



PRODUCT / APPLICATION INFORMATION

# HeetSheet® Tank & Vessel Heating Unit Characteristics

## How are HeetSheet units constructed?

HeetSheet units are plate-type heating units made of two sheets of 20 or 26 gauge 304 stainless steel conforming to ASTM-A240. The sheets are seam-welded to define the fluid holding portion. Interrupted seam welds are arranged to provide a variety of parallel passageways for steam or other heat transfer fluids to pass through the HeetSheet unit.

HeetSheet units' internal volumes are below the ASME limits 5 ft<sup>3</sup> at 250# (0.14m<sup>3</sup> at 1720 kPa) that would require certification. So, HeetSheet units can withstand relatively high pressures and temperatures, but still be lightweight and pliable.

## How do HeetSheet units work?

HeetSheet units may be installed on flat or curved surfaces. Each unit is designed for a specific tank and includes tubing inlet and outlet connections. The 26 gauge units also include a special non-hardening heat transfer compound applied to the surface that will contact the tank wall. This eliminates all air pockets and creates an uninterrupted path for the heat through the tank wall, and into the product being heated within the vessel.

## What is the efficiency of HeetSheet units?

Heat is transferred to the tank wall at a rate of 114 to 227 W/m<sup>2</sup>-K (20 to 40 Btu/hr-°F-ft<sup>2</sup>). For comparison, typical externally installed plate-type tank heating coils deliver heat at a rate of approximately 17 to 28 w/m<sup>2</sup>-K. For this reason, 2 to 3 times more surface area can be required for conventional external plate-type-heating coils to maintain the same temperatures with HeetSheet units.

## How can HeetSheet units be safer?

HeetSheet units are applied to the external wall of a tank; therefore, no danger of cross-contamination between the process fluid and the steam exists. Cross-contamination is a concern with internal steam heating coils and jacketed tanks and vessels.

## Why are HeetSheet units more economical?

The fast and simple installation of HeetSheet units makes them more economical. Each 26 gauge unit weighs only about 9.8 kg/m<sup>2</sup> (2 lb/ft<sup>2</sup>) compared to almost 40 kg/m<sup>2</sup> (8 lb/ft<sup>2</sup>) for a typical external plate-type-heating coil. Heavy coils often require lifting equipment for handling, with difficult mounting techniques resulting in higher labor cost.

By comparison, two workers can easily install a HeetSheet unit of the largest 20 gauge size. Then, simplified banding methods and lesser coverage combines to permit the installation of HeetSheet units in minutes compared to hours for other methods.

## Where are HeetSheet units typically installed?

HeetSheet units can be an economical heating or cooling method on most process plant tanks and vessels. They may be used in a wide variety of applications where other types of internal or external plate heating coils are typically used. Common applications include temperature maintenance for: caustic soda, phthalic anhydride, soap, paraffin, syrup, sulfur, asphalt and "heavy ends" materials, naphthalene, malaic anhydride and many food products.

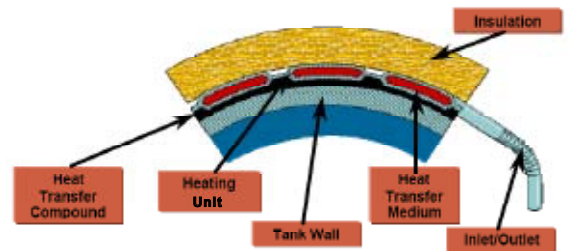


## What are the ratings for HeetSheet units?

HeetSheet units are rated for use with 10.34 bar g (150 psig) steam pressure at temperatures of 186°C (366°F) when used with NH (Non-hardening) heat transfer compound. Higher pressures with correspondingly higher temperatures may be designed if the NH material is not employed. Product temperatures to 177°C (350°F) can be maintained in tanks, vats, or other types of vessels.

## What are the sizes for HeetSheet units?

HeetSheet units are available in standard external dimensions of 0.61 m (2 ft) in width and lengths of 0.61 m (2 ft); 1.22 m (4 ft); and 2.44 m (8 ft). Special lengths of 0.91 m (3 ft) and 1.83 m (6 ft) are available upon request, as are special widths of 0.3 m (1 ft).



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