

A Guide to Steam Trap Selection

With the wide variety of steam traps available today, it is not always easy to determine which one is the best for your specific application. Here we'll cover the most common ones you're likely to run across.

Thermostatic traps operate in relation to saturation temperature. Thermostatic traps sub-cool condensate, usually 10 degrees Fahrenheit to 30 degrees Fahrenheit below saturation temperature. In a low pressure heating system, this gets the condensate below 212 degrees Fahrenheit and prevents the loss of flash steam. Most radiators, convectors and main drips in low pressure heating systems use thermostatic traps. The thermostatic trap is also the least expensive type of steam trap, and it is easy to service.

Float and thermostatic traps have a thermostat that also opens in relation to saturation temperature for venting air. (Air must be vented from the steam space before steam can enter.) Plus a float and thermostatic trap has a float connected to a

separate valve for draining condensate regardless of temperature. Many applications such as a shell and tube heat exchanger require complete condensate drainage to prevent backing up of condensate that may cause water hammer. The float and thermostatic trap allows fast venting and complete drainage. The F&T is also a modulating trap.

Bucket traps drain condensate at saturation temperature; however, they cycle full open and close as the trap body fills with condensate. The bucket trap does not have a thermostatic vent as standard, so it vents air slowly which may cause slow heating. The bucket trap can lose its prime on a no load or small load condition. When a bucket trap loses its prime, it fails to open. Bucket traps are generally used on steady load conditions. The bucket trap is usually less expensive than an F&T trap. The open bucket also provides resistance to damage from water hammer.

Disc traps open at saturation temperature, and they provide complete drainage of the condensate. In addition, disc traps are also slow to vent air, and they perform sluggishly on differentials below 3 psi. Disc traps are only available in sizes up to 1" and have relatively small capacities. A disc trap offers the advantage of small size, easy service, and complete drainage of the trap body to prevent freezing in outdoor locations.

The steam trap selection chart in Figure 1 helps guide potential users in selecting a specific type of trap. Familiarity with a certain type of trap may also be a factor. Satisfactory results have been obtained with unit heaters and drips using all types of traps. For additional information, contact your local McDonnell & Miller representative.

