



METRIC - JIS-B1187 PHILLIPS HEX SPLIT WASHER / FLAT WASHER SEMS												JIS-B1187 & JIS-B1180	
Screw Dimensions							Flat Washer				Split Washer		Phillips Drive Size
Nominal Size	Thread Pitch	A		H		M	D		W		D1	B(min) x T (min)	
		Head Diameter Across the Flats		Head Height		Recess Diam	Outside Diameter		Thickness		Outside Diameter		
		Max	Min	Max	Min	Ref	Max	Min	Max	Min	Max		
M3	0.5	5.5	5.32	2.125	1.875	3.6	7	6.65	0.55	0.45	5.5	1.1 x 0.7	2
Tolerance on Length		Nominal Screw Size		Nominal Screw Lengths									
				Up to 10 mm	Over 10 mm to 20 mm, incl.	Over 20 mm to 40 mm, incl.	Over 40 mm						
		M3 to M4		-0.6	-0.6	-0.8	-1						
		M5 to M8		-0.8	-1	-1	-1						

Description	A cross-recessed, hex head machine screw with two free-spinning, captive washers. Directly below the hex head is a helical split lockwasher; beneath the split lockwasher is a round flat washer.		
Applications/Advantages	This double washer sems screw is typically a more economical alternative to a patented conical washer sems screw. The phillips hex variety is preferred in the electronics industry where initial installation is performed with a nut driver, but the finished product has minimal clearance requiring a phillips driver to loosen the screw.		
Component	<i>Screw</i>	<i>Split Lockwasher</i>	<i>Flat Washer</i>
Material	Class 4.8 carbon steel	Split lockwashers shall be made from a carbon steel that conforms to the following chemical composition requirements: Carbon: 0.54 - 0.81%; Silicon: 0.15 - 0.35%; Manganese: 0.30 - 0.90%; Phosphorus: 0.030% max.; Sulfur: 0.030% max.	Plain washers shall be made from a carbon steel that conforms to the following chemical composition requirements: Carbon: 0.12% max.; Manganese: 0.50% max.; Phosphorus: 0.040% max.; Sulfur: 0.045% max.
Hardness	Rockwell B 71 minimum	Rockwell C 42 - 50	Rockwell B 60 maximum
Plating	Sems are available in zinc yellow and clear zinc finishes, and baked after plating.		