

Thermodynamic steam trap



Without strainer Model 041
With strainer Model 043



For the extraction of steam condensates.

For use in: steam piping, irons, laundries, tanks and vessels with condensate discharge, multiple plate presses, vulcanizing autoclaves, pressure reduction equipment, etc.

Specifications

- Materials carefully selected for resistance to wear, extreme temperatures and corrosion. They can be fully recycled.
- Without joints.
- Simplicity of construction. One single moveable piece ensures minimum maintenance.
- Easy installation with possibility to be mounted in any position.
- Compact and robust. Reduced weight and size which facilitates storage.
- Internal design of the body is conceived to provide the capacities required in each case without over sizing.
- Characteristic plate which enables identification of the working conditions and direction of flow.
- Discontinuous and intermittent discharge.
- Precision opening and closing, avoiding loss of steam.
- Silent, although allows acoustic verification of working.
- Remain unaffected by vibrations, water hammer, reheated steam, corrosive condensate, frosts, etc.
- Protective strainer for the closing surfaces with access cap for cleaning. (Mod. 043).
- Sealing surfaces treated and balanced, making them extremely tightness, even exceeding DIN-3230 requirements. Page 3.
- All steam traps undergo thorough testing.
- Each component is numbered, registered and inspected. If previously requested, the steam trap will be accompanied by certificates corresponding to materials, batch, test and performance.

IMPORTANT

Depending on demand:

- May be manufactured using other materials for specific working conditions (high temperatures, fluids, etc.).
- Other connections.
- Isolation covers to avoid losses through radiation caused mainly by bad weather.

Nº PIECE	PIECE	MATERIAL	Mod. 041
		STAINLESS STEEL	
1	Body (Mod. 041)	Stainless steel (EN-1.4021)	
1	Body (Mod. 043)	Stainless steel (DIN-1.4027)	
2	Cover	Stainless steel (EN-1.4305)	
3	Sealing disc	Stainless steel (EN-1.4021)	
4	Cap	Stainless steel (EN-1.4305)	
5	Strainer	Stainless steel (EN-1.4301)	
6	Plate	Stainless steel (EN-1.4301)	
R		1/2" to 1"(GAS,NPT or SW)	
OPERATING CONDITIONS	MAX. PERMISSIBLE PRESSURE	PMA . 63 bar	
	MAX. WORKING PRESSURE	PMS . 42 bar	
	MIN. WORKING PRESSURE	PmS . 0,25 bar	
	MAX. PERMISSIBLE TEMPERATURE	TMA . 400°C	
	PERMISSIBLE BACK PRESSURE	Until 80% inlet pressure	

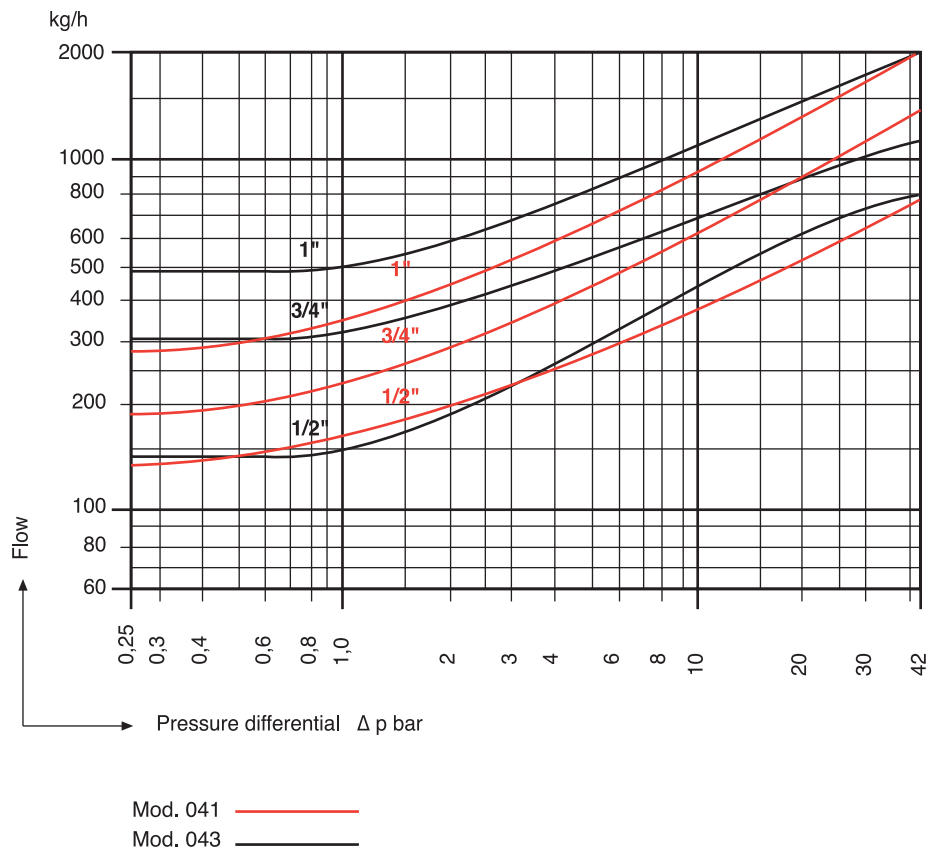
MODEL		041			043		
R1		1/2"	3/4"	1"	1/2"	3/4"	1"
CONNECTIONS		Whitworth gas tight cylindrical female thread ISO 228/1 1978 (DIN-259)					
		NPT thread ANSI-B2.1					
		Socket welding ends SW ANSI-B16.11					
H		40,0	43,5	51,5	40,5	43,5	51,5
H ₁		55,0	58,5	70,5	55,5	58,5	70,5
h		16,0	19,0	22,5	64,0	67,5	70,0
h ¹		—	—	—	75,0	78,5	81,0
L		70,0	80,0	90,0	78,0	90,0	95,0
WEIGHT IN Kg.		0,67	0,82	1,33	0,93	1,12	1,59
CODE	GAS	041.9022	041.9342	041.9102	043.9022	043.9342	043.9102
	NPT	041.90221	041.93421	041.91021	043.90221	043.93421	043.91021
	2108-SW(1)	041.90222	041.93422	041.91022	043.90222	043.93422	043.91022

Mod. 041

Mod. 043

(1) Previous consult with our technical department.

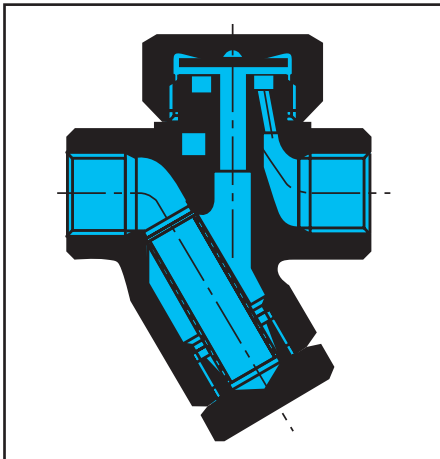
Flow diagram



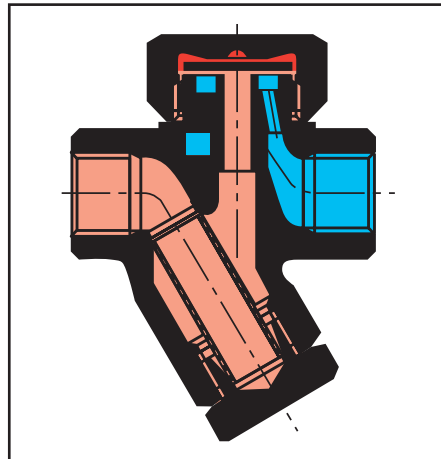
- Condensate and air.
- Low pressure steam.
- High pressure steam.

Operation

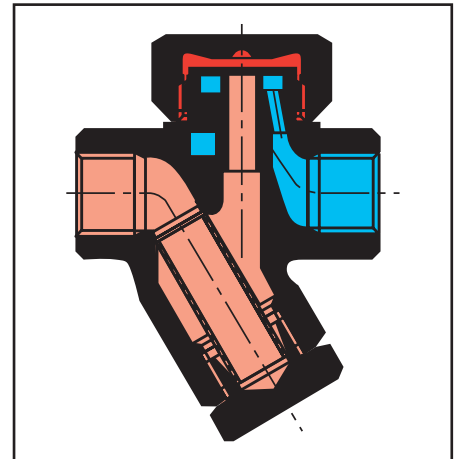
The operation of a thermodynamic steam trap is based on the Bernoulli principle: "In a fluid in motion, the sum of the static and dynamic pressures remains constant at all points, such that an increase in one results in a decrease in the other".



The input pressure acts on the sealing disc which allows the immediate discharge of the condensate and air at the temperature of the steam.

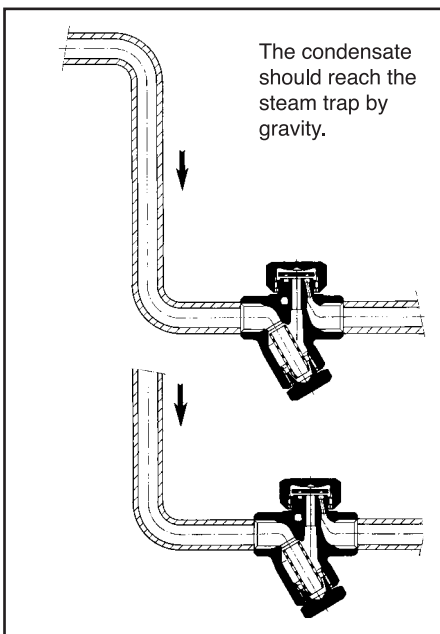


Subsequently the steam enters the steam trap. The high speed produced by the expansion of the steam creates a zone of low pressure in the inverse side of the sealing disc. The flow is deviated to the reverse of the sealing disc and creates a zone of high pressure by recompression. The sealing disc begins to descend.



When the high pressure acts on the whole surface of the sealing disc it exerts a force greater than the input pressure. The steam trap closes. The subsequent presence of condensate on the input causes the cycle to be repeated.

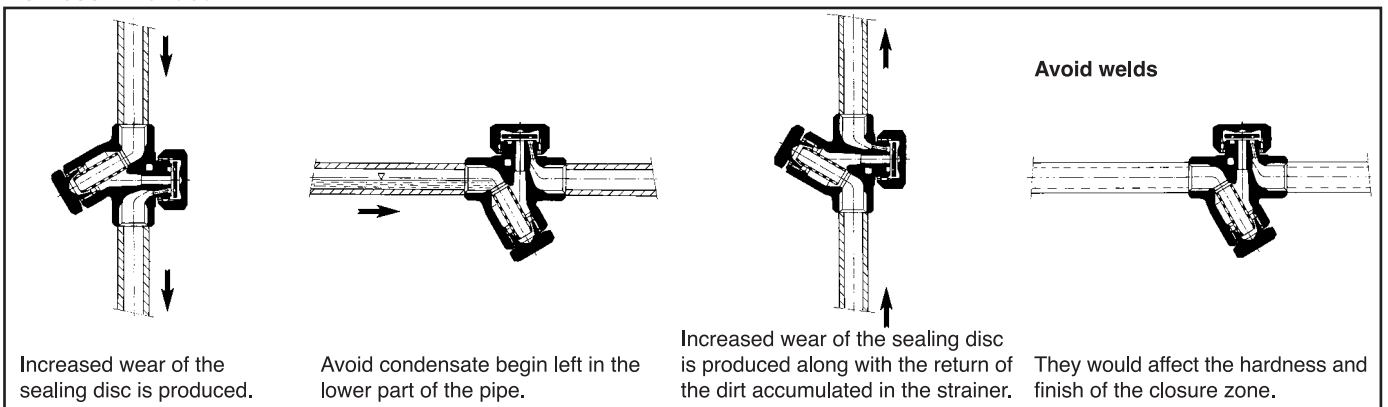
Recommended



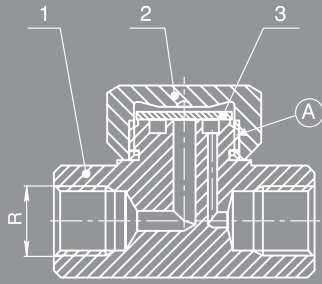
Installation

- Verify that the fluid circulates in the direction indicated by the arrow on the characteristics plate.
- Avoid excessive losses of load on the input, and counterpressures on the output by generously sizing the piping. The conductors should have at least the same internal diameter as the steam trap.
- In model 041, it is essential to locate an additional strainer before the steam trap.
- If a sight glass is installed after the steam trap leave about 50 cm between them.
- Each consumption point should have its own steam trap. A common steam trap will give rise to problems.
- The discharge of the steam trap to a condensate tank requires:
 - 1 A tank with a larger diameter than the steam trap or the sum of the nominal cross sections of the steam trap connected to it.
 - 2 The steam trap that operate at different pressures must discharge to different tanks.
 - 3 The input of condensate to the tank must be done through its upper side.

Not recommended



Mod. 041



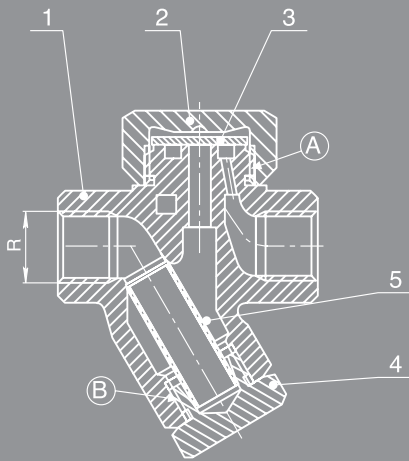
Start-up

- 1- On start up avoid air reaching the steam trap at high speed as it could block it.
- 2- The steam trap will remain open if the compression exceeds 80% of the input pressure.

Assembly and disassembly

- 1- Unscrew cover (2).
- 2- Take out the sealing disc (3).
- 3- Unscrew the cap (4).
- 4- Extract the strainer (5).
- 5- Locate the sealing disc (3), with the slots facing the seating in the body (1).
- 6- Put on the cover (2) after greasing the screw threads (A) and (B) with molybdenum bisulphate or other lubricant which is resistant to high temperatures. Tighten up to the recommended torque.
- 7- Clean the strainer thoroughly (5) and insert into the body (1).
- 8- Screw on the cap (4) greasing the screw threads as in point 6.

Mod. 043



TORQUES FOR ROOM TEMPERATURE OF 20°C

Nº PIECE	PIECE	R	Nm
2	Cover	1/2" and 3/4"	100
2	Cover	1"	150
4	Cap	1/2" to 1"	100

Maintenance

Before carrying out any maintenance work: Depressurize the steam trap and the input pipe.

The strainer (5) should be cleaned regularly.

The sealing disc (3) and the body seat (1) can be rectified and lapped as long as the quantity of material removed, with respect to the original thickness, does not exceed 0.25 mm.

The sealing disc (3) is rectified and lapped on both sides. The slotted side must be facing the body in order that, through the turbulence generated, a delay in the closure of the steam trap is achieved meaning that the discharge of the condensate is at a temperature close to that of the steam.