



OPERATING MANUAL

Continuous-Flow Screen CF-1



Rev: 04/10/2014

SAFETY INSTRUCTIONS

Whether you are the owner, employer, operator, or maintenance person for this machine, safety is your responsibility. You are responsible for operating and maintaining this equipment in compliance with these instructions and for using common sense. Review and completely understand the operating and safety instructions before using this machine.

WARNING!

This machine operates on electric current. Improper operation could result in electric shock, electrocution, injury by explosion or death!

1. **ALWAYS** ensure the motor and other electrical components are properly configured for your intended use and available power source. Continuous-Flow Screens are wired for 115V/60Hz service and come with a 230V/60Hz 1/2hp motor with the controller converting the current. See controller manual. Motors are **NOT** explosion-proof.
2. **ALWAYS** check electrical wiring for loose connections and for pinched or frayed wiring.
3. **ALWAYS** ground your Continuous-Flow Screen by connecting it to a properly grounded power supply.
4. **ALWAYS** disconnect and lock out power supply before performing maintenance and repairs.

WARNING!

DO NOT use this machine in an explosive or hazardous atmosphere. It is NOT explosion-proof or approved for operation in hazardous locations. Before using the machine in your operation, make sure it's appropriately designed for your application.

WARNING!

WARNING: Only operate the machine in a properly ventilated area.

WARNING: This machine is **NOT** counterbalanced. It must be adequately mounted to a substantial, rigid foundation, preferably a poured concrete floor. Otherwise, the machine will vibrate excessively and move around.

WARNING: **DO NOT** operate the machine without having all guards and covers in place.

WARNING: Stop the machine immediately if excessive vibration or machine movement occurs.

WARNING: **ALWAYS** unplug or disconnect machine from the power source when the unit is not in operation.

WARNING: Keep all parts of your body away from moving parts of the machine while it is operating.

WARNING: **DO NOT** wear loose clothing which might be caught in moving parts of the machine.

WARNING: **ALWAYS** wear safety glasses, protective clothing, and hearing protection when operating, maintaining, or repairing this machine. Wear approved NIOSH/MSHA respirator as required by the sample to prevent inhaling any dust which may be considered hazardous.

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1.0 UNCRATING:

NOTE: Check your Continuous-Flow Screen for damage immediately upon receipt. Examine the shipping carton before uncrating, then inspect the machine and trays prior to removal from the skid. Pay particular attention to the covers on top of the Continuous-Flow Screen. If any damage is noted, STOP HERE and notify the freight carrier to request an inspection. This inspection must include a check for internal damage to motor, drive and clamping mechanisms.

Save ALL packing materials until inspection is complete.

The Continuous-Flow Screen will weigh between 330lb (150kg) without trays and 400lb (182kg) with trays when you receive it. Use equipment adequate to handle this weight safely, since you will be lifting it to remove it from its pallet and to shim it during installation.

1. Lift the carton off the Continuous-Flow Screen. Set it aside in case you need to return the machine because of shipping damage. Locate the voltage label on the back of the Continuous-Flow Screen, and check to be sure that the machine is wired as ordered. You will have to decide on a location for your controller and follow the controller manual for wiring.
2. Release clamping pressure on the screen trays by turning clamp rods counter clockwise.
3. Remove screen trays by sliding them out the back of the machine. Be prepared to handle the weight of the trays. Removing the trays will reduce the weight of the machine to about 330lb (150kg).
4. Use proper equipment to lift the machine about 6in off the floor. Securely block up machine so that you can safely remove pallet. After removing the pallet, set the machine onto the floor. Set aside pallet, nuts, and screws in case you need them.
5. Check all screws, nuts, and bolts to make sure they are not loose.

2.0 SET-UP:

NOTE: Read and understand all safety and set-up instructions before you begin installing the Continuous-Flow Screen.

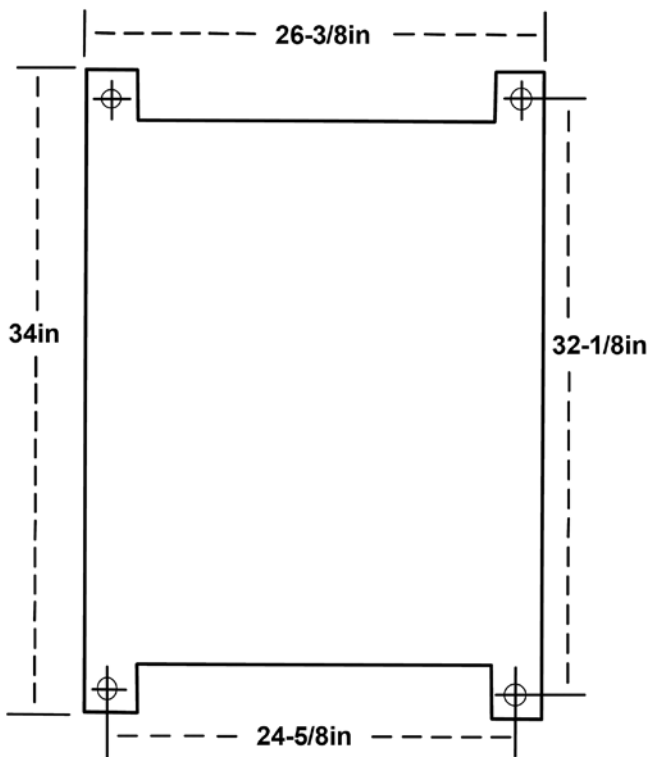
WARNING!

DO NOT connect the Continuous-Flow Screen to an electrical power source until you have mounted the machine to its intended foundation, verified that the machine is wired as ordered and is appropriate for your power source.

The Gilson Continuous-Flow Screen is a ruggedly-constructed machine that should provide years of service if installed correctly and maintained properly. Most cases of poor operation are caused by faulty installation. You can avoid problems by careful planning prior to placing your new unit into service.

1. In locating the machine for operation, you should consider the following:
 - Noise and dust caused by the Continuous-Flow Screen.
 - Adequate ventilation and a nonexplosive atmosphere.
 - Adequate space around all sides of the machine for operation and maintenance.
 - Location and accessibility of your power supply and a convenient location for your variable speed controller.
 - A level, substantial, rigid foundation for installation. Gilson recommends installation on a level, poured concrete floor or other elevated poured concrete pad.
 - Desired Elevation: You may want an elevated foundation for the machine for easier tray handling. However, this also elevates the loading area.
2. Provide 0.5in diameter anchor bolts, or other mounting bolts, set on centers of 20.5in and 32in as shown on Foundation Plan. Leave about 1.5in of thread to allow for the foot and leveling shims.

Foundation Plan for Continuous-Flow Screen



3. Using proper and adequate equipment, safely and securely place the Continuous-Flow Screen onto the four anchor bolts so that the threaded ends extend through the holes in the angles.
4. Place mounting nuts on the anchor bolts to protect the threads while leveling. Use lock nuts unless you plan to otherwise lock the nuts in position.
5. INITIALLY level the Continuous-Flow Screen's outer case, both front-to-back and side-to-side. Do this by placing and/or removing metal shims near the mounting bolts until the top of the machine is level along all four edges.

Keep shimming to a minimum. If you cannot level the Continuous-Flow Screen without excessive shimming, either relocate the machine to a level foundation or otherwise provide a more level foundation so that shimming can be reduced.
6. Draw mounting nuts down equally.
- 7a. Your Continuous-Flow Screen comes with a variable speed solid state inverter drive. This allows adjustment of the operating speed. Controlling the speed of operation and the angle of the screen allows control of the speed your sample moves across the screens and pan and out of the machine.

Your Continuous-Flow Screen comes pre-wired with 10 feet of cord attached to the solid state inverter drive. This inverter applies the proper 230v/60Hz to the motor, and the machine will be running on 230 volts out of the inverter. Mount your solid state inverter drive at a dry, non-hazardous location with proper air movement to supply cooling to the inverter.

- 7b. Check electrical wiring of your Continuous-Flow Screen to make sure it's wired as ordered, and is appropriate for your power source. The Screen is driven by a 115v/60Hz power source and 230V ½hp electric motor requiring 12-15 amps to operate. A dedicated circuit is recommended. Machines with model numbers ending in "F" are configured to operate on 230V/50Hz.

- Make sure your electrical power source is correctly configured for the controller/inverter (see separate controller manual).
- Make sure the Screen and your electrical power source are properly grounded.

- 7c. Your Continuous-Flow Screen should already be connected to the inverter drive by two 10' electrical cords. Make sure that the connection supplied complies with all applicable electrical codes and allows you to place the controller and inverter in the desired location. Your Continuous-Flow Screen should be located in a properly ventilated, dry, non-explosive atmosphere, so it may be necessary to modify the hookup of the controller and inverter to meet your needs.

Once your controller and inverter are mounted, you can wire the inverter to either a 115v/20amp or 230v/10 amp circuit. We recommend that the circuit be dedicated to the screen.

Make sure all wiring is done in accordance with applicable electrical codes and the directions supplied with the inverter. The inverter will sense whether you are using 115v/20amp 1ph circuit or a 230v/10amp 1ph circuit and make the proper inversion 230v/60Hz 3ph for the motor use.

DO NOT bypass the inverter.

DO NOT directly wire your Continuous Flow Screen to your power supply.

- 7d. Read the instruction manual that comes with the inverter to familiarize yourself with the operation of the drive.

The section on the parameter menu gives the factory default settings. The following are the parameters that were changed:

#8 Accel –	5 seconds
#9 Decal –	coast
#10 Min Freq	25 Hz
#11 Max Freq	66 Hz
#16 Current	110%
#27 Rotation	Forward
#30 Control	Remote
#31 Units	RPM
#32 Hz Mult	9.63
#49 TB13C	STRT REV

8. Insert trays in rear of Continuous-Flow Screen and tighten separator to clamp trays by turning clamp rods clockwise to tighten and hold trays.
9. To adjust flow of your sample through your Continuous-Flow Screen you can increase the incline angle from 4° to 10° by loosening case screws and nuts on the front of the machine and lifting front of machine while incline angle frame is bolted down. Set angle as desired and retighten case screw and nuts to maintain desired angle.

3.0 OPERATING INSTRUCTIONS:

NOTE: Please read and understand all safety and operating instructions for the Continuous-Flow Screen before putting it into service. These instructions cover operation of the machine only, NOT performance of any test.

Your Continuous-Flow Screen operates on electric current. Follow appropriate safety precautions and review your electrical connections with directions in controller manual.

1. Supply power to the Continuous-Flow Screen as instructed in Section 2.
2. Release the clamping force of the separator by turning clamp rods counterclockwise.
3. Load your desired sequence of screen trays into your Continuous-Flow Screen, being careful not to pinch your fingers with already inserted screen trays. Wear gloves during this process.
4. Apply clamping force on the trays by turning the two clamp rods clockwise simultaneously and as equally as possible using your sense of touch to determine when the trays are firmly clamped. **DO NOT OVERTIGHTEN!** This can cause damage and wear to parts.

It is better to under-tighten, though this will cause noisy operation. To reduce noise, increase clamping pressure by turning the clamp rods simultaneously clockwise while machine is running.

NOTE: DO NOT wear loose clothing which can get caught on the clamp rods while making this final adjustment.

5. The Continuous-Flow Screen is turned on by following instructions in the controller manual. Start the machine.
6. Choose your loading method by considering the nature and characteristics of your sample and the type of dust it will release into the atmosphere and what you are trying to do.
7. Watching the flow of your machine you can adjust speed through your controller and slope through the brackets on the front of your machine by loosening these bolts and lifting or lowering the machine front. All the way up is approximately 10° of slope and all the way down is 4° of slope. Always retighten adjustment bolts to maintain slope during operation.

4.0 ADDITIONAL INFORMATION:

The Continuous-Flow Screen is ideal for the laboratory or pilot plant, for small scale scalping, for mass separation, and for production applications involving coarse-sized materials.

The CF-1 can be used with either one or two screen trays with a screening area of approximately 16x24in per tray. The trays are vibrated in inclined position, with the incline angle adjustable within a range of 4° to 10°. Vibration frequency is adjustable within a range of 535—636rpm with the standard screening frequency being 578rpm.

Trays have solid-bottom sections for feed and discharge of material. They can be ordered with wire cloth in sizes from 4in to No.100. Your rate of flow should limit material being offered to your screen to prevent bridging and allow material to pass through the screens.

Discharge pans are provided in two styles: inclined, for front discharge; and chute, for vertical discharge. The trays and pan are removed by releasing screw-type clamp rods at the top of the unit.

The 1/2hp motor is totally enclosed and fan-cooled. Dimensions are as follows: Width, 22in; height 28in; length without trays, 34in, length with trays in place, 41in.

5.0 PARTS LIST:

5.1 CF-1 Parts List

Item No.	Description	No. Req'd
1	Main Shaft Housing	1
2	Main Shaft Housing Bracket Bolt, 1/2 x 1in	3
3	Main Shaft	1
3LA	Main Shaft (Special 5/16in Amplitude)	—
4	Main Shaft Bearing	2
5	Connecting Rod, Left (Opposite Side from Pulley)	1
6	Connecting Rod, Right (Same Side as Pulley)	1
7	Connecting Rod Bearing Assembly	2
8	Connecting Rod Bearing Cap	2
9	Connecting Rod Bearing Cap Screw (3/Cap)	6
10	Wrist Pin Shoulder Bolt, 5/8 x 2in	2
11	Wrist Pin Sleeve	2
12	Wrist Pin Sleeve Retaining Washer	2
13	Drive Pulley, 5 3/4in	1
18	V-Belt 3in	1
26	Corner Spring	4
27	Corner Spring Bolt, 1/2 x 6in	4
28	Corner Spring Stop Nut, 1/2in	4
29	Corner Spring Flat Washer, 1/2in	4
30	Corner Spring Cup Washer (2/Spring)	8
32	Clamp Rod with Collar & Pin	2
34	Upper Guide Bearing	2
35	Upper Guide Bearing Screw (2/Bearing)	4
36	Lower Threaded	2
37	Lower Threaded Block Screw (2/Block)	4
38	Lower Guide Bearing	2
39	Lower Guide Bearing Screw (2/Bearing)	4
40	Hard Steel Wearing Plate	2
41	Lower Guide Bearing Support Angle	2
42	Lower Guide Bearing Support Angle Screw with Nut, Lock Washer (2/Angle)	4
44	Vibrating Unit Assembly	1
45	Case: Sides, Back & Top (Welded)	1
46	Case Screw with Nut & Lock Washer	4
47	Adjustable Incline Angle Frame	2
50	Motor, 1/2hp, 208/30/460/60Hz, 1,725rpm, TEFC	1
51	Motor Pulley, Variable-Speed	1
52	Motor Mounting Screw with Lock Washer, Flat Washer & Nut	4
53	Cord, 10ft	1
54	Cord Grip	1
55	Cover, Sides & Back	1
56	Cover-To-Case Screws	5
57	Plate Switch Adapter	1
58	Screw, Nut Plate-To-Cover	4
59	Top Cover	1
60	Cover-To-Cover Screws	18
61	Controller	1

5.2 Replacement Trays, Wire Cloth & Parts

CONTINUOUS-FLOW SCREEN REPLACEMENT TRAYS, WIRE CLOTH & PARTS	
Description	Model
Inclined Screen Tray, Steel Wire Cloth, 4in No.4 (Specify)	CFA-100
Inclined Screen Tray, Wire Cloth, No.5 to No.14	CFA-101
Inclined Screen Tray, Wire Cloth, No.16 to No.100	CFA-102
Inclined Pan (Front Discharge)	CFA-112
Chute Pan (Bottom Discharge)	CFA-113
Inclined Screen Tray for Flat Wire Cloth, 4in to 1/4in, No Wire	CFA-136
Tray Side Clamp for Flat Wire Screen Tray (2/Tray)	
Tray Side Clamp for Hook Wire Screen Tray (2/Tray))	
Side Clamp Bolt with Nut & Washer (6/Tray)	
Front End Clamp	
End Clamp Screw with Nut & Washer (6/Tray)	
Wire Cloth Support Strip (Up to 5/Tray)	
Replacement Steel Wire Cloth, 4in to No.4	CFA-125
Replacement Wire Cloth, No.5 to No.14	CFA-126A
Replacement Wire Cloth, No.16 to No.100	CFA-126B

6.0 PARTS DIAGRAM:

6.1 CF-1 Parts Diagram

