

The D-subminiature is one of the most popular styles of connectors in the I/O category. It is used in computer, telecom, datacom, medical, and test instrumentation applications as well as in the military and aerospace fields.

#### **Types of D-subminiature connectors manufactured by Cinch**

- Printed Circuit Board connectors:
  - Vertical connectors for panel mounting with Dip Solder PC tails.
  - Right-Angle connectors for board mounting with Dip Solder PC tails.
- Wire Termination connectors for cable assemblies or wire harnesses:
  - Crimp and Poke connectors.
  - Solder Cup connectors.
  - Insulation Displacement connectors IDCs to terminate discrete wire or flat cable.
  - Wire Wrap connectors.

#### **How to read this section**

- The information pages provide standard data common to all D-subminiature connectors. These include:
  - D-subminiature contact arrangements - see page 4-5.
  - Panel mounting specifications/hardware - see page 4-6.
  - D-subminiature shell dimensions - see page 4-7.
  - D-subminiature and combo D layouts - see pages 4-5, 4-8 thru 4-10, and 4-56.
  - General Performance Specifications - see page 4-2.
  - PCB thickness chart - see page 4-8.
- D-subminiature pages are grouped by series. A series is a family of connectors with a similar performance level. Each series shares a set of features and specifications, from economical and commercial grade product to high-reliability and military connectors. Each series begins with a page outlining general features and specifications of connectors, followed by the pages on individual connectors with drawings or features specific to that connector. Drawings reflect clarifications of dimensions not called out in the information pages of this catalog. The features of each series can be found in the chart on page 4-4.
- Accessories including backshells, junction shells, and hoods as well as hardware can be found on pages 4-80 thru 4-99.
- Termination tooling for Cinch connectors can be found at the end of the D-subminiature section of this catalog on pages 4-100 thru 4-104.

**General Information**

- All connectors are intermateable with any Cinch D-subminiature of comparable pin count and density, or the D-sub connector of any other manufacturer complying dimensionally with MIL-C-24308.
- Solder terminations and boardlocks meet the requirements for solderability in accordance with MIL-STD-202, Method 208.
- DURABILITY
  - Mated connectors are subjected to cycles of insertions and withdrawals specified on the catalog page. After the prescribed cycles the connectors will meet the Cinch requirements concerning insertion-withdrawal force, individual contact insertion-withdrawal force, and contact resistance.
- APPROVALS
  - Most Cinch connectors have UL recognition and CSA approval; however, the specific approvals are listed on the individual catalog pages.
- CONTACTS
  - Cinch connector contacts are generally offered in Gold Flash or 30µin. gold plating for commercial product, and 50µin. gold plating for M24308 Series Military D-subminiature connectors.
  - Cinch connectors utilize economical stamped and formed contacts and/or screw machine contacts for enhanced performance.
  - Standard density connectors utilize size 20 contacts.
  - Cinch 1.5 Density Series connectors utilize size 22 contacts for greater density in a standard size D-subminiature outer shell.
- METAL SHELLS
  - Commercial-grade steel shells are usually available in zinc plating with yellow chromate finish or tin plating.
  - Tin-plated plugs have grounding indents.
  - Military grade M24308 Series connector shells are generally steel or in certain cases non-magnetic brass with cadmium plating and yellow chromate finish.
  - Insulator materials are glass-filled polyester, glass-filled nylon, and diallyl phthalate.
- The connectors are usually available in plugs and sockets in 9, 15, 25, 37, and 50 position sizes.

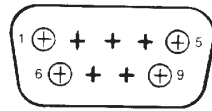
**Printed Circuit Board Connectors**

- Cinch provides connectors in various footprints, contact diameters, and lengths in both vertical and right-angle PC mount styles with dip solder tails.
- Cinch PCB connectors have metal shells.

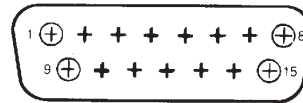
**Connectors for Terminating Cable Wire**

- Wire Wrap connectors are available in two tail lengths for two-wrap and three-wrap terminations. The contact is terminated by wrapping wire around it using a wire wrap gun. This connector is especially useful for prototyping since the wire can be unwrapped and rewrapped if necessary.
- Solder Cup connectors allow reliable long-term termination by soldering the wire directly into the connector contact. Cinch Solder Cups accommodate up to 20 AWG wire.
- Crimp and Poke connectors allow the wire to be terminated more economically than wire wrap or solder cup styles. Contacts are crimped and inserted into the connector. In our D\*U Series, the contact is crimped around the conductor wire. In our D\*A Series, the contact is crimped around the wire and the insulation. Crimp and Poke connectors can be selectively loaded to save labor and material cost.
- IDC connectors are an alternative to other types of wire termination connectors. IDC is much faster and very reliable when all contacts are terminated and the volume is high. IDC utilizes mass termination of the cable wire. This can save considerable time and expense in the cable assembly process. The estimated time of terminating two ends of a 25-conductor discrete wire cable with 25-position D-subminiature connectors is about 5-1/2 to 6 minutes less per cable assembly using IDC connectors and Cinch Auto-Clinch termination tooling versus using Crimp and Poke connectors. This may vary considerably based on the operator, cable wire, and process. Cinch offers IDC connectors in two versions-for discrete wire or flat ribbon termination.

**Standard Density Plug Inserts**



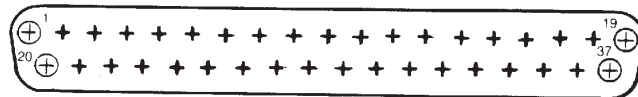
Shell Size E  
(9 Position)



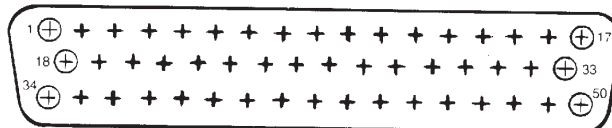
Shell Size A  
(15 Position)



Shell Size B  
(25 Position)

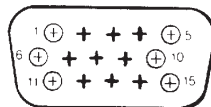


Shell Size C  
(37 Position)



Shell Size D  
(50 Position)

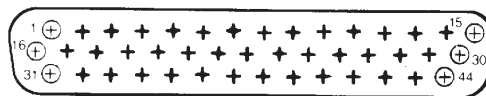
**1.5 Density Plug Inserts**



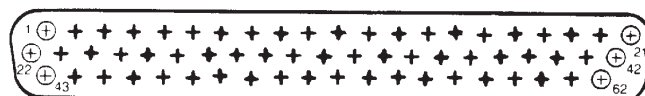
Shell Size E  
(15 Position)



Shell Size A  
(26 Position)



Shell Size B  
(44 Position)



Shell Size C  
(62 Position)

NOTE: Mating face of plug is shown; socket is mirror image.

# D-subminiature Metal Shell Solder Cup, Vertical PCB Mount, and Wire Wrap Basic D Series



## FEATURES

- Offered in Wire Wrap and Solder Cup styles for wire termination and vertical style for PCB mount.
- Offered with .120 mounting holes, 4-40 clinch nuts, and dual float bushings.
- Offered in 9, 15, 25, 37, and 50 position plugs and sockets.
- Available with gold flash or 30µin. gold plating.
- Approvals:
  - UL Recognized - Files E170218 (UL1977) and E130965 (UL1863).
  - CSA Approved - File LR31996.
- See pages 4-5 thru 4-10 for standard dimensions, contact arrangements, and panel mounting specifications.

## MATERIALS

**Insulator Material:** Glass-filled polyester (white), UL 94V-O rated  
**Connector Shell:** Steel with zinc plating and yellow chromate finish or tin plating (grounding indents on plug)  
**4-40 Clinch Nut:** Steel with cadmium plating and yellow chromate finish  
**Dual Float Bushing:** Stainless steel, passivated

## ENVIRONMENTAL

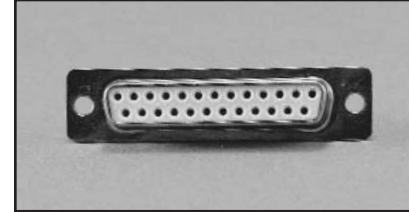
**Operating Temperature:** -65°C to + 125°C  
**Shock:** 50G peak per MIL-STD-202, Method 213, Condition G  
**Vibration:** 12 cycles in three perpendicular directions @ 10-2000Hz, per MIL-STD-202, Method 204, Condition D  
**Moisture Resistance:** 90-95% relative humidity @ 40°C for 96 hours per MIL-STD-202, Method 103

## ELECTRICAL

**Withstanding Voltage:** Minimum 1250V RMS @ sea level  
**Current Rating:** 5 Amps  
**Contact Resistance:** 2.7 milliohms maximum  
**Insulation Resistance:** 5000 megohms maximum (initial); 1000 megohms (minimum) after environmental testing

## MECHANICAL

**Individual Contact Insertion and Separation Force (minimum/maximum):** 0.7 oz./12 oz.  
**Durability:** 500 mating cycles



# D-subminiature Metal Shell Solder Cup Basic D Series



## Ordering Information

### Solder Cup Sockets

#### Zinc-Plated Shell with Yellow Chromate Finish

##### Stamped Contact with Gold Flash in Solder Cup

Positions	Mounting Holes		4-40 Clinch Nuts		Dual Float Bushings	
	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold
9	DE-9S	DE-9S-30	DEE-9S	DEE-9S-30	DEY-9S	DEY-9S-30
15	DA-15S	DA-15S-30	DAE-15S	DAE-15S-30	DAY-15S	DAY-15S-30
25	DB-25S	DB-25S-30	DBE-25S	DBE-25S-30	DBY-25S	DBY-25S-30
37	DC-37S	DC-37S-30	DCE-37S	DCE-37S-30	DCY-37S	DCY-37S-30
50	DD-50S	DD-50S-30	DDE-50S	DDE-50S-30	DDY-50S	DDY-50S-30

##### Stamped Contact Tin/Lead in Solder Cup

Positions	Mounting Holes		4-40 Clinch Nuts		Dual Float Bushings	
	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold
9	DE-9S-II	DE-9S-II-30	DEE-9S-II	DEE-9S-II-30	DEY-9S-II	DEY-9S-II-30
15	DA-15S-II	DA-15S-II-30	DAE-15S-II	DAE-15S-II-30	DAY-15S-II	DAY-15S-II-30
25	DB-25S-II	DB-25S-II-30	DBE-25S-II	DBE-25S-II-30	DBY-25S-II	DBY-25S-II-30
37	DC-37S-II	DC-37S-II-30	DCE-37S-II	DCE-37S-II-30	DCY-37S-II	DCY-37S-II-30
50	DD-50S-II	DD-50S-II-30	DDE-50S-II	DDE-50S-II-30	DDY-50S-II	DDY-50S-II-30

##### Screw Machine Contact

Positions	Mounting Holes		4-40 Clinch Nuts		Dual Float Bushings	
	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold
9	DE-9S-SM	DE-9S-SM-30	DEE-9S-SM	DEE-9S-SM-30	DEY-9S-SM	DEY-9S-SM-30
15	DA-15S-SM	DA-15S-SM-30	DAE-15S-SM	DAE-15S-SM-30	DAY-15S-SM	DAY-15S-SM-30
25	DB-25S-SM	DB-25S-SM-30	DBE-25S-SM	DBE-25S-SM-30	DBY-25S-SM	DBY-25S-SM-30
37	DC-37S-SM	DC-37S-SM-30	DCE-37S-SM	DCE-37S-SM-30	DCY-37S-SM	DCY-37S-SM-30
50	DD-50S-SM	DD-50S-SM-30	DDE-50S-SM	DDE-50S-SM-30	DDY-50S-SM	DDY-50S-SM-30

## Tin-Plated Shell

##### Stamped Contact with Gold Flash in Solder Cup

Positions	Mounting Holes		4-40 Clinch Nuts		Dual Float Bushings	
	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold
9	DE-9ST	DE-9ST-30	DEE-9ST	DEE-9ST-30	DEY-9ST	DEY-9ST-30
15	DA-15ST	DA-15ST-30	DAE-15ST	DAE-15ST-30	DAY-15ST	DAY-15ST-30
25	DB-25ST	DB-25ST-30	DBE-25ST	DBE-25ST-30	DBY-25ST	DBY-25ST-30
37	DC-37ST	DC-37ST-30	DCE-37ST	DCE-37ST-30	DCY-37ST	DCY-37ST-30
50	DD-50ST	DD-50ST-30	DDE-50ST	DDE-50ST-30	DDY-50ST	DDY-50ST-30

##### Stamped Contact with Tin/Lead in Solder Cup

Positions	Mounting Holes		4-40 Clinch Nuts		Dual Float Bushings	
	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold
9	DE-9ST-II	DE-9ST-II-30	DEE-9ST-II	DEE-9ST-II-30	DEY-9ST-II	DEY-9ST-II-30
15	DA-15ST-II	DA-15ST-II-30	DAE-15ST-II	DAE-15ST-II-30	DAY-15ST-II	DAY-15ST-II-30
25	DB-25ST-II	DB-25ST-II-30	DBE-25ST-II	DBE-25ST-II-30	DBY-25ST-II	DBY-25ST-II-30
37	DC-37ST-II	DC-37ST-II-30	DCE-37ST-II	DCE-37ST-II-30	DCY-37ST-II	DCY-37ST-II-30
50	DD-50ST-II	DD-50ST-II-30	DDE-50ST-II	DDE-50ST-II-30	DDY-50ST-II	DDY-50ST-II-30

##### Screw Machine Contact

Positions	Mounting Holes		4-40 Clinch Nuts		Dual Float Bushings	
	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold	Gold Flash	30µin. Gold
9	DE-9ST-SM	DE-9ST-SM-30	DEE-9ST-SM	DEE-9ST-SM-30	DEY-9ST-SM	DEY-9ST-SM-30
15	DA-15ST-SM	DA-15ST-SM-30	DAE-15ST-SM	DAE-15ST-SM-30	DAY-15ST-SM	DAY-15ST-SM-30
25	DB-25ST-SM	DB-25ST-SM-30	DBE-25ST-SM	DBE-25ST-SM-30	DBY-25ST-SM	DBY-25ST-SM-30
37	DC-37ST-SM	DC-37ST-SM-30	DCE-37ST-SM	DCE-37ST-SM-30	DCY-37ST-SM	DCY-37ST-SM-30
50	DD-50ST-SM	DD-50ST-SM-30	DDE-50ST-SM	DDE-50ST-SM-30	DDY-50ST-SM	DDY-50ST-SM-30



Cinch backshells are offered in a variety of styles, each having a specific strength.

- **Backshells** have two-piece construction and are frequently used where appearance is a major factor. RFI/EMI shielding capability is also an option:
  - Plastic Backshells: No shielding.
  - Metallized Plastic: Economical method of shielding.
  - Diecast Backshells: Maximum shielding.
- Cinch **SDH Series** backshells utilize Cinch's Latch-N-Lock™ system with quick release disconnect. Just squeeze the latch levers to release the connector. Also available with standard 4-40 mounting hardware.
- **Junction Shells** come in a variety of sizes and shapes including right-angle and low profile. They are generally of one-piece construction with an adjustable clamp, but there is no shielding.
- **Hoods** have an improved appearance versus junction shells but no shielding. They are all-plastic and come in right-angle or straight configurations.
- **Hardware**, in the form of adjustable grommets or strain relief clamps and 4-40 screws, is generally supplied with the product; however, a variety of optional hardware is also available in the accessories section of this catalog.

# D-subminiature Backshells/Junction Shells/Hoods Accessories



The following is a summary of the various backshells, junction shells, and hoods that Cinch offers:

## Backshells

Type	2-Piece	2-Piece	2-Piece	2-Piece	Super-D Connection System	
Material	Plastic	Metallized	Diecast	Diecast	Black Plastic	Gray Plastic
Series	DPH	DCH	DMH	Ethernet	SDH - B	SDH - G
Shell Sizes*	E A B C	E A B C D	E A B C D	A	E A B C	E A B C
Cable Exit	180°	180°	180°	90°/180°	90°/180°	90°/180°
<b>Fits Connector Series marked with “●”:</b>						
D*A Series	●	●	●	●	●	
HTD Series	●	●	●			
D*U Series	●	●	●	●	●	
Series 3	●	●	●	●	●	
T Series Metal Shell	●	●	●	●	●	
T Series All-Plastic						●
Basic D	●	●	●	●	●	
Series 1	●	●	●	●	●	

## Junction Shells/Hoods

Type	Junction Shells					Hoods		
	Straight Clamp	Round Clamp	Rt. Angle Clamp	Deep Straight Clamp	Switching Shell	Phenolic	Straight Plastic	Rt. Angle Plastic
Material	Metal	Metal	Metal	Metal	Metal	Plastic	Plastic	Plastic
Shell Sizes*	A B C D	A B C D	E A B C D	E A B C D	A B C D	A B	E A B	A B
Cable Exit	180°	180°	90°	180°	180°	180°	180°	90°
<b>Fits Connector Series marked with “●”:</b>								
D*A Series	●	●	●	●	●	●	●	●
D*U Series	●	●	●	●	●	●	●	●
Series 3	●	●	●	●	●	●	●	●
T Series Metal Shell	●	●	●	●	●	●	●	●
T Series All-Plastic								
Basic D Series	●	●	●	●	●	●	●	●
Series 1	●	●	●	●	●	●	●	●

\*Conversion Chart between Standard Density Connectors and HPD/HTD Series 1.5 Density Connectors

Shell Size	Standard D-sub	1.5 D-Sub HTD
E	9	15
A	15	26
B	25	44
C	37	62
D	50	N/A