

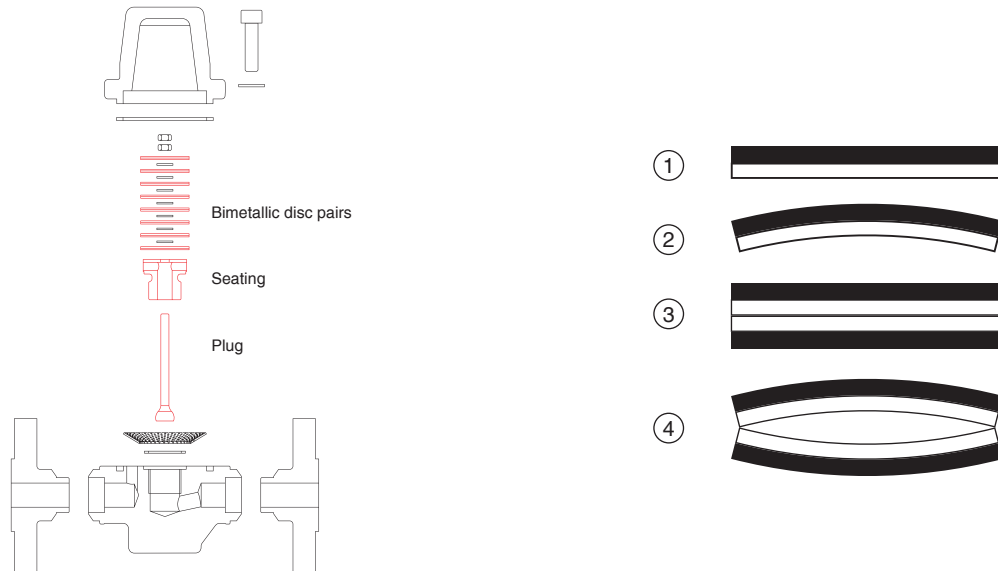
# Bimetallic steam trap

Model 143 | Thread connections

Model 144 | Flange connections



The main components of the VYC bimetallic steam traps are model 143-144 are: the plug, the seating and the bimetallic disc pairs.



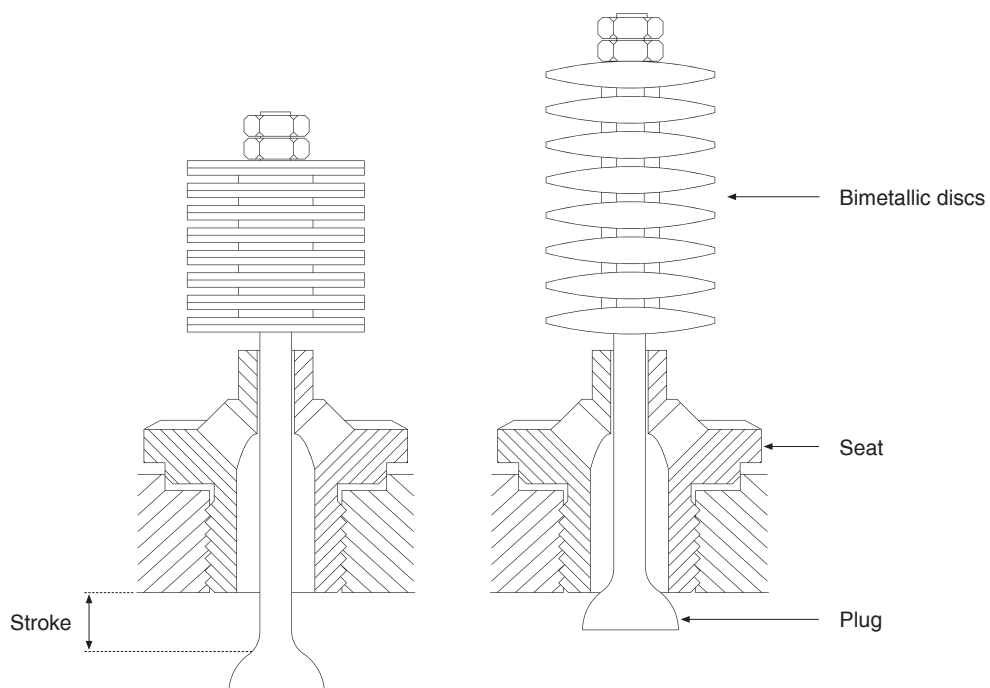
A bimetallic disc is a combination of two layers of metal with widely different coefficients of expansion, which are inseparably bonded together. The upper layer of the disc has a large coefficient of expansion and the lower layer has a small coefficient of expansion (1).

In cold condition the disc is completely flat. When heated, it will bend because the top layer expands more than the lower layer (2) and gets the shape of a spring-cone.

Two of such discs on top of each other, the layers with a small coefficient of expansion against each other, will lie flat in cold condition (3), but become increasingly convex when the temperature increases (4).

By stacking a number of bimetallic pairs over the plug, an increase of the expansion is achieved. When the temperature near the bimetal rises, the plug gets closer to the seat. The distance between plug and seat in cold condition is called stroke (discs are flat). The bending of the discs will bridge the stroke and makes the steam trap close (5).

The closing force is caused by the steam temperature, the opening force by the steam pressure over plug. The condensate temperature regulates the position of the plug.

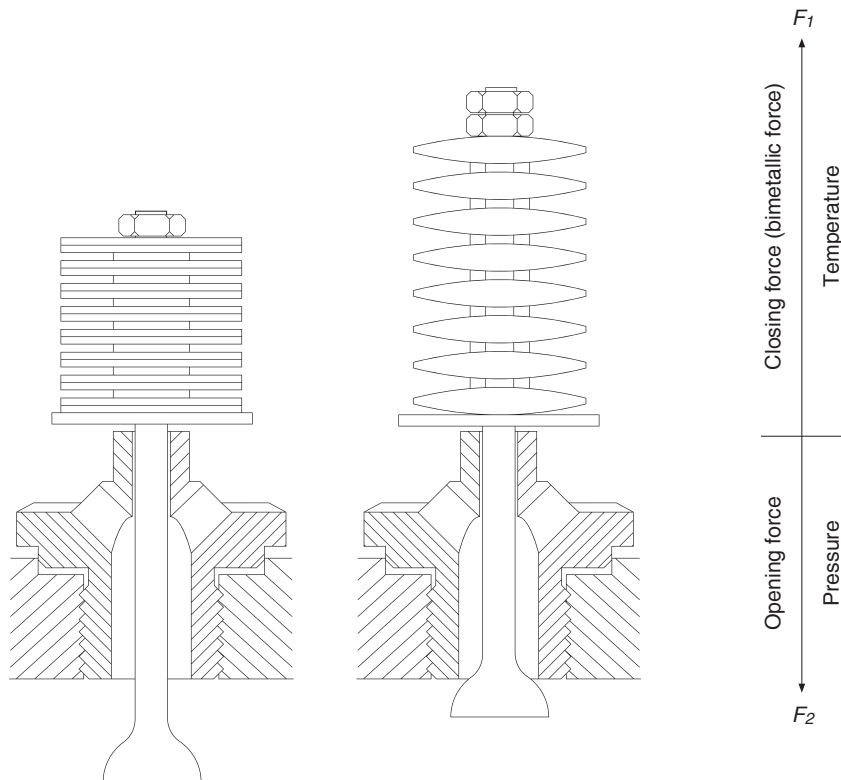


VYC bimetallic steam trap model 143 - 144 are applicable in a wide range of operating pressures. BP model (low pressure) with a maximum operating pressure of 17 bar, MP model (medium pressure) with a maximum operating pressure of 23 bar and the AP (high pressure) with a maximum operating pressure of 80 bar. The possibility of working following the steam curve in a wide pressure range is possible because the relation pressure/temperature is found in the characteristics of the bimetal which are used.

The closing-moment of the steam trap is determined by 3 factors;

- F1 = Force of temperature and number of bimetals
- F2 = Force of steam pressure on the plug
- Stroke

F1 y F2 are dependent on each other, this is fixed in the saturated steam curve. F2 is the force on the plug (opening force) because of the steam pressure. F1 is the opposed pulling force of the bimetals through the steam/condensate temperature (closing force). As the steam pressure changes, the saturated steam temperature will, according to the steam curve, change too. As the steam pressure increases, so force F2, then also force F1 will increase as a result of the higher saturated steam temperature which goes with that pressure. Consequently, the bimetal follows the steam curve.



VYC bimetallic steam traps model 143 - 144 are supplied in a standard version of regulation in which they follow the saturated steam curve. Accordingly, in their assembly, calibrated gauges are used to set the stroke in their correct distance for their good operating. The operating strokes of the 3 versions are as follows:

Versión	BP	MP	AP
Carrera o recorrido	1,4 mm	3 mm	3 mm

Any adjustment that needs to be made to the particular operating conditions of the installation must be done by removing or adding the existing washers between the pairs of bimetal discs until the steam trap is adjusted to the desired operating conditions.

**Gauge for the stroke of BP steam trap**

