EM 50 Electromagnetic Tapping Machine

Technical data **(Superior performance compared to any mechanical tapping machine)**

- TAPPING MACHINE FOR IMPACT NOISE EXCITATION IN BUILDINGS
- SPECIFICATIONS ACCORDING TO INTERNATIONAL STANDARD **ISO 140, ISO 117, DIN 52210, BS 5821, ASTM**
- ANY MECHANICAL ORGAN IN MOVEMENT AND **WITHOUT MAINTENANCE**
- IT CAN BE BATTERY OPERATED AND REMOTELY CONTROLLED

Specifications

Tapping Machine EM 50

ELECTROMAGNETIC SYSTEM
HIGH PRECISION OF IMPACT
FREQUENCY OF IMPACT 10 Hz ± 0,01 %
SPEED OF IMPACT 0.886 m/sec ± 3 %
POWER:
AC 230 V 0.7A
DC 25.2 V - 5 A
BATTERY AUTONOMY:
CONTINUOUS OPERATIONS 50 MINUTES
STAND-BY 50 HOURS

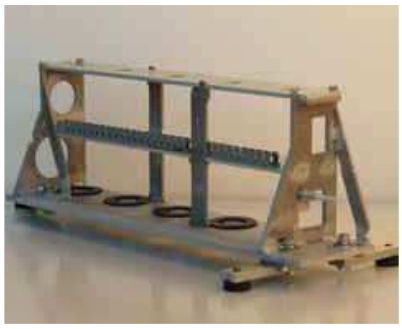
ISO 140, ISO 117, DIN 52210, BS 5821, ASTM

DIMENSIONS:

SIZE : 250 x L 120 x 550 mm
WEIGHT 12 kg

AMBIENT TEMPERATURES:
MINIM -10° C
MAXIM 40° C

ACCESSORIES:
BATTERY PACK 25.2 V - 4 A
REMOTE CONTROL
BAG OF TRANSPORT



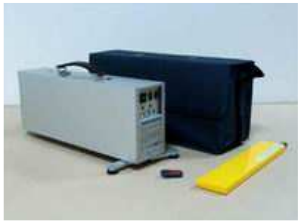
Internal parts are nor fixed to the outer sheet metal plates as for the majority of tapping machines on the market, but they are fixed to a very stiff Peraluman frame. Sturdiness and rigidity are essential to give strength to the machine and meet the demanding requirements established by the ISO 140 standard.

The hammers are not raised by means of cams, but through an electromagnetic field induced by five coils, one for each hammer. The equipment is maintenance free, thanks to the absence of mechanical moving parts. The electronic driving system complies with military standards.

Battery pack NI-MH
BP50

Remote control **Tx + Rx**
RC50W

Bag of trasport **BAG50**



ISI *sa-nv Instrumentation for Science and Industry* (INTERCONTINENTAL SERVICES INC)
Rue du Doyenné 3 Dekenijstraat 1180 Brussels – Belgium - Tel 00 32 2 343 30 81 Email : sales@isi-be.eu web : www.isi-be.eu

Main differences between a magnetic and a mechanical tapping machine.

All the tapping machines currently on the market, excluding this one, are mechanical.

To raise the hammers, they all use an electric motor, a gear motor, belts, chains, gears or pulleys to transmit the motion to a shaft with five cams that raise the hammers in an alternate pattern.

The electromagnetic tapping machine has no mechanical moving parts.

Hammers are raised by means of an electromagnetic field, produced by five coils, driven by a specially provided electronic circuit.

The hammers raise inside a brass guide, as if they were floating within.

According to the standards, the hammers must fall freely, without any friction, from a height of 40 mm.

They must touch the floor only once per cycle, that is to say exactly each 100 msec.

Therefore any subsequent bounces must be prevented, which would cause the hammers to fall from lower heights and with wrong time intervals.

To do so, the cam raised the hammer before it falls back on the floor.

Considering that the impact takes normally place when the cams are raising and the hammers lowering, it is easy to explain the several vibrations that occur during that stage.

Furthermore, this event takes place ten times per second.

In the case of the electromagnetic tapping machine, there is no impact, because the electromagnetic field raises the hammer without never touching it: the hammer is actually "floating" inside the coil.

The vibrations produced by mechanical tapping machines cause many problems, for example:

1) They cause the hammers to touch repeatedly the walls of their guides; this makes the fall of the hammer not perfectly friction-free.

2) The falling height – determined by the point where the cam releases the hammer – becomes more uncertain if vibrations are present.

Vibrations also become worse when the clearance between the mechanical parts increases, due to wear.

This tapping machine raises the hammers with an incredible care, and they stop against a magnetic vibration damper which positions them to the desired height from the floor.

The subsequent fall of the hammer is free from vibrations and unwanted frictions.

3) Vibrations are transmitted to the floor through the machine feet, which may result in bad measurements.

To reduce vibrations, the best mechanical machines on the market double the number of cams.

This allows to halve the speed of the shaft, thus reducing the entity of the impact between hammers and cams and therefore the relevant vibrations.

In the electromagnetic tapping machine the tapping frequency is established by a quartz, (exactly as for electronic watches).

The error achieved is lower than one tap out of one hundred thousand, unreachable by any common mechanical tapping machine.

To sum up, the magnetic system is extremely precise, granting excellent performance over time without any need of maintenance.

If the same measurement is repeated by different persons, identical results are obtained on a regular basis.