



## PennEngineering

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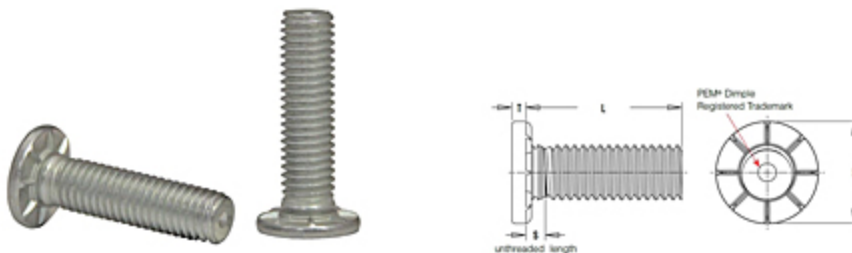
**Website:** [www.pemnet.com](http://www.pemnet.com)

## Part # HFLH-0420-12ZI, Type HFLH™ Hard Panel Studs - Unified

- 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

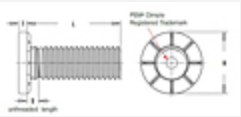
### Compare to other thin sheet fastening devices:

- 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

|             |                  |
|-------------|------------------|
| Thread Size | .250-20 (1/4-20) |
| Thread Code | 0420             |
| Length Code | 12               |

|                                              |                                                                                     |
|----------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Min. Sheet Thickness</b>                  | .040 in                                                                             |
| <b>Hole Size in Sheet + .005 - .000</b>      | .250 in                                                                             |
| <b>L - Length ± .015</b>                     | .750 in                                                                             |
|                                              |  |
| <b>H ± .01</b>                               | .462 in                                                                             |
| <b>S Max.<sup>1</sup></b>                    | .118 in                                                                             |
| <b>T Max.</b>                                | .060 in                                                                             |
| <b>Max. Hole in Attached Parts</b>           | .340 in                                                                             |
| <b>Min. Dist. Hole C/L to Edge</b>           | .470 in                                                                             |
| <b>Tensile strength</b>                      | 120 ksi                                                                             |
| <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<br>B1.1, 2A / ASME                                        |
| <b>Fastener Material</b>                     | Heat-Treated Alloy Steel                                                            |
| <b>Standard Finish</b>                       | Zinc plated per SC1 (5µm), Type<br>ASTM B633, 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