Visual Index

Introduction

The Parker Metric Clamp system is designed for restraining tube, pipe and hose assemblies against unwanted, and potentially harmful effects of mechanical shock and vibration forces that are common in fluid power systems.

The clamping system is the most commonly overlooked aspect of fluid power system design. Failure to properly restrain the fluid conducting system can result in leakage, downtime and system malfunction, as well as significantly reduced life of tube, pipe and hose assemblies. With the Parker Metric Clamp system, the risk of problems resulting from mechanical shock and vibration can be significantly reduced.

Design and Construction

Designed to meet the basic envelope dimensions of DIN 3015, Part 1, the plastic clamp halves are interchangeable with the ParKlamp system. The primary difference between these two clamping systems is the utilization of inch thread hardware in the Parklamp system, while the Metric Clamp system utilizes metric hardware.

For convenience, the Metric Clamp system is divided into three different series, Standard, Heavy and Twin. Each series has corresponding components, physical dimensions and mechanical properties. Within each series, there are a number of groups, each with specific envelope dimensions. Components from different series and/or groups can not be intermixed. However, the standard and twin series can be mounted on the same mounted rail.

How It Works

The Metric Clamp system has two primary methods for mounting: weld plates and mounting rails. Clamps may be mounted to secure a single layer of tube or stacked for securing multiple layers.

Clamps should be mounted to a rigid structure for optimum performance. Clamping tube, pipe or hose assemblies together without mounting them to a rigid structure, often called “floating clamps,” does not provide adequate support.

Proper design of a clamping system requires that the clamps be positioned appropriately on the tube, pipe or hose assemblies. See the Assembly and Installation section of the catalog for more information on clamp location and spacing.

Weld Plate Mounting (Fig. Q1)

The weld plate mounting system allows the user to attach a single clamp assembly to a structure of similar material (steel to steel, etc) by welding the components together. Once the weld plate is attached to a structure, one clamp half can be placed onto the weld plate, followed by the tube, pipe or hose assembly. Next, the second plastic clamp half can be placed on the tube, pipe or hose assembly, followed by the cover plate. To complete the assembly, the Hex Head attachment bolts are inserted into the assembly and tightened.

Assembly and Installation

Please refer to Section T for the assembly and installation instructions for Metric Clamps.

Mounting Rail Mounting (Fig. Q2)

Use of a mounting rail is another way to assemble the clamping system components onto a support structure. Using a mounting rail allows multiple clamps to be mounted side-by-side for restraining a group of tube, pipe, or hose assemblies. The mounting rail also provides the ability to move the location of the clamps in one direction for easier alignment. The rail can be attached to a support structure by welding or bolting. Once the mounting rail is in place, rail nuts can be slid into the rail. The first clamp half, followed by the tube, pipe or hose assembly, can then be installed over the corresponding rail nuts. After this, the second clamp half, the cover plate and the hex head attachment bolts can be installed to complete the assembly.

Fig. Q1 – Weld Plate Assembly

Fig. Q2 – Mounting Rail Assembly

Stacking (Fig. Q3)

A primary feature of the Metric Clamp system is its ability to accommodate stacking of a series of clamps to various heights, thus requiring a smaller footprint for mounting. To do this, simply use the stacking bolts to mount the first clamp assembly, then install a stacking plate over the first clamp and stacking bolts. The second clamp assembly can then be placed over the first clamp assembly. Complete the mounting by assembling a cover plate and using the hex head bolts to tighten the upper clamp assembly. **Note: When stacking, the clamps must be from the same series and group.**

Fig. Q3 – Stacked Assembly