



# Feet and Bumpers CONTINUED

## SELF-ADHESIVE BUMPERS – TECHNICAL DATA

**Adhesive:** High adhesion, rubber-based pressure sensitive OR high performance, acrylic-based pressure sensitive.

**Bumper:** Formulated polyurethane polymer (contains no plasticizers).

**Application Temperature:** 50 to 100°F (10 to 38°C).

**Service Temperatures:** Range -20 to 140°F (-29 to 60°C). The adhesive will show reduced shear properties at elevated temperatures.

**Recommended storage guidelines:**

Temperature range 40 to 75°F (4 to 24°C)

Humidity range 40 to 60%

**Surface Preparation:**

Surface to which bumper adhesive is applied must be clean, dry and free of grease, wax, dust and oil to obtain maximum adhesion. Clean surfaces with low strength solvents such as isopropyl alcohol or Heptane. When applying bumper to surface it's important to apply a sufficient amount of pressure to assure optimum adhesion.

**Shelf life:** Adhesive properties should not change for one year if stored at recommended storage guidelines. Lighter colour and clear bumpers may show some darkening or yellowing.

Test Data on Adhesive		Acrylic Based	Rubber Based	Test Method
<b>Physical Properties</b>	Quick Tack, lbs./in <sup>2</sup> Stainless Steel	5.0	10.0	Loop Tack
	Peel adhesion, lbs./in. Stainless Steel – 30 minute residence	5.0	6.0	PSTC-3
	24 hr. residence	6.0	6.5	
	Shear, Hours to fail Stainless Steel - 2# at 73°F	30	500+	PSTC-7
<b>Thickness (inches)</b>	Carrier plus adhesive	.003	.003	
<b>Temperature Ranges</b>	Application:	40°F - 150°F	40°F - 150°F	
	End use:	0°F - 250°F	0°F - 180°F	

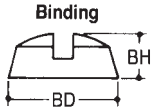
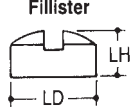
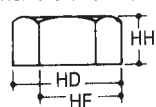
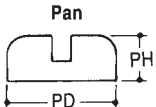
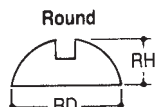
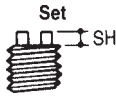
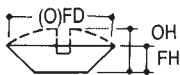
**Note:** Values given are typical unless otherwise noted and are not for use in specification. These properties were run on sheet material made from the same materials as the bumpers. User should evaluate product suitability for a specific application under actual use conditions.

*Find more glide possibilities on pages 36–37.*



# Nylon Machine Screws CONTINUED

## TECHNICAL DATA. NOMINAL DIMENSIONS (INCHES)

Head Type	Thread Size										
	#2	#3	#4	#5	#6	#8	#10	1/4	5/16	3/8	
<b>Binding</b> 	<b>BH</b>	.050	.056	.065	.073	.080	.110	.120	.155	—	—
	<b>BD</b>	.175	.203	.235	.256	.290	.350	.380	.500	—	—
<b>Fillister</b> 	<b>LH</b>	.075	.087	.100	.100	.125	.150	.175	.230	—	.335
	<b>LD</b>	.140	.153	.180	.196	.215	.255	.300	.400	—	.606
<b>Hex &amp; Slotted Hex</b> 	<b>HH</b>	.040	.050	.055	.064	.085	.110	.110	.175	.219	—
	<b>HF</b>	.125	.180	.180	.180	.250	.250	.310	.370	.495	—
	<b>HD</b>	.140	.205	.205	.205	.283	.270	.340	.425	.545	—
<b>Pan</b> 	<b>PH</b>	.050	.056	.065	.070	.075	.080	.110	.160	.170	—
	<b>PD</b>	.160	.186	.210	.238	.265	.320	.365	.475	.604	—
<b>Round</b> 	<b>RH</b>	.070	.075	.090	—	.100	.110	.130	.160	—	—
	<b>RD</b>	.150	.175	.210	—	.260	.290	.325	.475	—	—
<b>Set</b> 	<b>SH</b>	.035	—	.045	—	.055	.055	.060	.080	—	—
<b>Flat (Oval)</b> 	<b>OH</b>	.070	—	.090	—	.110	.140	.160	.220	.270	.325
	<b>FH</b>	.055	—	.070	—	.085	.100	.120	.115	.191	.230
	<b>(O)FD</b>	.172	—	.225	—	.280	.332	.385	.507	.602	.723

Data listed is for reference purposes only.

Steel Core Round, Fillister and Flat heads, same as above.



# Nylon Machine Screws CONTINUED

## TECHNICAL DATA

### Moulded Nylon Screws

Moulded nylon parts are subject to moisture loss and gain. In moulded nylon screws, moistness or dryness can cause subtle size changes. The same is true for temperature change.

Additionally, there are tooling problems because all screws come from cavities parted along the screw length. Although the moulds are dowelled and pinned to provide mould match, in the course of moulding, wear takes place on the pins, on the mould face and base and even on the moulding machine itself, thus working against ideal alignment. Moulded nylon screws are not held to tolerances as close as those for metal screws. However,

the slight mismatch and the natural fractional flash are not as serious as they would be in metal. Nylon, being flexible, is also forgiving of tolerance lapses.

Nylon cannot be held to tolerances that apply to metal and the use of gauges to measure the screws just doesn't work. They are tested by trying them in their actual applications. Otherwise, it is impractical for the customer to use them or the supplier to make them.

Amazingly enough, they work.

### Nylon Machine Screws

Size	Ultimate Torque	Maximum Torque Before Deformation	Tensile Test		Double Shear	
			Yield lbs.	Break lbs.	Yield lbs.	Break lbs.
4/40	24 In. Oz.	12-16 In. Oz.	38	41	45	50
6/32	30 In. Oz.	18-20 In. Oz.	65	69	91	97
8/32	5 In. Lbs.	2-3 In. Lbs.	99	108	158	164
10/24	6 In. Lbs.	2-4 In. Lbs.	139	149	187	257
10/32	7 In. Lbs.	3-4 In. Lbs.	155	165	234	241
1/4-20	13 In. Lbs.	9-10 In. Lbs.	296	312	413	432

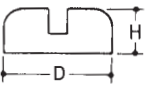

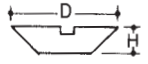
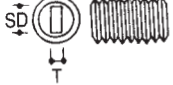
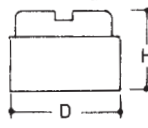
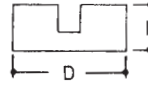
Data listed is for reference purposes only.

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.



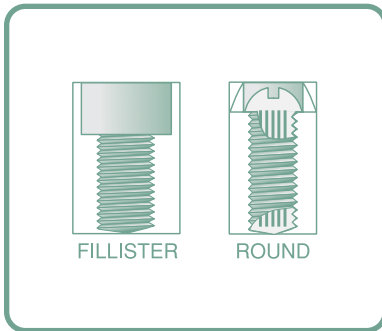
# Metric Nylon Machine Screws CONTINUED

TECHNICAL DATA. NOMINAL METRIC DIMENSIONS (mm)

Head Type	Screw Size									
	M2	2.5	3	3.5	4	5	6	8	10	
Approximate American Standard equivalent	#2	#3	#4	#6	#8	#10	1/4	5/16	3/8	
<b>Pan DIN 85</b> 	<b>D</b>	4.0	5.0	6.0	7.0	8.0	10.0	12.0	16.0	20.0
	<b>H</b>	1.2	1.5	1.8	2.1	2.4	3.0	3.6	4.8	6.0
<b>Slotted Hex</b> 	<b>F</b>	3.2	4.0	5.5	6.0	7.0	8.0	10.0	13.0	17.0
	<b>D</b>	3.38	4.28	5.4	6.93	7.59	8.71	10.95	14.26	17.62
	<b>H</b>	1.15	1.3	2.0	2.15	2.8	3.5	4.0	5.0	7.0
<b>Flat DIN 963</b> 	<b>D</b>	4.0	5.0	6.0	7.0	8.0	10.0	12.0	16.0	20.0
	<b>H</b>	1.2	1.25	1.5	1.75	2.0	2.5	3.0	4.0	5.0
<b>Slotted Grub</b> 	<b>SD</b>	—	—	—	—	2.0	3.3	4.1	5.2	6.6
	<b>T</b>	—	—	—	—	0.76	1.3	1.5	2.4	2.8
<b>Slotted Thumb</b> 	<b>D</b>	—	—	5.5	6.4	7.1	8.1	8.3	—	—
	<b>H</b>	—	—	8.1	8.8	9.7	10.5	12.5	—	—
<b>Cheese</b> 	<b>D</b>	3.8	4.5	5.5	6.0	7.0	8.5	10.0	13.0	16.0
	<b>H</b>	1.3	1.6	2.0	2.4	2.6	3.3	3.9	5.0	6.0

Data listed is for reference purposes only.

# Metal Core Nylon Screws



Stocked in round and fillister heads. Also available in round washer head and flat head.

A hardened, cadmium plated, corrugated steel core inside a nylon screw. Provides up to four times the strength of standard nylon fasteners.

Recommended in applications requiring electrical, thermal and vibration insulation in shear or double shear connections. The recessed metal heads allow adequate torque and may be driven with power drivers.

Part No.	Size	Length
MC 632X.250	6/32	1/4
MC 632X.375		3/8
MC 632X.500		1/2
MC 832X.375	8/32	3/8
MC 832X.500		1/2
MC 1032X.375	10/32	3/8
MC 1032X.500		1/2
MC 1032X.750		3/4
MC 1032X1.000		1
MC 1420X.375	1/4-20	3/8
MC 1420X.500		1/2
MC 1420X.625		5/8
MC 1420X.750		3/4
MC 1420X1.000		1

Minimum order: 100.

Add the following suffixes to specify head styles when ordering:  
 R = Round      FI = Fillister

## TECHNICAL DATA

Size	Ultimate Torque	Max. Torque Before Deformation	Tensile Test		Double Shear	
			Yield lbs.	Break lbs.	Yield lbs.	Break lbs.
6/32	1 in. lbs.	1.5 in. lbs.	24	32	200	240
8/32	3 in. lbs.	4 in. lbs.	66	72	300	360
10/32	5 in. lbs.	6 in. lbs.	96	104	600	640
1/4-20	12 in. lbs.	13 in. lbs.	120	174	1400	1600

Data listed is for reference purposes only.

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.



# Nylon Hex Bolts (Cap Screws) CONTINUED

## TECHNICAL DATA

Size	Ultimate Torque	Maximum Torque Before Deformation	Tensile Test		Double Shear	
			Yield lbs.	Break lbs.	Yield lbs.	Break lbs.
1/4-20	19 In. Lbs.	15-16 In. Lbs.	200	228	413	432
5/16-18	37 In. Lbs.	32-34 In. Lbs.	403	424	866	880
3/8-16	49 In. Lbs.	45-46 In. Lbs.	480	513	1108	1173
1/2-13	11 Ft. Lbs.	7-8 Ft. Lbs.	1393	1425	2276	2313
5/8-11	22 Ft. Lbs.	18-19 Ft. Lbs.	2260	2303	3340	3410

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.

## NOMINAL DIMENSIONS (INCHES)

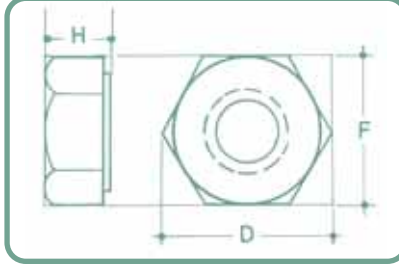
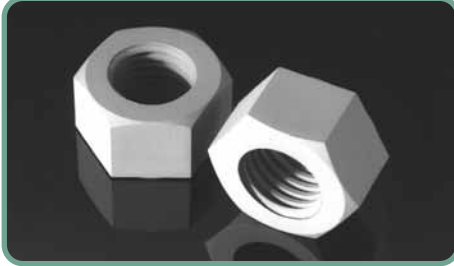
Head Type	Thread Size									
	#4	#6	#8	#10	1/4	5/16	3/8	1/2	5/8	
<b>Hex &amp; Slotted Hex</b> 	<b>HCH</b>	—	—	—	—	.175	.215	.250	.320	.390
	<b>HCD</b>					.500	.555	.625	.850	1.100
	<b>HCF</b>					.425	.485	.565	.740	.935
<b>Hex Socket</b> 	<b>SCH</b>	.110	.136	.162	.188	.248	.310	.370	.495	.620
	<b>SCD</b>	.180	.222	.265	.310	.370	.465	.560	.745	.930
	<b>SCF</b>	.094	.109	.141	.156	.188	.250	.313	.375	.500
	<b>(SCI)</b>	.051	.064	.077	.090	.120	.150	.180	.240	.305
<b>Socket Set</b> 	<b>SSF</b>	.050	.062	.078	.094	.125	.156	.188	.250	.312
	<b>(SSI)</b>	.070	.080	.090	.100	.125	.156	.188	.250	.312

Data listed is for reference purposes only.



# Nylon Nuts

HEX (single chamfered, washer faced)



Especially useful with brittle surfaces such as glass, ceramic or enamel. Their resilience allows even load distribution, particularly on irregular surfaces.

Part No.	F	D	H
HN 2/56	.180	.205	.070
HN 3/48	.180	.205	.070
HN 4/40	.250	.275	.100
HN 6/32	.305	.350	.120
HN 6/40	.305	.350	.120
HN 8/32	.335	.380	.130
HN 10/24	.365	.420	.135
HN 10/32	.365	.420	.135
HN 1/4-20	.425	.510	.206
HN 1/4-28	.425	.510	.206
HN 5/16-18*	.500	.575	.270
HN 5/16-24	.500	.575	.270
HN 3/8-16*	.560	.630	.330
HN 3/8-24	.560	.630	.330
HN 7/16-14	.750	.850	.380
HN 1/2-13*	.750	.860	.430
HN 1/2-20	.750	.860	.430
HN 5/8-11*	.925	1.050	.550
HN 5/8-18	.925	1.050	.550
HN 3/4-10	1.100	1.250	.640
HN 3/4-16	1.100	1.250	.640
HN 7/8-9	1.300	1.480	.750
HN 1"-8	1.470	1.700	.870

## TECHNICAL DATA

Size	Test No. 1 Tensile Lbs.	Test No. 2 Ultimate Torque	Recommended Torque Before Deformation
4/40	85	2 In. Lbs.	1.5 In. Lbs.
6/32	135	5.2 In. Lbs.	4 In. Lbs.
8/32	172	6.8 In. Lbs.	5 In. Lbs.
10/24	211	7 In. Lbs.	5.5 In. Lbs.
10/32	276	8 In. Lbs.	6.5 In. Lbs.
1/4-20	311	19.3 In. Lbs.	17 In. Lbs.
5/16-18	877	44.3 In. Lbs.	42 In. Lbs.
3/8-16	994	74 In. Lbs.	72 In. Lbs.
1/2-13	2367	15.7 Ft. Lbs.	13 Ft. Lbs.
5/8-11	3487	31.7 Ft. Lbs.	30 Ft. Lbs.

Data listed is for reference purposes only.

Test No. 1 Pull Test — Nylon Nut on Metal Screw  
Test No. 2 Torque — Nylon Nut on Metal Screw

All tests performed per ASTM specifications.  
Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.

Minimum order 100.

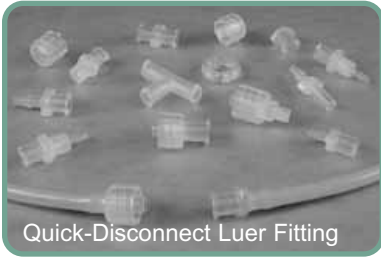
\*Available in thinner hex jam nut.

*Polycarbonate nuts available in clear where quantities warrant.*



# Luer Fittings

## QUICK-DISCONNECT



Quick-Disconnect Luer Fitting



Quick-Disconnect Swivel Fitting

Luer fittings have conical tapers moulded to ISO standards that ensure compatibility with all luers moulded to the same standard. With locking or non-locking characteristics, they can be used in most any application and are pressure tested up to 125 P.S.I. They are stocked in nylon, polypropylene and clear polycarbonate. The clear polycarbonate offers high-impact strength with clear visibility for visual inspections.

Polycarbonate can be autoclaved and is FDA approved.

Made of nylon or clear polycarbonate, the quick-disconnect swivel luer fittings offer a more secure lock than a standard luer connection. The addition of the swivel luer lock assures that the connection is strong and aids in the removal of the luer from the connection. Simply twist the swivel nut counterclockwise and the connection is disassembled. No need to twist the tubing or rearrange downstream apparatus in order to accommodate the luer connection. Allows for universal connections.

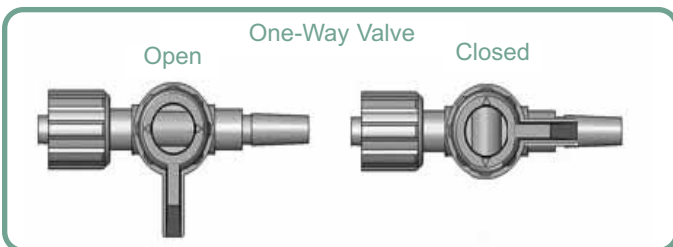
## FEMALE

Full-thread female luers are designed to provide an even greater sealing mechanism for quick-disconnect luer applications. The full thread gives more sealing area for the connection and will provide a virtually leak-proof seal up to 125 P.S.I. when used with male luers that have a locking nut.

Full-thread female luers are available in natural nylon, natural polypropylene and clear polycarbonate and come in a variety of sizes and applications.

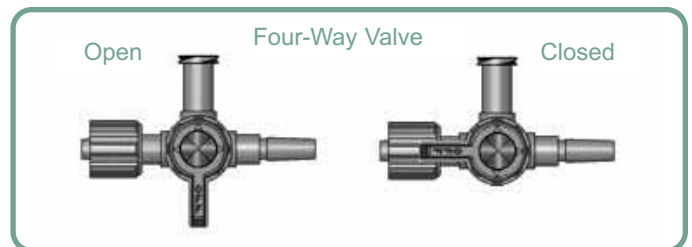


# Luer Valves



Manufactured in durable clear polycarbonate, featuring a white high-density polyethylene handle, these 1-way stopcock luer valves come with two ports with a 360° rotating handle that will simply shut off flow when the “OFF” handle is rotated perpendicular with either port. This has the feature of rotating the handle 90° in any direction to quickly change from ON to OFF or from OFF to ON.

The 4-way stopcock luer valve has three ports with a 360° rotating handle that will shut off flow when the “OFF” handle is



rotated in line with any port. The handle may also be rotated to 180° from the middle port to allow flow to all three ports.

They are available with locking male, slip male or threaded female ports for easy, secure connections to standard luer applications. Our locking male port features a free-turning nut to allow simple installation without rotating the body or the connecting line.