



YARWAY HIGH PRESSURE THERMODYNAMIC DISC STEAM TRAPS 460D3/515D3

REPAIRABLE DRIP AND TRACER STEAM TRAPS

Wide range of steam traps that provide consistent performance in less than perfect conditions.



SERIES 515D3

FEATURES

Thermodynamic Traps

- Repairable
- Easy to check cyclic operation
- Fail open design
- Self-draining (vertical mount)
- Energy efficient subcooled discharge
- Hardened stainless steel valve body and seat
- Single moving part
- Freeze proof
- Withstand superheat
- Unaffected by water hammer

GENERAL APPLICATION

Drip and tracer steam traps provide protection from condensate damage, temperature fluctuation, solidification, separation, and freezing, for steam lines, turbines, valves, risers, expansion loops, steam jacketing as well as pumps, while maintaining consistent performance in less than ideal conditions.

TECHNICAL DATA

Technology:	Thermodynamic
Size:	1/2", 3/4", 1" (DN 15, 20, 25)
Temperature and Pressure Rating:	See Pressure and Temperature ratings curves
Capacity:	Up to 990 lb/h (450 kg/h)
Connections:	Socket weld, flanged on request
Materials:	Low carbon chrome moly steel

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REPAIRABLE DRIP AND TRACER STEAM TRAPS

SERIES 460D3 AND 515D3 TO 1500 PSIG (103 BARG) HIGH PRESSURE STEAM TRAPS

The Yarway High Pressure Integral Strainer Trap is designed with a removable capsule incorporating high pressure disc technology. These traps are designed for a variety of high pressure applications found in utility, industrial and marine service. Typical applications include steam tracing, steam main drip and turbine drain.

The small, lightweight design and broad range of operating pressures are among the many advantages when compared to mechanical traps of the same pressure rating. In addition, the quick change capsule design is renewable in-line with factory assembled internals without the need to disturb the piping.

THERMODYNAMIC

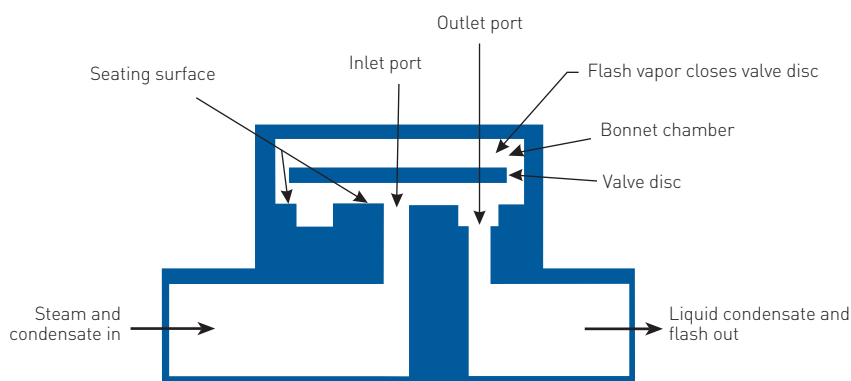
Yarway offers disc traps for drip and tracer applications.

How it works

Disc traps use the energy in hot condensate and steam to open and close the valve disc. The trap senses the difference between cool and hot liquid and gases or vapors. During initial start-up, pressure created by cold condensate pushes the valve disc off the seating surface. This uncovers the inlet and outlet ports, allowing discharge. As condensate reaches the inlet port, it experiences a decrease in pressure and an increase in velocity. As the condensate is very close to steam temperature, the lower pressure will cause it to flash into steam. The resulting high velocity flow beneath the disc, with its attendant localized pressure reduction under the disc, causes it to snap shut. Flow through the trap then stops until the pressure in the chamber over the disc decays sufficiently to allow the inlet pressure to force the disc off its seat. Condensate then flows through the trap until once again it reaches such a velocity and lowering of pressure that flashing occurs and the disc can snap shut. This cycle continuously repeats itself. A key feature is the closing on flashed condensate, maintaining a water seal and preventing steam loss.

All Yarway Thermodynamic Traps deliver consistent features such as:

- Easy to check cyclic operation
- Designed to fail open
- Self-draining (vertically mounted)
- Energy efficient subcooled operation
- Hardened, rugged stainless steel internals
- Installation in any position
- One moving part
- Stainless steel body
- Unaffected by freezing
- Unaffected by water hammer
- Designed for superheat



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REPAIRABLE DRIP AND TRACER STEAM TRAPS

APPLICABLE CODES AND STANDARDS

Pressure ratings per ANSI/FCI-69-1.
Performance testing per ANSI/ASME PTC-39.1.
End connections per ANSI B16.11.

Trap operating conditions

Maximum
operating pressure:
Series 460D3 900 psig (62 barg)
Series 515D3 1500 psig (103 barg)
Minimum
operating pressure: 150 psig (10.3 barg)
Maximum
operating temperature: 900 °F (482 °C)

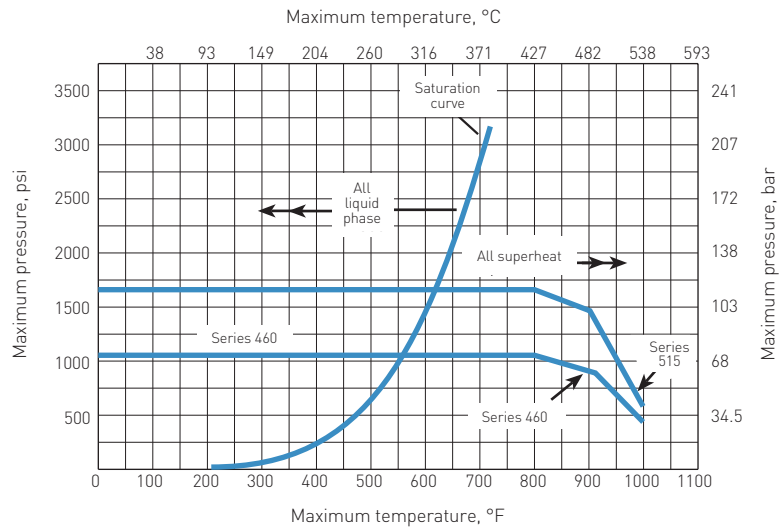
BACK PRESSURE RATINGS

Back pressure to 80%. Back pressures are based on absolute pressure.

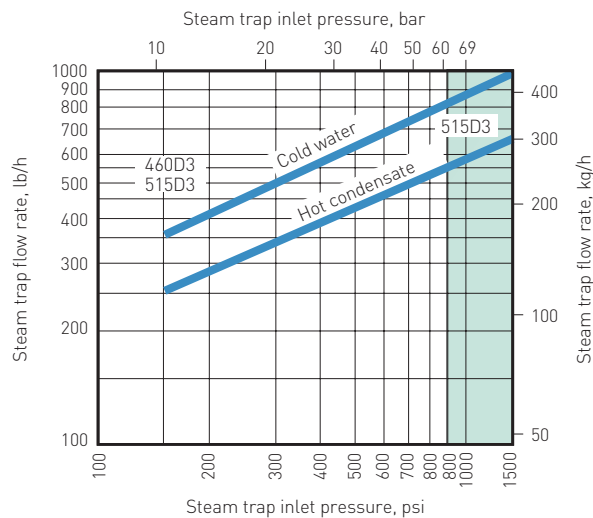
How to interpret the curves

First, use the shell pressure/temperature curves to confirm that the trap selected is suitable for the design maximum pressure and temperature of the application. Then, select the trap on the basis of operating pressure.

SHELL PRESSURE/TEMPERATURE RATINGS



OPERATING PRESSURE RANGES VS. CONDENSATE CAPACITY NEAR STEAM TEMPERATURE (for steam trap sizing)



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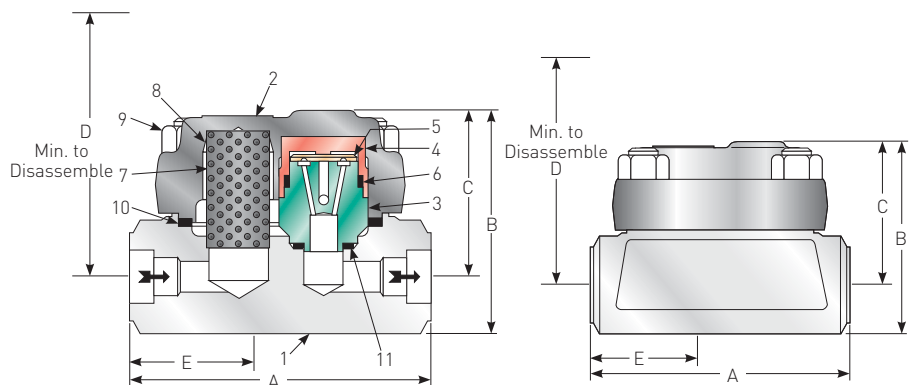
HOW TO SPECIFY AND ORDER

Typical specifications - the trap shall be an integral strainer disc trap with removable capsule, and shall require neither bucket, bellows, nor bimetallic element for operation.

Ordering

1. Designate size of end connections (weights and dimensions table).
2. Designate figure number (selector guide).
3. Designate 'R' for commercial.
Example: ¾" 460D3SWR.

SERIES 460D3 AND 515D3 TO 1500 PSIG (103 BARG) HIGH PRESSURE STEAM TRAPS



DIMENSIONS AND WEIGHTS

Series	Size in. (DN)	Nominal dimensions, in. (mm)							Weight lb (kg)
		A	B	C	D	E ⁽³⁾	G	H	
460D3	½ (15)	4 ¹³ / ₁₆ [122.2]	4 ⁹ / ₁₆ [115.9]	2 ⁷ / ₁₆ [65.1]	5 ⁵ / ₁₆ [135]	1 ⁷ / ₈ [47.6]	0.860 [21.8]	¾ [10.0]	10½ [4.76]
	¾ (20)	4 ¹³ / ₁₆ [122.2]	4 ⁹ / ₁₆ [115.9]	2 ⁷ / ₁₆ [65.1]	5 ⁵ / ₁₆ [135]	1 ⁷ / ₈ [47.6]	1.070 [27.2]	½ [12.5]	10½ [4.76]
	1 (25)	4 ¹³ / ₁₆ [122.2]	4 ⁹ / ₁₆ [115.9]	2 ⁷ / ₁₆ [65.1]	5 ⁵ / ₁₆ [135]	1 ⁷ / ₈ [47.6]	1.335 [33.9]	½ [12.5]	10½ [4.76]
515D3	½ (15)	5½ [139.7]	4⅞ [104.8]	3⅞ [79.4]	5¾ [146]	2 ⁷ / ₃₂ [56.4]	0.860 [21.8]	¾ [10.0]	16 [7.26]
	¾ (20)	5½ [139.7]	4⅞ [104.8]	3⅞ [79.4]	5¾ [146]	2 ⁷ / ₃₂ [56.4]	1.070 [27.2]	½ [12.5]	16 [7.26]
	1 (25)	5½ [139.7]	4⅞ [104.8]	3⅞ [79.4]	5¾ [146]	2 ⁷ / ₃₂ [56.4]	1.335 [33.9]	½ [12.5]	16 [7.26]

PARTS AND MATERIALS

Part No	Part	Material specification	
		460D3 (Class 600)	515D3 (Class 1500)
1	Body	Forged chrome moly ASME SA-182 F-11, 15 Max. C	Forged chrome moly ASME SA-182 F-11, 15 Max. C
2	Trap bonnet	Forged chrome moly ASME SA-182 F-11, 15 Max. C	Forged chrome moly ASME SA-182 F-11, 15 Max. C
3 ⁽¹⁾⁽²⁾	Seat	Stainless steel AISI series 400 heat treated	Stainless steel AISI series 400 heat treated
4 ⁽¹⁾⁽²⁾	Cap	Stainless steel AISI series 400 heat treated	Stainless steel AISI series 400 heat treated
5 ⁽¹⁾⁽²⁾	Disc	Stainless steel AISI series 400 heat treated	Stainless steel AISI series 400 heat treated
6 ⁽¹⁾⁽²⁾	Cap gasket	Grafoil®	Grafoil®, spiral wound non-asbestos
7 ⁽¹⁾	Screen	Stainless steel AISI series 300, 0.020" perf.	Stainless steel AISI series 300, 0.020" perf.
8 ⁽¹⁾	Studs	Steel ASME SA-193 B-16	Steel ASME SA-193 B-16
9 ⁽¹⁾	Nuts	Steel ASTM A-194 B-7	Steel ASTM A-194 B-7
10 ⁽¹⁾	Bonnet gasket	Inconel®/Graphite spiral wound non-asbestos	Inconel®/Graphite spiral wound non-asbestos
11 ⁽¹⁾	Seat gasket	Inconel®/Graphite spiral wound non-asbestos	Inconel®/Graphite spiral wound non-asbestos

NOTES

1. Supplied in a renewal kit.
2. Supplied as a preassembled capsule.
3. ½" socketweld blow-off optional.

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