DARRAH ELECTRIC COMPANY
5914 MERRILL AVENUE ▪ CLEVELAND, OHIO 44102 ▪ TEL: 216-631-0912 ▪ FAX: 216-631-0440
Power Conversion Solutions - Distribution - D.C. Power Supplies

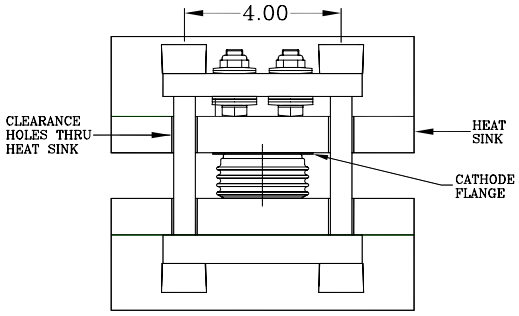
IB 1153

Selection of
Press Pack Power Semiconductor Clamps

The five major considerations are:

1) Before you start you must be aware of the mechanical dimensions, height and width, and required mounting force for the semiconductor that you are mounting.

   The clamp must straddle the maximum width of the semiconductor device, typically the cathode flange of a Thyristor or diode. As an example, if the maximum flange dimension is 3.25", you would want to use a clamp with either a 4" or larger bolt centers. The hole diameter for the clamp, through the heat sink should be large enough that the clamp bolts can easily fit through the heat sink.

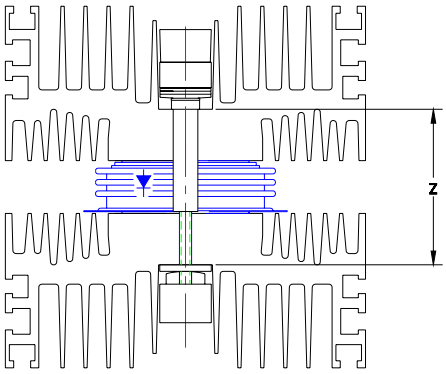


2) The manufacturer of the semiconductor device always lists a minimum and a maximum clamping force. Pick the median and order your clamp accordingly. A pre-calibrated clamp with built in force indicator eliminates error.

   Each Darrah clamp is labeled with calibrated mounting force. For closer accuracy, clamps are typically calibrated in kilo Newtons (kN). Conversion factor for pounds to kilo Newtons (kN) and vice versa is:

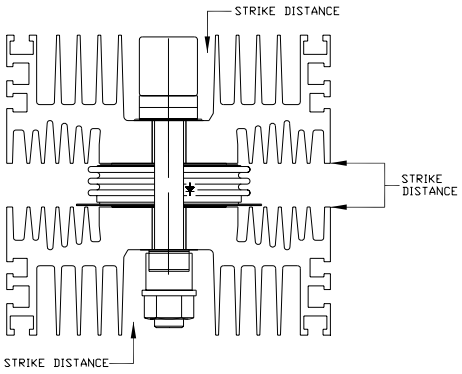
POUNDS (LBS) X .004448 = KILO NEWTONS (KN)
KILO NEWTONS (KN) X 224.8 = POUNDS (LBS)

3) The clamping distance, sometimes referred to as “Z”, determines the length of the clamp bolts. The “Z” distance is the total length through the top heat sink, the thickness of the semiconductor device, and finally through the bottom heat sink.



4) One thing that often is overlooked is the voltage rating of the clamp. The clamp must isolate the applied voltage to the semiconductor device. Creapage and strike distances must be considered from electric potentials. Most clamps are only isolated on one end. The spring side, or often the bolts, has electric potential. Check to see if your clamp has a tested voltage rating. If not, simple high voltage tests can be performed. Darrah does offer a line of double insulated clamps, isolating all components of the clamp from electric potentials.

5) Finally the clamp has to fit mechanically. Often times the clamp is mounted in the channels or webbing of heat sinks. If it doesn’t fit the area it can sometimes be machined wider. This is often an area the strike distances must be especially watched.



For additional information, request the following:
IB 1148 – Press Pack Power Semiconductor Clamps Installation Instructions
PB 8002 – Power Semiconductor Clamps