4900 Series Air Separators
4900 Series Air and Dirt Separators

Installation, Operation & Maintenance Manual

SUPERSEDES: October 1, 2003 EFFECTIVE: March 1, 2013

GENERAL

All Taco 4900 series separators are designed and fabricated in accordance with the ASME Code for Unfired Pressure Vessels, Sect. VIII Div. 1.

Prior to shipment all separators are hydrostatically tested to 1.3 times their rated working pressure and accepted by an independent insurance inspector.

Each 4900 series separator is shipped in a container designed to protect the unit during handling. Upon receipt of each separator, the shipping container should be examined for external damage. If the shipping container has been damaged in transit, the contents of the packaging should also be examined prior to acceptance of the shipment. If the separator appears to be damaged the shipment should be refused and or signed for as damaged. If the separator is damaged, the local Taco representative should be contacted for further instructions.

INSTALLATION

4900A – Air Separators

Taco 4900A series separators are designed for installation in hydronic systems. The purpose of the 4900A separator is the removal of air from the heating or chilled water system. In a heating system application the separator should be mounted in the piping as close as possible to the exit of the boiler and prior to the pumps in the system. Each separator has been designed to support its own weight when installed in the piping system. These units are not designed to withstand external piping loads which may be transmitted to the nozzles from the piping system. Should external piping loading requirements be present, confirmation from Taco's Design Engineering department regarding the suitability of the separator's design should be obtained prior to installing this product.

When separators are installed, care should be taken to allow access to the ASME name plates, air vent (located at the top of each separator), flushing cock (located at the side of each unit) and drain plug (installed in the bottom of each unit).

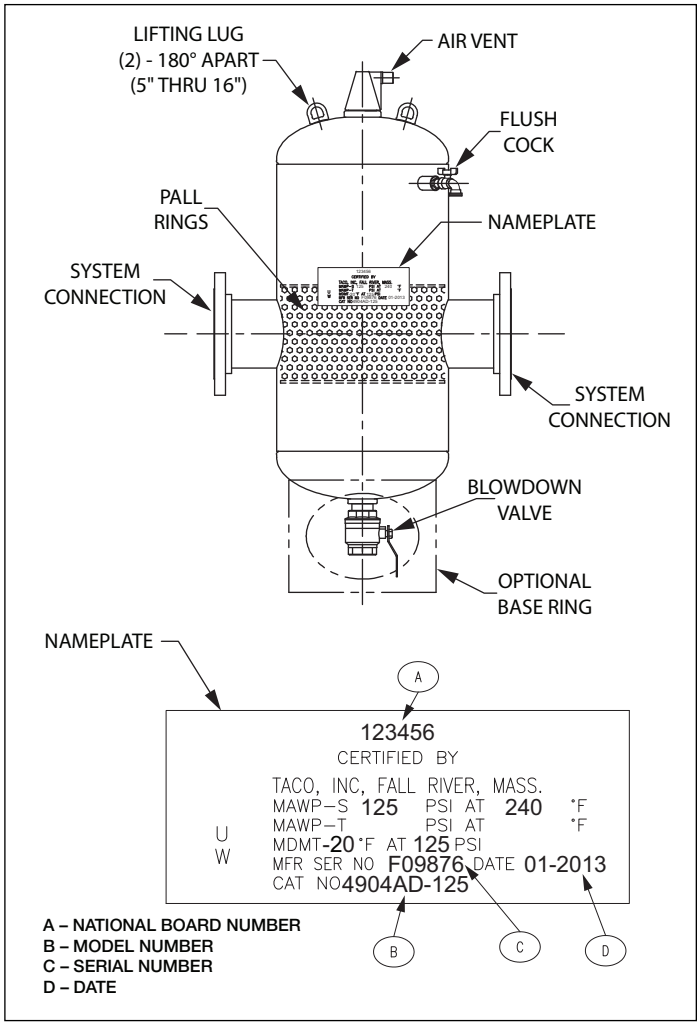
All piping to each separator should be installed full size, to match the vessel's connections, isolation valves on each side of the unit should be installed for future maintenance. The isolation valves are used during maintenance to reduce the loss of system fluid.

4900AD – Air and Dirt or Dirt (D) Separators

Taco 4900AD series separators are designed for installation in hydronic systems. The purpose of the 4900AD separator is the removal of air and dirt from the heating or chilled water system. In a heating system application, the separator should be mounted in the piping as close as possible to the exit of the boiler and prior to the pumps in the system. Each separator has been designed to support its own weight when installed in the piping system. These units are not designed to withstand external piping loads which may be transmitted to the nozzles from the piping system. Should external piping loading requirements be present, confirmation from Taco's Design Engineering department regarding the suitability of the separator's design should be obtained prior to installing this product.

When separators are installed, care should be taken to allow access to the ASME name plates, air vent (located at the top of each separator), and flushing cock (located at the side of each unit). On 4900AD air and dirt separators the drain/blowdown valve located at the bottom of the unit should be piped to drain. This connection should be piped with a full port shutoff valve to a nearby drain during installation.

All piping to each separator should be installed full size, to match the vessel's connections, isolation valves on each side of the unit should be installed for future maintenance. The isolation valves are used during maintenance to reduce the loss of system fluid.



INITIAL SYSTEM FILL

WARNING: Prior to the initial filling of the system the automatic vent installed in the top of the separator **should be closed** to prevent system debris from fouling the venting mechanism.

The automatic vent may be manually closed by turning the orifice screw located in vent face clockwise until seated. Additionally, the flushing cock installed on the side of the separator should be opened to allow the air within the system to exit during the system filling process. The flushing cock should be closed when system fluids first appear to exit the separator from the flushing cock. Upon the completion of the system filling process the orifice of the automatic vent should be re-opened by turning the screw 1 to 1½ turns counterclockwise. Do not overturn the screw beyond 1 to 1½ turns.

MAINTENANCE

A regular inspection schedule should be adopted and carried out by competent personnel to examine the pressure vessel for corrosion and its cause, extent and possible arrest, to determine minimum metal thicknesses, maximum metal temperatures, calculation of reduction in allowable working pressure and to conduct hydrostatic tests. Also, defects such as cracks, laminations and distortion of shell, heads or connections should be noted and repaired if possible, after consultation with and acceptance by a commissioned authorized inspector who shall be involved at all stages of any repairs or alterations of the ASME vessel.

In addition, the operation of the air vent, flush cock and drain valves (if installed) should be checked for proper operation. **CAUTION: NEVER OPEN A VESSEL UNTIL THE SYSTEM PRESSURE IS OFF AND THE VESSEL HAS BEEN ISOLATED AND DRAINED. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.**

The Taco automatic air vent located in the top of the air separator is designed to prevent system fluid or debris from fouling the venting mechanism. Periodically the flushing cock on the side of the separator should be opened by qualified personnel in order to clean any system debris which may have accumulated at the air/system fluid interface beneath the vent. **CAUTION: CARE SHOULD BE UNDERTAKEN WHEN OPENING THE FLUSHING COCK AS SYSTEM FLUIDS MAY BE UNDER HIGH TEMPERATURE AND OR PRESSURE. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.** This procedure should only be performed by properly trained personnel.

Systems where Air/Dirt or Dirt separators are installed should be periodically blowdown by properly trained personnel to remove sand, dirt or other system debris. The frequency of this cleaning is dependent upon the nature of the system fluid. Initially the system is blowdown after the first 12 hours of operation. Dependent upon the amount of debris removed during the blowdown process, subsequent blowdown should be scheduled at a minimum of every three months for a minimum of three minutes.

The blowdown process should be undertaken by trained personnel only. **CAUTION: CARE SHOULD BE UNDERTAKEN DURING SYSTEM BLOWDOWN AS SYSTEM FLUIDS MAY BE UNDER HIGH TEMPERATURE AND PRESSURE. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.**

The separator should be isolated from the system by closing the adjacent valves as needed. Residual pressure within the separator should be reduced by slowly opening the factory installed blowdown valve. Make-up water may be introduced through the flushing cock located on the side of the separator to promote further rinsing of the internals of the separator without wasting system fluids.

See Related Documents: 400-1.4 Catalog
401-091, 092, 093, 094, 109, 135, 136, 137, 138 and 401-072R, 073R, 075R, 076R Submittals
4900 SPEC 05/08/08 Specification

Limited Warranty

Taco, Inc. will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within one (1) year from the date of start-up or one (1) year and six (6) months from date of shipment (whichever occurs first).

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which has been subject to misuse, misapplication, the addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at [401-942-8000].

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

TACO OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS IS IN EFFECT ONLY FOR THE DURATION OF THE EXPRESS WARRANTY SET FORTH IN THE FIRST PARAGRAPH ABOVE.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF TACO.

TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.

Do it Once. Do it Right.®

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