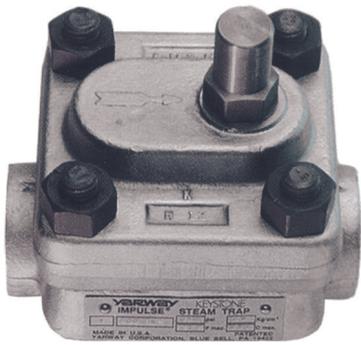




## YARWAY HIGH PRESSURE THERMODYNAMIC PISTON STEAM TRAPS 460/515 REPAIRABLE DRIP AND TRACER STEAM TRAPS

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



SERIES 460



SERIES 515

### 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 4960 lb/h (2250 kg/h)
Connections:	Socket weld, flanged on request
Materials:	Low carbon chrome moly steel

# YARWAY HIGH PRESSURE THERMODYNAMIC PISTON STEAM TRAPS 460/515

## REPAIRABLE DRIP AND TRACER STEAM TRAPS

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

The Yarway High Pressure Integral Strainer Trap is designed with Quick Change Trim (QCT) using the proven variable orifice (piston) internals. These traps are designed for a variety of high pressure applications found in utility, industrial and marine service. Typical applications include steam main drip, turbine drain, soot blower, steam separator, fuel, water, air heater and preheater, protection of expansion joints or loops and control valve.

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 QCT design is renewable in-line with factory set and assembled internals without the need to disturb the piping.

#### 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.

### VARIABLE ORIFICE (PISTON)

Yarway offers variable orifice traps for drip and tracer applications.

All Yarway variable orifice traps deliver consistent features such as:

- Designed to fail open
- Energy efficient
- Hardened, rugged stainless steel internals
- Installation in any position
- Quick change trim
- Forged chrome moly body
- Freeze-resistant
- Unaffected by water hammer
- Designed for superheat

#### How it works

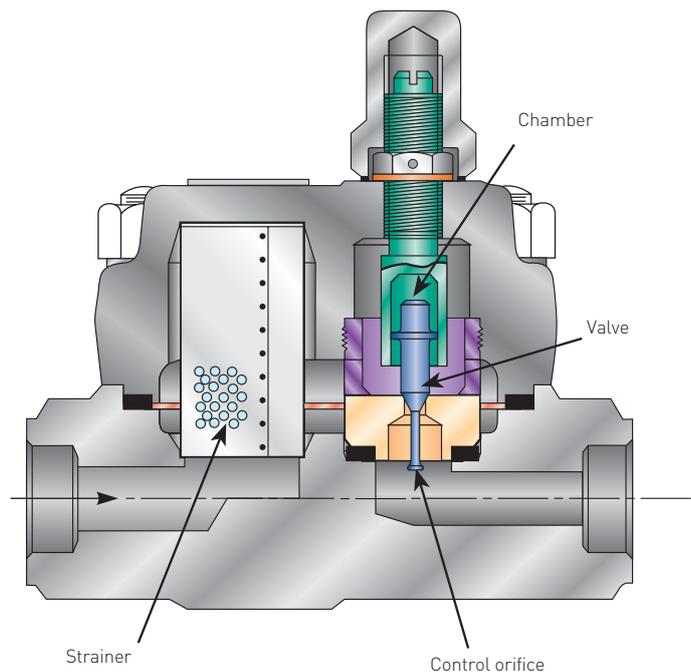
Variable orifice traps differentiate between the energy in cool condensate and flashing condensate as well as gases. Cool condensate opens the valve because the pressure in the chamber above the valve is low. The cool condensate readily drains through the control orifice from the chamber. Hot flashing condensate chokes the flow in the orifice and raises the chamber pressure. The increased chamber pressure closes the valve. When the valve is closed, a small amount of condensate continuously drains through the control orifice, making the trap responsive to changes in condensate load.

#### Guidelines for typical applications

Depending on the application, a steam trap will probably have to handle heavy startup loads, often followed by smaller running loads. The trap's function is to drain the process equipment and thus ensure that effective heat transfer is achieved (through latent heat).

A few guidelines for optimum results include:

- Provide an adequate size process connection from equipment;
- Locate trap below the equipment (water runs downhill);
- Use good piping practice to ensure that clean condensate is presented to the trap;
- Include air vents and vacuum breakers as necessary for effective equipment operation.



# YARWAY HIGH PRESSURE THERMODYNAMIC PISTON STEAM TRAPS 460/515

## REPAIRABLE DRIP AND TRACER STEAM TRAPS

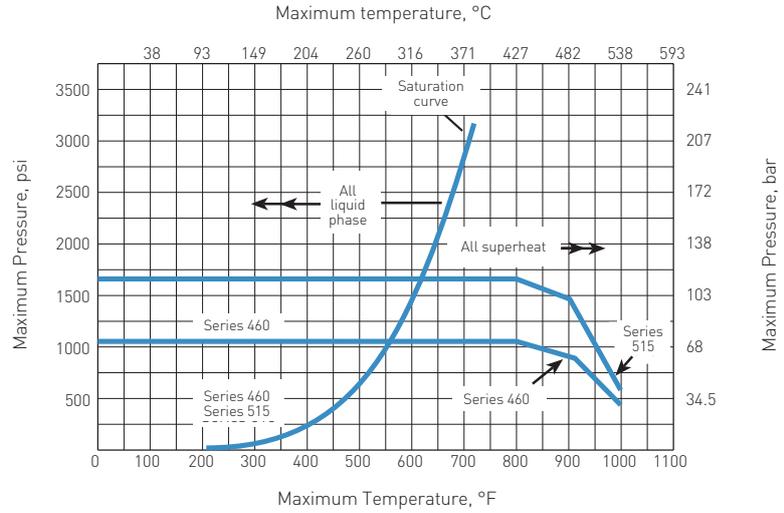
### BACK PRESSURE RATINGS

Back pressure to 25% as factory set for Series 460 and 515; back pressure to 55% for Series 460 with field removal of split washer. Back pressures are based on absolute pressure.

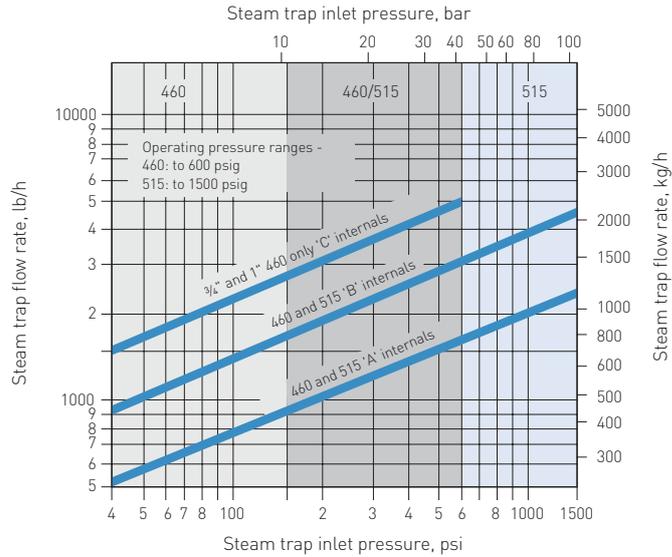
#### How to interpret the curves

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. Finally, select the trap internals that will provide the required discharge capacity at the operating pressure.

### SHELL PRESSURE/TEMPERATURE RATINGS



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



# YARWAY HIGH PRESSURE THERMODYNAMIC PISTON STEAM TRAPS 460/515

## REPAIRABLE DRIP AND TRACER STEAM TRAPS

### HOW TO SPECIFY AND ORDER

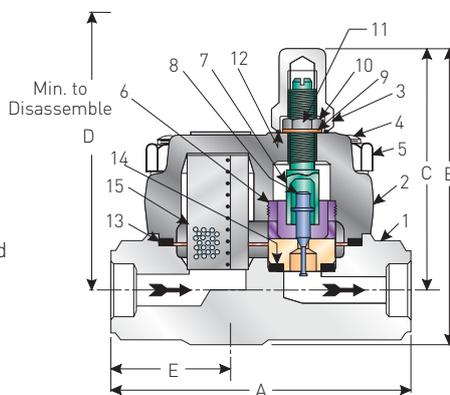
**Typical specifications** - the trap shall be Variable Orifice Piston Valve, Quick Change Trim, Integral Strainer, Impulse® Trap and shall require neither bucket, bellows nor bimetallic element for operation (option - 1/2" socketwelding ends).

#### Ordering

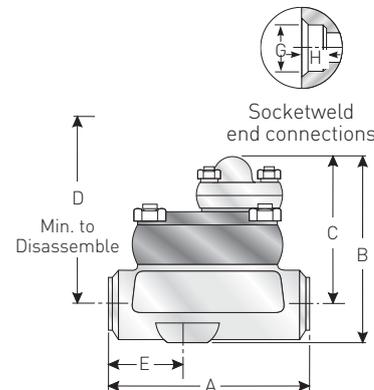
1. Designate size of end connections (weights and dimensions table).
2. Designate figure number (selector guide).
3. Designate trap internals (capacities curve and selector guide).

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

SERIES 460



SERIES 515



### DIMENSIONS AND WEIGHTS

Series	Size in. (DN)	Nominal dimensions, in. (mm)							Weight lb (kg)
		A	B	C	D	E <sup>[2]</sup>	G	H	
460	1/2 (15)	4 <sup>13</sup> / <sub>16</sub> (122.2)	5 (127.0)	4 (101.6)	5 <sup>5</sup> / <sub>16</sub> (134.9)	1 <sup>7</sup> / <sub>8</sub> (47.6)	0.860 (21.8)	3/8 (10.0)	10 1/2 (4.76)
	3/4 (20)	4 <sup>13</sup> / <sub>16</sub> (122.2)	5 (127.0)	4 (101.6)	5 <sup>5</sup> / <sub>16</sub> (134.9)	1 <sup>7</sup> / <sub>8</sub> (47.6)	1.070 (27.0)	1/2 (12.5)	10 1/2 (4.76)
	1 (25)	4 <sup>13</sup> / <sub>16</sub> (122.2)	5 (127.0)	4 (101.6)	5 <sup>5</sup> / <sub>16</sub> (134.9)	1 <sup>7</sup> / <sub>8</sub> (47.6)	1.335 (33.9)	1/2 (12.5)	10 1/2 (4.76)
515	1/2 (15)	5 1/2 (139.7)	5 1/2 (139.7)	4 1/2 (114.3)	7 1/2 (181.0)	2 <sup>7</sup> / <sub>32</sub> (56.4)	0.860 (21.8)	3/8 (10.0)	16 (7.26)
	3/4 (20)	5 1/2 (139.7)	5 1/2 (139.7)	4 1/2 (114.3)	7 1/2 (190.5)	2 <sup>7</sup> / <sub>32</sub> (56.4)	1.070 (27.2)	1/2 (12.5)	16 (7.26)
	1 (25)	5 1/2 (139.7)	5 1/2 (139.7)	4 1/2 (114.3)	7 1/2 (190.5)	2 <sup>7</sup> / <sub>32</sub> (56.4)	1.335 (33.9)	1/2 (12.5)	16 (7.26)

### PARTS AND MATERIALS

Part No	Part	Material specification	
		460 (Class 600)	515 (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	Cap	Stainless steel series 400	Forged chrome moly ASME SA-182 F-11
4	Studs	Steel ASME SA-193 B-16	Steel ASME SA-193 B-16
5	Nuts	Steel ASTM A-194 Gr. 7	Steel ASTM A-194 Gr. 7
6	Seat	Stainless steel AISI series 400 heat treated	Stainless steel AISI series 400 heat treated
7 <sup>[1]</sup>	Control cylinder	Stainless steel AISI series 400 mod.	Stainless steel 17-4 PH heat treated
8 <sup>[1]</sup>	Valve	Stainless steel AISI series 400 heat treated	Stainless steel AISI series 400 heat treated
9 <sup>[1]</sup>	Split washer	Brass	Monel®
10 <sup>[1]</sup>	Lock nut	Stainless steel AISI series 400	Stainless steel AISI series 400
11 <sup>[1]</sup>	Lock pin	Brass	Monel®
12 <sup>[1]</sup>	Cap gasket	Monel®	Inconel®, spiral wound non-asbestos
13 <sup>[1]</sup>	Bonnet gasket	Inconel®, spiral wound non-asbestos	Inconel®, spiral wound non-asbestos
14 <sup>[1]</sup>	Seat gasket	Inconel®, spiral wound non-asbestos	Inconel®, spiral wound non-asbestos
15 <sup>[1]</sup>	Screen	Stainless steel AISI series 300, 0.020" perf.	Stainless steel AISI series 300, 0.020" perf.

### NOTES

1. Supplied in a renewal kit.
  2. 1/2" socketweld blow-off optional.
- Monel® and Inconel® are marks owned by Special Metals Corporation.

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