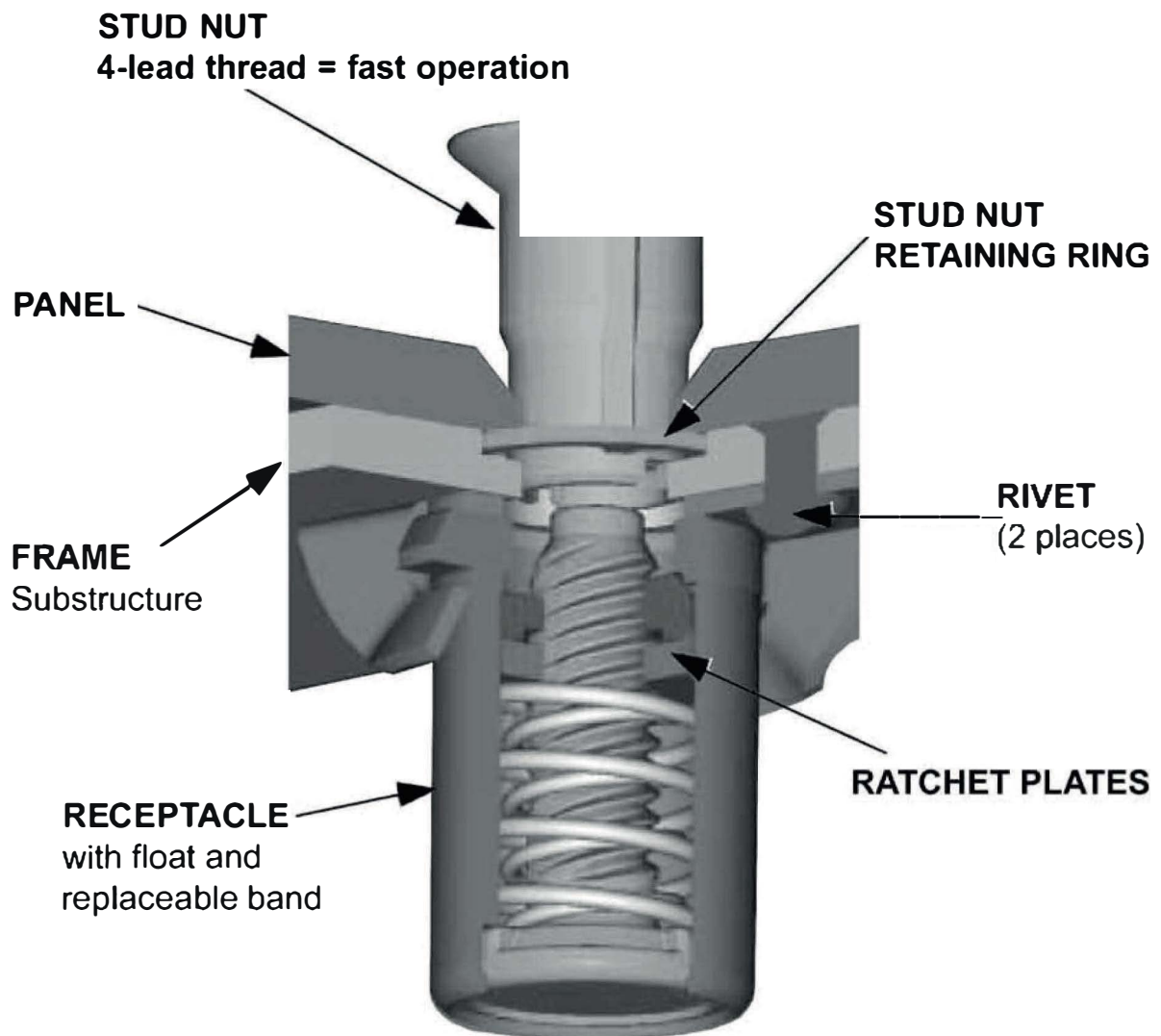





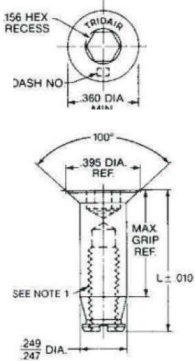

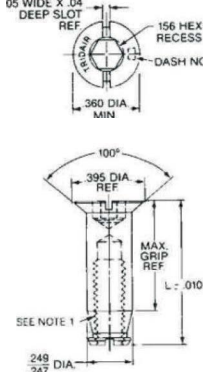

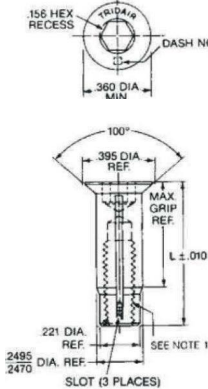

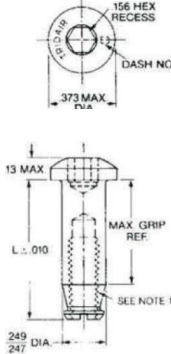
LOW PREVAILING TORQUE - HIGH VIBRATION RESISTANCE

Fast Operation - Captive Stud Nut




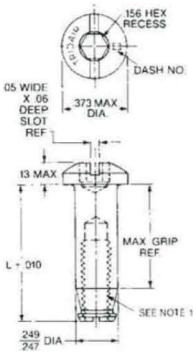

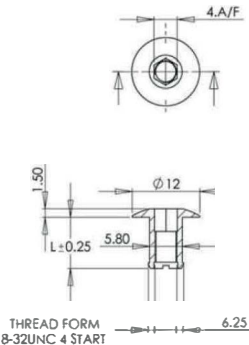
Typical Installation

Spring-loaded ratchet design insures positive locking action and vibration resistance without relying on prevailing torque. Spring(s) nullify effects of resonant vibrations.

Style	Detail	Materials/ Finish	Part No.
Flush Head Hex Recess 		Material: 300 Series CRES Finish: Passivated per QQ-P-35	CA1820-*
Flush Head Hex Recess Slotted 		Material: 300 Series CRES Finish: Passivated per QQ-P-35	CA1832-*
Flush Head Hex Recess Slotted Shank 		Material: Alloy Steel Finish: Cadmium Plated per QQ-P-416, Type II, Class 2 Heat Treatment: Per MIL-H-6875	CA18121-*HS
Pan Head Hex Recess 		Material: 300 Series CRES Finish: Passivated per QQ-P-35	CA1824-*

* see Stud Selection Table on page 10 LL


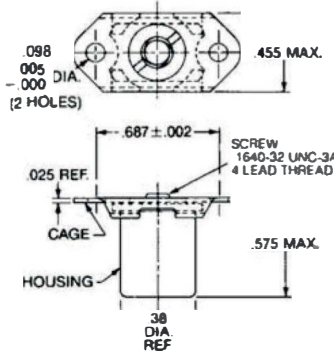

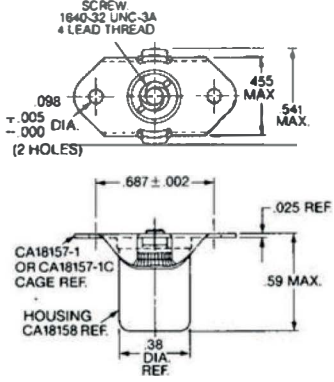

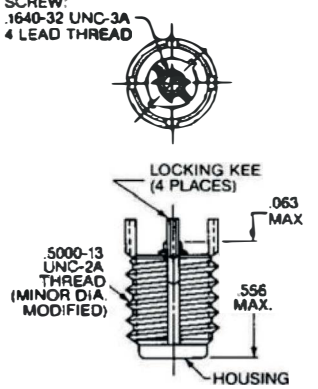
1. Thread Size: .1640-32 UNC-3B, modified minor diameter, 4 lead thread
2. Recommended tightening torque: 30 inch pounds.

Style	Detail	Materials/ Finish	Part No.
Pan Head Hex Recess Slotted 		Material: 300 Series CRES Finish: Passivated per QQ-P-35	CA1821-*
Low Profile Head 		Material: 300 Series CRES Finish: Passivated per QQ-P-35 4 lead thread	LM4943-0*


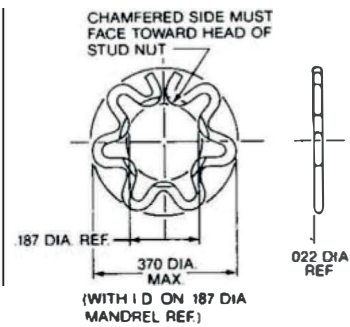

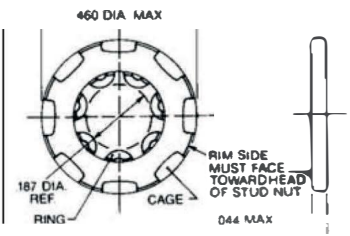

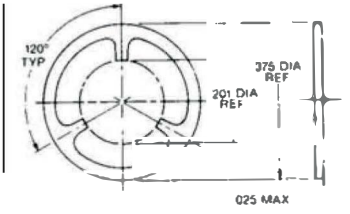

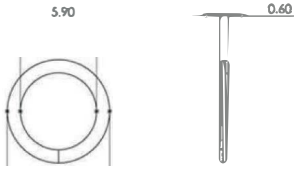
* see Stud Selection Table on 10 LL

1. Thread Size: .1640-32 UNC-3B, modified minor diameter, 4 lead thread

2. Recommended tightening torque: 30 inch pounds.

Style	Detail	Materials/ Finish	Part No.
2-Lug .025 Radial Float 	 <p>Weight: .014 lbs./ea. approx.</p>	Housing & Cage: 300 Series CRES Screw: A286 CRES Heat Treat: Screw: Per MIL-H-6875 Finish: Housing & Cage: Passivated per QQ-P-35 Screw: Dry Film Lubed	CA1810
2-Lug Lightweight Replaceable .025 Radial Float 	 <p>Weight: .011 lbs./ea. approx.</p>	Housing: Aluminium Alloy per QQ-A-225 Screw: Alloy Steel Cage: 17-7PH CRES Heat Treat: Screw: Per MIL-H-6875 Cage: Per MIL-H-6875 Finish: Housing: Blue anodised per MIL-A-8625 Screw: Cadmium plated per QQ-P-416 Type II, Class 2 Cage: Passivated per QQ-P-35	CA18157
LiveSert 	 <p>Weight: .018 lbs./ea. approx.</p>	Housing: 300 Series CRES Screw: A286 CRES Heat Treat: Screw: Per MIL-H-6875 Finish: Housing: Passivated per QQ-P-35 Screw: Dry Film Lubed	CA18062

* see Stud Selection Table on page 10 LL

Style	Detail	Materials/ Finish	Part No.
Wire Form 	 <p>CHAMFERED SIDE MUST FACE TOWARD HEAD OF STUD NUT</p> <p>187 DIA. REF.</p> <p>370 DIA. MAX.</p> <p>(WITH I.D. ON 187 DIA. MANDREL REF.)</p> <p>022 DIA. REF.</p> <p>Weight: .019 lbs/100 approx.</p>	Elgiloy Wire Finish: Passivated per QQ-P-35 Heat Treat: Spring Tempered Supplied on 50 piece tool	CA1825*
Wire Form Caged 	 <p>460 DIA. MAX.</p> <p>187 DIA. REF.</p> <p>RING</p> <p>CAGE</p> <p>RIM SIDE MUST FACE TOWARD HEAD OF STUD NUT</p> <p>044 MAX.</p> <p>Weight: .071 lbs/100 approx.</p>	Elgiloy Wire Finish: Passivated per QQ-P-35 Heat Treat: Spring Tempered Cage: 300 Series CRES Finish: Passivated per QQ-P-35 Supplied on 50 piece tool	CA18377**
Solid, 3-Tabs 	 <p>120° TYP.</p> <p>201 DIA. REF.</p> <p>375 DIA. REF.</p> <p>025 MAX.</p> <p>Weight: .036 lbs/100 approx.</p>	Material: 17-7PH CRES Finish: Passivated per QQ-P-35 Heat Treat: Per MIL-H-6875 Same as CA18062 except Finish: Cadmium Plated per QQ-P-416, Type II, Class 2	CA18132*** CA18132C***
Spiral 	 <p>5.90</p> <p>0.60</p>	Material: 300 series CRES Use with LM 4943-xxx Low Profile Head Stud Nut	LM4076

* chamfered side must face toward head of stud

**rim side must face toward head of stud nut

***use with stud nut CA18121-() series or CA18161-() series only

INTRODUCTION

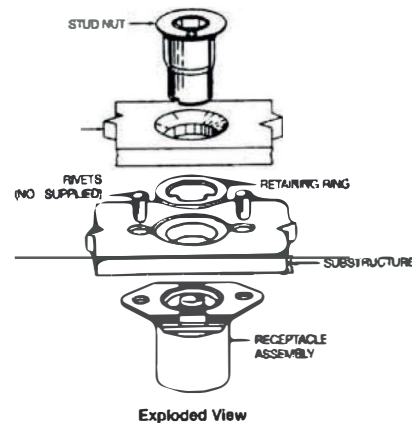
Combining low profile, light weight and high performance, Livello panel fasteners are designed to take high shear and tensile loads. Used on access panels and electronic packaging for civil and military aircraft. Each style of stud requires the relevant retainer and receptacle installed with the appropriate tool.

Features:

- Low prevailing installation and removal torque required, yet provides high vibration resistance.
- Receptacles offer radial float; most versions can be replaced without removing rivets.
- Total CRES (corrosion resistant) configurations available.
- Locking element is totally encapsulated.
- Stud nut hold-out feature available.
- Positive stud nut retention.

Typical Livello Fastening System

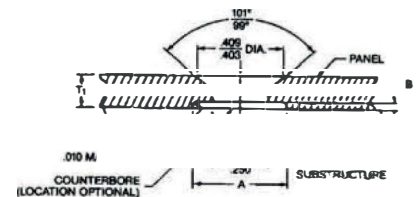
Not shown are optional stud hold-out grommets and cages designed for applications where stud hold-out and bottom flush condition is required. Shims are also available.



PANEL PREPARATION

Flush Head Stud Nuts

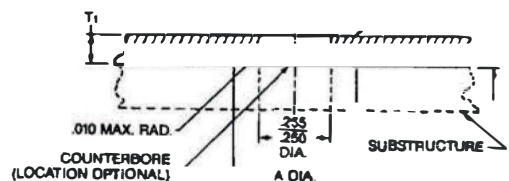
Type of Retaining Ring	Stud Nut Reference Part No.	A		B	
		Diameter Min.		Counterbore Depth Min.	
Wire Form	CA1800 Series	ins	mm	ins	mm
Wire Form		.468	11.88	.025	.64
Caged	CA18121-()Series	.484	12.29	.045	1.14
Solid, 3-Tabs		.406	10.31	.030	.76



Notes:

1. Locate and drill .255 (6.48mm) diameter hole through panel.
2. Countersink 100 degree to .409 (10.39mm) diameter.
3. If 'T1' is greater, counterbore panel to 'A' diameter by 'B' depth.
Preferred location for counterbore retaining ring recess is in panel 'T1'.
4. Panel 'T1' = .090 (2.29mm) min. when counterbore is located in substructure.

Protruding Head Stud Nuts



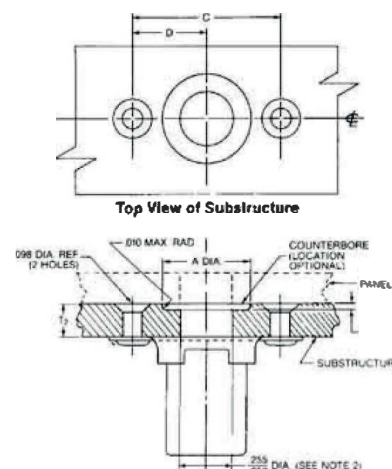
Notes:

1. Refer to table above.
2. Locate and drill .255 (6.48mm) diameter hole through panel.
For the LM4943 series, drill .284 (7.2mm) diameter hole.
3. If 'T1' is .090 (2.29mm) greater, counterbore panel to 'A' diameter by 'B' depth.
Preferred location for counterbore retaining ring recess is in panel 'T1'.
4. Panel 'T1' = .021 (.53mm) min. when counterbore is located in substructure.

FRAME

2-Lug Receptacles

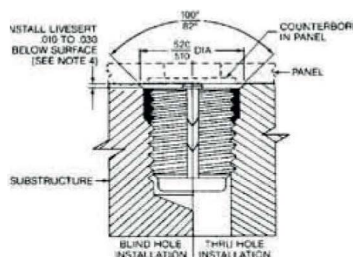
Receptacle Part No.	C		D Ref.	
	ins	mm	ins	mm
CA1810				
CA1810C	.689	17.5	.343	8.71
CA18157				
CA18157C				
CA18193	.752	19.1	.375	9.53



Notes:

1. Refer to table on page 8 LL.
2. Locate and drill .255 (6.48mm) diameter hole through frame.
 - a. To allow for misalignment, open through hole to .250 (6.35+mm) + min. receptacle float.
 In addition, if counterbore is located in frame, open 'A' diameter min. + min. receptacle float.
3. If required, counterbore to 'A' diameter by 'B' depth.
(see panel preparation for flush or protruding head, note 3, page 8 LL).
4. Locate, drill and countersink two holes for flush mount rivets (not supplied).
Holes must be symmetrical to .255 (6.48mm) diameter hole.
5. Rivet receptacle in place.

LiveSert Receptacle



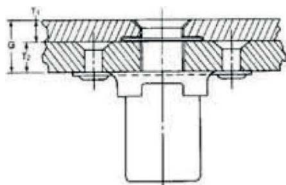
Shown With Locking KEES Installed

Notes:

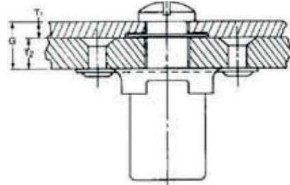
1. Locate and drill .457 (11.61mm) diameter to .590 (15mm) min. depth.
2. Countersink 100 degree to .520 (13.2mm) diameter.
3. Tap .5000-13 UNC-2B thread to .533 (13.54mm) min. depth.
4. LiveSert is designed to stop at the correct depth below the surface of the frame.
5. Drive in the KEES

SELECTION PROCEDURE

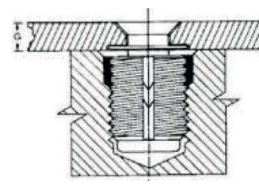
- Determine "G" thickness
 - All receptacles except LiveSert:** "G" = "T1" + "T2",
plus shim, any compressed gasketing material, paint or other finishes.
 - LiveSert receptacle:** "G" = grip range, plus any other material.
- Locate "G" grip range in the Stud Nut Dash Number Selection Tables below.



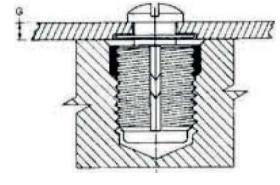
2-Lug
Receptacle
Flush Head
Stud Nut Shown



2-Lug
Receptacle
Protruding Head
Stud Nut Shown



LiveSert
Receptacle
Flush Head
Stud Nut Shown



LiveSert
Receptacle
Protruding Head
Stud Nut Shown

L	"G" Grip Range		Dash No.				
	inches	mm	CA1820**	CA1832**	CA1821**	CA1824**	CA1828**
.375*	.098-.155	2.49-3.94	-0	-0	-0*	-0*	-0*
.437	.156-.250	3.96-6.35	-1	-1	-1	-1	-1
.531	.251-.343	6.38-8.71	-2	-2	-2	-2	-2
.625	.344-.437	8.74-11.10	-3	-3	-3	-3	-3
.718	.438-.531	11.13-13.49	-4	-4	-4	-4	-4
.812	.532-.625	13.51-15.88	-5	-5	-5	-5	-5
.906	.626-.718	15.90-18.24	-6	-6	-6	-6	-6
1.000	.719-.812	18.26-20.63	-7	-7	-7	-7	-7

* (-0) "L" dimension is .343 for part numbers CA1821, CA1824 and CA1828

** If "G" is .097 (2.46mm) or less, a shim is required.

L	"G" Grip Range		Dash No.	
	inches	mm	CA18121	CA18161
.430	.150-.220	3.81-5.59	-1HS	-1HS
.500	.221-.290	5.61-7.37	-2HS	-2HS
.570	.291-.360	7.39-9.14	-3HS	-3HS
.640	.361-.430	9.17-10.92	-4HS	-4HS
.710	.431-.500	10.95-12.7	-5HS	-5HS
.780	.501-.570	12.73-14.48	-6HS	-6HS
.850	.571-.640	14.5-16.26	-7HS	-7HS
.920	.641-.710	16.28-18.03	-8HS	-8HS
.990	.711-.780	18.06-19.81	-9HS	-9HS
1.060	.781-.850	19.84-21.59	-10HS	-10HS

"G" Grip Range*		Dash No.
inches	mm	LM4943
.098-.149	2.50-3.80	-000
.150-.220	3.81-5.60	-010
.221-.289	5.61-7.35	-020

* For CA18060 LiveSert, G = T1 + .08 (2.0mm)

Part No.	Page
CA18062	6 LL
CA1810	6 LL
CA18121	4 LL
CA18132	7 LL
CA18132C	7 LL
CA18157	6 LL
CA1820	4 LL
CA1821	5 LL
CA1824	4 LL
CA1825	7 LL
CA1832	4 LL
CA18377	7 LL
LM4076	7 LL
LM4943	5 LL