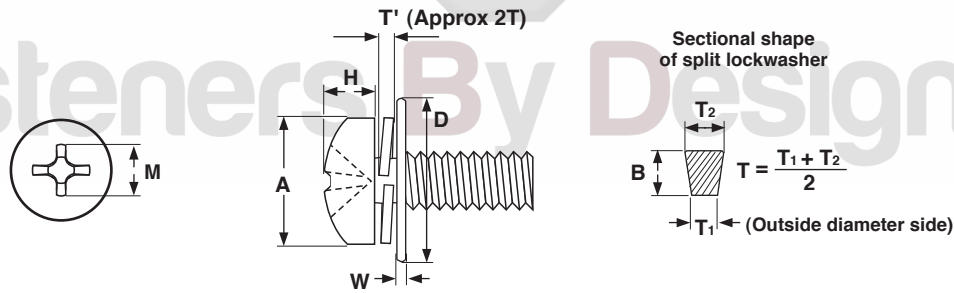


METRIC FASTENERS

SEMS JIS B1188 Small Pan Phillips: STAINLESS Split Lockwasher/Flat Washer

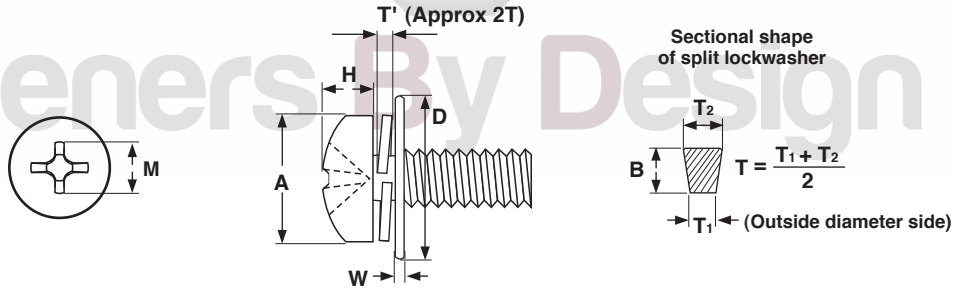


| METRIC - JIS B1188 PHILLIPS SMALL PAN SPLIT WASHER / FLAT WASHER SEMS | | | | | | | | | | | | | | JIS B1188 | |
|---|--------------|---------------|-----|-------------|------|-------------|------------------|------|-----------|------|------------------|------------------|---|---------------------|--|
| 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 | | Head Height | | Recess Diam | Outside Diameter | | Thickness | | Outside Diameter | | | | |
| | | Max | Min | Max | Min | Ref | Max | Min | Max | Min | Max | | | | |
| M2 | 0.4 | 3.5 | 3.1 | 1.4 | 1.2 | 2.2 | 4.3 | 4 | 0.34 | 0.26 | 4 | 0.9 x 0.5 | | | |
| | | | | | | | 5 | 4.7 | 0.34 | 0.26 | | | | | |
| M2.5 | 0.45 | 4.5 | 4.1 | 1.8 | 1.6 | 2.6 | 5 | 4.7 | 0.55 | 0.45 | 4.8 | 1 x 0.6 | | | |
| | | | | | | | 6.5 | 6.15 | 0.55 | 0.45 | | | | | |
| M3 | 0.5 | 5.5 | 5 | 2.15 | 1.85 | 3.6 | 6 | 5.7 | 0.55 | 0.45 | 5.5 | 1.1 x 0.7 | | | |
| | | | | | | | 7 | 6.65 | 0.55 | 0.45 | | | | | |
| | | | | | | | 8 | 7.65 | 0.9 | 0.7 | | | | | |
| M4 | 0.7 | 7 | 6.5 | 2.75 | 2.45 | 4.2 | 9 | 8.65 | 0.9 | 0.7 | 7 | 1.4 x 1 | 2 | | |
| M5 | 0.8 | 9 | 8.4 | 3.45 | 3.15 | 4.9 | 10 | 9.65 | 1.1 | 0.9 | 8.5 | 1.7 x 1.3 | 2 | | |
| M6 | 1.0 | 10.5 | 9.8 | 4.1 | 3.7 | 6.3 | 12.5 | 12.1 | 1.75 | 1.45 | 11.5 | 2.7 x 1.5 | 3 | | |

| 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 |
| | M2.5 | -0.4 | -0.6 | -0.8 | - |
| | M3 to M4 | -0.6 | -0.6 | -0.8 | -1 |
| M5 to M8 | -0.8 | -1 | -1 | -1 | |

| | | | |
|---------------------------------|--|-------------------------|--------------------|
| Description | A cross-recessed, pan head machine screw with two free-spinning, captive washers. Directly below the pan head is a helical split lockwasher; beneath the split lockwasher is a round flat washer. The diameter and height of the pan head are between 5% and 20% smaller than a standard pan head. | | |
| Applications/ Advantages | This double washer sems screw is typically a more economical alternative to a patented conical washer sems screw. They are commonly used in the electronics industry. The Stainless Sems screw is used in applications where resistance to corrosion is a primary concern. | | |
| Component | <i>Screw</i> | <i>Split Lockwasher</i> | <i>Flat Washer</i> |
| Material | A2 Stainless | 304 Stainless | 302 Stainless |
| Plating | Stainless Sems are usually provided without any additional finish.. | | |

JIS B1188 Small Pan Phillips:
STEEL Split Lockwasher/Flat Washer



| METRIC - JIS B1188 PHILLIPS SMALL PAN SPLIT WASHER / FLAT WASHER SEMS | | | | | | | | | | | | | | JIS B1188 |
|---|--------------|---------------|-----|-------------|------|-------------|------------------|------|-----------|------|------------------|------------------|---------------------|-----------|
| 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 | | Head Height | | Recess Diam | Outside Diameter | | Thickness | | Outside Diameter | | | |
| | | Max | Min | Max | Min | Ref | Max | Min | Max | Min | Max | | | |
| M2 | 0.4 | 3.5 | 3.1 | 1.4 | 1.2 | 2.2 | 5 | 4.7 | 0.34 | 0.26 | 4 | 0.9 x 0.5 | 1 | |
| M2.5 | 0.45 | 4.5 | 4.1 | 1.8 | 1.6 | 2.6 | 6.5 | 6.15 | 0.55 | 0.45 | 4.8 | 1 x 0.6 | 1 | |
| M3 | 0.5 | 5.5 | 5 | 2.15 | 1.85 | 3.6 | 7 | 6.65 | 0.55 | 0.45 | 5.5 | 1.1 x 0.7 | 2 | |
| | | | | | | | 6 | 5.7 | 0.55 | 0.45 | | | | |
| M4 | 0.7 | 7 | 6.5 | 2.75 | 2.45 | 4.2 | 10 | 9.65 | 1.1 | 0.9 | 7 | 1.4 x 1 | 2 | |
| | | | | | | | 9 | 8.65 | 0.9 | 0.7 | | | | |
| | | | | | | | 8 | 7.65 | 0.9 | 0.7 | | | | |
| M5 | 0.8 | 9 | 8.4 | 3.45 | 3.15 | 4.9 | 10 | 9.65 | 1.1 | 0.9 | 8.5 | 1.7 x 1.3 | 2 | |
| M6 | 1.0 | 10.5 | 9.8 | 4.1 | 3.7 | 6.3 | 12.5 | 12.1 | 1.75 | 1.45 | 11.5 | 2.7 x 1.5 | 3 | |

| Tolerance on Length | Nominal Screw Size | Nominal Screw Lengths | | | | |
|---------------------|--------------------|-----------------------|--------------------|----------------------------|----------------------------|------------|
| | | Up to 4mm | Over 4 mm to 10 mm | Over 10 mm to 20 mm, incl. | Over 20 mm to 40 mm, incl. | Over 40 mm |
| | M2 & M2.5 | -0.3 | -0.4 | -0.6 | -0.8 | - |
| M3 to M4.5 | - | -0.6 | -0.6 | -0.8 | -1 | |
| M5 to M8 | - | -0.8 | -1 | -1 | -1 | |

| | | | |
|--------------------------------|--|---|---|
| Description | A cross-recessed, pan head machine screw with two free-spinning, captive washers. Directly below the pan head is a helical split lockwasher; beneath the split lockwasher is a round flat washer. The diameter and height of the pan head are between 5% and 20% smaller than a standard pan head. | | |
| Applications/Advantages | This double washer sems screw is typically a more economical alternative to a patented conical washer sems screw. They are commonly used in the electronics industry. | | |
| 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 |
| Tensile Strength | 420 N/mm ² (applies to screws with a minimum nominal length of 2.5d (where d is the nominal diameter of the screw)) | | |
| Plating | Sems are available in zinc yellow and clear zinc finishes, and baked after plating. | | |