### Product Selection Guide

<table>
<thead>
<tr>
<th>Connector</th>
<th>Type</th>
<th>Insert Material</th>
<th>Shell Type Material and Finish</th>
<th>Mounting</th>
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<td>Plug</td>
<td>94V-0 Rated Thermoplastic Black</td>
<td>94V-0 Rated Thermoplastic Black</td>
<td>Tin Plated Steel Without Grounding Indents</td>
<td>.120 Dia. Holes, Clinch Nut, 4-40 Threads</td>
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<td>Receptacle</td>
<td>94V-0 Rated Thermoplastic Black</td>
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<td>Zinc Plated Steel Without Grounding Indents</td>
<td>.120 Dia. Holes, Clinch Nuts, 4-40 Threaded</td>
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<th>Type</th>
<th>Contacts</th>
<th>Plating</th>
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<tr>
<td>Pins (pgs. 100, 101)</td>
<td>Crimp</td>
<td>Duplex (.000030 [0.00076] Gold and Tin)</td>
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<tr>
<td>Sockets (pgs. 100, 101)</td>
<td>Crimp</td>
<td>Duplex (Gold Flash and Tin)</td>
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<tr>
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<td>Posted</td>
<td>Select (.000030 [0.00076] Gold and Gold Flash)</td>
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</table>
AMPLIMITE Subminiature D Connectors

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 allow 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

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

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

Contact Retention Features
- Pin: Radius lead-in minimizes force needed to insert contact into housing
- Socket: Radius lead-in minimizes force needed to insert contact into housing
- Housing Cutaway: Contact bearing surface is large and symmetrical

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

One-Piece Cable Clamp
180°/120° Quick-Snap (pg. 134)
Box and Lid
Straight/90° Exit (pg. 137)
Box and Lid with Male Screw Retainers (pg. 137)
Clam Shell
Straight/45° Exit (pg. 138)
Clam Shell
Straight/45° Exit with Male Screw Retainers (pg. 138)

Shielded Cable Clamps and Shielding Hardware and Enclosure Kits

Straight Exit RFI/EMI Shields for Jacketed Cable (pgs. 139, 142)
90° Exit Die Cast RFI/EMI Shields for Jacketed Cable (pg. 142)
Basic Shielding Hardware Kits (pgs. 94, 95)
Shielding Hardware Enclosure Kits (pgs. 96, 97)

Mounting and Mating Hardware

Keying Plug (pg. 155)
Male Screw Retainers (pgs. 146, 147)
Female Screwlocks (pg. 148)
Locking Posts and Slide Latches (pgs. 149, 151)
Spring Latch, Two-Piece (pg. 152)
Latching Blocks (pgs. 153, 154)
Standoff Bushings (pg. 155)
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

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

![Diagram of Receptacle](image)

**Specifications**

- **Shell Size:**
  - 1: 9
  - 2: 15
  - 3: 25
  - 4: 37
  - 5: 50

- **Dimensions:**
  - **A:**
    - 1: 30.81
    - 2: 39.14
    - 3: 53.04
    - 4: 69.32
    - 5: 76.93
  - **B:**
    - 1: 24.99
    - 2: 33.33
    - 3: 47.04
    - 4: 63.50
    - 5: 66.11
  - **C:**
    - 1: 42.94
    - 2: 42.94
    - 3: 42.94
    - 4: 42.94
    - 5: 42.94

- **Shell Indents:**
  - Standard
  - Clinch Nut

- **Plugging Method:**
  - Zinc Without Grounding Indents
  - Zinc With Grounding Indents
  - Tin Plated Shell

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<th>No. of Contact Positions</th>
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**Note:** Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.

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**Clinch Nut**

- **Plugs**
  - 1: .100
  - 2: .120
  - 3: .120

- **Receptacles**
  - 1: .20
  - 2: .243

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

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

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<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
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<th>Dimensions E</th>
<th>Recommended Cable Outer Dia. Range</th>
<th>Max. Inner Cable Bundle Dia.</th>
<th>Mounting Method</th>
<th>Plug Kit Numbers</th>
<th>Receptacle Kit Numbers</th>
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**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.
3. 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.
# AMPLIMATE Subminiature D Connectors

## HDP-20 Shielding Hardware Enclosure Kits (Continued)

### Receptacle

![Receptacle Diagram](image)

### Table: Recommended Cable Insert Material and Kit Numbers

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions</th>
<th>Recommended Cable Diameter Range</th>
<th>Max. Inner Cable Bundle Dia.†</th>
<th>Insert Material</th>
<th>Kit Numbers</th>
<th>Shielding Enclosure Expansion Tool</th>
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</table>

**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.

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 .000050 [0.00127] min. copper
  per ASTM A109, plated with .000200 [0.00508] min. tin over .000050 [0.00127] min. copper

Related Product Data:

- Contact Arrangements—page 40
- Performance Characteristics—page 41
- Contacts—pages 100, 101
- Application Tooling—page 102
- Ferrules—page 99

Technical Documents:

- Application Specifications—114-10000 & 114-40030

Note: All part numbers are RoHS compliant.

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

Application Tooling for Shielding Hardware Kits

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

Bench Mounting Plate
Part No. 313183-1

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

Shielding Enclosure
Expansion Tools
Part No. 58241-1 (.450 [11.43])†
58241-2 (.572 [14.53])†
58241-4 (.330 [8.36])†
†Maximum Cable Diameter
(Instruction Sheet—408-9172)

Note: All part numbers are RoHS compliant.

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<td>4-5</td>
<td>Straight</td>
<td>.625</td>
<td>.480-.562</td>
<td>2-747580-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15.88</td>
<td>12.19-.14.28</td>
<td>58237-1</td>
</tr>
</tbody>
</table>

*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.
### AMPLIMITE Subminiature D Connectors

**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 .00030 [0.00076] gold on mating end

**B** — Duplex — .000030 [0.00076] gold on mating end, tin on terminating 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

**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 Connector Contacts, Precision Formed

#### Crimp Snap-In Contacts

**With Insulation Support**

### Without Insulation Support

#### Insertion/Extraction Tool

**No. 91285-1**

**Instruction Sheet** — 408-9404

**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-LECTRIC Model “G” Terminating Machine.**

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

---

**Catalog 82068**

Dimensions are shown for reference purposes only. Specifications subject to change.

**www.te.com**

Canada: +1 (905) 475-6222

Mexico/C. Am.: +52 (0) 55-1106-0800

Latin/S. Am.: +54 (0) 11-4733-2200

USA: +1 (800) 522-6752

UK: +44 (0) 800-267666

France: +33 (0) 1-3420-8686

Germany: +49 (0) 6251-133-1999

Netherlands: +31 (0) 73-6246-999

China: +86 (0) 400-820-6015

---

**Dimensions are in inches and millimeters unless otherwise specified.**
AMPLIMITE Subminiature D Connectors

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 underplated
- 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, 99

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

Solder Cup Contacts, Snap-In

Strip Form
Contact Number

<table>
<thead>
<tr>
<th>Strip Form Contact Number</th>
<th>Loose Form Contact Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>66570-2</td>
<td>66569-2</td>
</tr>
<tr>
<td>66570-3</td>
<td>66569-3</td>
</tr>
</tbody>
</table>

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

Insertion/Extraction Tool No. 91285-1
This tool includes interchangeable tips to Insert/Extract:
- Size 22, 24-22 AWG [0.08-0.4 mm²]
- Size 20, Posted Contacts
(Instruction Sheet—408-9404)

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-LECTRIC 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-LECTRIC 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.
## HDP-22 Crimp Snap-In Contact Connectors

### Product Selection Guide

<table>
<thead>
<tr>
<th>Connector</th>
<th>Type</th>
<th>Insert Material</th>
<th>Shell Type Material and Finish</th>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug</td>
<td>94V-0 Rated Thermoplastic, Black</td>
<td>Tin Plated Steel with Grounding Indents</td>
<td>.120 (3.05) Dia. Holes</td>
<td></td>
</tr>
<tr>
<td>Receptacle</td>
<td>94V-0 Rated Thermoplastic, Black</td>
<td>Tin Plated Steel</td>
<td>.120 (3.05) Dia. Holes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Type</th>
<th>Termination</th>
<th>Plating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin (pg. 109)</td>
<td>Crimp</td>
<td>Duplex (0.000030 [0.00076] Gold and Tin)</td>
<td></td>
</tr>
<tr>
<td>Socket (pg. 109)</td>
<td>Crimp</td>
<td>Duplex (Gold Flash and Tin)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shell Type Material and Finish</th>
<th>Mounting</th>
<th>Type</th>
<th>Termination</th>
<th>Plating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin Plated Steel</td>
<td>.120 (3.05) Dia. Holes</td>
<td>Plug</td>
<td>Crimp</td>
<td>Duplex (0.000030 [0.00076] Gold and Tin)</td>
</tr>
<tr>
<td>Tin Plated Steel</td>
<td>.120 (3.05) Dia. Holes</td>
<td>Receptacle</td>
<td>Crimp</td>
<td>Duplex (Gold Flash and Tin)</td>
</tr>
</tbody>
</table>
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

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

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

Contact Retention Features

Pin
- Radius lead-in minimizes force needed to insert contact into housing
- Generous lead-in to minimize “stubbing”

Socket
- Radius lead-in minimizes force needed to insert contact into housing
- Two-Piece Spring Latch (pg. 152)
- Latching Blocks (pgs. 153, 154)

Housing (Cutaway)
- Reinforced ribs
- Contact bearing surface is large and symmetrical

Unshielded Cable Clamps

One-Piece All Plastic Cable Clamp 180°/120° (Quik-Snap) (pg. 133)

Box and Lid Straight/90° Exit (pg. 137)

Box and Lid Straight/90° Exit with Male Screw Retainers (pg. 137)

Clam Shell Straight/45° Exit (pg. 138)

Clam Shell Straight/45° Exit with Screw Retainers (pg. 138)

Shielded Cable Clamps and Shielding Hardware and Enclosure Kits

Straight Exit RFI/EMI Shields for Jacketed Cable (pg. 141)

90° Exit RFI/EMI Die Cast Shields For Jacketed Cable (pg. 142)

Basic Shielding Hardware Kits (pg. 106)

Shielding Hardware Enclosure Kits (pg. 107)

Crimp & Split Ring Ferrules (pgs. 143-145)

Mounting and Mating Hardware

Male Screw Retainers (pgs. 146, 147)

Female Screwlocks (pg. 148)

Locking Posts and Slide Latches (pgs. 149, 151)

Section Contents

Plugs 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
AMPLIMITE Subminiature D Connectors

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

Plug

![Diagram of Plug](image)

Receptacle

![Diagram of Receptacle](image)

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.

Dimensions Table:

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>1</td>
<td>15</td>
<td>1.213</td>
<td>.984</td>
</tr>
<tr>
<td>2</td>
<td>26</td>
<td>1.541</td>
<td>1.312</td>
</tr>
<tr>
<td>3</td>
<td>44</td>
<td>2.088</td>
<td>1.852</td>
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<tr>
<td>4</td>
<td>62</td>
<td>2.729</td>
<td>2.500</td>
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<tr>
<td>5</td>
<td>78</td>
<td>2.635</td>
<td>2.406</td>
</tr>
</tbody>
</table>

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

Note: All part numbers are RoHS compliant.
### Basic Shielding Hardware Kits

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

### 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.

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions</th>
<th>Recommended Cable Outer Dia. Range</th>
<th>Max. Inner Cable Bundle Dia.</th>
<th>Kit Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
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<td>1.535</td>
<td>4.19-11.56</td>
<td>.350</td>
<td>1658675-1</td>
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<tr>
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<td>1658675-1</td>
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<tr>
<td>44</td>
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<td>1.535</td>
<td>4.19-11.56</td>
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<td>165877-1</td>
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<tr>
<td>40</td>
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<td>1.892</td>
<td>4.19-11.56</td>
<td>.350</td>
<td>5748471-1</td>
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<td>78</td>
<td>5</td>
<td>1.876</td>
<td>4.19-11.56</td>
<td>.350</td>
<td>5748472-1</td>
</tr>
</tbody>
</table>

### Notes:
- Dimensions are shown for reference purposes only. Specifications subject to change.
- Dimensions are in inches and millimeters unless otherwise specified.
- 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
- Related Product Data:
  - Contact Arrangements — page 40
  - Performance Characteristics — page 41
  - Contacts — page 109
  - Ferrules — page 108
  - Application Tooling — pages 108 & 109
  - Material and Finish:
    - Connector Shell — Steel, tin plated
    - Connector Insert — 94V-0 rated thermoplastic, black
    - Shields — Steel, tin plated
  - Technical Documents:
    - Application Specifications — 114-10001
    - Product Specification — 108-1268
    - Instruction Sheet — 408-9381, 408-9010
  - 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.
AMPLIMITE Subminiature D Connectors

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

Shielding Hardware Enclosure Kits

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

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

Shielding Hardware

**Enclosure Kits**

**Plug**

Ferrule (Must Be Purchased Separately, As Required By Cable Diameter)

4-40 Jackscrew Qty. 2

Expanding Neck, Accommodates Cable

**Receptacle**

Ferrule (Must Be Purchased Separately, As Required By Cable Diameter)

4-40 Jackscrew Qty. 2

Expanding Neck

**Shell**

Size

No. of Contact Positions

Dimensions

C

D

E

Recommended Max. Inner Cable Bundle Dia.†

Plugs

Receptacles

Kit Numbers

Cable O.D. (Max.)

Part Number

1

15

1.640

1.355

.630

.90-330

.330

1658678-1

1658688-1

1.467

.330

8.38

58241-4

2

26

1.640

1.685

.630

.90-330

.330

1658679-1

1658689-1

1.467

.330

8.38

58241-1

3

44

1.640

2.205

.630

.217-435

.560

1658680-1

5748641-1

1.467

.125

11.43

58241-1

4

62

2.010

2.860

.730

.338-562

.450

5748476-1

5748642-1

1.467

.125

14.52

58241-2

5

78

2.010

2.770

.730

.338-490

.450

5748477-1

1.467

.125

11.43

58241-1

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

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.

Application Tooling for Shielding Hardware Kits

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

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

<table>
<thead>
<tr>
<th>Shell Sizes</th>
<th>Style</th>
<th>L Dim.</th>
<th>Cable Diameter</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>11.18</td>
<td>165-190</td>
<td>3-747579-0</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>11.18</td>
<td>190-217</td>
<td>3-747579-0</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>11.18</td>
<td>217-246</td>
<td>3-747579-0</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>11.18</td>
<td>246-284</td>
<td>3-747579-2</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>11.18</td>
<td>284-324</td>
<td>3-747579-2</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>11.18</td>
<td>324-375</td>
<td>3-747579-4</td>
</tr>
<tr>
<td>1-3</td>
<td>Straight</td>
<td>11.18</td>
<td>375-437</td>
<td>7-747579-7</td>
</tr>
<tr>
<td>1-3</td>
<td>Straight</td>
<td>11.18</td>
<td>400-460</td>
<td>3-747579-6</td>
</tr>
<tr>
<td>4-5</td>
<td>Stepped</td>
<td>15.88</td>
<td>230-265</td>
<td>2-747580-4</td>
</tr>
<tr>
<td>4-5</td>
<td>Stepped</td>
<td>15.88</td>
<td>338-385</td>
<td>2-747580-3</td>
</tr>
<tr>
<td>4-5</td>
<td>Stepped</td>
<td>15.88</td>
<td>375-432</td>
<td>2-747580-1</td>
</tr>
<tr>
<td>4-5</td>
<td>Stepped</td>
<td>15.88</td>
<td>422-490</td>
<td>3-747580-1</td>
</tr>
<tr>
<td>4</td>
<td>Straight</td>
<td>15.88</td>
<td>480-562</td>
<td>2-747580-2</td>
</tr>
</tbody>
</table>

*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.

Note: All part numbers are RoHS compliant.
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.

Application Tooling

Producers
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.

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, Post crimp Contacts

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.

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

Note: All part numbers are RoHS compliant.
# HDE-20 IDC Connectors for Discrete Wire and Jacketed Cable

## Product Selection Guide

<table>
<thead>
<tr>
<th>Type</th>
<th>Insert Material</th>
<th>Shell Type Material and Finish</th>
<th>Mounting</th>
<th>Contacts Pre-Loaded*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plug</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All-Plastic (pg. 112)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal-Shell (pg. 114)</td>
<td>94V-0 Rated Thermoplastic, Black</td>
<td>Tin Plated Steel</td>
<td>120 [3.05] Dia. Holes</td>
<td></td>
</tr>
<tr>
<td><strong>Receptacle</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All-Plastic (pg. 113)</td>
<td></td>
<td></td>
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<tr>
<td>Metal-Shell (pg. 115)</td>
<td>94V-0 Rated Thermoplastic, Black</td>
<td>Tin Plated Steel</td>
<td>120 [3.05] Dia. Holes</td>
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### Contacts

<table>
<thead>
<tr>
<th>Type</th>
<th>Termination</th>
<th>Plating</th>
</tr>
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<tbody>
<tr>
<td>Pins</td>
<td>Insulation Displacement</td>
<td>Duplex (0.00030 (0.00076) Gold and Tin)</td>
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<tr>
<td>Sockets</td>
<td>Insulation Displacement</td>
<td>Duplex (Gold Flash and Tin)</td>
</tr>
</tbody>
</table>

* Interchangeable crimp snap-in contacts available, see page 121
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
- Certified by Canadian Standards Association, File No. 1088108 (LR 7189-207)

Typical Application Rates

<table>
<thead>
<tr>
<th>Tool</th>
<th>Rate</th>
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<tbody>
<tr>
<td>Pistol Style</td>
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<tr>
<td>Arbor Tool</td>
<td>5.0 Sec./Line</td>
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<tr>
<td>CHAMPOMATOR Machine</td>
<td>2.8 Sec./Line</td>
</tr>
</tbody>
</table>

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

Unshielded Cable Clamps

- One-Piece, All-Plastic Cable Clamp, 180°/120° Exit (Quik-Snap) (pg. 133)
- Unshielded Cable Clamps Straight/90° Exit (pg. 132)
- Slide-On Back Cover (pg. 136)

Shielded Cable Clamps and Shielding Hardware and Enclosure Kits

- Straight Exit RFI/EMI Shields for Jacketed Cable (pg. 142)
- 90° Exit Die Cast RFI/EMI Shields for Jacketed Cable (pg. 142)
- Basic Shielding Hardware Kits (pgs. 116, 117)
- Shielding Hardware Enclosure Kits (pgs. 118, 119)

Mounting and Mating Hardware

- Male Screw Retainers (pgs. 146, 147)
- Female Screwlocks (pg. 148)
- Locking Posts and Slide Latches (pgs. 149, 151)
- Spring Latches, (pg. 152)
- Latching Blocks, (pgs. 153, 154)
- Keying Plug (pg. 155)

Section Contents

- All-Plastic Plug and Receptacle Connectors ........ 112, 113
- Metal-Shelf 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

R

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R
HDE-20 All-Plastic IDC Connectors

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.

Note: All part numbers are RoHS compliant.
AMPLIMITE Subminiature D Connectors

HDE-20 All-Plastic IDC Connectors (Continued)

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.

<table>
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<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions</th>
<th>Contact Finish (Plating Code)</th>
<th>Connector Part Numbers</th>
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<td>745209-8</td>
</tr>
</tbody>
</table>

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.
AMPLITE Subminiature D Connectors

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.

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. Connectors can be made available with clinch nuts, contact TE.
3. HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
4. Individual conductor strands should be larger than .005 inch [0.127].
5. Extraction Tool Part No. 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.
6. 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:**
  - **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
- **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:** 106-40011
- **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.

---

![Connector Image]

**Connector Part Numbers**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions (Plating Code)</th>
<th>Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm²] Wire</th>
<th>Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm²] Wire</th>
<th>Contact Identification No. 3 for 22-20 AWG [0.4-0.6mm²] Wire</th>
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<td></td>
<td>B</td>
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<td>1-745497-7</td>
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</tbody>
</table>

* 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:**
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. Connectors can be made available with clinch nuts, contact TE.
3. HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
4. Individual conductor strands should be larger than .005 inch [0.127 mm] diameter.
5. Extraction Tool Part No. 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.
6. 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—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

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:**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Pos.</th>
<th>Dimensions C</th>
<th>Recommended Cable Outer Dia. Range</th>
<th>Max. Inner Cable Bundle Dia.†</th>
<th>Contact Finish (Plating Code)</th>
<th>Connector Part Numbers</th>
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<tbody>
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<td>.450</td>
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</tbody>
</table>

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—.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
- 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.

Connector Part Numbers

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Pos.</th>
<th>Dimensions</th>
<th>Recommended Cable Outer Dia. Range</th>
<th>Max. Inner Cable Bundle Dia.*</th>
<th>Contact Finish (Plating Code)</th>
<th>Contact I.D. No. 1 for 30-26 AWG Wire</th>
<th>Contact I.D. No. 2 for 26-22 AWG Wire</th>
<th>Contact I.D. No. 3 for 22-20 AWG Wire</th>
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</thead>
<tbody>
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<td>1</td>
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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—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 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.

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Pos.</th>
<th>Dimensions</th>
<th>Recommended Cable O.D. Range</th>
<th>Max. Inner Cable Bundle Dia.</th>
<th>Contact Finish (Plating Code)</th>
<th>Kit Part Numbers</th>
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</table>

†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—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
- Mating Connectors:
  - HD—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.

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Pos.</th>
<th>Dimensions</th>
<th>Recommended Cable Outer Dia. Range</th>
<th>Max. Inner Cable Bundle Dia.†</th>
<th>Contact Finish (Plating Code)</th>
<th>Kit Part Numbers</th>
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<td>1.685 [51.05]</td>
<td>.630</td>
<td>190-330</td>
<td>Receptacle</td>
<td>1.747943-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41.66</td>
<td>42.80</td>
<td>16.00</td>
<td>4.83-8.35</td>
<td>A</td>
<td>1.747943-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41.66</td>
<td>56.13</td>
<td>16.00</td>
<td>5.51-11.05</td>
<td>A</td>
<td>1.747947-5</td>
</tr>
<tr>
<td>4</td>
<td>37</td>
<td>2.010</td>
<td>2.865 [72.77]</td>
<td>.730</td>
<td>338-562</td>
<td>Receptacle</td>
<td>1.747947-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51.05</td>
<td>72.77</td>
<td>18.54</td>
<td>6.59-14.28</td>
<td>B</td>
<td>1.747947-6</td>
</tr>
</tbody>
</table>

†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

<table>
<thead>
<tr>
<th>Shell Sizes</th>
<th>Style</th>
<th>L Dim.</th>
<th>Cable Diameter</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>.440</td>
<td>.165-190, 4.19-4.83</td>
<td>3-747579-0, 543424-3</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>.440</td>
<td>.190-217, 4.83-5.51</td>
<td>3-747579-0, 543424-2</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>.440</td>
<td>.217-246, 5.51-6.25</td>
<td>3-747579-0, 543424-8</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>.440</td>
<td>.246-284, 6.25-7.21</td>
<td>3-747579-2, 543424-1</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>.440</td>
<td>.284-324, 7.21-8.23</td>
<td>3-747579-2, 543424-7</td>
</tr>
<tr>
<td>1-3</td>
<td>Stepped</td>
<td>.440</td>
<td>.324-375, 8.23-9.53</td>
<td>3-747579-4, 543424-6</td>
</tr>
<tr>
<td>1-3</td>
<td>Straight</td>
<td>.440</td>
<td>.375-435, 9.53-11.05</td>
<td>2-747579-7, 543424-5</td>
</tr>
<tr>
<td>1-3</td>
<td>Straight</td>
<td>.440</td>
<td>.400-455, 10.16-11.56</td>
<td>3-747579-6, 543424-4</td>
</tr>
<tr>
<td>4</td>
<td>Stepped</td>
<td>.625</td>
<td>.230-265, 5.84-6.73</td>
<td>2-747580-4, 543425-2</td>
</tr>
<tr>
<td>4</td>
<td>Stepped</td>
<td>.625</td>
<td>.338-385, 8.59-9.78</td>
<td>2-747580-3, 543425-1</td>
</tr>
<tr>
<td>4</td>
<td>Stepped</td>
<td>.625</td>
<td>.375-432, 9.53-10.97</td>
<td>2-747580-1, 58238-1</td>
</tr>
<tr>
<td>4</td>
<td>Stepped</td>
<td>.625</td>
<td>.422-490, 10.72-12.45</td>
<td>3-747580-1, 58237-2</td>
</tr>
<tr>
<td>4</td>
<td>Straight</td>
<td>.625</td>
<td>.480-562, 12.19-14.29</td>
<td>2-747580-2, 58237-1</td>
</tr>
</tbody>
</table>

*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.

## Material and Finish:
Steel (annealed), tin plated

## Related Product Data:
- Shielding Hardware and Enclosure Kits—pages 115-119
- 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.

## Application Tooling for Shielding Hardware Kits

- **Hand Crimping Tool No. 543344-1**
  - (Requires Die Sets, see table above.)
- **Pneumatic Bench Tool No. 312522-3**
  - (Requires Die Set Holder No. 58449-1.)

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

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.

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

Related Product Data:
Specifications subject to change.

HDE-20 Contacts, Precision Formed
Interchangeable Contacts, Crimp Snap-In

<table>
<thead>
<tr>
<th>Wire Size Range AWG mm²</th>
<th>Code*</th>
<th>Insulation Diameter Single Wire</th>
<th>Insulation Diameter Two Wire</th>
<th>Contact Finish (Plating Code)</th>
<th>Contact Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-22</td>
<td>4</td>
<td>.054</td>
<td>.039</td>
<td>A</td>
<td>Strip Form Pin — 1-745269-1</td>
</tr>
<tr>
<td>0.15-0.4</td>
<td></td>
<td>1.37</td>
<td>0.99</td>
<td>B</td>
<td>1-745266-0 1-745269-0</td>
</tr>
<tr>
<td>22-18</td>
<td>3</td>
<td>.075</td>
<td>.054</td>
<td>A</td>
<td>1-745267-0 1-745270-1</td>
</tr>
<tr>
<td>0.4-0.8</td>
<td></td>
<td>1.91</td>
<td>1.37</td>
<td>B</td>
<td>— 1-745270-0</td>
</tr>
</tbody>
</table>

* 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.
AMPLITITE Subminiature D Connectors

HDE-20 Application Tooling

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 Mounted 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 Mounted Electric Power Assembly**

Head Assembly No. 58063-2

This tool electrically powered and actuated by a foot switch.

**Technical Documents:**

Instruction Sheets —
408-6790
408-9414
408-6789

**Technical Specifications:**

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

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

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
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.

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.
AMPLIMITE Subminiature D Connectors

Subminiature D Connectors HDF-20 for Flat Ribbon Cable

Plug — Low Profile Metal Shell

Receptacle — Low Profile Metal Shell

<table>
<thead>
<tr>
<th>No. of Pos. &amp; (Shell Size)</th>
<th>Cable Stabilizer Part No.</th>
<th>With Standard Mounting Holes</th>
<th>With 4-40 Threaded Inserts</th>
<th>Receptacle Part Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 (1)</td>
<td>747275-4</td>
<td>1658613-4</td>
<td>1658608-4</td>
<td>16586012-4</td>
</tr>
<tr>
<td>15 (2)</td>
<td>747275-3</td>
<td>1658613-3</td>
<td>1658608-3</td>
<td>16586012-3</td>
</tr>
<tr>
<td>25 (3)</td>
<td>747275-2</td>
<td>1658613-2</td>
<td>1658608-2</td>
<td>16586012-2</td>
</tr>
<tr>
<td>37 (4)</td>
<td>747275-1</td>
<td>1658613-1</td>
<td>1658608-1</td>
<td>16586012-1</td>
</tr>
<tr>
<td>50 (5)</td>
<td>746785-1</td>
<td>—</td>
<td>—</td>
<td>16586012-1</td>
</tr>
</tbody>
</table>

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

Product Facts

I Available in all 5 standard shell sizes
I Visual inspection of termination possible
I Fluted cover provides positive alignment of cable prior to termination
I Wide range of application tooling
I Patented insulation displacement contact latches into the connector cover
I Contact design provides a “gas-tight” termination
I 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
I Qualified to Battelle Level III environment
I Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
I Certified by Canadian Standards Association, File No. LR 7189
I Listed and complies with UL 1863, Communication Circuit Accessories File No. E81956

Note: All part numbers are RoHS compliant.
AMPLIMITE Subminiature D Connectors

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, .000020 [0.00050] 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

Receptacle Assemblies

Housing and Covers are Preassembled; Cable Stabilizer is Separate.

<table>
<thead>
<tr>
<th>No. of Contact (Pos. &amp; Shell Size)</th>
<th>Optional Cable Stabilizer Part No.</th>
<th>Plug Assembly Part No.</th>
<th>Receptacle Assembly Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 (1)</td>
<td>747275-4</td>
<td>1658615-4</td>
<td>1658614-4</td>
</tr>
<tr>
<td>15 (2)</td>
<td>747275-3</td>
<td>1658615-3</td>
<td>1658614-3</td>
</tr>
<tr>
<td>25 (3)</td>
<td>747275-2</td>
<td>1658615-2</td>
<td>1658614-2</td>
</tr>
<tr>
<td>37 (4)</td>
<td>747275-1</td>
<td>1658615-1</td>
<td>1658614-1</td>
</tr>
</tbody>
</table>

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

Ribbon Cable Parameters

<table>
<thead>
<tr>
<th>No. of Conductors</th>
<th>28 AWG [0.08mm²] Part No.</th>
<th>26 AWG [0.15mm²] Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length Per Reel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 Ft. [30.5m]</td>
<td>500 Ft. [152.4m]</td>
</tr>
<tr>
<td>9</td>
<td>1-57040-2</td>
<td>1-971111-2</td>
</tr>
<tr>
<td>15</td>
<td>1-57040-5</td>
<td>1-971111-5</td>
</tr>
<tr>
<td>25</td>
<td>57040-2</td>
<td>971111-2</td>
</tr>
<tr>
<td>37</td>
<td>1-57040-8</td>
<td>1-971111-8</td>
</tr>
<tr>
<td>50</td>
<td>57040-6</td>
<td>971111-6</td>
</tr>
</tbody>
</table>

Note: All part numbers are RoHS compliant.
AMPLIMITE Subminiature D Connectors

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.

<table>
<thead>
<tr>
<th>Shell Size (Pos.)</th>
<th>Mounting Method/ Front/Rear Panel</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>1 Front</td>
<td>.984</td>
<td>.492</td>
</tr>
<tr>
<td>1 Rear</td>
<td>24.99</td>
<td>12.50</td>
</tr>
<tr>
<td>2 Front</td>
<td>1.312</td>
<td>.656</td>
</tr>
<tr>
<td>2 Rear</td>
<td>33.33</td>
<td>16.66</td>
</tr>
<tr>
<td>3 Front</td>
<td>1.852</td>
<td>.926</td>
</tr>
<tr>
<td>3 Rear</td>
<td>47.04</td>
<td>23.52</td>
</tr>
<tr>
<td>4 Front</td>
<td>2.500</td>
<td>1.250</td>
</tr>
<tr>
<td>4 Rear</td>
<td>63.50</td>
<td>31.75</td>
</tr>
<tr>
<td>5 Front</td>
<td>2.406</td>
<td>1.203</td>
</tr>
<tr>
<td>5 Rear</td>
<td>61.11</td>
<td>30.56</td>
</tr>
</tbody>
</table>

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

Panel Cutouts

Cutout for Rear Mount and Short Latching Blocks

*Dimensions are shown for reference purposes only. Specifications subject to change.

Catalog 82068
Revised 4-12
www.te.com
HDF-20 Application Tooling

Application Tooling

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 AMPLIMATE HDF-20 Connectors.

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

HD-20 Solder Cup Connectors (Continued)

**Plug**

![HD-20 Solder Cup Connector Diagram]

**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

---

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions</th>
<th>Plug Part Numbers</th>
<th>Receptacle Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
<td>Tin Plated Shell</td>
</tr>
<tr>
<td>1</td>
<td>9</td>
<td>1.210</td>
<td>.984</td>
<td>4-747904-2</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>1.544</td>
<td>1.313</td>
<td>4-747908-2</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>2.089</td>
<td>1.853</td>
<td>4-747912-2</td>
</tr>
<tr>
<td>4</td>
<td>37</td>
<td>2.734</td>
<td>2.502</td>
<td>4-747916-2</td>
</tr>
</tbody>
</table>

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

Catalog 82068
Revised 4-12
www.te.com
AMPLITE Subminiature D Connectors

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

Related Product Data:
- Mateable Connectors:
  - HD—pages 110-119
  - HDF—pages 124-126
  - HDP—pages 90-101
- HD-20 Solder Cup—pages 128-130
- HD-20 Board Mount—pages 82-85, 87-89

Technical Documents:
- Product Specification 108-40031
- Instruction Sheets 408-9193

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

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>No. of Contact Positions</th>
<th>Dimensions (C, D, E)</th>
<th>Cable Insulation Diameter</th>
<th>Kit Part Numbers</th>
<th>Shielding Enclosure Expansion Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>1.64, 1.33, 0.659</td>
<td>0.217-0.270, 0.270-0.324, 0.324-0.385</td>
<td>1571650-4, 1571650-5, 1571650-6</td>
<td>.355 9.02 58241-4</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>1.64, 1.65, 0.659</td>
<td>0.217-0.270, 0.270-0.324, 0.324-0.385</td>
<td>1571651-4, 1571651-5, 1571651-6</td>
<td>.355 9.02 58241-4</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>1.64, 2.20, 0.659</td>
<td>0.217-0.270, 0.270-0.324, 0.324-0.385</td>
<td>1571652-4, 1571652-5, 1571652-6</td>
<td>.465 11.56 58241-1</td>
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<tr>
<td>4</td>
<td>37</td>
<td>2.35, 2.82, 0.659</td>
<td>0.455-0.480</td>
<td>1571653-2, 1571657-2</td>
<td>.562 14.28 58241-2</td>
</tr>
</tbody>
</table>

HD-20 Solder Cup Shielding Hardware Crimping Tool

Note: All part numbers are RoHS compliant.
Numerous accessories are available for strain relief and cable clamping, shielding, connector-to-connector mating, connector-to-connector pcb 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

Universal Cable Clamps for Jacketed Cable

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

For Shell Sizes 2 to 5

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Cable Dia. (Max.)</th>
<th>Cable Clamp Kit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1.550</td>
<td>.826</td>
<td>.350</td>
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<td>53.09</td>
<td>20.98</td>
<td>8.51</td>
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<td>67.16</td>
<td>23.83</td>
<td>19.69</td>
</tr>
</tbody>
</table>

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 screws.

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

Note: All part numbers are RoHS compliant.
Unshielded Cable Clamps (Continued)

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

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

### Specifications

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Cable Dia. Range (Ref.)</th>
<th>Dimension A</th>
<th>Kit Number* with Retainer Screws and Clips</th>
<th>Kit Number*** without Retainer Screws and Clips</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.075-.250</td>
<td>.785</td>
<td>5749914-1</td>
<td>5749914-2</td>
<td>Bulk Pkg.</td>
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<td>1.91-.635</td>
<td>19.94</td>
<td>5749914-2</td>
<td>5750100-1</td>
<td>Unit Kit</td>
</tr>
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<td>1.650</td>
<td>5749914-4</td>
<td>5749914-4&quot;</td>
<td>Unit Kit</td>
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<td>4.57-.11.68</td>
<td>41.91</td>
<td>5749626-2</td>
<td>5750078-1</td>
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<td>3</td>
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<td>5749916-3</td>
<td>Bulk Pkg.</td>
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<td>6.35-.13.97</td>
<td>58.04</td>
<td>5749916-2</td>
<td>5749916-2</td>
<td>Unit Kit</td>
</tr>
</tbody>
</table>

*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

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

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
- 114-60003
- HDP Connectors: Application Specifications — 114-10000
- 114-40030
- Cable Clamps: Instruction Sheet — 408-9544
- Retainer Clips: Instruction Sheet — 408-7837

Unshielded Cable Clamp Kits with HDP-20 Connectors

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Cable Dia. Range (Ref.)</th>
<th>Dimension A</th>
<th>Plug Kit Part No.</th>
<th>Receptacle Kit Part No.</th>
<th>Packaging</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>.075-.250</td>
<td>.785</td>
<td>749808-8</td>
<td>749812-7</td>
<td>100/pack</td>
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<tr>
<td>2</td>
<td>.170-.380</td>
<td>1.110</td>
<td>749808-9</td>
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<td>100/pack</td>
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<tr>
<td>3</td>
<td>.180-.460</td>
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<td>749808-7</td>
<td>1-749812-1</td>
<td>100/pack</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Cable Dia. Range (Ref.)</th>
<th>Dimension A</th>
<th>Plug Kit Part No.</th>
<th>Receptacle Kit Part No.</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>.180-.460</td>
<td>1.660</td>
<td>749809-9</td>
<td>749813-8</td>
<td>100/pack</td>
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</tbody>
</table>

Note: All part numbers are RoHS compliant.
Unshielded Cable Clamps

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

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Cable Dia. (Max.)</th>
<th>Cable Clamp Kit No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>A (max.)</td>
<td>B (max.)</td>
<td></td>
</tr>
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<td>3</td>
<td>2.604</td>
<td>1.700</td>
<td>1.651</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimension A</th>
<th>Cable Dia. (Max.)</th>
<th>Cable Clamp Kit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When used on Plug</td>
<td>When used on Receptacle</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1.290</td>
<td>1.241</td>
<td>0.330</td>
</tr>
</tbody>
</table>

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)

Slide-On Back Covers

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dim. A</th>
<th>Back Cover Kit No. Individual</th>
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<tbody>
<tr>
<td>1</td>
<td>.610</td>
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<td>2</td>
<td>.934</td>
<td>745530-2</td>
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<td></td>
<td>23.72</td>
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</tr>
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<td>1.482</td>
<td>745530-3</td>
</tr>
<tr>
<td></td>
<td>37.64</td>
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</tr>
<tr>
<td>4</td>
<td>2.134</td>
<td>745530-4</td>
</tr>
<tr>
<td></td>
<td>54.20</td>
<td></td>
</tr>
</tbody>
</table>

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.

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 1 & 2

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions A</th>
<th>Dimensions B</th>
<th>Cable Dia. Max. (Ref.)</th>
<th>Cable Clamp Kit No.</th>
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<td>.320</td>
<td>207470-1</td>
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<td>8.13</td>
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<td>.490</td>
<td>207476-1</td>
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<tr>
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<td>55.32</td>
<td>22.35</td>
<td>12.45</td>
<td>12.45</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Cable Clamp Kit No.</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
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<td>5207908-4</td>
</tr>
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<td>5207908-7</td>
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<td>1-5207908-0</td>
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<tr>
<td>5</td>
<td>1-5207908-3</td>
</tr>
</tbody>
</table>

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)

Clam Shell
Straight/45° Exit

Cable Clamp Kits
with Male Screw Retainers

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Cable Dia. (Max.)</th>
<th>Short Cable Clamp Part No.</th>
<th>Standard Cable Clamp Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
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<td>.640</td>
<td>.640</td>
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<td>16.26</td>
<td>16.26</td>
</tr>
<tr>
<td>2</td>
<td>1.250</td>
<td>1.073</td>
<td>.600</td>
<td>.640</td>
</tr>
<tr>
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<td>31.75</td>
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<td>15.24</td>
<td>16.26</td>
</tr>
<tr>
<td>3</td>
<td>1.625</td>
<td>1.073</td>
<td>.640</td>
<td>.640</td>
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<td>41.28</td>
<td>27.25</td>
<td>16.26</td>
<td>16.26</td>
</tr>
<tr>
<td>4</td>
<td>1.250</td>
<td>1.615</td>
<td>.600</td>
<td>.640</td>
</tr>
<tr>
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<td>31.75</td>
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<td>16.26</td>
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<tr>
<td>5</td>
<td>1.625</td>
<td>1.615</td>
<td>.640</td>
<td>.640</td>
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<td></td>
<td>41.28</td>
<td>41.02</td>
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</tr>
<tr>
<td>6</td>
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<td>2.263</td>
<td>.640</td>
<td>.640</td>
</tr>
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<td></td>
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<td>16.26</td>
</tr>
</tbody>
</table>

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

Notes:
1. All parts are packed 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.

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.

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 Screwlocks 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

Technical Documents:
Instruction Sheet—408-7555
Unshielded Cable Clamps (Continued)

Straight Exit Dataphone

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Max. Cable Dia. (without Gate)</th>
<th>Max. Cable Dia. (with Gate)</th>
<th>Cable Gate Identification*</th>
<th>Thread Size</th>
<th>Cable Clamp Kit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>.200 (5.08)</td>
<td>.250 (6.35)</td>
<td>4-40</td>
<td>5745122-2</td>
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<td>2</td>
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<td>40.01 33.32 10.16</td>
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<td>36.09</td>
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*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.

Cable Clamp Kits with Grommets

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Cable O.D. Range</th>
<th>No. of Grommets Per Set</th>
<th>Kit Numbers</th>
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<tr>
<td>1</td>
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<td>5</td>
<td>.255-470</td>
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<td>6</td>
<td>5748678-5</td>
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</tbody>
</table>

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.
5. Molded-in identification is provided on cable support gates to facilitate proper selection with regard to shell size and maximum acceptable cable diameter.

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

Technical Documents:
Instruction Sheet—408-6609

References:
Catalog 82068
Revised 4-12
www.te.com

Dimensions are shown for reference purposes only. Specifications subject to change.

Notes: All part numbers are RoHS compliant.
Unshielded Cable Clamps (Continued)

**Straight/90° Exit**

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

**Shell Size** | **Cable Clamp Configuration** | **Dimensions** | **Cable Dia.** | **Cable Clamp Kit No.**
--- | --- | --- | --- | ---
3 | Straight Exit | 1.906 | 1.672 | .550 | 745306-1
 | 90° Exit | 2.066 | 1.396 | 4 | 745306-1
4 | Straight Exit | 2.424 | 1.820 | .750 | 745311-1
 | 90° Exit | 2.638 | 1.596 | 4 | 745311-1

**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 the 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).

#### 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** — 408-6009

#### Cable Clamp Kits with Grommets

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimensions</th>
<th>Cable O.D.</th>
<th>Die Cast Shield Kit Numbers</th>
<th>Metal-Plated Plastic Shield Kit Numbers</th>
<th>Grommet Sets</th>
<th>Kit Numbers</th>
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</table>

**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.

---

**Technical Specifications:**

- **Cable Clamp Kits with Grommets**
  - **Kit Numbers**
  - **Die Cast Shield With Grommets**
  - **Metal-Plated Plastic Shield With Grommets**

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**Catalog 82068**

**Revised 4-12**

**www.te.com**
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, split-ring 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)**

<table>
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<tr>
<th>Shell Size</th>
<th>No. of Positions</th>
<th>ID Letter</th>
<th>Cable Dia w/Ferrules</th>
<th>Part Number</th>
<th>Grommet Kit</th>
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<td>15</td>
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<tr>
<td></td>
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<td>K</td>
<td>.190-.430 4.83-10.92</td>
<td>5745919-1</td>
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</table>

*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)

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Dimension A</th>
<th>Cable Dia w/Ferrules</th>
<th>Shield with Slide Latch Kit Numbers (See Note 2)</th>
<th>Shield without Slide Latch Kit Numbers (See Note 3)</th>
<th>Grommet Kit</th>
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*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)

Crimp Ferrules for Braided Cable Shield
(See pages 144 & 145 for Inner and Outer Ferrule Part Numbers.)

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

Application Tooling

Note: Crimp ferrules are for use with braided shields only. Crimp ferrules require application tooling with die sets for attachment to cable.

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: All part numbers are RoHS compliant.

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.
### Shielded Cable Clamps (Continued)

#### Crimp and Split-Ring Ferrules

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Cable Dia. (Max.)</th>
<th>Die Cast Shield Kit No.</th>
<th>Metal-Plated Plastic Shield Kit No.</th>
<th>90° Exit Die Cast Shield Kit No.</th>
<th>With Slide Latch</th>
<th>Without Slide Latch</th>
<th>Split-Ring* Ferrule No.</th>
<th>Crimp Ferrule No. and Tooling No.**</th>
<th>Inner</th>
<th>Outer</th>
<th>Die Set For Hand Tool</th>
<th>Applicator Die Set</th>
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<td>3-745130-8</td>
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<td>8.90</td>
<td>5745173-4</td>
<td>5745833-7</td>
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<td>5745833-1</td>
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<td>—</td>
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<td>813809-4</td>
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</tbody>
</table>

**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)

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Cable Dia. (Max.)</th>
<th><strong>When using these Shield Kits</strong></th>
<th><strong>Use these Ferrules</strong></th>
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<tr>
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<td></td>
<td><strong>Die Cast</strong></td>
<td><strong>Metal-Plated Plastic</strong></td>
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<tr>
<td>.240</td>
<td>6.10</td>
<td>5745174-4</td>
<td>5747100-7</td>
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<td>.280</td>
<td>7.11</td>
<td>5745174-4</td>
<td>5747100-7</td>
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<td>8.90</td>
<td>5745174-4</td>
<td>5747100-7</td>
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<td>.430</td>
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<td>5747100-7</td>
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<tr>
<td>.500</td>
<td>12.70</td>
<td>5745174-3</td>
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<td>.525</td>
<td>13.34</td>
<td>5745174-1</td>
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<td>14.61</td>
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<td>16.51</td>
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<td>5747100-1</td>
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<td>.240</td>
<td>6.10</td>
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<td>--</td>
</tr>
<tr>
<td>.365</td>
<td>9.27</td>
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<td>.375</td>
<td>9.53</td>
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<td>--</td>
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<tr>
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<td>10.92</td>
<td>5745175-4</td>
<td>--</td>
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<td>.450</td>
<td>11.43</td>
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<td>--</td>
</tr>
<tr>
<td>.525</td>
<td>13.34</td>
<td>5745175-4</td>
<td>--</td>
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<td>.530</td>
<td>13.46</td>
<td>5745175-4</td>
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<td>15.24</td>
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<td>--</td>
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<td>16.51</td>
<td>5745175-1</td>
<td>5747098-1</td>
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<td>.675</td>
<td>17.15</td>
<td>5745175-2</td>
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<td>.750</td>
<td>19.05</td>
<td>5745175-1</td>
<td>5747098-1</td>
</tr>
</tbody>
</table>

*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

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

<table>
<thead>
<tr>
<th>Male Screw Finish</th>
<th>Thread Size</th>
<th>Dimension A</th>
<th>Male Screw Retainer Kit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Individual</td>
<td>Bulk Packed*</td>
</tr>
<tr>
<td>Yellow Chromate</td>
<td>4-40</td>
<td>.220</td>
<td>5205980-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.59</td>
<td>5787354-1</td>
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<tr>
<td></td>
<td></td>
<td>.200</td>
<td>5745136-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.08</td>
<td>5745136-2</td>
</tr>
<tr>
<td>M3 (Metric)</td>
<td></td>
<td>.225</td>
<td>5207871-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.72</td>
<td></td>
</tr>
<tr>
<td>Clear Chromate</td>
<td>4-40</td>
<td>.220</td>
<td>5205980-4</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td>.200</td>
<td>5745136-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.08</td>
<td>5745136-4</td>
</tr>
</tbody>
</table>

Notes:
1. Each part is individually bulk packed for multiple kit orders.
2. Phillips Head Screw
3. Male screw retainers mate with female screwlocks (page 144) with HDF 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. Male 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.

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

Note: All part numbers are RoHS compliant.
Material and Finish:
Male Screw—Steel, zinc plated yellow chromate
Retaining Clip—0.012 [0.51] stainless steel

Related Product Data:
Connectors used with:
HDE All-Plastic—pages 112 & 113

Technical Documents:
Instruction Sheet—408-7837

Hardware (Continued)

Male Screw Retainers
for All-Plastic
Connectors (HDE)

Material and Finish:
Male Screw—Steel, zinc plated clear chromate
Retaining Clip—0.012 [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)*

*NEach 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), 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.

Note: All part numbers are RoHS compliant.
Hardware (Continued)

**Female Screwlocks for Metal-Shell and All-Plastic Connectors (HDE, HDF, HDP)**

**Connectors Used with**

<table>
<thead>
<tr>
<th>Connector Used with</th>
<th>Style</th>
<th>Dimension C</th>
<th>Thread Size</th>
<th>Finish</th>
<th>Kit Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD All-Plastic Right-Angle Plugs and Receptacles</td>
<td>(A)</td>
<td>.250</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5207952-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.35</td>
<td></td>
<td>Clear Chromate</td>
<td>5207952-3</td>
</tr>
<tr>
<td>HD Metal-Shell or All-Plastic Plugs and Receptacles</td>
<td>(B)</td>
<td>.250</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5745563-1</td>
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<tr>
<td></td>
<td></td>
<td>6.35</td>
<td></td>
<td>Clear Chromate</td>
<td>5745563-3</td>
</tr>
<tr>
<td>HDP or HDF Metal-Shell or All-Plastic Plugs and Receptacles</td>
<td>(B)</td>
<td>.312</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5205817-1</td>
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<tr>
<td></td>
<td></td>
<td>7.93</td>
<td></td>
<td>Clear Chromate</td>
<td>5205817-3</td>
</tr>
<tr>
<td>HD Plug w/ Integral Standoffs</td>
<td>(B)</td>
<td>.560</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5207719-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.22</td>
<td></td>
<td>Clear Chromate</td>
<td>5207719-3</td>
</tr>
</tbody>
</table>

*2-56 is the male thread size. The female thread size is 4-40.

**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 HDP connectors (pages 125 & 126)

---

**Individual Screwlocks**

(Washers and Nuts not included)

<table>
<thead>
<tr>
<th>Connector Used with</th>
<th>Style</th>
<th>Dimension C</th>
<th>Thread Size</th>
<th>Finish</th>
<th>Screwlocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD All-Plastic Right-Angle Plugs and Receptacles</td>
<td>(A)</td>
<td>.250</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5207952-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.35</td>
<td></td>
<td>Clear Chromate</td>
<td>5207952-3</td>
</tr>
<tr>
<td>HDP or HDF Metal-Shell or All-Plastic Plugs and Receptacles</td>
<td>(B)</td>
<td>.312</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5205817-1</td>
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<td></td>
<td></td>
<td>7.93</td>
<td></td>
<td>Clear Chromate</td>
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<tr>
<td>HD Plug w/ Integral Standoffs</td>
<td>(B)</td>
<td>.560</td>
<td>4-40</td>
<td>Yellow Chromate</td>
<td>5207719-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.22</td>
<td></td>
<td>Clear Chromate</td>
<td>5207719-3</td>
</tr>
</tbody>
</table>

*2-56 is the male thread size. The female thread size is 4-40.

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

---

**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

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

**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.

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

**Notes:**

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>Style</th>
<th>Dimensions</th>
<th>Slide Latch Kit Numbers</th>
<th>Side Latch Only</th>
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<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>Individual</td>
<td>Bulk Packed*</td>
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<tr>
<td>1</td>
<td>I</td>
<td>1.397</td>
<td>.490</td>
<td>.415</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35.48</td>
<td>12.45</td>
<td>10.54</td>
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<tr>
<td>II</td>
<td>1.725</td>
<td>.470</td>
<td>.547</td>
<td>43.82</td>
</tr>
<tr>
<td></td>
<td>1.725</td>
<td>.470</td>
<td>.415</td>
<td>43.82</td>
</tr>
<tr>
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<td>1.725</td>
<td>.470</td>
<td>.450</td>
<td>43.82</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>1.725</td>
<td>.470</td>
<td>.415</td>
</tr>
<tr>
<td>III</td>
<td>1.725</td>
<td>.490</td>
<td>.290</td>
<td>43.82</td>
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<tr>
<td></td>
<td>1.725</td>
<td>.437</td>
<td>.415</td>
<td>43.82</td>
</tr>
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<td>3</td>
<td>II</td>
<td>2.285</td>
<td>.470</td>
<td>.547</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>2.285</td>
<td>.470</td>
<td>.415</td>
</tr>
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<td>4</td>
<td>I</td>
<td>2.913</td>
<td>.490</td>
<td>.415</td>
</tr>
<tr>
<td>III</td>
<td>2.819</td>
<td>.575</td>
<td>.415</td>
<td>71.60</td>
</tr>
</tbody>
</table>

*Typical Applications of Locking Posts and Slide Latches*

**Typical Applications of Locking Posts and Slide Latches**

- **Slide Latch Style III** (for Shell Sizes 2, 3 or 5)
  - 4-40 Locking Post
  - 2-56 Locking Post

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

Hardware (Continued)

Kit Part Numbers:

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Screw Length</th>
<th>Pkg. Style</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-40</td>
<td>.415</td>
<td>Unit†</td>
<td>5206942-1</td>
</tr>
<tr>
<td>2-56</td>
<td>.547</td>
<td>Unit</td>
<td>5748078-1**</td>
</tr>
</tbody>
</table>

† 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

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.

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Locking Post Dimensions A B</th>
<th>Locking Post Kit Number (See Note 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-40</td>
<td>.410 10.41 .110 2.79</td>
<td>5206514-1 5206514-3</td>
</tr>
<tr>
<td>Clear Chrome</td>
<td>.410 10.41 2.79</td>
<td>5206514-4 —</td>
</tr>
<tr>
<td>Yellow Chrome</td>
<td>.560 14.22 .110 2.79</td>
<td>5206514-6 5206514-7</td>
</tr>
<tr>
<td>2-56</td>
<td>.615 15.62 .172 4.37</td>
<td>5747242-1 —</td>
</tr>
</tbody>
</table>

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

Note: All part numbers are RoHS compliant.
Hardware (Continued)

Spring Latches for Cable Clamps with Mounting Ears (Two-Piece)

Material:
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

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).

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.

Typical Application of Two-Piece Spring Latches with Straight Exit RFI/EMI Shield

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

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).

Spring Latch Part Numbers

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimension A</th>
<th>Two Per Package</th>
<th>Bulk Packed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>.540</td>
<td>745779-2</td>
<td>745779-3</td>
</tr>
<tr>
<td>5</td>
<td>.650</td>
<td>745779-5</td>
<td>—</td>
</tr>
</tbody>
</table>

*Two-piece spring latches are individually bulk packed for multiple part orders.

Typical Application of Two-Piece Spring Latches with Post Molded Strain Relief

Note: All part numbers are RoHS compliant.
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

Hardware (Continued)

Latching Blocks with Threaded Hole

<table>
<thead>
<tr>
<th>Shell (No. of Contact Pos.)</th>
<th>Dimensions</th>
<th>Panel Thickness</th>
<th>Rear-Panel Latching Block Part No.</th>
<th>Front-Panel Latching Block Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>Individual</td>
<td>Bulk Packed*</td>
</tr>
<tr>
<td>M3 (Metric)</td>
<td>.400</td>
<td>.190</td>
<td>.60</td>
<td>4-40</td>
</tr>
<tr>
<td></td>
<td>10.16</td>
<td>4.83</td>
<td>1.52</td>
<td>4-40</td>
</tr>
<tr>
<td>1 thru 4 (9 thru 37)</td>
<td>.400</td>
<td>.220</td>
<td>.30</td>
<td>4-40</td>
</tr>
<tr>
<td></td>
<td>10.16</td>
<td>5.59</td>
<td>.76</td>
<td>4-40</td>
</tr>
<tr>
<td></td>
<td>.400</td>
<td>.250</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>10.16</td>
<td>6.35</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5 (50)</td>
<td>.530</td>
<td>.250</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*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.
4. Latching blocks mate with spring latches (page 152).

Note: All part numbers are RoHS compliant.
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

Hardware (Continued)

Latching Blocks with Slot Recess and Thru Hole

<table>
<thead>
<tr>
<th>Shell (No. of Contact Pos.)</th>
<th>Dimensions</th>
<th>Panel Thickness</th>
<th>Rear-Panel Latching Block Part No.</th>
<th>Front-Panel Latching Block Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>Individual</td>
<td>Bulk Packed*</td>
</tr>
<tr>
<td>1 thru 4</td>
<td>.400</td>
<td>.190</td>
<td>.090</td>
<td>747080-2</td>
</tr>
<tr>
<td>(9 thru 37)</td>
<td>10.16</td>
<td>4.83</td>
<td>2.29</td>
<td>—</td>
</tr>
<tr>
<td>5</td>
<td>.530</td>
<td>.190</td>
<td>.060</td>
<td>745245-2</td>
</tr>
<tr>
<td>(50)</td>
<td>13.46</td>
<td>4.83</td>
<td>1.52</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>.250</td>
<td>6.35</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*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

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

EMI/RFI Gaskets

Material and Finish:
Brass, .006 [0.15] thick; bright tin plated

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<table>
<thead>
<tr>
<th>Shell Size (No. of Contact Pos.)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Gasket Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (9)</td>
<td>.746</td>
<td>.984</td>
<td>1.220</td>
<td>5747024-3</td>
</tr>
<tr>
<td>2 (15)</td>
<td>1.074</td>
<td>1.312</td>
<td>1.555</td>
<td>5747025-3</td>
</tr>
<tr>
<td>3 (25)</td>
<td>1.614</td>
<td>1.852</td>
<td>2.100</td>
<td>745776-4</td>
</tr>
<tr>
<td>4 (37)</td>
<td>2.266</td>
<td>2.500</td>
<td>2.730</td>
<td>745777-4</td>
</tr>
</tbody>
</table>

Note: All part numbers are RoHS compliant.

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Kit Numbers:
205933-3 (two bushings per package)
205933-4 (bulk packed)*
*Parts are individually bulk packed for multiple part orders.

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Part Number: 206509-1
Notes: 1. Keying plug is installed taper-end first into front of receptacle.
2. Sold individually.