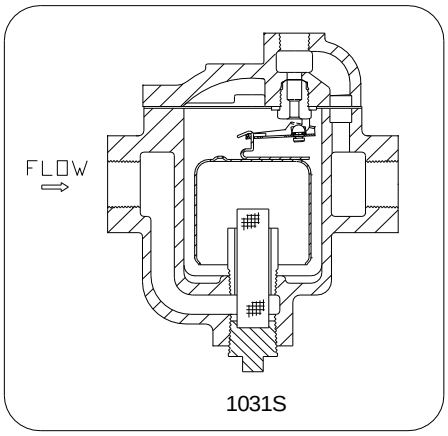
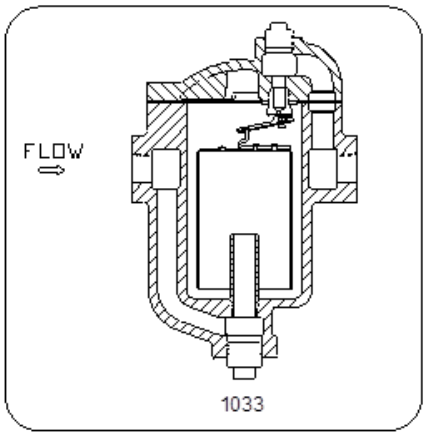
428 Jones Blvd
Limerick Airport Business Center
Pottstown, PA 19464
Phone: 610-495-5131
www.watsonmcdaniel.com

IB Series – Inverted Bucket Steam Trap – Installation, Operation, & Maintenance Instructions

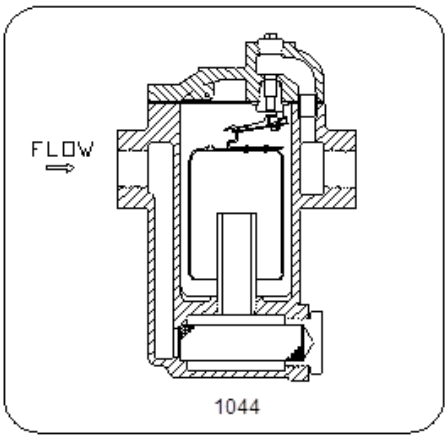
(1031-1032, 1033-1034, 1041-1042, 1044, 1031S, 1038S)



1031S



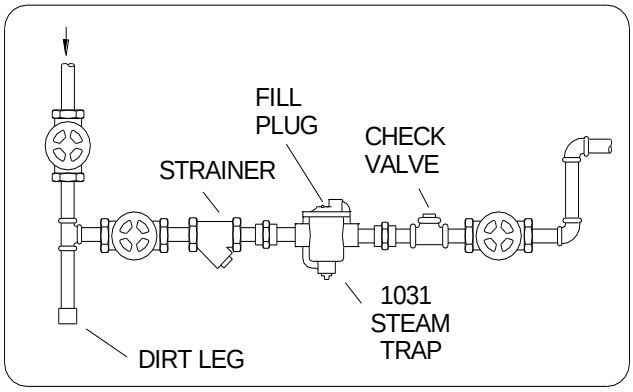
1033



1044

Installation

1. Before installing the Watson McDaniel Inverted Bucket Steam Trap, blow down the piping that leads to the trap's inlet. Use full line pressure to remove all scale, chips, debris, etc. Be sure the trap differential pressure rating is adequate for the installation. The maximum pressure differential (the difference between the trap's inlet and outlet pressures) the trap will open against is stamped on the trap cover.
2. Install the trap in a horizontal pipeline with the inlet below the liquid level of the equipment being drained and in a location easily accessible for inspection and maintenance. A sketch of a recommended hookup arrangement is shown below. Use pipe dope or Teflon tape on pipe joints. Make inlet piping as short as possible with a minimum of elbows and other restrictions. Install a dirt leg in the line ahead of the trap. To allow for maintenance, install a valve on each side of the trap and a strainer ahead of the trap inlet. All valves should be of the full ported type to avoid restricted flow.
3. If the discharge piping is to be elevated, be sure that the differential pressure is adequate to overcome this lift. Install a check valve (optional) in the discharge piping near trap to prevent backflow when the system is not operational.



RECOMMENDED INSTALLATION

Cast Iron	PMO	250 PSIG
	TMO	450°F
	PMA	250 PSIG up to 450°F
	TMA	450°F @ 250 PSIG

Note: Trap must be primed (filled with water) before start up. Without priming trap will not operate. This style trap is not recommended for superheated steam service, as the prime may be lost to the excessive heat.

Operation

1. Having only two moving parts, the valve lever assembly and bucket, these traps will not stick, bind, or clog, since they do not have fixed pivots or complicated linkages. They operate on the difference in density between steam and water.
2. During start-up, the trap is open, air and gases vent slowly out the top of the bucket through the vent hole. Condensate entering through the feed tube forms a water seal on the bottom of the bucket, turning it into a float.
3. When all the condensate has been discharged, the steam enters to fill the bucket, which then snaps up closing the trap. The bucket would normally stay in this position, however when the steam condenses, more condensate enters the trap pushing the gases out through the vent hole causing the bucket to be completely submerged in condensate. Losing its buoyancy, the bucket (its weight being greater than the weight of the water) falls, opening the trap.

Priming The Trap:

1. There are two basic ways of priming an Inverted Bucket Trap. The simplest way is fill the trap with water before installation.
2. The other way to prime a trap is after the trap has been installed in line, close the isolation valve upstream from the trap for a few minutes so that the steam would condense during the dead head, and then slowly open the isolation valve so that the condensate would fill up the trap.
3. Without priming, the Inverted Bucket Trap will not operate.

Maintenance:

1. Isolate trap from both supply and return lines.
2. Wait until trap can be comfortably touched by hand before removing cover.
3. Remove cover and discard gasket.
4. Unhook bucket from lever.
5. Inspect lever and seat assembly for dirt and wear. If worn install a new repair kit. If dirty, clean using method compatible with system.
6. Reinstall cover and bucket assembly using a new gasket.
7. Torque the cover bolts and reactivate supply and return lines.

Ordering Spare Parts:

1. Specify the description of the part. Indicate the trap Series number and differential pressure which is stamped on the cover. Also indicate adjacent Part No.
2. Typical Specification: Series 1031 lever and seat assembly for 20 psig differential pressure. Part No. 5-9.

Materials:

Body & Cover	Cast Iron, ASTM A-278 Class 30
Nuts & Bolts	High-Tensile Steel
Gasket	Garlock
Bucket	Stainless Steel
Lever Seat & Assembly	Stainless Steel
Valve & Seat	Hardened Stainless Steel
*Strainer	Stainless Steel

* 1031S, 1038S, 1041, 1042, 1044 only

Repair Kits:

1031/1041 Repair Parts	
Screen	Part No. 9-01
Gasket	Part No. 3-07
Bucket & Clip	Part No. 4-06
** Lever & Seat Assembly	Part No. 5-09
1032/1042 Repair Parts	
Screen	Part No. 9-02
Gasket	Part No. 3-07
Bucket & Clip	Part No. 4-07
** Lever & Seat Assembly	Part No. 5-10
1034/1044 Repair Parts	
Screen	Part No. 9-03
Gasket	Part No. 3-08
Bucket & Clip	Part No. 4-08
** Lever & Seat Assembly	Part No. 5-11
1033 Repair Parts	
Gasket	Part No. 3-12
Bucket & Clip	Part No. 4-14
** Lever & Seat Assembly	Part No. 5-15
1038S Repair Parts	
Screen	Part No. 9-03S
Gasket	Part No. 3-09S
Bucket & Clip	Part No. 4-09S
** Lever & Seat Assembly	Part No. 5-12S

*** Specify Maximum Operating Inlet Pressure When Ordering*

FOR FURTHER RESOURCES & ASSISTANCE USE THE FOLLOWING QR CODE, CALL (610)-495-5131, OR VISIT www.watsonmcdaniel.com.