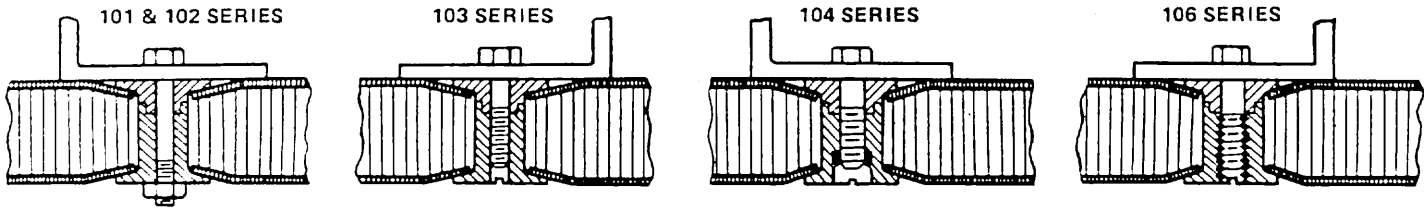
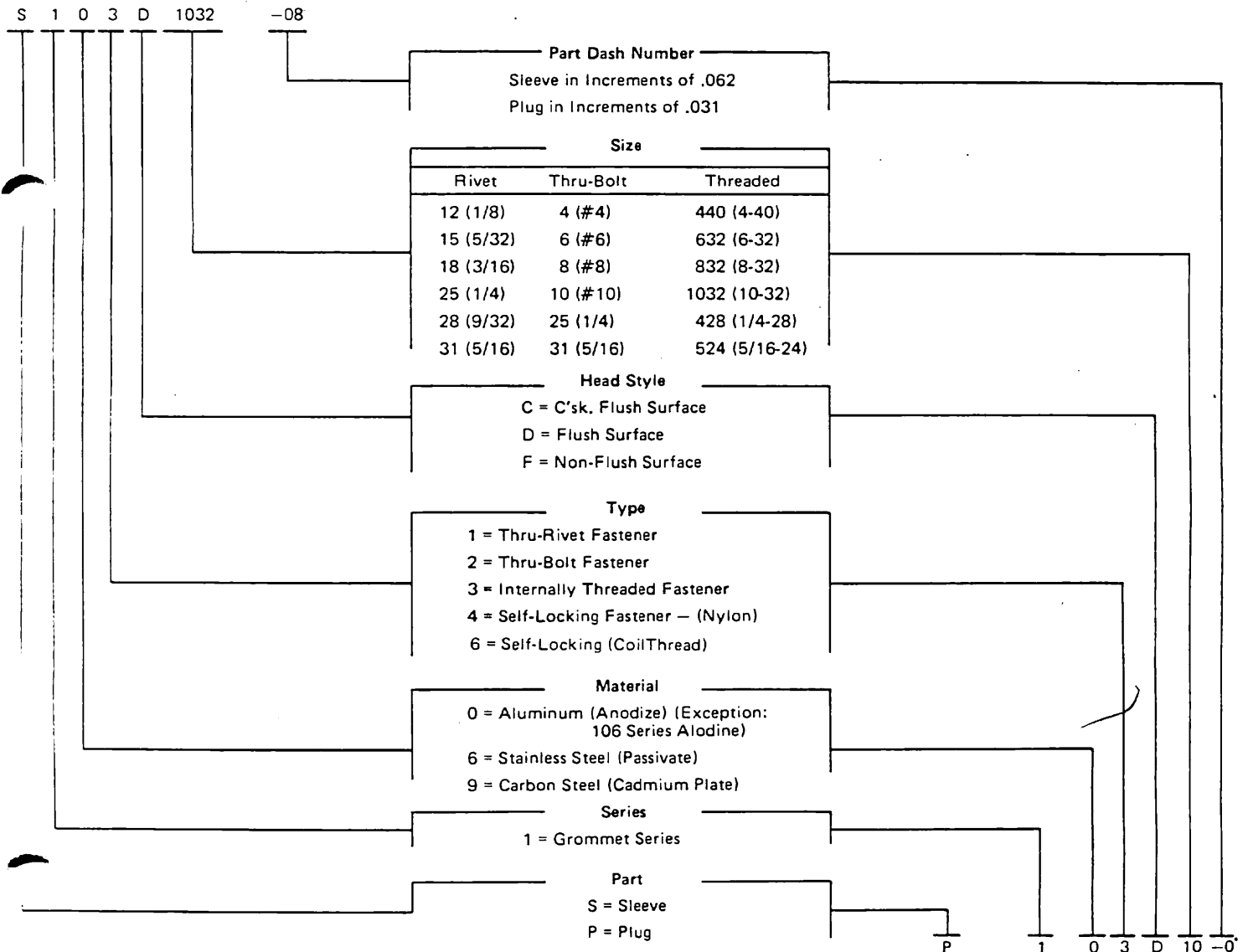


100 SERIES

GROMMET TYPE PART NUMBERING CODE



EXAMPLE: GROMMET SERIES, ALUMINUM, THREADED, FLUSH SURFACE HEAD, 10-32 SIZE TH'D., FOR .500 THICK PANEL



Delron Inserts

102 Series – Thru-Bolt

Style Selection

Head styles may be combined between Plugs and Sleeves within the same size.

Head Style	D – Flush	F – Non-Flush	C – Flush, Countersink Hole
Plug			
Sleeve			

See Tables 2

Table 1

Size	A Hole Dia.	B Body Dia.	C Head Dia.	D C'Sink Dia.	E° Head Angle
4	.116	.216	.375	.220	13°
6	.144	.278	.500	.274	13°
8	.169	.278	.500	.332	13°
10	.194	.309	.625	.382	13°
25	.257	.372	.750	.505	14°
31	.318	.466	.875	.632	14°

Notes:

- ⚠ Head Thickness = .033 for 31 size.
- ⚠ "C" style head available in Plugs only.
- ⚠ "J" diameter is thru (no counterbore) for -03 through -04 length Sleeves for 25 sizes only.
- 4. Tolerances, unless otherwise specified: .xxx ± .010; Angles ± 2°.

Part Number Selection

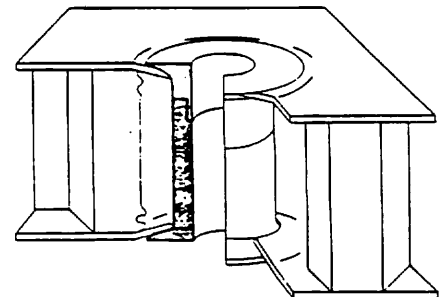
Two part numbers—Sleeve and Plug—are required for a complete assembly. Consult Rosán for availability of optional materials, finishes, sizes and lengths.

Example:

S 1 0 2 F 10 -08
P 1 0 2 C 10 - 1

- Add Suffix "NF" to Part Number if No Finish is Required
- Length Dash Number: See Tables 2
- Optional Finish (Alum. Parts Only): AL = Alodine per MIL-C-5541, Class 3
AA = Iridite per MIL-C-5541
- Size: See Table 1
- Head Style: C = Flush Head, Countersink Hole
D = Flush Head
F = Non-Flush Head
- Type: = Thru-Bolt
- Material: 0 = 2024-T4 or T351 Aluminum Alloy per QQ-A-225/6,
Anodize per MIL-A-8625
6 = CRES Steel per ASTM-A-581/ASTM-A-582, AMS5640,
Passivate per QQ-P-35
9 = Carbon Steel per ASTM-A-108/FED-STD-66,
Cadmium Plate per QQ-P-416, Type II, Class 2
- Series 100: Grommet Type Panel Insert
- Part Type: P = Plug S = Sleeve

Typical Assembly




Typical Series 102, Thru-Bolt Plug and Sleeve assembly, installed in honeycomb sandwich panel. Sleeve and Plug form a telescopic press fit.

Note: For installation and tooling information, see pages 24 and 25.

402 Series – continued

Plug and Sleeve Dash Number Selection

Select Sleeve and Plug Dash Number from Tables 2 by determining the thickness closest to, but not greater than, the panel being used. Longer lengths available using factory installed sleeve extensions.

 = Panel Thickness

Examples: 1. Requirements: #10 Size Thru-Bolt, Aluminum Alloy, Non-Flush Head for a .375 overall panel.
From table select:
-0 Plug = P102F10-0
-06 Sleeve = S102F10-06

2. Requirements: #10 Size Countersink Hole, CRES Steel, Flush Head for a .400 overall panel.
From table select:
-01 Plug = P162C10-01
-06 Sleeve = S162D10-06

Tables 2
4, 6, 8 and 10 Sizes

Sleeve Dash Number		Plug Dash Number										
		H	G	-X	-0	-01	-1	-11	-2	-21	-3	-31
				.085	.085	.100	.116	.131	.147	.162	.179	.194
-03	.103			.188	—	—	—	—	—	—	—	—
-04	.165			—	.250	.265	.281	.296	.312	.327	.344	.359
-06	.290			—	.375	.390	.406	.421	.437	.452	.469	.484
-08	.415			—	.500	.515	.531	.546	.562	.577	.594	.609
-10	.540			—	.625	.640	.656	.671	.687	.702	.719	.734
-12	.665			—	.750	.765	.781	.796	.812	.827	.844	.859
-14	.790			—	.875	.890	.906	.921	.937	.952	.969	.984
-16	.915			—	1.000	1.015	1.031	1.046	1.062	1.077	1.094	1.109
-18	1.040			—	1.125	1.140	1.156	1.171	1.187	1.202	1.219	1.234

25 Size

Sleeve Dash Number		Plug Dash Number										
		H	G	-X	-0	-01	-1	-11	-2	-21	-3	-31
				.120	.120	.135	.151	.167	.183	.198	.214	.230
-03*	.067			.187	—	—	—	—	—	—	—	—
-04*	.130			—	.250	.265	.281	.297	.313	.328	.344	.360
-06	.255			—	.375	.390	.406	.422	.438	.453	.469	.485
-08	.380			—	.500	.515	.531	.547	.563	.578	.594	.610
-10	.505			—	.625	.640	.656	.672	.688	.703	.719	.735
-12	.630			—	.750	.765	.781	.797	.813	.828	.844	.860
-14	.755			—	.875	.890	.906	.922	.938	.953	.969	.985
-16	.880			—	1.000	1.015	1.031	1.047	1.063	1.078	1.094	1.110
-18	1.005			—	1.125	1.140	1.156	1.172	1.188	1.203	1.219	1.235

**J" diameter is thru (no counterbore) for these lengths.

31 Size

Sleeve Dash Number		Plug Dash Number									
		H	G	-0	-01	-1	-11	-2	-21	-3	-31
				.190	.206	.221	.237	.252	.268	.283	.299
-06	.185			.375	.391	.406	.422	.437	.453	.468	.484
-08	.310			.500	.515	.531	.547	.562	.578	.593	.609
-10	.435			.625	.640	.656	.672	.687	.703	.718	.734
-12	.560			.750	.766	.781	.797	.812	.828	.843	.859
-14	.685			.875	.891	.906	.922	.937	.953	.968	.984
-16	.810			1.000	1.016	1.031	1.047	1.062	1.078	1.093	1.109
-18	.935			1.125	1.141	1.156	1.172	1.187	1.203	1.218	1.234

Delron Inserts

104 Series – Threaded with Non-Metallic Lock

Style Selection

Head styles may be combined between Plugs and Sleeves within the same size.

Head Style	D – Flush	F – Non-Flush
Plug		
Sleeve		

*See Tables 2

Notes:

- △ Head Thickness = .033 on 524 size Sleeves and 31 size Plugs.
- Tolerances, unless otherwise specified: .xxx ± .010; Angles ± 2°.

Table 1

Size	Thread Per MIL-S-8879	A Hole Dia.	B Body Dia.	C Head Dia.	D° Head Angle
4 440	.1120-40 UNJC-3B	.116	.216	.375	13°
6 632	.1380-32 UNJC-3B	.144	.309	.500	13°
8 832	.1640-32 UNJC-3B	.169	.309	.500	13°
10 1032	.1900-32 UNJF-3B	.194	.341	.625	13°
25 428	.2500-28 UNJF-3B	.257	.403	.750	14°
31 524	.3125-24 UNJF-3B	.318	.497	.875	14°

Part Number Selection

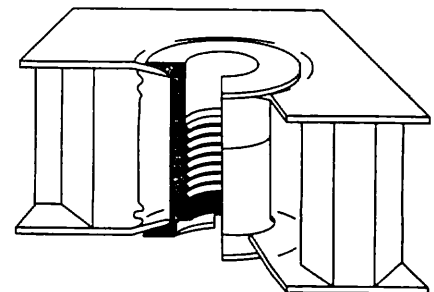
Two part numbers—Sleeve and Plug—are required for a complete assembly. Consult Rosán for availability of optional materials, finishes, sizes and lengths.

Example:

S 1 0 4 F 428 - 08
P 1 0 4 D 25 AL 0

- Add Suffix "NF" to Part Number if No Finish is Required
- Length Dash Number: See Tables 2
- Optional Finish (Alum. Parts Only): AL = Alodine per MIL-C-5541, Class 3
AA = Iridite per MIL-C-5541
- Size: See Table 1
- Head Style: D = Flush Head
F = Non-Flush Head
- Type: Threaded with Non-Metallic Lock, Torque per MIL-N-25027
- Material: 0 = 2024-T4 or T351 Aluminum Alloy per QQ-A-225/6, Anodize per MIL-A-8625
6 = CRES Steel per ASTM-A-581/ASTM-A-582, AMS5640, Passivate per QQ-P-35
9 = Carbon Steel per ASTM-A-108/FED-STD-66, Cadmium Plate per QQ-P-416, Type II, Class 2
- Series 100: Grommet Type Panel Insert
- Part Type: P = Plug S = Sleeve

Typical Assembly




Typical Series 104, Threaded Plug and Sleeve assembly, with Non-Metallic Lock installed in honeycomb sandwich panel. Sleeve and Plug form a telescopic press fit.

Note: For installation and tooling information, see pages 24 and 25.

104 Series – continued

Plug and Sleeve Dash Number Selection

Select Sleeve and Plug Dash Number from Tables 2 by determining the thickness closest to, but not greater than, the panel being used. Longer lengths available using factory installed sleeve extensions. For panel thicknesses less than the minimums listed below, see 104 Series, Thin Panel versions.

 = Panel Thickness

Examples: 1. Requirements: 632 Thread size, Carbon Steel, Flush Head for a .500 overall panel.
From table select:
-0 Plug = P104D6-0
-08 Sleeve = S104D632-08

2. Requirements: 524 Thread size, Aluminum Alloy, Non-Flush Head for a .890 overall panel.
From table select:
-01 Plug = P104F31-01
-14 Sleeve = S104F524-14

Tables 2

632, 832, 1032 and 428 Sizes

Sleeve Dash Number		Plug Dash Number								
		H	G	-0	-01	-1	-11	-2	-21	-3
-08	.415		.085	.100	.116	.131	.147	.162	.179	.194
-10	.540		.500	.515	.531	.546	.562	.577	.594	.609
-12	.665		.625	.640	.656	.671	.687	.702	.719	.734
-14	.790		.750	.765	.781	.796	.812	.827	.844	.859
-16	.915		.875	.890	.906	.921	.937	.952	.969	.984
-18	1.040		1.000	1.015	1.031	1.046	1.062	1.077	1.094	1.109
			1.125	1.140	1.156	1.171	1.187	1.202	1.219	1.234

*-08 available for 428 size.

524 Size

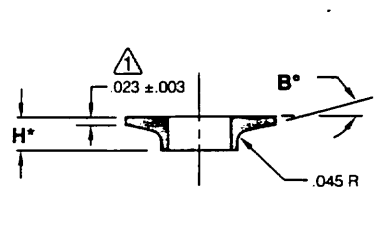
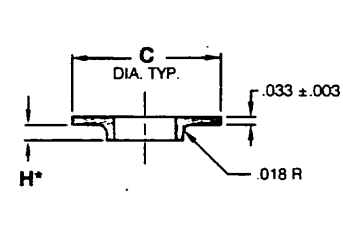
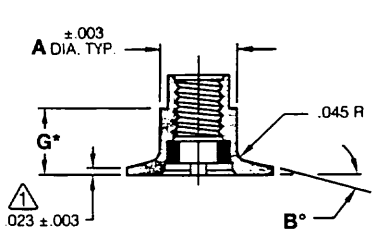
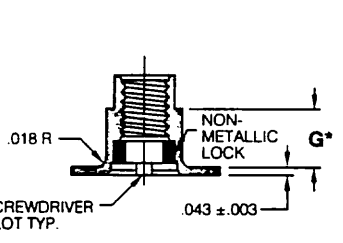
Sleeve Dash Number		Plug Dash Number								
		H	G	-0	-01	-1	-11	-2	-21	-3
-14	.627		.248	.264	.279	.295	.310	.326	.341	.357
-16	.752		.875	.890	.906	.922	.938	.953	.969	.985
-18	.877		1.000	1.015	1.031	1.047	1.063	1.078	1.094	1.110
			1.125	1.140	1.156	1.172	1.188	1.203	1.219	1.235

Delron Inserts

104 Series – Thin Panel Threaded with Non-Metallic Lock

Style Selection

Head styles may be combined between Plugs and Sleeves within the same size.

Head Style	D – Flush	F – Non-Flush
Sleeve		
Plug		

Notes:

- △ Head Thickness = .033 on 524 size Plugs and 31 size Sleeves.
- Tolerances, unless otherwise specified: .xxx ± .010; Angles ± 2°.

*See Tables 2

Table 1

Size	Thread Per MIL-S-8879	A Body Dia.	B° Head Angle	C Head Dia.
4 440	.1120-40 UNJC-3B	.216	13°	.375
6 632	.1380-32 UNJC-3B	.309	13°	.500
8 832	.1640-32 UNJC-3B	.309	13°	.500
10 1032	.1900-32 UNJF-3B	.341	13°	.625
25 428	.2500-28 UNJF-3B	.403	14°	.750
31 524	.3125-24 UNJF-3B	.497	14°	.875

Part Number Selection

Two part numbers—Sleeve and Plug—are required for a complete assembly. Consult Rosán for availability of optional materials, finishes, sizes and lengths.

Example:

P 1 0 4 F 832 - 06

S 1 0 4 D 8 AL 0

△ Add Suffix "NF" to Part Number if No Finish is Required

Length Dash Number: See Tables 2

Optional Finish (Alum. Parts Only): AL = Alodine per MIL-C-5541, Class 3
AA = Indite per MIL-C-5541

Size: See Table 1

Head Style: D = Flush Head

F = Non-Flush Head

Type: Threaded with Non-Metallic-Lock, Torque per MIL-N-25027

Material: 0 = 2024-T4 or T351 Aluminum Alloy per QQ-A-225/6,

Red Anodize per MIL-A-8625

6 = CRES Steel per ASTM-A-581/ASTM-A-582, AMS5640,

Passivate per QQ-P-35

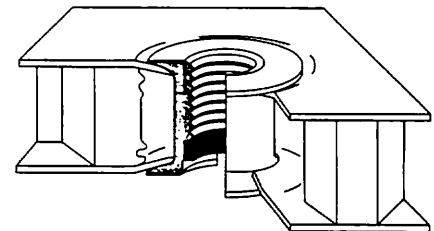
9 = Carbon Steel per ASTM-A-108/FED-STD-66,

Cadmium Plate per QQ-P-416, Type II, Class 2

Series 100: Grommet Type Panel Insert

Part Type: P = Plug S = Sleeve

Typical Assembly




Typical Series 104, Thin Panel, Threaded with Non-Metallic-Lock assembly, installed in honeycomb sandwich panel. Sleeve and Plug form a telescopic press fit.

Note: For installation and tooling information, see pages 24 and 25.

104 Thin Series – continued

Plug and Sleeve Dash Number Selection

Select Sleeve and Plug Dash Number from Tables 2 by determining the thickness closest to, but not greater than, the panel being used.

 = Panel Thickness

Examples: 1. Requirements: 832 Thread size, CRES Steel,
Flush Head for a .265 overall panel.
From table select:
-04 Plug = P164D832-04
-01 Sleeve = S164D8-01

2. Requirements: 524 Thread size, Aluminum Alloy,
Non-Flush Head for a .700 overall panel.
From table select:
-10 Plug = P104F524-10
-21 Sleeve = S10431-21

Tables 2

440, 632, 832, 1032 and 428 Sizes

Plug Dash Number		Sleeve Dash No.									
		G	H	-0	-01	-1	-11	-2	-21	-3	-31
-04		.151		.245	.261	.276	.292	.307	.323	.338	.354
-06		.281		.375	.390	.406	.422	.437	.453	.468	.484

524 Size

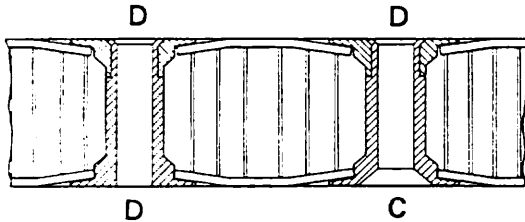
Plug Dash Number		Sleeve Dash No.									
		G	H	-0	-01	-1	-11	-2	-21	-3	-31
-08		.401		.500	.510	.526	.542	.557	.573	.588	.604
-10		.526		.620	.636	.651	.667	.682	.698	.713	.729
-12		.651		.745	.761	.776	.792	.807	.823	.838	.854

AP/AS 106 SERIES

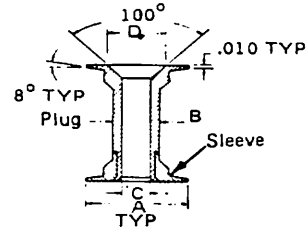
FOR PANELS WITH NON-METALLIC OR METAL SKINS

THRU-BOLT & RIVET TYPE

SLEEVE HEAD STYLES



DIMENSIONS



PLUG HEAD STYLES

BOLT SIZE	A DIA.	B DIA.	C BOLT	C RIVET	D BOLT	D RIVET	Installation Hole Dia.	Min. Panel Thickness
1	.50	.27	.139/.144	.130/.135	.274	.233	.375	.250
2	.50	.27	.165/.170	.165/.170	.332	.295	.375	.250
3	.62	.29	.191/.196	.191/.196	.382	.362	.406	.250
4	.75	.35	.253/.257	.253/.257	.505	.486	.500	.312
5	.81	.41	.312/.317	.312/.317	.633	.574	.640	.375

AP 106 C 3 0 2 37

Panel Thickness Converted to Hundredths, Example: .376 = -37 Length

1 = Thru Rivet, 2 = Thru Bolt

5 = A-286
 0 = Alum. - Alodine
 6 = Stainless Stl. - Passivate
 9 = Carbon Stl. - Cad. Plate

Bolt Size, 3 = 10 - 32

C = C'sk. Type
 D = Thru Hole Type

Design Series

Series Plug Section

AS 106 D 3 0 P 1

0 - Min. Lengths Constant Length

Primer - Optional

5 = A-286
 0 = Alum.
 6 = Stainless Steel
 9 = Carbon Steel

Bolt Size

Flush Head

Design Series

Series Sleeve Section