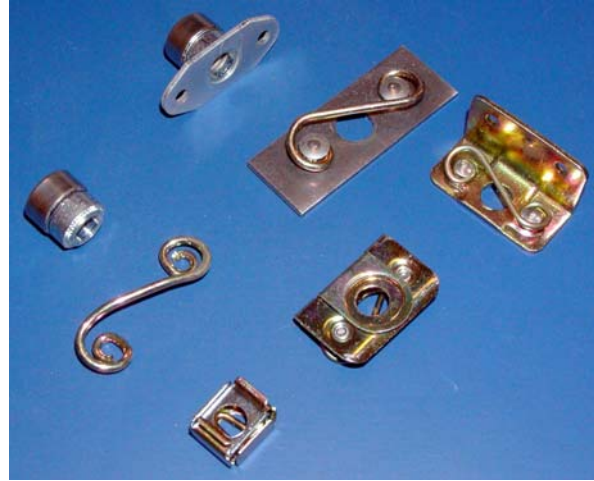


Quarter-Turn Fasteners



The DFCI ST-1200 Line selection of quarter-turn fasteners is the largest in the industry.



The design advantage of the DFCI ST-1200 Line fastener is readily apparent when compared with other types of quarter-turn fasteners particularly after prolonged use. Designers will find the DFCI ST-1200 Line an outstanding choice over the full service life of their product.

The DFCI ST-1200 Line fastener consists of a rugged spiral-cam stud, an optional stud retainer, and a receptacle consisting of or containing a wire form spring.

As the stud is rotated, the spiral cam on the stud engages the wire form spring receptacle and pulls it up and over the cam peak. The spring snaps into the detent at the end of the cam, holding the fastener in a firm locked tension. The cam peak resists opening rotation of a locked stud under vibration.

The features of the ST-1200 Line fastener include:

- a firm locking tension
- a crisp and positive lock
- a solid over-rotation stop
- minimal wear over thousands of use cycles
- performance is maintained over thousands of use cycles
- stud shanks are smooth, with no pins or lugs to hang up in support holes

Note: The selection and installation planning of fasteners can influence the security of the fastened parts. DFCI Product information and support service is intended for use only by persons with mechanical engineering qualifications sufficient to manage the responsibilities of:











1. Analyzing fastener performance in relation to the service to be met, and
2. Planning appropriate fastening locations and installations.

ST-1200 Line














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Components

Oval Head  (121J)	Wing Head  (121J-W)	Ring Head  (122J-R)	Flush Head  (126J)	SELF-EJECTING SE  Sizes 3, 4, 5 1258-F  Size 5 Size 6
Phillips Head  (121J-P)	Hex Head  (121J-H)	Knurled Head  (1211)	Tamper Resist  (1230)	

Special stud dimensions, materials and finishes are possible. Inquiries on special products are welcome. Detailed stud descriptions will be found on succeeding pages.

Half Grommet (127H)	Half Grommet (127P)	Snap Ring (1219-R)	Retaining Spring (1219-24)	Full Grommets (1271 and 1276)	Thick Panel Grommets (127S-A and 127S-F)
					
Solid. Retains when flattened	Plastic push-on retainer. Also used under head to protect panel finish	Split rings install fast, take little space	Holds stud in locking position for alignment with receptacle.	Prevent panel hole wear, protect panel finish, and reduce stud play. See page ST-50 for sizing information	Made to order and supplied attached to studs. See page ST-51 for sizing and order information
Spring Types 1219	Spring Plates, Flat & 90° Bend, Type 1224 & 1219-P	Slip-On Type 1219-L	Clip-In Type 1219-QC	Press-In Type 1219-PS	
					

ST-1200 Line



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Selection Procedure

STUDS

1. Select a fastener size using the performance table below.
2. Select an appropriate stud head style (see page ST-3).
3. Select a stud retainer (see steps 3A-D).
4. Select a receptacle type (see step 4A)
5. Now determine the thickness of material in which the stud is retained (shown in tables as panel) and to which the receptacle is attached (shown in tables as support). Then determine the total gap between the level of stud head contact with material and the level of receptacle contact, in the closed position. Include any air gaps and any part of the stud retainer thickness not buried in material already measured. Refer to the example on page ST-6 and ST-7.
6. Self-ejecting stud assemblies prevent stud play in open position and provide a visual cue of an open fastener



STUD RETAINERS

3. Some criteria for retainer selection are:
 - a. Desirability of radial and axial stud play in the unlocked position.
 - b. Degree of protection needed for panel hole and outer surface.
 - c. Whether retainer may be allowed to cause a gap between stud panel and receptacle support, or must be absorbed into one of those materials or into the receptacle itself.
 - d. Installed cost.



RECEPTACLES

- 4A. All of the receptacles provide the same optimum performance standards as listed in the table below. Therefore, receptacle selection is primarily a matter of choosing the installation mode that provides the lowest installed cost, and perhaps finding a type that will fit in limited space. If stainless steel is required, the wire-form springs, weld plates, and press-in types are available. If a fully enclosed type is needed, selection is limited to the 1219-PS and 1219-PSP plus the enclosed types available in the SU-2300 Line and PA-3500 Line.



Performance Table

Fastener Size	3	4	5	65
Stud End Diameter (inches)	3/16 (4.78 mm)	1/4 (6.35 mm)	5/16 (7.95 mm)	13/32 (10.31 mm)
Stud Head Diameter (inches)	5/16 (7.95 mm)	7/16 (18.75 mm)	9/16 (14.30 mm)	11/16 (17.48 mm)
Locked Service Tension (lb.)*	20	30	45	55
Maximum Tension Without Distortion (lb.)	45	60	85	110
Rated Shear (lb.)	100	150	200	300
Wear Life (Cycles)	5,000	5,000	25,000	40,000
See Pages ST-	10-18	20-31	32-40	42-48

* Maximum sheet separation at 150% of locked service tension: .05" (1.27 mm)

ST-1200 Line



Selection Worksheet

Step:	Your Answer	Example
1. Select a Stud Size: Use the Performance Table on page ST-5. (e.g., 4)		4
2. Select a Head Style: The head style will depend on your specific requirements. All available head styles are shown on page ST-3. (e.g., Oval Head)		121J-
3. Select a Retainer: The selection of a retainer will depend on your requirements (see page ST-5). Available retainers are dependent on the size selected. See: Size 3 page ST-14, Size 4 page ST-24, Size 5 page ST-36, and Size 65 page ST-46 (e.g., Aluminum Half Grommet)		127H-4
4. Select a Receptacle Type: Page ST-5, step 4, lists some receptacle selection criteria. (e.g., S-Spring)		1219-4
5. Determine the Panel Thickness: The Panel Thickness is the thickness of the material that contains the stud. (e.g., .090")		.090"
6. Determine the Support Thickness: The Support Thickness is the thickness of the material where the receptacle will be mounted. (e.g., .090")		.090"
7. Determine the Gap Thickness: The Gap Thickness is the distance between the panel and the support. Gap thickness may be the result of panel and support shape, use of a grommet or other stud retainer, or by use of a spacer or gasket. (e.g., .025" for the Aluminum Half Grommet)		.025"
8. For Self Ejecting, add .090" (e.g., .090")		.090"
9. Calculate Total Thickness : (e.g., .090" + .025" + .090" + .090")		1342.295"
10. Using the Total Thickness , go to the appropriate table and determine the stud "Grip Callout" The appropriate table is found on the page for the Stud Size and Receptacle. (e.g., for a Size 4 S-Spring, the table is on page ST-22.) (e.g., 45) IMPORTANT: Verify that the stud undercut (U Dim.) is sufficient to contain the panel thickness plus the retainer thickness. (e.g., A size 4 Oval Head 45 stud with a U Dim. of .225" is sufficient for my .090" panel plus .025" retainer plus the .090 SE Cup. (See page ST-21)		45
11. Add any Options: Options include Self Ejecting, Stainless Steel, and any special finishes. (See Page ST-7 and ST-8 for options and their codes. Finish Codes are listed starting on Page ST-52.) (e.g., Self Ejecting [SE], Stainless Steel [SS])		SE SS

Selection Worksheet (Continued)

Using the information you collected from the last page, fill in the stud part number as follows:

Stud Part Number:

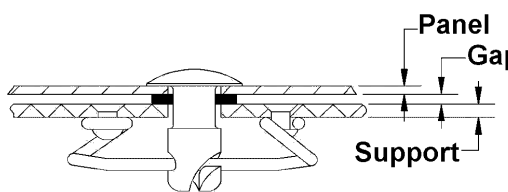
Your Answer				
Example	121J-	4	45	-SE-SS

Head Style
Size
Grip Callout
Options/Finish

Retainer and Receptacle Part Numbers

The receptacle part number is taken from the table where you found the "Grip Callout" for the stud.

The Retainer part number is taken from the retainer page for the size selected.

		Retainer	Receptacle
	Your Answer		
	Example	127H-4	1219-4200-Z3CT

Standard Material: Hardened steel studs, hard music wire D-rings, carbon steel wings.

Standard Finish: Zinc trivalent clear .0003 thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**).

Optional Stainless Steel: Studs are 300 series stainless. Change the finish suffix from the standard finish (**Z3CT**) to **SS** to the part number.

Optional Finishes: Change the finish suffix from **Z3CT** to the desired finish. Finish codes are listed starting on page ST-52. Optional finishes require special charges. Any order for a finish not standard for that item will result in additional charges and lead time.

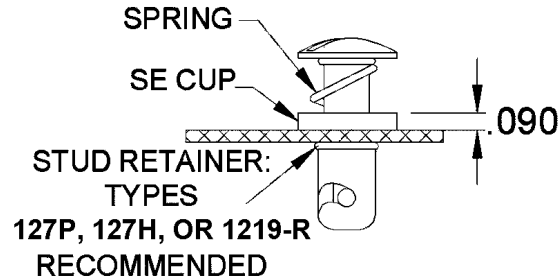
ST-1200 Line



SL-1200 Line Options

Self Ejecting

SL-1200 Line studs in **Sizes 3, 4, and 5**, each in a variety of head styles, may be ordered as SE ejecting assemblies. A stainless steel ejecting spring and a black plastic cup are sold attached to the stud. Type SE ejection is partial, being limited by the length of the stud undercut not occupied by the cup, panel, and stud retainer. Ejection will normally be sufficient to give a visual cue of an unlocked stud. Also, ejecting spring tension holds an opened stud firmly, easing removal and replacement of vertical panels and panels with multiple fasteners.



Stud Ejection = Dim. U (length of undercut) – total width of cup (.090”) (2.29 mm), panel, and retainer. See the stud tables for Dim. U.

Type **SE** ejecting stud assemblies are compatible with all receptacles in their size.

Callout: Insert **SE** in front of the finish suffix in the basic stud part number. (Example: 121J-460-**SE**-Z3CT)

DFCI **1258-F5** and **1258-F6** stud assemblies are sold with the stud and ejector spring secured in the mounting plate. The plate is riveted to the top of the removable panel. Providing an advantage on weak materials by spreading stud tensile load. The extreme ejection on **1258-F5** and **1258-F6** studs is a special advantage on curved or sliding panels. See page ST-66 for information on sizing and installation of the 1258-F5 and 1258-F6 Self Ejecting Stud Assemblies.



ST-1200 Line

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ST-1200 Line



Size 3 Studs

<p>Slotted Head 121J-3**-Z3CT</p>			<p>Wing Head 121J-W3**-Z3CT</p>		
<p>Ring Head 122J-R3**-Z3CT</p>			<p>Flush Head 126J-3**-Z3CT</p>		
<p>Phillips Head 121J-P3**-Z3CT</p>			<p>Hex Head 121J-H3**-Z3CT</p>		
<p>Tamper Resist 1230-3**-Z3CT</p>			<p>Knurled 1211-3**-Z3CT</p>		



ST-1200 Line

Size 3 Stud Dimensions

(inches)

Grip Callout	For All Head Styles Except: 126J-3		For Head Style: 126J-3	
	U Dim.	G Dim.	U Dim.	G Dim.
25	.075	.250	.150	.250
30	.100	.300	.150	.300
35	.150	.350	.175	.350
40	.200	.400	.200	.400
45	.225	.450	.225	.450
50	.250	.500	.250	.500
55	.275	.550	.275	.550
60	.300	.600	.300	.600
65	.350	.650	.350	.650
70	.350	.700	.350	.700
75	.400	.750	.400	.750
80	.400	.800	.400	.800

(mm)

Grip Callout	For All Head Styles Except: 126J-3		For Head Style: 126J-3	
	U Dim.	G Dim.	U Dim.	G Dim.
25	1.91	6.35	3.81	6.35
30	2.54	7.62	3.81	7.60
35	3.81	8.89	4.45	8.89
40	5.08	10.16	5.08	10.16
45	5.72	11.43	5.72	11.43
50	6.35	12.70	6.35	12.70
55	6.99	13.97	6.99	13.97
60	7.62	15.24	7.62	15.24
65	8.89	16.51	8.89	16.51
70	8.89	17.78	8.89	17.78
75	10.16	19.05	10.16	19.05
80	10.16	20.32	10.16	20.32

Standard Materials:

Hardened steel studs, hard music wire D-rings, carbon steel wings.

Standard Finish: Zinc Trivalent Clear .0003 Thick, Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC 2, Clear. (**Z3CT**)

Optional Stainless Steel: (SS)

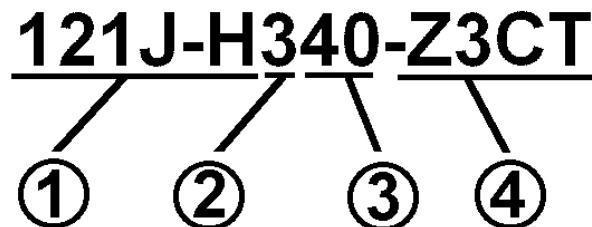
303 Stainless Steel studs, 400 series Stainless Steel D-rings, 300 series Stainless Steel wings.

1. Head Style
2. Shank Dia. X 1/16"
3. Grip Length
4. Finish Suffix

Optional Finishes:

Change the finish suffix in the basic part number. A complete list of available finishes can be found starting on page ST-52.

DFCI Stud Part Numbers



ST-1200 Line



Size 3 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (inches)

Grip Callout (REF)	1219-3150	1219-3175	1219-3200	1219-3225
25			.070-.094	.045-.069
30	.170-.194	.145-.169	.120-.144	.095-.119
35	.220-.244	.195-.219		
40	.270-.294	.245-.269		
45	.320-.344	.295-.319		
50	.370-.394	.345-.369		
55	.420-.444	.395-.419		
60	.470-.494	.445-.469		
65	.520-.544	.495-.519		
70	.570-.594	.545-.569		
75	.620-.644	.595-.619		
80	.670-.694	.645-.669		

Grip Callout (REF)	1219-PS3-1	1219-PS3-2	1218-P3205 1224-735-205	1218-P3230 1224-735-230	1218-P3255 1224-735-255	1218-P3280 1224-735-280
25	--	--				
30	--	--	.115-.139	.090-.114	.065-.089	.040-.064
35	.065-.089	.050-.064	.165-.189	.140-.164		
40	.115-.139	.090-.114	.215-.239	.190-.214		
45	.164-.189	.140-.164	.265-.289	.240-.264		
50	.215-.239	.190-.214	.315-.339	.290-.314		
55	.265-.289	.240-.264	.365-.389	.340-.364		
60	.315-.339	.290-.314	.415-.439	.390-.414		
65	.365-.389	.340-.364	.465-.489	.440-.464		
70	.415-.439	.390-.414	.515-.539	.490-.514		
75	.465-.489	.440-.464	.565-.589	.540-.564		
80			.615-.639	.590-.614		



ST-1200 Line

Size 3 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (mm)

Grip Callout (REF)	1219-3150	1219-3175	1219-3200	1219-3225
25			1.78-2.39	1.14-1.75
30	4.32-4.93	3.68-4.29	3.05-3.66	2.41-3.02
35	5.59-6.20	4.95-5.56		
40	6.86-7.47	6.22-6.83		
45	8.13-8.74	7.49-8.10		
50	9.40-10.01	8.76-9.37		
55	10.67-11.28	10.03-10.64		
60	11.94-12.55	11.30-11.91		
65	13.21-13.82	12.57-13.18		
70	14.48-15.09	13.84-14.50		
75	15.75-16.36	15.11-15.72		
80	17.02-17.63	16.38-16.99		

Grip Callout (REF)	1219-PS3-1	1219-PS3-2	1218-P3205 1224-735-205	1218-P3230 1224-735-230	1218-P3255 1224-735-255	1218-P3280 1224-735-280
25	--	--				
30	--	--	2.92-3.53	2.29-2.90	1.65-2.26	1.02-1.63
35	1.65-2.26	1.27-1.63	4.19-4.80	3.56-4.19		
40	2.92-3.53	2.29-2.90	5.46-6.07	4.86-5.44		
45	4.19-4.80	3.56-4.17	6.73-7.34	6.10-6.71		
50	5.46-6.07	4.83-5.44	8.00-8.61	7.37-7.98		
55	6.73-7.34	6.10-6.71	9.274-9.88	8.64-8.25		
60	8.00-8.61	7.37-7.98	10.54-11.15	9.91-10.52		
65	9.27-9.88	8.64-9.25	11.81-12.42	11.18-11.79		
70	10.54-11.15	9.91-10.52	13.08-13.69	12.45-13.06		
75	11.81-12.42	11.18-11.79	14.35-14.96	13.72-14.33		
80	--	--	15.62-16.23	14.99-15.60		

ST-1200 Line

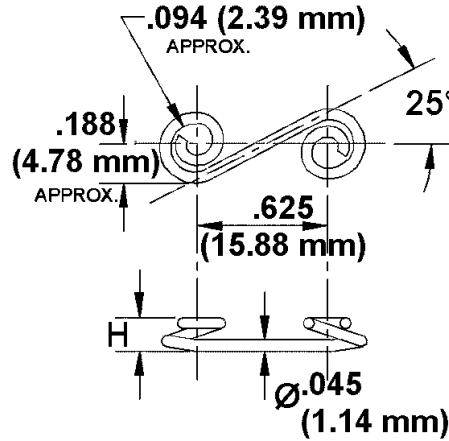


Size 3 Stud Retainers

1271 Aluminum Full Grommet		127H Aluminum Half Grommet		127P Plastic Half Grommet	
<p>For use with all except Flush Head Studs Part No.: 1271-3(dim. A) Material: Aluminum Retainer Thickness: .015" (.38 mm) (per end)</p>		<p>For use with all Studs Part No.: 127H-3 Material: Aluminum Retainer Thickness: .015" (.38 mm)</p>		<p>For use with all Studs Part No.: 127P-3B Material: Black Thermoplastic Push-Out Strength: Standard panel hole: 25 lb. Oversize panel hole: 7 lb. Retainer Thickness: .020" (.51 mm)</p>	
1219-R Stainless Steel Snap Ring			1219-24 Stainless Steel Retaining Spring		
<p>Part No: 1219-R3-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: .022" (.56 mm)</p>			<p>Part No. 1219-24520-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: The 1219-24 Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.</p>		

Size 3 Receptacles

S-Spring



Material: Music wire
Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer (Z3CT).

For 300 series Stainless Steel, change to finish suffix to **SS**. (E.g., 1219-3200-SS.)

Weight: 0.0009 lb.

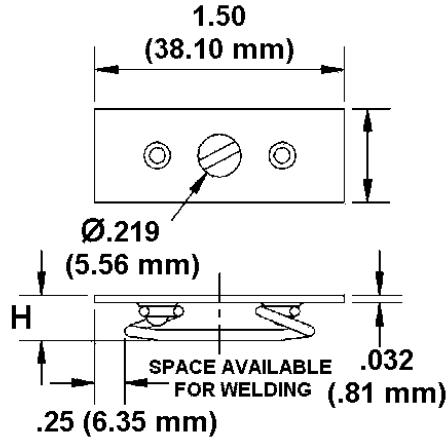
Recommended Spring Deflection: .020" to .045" (.51 to 1.14 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1219-3150-Z3CT	.150	3.81
1219-3175-Z3CT	.175	4.45
1219-3200-Z3CT	.200	5.08
1219-3225-Z3CT	.225	5.72

ST-1200 Line



Weld Plate



Material:

Plate: steel, unfinished

Spring: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer (**Z3CT**).

For 300 series Stainless Steel, change the finish suffix to **SS**. (E.g., 1224-735-230-SS.)

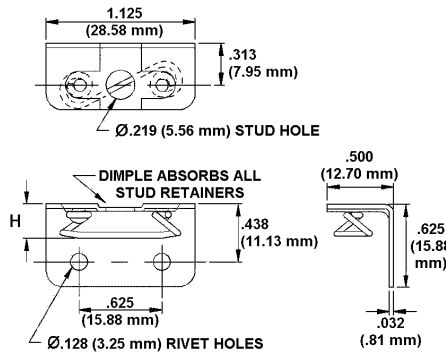
Weight: 0.0061 lb.

Recommended Spring Deflection: .020" to .045" (.51 to 1.14 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ±.25
1224-735-205-Z3CT	.205	5.21
1224-735-230-Z3CT	.230	5.84
1224-735-255-Z3CT	.255	6.48
1224-735-280-Z3CT	.280	7.11

Size 3 Receptacles

Right Angle Spring Plate



Material:

Plate: Low carbon steel
Spring: Music wire

Finish: Zinc Trivalent Clear
.0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2, Clear (**Z3CT**)

Mechanical

Height: See above
Recommended Spring Deflection: .020" to .045" (.51 to 1.14 mm)

***NOTE:** When calculating the total thickness for the Right Angle Spring Plate, the support thickness is 0.

Part Number	Spring Height (H)	
	(in.) ± .010	(mm) ± .25
1218-P3205-Z3CT	.205	5.21
1218-P3230-Z3CT	.230	5.84
1218-P3255-Z3CT	.255	6.48
1218-P3280-Z3CT	.280	7.11




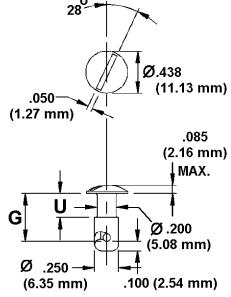

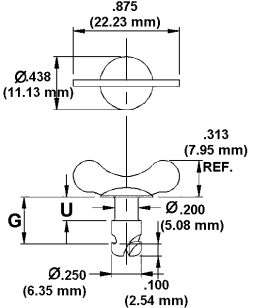

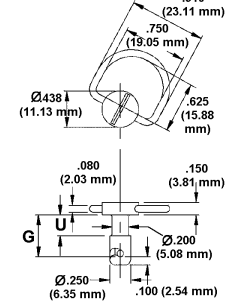

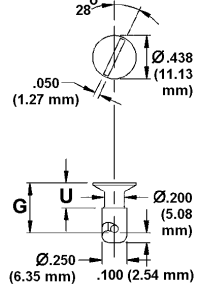

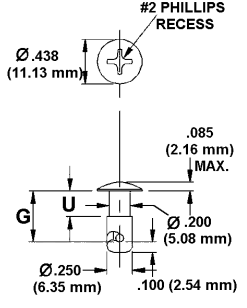

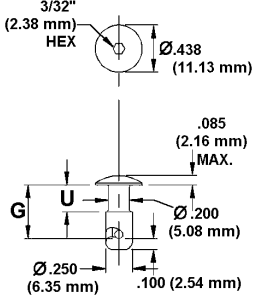

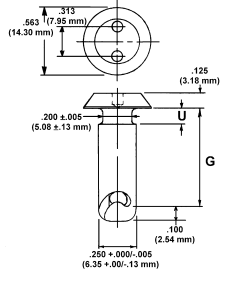

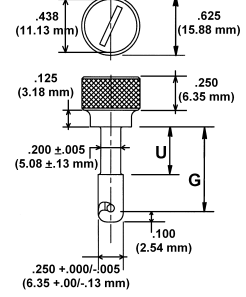
ST-1200 Line

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ST-1200 Line



Size 4 Studs

<p>Slotted Head 121J-4**-Z3CT</p>	 	<p>Wing Head 121J-W4**-Z3CT</p>	 
<p>Ring Head 122J-R4**-Z3CT</p>	 	<p>Flush Head 126J-4**-Z3CT</p>	 
<p>Phillips Head 121J-P4**-Z3CT</p>	 	<p>Hex Head 121J-H4**-Z3CT</p>	 
<p>Tamper Resist 1230-4**-Z3CT</p>	 	<p>Knurled 1211-4**-Z3CT</p>	 



ST-1200 Line

Size 4 Stud Dimensions

(inches)

Grip Callout	For All Head Styles Except: 126J-4		For Head Style: 126J-4	
	U Dim.	G Dim.	U Dim.	G Dim.
25	.100	.250	---	---
30	.100	.300	---	---
35	.150	.350	.175	.350
40	.200	.400	.200	.400
45	.225	.450	.225	.450
50	.250	.500	.250	.500
55	.275	.550	.275	.550
60	.300	.600	.300	.600
65	.350	.650	.350	.650
70	.350	.700	.350	.700
75	.400	.750	.400	.750
80	.400	.800	.400	.800
85	.500	.850	.500	.850
90	.500	.900	.500	.900
95	.600	.950	.600	.950
100	.600	1.000	.600	1.000
105	.600	1.050	.600	1.050
110	.600	1.100	.600	1.100
115	.600	1.150	.600	1.150
120	.600	1.200	.600	1.200

(mm)

Grip Callout	For All Head Styles Except: 126J-4		For Head Style: 126J-4	
	U Dim.	G Dim.	U Dim.	G Dim.
25	1.91	6.35	---	---
30	2.54	7.62	---	---
35	3.81	8.89	4.45	8.89
40	5.08	10.16	5.08	10.16
45	5.72	11.43	5.72	11.43
50	6.35	12.70	6.35	12.70
55	6.99	13.97	6.99	13.97
60	7.62	15.24	7.62	15.24
65	8.89	16.51	8.89	16.51
70	8.89	17.78	8.89	17.78
75	10.16	19.05	10.16	19.05
80	10.16	20.32	10.16	20.32
85	12.70	21.59	12.70	21.59
90	12.70	22.86	12.70	22.86
95	15.24	24.13	15.24	24.13
100	15.24	25.40	15.24	25.40
105	15.24	26.67	15.24	26.67
110	15.24	27.94	15.24	27.94
115	15.24	29.21	15.24	29.21
120	15.24	30.48	15.24	30.48

Standard Materials and Finishes:

Hardened steel studs, hard music wire D-rings, carbon steel wings. Zinc Trivalent Clear .0003 Thick, Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2, Clear. **(Z3CT)**

Optional Finishes:

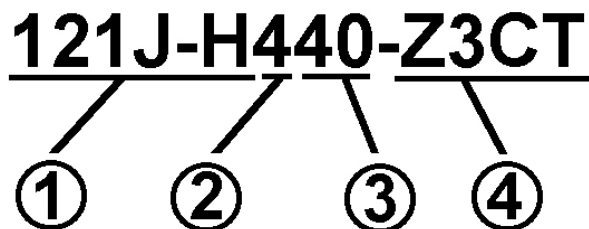
Change the finish suffix in the part number. A complete list of available finishes can be found starting on page ST-52.

Optional Stainless Steel: (SS)

303 Stainless Steel studs,
400 series Stainless Steel D-rings,
300 series Stainless Steel wings.

1. Head Style
2. Shank Dia. x 1/16"
3. Grip Length
4. Finish Suffix

DFCI Stud Part Numbers



ST-1200 Line



Size 4 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (inches)

Grip Callout (REF)	1219-4200	1219-4225	1224-485-300 1218-P4300	1224-485-275 1218-P4275	(*)-305	(*)-280
25	.075-.099	.050-.074	---	---	---	---
30	.125-.149	.100-.124	.025-.049	.050-.074	---	.046-.070
35	.175-.199	.150-.174	.075-.099	.100-.124	.071-.095	.096-.120
40	.225-.249	.200-.224	.125-.149	.150-.174	.121-.145	.146-.170
45	.275-.299	.250-.274	.175-.199	.200-.224	.171-.195	.196-.220
50	.325-.349	.300-.324	.225-.249	.250-.274	.221-.245	.246-.270
55	.375-.399	.350-.374	.275-.299	.300-.324	.271-.295	.296-.320
60	.425-.449	.400-.424	.325-.349	.350-.374	.321-.345	.346-.370
65	.475-.499	.450-.474	.375-.399	.400-.424	.371-.395	.396-.420
70	.525-.549	.500-.524	.425-.449	.450-.474	.421-.445	.446-.470
75	.575-.599	.550-.574	.475-.499	.500-.524	.471-.495	.496-.520
80	.625-.649	.600-.624	.525-.549	.550-.574	.521-.545	.546-.570
85	.675-.699	.650-.674	.575-.599	.600-.624	.571-.595	.596-.620
90	.725-.749	.700-.724	.625-.649	.650-.674	.621-.645	.646-.670
95	.775-.799	.750-.774	.675-.699	.700-.724	.671-.695	.696-.720
100	.825-.849	.800-.824	.725-.749	.750-.774	.721-.745	.746-.770
105	.875-.899	.850-.874	.775-.799	.800-.824	.771-.795	.796-.820
110	.925-.949	.900-.924	.825-.849	.850-.874	.821-.845	.846-.870
115	.975-.999	.950-.974	.875-.899	.900-.924	.871-.895	.896-.920
120	1.025-1.049	1.000-1.024	.925-.949	.950-.974	.921-.945	.946-.970

(*) is 1219-L4, 1219-L4-24 or 1219-L4-25 according to the support thickness (See page ST-30).

Grip Callout (REF)	1219-PS4-1	1219-PS4-2	1219-PSP4-1	1219-PSP4-2	1219-QC4 w/ 127P-4	1219-QC4 w/o 127P-4
40	.060-.084	.035-.059	--	--	--	--
45	.110-.134	.085-.109	.050-.074	.025-.049	--	.019-.043
50	.160-.184	.135-.159	.100-.124	.075-.099	.044-.068	.069-.093
55	.210-.234	.185-.209	.150-.174	.125-.149	.094-.118	.119-.143
60	.260-.284	.235-.259	.200-.224	.175-.199	.144-.168	.169-.193
65	.310-.334	.285-.309	.250-.274	.225-.249	.194-.218	.219-.243
70	.360-.384	.335-.359	.300-.324	.275-.299	.244-.268	.269-.293
75	.410-.434	.385-.409	.350-.374	.325-.349	.294-.318	.319-.343
80	.460-.484	.435-.459	.400-.424	.375-.399	.344-.368	.369-.393
85			.450-.474	.425-.449		



ST-1200 Line

Size 4 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (mm)

Grip Callout (REF)	1219-4200	1219-4225	1224-485-300 1218-P4300	1224-485-275 1218-P4275	(*)-305	(*)-280
25	1.91-2.51	1.02-1.88	---	---	---	---
30	3.18-3.78	2.54-3.15	.64-1.24	1.27-1.88	---	1.17-1.78
35	4.45-5.05	3.81-4.42	1.91-2.51	2.54-3.15	1.80-2.41	2.44-3.05
40	5.72-6.32	5.08-5.69	3.18-3.78	3.81-4.42	3.07-3.68	3.78-4.32
45	6.99-7.59	6.35-6.96	4.45-5.05	5.08-5.69	4.34-4.95	4.98-5.59
50	8.26-8.86	7.62-8.23	5.72-6.32	6.35-6.96	5.61-6.22	6.25-6.86
55	9.53-10.13	8.89-9.50	6.99-7.59	7.62-8.23	6.88-7.49	7.52-8.13
60	10.80-11.40	10.16-10.77	8.26-8.86	8.89-9.50	8.15-8.76	8.79-9.40
65	12.07-12.67	11.43-12.04	9.53-10.13	10.16-10.77	9.42-10.03	10.06-10.67
70	13.34-13.94	12.70-13.31	10.80-11.40	11.43-12.04	10.69-11.30	11.33-11.94
75	14.61-15.21	13.97-14.58	12.07-12.67	12.70-13.31	11.96-12.57	12.60-13.21
80	15.88-16.48	15.24-15.85	13.34-13.94	13.97-14.58	13.23-13.84	13.87-14.48
85	17.15-17.75	16.51-17.12	14.61-15.21	15.24-15.85	14.50-15.11	15.14-15.75
90	18.42-19.02	17.78-18.39	15.88-16.48	16.51-17.12	15.77-16.38	16.41-17.02
95	19.69-20.29	19.05-19.66	17.15-17.75	17.78-18.39	17.04-17.65	17.68-18.29
100	20.96-21.56	20.32-20.93	18.42-19.02	19.05-19.66	18.31-18.92	18.95-19.56
105	22.23-22.83	21.59-22.20	19.69-20.29	20.32-20.93	18.58-20.19	20.22-20.83
110	23.50-24.10	22.86-23.47	20.96-21.56	21.59-22.20	20.85-21.46	21.49-22.10
115	24.77-25.37	24.13-24.74	22.23-22.83	22.86-23.47	22.12-22.73	22.76-23.37
120	26.04-26.64	25.40-26.01	23.50-24.10	24.13-24.74	23.39-24.00	24.03-24.64

(*) is 1219-L4, 1219-L4-24 or 1219-L4-25 according to the support thickness (See page ST-30).

Grip Callout (REF)	1219-PS4-1	1219-PS4-2	1219-PSP4-1	1219-PSP4-2	1219-QC4 w/ 127P-4	1219-QC4 w/o 127P-4
40	1.52-2.13	.89-1.50	--	--	--	--
45	2.78-3.40	2.16-2.77	1.24-1.88	.64-1.24	--	.48-1.09
50	4.06-4.67	3.43-4.04	2.54-3.15	1.91-2.51	1.12-1.73	1.75-2.36
55	5.33-5.94	4.70-5.31	3.81-4.42	3.18-3.78	2.39-3.00	3.02-3.63
60	6.60-7.21	5.97-6.58	5.08-5.69	4.45-5.05	3.66-4.27	4.29-4.90
65	7.87-8.48	7.24-7.85	6.35-6.96	5.72-6.32	4.93-5.54	5.56-6.17
70	9.14-9.75	8.51-9.12	7.62-8.23	6.99-7.59	6.20-6.81	6.83-7.44
75	10.41-11.02	9.78-10.39	8.89-9.50	8.26-8.86	7.47-8.08	8.10-8.71
80	11.68-12.29	11.05-11.66	10.16-10.77	9.53-10.13	8.74-9.35	9.37-9.98
85	--	--	11.43-12.04	10.80-11.40	--	--

ST-1200 Line

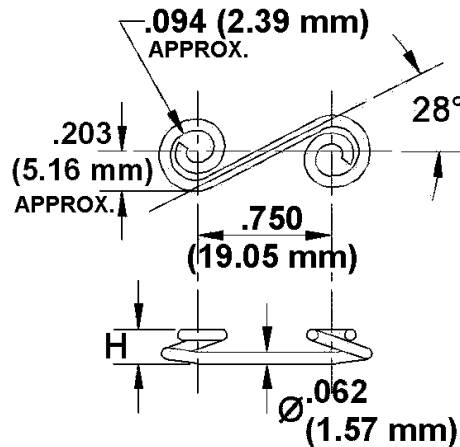


Size 4 Retainers

1271 Aluminum Full Grommet		127H Aluminum Half Grommet		127P Plastic Half Grommet	
<p>For use with all except Flush Head Studs Part No.: 1271-4(dim. A) Material: Aluminum Retainer Thickness: .025" (.64 mm) (per end)</p>		<p>For use with all Studs Part No.: 127H-4 Material: Aluminum Retainer Thickness: .025" (.64 mm)</p>		<p>For use with all Studs Part No.: 127P-4B Material: Black Thermoplastic Push-Out Strength: Standard panel hole: 25 lb. Override panel hole: 7 lb. Retainer Thickness: .027" (.69 mm)</p>	
1276 Aluminum Full Grommet		1219-R Stainless Steel Snap Ring		1219-24 Stainless Steel Retaining Spring	
<p>For use with Flush Head Studs Part No.: 1276-4(dim. A) Material: Aluminum Retainer Thickness: .025" (.64 mm) (per end)</p>		<p>Part No: 1219-R4-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: .029" (.74 mm)</p>		<p>Part No. 1219-24523-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: The 1219-24 Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.</p>	

Size 4 Receptacles

S-Spring



Material: Music wire
Finish: Zinc Trivalent Clear .0003 Thick, Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

For 300 series Stainless Steel, Change the finish suffix to **SS**. (E.g., 1219-4200-SS.)

Weight: 0.0009 lb.

Recommended Spring

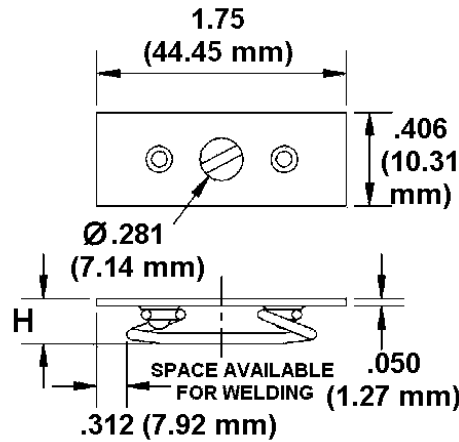
Deflection: .022" to .054" (.56 to 1.37 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1219-4200-Z3CT	.200	5.08
1219-4225-Z3CT	.225	5.72
1219-4250-Z3CT	.250	6.35
1219-4275-Z3CT	.275	6.99

ST-1200 Line



Weld Plate



Material:

Plate: steel, unfinished

Spring: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**).

For 300 series Stainless Steel, change the finish suffix to **SS**. (E.g., 1224-485-275-SS.)

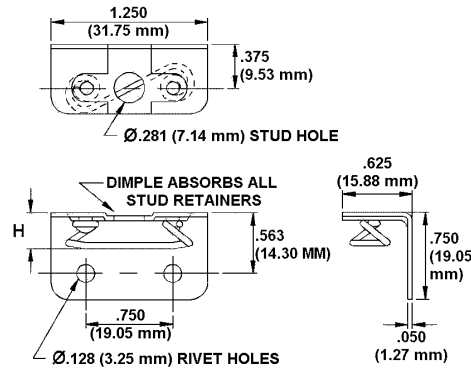
Weight: 0.0124 lb.

Recommended Spring Deflection: .022" to .054" (.56 TO 1.37 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1224-485-275-Z3CT	.275	6.99
1224-485-300-Z3CT	.300	7.62

Size 4 Receptacles

Right Angle Spring Plate



Material:

Plate: Low carbon steel

Spring: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

Mechanical

Height: See above

Recommended Spring

Deflection: .022" to .054" (.56 TO 1.37 mm)

***NOTE:** When calculating the total thickness for the Right Angle Spring Plate, the support thickness is 0.

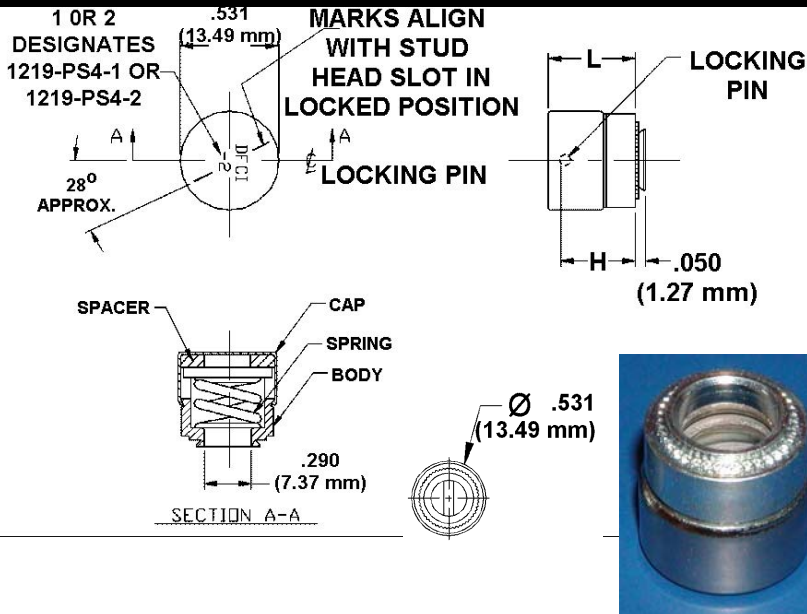
Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1218-P4275-Z3CT	.275	6.99
1218-P4300-Z3CT	.300	7.62

ST-1200 Line



Size 4 Receptacles

Rear Press-In



L = .530 (13.46 mm) MAX.

Material:

Body: Alloy steel

Spacer: Steel

Body and Spacer Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

Cap: Stainless steel, 300 series

Coil Spring and Locking Pin: Stainless steel, 17-7PH, spring temper

Mechanical

Locking tension: 30 lb. at .040" (1.02 mm) deflection

Locking torque: 4 to 10 lb.-in.

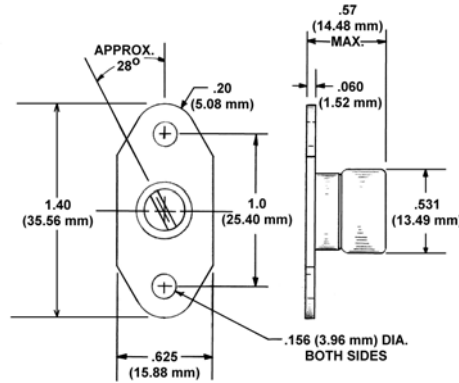
Locking stop yield: 50 lb.-in.

Tensile strength: 60 lb.

Endurance: 15,000 cycles

Part Number	H DIM	
	(inches) ± .010	(mm) ± .25
1219-PS4-1-Z3CT	.365	9.27
1219-PS4-2-Z3CT	.390	9.91

Front or Rear Mount Sealed



Material:
Same as the Rear Press-In
Receptacle
Plate: 2024T6 Aluminum

Mechanical
Same as the Rear Press-In
Receptacle.

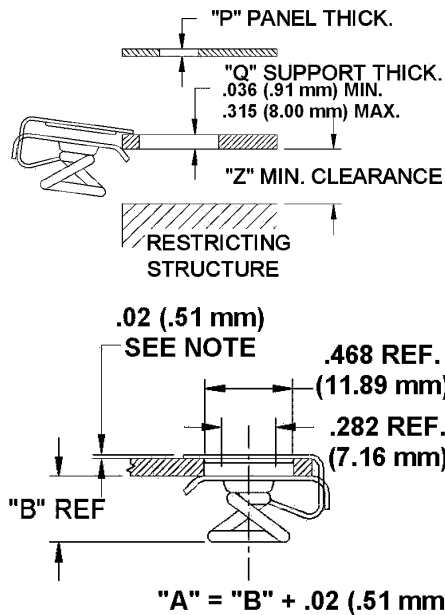
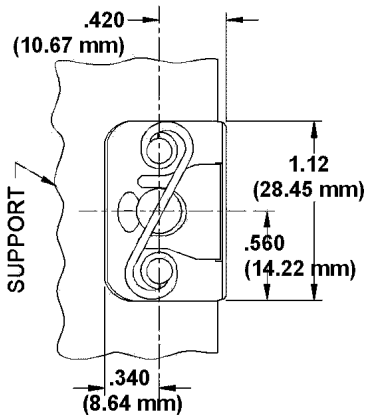
Part Number	H DIM	
	(inches) ± .010	(mm) ± .25
1219-PSP4-1-Z3CT	.425	10.80
1219-PSP4-2-Z3CT	.450	11.43

ST-1200 Line



Size 4 Receptacle

Slip-On



The 1219-L Receptacle is installed by slipping it over the edge of the support material and allowing it to snap into a single round hole. Support preparation and installation costs are very low, yet the 1219-L offers performance equal to aircraft type riveted receptacles of equal size.

Material:

Clip: Carbon spring steel, heat treated

Plate: Low carbon steel

Spring: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (Z3CT)

Mechanical

Height: See table below.

Recommended Spring Deflection: .024" to .050" (.61 to 1.27 mm)

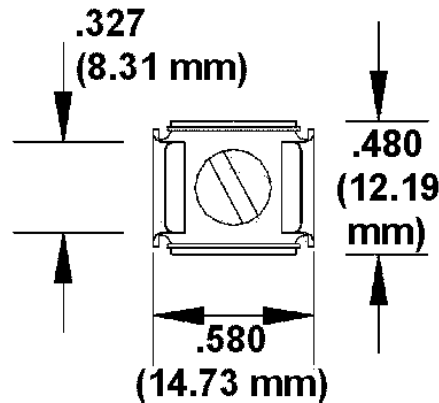
Support Thickness		Receptacle Height (H)		1219-L4 Part Number	A		B		Z	
(in.)	(mm)	(in.)	(mm)		(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
.036-.128	.91-3.25	.280	7.11	1219-L4-280	.280	7.11	.260	6.60	.400	10.16
		.305	7.75	1219-L4-305	.305	7.75	.285	7.24	.400	10.16
.129-.220	3.28-5.59	.280	7.11	1219-L4-25280	.280	7.11	.260	6.60	.430	10.92
		.305	7.75	1219-L4-25305	.305	7.75	.285	7.24	.430	10.92
.221-.315	5.61-8.00	.280	7.11	1219-L4-24280	.280	7.11	.260	6.60	.450	11.43
		.305	7.75	1219-L4-24305	.305	7.75	.285	7.24	.450	11.43

Note:

The clip face causes a .020" (.51 mm) gap between panel and support. This gap is assumed in the Total Thickness table and should not be included in your Total Thickness calculation. Stud retainers enter clip hole and do not add to gap.

Size 4 Receptacle

Clip-In



The 1219-QC4 receptacle features a compact size and fast installation, while providing all the advantages of the DFCI spiral cam ¼ turn fastening. Easily snapped into the underside of a square hole, it is self-retaining and it remains rattle-free whether the fastener is opened or locked.

In many cases, the 1219-QC4 can replace square hole caged nuts on existing equipment. This is a highly durable fastener, with excellent strength for its small size.

Support Thickness		Receptacle Required
(inch)	(mm)	
.031" to .056"	.79 to 1.42	1219-QC4-16-Z3Y
.057" to .078"	1.45 to 1.98	1219-QC4-20-Z3Y
.079" to .098"	2.01 to 2.49	1219-QC4-25-Z3Y
.099" to .125"	2.51 to 3.18	1219-QC4-30-Z3Y

Material:

All parts: Carbon Steel, spring Temper

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (Z3CT)

Mechanical

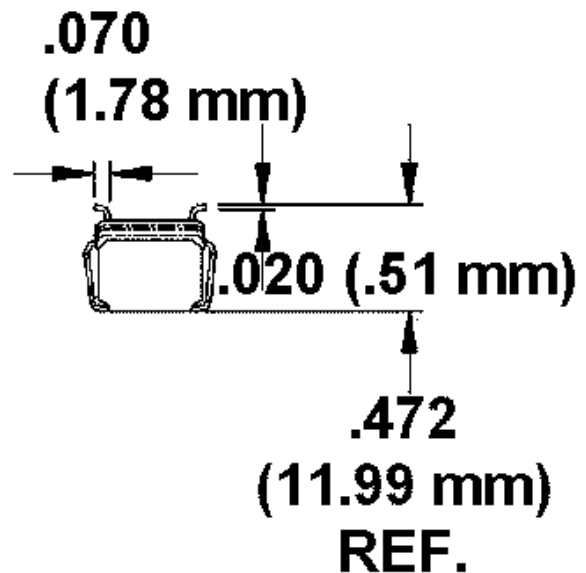
Working tension (min.): 11 lb.

Safe load without distortion: .30 lb. max.

Minimum distance between holes (edge to edge): .50" (12.70 mm)

Gap between panel and support face (caused by receptacle clip width, see drawing): .02" (.51 mm)









Recommended Spring Deflection: .020" to .045" (.51 to 1.14 mm)



ST-1200 Line



Size 5 Studs

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Slotted Head 121J-5**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Wing Head 121J-W5**-Z3CT</p>		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Ring Head 122J-R5**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Flush Head 126J-5**-Z3CT</p>		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Phillips Head 121J-P5**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Hex Head 121J-H5**-Z3CT</p>		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Tamper Resist 1230-5**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Knurled 1211-5**-Z3CT</p>		



ST-1200 Line

Size 5 Stud Dimensions

(inches)

Grip Callout	For All Head Styles Except: 126J-5		For Head Style: 126J-5	
	U Dim.	G Dim.	U Dim.	G Dim.
30	.125	.300	---	---
40	.190	.400	.225	.400
50	.250	.500	.250	.500
60	.300	.600	.300	.600
70	.400	.700	.400	.700
80	.500	.800	.500	.800
90	.600	.900	.600	.900
100	.700	1.000	.700	1.000
110	.700	1.100	.700	1.100
120	.700	1.200	.700	1.200

(mm)

Grip Callout	For All Head Styles Except: 136J-5		For Head Style: 126J-5	
	U Dim.	G Dim.	U Dim.	G Dim.
30	3.18	7.62	---	---
40	4.83	10.16	5.72	10.16
50	6.35	12.70	6.35	12.70
60	7.62	15.24	7.62	15.24
70	10.16	17.78	10.16	17.78
80	12.70	20.32	12.70	20.32
90	15.24	22.86	15.24	22.86
100	17.78	25.40	17.78	25.40
110	17.78	27.94	17.78	27.94
120	17.78	30.48	17.78	30.48

Standard Materials and Finishes:

Hardened steel studs, hard music wire D-rings, carbon steel wings. Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

Optional Finishes:

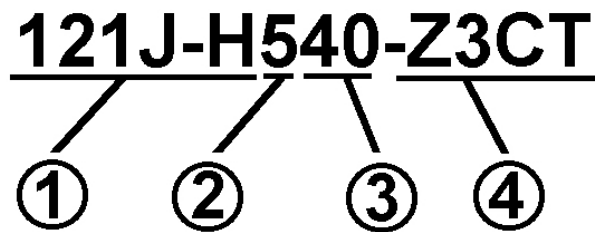
Change the finish suffix in the part number. A complete list of available finishes can be found starting on page ST-52.

Optional Stainless Steel: (SS)

303 Stainless Steel studs,
400 series Stainless Steel D-rings,
300 series Stainless Steel wings.

1. Head Style
2. Shank Dia. X 1/16"
3. Grip Length
4. Finish Suffix

DFCI Stud Part Numbers



ST-1200 Line



Size 5 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (inches)

Grip Callout (REF)	1219-5275	1219-5250	1219-5225	1219-5200
30	.055-.079	.080-.104	.105-.129	.130-.154
40	.155-.179	.180-.204	.205-.229	.230-.254
50	.255-.279	.280-.304	.305-.329	.330-.354
60	.355-.379	.380-.404	.405-.429	.430-.454
70	.455-.479	.480-.504	.505-.529	.530-.554
80	.555-.579	.580-.604	.605-.629	.630-.654
90	.655-.679	.680-.704	.705-.729	.730-.754
100	.755-.779	.780-.804	.805-.829	.830-.854
110	.855-.879	.880-.904	.905-.929	.930-.954
120	.955-.979	.980-1.004	1.005-1.029	1.030-1.054

Grip Callout (REF)	1224-414-360 1218-P5360	1224-414-335 1218-P5335	1224-414-310 1218-P5310	1224-414-285 1218-P5285
30	---	---	---	.040-.064
40	.065-.089	.090-.114	.115-.139	.140-.164
50	.165-.189	.190-.214	.215-.239	.240-.264
60	.265-.289	.290-.314	.315-.339	.340-.364
70	.365-.389	.390-.414	.415-.439	.440-.464
80	.465-.489	.490-.514	.515-.539	.540-.564
90	.565-.589	.590-.614	.615-.639	.640-.664
100	.665-.689	.690-.714	.715-.739	.740-.764
110	.765-.789	.790-.814	.815-.839	.840-.864
120	.865-.889	.890-.914	.915-.939	.940-.964

Grip Callout (REF)	(*)-355	(*)-330	(*)-305	(*)-280
30	---	---	---	.046-.070
40	.071-.095	.096-.120	.121-.145	.146-.170
50	.171-.195	.196-.220	.221-.245	.246-.270
60	.271-.295	.296-.320	.321-.345	.346-.370
70	.371-.395	.396-.420	.421-.445	.446-.470
80	.471-.495	.496-.520	.521-.545	.546-.570
90	.571-.595	.596-.620	.621-.645	.646-.670
100	.671-.695	.696-.720	.721-.745	.746-.770
110	.771-.795	.796-.820	.821-.845	.846-.870
120	.871-.895	.896-.920	.921-.945	.946-.970

(*) is 1219-L5 or 1219-L5-24 according to the support thickness (See page ST-40).



ST-1200 Line

Size 5 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (mm)

Grip Callout (REF)	1219-5275	1219-5250	1219-5225	1219-5200
30	1.40-2.01	2.03-2.64	2.67-3.28	3.30-3.91
40	3.94-4.55	4.57-5.18	5.21-5.82	5.84-6.45
50	6.48-7.09	7.11-7.72	7.75-8.36	8.38-8.99
60	9.02-9.63	9.65-10.26	10.29-10.90	10.92-11.53
70	11.56-12.17	12.19-12.80	12.83-13.44	13.46-14.07
80	14.10-14.71	14.73-15.34	15.37-15.98	16.00-16.61
90	16.64-17.25	17.27-17.88	17.91-18.52	18.54-19.15
100	19.18-19.79	19.81-20.42	20.45-21.06	210.8-21.69
110	21.72-22.33	22.35-22.96	22.99-23.60	23.62-24.23
120	24.26-24.87	24.89-25.50	25.53-26.14	26.16-26.77

Grip Callout (REF)	1224-414-360 1218-P5-360	1224-414-335 1218-P5-335	1224-414-310 1218-P5-310	1224-414-285 1218-P5-285
-30	---	---	---	1.02-1.63
-40	1.65-2.26	2.29-2.90	2.92-3.53	3.56-4.17
-50	4.19-4.80	4.83-5.44	5.44-6.07	6.10-6.71
-60	6.73-7.34	7.37-7.98	8.00-8.61	8.64-9.25
-70	9.27-9.88	9.91-10.52	10.54-11.15	11.18-11.79
-80	11.81-12.42	12.45-13.06	13.08-13.69	13.72-14.33
-90	14.35-14.96	14.99-15.60	15.62-16.23	16.29-16.87
-100	16.89-17.50	17.53-18.14	18.16-18.77	18.80-19.41
-110	19.43-20.04	20.07-20.68	20.70-21.31	21.34-21.95
-120	21.97-22.58	22.61-23.22	23.24-23.85	23.88-24.49

Grip Callout (REF)	(*)-355	(*)-330	(*)-305	(*)-280
30	---	---	---	1.17-1.78
40	1.80-2.41	2.44-3.05	3.07-3.68	3.71-4.32
50	4.34-4.95	4.98-5.59	5.61-6.22	6.25-6.86
60	6.88-7.49	7.52-8.13	8.15-8.76	8.79-9.40
70	9.42-10.03	10.06-10.67	10.69-11.30	11.33-11.94
80	11.96-12.57	12.60-13.21	13.23-13.84	13.87-14.78
90	14.50-15.11	14.14-15.75	15.77-16.38	16.41-17.02
100	17.04-17.65	17.68-18.29	18.31-18.92	18.95-19.56
110	19.58-20.19	20.22-20.83	20.85-21.46	21-49-22.10
120	22.12-22.73	22.76-23.37	23.39-24.00	24.03-24.64

(*) is 1219-L5 or 1219-L5-24 according to the support thickness (See page ST-40).

ST-1200 Line

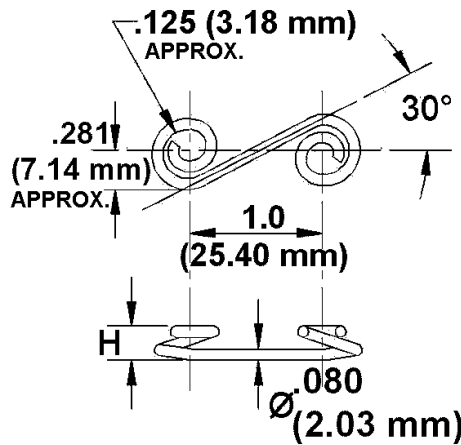
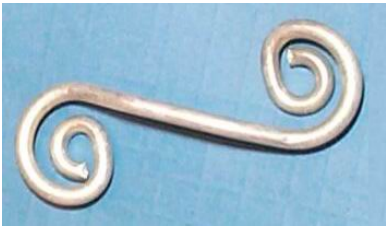


Size 5 Stud Retainers

1271 Aluminum Full Grommet			<p>For use with all except Flush Head Studs Part No.: 1271-5(dim. A) Material: Aluminum Retainer Thickness: .028" (.71 mm) (per end)</p>
127H Aluminum Half Grommet			<p>For use with all Studs Part No.: 127H-5 Material: Aluminum Retainer Thickness: .031" (.79 mm)</p>
127P Plastic Half Grommet			<p>For use with all Studs Part No.: 127P-5B Material: Black Thermoplastic Push-Out Strength: Standard panel hole: 50 lb. Oversize panel hole: 16 lb. Retainer Thickness: .034" (.86 mm)</p>
1276 Aluminum Full Grommet			<p>For use with Flush Head Studs Part No.: 1276-5(dim. A) Material: Aluminum Retainer Thickness: .028" (.71 mm) (per end)</p>
1219-R Stainless Steel Snap Ring			<p>Part No: 1219-R5-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: .035" (.89 mm)</p>
1219-24 Stainless Steel Retaining Spring			<p>Part No. 1219-24510-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: The 1219-24 Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.</p>

Size 5 Receptacle

S-Spring



Material: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

For 17-7 PH series Stainless Steel, change the finish suffix to **SS**. (E.g., 1219-A5200-SS.)

Weight: 0.0059 lb.

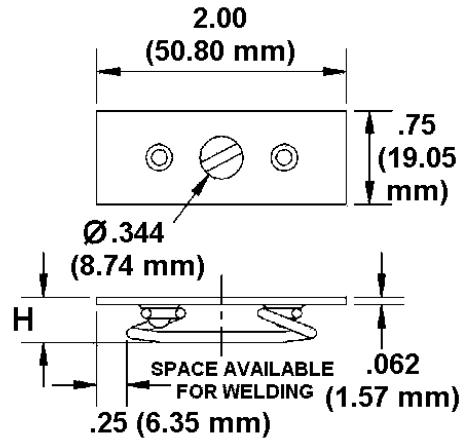
Recommended Spring Deflection: .024" to .057" (.61 to 1.45 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1219-A5200-Z3CT	.200	5.08
1219-A5225-Z3CT	.225	5.72
1219-A5250-Z3CT	.250	6.35
1219-A5275-Z3CT	.275	6.99

ST-1200 Line



Weld Plate



Material:

Plate: steel, unfinished

Spring: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

For 17-7 PH and 300 series Stainless, change the finish suffix to **SS**. (E.g., 1224-414-285-SS.)

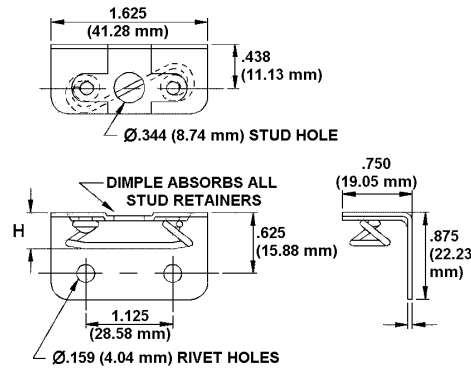
Weight: 0.0326 lb.

Recommended Spring Deflection: .024" to .057" (.61 to 1.45 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1224-414-285-Z3CT	.285	7.24
1224-414-310-Z3CT	.310	7.87
1224-414-335-Z3CT	.335	8.51
1224-414-360-Z3CT	.360	9.14

Size 5 Receptacle

Right Angle Spring Plate



Material:

Plate: Low carbon steel

Spring: Music wire

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

Mechanical

Height: See above

Recommended Spring

Deflection: .024" to .057"
(.61 to 1.45 mm)

***NOTE:** When calculating the total thickness for the Right Angle Spring Plate, the support thickness is 0.

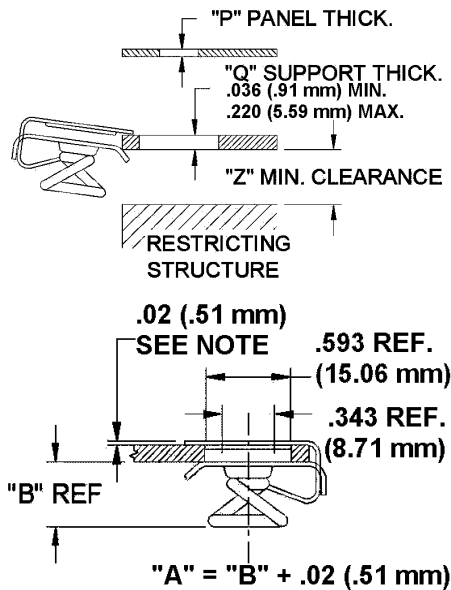
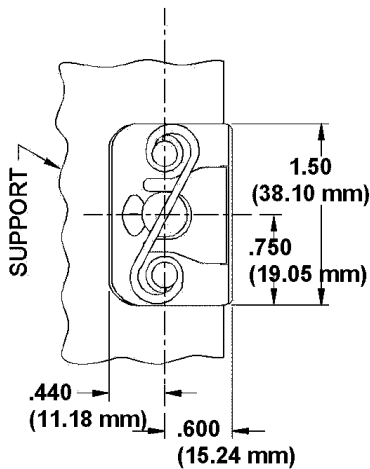
Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1218-P5285-Z3CT	.285	7.24
1218-P5310-Z3CT	.310	7.87
1218-P5335-Z3CT	.335	8.51
1218-P5360-Z3CT	.360	9.14

ST-1200 Line



Size 5 Receptacle: Slip-On

Slip-On



The 1219-L Receptacle is installed by slipping it over the edge of the support material and allowing it to snap into a single round hole. Support preparation and installation costs are very low, yet the 1219-L offers performance equal to aircraft-type riveted receptacles of equal size.

Material:

Clip: Carbon spring steel, heat treated

Plate: Low carbon steel

Spring: Music wire,

Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (Z3CT)

Mechanical

Height: See table below

Recommended Spring

Deflection: .024" to .050" (.61 to 1.27 mm)

Support Thickness		Total Thickness (H)		SL5 Part Number	A		B		Z	
(inch)	(mm)	(inch)	(mm)		(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
.036- .128	.91- 3.25	.280	7.11	1219-L5-280	.280	7.11	.260	6.60	.400	10.16
		.305	7.75	1219-L5-305	.305	7.75	.285	7.24	.430	10.92
		.330	8.38	1219-L5-330	.330	8.38	.310	7.87	.450	11.43
		.355	9.02	1219-L5-355	.355	9.02	.335	8.51	.475	12.07
.128- .220	3.25- 5.59	.280	7.11	1219-L5-25280	.280	7.11	.260	6.60	.400	10.16
		.305	7.75	1219-L5-25305	.305	7.75	.285	7.24	.430	10.92
		.330	8.38	1219-L5-25330	.330	8.38	.310	7.87	.450	11.43
		.355	9.02	1219-L5-25355	.355	9.02	.335	8.51	.475	12.07

Note: The clip face causes a .020" (.51 mm) gap between panel and support. This gap is assumed in the Total Thickness table and should not be included in your Total Thickness calculation. Stud retainers enter clip hole and do not add to gap.



ST-1200 Line

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ST-1200 Line



Size 65 Studs

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Slotted Head 121J-65**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Wing Head 121J-W65**-Z3CT</p>		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Ring Head 122J-R65**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Flush Head 126J-65**-Z3CT</p>		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Phillips Head 121J-P65**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Hex Head 121J-H65**-Z3CT</p>		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Tamper Resist 1230-65**-Z3CT</p>			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Knurled 1211-65**-Z3CT</p>		



ST-1200 Line

Size 65 Stud Dimensions

(inches)

Grip Callout	For All Head Styles Except: 126J-65		For Head Style: 126J-65	
	U Dim.	G Dim.	U Dim.	G Dim.
40	.190	.400	---	---
50	.250	.500	.250	.500
60	.300	.600	.300	.600
70	.350	.700	.350	.700
80	.450	.800	.450	.800
90	.550	.900	.550	.900
100	.650	1.000	.650	1.000
110	.650	1.100	.650	1.100
120	.650	1.200	.650	1.200

(mm)

Grip Callout	For All Head Styles Except: 126J-65		For Head Style: 126J-65	
	U Dim.	G Dim.	U Dim.	G Dim.
40	4.83	10.16	---	---
50	6.35	12.70	6.35	12.70
60	7.62	15.24	7.62	15.24
70	8.89	17.78	8.89	17.78
80	11.43	20.32	11.43	20.32
90	13.97	22.86	13.97	22.86
100	16.51	25.40	16.51	25.40
110	16.51	27.94	16.51	27.94
120	16.51	30.48	16.51	30.48

Standard Materials and Finishes:

Hardened steel studs, hard music wire D-rings, carbon steel wings. Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)

Optional Finishes:

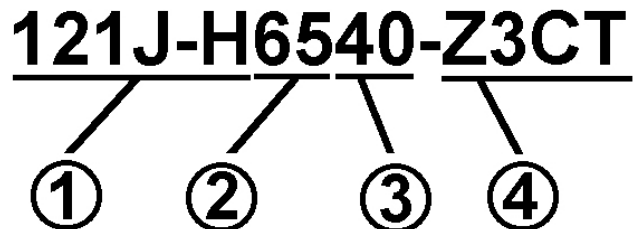
Change the finish suffix in the basic part number. A complete list of available finishes can be found starting on page ST-52.

Optional Stainless Steel: (SS)

303 Stainless Steel studs,
400 series Stainless Steel D-rings,
300 series Stainless Steel wings.

1. Head Style
2. Shank Dia. X 1/16" (6.5)
3. Grip Length
4. Finish Suffix

DFCI Stud Part Numbers



ST-1200 Line



Size 65 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (inches)

Grip Callout (REF)	1219-6225	1219-6250	1219-6275	1219-6300
40	.215-.239	.190-.214	.165-.189	.140-.164
50	.315-.339	.290-.314	.265-.289	.240-.264
60	.415-.439	.390-.414	.365-.389	.340-.364
70	.515-.539	.490-.514	.465-.489	.440-.464
80	.615-.639	.590-.614	.565-.589	.540-.564
90	.715-.739	.690-.714	.665-.689	.640-.664
100	.815-.839	.790-.814	.765-.789	.740-.764
110	.915-.939	.890-.914	.865-.889	.840-.864
120	1.015-1.039	.990-1.014	.965-.989	.940-.964

Grip Callout (REF)	1224-441-310	1224-441-335	1224-441-360	1224-441-385
40	.130-.154	.105-.129	.080-.104	.055-.079
50	.230-.254	.205-.229	.180-.204	.155-.179
60	.330-.354	.305-.329	.280-.304	.255-.279
70	.430-.454	.405-.429	.380-.404	.355-.379
80	.530-.554	.505-.529	.480-.504	.455-.479
90	.630-.654	.605-.629	.580-.604	.555-.579
100	.730-.754	.705-.729	.680-.704	.655-.679
110	.830-.854	.805-.829	.780-.804	.755-.779
120	.930-.954	.905-.929	.880-.904	.855-.879



ST-1200 Line

Size 65 Stud and Receptacle Selection Chart

Total Pileup (min-max) = Panel + Support + Gap (mm)

Grip Callout (REF)	1219-6225	1219-6250	1219-6275	1219-6300
40	5.46-6.07	4.83-5.44	4.19-4.80	6.56-4.17
50	8.00-8.61	7.37-7.98	6.73-7.34	6.10-6.71
60	10.54-11.15	9.91-10.52	9.27-9.88	8.64-9.25
70	13.08-13.69	12.45-13.06	11.81-12.42	11.18-11.79
80	15.62-16.23	14.99-15.60	14.35-14.96	13.72-14.33
90	18.16-18.77	17.53-18.14	16.89-17.50	16.26-16.87
100	20.70-21.31	20.07-20.68	19.43-20.04	18.80-19.41
110	23.24-23.85	22.61-23.22	21.97-22.58	21.34-21.95
120	25.78-26.39	25.15-25.76	24.51-25.12	23.88-24.49

Grip Callout (REF)	1224-441-310	1224-441-335	1224-441-360	1224-441-385
40	3.30-3.91	2.67-3.28	2.03-2.64	1.40-2.01
50	5.84-6.45	5.21-5.82	4.57-5.18	3.97-4.55
60	8.38-8.99	7.75-8.36	7.11-7.72	6.48-7.09
70	10.92-11.53	10.29-10.90	9.65-10.29	9.02-9.63
80	13.46-14.07	12.83-13.44	12.18-12.80	11.56-12.17
90	16.00-16.61	15.37-15.98	14.73-15.34	14.10-14.71
100	18.54-19.15	17.91-18.52	17.27-17.88	16.64-17.25
110	21.08-21.69	20.45-21.06	19.81-20.42	19.18-19.79
120	23.62-24.23	22.99-23.60	22.35-22.96	21.72-22.33

ST-1200 Line

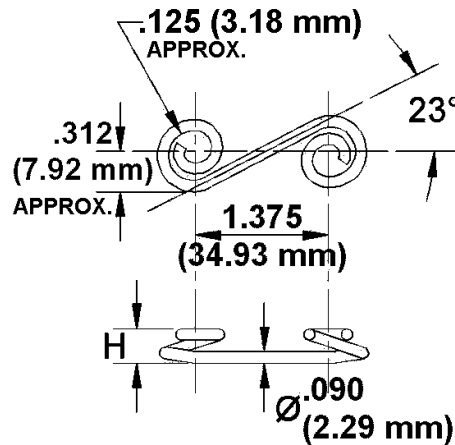
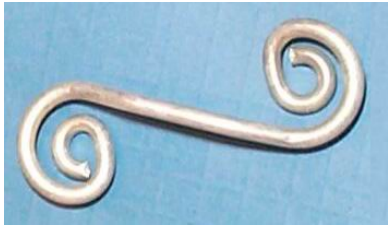


Size 65 Stud Retainers

1271 Aluminum Full Grommet		127H Aluminum Half Grommet		127P Plastic Half Grommet	
<p>For use with all except Flush Head Studs Part No.: 1271-65(dim. A) Material: Aluminum Retainer Thickness: .035" (0.89 mm) (per end)</p>		<p>For use with all Studs Part No.: 127H-65(dim. A) Material: Aluminum Retainer Thickness: .035" (0.89 mm)</p>		<p>For use with all Studs Part No.: 127P-6B Material: Black Thermoplastic Push-Out Strength: Standard panel hole: 50 lb. Oversize panel hole: 16 lb. Retainer Thickness: .034" (.86 mm)</p>	
1276 Aluminum Full Grommet		1219-R Stainless Steel Snap Ring		1219-24 Stainless Steel Retaining Spring	
<p>For use with Flush Head Studs Part No.: 1276-6(dim. A) Material: Aluminum Retainer Thickness: .040" (1.02 mm) (per end)</p>		<p>Part No: 1219-R7-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: .051" (1.30 mm)</p>		<p>Part No. 1219-24519-SS Material: Stainless steel, 300 series, spring temper Retainer Thickness: The 1219-24 Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.</p>	

Size 65 Receptacle

S-Spring



Material: Music wire,
Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)
 For 17-7 PH series Stainless Steel, change the finish suffix to **SS**. (E.g., 1219-6225-SS.)
Weight: 0.0082 lb.
Recommended Spring Deflection: .031" to .074" (.79 to 1.88 mm)

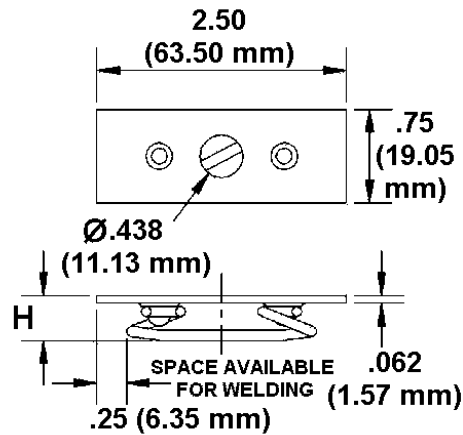
Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1219-6225-Z3CT	.225	5.72
1219-6250-Z3CT	.250	6.35
1219-6275-Z3CT	.275	6.99
1219-6300-Z3CT	.300	7.62

ST-1200 Line



Size 65 Receptacle

Weld Plate



Material:

Plate: steel, unfinished
Spring: Music wire,
Finish: Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer per ASTM-B-633, Type III, SC2 Clear (**Z3CT**)
 For 17-7 PH and 300 series Stainless, change the finish suffix to **SS**. (E.g., 1224-441-310-SS.)
Weight: 0.0441 lb.
Recommended Spring Deflection: .031" to .074" (.79 to 1.88 mm)

Part Number	Spring Height (H)	
	(inches) ± .010	(mm) ± .25
1224-441-310-Z3CT	.310	7.87
1224-441-335-Z3CT	.335	8.51
1224-441-360-Z3CT	.360	9.14
1224-441-385-Z3CT	.385	9.78



ST-1200 Line

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ST-1200 Line



Full Grommets - 1271 and 1276

Size 3 Grommet Selection

Panel Thickness (P)		1271 Full Grommet Part Number
(inch)	(mm)	
.015 - .025	.38-.64	1271-3175
.026 - .050	.66-1.27	1271-3200
.051 - .094	1.30-2.39	1271-3250

Size 4 Grommet Selection

Panel Thickness (P)		1271 Full Grommet Part Number	1276 Full Grommet Part Number
(inch)	(mm)		
.015 - .025	.38 - .64	1271-4225	1276-4125
.026 - .050	.66 - 1.27	1271-4250	1276-4150
.051 - .075	1.30 - 1.91	1271-4275	1276-4175
.076 - .100	1.93 - 2.54	1271-4300	1276-4200

Size 5 Grommet Selection

Panel Thickness (P)		1271 Full Grommet Part Number	1276 Full Grommet Part Number
(inch)	(mm)		
.031 - .062	.79 - 1.57	1271-5312	1276-5175
.063 - .094	1.60 - 2.39	1271-5350	1276-5225
.095 - .125	2.41 - 3.18	1271-5375	1276-5250

Size 65 Grommet Selection

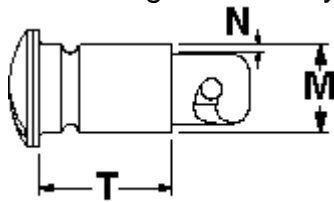
Panel Thickness (P)		1271 Full Grommet Part Number	1276 Full Grommet Part Number
(inch)	(mm)		
.054 - .093	1.37 - 2.36	1271-65375	1276-65250
.155 - .200	3.94 - 5.08	1271-65500	1276-65375

Full Grommets – 127S-A and 127S-F

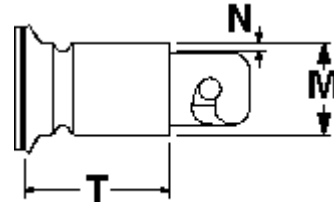
Type 127S-A and 127S-F thick panel grommets are supplied attached to their studs. The bead securing the grommet to the stud is close to the head to allow maximum retraction of the stud end into the panel. These grommets are offered in standard lengths, matching common panel thicknesses with ends extended beyond the panel, for retention by flaring. Other lengths are available on special order.

Grommet Size	Dim M Diameter		Dim N Wall Thickness		Dim U (127S-F)		End Flaring Allowance	
	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
3	.219	5.56	.015	.38	.328	8.33	.050	1.27
4	.313	7.95	.025	.64	.453	11.51	.075	1.91
5	.375	9.53	.028	.71	.578	14.68	.100	2.54
65	.500	12.70	.035	.89	.703	17.86	.125	3.18

Type 127S-A
Protruding Heads Only



Type 127S-F
Flush Heads Only



Stud/Grommet Assembly Callout:

- Determine the stud length as directed by the instructions provided for the selected receptacle.
- The 127S-A or 127S-F grommet length (dimension T) is equal to the panel thickness (dimension P) plus the grommet end flaring allowance. (See table above.)
- If the panel thickness is greater than the "Dim. P" listed in the table for the stud size; go to the next larger listing. For example, for size 3, if the panel is .175" (4.45 mm) thick, use "Dim. P" = .250" (6.35 mm) in the table.
- The stud grommet assembly is called out by first stating the stud part number, followed by "-20-", followed by the grommet's T dim in thousandths of an inch.
Example: 121J-450-20-325.

Size 3		Size 4		Size 5		Size 65	
Dim. P	Callout T	Dim. P	Callout T	Dim. P	Callout T	Dim. P	Callout T
.095	-20-150	.101	-20-175	.126	-20-225	.225	-20-350
.125	-20-175	.250	-20-325	.250	-20-350	.275	-20-400
.250	-20-300	---	---	---	---	.375	-20-500

All dimensions below are in mm.

Size 3		Size 4		Size 5		Size 65	
Dim. P	Callout T	Dim. P	Callout T	Dim. P	Callout T	Dim. P	Callout T
2.41	-20-150	2.57	-20-175	3.20	-20-225	5.75	-20-350
3.18	-20-175	6.35	-20-325	8.26	-20-350	6.99	-20-400
6.35	-20-300	---	---	---	---	9.53	-20-500

ST-1200 Line



Optional Finishes

This section lists all of the available finishes for the ST-1200 line components. This list is divided into two groups.

1. RoHS Compliant Finishes – These are finishes that comply with RoHS (Restriction of Hazardous Substances) regulation requirements.
2. Standard Finishes – These are standard finishes that have been and are still available in addition to the RoHS finishes.

RoHS Compliant Finishes

Finish Suffix	Studs	Receptacles	Finish Description	Specification(s)
BOC		N/A	Black oxide over copper-sealer; clear acrylic dip	MIL-C-14550, CLASS 2, COPPER PLATE MIL-F-495, BLACK OXIDE OVER COPPER
BOF			Black oxide over ferrous metal – Class to be determined by material	MIL-C-13924, CLASS 1, 3, 4
K3B		N/A	Chromium plate, NI .0003 thick, black chromium	MIL-C-14538, COLOR NO 37038/FED-STD-595
K3C		N/A	Chromium plate, NI .0003 thick, bright (clear) chromium	QQ-C-320, TYPE I, CLASS 1, BRIGHT
K3G		N/A	Chromium plate, NI .0003 thick, bronze-gold chromium	QQ-C-320, TYPE I, CLASS 1, BRONZE
N2G		N/A	Nickel plate .0002 thick with copper undercoating	QQ-N-290, CLASS 1, GRADE G
ZFBT			Zinc Flake Coating with Black Sealer Delta Seal Black GZ Coating	Delta Protekt KL100
Z2CT			Zinc Trivalent Clear .0002 thick. Trivalent Chromate Clear with Sealer	ASTM-B-633, Type III, SC1, Clear
Z3C			Zinc electroplate .0003 thick, clear chromate	ASTM-B-633, Type III, SC 2 Clear
Z3CT			Zinc Trivalent Clear .0003 Thick. Trivalent Chromate Clear with Sealer	ASTM-B-633, Type III, SC 2 Clear
Z3YT			Zinc Trivalent Yellow .0003 thick, Trivalent Chromate Yellow Dye with Sealer	ASTM-B-633, Type III, SC2, Yellow
Z5BT			Zinc Trivalent Black, .0005 thick. Trivalent Chromate Black Dye with Sealer	ASTM-B-633, Type III, SC2, Black



ST-1200 Line

Standard Finishes

Finish Suffix	Studs	Receptacles	Finish Description	Specification(s)
BB		N/A	Black Bear (rust inhibitor)	
BL		N/A	Black Lacquer	
LAN		N/A	Lanolin oil dip	
PAS			Passivation of Stainless Steel parts	QQ-P-35, Type to be determined by material type
UNP			Bare, no finish	
Z2Y			Zinc electroplate .0002 thick, yellow chromate	ASTM-B-633, TYPE II, SC1, YELLOW
Z3B			Zinc electroplate .0003 thick, black chromate	ASTM-B-633, TYPE II, SC 2, BLACK
Z3D			Zinc electroplate .0003 thick, olive drab chromate	ASTM-B-633, TYPE II, SC 2, OLIVE DRAB
Z3G			Zinc electroplate .0003 thick, bronze-gold chromate	ASTM-B-633, TYPE II, SC 2, BRONZE
Z3Y			Zinc electroplate .0003 thick, yellow chromate	ASTM-B-633, TYPE II, SC 2 YELLOW
Z5B			Zinc electroplate .0005 thick, black chromate	ASTM-B-633, TYPE II, SC 3, BLACK
Z5C			Zinc electroplate .0005 thick, clear chromate	ASTM-B-633, TYPE III, SC 3, CLEAR
Z5Y			Zinc electroplate .0005 thick, yellow chromate	ASTM-B-633, TYPE II, SC 3, YELLOW
ZPP		N/A	Zinc Phosphate	

ST-1200 Line

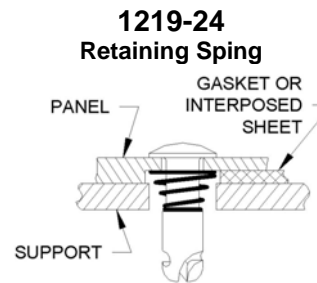
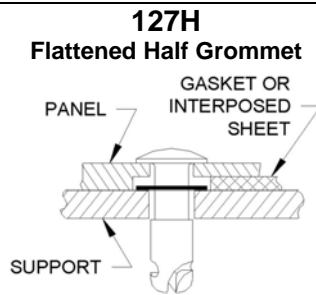
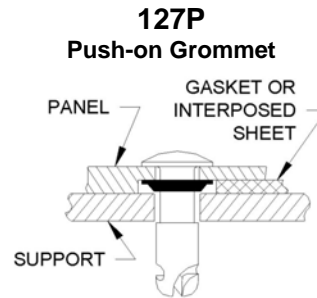
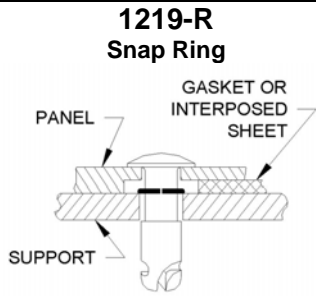


Installation: Studs and Retainers

Stud Panel Preparation With 1219-R, 127P, 127H, and 1219-24

(For Flush Head Studs See Page ST-57)

The drawings below all show the stud retainer being absorbed by either a counter bore in the panel, or by the space created through use of a gasket or interposed sheet between the panel and support. If neither option is feasible, the retainer thickness can also be absorbed by either the support or the receptacle when utilizing an 1219-L, 1218-P, 1219-QC4, or 1219-PS.



Gasket or Interposed Sheet

The hole should be sufficiently larger than the outer diameter of the stud retainer in order to allow free entry of the retainer.

An oversize panel hole allows the stud to float which can compensate for panel-to-support misalignment. Do not use with 1219-R snap ring retainers.

Standard Panel Hole For 1219-R, 127P, 127H, and 1219-24		
Stud Size	Hole Diameter	
	+0.010 / -.000 in.	(+.25 / -.00 mm)
3	.188	4.78
4	.250	6.35
5	.313	7.95
65	.406	10.31

Oversize Panel Hole For 127P and 127H		
Stud Size	Hole Diameter	
	+0.010 / -.000 in.	(+.25 / -.00 mm)
3	.219	5.56
4	.313	7.95
5	.375	9.53
65	.469	11.91

Installation: Studs and Retainers

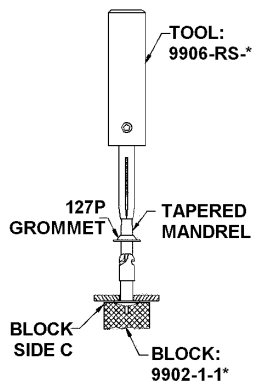
Retainer Installation With 1219-R, 127P, 127H, and 1219-24

1. Place the retainer on mandrel as shown.
2. Align ring or spring ends so that they will miss the stud cam.
3. Place mandrel in end of stud cam.
4. Place tool over mandrel.
5. Push retainer until it is seated in stud undercut.

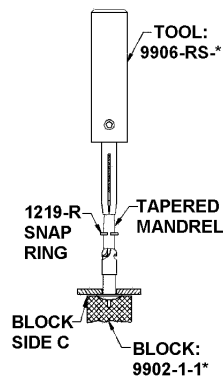
9906-RS HAND TOOL: Spreads the inside diameter of retainers over stud shanks and then pushes them into stud undercuts.

9902-1-1 BLOCK: Nests stud heads during installation. (Any flat block may be used for 122J-R ring head studs).

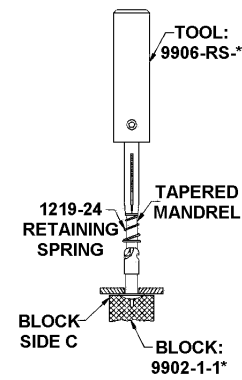
127P Push-on Grommet



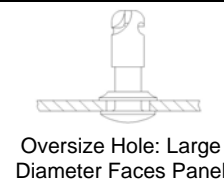
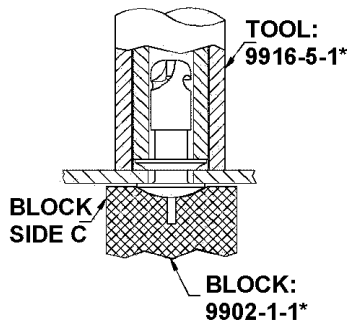
1219-R Snap Ring



1219-24 Retaining Ring



127H Flattened Half Grommet



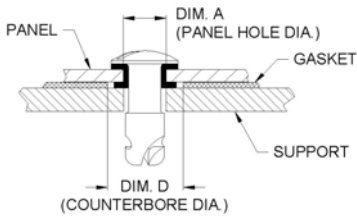
* Add stud size number: i.e. 3, 4, 5, 7(for 65).

ST-1200 Line

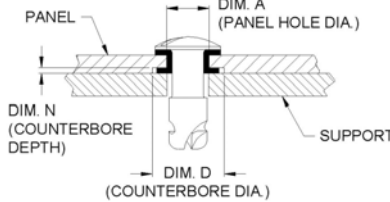


Installation: Studs and Retainers

Stud Panel Preparation With 1271 Full Grommet (For Flush Head Studs See Page ST-57.)



1271 Retainer wall thickness is absorbed by gasket, interposed panel, or by dimpled support.



Underside of panel hole is counter bored to depth equal to 1271 Retainer wall thickness.

*If application requires, size hole $.005/+0.10$ ($+.13/+25$ mm) larger than DIM. A

NOTE: Dimpled panels require dimpled supports.

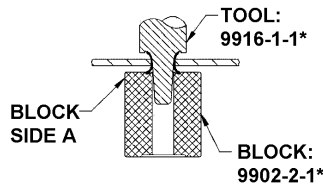
Size	DIM. A*		DIM D		DIM N $\pm .005$ (.13 mm)	
	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
3	.219	5.56	.344	8.74	.020	.51
4	.313	7.95	.469	11.91	.030	.76
5	.375	9.53	.594	13.94	.035	.89
65	.500	1.27	.781	19.83	.045	1.14

Retainer Installation With 1271 Full Grommet

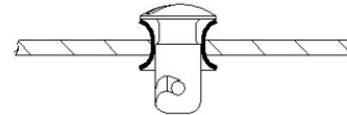
1 Insert Grommet in Panel Hole



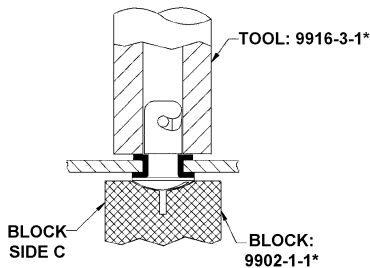
2 Set Grommet



3 Insert Stud

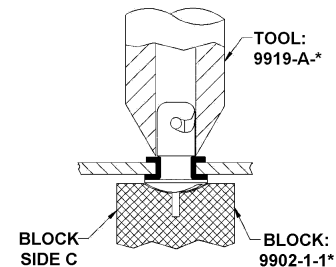


4 Clinch Grommet



To Order installation and removal tools as a set use Part Number: 9920-1-*

Stud Removal
An installed 1271 or 1276 grommet may be removed by shearing off its underside flange with a staking tool.

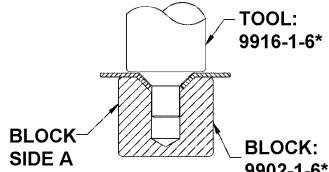


* Add stud size number: i.e. 3, 4, 5, 65.

Installation: Flush Head Studs

Panel Preparation for 1276 Grommet

1 Drill and dimple hole



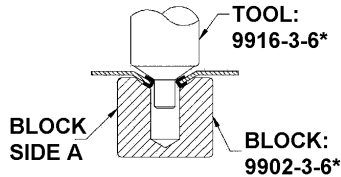
2 Install grommet



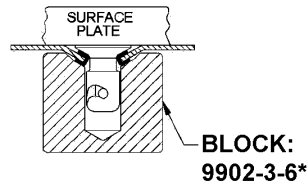
Stud Size	Hole Diameter	
	(in.)	(mm)
4	.266	6.76
5	.313	7.95

Dimpled panels require dimpled supports.

3 Set grommet



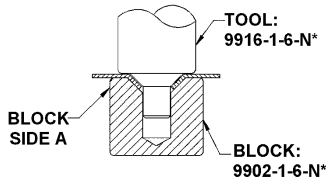
4 Insert and clinch stud



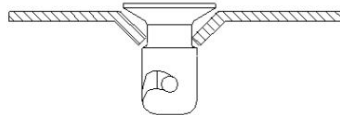
* Add stud size number, i.e. 4 or 5.

Panel Preparation for Reverse Clinched Hole (No Stud Retainer)

1 Drill and dimple hole



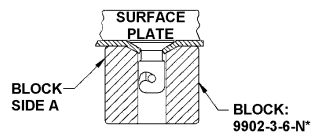
2 Insert stud



Stud Size	Hole Dia.		MAX. Panel Thickness for Dimpling	
	(in.)	(mm)	(in.)	(mm)
3	.141	3.58	.030	.76
4	.203	5.16	.040	1.02
5	.234	5.94	.050	1.27
65	.328	8.33	.078	1.98

Dimpled panels require dimpled supports.

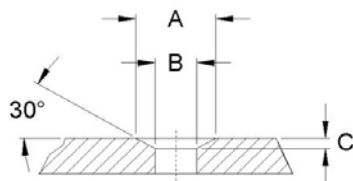
3 Clinch stud



* Add stud size number, i.e. 3, 4, 5, or 65

Panel Preparation for 1219-R, 127H, and 127P

1 Drill and countersink holes



Stud Size	DIM A .		DIM B .		DIM C .	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
3	.367	9.32	.188	4.78	.051	1.30
4	.508	12.90	.250	6.35	.074	1.88
5	.633	16.08	.313	7.95	.092	2.34
65	.757	19.23	.407	10.34	.095	2.41

Note: All dims. are +.010 / -.000 (+.25 / -.00 mm)

2 Install stud retainer

See page ST-54 for retainer installation instructions and tooling recommendations.

NOTE:

This stud panel hole permits use of S-spring receptacles without a dimpled stud hole in support.

ST-1200 Line

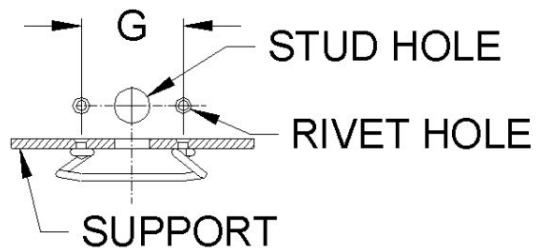


Installation: Receptacles

Support Preparation for 1219 S-Spring Receptacle Stud Retainer Recessed in Panel Underside

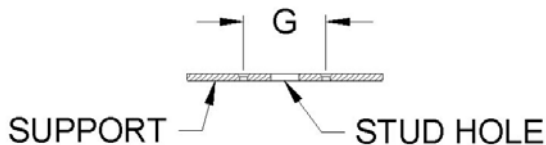
Spring Size	Spring DWG. Page	Stud Hole Dia.		DIM. G ±.002 (.05 mm)		Rivet Hole Dia.		Rivet Hole Countersink		Rivet Shank Dia	
		(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
3	ST-15	.219	5.56	.625	15.88	.097-	2.46-	.188 X	4.78 X	.094	2.39
4	ST-25	.281	7.14	.750	19.05	.100	2.54	110°	110°		
5	ST-37	.344	8.74	1.000	25.40	.129-	3.28-	.250 X	6.35 X	.125	3.18
65	ST-47	.469	11.91	1.375	34.93	.133	3.38	110°	110°		

- 1 Make support holes for studs and rivets
- 2 Secure receptacle to support
(See ST-59 for Flush Head Stud Support Preparation)



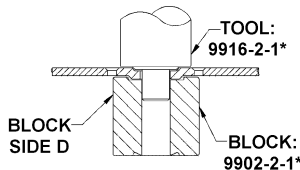
Stud Retainer Recessed in Support (support thin enough to be dimpled)

- 1 Make support holes for studs and rivets

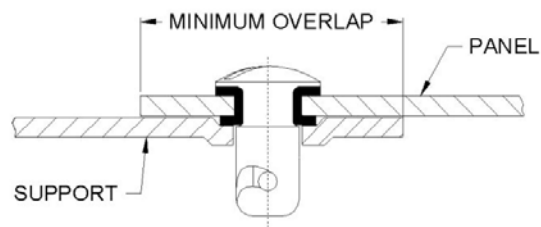
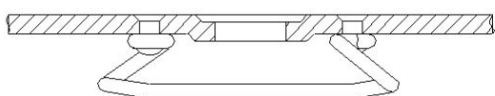


Size	Max. Support Thickness for Dimpling		Stud Hole Dia.		Minimum Overlap	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
3	.040	1.01	.188	4.78	.469	11.91
4	.050	1.27	.250	6.35	.625	15.88
5	.063	1.60	.313	7.95	.781	19.84
65	.078	1.98	.406	10.31	1.02	25.90

- 2 Dimple the support



- 3 Secure receptacle to support

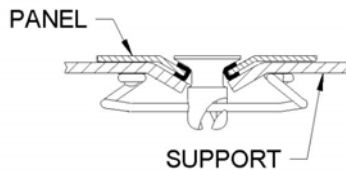


* Add stud size number: ie 3, 4, 5, 65.

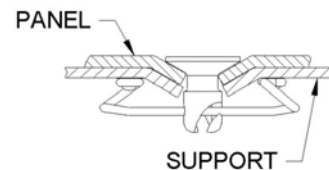
Installation: Receptacles

Dimpled Support Preparation for 1219 S-Spring Receptacle

Dimpled panel stud hole and 1276 grommet



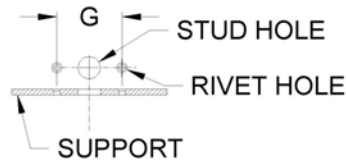
Dimpled and reverse- clinched panel stud hole



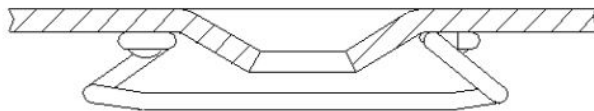
NOTE: The S-Spring is the only SL-1200 Line receptacle that can accept a dimpled support hole as shown here.

Spring Size	Spring DWG. Page	Stud Hole Dia.		DIM. G ±.002 (.05 mm)		Rivet Hole Dia.		Rivet Hole Countersink		Rivet Shank Dia.	
		(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
3	ST-15	.188	4.78	.625	15.88	.097-	2.46-	.188 X	4.78 X	.094	2.39
4	ST-25	.250	6.35	.750	19.05	.100	2.54	110°	110°		
5	ST-37	.313	7.95	1.000	25.40	.129-	3.28-	.250 X	6.35 X	.125	3.18
65	ST-47	.406	10.31	1.375	34.93	.133	3.38	110°	110°		

1 Drill support holes for studs and rivets

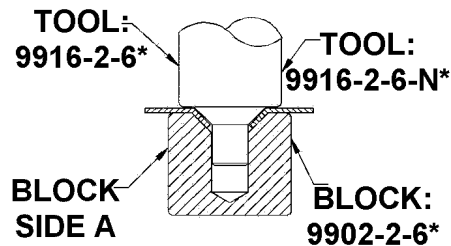


3 Secure Spring to support



* Add stud size number, i.e. 3, 4, 5, or 65

2 Dimple support hole



STEP TWO NOTES:

If the stud panel is flat on the underside and countersunk for the stud head on top, the support hole does not need to be dimpled. In this case, prepare the support for non-flush head studs.

A panel stud hole which is dimpled for a 1276 grommet requires a different support dimple than a hole which is dimpled and reverse clinched with no grommet.

Use of Receptacles Other Than 1219 S-Spring

Using Flush Head studs with any SL-1200 Line receptacle, other than the S-Spring, requires that the stud hole through the panel be flat on the underside and countersunk for the stud head on top.

ST-1200 Line



Installation: Receptacles

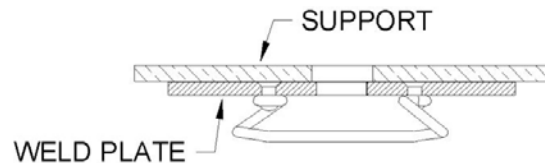
Support Preparation for Weld Plate Receptacle Stud Retainer Recessed in Panel Underside

Plate Size	Hole Diameter	
	(inch)	(mm)
3	.219	5.56
4	.281	7.14
5	.344	8.74
65	.469	11.91

1 Make stud hole in support



2 Secure receptacle to support



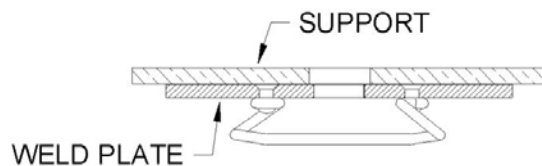
Stud Retainer Recessed in Support

Plate Size	Stud Hole Diameter			
	Grommet or 1219-24 Spring		1219-R Snap Ring	
	(inch)	(mm)	(inch)	(mm)
3	.344	8.74	.250	6.35
4	.469	11.91	.313	7.95
5	.594	15.09	.375	9.53
65	.781	19.84	.531	13.49

1 Make stud hole in support



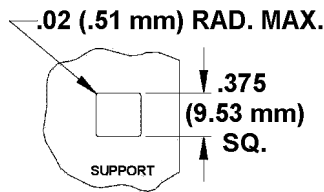
2 Secure receptacle to support



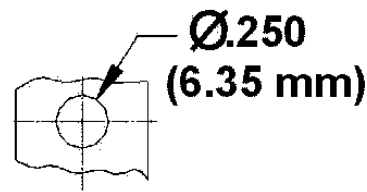
Installation: Receptacles

1219-QC4 Square Hole Receptacle

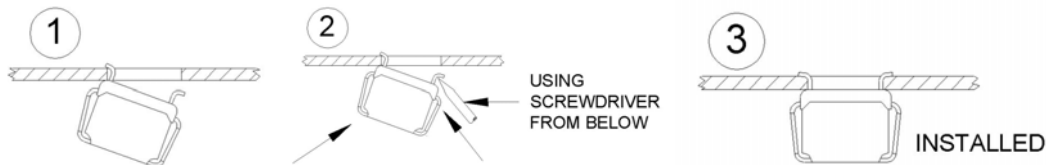
Support Panel Preparation



Stud Panel Preparation



Installation



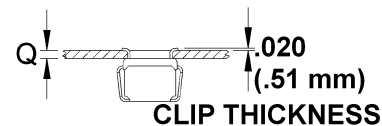
Determining Stud and Receptacle Size

Step 1.

Using the table on page ST-31, find your Support Thickness Range. The Part Number of the receptacle is stated to the right of the applicable Support Thickness Range.

Support Thickness (Q)

The thickness of the material where the 1219-QC4 receptacle will be mounted.



Step 2.

Calculate the total Panel / Gap Thickness. Using the tables on pages ST-22 and ST-23, find the Panel / Gap Thickness range that applies to your calculated total. The Stud Grip Callout is to the left of the applicable range.

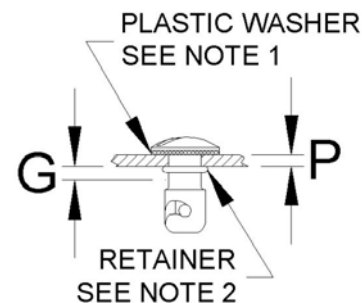
Panel Thickness (P)

The thickness of the material that contains the stud.

Gap Thickness (G)

The thickness of any material between the panel and the support. The chart already accounts for the .020" (.51 mm) clip thickness.

Panel / Gap Thickness = Panel Thickness (P) + Gap Thickness (G)



Note 1: To provide correct locking tension, some studs are fitted with a .025" (.64 mm) thick plastic washer under the head of the stud.

Note 2: The 1219-R4-SS is the only retainer that can fit inside the 1219-QC4, allowing flush contact between the panel and the receptacle.

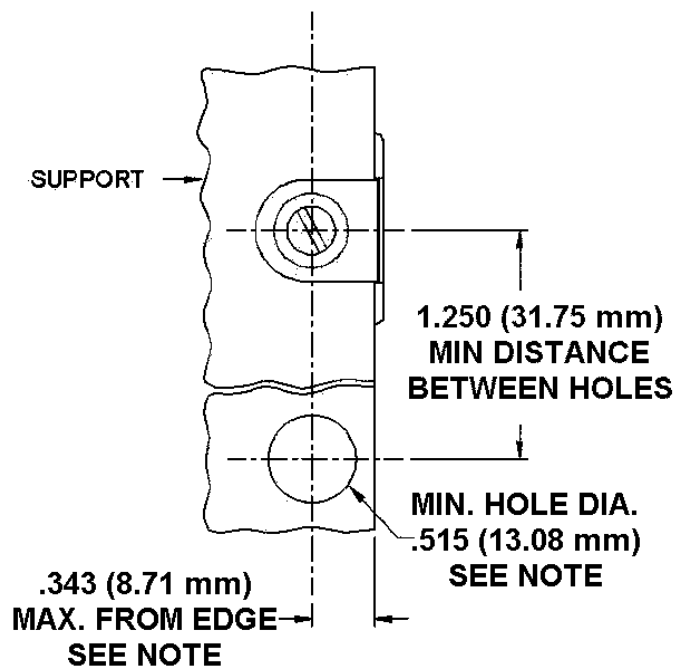
ST-1200 Line



Installation: Receptacles

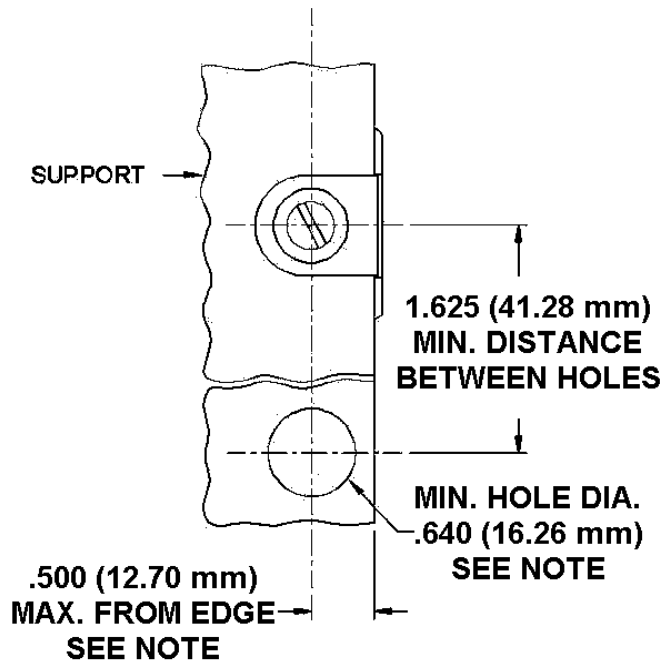
Slip-On Receptacle

Size 4



Note:
Panel misalignment can be tolerated by increasing the support hole to $.547$ " (13.89 mm) and decreasing the hole center to edge distance to $.328$ " (8.33 mm).

Size 5



Note:
Panel misalignment can be tolerated by increasing the support hole to $.703$ " (17.86 mm) and decreasing the hole center to edge distance to $.450$ " (11.43 mm).



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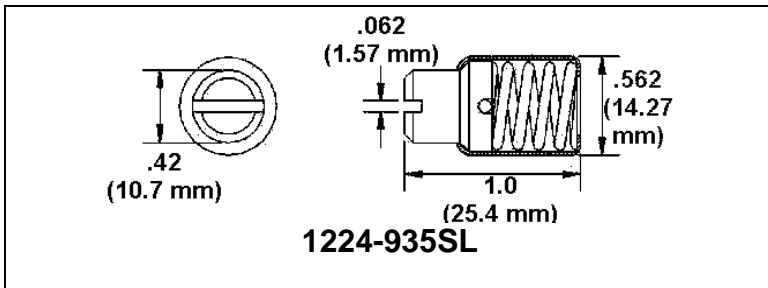
Guide Pin Fastener

RECEPTACLE, Type 1224-935SL

The compact Guide Pin receptacle is all stainless steel. It contains a heavy coil spring bridged by a cross pin which engages the spiral cam in the stud end. The receptacle locks and releases in a quarter turn.

STUDS, Type 1224-936 or 1224-936A

Guide Pin or Anchor-Cam Quarter Turn studs have threaded ends that may be anchored in blind holes with thread locking compound or secured to supports with lock nuts. Once installed, the studs act as guide pins, aligning the panel for locking with Guide Pin Receptacles.



Material:

All parts are stainless steel.

Mechanical:

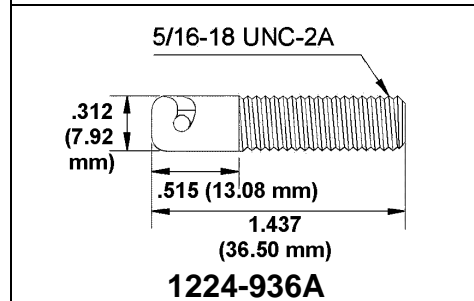
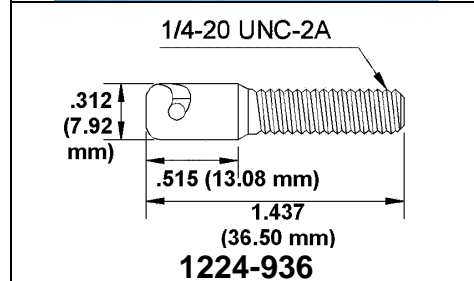
Locking tension: 60 lb.

Receptacle locking torque: 15 lb.-in.

Receptacle unlocking torque: 10 lb.-in

Rated tensile strength: 500 lb.

Ultimate tensile strength: 1,000 lb.



Material:

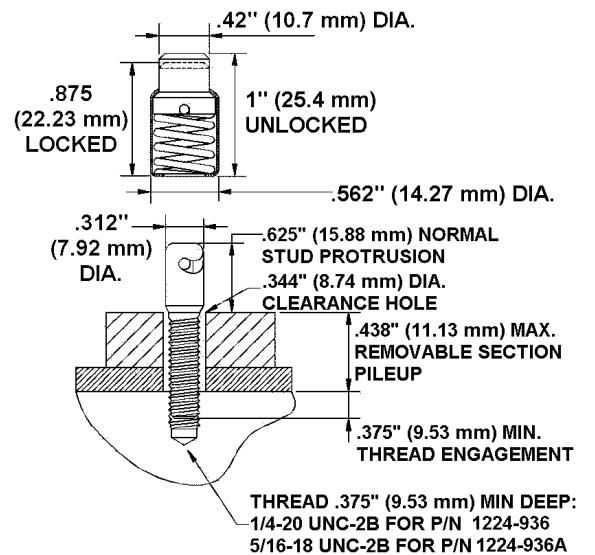
Steel, heat treated and zinc plated with clear chromate finish. **(Z3CT)**

Custom thread sizes, lengths, and materials are available subject to minimum order.

Guide Pin Fastener Installation Procedure

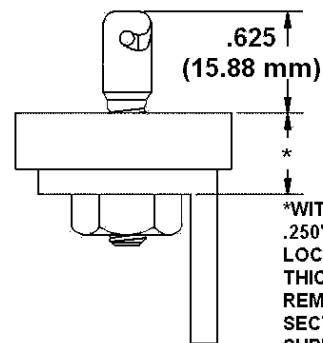
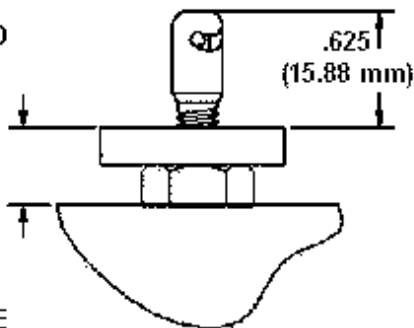
Using Thread Locking Compound

1. Lock the receptacle onto the stud end.
2. Coat both the stud and hole threads with locking compound.
3. Thread the fastener assembly down into the hold until it is tight.
4. Back the assembly out one full turn and then allow the compound to cure before using.



Using A Locking Nut or Jam Nut

WHEN THREADS ARE ENGAGED TO A DEPTH OF .375" (9.53 mm) (THE MINIMUM RECOMMENDED), THE MAXIMUM THICKNESS OF THE REMOVABLE SECTION PLUS JAM NUT WILL BE .438" (11.13 mm)



*WITH A .250" (6.35 mm) LOCKNUT, THICKNESS OF REMOVABLE SECTIONS PLUS SUPPORT MUST NOT EXCEED .563" (14.30 mm)

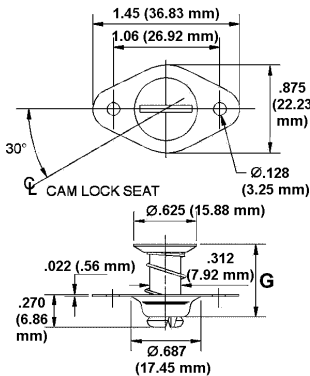
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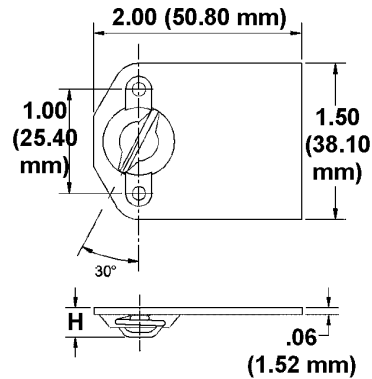
Self-Ejecting Studs



1258-F5



1224-945 Weld Plate



Stud Part Number	G Dimension		Weight (lb.)
	(inch)	(mm)	
1258-F540	.400	10.16	.0150
1258-F550	.500	12.70	.0179
1258-F560	.600	15.24	.0204

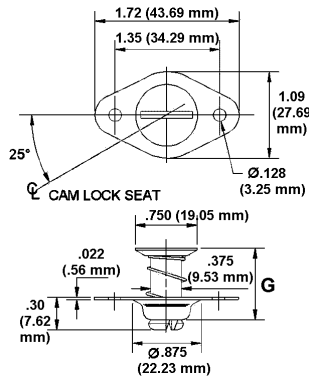
Weld Plate Part Number	Plate Dim. H	
	(inch) ± .010	(mm) ± .25
1224-945-285	.285	7.24
1224-945-310	.310	7.87
1224-945-335	.335	8.51
1224-945-360	.360	9.14

Total Material Thickness		Stud Part Number	S-Spring Part Number
(inch)	(mm)		
.120-.149	3.05-3.78	1258-F540	1219-A5275
.150-.174	3.81-4.42	1258-F540	1219-A5250
.175-.199	4.45-5.05	1258-F540	1219-A5225
.200-.224	5.08-5.69	1258-F540	1219-A5200
.225-.249	5.72-6.32	1258-F550	1219-A5275
.250-.274	6.35-6.96	1258-F550	1219-A5250
.275-.299	6.99-7.59	1258-F550	1219-A5225
.300-.324	7.62-8.23	1258-F550	1219-A5200
.325-.349	8.26-8.86	1258-F560	1219-A5275
.350-.374	8.89-9.50	1258-F560	1219-A5250
.375-.399	9.53-10.13	1258-F560	1219-A5225

Total Material Thickness		Stud Part Number	Weld Plate Part Number
(inch)	(mm)		
.032-.064	.81-1.63	1258-F540	1224-945-360
.065-.089	1.65-2.26	1258-F540	1224-945-335
.090-.114	2.29-2.90	1258-F540	1224-945-310
.115-.139	2.92-3.53	1258-F540	1224-945-285
.140-.164	3.56-4.17	1258-F550	1224-945-360
.165-.189	4.19-4.80	1258-F550	1224-945-335
.190-.214	4.83-5.44	1258-F550	1224-945-310
.215-.239	5.46-6.07	1258-F550	1224-945-285
.240-.264	6.10-6.71	1258-F560	1224-945-360
.265-.289	6.73-7.34	1258-F560	1224-945-335
.290-.314	7.37-7.98	1258-F560	1224-945-310
.315-.339	8.00-8.61	1258-F560	1224-945-285

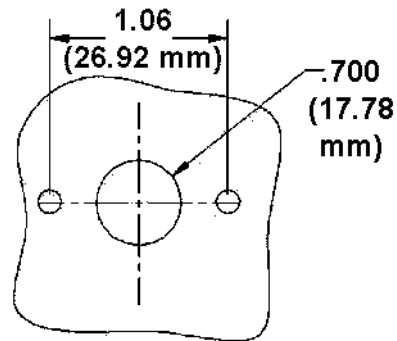
Self-Ejecting Studs

1258-F6

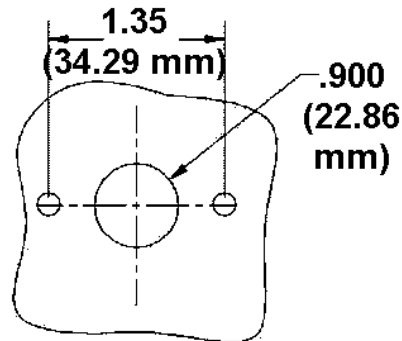


Panel Preparation

1258-F5



1258-F6



Stud Part Number	G Dimension		Weight (lb.)
	(inch)	(mm)	
1258-F650	.500	12.70	.0290
1258-F655	.550	13.97	.0302

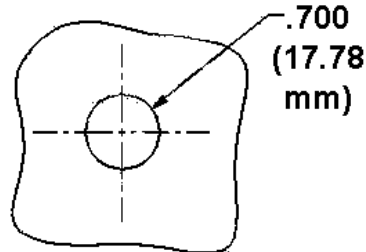
Total Material Thickness		Stud Part Number	S-Spring Part Number
(inch)	(mm)		
.240-.264	6.10-6.71	1258-F650	1219-6275
.265-.289	6.73-7.34	1258-F650	1219-6250
.290-.314	7.37-7.98	1258-F650	1219-6225
.315-.339	8.00-8.61	1258-F655	1219-6250
.340-.364	8.64-9.25	1258-F655	1219-6225

Support Preparation

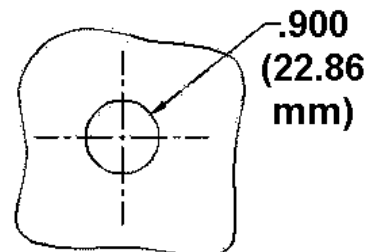
To allow for the Stud Cup to enter the support, the support hole must be larger than the standard support hole for the S-Spring Receptacle.

These drawings represent the required support hole size. Additional Support Preparation can be found on the S-Spring Installation page.

1258-F5



1258-F6



ST-1200 Line



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