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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## HDP-20 Crimp Snap-In Contact 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

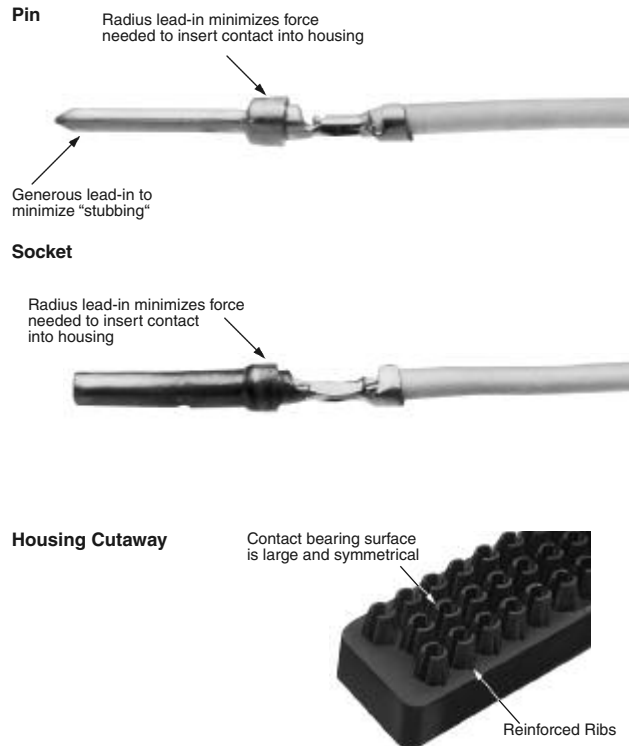
- Machine applied terminations assure highest production rates at lowest applied cost
- Intermateable with any size 20 Subminiature D connector dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Listed under Underwriters 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  
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 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>

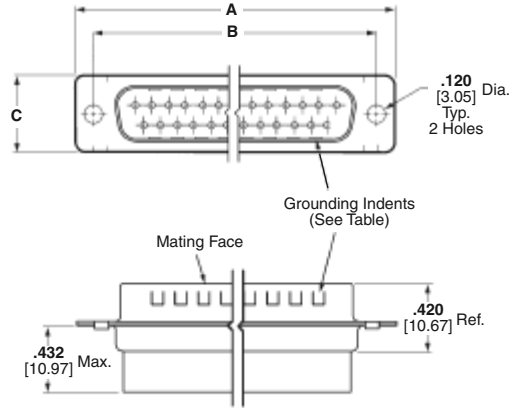
**Contact Retention Features**



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



**Plug**

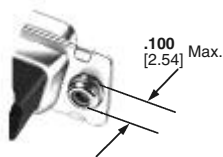


**Material and Finish:**  
**Shell**—Steel, zinc or tin plated  
**Insert**—94V-0 rated thermoplastic, black

**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

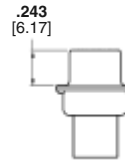
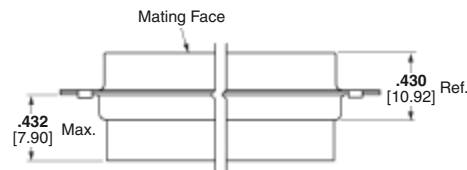
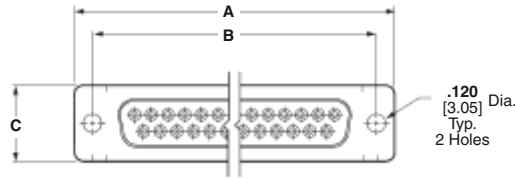


**Clinch Nut**  
(Plug and Receptacle)

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

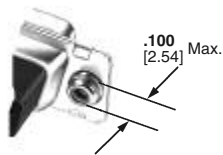
**HDP-20 Crimp Snap-In Contact Connectors** (Continued)

**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.



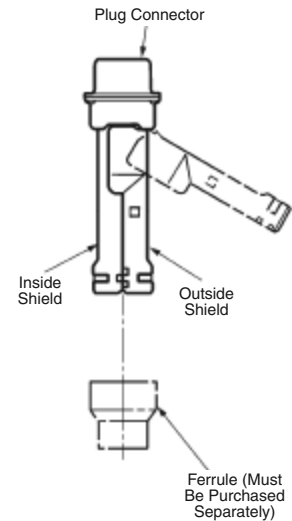
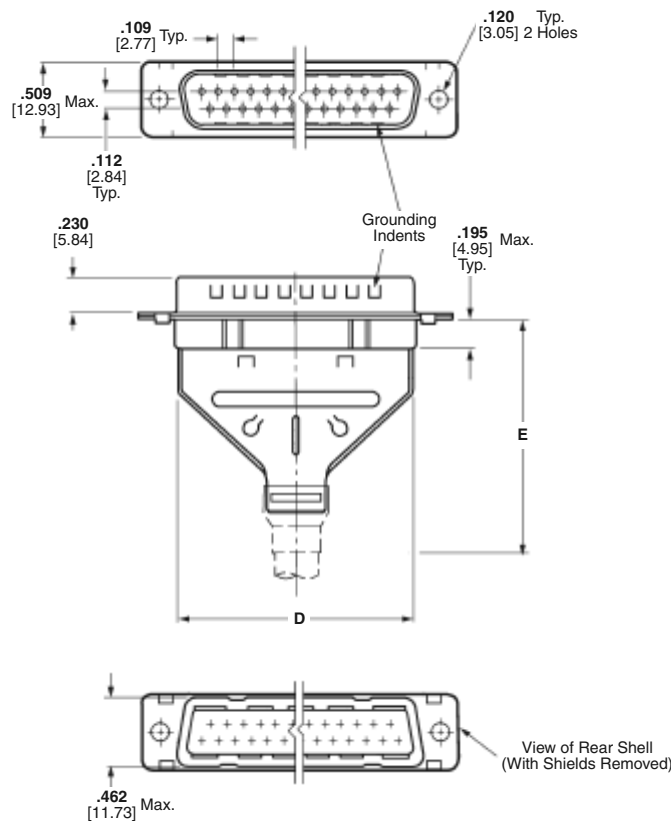
**Clinch Nut**  
(Plug and Receptacle)

**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

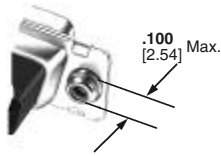
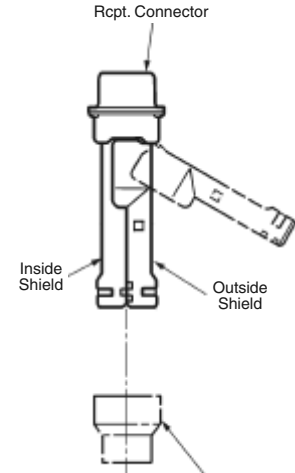
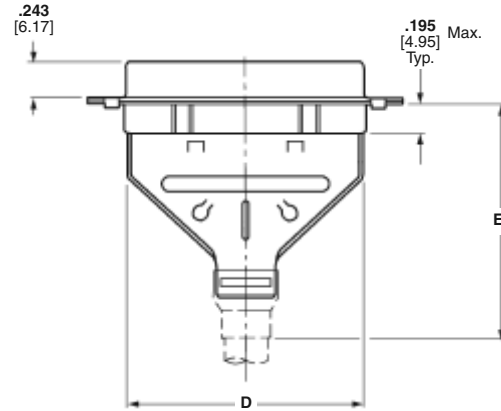
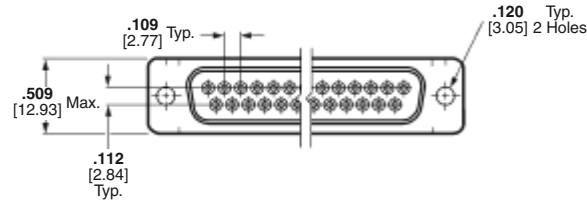
114-40030

**Instruction Sheet**—408-9010

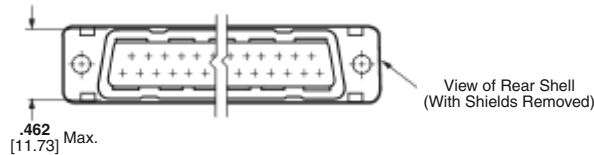
**Note:** Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

**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	8.59-12.19	11.43			

**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

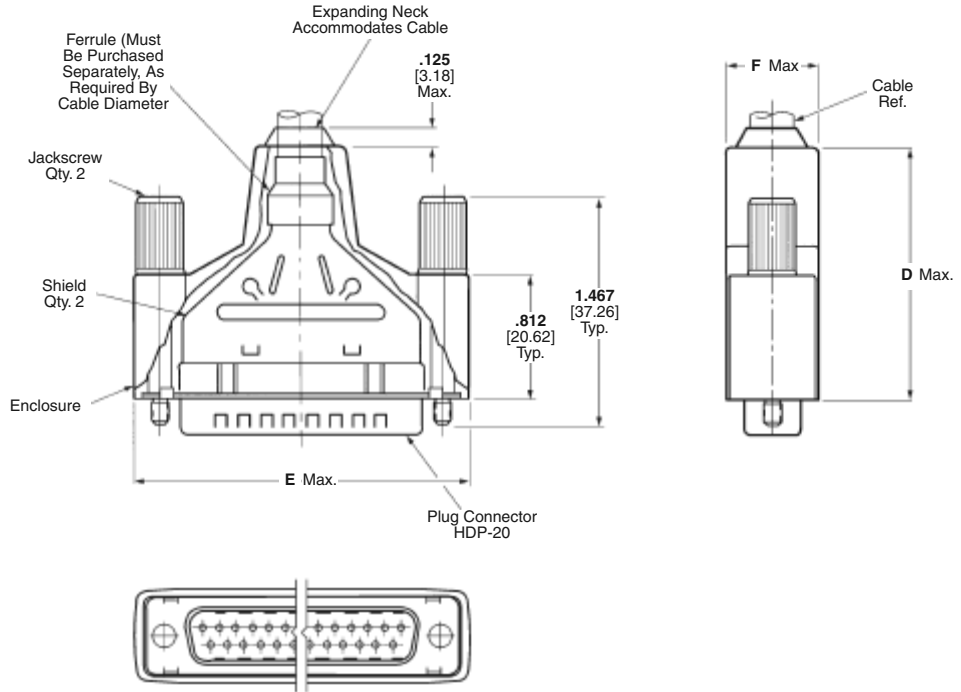
##### Application Specifications—

114-10000

114-40030

##### Instruction Sheet—408-9172

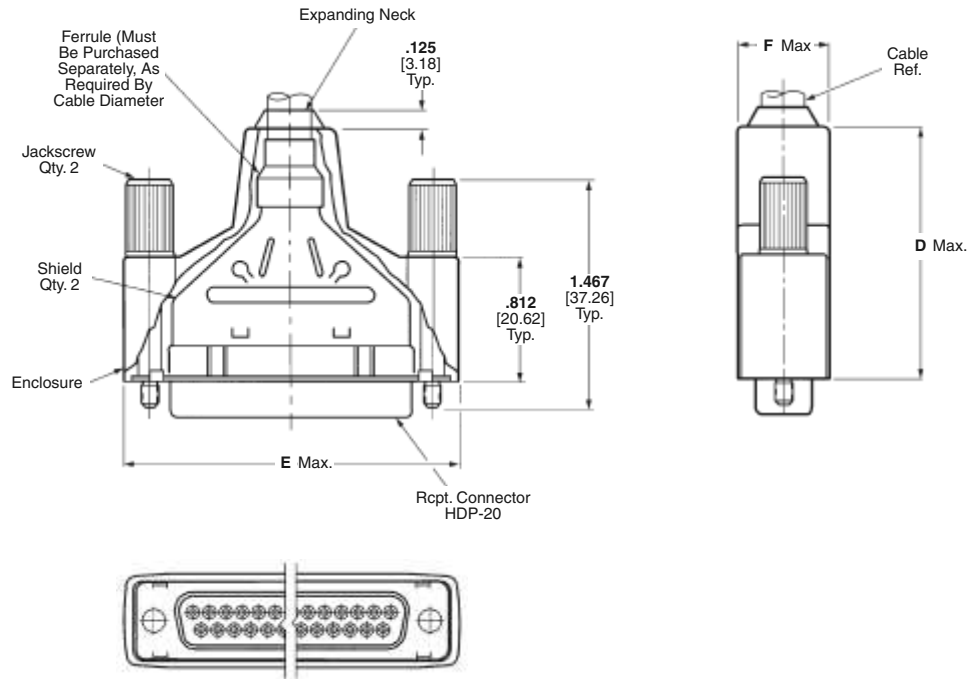
**Note:** Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.





**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	.330	94V-0	1658655-1	1658654-1	.330	58241-4
		42.16	34.42	16.00	4.83-8.38	8.38					
2	15	1.660	1.685	.630	.190-.330	.330	94V-0	1658657-1	1658656-1	.330	58241-1
		42.16	42.80	16.00	4.83-8.38	8.38					
3	25	1.660	2.210	.630	.217-.435	.350	94V-0	1658659-1	1658658-1	.450	58241-1
		42.16	56.13	16.00	5.51-11.05	8.89					
4	37	2.010	2.865	.730	.338-.562	.450	94V-0	5747958-1	1658660-1	.572	58241-2
		51.05	72.77	18.54	8.59-14.28	11.43					
5	50	2.010	2.775	.730	.338-.562	.450	94V-0	1658661-1	5747959-1	14.52	58241-2
		51.05	70.49	18.54	8.59-14.28	11.43					

**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.

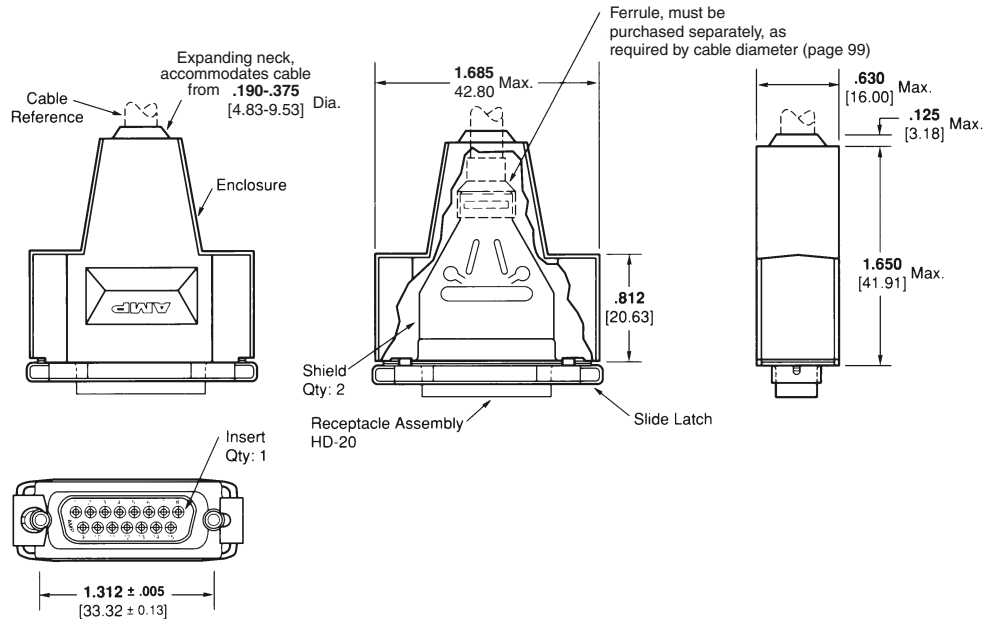
**Note:** All part numbers are RoHS compliant.

## 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

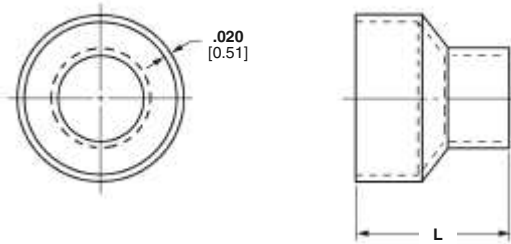
### Ferrules for Shielding Hardware Kits



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**.

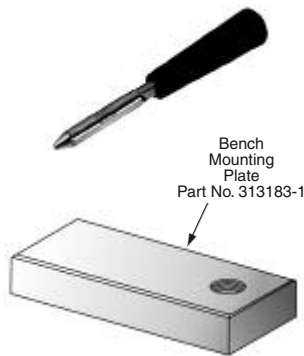
Shell Sizes	Style	L Dim.	Cable Diameter	Part Numbers	
				Ferrule	Die Sets*
1-3	Stepped	.440 11.18	.165-.190 4.19-4.83	3-747579-0	543424-3
1-3	Stepped	.440 11.18	.190-.217 4.83-5.51	3-747579-0	543424-2
1-3	Stepped	.440 11.18	.217-.246 5.51-6.25	3-747579-0	543424-8
1-3	Stepped	.440 11.18	.246-.284 6.25-7.21	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:

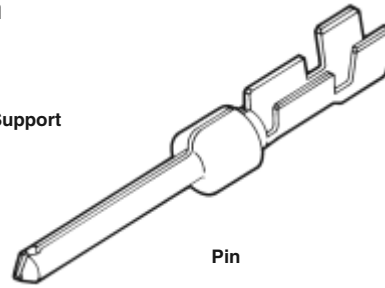
**Product Specification**—108-40005

**Application Specifications**—114-10000  
114-40030

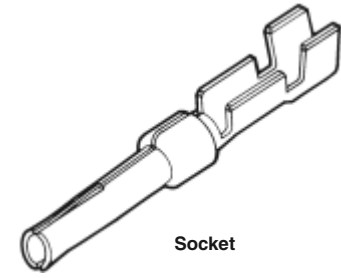
**Note:** Instruction Sheets for TE Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

### Crimp Snap-In Contacts

#### With Insulation Support



Pin



Socket

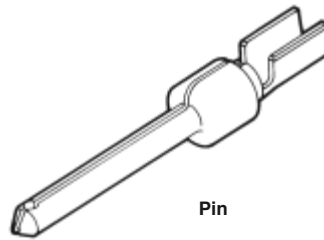
Wire Size Range AWG [mm <sup>2</sup> ]	Ins. Dia. Max.	Contact Finish (Plating Code)	Contact Part Numbers				Hand Tools for Loose Form Contacts		
			Pin		Socket		PRO-CRIMPER II Hand Tool	CERTI-CRIMP II Hand Tool (Color Code)	Applicators* for Strip Form Contacts
			Strip Form	Loose Form	Strip Form	Loose 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	66506-3	66506-9	66504-3	66504-9	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**.

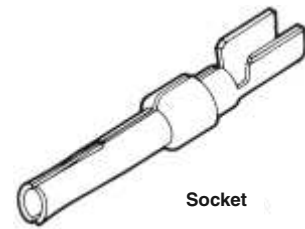
\*\*For use with AMP-O-ELECTRIC Model "G" Terminating Machine.

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

#### Without Insulation Support



Pin



Socket

Wire Size Range AWG [mm <sup>2</sup> ]	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***
		C	205202-6	205201-6		
24-20 0.2-0.6	.068 1.73	A	205202-2	205201-3	91548-1 (Red Dot)	466902-1***
		C	205202-6	205201-6		
22-18 0.4-0.8	.068 1.73	A	745229-2	745230-2	91513-1 (Green Dot)	466996-1***
		B	1658541-1	1658542-2		
		C	745229-5	745230-5		
		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**

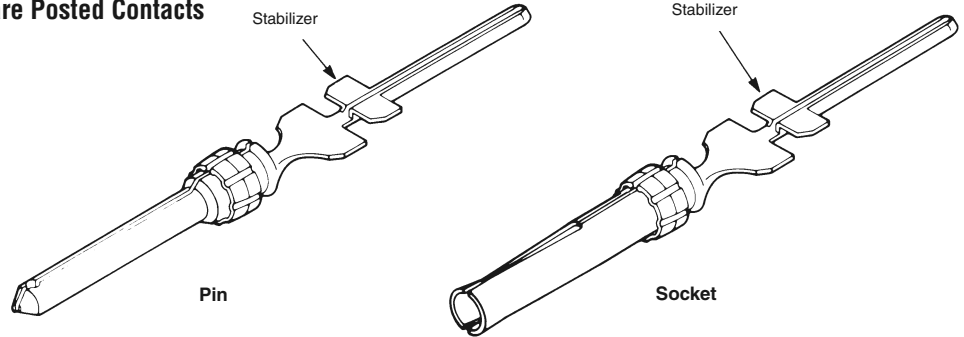
This tool includes interchangeable tips to Insert/Extract:

Size 22, 28-22 AWG [0.08-0.4 mm<sup>2</sup>]

Size 20, Posted Contacts

(Instruction Sheet—408-9404)

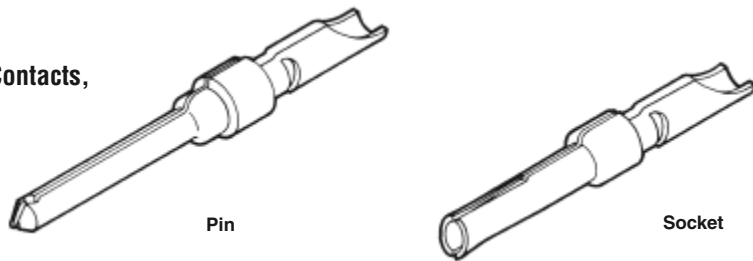
**.025 [0.64]  
Square Posted Contacts**



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

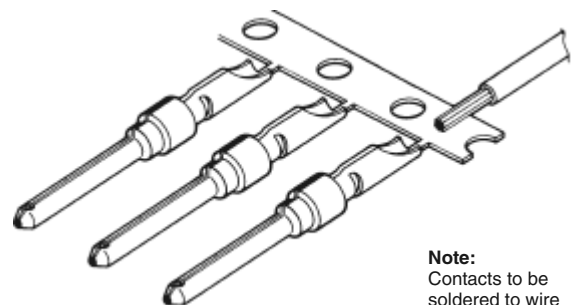
\*Length of post extending from rear of HDP-20 metal-shell connector.

**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 mm<sup>2</sup>] stranded and 26 to 16 AWG [0.12 to 1.4 mm<sup>2</sup>] 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 m<sup>3</sup>/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			
Type	Insert Material	Shell Type Material and Finish	Mounting
Plug (pg. 105)	94V-0 Rated Thermoplastic, Black	Tin Plated Steel with Grounding Indents	.120 [3.05] Dia. Holes

Contacts		
Type	Termination	Plating
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
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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)

Cable Connectors

**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

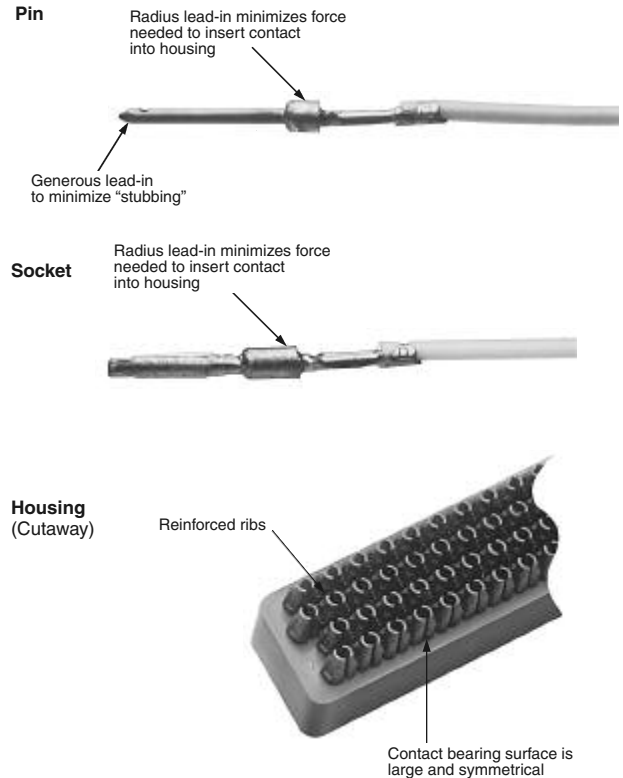
- Low cost, high performance, precision-formed crimp contacts
- Intermateable with any size 22 Subminiature D connector dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., 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° (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**





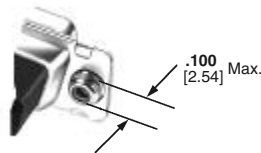
### HDP-22 Crimp Snap-In Contact Connectors (Continued)



**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.

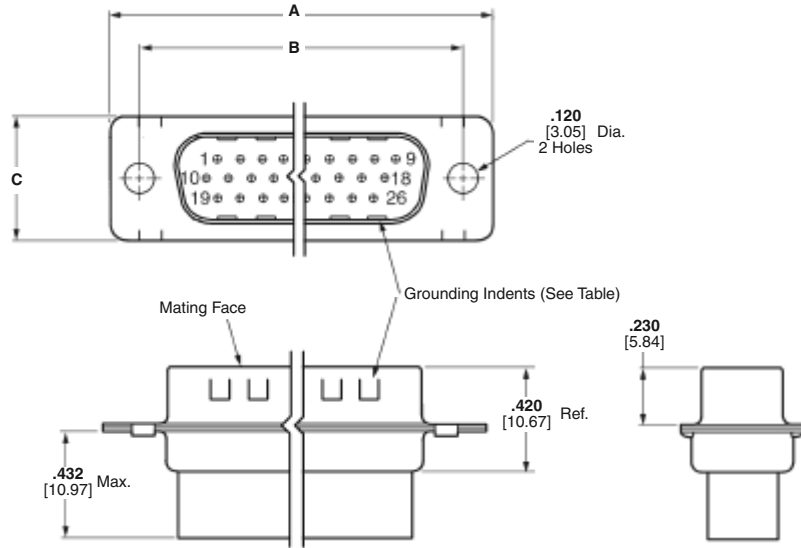
**Related Product Data:**

- 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

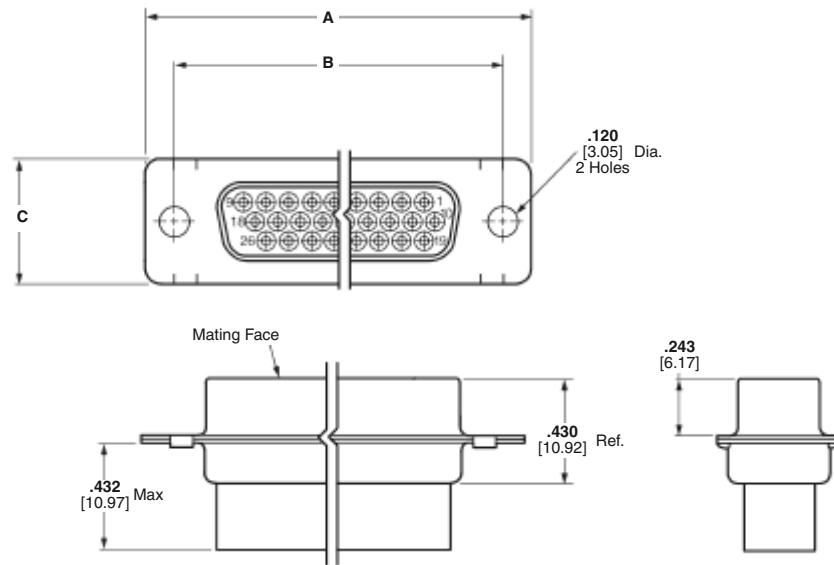
**Technical Documents:**

- 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

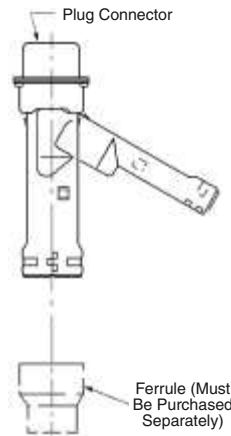
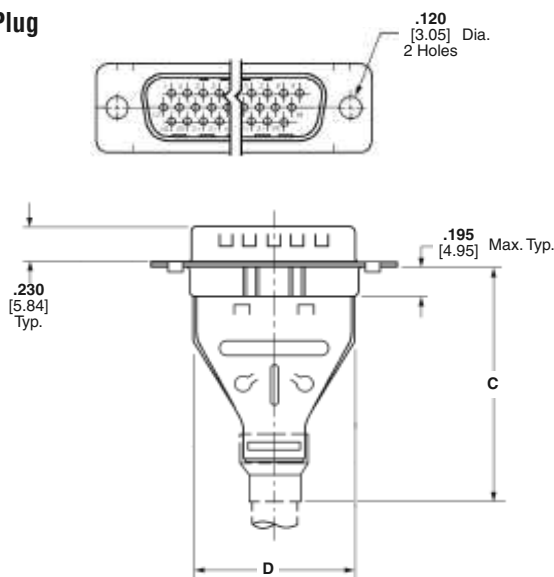
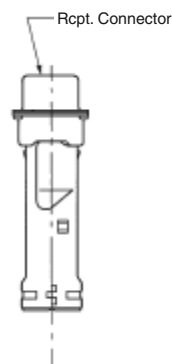
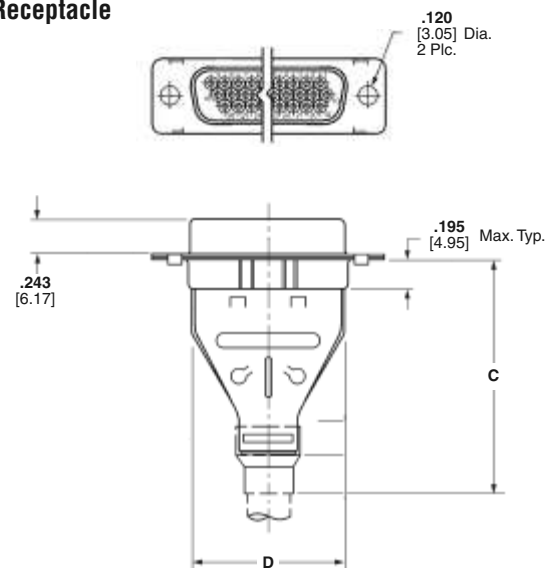
**Mating Hardware**—pages 146-150, 153, 155

**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:

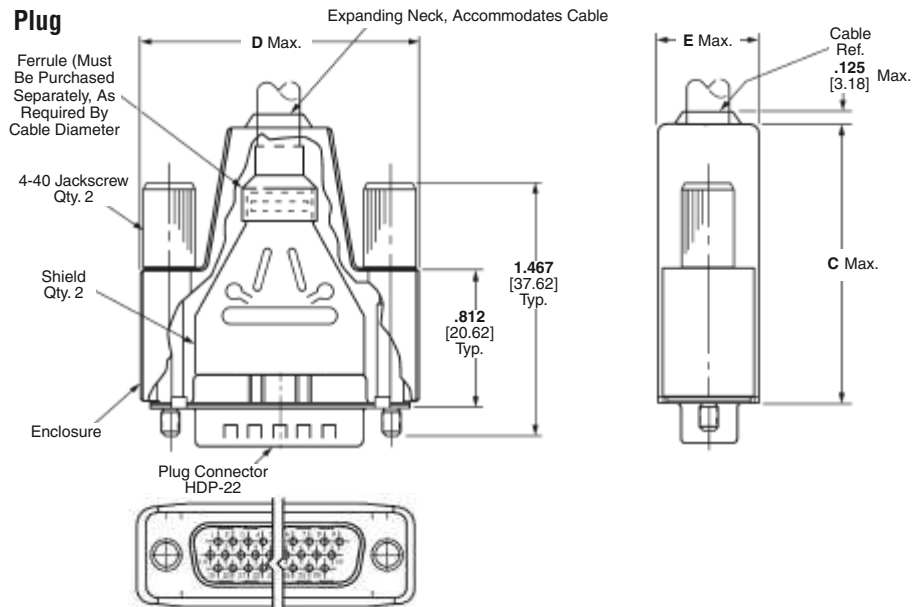
- Contact Arrangements**—page 40
- Performance Characteristics**—page 41
- Contacts**—page 109
- Ferrules**—page 108
- Application Tooling**—pages 108 & 109
- Mateable Connectors**—pages 105 & 106
- Mating Hardware**—pages 146-150, 153-155
- Mating/Panel Mounting**—page 42

#### Technical Documents:

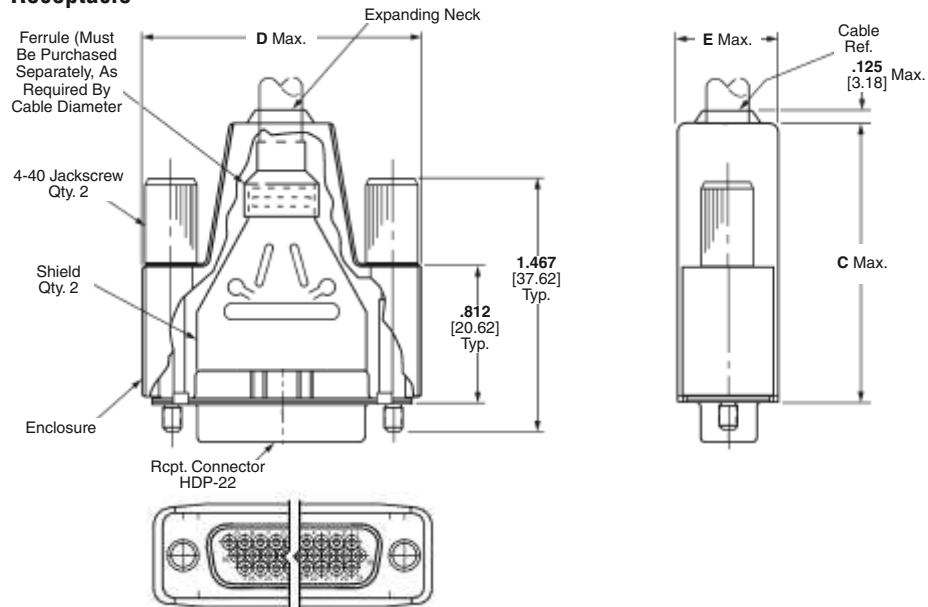
- Application Specifications**—114-10001
- Product Specification**—108-1268
- Instruction Sheet**—408-9381  
408-9172

**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)

Cable Connectors

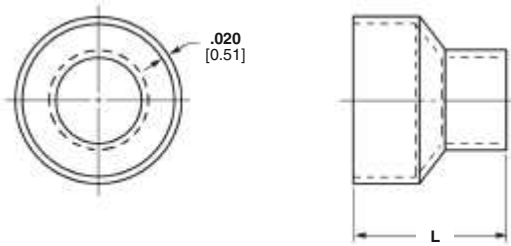
**Ferrules for Shielding Hardware Kits**



Stepped



Straight



**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**.

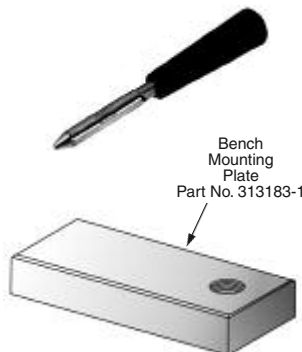
Shell Sizes	Style	L Dim.	Cable Diameter	Part Numbers	
				Ferrule	Die Sets*
1-3	Stepped	.440 11.18	.165-.190 4.19-4.83	3-747579-0	543424-3
1-3	Stepped	.440 11.18	.190-.217 4.83-5.51	3-747579-0	543424-2
1-3	Stepped	.440 11.18	.217-.246 5.51-6.25	3-747579-0	543424-8
1-3	Stepped	.440 11.18	.246-.284 6.25-7.21	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:**

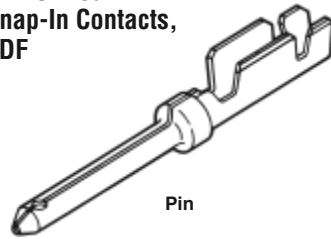
**Application Specification**—114-10001

**Product Specification**—108-1268

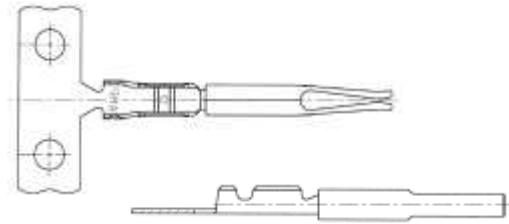
**Instruction Sheet**—408-9381

**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 <sup>2</sup>	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 mm<sup>2</sup>] Crimp Contacts Size 20, 28-20 AWG [0.08-0.4 mm<sup>2</sup>] 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 m<sup>3</sup>/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
<b>Plug</b>						
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)
<b>Receptacle</b>						
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

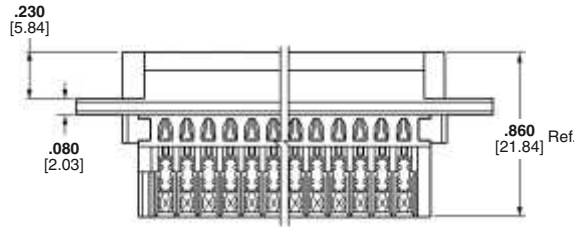
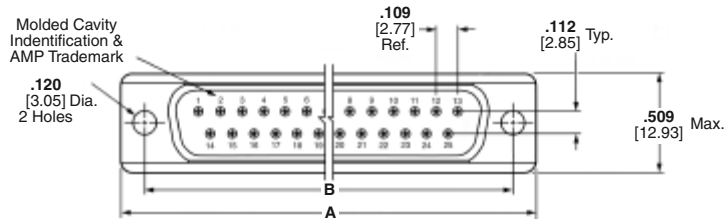
Unshielded Cable Clamps	Shielded Cable Clamps and Shielding Hardware and Enclosure Kits	Mounting and Mating Hardware
<p>One-Piece, All-Plastic Cable Clamp, 180°/120° Exit (Quik-Snap) (pg. 133)</p> <p>Unshielded Cable Clamps Straight/90° Exit (pg. 132)</p> <p>Slide-On Back Cover (pg. 136)</p>	<p>Straight 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**—.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. 1 for 30-26 AWG [0.05-0.15mm <sup>2</sup> ] Wire Plug	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm <sup>2</sup> ] 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:**
- 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].
  - 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.

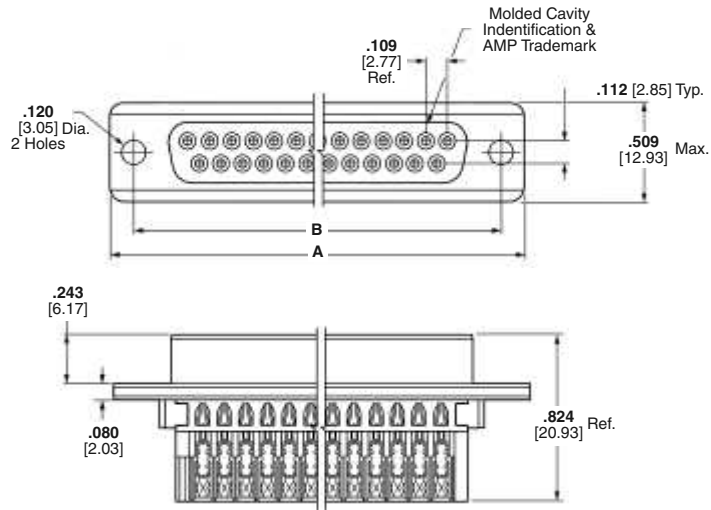


## HDE-20 All-Plastic IDC Connectors (Continued)

### 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**.

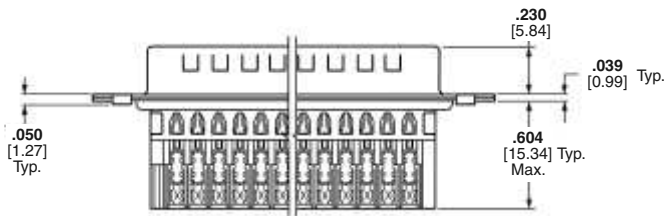
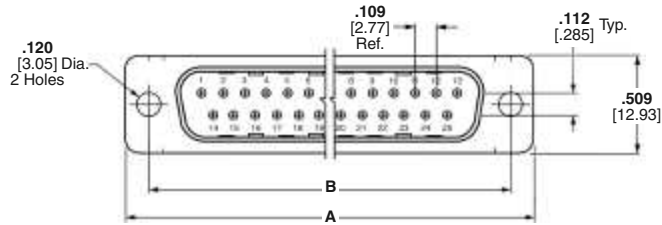
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers
		A	B		Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm <sup>2</sup> ] Wire Receptacle
1	9	1.213	.984	A	745201-7
		30.81	24.99	B	745201-9
2	15	1.541	1.312	A	745205-7
		39.14	33.33		
3	25	2.090	1.852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

- 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].
  - 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

### 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 <sup>2</sup> ] Wire	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm <sup>2</sup> ] Wire	Contact Identification No. 3 for 22-20 AWG [0.4-0.6mm <sup>2</sup> ] 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.