



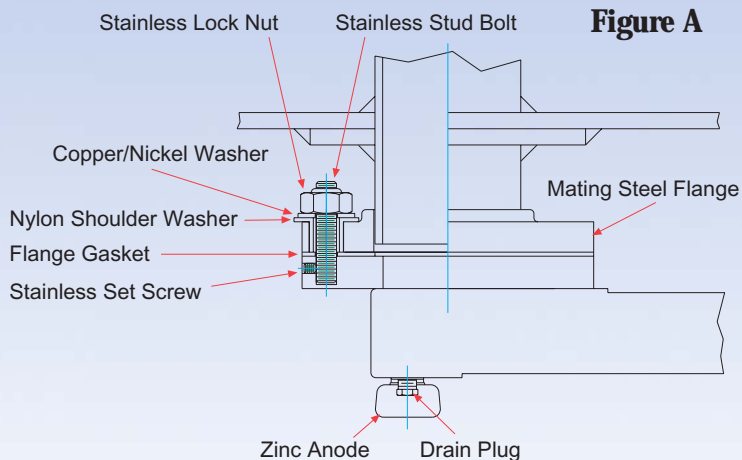
# Z-Series GRIDCOOLER® Keel Cooler

The Z-Series GRIDCOOLER®, Keel Cooler was designed for installations where mounting hardware cannot be easily accessed from the interior of the hull. This may include double hulled vessels, passenger vessels, etc. The Z-Series eliminates the need for a cofferdam by locating the flange connection externally on the hull of the vessel.

Please note that class regulations may require valves on the interior piping.

The Z-Series GRIDCOOLER unit replaces the typical through-hull nozzle mounting/connecting means with a copper-nickel flange, fused to the header. This flange utilizes a plurality of stainless steel mounting studs locked in place by set screws

to allow replacement in the event of damage. The unit is also supplied with mating ASTM steel flanges and flange mounting hardware. The supplied hardware illustrated in **Figure A** includes nylon shoulder washers combined with neoprene gaskets to allow isolation from the vessel's hull. Special extra heavy lock nuts and washers are provided for a secure installation.



The mating steel flange is welded to a pipe stub extending from the hull of the vessel. This pipe stub must be long enough to allow the flange lock nuts to be tightened. Alignment of the flanges on the hull is critical. We suggest that a template be made of the cooler to aid with the proper alignment of the flanges.

The torque specification for the flange nuts is as follows:

- .625" diameter stud = 35 – 40 FT LBS.
- .500" diameter stud = 20 – 25 FT LBS.

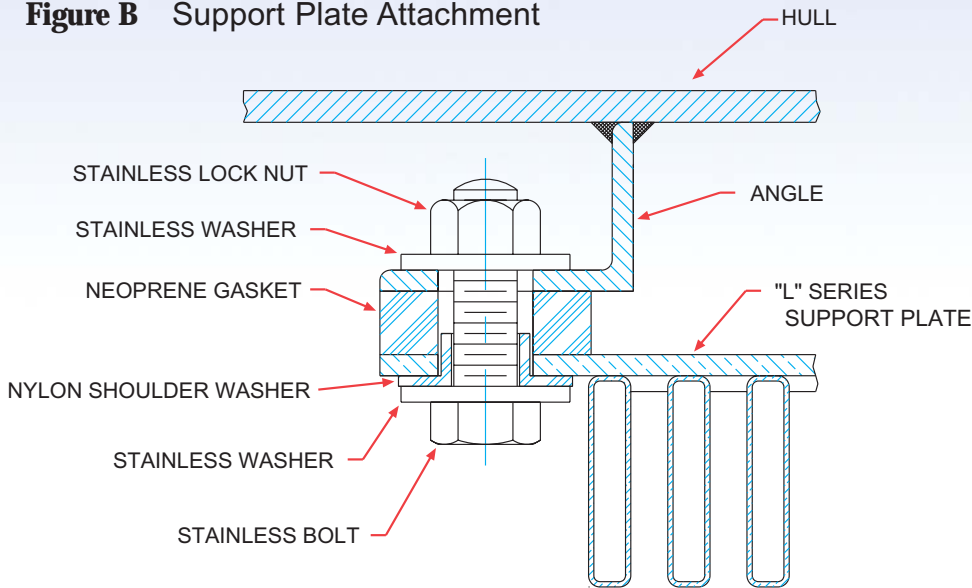
R.W. Fernstrum & Company • Phone: 906.863.5553 • Fax: 906.863.5634 • Web Site: [www.fernstrum.com](http://www.fernstrum.com)





The intermediate support plates do not require a through-hull penetration. These support plates extend beyond the sides of the keel cooler allowing the customer to weld a short piece of angle to the hull as a securing means. The customer can then supply appropriate fasteners for the support plates. **Figure B** illustrates the nylon shoulder washer and neoprene gasket which allow isolation from the hull.

**Figure B** Support Plate Attachment



R.W. Fernstrum & Company • Phone: 906.863.5553 • Fax: 906.863.5634 • Web Site: [www.fernstrum.com](http://www.fernstrum.com)

