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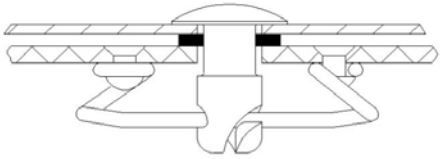
Formerly Dzus Fastener Co.Inc.

ST-1200 Line

¼ Turn Fasteners



DFCI ST-1200 Line offers the largest ¼-turn fastener selection in the industry.

Every fastener in the line is based on the rugged spiral cam stud and spring-wire receptacle design. The advantages of this design are readily apparent when a SL-1200 Line Fastener is operated in comparison with other ¼-turn types, especially after prolonged use. The fastener provides a firm locking tension with a crisp and positive lock. The end of the stud cam presents a solid over-rotation stop. Wear is minimal and performance is maintained over thousands of use cycles. Stud shanks are smooth, with no pins or lugs to hang up in support holes.

Designers evaluating ¼-turn fastener performance over the full service life of their product will find an outstanding choice in DFCI SL-1200 Line.

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 fastener components consist of a spiral-cam stud,

a stud retainer,

and a receptacle consisting of or containing a wire form spring.

As the stud is rotated, the DFCI ¼-turn spiral cam engages the spring-wire 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.

ST-1200 Line

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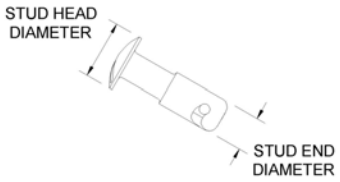
Selection Procedure

1. Select a fastener size, using this performance table.



Performance Table				
Fastener Size	**3**	**4**	**5**	**65**
Stud End Diameter (inches)	3/16	¼	5/16	13/32
Stud Head Diameter (inches)	5/16	7/16	9/16	11/16
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-	6-13	14-25	26-35	36-41
* Maximum sheet separation at 150% of locked service tension: .05”				

2. Select an appropriate stud head style.

					
Oval Head (AJ)	Wing Head (AJW)	Ring Head (BJR)	Flush Head (FJ)	Phillips Head (APRJ)	Hex Head (ASHJ)

3. Select a stud retainer. 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 the retainer may be allowed to cause a gap between the stud panel and receptacle support, or must be absorbed into one of those materials or into the receptacle itself.
   d. Installed cost.

4. Select a receptacle type.

   a. All of the receptacles provide the same optimum performance standards as listed in the performance table so receptacle selection is primarily a matter of choosing the installation mode which provides the lowest installed cost, and perhaps finding a type that will fit in limited space.
   b. 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 press-in, plus the enclosed types available in the Supersonic Line and Panel Line.

5. Now determine the thickness of the material in which the stud is retained (shown in tables as panel ‘P’) and to which the receptacle is attached (shown in tables as support ‘Q’). Then determine the total gap between the underside of the panel 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 examples on each stud page, which will guide you to the length selection table.

6. Self-ejecting stud assemblies prevent stud play in the open position and provide a visual cue of an open fastener.

Selection Worksheet

Step:	Your Answer	Example
1. Select a Stud Size: Use the Performance Table on page ST-2. (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-2. (e.g., Oval Head)		AJ
3. Select a Retainer: The selection of a retainer will depend on your requirements (see page ST-2). Available retainers are dependent on the size selected. See: Size 3 page ST-8, Size 4 page ST-16, Size 5 page ST-28, and Size 65 page ST-38 (e.g., Aluminum Half Grommet)		GH
4. Select a Receptacle Type: Page ST-2, step 4, lists some receptacle selection criteria. (e.g., S-Spring)		S
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”)		.295”
10. Using the ***Total Thickness***, go to the appropriate table and determine the stud “dash no.” 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-17.) (e.g., -45) IMPORTANT: Verify that the stud undercut (B Dim.) is sufficient to contain the panel thickness plus the retainer thickness. (e.g., A size 4 Oval Head –45 stud with a B Dim. of .225” is sufficient for my .090” panel plus .025” retainer. (See page ST-15)		-45
11. Add any Options: Options include Self Ejecting, Stainless Steel, Self Retaining, and any special finishes. (See Page ST-5 for a list of options and their codes.) (e.g., Self Ejecting [SE], Stainless Steel [SS])		SE SS

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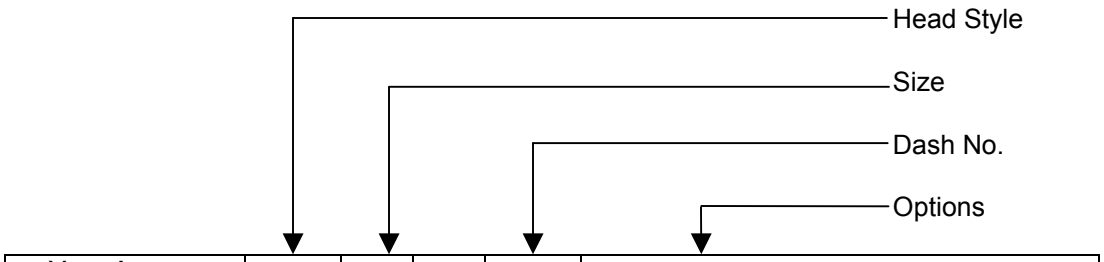
Selection Worksheet

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

Stud Part Number:



Your Answer			-		
Example	AJ	4	-	45	SS SE

Retainer and Receptacle Part Numbers

The receptacle part number is taken from the table where you found the “dash no.” for the stud.

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

	Retainer	Receptacle
Your Answer		
Example	GH4	S4-200

Standard Material and Finishes: Hardened steel studs, hard music wire D-rings, carbon steel wings. Bright zinc plate with clear chromate finish per ASTM-B-633, Type III, SC 2, clear.

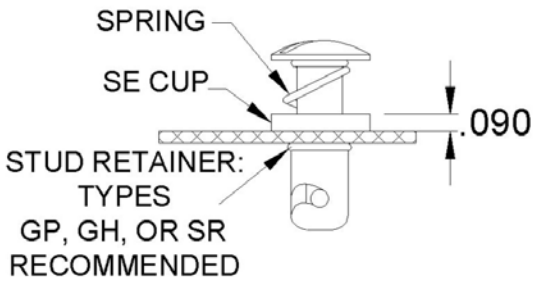
Optional Stainless Steel: Studs are 300 series stainless. Add **SS** to the part number.

Optional Finishes: Add plating suffix to basic part number. See Page ST-40 and ST-41 for the plating suffix. Optional finishes require special charges. Any order for a finish not standard for that item will result in additional charges and lead time.

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. B (length of undercut) – total width of cup (.090”), panel, and retainer. See the stud tables for Dim. B.

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

Callout: Add the suffix **SE** to the basic stud part number. (Example: AJ4-60**SE**)

DFCI **EHF5** and **EHF6** 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 **EHF5** and **EHF6** studs is a special advantage on curved or sliding panels. See page ST-44 for information on sizing and installation of the EHF5 and EHF6 Self Ejecting Stud Assemblies.

Optional Self Retained Stainless Steel Studs Type RE: Only available in stainless steel studs for all sizes. Knurls captivate the stud in a panel. For minimum orders of 1,000 pcs. Add the suffix **RE** to the basic stud part number. (Example: AJ4-60 **SS RE)**

ST-1200 Line

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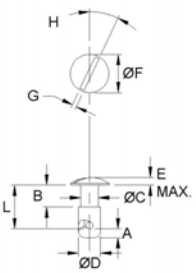
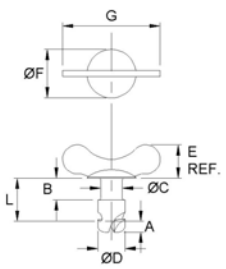
Size 3 Studs

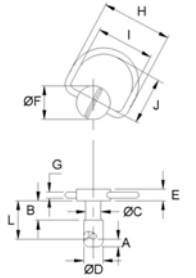
Slotted Head
AJ3-**L**



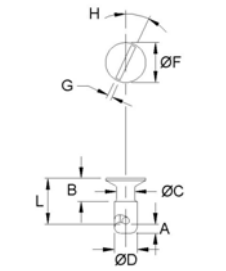
Wing Head
AJW3-**L**



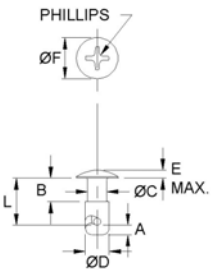
Ring Head
BJR3-**L**



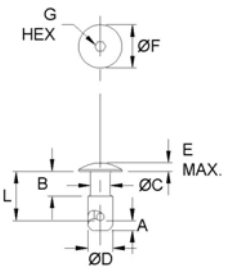
Flush Head
FJ3-**L**



Phillips Head
APRJ3-**L**



Hex Head
ASHJ3-**L**

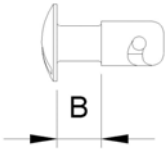
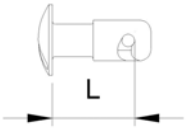
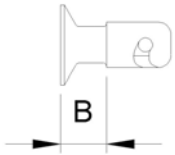
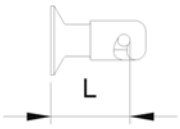


Size 3 Stud Dimensions

Stud	A	ØC	ØD	E	ØF	G	H	I	J	Phillips	Hex
AJ	.075”	.150”	.188”	.080”	.313”	038”	25°				
AJW	.075”	.150”	.188”	.250”	.313”	.625”					
BJR	.075”	.150”	.188”	.093”	.313”	.050”	.600”	.500”	.438”		
FJ	.075”	.150”	.188”		.313”	.038”	25°				
APRJ	.075”	.150”	.188”	.080”	.313”					#2	
ASHJ	.075”	.150”	.188”	.080”	.313”						3/32”

ST-1200 Line

Size 3 Stud Dimensions

Stud Dash No.	For Head Styles: AJ3, AJW3, BJR3, ASHJ3, APRJ3		For Head Style: FJ3	
	B Dim.* 	L Dim.* 	B Dim.* 	L 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

*B DIM = Undercut Length
*L Dim = Grip Length

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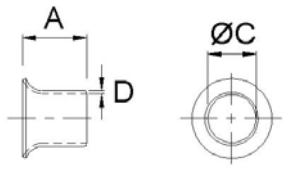
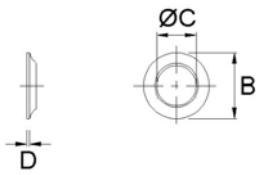
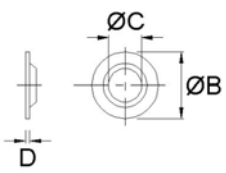
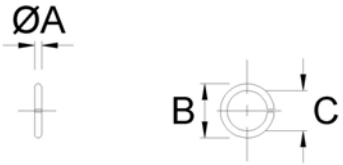
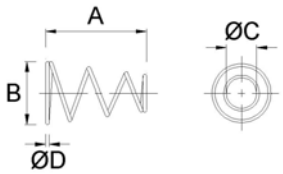
Size 3 Stud Retainers

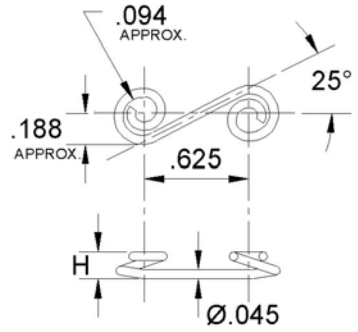
GA Aluminum Full Grommet	GH Aluminum Half Grommet	GP Plastic Half Grommet
		
		
For use with all except Flush Head Studs **Part No.:** GA3-(dim. A) **Material:** Aluminum **ØC:** .189” **D:** .015” **RT*:** .015” (per end)	For use with all Studs **Part No.:** GH3 **Material:** Aluminum **ØB:** .312” **ØC:** .188” **D:** .015” **RT*:** .015”	For use with all Studs **Part No.:** GP3B **Material:** Black Thermoplastic **Push-Out Strength:** **Standard panel hole:** 25 lb. **Oversize panel hole:** 7 lb. **ØB:** .312” **ØC:** .160” **D:** .020” **RT*:** .020”

SR Stainless Steel Snap Ring	SX Stainless Steel Retaining Spring
	
	
Part No: SR3SS **Material:** Stainless steel, 300 series, spring temper **ØA:** .022” **ØB:** .216” **ØC:** .172” **RT*:** .022”	**Part No.** SX520SS **Material:** Stainless steel, 300 series, spring temper **A:** .5” **B:** .312” **ØC:** .150” **ØD:** .018” **RT*:** The SX Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.

*** RT** = Retainer Thickness: Used in step 7 of the selection procedure on Page ST-3.

Size 3 Receptacle: S-Spring

Total Thickness *(Page ST-3. Step 9)*	 *Part Number*	*Stud Dash No.*
.045” to .069”	S3-225	25
.070” to .094”	S3-200	25
.095” to .119”	S3-225	30
.120” to .144”	S3-300	30
.145” to /169”	S3-175	30
.170” to .194”	S3-150	30
.195” to .219”	S3-175	35
.220” to .244”	S3-150	35
.245” to .269”	S3-175	40
.270” to .294”	S3-150	40
.295” to .319”	S3-175	45
.320” to .344”	S3-150	45
.345” to .369”	S3-175	50
.370” to .394”	S3-150	50
.395” to .419”	S3-175	55
.420” to .444”	S3-150	55
.445” to .469”	S3-175	60
.470” to .494”	S3-150	60
.495” to .519”	S3-175	65
.520” to .544”	S3-150	65
.545” to .569”	S3-175	70
.570” to .594”	S3-150	70
.595” to .619”	S3-175	75
.620” to .644”	S3-150	75
.645” to .669”	S3-175	80
.670” to .694”	S3-150	80



Part Number	Spring Height (H)
S3-150 (SS)	.150”
S3-175 (SS)	.175”
S3-200 (SS)	.200”
S3-225 (SS)	.225”

Material:
Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2 or 300 series stainless steel

Mechanical
Height: See above
Weight: 0.0009 lb.
Recommended Spring Deflection: .020” to .045”

For Stainless Steel, add **SS** to the Part Number

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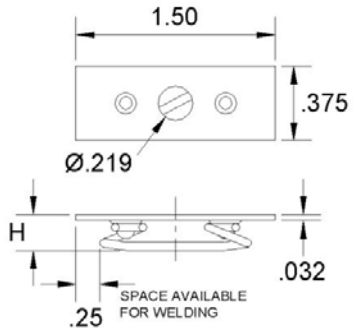
Size 3 Receptacle: Weld Plate

Total Thickness *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.040” to .064”	X735-280	30
.065” to .089”	X735-255	30
.090” to .114”	X735-230	30
.115” to .139”	X735-205	30
.140” to .164”	X735-230	35
.165” to .189”	X735-205	35
.190” to .214”	X735-230	40
.215” to .239”	X735-205	40
.240” to .264”	X735-230	45
.265” to .289”	X735-205	45
.290” to .314”	X735-230	50
.315” to .339”	X735-205	50
.340” to .364”	X735-230	55
.365” to .389”	X735-205	55
.390” to .414”	X735-230	60
.415” to .439”	X735-205	60
.440” to .464”	X735-230	65
.465” to .489”	X735-205	65
.490” to .514”	X735-230	70
.515” to .539”	X735-205	70
.540” to .564”	X735-230	75
.565” to .589”	X735-205	75
.590” to .614”	X735-230	80
.615” to .639”	X735-205	80



Part Number	Spring Height (H)
X735-205 (SS)	.205”
X735-230 (SS)	.230”
X735-255 (SS)	.255”
X735-280 (SS)	.280”

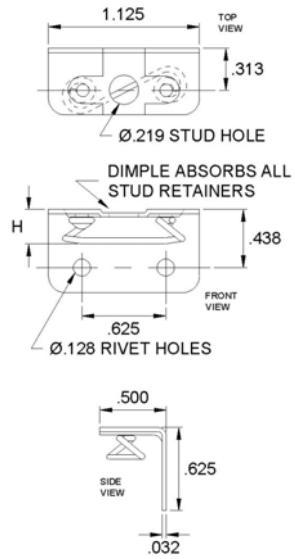
Material:
Plate: steel, unfinished
Spring: Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2 or 300 series stainless steel

Mechanical
Height: See above
Weight: 0.0061 lb.
Recommended Spring Deflection: .020” to .045”

For Stainless Steel, add **SS** to the Part Number

Size 3 Receptacle: Right Angle Spring Plate

*Total Thickness** *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.040” to .064”	RP3-280	30
.065” to .089”	RP3-255	30
.090” to .114”	RP3-230	30
.115” to .139”	RP3-205	30
.140” to .164”	RP3-230	35
.165” to .189”	RP3-205	35
.190” to .214”	RP3-230	40
.215” to .239”	RP3-205	40
.240” to .264”	RP3-230	45
.265” to .289”	RP3-205	45
.290” to .314”	RP3-230	50
.315” to .339”	RP3-205	50
.340” to .364”	RP3-230	55
.365” to .389”	RP3-205	55
.390” to .414”	RP3-230	60
.415” to .439”	RP3-205	60
.440” to .464”	RP3-230	65
.465” to .489”	RP3-205	65
.490” to .514”	RP3-230	70
.515” to .539”	RP3-205	70
.540” to .564”	RP3-230	75
.565” to .589”	RP3-205	75
.590” to .614”	RP3-230	80
.615” to .639”	RP3-205	80



Part Number	Spring Height (H)
RP3-205	.205”
RP3-230	.230”
RP3-255	.255”
RP3-280	.280”

Material:
Plate: Low carbon steel, zinc plated with yellow chromate dip.
Spring: Music wire, zinc plated with yellow chromate dip.

Mechanical
Height: See above
Recommended Spring Deflection: .020” to .045”

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

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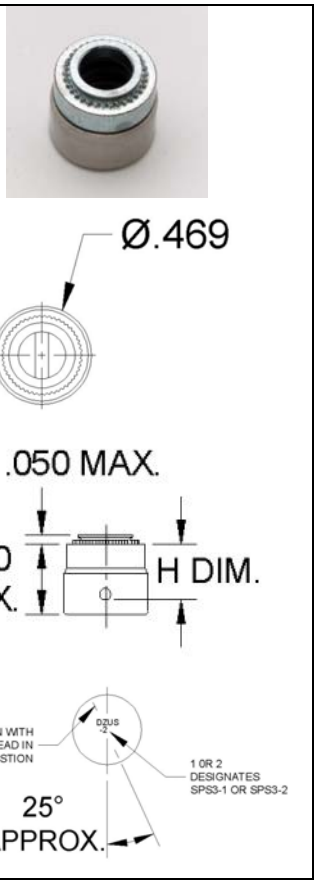
Size 3 Receptacle: Rear Press-In

Total Thickness (Page ST-3, Step 9)	*Part Number*	*Stud Dash No.*
.050” to .064”	SPS3-2	35
.065” to .089”	SPS3-1	35
.090” to .114”	SPS3-2	40
.115” to .139”	SPS3-1	40
.140” to .164”	SPS3-2	45
.165” to .189”	SPS3-1	45
.190” to .214”	SPS3-2	50
.215” to .239”	SPS3-1	50
.240” to .264”	SPS3-2	55
.265” to .289”	SPS3-1	55
.290” to .314”	SPS3-2	60
.315” to .339”	SPS3-1	60
.340” to .364”	SPS3-2	65
.365” to .389”	SPS3-1	65
.390” to .414”	SPS3-2	70
.415” to .439”	SPS3-1	70
.440” to .464”	SPS3-2	75
.465” to .489”	SPS3-1	75
.490” to .514”	SPS3-2	80



H DIM	
Part Number	**H DIM**
SPS3-1	.305”
SPS3-2	.330”

Material:
Body: Alloy steel, zinc plated
Cap: Stainless steel, 300 series
Spacer: Steel, zinc plated
Coil Spring: Stainless steel, 17-7PH, spring temper
Locking Pin: Stainless steel, 17-7PH, spring temper

Mechanical
Locking tension: 20 lb. at .033” deflection
Locking torque: 2 to 6 lb.-in.
Locking stop yield: 30 lb-in.
Tensile strength: 45 lb.
Endurance: 15,000 cycles

Size 3 Receptacle:
Side and Corner Mount Spring

These side-mounted springs may be used where there is no support beneath the stud. The type SB spring rivets to a support perpendicular to the stud panel. The type SC spring rivets to a box corner

Note: Because there is no receptacle to guide the stud, the stud panel should be registered, as with edge lip or hinge, to ensure that the stud will engage the spring.

Determine the spring location (Dimension F), for the shortest possible stud:

Usually, it is desirable to have SB and SC springs as close to the stud as possible. To find the minimum Dimension F (F DIM):

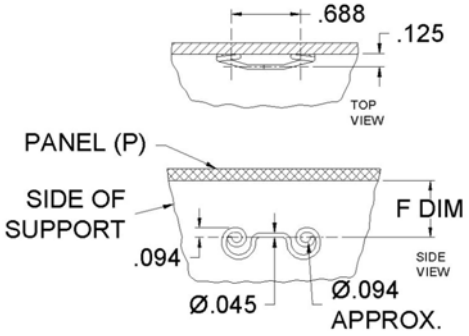
1. Go to the stud selection table and find the shortest listed stud with an undercut length (Dimension B) able to contain the stud panel and stud retainer.
2. For that stud, find Dimension L in the table and subtract from it the thickness of the stud panel.
3. Add the recommended spring deflection of .040". This is the location of the spring rivet hole centers from the underside of the stud panel (Dimension F).

Notes:

Absolute Minimum F = .110"

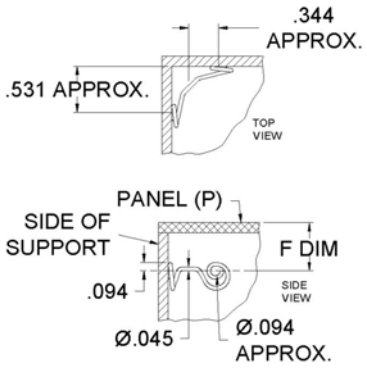
Dimension F can also be set at any other location equal to Dimension L of any stud, minus stud panel thickness plus recommended spring deflection.

Side Mounted Spring



Part Number: SB3-2

Corner Mounted Spring



Part Number: SC3-2

WARNING: Failure to obtain the recommended spring deflection will prevent the stud from locking and allow it to move under vibration, possibly resulting in fastener failure.

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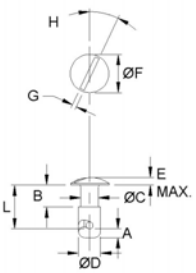
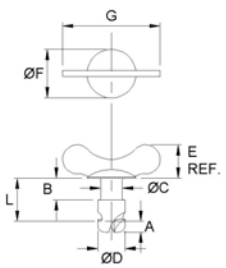
Size 4 Studs

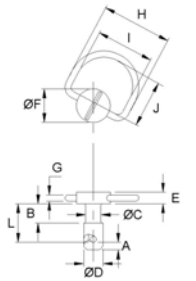
Slotted Head
AJ4-**L**



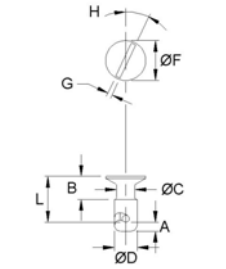
Wing Head
AJW4-**L**



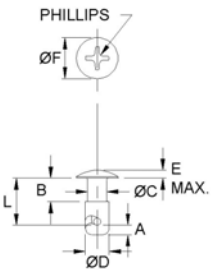
Ring Head
BJR4-**L**



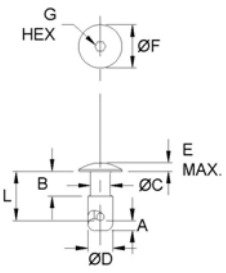
Flush Head
FJ4-**L**



Phillips Head
APRJ4-**L**



Hex Head
ASHJ4-**L**

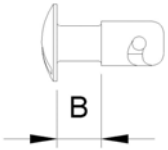
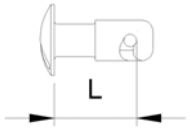
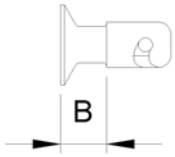
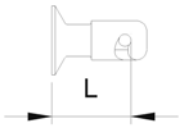


Size 4 Stud Dimensions

Stud	A	ØC	ØD	E	ØF	G	H	I	J	Phillips	Hex
AJ	.100”	.200”	.250”	.085	.438”	.050	28°				
AJW	.100”	.200”	.250”	.313”	.438”	.875”					
BJR	.100”	.200”	.250”	.150”	.438”	.080	.910”	.750”	.625”		
FJ	.100”	.200”	.250”		.438”	.050”	28°				
APRJ	.100”	.200”	.250”	.100”	.438”					#2	
ASHJ	.100”	.200”	.250”	.085”	.438”						3/32”

ST-1200 Line

Size 4 Stud Dimensions

Stud Dash No.	For Head Styles: AJ4, AJW4, BJR4, ASHJ4, APRJ4		For Head Style: FJ4	
	B Dim.* 	L Dim.* 	B Dim.* 	L Dim.* 
-25	.100	.250	Not Available	Not Available
-30	.100	.300	Not Available	Not Available
-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

*B DIM = Undercut Length, L Dim = Grip Length

ST-1200 Line

Solutions Inc.
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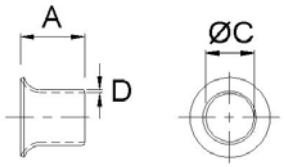
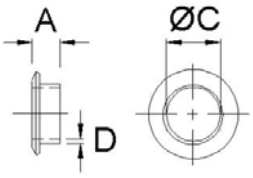
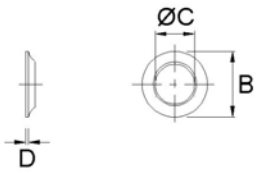
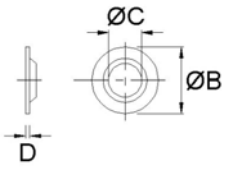
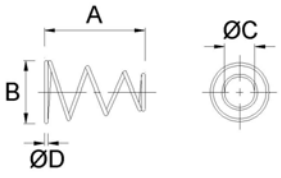
Size 4 Stud Retainers

Aluminum Full Grommet		Aluminum Half Grommet
 All studs ***except*** Flush Head Studs **(GA)**	 For use with Flush Head Studs **(GF)**	 **(GH)**
		
Part No.: GA4-(dim. A) For use with all except Flush Head Studs **Part No.:** GF4-(dim. A) For use with Flush Head Studs **Material:** Aluminum **ØC:** .262” **D:** .025” **RT*:** .025” (per end)		**Part No.:** GH4 **Material:** Aluminum **ØB:** .438” **ØC:** .250” **D:** .025” **RT*:** .025”

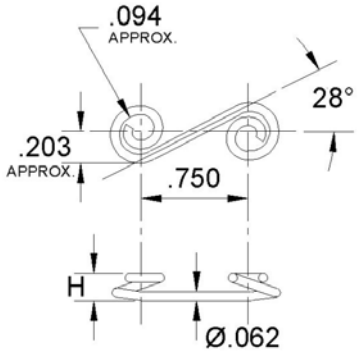
Plastic Half Grommet	Stainless Steel Snap Ring	Stainless Steel Retaining Spring
 **(GP)**	 **(SR)**	 **(SX)**
		
Part No.: GP4B **Material:** Black Thermoplastic **Push-Out Strength:** **Standard panel hole:** 25 lb. **Oversize panel hole:** 7 lb. **ØB:** .437” **ØC:** .210” **D:** .027” **RT*:** .027”	**Part No:** SR4SS **Material:** Stainless steel, 300 series, spring temper **ØA:** .029” **ØB:** .288” **ØC:** .230” **RT*:** .029”	**Part No.** SX523SS **Material:** Stainless steel, 300 series, spring temper **A:** .5” **B:** .438” **ØC:** .200” **ØD:** .025” **RT*:** The SX Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.

*** RT** = Retainer Thickness: Used in Step 7 of the selection procedure on Page ST-3

ST-1200 Line

Size 4 Receptacle: S-Spring

Total Thickness *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.050” to .074”	S4-225	25
.075” to .099”	S4-200	25
.100” to .124”	S4-225	30
.125” to .149”	S4-200	30
.150” to .174”	S4-225	35
.175” to .199”	S4-200	35
.200” to .224”	S4-225	40
.225” to .249”	S4-200	40
.250” to .274”	S4-225	45
.275” to .299”	S4-200	45
.300” to .324”	S4-225	50
.325” to .349”	S4-200	50
.350” to .374”	S4-225	55
.375” to .399”	S4-200	55
.400” to .424”	S4-225	60
.425” to .449”	S4-200	60
.450” to .474”	S4-225	65
.475” to .499”	S4-200	65
.500” to .524”	S4-225	70
.525” to .549”	S4-200	70
.550” to .574”	S4-225	75
.575” to .599”	S4-200	75
.600” to .624”	S4-225	80
.625” to .649”	S4-200	80
.650” to .674”	S4-225	85
.675” to .699”	S4-200	85
.700” to .724”	S4-225	90
.725” to .749”	S4-200	90
.750” to .774”	S4-225	95
.775” to .799”	S4-200	95
.800” to .824”	S4-225	100
.825” to .849”	S4-200	100
.850” to .874”	S4-225	105
.875” to .899”	S4-200	105
.900” to .924”	S4-225	110
.925” to .949”	S4-200	110
.950” to .974”	S4-225	115
.975” to .999”	S4-200	115
1.000” to 1.024”	S4-225	120
1.025” to 1.049”	S4-200	120



Part Number	Spring Height (H)
S4-200 (SS)	.200”
S4-225 (SS)	.225”
S4-250 (SS)	.250”
S4-275 (SS)	.275”

Material:
Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2 or 300 series stainless steel

Mechanical
Height: See above
Weight: 0.0025 lb.
Recommended Spring Deflection: .022” to .054”

For Stainless Steel, add **SS** to the Part Number

ST-1200 Line

Solutions Inc.
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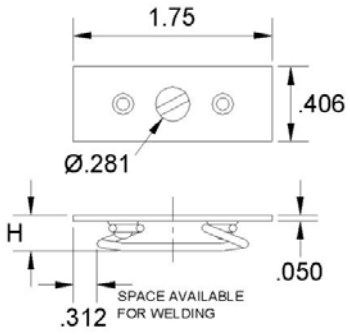
Size 4 Receptacle: Weld Plate

Total Thickness *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.025” to .049”	X485-300	30
.050” to .074”	X485-275	30
.075” to .099”	X485-300	35
.100” to .124”	X485-275	35
.125” to .149”	X485-300	40
.150” to .174”	X485-275	40
.175” to .199”	X485-300	45
.200” to .224”	X485-275	45
.225” to .249”	X485-300	50
.250” to .274”	X485-275	50
.275” to .299”	X485-300	55
.300” to .324”	X485-275	55
.325” to .349”	X485-300	60
.350” to .374”	X485-275	60
.375” to .399”	X485-300	65
.400” to .424”	X485-275	65
.425” to .449”	X485-300	70
.450” to .474”	X485-275	70
.475” to .499”	X485-300	75
.500” to .524”	X485-275	75
.525” to .549”	X485-300	80
.550” to .574”	X485-275	80
.575” to .599”	X485-300	85
.600” to .624”	X485-275	85
.625” to .649”	X485-300	90
.650” to .674”	X485-275	90
.675” to .699”	X485-300	95
.700” to .724”	X485-275	95
.725” to .749”	X485-300	100
.750” to .774”	X485-275	100
.775” to .799”	X485-300	105
.800” to .824”	X485-275	105
.825” to .849”	X485-300	110
.850” to .874”	X485-275	110
.875” to .899”	X485-300	115
.900” to .924”	X485-275	115
.925” to .949”	X485-300	120
.950” to .974”	X485-275	120



Part Number	Spring Height (H)
X485-275 (SS)	.275”
X485-300 (SS)	.300”

Material:
Plate: steel, unfinished
Spring: Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2 or 300 series stainless steel

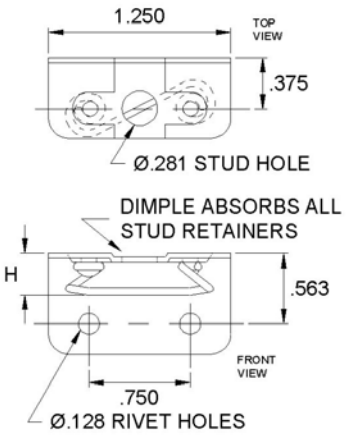
Mechanical
Height: See above
Weight: 0.0124 lb.
Recommended Spring Deflection: .022” to .054”

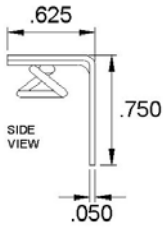
For Stainless Steel, add **SS** to the Part Number

ST-1200 Line

Size 4 Receptacle: Right Angle Spring Plate

*Total Thickness** *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.025” to .049”	RP4-300	30
.050” to .074”	RP4-275	30
.075” to .099”	RP4-300	35
.100” to .124”	RP4-275	35
.125” to .149”	RP4-300	40
.150” to .174”	RP4-275	40
.175” to .199”	RP4-300	45
.200” to .224”	RP4-275	45
.225” to .249”	RP4-300	50
.250” to .274”	RP4-275	50
.275” to .299”	RP4-300	55
.300” to .324”	RP4-275	55
.325” to .349”	RP4-300	60
.350” to .374”	RP4-275	60
.375” to .399”	RP4-300	65
.400” to .424”	RP4-275	65
.425” to .449”	RP4-300	70
.450” to .474”	RP4-275	70
.475” to .499”	RP4-300	75
.500” to .524”	RP4-275	75
.525” to .549”	RP4-300	80
.550” to .574”	RP4-275	80
.575” to .599”	RP4-300	85
.600” to .624”	RP4-275	85
.625” to .649”	RP4-300	90
.650” to .674”	RP4-275	90
.675” to .699”	RP4-300	95
.700” to .724”	RP4-275	95
.725” to .749”	RP4-300	100
.750” to .774”	RP4-275	100
.775” to .799”	RP4-300	105
.800” to .824”	RP4-275	105
.825” to .849”	RP4-300	110
.850” to .874”	RP4-275	110
.875” to .899”	RP4-300	115
.900” to .924”	RP4-275	115
.925” to .949”	RP4-300	120
.950” to .974”	RP4-275	120





Part Number	Spring Height (H)
RP4-275	.275”
RP4-300	.300”

Material:
Plate: Low carbon steel, zinc plated with yellow chromate dip.
Spring: Music wire, zinc plated with yellow chromate dip.

Mechanical
Height: See above
Recommended Spring Deflection: .022” to .054”

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

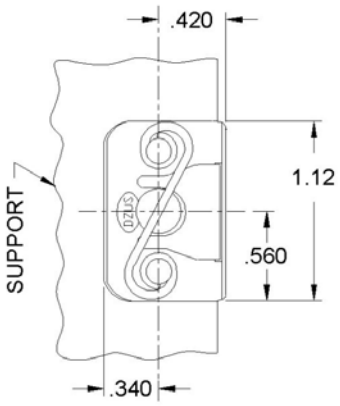
ST-1200 Line

Solutions Inc.
Formerly Dzus Fastener Co.Inc.

Size 4 Receptacle: Slip-On

Total Thickness	 *Receptacle Height (H)*	*Stud Dash No.*
.046” to .070”	280	30
.071” to .095”	305	35
.096” to .120”	280	35
.121” to .145”	305	40
.146” to .170”	280	40
.171” to .195”	305	45
.196” to .220”	280	45
.221” to .245”	305	50
.246” to .270”	280	50
.271” to .295”	305	55
.296” to .320”	280	55
.321” to .345”	305	60
.346” to .370”	280	60
.371” to .395”	305	65
.396” to .420”	280	65
.421” to .445”	305	70
.446” to .470”	280	70
.471” to .495”	305	75
.496” to .520”	280	75
.521” to .545”	305	80
.546” to .570”	280	80
.571” to .595”	305	85
.596” to .620”	280	85
.621” to .645”	305	90
.646” to .670”	280	90
.671” to .695”	305	95
.696” to .720”	280	95
.721” to .745”	305	100
.746” to .770”	280	100
.771” to .795”	305	105
.796” to .820”	280	105
.821” to .845”	305	110
.846” to .870”	280	110
.871” to .895”	305	115
.896” to .920”	280	115
.921” to .945”	305	120
.946” to .970”	280	120

The SL 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 SL offers performance equal to aircraft type riveted receptacles of equal size.



Material:

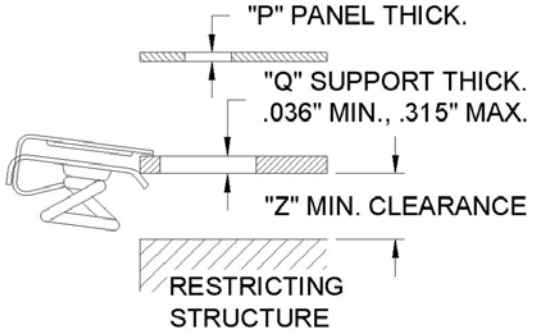
Plate: Low carbon steel, zinc plated with yellow chromate dip.
Spring: Music wire, zinc plated with yellow chromate dip.

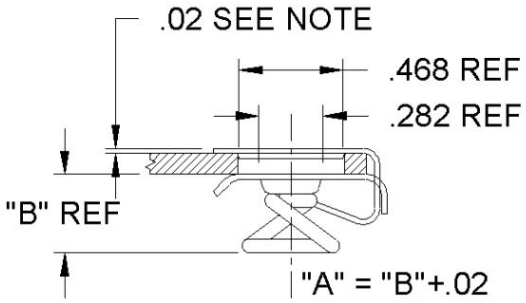
Mechanical

Height: See above
Recommended Spring Deflection: .022” to .054”

Size 4 Receptacle: Slip-On (Continued)

Support Thickness	Receptacle Height (H)	SL4 Part Number	A	B	Z
.036” - .128”	280	SL4-280	.280”	.260”	.400”
	305	SL4-305	.305”	.285”	.400”
.129” - .220”	280	SL4Y-280	.280”	.260”	.430”
	305	SL4Y-305	.305”	.285”	.430”
.221” - .315”	280	SL4X-280	.280”	.260”	.450”
	305	SL4X-305	.305”	.285”	.450”

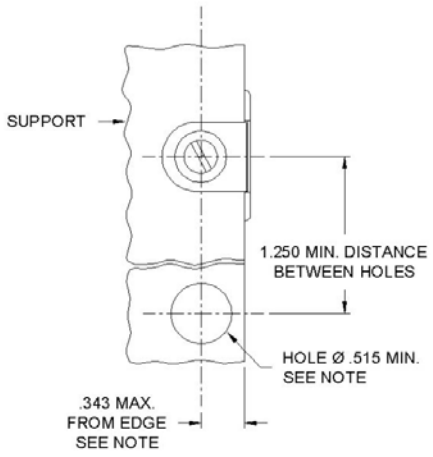




Support Preparation for Slip-On Receptacle

Note:
The clip face causes a .020” 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.

Note:
Panel misalignment can be tolerated by increasing the support hole to .547” and decreasing the hole center to edge distance to .328”.



ST-1200 Line

Solutions Inc.
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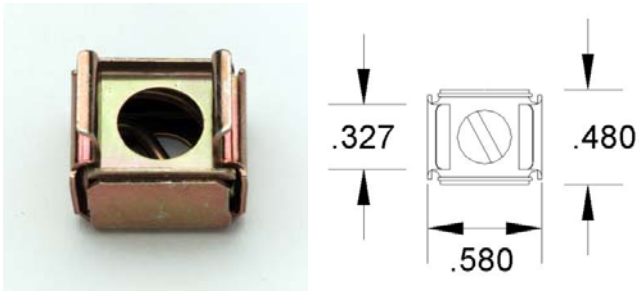
Size 4 Receptacle: Clip-In



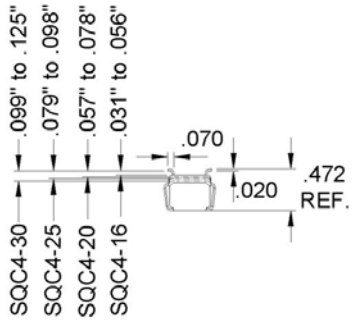
SQC4

The SQC4 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 SQC4 can replace square hole caged nuts on existing equipment.

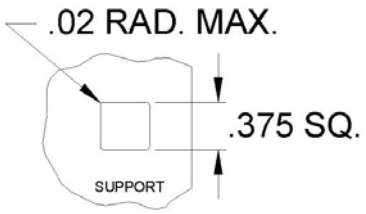
This is a highly durable fastener, with excellent strength for its small size.

Support Thickness	Receptacle Required
.031” to .056”	SQC4-16
.057” to .078”	SQC4-20
.079” to .098”	SQC4-25
.099” to .125”	SQC4-30

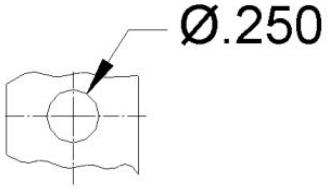


Panel / Gap Thickness	Stud Dash No.	GP4 Washer (see Note 1)
.019” to .043”	45	None
.044” to .068”	50	One
.069” to .093”	50	None
.094” to .118”	55	One
.119” to .143”	55	None
.144” to .168”	60	One
.169” to .193”	60	None
.194” to .218”	65	One
.219” to .243”	65	None
.244” to .268”	70	One
.269” to .293”	70	None
.294” to .318”	75	One
.319” to .343”	75	None
.344” to .368”	80	One
.369” to .393”	80	None

Support Panel Preparation

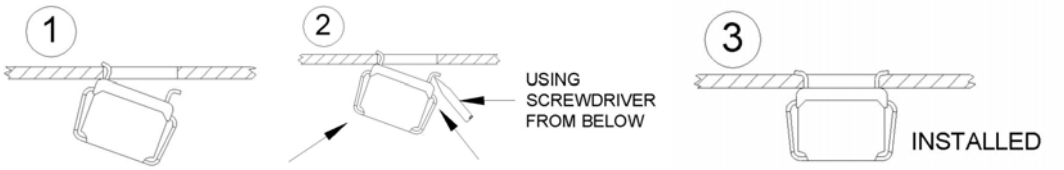


Stud Panel Preparation



ST-1200 Line

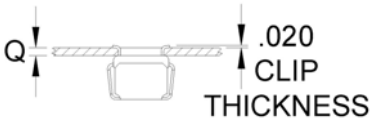
Installation



Determining Stud and Receptacle Size

Step 1.
Using the table on the previous page, 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 SQC4 receptacle will be mounted.

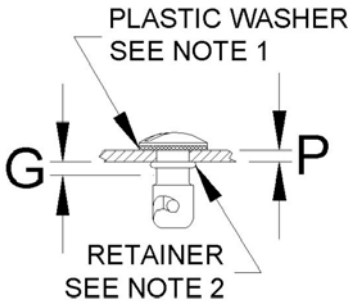


Step 2.
Calculate the total Panel / Gap Thickness. Using the table on the previous page, find the Panel / Gap Thickness range that applies to your calculated total. The Stud Dash Number is to the right of the applicable range.

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” 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” thick plastic washer under the head of the stud.

Note2: The SR4SS is the only retainer which can fit inside the SQC4, allowing flush contact between the panel and the receptacle.

Material:
All parts: Carbon Steel, spring Temper, zinc plated with yellow chromate dip per ASTM B-633, Type II, SC2.

Mechanical
Working tension (min.): 11 lb.
Safe load without distortion: .30 lb. max.
Minimum distance between holes (edge to edge): .50”
Gap between panel and support face (caused by receptacle clip width, see drawing): .02”
Recommended Spring Deflection: .020” to .045”

ST-1200 Line

Solutions Inc.
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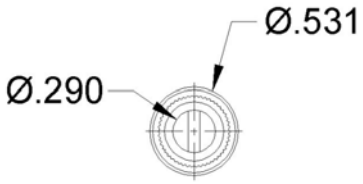
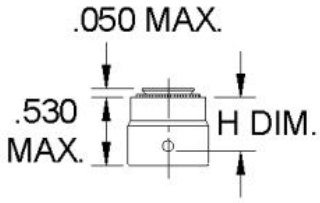
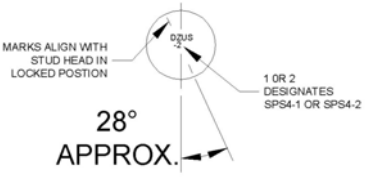
Size 4 Receptacle: Rear Press-In

Total Thickness *(Page ST-3, Step 9)*	*Part Number*	*Stud Dash No.*
.035” to .059”	SPS4-2	40
.060” to .084”	SPS4-1	40
.085” to .109”	SPS4-2	45
.110” to .134”	SPS4-1	45
.135” to .159”	SPS4-2	50
.160” to .184”	SPS4-1	50
.185” to .209”	SPS4-2	55
.210” to .234”	SPS4-1	55
.235” to .259”	SPS4-2	60
.260” to .284”	SPS4-1	60
.285” to .309”	SPS4-2	65
.310” to .334”	SPS4-1	65
.335” to .359”	SPS4-2	70
.360” to .384”	SPS4-1	70
.385” to .409”	SPS4-2	75
.410” to .434”	SPS4-1	75
.435” to .459”	SPS4-2	80
.460” to .484”	SPS4-1	85
.485” to .509”	SPS4-2	85
.510” to .534”	SPS4-1	85
.535” to .559”	SPS4-2	90
.560” to .584”	SPS4-1	90
.585” to .609”	SPS4-2	95
.610” to .634”	SPS4-1	95
.635” to .659”	SPS4-2	100
.660” to .684”	SPS4-1	100
.685” to .709”	SPS4-2	105
.710” to .734”	SPS4-1	105
.735” to .759”	SPS4-2	110
.760” to .784”	SPS4-1	110
.785” to .809”	SPS4-2	115
.810” to .834”	SPS4-1	115
.835” to .859”	SPS4-2	120
.860” to .884”	SPS4-1	120







H DIM.	
Part Number	**H Dim.**
SPS4-1	.365”
SPS4-2	.390”

Material	Mechanical
Body: Alloy steel, zinc plated	**Locking Tension:** 30 lb. at .040” deflection
Cap: Stainless steel, 300 series	**Locking Torque:** 4 to 10 lb.-in.
Spacer: Steel, zinc plated	**Locking stop yield:** 50 lb.-in.
Coil Spring: Stainless steel, 17-7PH, spring temper	**Tensile strength:** 60 lb.
Locking Pin: Stainless steel, 17-7PH, spring temper	**Endurance:** 15,000 cycles

Size 4 Receptacle:
Side and Corner Mount Spring

These side-mounted springs may be used where there is no support beneath the stud. The type SB spring rivets to a support perpendicular to the stud panel. The type SC spring rivets to a box corner

Note: Because there is no receptacle to guide the stud, the stud panel should be registered, as with edge lip or hinge, to ensure that the stud will engage the spring.

Determine the spring location (Dimension F), for the shortest possible stud:

Usually, it is desirable to have SB and SC springs as close to the stud as possible. To find the minimum Dimension F (F DIM):

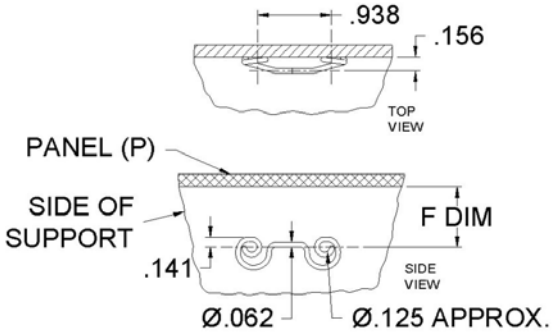
1. Go to the stud selection table and find the shortest listed stud with an undercut length (Dimension B) able to contain the stud panel and stud retainer.
2. For that stud, find Dimension L in the table and subtract from it the thickness of the stud panel.
3. Add the recommended spring deflection of .045". This is the location of the spring rivet hole centers from the underside of the stud panel (Dimension F).

Notes:

Absolute Minimum F = .160"

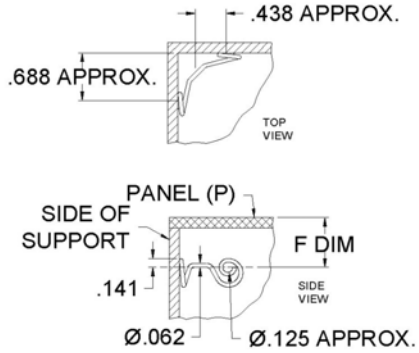
Dimension F can also be set at any other location equal to Dimension L of any stud, minus stud panel thickness plus recommended spring deflection.

Side Mounted Spring



Part Number: SB4-2

Corner Mounted Spring



Part Number: SC4-2

Warning: Failure to obtain the recommended spring deflection will prevent the stud from locking and allow it to move under vibration, possibly resulting in fastener failure.

ST-1200 Line

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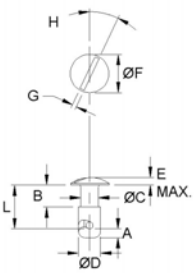
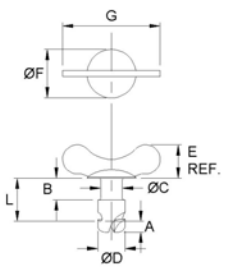
Size 5 Studs

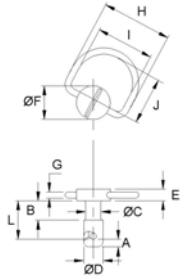
Slotted Head
AJ5-**L**



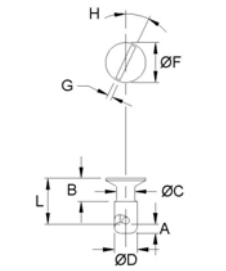
Wing Head
AJW5-**L**



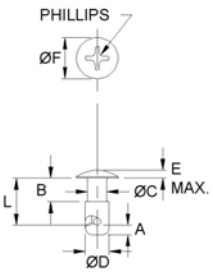
Ring Head
BJR5-**L**



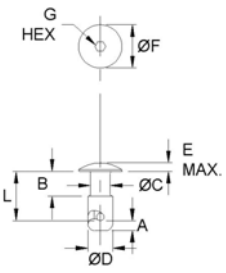
Flush Head
FJ5-**L**



Phillips Head
APRJ5-**L**



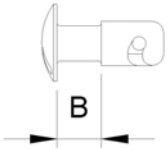
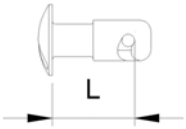
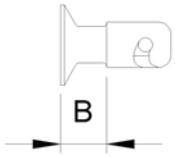
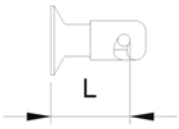
Hex Head
ASHJ5-**L**



Size 5 Stud Dimensions

Stud	A	ØC	ØD	E	ØF	G	H	I	J	Phillips	Hex
AJ	.125”	.250”	.313”	.102	.563”	.062”	30°				
AJW	.125”	.250”	.313”	.438”	.563”	1.125”					
BJR	.125”	.250”	.313”	.150”	.563”	.100”	.1.075”	.875”	.750”		
FJ	.125”	.250”	.313”		.563”	.062”	30°				
APRJ	.125”	.250”	.313”	.115”	.563”					#2	
ASHJ	.125”	.250”	.313”	.102”	.563”						5/32”

Size 5 Stud Dimensions

Stud Dash No.	For Head Styles: AJ5, AJW5, BJR5, ASHJ5, APRJ5		For Head Style: FJ5	
	B Dim.* 	L Dim.* 	B Dim.* 	L Dim.* 
-30	.125	.300	Not Available	Not Available
-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

*B DIM = Undercut Length
L Dim = Grip Length

ST-1200 Line

Solutions Inc.
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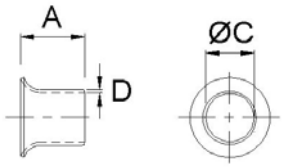
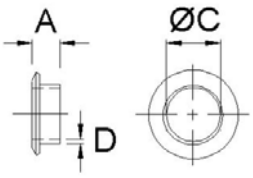
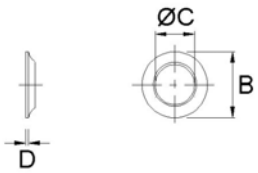
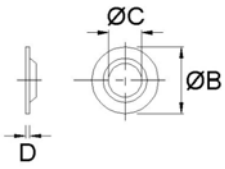
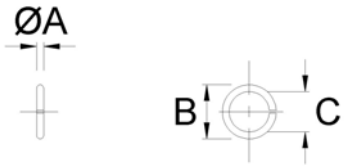
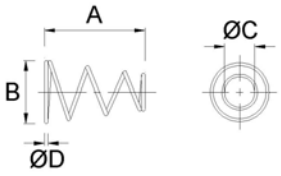
Size 5 Stud Retainers

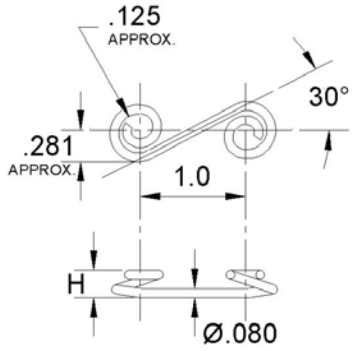
Aluminum Full Grommet		Aluminum Half Grommet
		
All studs ***except*** Flush Head Studs **(GA)**	For use with Flush Head Studs **(GF)**	**(GH)**
		
Part No.: GA5-(dim. A) For use with all except Flush Head Studs **Part No.:** GF5-(dim.A) For use with Flush Head Studs **Material:** Aluminum **ØC:** .319" **D:** .028" **RT*:** .028" (per end)		**Part No.:** GH5 **Material:** Aluminum **ØB:** .563" **ØC:** .312" **D:** .031" **RT*:** .031"

Plastic Half Grommet	Stainless Steel Snap Ring	Stainless Steel Retaining Spring
		
(GP)	**(SR)**	**(SX)**
		
Part No.: GP5B **Material:** Black Thermoplastic **Push-Out Strength:** **Standard panel hole:** 25 lb. **Oversize panel hole:** 7 lb. **ØB:** .562" **ØC:** .255" **D:** .034" **RT*:** .034"	**Part No:** SR5SS **Material:** Stainless steel, 300 series, spring temper **ØA:** .035" **ØB:** .358" **ØC:** .288" **RT*:** .035"	**Part No.** SX510SS **Material:** Stainless steel, 300 series, spring temper **A:** .75" **B:** .563" **ØC:** .255" **ØD:** .031" **RT*:** The SX Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.

*** RT** = Retainer Thickness, used in step 7 of the selection procedure on page ST-3.

Size 5 Receptacle: S-Spring

Total Thickness *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.055” to .079”	S5A-275	30
.080” to .104”	S5A-250	30
.105” to .129”	S5A-225	30
.130” to .154”	S5A-200	30
.155” to .179”	S5A-275	40
.180” to .204”	S5A-250	40
.205” to .229”	S5A-225	40
.230” to .254”	S5A-200	40
.255” to .279”	S5A-275	50
.280” to .304”	S5A-250	50
.305” to .329”	S5A-225	50
.330” to .354”	S5A-200	50
.355” to .379”	S5A-275	60
.380” to .404”	S5A-250	60
.405” to .429”	S5A-225	60
.430” to .454”	S5A-200	60
.455” to .479”	S5A-275	70
.480” to .504”	S5A-250	70
.505” to .529”	S5A-225	70
.530” to .554”	S5A-200	70
.555” to .579”	S5A-275	80
.580” to .604”	S5A-250	80
.605” to .629”	S5A-225	80
.630” to .654”	S5A-200	80
.655” to .779”	S5A-275	90
.680” to .704”	S5A-250	90
.705” to .729”	S5A-225	90
.730” to .754”	S5A-200	90
.755” to .779”	S5A-275	100
.780” to .804”	S5A-250	100
.805” to .829”	S5A-225	100
.830” to .854”	S5A-200	100
.855” to .879”	S5A-275	110
.880” to .904”	S5A-250	110
.905” to .929”	S5A-225	110
.930” to .954”	S5A-200	110
.955” to .979”	S5A-275	120
.980” to 1.004”	S5A-250	120
1.005” to 1.029”	S5A-225	120
1.030” to 1.054”	S5A-200	120



Part Number	Spring Height (H)
S5A-200 (SS)	.200”
S5A-225 (SS)	.225”
S5A-250 (SS)	.250”
S5A-275 (SS)	.275”

Material:
Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2 or 300 series stainless steel

Mechanical
Height: See above
Weight: 0.0059 lb.
Recommended Spring Deflection: .024” to .057”

For Stainless Steel, add **SS** to the Part Number

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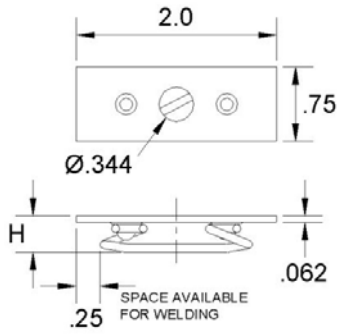
Size 5 Receptacle: Weld Plate

Total Thickness *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.040” to .064”	X414-285	30
.065” to .089”	X414-360	40
.090” to .114”	X414-335	40
.115” to .139”	X414-310	40
.140” to .164”	X414-285	40
.165” to .189”	X414-360	50
.190” to .214”	X414-335	50
.215” to .239”	X414-310	50
.240” to .264”	X414-285	50
.265” to .289”	X414-360	60
.290” to .314”	X414-335	60
.315” to .339”	X414-310	60
.340” to .364”	X414-285	60
.365” to .389”	X414-360	70
.390” to .414”	X414-335	70
.415” to .439”	X414-310	70
.440” to .464”	X414-285	70
.465” to .489”	X414-360	80
.490” to .514”	X414-335	80
.515” to .539”	X414-310	80
.540” to .564”	X414-285	80
.565” to .489”	X414-360	90
.490” to .614”	X414-335	90
.615” to .639”	X414-310	90
.640” to .664”	X414-285	90
.665” to .689”	X414-360	100
.690” to .714”	X414-335	100
.715” to .739”	X414-310	100
.740” to .764”	X414-285	100
.765” to .789”	X414-360	110
.790” to .814”	X414-335	110
.815” to .839”	X414-310	110
.840” to .864”	X414-285	110
.865” to .889”	X414-360	120
.890” to .914”	X414-335	120
.915” to .939”	X414-315	120
.940” to .964”	X414-285	120



Part Number	Spring Height (H)
X414-285 (SS)	.285”
X414-310 (SS)	.310”
X414-335 (SS)	.335”
X414-360 (SS)	.360”

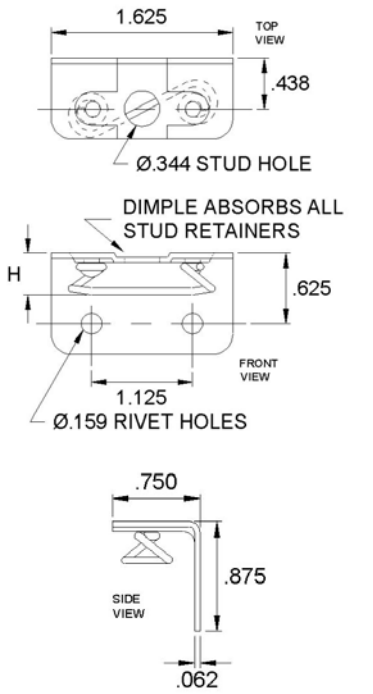
Material:
Plate: steel, unfinished
Spring: Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2
Rivets: Plated Steel
Stainless Steel: All components series 300 stainless steel

Mechanical
Height: See above
Weight: 0.0326 lb.
Recommended Spring Deflection: .024” to .057”

For Stainless Steel, add **SS** to the Part Number

Size 5 Receptacle: Right Angle Spring Plate

Total Thickness (Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.040” to .064”	RP5-285	30
.065” to .089”	RP5-360	40
.090” to .114”	RP5-335	40
.115” to .139”	RP5-310	40
.140” to .164”	RP5-285	40
.165” to .189”	RP5-360	50
.190” to .214”	RP5-335	50
.215” to .239”	RP5-310	50
.240” to .264”	RP5-285	50
.265” to .289”	RP5-360	60
.290” to .314”	RP5-335	60
.315” to .339”	RP5-310	60
.340” to .364”	RP5-285	60
.365” to .389”	RP5-360	70
.390” to .414”	RP5-335	70
.415” to .439”	RP5-310	70
.440” to .464”	RP5-285	70
.465” to .489”	RP5-360	80
.490” to .514”	RP5-335	80
.515” to .539”	RP5-310	80
.540” to .564”	RP5-285	80
.565” to .589”	RP5-360	90
.590” to .614”	RP5-335	90
.615” to .639”	RP5-310	90
.640” to .664”	RP5-285	90
.665” to .689”	RP5-360	100
.690” to .714”	RP5-335	100
.715” to .739”	RP5-310	100
.740” to .764”	RP5-285	100
.765” to .789”	RP5-360	110
.790” to .814”	RP5-335	110
.815” to .839”	RP5-310	110
.840” to .864”	RP5-285	110
.865” to .889”	RP5-360	120
.890” to .914”	RP5-335	120
.915” to .939”	RP5-310	120
.940” to .965”	RP5-385	120



Part Number	Spring Height (H)
RP5-285	.285”
RP5-310	.310”
RP5-335	.335”
Rp5-360	.360”

Material:

Plate: Low carbon steel, zinc plated with yellow chromate dip.
Spring: Music wire, zinc plated with yellow chromate dip.

Mechanical

Height: See above
Recommended Spring Deflection: .024” to .057”

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

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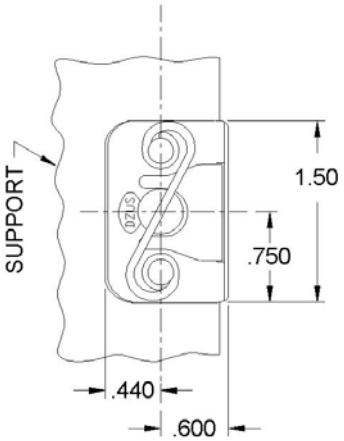
Size 5 Receptacle: Slip-On

Total Thickness *(Page ST-3, Step 9)*	 *Receptacle Height (H)*	*Stud Dash No.*
.046” to .070”	280	30
.071” to .095”	355	40
.096” to .120”	330	40
.121” to .145”	305	40
.146” to .170”	280	40
.171” to .195”	355	50
.196” to .220”	330	50
.221” to .245”	305	50
.246” to .270”	280	50
.271” to .295”	355	60
.296” to .320”	330	60
.321” to .345”	305	60
.346” to .370”	280	60
.371” to .395”	355	70
.396” to .420”	330	70
.421” to .445”	305	70
.446” to .470”	280	70
.471” to .495”	355	80
.496” to .520”	330	80
.521” to .545”	305	80
.546” to .570”	280	80
.571” to .595”	355	90
.596” to .620”	330	90
.621” to .645”	305	90
.646” to .670”	280	90
.671” to .695”	355	100
.696” to .720”	330	100
.721” to .745”	305	100
.746” to .770”	280	100
.771” to .795”	355	110
.796” to .820”	330	110
.821” to .845”	305	110
.846” to .870”	280	110
.871” to .895”	355	120
.896” to .920”	330	120
.921” to .945”	305	120
.946” to .970”	280	120

The SL 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 SL offers performance equal to aircraft-type riveted receptacles of equal size.



Material:

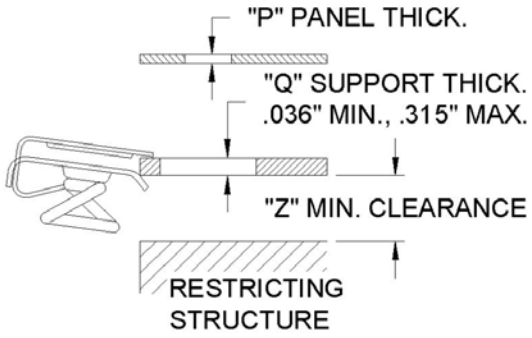
Clip: Carbon spring steel, heat treated and zinc plated, with yellow chromate finish.
Plate: Low carbon steel, zinc plated with yellow chromate finish.
Spring: Music wire, zinc plated with yellow chromate finish.

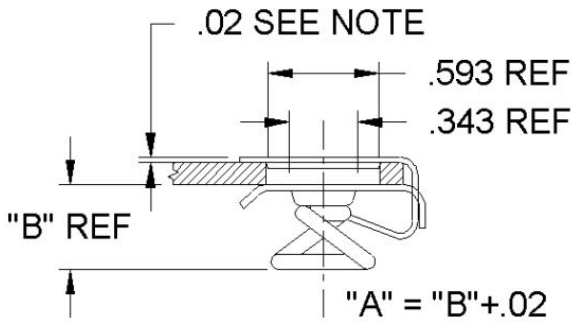
Mechanical

Height: See above
Recommended Spring Deflection: .024” to .050”

Size 5 Receptacle: Slip-On (Continued)

Support Thickness	Total Thickness (H)	SL5 Part Number	A	B	Z
.036” - .128”	280	SL5-280	.280”	.260”	.400”
	305	SL5-305	.305”	.285”	.430”
	330	SL5-330	.330”	.310”	.450”
	355	SL5-355	.355”	.335”	.475”
.128” - .220”	280	SL5Y-280	.280”	.260”	.400”
	305	SL5Y-305	.305”	.285”	.430”
	330	SL5Y-330	.330”	.310”	.450”
	355	SL5Y-355	.355”	.335”	.475”
.221” - .315”	280	SL5X-280	.280”	.260”	.400”
	305	SL5X-305	.305”	.285”	.430
	330	SL5X-330	.330”	.310”	.450”
	355	SL5X-355	.355”	.335”	.475”

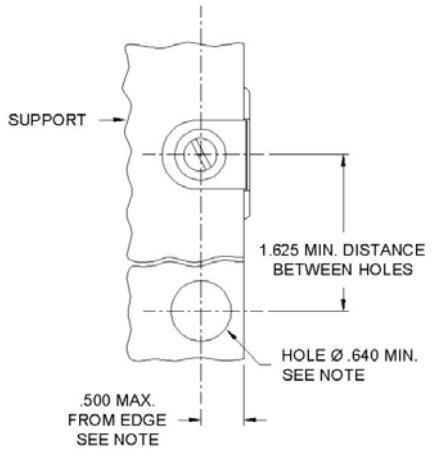




Support Preparation for Slip-On Receptacle

Note: The clip face causes a .020” 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.

Note:
Panel misalignment can be tolerated by increasing the support hole to .703” and decreasing the hole center to edge distance to .450”.



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Size 5 Receptacle:
Side and Corner Mounted Spring

These side-mounted springs may be used where there is no support beneath the stud. The type SB spring rivets to a support perpendicular to the stud panel. The type SC spring rivets to a box corner

Note: Because there is no receptacle to guide the stud, the stud panel should be registered, as with edge lip or hinge, to ensure that the stud will engage the spring.

Determine the spring location (Dimension F), for the shortest possible stud:

Usually, it is desirable to have SB and SC springs as close to the stud as possible. To find the minimum Dimension F (F DIM):

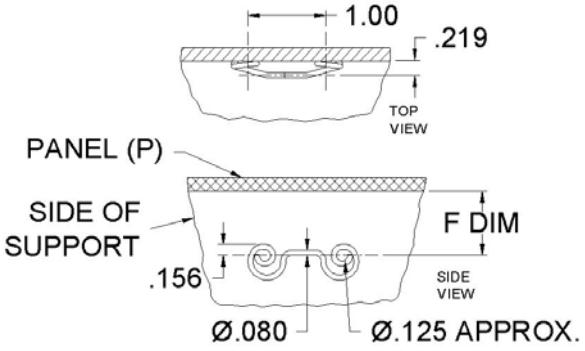
1. Go to the stud selection table and find the shortest listed stud with an undercut length (Dimension B) able to contain the stud panel and stud retainer.
2. For that stud, find Dimension L in the table and subtract from it the thickness of the stud panel.
3. Add the recommended spring deflection of .045". This is the location of the spring rivet hole centers from the underside of the stud panel (Dimension F).

Notes:

Absolute Minimum F = .180"

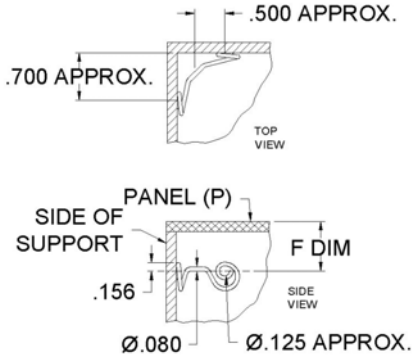
Dimension F can also be set at any other location equal to Dimension L of any stud, minus stud panel thickness plus recommended spring deflection.

Side Mounted Spring



Part Number: SB5-2

Corner Mounted Spring



Part Number: SC5-2

Warning: Failure to obtain the recommended spring deflection will prevent the stud from locking and allow it to move under vibration, possibly resulting in fastener failure.

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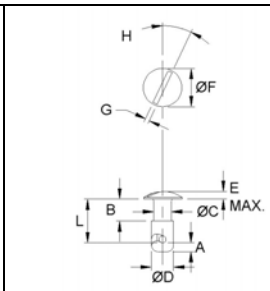
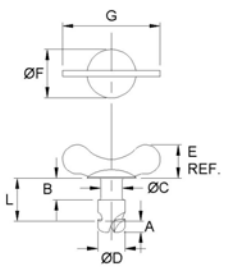
Size 65 Studs

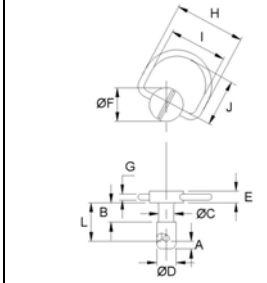
Slotted Head
AJ65-**L**



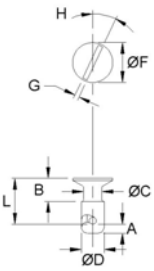
Wing Head
AJW65-**L**



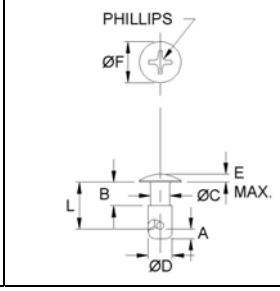
Ring Head
BJR65-**L**



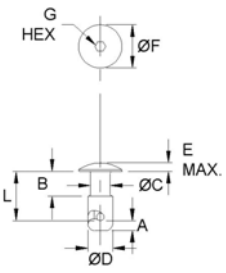
Flush Head
FJ65-**L**



Phillips Head
APRJ65-**L**



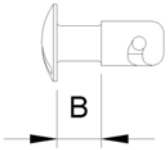
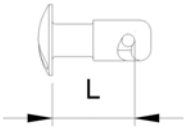
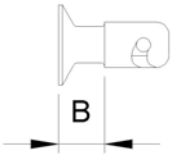
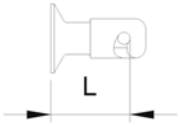
Hex Head
ASHJ65-**L**



Size 65 Stud Dimensions

Stud	A	ØC	ØD	E	ØF	G	H	I	J	Phillips	Hex
AJ	.160”	.343”	.406”	.125”	.687”	.081”	23°				
AJW	.160”	.343”	.406”	.437”	.687”	.1.250”					
BJR	.160”	.343”	.406”	.187”	.687”	.100”	1.262”	1.062”	.875”		
FJ	.160”	.343”	.406”		.687”	.081”	23°				
APRJ	.160”	.343”	.406”	.125”	.687”					#3	
ASHJ	.160”	.343”	.406”	.125”	.687”						3/16”

Size 65 Stud Dimensions

Stud Dash No.	For Head Styles: AJ65, AJW65, BJR65, ASHJ65, APRJ65		For Head Style: FJ65	
	B Dim.* 	L Dim.* 	B Dim.* 	L Dim.* 
-40	.190	.400	Not Available	Not Available
-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

*B DIM = Undercut Length
L Dim = Grip Length

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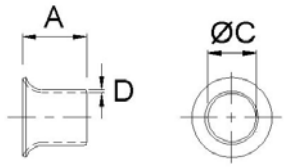
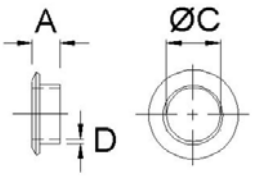
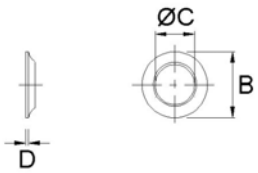
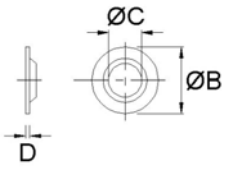
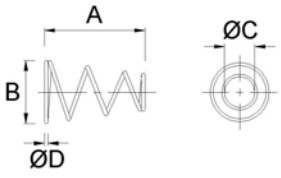
Size 65 Stud Retainers

Aluminum Full Grommet		Aluminum Half Grommet
		
All studs ***except*** Flush Head Studs **(GA)**	For use with Flush Head Studs **(GF)**	**(GH)**
		
Part No.: GA6-(dim. A) For use with all except Flush Head Studs **Part No.:** GF6-(dim. A) For use with Flush Head Studs **Material:** Aluminum **ØC:** .4851” **D:** .040” **RT*:** .040” (per end)		**Part No.:** GH7 **Material:** Aluminum **ØB:** .750” **ØC:** .438” **D:** .040” **RT*:** .040”

Plastic Half Grommet	Stainless Steel Snap Ring	Stainless Steel Retaining Spring
		
(GP)	**(SR)**	**(SX)**
		
Part No.: GP6B **Material:** Black Thermoplastic **Push-Out Strength:** **Standard panel hole:** 25 lb. **Oversize panel hole:** 7 lb. **ØB:** .625” **ØC:** .320” **D:** .034” **RT*:** .034”	**Part No:** SR7SS **Material:** Stainless steel, 300 series, spring temper **ØA:** .051” **ØB:** .504” **ØC:** .402” **RT*:** .051”	**Part No.** SX519SS **Material:** Stainless steel, 300 series, spring temper **A:** .75” **B:** .625” **ØC:** .315” **ØD:** .043” **RT*:** The SX Spring is designed to fit into a gap or oversized support hole. A retainer thickness of 0 is used.

*** RT** = Retainer Thickness, used in step 7 of the selection procedure on page ST-3.

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Solutions Inc.
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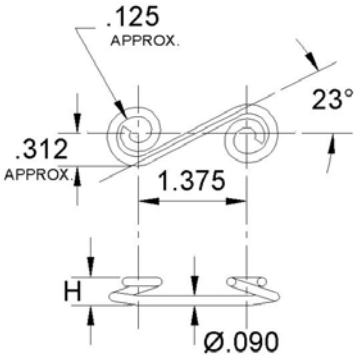
Size 65 Receptacle: S-Spring

Total Thickness *(Page ST-3, Step 9)*	 *Part Number*	*Stud Dash No.*
.140” to .164”	S6-300	40
.165” to .189”	S6-275	40
.190” to .214”	S6-250	40
.215” to .239”	S6-225	40
.240” to .264”	S6-300	50
.265” to .289”	S6-275	50
.290” to .314”	S6-250	50
.315” to .339”	S6-225	50
.340” to .364”	S6-300	60
.365” to .389”	S6-275	60
.390” to .414”	S6-250	60
.415” to .439”	S6-225	60
.440” to .464”	S6-300	70
.465” to .489”	S6-275	70
.490” to .514”	S6-250	70
.515” to .539”	S6-225	70
.540” to .564”	S6-300	80
.565” to .589”	S6-275	80
.590” to .614”	S6-250	80
.615” to .639”	S6-225	80
.640” to .664”	S6-300	90
.665” to .689”	S6-275	90
.690” to .714”	S6-250	90
.715” to .739”	S6-225	90
.740” to .764”	S6-300	100
.765” to .789”	S6-275	100
.790” to .814”	S6-250	100
.815” to .839”	S6-225	100
.840” to .864”	S6-300	110
.865” to .889”	S6-275	110
.890” to .914”	S6-250	110
.915” to .939”	S6-225	110
.940” to .964”	S6-300	120
.965” to .989”	S6-275	120
.990” to 1.014”	S6-250	120
1.015” to 1.039”	S6-225	120



Part Number	Spring Height (H)
S6-225 (SS)	.225”
S6-250 (SS)	.250”
S6-275 (SS)	.275”
S6-300 (SS)	.300”

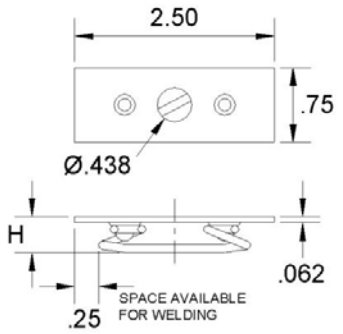
Material:
Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2 or 300 series stainless steel

Mechanical
Height: See above
Weight: 0.0059 lb.
Recommended Spring Deflection: .024” to .057”

For Stainless Steel, add **SS** to the Part Number

Size 65 Receptacle: Weld Plate

Total Thickness (Page ST-3, Step 9)	 *Part Number*	*Stud Dash No.*
.055" to .079”	X441-385	40
.080” to .104”	X441-360	40
.105” to .129”	X441-335	40
.130” to .154”	X441-310	40
.155” to .179”	X441-385	50
.180: to .204”	X441-360	50
.205” to .229”	X441-335	50
.230” to .254”	X441-310	50
.255” to .279”	X441-385	60
.280” to .304”	X441-360	60
.305: to .329”	X441-335	60
.330” to .354”	X441-310	60
.355: to .379”	X441-385	70
.380: to .404”	X441-360	70
.405” to .429”	X441-335	70
.430” to .454”	X441-310	70
.455” to .479”	X441-385	80
.480: to .504”	X441-360	80
.505: to .529”	X441-335	80
.530: to .554”	X441-310	80
.555: to .579”	X441-385	90
.580” to .604”	X441-360	90
.605: to .629”	X441-335	90
.630” to .654”	X441-310	90
.655: to .679”	X441-385	100
.680” to .704”	X441-360	100
.705” to .729”	X441-335	100
.730” to .754”	X441-310	100
.755” to .779”	X441-385	110
.780” to .804”	X441-360	110
.805” to .829”	X441-335	110
.830” to .854”	X441-310	110
.855” to .879”	X441-385	120
.880” to .904”	X441-360	120
.905” to .929”	X441-335	120
.930” to .954”	X441-310	120



Part Number	Spring Height (H)
X441-310 (SS)	.310”
X441-335 (SS)	.335”
X441-360 (SS)	.360”
X441-385 (SS)	.385”

Material:
Plate: steel, unfinished
Spring: Music wire, bright zinc plate with yellow chromate dip per ASTM-B-663, Type II, SC2
Rivets: Plated Steel
Stainless Steel: All components series 300 stainless steel

Mechanical
Height: See above
Weight: 0.0441 lb.
Recommended Spring Deflection: .031” to .074”

For Stainless Steel, add **SS** to the Part Number

ST-1200 Line

Solutions Inc.
Formerly Dzus Fastener Co.Inc.

Optional Finishes

Finish Suffix	Finish Description	Specification
ACN	Anodizing, Chromic Acid Bath	MIL-A-8625, TYPE IA, CLASS 1
ASC	Anodizing, Sulfuric Acid Bath, Clear in color	MIL-A-8625, TYPE II, CLASS 2
ASB	Anodizing, Sulfuric Acid Bath, Black in color	MIL-A-8625, TYPE II, CLASS 2
BA	Black oxide over ferrous metal - Class to be determined by material	MIL-C-13924, CLASS 1, 3, 4
H	Bare, no finish	
KBB	Chromium plate, NI .0003 thick, black chromium	MIL-C-14538, COLOR NO. 37038/FED-STD-595
KBC	Chromium plate, NI .003 thick, bright (clear) chromium	QQ-C-320, TYPE I, CLASS 1, BRIGHT
KBS	Chromium plate, NI .0003 thick, satin finish chromium	QQ-C-320, TYPE II, CLASS 1 SATIN
LAA	Lanolin oil dip	
LN	Black Bear (rust inhibitor)	
LO	Black Lacquer	
MBN	Chromate aluminum conversion coating, chromate process non-specific color	MIL-C-5541, CLASS 3 & MIL-C-81706, CLASS 3
MCN	Chromate aluminum conversion coating, chromate process, non-specific color	MIL-C-5541, CLASS 1A & MIL-C-81706, CLASS 3
MCY	Chromate aluminum conversion coating, chromate process, yellow in color	MIL-C-5541, CLASS 1A & MIL-C-81706, CLASS 3
NAC	Nickel plate .0002 thick with copper undercoating	QQ-N-290, CLASS 1 GRADE G
NCC	Nickel plate .0004 thick, with copper undercoating - dull	QQ-N-290, CLASS 1, GRADE F
NBB	Black nickel over nickel plate .0016 thick	MIL-P-18317, OVER QQ-N-290, CLASS 1, GRADE A
PS	Passivation of Stainless Steel parts	QQ-P-35, Type to be determined by material type
RB	Black oxide over copper-sealer; clear acrylic dip	MIL-C-14550, CLASS 2, COPPER PLATE MIL-F-495, BLACK OXIDE OVER COPPER
SCB	Cationic epoxy (Powerprime 500, PPG3002 - METOKOTE) film thickness: 0.7±0.2 mil nominal, color: black	POWERPRIME 500, PPG3002
SEB	Black epoxy .0006 mil thickness with black epoxy enamel .0003 mil thickness. Black epoxy and enamel color no. 37038	MIL-P-23377, MIL-C-22750, FED-STD 595
SEG	Gray epoxy .0006 mil thickness with gray epoxy enamel .0003 mil thickness gray color no. 36118	MIL-P-23377, MIL-C-22750, FED-STD 595

SEG1	Gray epoxy .0006 mil thickness with gray epoxy enamel .0003 mil thickness. Gray color no. 36231	MIL-P-23377, MIL-C-22750, FED-STD 595
SEMB	Medium brown epoxy .0006 mil thickness with medium brown epoxy .0003 mil thickness. Color - Boeing brown	MIL-P-23377, MIL-C-22750, BAC 8328
Y218	Solid dry film lubricant	MIL-L-46010
ZAY	Zinc electroplate .0002 thick, yellow chromate	ASTM-B-633, TYPE II, SC 1 YELLOW
ZBB	Zinc electroplate .0003 thick, black chromate	ASTM-B-622, TYPE II, SC 2, BLACK
ZBC	Zinc electroplate .0003 thick, clear chromate	ASTM-B-633, TYPE III, SC 2, CLEAR
ZBD	Zinc electroplate .0003 thick, olive drab chromate	ASTM-B-633, TYPE II, SC 2, OLIVE DRAB
ZBG	Zinc electroplate .0003 thick, bronze-gold chromate	ASTM-B-633, TYPE II, SC 2, BRONZE
ZBY	Zinc electroplate .0003 thick, yellow chromate	ASTM-B-633, TYPE II, SC 2 YELLOW
ZDB	Zinc electroplate .0005 thick, black chromate	ASTM-B-633, TYPE II, SC 3, BLACK
ZDC	Zinc electroplate .0005 thick, clear chromate	ASTM-B-633, TYPE III, SC 3, CLEAR
ZDY	Zinc electroplate .0005 thick, yellow chromate	ASTM-B-633, TYPE II, SC 3, YELLOW
ZMB	Zinc mechanical plate .0005 thick, black chromate	MIL-C-81562, TYPE II, Z, CLASS 5, BLACK
ZMC	Zinc mechanical plate .0005 thick, clear chromate	MIL-C-81562, TYPE I, Z, CLASS 5, CLEAR
ZMY	Zinc mechanical plate .0005 thick, yellow chromate	MIL-C-81562, TYPE II, Z, CLASS 5, YELLOW
ZPP	Zinc Phosphate	

ST-1200 Line

Solutions Inc.
Formerly Dzus Fastener Co.Inc.

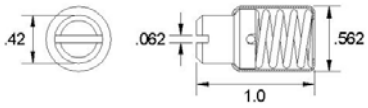
Guide Pin Fastener

RECEPTACLE, Type X935SL

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.

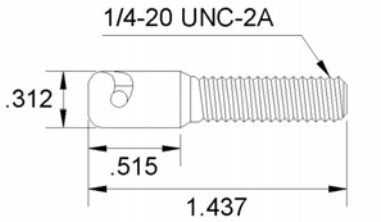
STUDS, Type X936 or X936A

Guide Pin or Anchor-Cam Quarter Turn studs have threaded ends which 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.

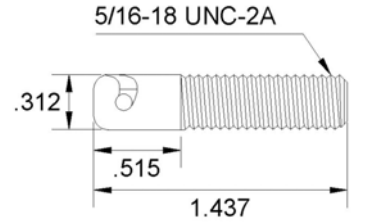


X935SL

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.



X936



X936A

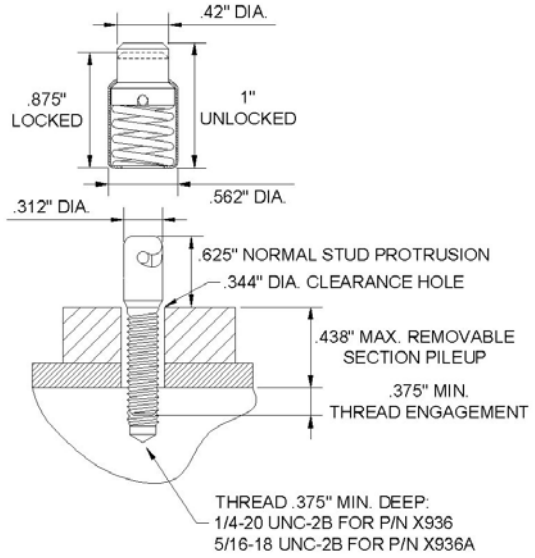
Material:
Steel, heat treated and zinc plated with clear chromate finish.

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

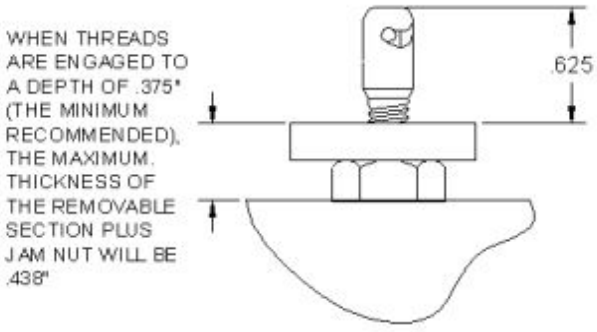
Guide Pin Fastener Installation Procedure

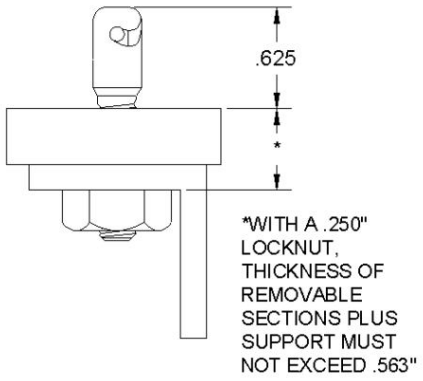
Using Thread Locking Compound

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





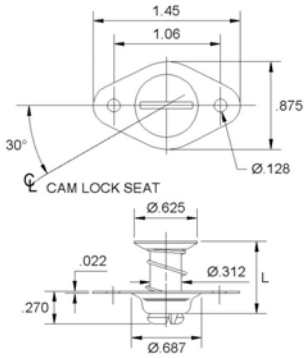
ST-1200 Line

Solutions Inc.
Formerly Dzus Fastener Co.Inc.

Self-Ejecting Studs

EHF5 and EHF6	S5A and S6 Spring	X945 Weld Plate
		

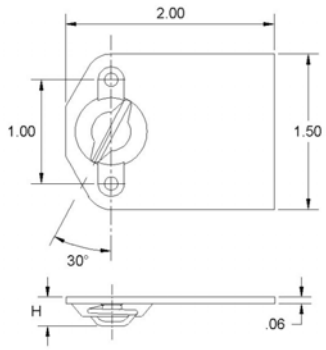
EHF5



Stud Part Number	L Dimension	Weight (lb.)
EHF5-40	.400”	.0150
EHF5-50	.500”	.0179
EHF5-60	.600”	.0204

Total Material Thickness	Stud Part Number	S-Spring Part Number
.120” to .149”	EHF5-40	S5A-275
.150” to .174”	EHF5-40	S5A-250
.175” to .199”	EHF5-40	S5A-225
.200” to .224”	EHF5-40	S5A-200
.225” to .249”	EHF5-50	S5A-275
.250” to .274”	EHF5-50	S5A-250
.275” to .299”	EHF5-50	S5A-225
.300” to .324”	EHF5-50	S5A-200
.325” to .349”	EHF5-60	S5A-275
.350” to .374”	EHF5-60	S5A-250
.375” to .399”	EHF5-60	S5A-225

X945 Weld Plate

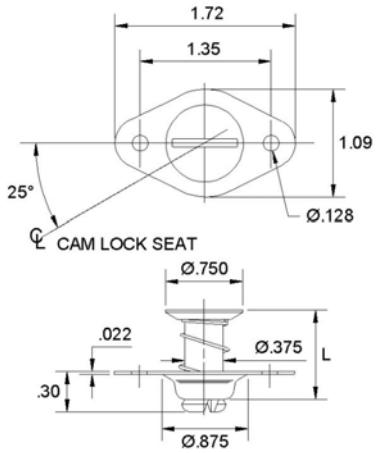


Weld Plate Part Number	Plate Dim. H
X945-285	.285”
X945-310	.310”
X945-335	.335”
X945-360	.360”

Total Material Thickness	Stud Part Number	Weld Plate Part Number
.032” to .064”	EHF5-40	X945-360
.065” to .089”	EHF5-40	X945-335
.090” to .114”	EHF5-40	X945-310
.115” to .139”	EHF5-40	X945-285
.140” to .164”	EHF5-50	X945-360
.165” to .189”	EHF5-50	X945-335
.190” to .214”	EHF5-50	X945-310
.215” to .239	EHF5-50	X945-285
.240” to .264”	EHF5-60	X945-360
.265” to .289”	EHF5-60	X945-335
.290” to .314”	EHF5-60	X945-310
.315” to .339”	EHF5-60	X945-285

Self-Ejecting Studs

EHF6

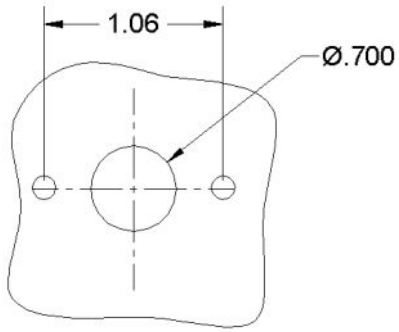


Stud Part Number	L Dimension	Weight (lb.)
EHF6-50	.500”	.0290
EHF6-55	.550”	.0302

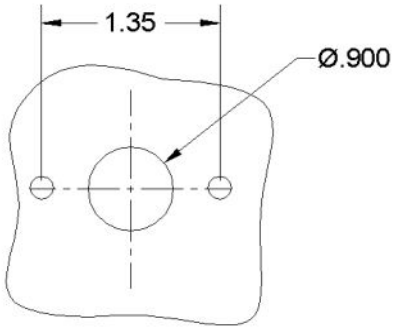
Total Material Thickness	Stud Part Number	S-Spring Part Number
.240” to .264”	EHF6-50	S6-275
.265” to .289”	EHF6-50	S6-250
.290” to .314”	EHF6-50	S6-225
.315” to .339”	EHF6-55	S6-250
.340” to .364”	EHF6-55	S6-225

Panel Preparation

EHF5



EHF6

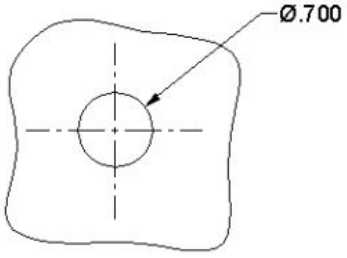


Support Preparation

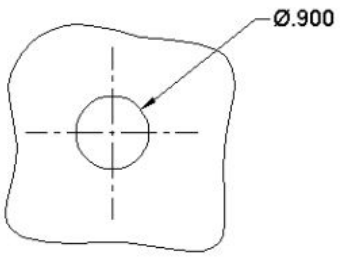
To allow for the Stud Cup to enter the support, the support hole must be larger than the standard support hole for the S-Spring Receptacle.

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

EHF5



EHF6



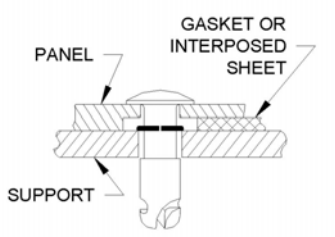
Installation: Studs and Retainers

Stud Panel Preparation With SR, GP, GH, and SX

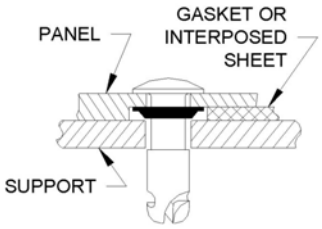
(For Flush Head Studs See Page ST-52)

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 SL, RP, SQC4, or SPS receptacle.

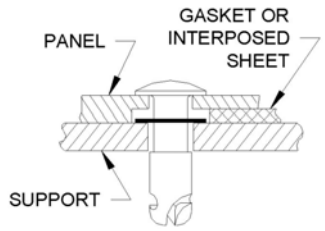
SR
Snap Ring



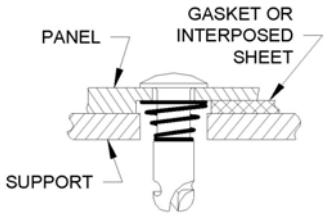
GP
Push-on Grommet



GH
Flattened Half Grommet



SX
Retaining Ring



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 SR snap ring retainers.

Standard Panel Hole For SR, GP, GH, and SX	
Stud Size	**Hole Diameter +.010 -.000**
3	3/16”
4	1/4”
5	5/16”
65	13/32”

Oversize Panel Hole For GP and GH	
Stud Size	**Hole Diameter +.010 -.000**
3	7/32”
4	5/16”
5	3/8”
65	15/32”

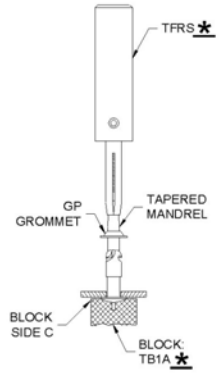
Installation: Studs and Retainers

Retainer Installation With SR, GP, GH, and SX

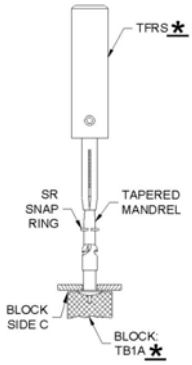
1. Place the retainer on mandrel as shown.
2. Align ring or spring ends so that they will miss the stud cam.
3. Place mandrel in end of stud cam.
4. Place tool over mandrel.
5. Push retainer until it is seated in stud undercut.

TFRS HAND TOOL: Spreads the inside diameter of retainers over stud shanks and then pushes them into stud undercuts.
TB1A BLOCK: Nests stud heads during installation. (Any flat block may be used for BJR ring head studs).

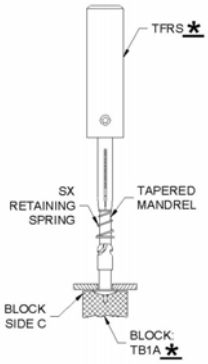
GP
Push-on Grommet



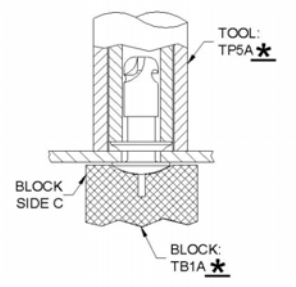
SR
Snap Ring

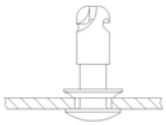


SX
Retaining Ring

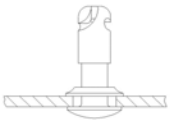


GH
Flattened Half Grommet





Standard Hole: Small Diameter Faces Panel



Oversize Hole: Large Diameter Faces Panel

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

ST-1200 Line

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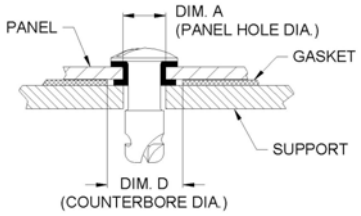
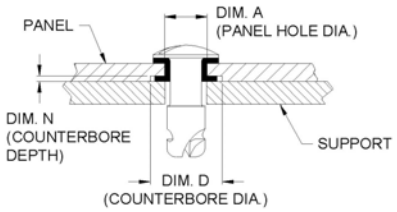
Installation: Studs and Retainers

Stud Panel Preparation With GA Full Grommet

(For Flush Head Studs See Page ST-52.)



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



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

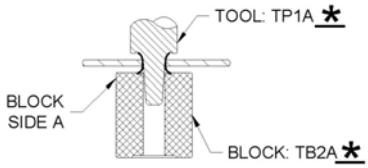
Stud Size	DIM. A*	DIM D	DIM N ±.005
3	7/32"*	11/32"	.020"
4	5/16"*	15/32"	.030"
5	3/8"*	19/32"	.035"
65	1/5"	25/32"	.045"

*If application requires, size hole +.005/+.010 larger than DIM. A
NOTE: Dimpled panels require dimpled supports.

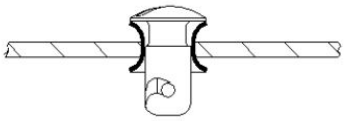
Retainer Installation With GA Full Grommet

1 Insert Grommet in Panel Hole

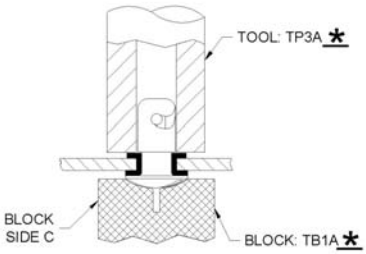
2 Set Grommet



3 Insert Stud

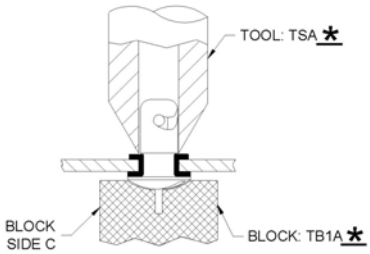


4 Clinch Grommet



To Order installation and removal tools as a set use Part Number: TTA *

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

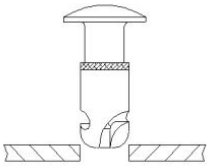


* Add stud size number: i.e. 3, 4, 5, 65.

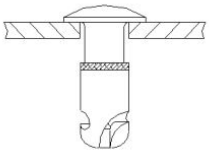
Self Retaining Stainless Steel Stud Installation

1 Panel Preparation
Recommended for use with Stainless Steel Panels
Panel preparation varies per application.
Please call Technical Support

2 Position Stud End In Hole Perpendicular to Panel



3 Press Stud Through Hole



Installation: Receptacles

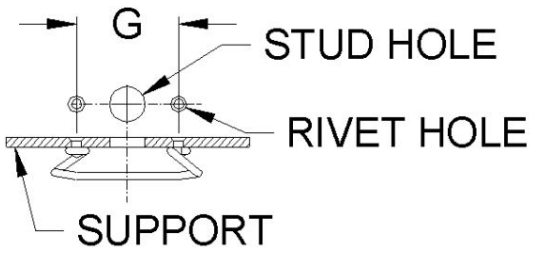
Support Preparation for S Spring Receptacle

Stud Retainer Recessed in Panel Underside

Spring Size	Spring DWG. Page	Stud Hole Dia.	DIM. G ±.002	Rivet Hole Dia.	Rivet Hole Countersink	Rivet Shank Dia.
3	ST-9	7/32”	.625”	.097” to .100”	3/16” dia. X 110°	3/32”
4	ST-17	9/32”	.750”			
5	ST-29	11/32”	1.000”	.129” to .133”	1/4” dia x 110°	1/8”
65	ST-38	15/32”	1.375”			

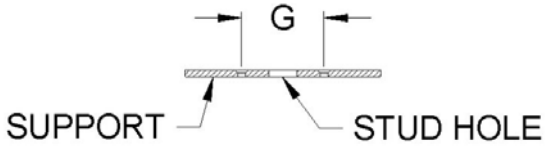
1 Make support holes for studs and rivets

2 Secure receptacle to support
(See ST-52 for Flush Head Stud Support Preparation)

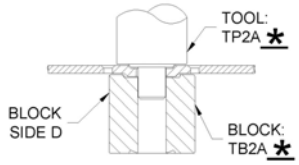


Stud Retainer Recessed in Support
(support thin enough to be dimpled)

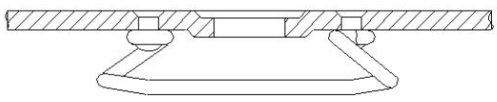
1 Make support holes for studs and rivets



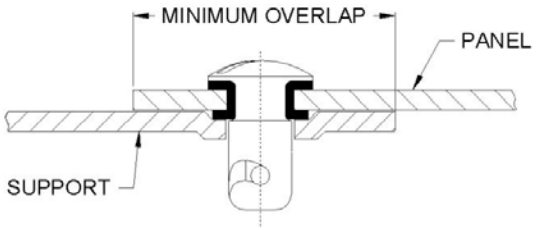
2 Dimple the support



3 Secure receptacle to support



Stud Size	Max. Support Thickness for Dimpling	Stud Hole Dia.	Minimum Overlap
3	.040”	3/16”	.469”
4	.050”	¼”	.625”
5	.063”	5/16”	.781”
65	.048”	13/32”	1.02”



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

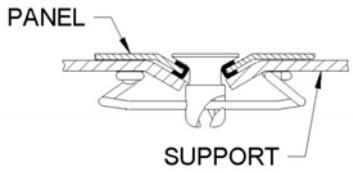
ST-1200 Line

Solutions Inc.
Formerly Dzus Fastener Co.Inc.

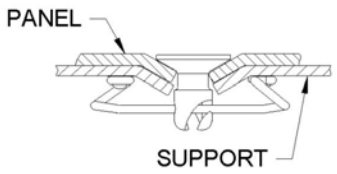
Installation: Receptacles

Dimpled Support Preparation for S-Spring Receptacle

Dimpled panel stud hole and GF grommet



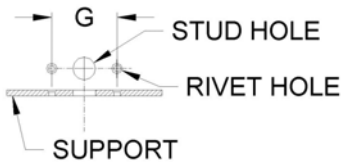
Dimpled and reverse- clinched panel stud hole



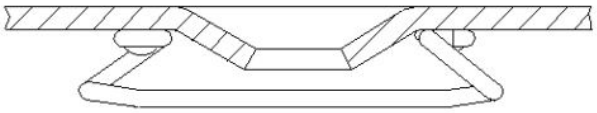
NOTE: The S-Spring is the only SL-1200 Line receptacle that can accept a dimpled support hole as shown here.

Spring Size	Spring DWG. Page	Stud Hole Dia.	DIM. G ±.002	Rivet Hole Dia.	Rivet Hole Countersink	Rivet Shank Dia.
3	ST-9	3/16”	.625”	.097” to .100”	3/16” dia. X 110°	3/32”
4	ST-17	1/4”	.750”			
5	ST-29	5/16”	1.000”	.129” to .133”	1/4” dia. X 110°	1/8”
65	ST-38	13/32”	1.375”			

1 Drill support holes for studs and rivets

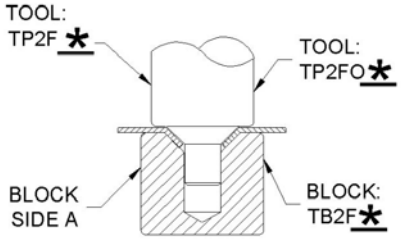


3 Secure Spring to support



*** 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 GF grommet requires a different support dimple than a hole which is dimpled and reverse clinched with no grommet.

Use of Receptacles Other Than 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.

Installation: Receptacles

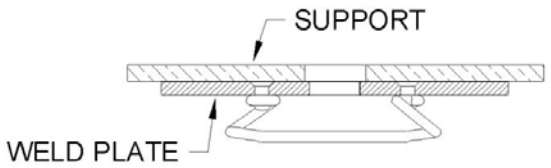
Support Preparation for Weld Plate Receptacle

Stud Retainer Recessed in Panel Underside

Plate Size	Hole Diameter
3	7/32"
4	9/32"
5	11/32"
65	15/32"

1 Make stud hole in support

2 Secure receptacle to support

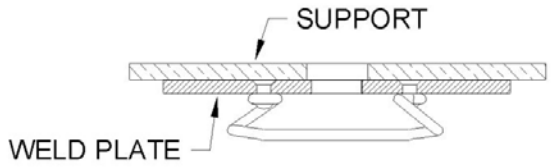


Stud Retainer Recessed in Support

Plate Size	Stud Hole Diameter	
	Grommet or SX Spring	SR Snap Ring
3	11/32”	¼”
4	15/32”	5/16”
5	19/32”	3/8”
65	25/32”	17/32”

1 Make stud hole in support

2 Secure receptacle to support



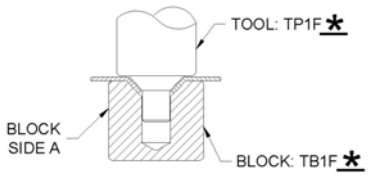
ST-1200 Line

Solutions Inc.
Formerly Dzus Fastener Co.Inc.

Installation: Flush Head Studs

Panel Preparation for GF Grommet

1 Drill and dimple hole

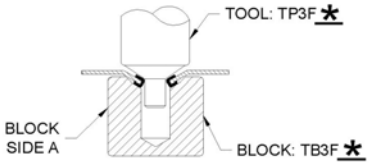


2 Install grommet

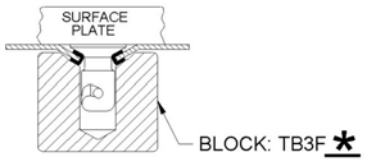
Stud Size	Hole Diameter
4	17/64”
5	5/16”

Dimpled panels require dimpled supports.

3 Set grommet



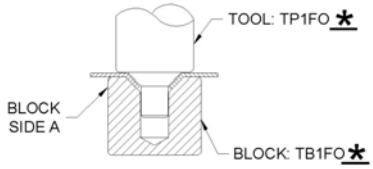
4 Insert and clinch stud



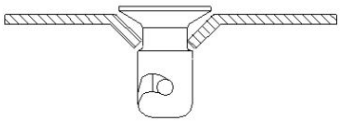
*** Add stud size number, i.e. 4 or 5.**

Panel Preparation for Reverse Clinched Hole (No Stud Retainer)

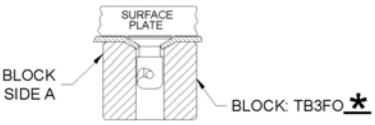
1 Drill and dimple hole



2 Insert stud



3 Clinch stud



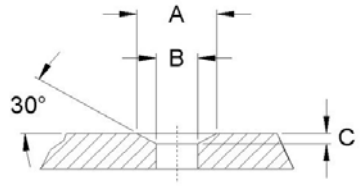
*** Add stud size number, i.e. 3, 4, 5, or 65**

Stud Size	Hole Dia.	MAX. Panel Thickness for Dimpling
3	9/64”	.030”
4	13/64”	.040”
5	15/64”	.050”
65	21/64”	.078”

Dimpled panels require dimpled supports.

Panel Preparation for SR, GH, and GP

1 Drill and countersink holes



Stud Size	DIM A . +.010 -.000	DIM B. +.010 -.000	DIM C. +.010 -.000
3	.367”	.188”	.051”
4	.508”	.250”	.074”
5	.633”	.313”	.092”
65	.757”	.407”	.095”

2 Install stud retainer
See page ST-47 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.