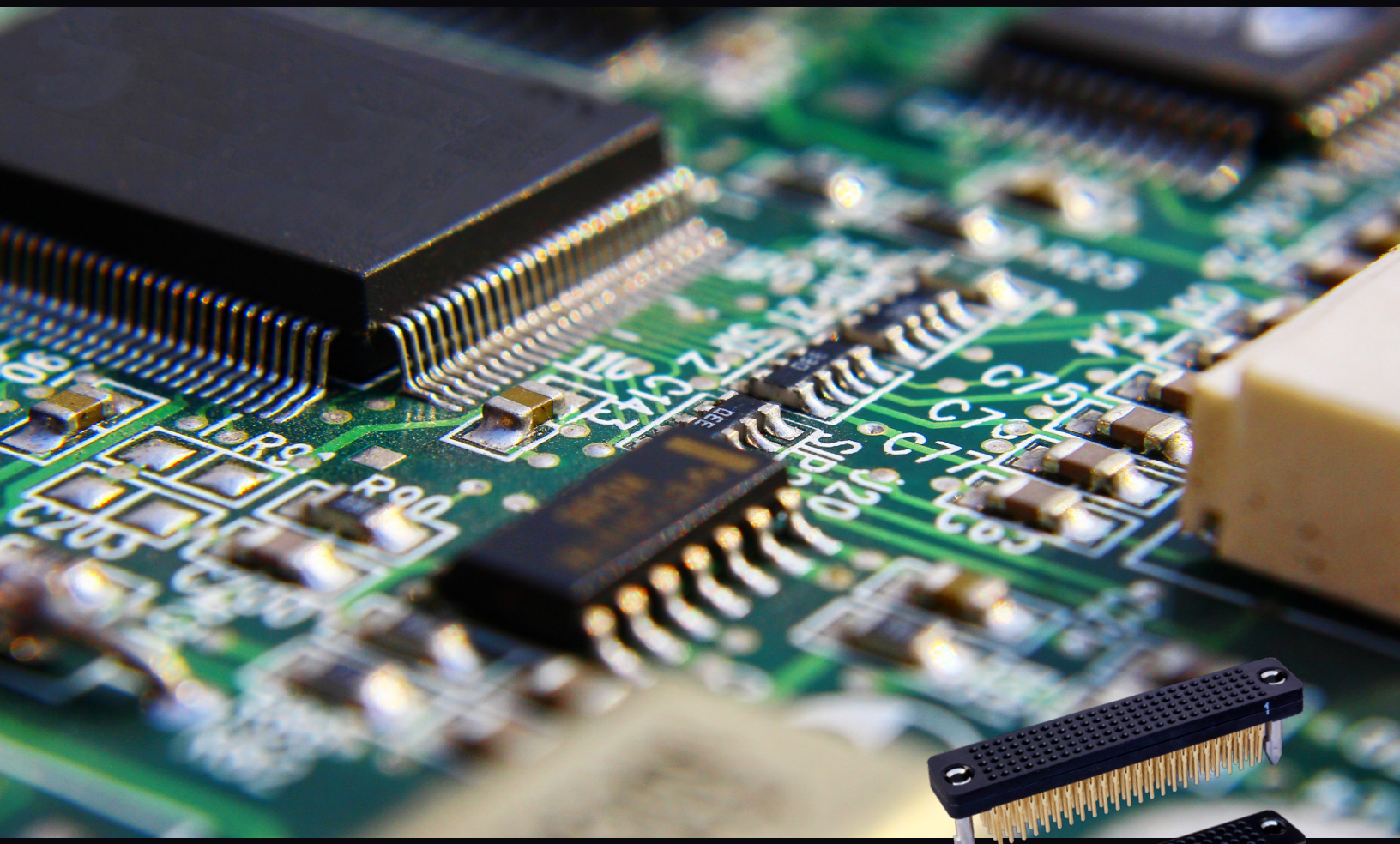
MISSION-CRITICAL
INTERCONNECT SOLUTIONS

Glenair®



.062" PITCH COMPLIANT PIN

HD Stacker™

Rugged Board-to-Board Stackable Connectors

Recommended for military / commercial avionics and space systems

OCTOBER 2018

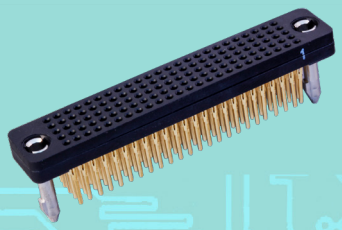
HD STACKER™

High-density, solder-free, rugged board-to-board stackable connectors

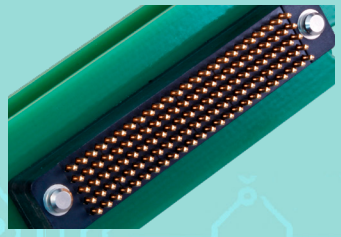
Mission-critical board-to-board connector applications demand fail-safe signal integrity as well as rugged and reliable harsh-environment performance. The HD Stacker™ brings Glenair innovation to stacking board-to-board connectors with several significant design improvements: Ultra high-density .0625" Chevron Contact System provides 55% more contacts per connector size, or a 31% size reduction for the same number of contacts as compared to current industry solutions. Polarized connector bodies and available polarized guide pins prevent accidental mismating. The solder-free press-fit compliant pin contacts are removable, repairable, and available in custom lengths. HD Stacker™ connectors may also be ordered with pre-wired cable or flex jumper terminations. High-speed signal integrity test reports are available on the Glenair website. Choose HD Stacker™ for the ultimate in high-density, rugged board-to-board stackable connector performance.

- **High-density .0625" pitch Chevron Contact System**
- **PCIe 3.0 capable**
- **Performance up to 10.5 Gbps**
- **Polarized insulator and hardware options**
- **Solder free "eye of the needle" compliant tail for press fit installation**
- **Meets RoHS and REACH requirements**
- **Available wired / flex jumpers**
- **Available between-board spacers up to 1 inch**

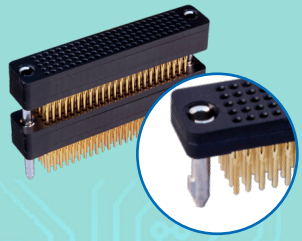
HD STACKER™ FOR MISSION-CRITICAL BOARD-TO-BOARD APPLICATIONS



Solder-free press-fit (compliant pin) board mounting



.0625" pitch contact spacing: highest available density



Polarized shells and keyed guide pin hardware prevent mis-mating

Controlled signal integrity for differential applications (test reports available)

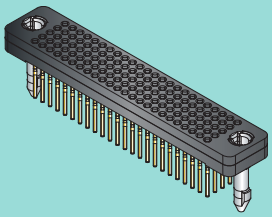
.062" PITCH COMPLIANT PIN

HD Stacker™

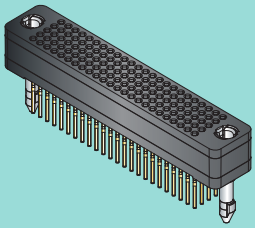
Solder-free, rugged board-to-board stackable connectors

SELECTION GUIDE

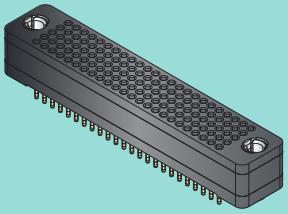
Board-Mount Stacking Connectors and Board-to-Board Spacer



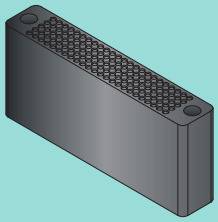
Top-of-Stack Pin Connector
GSTBL - Page 6



Mid/Universal Stack
Pin and Socket Connector
GSTB - Page 7

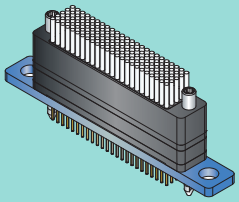


Bottom-of-Stack
Socket Connector
GSTB (.095) - Page 8

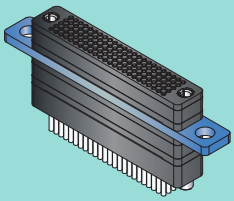


Board-to-Board Spacer
980-008 - Page 9

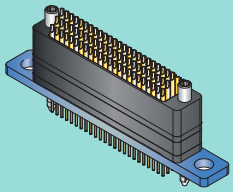
Pre-wired and Solder Cup Connectors with Guide Hardware



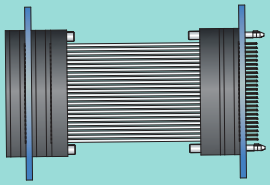
Pre-Wired Pin Connector
GST-1000 - Page 10



Pre-Wired Socket Connector
GST-1001- Page 11

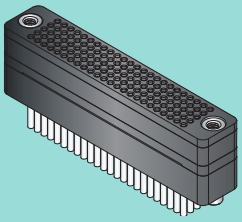


Solder Cup Pin Connector
GST-1005 - Page 12

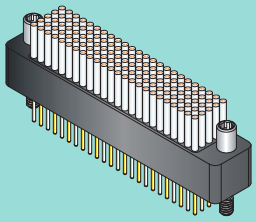


Pin-to-Socket Harness
GST-1006 - Page 13

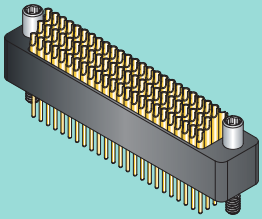
Pre-Wired, Solder Cup, and Flex Connectors with Threaded Hardware



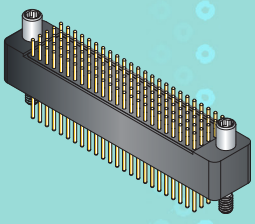
Pre-Wired Socket Connector
GSTF - Page 14



Pre-Wired Pin Connector
GSTT-PW - Page 15



Solder Cup Pin Connector
GSTT-PS - Page 16

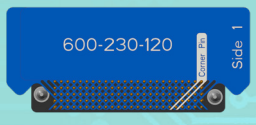


Soldered PC Tail Pin Connector
GSTT-PF - Page 17

HD Stacker Installation Tooling and Guide

Mounting Head
Connector Support Tool
600-234 - Page 20

Mounting Head PCB
Support Tool
600-241 - Page 21

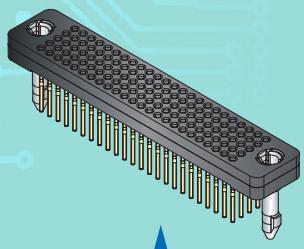


Contact Alignment Combs
600-230 - Page 22

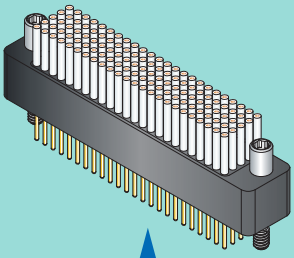
Solder-free, rugged board-to-board stackable connectors

HD STACKER™ POSITION AND MATING COMPATIBILITY GUIDE

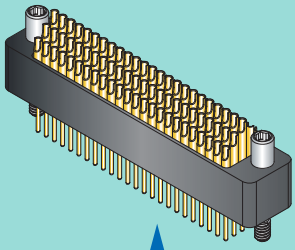
GSTBL
Top-of-Stack Pin Connector
Mates with GSTB and GSTB (.095)



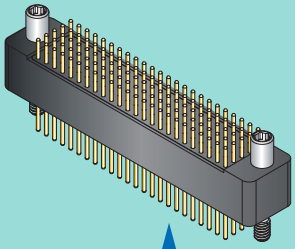
GSTT-PW
Prewired, Top-of-Stack
Mates with GSTB



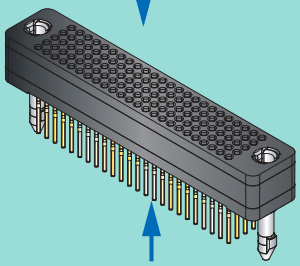
GSTT-PS
Solder Cup, Top-of-Stack
Mates with GSTB

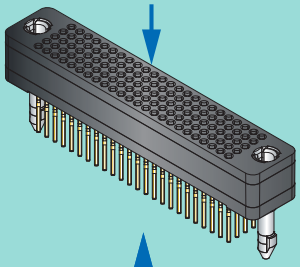


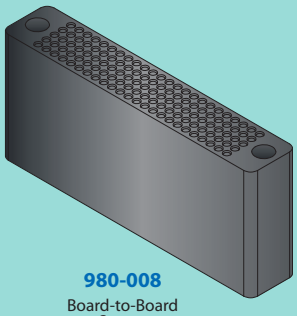
GSTT-PF
PC Tail (Flex), Top-of-Stack
Mates with GSTB



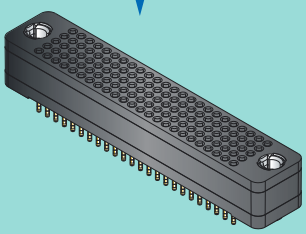
GSTB
Universal Stacking Connector,
Top, Middle, and Bottom Position
Mates with:
- GSTBL
- GSTB
- GSTB (.095)
- GSTT-PW
- GSTT-PS
- GSTT-PF
- GSTF



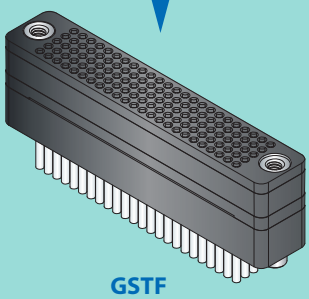




980-008
Board-to-Board
Spacer



GSTB (.095)
Bottom-of-Stack Socket Connector
Mates with GSTB and GSTBL

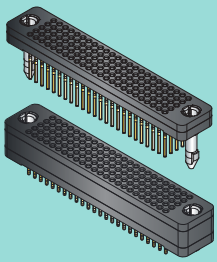


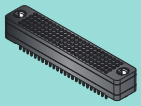
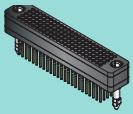
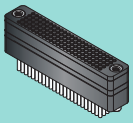
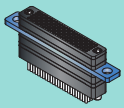
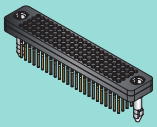
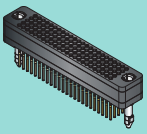
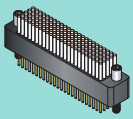
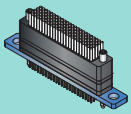
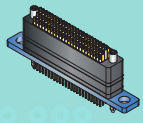
GSTF
Prewired, Bottom-of-Stack
Mates with GSTB

.062" PITCH COMPLIANT PIN

HD Stacker™

Mating Compatibility Matrix



			P2 Bottom Connector (Socket)			
			 Bottom	 Mid/Universal	 Pre-Wired w/ Sockets (Threaded Hardware)	 Pre-Wired w/ Sockets (Guide Hardware)
		Series (Hardware)	GSTB (.095) (B, NU)	GSTB (G, T, F)	GSTF (M, P)	GST-1001
P1 Top Connector (Pin)	 Top	GSTBL (G)	GSTB (.095) (B)	GSTB (G, F)		GST-1001
		GSTBL (L)	GSTB (.095) (NU)	GSTB (T)	GSTF (P)	
	 Mid/Universal	GSTB (G, T)	GSTB (.095) (B)	GSTB (G, F)		GST-1001
		GSTB (F)			GSTF (M)	
	 Pre-Wired w/ Pins (Threaded Hardware)	GSTT	GSTB (.095) (NU)	GSTB (T)	GSTF (P)	
	 Pre-Wired w/ Pins (Guide Hardware)	GST-1000	GSTB (.095) (B)	GSTB (G, F)		GST-1001
	 Solder Cups w/ Pins	GST-1005	GSTB (.095) (B)	GSTB (G, F)		GST-1001

Dimensions in Inches (millimeters) are subject to change without notice.

Rev. 01.09.24

.062" PITCH COMPLIANT PIN

HD Stacker™

Solder-free, rugged board-to-board stackable connectors

PERFORMANCE SPECIFICATIONS

Current rating: 3 Amp

DWV: 638 VAC sea level

Insulation resistance:
5000 Megohms minimum @ 500 VDC

Contact resistance: 3 – 5 Milliohms

Operating temperature: -65°C to +200°C

Connector mating force (max):
(4 ounces) X (number of contacts)

Press-fit contact insertion force (max):
(22.5 pounds) X (number of contacts)

Durability: 500 mating cycles

Contact wipe: .050" minimum
(.150" @ max insertion)

MATERIALS AND FINISHES

Insulator: Polyphenylene sulfide (PPS); meets NASA outgassing requirements.

Contacts: Copper alloy, gold (50 to 100 microinches thick) over nickel (50 to 100 microinches thick) plating

Hardware: Copper alloy, nickel plated and/or 300 series stainless steel, passivated.

Encapsulant: Epoxy resin Hysol EE4215

PCB REQUIREMENTS

Board material: FR-4, Polyimide, or equivalent

Board thickness: .058" minimum

Drilled hole size: Ø.033" (#66 drill)

Plating material: Sn alloy or ENIG recommended

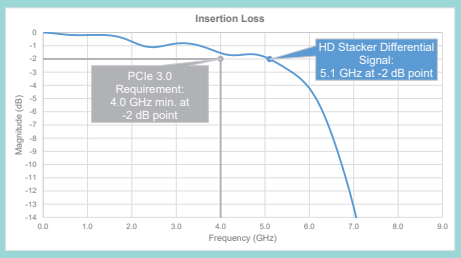
Total plating thickness: .001" – .002"

QUALIFICATION TESTING / HIGH-SPEED PERFORMANCE

HD Stacker connectors were qualified in accordance with MIL-DTL-55302G testing for:

- Contact engagement/ separation and retention
- DWV
- Electrical resistance
- Mechanical vibration/shock
- Insulation resistance
- Thermal shock
- Contact resistance
- Contact wipe - .150" min
- Humidity

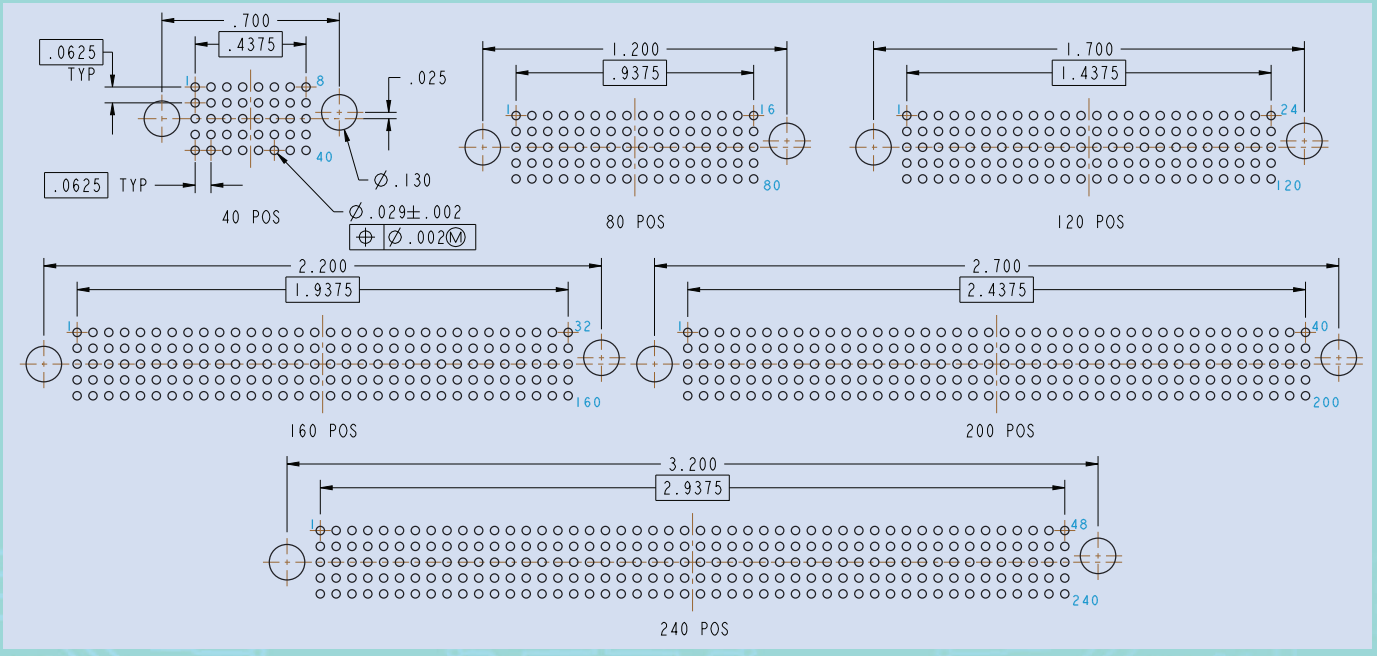
High-frequency electrical performace tests were performed for: Insertion loss, return loss, crosstalk, and time domain performance metrics including impedance and eye pattern.



HD Stacker insertion loss compared to PCIe Rev. 3

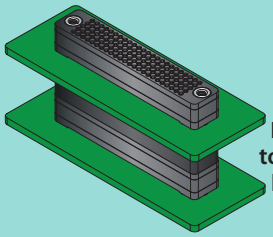
Complete test reports are available at **www.glenair.com/test-reports-and-technical-information/index.htm#hd-stacker**

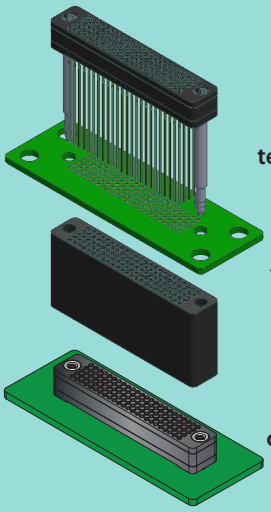
PCB LAYOUTS (COMPONENT SIDE)



Application notes: Board-to-board heights, Spacers, and pin termination lengths

BOARD-TO-BOARD HEIGHT AS A STARTING POINT FOR STACKING CONNECTOR SPECIFICATION





Next to the number of circuits, the key measurement in stacking connector applications is the board-to-board height. This is the vertical real estate required in the application to accommodate the mating socket connector, as well as electronics or other components placed on the PCB. Glenair supplies nine standard spacers ranging from .080" to .830" (2.03mm to 21.08mm) to allow application designers to engineer board-to-board heights ranging from .295" (no spacer) to 1.125". Dielectric spacers also serve to insulate free-standing connector pins, and act as rigid standoffs in board-to-board applications.

As a practical matter, Glenair recommends engineers begin with their desired board-to-board height for each segment of the application, and choose appropriate size spacers and pin termination lengths that match this choice. While custom height spacers are readily available from the factory, certain limitations apply to ensure pin termination lengths are appropriately sized for each specific situation. Other tricks-of-the-trade, such as doubling-up on mating connectors or adjusting stack-height with spacing shims, are also available. Just ask! Our in-house engineers have years of experience solving stacking connector and board-to-board spacing issues. When using the table, please note all values are based on .060" thickness PCBs and a .100" wipe (insertion) tolerance for the pin-to-socket mate.

Spacer and Pin Termination Length Specification

1 ***Select board-to-board spacing height from the left-hand column.*** Available choices are laid out in increments from .295" (no spacer) to 1.125".

2 ***Select and note the available catalog Spacer size that***, combined with the mating connector, results in the desired amount of board-to-board spacing. How-to-Order tables for spacers are located on page 14.

3 ***Select and note the Pin Termination Length.*** This variable is used in part number ordering for GSTB (Universal Stacking Connectors) and GSTBL (Low-Profile Top-of-Stack Connectors).

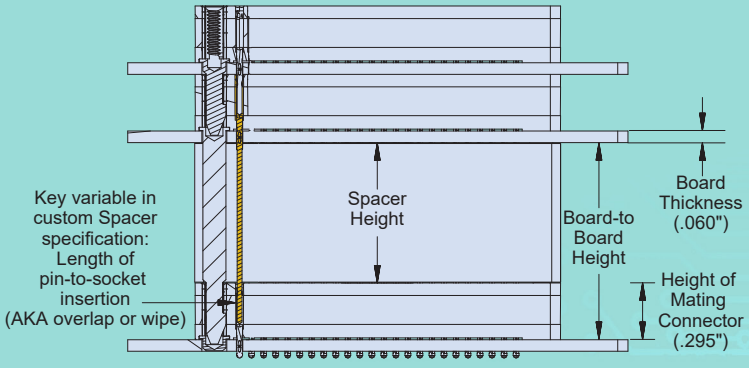


Illustration above depicts all of the standard variables affecting board-to-board height. While custom spacers are available, care must be given to ensure pin termination lengths result in adequate pin-to-socket overlap (not to be reduced in excess of .100")

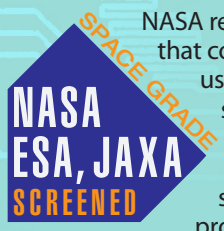
Board-to-board spacing height	Spacer Height to specify in Spacer part number	Pin Termination Length to specify in Connector part number
0.295*	N/A	0.270
0.295**	N/A	0.300
0.375	.080	0.350
0.425	.130	0.400
0.525	.230	0.500
0.625	.330	0.600
0.725	.430	0.700
0.825	.530	0.800
0.925	.630	0.900
1.025	.730	1.000
1.125***	.830	1.000

* For use with .060"–.090" PCBs when no spacer is required
** For use with .090"–.140" PCBs when no spacer is required
*** For use with .060" PCB

Rev. 01.30.19

Application notes: NASA screening guidelines for space-grade applications

ASTM E595 AND NASA SCREENING



NASA recommends that connectors used for space flight applications be specially screened and processed to reduce Collected Volatile Condensable Material (CVCM) to acceptable levels. NASA EEE-INST-002 instructions for EEE parts selection, screening, qualification, and derating contains three levels of screening for space-grade components. These outgassing and screening modification codes are listed at right. To order any of the available levels of space-grade processing on an HD Stacker™ connector, simply append the modification code directly to the end of part numbers as shown in the following examples:

GSTB HD Stacker™ connector with NASA level 1 Screening and 48 Hour Oven Bake Outgassing at 175°C ***GSTB-120-.270-G1-429J***.

GSTB HD Stacker™ connector with NASA level 1 Screening and No Outgas Processing ***GSTB-120-.270-G1-429B***.

Specifying Appropriate NASA Screening

1 ***Choose a NASA EEE-INST-002 Table 2A screening level.*** This table contains three screening levels: ***Level 1*** for missions requiring the highest reliability and lowest level of risk, ***Level 2*** for low to moderate risk missions, and ***Level 3*** missions where enhanced screening and inspection is not invoked.

2 ***Choose outgassing process and/or NASA inspection requirements.*** Seven options are available for NASA outgassing, see Table I for details. Cross reference Table II for inspections completed by screening level as required by NASA standards.

3 ***Select the modification code*** from the Table I and add it to the HD Stacker™ part number. Example: ***GSTB-120-.270-G1-429J***.

Table I: Outgassing per NASA Screening Levels

Screening Level	No Outgas Processing	48 Hour Oven Bake +175° C 100%	Thermal Vacuum* Outgassing 24 Hour +125° C 100%	Mod Code
3			●	429L
2	●			429
			●	429A
		●		429K
1	●			429B
			●	429C
		●		429J

*Thermal vacuum of 10^{-6} Torr.

Table II: NASA EEE-INST-02, Table 2A Screening Levels

Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2	2	
Dielectric Withstanding Voltage	2	2	
Insulation Resistance	2	2	
Contact Engagement & Separation Force	2		
Coupling Force	2		

Note: required inspection quantity shown. Zero acceptance of failures allowed for all quantities inspected. Inspection is not performed/required for MIL-DTL-38999, Class G

Outgassing Properties of HD Stacker Connectors

GSTBL, GSTB, GSTB (.095) Connectors and 980-008 Spacers

Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCM)	Test Report
Thermoplastic Insulator	40% Glass-filled PPS	Fortron 1140L4	0.06	0.01	NASA Test #GSC24581
White Ink	Epoxy	Markem 7224 White	0.49	0.03	NASA Test #GSC19899

GSTT and GSTF Connectors

Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCM)	Test Report
Thermoplastic Insulator	40% Glass-filled PPS	Fortron 1140L4	0.06	0.01	NASA Test #GSC24581
Potting Compound	Epoxy	Hysol C9-4215	0.48	0.01	Glenair Test
Wire	Tefzel®	Tefzel®	0.22	0.01	NASA Test #GSC19998
White Ink	Epoxy	Markem 7224 White	0.49	0.03	NASA Test #GSC19899

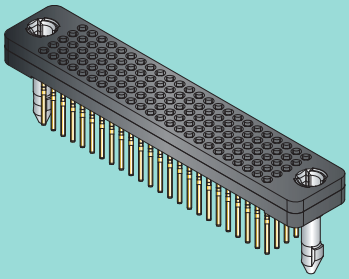
Rev. 03.29.21

.062" PITCH COMPLIANT PIN

HD Stacker™

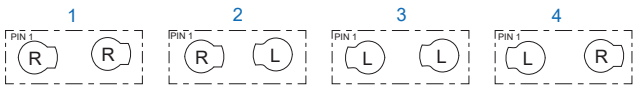
GSTBL top-of-stack pin connector

MATES WITH GSTB AND GSTB (.095)



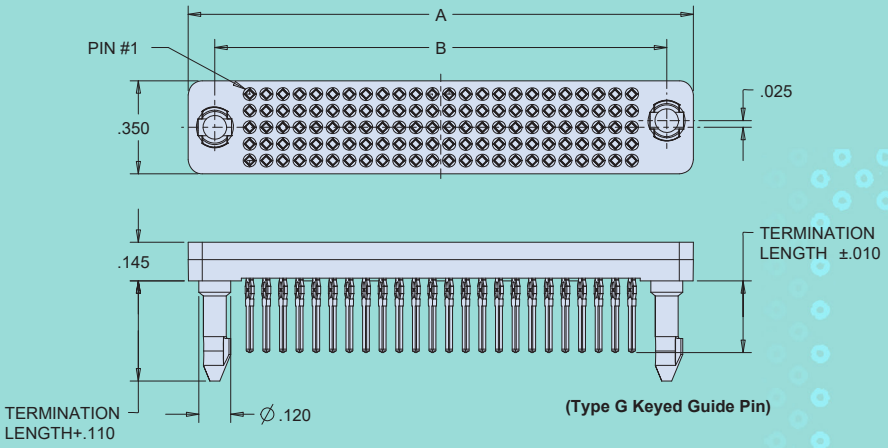
- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**

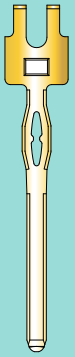
How to Order GSTBL HD Stackers					
Sample Part Number	**GSTBL**	**-120**	**-.270**	**-G**	**1**
Series	**GSTBL** = Low Profile Stacker				
Number of Contacts	**40, 80, 120, 160, 200, 240**				
Pin Termination Length	**.270, .300, .350, .400, .500, .600, .700, .800, .900, 1.000**				
Hardware*	**G** = Keyed Guide Pin **L** = Hex Head Jackscrew (Non-Removable)				
Key Position**	**G** Hardware Only. Omit if Using **L** Hardware.				



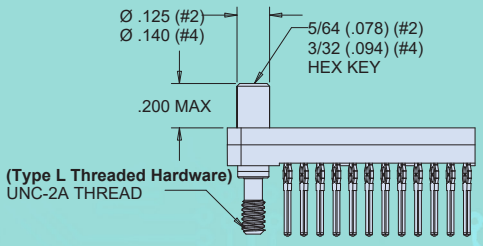
* For **L** hardware, connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads

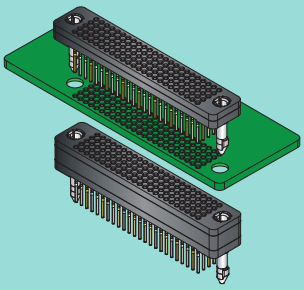
** For **G** hardware, choose Key Position 1 for best availability / fastest delivery





All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTBL is equipped with pin contacts with solder-free press-fit board mounting (no socket contacts).





The GSTBL is used in top-of-stack applications that only require a single-sided mating interface. Shown: GSTBL stack-mating with GSTB.

Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

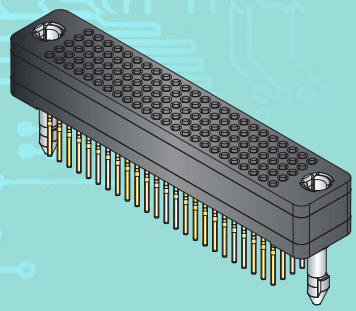
Dimensions in Inches (millimeters) are subject to change without notice.

.062" PITCH COMPLIANT PIN

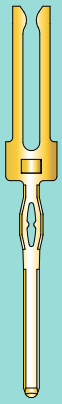
HD Stacker™

GSTB mid/universal pin and socket connector

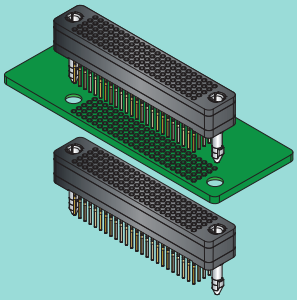
MATES WITH GSTB, GSTB (.095), GSTF, GSTT, GSTBL



- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**



All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTB is equipped with pin/socket contacts with solder-free press-fit board mounting.

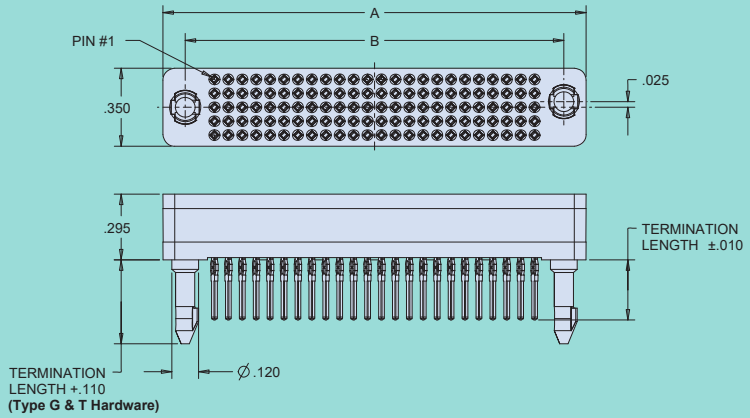


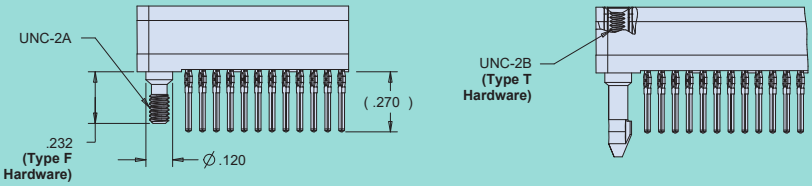
The GSTB is a universal stacking connector that may be used in the bottom, middle, or top position depending on application. Shown: GSTB stack-mating with GSTB.

How to Order GSTB HD Stackers					
Sample Part Number	**GSTB**	**-120**	**-.270**	**-G**	**1**
Series	**GSTB** = Standard Profile Stacker				
Number of Contacts	**40, 80, 120, 160, 200, 240**				
Pin Termination Length	**.270, .300, .350, .400, .500, .600, .700, .800, .900, 1.000**				
Hardware*	**G** Keyed Guide Pin / Guide Socket **T** Keyed Guide Pin / Female Threaded Jackpost for GSTT Mate **F** Keyed Guide Socket / Fixed (Non-Rotating) Male Jackscrew for GSTF Mate ***Use .270 termination length only***				
Key Position**	1: PIN 1 R R 2: PIN 1 R L 3: PIN 1 L L 4: PIN 1 L R				

* For **T**, **F** hardware, connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads

** Choose Key Position 1 for best availability / fastest delivery





Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

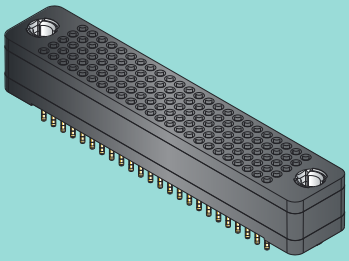
Rev. 01.09.24

.062" PITCH COMPLIANT PIN

HD Stacker™

GSTB (.095) bottom-of-stack socket connector

MATES WITH GSTB AND GSTBL

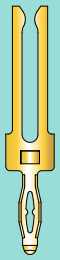


- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**

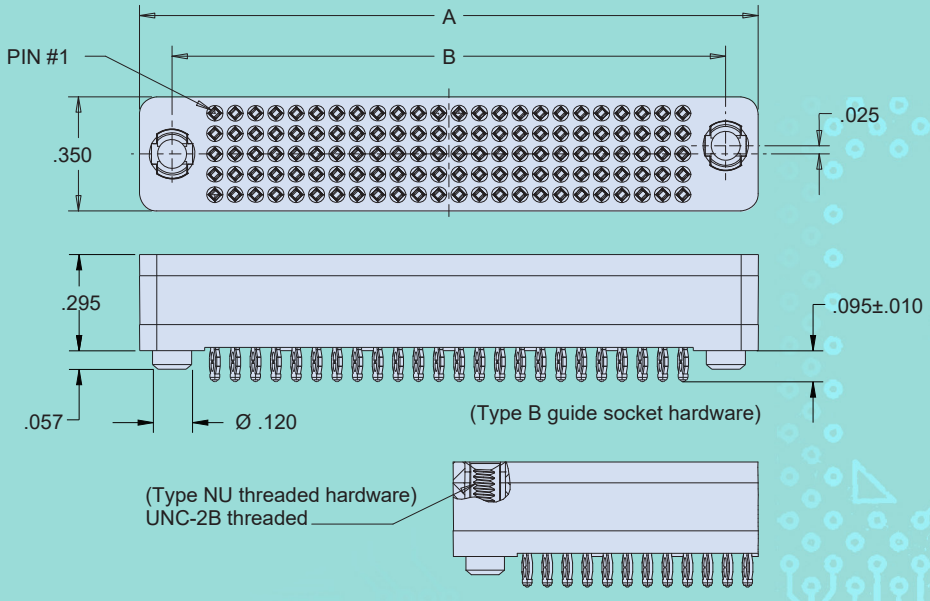
How to Order GSTB (.095) HD Stackers					
Sample Part Number	**GSTB**	**-120**	**-.095**	**-B**	**1**
Series	**GSTB** = Standard Profile Stacker				
Number of Contacts	**40, 80, 120, 160, 200, 240**				
Zero Termination Length	**.095**				
Hardware*	**B** = Keyed Guide Socket **NU** = Threaded Insert				
Key Position**	**B** Hardware Only. Omit if Using **NU** Hardware. 1: R R; 2: R L; 3: L L; 4: L R				

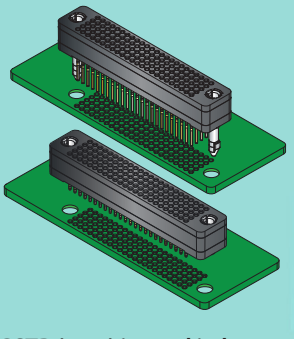
* For **NU** hardware, connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads

** For **B** hardware, choose Key Position 1 for best availability / fastest delivery



All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTB (.095) is equipped with socket contacts with solder-free press-fit board mounting section only (no pin contacts)





The GSTB (.095) is used in bottom-of-stack applications that only require a single-sided mating interface. Shown: GSTB (.095) on bottom, stack-mating with GSTB above.

Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

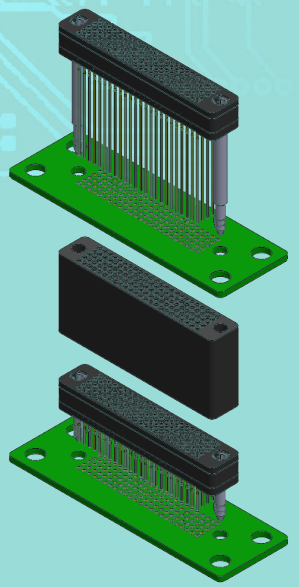
Dimensions in Inches (millimeters) are subject to change without notice.

.062" PITCH COMPLIANT PIN

HD Stacker™

Board-to-Board Spacer

USE WITH GSTB OR GSTBL



Glenair supplies nine standard spacers ranging from .030" to .730" (.76mm to 18.54mm) to allow application designers to engineer board-to-board heights ranging from .295" (no spacer) to 1.025" (7.49mm to 26.04mm). Dielectric spacers also serve to insulate free-standing connector pins, and act as rigid standoffs in board-to-board applications.

How to Order 980-008 HD Stacker Board-to-Board Spacers				
Sample Part Number		**980-008**	**-120**	**-.530**
Series	**980-008** = HD Stacker Board-to-Board Spacer			
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**			
Spacer Height*	**.080**, **.130**, **.230**, **.330**, **.430**, **.530**, **.630** , **.730**, **.830**			

Note: Glenair HD Stacker connectors will accommodate pin-to-socket insertion tolerances on the order of –.100". Contact Glenair for custom height Spacers.

- **Bridges board-to-board gaps beyond the base HD Stacker height of .295" (7.49mm)**
- **Specify any board-to-board height up to 1.125" (28.58 mm)**

Board-to-board spacing height	Spacer Height to specify in Spacer part number	Pin Termination Length to specify in Connector part number
0.295*	N/A	0.270
0.295**	N/A	0.300
0.375	.080	0.350
0.425	.130	0.400
0.525	.230	0.500
0.625	.330	0.600
0.725	.430	0.700
0.825	.530	0.800
0.925	.630	0.900
1.025	.730	1.000
1.125***	.830	1.000

* For use with .060"–.090" PCBs when no spacer is required
** For use with .090"–.140" PCBs when no spacer is required
*** For use with .060" PCB

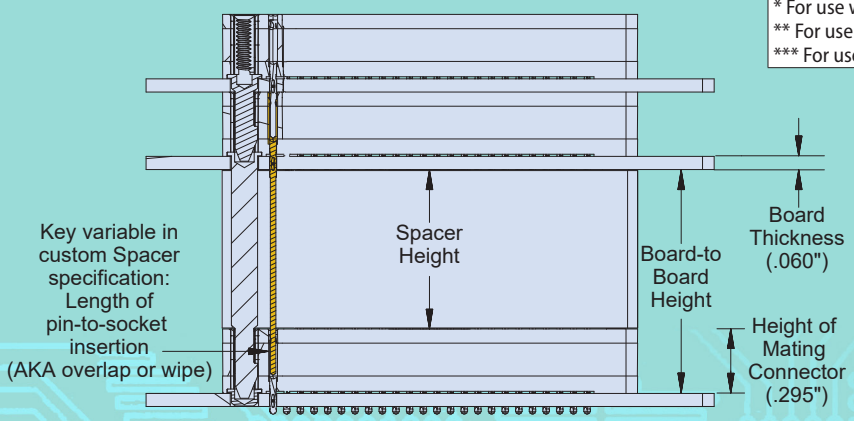


Illustration left depicts all of the standard variables affecting board-to-board height. While custom spacers are available, care must be given to ensure pin termination lengths result in adequate pin-to-socket overlap (not to be reduced in excess of .100")

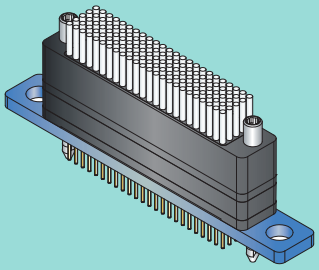
Rev. 7.23.22

.062" PITCH COMPLIANT PIN

HD Stacker™

GST-1000 pre-wired pin connector with guide hardware

MATES WITH GSTB (WITH F AND G HARDWARE)

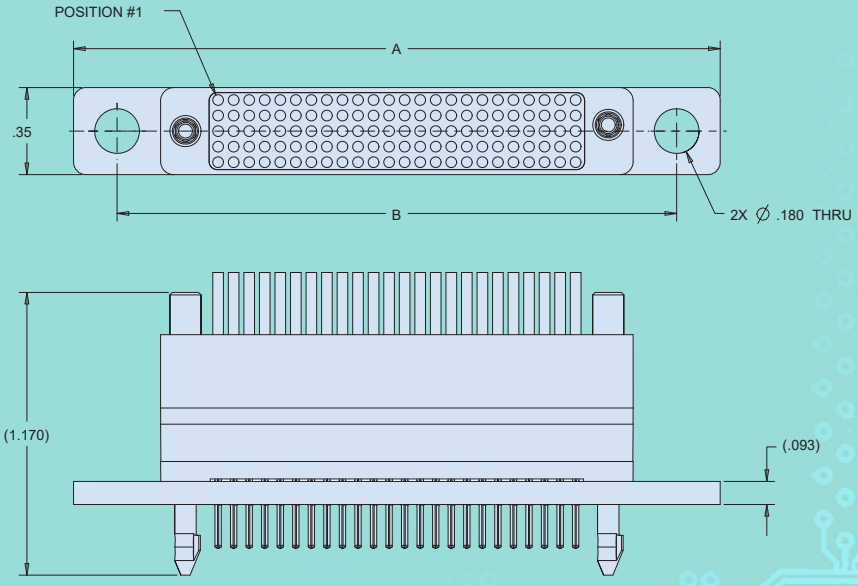


- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Mil-qualified hookup wire in white, yellow, and ten-color repeat**

All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTB is equipped with pin/socket contacts with solder-free press-fit board mounting.

How to Order GST-1000 HD Stacker Connectors

Sample Part Number	GST-1000	-120	P	W	-4	K	7	-18	T1
Series	**GST-1000** = Prewired Pin Connector w/ Guide Hardware								
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**								
Contact Type	**P** = Pin								
Termination Type	**W** = Prewired								
Wire Gauge	**4** = #24 **6** = #26 **8** = #28								
Wire Type	**K** = M22759/11 600 VRMS Teflon (TFE)	**J** = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE)				**E** = NEMA HP3-EB 600 VRMS Type E M16878/4 (TFE)			
Wire Color	**1** = White **2** = Yellow **7** = Ten-Color Repeating								
Wire Length	Length in Inches ("**-18**" Specifies 18 Inches.) 4" Minimum.								
Hardware	T1 PIN 1 R R	T2 PIN 1 R L	T3 PIN 1 L L	T4 PIN 1 L R					



Number of Contacts	A		B	
	in	mm	in	mm
40	1.60	40.64	1.25	31.75
80	2.10	53.34	1.75	44.45
120	2.60	66.04	2.25	57.15
160	3.10	78.74	2.75	69.85
200	3.60	91.44	3.25	82.55
240	4.10	104.14	3.75	95.25

Dimensions in Inches (millimeters) are subject to change without notice.

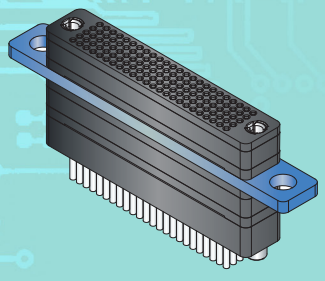
Rev. 01.09.24

.062" PITCH COMPLIANT PIN

HD Stacker™

GST-1001 pre-wired socket connector with guide hardware

MATES WITH GSTB (WITH G AND T HARDWARE) AND GSTBL (WITH G HARDWARE)



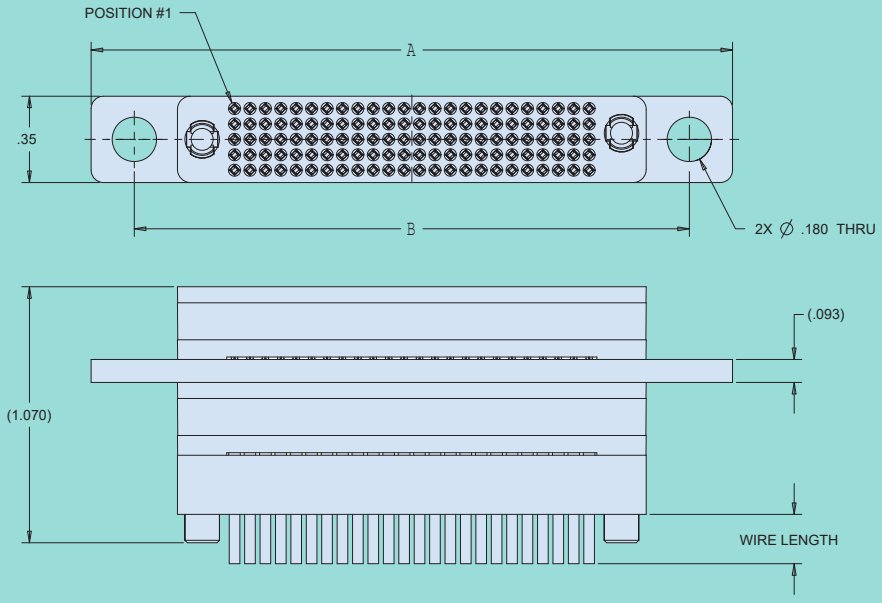
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Mil-qualified hookup wire in white, yellow, and ten-color repeat**

All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTB is equipped with pin/socket contacts with solder-free press-fit board mounting.

How to Order GST-1001 HD Stacker Connectors

Sample Part Number	GST-1001	-120	S	W	-4	K	7	-18	F1

Series	**GST-1001** = Prewired Socket Connector w/ Guide Hardware
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**
Contact Type	**S** = Socket
Termination Type	**W** = Prewired
Wire Gauge	**4** = #24 **6** = #26 **8** = #28
Wire Type	**K** = M22759/11 600 VRMS Teflon (TFE) **J** = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE) **E** = NEMA HP3-EB 600 VRMS Type E M16878/4 (TFE)
Wire Color	**1** = White **2** = Yellow **7** = Ten-Color Repeating
Wire Length	Length in Inches ("**-18**" Specifies 18 Inches.) 4" Minimum.
Hardware	F1 (PIN 1: R R) F2 (PIN 1: R L) F3 (PIN 1: L L) F4 (PIN 1: L R)

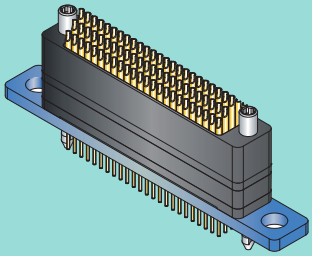


Number of Contacts	A		B	
	in	mm	in	mm
40	1.60	40.64	1.25	31.75
80	2.10	53.34	1.75	44.45
120	2.60	66.04	2.25	57.15
160	3.10	78.74	2.75	69.85
200	3.60	91.44	3.25	82.55
240	4.10	104.14	3.75	95.25

Rev. 01.09.24

GST-1005 solder cup pin connector with guide hardware

MATES WITH GSTB

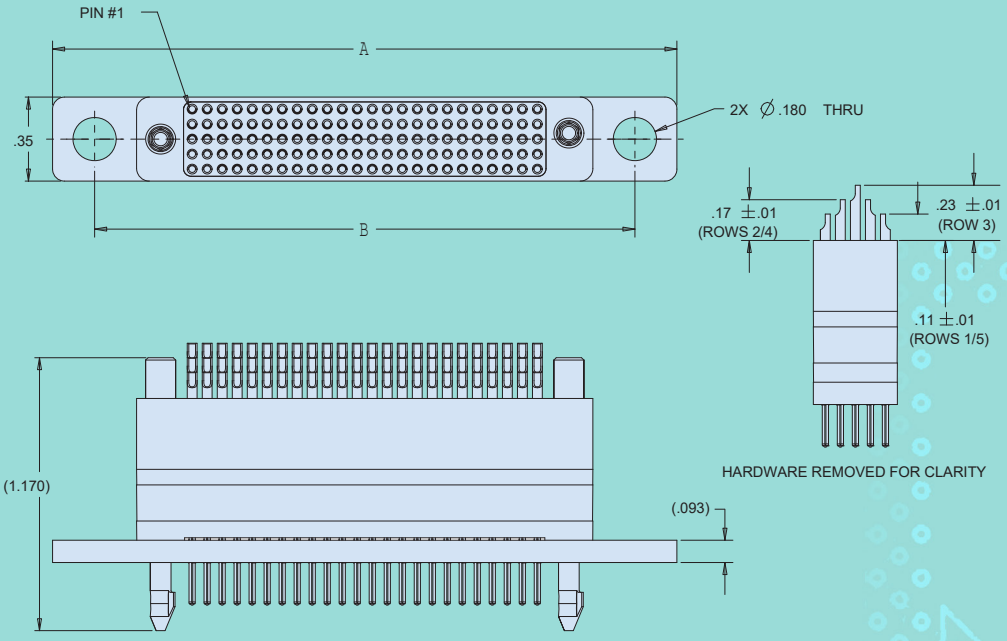


- High-density layouts from 40 to 240 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection

How to Order GST-1005 HD Stacker Connectors

Sample Part Number	GST-1005	-120	P	S	-T1

Series	**GST-1005** = Solder Cup Pin Connector w/ Guide Hardware
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**
Contact Type	**P** = Pin
Termination Type	**S** = Solder Cup
Hardware	T1: PIN 1 R R; T2: PIN 1 R L; T3: PIN 1 L L; T4: PIN 1 L R



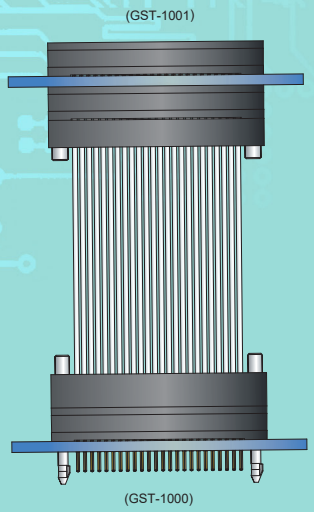
Number of Contacts	A		B	
	in	mm	in	mm
40	1.60	40.64	1.25	31.75
80	2.10	53.34	1.75	44.45
120	2.60	66.04	2.25	57.15
160	3.10	78.74	2.75	69.85
200	3.60	91.44	3.25	82.55
240	4.10	104.14	3.75	95.25

Dimensions in Inches (millimeters) are subject to change without notice.

HD Stacker™

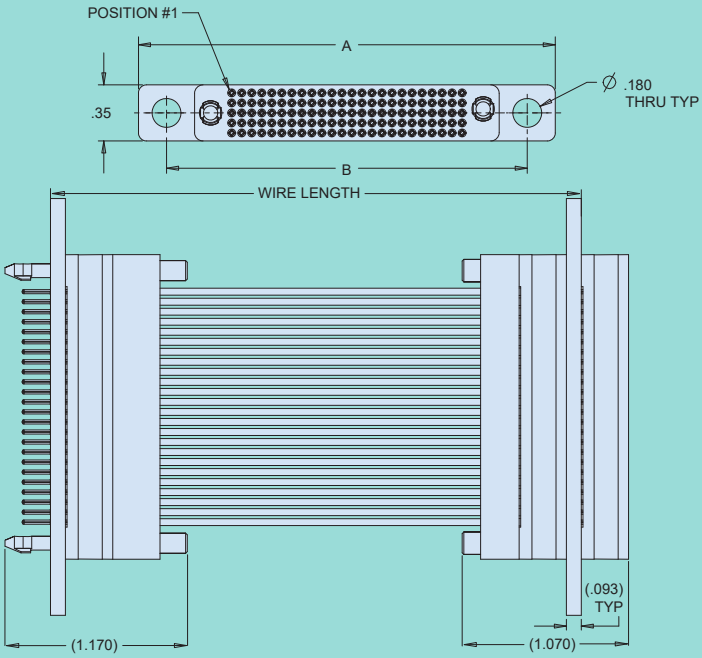
GST-1006 pre-wired cable assembly, GST-1000 to GST-1001

MATES WITH GST



How to Order GST-1006 HD Stacker Connectors							
Sample Part Number	**GST-1006**	**-120**	**-4**	**K**	**7**	**-18**	**T1F1**
Series	**GST-1006** = Glenair HDS GST-1000 to GST-1001						
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**						
Wire Gauge	**4** = #24 **6** = #26 **8** = #28						
Wire Type	**K** = M22759/11 600 VRMS Teflon (TFE)	**J** = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE)		**E** = NEMA HP3-EB 600 VRMS Type E M16878/4 (TFE)			
Wire Color	**1** = White **2** = Yellow **7** = Ten-Color Repeating						
Wire Length	Length in Inches ("**-18**" Specifies 18 Inches.) 4" Minimum.						
Hardware **T (GST-1000 end)** **F (GST-1001 end)**	1: PIN 1 R R	2: PIN 1 R L	3: PIN 1 L L	4: PIN 1 L R			

- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Mil-qualified hookup wire in white, yellow, and ten-color repeat**



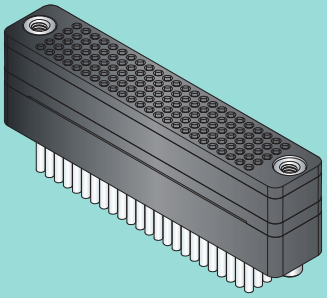
Number of Contacts	A		B	
	in	mm	in	mm
40	1.60	40.64	1.25	31.75
80	2.10	53.34	1.75	44.45
120	2.60	66.04	2.25	57.15
160	3.10	78.74	2.75	69.85
200	3.60	91.44	3.25	82.55
240	4.10	104.14	3.75	95.25

.062" PITCH COMPLIANT PIN

HD Stacker™

GSTF pre-wired socket connector with threaded hardware

MATES WITH GSTB



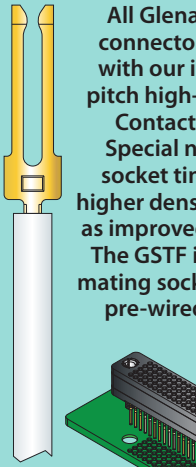
- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Mil-qualified hookup wire in white, yellow, striped, and ten-color repeat**

How to Order GSTF HD Stacker Connectors

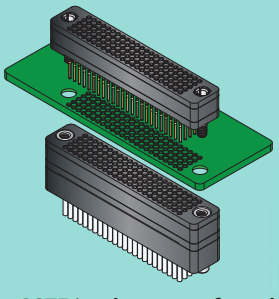
Sample Part Number	GSTF	-120	S	W	-4	K	7	-18	M

Series	**GSTF** = Pre-Wired Bottom Stacker
Number of Contacts	**40, 80, 120, 160, 200, 240**
Contact Type	**S** = Socket
Termination Type	**W** = Prewired
Wire Gauge	**4** = #24 **6** = #26 **8** = #28
Wire Type	**K** = M22759/11 600 VRMS Teflon (TFE); **J** = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE); **E** = NEMA HP3-EB 600VRMS Type E M16878/4 (TFE)
Wire Color	**1** = White **2** = Yellow **7** = Ten-Color Repeating
Wire Length	Length in Inches ("**-18**" Specifies 18 Inches.) 4" Minimum.
Hardware*	**M** = Turning Hex Head Jacksocket **P** = Fixed Jackpost

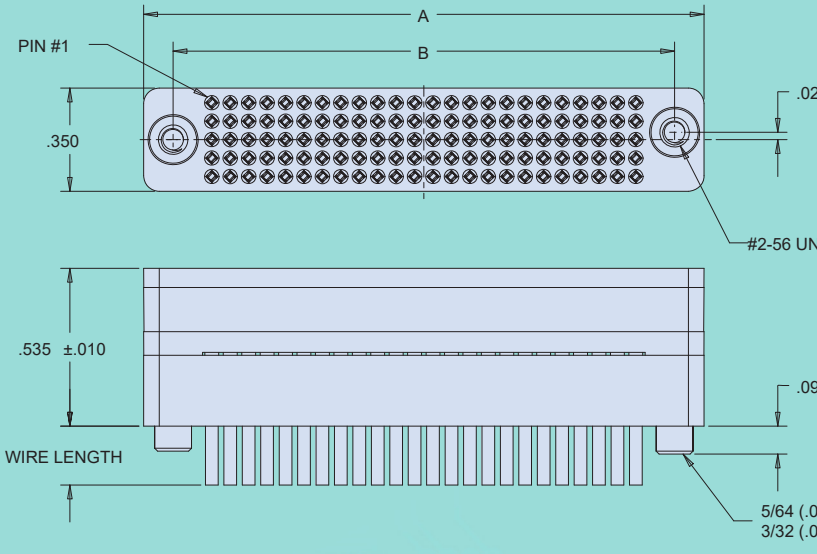
*Connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads.



All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTF is equipped with mating socket contacts and a pre-wired cable jumper.



The GSTF is a bottom-of-stack solution for subsystems that require an I/O interface for performance testing and analytics. Shown: GSTF stack-mating with GSTB.



Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

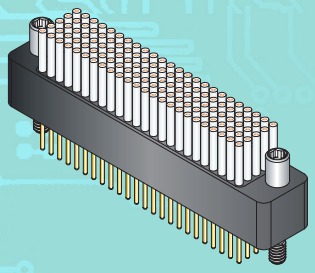
Dimensions in Inches (millimeters) are subject to change without notice.

.062" PITCH COMPLIANT PIN

HD Stacker™

GSTT-PW pre-wired pin connector with threaded hardware

MATES WITH GSTB



- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Mil-qualified hookup wire in white, yellow, striped, and ten-color repeat**

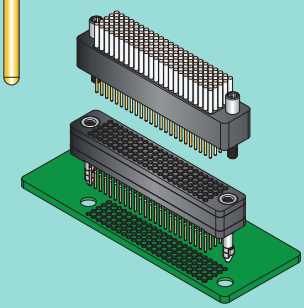
How to Order GSTT-PW HD Stacker Connectors

Sample Part Number	GSTT	-120	P	W	-4	K	7	-18	M

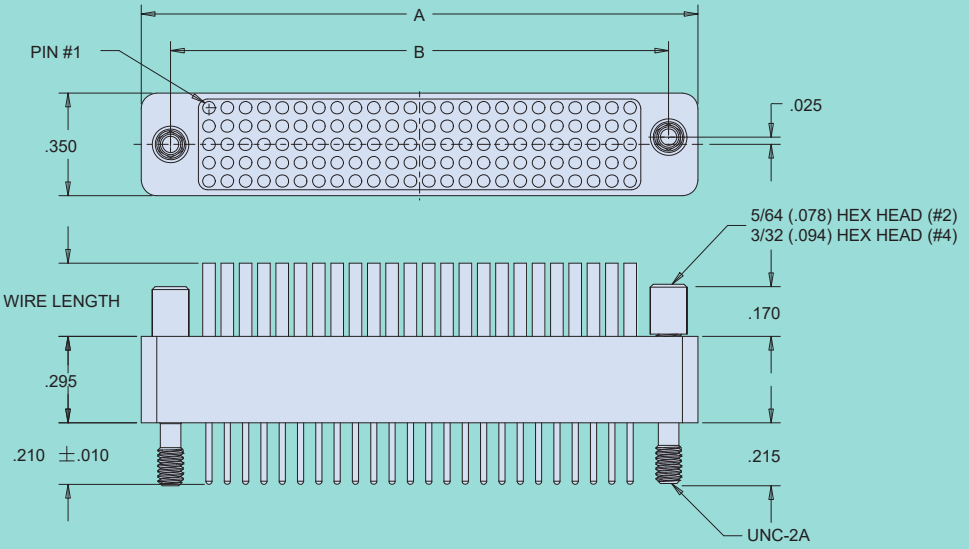
Series	**GSTT** = Pre-Wired Top Stacker
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**
Contact Type	**P** = Pin
Termination Type	**W** = Prewired
Wire Gauge	**4** = #24 **6** = #26 **8** = #28
Wire Type	**K** = M22759/11 600 VRMS Teflon (TFE); **J** = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE); **E** = NEMA HP3-EB 600VRMS Type E M16878/4 (TFE)
Wire Color	**1** = White **2** = Yellow **7** = Ten-Color Repeating
Wire Length	Length in Inches ("**-18**" Specifies 18 Inches.) 4" Minimum.
Hardware*	**M** = Hex Head Jackscrew

*Connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads.

All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTT-PW is equipped with pin contacts and a pre-wired cable jumper.



The GSTT-PW is a top-of-stack solution for subsystems that require an I/O interface for performance testing and analytics. Shown: GSTT-PW stack-mating with GSTB.



Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

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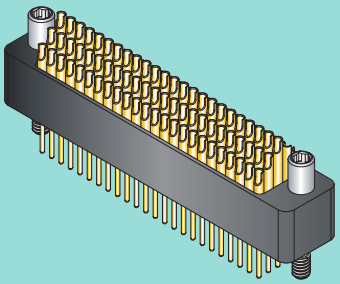
.062" PITCH COMPLIANT PIN

HD Stacker™

GSTT-PS solder cup pin connector with threaded hardware

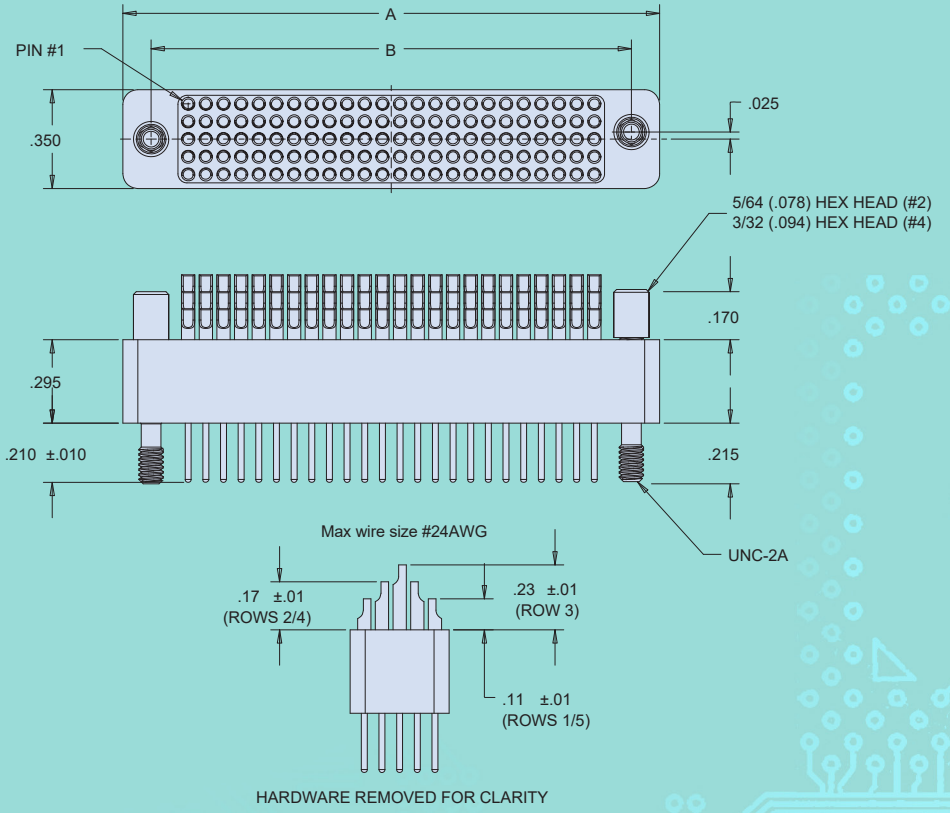
MATES WITH GSTB



- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Solder cup cascaded for easy wire-to-contact terminations**

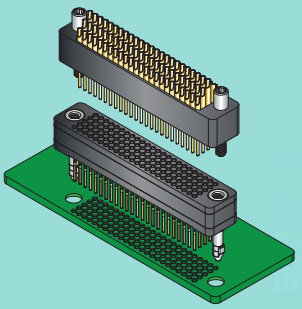
How to Order GSTT-PS HD Stacker Connectors						
Sample Part Number		**GSTT**	**-120**	**P**	**S**	**M**
Series	**GSTT** = Solder-Cup Top Stacker					
Number of Contacts	**40, 80, 120, 160, 200, 240**					
Contact Type	**P** = Pin					
Termination Type	**S** = Solder Cup					
Hardware*	**M** = Hex Head Jackscrew					

*Connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads.



HARDWARE REMOVED FOR CLARITY

All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTT-PS is equipped with pin contacts and solder cups for wire-to-contact termination.



The GSTT-PS is a top-of-stack solution for solder termination of wires to contacts. Shown: GSTT-PS stack-mating with GSTB

Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

Dimensions in Inches (millimeters) are subject to change without notice.

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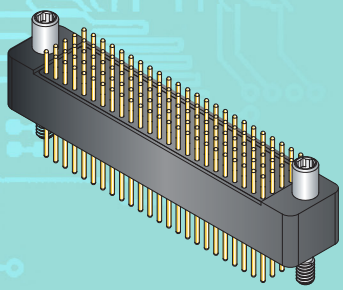
.062" PITCH COMPLIANT PIN

HD Stacker™

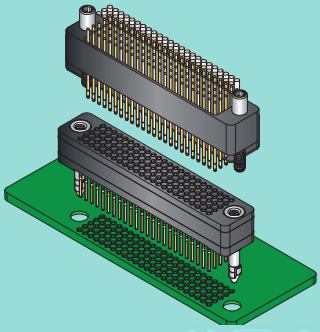
GSTT-PF PC tail pin connector with threaded hardware

MATES WITH GSTB



- **Innovative Chevron Contact System (CCS)**
- **High-density layouts from 40 to 240 contacts**
- **Polarized insulators**
- **Keyed guide pin hardware for mis-mate protection**
- **Turnkey PC-tail flex jumpers available from Glenair, consult factory.**

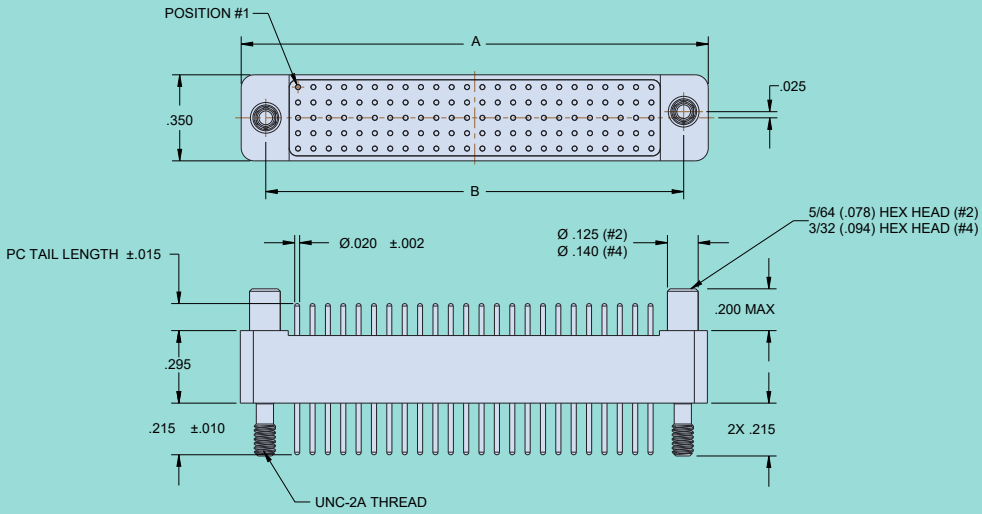
All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTT-PF is equipped with pin contacts and PC tails for termination to flex



The GSTT-PF is a top-of-stack connector for termination to flex. Shown: GSTT-PF stack-mating with GSTB.

How to Order GSTT-PF HD Stacker Connectors							
Sample Part Number		**GSTT**	**-120**	**P**	**F**	**-.080**	**M**
Series	**GSTT** = PC Tail Top Stacker (For Flex Termination)						
Number of Contacts	**40, 80, 120, 160, 200, 240**						
Contact Type	**P** = Pin						
Termination Type	**F** = PC Tail (For Flex Termination)						
PC Tail Length	**.080, .110, .140, .172, .190, .250**						
Hardware*	**M** = Hex Head Jackscrew						

*Connectors with 40 to 160 positions have #2-56 threads, connectors with 200 to 240 positions have #4-40 threads



Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28

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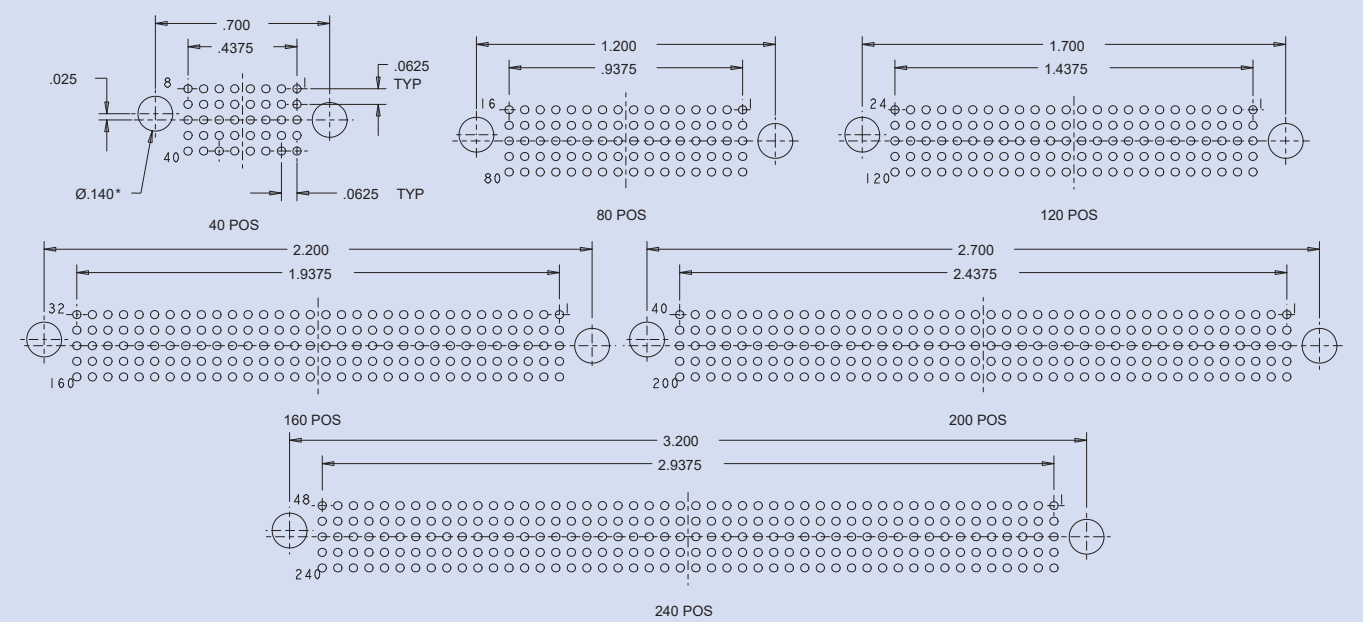
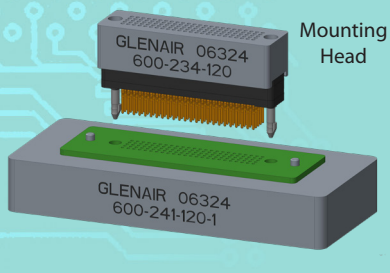
GSTT-PF PC-tail (flex) connector
Top-of-stack

FLEX LAYOUTS (COMPONENT SIDE)



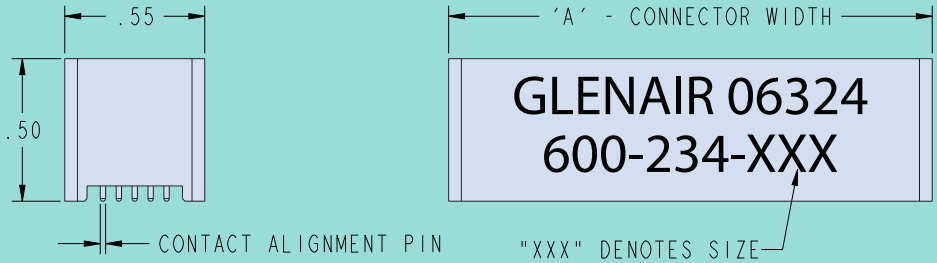
600-234 mounting head tool for connector-to-board installation



Mounting Head

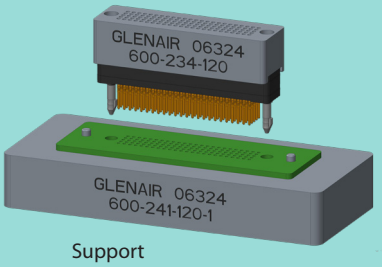
How to Order 600-234 HD Stacker Mounting Head			
Sample Part Number		**600-234**	**-120**
Series	**600-234** = HD Stacker Mounting Head		
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**		

- **600-234 Mounting Head is a corrosion-resistant steel block with the same PCB contact layouts as the connector to be installed. Alignment pins ensure correct indexing to the connector and aid in the even application of installation pressure.**



Number of Contacts	A	
	in	mm
40	0.90	22.86
80	1.40	35.56
120	1.90	48.26
160	2.40	60.96
200	2.90	73.66
240	3.40	86.36

600-241 PCB support plate tool for connector-to-board installation

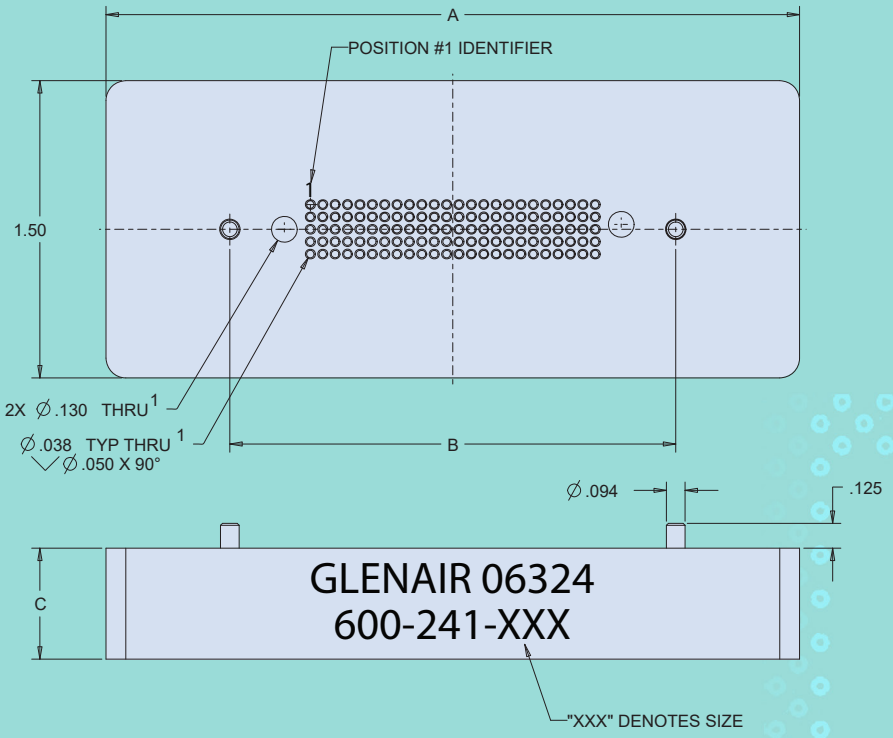


Support Plate

How to Order 600-241 HD Stacker Support Plate				
Sample Part Number		**600-241**	**-120**	**-2**
Series	**600-241** = HD Stacker Support Plate			
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**			
Termination Length (plate height)	**-1** = For Termination Length .500" and Under (C Plate Height = .560" [14.22]) **-2*** = For Termination Length 1.000" and Under (C Plate Height = 1.060" [26.92])			

*Choose -2 Termination Length for best availability / fastest delivery

- **600-241 Support Plate is a precision-machined tool with the same PCB contact layouts as the connector to be installed. The primary function of the support plate is even distribution of application pressure on the PCB. Plate also features alignment pin cavities that are used to align the support plate holes with the PCB plated thru-holes. Support plate size and alignment features shown are standard, but can be fabricated to application-specific requirements.**

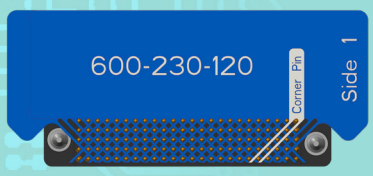


Number of Contacts	A		B	
	in	mm	in	mm
40	2.50	63.50	1.25	31.75
80	3.00	76.20	1.75	44.45
120	3.50	88.90	2.25	57.15
160	4.00	101.60	2.75	69.85
200	4.50	114.30	3.25	82.55
240	5.00	127.00	3.75	95.25

.062" PITCH COMPLIANT PIN

HD Stacker™

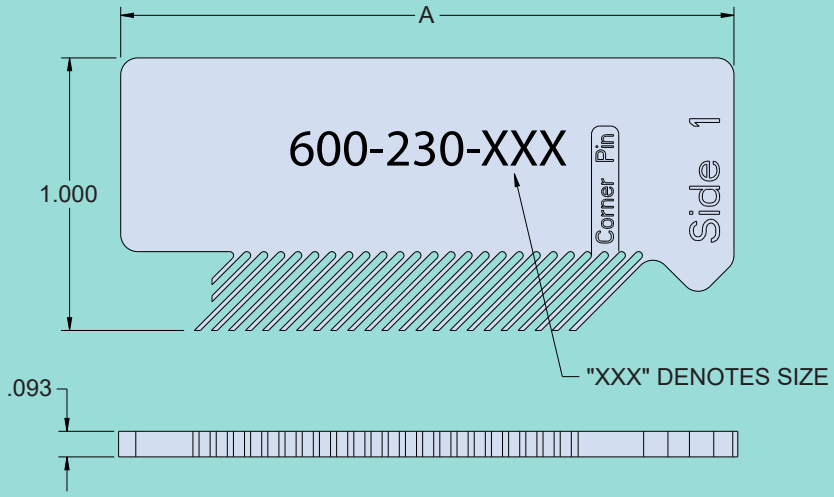
600-230 contact alignment comb for connector-to-board installation



How to Order 600-230 HD Stacker Contact Alignment Comb		
Sample Part Number	**600-230**	**-120**
Series	**600-230** = HD Stacker Contact Alignment Comb (Pair)	
Number of Contacts	**40**, **80**, **120**, **160**, **200**, **240**	

* Ships as a pair (Qty 1 = 1 pair). See installation guide for recommended use.

- **A pair of Contact Alignment Combs is recommended to assist operators feeding contacts with termination lengths larger than .500" into the printed circuit board. Alignment combs are made of FR4 fiberglass or equivalent**



Number of Contacts	A	
	in	mm
40	1.25	31.75
80	1.75	44.45
120	2.25	57.15
160	2.75	69.85
200	3.25	82.55
240	3.75	95.25

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.062" PITCH COMPLIANT PIN

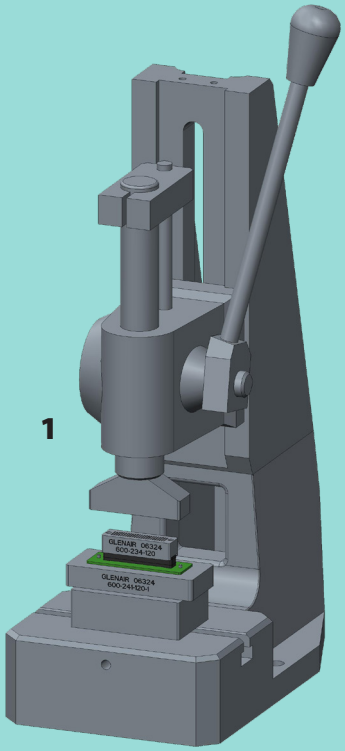
HD Stacker™

Connector-to-board installation guide

INSTALLATION OVERVIEW:

HD Stacker board mounting equipment provides reliable, trouble-free installation of the complete connector series (top, middle, and bottom) to customer printed circuit boards. Customers may choose to purchase tooling directly from Glenair or fabricate per available equipment drawings (consult factory). In either event, assembly tooling must conform to the PCB layouts provided on page 3 of this catalog.

1



EQUIPMENT:

1. Manual Arbor Press or Pneumatic Press

Press capable of 22.5 lbs. per contact. Pneumatic equipment provides superior monitoring and application of force during installation. Glenair can recommend the Pneumatic Press with Force / Stroke Monitoring available from Schmidt®.

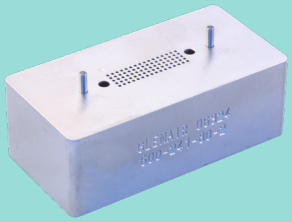
Manual Arbor Press equipment is also suitable, but relies more on operator experience and visual verification of connector seating. Glenair can recommend the 3-ton Dayton Arbor Press available from Grainger.

2

2. Mounting Head with Contact Alignment Pins:

The mounting head protects the connector during installation by evenly distributing press forces throughout the connector body. Contact alignment pins prevent socket contact misalignment within the connector body during installation.

3



3. Support Plate with Board Alignment Pins:

The support plate protects the printed circuit board during installation by evenly distributing press forces to each plated through-hole. The support plate includes clearance holes for the connector contacts and guide pins. Board alignment pins prevent lateral movement between the board and support plate during connector installation.

4

4. Contact Alignment Comb

For connectors with termination length larger than .500", pin organizer or contact alignment tools are recommended to ensure pin alignment during insertion into the board.

Dimensions in Inches (millimeters) are subject to change without notice.

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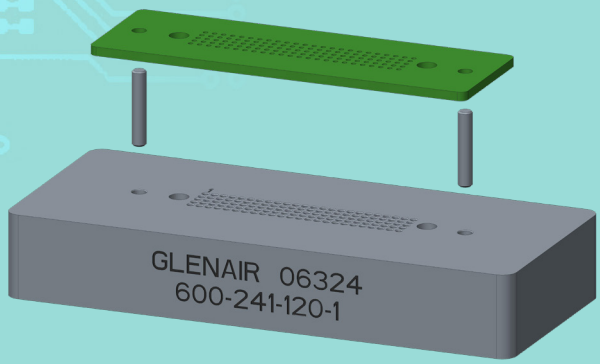
.062" PITCH COMPLIANT PIN

HD Stacker™

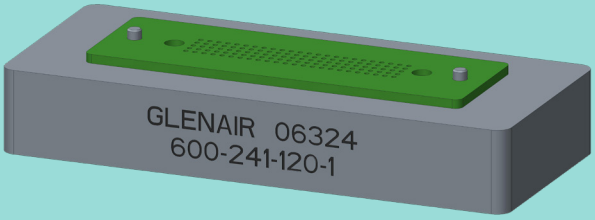
Connector-to-board installation guide

PC BOARD PREPARATION

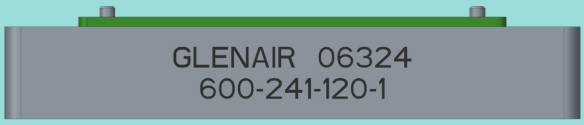
1. Install the loose guide pins into the support plate.



2. Place the board on the support plate and align board clearance holes with the guide pins.

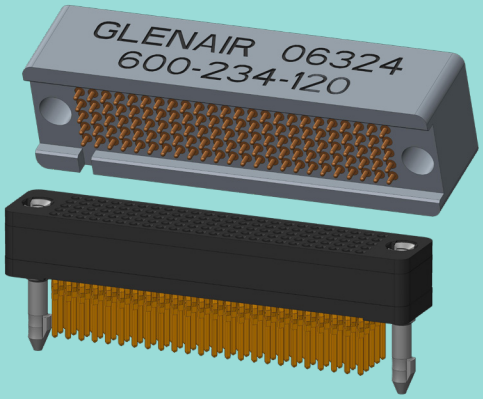


3. Verify the board lies flat and level against the plate.



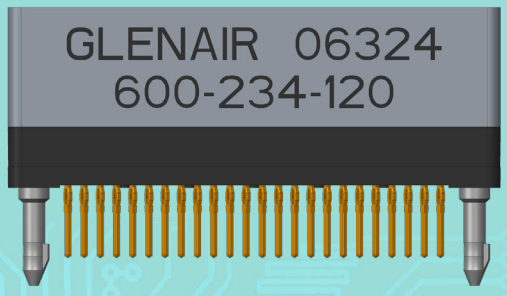
CONNECTOR PREPARATION

1. Note the pattern of contact alignment pins on the mounting head exactly matches the connector contact hole pattern.



2. Mate the mounting head alignment pins to the connector socket cavities.

3. Verify the mounting head is seated against the top of the connector.



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.062" PITCH COMPLIANT PIN

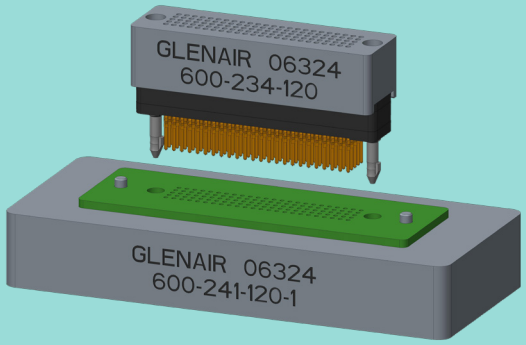
HD Stacker™

Connector-to-board installation guide

CONNECTOR INSTALLATION TO THE BOARD

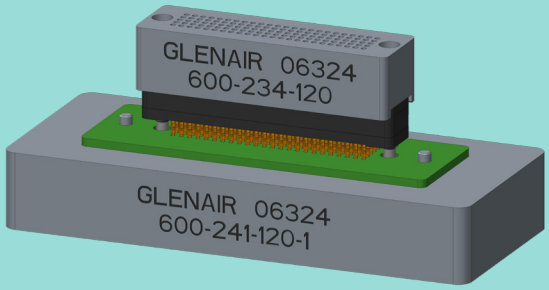
1. Feed the contacts into the board and the mounting plate.

   Again, for connectors with termination length larger than .500", pin organizer tools should be considered to assist the operator in organizing pins before insertion into the board.

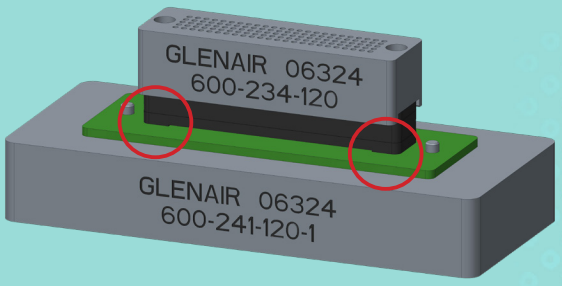


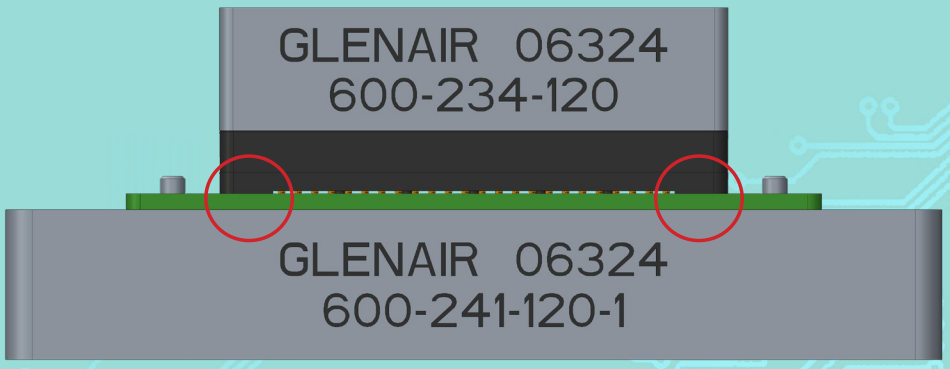
2. Verify the mounting head is seated against the top of the connector.

   Verify the board lies level and flat against the plate and is prevented from sliding by the guide pins.



3. The connector is ready for press-fit mounting onto the board. Carefully operate the manual or pneumatic press to apply only enough force to seat the connector tight against the surface of the board. When using a manual press, visually confirm that the standoff region surrounding the connector guide pins (circled on the diagrams at right and below) is seated directly onto the surface of the board.



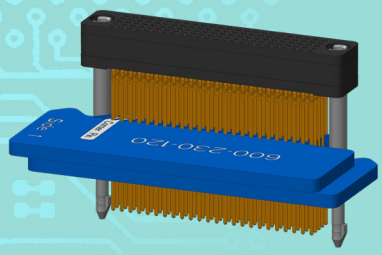


Rev. 11.18.21

.062" PITCH COMPLIANT PIN

HD Stacker™

Connector-to-board installation guide



INSTALLATION WITH CONTACT ALIGNMENT COMBS

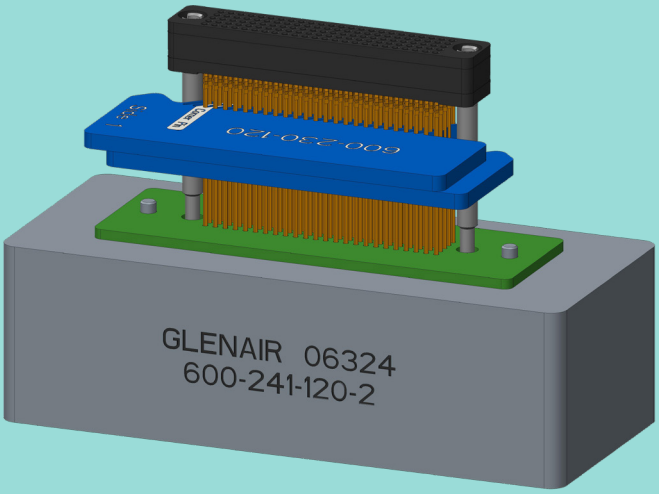
HD Stacker connectors with longer pins may require alignment with the addition of pin organizer combs.

CONNECTOR PREPARATION

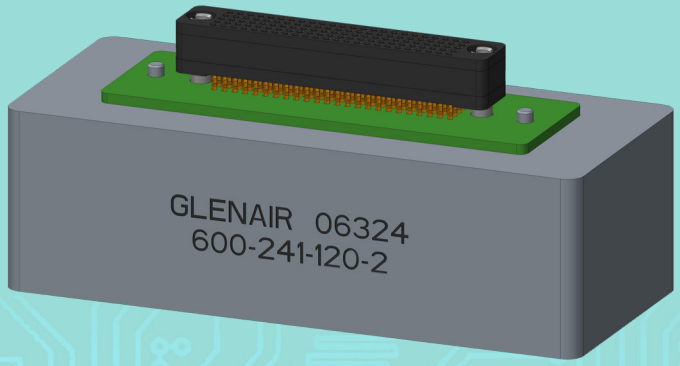
1. Insert the first comb. For optimal pin engagement, leave the two circled cavities (shown in step 1 and 2 diagrams) empty.

2. Insert Second Comb. For optimal pin engagement, leave the two circled cavities empty.

3. Feed the contacts into the board and the mounting plate.



4. Remove the combs and slide the connector pins into the mounting plate.



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