

Plastic Hexagon Socket Head Cap Screws

Without Knurling / Low Head / Extra Low Head (Pkg.)

Plastic Hexagon Socket Head Cap Screws – Without Knurling

Type	Material
PPSBL	PPS (Polyphenylenesulfide) Non-Glass Fiber
PEKBL	PEEK (Polyetheretherketone)

Ⓢ The head is not knurled. More economical than Knurled type.

Type	Part Number		M x P	A	E	B
	M - L					
PPSBL PEKBL	5 - 10 15 20 25 30		5 x 0.8	8.5	5	4
	6 - 15 20		6 x 1.0	10	6	5

Part Number Example: PPSBL5-20

Ⓢ PEKBL is not available on M5 for L10.

Plastic Hexagon Socket Head Cap Screws

Type	Part Number		M x P	A	E	B	t
	M - L						
Low Head (Pkg)	3 - 6 8 10		3 x 0.5	5.5	2	2	1.5
	4 - 6 8 10 12		4 x 0.7	7	2.8	2.5	2.3
Extra Low Head (Pkg)	5 - 8 10 12		5 x 0.8	8.5	3.5	3	2.7
	6 - 10 12 16		6 x 1.0	10	4	4	3

Ⓢ 20/Pkg

Hexagon Socket Low Head Cap Screws: PACK-RENS, PACK-PPSS, PACK-PEKST

Extra Low Head Cap Screws: PACK-RENE, PACK-PPSE, PACK-PEKE

Material: RENEY (Glassfiber Reinforced Polyamide M x D6), PPS (Polyphenylenesulfide), PEEK (Polyetheretherketone)

Ⓢ Hexalobular Key Wrenches P.2395.

Part Number Example: PACK-RENS3-6

Part Number Example: PACK-RENE

Mechanical Characteristics (Reference)

Type	Tensile Breaking Load N										Torsional Breaking Torque N · m											
	RENB	PPSB	PEKB	PPSBL	PEKBL	PACK-RENS	PACK-PPSS	PACK-PEKST	PACK-RENE	PACK-PPSE	PACK-PEKE	RENB	PPSB	PEKB	PPSBL	PEKBL	PACK-RENS	PACK-PPSS	PACK-PEKST	PACK-RENE	PACK-PPSE	PACK-PEKE
M3	635	570	430	—	—	740	447	370	365	265	317	0.39	0.36	0.3	—	—	0.31	0.243	0.15	0.2	0.143	0.15
M4	1470	980	765	—	—	1325	725	730	697	447	624	0.79	0.71	0.64	—	—	0.62	0.436	0.54	0.62	0.285	0.5
M5	2450	1570	1230	836	1208	2050	990	1170	1065	579	1146	1.77	1.42	1.28	0.78	0.8	1.2	0.986	1.11	0.66	0.636	1.09
M6	3140	2250	1670	1580	1835	2798	1747	1666	1604	889	1455	2.94	2.11	2.26	1.86	1.96	2.15	1.496	1.72	1.09	0.876	1.71
M8	5100	3720	3090	—	—	—	—	—	—	—	—	7.85	5.29	5.98	—	—	—	—	—	—	—	—
M10	6900	—	—	—	—	—	—	—	—	—	—	12.75	—	—	—	—	—	—	—	—	—	—
M12	8700	—	—	—	—	—	—	—	—	—	—	24.5	—	—	—	—	—	—	—	—	—	—

Ⓢ Shown above are reference values and not guaranteed values. Ⓢ Recommended tightening torque is torsional breaking torque x 50%. Use a torque driver and torque wrench for tightening. Ⓢ Mechanical characteristics change depending on the operating environment. Testing the product before use under actual usage state is recommended.

Pan Head Screws

Plastic Phillips (Pkg.)

Pan Head Screws – Plastic Cross Recessed

Type	Material
PACK-PPSA	PPS (Polyphenylenesulfide)
PACK-PEKS	PEEK (Polyetheretherketone)

Ⓢ 100/Pkg

Ⓢ The surface colors of plastic cross recessed pan head screws may change somewhat depending on production lot and other conditions.

Ⓢ Sometimes black spots on the surface may be seen, which do not affect performance.

Part Number Example: PACK-PPSA

Part Number Example: PACK-PEKS

Part Number Example: PACK-PPSA

Mechanical Characteristics (Reference)

Type	Tensile Breaking Load N		Torsional Breaking Torque N · m	
	PACK-PPSA	PACK-PEKS	PACK-PPSA	PACK-PEKS
M2.6	440	312	0.19	0.16
M3	570	430	0.36	0.3
M4	980	765	0.71	0.64
M5	1570	1230	1.42	1.28
M6	2250	1670	2.11	2.26

Ⓢ Shown above are reference values and not guaranteed values. Ⓢ Recommended tightening torque is torsional breaking torque x 50%. Use a torque driver or torque wrench for tightening. Ⓢ Mechanical characteristics change depending on the operating environment. Testing the product before use under actual usage state is recommended.

RENY (Glassfiber Reinforced Polyamide M x D6)

RENY is based on polyamide M x D6, and crystalline engineered plastic reinforced with 50% fiber glass. It has the highest strength and elasticity among engineered plastics, and excels in oil and heat resistance, thus can be used as an alternative to metal.

PPS (Polyphenylenesulfide)

PPS is a crystalline super engineered plastic. It has excellent heat resistance, and does not deteriorate in physical properties even when it is used for long durations in high temperature atmosphere. In addition, it excels in chemical resistance, mechanical characteristics, electrical properties and dimensional stability.

PEEK (Polyetheretherketone)

PEEK is semicrystalline super engineered plastic with the highest performance. Has the highest chemical resistance among all engineered plastics. The only generally used chemical that dissolves PEEK is concentrated sulfuric acid. It also excels in heat resistance, abrasion resistance, flame resistance, and hydrolysis resistance.

Guideline of Selection for Plastic Screws by Material (1)

Item	RENY	PPS	PPS Non-Glass Fiber	PEEK
Strength	RENY > PPS > PEEK > PPS Non-Glass Fiber			
Heat Resistance	PPS / PPS Non-Glass Fiber > PEEK > RENEY			
Chemical Resistance	PEEK > PPS / PPS Non-Glass Fiber > RENEY			
Lightness	Acceptable	Acceptable	Good	Good
Water Absorption Stability	Excellent	Excellent	Excellent	Acceptable
Strength / Rigidity	Excellent	Excellent	Good	Good
Impact Resistance	Excellent	Good	Good	Good
Friction Resistance / Abrasion Resistance	Excellent	Excellent	Excellent	Excellent
Heat Resistance	Acceptable	Excellent	Excellent	Excellent
Flame Resistance	Acceptable	Excellent	Excellent	Excellent
Electrical Properties	Good	Excellent	Excellent	Excellent
Weather Resistance	Good	Good	Good	Excellent

Guideline of Selection for Plastic Screws by Material (2)

Strength	RENY > PPS > PEEK > PPS Non-Glass Fiber
Heat Resistance	PPS / PPS Non-Glass Fiber > PEEK > RENEY
Chemical Resistance	PEEK > PPS / PPS Non-Glass Fiber > RENEY

– RENEY and PPS contain glass fiber.
– Continuous Use Temperature: RENEY: 105°C, PPS / PPS Non-Glass Fiber 200°C, PEEK: 180°C
Combustibility: RENEY: UL94HB, PPS / PPS Non-Glass Fiber / PEEK: UL94 V-0

Physical Properties Table (Reference)

Characteristics	Testing Method (ASTM)	Unit	Material RENEY	Material PPS	Material PPS / PPS Non-Glass Fiber	Material PEEK
Mechanical Characteristics						
Tensile Strength	D638	MPa	285	196	90	91
Elongation	D638	%	2.1	2.2	—	50-120
Bending Strength	D790	MPa	380	255	140	147
Flexural Modulus	D790	GPa	17.4	13.2	3.8	3.9
Izot Impact Strength (Notched)	D256	J/m	110	98	—	88
Rockwell Hardness	D785	R & M Scale	M111	M110	—	R126
Thermal Characteristics						
Deflection Temperature Under Load (1.82 Mpa)	D648	°C	234	270	100	152
Linear Expansion Coefficient	D696	10 ⁻⁵ /K	1.5	1.0	—	5.0
Electrical Characteristics						
Dielectric Constant (106 Hz)	D150	—	4	4.6	3.6	3.3
Dissipation Factor (106 Hz)	D150	—	0.009	0.002	0.001	0.004
Volume Resistivity	D257	Ω · cm	1.0 x 10 ⁹	1.0 x 10 ¹⁶	2.0 x 10 ¹⁶	4.9 x 10 ¹⁶
Dielectric Breakdown Strength	D149	MV/mm	17	12	—	17
Arc Resistance	D495	sec	129	120	—	23
Others						
Specific Gravity	D792	—	1.65	1.66	1.35	1.3
Water Absorption (At 23°C in water x 24h)	D570	%	0.14	0.015	0.02	0.500
Fiber Glass Content	—	%	50	40	—	—

Ⓢ Shown above are reference values and not guaranteed values.