

# Pipe Clamp Selection

Behringer's pipe clamps are available with many different mounting configurations and arrangements. In choosing a pipe clamp, there are five required pieces of information: series, size, clamp pair material, hardware material and mounting/hardware configuration.

## Series Selection

In order to select the proper clamp, the first thing that must be determined is the series of clamp to be used. Refer to pages 4-5 on Series Specifications to see what clamp series are available, as well as the technical characteristics of those series. The most important factors to be considered are the operating pressure of the line to be secured, the weight being supported, and the dynamic load. Other considerations include size, environment, and application. For example, a 1 in. pipe for a hydraulic system operating at 2,000 psi would typically require the use of the standard series, but the heavy series may be selected if it will be required to support the weight of a large filter or other system component. Maximum weight loads and shearing forces can be found in the Technical Appendix (pg 32). Also, the heavy series might be selected rather than the standard series if the line is on a piece of mining or mobile equipment that may see a very high amount of impact with other equipment or materials such as stones and metals. In Fig. 1 below, you can see the suggested operating pressures by series. These suggested values take into consideration the shock and vibration that a typical hydraulic system operating at these pressures can deliver.

**Fig. 1: General Pressure Guidelines by Series**

Series	Suggested Operating Pressure
Standard	up to 2000 psi
Heavy	5000 psi for single heavy/10,000 psi for double
Twin	up to 1500 psi
Heavy 4	5000 psi for single heavy/10,000 psi for double

## Size

The next important factor in the selection of the pipe clamp is the size of the line to be secured. Behringer clamps use a modular group size that consists of multiple OD sizes being available within the same group. Clamps are listed as pipe or tube sizes. The difference is in the standard measurements used to rate pipe and tubing sizes. Pipe is rated by the inside diameter, and will have a larger outside diameter because of the wall thickness. For example, a 1 in. pipe has an OD of 1.315. This is a standard pipe OD size and is consistent of all hydraulic pipe, regardless of schedule. Tubing, on the other hand, is rated by the outside diameter. Therefore, a 1 in. tube will have an OD of 1.00 in. This is important in determining the size of the pipe clamp that will be selected. Also, the size may determine the series of clamp selected. For example, in a 6 in. pipe size with a low pressure line operating at 1,500 psi the Heavy Series must be used as it's not available in the Standard Series.

## Clamp Pair Material

The clamp pair material is the next thing that should be selected. Behringer's clamp pairs are offered in different materials: Polypropylene (PP), Santoprene (SP), Aluminum (AL), HDPE (NN) and High Temperature Cast Nylon (HT). The single most important determining factor of clamp pair material is operating temperature. The temperature ratings and other important specifications can be found in the Technical Appendix (pg 31). Some materials are not available in all sizes or all series. Refer to the specific clamp pair selection charts from each series to see what is available in the required size. Other considerations for materials are compatibility with the environment and for aesthetic reasons.

## Hardware Material

Once you have determined the series of pipe clamp and the size that is required, the next step is to determine the hardware materials that you will require. In the series specification pages (pg 4 - 5), you will see that each series has a standard hardware material type. See Fig. 2 for standard hardware choices. The standard hardware is either plain carbon steel or zinc plated steel. All Behringer clamps that are zinc plated use a trivalent blue zinc plating, which is more environmentally friendly than typical hexavalent zinc plating, and is RoHS compliant. In addition to the standard hardware choices, Behringer offers stainless steel in 2 grades from stock. AISI 304 Stainless Steel (A2 - 1.4301/1.4305) is used in applications where stainless steel is required. This may be in an outside environment, because of chemical compatibility reasons, or because of requirements from the FDA or other regulatory committee. AISI 316 Ti Stainless Steel (A4 - 1.4401/1.4571) is a high grade stainless steel. The 316 Stainless is used in applications where it will come in contact with salt water or air with a high salt concentration such as offshore or marine applications.

**Fig. 2: Standard Hardware Material by Series**

Series	Code	Material
Standard	Z	Zinc Plated Steel
Heavy	C	Plain Carbon Steel
Twin	Z	Zinc Plated Steel
Heavy 4	C	Plain Carbon Steel