
International Standard



6704

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Automatic steam traps — Classification

Purgeurs automatiques de vapeur d'eau — Classification

First edition — 1982-01-15

Corrected and reprinted — 1983-01-15

STANDARDSISO.COM : Click to view the full PDF of ISO 6704:1982

UDC 621.186.6

Ref. No. ISO 6704-1982 (E)

Descriptors : industrial valves, traps, steam, classifications.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6704 was developed by Technical Committee ISO/TC 153, *Valves*, and was circulated to the member bodies in February 1980.

It has been approved by the member bodies of the following countries :

Australia	Finland	Poland
Austria	France	Romania
Belgium	Germany, F.R.	South Africa, Rep. of
Brazil	India	Sweden
Canada	Italy	Switzerland
China	Korea, Rep. of	United Kingdom
Czechoslovakia	Netherlands	USA
Denmark	Norway	USSR

No member body expressed disapproval of the document.

Automatic steam traps — Classification

1 Scope and field of application

The purpose of this International Standard is to establish a simple classification of the main types of automatic steam traps according to the mode of actuation of their obturation device and disregarding their details of conception and construction.

2 References

ISO 6552, *Automatic steam traps — Terminology*.

ISO 6553, *Automatic steam traps — Marking*.

ISO 6554, *Flanged automatic steam traps — Face-to-face dimensions*.

3 Definition

For this International Standard, the following definition applies :

automatic steam trap : Self-contained valve which automatically drains the condensate from a steam-containing

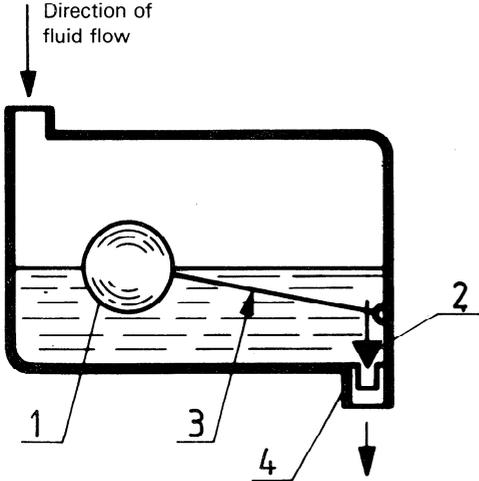
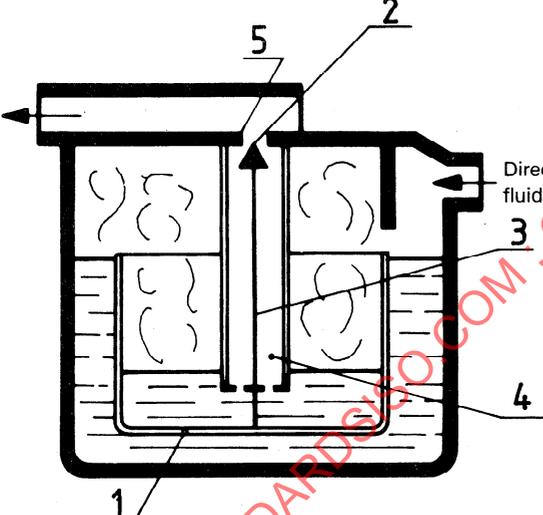
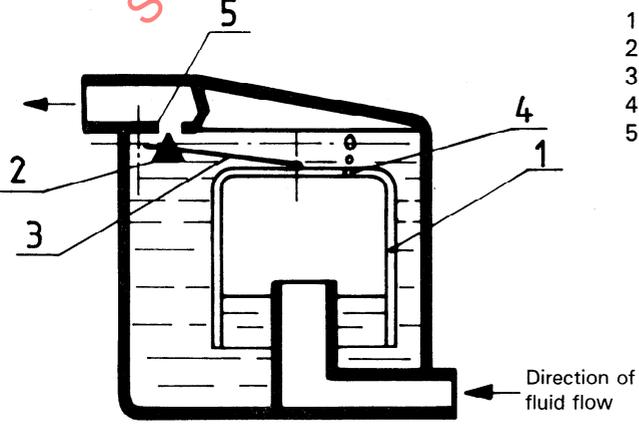
enclosure whilst remaining tight to live steam or, if necessary, allowing steam to flow at a predetermined rate.

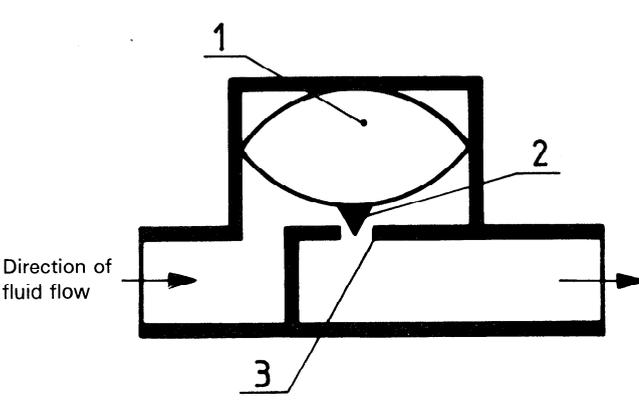
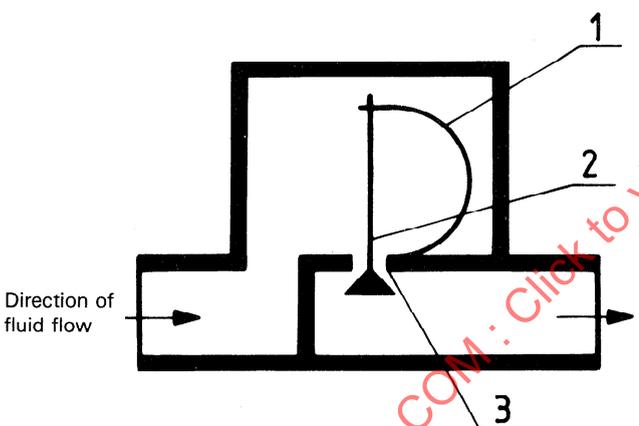
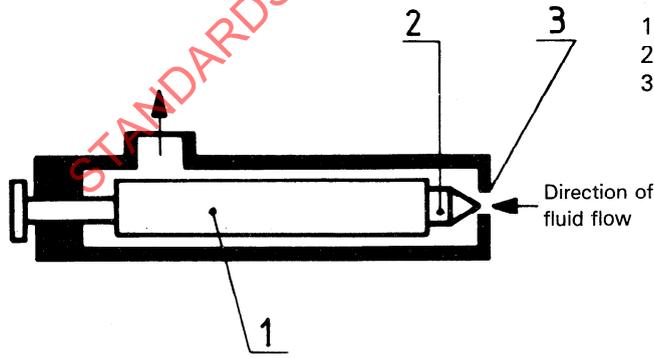
4 Classification

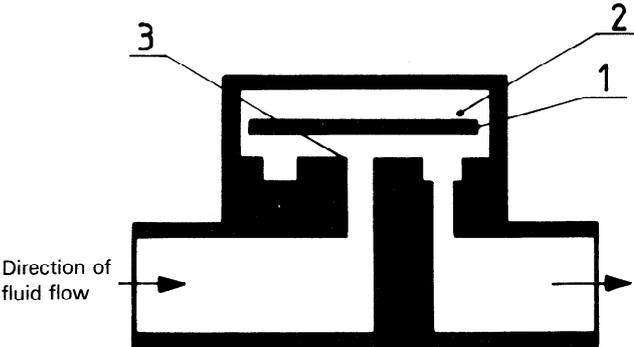
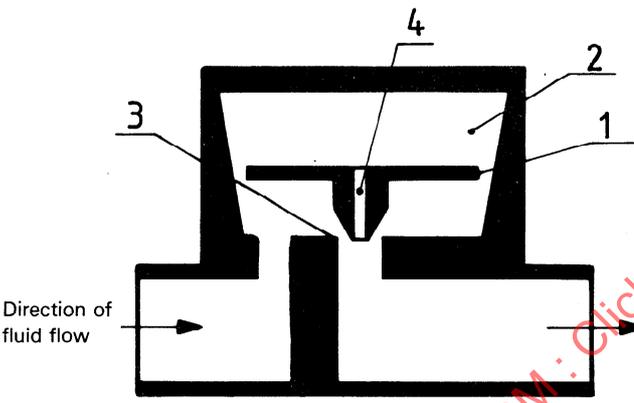
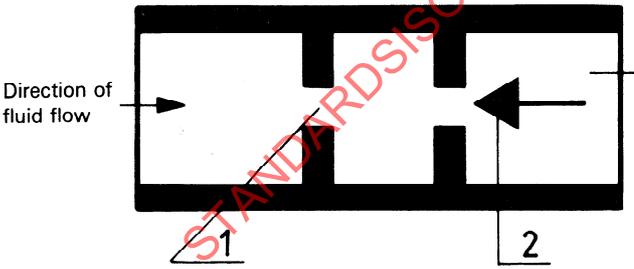
The types of traps defined hereunder are classified according to their mode of actuation; other traps, combining these different types (or of a new design) may be developed, but these traps shall not be regarded as a characteristic type of automatic steam traps in the sense of this International Standard.

If one considers the mode of actuation of the obturation device, three categories of automatic steam traps can be distinguished :

- mechanical traps, actuated by the level of condensate (4.1);
- thermostatic traps, actuated by the temperature of condensate (4.2);
- thermodynamic traps, actuated by fluid dynamics (4.3).

Sketch (diagrammatic)	Operation
<p>4.1 Mechanical traps (float traps) (actuated by the level of condensate)</p> <p>4.1.1 Steam trap with closed float</p>  <ul style="list-style-type: none"> 1 Closed float 2 Obturator 3 Lever 4 Seat <p>4.1.2 Steam trap with open top float</p>  <ul style="list-style-type: none"> 1 Float (bucket type) 2 Obturator 3 Lever 4 Siphon 5 Seat <p>4.1.3 Steam trap with open inverted float</p>  <ul style="list-style-type: none"> 1 Open inverted float 2 Obturator 3 Lever 4 Vent hole 5 Seat 	<p>The opening or closing movements of the obturator are caused by the variations of the level of condensate in the trap shell.</p> <p>The opening or closing movements of the obturator are caused by the variations of the level of condensate in the float.</p> <p>The opening or closing movements of the obturator are caused by the variations of the level of condensate in the float.</p>

Sketch (diagrammatic)	Operation
<p>4.2 Thermostatic traps (actuated by the temperature of condensate)</p> <p>4.2.1 Vapour pressure trap</p>  <p>1 Deformable element 2 Obturator 3 Seat</p> <p>4.2.2 Bimetallic or thermoelastic trap</p>  <p>1 Bimetallic element 2 Obturator 3 Seat</p> <p>4.2.3 Liquid or solid expansion trap</p>  <p>1 Expansible element 2 Obturator 3 Seat</p>	<p>The opening or closing movements of the obturator are actuated by imbalances created between the pressure of condensate in the trap and the vapour pressure of the volatile liquid contained in a deformable element.</p> <p>The temperature changes of the incoming condensate cause the deformation of the bimetallic or thermoelastic element, and consequently the opening and closing movements of the obturator.</p> <p>The opening or closing movements of the obturator are caused by the temperature variations of the condensate acting on an element with a high thermal expansion coefficient.</p>

Sketch (diagrammatic)	Operation
<p>4.3 Thermodynamic traps (actuated by fluid dynamics)</p> <p>4.3.1 Obturator trap</p>  <p>Direction of fluid flow</p> <ul style="list-style-type: none"> 1 Obturator 2 Pressure chamber 3 Seat 	<p>The successive differences of pressure between the inlet and the pressure chamber cause the opening or closing movements of the obturator.</p>
<p>4.3.2 Impulse trap</p>  <p>Direction of fluid flow</p> <ul style="list-style-type: none"> 1 Obturator (piston valve) 2 Pressure chamber 3 Seat 4 Decompression orifice 	<p>The successive differences of pressure between the inlet and the pressure chamber cause the opening or closing movements of the obturator (piston valve).</p>
<p>4.3.3 Labyrinth or orifice trap</p>  <p>Direction of fluid flow</p> <ul style="list-style-type: none"> 1 Orifice (one or more) 2 Adjustable obturator (optional) 	<p>Fluids pass freely through the orifice. Condensate may eliminate or reduce the flow of steam or non-condensables.</p>