

Thermodisc Steam Traps Series 650 **BEAR TRAP**

The Series 655 - 658 Thermodisc traps are designed for applications such as high pressure steam drips and tracer lines, or others with light or moderate loads.

The Model 656A is designed to drain condensate from compressed air systems.

Series 655 - 658

- Disc microbleed prevents air binding
- Resistant to water hammer
- Operates with up to 50% backpressure
- Meets Mil specification WW-T-696-E Type III, Class 1-9
- Replaceable disc and seat for easy service
- Only one moving part – reduces wear
- Freeze protection (when installed vertically)
- Capacities to 2850 lbs./hr. (1293 kg/hr.)
- Maximum temperature 750°F (399°C)
- Maximum pressure 600 psig (41.4 bar)

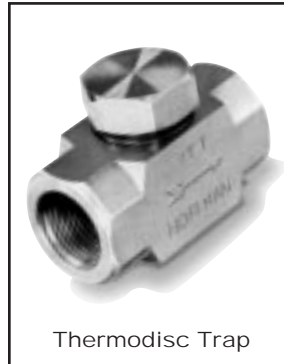
Series 655T - 658T

- For pharmaceutical and food processing applications
- Meets food and drug industry requirements
- Teflon® gaskets prevent contamination
- Disc microbleed prevents air binding
- Resistant to water hammer
- Operates with up to 50% backpressure
- Meets Mil specification WW-T-696-E Type III, Class 1-7
- Replaceable disc and seat for easy service
- Only one moving part – reduces wear
- Freeze protection (when installed vertically)
- Capacities to 2300 lbs./hr. (1043 kg/hr.)
- Maximum temperature 425°F (218°C)
- Maximum pressure 250 psig (17.3 bar)

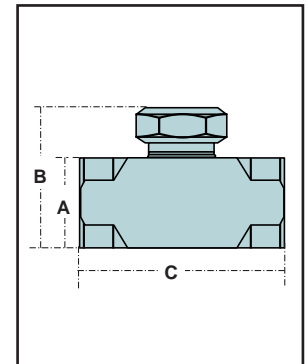
Model 656A

- For compressed air lines to drain condensate
- Replaceable disc and seat for easy service
- Only one moving part – reduces wear
- Freeze protection (when installed vertically)
- Capacities to 1400 lbs./hr. (635 kg/hr.)
- Maximum temperature 750°F (399°C)
- Maximum pressure 600 psig (41.4 bar)

The Series 655T - 658T are designed for pharmaceutical and food processing applications. All Hoffman Specialty Thermodisc traps are designed to withstand freezing temperatures.

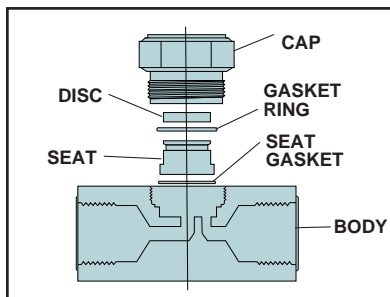


Thermodisc Trap



Dimensions in. (mm)

Model	NPT Size in. (mm)	A	B	C
655/655T	3/8 (12)	1 (25)	1 1/16 (40)	2 5/16 (59)
656/656A/ 656T	1/2 (15)	1 1/4 (32)	1 7/8 (48)	2 15/16 (75)
657/657T	3/4 (20)	1 1/2 (38)	2 3/16 (56)	3 7/32 (82)
658/658T	1 (25)	1 3/4 (45)	2 9/16 (65)	3 13/16 (97)



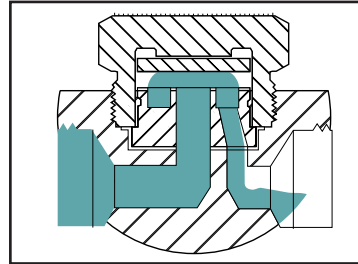
Materials of Construction	
Part	Specifications
Cap and Body	Type 303 Stainless Steel
Disc	Hardened Stainless Steel
Seat	Hardened Stainless Steel
Gasket/Seal, Series 655/658 & 656A	Graphite
Gasket/Seal, Series 655T/658T	Teflon®

Series 650

Operation

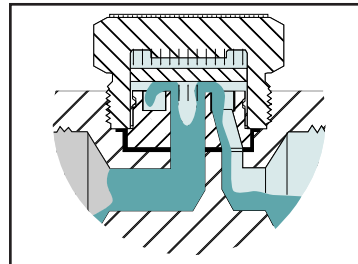
Start-Up

The disc is pushed off the seat by the inlet pressure. The impact force of the condensate hitting the disc keeps it open.



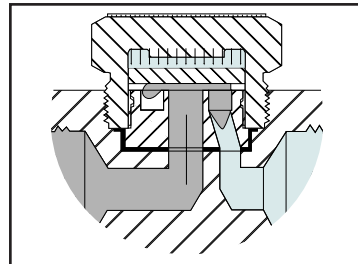
Operating

As the condensate nears saturation temperature more flash steam will appear. Some of the flash steam will escape to the area above the disc. This causes the pressure above the disc to increase and pushes the disc closer to the seat. Minimum differential pressure of 7 psig (.49 bar) is required for the trap to operate efficiently.



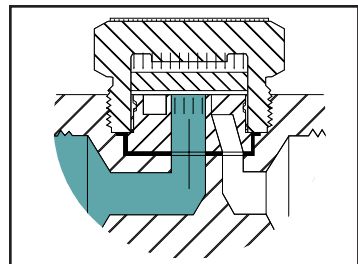
Closing




Once the condensate is discharged live steam enters the seat-disc chamber at high velocity. This high velocity causes a sudden pressure drop at the lower side of the disc and it snaps against the seat to close.



Closed

The instant the disc snaps closed on the seat the pressure above the disc is approximately the same as the upstream line pressure. Because the pressurized area above the disc is much larger than the inlet area the disc is held closed. The pressure above the disc decreases either by steam condensation or by non-condensables removed via the microbleed on the disc. When the pressure on top of the disc is low enough the disc is pushed off the seat and the process is repeated.



Condensate	
Flash Steam	
Live Steam	

Thermodisc Steam Traps (continued)

Series 650 BEAR TRAP® (continued)

Capacities lbs./hr. (kg/hr.)

For Steam Service

Pressure psig (bar)	3/8" (12 mm) NPT 655/655T	1/2" (15 mm) NPT 656/656T	3/4" (20 mm) NPT 657/657T	1" (25 mm) NPT 658/658T
600 (41.4)	330 (149)	760 (344)	1300 (389)	1500 (680)
500 (34.5)	320 (145)	730 (331)	1240 (562)	1450 (637)
400 (27.6)	305 (138)	690 (312)	1140 (517)	1400 (635)
300 (20.7)	285 (129)	650 (294)	1010 (438)	1320 (398)
250 (17.2)	275 (124)	610 (276)	930 (421)	1260 (571)
200 (13.8)	260 (117)	580 (263)	860 (390)	1200 (544)
150 (10.3)	240 (108)	530 (240)	770 (349)	1120 (508)
100 (6.9)	210 (95)	460 (208)	680 (308)	980 (444)
75 (5.2)	190 (86)	410 (105)	600 (272)	900 (408)
50 (3.5)	150 (68)	350 (158)	520 (235)	780 (353)
25 (1.7)	120 (54)	260 (117)	400 (181)	600 (272)
10 (0.7)	90 (40)	180 (81)	260 (117)	400 (181)

For Compressed Air Service

Pressure psig (bar)	1/2" (15 mm) NPT 656A lbs./hr. (kg/hr.)
250 (17.3)	1400 (635)
200 (13.8)	1280 (580)
150 (10.4)	1160 (525)
125 (8.6)	1085 (490)
100 (6.9)	975 (440)
75 (5.2)	880 (400)
50 (3.4)	720 (325)
15 (1.0)	380 (170)

Ordering Information

Model Number	Part Number	NPT Size in. (mm)	Weight lbs. (kg)
655	402724	3/8 (12)	1 (0.5)
655T	402736	3/8 (12)	1 (0.5)
656	402727	1/2 (15)	1 (0.5)
656A	400805	1/2 (15)	1 (0.5)
656T	402739	1/2 (15)	1 (0.5)
657	402730	3/4 (20)	2 (0.9)
657T	402742	3/4 (20)	2 (0.9)
658	402733	1 (25)	3 (1.4)
658T	402745	1 (25)	3 (1.4)