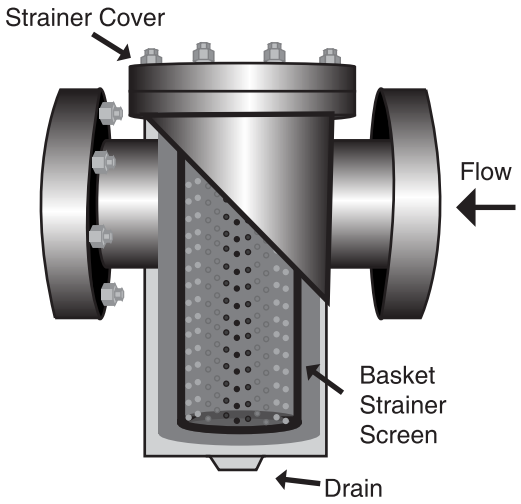
Basket Strainers
Installation, Operation and Maintenance

This manual contains information concerning the installation, operation, and maintenance of Basket Strainers. To ensure efficient and safe operation of Basket Strainers, the instructions in this manual should be thoroughly understood. These instructions are not meant to take the place of an on-site process engineer for installation. Please retain these instructions where they are readily available for reference.



Overview:

A basket strainer is installed into a pipeline system to remove unwanted debris from the pipeline flow. Basket Strainers are commonly used in pipelines where debris loading is found and the collection of solids is required. Basket Strainers can be installed in series to provide more effective filtration of unwanted debris.

Straining of the pipeline flow is accomplished via a perforated or mesh lined basket, internal to the strainer. In general, the size of the basket perforation should be slightly smaller than the smallest debris particle to be removed. If the basket perforation is undersized, the basket may require excessive cleaning. Conversely, if the basket perforation is oversized, unwanted debris may be permitted to flow through the pipeline, possibly damaging downstream equipment.

Prior to strainer selection the following factors must be determined:

- Material constructed requirements of the basket strainer
- Design and working pressure/temperature requirements
- Operating conditions (throttling, pressure drop, condensation, flow reversal, operation frequency, etc.)
- Service media type (liquid, gas, abrasive, corrosive, dirty, etc.).
- Pipeline media flow-rate and viscosity
- Debris size to be removed and debris loading of the pipeline
- Ability to interrupt flow for servicing and cleaning
- Clean Start-up pressure of the pipeline
- Space availability for installation

Please contact an American Wheatley HVAC representative prior to selection and purchase.

JOB NAME _____
LOCATION _____
_____
_____
CONTRACTOR _____
CONTRACTOR P.O. NO. _____

ITEMS	QUANTITY

American WHEATLEY HVAC PRODUCTS®
A GFP COMPANY
2701 W. Concord Street
Broken Arrow, OK 74012
Toll Free: 866-204-5229
PH: 918-317-0401
FAX: 918-317-0407
www.wheatleyhvac.com
e-mail: sales@globalflowproducts.com

Unpacking and Inspection:

Visually inspect the basket strainer for any signs of damage including scratches, loose parts, broken parts or any other physical damage that may have occurred during shipment. If damage is observed, immediately file a claim with the shipping carrier. Basket Strainers that are damaged during transportation are the responsibility of the customer. For information regarding our warranty policy, please visit our website.

If the Basket Strainer is not required to be installed immediately, it should be stored indoors in a clean, dry, consistent temperature environment. If long term storage is required, a desiccant may be necessary.

Installation:

Prior to Installation Checklist:

Step 1: Make sure that the construction material of the strainer is chemically compatible with the media flowing in the pipeline.

Step 2: For large or heavy Basket Strainers appropriate handling equipment must be utilized to ensure proper installation of the basket strainer and prevent injury.

Step 3: Inspect the Basket Strainer's flange end and the pipeline's mating flanges to ensure gasket surfaces are free of defects. The pipeline should also be checked for proper alignment. Existing piping system must align with inlet and outlet flanges of basket strainer.

Step 4: Ensure that the pipeline's mating flanges are the same type as the Basket Strainer being installed. Raised face flange ends cannot be mated to flat face flange ends.

Step 5: Ensure that the pipeline set-up allows a horizontal installation of the basket strainer.
If pipeline strain is a concern when installing larger Basket Strainers (6" or above), a concrete or steel pad should be used to provide additional support. Larger Basket Strainers can also be fitted with saddles or legs to reduce strain on the pipeline.

Step 6: If the Basket Strainer is to be located on the discharge side of a pump, then a safety release valve must be installed between the basket strainer and the pump.

Installation Procedure:

Step 1: Strainers must be positioned in the pipeline ahead of the equipment requiring protection. If the equipment requiring protection is a pump, the Basket Strainer must be placed on the suction side of the pump.

Step 2: To provide for easier maintenance, the Basket Strainer should be located where the drain can be accessed and where there is ample space for screen removal.

Step 3: Before placing the Basket Strainer into place, support the existing pipeline with pipe supports near the inlet and outlet connections of the basket strainer.

2701 W. Concord Street, Broken Arrow, OK 74012
Toll Free: 866-204-5229 PH: 918-317-0401
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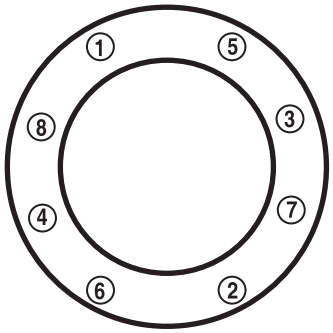
Step 4: Place the Basket Strainer into the pipeline, ensure that the Basket Strainer is properly aligned with the direction of the pipeline flow. For larger or heavy Basket Strainers, lift the Basket Strainer into place using slings positioned underneath the inlet and outlet connections and or lifting lugs supplied with the Basket Strainer. Install the required ANSI flange gasket between the Basket Strainer and pipeline flanges, on both sides.



Step 5: Install lubricated flange bolts and hand tighten. Flange bolts should then be tightened, using a star or crisscross pattern to evenly load the bolts, in accordance with established piping standards. This is illustrated as shown. Excessive bolt torque may damage flanges. Please refer to established flange bolt torques for guidelines.

Operation:

Once proper installation has been successfully completed, start the system gradually, at start up as well as after shut down. This eliminates sudden shock to the strainer and other equipment in the line.

Start-up Procedure:

Step 1: Remove air from the pipeline by opening the blow-down valve or other vent near the Basket Strainer.

Step 2: Start the piping system by opening the outlet valve nearest the Basket Strainer's outlet first. The gradually open the inlet valve nearest the Basket Strainer's inlet, approximately 25% of normal operational flow. It is important to start the system gradually to avoid displacing or damaging the Basket Strainer.

Step 3: Continue to open the inlet valve until the desired service flow has been reached.

Step 4: Close blow-down valve or other pipeline vent.

Caution: With piping systems that contain fluids other than water or when the working temperature is above 120° F, fluid must be drained to safe area, away from the operator. Operators should always be fitted with appropriate protective equipment when venting is performed.

Maintenance:

Once Basket Strainers are properly installed they require little maintenance. Periodically check the differential pressure across the basket to determine if the basket needs to be cleaned or replaced. If the screen becomes completely clogged, the screen will break and require replacement.

Regular maintenance involves, periodically checking for leaks and routine cleaning or replacement of screens.

During normal use, the basket will become clogged with foreign matter, causing the differential pressure to

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increase. Once the differential pressure has increased to an unacceptable value, typically by 5 psi to 10 psi, it is time to clean or replace the basket. It is not advisable to let the differential pressure increase by 20 psi. This may cause the screen to fail and possibly damage downstream equipment.

A convenient and safe way to determine when the basket needs to be replaced is to install pressure gauges on the inlet and outlet sides of the Basket Strainer. The maximum acceptable pressure drop across the Basket Strainer will indicate when the screen needs to be replaced. Basket size and construction determine the maximum pressure drop a Basket Strainer can withstand.

Important: Basket Strainer screens are not designed to withstand the same pressure ratings as the housings. If the basket becomes completely clogged, it will be exposed to the same pressure as the housing. In most cases, this will cause the basket to fail and potentially damage downstream equipment.

Strainer Element Cleaning:

Caution: Before removing the cover of the Basket strainer, the pressure inside the vessel must be reduced to atmospheric via suction or venting. Failure to do so may result in serious bodily injury. Before removing the Basket Strainer's cover, ensure that the media that is flowing in the pipeline is known and any special handling precautions are understood. Please review the Material Safety Data Sheet (MSDS) for that specific fluid.

Step 1: Isolate the Basket Strainer by closing the inlet and outlet valve connections on either side of the Basket strainer.

Step 2: Open vent or drain outlet to relieve pressure inside the Basket Strainer. Drain fluid up to screen seat level.

Step 3: Once pressure is relieved, remove the cover.

Step 4: Remove basket and clean. Avoid banging or hitting the screen to remove stubborn debris. It is recommended to use a high pressure water or air stream to clean screen.

Step 5: Inspect basket and cover gasket for damage. If either is damaged, replace. Always ensure there is a spare gasket and basket on hand prior to routine maintenance.

Step 6: Replace clean basket into its original position, ensuring it is squarely positioned on the screen seat.

Step 7: Replace cover gasket and replace and tighten flange cover. Torque bolts, to recommended standards. Follow the Start-up procedure outlined within the Installation Instructions.

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