

Corrosion Allowance

Armstrong standard heat exchangers are designed for the commercial heating industry where process fluids have been treated with corrosion inhibitors. Various materials options are provided for the designer's choice should any corrosion be anticipated. Applications that need a corrosion allowance on the pressure retaining parts require a specially designed heat exchanger and are analyzed on an individual basis.

A corrosion allowance is applied to all components touching the fluid except the tubes. The tube material is chosen so that it reacts little or not at all with the fluids. Many material combinations have been used to resist corrosion. Materials may be coated or clad. Some may be combined with others to provide sacrificial protection. An example of this is a threaded plug of magnesium that is inserted into the head to protect the tube side materials. The disposable plug "sacrifices" itself and is corroded instead of the pressure vessel parts.

Heat exchangers designed with a corrosion allowance are typically designed to TEMA Class R, C or B. The corrosion allowance specified is 1/16" for classes C and B and 1/8" for class R. For applications of this type, please contact your nearest Armstrong representative for special design considerations.

The type "W" u-tube series includes a corrosion allowance of approximately 1/16" on all carbon steel components of the shell only. Although this corrosion allowance is not included in the ASME Code calculations presented to the authorized inspector for his review, it has been added to the design in order to provide a shell with a longer service life.