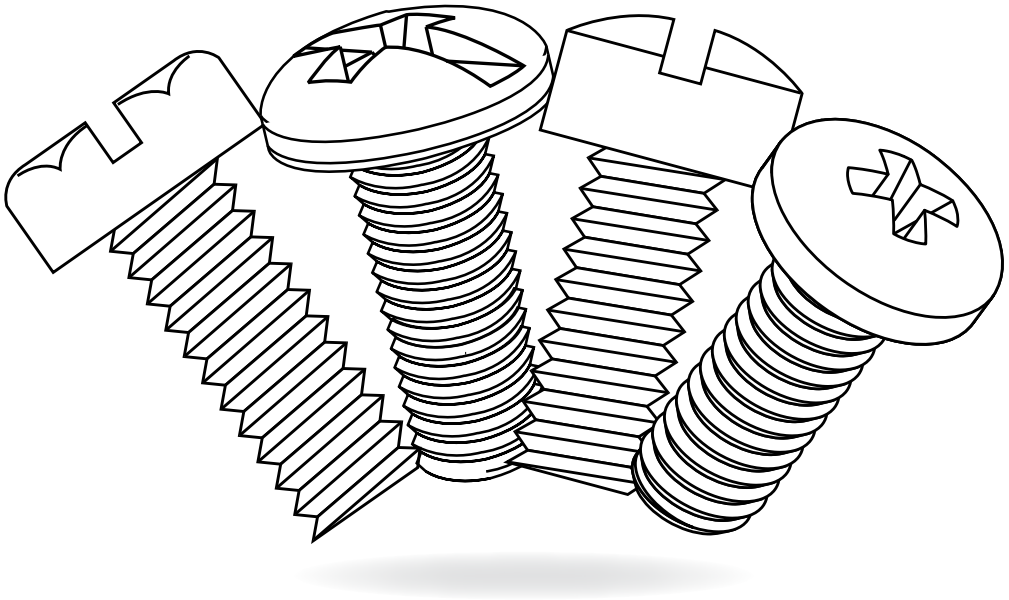
MECHANICAL & PERFORMANCE REQUIREMENTS



Description	A straight shank fastener with external threads designed to go through a hole or nut that is pre-tapped to form a mating thread for the screw.				
Applications/ Advantages	Machine screws form a fastening superior in strength to spaced thread screws.				
	Steel	***Stainless***			***Aluminum***
	Steel Zinc is the most common and most popular variety of steel machine screws ***Steel Zinc yellow*** screws are popular in electronics applications. ***Steel Zinc Black*** and Black Oxide screws are used to blend in with black-colored components.	***18-8 Stainless steel*** machine screws are used in applications which require general atmospheric corrosion resistance, in food processing machinery and refrigeration equipment. Stainless is also superior to steel in withstanding some elevation in application operating temperature while maintaining its strength. ***316 Stainless steel*** offers superior corrosion resistance to 18-8 and is superior at maintaining its strength at high temperatures. ***410 Stainless steel*** is recommended in applications where greater tensile strength is needed such as control mechanisms or valves under high stress. 410 is not as corrosion resistant as are 18-8 or 316 stainless			In some applications, aluminum machine screws can be a less expensive alternative to stainless screws because of their resistance to corrosion and high rate of conductivity. Aluminum machine screws should be fastened with aluminum nuts to minimize the chance of galvanic corrosion.
Material	AISI 1006 - 1022 or equivalent steel.	SAE 18-8 stainless steel	316 stainless steel	410 stainless steel	2024-T4 alloy
Hardness	Rockwell B70 - B100.	Rockwell B85 - B95 (approximate)*	Rockwell B85 - B95 (approximate)*	Rockwell C34 (approximate)	-
Tensile Strength	60,000 psi. minimum.	80,000 psi. minimum (100,000 psi after cold working)*	85,000 - 140,000 psi.	180,000 psi.	62,000 psi. minimum
	Steel machine screws which have a nominal diameter smaller than #4 are not subject to tensile testing. No. 4 and No. 5 machine screws which are shorter than 1/2" are not subject to tensile testing. Steel machine screws of diameters No. 6 to 1/2" inclusive, which are shorter than either 1/2" or 3D (where D is the nominal screw size in inches) are not subject to tensile testing. Such steel machine screws of a size to be tested shall meet the tensile load requirements listed above. Tensile strength values for stainless screws are offered as approximations only; there is no single standard for the performance requirements of stainless machine screws.				
Plating	See Appendix-A for information on the plating of steel machine screws	Stainless machine screws are usually supplied plain or with a black oxide finish.			Aluminum machine screws are usually supplied without any additional finish.

*Hardness and tensile strength standards are offered as guides only for stainless machine screws. There is currently no national standard for these performance requirements for stainless machine screws.