

Plastic Fastening Solutions

Offering an alternative to metallic fasteners with added benefits

Recommended for use in static applications where high tensile holding strength is not critical. Plastic materials are employed for their high mechanical stability and excellent resistance to both heat and chemical corrosion. Unisteel design and manufactures both standard and customized plastic screws and nuts for various industrial applications.

Features & Benefits

- Non-conducting / Insulating
- Non-corrosive
- Non-toxic
- Non-flammable
- Non-abrasive
- Non-magnetic
- No electromagnetic interference
- Light weight
- Heat resistant
- Multi-colored
- Anti-static

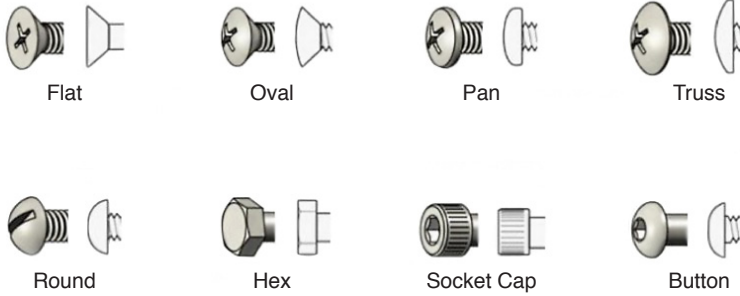


Plastic Screws and Nuts



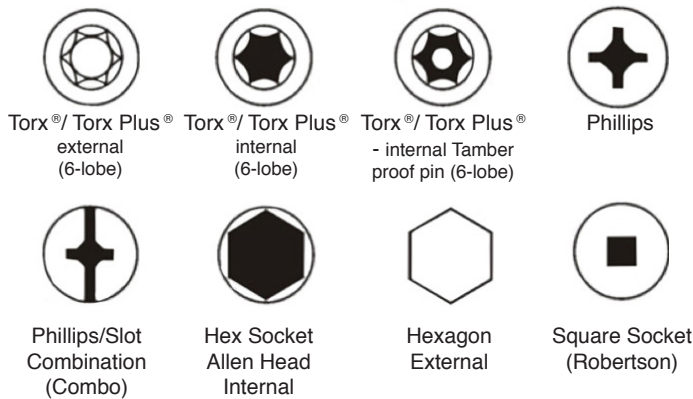
Head Styles

Many common heads types are available. Some common ones are as follows:



Recess Styles

Many recess types are available. Some common ones are as follows:



Male and Female Threads

Typically, machine screws threads are best suitable for plastic screws. They can come in Metric or Imperial units. Unisteel have mass produced miniature externally threaded screws and internal threaded nuts. It is possible to produce from M0.6 to M5.0 with our machines. Our plastic screws and nuts shall meet the respective standard tolerances, such as ISO, JIS and DIN.

Special threads can also be molded to provide a tight fit between the male and female thread for better vibrational loosening performance.

Materials

As polymers have a wide range of material to select and choose from, depending on your application, we can recommend a suitable one, even colored materials. Some of the common ones Unisteel offers are:

- PA (Nylon)
- PA with glass filled
- PPS
- PC
- PEI
- PEEK
- LCP

Material specifications are listed in the last page. Other polymer materials are also available upon enquiry.

Manufacture

Unisteel produces these by injection molding processes. We have various tonnage machines to achieve the required part dimensions and tolerances. We have the know-how to optimize and suit the tooling design to meet your total demand while keeping the costs down. Lead-times are kept to a minimum with our in-house tooling capabilities.

Applications

Unisteel produces plastic screws and nuts for the following applications:

- Food industry
- Consumer electronics industry
- Automotive industry

In applications of static loading, where strength of fasteners are not critical, plastic screws and nuts are highly recommended. Plastic screws and nuts offers many benefits when compared to traditional metallic methods. No matter if its corrosion issues, electrical issues, or weight issues, we will have the ideal material to suit your application.

Material Specifications

Properties	Units	Test	Nylon 6/6 (Molded)	Polycarbonate	Ultem 1000	PEEK 30% glass filled	PPS 40% glass fiber filled	LCP 40% 40% glass-filled
Tensile strength at yield	psi	D-638	9,000	9,000	15,200	22,800	20,500	16,000
	MPa		62	62	105	157	141	110
Elongation at yield	%		20	100-130	7-8	Not reported	0.9	Not reported
Elongation at fail	%		200	135	60	2.2	0.9	1.5
Flexural Modulus at yield	103psi	D-790	190	340-350	480	1,495	1,900	Not reported
	Mpa		1,310	2,344-2,413	3,300	10,310	13,100	
Flexural Strength	103 psi		17.9	14-14.2	22	33.8	28	22
	Mpa		123	97	150	233	193	150
Izod impact strength notched	ft-lb/in	D-256	3.0	17	1	1.8	1.5	1.9
	joules/m		160	908	50	96	80	101
Deflection temperature at 66 psi	°F (°C)	D-648	430 (221)	300-305 (149-152)	410 (210)	Not reported	Not reported	Not reported
Deflection temperature at 264 psi	°F (°C)		160 (71)	290-295 (143-146)	392 (200)	600 (315)	>500 (260)	590 (310)
Melting point	°F	D-789	482	284-302	338 (Vicat)	633	527-554	Not reported
	°C		250	140 -150 Tg	170	334	275-290	Not reported
Dielectric strength	V/mil	D-149	550	380-399	830	190 (KV/cm)	450	510
Volume resistivity	ohm-cm	D-257	2 x 10 ¹³	>1 x 10 ¹⁶	6.7x10 ¹⁷	4.9 x10 ¹⁶	1x10 ¹⁶	1x10 ¹⁵
Water absorption	%/24hr.	D-570	1.1	0.15	0.25	0.11	0.115	<.01
UL flammability	---	UL 94	94 V-2	94 V-2	94 V-0	94 V-0	94 V-0/5V	94 V-0
Rockwell Hardness	R, M scales	D-785	R105	R118	M109	R124, M103	R123	R80
Thermal Conductivity	ft ² -°F	C177	1.7	1.3	1.5	1.4	2.0-3.1	NR
	W/m-K		0.25	0.19	0.22	0.20	0.29-0.45	NR
Specific Gravity	---	D-792	1.16	1.2	1.27	1.49	1.65	1.69
Max. service temperature	°F	---	221	212	338	480	392	600
	°C		105	100	170	250	200	315

The information presented above is of a general nature and shall not be relied upon other than for preliminary material identification purposes only. Other materials are available upon request.



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