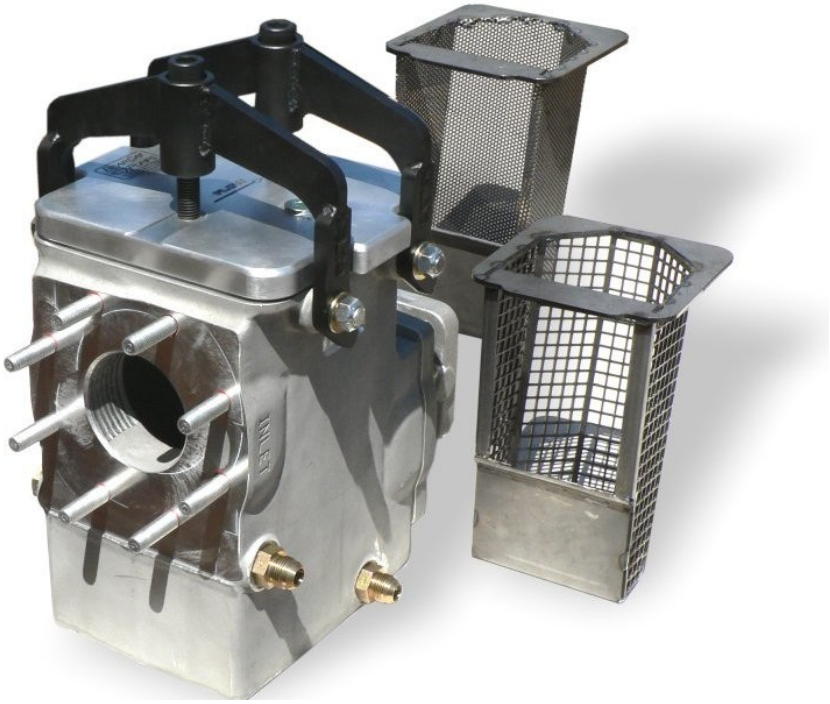
BEARCAT PUMPS

www.bearcatpumps.com

Service Manual
Screen Box (4” Port)



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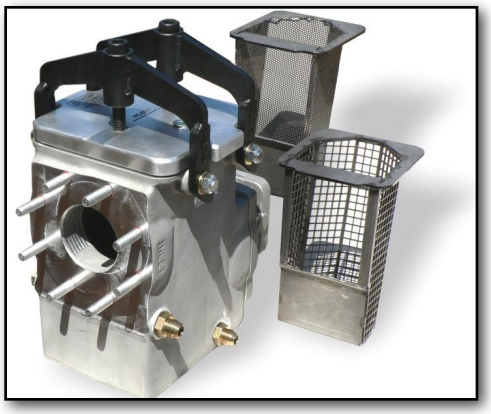
GENERAL SAFETY PRECAUTIONS

- This manual should be read entirely prior to the commencement of installation and operation.
- Only qualified personnel should install, operate and maintain this screen box and associated equipment.
- Check screen box for specific safety warnings/labels.
- Prior to start-up, ensure complete cleanliness and integrity of the system in which the screen box is installed.
- Ensure all guards are securely in place before operating the equipment. Do not remove guards at any time during operation.
- For screen box operating under 'flooded' suction, when venting the screen box through a plug or valve, care should be taken not to completely remove vent plugs or completely open any vent as this could result in liquid being discharged from the openings under pressure.
- Prior to start-up, ensure that the system valves and associated equipment are correctly set.
- If opening valves upstream of the screen box, be sure to do so slowly in order to prevent 'water hammer'. It should take about 10 seconds to fully open a ¼ turn plug valve.
- Wear appropriate safety attire including long sleeves, face shield, and gloves whenever starting or operating the screen box.

OVERVIEW

The BearCat 4" Screen Box is a material filter designed for the high temperature extremities of the asphalt industry. It makes an excellent accessory in many pumping or metering applications.



Filter Mesh for Different Functions

We can provide two different mesh sizes depending on application: a coarse screen for high volume pump and component protection, or a fine screen for filtering particles that may otherwise clog spray nozzles downstream.

Eliminate Air Leaks when Metering with Micro Motion®

The Screen Box works exceptionally well when up-stream of a Micro Motion® mass flow meter. Traditional screen boxes are especially prone to air leaks. This entrained air can be detrimental to function of the meter. Our thick lid, o-ring seal, and center bolt location are a perfect combination for ease of use and air-leak elimination!

Using Screen Box as a Priming Point

One of the unique design features of the screen box is as a priming point. If mounted adjacent to a pump, 1-2 gallons of acceptable oil may be added to the screen box to serve as a priming point for the pump. In factory tests, we have produced 5 times the vacuum by this simple addition of priming liquid as compared to an unprimed pump. The inlet to screen is 4" higher than the discharge to the pump. This insures some liquid remains even after reversing to empty the lines. This remaining material is quick to liquify due to the base oil jacket, and once liquid it then serves as the priming liquid at each start-up.

Pumping from a below ground storage tank, or any situation where the liquid is below the inlet of the pump, is a situation that would benefit in the use of a screen box as a priming point. The benefits being that the enhanced vacuum created by the liquid prime is a direct translation to more lift (the systems ability to draw the liquid up the pipe and in to the pump). Not only does the pumps ability to 'prime' itself improve, but its service life as well. Many times, marginal (but working) pumps will be pulled from service simply because they cannot establish a prime.

INSTALLATION

Caution:

Be sure all guards are in place, and all appropriate safety gear is worn prior to starting flow.

All personnel within the vicinity must wear appropriate safety apparel. Including gloves, face shield and long sleeves.

During initial run, pump speed should be operated at minimum in order to insure all functions are normal and connections are leak free.

Cautiously increase to normal operating speed.

Piping Strain

To ensure undue forces are not present, flange bolts (suction and discharge) should be completely slackened. If flanges are observed to spring apart, twist or move out of parallel excessively, remedial action must be taken.

Thermal Expansion

The piping system can expand and contract considerably with the changes in temperature. Ensure that the final system allows for this change.

Re-tighten All Bolts

Once the pump reaches operating temperature, all flange connecting bolts should be tightened. At temperature, green gaskets will soften and cause the connection to loosen. Retightening the bolts will prevent further leaks from developing.

CLEANING SCREEN

T his procedure should be done with contents in hot liquified state.

1. Be sure pump is turned off and rotation has come to a complete stop.

2. Close Up-stream and Down-Stream valves in order to prevent head pressure of liquid from flowing to screen box.

3. Slowly unscrew 'air bleed plug' (do not unscrew completely!). If any air or liquid discharges, re-tighten 'air bleed plug' and take remedial action in eliminating pressure feeding to the screen box.

4. If no pressure discharges the 'Air Bleed Plug'. Then slowly loosen the Saddle clamp bolts. Back them out until the clamp can pivot 90deg. Note: One of the clamps has a cam extension for breaking the lid seal. Pivot past 90deg to pry lid up from seal.

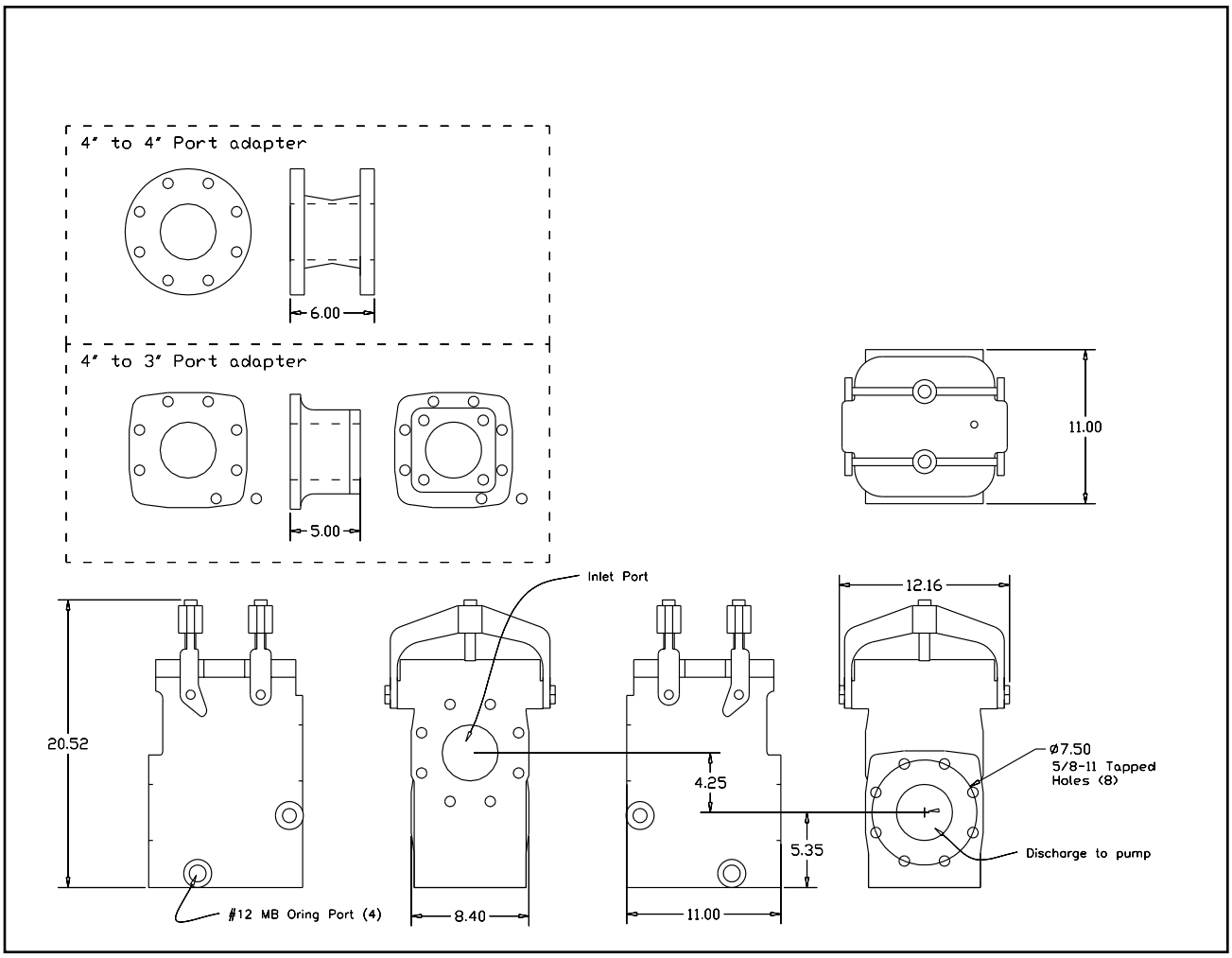
5. Clean screen and replace.

6. Insure seal surface for lid and o-ring is clean and free from debris. Lubricate top flat of housing where o-ring seats with 'never seize'. Replace lid insure proper mount direction.

7. Tighten clamp bolts until lid surface contacts housing surface then an addition ¼ - ½ turn.

8. Re-tighten 'air bleed' plug.

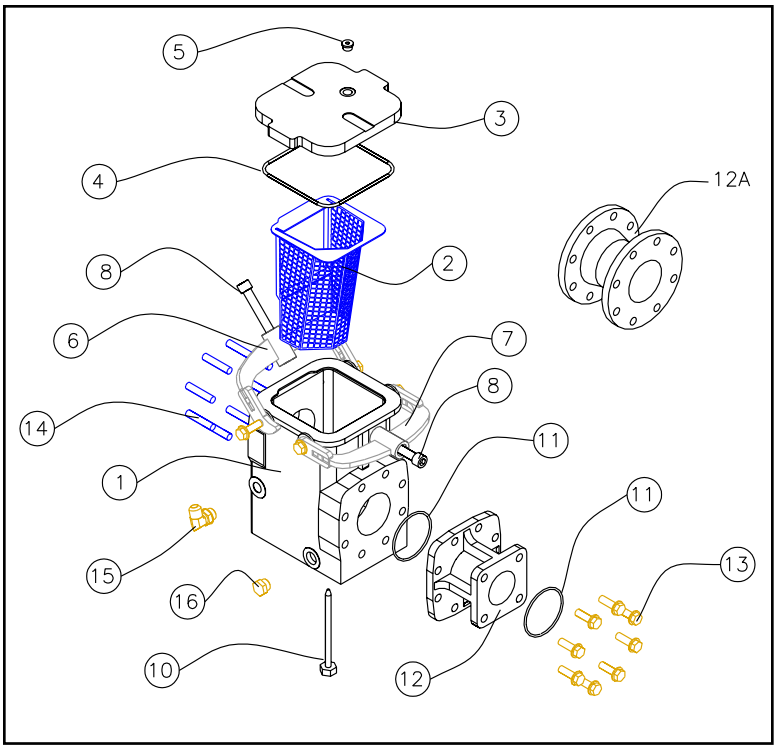
SCREEN BOX DIMENSIONS



Port Size

Port size is a 5" pump port. It is the equivalent bolt circle of a 4" ANSI 150# Pipe flange and can be bolted directly to that flange using standard size gaskets and fittings. For high performance requirements, consult factory for specification and weld on flanges for 5" line size connections.

PARTS DIAGRAM - SCREEN BOX ASSEMBLY



To order specify model configuration followed by item; (ex- 4" Screen Box)

(1) Main Housing
(2) .18 Diameter Fine Screen
or
(2) .43 Square Coarse Screen
(3) Lid
(4) Lid Seal, o-ring
(5) Vent Cap w/oring
(6) Saddle Clamp w/cam
(7) Saddle Clamp
(8) Saddle Clamp Bolt
(10) Base Plug w/rod
(11) Port Connector, o-ring
(12) 3-4 Port Connector
or
(12) 4-4 Port Connector
(13) ⅝-11 x 2" Hex Bolt
(14) ⅝-11 x 3" Stud
(15) #12 MB - #12MJ 90deg
(16) #12 MB Plug

TECHNICAL DATA

Maximum Operating Limitations

- Maximum Pressure: 50 PSI (3.5 BAR)
- Maximum Temperature: 500°F (260°C)
- Maximum Flow Rate: 500GPM (1890LPM) – 0.43 Coarse Screen
- Maximum Flow Rate: 250GPM (950LPM) – 0.18 Fine Screen

Actual flow can be limited by any number of parameters. Line flow restrictions, viscosity, material type etc. The standard maximum Flow Rate is based on ideal conditions.