

FSI VIBRATING FILTER OPERATION VFSP-35 VBFN-14

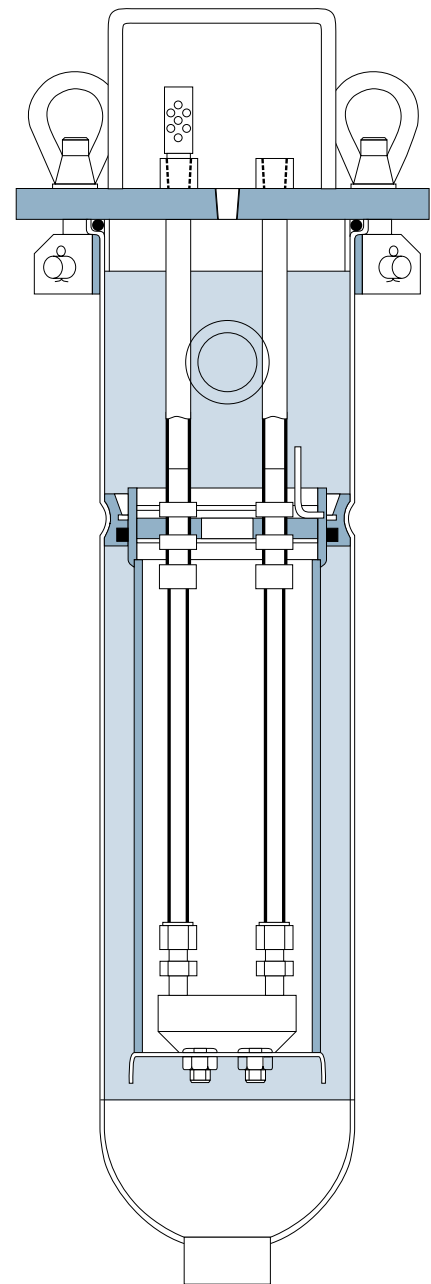
- FSI vibrating bag filter housings prevent paint components, such as mica/metallic enhancers, from becoming entrapped during a filtering operation.
- The filter is operated by compressed air which delivers a wide range of high energy vibrations to the filter screen element. Vibration frequency is controlled by regulating air pressure from 0-60 PSIG. Continuous high amplitude vibrations of varying frequency prevent mica/metallic pigments from agglomerating and bridging across the filter screen openings. Much larger contaminant particles, however, are trapped.
- The FSI filter features a unique vibration dampening design which isolates the vibrating screen element from the filter housing and surrounding structure. Minimizing a wasteful transfer of energy results in optimum use of compressed air and virtually eliminates damage to the vessel and attached piping from metal fatigue.
- FSI vibrating filters have one of the lowest air consumption rates in the industry.

FILTER ELEMENT

- Always select a filter screen micron rating sized to allow valuable fluid (paint) components to pass downstream while dirt particles are held back.
- Paint flow rates must not exceed the rating of the filter housing in order to keep initial differential pressure below 5 PSIG.
- The vibrating filter screen will continuously agitate mica and metallic pigments in order to prevent agglomeration.

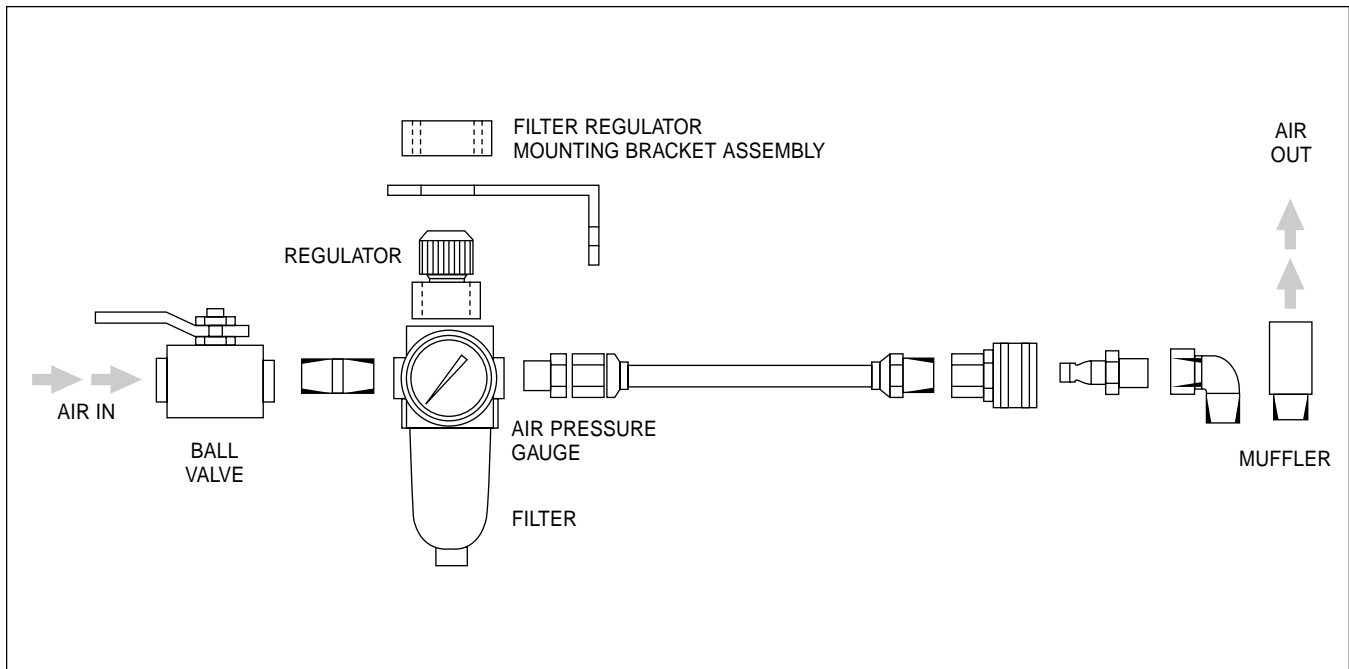
START-UP

1. Close and tighten down filter lid.
2. Connect air line.
3. Start operation by opening air inlet ball valve. **NOTE: Air operation should always precede paint flow.**
4. Adjust air pressure regulator to 25 PSIG.
5. Open valves to start fluid (paint) flow.



VBFN-14

FSI VIBRATING FILTER



MONITOR AND EVALUATE THE FOLLOWING CONDITIONS

CONDITION 1. If the differential pressure remains steady, and somewhere below 5 PSIG, then the 25 PSIG initial air pressure setting is high enough to generate a sufficient vibration frequency to keep mica or metallic particles from bridging. This is an acceptable setting for operation.

CONDITION 2. In the event that the differential pressure keeps rising with air pressure set at 25 PSIG, then vibration frequency is NOT high enough to prevent mica/metallic particles from bridging. The following steps must be performed to establish an alternate and more effective operating air pressure.

DIFFERENTIAL PRESSURE

– The pressure difference, measured in PSIG, between the inlet and outlet port of the filter vessel. It is caused by the frictional resistance to flow of the fluid being filtered as it passes through the filter housing. The resultant pressure loss is sometimes referred to as pressure drop or friction loss.

AIR PRESSURE

– The compressed air available to actuate the vibrating filter. This is completely independent of the hydraulic friction loss caused by the flow of a liquid (i.e. paint) through a pipeline or pipe fitting and resulting in differential pressure.

BRIDGING

– When contaminant particles or mica/metallic flakes collect progressively on the wedgewire (filter screen) openings and eventually block the fluid flow. As the contaminant build-up increases, resistance to flow increases and therefore differential pressure rises exponentially.

STEP ONE

Abruptly raise pressure to 60 PSIG to clear filter screen of accumulated mica/metallic particles. Hold this air pressure until the differential pressure stops rising and subsequently falls to within recommended levels below 5 PSIG. *Wait for differential pressure to steady.*

EXAMPLE

Pressure gauges on paint line indicate differential pressure at 12 PSIG with a 25 PSIG air pressure setting. Quickly raise air pressure to 60 PSIG then wait for differential to fall from 12 PSIG. Differential steadies at 3 PSIG, go to STEP TWO.

STEP TWO

Slowly reduce air pressure from 60 PSIG until the differential pressure begins to rise again. *Record air pressure at this point.*

EXAMPLE

Lower air pressure from 60 PSIG. At 34 PSIG, the differential will start rising again, and exceed 3 PSIG. At this point stop lowering air pressure and record 34 PSIG.

STEP THREE

Abruptly raise air pressure back to 60 PSIG then lower to a final setting 3-5 PSIG above the recorded air pressure in STEP TWO. This is the alternate air pressure for effective operation.

EXAMPLE

Jog pressure to 60 PSIG then lower air pressure to 37 or 39 PSIG for a final operating setting.

OPTION

The steps in CONDITION 2 may be followed to optimize air consumption in CONDITION 1. In CONDITION 1 air pressure was fixed at 25 PSIG because it immediately provided effective vibration without requiring any further adjustment. However, 25 PSIG may be a much higher air pressure than is actually required to operate successfully with minimum air consumption.

AIR CONSUMPTION TABLE

Pressure PSIG	Air Capacity (SCFM)
10	.69
15	.97
20	1.27
25	1.47
30	1.74
35	2.01
40	2.29
45	2.52
50	2.78
55	3.10
60	3.31

CONTAMINANT BUILD-UP

During the course of normal operation, contaminant build-up will become great enough to cause the differential

pressure to rise. Paint components like mica will become entrapped on this contaminant build-up as well.

To extend service life, continue to increase the air pressure as the differential pressure rises. However, additional service life will be marginal as the upper limit of both air pressure (60 PSIG) and maximum recommended differential pressure (15-20 PSIG) is approached.

The amount of air consumed at these higher settings may not be economical when compared against the small gain in service life.

When the differential pressure exceeds 15-20 PSIG and no amount of additional air pressure will significantly reduce it, then the basket assembly has to be removed from the filter housing for cleaning. Always valve-off air supply, depressurize and drain filter housing before removing basket.

INSTRUCTIONS FOR OPERATING THE FSI PORTABLE CLEANING STATION

START-UP

1. Immediately insert dirty wedgewire basket into vibratory cleaning chamber. Tighten down lid.¹
2. Connect air lines to cleaning chamber vibrator and air-operated diaphragm pump.
3. To start cleaning operation, open air valves and adjust pump regulator for maximum air flow - 90 PSIG. Set cleaning chamber vibrator at 35 PSIG.
4. When the pump is started to initiate cleaning cycle, solvent solution will begin flushing through the dirty wedgewire basket. Vibrating motion supplied to the basket will help dislodge contaminants.

A. Leave cleaning chamber in upright position for the first half of cleaning period.

B. While pump is running, rotate the cleaning chamber 180 degrees for the remaining half of the cleaning cycle.

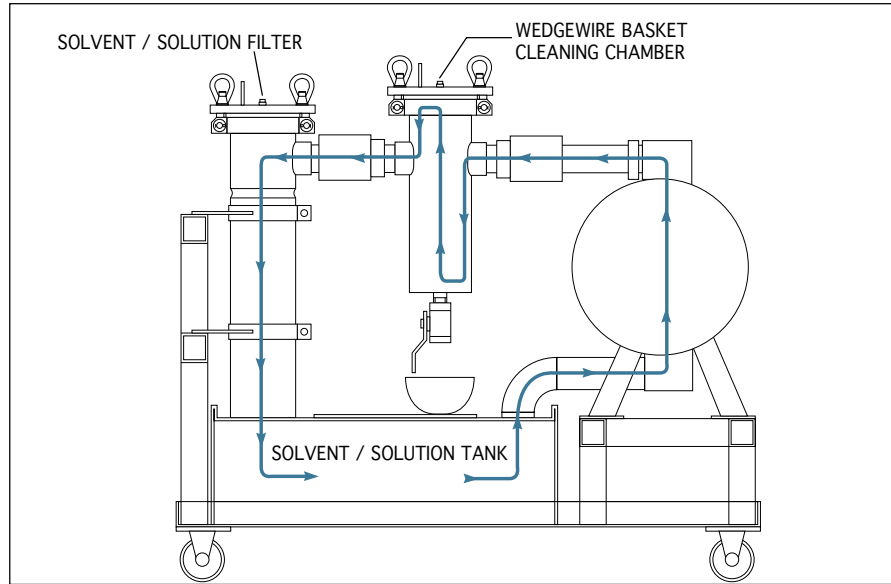
5. Return cleaning chamber to upright position at the end of the cleaning cycle. *Before opening lid to remove clean wedgewire basket:*

A. Valve off air supply to pump and cleaning chamber vibrator.

B. Slowly open ball valve at the bottom of the cleaning chamber to drain excess solvent solution back into tank and relieve fluid pressure.²

¹ Make sure dirty wedgewire basket is placed in cleaning chamber quickly after removing it from the vibrating filter. Otherwise, paint may begin to harden.

² Although this system is essentially open to the atmosphere, fluid pressure can build-up in the cleaning chamber as the downstream filter bag becomes clogged with dirt. Any pressure build-up would take place between the inlet side of the bag filter housing and the outlet side of the air-operated diaphragm pump.



Clean the lid-element basket using FSI's convenient portable cleaning stand (Part No. E26409) sold separately.

BAG FILTER HOUSING

A bag filter housing is positioned downstream of the cleaning chamber. Its sole function is to continuously clean the dirt laden wash solvent. Filtered solvent solution is returned to the solvent tank to complete the recirculation loop. Process then repeats.

1. Make sure a ten (10) micron filter bag, Part No. PONG (10) P4P is installed in the bag filter housing.
2. Between cleaning cycles occasionally check the filter bag for cleanliness. FSI recommends changing the filter bag when pressure differential across the bag filter housing exceeds 15 PSIG.

FSI recommends that in the presence of hazardous flammable solvents, operators of this equipment wear protective clothing, goggles, gloves and respirators, etc., as indicated in the material safety data sheet(s) provided by the manufacturer of the solvent.

FSI recommends that users of the portable cleaning station connect a suitable ground strap or ground wire to the unit to prevent static electrical charge build-up. Static charge build-up may occur in a cleaning and filtering operation such as this when using flammable solvents. Likewise, static charge potential will vary depending on ambient air conditions.

NOTE: Cleaning time will vary as a function of sludge or dirt build-up. There is no ideal cycle time.



Filter Specialists, Inc.

100 Anchor Road
P.O. Box 735
Michigan City, IN 46360
219/879-3307
219/879-0744 Fax
800-348-3205



Printed on
Recycled Paper

There are no expressed or implied warranties, including the implied warranty of merchantability and fitness for a particular purpose not specific herein respecting this agreement or the product being sold hereunder or the service provided herein.

