

# Balanced Pressure Thermostatic Steam Traps

## SERIES D

**Balanced Pressure Thermostatic Steam Traps** are equipped with a capsule element, which controls the discharge of condensate depending on the temperature. The capsule contains a special liquid, whose saturation temperature at a given pressure is always lower than that of the water. It ensures a very accurate functioning of the steam trap and is self-adjusting.

The discharge characteristic follows the saturation curve independent from pressure changes and the condensate load. Series D MIYAWAKI steam traps can be delivered with 3 different capsule types:

**Types H & C** discharge hot condensate at approximately 5°C (9°F) below saturation temperature  
**Type L** discharges hot condensate at approximately 15°C (27°F) below saturation temperature

**Models** **DC1, DC2, DV1, DL1, DX1** with stainless steel body and internals  
**DF1** with forged steel body and stainless steel internals

**Features**

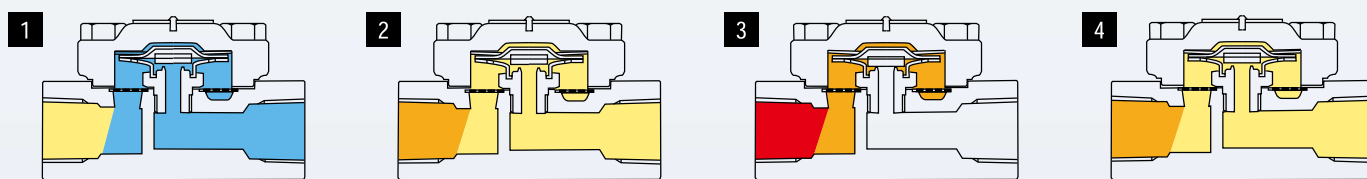
- Excellent air venting characteristics at start-up and during operation
- The operation will not be influenced by back pressure
- At time of non-operation self-draining
- No steam loss throughout its operating range
- All traps equipped with integral strainers
- Can be installed both horizontally and vertically
- Easy in-line inspection and maintenance
- Lightweight, compact design

### Suitable for

light to medium condensate loads: steam tracing, steam main drips, small heat exchangers, unit heaters, steam heating coils and many other applications in the petrochemical, chemical, textile, food, pharmaceutical and other industries.

### Operating principle

■ cold condensate ■ hot condensate ■ steam



Upon start-up in the presence of cold condensate, the capsule element is contracted and the valve plate has moved away from the seat. The wide open valve discharges condensate and air rapidly.

As the temperature inside the trap increases, the capsule element will start to expand, moving the valve plate toward the seat.

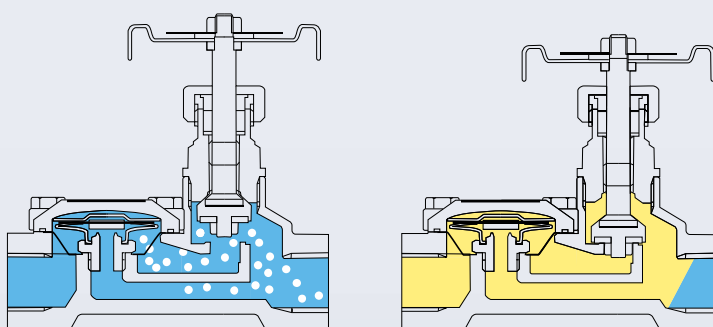
Just before the condensate reaches saturation temperature, the valve plate will close the seat completely. Steam can not enter the trap, ensuring zero steam loss.

As the temperature inside the trap decreases, the capsule element moves away from the seat and the condensate will be discharged. During normal operation steps 3 and 4 will repeat continuously.

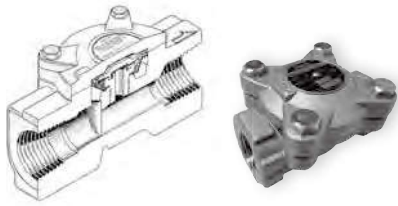
### Operating principle of DV1 when using the bypass valve

When the handle is turned in the direction indicated by the BLOW arrow on the nameplate (counterclockwise), the bypass valve will open, a bypass circuit will be formed inside the trap, and a large volume of air and condensate can be discharged quickly. Scale that has accumulated in the screen can also be blown out.

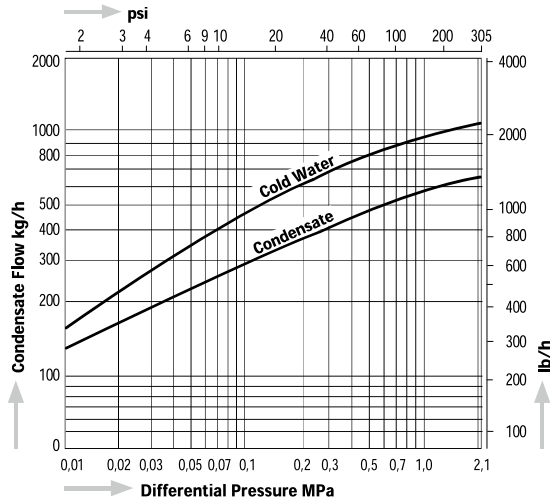
When the bypass valve is closed, the type DV1 will operate as a normal steam trap (see above operating principle).



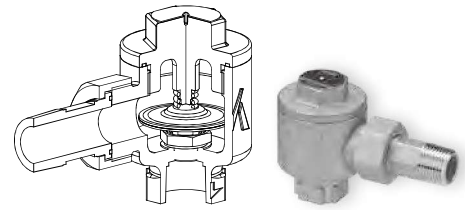
# DC1



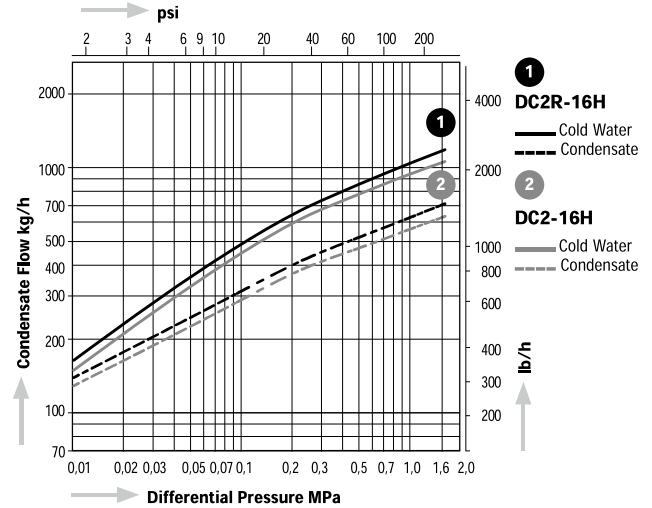
Capacity Chart DC1



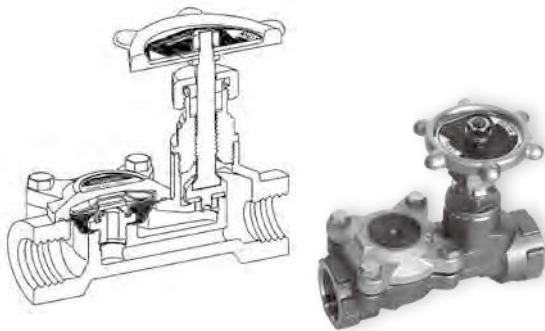
# DC2



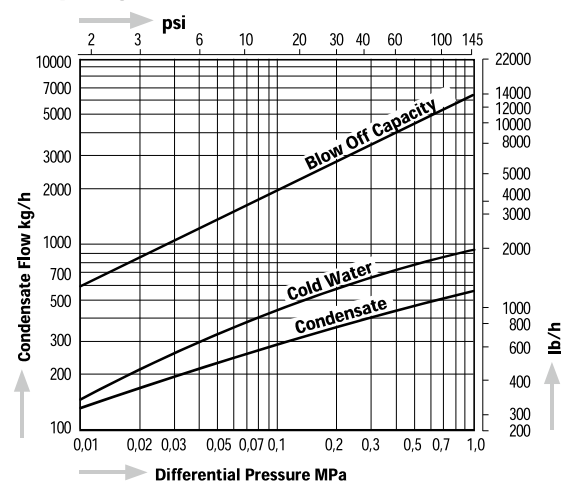
Capacity Chart DC2



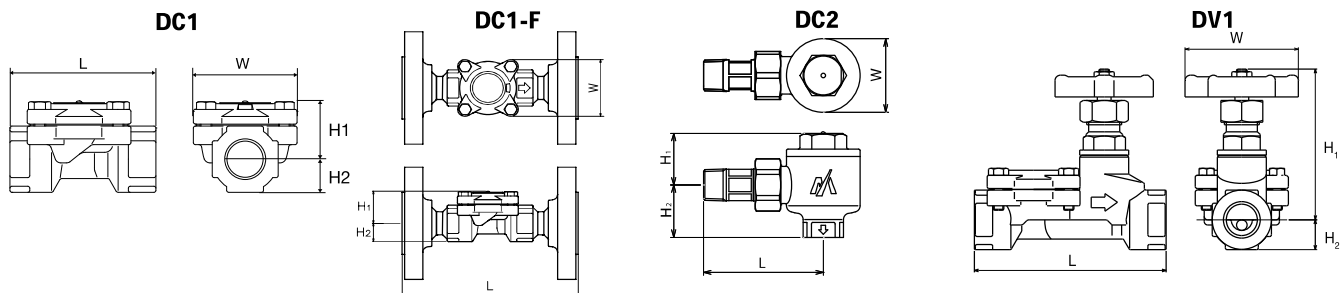
# DV1 with Bypass Valve



Capacity Chart DV1



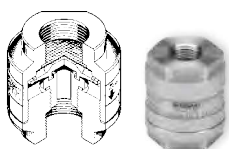
## Dimensions



Model	Connections	Size	Max. Operating Pressure		Max. Operating Temperature		Dimensions (mm)				Dimensions (in)				Body Material	Weight	
			MPa	psig	°C	°F	L	H <sub>1</sub>	H <sub>2</sub>	W	L	H <sub>1</sub>	H <sub>2</sub>	W		kg	lb
DC1-21H DC1-21L	Screwed Rc, NPT	¼", ⅜"	2,1	305	220	428	65	29	11	53	2.6	1.1	0.4	2.1	Stainless Steel SCS13A/CF8	0.4	0.9
		½", ¾"					75	31	17		3.0	1.2	0.7			0.5	1.1
		1"					80	34	21		3.1	1.3	0.8			0.5	1.1
DC1-21HF DC1-21LF	Flanged JIS, ASME, DIN	½"					150	31	17	53	5.9	1.2	0.7	2.1		1.3	2.9
		¾"					160	34	21		6.3	1.3	0.8			2.2	4.9
		1"														3.1	6.8
DC2R-16H DC2-16H	Inlet: R Outlet: Rc, NPT	½"	1.6	230	220	428	80	35	35	49	3.1	1.4	1.4	1.9		0.7	1.5
DV1-10	Screwed Rc, NPT	½", ¾"	1.0	145	185	365	110	88	17	65	4.3	3.5	0.7	2.6		0.9	1.9
		1"					116	94	20.5		4.6	3.7	0.8				

DC2R-16H – Type with bypass orifice to prevent residue of condensate in steam traps.

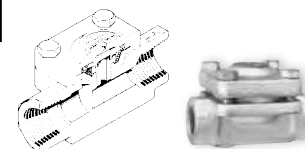
# DL1



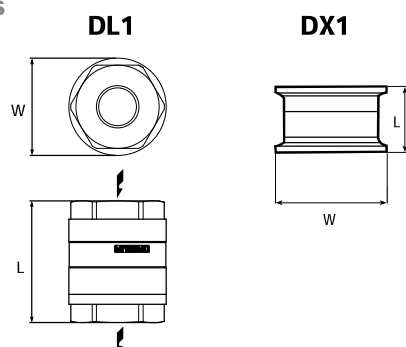
# DX1



# DF1

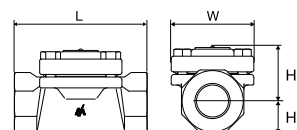


## Dimensions

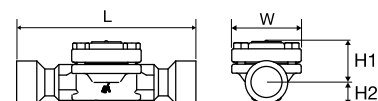


## DF1

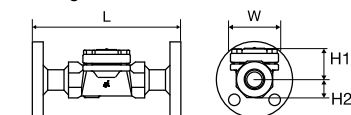
Screwed



Socket Weld

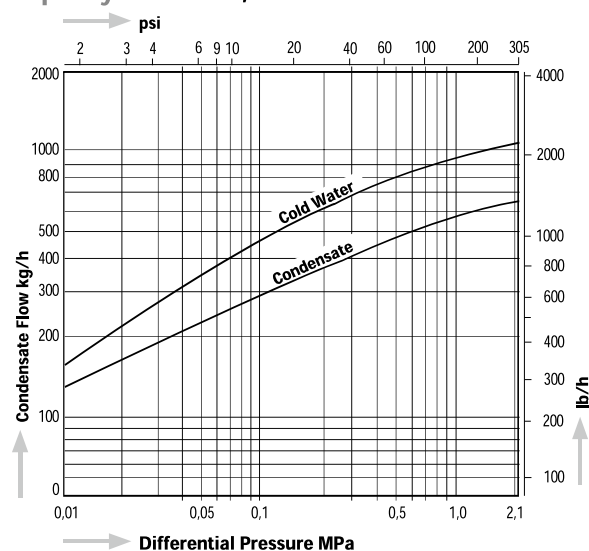


Flanged

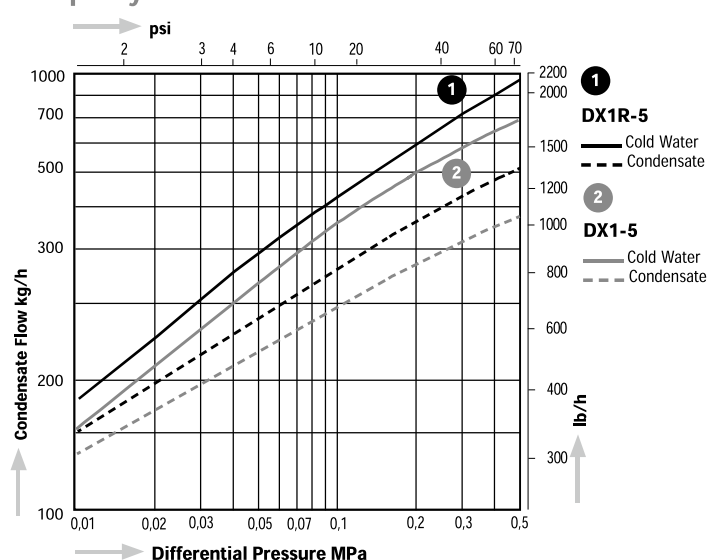


Special face-to-face dimensions available.

## Capacity Chart DL1, DF1



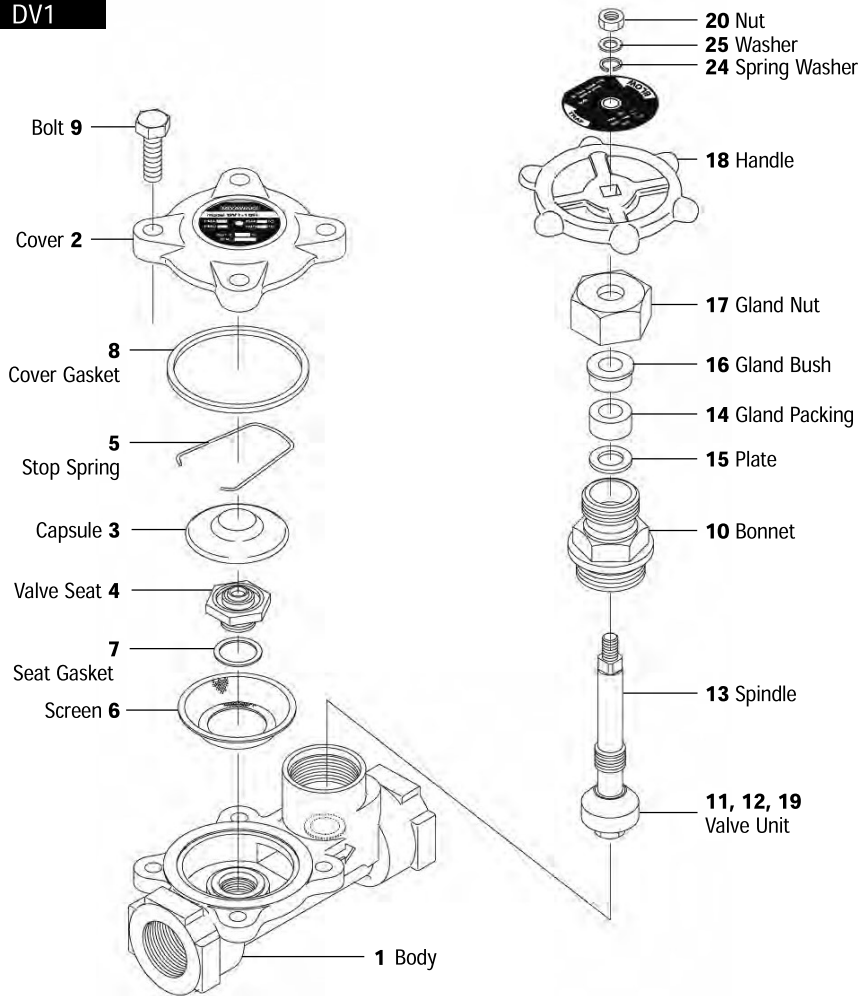
## Capacity Chart DX1



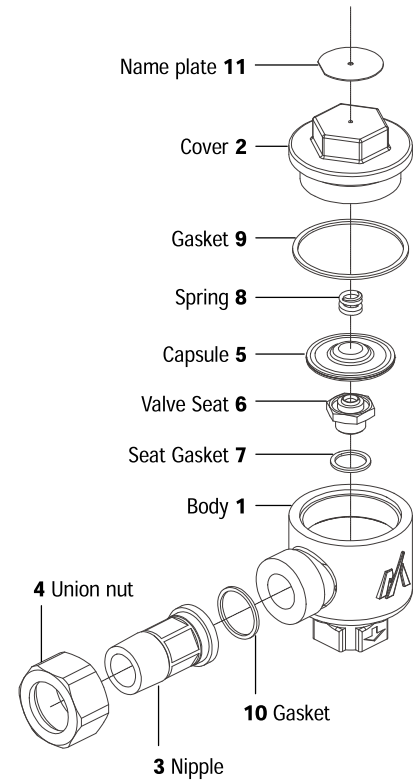
Model	Connections	Size	Max. Operating Pressure		Max. Operating Temperature		Dimensions (mm)				Dimensions (in)				Body Material	Weight											
			MPa	psig	°C	°F	L	H1	H2	W	L	H1	H2	W		kg	lb										
DL1-21H DL1-21L	Screwed Rc, NPT	¼"	2,1	305	220	428	60			48	2.4			1.9	Stainless Steel SCS13/CF8	0,7	1.5										
		⅜"																									
		½"																									
		¾"																									
DL1-10C	Screwed Rc, NPT	1"	1,0	145	220	428	60			48	2.4			1.9			0,7	1.5									
		¼"																									
		⅜"																									
		½"																									
DX1-5 DX1R-5	Tri-Clamp	¾"	0,5	72.5	160	320	30	-	-	51	1.2	-	-	2.0	Stainless Steel SUS316	0,18	0.4										
		1"																									
		1 ½"																									
		2"																									
DF1-21H DF1-21L	Screwed Rc, NPT	½"	2,1	305	235	455	85	36	18	62	3.4	1.4	0.7	2.4	Forged Steel A105	1,0	2.2										
		¾"					100	40	23		3.9	1.6	0.9			1,3	2.9										
		1"					160	36	18		62	6.3	1.4			0.7	2.4	1,4	3.1								
DF1-21HW DF1-21LW	Socket Weld JIS, ASME, DIN	½"								175				36						18	62	6.9	1.4	0.7	2.4	2,1	4.6
		¾"																									
DF1-21HF DF1-21LF	Flanged JIS, ASME 150, 300 lb	1"					215	150	36	18	62	5.9	1.4	0.7		2.4	Forged Steel A105	4,0	8.8								
		DN15					160								6.3			2,3	5.0								
		DN20																		3,6	7.9						
		DN25																		4,3	9.5						

DX1R-5 – Type with bypass orifice to prevent residue of condensate in steam traps.

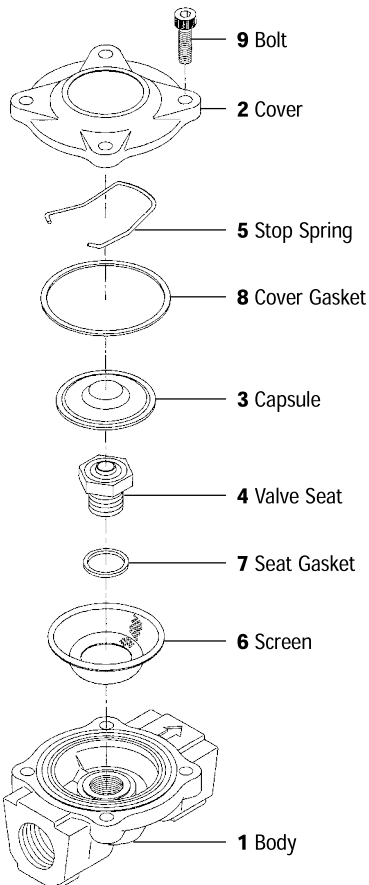
**DV1**



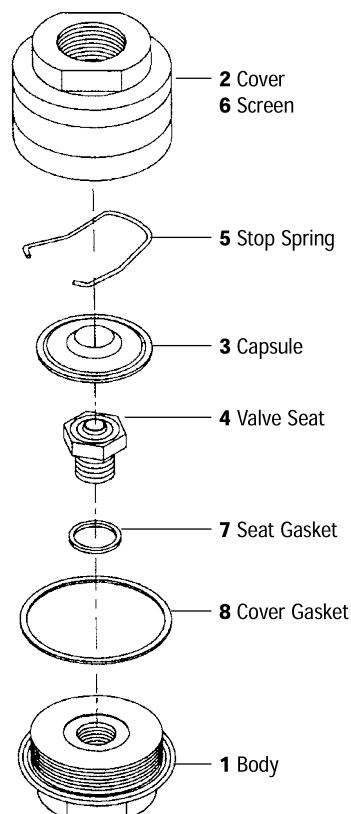
**DC2**



**DC1**



**DL1**



**DF1**

