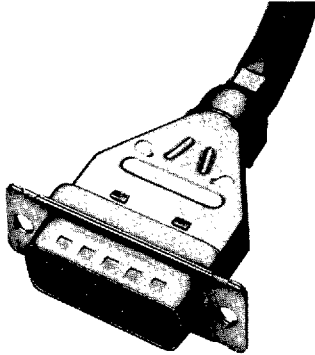
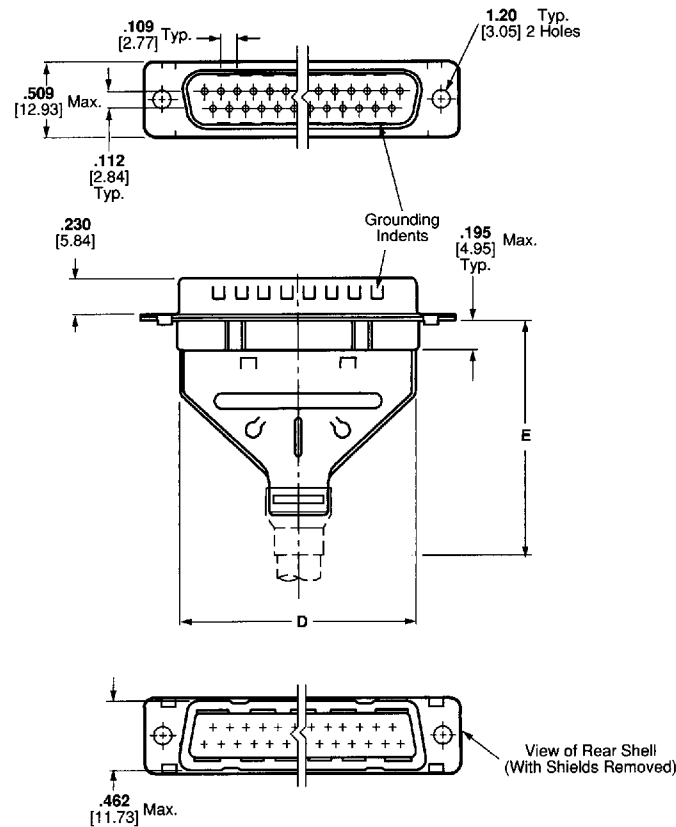


HDP-20 Basic Shielding Hardware Kits



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 4

Performance Characteristics—page 5

Contacts—pages 50 & 51

Application Tooling—pages 55 & 56

Mateable Connectors:

HDE—pages 16-29

HDF—pages 30-39

HDP—pages 40-56

HD-20 Solder Cup—pages 58-66

HD-20 Board Mount—pages 109-112, 118-121, 123-141

Mating/Panel Mounting—page 6

Mating Hardware—pages 82, 84-91

Transition Connector—page 98

Ferrules—page 49

Technical Documents:

Product Specifications—

114-40005

108-40030

Application Specifications—

114-10000

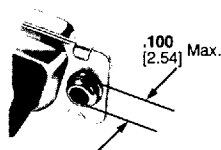
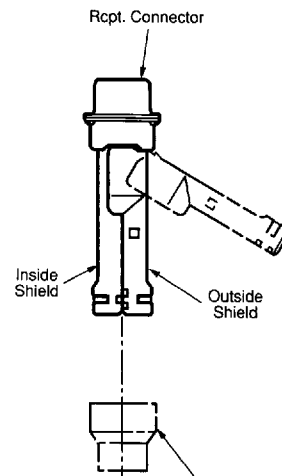
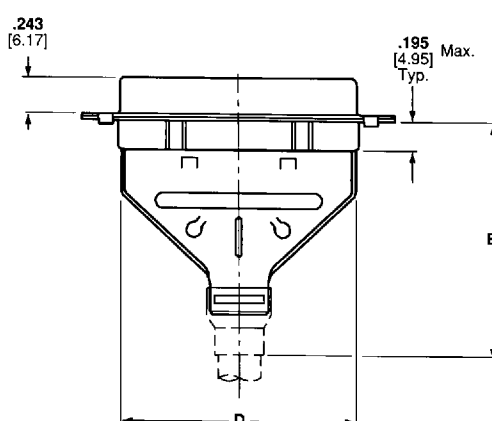
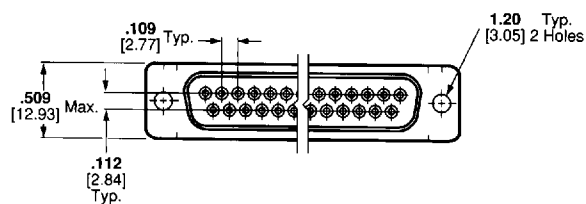
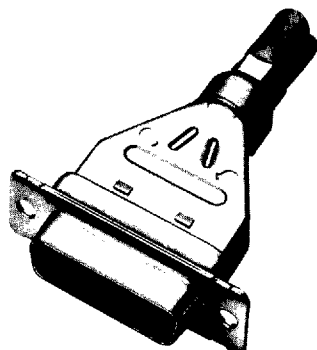
114-40030

Instruction Sheet—408-9010

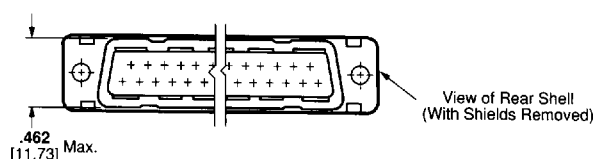
Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Tooling Assistance Center: **1-800-722-1111**.

HDP-20 Basic Shielding Hardware Kits (Continued)

Receptacle



Clinch Nut
(Plug and Receptacle)



Ferrule (Must Be Purchased Separately)

Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Insulation Diameter	Max. Cable Dia.†	Mounting Method	Plug Kit Numbers	Receptacle Kit Numbers
		D	E					
1	9	.700	1.535	.165-.455	.350	Standard	747522-1	747523-1
		17.78	38.99			Clinch Nut	748526-1	748536-1
2	15	1.024	1.535	.165-.455	.350	Standard	747538-1	747539-1
		26.01	38.99			Clinch Nut	750636-1	—
3	25	1.576	1.535	.165-.455	.350	Standard	747554-1	747555-1
		40.03	38.99			Clinch Nut	—	749763-1
4	37	2.215	1.892	.338-.562	.450	Standard	747570-1	747571-1
		56.26	48.06			Clinch Nut	—	—
		—	—			Clinch Nut	786929-1	—
5	50	2.120	1.876	.338-.480	.450	Standard	747577-1	747578-1
		53.85	47.65	8.59-12.19	11.43			

*Clinch nut mounting with M-3 thread.

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.

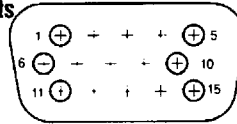
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

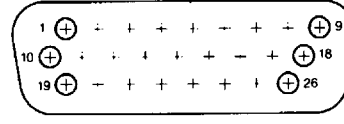
HD-22 and HD-20 Commercial Connectors (AMPLIMITE)

Contact Arrangements

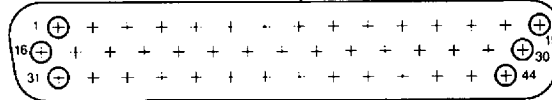
HD-22 Inserts



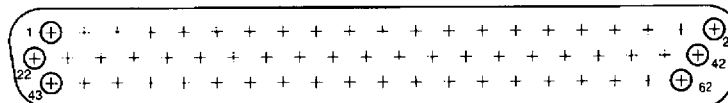
Shell Size 1
(15 Position)



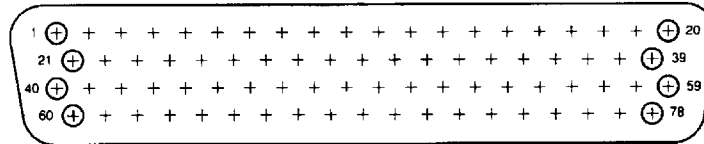
Shell Size 2
(26 Position)



Shell Size 3
(44 Position)

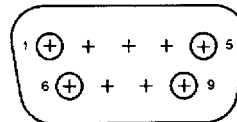


Shell Size 4
(62 Position)

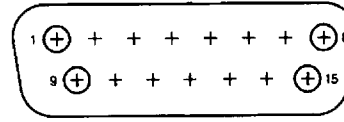


Shell Size 5
(78 Position)

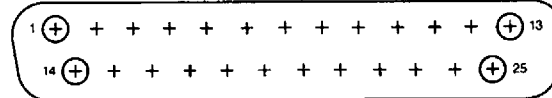
HD-20 Inserts



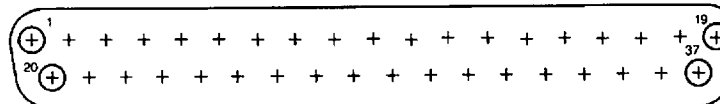
Shell Size 1
(9 Position)



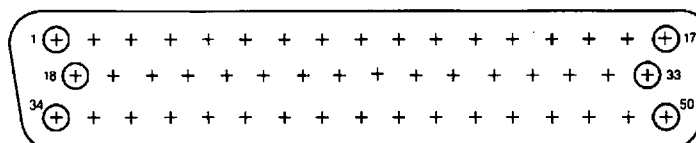
Shell Size 2
(15 Position)



Shell Size 3
(25 Position)

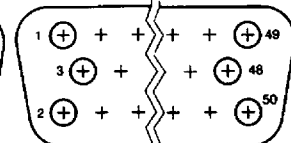


Shell Size 4
(37 Position)



Shell Size 5

(50 Position—This cavity identification numbering does not apply to the 50 position HDF-20 connector, see next illustration.)



Shell Size 5

(50 Position—HDF-20 connector)

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

HD-22 and HD-20 Connectors Performance Characteristics

Cable Connectors

	Connector Type			
	HDP-22	HDE-20	HDF-20	HDP-20
Electrical Characteristics				
Contact Current Rating (One pair of contacts)	22 AWG [0.4mm ²] Wire 5.0 amperes	20 AWG [0.6mm ²] 3 amperes	26 & 28 AWG [0.15 & 0.08mm ²] Stranded and Solid Wire 1.25 amperes	20 AWG [0.6mm ²] 7.5 amperes
Termination Resistance	15 milliohms (max.)	30 milliohms (max.)	25 milliohms (max.)	15 milliohms (max.)
Dielectric Withstanding Voltage	1000 VAC min.	1000 VAC min.	500 VAC min.	1000 VAC min.
Insulation Resistance	5000 megohms min.	5000 megohms min.	5000 megohms min.	5000 megohms min.
Mechanical Characteristics				
Contact Insertion Force	3 lb. max. [13.34 N max.]	N/A	N/A	3 lb. max. [13.34 N max.]
Contact Retention	5 lb. min. [22.24 N min.]	7 lb. min. [31.14 N min.]	N/A	10 lb. min. [44.48 N min.]
Contact Mating Force (Per contact circuit pair)	8 oz. max. [2.22 N max.]	8 oz. max. [2.22 N max.]	12 oz. max. [3.34 N max.]	8 oz. max. [2.22 N max.]
Contact Unmating Force (Per contact circuit pair)	.75 oz. min. [0.209 N min.]	.75 oz. min. [0.209 N min.]	9-37 Position .75 oz. min. [0.209 N min.] 50 Position .40 oz. min. [0.111 N min.]	.75 oz. min. [0.209 N min.]
Tensile Strength	22 AWG—12 lb. [0.4mm ² —53.4 N] 24 AWG—8 lb. [0.2mm ² —35.6 N] 26 AWG—4.5 lb. [0.15mm ² —20.02 N] 28 AWG—2.7 lb. [0.08mm ² —12.01 N]	20 AWG—9.5 lb. [0.6mm ² —42.3 N] 22 AWG—6 lb. [0.4mm ² —26.7 N] 24 AWG—4 lb. [0.2mm ² —17.79 N] 26 AWG—2.5 lb. [0.15mm ² —11.12 N] 28 AWG—2.5 lb. [0.08mm ² —11.12 N] 30 AWG—1 lb. [0.05mm ² —4.45 N]	N/A	20 AWG—20 lb. [0.6mm ² —89 N] 22 AWG—12 lb. [0.4mm ² —53.4 N] 24 AWG—8 lb. [0.2mm ² —35.6 N] 26 AWG—4.5 lb. [0.15mm ² —20.02 N] 28 AWG—2.7 lb. [0.08mm ² —12.01 N]
Durability	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles	.000030 [0.00076] gold—500 cycles	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles
Environmental Characteristics				
Vibration	Random 20 G's rms max.	Random 20 G's rms max.	Random 16.4 G's rms max.	Random 20 G's rms max.
Physical Shock	50 G's Duration 11 ms	50 G's Duration 11 ms	50 G's Duration 11 ms	50 G's Duration 11 ms

Board Mount Connectors

	Connector Type	
	HD-22	HD-20
Electrical Characteristics		
Single Contact Current Rating (30°C Rise) Duration 11 ms	2.0 amperes	18 AWG 6.0 amperes 24 AWG 4.3 amperes 28 AWG 2.9 amperes
Termination Resistance	20 milliohms (max.)	15 milliohms* (max.)
Dielectric Withstanding Voltage	1000 VAC min.	1000 VAC min.**
Insulation Resistance	5000 megohms min.	5000 megohms min.
*Stacked Connectors—30 milliohms (max.) **Stacked Connectors—500 VAC min.		

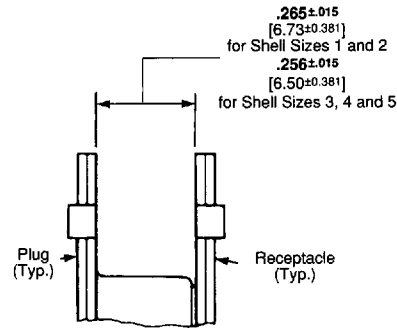
	Connector Type			
	HD-22	HD-20		
Mechanical Characteristics				
Durability		.000030 [0.00076] gold—500 cycles Gold flash— 100 cycles	.000030 [0.00076] gold—500 cycles Gold Flash— 100 cycles	
Connector Mating and Unmating Force (lbs. max. over [N max.])	Size	HD-22 Without Grounding Indents	HD-20 Without Grounding Indents	HD-20 With Grounding Indents
	1	7.5 [33.4]	4.5 [20.02]	30.0 [133.5]
	2	13.0 [57.8]	7.5 [33.4]	33.0 [146.8]
	3	22.0 [97.9]	12.5 [55.6]	37.0 [164.6]
	4	31.0 [137.9]	18.5 [82.3]	40.0 [177.9]
	5	39.0 [173.5]	25.0 [111.2]	44.0 [195.7]

*Stacked Connectors—30 milliohms (max.)

**Stacked Connectors—500 VAC min.

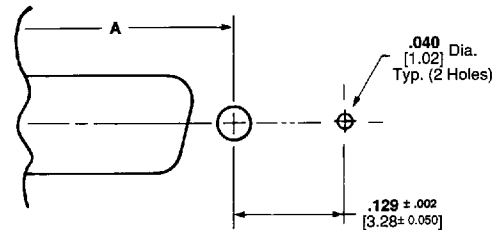
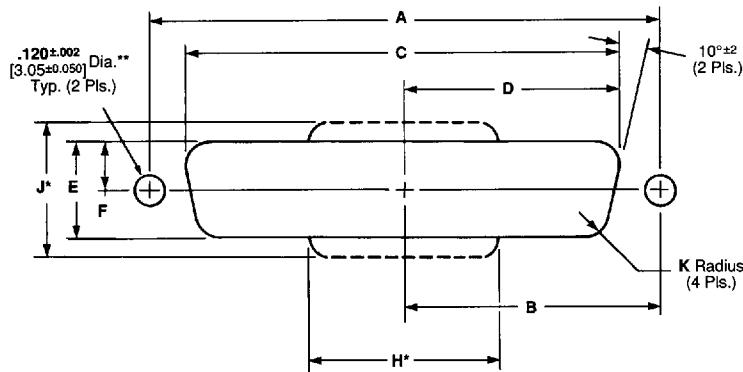
Plug/Receptacle Mating and Panel Mounting Specifications

Plug/Receptacle Mating



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

Panel Mounting



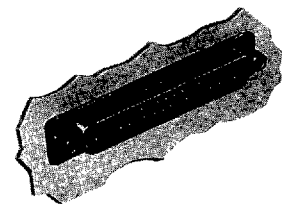
Cutout for Rear Mount and Short Latching Block

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

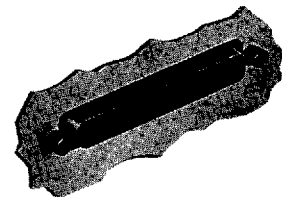
Most plugs and receptacles can be mounted to a panel from either the front or rear, using a variety of accessory hardware. Posted receptacles are rear panel mounted only. Typical examples are shown below.

Shell Size (Pos.)	Mounting Method Front/Rear Panel	Dimensions							
		A	B	C	D	E	F	H*	J*
1 (9)	Front	.984 24.99	.492 12.50	.874 22.20	.437 11.10	.513 13.03	.257 6.53	—	—
	Rear	.984 24.99	.492 12.50	.806 20.47	.403 10.24	.449 11.41	.225 5.72	.550 13.97	.132 3.35
2 (15)	Front	1.312 33.33	.656 16.66	1.202 30.53	.601 15.27	.513 13.03	.257 6.53	—	—
	Rear	1.312 33.33	.656 16.66	1.134 28.80	.567 14.40	.449 11.41	.225 5.72	.730 18.54	.132 3.35
3 (25)	Front	1.852 47.04	.926 23.52	1.743 44.27	.872 22.15	.513 13.03	.257 6.53	—	—
	Rear	1.852 47.04	.926 23.52	1.674 42.52	.842 21.39	.449 11.41	.225 5.72	1.275 32.39	.132 3.35
4 (37)	Front	2.500 63.50	1.250 31.75	2.391 60.73	1.196 30.38	.513 13.03	.257 6.53	—	—
	Rear	2.500 63.50	1.250 31.75	2.326 59.08	1.163 29.54	.449 11.41	.225 5.72	1.920 48.05	.132 3.35
5 (50)	Front	2.406 61.11	1.203 30.56	2.297 58.34	1.149 29.19	.623 15.82	.312 7.93	—	—
	Rear	2.406 61.11	1.203 30.56	2.218 56.34	1.109 28.17	.555 14.10	.278 7.06	1.753 44.52	.132 3.35

*Panel cutout configuration with H and J dimensions provides clearance for mounting connectors with cable clamps.
**This dimension is .190±.002 [4.83±0.05] when posted connectors with fixed female screwlocks are rear-panel mounted.



Typical Front-Panel Mounted Subminiature D Plug



Typical Rear-Panel Mounted Subminiature D Receptacle