

Drilling Series

SC Series Cellular Suction Stabilizers



Instruction, Operating & Maintenance Manual



Manufacturer of Pulsation Control Products

www.performancepulsation.com | sales@performancepulsation.com
3309 Essex Dr. Suite 200, Richardson, Texas 75082 | Phone: 972.699.8600 | Fax: 972.699.8602

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This manual describes operating practices, periodic inspection and maintenance procedures applicable SC-Series Maintenance Free Cellular Suction Stabilizers contained herein reflects recommendations based on industry best practices and recognized safety protocols. Use of the information and procedures contained in this manual is voluntary and is to be implemented at the sole discretion of the user. The user is at all times responsible for operating and maintaining pulsation dampeners in a manner that is safe, conforms to the owner's established business practices, and is in conformance with applicable regulations.

NOTE: Please read all instructions carefully before proceeding with the installation, operation, and charging of this equipment. Contact Performance Pulsation Control for assistance or questions concerning the information in this manual.

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MATERIALS NEEDED:

- General Hand Tools

INSTALLATION:

Before installation, visually check the dampener or stabilizer for damage.

NOTE: For maximum performance, dampeners or stabilizer should be installed as close as possible to the pump on which it is to be used. Verify that the mounting provision location is no more than 10 times the relevant pipe diameter from the pump discharge or suction interface.

INSTALLATION INSTRUCTIONS

1. Lift the stabilizer using the lifting lugs, or by slings in a location that provides a stable, safe lift.


CAUTION

Only lift the stabilizer after completely drained.

2. Install the suction stabilizer within the piping as indicated by the direction arrow on the inlet connection. Bolting should be per standard piping practices. Flange gaskets should be suitable for the service.

NOTE: Suction stabilizers and connecting piping require proper support in order to reduce nozzle and piping loads. Support should be provided with PPC's standard footpads or with special piping supports as may be specified by user.

START UP:

Be sure that prior to start-up the dampener or stabilizer is fully primed. This will avoid trapped air being absorbed into the fluid flow and increasing the time to achieve maximum performance.


WARNING

If the fluid is toxic, flammable, or corrosive, take proper precautions to remove the vapor.

1. Turn on pump and set to operating conditions.
2. Slowly open the vent until liquid comes out, then immediately close the vent.


CAUTION

Take care to capture any fluid that flows out in order to prevent spillage or area contamination.

LOW TEMPERATURE OPERATION

To prevent damaging the stabilizer from freezing of liquids in the system during operation or shut-down, it should be protected from freezing temperatures or drained if freezing temperatures are expected.

OVERVIEW

This equipment is intended to be maintenance free for long periods of time, however the cellular tube(s) contained inside will most likely need to be replaced at some future time. As with all pressure vessels, some general inspection of equipment is recommended. Both the suction stabilizer and the pump are subjected to the same pressures and effects imposed by the pumped media. This means that over time the effects of the pumping action and pump flow can deteriorate components. The following recommendations are made for inspection and maintenance of PPC Cellular Suction Stabilizers,

General review of all components of the suction stabilizer should be done on the regular scheduled timing of your major component inspection and maintenance - every 12 to 24 months is a general guideline in lieu of no other set standard.

Minimally, the review should consist of inspection of the following items:

1. Cellular Tube(s)
2. Vent (if applicable)
3. Drain (if applicable)
4. Gasket Seal Surfaces
5. Pressure Vessel Integrity
6. Footpads
7. Lift Lugs

INSPECTION PROCEDURE:

1. Isolate the suction stabilizer from the suction system and the manifold of the pump.
2. Relieve pressure off of the suction stabilizer using system vent, stabilizer vent, if available or stabilizer drain, if available.



CAUTION

Refer to standard procedures for proper management of corrosive or otherwise dangerous fluids.



CAUTION

Capture fluid flowing out.

4. Vent and drain openings should be opened to verify that the passages are still clear for the purpose which it was intended.

NOTE: *In either case, the openings may require periodic cleaning to keep the openings operational. The openings will tend to plug with the barite and solids present in the drilling process.*

5. The cellular tube(s), located in the cylindrical portion of the body of the unit will need to be removed for inspection. This requires the large body flange at the end of the cylindrical section of the unit to be unbolted, exposing the cellular tube(s) for removal.

NOTE: *The system flange connected to the suction stabilizer inlet flange may need to be unbolted. Disconnect the system flange from the suction stabilizer inlet to allow the large body flange to be removed.*

6. Remove the cellular tube(s) completely from the unit and set on the ground for inspection.
7. Wash the cellular tube with compatible fluids used in general service of the unit to remove all mud and solids from surfaces.



CAUTION

Take care to capture any fluid that flows out in order to prevent spillage or area contamination.

8. Examine the outer skin surface of the cellular tube to insure that no mechanical or chemical damage has occurred to these surfaces. The inside diameter, outside diameter, and ends need to be examined for any damage.
9. Check the cellular tube to insure that the tube has not been chemically damaged. It should be round in shape and relatively stiff in its ability to retain this round shape. A tube should be spongy or springy and return to its original shape after pressure is applied.
10. The body of the vessel can be inspected with the large body flange removed.

11. Examine inside the suction stabilizer for any solids or drilling mud buildup. Clean any solids out of the unit to insure that the full volume of the stabilizer is usable.
12. Check to the process nozzle areas for any evidence of wear or erosion due to flow of drilling mud through the unit.
13. Inspect the baffle plate (only certain units are equipped with this) located in the lower section of the vessel below where the cellular tubes are located. Check for any mechanical damage, wear or erosion of the baffle plate.
14. Inspect the inside of the vessel for any other signs of wear or damage that seem unusual.
15. Inspect all gasket seal surfaces and flanges. Clean or repair as necessary.
16. After inspection of suction stabilizer body and cellular tube if the suction stabilizer appears to be in good working condition, the unit needs to be reassembled and readied for service.
17. Replace new or existing cellular tube(s), as applicable into the body of the unit by sliding the tube through the large body flange opening. The tube should easily clear the opening during this procedure. If there is any interference, do not force the tube into the vessel. Remove and identify the problem before continuing.
18. Install new gasket onto body flange facing, being careful to insure correct size and rating is used.
19. Replace blind flange assembly onto body flange.
20. Re-install studs and nuts. Torque studs and nut using standard practice.
21. If applicable, reconnect the system flange to the suction stabilizer inlet flange with the existing fasteners (bolts or studs/nuts). Torque studs and nuts using standard practice.
22. Insure that the drain plug is sealed properly, taking care not to cross thread.
23. Fill unit with process fluid and vent all air from suction stabilizer to insure that no air may flow directly into pump. Close/replace vent plug, taking care not to cross thread.
24. Prepare suction stabilizer for system use by opening the appropriate suction system valves.

 **CAUTION**

Please use all safety measure required to insure that all procedures performed do not place risk on any personnel or equipment.

CORROSIVE FLUID INSPECTIONS

If pumping a corrosive fluid, please complete an appropriate inspection of the pressure vessel based on your company's policies, local regulation, or on a 1-2 year interval.