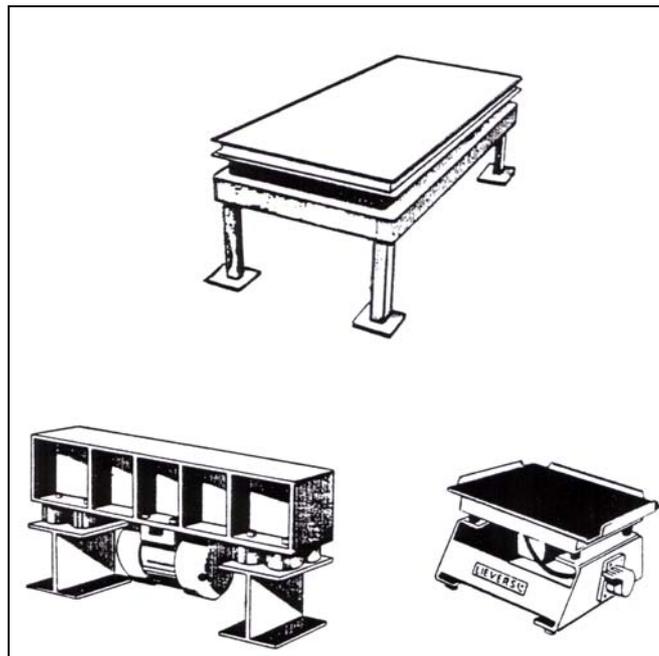


INSTRUCTION MANUAL

VIBRATING TABLE TYPE LTT



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Construction file (CE) nr. Vibrating Table LTT: 9501

GENERAL SAFETY-ASPECTS

All Lievers equipment have been tested in accordance with the strict international safety standards. This section contains general advice and apply to several machines mentioned in this paragraph.

- Ensure that you are qualified (familiar with the contents of this manual), to operate and carry out light maintenance-work to the machine when you are operating the machine for the first time.
- Wear safety shoes with extra protection (steel caps and anti-slip soles)
- Wear a safety helmet, safety glasses, working gloves with vibrationprotection (GELCOM), which do not conduct electricity and protective clothing.
- Ensure, that all symbols on the machine, can always be clearly read.
- Be careful when lifting and carrying. Do not bend forwards when picking up the apparatus, but bend your knees. Ensure that the working area is within your reach, so that you do not have to bend forward.
- When cleaning the machine, ensure that no water or cleaning detergents get into the motor-housing.
- When the machine is not being used for longer periods of time, then it must be stored in a dry and clean area.

Regular maintenance of the machine promotes safe operation.

- Place the wires between the electrical source and the work place in such a way, that they cannot be damaged and your colleagues cannot trip over them.
- Do not use the machine in an explosion endangered area.
- Check that the electrical source complies with the local valid regulations. Use earthed extension leads, when it is necessary to use extension leads for the 230/400V externals.
- Use an electrical source which is provided with an earth leakage switch or attach a safety transformer between the electrical mains and the machine with 230/400V.
- If you want to connect a machine to a mains voltage of 400V, 3 phase, ensure that the supply-cable has an earthlead and that the plug complies to the valid regulations.
- Ensure that the wall socket and possible connections between the extension leads are protected against dampness.
- Do not pull the plug out of the wall socket or extension lead by its lead. Regularly check the connections of the supply-cable to the switch.
- Check the feeder cable's outercasing and if in use extension lead's outercasing before you connect the machine to the electrical mains. The outercasing may not be damaged. Replace the cable if you cannot read the marks on the outercasing anymore.
- Check the machine's cable-connections before you connect the machine to the electrical mains. The cables must be properly connected.
- Switch off the machine, when the electrical power cuts off. This prevents the machine from starting suddenly when the electrical power comes on again.
- Disconnect the electrical supply to the machine, before you start to clean or maintain the machine.

RISKS CAUSED BY NOISE:

An external vibrator mounted on a vibrating table could cause a soundlevel of approx. 80/92 dBa, (depending on the construction). It is therefore recommended to measure the soundlevel of the vibrator during operation. This is normally done from about 1 meter distance of the construction. The rules for the protection of the operators are contained in D.L277 of 15/08/91, which is based on the CEE directives Nr. 80/1107, 82/605, 83/477, 86/188 and 88/642 on the protection of the operators against risks deriving from the exposure to chemical, physical and biological agents during work. They recommend: 1) evaluation of noise during work. 2) training and information for a daily exposure of more than 80dBa. 3) the supply of protection means for values more than 90dBa.

As the risk of being exposed to high soundlevels is directly linked to the duration of exposure it is recommended to restrict the duration of vibrating as much as possible. We recommend:

- 1) The vibrators should not work unnecessary, for instance when forms are empty or during waiting time.
- 2) Make sure that there are no loose bolts or fastenings.
- 3) Do not attach loose objects to the vibrating table.
- 4) Do not leave tools lying around on the vibrating table etc.
- 5) Check and maintain the table and vibrator regularly in order to eliminate abnormal noises caused by broken parts, loose elements on the construction etc.

NOTE: The vibrator on the table is mounted onto elastically insulated structures, which receive the vibrations. The position of the operator must be completely independent from these structures. If this is not the cause, you should measure the vibrations transmitted to the operator and, if necessary, take protection measures prescribed by the safety regulations.

Explanation of the safetysymbols



- 1) Please read the operation instructions.
- 2) Safety glasses, - helmet and ear protection compulsory.
- 3) Gloves with protection for vibration (GELCOM) and electr. compulsory.
- 4) Safety shoes with extra protection compulsory.
- 5) Remove plug before opening the motorhousing.
- 6) Dangerous electrical voltage.
- 7) Careful, danger.

TIP: Ask the manufacturer for advise, if you have any questions about these instructions.

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INSTALLATION

To guaranty a correct installation and consequently exploit all the potentialities of the vibrating table and work with maximum safety, it is opportune to follow the instructions. The operation must be execute by qualified personnel only and in the respect of the safety directions in force.

ELECTRICAL INPUT MUST BE ALWAYS DISCONNECTED

Control of vibrating table conditions

Before installing, it is important to verify that the device is in good conditions; especially if it has been stored for a long period. So it is opportune to make some checks.

- a) to check that the vibrator turns free, without chatters.
- b) to check the vibrator insulation toward ground, by using a rigidity proof at 1.5 kV tension for 5 seconds. (For feeding voltage more than 240V test with 2.0 kV tension for 5 seconds). In case any anomaly is found, please contact immediatly your supplier.

Locating and fixing

The vibrator can be mounted in every position. The surface on which the vibrating table is placed must be plane, without any imperfection, which could preclude a correct working. To bolt the vibrator onto the table structure always use new and high resistant bolts DIN 931 and nuts DIN 933 class 8.8 high resistance; bolt in the torque indicated by using a dynamometric wrench.

Locking bolts: M8---2,3 kgm, M10---4,8 kgm, M12---8 kgm, M16---19 kgm.
Terminal block nuts: M4---0,12 kgm, M5---0,20 kgm, M6---0,30 kgm.

It is important to remember that an incorrect fixing is the cause of most failures. It is necessary to check periodically the bolts and there torque values, especially during the first couple of weeks the vibrating table is in operation.

Connection of the supply cable

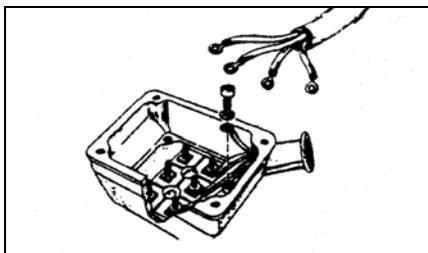
This operation has to be executed only by qualified personnel only and with disconnected electrical input. Use flexible cable only, if the voltage is higher than 42V a ground connection is compulsory. Leads section must be adequate to the nominal absorption of the motor (max.density = 4A/mm²) and with a diameter suitable to the cable grip, in order to guaranty a perfect seal.

- Caution:** grounding is compulsory if voltage is higher than 42V.
Caution: unfastening of the leads is sure cause of malfunctioning and breakdowns.
Caution: Too long supply cables cause a tension fall. In that case it is necessary to increase the leadsection diameter; always stick to the regulations in force.

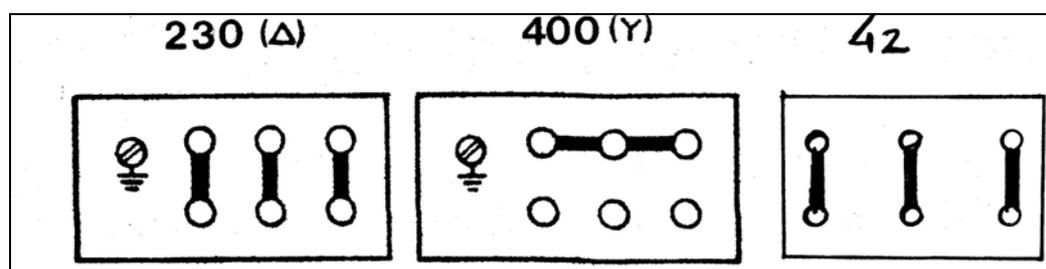
Connection to power supply and operation instructions

The operation has to be executed by qualified personnel only and at all times in accordance with the safety directions. Make sure that the input power supply corresponds to the indications mentioned on the identification-plate of the vibrator.

Caution: Never operate the vibrators without the endcovers, which protect the eccentric weights and without the terminal box cover.



Cable connection to the terminal box.



Connection diagram

Operating instructions Lievers vibrating table type LTT

Warning: Before connecting and starting the vibrating table, please read the instruction manual very carefully.

- 1) Install the vibrating table on a clean and flat foundation, when necessary anchored.
- 2) Please check if the switch is in the off position.
- 3) Install the table near the place where the concrete is poured
- 4) Plug-in the electric connector.

Warning:

All Lievers vibrating tables 230V-50Hz., 1 phase are executed with a earthplug.
All Lievers vibrating tables 400V-50 Hz., 3 phase are delivered without a plug.
The connection of the machine to the electric supply, must be executed by qualified personnel.
Lievers can not accept any responsibility for wrong connection and inaccurate installation.

- 5) The load in Kg. on the tabletop (form and concrete) must be in harmony with the centrifugal force of the electric external vibrator.
- 6) When the form or mould has to be stretched on the tabletop, do it always before starting the vibrating table.
- 7) The centrifugal force adjustment by delivery is always in harmony with the requested load of the tabletop. When necessary the centrifugal force can be adjusted. (See adjusting centr. force)
- 8) After the first hours working with the vibrating table, it is necessary to check all bolts and nuts, because of vibrations, they can come loose.
- 9) Only when everything is checked and all safety requirements are done, you can start the machine.
- 10) The running time of the vibrating table is depending on concrete quality, reinforcement and forms. There is no basic standard available for the running period.

Warning:

Forms or moulds which are not stretched on the tabletop, can fall off, be careful.

SPECIFICATIONS FOR LIEVERS VIBRATING TABLE TYPE LTT

Table type	Table dim. L x W x H cm	External type	vibrations p/min.	Adjustable centr. force Kg.	voltage external	Table weight Kg.
LTT 40/40	40 x 40 x 25	ETR 65	3000	0 ---66	230V-50Hz. 1 phase	29
LTT 40/40	40 x 40 x 25	ETR 65	3000	0 ---66	400V-50Hz. 3 phase	29
LTT 80/80	80 x 80 x 70	ETR 200	3000	0 ---187	400V-50Hz. 3 phase	126
LTT 80/120	80 x 120 x 70	ETR 300	3000	0 ---310	400V-50Hz. 3 phase	165
LTT 120/180	120 x 180 x 70	ETR 650	3000	0 ---668	400V-50Hz. 3 phase	270

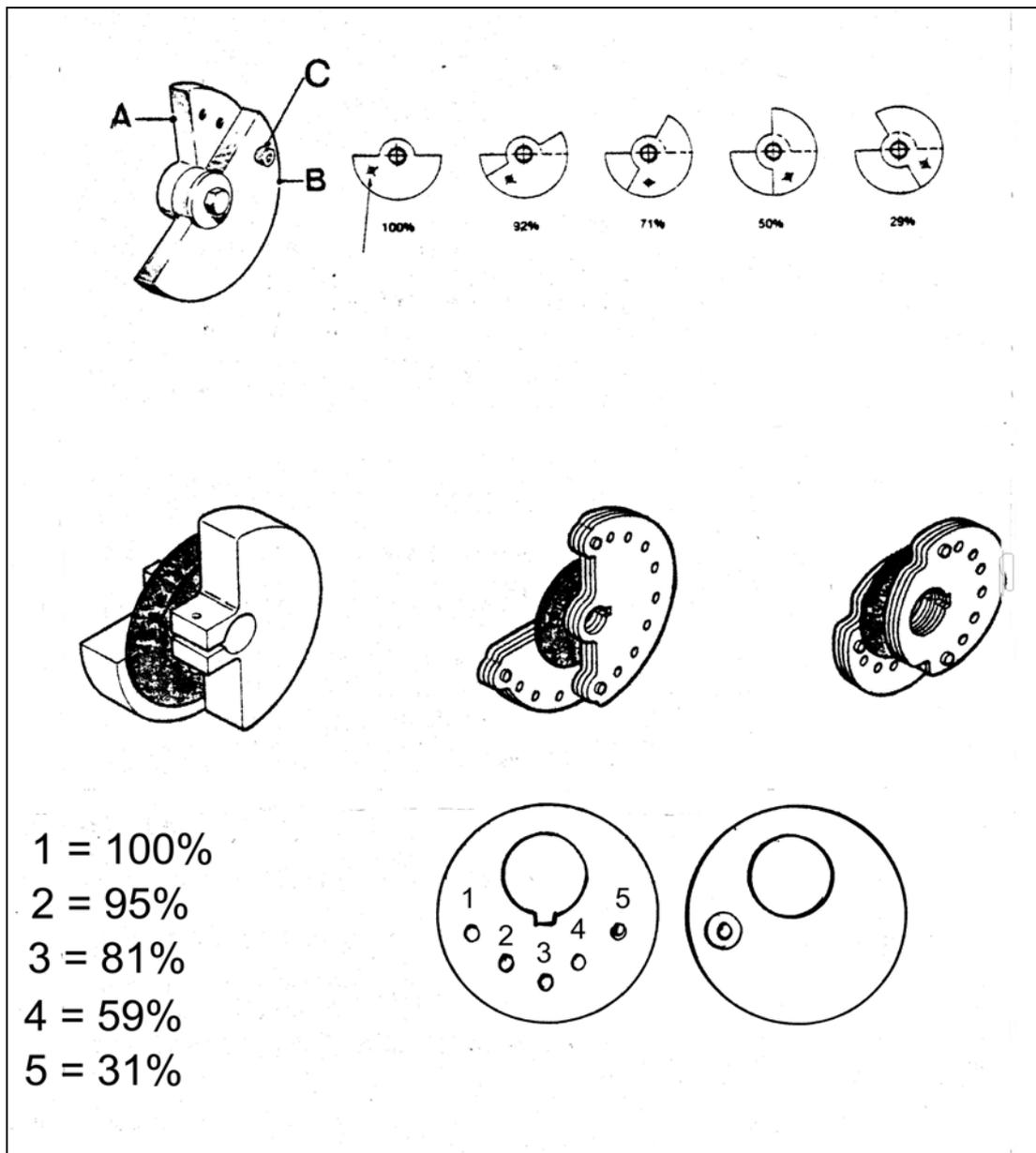
Other dimensions, voltage and vibrations on request.

ADJUSTMENT OF THE VIBRATION INTENSITY AND CENTRIFUGAL FORCE

Caution: always disconnect the power supply before setting the centrifugal force.

1. Remove the 2 endcovers on both sides of the vibrator.
2. Loosen the nut located on the motorshaft.
3. By turning the eccentric weights you can obtain the percentage of the required centrifugal force. This is easily done by reading the scale on the regulation plate.
4. After adjusting the vibrator intensity re-tighten the nut on the motorshaft.
5. Attach the endcovers again and make sure that the O-ring is properly installed.

Warning: It is very important that the position and the setting of the eccentric weights on both ends of the motorshaft, left and right, are similar. Difference in centrifugal force can lead to damages to the external vibrator.



Various adjustment systems to set the centrifugal force.

Maintenance and Service

- The vibrating table needs regular maintenance and service, maintenance drag out the lifetime of the machine.

Warning : Never use a high-presure cleaner to clean the vibrating table.

- For easy cleaning, we advise, to spray the machine with formwork oil before use.
- Remove all concrete from the table before the concrete is hardened.
- Hardened concrete may cause injury on your hands, use protecting gloves.
- Hardened concrete may damage the electric cable, be careful.

During maintenance and service, always disconnect the electricity from the machine !!!!!!!

- For a perfect cooling, keep the external vibrator witch is mounted under the vibrating table clean from dirt, grease and remaining concrete.
A daily check is also necessary for the switch, cable and plug. When necessary clean the table and parts with a soft brush or damp cloth.

ENVIRONMENT PROTECTION:

When machines are old and broken, still there are materials witch can be recycled and reused. To protect and save our environment, we advice to bring the machine to a special recycling station in your neighbourhood.

Construction materials

The machine is made from the following materials::

LOCATION	MATERIAL
Frame vibrating table	Construction steel ST 37
Vibration demps Electric outercable	Neopren rubber Neopren rubber
External housing External rotor	Aluminium Aluminium
External stator Electric inner wires	Copper Copper



GUARANTEE

Guarantee provision

All damages to parts of the vibrating table which occur within 12 months from the date of purchase and are recognized as possessing manufacturing defects, will be replaced by the manufacturer as soon as possible.

The manufacturer declines all responsibility for damages caused by misuse, incorrect connections, improper installation and maintenance and alterations that have been carried out to the vibrating table.

Guarantee is not applicable either if:

- the vibrating table is not properly maintained and cleaned
- unqualified personnel (not familiar with the contents of this operation manual) have assembled or dismantled the vibrating table.
- original Lievers parts have not been assembled,
- the vibrating table has been stored in a damp environment.
- the vibrating table has been cleaned with a high pressure cleaner or by water jet under high pressure.
- the machine has been connected to a wrong voltage.
- the guarantee is valid for 12 months from the date of purchase.

Guarantee-certificate

Type Vibrating Table, Nr.....

EC-DECLARATION OF AGREEMENT FOR MACHINERY

(Directive 98/37/EC)

Manufacturer : Bouwmachinefabriek Lievers B.V.

Address : Groot Mijdrechtstraat 68 3641 RW Mijdrecht

Country : The Netherlands

Hereby we declare that:

The Vibrating Tables type LTT, meet the requirements of EC-Declaration Directive 98/37/EC.

Done: 1.January 2005



Name: Mr. C.M. de Wit

Function: director.