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**Q: Does a New Steam Trap Leak Steam? A: Yes!**

**Q: What is the leak rate?**

Leak testing standards for steam traps began in the early 1980's by ANSI/ASME.

The ASME Code PTC 39.1 is described by ASME as follows:

*“This Code covers devices used in removing condensate and non-condensable gases from steam systems. It covers devices used for intermittent or continuous removal of fluids such as steam traps, orifices and valves. The purpose of this Code is to specify and define the practice of conducting tests of condensate removal devices to determine: (a) Condensate discharge capacity, for specified conditions of saturated and sub cooled condensate and back pressure. (b) Steam loss, under specified conditions.”*

*FCI 70-2 Seat Leakage*

*ANSI Class II = 0.5% Valve rated capacity differential of 45 to 60 PSI  
Test Medium Water*

*ANSI Class III = 0.1% Valve rated capacity differential of 45 to 60 PSI  
Test Medium Water*

*ANSI Class IV = .01% Valve rated capacity differential of 45 to 60 PSI  
Test Medium Water*

*ANSI Class VI = 1 Bubble per Minute at a differential of 50 PSI  
Test Medium Air or Nitrogen*

*Example:*

Take for example, a steam trap with mechanical linkage that is offered to the industry today and meets class II shutoff and has a tested leak rate of 21 lbs of steam per hour. With steam costs averaging \$ 9.10 per thousand lbs today, this steam trap could cost the plant a large quantity of energy dollars. Steam costs are ever increasing.

Therefore, the method we choose to purchase steam traps must take on a new economic factor which may not have been considered even four (4) years ago.

Let's look at an example:

21 (lbs per hour leak rate) x 24 hours = 504 lbs of steam leaking per day

504 x 365 (days a year operation) = 183,960 lbs of steam leaking per day

183,960 divide by 1000 = 183.96 (lbs of steam leaking per thousand)

183.96 x \$ 9.10 (average cost of 1,000 lbs of steam) = \$ 1,674.04 a year

This is the cost of the leak rate designed into the trap. Assume a facility employs 20 steam traps with this particular leak rate.

20 traps x \$1,674.04 (cost of leak rate per trap) = \$33,480.72

The resultant yearly energy loss is calculated to be \$ 33,480 .72.

## **“The Nicholson Solution”**

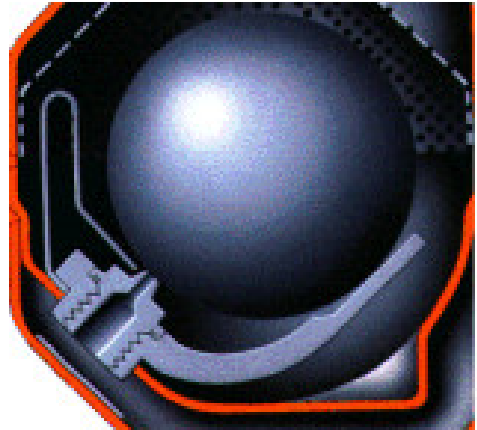
### **Thermostatic Design (Steam Main Drip Legs, Unit Heaters, Tracing)**

Nicholson thermostatic design steam traps meet ANSI Class IV shutoff. Nicholson meets the shutoff under ASME PTC 39.1 leak test rates. Our Thermostatic steam traps operate to 650 PSIG and up to 750° F and are manufactured with a cone designed valve and lapped seat to meet the ANSI Class IV shutoff.



## **Free Float Design (Process Systems, Heat Exchangers, Steam Coils)**

Nicholson Free Float Nova series steam traps meet ANSI Class VI shutoff at the discharge orifice. With the free float series design the ball float operates as a valve and allows a continuous seating surface. The orifice is located well below the “water level”, which will allow for less leakage during operation as the condensate creates a liquid seal. The Thermostatic element at the top of the trap meets ASME PTC 39.1 Class IV shutoff.



## ***Nicholson Steam Traps***

***Meeting the customer's steam trap needs***

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