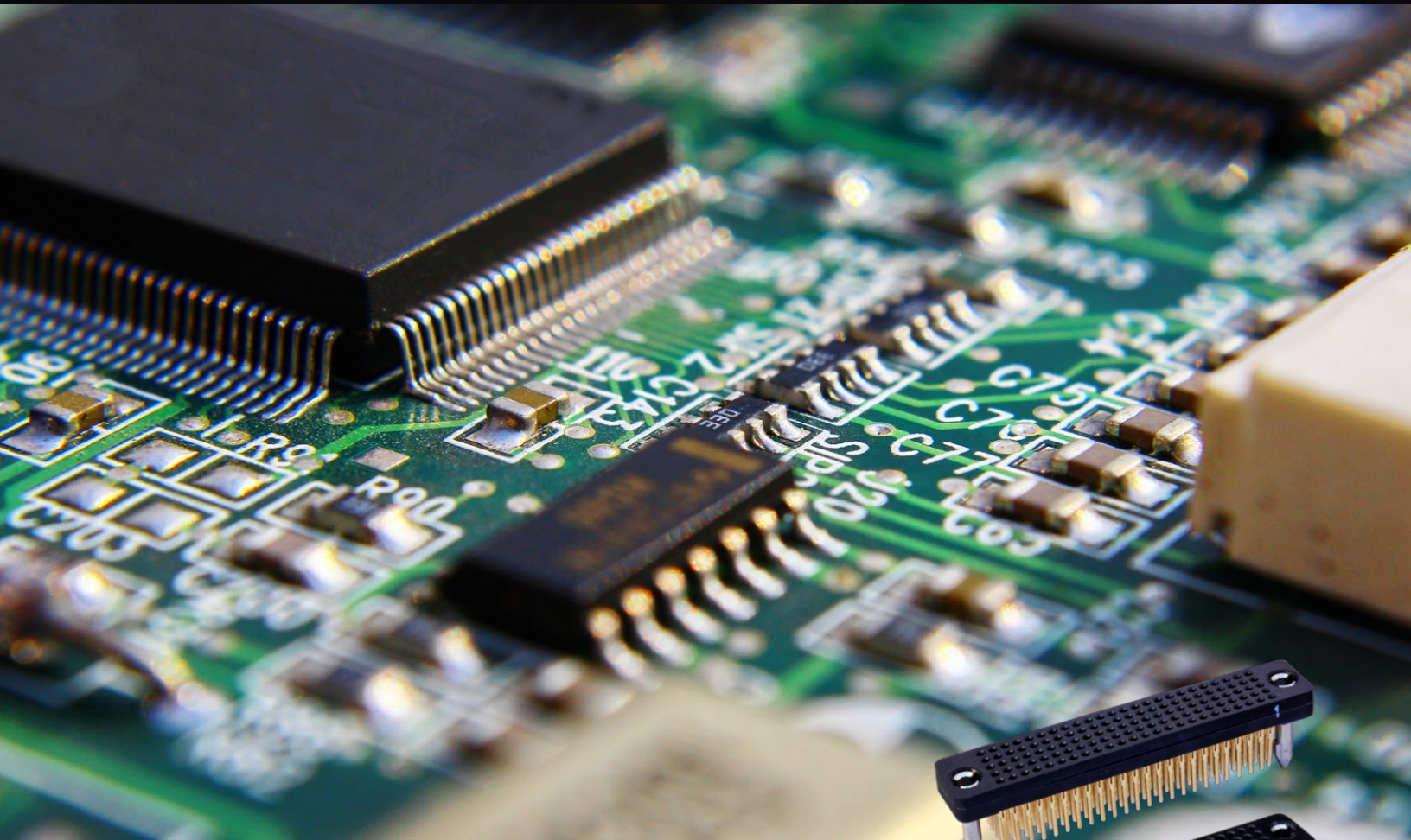


MISSION-CRITICAL  
INTERCONNECT  
SOLUTIONS



.062" PITCH COMPLIANT PIN

# HD Stacker™

Rugged Board-to-Board Stackable Connectors

Recommended for military / commercial avionics and space systems

OCTOBER 2018



# HDSTACKER™

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

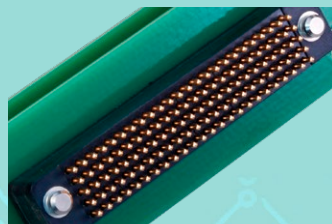
Mission-critical board-to-board connector applications demand fail-safe signal integrity as well as rugged and reliable harsh-environment performance. The HD Stacker™ brings Glenair innovation to stacking board-to-board connectors with several significant design improvements: Ultra high-density .0625" 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 mismatching. 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

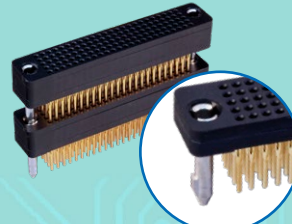
### HD STACKER™ FOR MISSION-CRITICAL BOARD-TO-BOARD APPLICATIONS



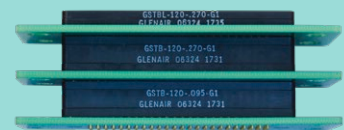
Solder-free press-fit (compliant pin) board mounting



.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)

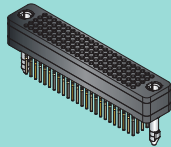
.062" PITCH COMPLIANT PIN

# HD Stacker™

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

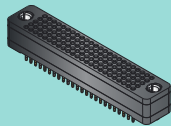


## SELECTION GUIDE



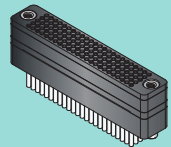
**HD Stacker™ GSTB - Universal stacking connector**  
For top, middle, and bottom positions

page 6



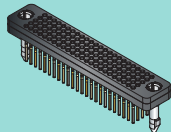
**HD Stacker™ GSTB (.095) Single-sided mating connector**  
Bottom-of-stack

page 7



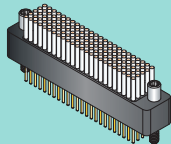
**HD Stacker™ GSTF Pre-wired connector**  
Bottom-of-stack

page 8



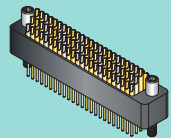
**HD Stacker™ GSTBL Single-sided mating connector**  
Top-of-stack

page 9



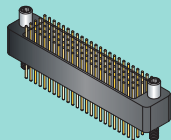
**HD Stacker™ GSTT-PW Pre-wired connector**  
Top-of-stack

page 10



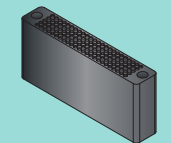
**HD Stacker™ GSTT-PS Solder-cup connector**  
Top-of-stack

page 11



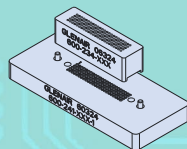
**HD Stacker™ GSTT-PF PC-tail (flex) connector**  
Top-of-stack

page 12



**HD Stacker™ 980-008 Board-to-board spacer**  
Between stack

page 14



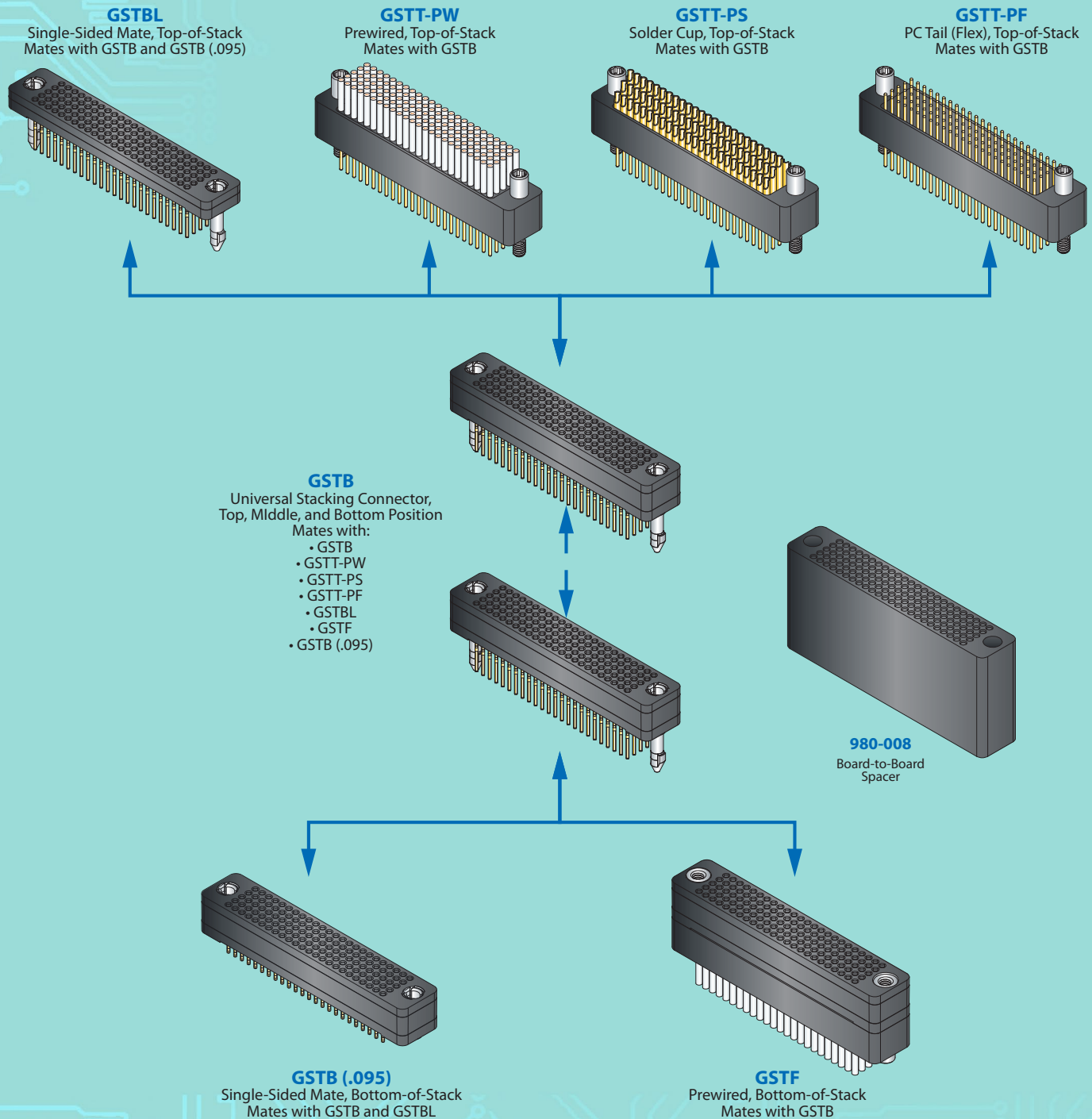
**HD Stacker™ Installation Tooling and Guide**  
page 15

# .062" PITCH COMPLIANT PIN HD Stacker™



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

## HD STACKER™ POSITION AND MATING COMPATIBILITY GUIDE



.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 +125°C  
 Mating force (max):  
 (4 ounces) X (number of contacts)  
 Insertion force (max):  
 (22.5 pounds) X (number of contacts)  
 Durability: 500 mating cycles

### MATERIALS AND FINISHES

Insulator: Polyphenylene sulfide (PPS); meets NASA outgassing requirements.  
 Contacts: Copper alloy, gold over nickel plating  
 Hardware: Copper alloy, nickel plated and/or 300 series stainless steel, passivated.  
 Encapsulant: Epoxy resin Hysol EE4215



### PCB REQUIREMENTS

Board material: FR-4 or equivalent with 1 oz. copper  
 Board thickness: .058" minimum  
 Drilled hole size: Ø.033" (#66 drill)  
 Plating material: Sn alloy or ENIG recommended  
 Total plating thickness: .001" – .002"

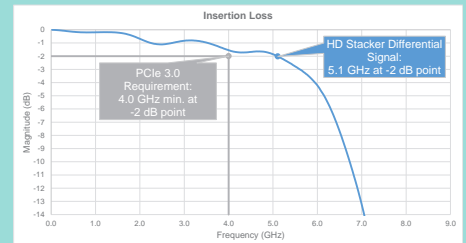
### QUALIFICATION TESTING / HIGH-SPEED PERFORMANCE

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
- Humidity

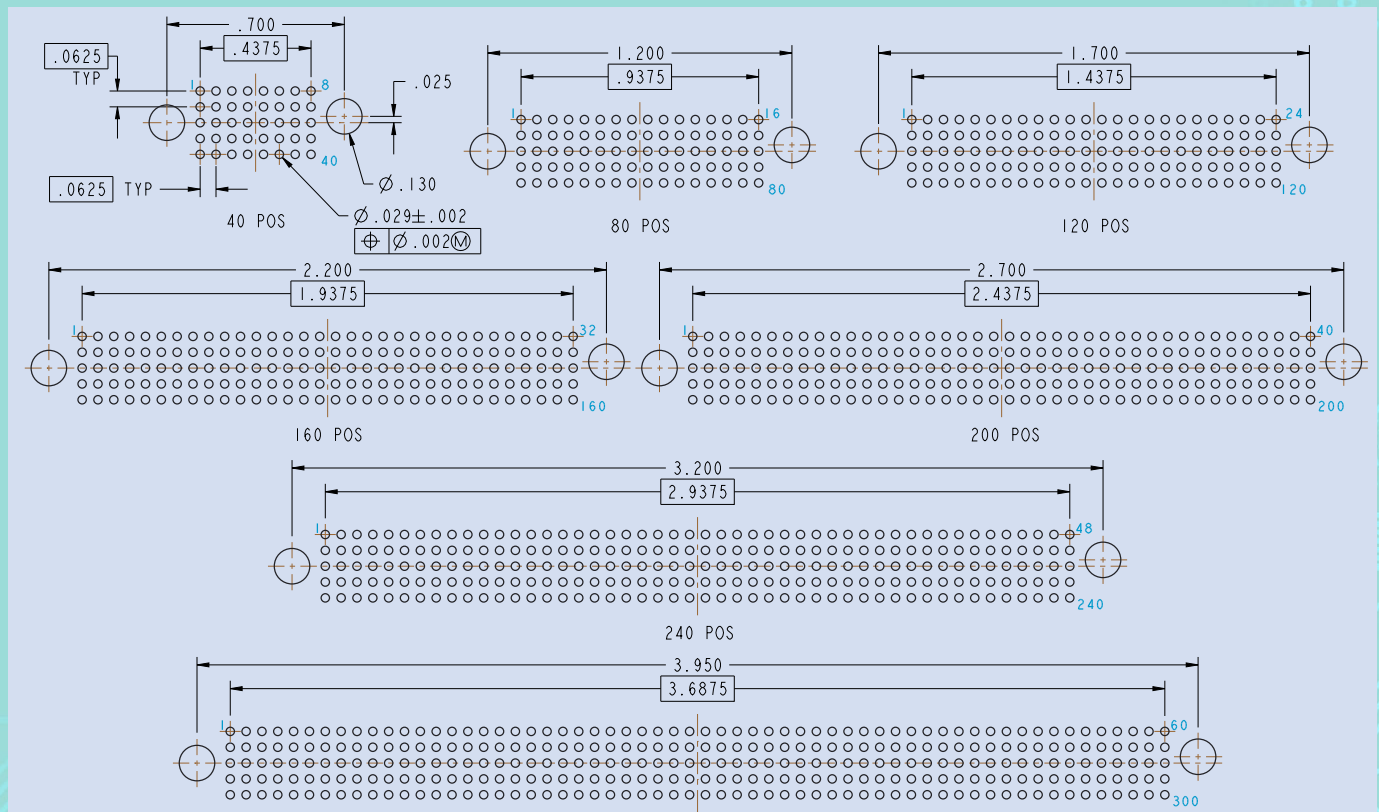
High-frequency electrical performance tests were performed for: Insertion loss, return loss, crosstalk, and time domain performance metrics including impedance and eye pattern.

Complete test reports are available at [www.glenair.com/technical\\_information\\_test\\_reports](http://www.glenair.com/technical_information_test_reports)



HD Stacker insertion loss compared to PCIe Rev. 3

### PCB LAYOUTS (COMPONENT SIDE)

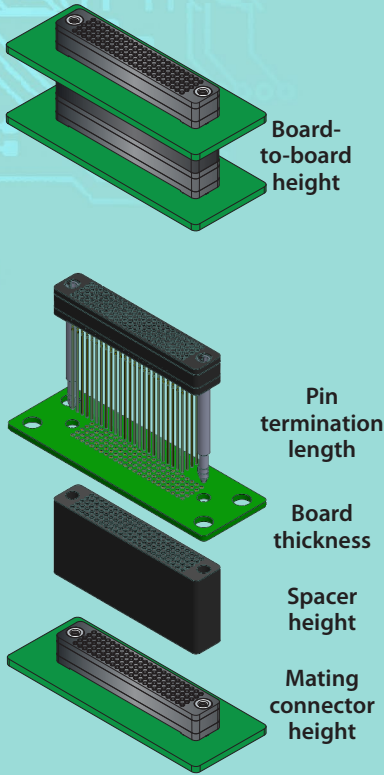


# .062" PITCH COMPLIANT PIN HD Stacker™



## 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).

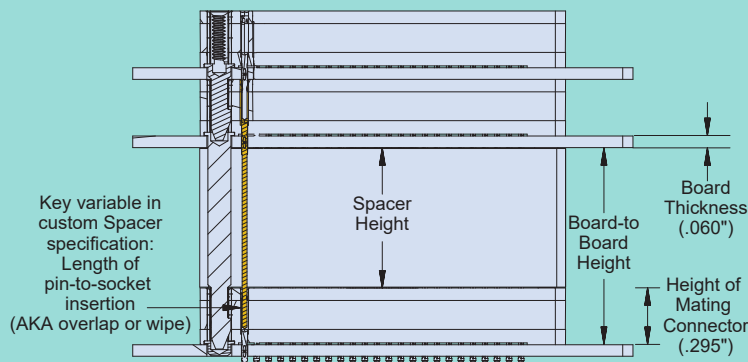


Illustration above depicts all of the standard variables affecting board-to-board height. While custom spacers are available, care must be given to ensure pin termination lengths result in adequate pin-to-socket overlap (not to be reduced in excess of .100")

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

## 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 (CVCN) 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.**

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

\*Thermal vacuum of 10<sup>-6</sup> Torr.

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

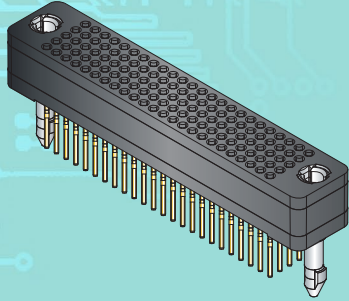
Outgassing Properties of HD Stacker Connectors					
GSTB, GSTB (.095), and GSTBL Connectors					
Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCN)	Test Report
Thermoplastic Insulator	40% Glass-filled PPS	Fortron 1140L4	0.06	0.01	NASA Test #GSC24581
GSTT and GSTF Connectors					
Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCN)	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

# .062" PITCH COMPLIANT PIN HD Stacker™



## GSTB universal stacking connector For top, middle, and bottom-of-stack

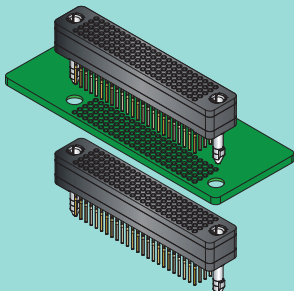
MATES WITH GSTB, GSTB (.095), GSTF, GSTT, GSTBL



- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection



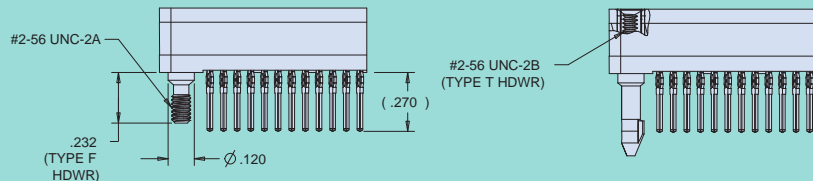
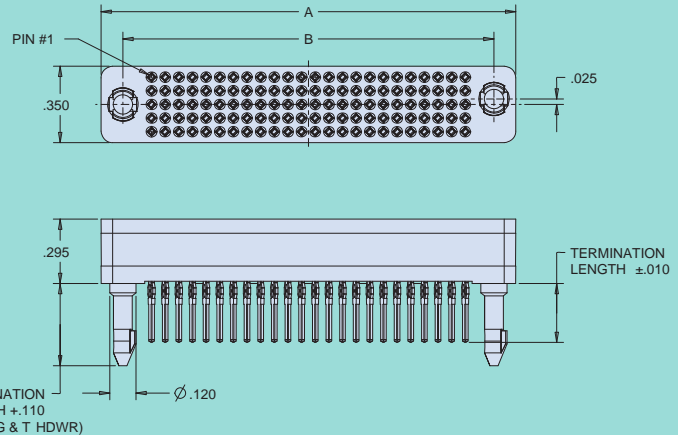
All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTB is equipped with pin/socket contacts with solder-free press-fit 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, 300				
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 #2-56 Jackpost for GSTT mate F Keyed Guide Socket / Fixed (non-rotating) Male Jackscrew for GSTF mate Use .270 termination length only				
Key Position	1*	2	3	4	

\* Choose Hardware/Key Position -G1 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
300	4.15	105.41	3.95	100.33



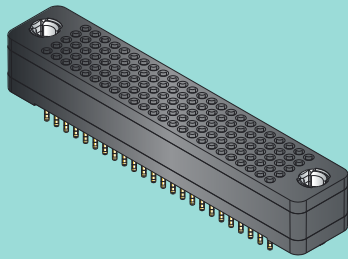
.062" PITCH COMPLIANT PIN

HD Stacker™

GSTB (.095) single-sided mating connector  
Bottom-of-stack



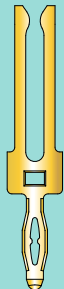
MATES WITH GSTB AND GSTBL



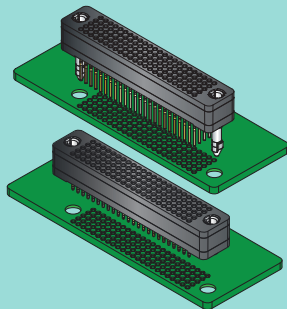
- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection

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, 300				
Zero Termination Length	.095				
Hardware	B Keyed Guide Pins for bottom stack				
Key Position	1*	2	3	4	

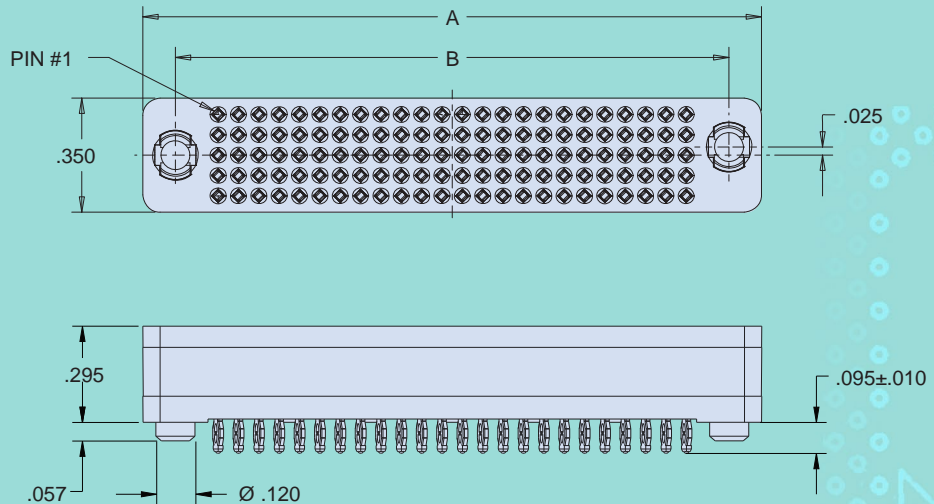
\* Choose Hardware/Key Position -B1 for best availability / fastest delivery



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.



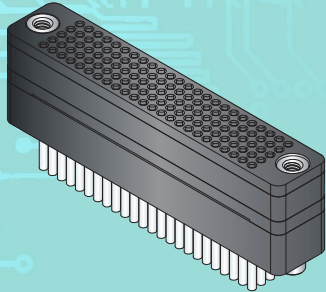
Number of Contacts	A		B	
	in	mm	in	mm
40	0.90	22.86	0.70	17.78
80	1.40	35.56	1.20	30.48
120	1.90	48.26	1.70	43.18
160	2.40	60.96	2.20	55.88
200	2.90	73.66	2.70	68.58
240	3.40	86.36	3.20	81.28
300	4.15	105.41	3.95	100.33

# .062" PITCH COMPLIANT PIN HD Stacker™



## GSTF pre-wired connector Bottom-of-stack

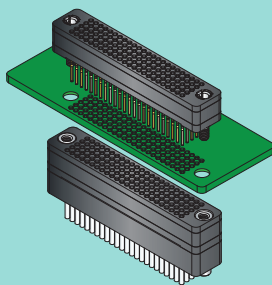
### MATES WITH GSTB



- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection
- Mil-qualified hookup wire in white, yellow, striped, and ten-color repeat

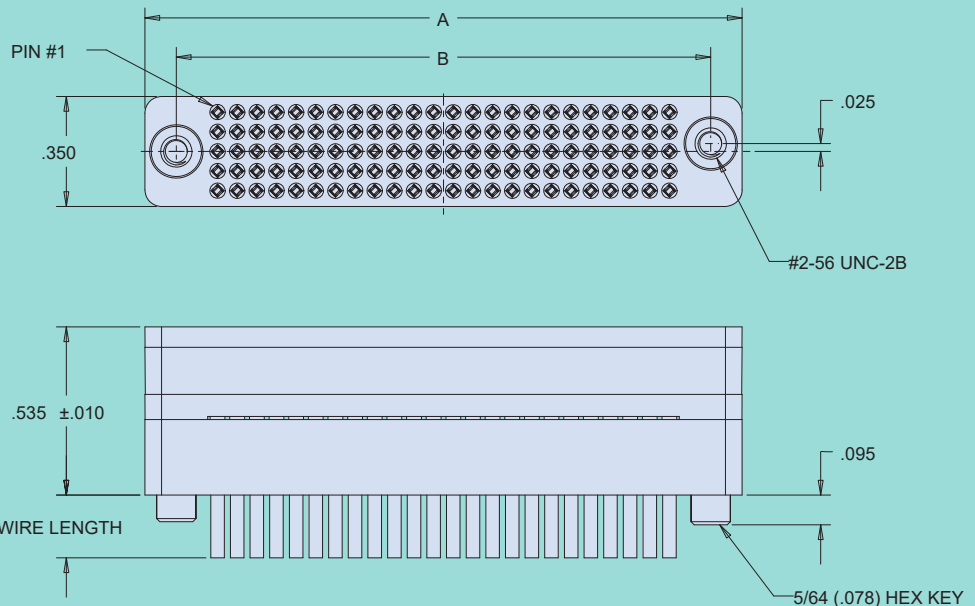


All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTF is equipped with mating socket contacts and a pre-wired cable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

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, 300
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 = #2-56 Hex Head Jackscrew



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
300	4.15	105.41	3.95	100.33

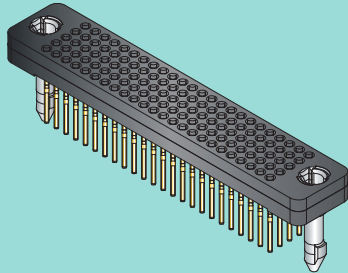
.062" PITCH COMPLIANT PIN

# HD Stacker™

## GSTBL single-sided mating connector Top-of-stack



### MATES WITH GSTB AND GSTB (.095)



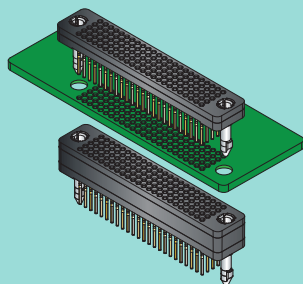
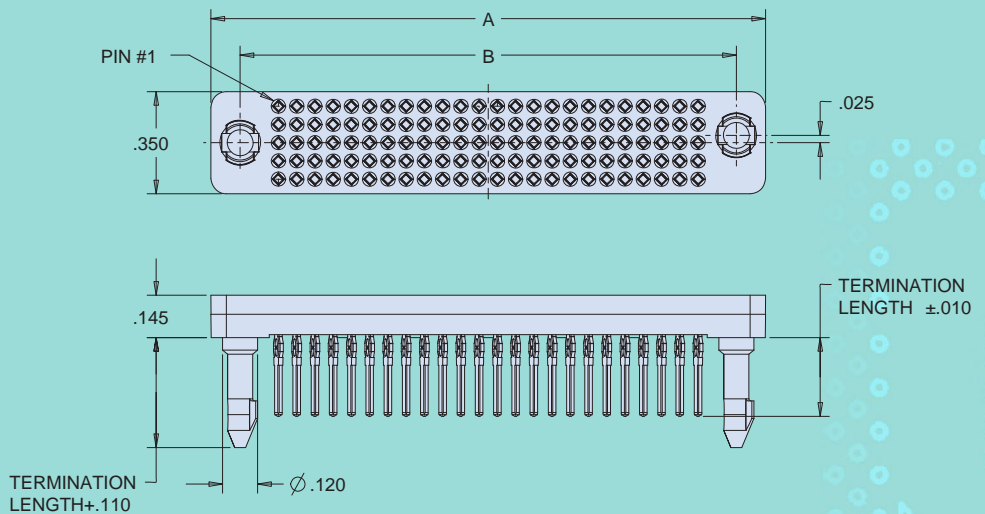
- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection

How to Order GSTBL HD Stacker					
Sample Part Number	GSTBL	-120	-.270	-G	1
Series	GSTBL = Low Profile Stacker				
Number of Contacts	40, 80, 120, 160, 200, 240, 300				
Pin Termination Length	.270, .300, .350, .400, .500, .600, .700, .800, .900, 1.000				
Hardware	G Keyed Guide Pin*				
Key Position	1*	2	3	4	

\* Choose Hardware/Key Position -G1 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
300	4.15	105.41	3.95	100.33

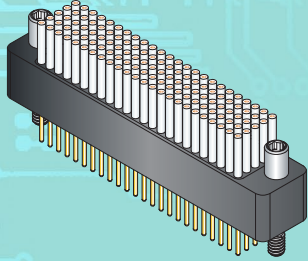
.062" PITCH COMPLIANT PIN

# HD Stacker™

## GSTT-PW pre-wired connector Top-of-stack



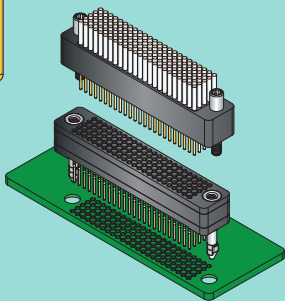
### MATES WITH GSTB



- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection
- Mil-qualified hookup wire in white, yellow, striped, and ten-color repeat

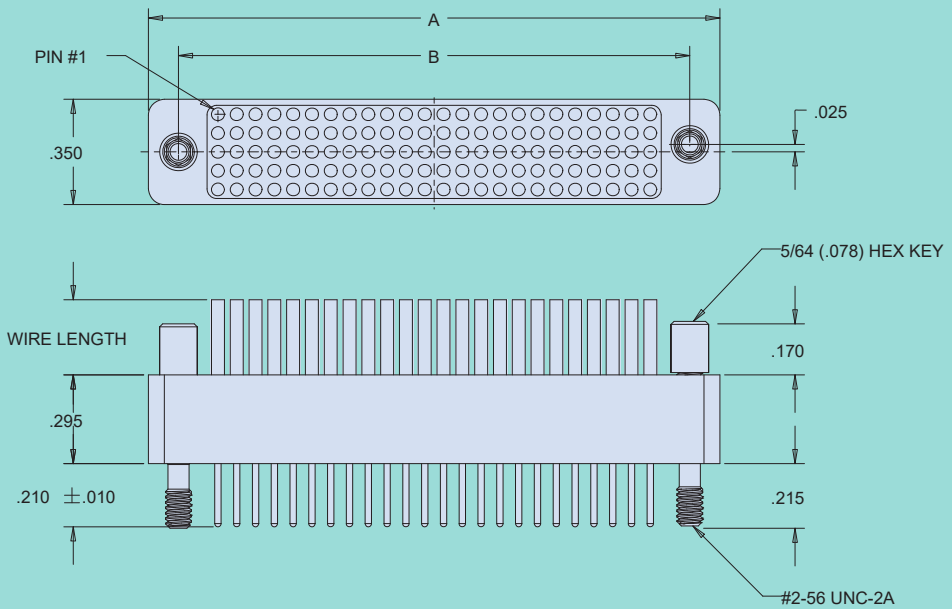


All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTT-PW is equipped with pin contacts and a pre-wired cable jumper.



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.

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, 300
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 = #2-56 Hex Head Jackscrew



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
300	4.15	105.41	3.95	100.33

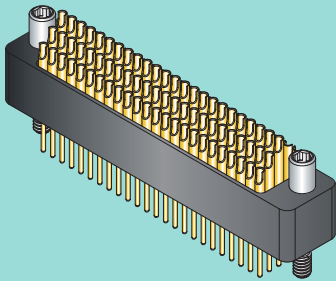
.062" PITCH COMPLIANT PIN

HD Stacker™

GSTT-PS solder cup connector  
Top-of-stack



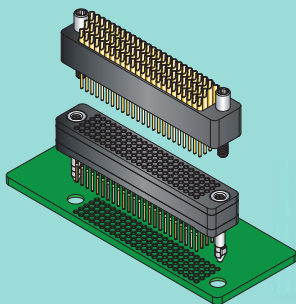
MATES WITH GSTB



- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection
- Solder cup cascaded for easy wire-to-contact terminations

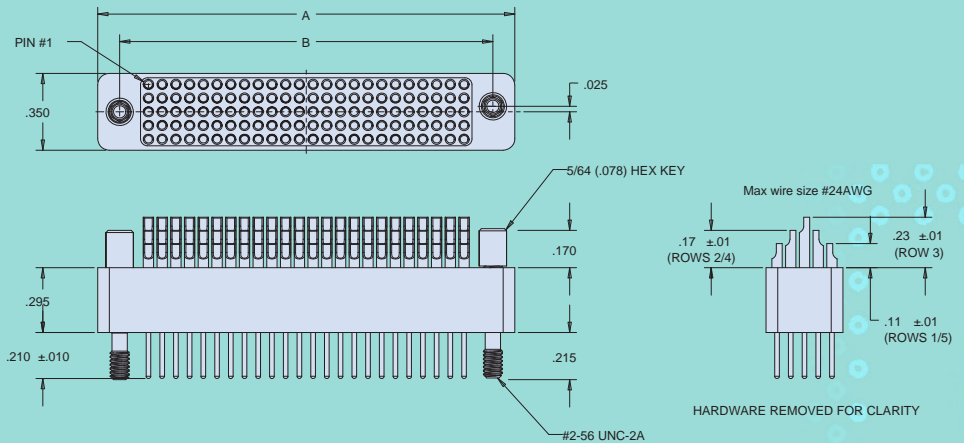


All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTT-PS is equipped with pin contacts and solder cups for wire-to-contact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



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

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, 300				
Contact Type	P = Pin				
Termination Type	S = Solder Cup				
Hardware	M = #2-56 Hex Head Jackscrew				



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
300	4.15	105.41	3.95	100.33

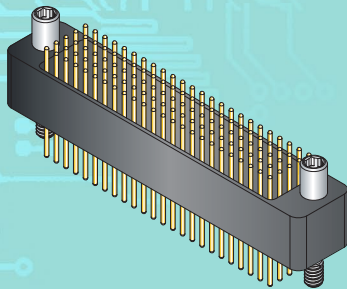
.062" PITCH COMPLIANT PIN

# HD Stacker™

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



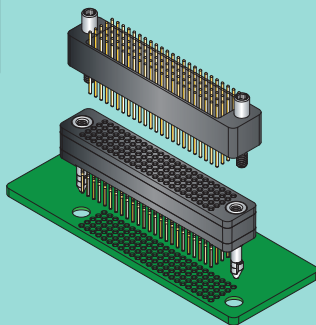
### MATES WITH GSTB



- Innovative Chevron Contact System (CCS)
- High-density layouts from 40 to 300 contacts
- Polarized insulators
- Keyed guide pin hardware for mis-mate protection
- Turnkey PC-tail flex jumpers available from Glenair, consult factory.

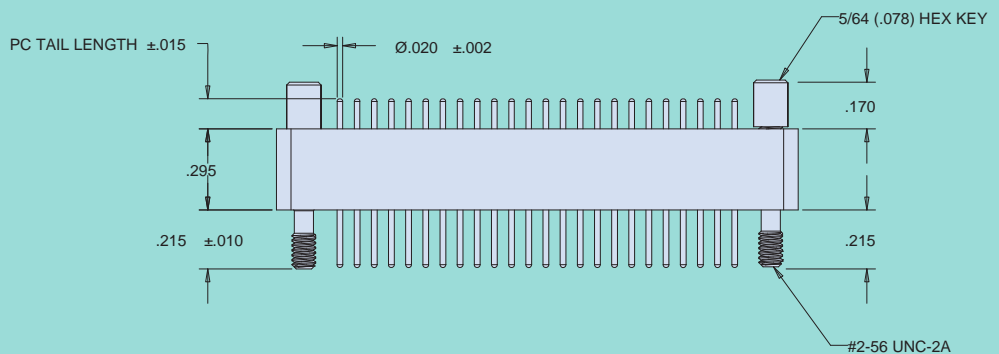
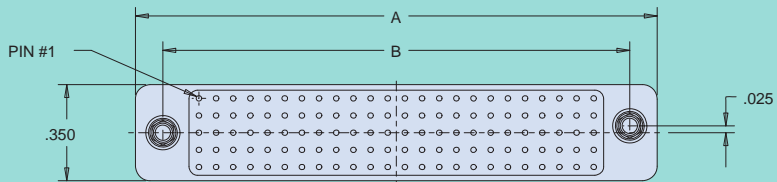


All Glenair HD Stacker™ connectors are equipped with our innovative .062" pitch high-density Chevron Contact System (CCS). Special non-orthogonal socket tines enable both higher density layouts as well as improved signal integrity. The GSTT-PF is equipped with pin contacts and PC tails for termination 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, 300					
Contact Type	P = Pin					
Termination Type	F = PC Tail (for flex termination)					
PC Tail Length	.080, .110, .140, .172, .190, .250					
Hardware	M = #2-56 Hex Head Jackscrew					



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
300	4.15	105.41	3.95	100.33

.062" PITCH COMPLIANT PIN

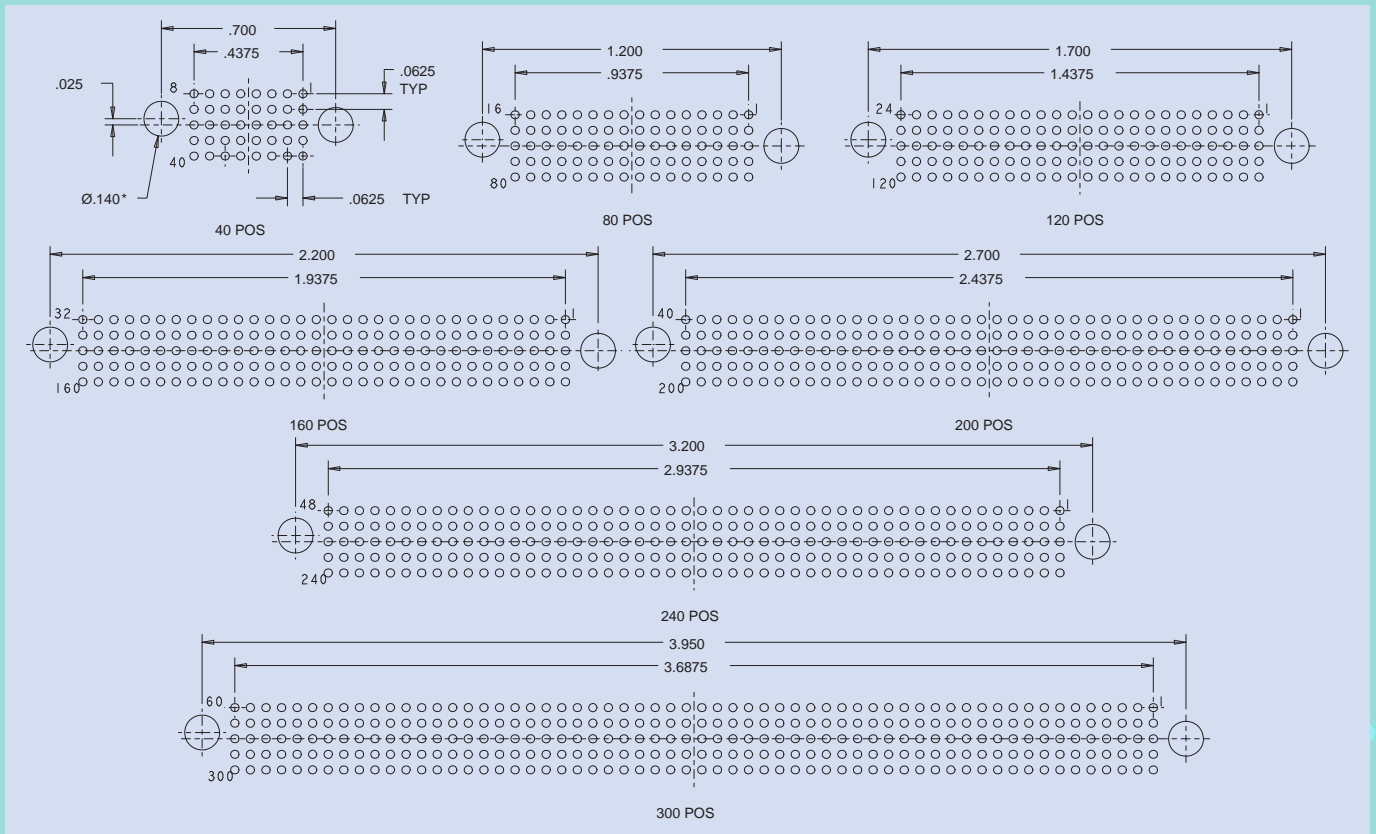
HD Stacker™

GSTT-PF PC-tail (flex) connector

Top-of-stack



**FLEX LAYOUTS (COMPONENT SIDE)**

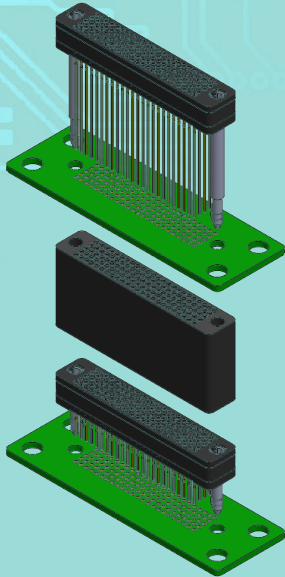


# .062" PITCH COMPLIANT PIN HD Stacker™

## Board-to-Board Spacer



### USE WITH GSTB OR GSTBL



Glennair 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, 300		
Spacer Height*	.080, .130, .230, .330, .430, .530, .630, .730, .830		

Note: Glennair HD Stacker connectors will accommodate pin-to-socket insertion tolerances on the order of  $\pm .100$ ". Contact Glennair 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

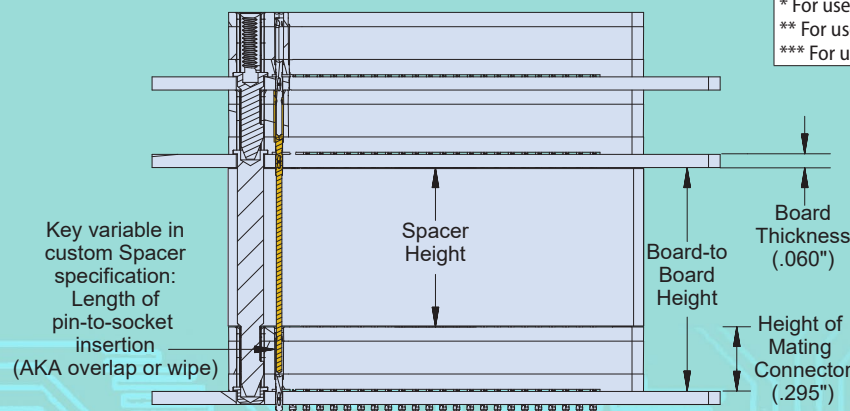


Illustration left depicts all of the standard variables affecting board-to-board height. While custom spacers are available, care must be given to ensure pin termination lengths result in adequate pin-to-socket overlap (not to be reduced in excess of .100")

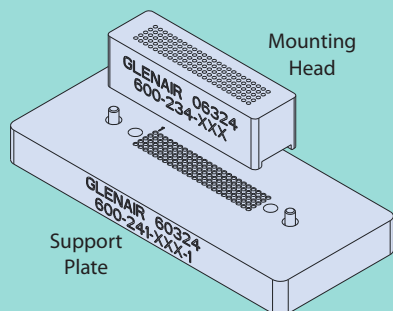


.062" PITCH COMPLIANT PIN

# HD Stacker™

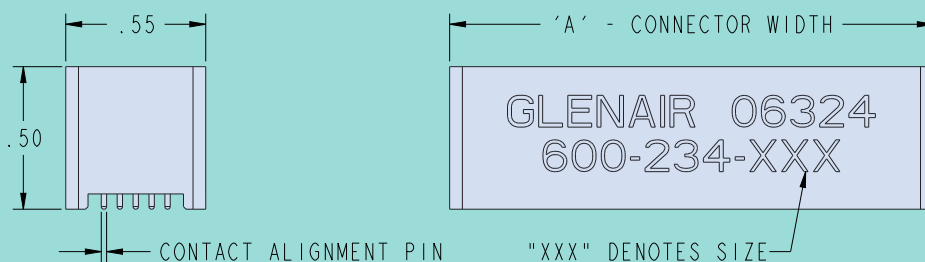


## Mounting Head tool for connector-to-board installation



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, 300	

- 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.**

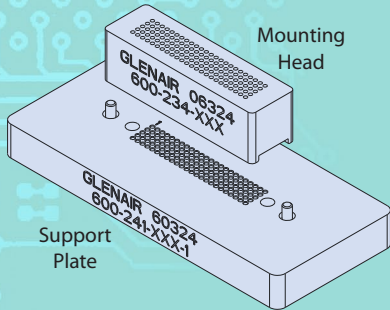


Number of Contacts	A	
	in	mm
40	0.90	22.86
80	1.40	35.56
120	1.90	48.26
160	2.40	60.96
200	2.90	73.66
240	3.40	86.36
300	4.15	105.41

# .062" PITCH COMPLIANT PIN HD Stacker™

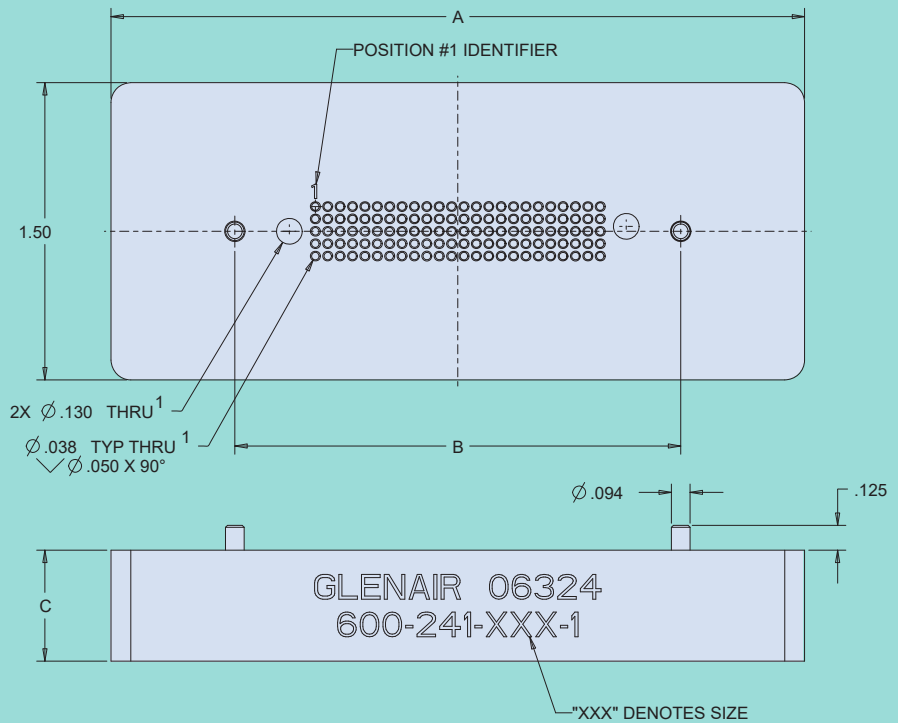


## Support Plate tool for connector-to-board installation



How to Order 600-241 HD Stacker Support Plate			
Sample Part Number	600-241	-120	-1
Series	600-241 = HD Stacker Support Plate		
Number of Contacts	40, 80, 120, 160, 200, 240, 300		
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])		

■ **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.**



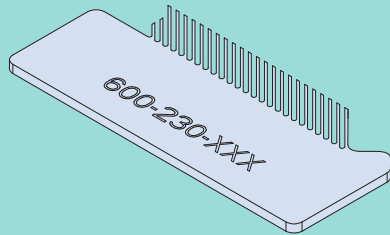
Number of Contacts	A		B	
	in	mm	in	mm
40	2.50	63.50	1.25	31.75
80	3.00	76.20	1.75	44.45
120	3.50	88.90	2.25	57.15
160	4.00	101.60	2.75	69.85
200	4.50	114.30	3.25	82.55
240	5.00	127.00	3.75	95.25
300	5.75	146.05	4.50	114.30

.062" PITCH COMPLIANT PIN

# HD Stacker™

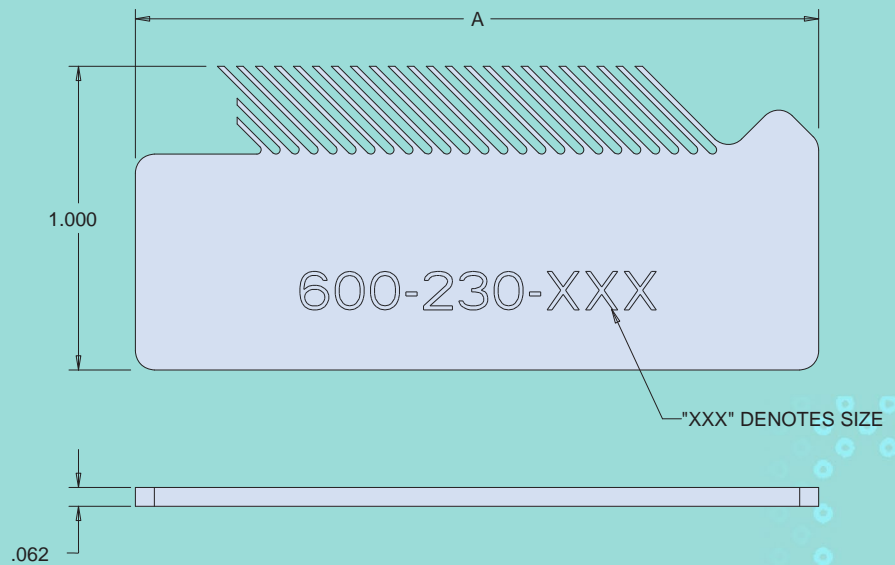


## Contact Alignment Comb for connector-to-board installation



How to Order 600-230 HD Stacker Contact Alignment Comb		
Sample Part Number	600-230	-120
Series	600-230 = HD Stacker Contact Alignment Comb	
Number of Contacts	40, 80, 120, 160, 200, 240, 300	

- Pin organizers, or contact alignment tools, are recommended to assist operators feeding contacts with termination lengths larger than .500" into the printed circuit board. Alignment tools are made of clear polycarbonate.

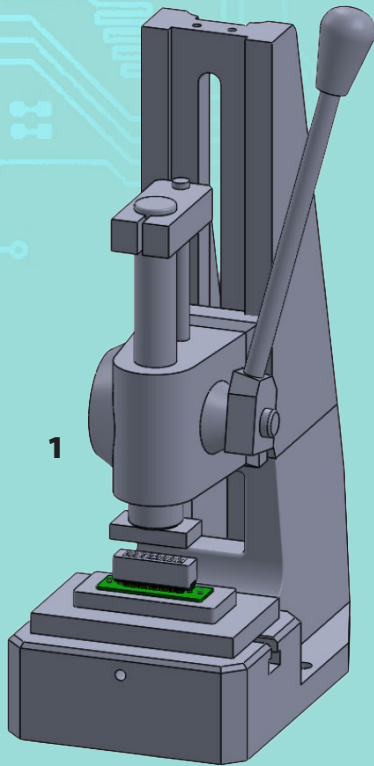


Number of Contacts	A	
	in	mm
40	1.25	31.75
80	1.75	44.45
120	2.25	57.15
160	2.75	69.85
200	3.25	82.55
240	3.75	95.25
300	4.50	114.30

## 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.

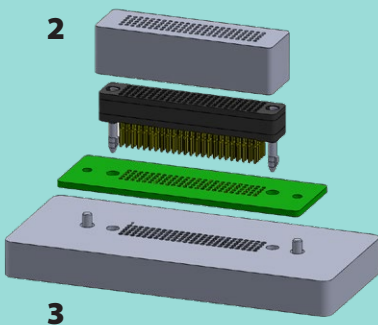


### EQUIPMENT:

#### 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.

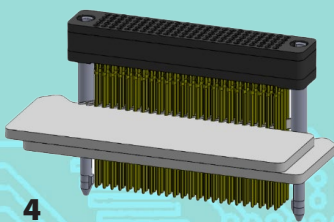


#### 2. Mounting Head with Contact Alignment Pins:

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. 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.



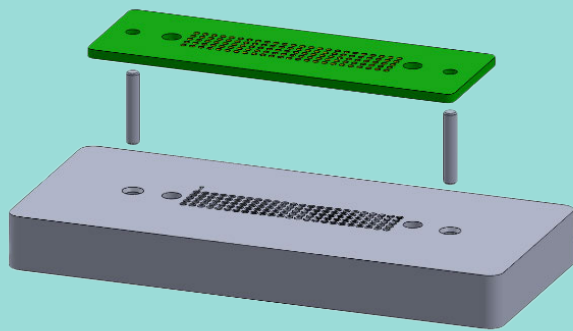
#### 4. Contact Alignment Comb

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.

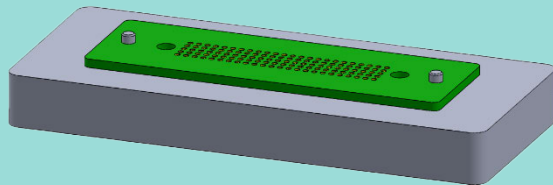
## Connector-to-board installation guide

### PC BOARD PREPARATION

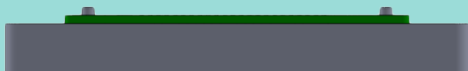
1. Install the loose guide pins into the support plate.



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

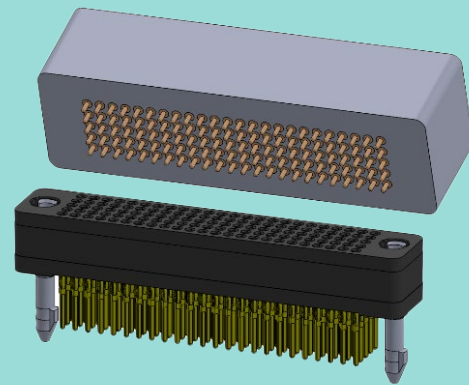


3. Verify the board lies flat and level against the plate.

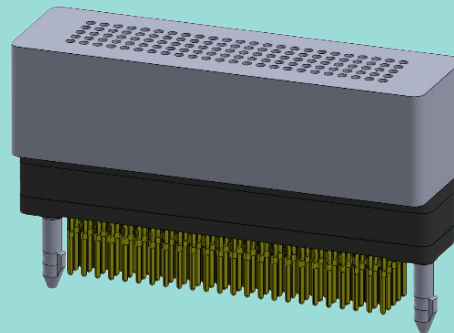


### CONNECTOR PREPARATION

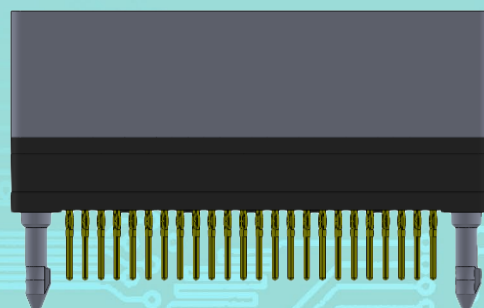
1. Note the pattern of contact alignment pins on the mounting head exactly matches the connector contact hole pattern.



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.

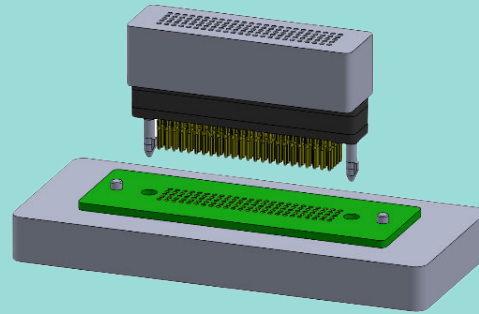


## Connector-to-board installation guide

### CONNECTOR INSTALLATION TO THE BOARD

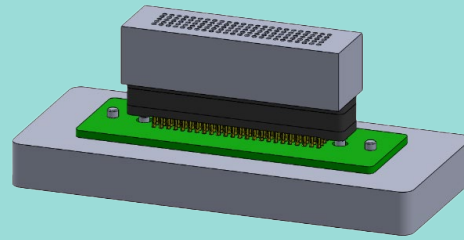
1. Feed the contacts into the board and the mounting plate.

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.

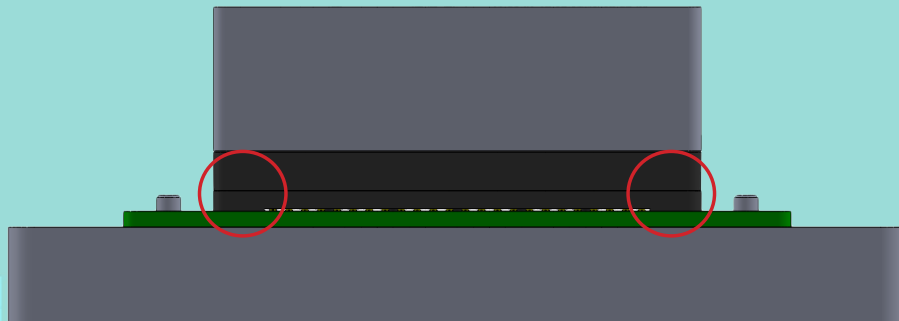
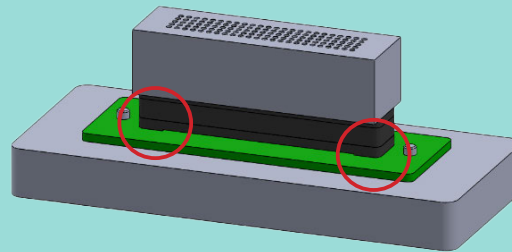


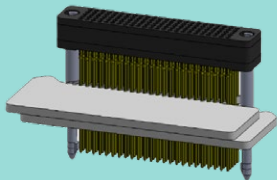
2. Verify the mounting head is seated against the top of the connector.

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.



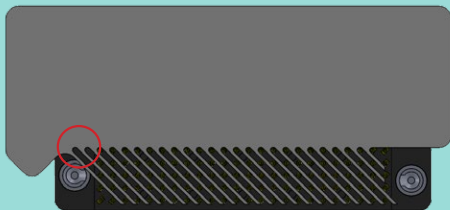


### INSTALLATION WITH CONTACT ALIGNMENT COMBS

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

### CONNECTOR PREPARATION

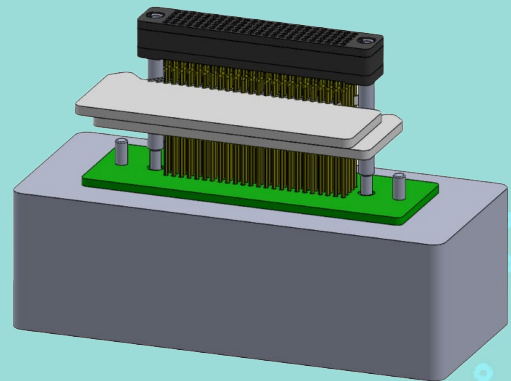
1. Insert the first comb. For optimal pin engagement, leave the two **circled** cavities (shown in step 1 and 2 diagrams) empty.



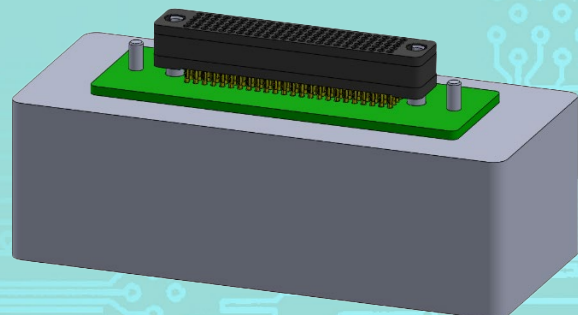
2. Insert Second Comb. For optimal pin engagement, leave the two **circled** cavities empty.



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



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





# MISSION-CRITICAL INTERCONNECT SOLUTIONS

## Glenair, Inc.

1211 Air Way • Glendale, California • 91201-2497

Telephone: 818-247-6000 • Fax: 818-500-9912 • sales@glenair.com

[www.glenair.com](http://www.glenair.com)

### Glenair Power Products Group

20 Sterling Drive  
Wallingford, CT  
06492

Telephone:  
203-741-1115  
Facsimile:  
203-741-0053  
sales@glenair.com

### Glenair UK Ltd

40 Lower Oakham Way  
Oakham Business Park  
Mansfield, Notts  
NG18 5BY England

Telephone:  
+44-1623-638100  
Facsimile:  
+44-1623-638111  
sales@glenair.co.uk

### Glenair Microway Systems

7000 North Lawndale Avenue  
Lincolnwood, IL  
60712

Telephone:  
847-679-8833  
Facsimile:  
847-679-8849

### Glenair Nordic AB

Gustav III : S Boulevard 42  
SE-169 27 Solna  
Sweden

Telephone:  
+46-8-50550000  
sales@glenair.se

### Glenair GmbH

Schaberweg 28  
61348 Bad Homburg  
Germany

Telephone:  
06172 / 68 16 0  
Facsimile:  
06172 / 68 16 90  
info@glenair.de

### Glenair Iberica

C/ La Vega, 16  
45612 Velada  
Spain

Telephone:  
+34-925-89-29-88  
Facsimile:  
+34-925-89-29-87  
sales@glenair.es

### Glenair Italia S.p.A.

Via Del Lavoro, 7  
40057 Quarto Inferiore –  
Granarolo dell'Emilia  
Bologna, Italy

Telephone:  
+39-051-782811  
Facsimile:  
+39-051-782259  
info@glenair.it

### Glenair France SARL

7, Avenue Parmentier  
Immeuble Central Parc #2  
31200 Toulouse  
France

Telephone:  
+33-5-34-40-97-40  
Facsimile:  
+33-5-61-47-86-10  
sales@glenair.fr

### Glenair Korea

B-1304 Gunpo IT Valley  
148 Gosan-Ro, Gunpo-Si  
Kyunggi-Do, Korea  
435-733

Telephone:  
+82-31-8068-1090  
Facsimile:  
+82-31-8068-1092  
sales@glenair.kr