	—	—
		.190-.375 4.83-9.53	5745652-2*	—	747746-1
		.190-.430 4.83-10.92	5745652-1	—	—
		.240-.280 6.10-7.11	5745653-5	—	—
		.315-.355 8.00-9.02	5745653-4	—	—
3	2.850 72.39	.190-.430 4.83-10.92	5745653-3	5747194-3	—
		.440-.480 11.18-12.19	5745653-2	—	—
		.380-.530 9.65-13.46	5745653-1*	—	747973-1

* Cable Dia. with Grommet Kit: Size 2 = .185-.320 [4.70-8.13]; Size 3 = .255-.470 [6.48-11.94].

Notes: 1. All parts are packaged unassembled.

2. Each kit is comprised of a two-piece shield with three pan head screws and a slide latch with two 4-40 slide latch screws.

3. Each kit is comprised of a two-piece shield with three pan head screws.

4. Split-ring and crimp ferrules are shown on pages 143-145.

Note: All part numbers are RoHS compliant.

Shielded Cable Clamps (Continued)

Material and Finish:

Outer Ferrule—Copper, plated .000100 [0.00254] min. tin
Inner Ferrule—.023 [0.58] thick brass, plated .000050 [0.00127] tin over copper

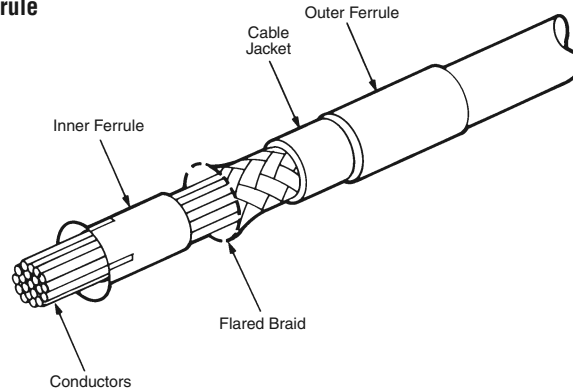
Related Product Data:

Shields used with:
Straight Exit—pages 141 & 142
90° Exit—page 142

Technical Documents:

Product Specification—108-40032
Instruction Sheets—408-9315 Hand Tool
 408-9318 Die Sets

Crimp Ferrules for Braided Cable Shield (See pages 144 & 145 for Inner and Outer Ferrule Part Numbers.)



Application Tooling

Note: Crimp ferrules are for use with braided shields only. Crimp ferrules require application tooling with die sets for attachment to cable.



Pneumatic Bench Tool No. 312522-2
 (Requires Die Set Holder No. 58449-1.)



AMP Hand Tool No. 543344-1
 (See pages 144 & 145 for Hand Tool Die Set Numbers)

Split-Ring Ferrules for Foil or Braided Cable Shield (See pages 144 & 145 for Split-Ring Ferrule Part Numbers.)

Material:

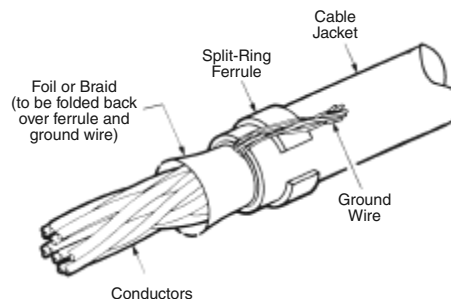
Aluminum

Related Product Data:

Shields used with:
Straight Exit—pages 141 & 142
90° Exit—page 142

Technical Document

Product Specification—108-40032



Note: Split-ring ferrules cannot be used with outer and inner ferrules. Split-ring ferrules are suitable for both foil and braided shields. The ferrules do not require tooling for assembly.

Note: All part numbers are RoHS compliant.

Shielded Cable Clamps (Continued)

Crimp and Split-Ring Ferrules

Cable Connectors

Shell Size	Cable Dia. (Max.)	← When using these Shield Kits →				← Use these Ferrules →				
		Straight Exit Shield Kit No.		90° Exit Die Cast Shield Kit No.		Split-Ring* Ferrule No.	Crimp Ferrule No. and Tooling No.**			
		Die Cast	Metal-Plated Plastic	With Slide Latch	Without Slide Latch		Inner	Outer	Die Set For Hand Tool 543344-1	Applicator Die Set
1	.200 5.08	5745171-2	5745854-5	—	—	745508-2	—	—	—	—
	.240 6.10	5745171-5	5745854-1	—	—	—	7-745129-8	3-745130-8	543013-2	813809-1
	.250 6.35	5745171-1	5745854-3	—	—	745508-3	—	—	—	—
	.280 7.11	5745171-5	5745854-1	—	—	—	7-745129-9	4-745130-5	1-543013-7	813809-7
	.370 9.40	5745171-5	5745854-1	—	—	745508-6	6-745129-9	4-745130-0	543013-6	813809-5
2	.225 5.72	5745172-3	5747099-7	5745652-4	—	745508-3	—	—	—	—
	.240 6.10	5745172-1	5747099-3	5745652-2	—	—	7-745129-8	3-745130-8	543013-2	813809-1
	.240 6.10	1-5745172-3 5745919-1	5747099-1	5745652-1	—	—	7-745129-3	3-745130-8	543013-3	813809-1
	.280 7.11	1-5745172-3 5745919-1	5747099-1	5745652-1	—	—	7-745129-8	4-745130-5	1-543013-6	813809-7
	.300 7.62	5745172-2 5745919-3	5747099-5	5745652-3	—	745508-4	—	—	—	—
	.350 8.90	1-5745172-3 5745919-1	5747099-1	5745652-1	—	—	7-745129-2	3-745130-9	543013-4	813809-2
	.365 9.27	5745172-1	5747099-3	5745652-2	—	—	6-745129-9	4-745130-0	543013-6	813809-5
	.375 9.53	5745172-1 5745919-2	5747099-3	5745652-2	—	745508-6	—	—	—	—
	.430 10.92	1-5745172-3 5745919-1	5747099-1	5745652-1	—	745508-1	7-745129-1	4-745130-1	543013-7	813809-3
	.240 6.10	5745173-3	5745833-5	5745653-3	5747194-3	—	7-745129-3	3-745130-8	543013-3	813809-1
3	.280 7.11	5745173-5	5745833-9	5745653-5	—	745508-4	—	—	—	—
	.280 7.11	5745173-3	5745833-5	5745653-3	5747194-3	—	7-745129-8	4-745130-5	1-543013-6	813809-7
	.350 8.90	5745173-4	5745833-7	5745653-4	—	745508-5	—	—	—	—
	.350 8.90	5745173-3	5745833-5	5745653-3	5747194-3	—	7-745129-2	3-745130-9	543013-4	813809-2
	.430 10.92	5745173-3	5745833-5	5745653-3	5747194-3	745508-1	7-745129-1	4-745130-1	543013-7	813809-3
	.430 10.92	5745173-1	5745833-1	5745653-1	—	—	7-745129-5	4-745130-1	543013-8	813809-3
	.480 12.19	5745173-2	—	5745653-2	—	745508-8	—	—	—	—
	.530 13.46	5745173-1	5745833-1	5745653-1	—	745508-9	7-745129-4	4-745130-2	1-543013-0	813809-4

*For split-ring ferrules, Min. O.D. is .040 [1.02] smaller than Max. O.D.

**For inner and outer ferrules, Min. O.D. is .050 [1.27] smaller than Max. O.D. At the Max. cable O.D. the Min. insulation thickness is .060 [1.52].

Continued on Page 145

Note: All part numbers are RoHS compliant.

Shielded Cable Clamps (Continued)

Crimp and Split-Ring Ferrules (Continued)

Shell Size	Cable Dia. (Max.)	When using these Shield Kits				Use these Ferrules				
		Straight Exit Shield Kit No.		90° Exit Die Cast Shield Kit No.		Split-Ring* Ferrule No.	Crimp Ferrule No. and Tooling No.**			
		Die Cast	Metal-Plated Plastic	With Slide Latch	Without Slide Latch		Inner	Outer	Die Set for Hand Tool 54334-1	Applicator Die Set
4	.240 6.10	5745174-4	5747100-7	—	—	—	7-745129-3	3-745130-8	543013-3	813809-1
	.280 7.11	5745174-4	5747100-7	—	—	—	7-745129-8	4-745130-5	1-543013-6	813809-7
	.350 8.90	5745174-5	5747100-9	—	—	745508-5	—	—	—	—
	.350 8.90	5745174-4	5747100-7	—	—	—	7-745129-2	3-745130-9	543013-4	813809-2
	.430 10.92	5745174-4	5747100-7	—	—	745508-1	7-745129-1	4-745130-1	543013-7	813809-3
	.500 12.70	5745174-3	—	—	—	745508-8	—	—	—	—
	.525 13.34	5745174-1	5747100-1	—	—	—	7-745129-6	4-745130-2	1-543013-1	813809-4
	.575 14.61	5745174-2	5747100-3	—	—	1-745508-0	—	—	—	—
	.650 16.51	5745174-1	5747100-1	—	—	1-745508-1	—	—	—	—
	5	.240 6.10	5745175-6	—	—	—	—	7-745129-0	3-745130-8	543013-2
.365 9.27		5745175-6	—	—	—	—	6-745129-9	4-745130-0	543013-6	813809-5
.375 9.53		5745175-6	—	—	—	745508-6	—	—	—	—
.430 10.92		5745175-4	—	—	—	—	7-745129-5	4-745130-1	543013-8	813809-3
.450 11.43		5745175-5	—	—	—	745508-7	—	—	—	—
.525 13.34		5745175-4	—	—	—	745508-9	—	—	—	—
.530 13.46		5745175-4	—	—	—	—	7-745129-4	4-745130-2	1-543013-0	813809-4
.600 15.24		5745175-3	—	—	—	1-745508-0	—	—	—	—
.650 16.51		5745175-1	5747098-1	—	—	—	1-745508-1	4-745130-3	1-543013-4	—
.675 17.15		5745175-2	—	—	—	1-745508-1	—	—	—	—
.750 19.05	5745175-1	5747098-1	—	—	1-745508-2	—	—	—	—	

*For split-ring ferrules, Min. O.D. is .040 [1.02] smaller than Max. O.D.
 **For inner and outer ferrules, Min. O.D. is .050 [1.27] smaller than Max. O.D. At the Max. cable O.D. the Min. insulation thickness is .060 [1.52].
Note: Refer to page 143 for Application Tooling for ferrules.

Note: All part numbers are RoHS compliant.

Hardware

Commoning Strip (for HDF-20 Plugs, Size 20 Pin Contacts)

Material and Finish:

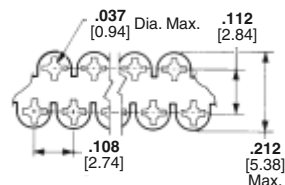
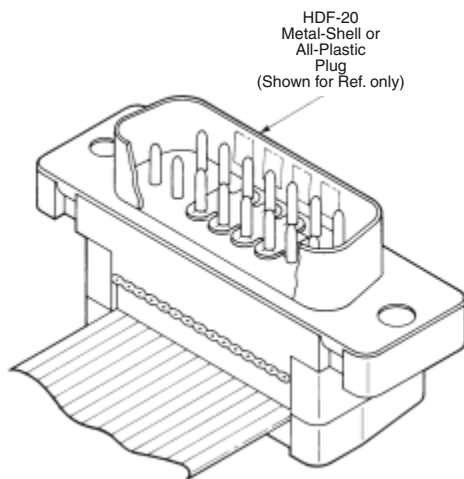
Brass, .004 [0.10] thick, tin plated

Part No. 206918-2

(Continuous Strip)

Related Product Data:

Used with HDF-20 Plugs—
page 126



Notes:

1. Use punching tool to remove undesired pin commoning locations on commoning strip. Use mating receptacle to seat strip over pins in plug. Punching tool is not supplied by TE.
2. Sold in strip form, strip contains 10,000 commoning locations.

Male Screw Retainers for Metal-Shell Connectors (HDE and HDP)

Material and Finish:

Male Screw—Steel, zinc plated clear or yellow chromate

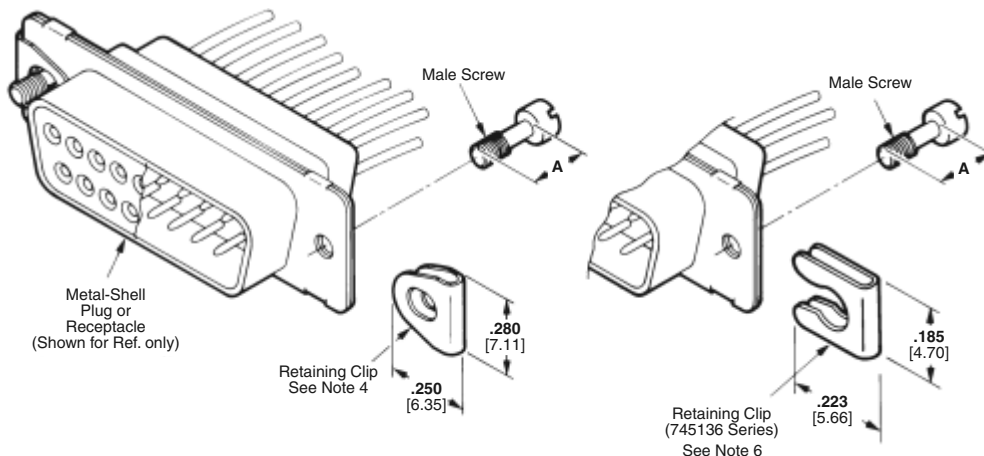
Retaining Clip—.012 [0.31] stainless steel

Related Product Data:

Connectors used with:
HDE Metal-Shell—pages 114 & 115
HDP Metal-Shell—pages 90-102

Technical Documents:

Instruction Sheet—408-7837



Male Screw Finish	Thread Size	Dimension A	Male Screw Retainer Kit No.	
			Individual	Bulk Packed*
Yellow Chromate	4-40	.220 5.59	5205980-1 5787354-1**	5205980-3 —
		.200 5.08	5745136-1	5745136-2
	M3 (Metric)	.225 5.72	5207871-1	—
		.220 5.59	5205980-4	5205980-5
Clear Chromate	4-40	.200 5.08	5745136-3	5745136-4

*Each part is individually bulk packed for multiple kit orders.

** Phillips Head Screw

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of two male screws and two retaining clips. Male screw retainers are also furnished as part of cable clamp kits (pages 137 and 138).
 3. Male screw retainers mate with female screwlocks (page 144), with HDF metal-shell connectors featuring 4-40 threaded inserts (page 148) and with HD metal-shell board mount connectors featuring 4-40 threaded inserts or female screwlocks.
 4. Retaining clip must be assembled onto connector flanges with threaded hole toward wire side of connector.
 5. All screws have straight slotted heads except where noted.
 6. Retaining clip must be assembled onto connector flanges with notched side of retainer toward mating side of connector.

Note: All part numbers are RoHS compliant.

Hardware (Continued)

Material and Finish:

Male Screw—Steel, zinc plated yellow chromate

Retaining Clip—.012 [0.51] stainless steel

Related Product Data:

Connectors used with:
HDE All-Plastic—pages 112 & 113

Technical Documents:

Instruction Sheet—408-7837

Male Screw Retainers for All-Plastic Connectors (HDE)



Kit Numbers:

745647-1 (Individually packaged, see Note 2)

745647-2 (Bulk packed)*

*Each part is individually bulk packed for multiple kit orders.

Notes:

1. All parts are packaged unassembled.
2. Each kit is comprised of two 4-40 male screws and two retaining clips.
3. Male screw retainers mate with female screwlocks (page 148), with HDF All-Plastic connectors featuring 4-40 threaded inserts (page 125), with HD All-Plastic board mount connectors featuring integral standoffs with 4-40 threaded inserts and female screwlocks.
4. Retaining clips must be assembled onto connector flanges with threaded hole toward wire side of connector.

Material and Finish:

Male Screw—Steel, zinc plated clear chromate

Retaining Clip—.012 [0.51] stainless steel

Related Product Data:

Connectors used with:
HDF Metal-Shell and All-Plastic—pages 125 & 126

Technical Documents:

Instruction Sheet—408-7837

Male Screw Retainers for Metal-Shell and All-Plastic Connectors (HDF)



Kit Numbers:

746881-1 (Individually packaged, see Note 2)

746881-2 (Bulk packed)*

*Each part is individually bulk packed for multiple kit orders.

Notes:

1. All parts are packaged unassembled.
2. Each kit is comprised of two male screws and two retaining clips.
3. Male screw retainers mate with female screwlocks (page 148), and with HD board mount connectors featuring female screwlocks.
4. Retaining clips must be assembled onto connector flanges with threaded hole toward wire side of connector.

Note: All part numbers are RoHS compliant.

Hardware (Continued)

Material and Finish:

All Parts—Cold rolled steel, zinc plated clear or yellow chromate

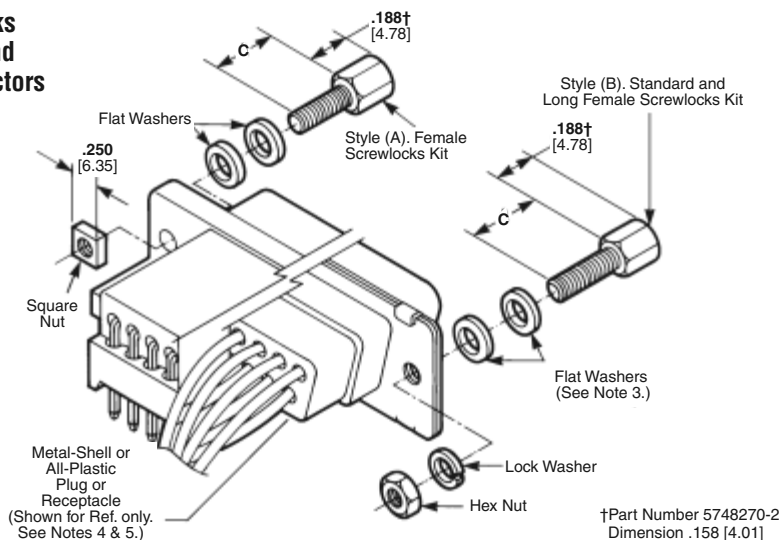
Related Product Data:

Connectors used with:
HDE Metal-Shell or All-Plastic—pages 112-115
HDF Metal-Shell or All-Plastic—pages 125 & 126
HDP Metal-Shell—pages 90-102
HD Board Mount—pages 54-71, 78-85, 87-89

Technical Documents:

Instruction Sheet—408-7837

Female Screwlocks for Metal-Shell and All-Plastic Connectors (HDE, HDF, HDP)



Connector Used with	Style	Dimension C	Thread Size	Finish	Kit Number	
					Individual	Bulk Packed ^Δ
HD All-Plastic Right-Angle Plugs and Receptacles	(A)	.250 6.35	4-40	Yellow Chromate	5207952-1	—
				Clear Chromate	5207952-3	—
HDE Metal-Shell or All-Plastic Plugs and Receptacles	(B)	.250 6.35	4-40	Yellow Chromate	5745563-1	5745563-1
				Clear Chromate	5745563-3	5745563-4
HDP or HDF Metal-Shell or All-Plastic Plugs and Receptacles	(B)	.312 7.93	4-40	Yellow Chromate	5205817-1	5205817-2
				Clear Chromate	5205817-3	5205817-4
			M3 (Metric)	Yellow Chromate	5207872-1	—
				Clear Chromate	5207872-3	—
HD or HDF All-Plastic Plugs and Receptacles with Integral Standoffs	(B)	.560 14.22	4-40	Yellow Chromate	5207719-1	5207719-2
				Clear Chromate	5207719-3	5207719-4
			2-56*	Clear Chromate	5747223-3	—

* 2-56 is the male thread size. The female thread size is 4-40.

^Δ Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each female screwlock kit is comprised of two assemblies as illustrated above.
 3. One or two flat washers may be required for panel thicknesses less than .060 [1.52]. Female screwlocks are not recommended for panel thicknesses greater than .060 [1.52].
 4. Female screwlocks with 2-56 thread size are to be used with cable clamps with mounting flanges. Female screwlocks with 4-40 and M3 (Metric) thread sizes can be used with all other cable clamps.
 5. Female screwlocks mate with male screw retainers (pages 146 and 147).
 6. Short female screwlocks cannot be used with HDF connectors (pages 125 & 126)

Individual Screwlocks

(Washers and Nuts not included)

Connector Used with	Style	Dimension C	Thread Size	Finish	Screwlocks	
					Individual	Bulk Packed ^Δ
HD All-Plastic Right-Angle Plugs and Receptacles	(A)	.250 6.35	4-40	Yellow Chromate	5207953-2	—
				Clear Chromate	5207953-3	—
				Clear Chromate	—	5205818-3 ^{ΔΔ}
HDP or HDF Metal-Shell or All-Plastic Plugs and Receptacles	(B)	.312 7.93	4-40	Clear Chromate	5748558-3	5748558-4
				Yellow Chromate	5748270-2	5205818-2 ^{ΔΔ}
			M2.6** (Metric)	Clear Chromate	5749765-3	—
				M3*** (Metric)	Clear Chromate	5747404-3
(Special)	.185 4.70	4-40	Clear Chromate	5747877-3	—	

^Δ Each part is individually bulk packed for multiple kit orders.

^{ΔΔ}With captivated star washer. No additional hardware included.

†Part No. 5748270-2 Dimension .158 [4.01]

**M2.6 is the female thread size. The male thread size is 4-40.

***M3 is the female thread size. The male thread size is 4-40.

Note: All part numbers are RoHS compliant.



Nut Driver, Part No. 811262-1

(Used for assembling female screwlocks to connector flange)

Hardware (Continued)

Slide Latches

Material and Finish:

4-40 Screws, Washers and Hex Nuts—Steel, zinc plated yellow chromate

2-56 Screws, Washers and Hex Nuts—Steel, zinc plated clear chromate

Slide Latch—Stainless steel

Related Product Data:

Connectors used with:

HDE Metal-Shell or All-Plastic—pages 112-115

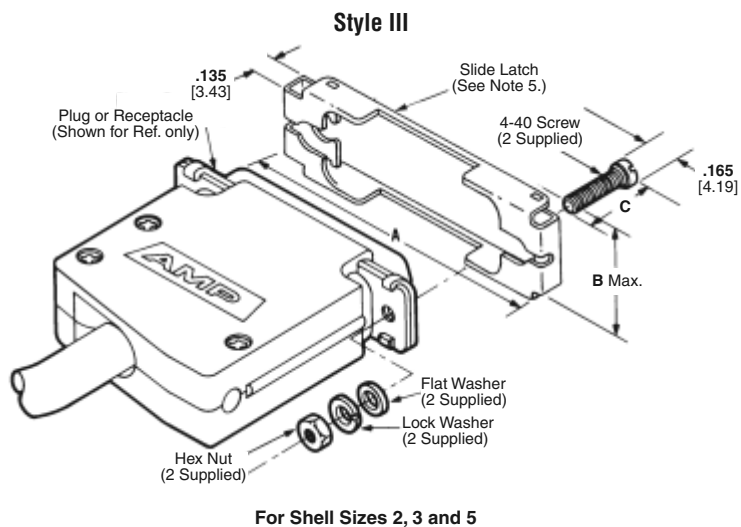
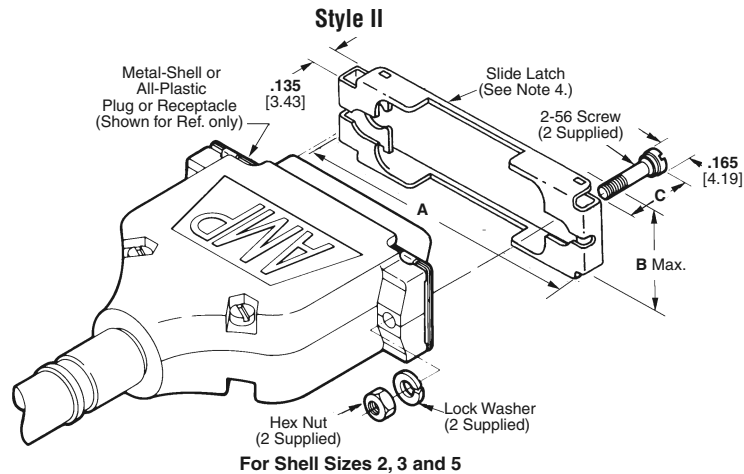
HDF Metal-Shell or All-Plastic—pages 125 & 126

HDP Metal-Shell—pages 90-102

HD Board Mount—pages 54-71, 78-85, 87-89

Technical Documents:

Instruction Sheet—408-6551



Hardware (Continued)

Slide Latches



Typical Applications of Locking Posts and Slide Latches

Shell Size	Style	Dimensions			Slide Latch Kit Numbers		Side Latch Only
		A	B	C	Individual	Bulk Packed*	
1	I	1.397 35.48	.490 12.45	.415 10.54	5745404-1	—	164890-1
	II	1.725 43.82	.470 11.94	.547 13.89	5745583-1	—	749027-1
2	II	1.725 43.82	.470 11.94	.415 10.54	5745583-5	—	749027-1
		1.725 43.82	.470 11.94	.450 11.43	5745583-7	—	—
	III	1.725 43.82	.470 11.94	.415 10.54	—	5748653-1	—
		1.725 43.82	.490 12.45	.290 7.37	5749028-1 ⁷	—	—
	III	1.725 43.82	.437 11.10	.415 10.54	—	5786138-1 ⁷	—
		II	2.265 57.53	.470 11.94	.547 13.89	5745584-1	—
3	III	2.265 57.53	.470 11.94	.415 10.54	5745584-3	—	749996-1
	I	2.913 73.99	.490 12.45	.415 10.54	5745407-1	—	164890-4
4	I	2.913 73.99	.490 12.45	.415 10.54	5745407-1	—	164890-4
5	III	2.819 71.60	.575 14.61	.415 10.54	5745578-3	—	749997-1
		2.819 71.60	.575 14.61	.415 10.54	5745578-3	—	749997-1

*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a slide latch and two screws, flat washers (if required), lock washers and hex nuts. Style I slide latches are also furnished as part of cable clamp kits (page 142).
 3. Style I slide latches can be used with cable clamps that do not extend beyond the front flange of the connector or on connectors without cable clamps.
 4. Style II slide latches can be used with any cable clamp that has the mounting ear configuration as shown above.
 5. Style III slide latches can be used on connectors without cable clamps or with cable clamps that do not have the mounting ear configuration shown with Style II above.
 6. Slide latches mate with locking posts (page 151).
 7. No nuts, washers, or lockwashers.

Note: All part numbers are RoHS compliant.

Hardware (Continued)

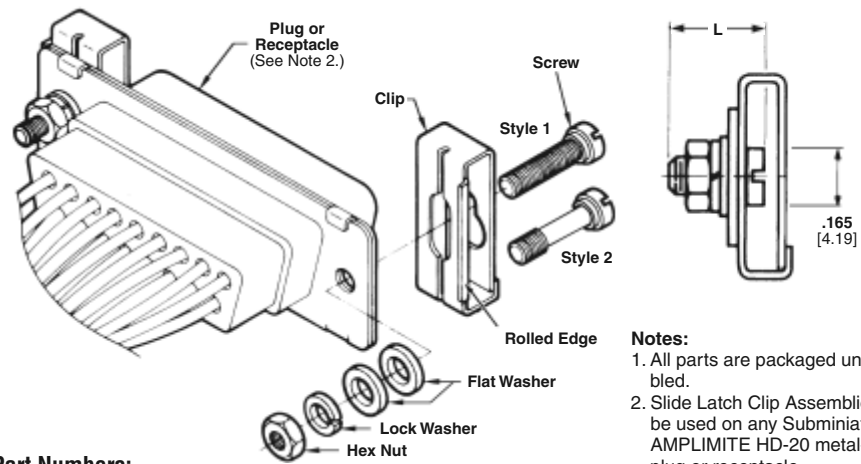
Slide Latch Clip Assembly for Unfiltered Mating Half

Material and Finish:

Screw, Washers and Hex Nut—Cold rolled steel, zinc plated clear chromate
Clip—Stainless steel

Technical Documents:

Instruction Sheet—408-7785



Notes:

1. All parts are packaged unassembled.
2. Slide Latch Clip Assemblies can be used on any Subminiature D AMPLIMITE HD-20 metal-shell plug or receptacle.
3. Slide Latch Clip Assemblies mate with Locking Post Assemblies shown below.

Kit Part Numbers:

Thread Size	Screw Length L	Pkg.	Screw Style	Part No.
4-40	.415	Unit†	1	5206942-1
	10.54	Bulk		5206942-2
2-56	.547	Unit	2	5748078-1**
	13.89	—		—

† Two assemblies per package.

* Each part is individually bulk packed for multiple kit orders.

** Designed for cable clamps with mounting ears. No flat washers included.

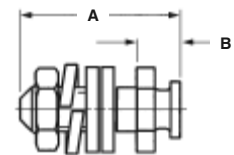
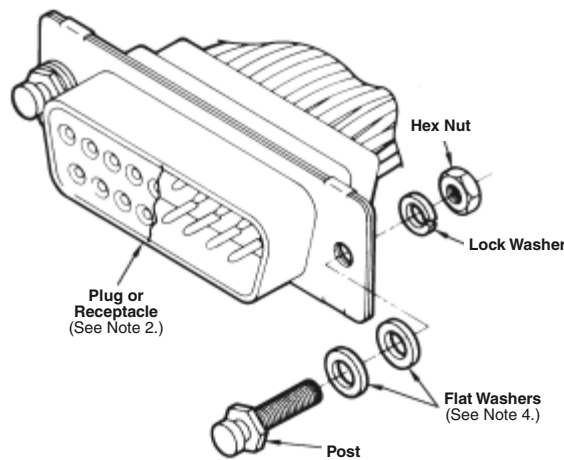
Locking Post Assembly

Material and Finish:

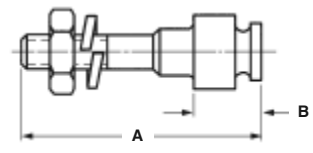
All Parts—Cold rolled steel, zinc plated clear or yellow chromate

Related Product Data:

Connectors used with:
HDE Metal-Shell or All-Plastic—pages 112-115
HDF Metal-Shell or All-Plastic—pages 125 & 126
HDP Metal-Shell—pages 90-102
HD Board Mount—pages 54-71, 78-85, 87-89
Instruction Sheets—
 408-6551
 408-7785



Part No. 206514-1



Part No. 747242-1

Notes:

1. All parts are packaged unassembled.
2. Each kit is comprised of two complete assemblies, as illustrated above.
3. For front panel mounting, it is recommended that a shim be used between the connector flange and panel to prevent bowing of the flange.
4. Locking posts with 2-56 thread size are to be used with cable clamps with mounting flanges. Locking posts with 4-40 thread size can be used with all other cable clamps
5. Locking posts mate with slide latches (page 149).

Thread Size	Locking Post Finish	Dimensions		Locking Post Kit Number (See Note 4)	
		A	B	Individual	Bulk Packed*
4-40	Yellow Chromate	.410	.110	5206514-1	5206514-3
	Clear Chromate	.410	.110	5206514-4	—
	Yellow Chromate	10.41	2.79	5206514-6	5206514-7
2-56	Yellow Chromate	.560	.110	5747242-1	—
	Yellow Chromate	14.22	2.79	—	—

*Each part is individually bulk packed for multiple kit orders.

Note: All part numbers are RoHS compliant.

Hardware (Continued)

Material

.015 [0.38] Stainless steel

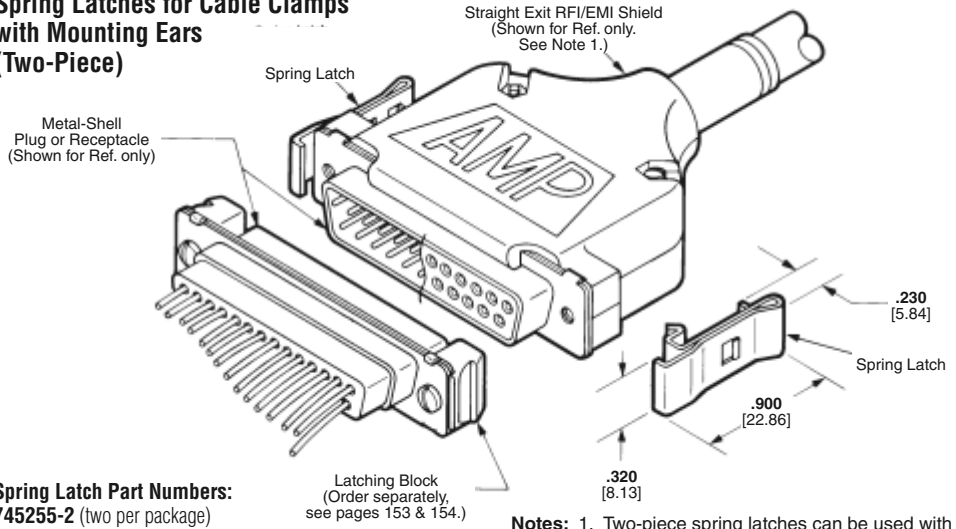
Related Product Data:

Connectors used with:
HDE Metal-Shell—pages 114 & 115
HDP Metal-Shell (Tin plated only)—pages 90-102

Technical Documents:

Instruction Sheet—408-9130

Spring Latches for Cable Clamps with Mounting Ears (Two-Piece)



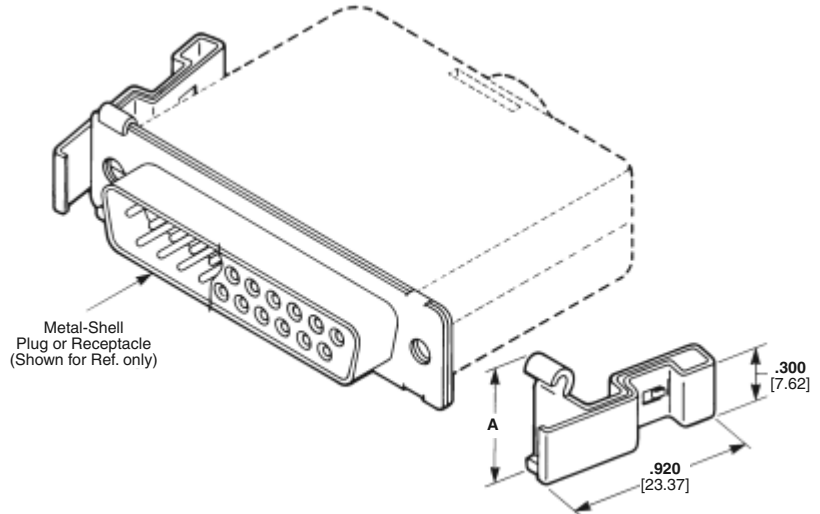
Spring Latch Part Numbers:
745255-2 (two per package)
745255-3 (bulk packed)*

*Two-piece spring latches are individually bulk packed for multiple part orders.

- Notes:**
1. Two-piece spring latches can be used with RFI/EMI shields (pages 141).
 2. Two-piece spring latches mate with latching blocks (pages 153 & 154).

Typical Application of Two-Piece Spring Latches with Straight Exit RFI/EMI Shield

Spring Latches (Two-Piece)



Material:

Stainless steel

Related Product Data:

Connectors used with:
HDE Metal-Shell—pages 114 & 115
HDP Metal-Shell—pages 90-102

Technical Documents:

Instruction Sheet—408-9131

Spring Latch Part Numbers

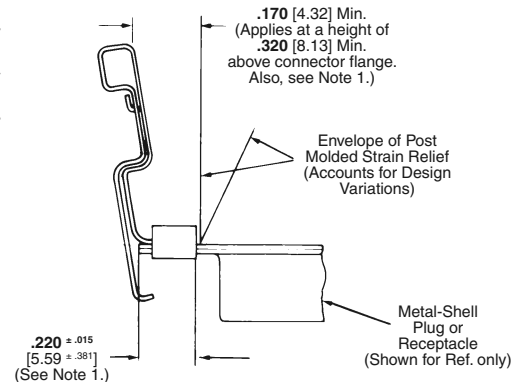
Size	Dimension A	Two Per Package	Bulk Packed*
1-4	.540 13.72	745779-2	745779-3
5	.650 16.51	745779-5	—

*Two-piece spring latches are individually bulk packed for multiple part orders.

- Notes:**
1. These dimensions must be maintained to assure satisfactory operation of the spring latches.
 2. Two-piece spring latches mate with latching blocks (pages 153 & 154).

Note: All part numbers are RoHS compliant.

Typical Application of Two-Piece Spring Latches with Post Molded Strain Relief



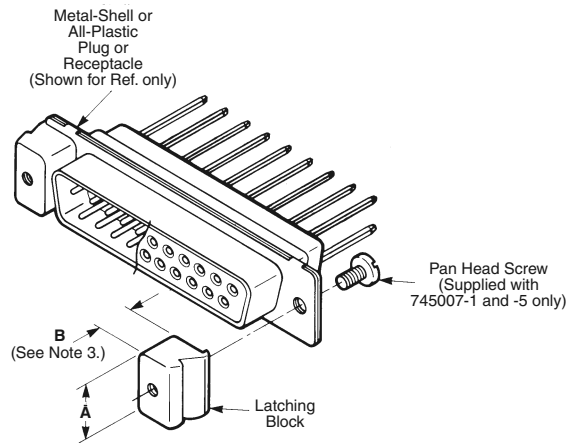
Hardware (Continued)

Material and Finish:
Latching Blocks—Zinc
Pan Head Screws—Steel, zinc plated

Related Product Data:
Connectors used with:
HDE Metal-Shell or All-Plastic—
 pages 112-115
HDF Metal-Shell or All-Plastic—
 pages 125 & 126
HDP Metal-Shell—pages 90-102
HD Board Mount—pages 54-71,
 78-85, 87-89
Mating/Panel Mounting—page 136

Technical Documents:
Instruction Sheet—408-9128

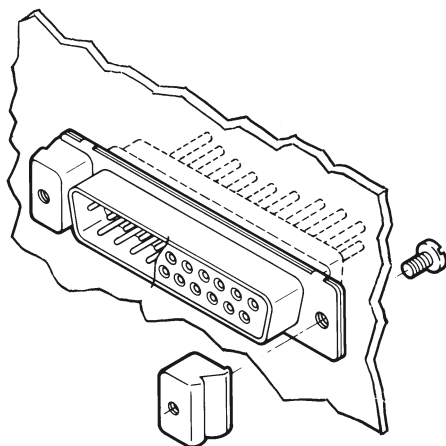
Latching Blocks with Threaded Hole



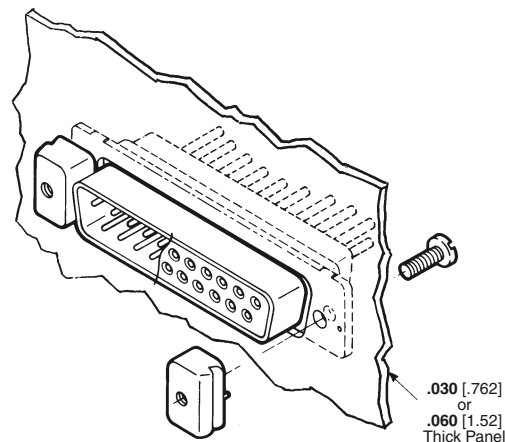
Shell (No. of Contact Pos.)	Dimensions		Panel Thickness	Thread Size	Rear-Panel Latching Block Part No.		Front-Panel Latching Block Part No.	
	A	B			Individual	Bulk Packed*	Individual	Bulk Packed*
1 thru 4 (9 thru 37)	.400 10.16	.190 4.83	.060 1.52	M3 (Metric)	—	745403-2	—	—
				4-40	745403-8	—	—	
	.400 10.16	.220 5.59	.030 0.76	4-40	747717-2	—	—	
				—	—	—	—	
5 (50)	.400 10.16	.250 6.35	—	M3 (Metric)	—	—	5745007-1	—
				4-40	—	—	208101-1	208101-2
	.530 13.46	.250 6.35	—	4-40	—	—	208101-8	208101-9
				—	—	—	1-208101-1	—

*Bulk packed for multiple part orders.
 **Individual kits contain two latching blocks per package.

- Notes:**
1. All parts are packaged unassembled.
 2. Each front panel latching block kit is comprised of two latching blocks. Two pan head screws of the appropriate length and thread size to be supplied by customer.
 3. B dimension .250 [6.35] is for connector flange mounting, .220 [5.59] is for use with .030 [0.76] thick panels, and .190 [4.83] is for use with .060 [1.52] thick panels.
 4. Latching blocks mate with spring latches (page 152).



Typical Application of Front-Panel Mounted Subminiature D Connector using Front-Panel Latching Blocks



Typical Application of Rear-Panel Mounted Subminiature D Connector using Rear-Panel Latching Blocks

Note: All part numbers are RoHS compliant.

Hardware (Continued)

Material

Latching Blocks—Zinc

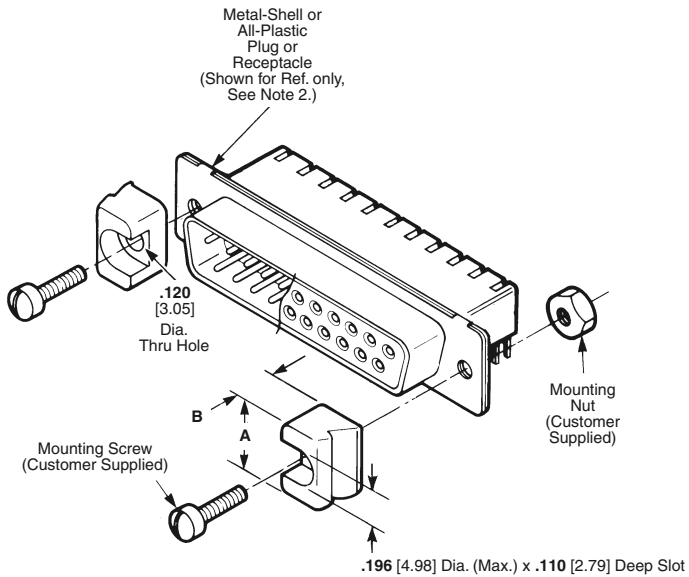
Related Product Data:

- Connectors used with:**
- HDE Metal-Shell or All-Plastic**—pages 112-115
- HDF Metal-Shell or All-Plastic**—pages 125 & 126
- HDP Metal-Shell**—pages 90-102
- HD Board Mount**—pages 54-71, 78-85, 87-89
- Mating/Panel Mounting**—page 136

Technical Documents:

Instruction Sheet—408-9128

Latching Blocks with Slot Recess and Thru Hole

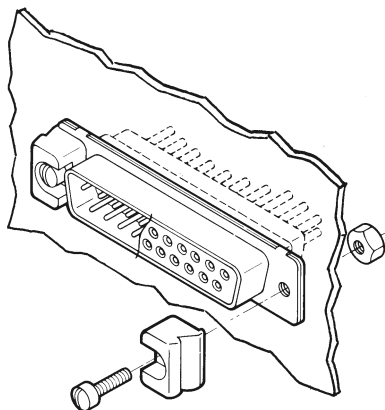


Shell (No. of Contact Pos.)	Dimensions		Panel Thickness	Rear-Panel Latching Block Part No.		Front-Panel Latching Block Part No.
	A	B		Individual	Bulk Packed*	Individual
1 thru 4 (9 thru 37)	.400 10.16	.160 4.06	.090 2.29	747080-2	—	—
		.190 4.83	.060 1.52	745245-2	745245-3	—
		.250 6.35	—	—	—	745286-2
5 (50)	.530 13.46	.190 4.83	.060 1.52	—	—	745245-5

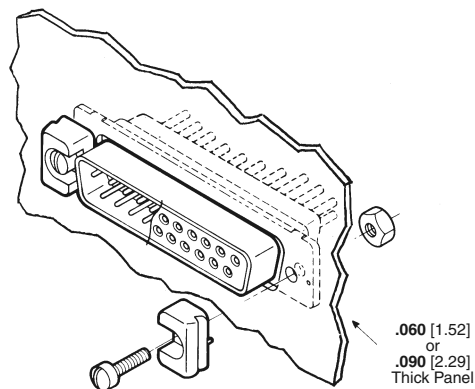
*Bulk packed for multiple part orders.

**Individual kits contain two latching blocks per package.

- Notes:**
1. Mounting screws and nuts are to be supplied by Customer.
 2. These latching blocks allow mounting screws to be installed thru the front of the block and to be screwed into the bracket of a right-angle connector, a fixed insert in a connector mounting flange, or a nut behind the connector mounting flange (as illustrated above).
 3. Latching blocks mate with spring latches (page 152).



Typical Application of Front-Panel Mounted Subminiature D Connector using Front-Panel Latching Blocks



Typical Application of Rear-Panel Mounted Subminiature D Connector using Rear-Panel Latching Blocks

Note: All part numbers are RoHS compliant.

Hardware (Continued)

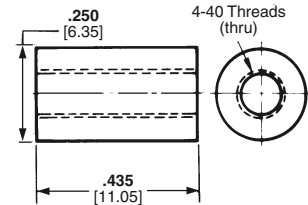
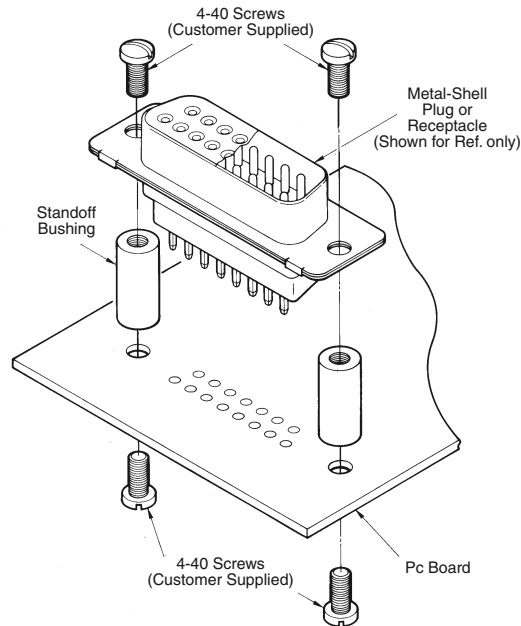
Standoff Bushings

Material:

Aluminum

Related Product Data:

Connectors used with:
HD Straight Posted—
 pages 76-85, 87-89



Kit Numbers:

205933-3 (two bushings per package)

205933-4 (bulk packed)*

*Parts are individually bulk packed for multiple part orders.

Keying Plug
 (for Size 20 Socket Contacts)

Material:

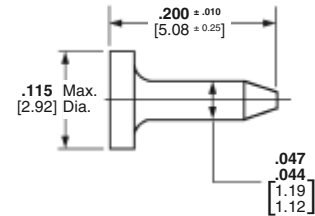
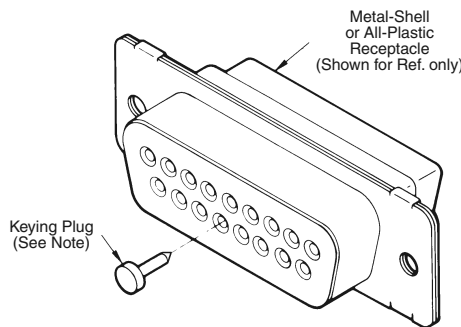
Polyphenylene oxide

Related Product Data:

Connectors used with:
All HDE, HDP and HD Receptacles
with Socket Contacts

Keying Plug

499712-1 AMP-LATCH (electrical connectors) can be used on **HD22 Socket Contacts**



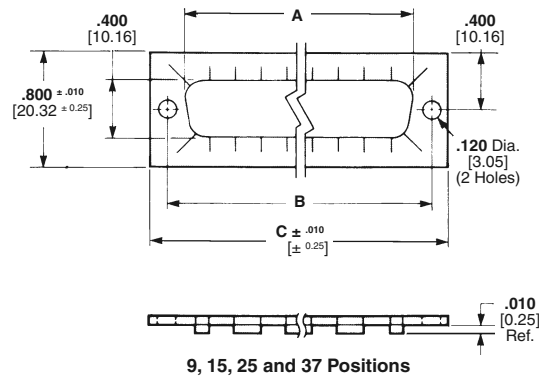
Part Number: 206509-1

- Notes:** 1. Keying plug is installed taper-end first into front of receptacle.
 2. Sold individually.

EMI/RFI Gaskets

Material and Finish:

Brass, .006 [0.15] thick; bright tin plated



Shell Size (No. of Contact Pos.)	Dimensions			Gasket Part No.
	A	B	C	
1 (9)	.746 18.95	.984 24.99	1.220 30.99	5747024-3
2 (15)	1.074 27.28	1.312 33.32	1.555 39.50	5747025-3
3 (25)	1.614 41.00	1.852 47.04	2.100 53.34	745776-4
4 (37)	2.266 57.56	2.500 63.50	2.730 69.34	745777-4

Note: All part numbers are RoHS compliant.

Part Number Index

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