

# METAL FERRULES/ TUBE INSERTS

Metal ferrules, also referred to as Metal Tube Inserts are inserted into the end of heat exchanger tube. They are used for a variety of reasons, including acting as a sacrificial element consuming inlet-end corrosion, restriction to drive the fluid to the ID of the tube in a falling-film exchanger or to transfer extremely high heat down past the tubesheet itself to the exchanger tubes.

Metal is durable in a moderate-temperature - mildly abrasive environment, where ceramic ferrules would be overkill. The OD of the metal ferrule can be wrapped with ceramic fiber to create insulation and to avoid metal to metal contact.

The ferrule can be formed with inlet and outlet tapers, as required. Other features, such as flanges and stop pins can be welded in place.

## Material Options

Most standard metal grades are available, from low carbon steel, 300 series stainless steels, Hastalloy® and most Inconel® Alloys.

## Benefits

Ceramic Product China Inc. metal ferrules can prevent the typical tube-end corrosion/ erosion, minimize stress corrosion cracking, localized pitting and weakened tube to sheet joints that can occur without a ferrule in place.

## Features

- Tapered inlet and/ or outlet
- Precision engineered design
- Flares, flanges, slots, holes, or stop pins, as required
- Ceramic fiber wrap available
- Can be combined with a ceramic head to improve tubesheet protection

