Kamatics Wear Strip Selection Guide

Kamatics offers multiple types of Wear Strips with each providing unique characteristics to prevent metal-to-metal wear and fretting damage from sliding or rubbing surfaces. Kamatics Wear Strips are designed to be bonded onto surfaces as a protective barrier, and are available in standard sizes or custom cut profiles.

DESCRIPTION:

KAron V Wear Strip consists of standard KAron Grade V self-lubricating bearing material applied on to a thin fiberglass substrate. The KAron V bearing material provides a low sliding friction for wear resistance. KAron V Wear Strip comes with a removable woven nylon peel-ply on the back of the fiberglass to protect the bonding surface from dirt and debris.

P54 Wear Strip is a thin sheet self-lubricating bearing material comprised of a resilient thermoset resin matrix with synthetic fibers in a laminate construction for strength and durability. P54 Wear Strip comes with a removable woven nylon peel-ply on one surface to protect the bonding surface from dirt and debris.

Ultra-Light Duty ST Wear Strip is a low friction, self-lubricating, wear resistant material made of PTFE and other synthetic fibers with a thermoset resin, and a thin cross section of 0.011” (0.28mm). ULDST comes with a removable protective film applied to the bonding surface of the material.

APPLICATION INFORMATION:

KAron V Wear Strip is designed for surfaces that are subjected to light to medium duty rubbing pressure, or as a fretting resistant barrier. The mating sliding material should be smooth, hard, and a corrosion resistant surface. For optimal KAron V liner performance, the sliding component should have a minimum surface roughness of 16 RMS (0.4 µm), and be in full contact with the KAron V Wear Strip to avoid line or point loads.

P54 Wear Strip is designed for applications where standard off-the-shelf wear resistant plastics fall short in performance. P54 Wear Strip can be used where impact resistance is required, under edge loading, in heavy abrasion applications, and where gross amounts of contaminants can be expected. P54 Wear Strip can operate against rough surfaces and against soft materials such as aluminum or composites.

Ultra-Light Duty ST Wear Strip has a unique thin cross section, which makes it ideal for aerospace surface applications that require an extremely low profile or high flexibility. The mating sliding material should be smooth, hard, and corrosion resistant surface. For improved Ultra-Light Duty ST Wear Strip performance, the sliding component should have a minimum surface roughness of 16 RMS (0.4 µm), and be in full contact with the Ultra-Light Duty Wear Strip to avoid line or point loads.

Kamatics Wear Strips are flexible and can conform to the contour of a mounting surface – please consult Kamatics Engineering for application design recommendations.
## PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th>KAr on V Wear Strip</th>
<th>P54 Wear Strip</th>
<th>Ultra-Light Duty ST Wear Strip</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coefficient of Friction</strong></td>
<td>0.04 – 0.08</td>
<td>0.06 – 0.08</td>
<td>0.04 – 0.10</td>
</tr>
<tr>
<td><strong>Max Static Load</strong></td>
<td>30,000 psi (207 MPa)</td>
<td>50,000 psi (345 MPa)</td>
<td>20,000 psi (138 MPa)</td>
</tr>
<tr>
<td><strong>Max Dynamic Load</strong></td>
<td>10,000 psi (69 MPa)</td>
<td>20,000 psi (138 MPa)</td>
<td>10,000 psi (69 MPa)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-100°F to 250°F (-73°C to 120°C)</td>
<td>-65°F to 250°F (-54°C to 120°C)</td>
<td>-65°F to 250°F (-54°C to 120°C)</td>
</tr>
</tbody>
</table>

Table 1

Above reported values based on wear strip only. Physical properties in service will be largely dependent upon operating conditions, the mating surface, the adhesive bond integrity, the substrate material, and surface preparation of the substrate.

### FLUID COMPATIBILITY:


### ENVIRONMENTAL TESTING:

Kamatics KAr on V, P54 and ULDST wear strip materials performed very well in independent laboratory testing. The methods used for the testing were MIL-STD-810F Environmental Engineering Considerations and Telecordia General Requirements. When subjected to tests for High and Low Temperatures, Solar Radiation, Blowing Rain, Fungus, Humidity, Salt Fog, Blowing Dust, Functional Shock, and Ozone Resistance, the Kamatics wear strip material test samples showed no signs of damage or degradation.
ORDERING INFORMATION:

Standard Kamatics Karon V Wear Strip and P54 Wear Strip are available in flat sheets up to 12" x 48" (305mm x 1219 mm). Kamatics Ultra-Light Duty ST Wear Strip is available in flat sheets up to 12" x 24" (305mm x 609mm). Kamatics Wear Strips are also available in cut strips as narrow as 1/2" wide up to the maximum sizes. For washers of various sizes, and custom cut shapes and profiles, contact Kamatics for ordering information. Wear Strip bearing materials are available in the following grades:

<table>
<thead>
<tr>
<th>Wear Strip Type</th>
<th>Material Letter</th>
<th>Wear Strip Grade</th>
<th>Product Description</th>
<th>Nominal Thickness, inches (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karon V Wear Strip</td>
<td>S</td>
<td>100</td>
<td>Light Duty</td>
<td>0.018 (0.46)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200</td>
<td>Medium Duty</td>
<td>0.036 (0.91)</td>
</tr>
<tr>
<td>P54 Wear Strip</td>
<td>P</td>
<td>020</td>
<td>Light Duty</td>
<td>0.020 (0.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>032</td>
<td>Medium Duty</td>
<td>0.032 (0.8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060</td>
<td>Heavy Duty</td>
<td>0.060 (1.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120</td>
<td>Plate Stock</td>
<td>0.120 (3.0)</td>
</tr>
<tr>
<td>Ultra-Light Duty ST Wear</td>
<td>U</td>
<td>010</td>
<td>Ultra-Light Duty</td>
<td>0.011 (0.28)</td>
</tr>
<tr>
<td>Strip</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2

STANDARD PART NUMBERING SYSTEM:

For standard cut strip dimension parts, Kamatics uses the following part numbering system:

<table>
<thead>
<tr>
<th>KW</th>
<th>______</th>
<th>______</th>
<th>______</th>
<th>______</th>
<th>______</th>
<th>______</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>W</td>
<td>a</td>
<td>m</td>
<td>a</td>
<td>t</td>
<td>i</td>
</tr>
</tbody>
</table>

Material Letter =  
S for Karon V Wear Strip
P for P54 Wear Strip
U for Ultra-Light Duty ST Wear Strip

Unit of Measure =  
(Blank) for English units
M for Metric units

Wear Strip Grade = See Table 2 above
Optional Pull Tab =  
(Blank) for no Pull Tab
T for optional Pull Tab – Karon V Wear Strip ONLY – 3/8” Pull Tab for easy removal of peel-ply backing

Width =  
English units: width in 1/8” increments up to 12”, example 024 = 3” wide
Metric units: width in 5mm increments up to 300mm, example 020 = 100mm wide

Length =  
English units: length in 1/4” increments up to 48”, example 096 = 24” long
Metric units: length in 10mm increments up to 1200mm, example 050 = 500mm long

Part Number Examples:
KWS100T-016-192 = Karon V Light Duty Wear Strip, 2" x 48", with pull tab
KWSM200-007-095 = Karon V Medium Duty Wear Strip, 35mm x 950mm, no pull tab
KWP060-096-192 = P54 Heavy Duty Wear Strip, 12" x 48"
KWU010-096-096 = Ultra-Light Duty ST Wear Strip, 12" x 24"
BONDING PROCEDURE:

KAron V Wear Strip comes with a removable woven nylon peel-ply on the back of the fiberglass to protect the bonding surface from dirt and debris. When the pull tab (T) option is called out in the part number, a 3/8" (9.5mm) long breakaway tab will be provided for easy removal of the peel ply backing. With the peel-ply removed and the back surface exposed, the KAron V Wear Strip is prepared and ready for bonding on to a suitable surface.

P54 Wear Strip comes with a removable woven nylon peel-ply on one surface to protect the bonding surface from dirt and debris. With the peel-ply removed and the back surface exposed, the P54 Wear Strip is prepared and ready for bonding on to a suitable surface.

Ultra-Light Duty ST Wear Strip comes with a removable protective film applied to the bonding surface of the material. The running surface of the ULDST has a dark brown color, while the bonding surface has a lighter brown/olive green color (when the white protective backing is removed). To ensure a proper bond, remove the backing and clean the newly exposed surface with an appropriate solvent (e.g. isopropyl alcohol) immediately prior to bonding. No roughening of the ULDST bonding surface is required.

Standard room-temperature curing structural epoxy adhesives are recommended for bonding Kamatics Wear Strip material, such as Hysol EA9309 (Henkel Loctite Aerospace), Hysol EA9396 (Henkel Loctite Aerospace), Hysol EA9460 (Henkel Loctite Industrial), Scotchweld 460 (3M Co.), and Araldite 2011 (Huntsman). Follow the manufacturer's suggested procedures for maximum adhesion to the mating surface. The mating adherent surface should be roughened to a finish of greater than 63 RMS (1.6 µm), and be cleaned with an appropriate solvent (e.g. isopropyl alcohol) immediately prior to bonding.