



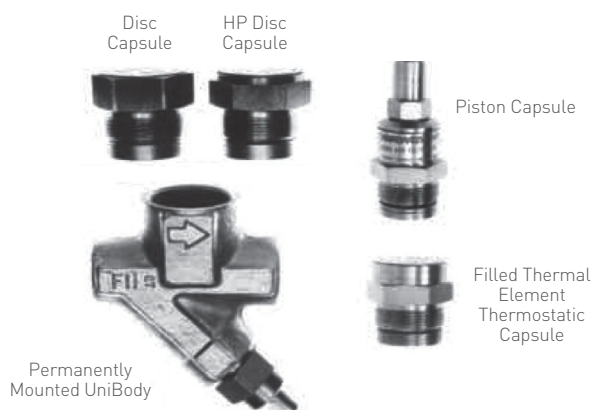
## YARWAY SERIES 711/721, 731/741 AND 751/761 UNIBODY PLUS STEAM TRAPS

### INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Before installation, these instructions must be read carefully and understood.

The UniBody Plus line of steam traps has minimized the time-consuming chore of trap maintenance by packaging three different types of traps (disc, piston, filled thermal element-FTE) in interchangeable capsules which fit a body common to all three types.

The trap body acts merely as a holder for the capsule. Once the body is piped into the line it stays there. To renew the trap merely remove the capsule from the body and install a new one of the same type - or a different type if requirements of the application have changed.



#### RATINGS AND SPECIFICATIONS

Specification	Series					
	711/721	711/721 HC	711/721 XHC	711/721 HP	731/741	751/761
Operating principle	Thermodynamic				Thermodynamic	Thermodynamic
Type	Disc				Piston	Filled thermal element
Design pressure, psig (bar)	600 psig (41.4 bar)	600 psig (41.4 bar)	600 psig (41.4 bar)	650 psig (44.8 bar)	600 psig (41.4 bar)	600 psig (41.4 bar)
Design temperature, °F (°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)
Operating pressure, psig (bar)	4 to 450 psig	4 to 450 psig	4 to 450 psig	150 to 650 psig	L= 20 to 300 psig	5= 4 to 300 psig
	(0.28 to 31 bar)	(0.28 to 31 bar)	(0.28 to 31 bar)	(10.3 to 44.8 bar)	(1.4 to 20.7 bar)	(0.28 to 20.7 bar)
					H= 40 to 600 psig (2.8 to 41.4 bar)	40= 4 to 300 psig (0.28 to 20.7 bar)
						**HP= 4 to 600 psig (0.28 to 41.4 bar)
Operating temperature, °F (°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)	750°F (399°C)	5= 465°F (241°C) 40= 440°F (227°C) HP= 750°F (399°C)
Flow, nominal, lbs/hr (kg/hr) at 100 psi (6.9 bar)	350 lbs/hr	600 lbs/hr	1200 lbs/hr	250 lbs/hr	A= 600 lbs/hr	5 = 450 lbs/hr
	(159 kg/hr) at	(272 kg/hr) at	(544 kg/hr) at	(113 kg/hr) at	(272 kg/hr)	(204 kg/hr)
	100 psi (6.9 bar)	100 psi (6.9 bar)	100 psi (6.9 bar)	100 psi (6.9 bar)	B= 1000 lbs/hr (454 kg/hr) C= 1800 lbs/hr (816 kg/hr) E= 2200 lbs/hr (998 kg/hr)	HP = 450 lbs/hr (204 kg/hr) 40 = 450 lbs/hr (204 kg/hr) 45°F (7°C) (subcooled)
Max. back pressure (% of inlet) based on absolute pressure	80%	80%	70%	80%	L= 40%	N.A.
					H= 25%	
					55% with split washer removed*	
Min. differential pressure (psi)						4

\* Operation 10 to 20 psig (1.7 to 2.4 bar); or back pressures up to 55% of inlet pressure. **First cool trap.** Remove cap nut, turn threaded stem and lock nut counterclockwise. Use pliers to remove split washer. Then turn stem and locknut clockwise until lock nut (without washer) seats tightly, without jamming on top of bonnet. Lubricate thread. Replace gasket and cap nut. Trap is ready for operation.

\*\* Recommended for optimum service life limit to 450 psig / 31 bar.

#### WARNING

*Hot discharge from this device can cause severe burns. Discharge must be piped or directed away so no one will be endangered. This device must be insulated, vented and cool to the touch before repairing or inspecting.*

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### HOW THEY WORK

#### Series 711/721 Thermodynamic Disc Type

Condensate pressure at the seat inlet opens the valve disc. Heat and kinetic energy in flashing hot condensate close the valve disc.

Normal discharge is cyclic. The trap closes near steam temperature.

#### Series 731/741 Thermodynamic Piston Type

This trap uses the heat energy in hot condensate to create pressure above the piston valve, which when combined with choked flow in the control orifice, acts to close the valve.

Cool liquid does not provide sufficient pressure above the piston valve and the valve opens due to the trap inlet pressure.

Normal discharge is cyclic with continuous drainage on heavy loads. On light loads, discharge may be continuous through the small control orifice. The trap closes near steam temperature.

#### Series 751/761 Thermostatic Filled Thermal Element Type

The difference between condensate and steam temperature and subcooled condensate causes the filled thermal element to stroke.

Normal discharge is cyclic, but under extremely low loads and/or low pressure, discharge may be constant. The trap closes below steam temperature.

### WELDING

Socket or seal welding of the trap body to the piping should be completed according to applicable codes, standards and procedures. To prevent internal arcing, do not make electrical welding connections to the trap body or capsule bonnet.

UniBody trap bodies are available in several materials, identified on the side of the forging. The standard material is ASTM A182, F-11, 0.15% Carbon max.

The recommended welding wire for F-11 bodies is **AWS-E-8016-B2**.

Electrical ground should be made to the pipe and not to the trap.

### NOTE

It is not necessary to disassemble the trap prior to welding, but avoid subjecting the capsule to temperatures higher than 250°F (121°C) for the Series 751/761, and no higher than 750°F (399°C) for the Series 711/721 and 731/741. If traps are disassembled, refer to the section on Trap Assembly for proper procedures.

### PIPE, VALVES AND FITTINGS

These should be the same pipe size as the steam trap connection. Isolation or stop valves should be fullported - e.g. gate or ball type.

If piping runs longer than 6 ft (1.83 m) (trap inlet or outlet) use one pipe size larger.

Slope piping to and from the trap. Use eccentric reducers in horizontal lines to avoid "pockets" at the bottom of the pipe.

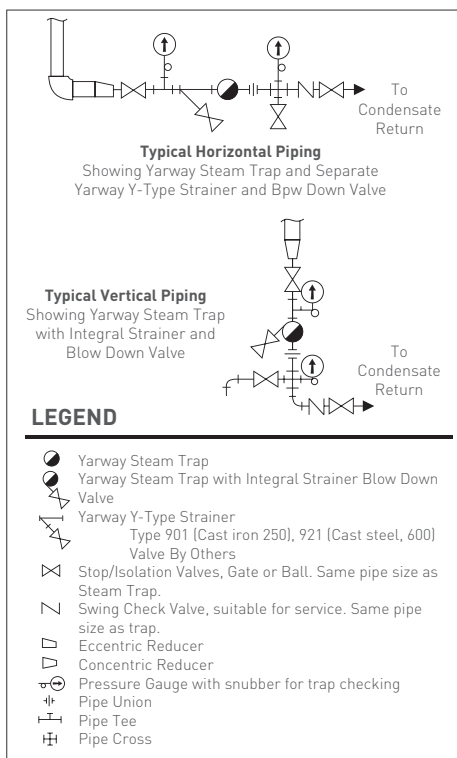
Clean the pipe thoroughly prior to installing the trap. Remove all rust, scale, dirt, oil, rust inhibitors, etc.

Pipe Compound or tape should be used sparingly.

### STRAINERS

Strainers should be installed with blowdown valves immediately upstream of the trap. UniBody traps which have integral strainers and blowdown valves, do not require a separate strainer. Bypasses are not recommended.

### TYPICAL INSTALLATIONS



# YARWAY SERIES 711/721, 731/741 AND 751/761 UNIBODY PLUS STEAM TRAPS

## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

### TRAP INSTALLATION AND POSITION

Capsule position	Series		
	711/721	731/741	751/761
Horizontal line			
Capsule on top	Yes	Yes	Yes
Capsule on side	Yes	Yes	Yes
Vertical line			
Trap discharge down	Yes	Yes	Yes

### DISASSEMBLY, CLEANING AND REASSEMBLY

#### Disassembly

1. Make certain all isolation and stop valves are closed.
2. Slowly open the strainer blow-down and test the valves to relieve pressure.
3. Do not disassemble a hot trap.  
Allow time for it to cool or pour cool water on it prior to disassembly.
4. Use a UniBody tool kit to hold the body and loosen the capsule.

#### Cleaning

1. Remove the capsule from the trap body.  
Internals can be removed from the bonnet for inspection and cleaning.

#### NOTE

Do not mix internals.

2. Wipe the parts clean with a soft rag. Soak them in mineral spirits to assist in cleaning.

#### NOTE

Do not use abrasive materials.

#### Reassembly

1. Clean all gasketing surfaces in the trap body.
2. **Install new gaskets.** When the trap capsule has been removed for inspection or cleaning, remove the seat gasket and wipe the seating surfaces to remove dirt. Replace the gasket with a new unit (P/N 109045). Peel the adhesive backing paper from the new gasket and insert it into the seat with the adhesive surface in contact with the seat. A new seat gasket is supplied with each renewal capsule. Do not reuse gaskets.
3. New capsule threads are lubricated at the factory. If an existing capsule is used, lubricate the bonnet threads with fluorosilicone lubricant or equal.
4. Tighten the capsule to the recommended torque.

### ASSEMBLY TORQUES, FT-LB (N-M)

Parts	Series		
	711/721	731/741	751/761
Trap bonnet	65-75 (88-102)		
Strainer	95-110 (129-149)		
3/8" and 1/2" trap	115-130 (156-176)		
3/4" and 1" trap	(If Strainer body hex has no groove around flats) 95-110 (129-149) (If Strainer body hex has no groove around flats)		
Piston Capsule	N/A	7.9-8.3	N/A
Lock Nut		(10.7-11.3)	
Piston Capsule	N/A	25-30	N/A
Cap Nut		(33.9-40.7)	

### SPARE PARTS AND TOOLS

#### Trap renewal capsule

The renewal capsule is prepackaged and consists of all internal parts, bonnet and gaskets. The capsule is prelubricated. One renewal capsule for each ten installed traps of that type should be stocked.

Series	Construction	Part Number
711/721	SC	YG968358-02
	HC	YG968358-05
	HP	YG969143-02
	XHC	YG963704-04
731/741	AH Internals	YG963781-02
	AL Internals	YG963781-01
	BH Internals	YG963781-04
	BL Internals	YG963781-03
	CL Internals	YG963781-05
	CH Internals	YG963781-06A
	EH Internals	YG963781-08
751/761	EL Internals	YG963781-07
	05 Internals	YG963783-01
	40 Internals	YG963783-02
	HP Internals	YG963783-03

#### Screen and blowdown Valve renewal capsules

The screen/valve renewal kit is prepackaged and consists of the screen, blowdown valve components and gaskets. To order specify quantity and pipe size, and if the strainer body has a groove in the hex flats or does not have a groove.

Example: Qty 2, Screen and Valve Renewal Capsule for 1" Trap, for groove in strainer body hex flats Qty 2, Screen and Valve Renewal Capsule for 1" Trap for no groove in strainer body hex flats.

#### Separate parts

Spare screens should be stocked. One screen for each ten traps on start up; one seat and strainer gasket for each trap installed.

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## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

### TROUBLESHOOTING GUIDE\*

Type of trap	Symptoms		Corrective actions
	Open or continuous discharge	Closed or backing condensate	
Any type of trap	Excessive valve seat wear (1) Dirt on trap seat (1) (2) (5) Bypass constantly blowing (3) Overloaded trap - Discharging continuously (4)	Temperature control valve throttled, insufficient steam pressure (4) Overloaded trap backing up cold condensate (4) Clogged strainer (5) Closed stop valve upstream (6) Closed return line stop valve or check valve (6)	(1) Replace capsule and gaskets. Clean gasketing surfaces. (2) Clean, remove dirt, install Yarway strainer if trap does not have integral strainer. (3) Close, repair bypasses. (4) Review trap selection and sizing criteria. (5) Clean screen, blowdown strainer. (6) Open or repair stop valves or check valves. (7) Install per manufacturer's recommendation.
Disc Series 711/721	Worn seat, disc or bonnet (1) Leaking internal seals/gaskets (1) Excessive back pressure (4) (6) See above - any type trap	Installed backward (7) Air bound (4) See above - any type trap	
Impulse control flow Series 731/741	Worn internals (1) Excessive back pressure (4) (6) Improper adjustment or setting (1) (4) (6) Condensate load too small See above - any type trap	Excessive wear in control cylinder (1) Excessive dirt in control orifice (1) (2) See above - any type trap	
Thermostatic Series 751/761	Filled thermal element failure (1) (4) Excessive back pressure trap draining continuously (4) (6) Worn valve or seat (1) Leaking gaskets (1) See above - any type trap	Valve plugged with dirt (1) (2) (5) Excessive back pressure (4)  See above - any type trap	

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### NOTE

Any malfunction of this product must be reported to the service department. Repair made to the product by unauthorized personnel will void the warranty.

### Right to know laws and osha standard 29CFR (1910.1200)

Material Safety Data Sheets on the following Yarway products:

Valves, Steam Traps and Strainers

The OSHA Hazard Communication Standard 29CFR 1910.1200, states that the standard does not apply to "articles." The standard defines an article as:

"A manufactured item formed to a specific shape or design for a particular use which does not release or otherwise expose an employee to a hazardous chemical under normal conditions of use."

The above named products fall within the definition of an "article", no Material Safety Data Sheets are available or are required. Our product is manufactured as an "end product."

If the product is a weld end the following applies.

### WARNING

*Materials used in manufacture of Yarway products are considered in a stable condition when shipped.*

*However, under certain conditions purchasers could create potential hazardous conditions by their future operations.*

### CAUTION

*Welding, cutting, burning, machining or grinding of this product can generate toxic dust and fumes of potentially hazardous ingredients. The dust or fumes can cause irritation of the respiratory tract, nose, throat, skin and eyes. It may cause temporary or permanent respiratory disease in a small percentage of exposed individuals. Use moderate ventilation when grinding or welding. Avoid breathing dust, fumes or mist. Avoid prolonged skin contact with dust or mist. Maintain dust levels below OSHA and ACGIH levels. Use protective devices. Wash hands thoroughly after contact with dust before eating or smoking.*

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