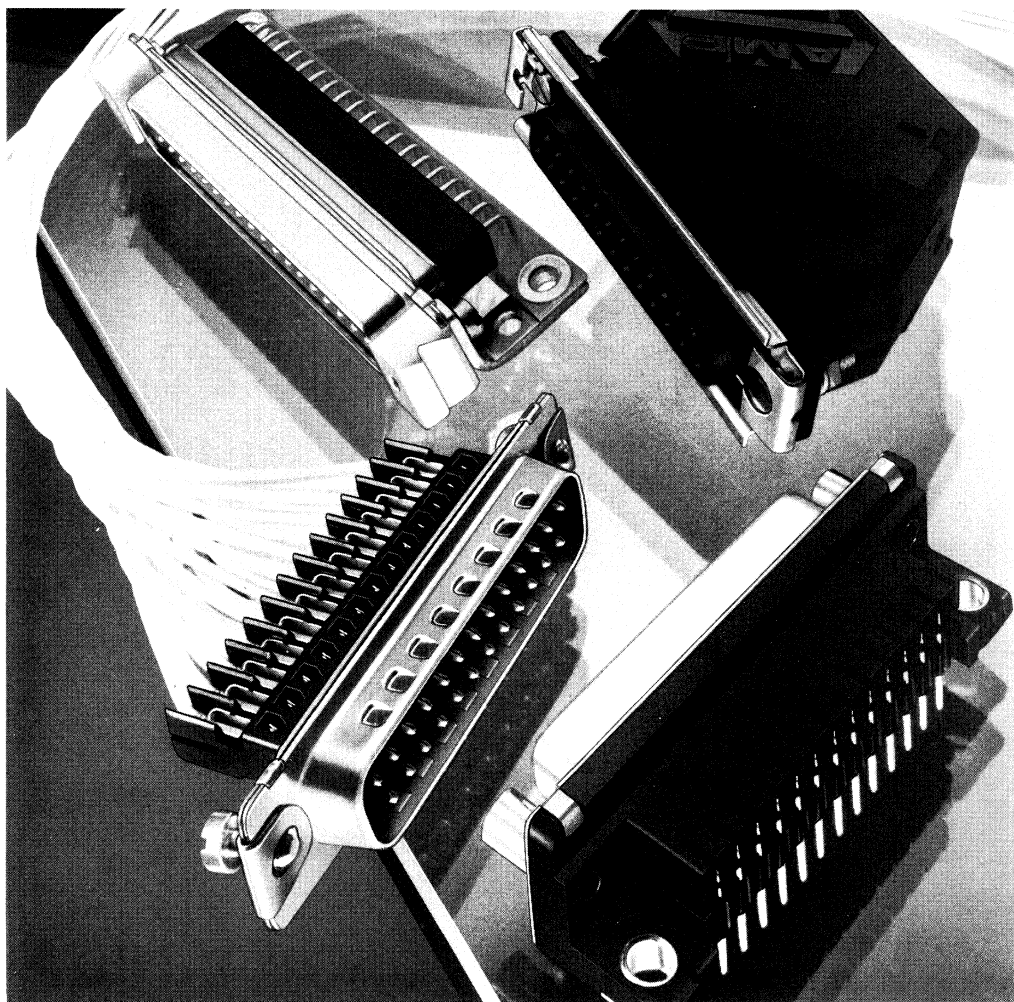


## AMPLIMITE\* Subminiature D HD-20 Pin & Socket Connectors (HDE-20 & HDP-20 Connectors)



AMPLIMITE Connectors are compact pin and socket-type connectors used widely in electric and electronic equipments, such as computer peripheral equipments, modems, industrial controls, instrumentation systems, and military and ground support systems. Included in this product line are HDE-20 Connectors which are designed for mass termination of discrete wire, jacketed cables and ribbon cables (with con-

ductors separated) by using AMP's unique insulation displacement technique. Matching application tooling is available for simultaneous mass termination of these connectors.

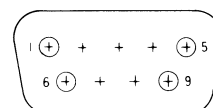
Also available in this product line are board-mount HDP-20 Connectors which are mounted horizontally on the printed circuit board to connect with other wire-to-wire and wire-to-board AMPLIMITE connectors. These HDP-20 Connectors

are available in two styles; metal-shell connectors with plastic inserts for use in EMI environments and all-plastic connectors with plastic housings.

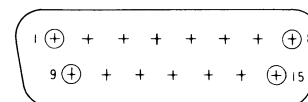
Numerous accessories are available to accommodate all applications. For details, please contact AMP Sales Department.

Shell sizes 1 thru 4 offer a wide choice of contact positions making selection of accessories and other hardware very easy.

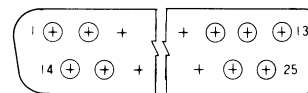
### Insert arrangements



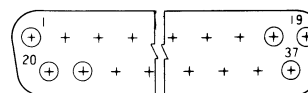
**9 Pos. (Shell Size 1)**



**15 Pos. (Shell Size 2)**



**25 Pos. (Shell Size 3)**



**37 Pos. (Shell Size 4)**

Note: The drawing indicates mating points on the plug side. They are located in mirror image on the receptacle side.

# HDE-20 Metal-Shell Connectors For Wire (With Insulation Displacement Crimp Contact)

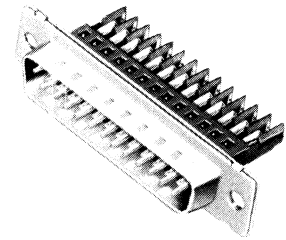
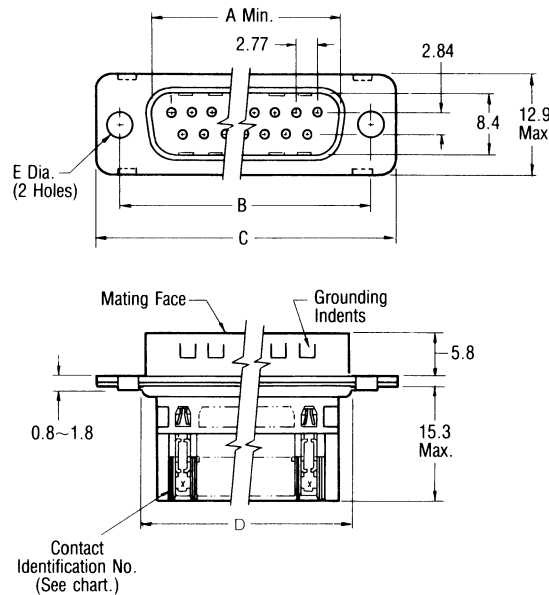
## Plug Assemblies

9, 15, 25 and 37 Positions

(With Grounding Indents)

### Material and Finish:

Shell—Steel; Tin plated  
 Insert—Black Thermoplastic,  
 94V-0 Rated  
 Pin Contacts—Phosphor Bronze;  
 duplex plated as follows:  
 A—0.76 $\mu$ m gold on mating end  
 for length of 3.8mm min.,  
 2.54~5.08 $\mu$ m bright tin or  
 bright tin-lead on termina-  
 tion end, with entire contact  
 underplated 1.27 $\mu$ m nickel  
 B—Gold flash on mating end  
 for length of 3.8mm min.,  
 2.54~5.08 $\mu$ m bright tin or  
 bright tin-lead on termina-  
 tion end, with entire contact  
 underplated 0.76 $\mu$ m nickel



## Plug Housing

### Material and Finish:

Shell—Steel, Tin plated  
 Housing—Black glass-filled  
 P.B.T., 94V-0 Rated

No. of Contact Positions (Shell Size)	Plug Part No.
9 (1)	173181-1
15 (2)	173182-1
25 (3)	173183-1
37 (4)	173184-1

Note: These plugs use insulation displacement crimp contacts and crimp snap-in contacts. (See chart below)

## Pin Contact

**Material and Finish:** Phosphor Bronze, gold flash on mating end for length of 3.8mm min., bright tin-lead on termination end, with entire contact underplated 0.76 $\mu$ m nickel

Wire Range AWG (mm <sup>2</sup> )	Pin Part No.
<b>Ins. Displacement Crimp Contact</b>	
30-26 (0.05~0.15)	L.P. 173623-3
26-22 (0.12~0.35)	L.P. 173622-3
<b>Crimp Snap-In Contact</b>	
30-26 (0.05~0.15)	S.T. 173640-2 L.P. 173640-3
26-22 (0.12~0.35)	S.T. 173625-2 L.P. 173625-3

No. of Contact Positions (Shell Size)	Dimensions					Contact Finish (Plating Code)	Plug Assembly Part No.			
	A	B	C	D	E		Contact Identification No. 1	Contact Identification No. 2	Contact Identification No. 3	
							AWG #30-26 (0.05~0.15mm <sup>2</sup> )	AWG #26-22 (0.12~0.35mm <sup>2</sup> )	AWG #24-22 (0.20~0.35mm <sup>2</sup> )	AWG #22-20 (0.30~0.56mm <sup>2</sup> )
9 (1)	16.8	24.99	30.8	19.3	3.0	A	745492-1	745492-2	—	745492-3
						B	173177-1	—	173177-2	745492-6
						A	745492-7	745492-8	—	745492-9
						B	1-745492-0	1-745492-1	—	1-745492-2
15 (2)	25.1	33.32	39.1	27.5	3.0	A	745494-1	745494-2	—	745494-3
						B	173178-1	—	173178-2	745494-6
						A	745494-7	745494-8	—	745494-9
						B	1-745494-0	1-745494-1	—	1-745494-2
25 (3)	38.8	47.04	53.0	41.3	3.0	A	745496-1	745496-2	—	745496-3
						B	173179-1	—	173179-2	745496-6
						A	745496-7	745496-8	—	745496-9
						B	1-745496-0	1-745496-1	—	1-745496-2
37 (4)	55.3	63.50	69.3	57.7	3.0	A	745498-1	745498-2	—	745498-3
						B	173180-1	—	173180-2	745498-6
						A	745498-7	745498-8	—	745498-9
						B	1-745498-0	1-745498-1	—	1-745498-2

Notes: 1. All plug assemblies are preloaded with insulation displacement crimp pin contacts. Contacts accept a max. wire insulation thickness of 0.4mm and a max. wire insulation dia. of 1.5mm.  
 2. HDE-20 connectors are designed for terminating solid or stranded (7-strand) wire.  
 3. Extraction Tool No. 91232-1 is used to remove pin contacts.  
 4. Selectively loaded connectors are available for RS-232 equipment application, consult AMP Sales Dept.  
 5. See page 8 for panel cutout.

## Receptacle Assemblies 9, 15, 25 and 37 Positions

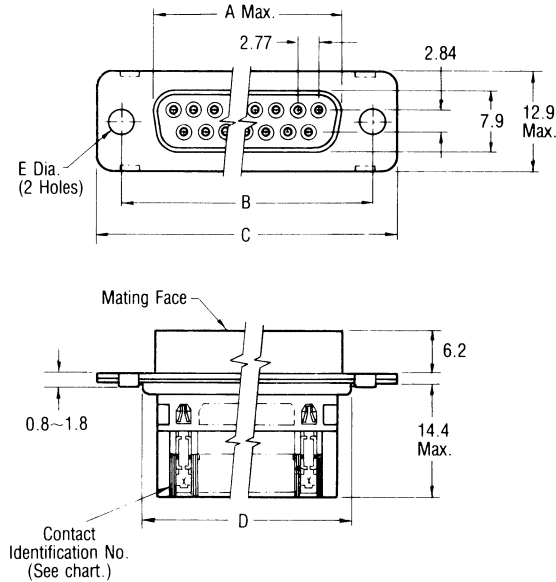
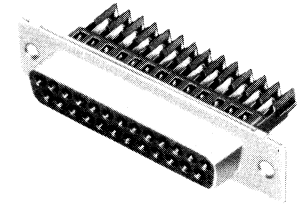
### Material and Finish:

Shell—Steel; Tin plated

Insert—Black Thermoplastic,  
94V-0 Rated

Socket Contacts—Phosphor  
Bronze; duplex plated as  
follows:

- A—0.76 $\mu$ m gold on mating end for length of 2.5mm min., 2.54~5.08 $\mu$ m bright tin or bright tin-lead on termination end, with entire contact underplated 1.27 $\mu$ m nickel
- B—Gold flash on mating end for length of 2.5mm min., 2.54~5.08 $\mu$ m bright tin or bright tin-lead on termination end, with entire contact underplated 0.76 $\mu$ m nickel



No. of Contact Positions (Shell Size)	Dimensions					Contact Finish (Plating Code)	Receptacle Assembly Part No.		
							Contact Identification No. 1	Contact Identification No. 2	Contact Identification No. 3
	A	B	C	D	E		AWG#30-26 (0.05~0.15mm <sup>2</sup> )	AWG#26-22 (0.12~0.35mm <sup>2</sup> )	AWG#22-20 (0.30~0.56mm <sup>2</sup> )
9 (1)	16.5	24.99	30.8	19.3	3.0	A	745491-1	745491-2	745491-3
					3.0	B	745491-4	745491-5	745491-6
					3.8	A	745491-7	745491-8	745491-9
					3.8	B	1-745491-0	1-745491-1	1-745491-2
15 (2)	24.8	33.32	39.1	27.5	3.0	A	745493-1	745493-2	745493-3
					3.0	B	745493-4	745493-5	745493-6
					3.8	A	745493-7	745493-8	745493-9
					3.8	B	1-745493-0	1-745493-1	1-745493-2
25 (3)	38.5	47.04	53.0	41.3	3.0	A	745495-1	745495-2	745495-3
					3.0	B	745495-4	745495-5	745495-6
					3.8	A	745495-7	745495-8	745495-9
					3.8	B	1-745495-0	1-745495-1	1-745495-2
37 (4)	55.0	63.50	69.3	57.7	3.0	A	745497-1	745497-2	745497-3
					3.0	B	745497-4	745497-5	745497-6
					3.8	A	745497-7	745497-8	745497-9
					3.8	B	1-745497-0	1-745497-1	1-745497-2

- Notes: 1. All receptacle assemblies are preloaded with insulation displacement crimp socket contacts. Contacts accept a max. wire insulation thickness of 0.4mm and a max. wire insulation dia. of 1.5mm.  
 2. HDE-20 connectors are designed for terminating solid or stranded (7-strand) wire.  
 3. Extraction Tool No. 91232-1 is used to remove socket contacts.  
 4. Selectively loaded connectors are available for RS-232 equipment application, consult AMP Sales Dept.  
 5. See page 8 for panel cutout.

## HDE-20 All-Plastic Connectors For Wire (With Insulation Displacement Crimp Contact)

### Plug Assemblies

9, 15, 25 and 37 Positions

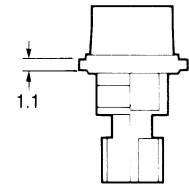
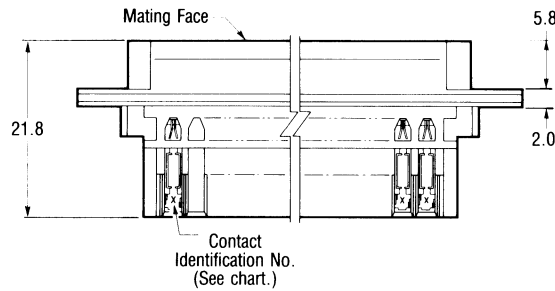
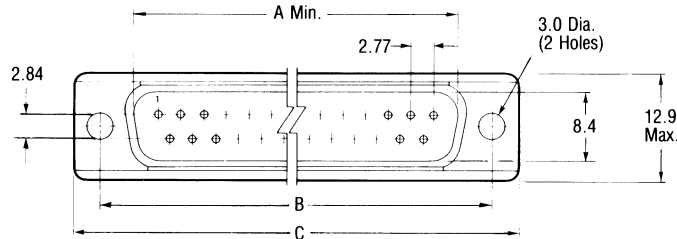
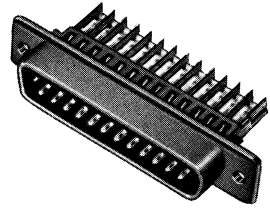
#### Material and Finish:

Housing—Black Thermoplastic,  
94V-0 Rated

Pin Contacts—Phosphor Bronze;  
duplex plated as follows:

A—0.76 $\mu$ m gold on mating end  
for length of 3.8mm min.,  
2.54~5.08 $\mu$ m bright tin or  
bright tin-lead on termina-  
tion end, with entire contact  
underplated 1.27 $\mu$ m nickel

B—Gold flash on mating end  
for length of 3.8mm min.,  
2.54~5.08 $\mu$ m bright tin or  
bright tin-lead on termina-  
tion end, with entire contact  
underplated 0.76 $\mu$ m nickel



### Plug Housing

#### Material and Finish:

Housing—Black glass-filled P.B.T.,  
94V-0 Rated

No. of Contact Positions (Shell Size)	Plug Part No.
9 (1)	173201-1
15 (2)	173202-1
25 (3)	173203-1
37 (4)	173204-1

Note: These plugs use insulation displacement crimp contacts and crimp snap-in contacts. (See chart below)

### Pin Contact

**Material and Finish:** Phosphor Bronze, gold flash on mating end for length of 3.8mm min., bright tin-lead on termination end, with entire contact underplated 0.76 $\mu$ m nickel

Wire Range AWG (mm <sup>2</sup> )	Pin Part No.
30-26 (0.05~0.15)	L.P. 173623-3
26-22 (0.12~0.35)	L.P. 173622-3
<b>Ins. Displacement Crimp Contact</b>	
30-26 (0.05~0.15)	S.T. 173640-2
26-22 (0.12~0.35)	L.P. 173640-3
<b>Crimp Snap-In Contact</b>	
30-26 (0.05~0.15)	S.T. 173625-2
26-22 (0.12~0.35)	L.P. 173625-3

No. of Contact Positions (Shell Size)	Dimensions			Contact Finish (Plating Code)	Plug Assembly Part No.			
	A	B	C		Contact Identification No. 1	Contact Identification No. 2		Contact Identification No. 3
					AWG #30-26 (0.05~0.15mm <sup>2</sup> )	AWG #26-22 (0.12~0.35mm <sup>2</sup> )	AWG #24-22 (0.20~0.35mm <sup>2</sup> )	AWG #22-20 (0.30~0.56mm <sup>2</sup> )
9 (1)	16.8	24.99	30.8	A	745203-1	745203-2	—	745203-3
				B	173197-1	—	173197-2	745203-6
15 (2)	25.1	33.32	39.1	A	745207-1	745207-2	—	745207-3
				B	173198-1	—	173198-2	745207-6
25 (3)	38.9	47.04	53.0	A	745211-1	745211-2	—	745211-3
				B	173199-1	—	173199-2	745211-6
37 (4)	55.3	63.50	69.3	A	745215-1	745215-2	—	745215-3
				B	173200-1	—	173200-2	745215-6

- Notes: 1. All plug assemblies are preloaded with insulation displacement crimp pin contacts. Contacts accept a max. wire insulation thickness of 0.4mm and a max. wire insulation dia. of 1.5mm.  
2. HDE-20 connectors are designed for terminating solid or stranded (7-strand) wire.  
3. Extraction Tool No. 91232-1 is used to remove pin contacts.  
4. See page 8 for panel cutout.

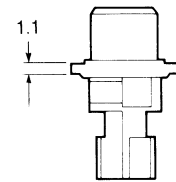
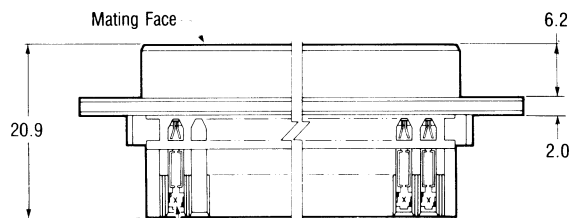
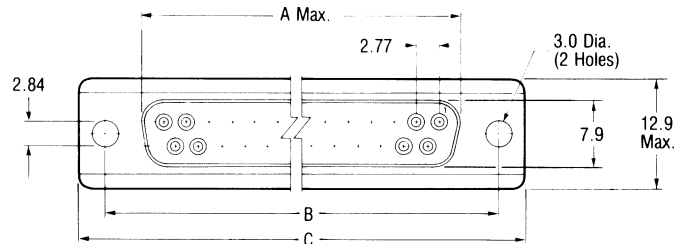
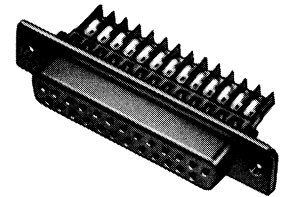
## Receptacle Assemblies 9, 15, 25 and 37 Positions

### Material and Finish:

Housing—Black Thermoplastic,  
94V-0 Rated

Socket Contacts—Phosphor  
Bronze; duplex plated as  
follows:

- A—0.76 $\mu$ m gold on mating end  
for length of 2.5mm min.,  
2.54~5.08 $\mu$ m bright tin or  
bright tin-lead on termina-  
tion end, with entire contact  
underplated 1.27 $\mu$ m nickel
- B—Gold flash on mating end  
for length of 2.5mm min.,  
2.54~5.08 $\mu$ m bright tin or  
bright tin-lead on termina-  
tion end, with entire contact  
underplated 0.76 $\mu$ m nickel



Contact  
Identification No.  
(See chart.)

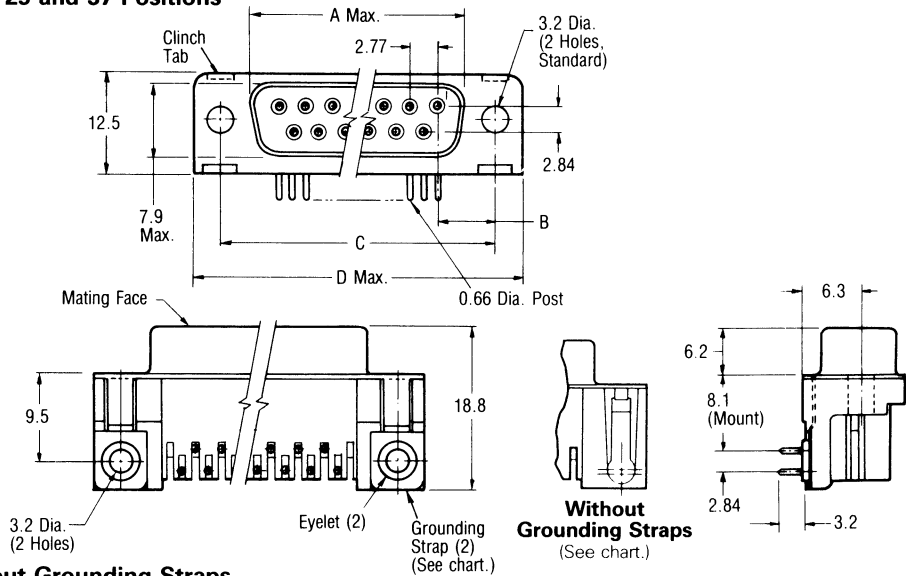
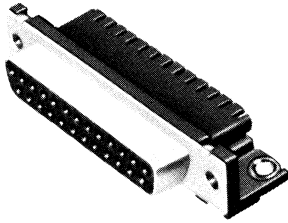
No. of Contact Positions (Shell Size)	Dimensions			Contact Finish (Plating Code)	Receptacle Assembly Part No.		
	A	B	C		Contact Identification No. 1	Contact Identification No. 2	Contact Identification No. 3
					AWG #30-26 (0.05~0.15mm <sup>2</sup> )	AWG #26-22 (0.12~0.35mm <sup>2</sup> )	AWG #22-20 (0.30~0.56mm <sup>2</sup> )
9	16.5	24.99	30.8	A	745201-1	745201-2	745201-3
(1)				B	745201-4	745201-5	745201-6
15	24.8	33.32	39.1	A	745205-1	745205-2	745205-3
(2)				B	745205-4	745205-5	745205-6
25	38.5	47.04	53.1	A	745209-1	745209-2	745209-3
(3)				B	745209-4	745209-5	745209-6
37	55.0	63.50	69.3	A	745213-1	745213-2	745213-3
(4)				B	745213-4	745213-5	745213-6

- Notes: 1. All receptacle assemblies are preloaded with insulation displacement crimp socket contacts. Contacts accept a max. wire insulation thickness of 0.4mm and a max. wire insulation dia. of 1.5mm.  
2. HDE-20 connectors are designed for terminating solid or stranded (7-strand) wire.  
3. Extraction Tool No. 91232-1 is used to remove socket contacts.  
4. See page 8 for panel cutout.

# HDP-20 Metal-Shell Connectors with 0.66mm Dia. Right-Angle Posted Contacts 8.1mm Mount (for PC Board Mounting)

## Receptacle Assemblies

9, 15, 25 and 37 Positions



**Material and Finish:**

- Shell—Steel; Tin plated
- Insert—Black Thermoplastic, 94V-0 Rated
- Eyelets—Brass; Tin plated
- Threaded Inserts—Brass; unplated
- Female Screwlocks—Brass; Nickel plated
- Socket Contacts (Posted)—Phosphor Bronze; duplex plated as follows:
  - A—0.76µm gold on mating end for length of 2.5mm min., 2.54~5.08µm bright tin or bright tin-lead on post, with entire contact underplated 1.27µm nickel
  - B—Gold flash on mating end for length of 2.5mm min., 2.54~5.08µm bright tin or bright tin-lead on post, with entire contact underplated 1.27µm nickel
  - C—0.38µm min. gold on mating end for length of 2.5mm min., 2.54~5.08µm bright tin or bright tin-lead on post, with entire contact underplated 1.27µm nickel

**Without Grounding Straps**

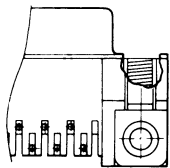
No. of Contact Positions (Shell Size)	Dimensions				Contact Finish (Plating Code)	Receptacle Assembly Part No.		
	A	B	C	D		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
9 (1)	16.3	7.01	24.99	30.8	A	<b>745781-9</b>	<b>1-745781-1</b>	<b>1-745781-3</b>
					B	<b>745781-8</b>	<b>1-745781-0</b>	<b>1-745781-2</b>
15 (2)	24.7	7.06	33.32	39.1	A	—*	—*	—*
					B	—*	—*	—*
25 (3)	38.4	6.96	47.04	53.0	A	<b>745783-9</b>	<b>1-745783-1</b>	<b>1-745783-3</b>
					B	<b>745783-8</b>	<b>1-745783-0</b>	<b>1-745783-2</b>
37 (4)	54.8	6.91	63.50	69.3	A	—*	—*	—*
					B	—*	—*	—*

\* 15- and 37-position receptacle assemblies can be made available, consult AMP Sales Dept.

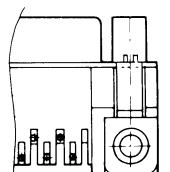
**With Grounding Straps**

No. of Contact Positions (Shell Size)	Dimensions				Contact Finish (Plating Code)	Receptacle Assembly Part No.		
	A	B	C	D		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
9 (1)	16.3	7.01	24.99	30.8	A	<b>745781-2</b>	<b>745781-4</b>	<b>745781-6</b>
					B	<b>173153-1</b>	<b>745781-3</b>	<b>745781-5</b>
					C	<b>173153-2</b>	—	—
15 (2)	24.7	7.06	33.32	39.1	A	<b>745782-2</b>	<b>745782-4</b>	<b>745782-6</b>
					B	<b>173154-1</b>	<b>745782-3</b>	<b>745782-5</b>
					C	<b>173154-2</b>	—	—
25 (3)	38.4	6.96	47.04	53.0	A	<b>745783-2</b>	<b>745783-4</b>	<b>745783-6</b>
					B	<b>173155-1</b>	<b>745783-3</b>	<b>745783-5</b>
					C	<b>173155-2</b>	—	—
37 (4)	54.8	6.91	63.50	69.3	A	<b>745784-2</b>	<b>745784-4</b>	<b>745784-6</b>
					B	<b>173156-1</b>	<b>745784-3</b>	<b>745784-5</b>
					C	<b>173156-2</b>	—	—

- Notes: 1. All receptacle assemblies are preloaded with size 20 DF posted socket contacts.
- 2. Recommended pc board thickness is 2.4mm max.
- 3. See page 8 for panel cutout.
- 4. Male screw retainers are used as mating hardware for connectors with 4-40 threaded inserts and female screwlocks.



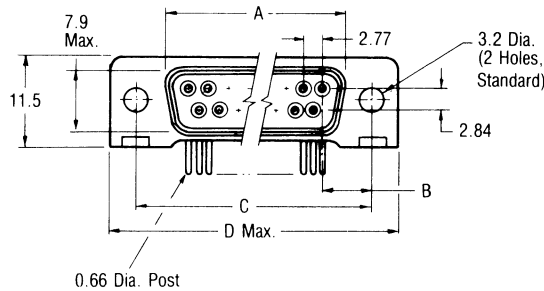
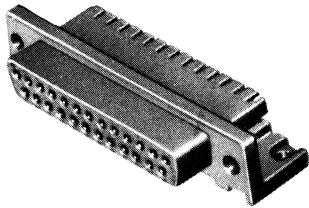
**With 4-40 Threaded Inserts**



**With 4-40 Fixed Female Screwlocks**

# HDP-20 All-Plastic Connectors with 0.66mm Dia. Right-Angle Posted Contacts 8.1mm Mount (for PC Board Mounting)

## Receptacle Assemblies 9, 15, 25 and 37 Positions



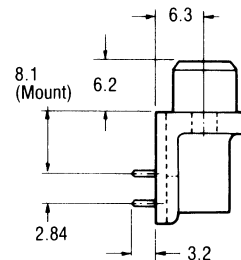
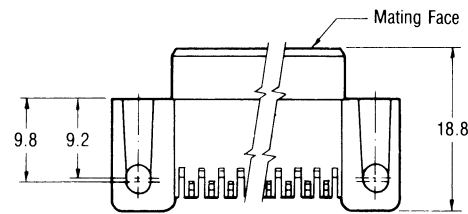
**Material and Finish:**

Housing—Black Thermoplastic, 94V-0 Rated  
 Threaded Inserts—Brass; unplated  
 Female Screwlocks—Brass; Nickel plated  
 Socket Contacts (Posted)—Phosphor Bronze; duplex plated as follows:

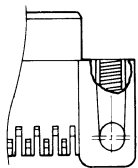
A—0.76µm gold on mating end for length of 2.5mm min., 2.54~5.08µm bright tin or bright tin-lead on post, with entire contact underplated 0.76µm nickel

B—Gold flash on mating end for length of 2.5mm min., 2.54~5.08µm bright tin or bright tin-lead on post, with entire contact underplated 1.27µm nickel

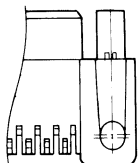
C—0.38µm min. gold on mating end for length of 2.5mm min., 2.54~5.08µm bright tin or bright tin-lead on post, with entire contact underplated 1.27µm nickel



No. of Contact Positions (Shell Size)	Dimensions				Contact Finish (Plating Code)	Receptacle Assembly Part No.		
	A	B	C	D		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
9 (1)	16.3	7.01	24.99	30.8	A	745131-2	745394-2	745395-2
					B	173165-1	745394-1	745395-1
					C	173165-2	—	—
15 (2)	24.7	7.06	33.32	39.1	A	745271-2	745393-2	745396-2
					B	173166-1	745393-1	745396-1
					C	173166-2	—	—
25 (3)	38.4	6.96	47.04	53.0	A	745132-2	745392-2	745397-2
					B	173167-1	745392-1	745397-1
					C	173167-2	—	—
37 (4)	54.8	6.91	63.50	69.3	A	747093-2	747724-2	747725-2
					B	173168-1	747724-1	747725-1
					C	173168-2	—	—



**With 4-40 Threaded Inserts**

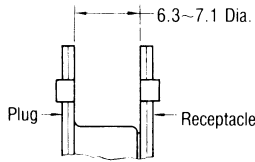


**With 4-40 Fixed Female Screwlocks**

- Notes: 1. All receptacle assemblies are preloaded with size 20 DF posted socket contacts.  
 2. Recommended pc board thickness is 2.4mm max.  
 3. See page 8 for panel cutout.  
 4. Male screw retainers are used as mating hardware for connectors with 4-40 threaded inserts and female screwlocks.

# HD-20 Connector Mating and Panel Mounting Specification and Application Tooling for HDE-20 Connector Contact

## Plug/Receptacle Mating



The 6.3~7.1mm dimension is required to assure full mating of connector halves. This dimension must be taken into consideration when determining the method of mounting, panel thickness, etc.

## Panel Mounting

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

## Panel Cutouts

Rear-Panel Mounting (Optional Cutout)

Front-Panel Mounting (Typical Cutout)

Cutout for Rear Mount and Short Latching Blocks

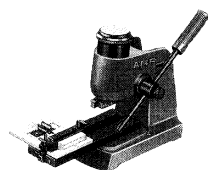
Shell Size (No. of Contact Pos.)	Mounting Method		Dimensions									
	Front/Rear Panel	With/Without Floating Bushing	A	B	C	D	E	F	G	H*	J*	K
9 (1)	Front	With	24.99	12.50	23.01	11.51	13.84	6.93	2.24	9.70	16.81	2.11
		Without			22.20	11.10	13.03	6.53	3.05	8.89	16.00	
	Rear	With	24.99	12.50	21.29	10.64	12.22	6.12	2.24	8.43	16.81	3.35
		Without			20.47	10.24	11.40	5.72	3.05†	7.62	16.00	
15 (2)	Front	With	33.32	16.66	31.34	15.67	13.84	6.93	2.24	18.67	16.81	2.11
		Without			30.53	15.27	13.03	6.53	3.05	17.09	16.00	
	Rear	With	33.32	16.66	29.62	14.81	12.22	6.12	2.24	16.64	16.81	3.35
		Without			28.80	14.40	11.40	5.72	3.05†	5.82	16.00	
25 (3)	Front	With	47.04	23.52	45.09	22.56	13.84	6.93	2.24	31.67	16.81	2.11
		Without			44.27	22.15	13.03	6.53	3.05	30.86	16.00	
	Rear	With	47.04	23.52	43.33	21.67	12.22	6.12	2.24	30.40	16.81	3.35
		Without			42.52	21.26	11.40	5.72	3.05†	9.59	16.00	
37 (4)	Front	With	63.50	31.75	61.54	30.78	13.84	6.93	2.24	48.13	16.81	2.11
		Without			60.73	30.38	13.03	6.53	3.05	47.32	16.00	
	Rear	With	63.50	31.75	59.79	29.90	12.22	6.12	2.24	46.86	16.81	3.35
		Without			59.08	29.54	11.40	5.72	3.05†	6.05	16.00	
50 (5)	Front	With	61.11	30.56	59.16	29.59	16.64	8.33	2.24	45.72	19.61	2.11
		Without			58.34	29.18	15.82	7.92	3.05	44.91	18.80	
	Rear	With	61.11	30.56	57.15	28.58	14.91	7.47	2.24	44.20	19.61	3.35
		Without			56.34	28.17	14.10	7.06	3.05†	3.64	18.80	

\* Panel cutout configuration with H and J dimensions provides clearance for mounting connectors with cable clamp assemblies.  
† G dimension is 4.83<sup>±0.05</sup> when posted connectors with fixed female screwlocks are rear-panel mounted.

## Application Tooling

For HDE-20 Connector Contacts (Insulation Displacement Crimp)

### Flat Ribbon Cable Terminator



Manual

**Manual Tool No.:**  
**756438-2** (AWG#30-26, Ins. Dia. 1.19mm max.)  
**756438-3** (AWG#24-22, Ins. Dia. 1.20mm min.)

**Pneumatic Tool No.:**  
**757000-2** (AWG#30-26, Ins. Dia. 1.19mm max.)  
**757000-3** (AWG#24-22, Ins. Dia. 1.20mm min.)

### Pistol Grip Tool



Manual

**Self-Indexing Manual Tool No.:**  
**91230-1** (AWG#30-20, 0.05~0.6mm<sup>2</sup> Wire)  
**Self-Indexing Pneumatic Tool No.:**  
**91231-1** (AWG#30-20, 0.05~0.6mm<sup>2</sup> Wire)

# AMP



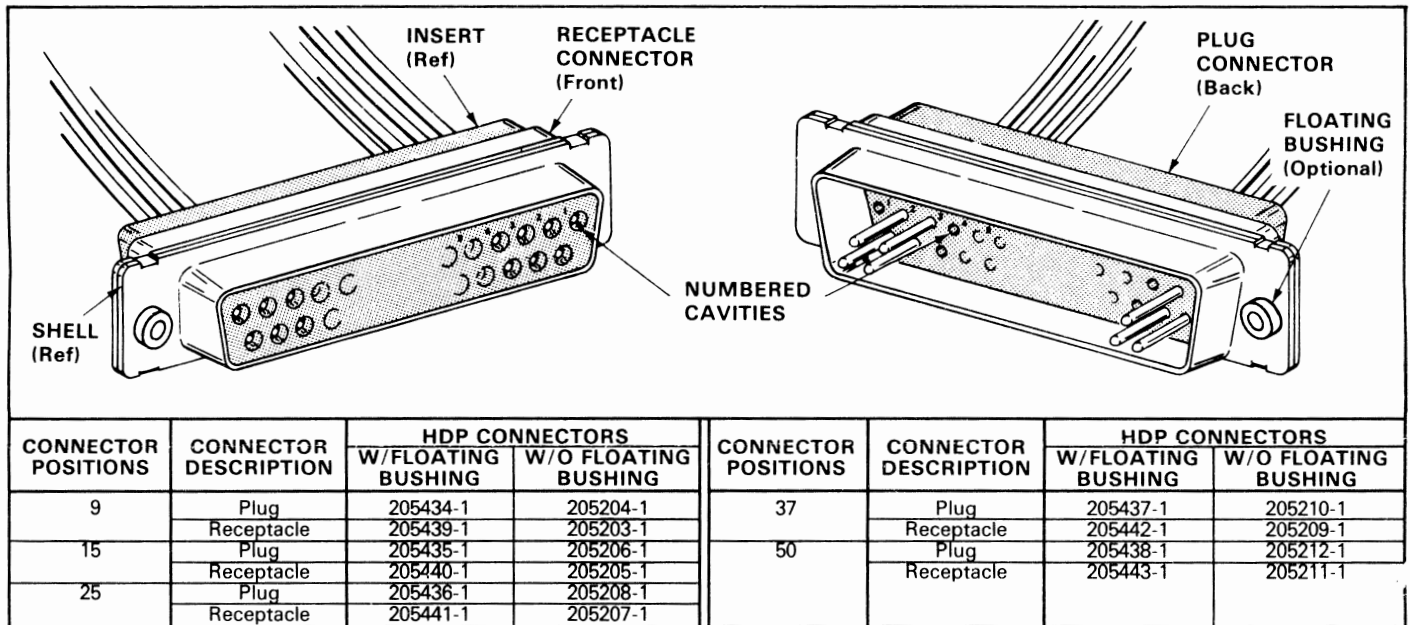


Fig. 1

**1. INTRODUCTION**

This instruction sheet (IS) covers contact and wire selection, tooling application, attaching hardware, and panel cutout dimensions for AMPLIMITE High Density (HDP-20) Connectors listed in Figure 1. Read these instructions, and those referenced, before assembling any connectors.

**NOTE** All dimensions presented on this instruction sheet are in inches.

**2. DESCRIPTION (Figure 1)**

The connectors are designed for REAR insertion and extraction of size 20, screw-machined or precision formed contacts. The HDP-20 connectors feature steel shells and black nylon inserts with plastic contact retention tines.

**3. CONTACTS (Figure 2)**

**A. Selection**

Determine whether screw-machined or precision formed contacts are to be used. Refer to the chart in Figure 2, and select strip or loose-piece pin and socket contacts according to the wire size and insulation diameter to be used.

Notice that each contact cavity is number-coded (FRONT and BACK). Make certain that the cavities of the plug are a mirror image of the receptacle. Insert pin contacts into the BACK of the plug and mating socket contacts into the BACK of the receptacle. If all cavities are NOT used, distribute contacts evenly throughout connector.

**B. Crimping**

Tape-mounted contacts are designed to be crimped with AMP-TAPETRONIC ★ 4/8 Indent Stripper Terminator 599406-6. Refer to AMP Customer Manual CM 5253, packaged with the machine, for specific crimping procedures.

Strip-form contacts are designed to be crimped with an AMP ★ semi-automatic or automatic machine and applicator. Consult your local AMP representative for assistance in selecting the machine and applicator for your application. Loose-piece screw-machined contacts are designed to be crimped with 8-Indent Hand Crimping Tool M22520/2-01 with positioner M22520/2-08. Refer to AMP Instruction Sheet IS 7516, packaged with the tool, for specific crimping procedures.

Loose-piece precision formed contacts are designed to be crimped with the AMP hand crimping tools listed in the chart in Figure 2. Refer to the instruction sheet, packaged with the tool, for specific crimping procedure and tool certification information.

**C. Insertion and Extraction**

AMP Insertion/Extraction Tools 91067-2 and 91067-3 (IS 7508) are designed for both pin and socket contacts. The 91067-2 tool is used with wire size 24 to 20 AWG contacts and the 91067-3 tool is used with wire size 28 to 24 AWG contacts.

**4. HARDWARE**

A shield and cable clamp assembly is used with the connector to house the cable or wires projecting from

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PRECISION FORMED WITH INSULATION SUPPORT			PRECISION FORMED WITHOUT INSULATION SUPPORT				SCREW MACHINED	
CONTACT DESCRIPTION	WIRE SIZE (AWG)	INSUL DIA (Max)	CONTACT NUMBER				HAND TOOL (Instruction Sheet)	
			STRIP FORM		LOOSE PIECE			
			PIN	SOCKET	PIN	SOCKET		
Precision Formed with Insulation Support	28 to 24	.040	66507-2, -3, -4, 1-66507-1, 1-66507-2, and 1-66507-3	66505-2, -3, -4, 1-66505-1, 1-66505-2, and 1-66505-3	66507-8, -9, and 1-66507-0	66505-8, -9, and 1-66505-0	90302-1 (IS 7634) or 90312-1 (IS 7694)	
	24 to 20	.060	66506-2, -3, -4, 1-66506-1, 1-66506-2, and 1-66506-3	66504-2, -3, -4, 1-66504-1, 1-66504-2, and 1-66504-3	66506-8, -9, and 1-66506-0	66504-8, -9, and 1-66504-0		
Precision Formed without Insulation Support	28 to 24	.068	205310-2, -4, 1-205310-1, and 1-205310-3	205311-3, -4, 1-205311-2, and 1-205311-3	205310-8 and 1-205310-0	205311-9 and 1-205311-0	90265-1 (IS 7521)	
	24 to 20		205202-2, -6, 1-205202-1, and 1-205202-3	205201-3, -6, 1-205201-2, and 1-205201-3	205202-4 and -7	205201-5 and -7		
Screw Machined	24 to 20		205089-2 (On Tape)	205090-2 (On Tape)	205089-1	205090-1	M22520/2-01 (IS 7516)	

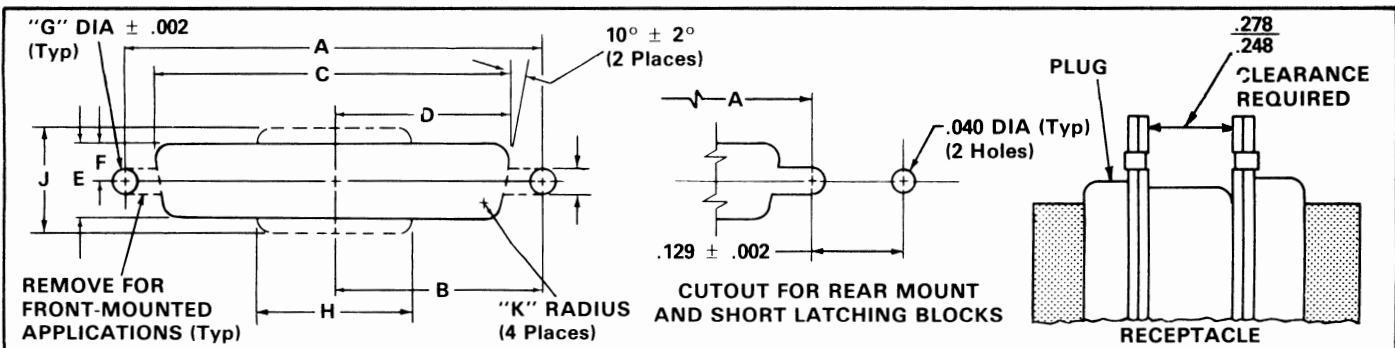
Fig. 2

the rear of the connector and for strain relief of the cable or wires. For additional information concerning the use of the shield and cable clamp assembly, refer to AMP Instruction Sheet IS 7555.

745245, and 745286) and spring latches (745255-1) for panel-mounted or free-hanging applications. Refer to AMP Instruction Sheet IS 6609 for additional information.

Shielded cable clamp kits for AMPLIMITE HDP-20 connectors used with braid and foil-shielded cables are available in all connector sizes. The cable clamps may be used with latching blocks (208101, 745007,

A male screw retainer kit (205980-1) and a female screwlock kit (205817-1) are used to secure mating connectors in panel-mounted or free-hanging applications. Refer to AMP Instruction Sheet IS 7837 for information.



CONNECTOR POSITIONS	PANEL MOUNTING POSITION	FLOATING BUSHING	DIMENSIONS									
			A	B	C	D	E	F	G	H*	J*	K
9	Front	Yes	0.984	0.492	0.906	0.453	0.545	0.273	0.088	0.382	0.662	0.083
	Back	No			0.874	0.437	0.513	0.257	0.120	0.350	0.630	
15	Front	Yes	1.312	0.656	1.234	0.617	0.545	0.273	0.088	0.735	0.662	0.083
	Back	No			1.202	0.601	0.513	0.257	0.120	0.673	0.630	
25	Front	Yes	1.852	0.926	1.775	0.888	0.545	0.273	0.088	1.247	0.662	0.083
	Back	No			1.743	0.872	0.513	0.257	0.120	1.215	0.630	
37	Front	Yes	2.500	1.250	2.423	1.212	0.545	0.273	0.088	1.895	0.662	0.083
	Back	No			2.391	1.196	0.513	0.257	0.120	1.863	0.630	
50	Front	Yes	2.406	1.203	2.329	1.165	0.655	0.328	0.088	1.800	0.772	0.083
	Back	No			2.297	1.149	0.623	0.312	0.120	1.768	0.740	
		Yes			2.250	1.125	0.587	0.294	0.088	1.740	0.772	0.132
		No			2.218	1.109	0.555	0.278	0.120	1.718	0.740	

\* PANEL CUTOUT CONFIGURATION WITH THESE DIMENSIONS PROVIDES CLEARANCE FOR MOUNTING CONNECTORS WITH CABLE CLAMP ASSEMBLIES.

Fig. 3

A slide latch post kit (206514-1) and a slide latch clip kit (206942-1) are also used to secure mating connectors in panel-mounted or free-hanging applications. For additional information, refer to AMP Instruction Sheet IS 7785.

Slide latch post kits and slide latches for all AMPLIMITE HDP-20 connector sizes are available for panel-mounted and free-hanging applications. Refer to AMP Instruction Sheet IS 6551 for slide latch and slide latch post application procedure and information.

## **5. PANEL CUTOUT**

These connectors are designed for rack and panel applications. The plug should be mounted in the

panel, and the receptacle in the rack. Note the clearance required to assure fully mated connectors (see Figure 3).

Before making the panel cutout, determine the number of positions in the connector, whether it will be FRONT- or BACK-mounted, whether it will be used with a cable clamp or slide latch, and whether it has floating bushings. Then, using the appropriate dimensions provided in the chart portion of Figure 3, make the panel cutout.

<b>NOTE</b>
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*When mounting connector to FRONT of panel, or when using cable clamps or latching blocks, the applicable material indicated in the illustration in Figure 3 should be removed.*

