



**PennEngineering**  
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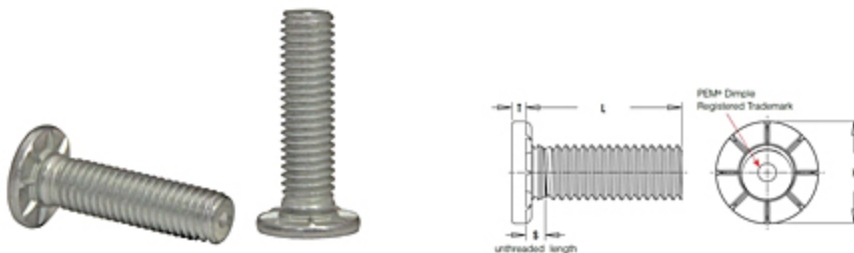
**Website:** [www.pemnet.com](http://www.pemnet.com)

**Part # HFLH-M5-50ZI, Type HFLH™ Hard Panel Studs - Metric**

- Installs into thinner, harder, high strength steel materials (high strength steel sheets up to 700 MPa maximum ultimate tensile)
- Allows overall weight reduction for all vehicles
- Provides lower installed cost

**Compare to other thin sheet fastening devices:**

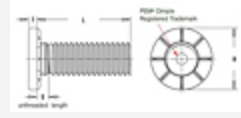
- Addresses environmental concerns
- Lighter weight
- Close to edge of panel mounting
- No embossing required
- Hardened stud material provides stronger thread strength
- Can be installed automatically using press or in-die technology



Specifications

<b>Thread Size x Pitch</b>	M5 x 0.8
<b>Thread Code</b>	M5
<b>Length Code</b>	50
<b>Min. Sheet Thickness</b>	1 mm

<b>Hole Size in Sheet + 0.13</b>	5 mm
<b>L - Length ± 0.4</b>	50 mm
<b>H ± 0.25</b>	9.6 mm
<b>S Max.<sup>1</sup></b>	2.6 mm
<b>T Max.</b>	1.35 mm
<b>Max. Hole in Attached Parts</b>	7.3 mm
<b>Min. Dist. Hole C/L to Edge</b>	10 mm
<b>Tensile strength</b>	900 MPa
<b>For Use in Sheet Hardness<sup>2</sup></b>	HRB 96 / HB 216 or Less
<b>Thread Specification</b>	External, ASME B1.13M, 6g B1.1, 2A / ASME
<b>Fastener Material</b>	Heat-Treated Alloy Steel
<b>Standard Finish</b>	Zinc plated per ASTM B633, SC1 (5µm), Type III, colorless
<b>CAD Supplier</b>	PennEngineering® (PEM®)



<sup>1</sup> Threads are gageable to within 2 pitches of the "S" Max. dimension. A class 3B/5H maximum material commercial nut shall pass up to the "S" Max. dimension.

<sup>2</sup> HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell