

FLUID MANAGEMENT

Instruction manual
shakers

Type: SO-10M



Illustrated model: SO-
10M

We, **Fluid Management Europe B.V.**
A Unit of IDEX Corporation
Hub van Doorneweg 31
2171 KZ SASSENHEIM

herewith declare, on our own responsibility, that the products

Shakers / Gyromixers
SO-10m / SO-20a / SO-30m / SO-30ex / SO-40a / SX-40m / SX-40a

which this declaration refers to, are in conformity with the following standard(s) or other such specifications

NEN 3544, May 1984
NEN 2446, December 1976
EN 55024-2
EN 55024-4
NEN-EN 60204, September 1993
NEN-EN 292-1, September 1992
NEN-EN 292-2, September 1992
NEN 418, November 1990

according to the conditions of the Machinery-, Low Voltage- and the EMC-directive.

The Netherlands

W. Van Westerop



Sassenheim, 5-5-1999

Vice President Manufacturing
Fluid Management Europe B.V.
A Unit of IDEX Corporation

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By selecting a Fluid Management shaker you have opted for a product which is the result of intensive research. Top-quality components, craftsmanship and a modern ergonomic design all serve to guarantee a long service life and a high degree of user friendliness.

The machine complies with Council Directives 89/392/EEC on machines, 89/336/EEC on electromagnetic compatibility, and 73/32/EEC on electrical equipment intended for use within given voltage limits, as enacted by the Council of Ministers of the European Community. The machine is furnished with a CE mark.

Keep this manual in a safe place.

In these guarantee conditions, 'FM' is understood to mean Fluid Management Europe.

The guarantee conditions incorporated into FM's general conditions of sale are summarized as follows (for free general conditions you can apply to FM):

1. FM guarantees the proper operation of any goods which it supplies, for a period of one year, except where a breakdown is the result of normal wear and tear. The cost of any inspection activities carried out by FM, with the aim of establishing whether or not a breakdown is covered by the guarantee, will be reimbursed by the other party if it transpires that the breakdown is not covered by the guarantee. If it transpires that a breakdown is covered by the guarantee, then FM will supply identical or equivalent goods under the conditions referred to in point 6 of the general conditions of sale. The guarantee obligation described in this article only applies if the goods supplied by FM have been used in accordance with the manual. Time spent on guarantee-related activities, including travel time, travel costs and accommodation costs, are charged at current rates.
2. In contrast to the above, FM will not be held to any guarantee obligation if repairs have been carried out, or attempted, by the other party or a third party, unless FM had previously declined to repair the goods for a fair price;
FM demonstrates that the defect did not emerge during testing;
the other party fails to inform FM of the defect immediately, if possible either by letter and/or by fax, providing full, accurate details and/or has failed to comply fully with FM's instructions;
the other party has failed to use or treat the goods properly or in accordance with FM's instructions;
the damage has been caused by incidents, beyond FM's supervision, which have occurred either during transport or installation.
3. In the following text, the expression "Software" will be understood to mean the standard computer software supplied by FM to the other party, recorded on a computer-readable storage medium, plus the accompanying documentation (Software Manual) and including any improved and/or new versions supplied. The expression "processing unit" (PU) is understood to mean the machine for which and with which the Software is supplied, and which is the sole machine on which the Software may be used.
4. The other party is authorized to copy the Software either in its entirety, or in part, (up to a maximum of 2 copies) for purposes of internal security. These copies will be furnished with the same marks, designations relating to copyright and other registration numbers as the original version of the Software.
5. The other party will neither amend, translate, decompile nor adapt the Software, nor convert it into source code, without express written permission from FM. If the other party so requests, FM will provide that party with the information required to render the Software interoperable with other software.
6. In the event that the PU experiences a breakdown, the other party may use the software on another processing unit until the PU is again operational. The other party will inform FM of this within 5 days.
7. If it is a requirement that the Software be definitively transferred from the PU to another processing unit then the other party shall request permission from FM, which will not withhold such permission on unreasonable grounds.

Before installing the machine and setting it in operation, read the instructions for use carefully. This is safer for you and prevents any needless damage to the machine.

Fluid Management Europe will not accept any liability if the instructions below are not followed:

- If a machine has been damaged (during transport, for example), do not attempt to set it in operation. When in doubt, first contact either the Service department (see section 6.4) or your supplier.
- Place and connect up the machine exclusively in accordance with the installation instructions.
- All local safety rules and regulations should be observed.
- The machine must be connected up in accordance with the following specifications 230V, 6A.
- The machine must on no account be operated when empty. The total weight to be shaken must on no account exceed 10 kg.
- Users should ensure that the machine is kept in good condition. Defective components should be replaced.
- All service activities (other than routine adjustments) may only be carried out by qualified technicians. Ensure that the mains lead is always kept unplugged while repairs are being carried out.
- Do not place any damaged containers in the machine. Such containers are shaken entirely at the user's own risk.

4.1 Conditions for correct installation

When installing the machine make sure that the following conditions are observed:

- Make sure the machine is level on a stable and even floor.
- Make sure that the machine is properly connected to the supply voltage (see Section 3, Safety instructions and warnings).

4.2 Installing the machine

- Lift the machine with two people, placing their hands underneath the gray bottom of the machine. Carefully lower the machine to the floor.
- **WARNING:** Before using the machine remove the 4 bolts (M6) for transportation underneath the machine (see figure 1)

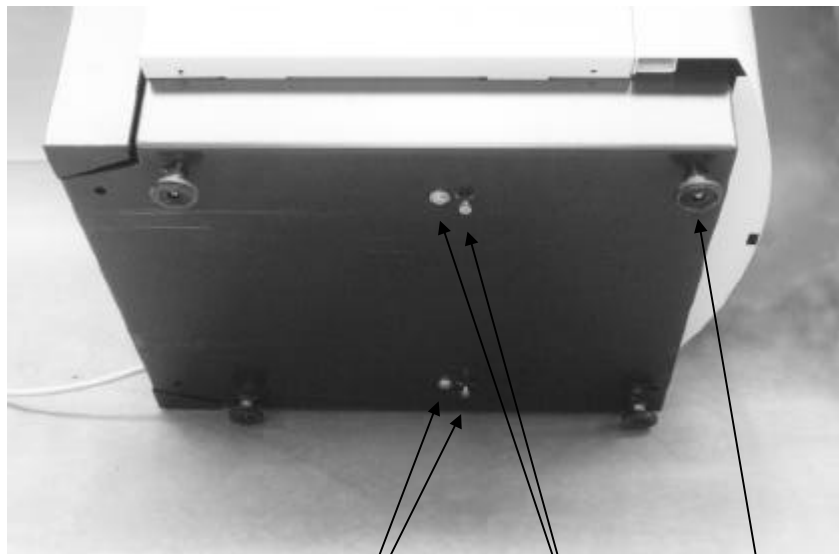


figure 1

4 bolts M6 for transportation

adjustable feet
(each corner)

- Ensure that the machine is level by raising or lowering the adjustable feet (figure 1). For the machine to work properly, it is necessary for this to be done carefully. Once the feet have been adjusted, they must be secured using the lock nuts.
- Before connecting up the machine be sure the ON/OFF-switch at the back of the machine is in the OFF (<0>) position. The mains lead can now be plugged into a 230V, 6A power point.

5.1 Starting up for the first time

Check whether the machine has been correctly placed and connected up. If not, go back to chapter 4. If you are sure put the ON/OFF-switch at the back of the machine in the ON-position <I>.

5.2 Placing containers

To keep the inside frame in equilibrium during shaking, it is necessary for the combined centre of gravity of the containers to lie in the middle of the shaking platform as far as possible. Otherwise, the machine can be damaged by extreme vibrations. The correct distributions of containers are shown in figure 2. To prevent the handle of the container hitting against the container and damaging the container during shaking, the handle must be secured. With smaller containers, this can be done using the spring which is attached to the shaking platform. With larger containers, the handle must be fastened to the container with tape.

Maximum up to 4 containers of 1 liter can be placed in the SO-10M.

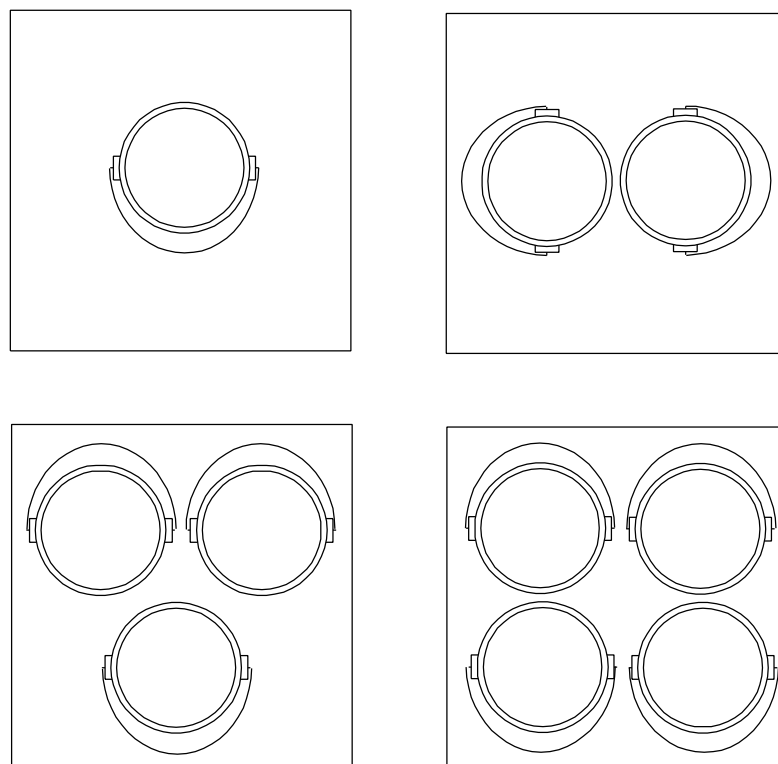


figure 2

5.3 Operating the shaker

1. Check for yourself that the machine has been correctly installed and connected up as stated in chapter 4.
2. Open the door of the shaker.
3. Place the container(s) inside as described in 5.2.
4. Lower the clamping plate onto the canister and push the handle to the far right position (figure 3). Use the spring to tighten the can handle. This prevents noise and can-damage.
5. Close the door of the machine.
6. Set the timer (figure 4, number 1) to the desired shaking time.
7. Push the start button (figure 4, number 2); the shaking cycle will now start, the door will be locked.
8. When the shake time has finished, the machine stops shaking and the door will be unlocked.
9. If necessary (in case of an emergency), the shaking cycle can be interrupted by pushing the stop button (figure 4, number 3)
10. Open the door, push the handle to the left, lift the clamping plate and remove the container. If there is another container, place it inside, and proceed again from point 4).

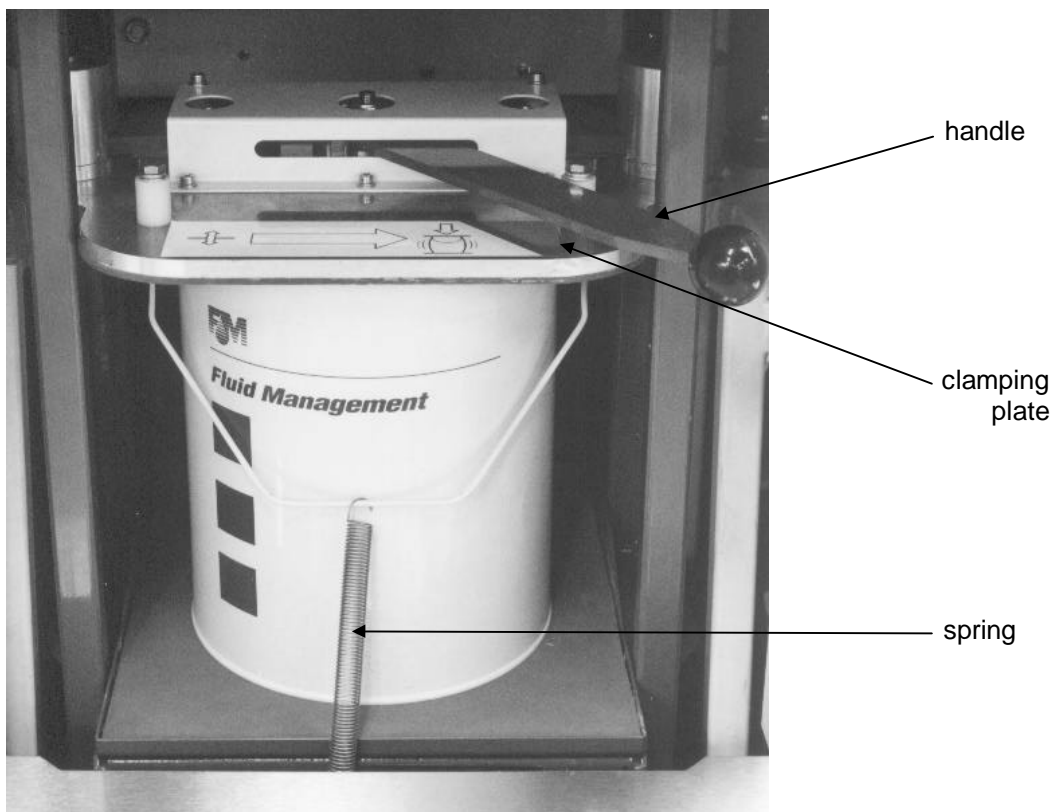
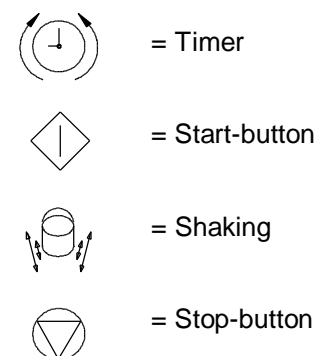


figure 3



figure 4



6.1 Maintenance instructions

Before carrying out any maintenance, make sure that the machine has been disconnected from the mains power supply.

1. Maintenance and any repairs should only be carried out by qualified personnel.
2. Use only reliable and properly fitting tools.
3. Use only original Fluid Management parts.
4. Before the equipment is released for use following servicing, checks must be carried out to ensure that all the settings are correct and the control and safety systems are working properly.

6.2 Maintenance to be carried out by the user

The maintenance consists mainly of lubricating the machine. It is advisable to lubricate all parts with grease containing lithium.

Every six months:

- Lubricate the shock absorber shafts (4x) (see figure 5, number 1).
- Lubricate the guide shafts (2x) (see figure 5, number 2).
- Lubricate the clamping mechanism (see figure 6, number 3).

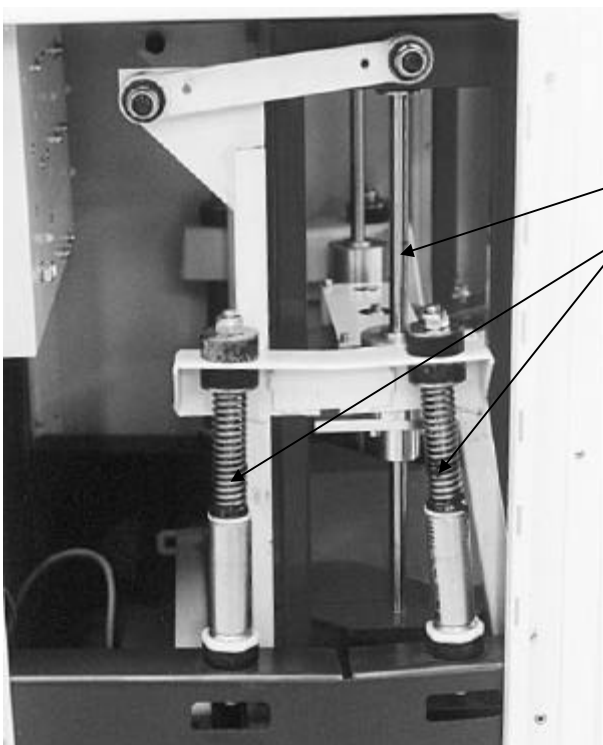


figure 5

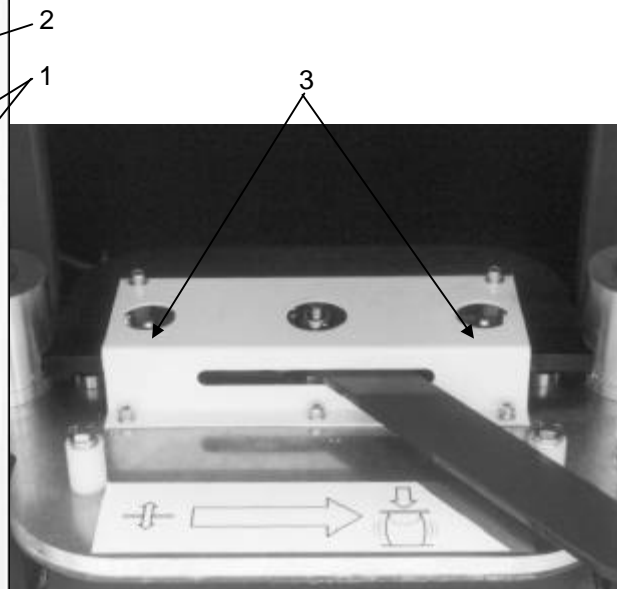


figure 6

Every twelve months:

Lubricate the Y-bearings (4x) (see figure 7 and 7a, number 1)

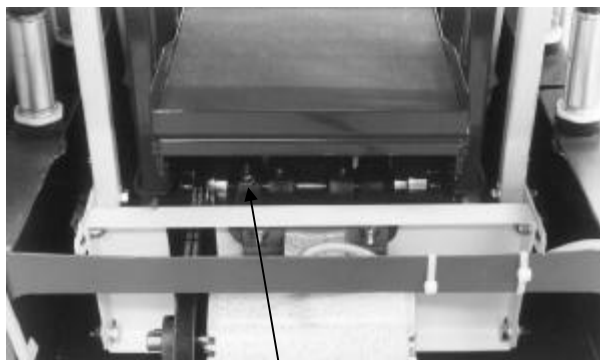


figure 7

1

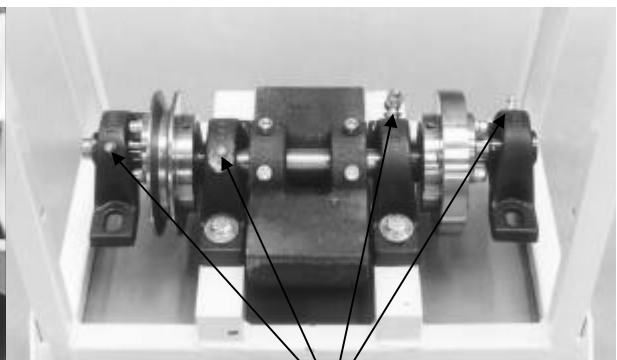







figure 7a

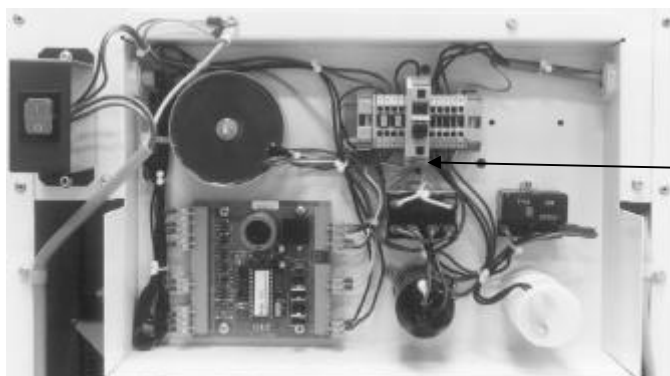
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6.3 Troubleshooting

Before calling in the Service Department, check whether you can solve the problem yourself. If you cannot, call the Service Department for advice (see 6.4). Have the model number and serial number to hand. They can be found on the name plate on the machine (see figure 9).

Use the chart of Problem, Cause and Action below to judge whether you can solve a problem yourself or whether you will need to call in the Service Department. The  symbol means that the Service Department must be called.

Problem	Cause	Action
The machine is not receiving any power (230V)	1. No supply voltage present 2. Fuse has blown	1. Check main power supply 2. Remove top and back panel, replace fuse (see figure 8)
Main power supply is present, but the machine does not work	1. The door of the machine is open 2. Door switch is defective or a wire has broken 3. Start knob and/or timer defective 4. PC-board is defective	1. Close the door 2.  3.  4. 
Extreme vibrations during shaking	1. Machine is not leveled 2. Adjustable feet have been set incorrectly 3. Shock absorbers are defective 4. Machine has been loaded incorrectly	1. Level the machine 2. Adjust all feet so they support and the machine is leveled. Lock the feet 3.  4. Centre the load



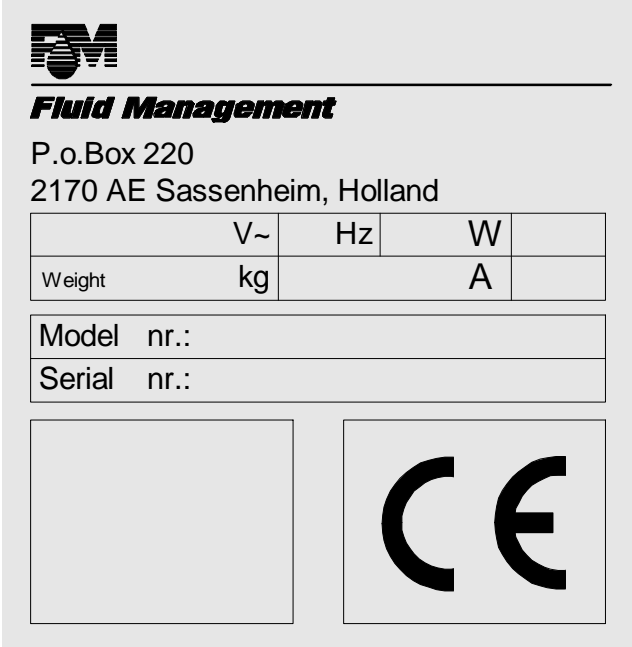
fuse (2 Amp.)

figure 8

6.4 Service / Service department

If necessary, you can get in touch with your supplier or the local service department, or contact the manufacturer directly. If you contact the manufacturer, make sure that you have the model number and serial number to hand. They can be found on the nameplate on the machine (see figure 9).

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FM

Fluid Management

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 2170 AE Sassenheim, Holland

	V~	Hz	W	
Weight	kg		A	

Model nr.:

Serial nr.:




figure 9

Machine dimensions (HxBxD in mm)	770 x 530 x 620
Empty weight (kg)	80
Maximum size of product (HxBxD in mm)	270 x 240 x 240
Minimum height of product (mm)	60
Maximum weight of product (kg)	10
Supply	230 Volt ~ 50 Hertz, 6 A
Motor output (Watt)	180
Motor speed (rpm)	≈ 1425
Shaking frequency (rpm)	≈ 1000