



IML-RESI

M300 / M500

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INSTRUCTIONS FOR USE

AND

GUARANTEE CONDITIONS

*Made in Germany by
IML GmbH*

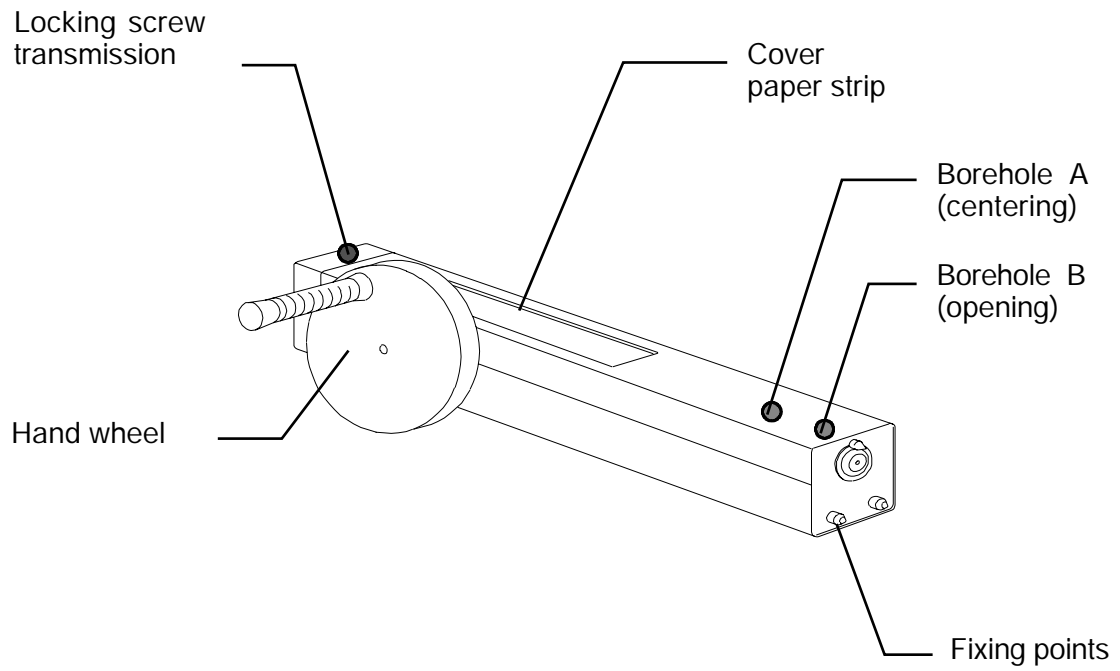
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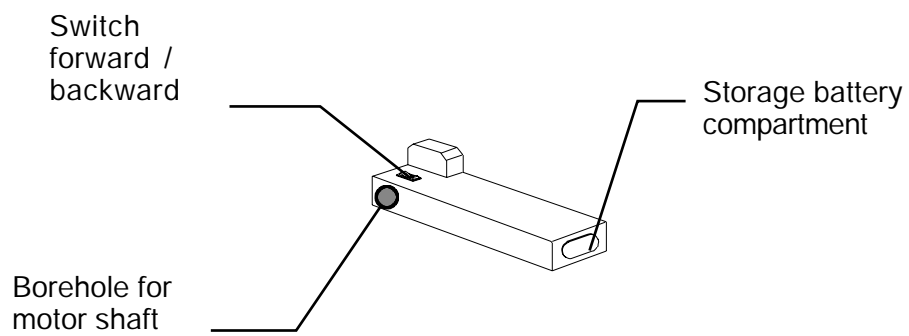
Contents

Section	Subject	Page
	OPERATING ELEMENTS	1
1.	PREPARATION	4
2.	DETAIL DRAWINGS	6
3.	SAFETY INSTRUCTIONS	8
4.	GENERAL	8
5.	COMPONENTS	7
6.	STORAGE BATTERY: MAINTENANCE AND CHARGING	7
7.	DRILLING NEEDLES: PRESERVATION	7
8.	ADVANCE STAGES	8
9.	APPLICATION	8
10.	PROBLEMS	9
11.	MAINTENANCE	12
12.	GUARANTEE CONDITIONS	12

Operating Elements IML-RESI M300



Storage Battery Unit



1. PREPARATION

1.1 Paper Feed

To facilitate exchange of paper, the slide must be in end position. Slightly bend or roll downward the new paper strip on the side that is to be fed in.

Wax coating must show upward.

Then pass the paper strip carefully through the paper guide. If the paper gets stuck, open the paper cover and push or pull the strip by hand.

1.2 Selection of Advance Stage

General rule:

Soft wood - Quick advance stage

Hard wood - Slow advance stage

Please see Table of Standard Values on page 8

1.3 Exchange of Transmission Step

Turn the locking screw of the transmission casing counter-clockwise up to the stop. Pull the transmission step out in upward direction by gripping it at the locking screw. Set in new transmission step. Care for the cover of the transmission step to be flush with the casing. If necessary, adjust position of toothed wheels by manually turning the transmission step or the hand wheel.

If your instrument is equipped with a storage battery unit, put a hexagon socket screw key into the opening of the storage battery unit to enable easy turning by hand.

ATTENTION:

The cover of the transmission casing can only be shut when the toothed wheels are locked!

Inexpert setting-in of the transmission steps may lead to damages to the transmission and the transmission steps.

1.4 Drilling Procedure

Apply the drilling instrument to the tree to be examined and start drilling procedure by turning the hand wheel clockwise or by pressing the flip switch at the storage battery unit. If you work with the hand wheel, you should use the stand.

As soon as the maximum drilling depth (300 mm) has been reached, the limit clutch will lock. To avoid unnecessary wear of the clutch, stop drive as quickly as possible.

If your drilling instrument has no storage battery unit, you may now place the drilling needle in its initial position by turning the crank handle counter-clockwise.

If your drilling instrument is storage battery driven, there should be a short interval before switching from forward to backward, to protect the transmission against overstress.

1.5 Exchange of Drilling Needles

Place the slide into front position by means of the hand wheel or the storage battery drive. Set hexagon socket screw key 2.5 mm into borehole 'A'. Now slowly turn hand wheel clockwise until the hexagon socket screw key 2.5 mm audibly snaps in. Then set hexagon socket screw key into borehole 'B' and open drill chuck by turning the key counter-clockwise by about one and a half rotations.

Now remove drilling needle from the instrument and replace it by a new one. Tighten drill chuck screw (borehole 'B') after insertion of the new drilling needle.

Rule of thumb for torque:

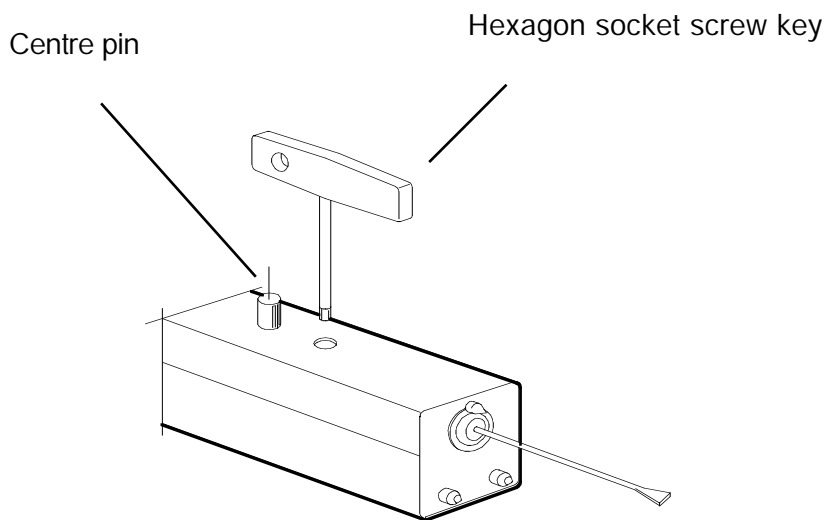
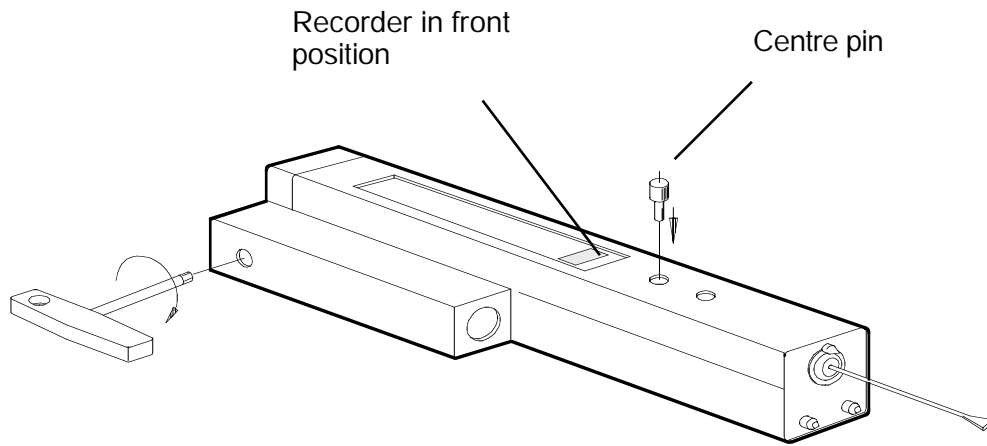
Turn screw slightly and then turn it by another 30°.

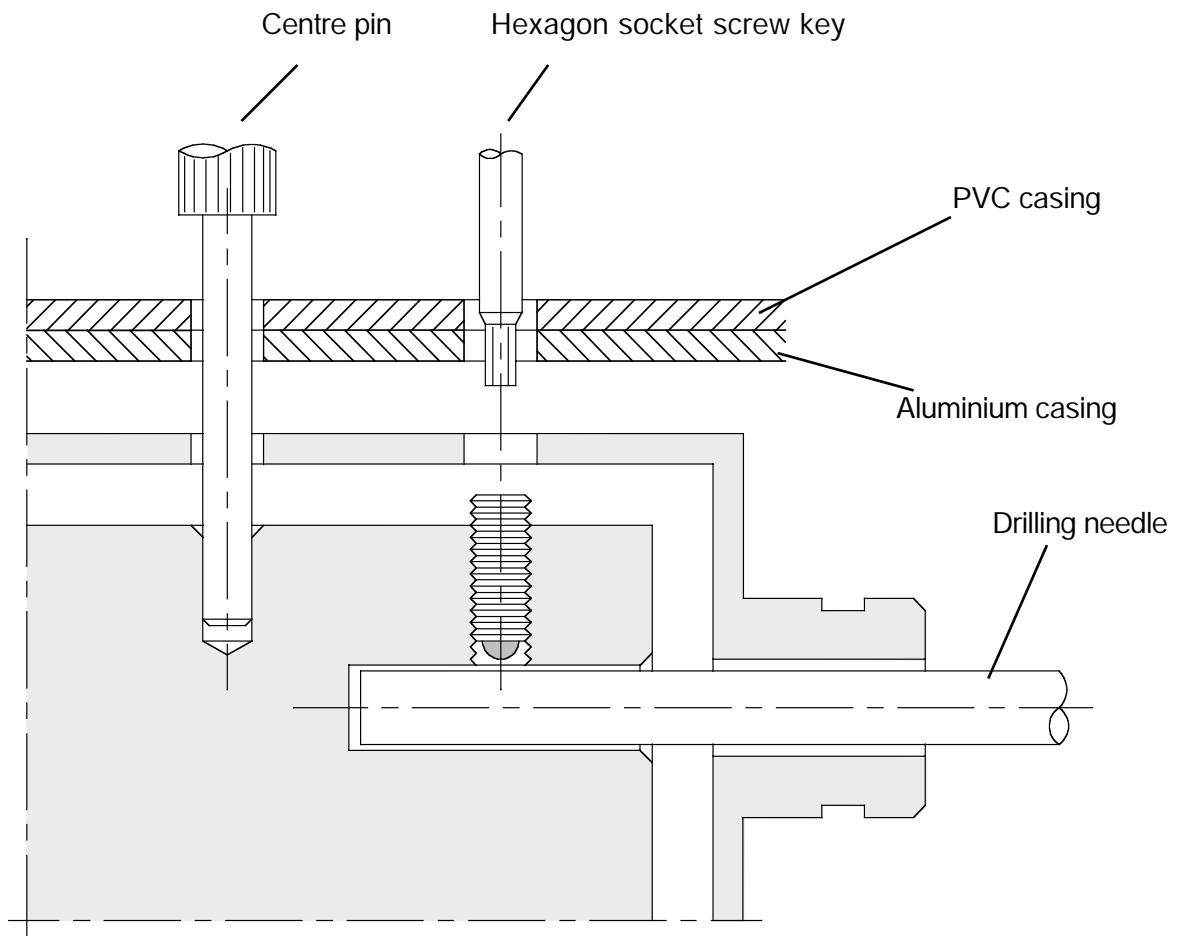
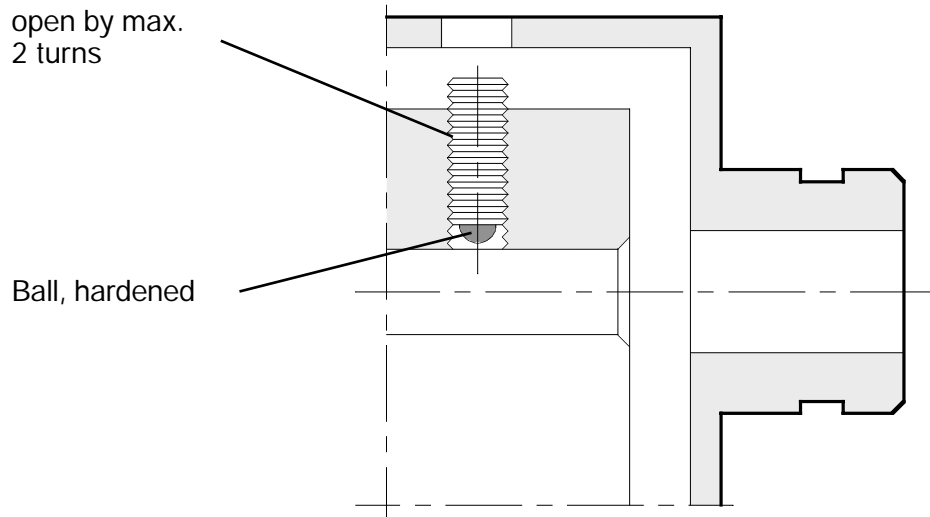
If your instrument is storage battery driven:

Set hexagon socket screw key 4.00 mm (to be used instead of hand wheel) into the opening for the drive shaft on the side of the storage battery unit. Find position for exchange of drilling needle as described above.

Remove storage battery from the instrument to prevent unintentional switching-on. Start another drilling procedure after removal of the two hexagon socket screw keys and re-placing of the storage battery.

2. DETAIL DRAWINGS





3. SAFETY INSTRUCTIONS

3.1 Materials

The IML-RESI drilling instrument has been designed for use at wooden materials (wood, trees). Inappropriate utilization may cause damages to the measuring system and / or the material to be examined.

3.2 Certainty of Reading

The measuring results gained by utilizing the IML-RESI system are not self-explanatory, they require qualified interpretation. Any conclusions with respect to the examined object (e.g. tree) will be left to the sole responsibility of the person who examines. The manufacturer of the instruments will not be responsible for wrong interpretations and conclusions; he recommends the user to attend special seminars and training.

4. GENERAL

4.1 Conception

It was the intention of those who developed the IML-RESI system to make available a measuring system for practical utilization, which is easy to handle, sturdy, and precise at the same time.

4.2 Structure of the System

As to stability, the IML-RESI system has been designed to meet the special requirements of practical examination of trees, structural timbers, poles, and wooden structural materials. There are no electronic parts in the drilling instrument itself, since it is often exposed to impact and other mechanical strain. All switches and keys required for operation are located at the storage battery unit and, thus, within easy reach.

Drilling instruments without storage battery drive are operated by means of the hand wheel.

4.3 Moisture

During storage and when you use the drilling instrument, you should generally avoid the contact of water and moisture with the IML-RESI drilling system, despite its splash-proof casing. Although the main components are protected against intake of water, you should – in order to avoid malfunction or failure – consider that electronic instruments are generally sensitive to moisture.

5. COMPONENTS

The IML-RESI drilling system usually consists of the following components:

- Drilling instrument with hand wheel
- Case (optional)
- Storage battery unit with operating elements (optional)
- Storage batteries (optional)
- Battery charger (optional)
- Stand (optional)
- Drilling needles
- Wax paper strips

6. STORAGE BATTERY: MAINTENANCE AND CHARGING

The NiCd storage cells of the storage battery unit will have to be handled as usually. They will be charged by means of a battery charger.

The life of a storage battery depends on charge and on temperature. The capacity of a NiCd cell will significantly decrease at temperatures next to or below zero.

On principle, NiCd cells should be completely discharged before re-charging to avoid the so-called memory effect, since this will entail a decrease of the overall capacity of the cells (beyond usual ageing), which may only be repaired – at least partly – by complete discharge.

7. DRILLING NEEDLES: PRESERVATION

The drilling needles will have to be kept dry to prevent oxidation (e.g. rust formation) on the surface as this might entail that particles get into the guiding mechanism of the drilling instrument during drilling, thus affecting its operability.

Especially for transportation purposes, you may keep the drilling needle in a quiver (optional), which may be placed into the case (optional). A foamed plastic pad soaked with alcohol and placed at the bottom of the quiver may serve for disinfection of the drilling needle.

8. ADVANCE STAGES

As to the selection of the most effective advance speed, please see the table below which serves as a guideline. Owing to the different characteristics of the individual kinds of wood, the advance stage will have to be determined in each single case of application. You may also refer to the tables of bulk density to be found in wood manuals.

Table of Standard Values

		Usual Advance Stages	
Object	Wood Species	Usually	Possibly
Standing Trees	Carpinus, Quercus, Fagus, Acer ...	20 cm/min	40 cm/min
	Platanus, Castanea ...	20 cm/min	
	Abies, Pinus, Picea, Tilia, Betula, Aesculus ...	40 cm/min	
	Populus, Alnus ...	60 cm/min	
Structural Timbers, Poles	Quercus ...	20 cm/min	
	Picea, Pinus, Abies, Larix, Thuja ...	40 cm/min	

Depending on the circumstances, you may select a lower or higher stage than the one indicated above.

9. APPLICATION

9.1 Front Guiding Sleeve

At the front of the drilling instrument a socket is located, which serves as guide sleeve and for disinfection purposes. A piece of felt in this socket will remove soiling from the drilling needle. The piece of felt may be soaked with alcohol. The drilling needle will thus additionally be disinfected to minimize the risk of transmitting putrefactive agents.

9.2 How to Hold the Drilling Instrument

There is no special way of holding the IML-RESI drilling instrument. The measuring results do not depend on a certain orientation. The same applies to the storage battery unit (optional).

9.3 Examination of Wooden Poles

If you examine a wooden pole, it is expedient to drill at an angle of e.g. 45°. There are special accessories available for this purpose: A front adapter will serve as support

for the drilling needle (Attention: special needle required) for utilization of the drilling instrument in inclined position. The adapter will be placed into the front plate of the drilling instrument instead of the black guide sleeve and fixed by a screw. With this arrangement, the drilling instrument may be held against the object to be examined in such a way that the needle will pierce into the wood at an angle of e.g. 45°. Nevertheless, it might be necessary in such cases to prepare the point of entrance of the needle by centre punching (for further details, please see special literature).

10. PROBLEMS

10.1 The Drilling Needle Jams

The drilling needle may jam in the material pierced, if

- the advance speed is too high,
- it hits hard, non-wooden materials (stone, splinter ...),
- a drilling process in green wood has been stopped and re-started more than several minutes later and the needle has stuck in the wood during this time,
- the drilling instrument has been canted during the measuring process, or
- the drilling instrument has been improperly handled in another way.

If you should not be able to remove the needle from the drill hole by turning it, you will have to remove it from the drill chuck as you would do for exchange of the drilling needle.

If you should not succeed in removing the needle from the drill chuck this way, you will have to cut it off between the wood and the drilling instrument. The part that remains in the drill chuck will be removed as you would usually do when exchanging the drilling needle and replaced by a new drilling needle.

10.2 The Charge of the Storage Battery Decreases

If the charge of the storage battery decreases significantly, you should first think of the following:

- Have the storage batteries always been totally discharged before recharging? (If not, you should discharge them totally several times.)
- Is the outdoor temperature below 0°C? (If yes, you should wrap the storage battery unit up, if possible.)
- Did you use stand-by storage batteries?

If any of the above does not bring a solution to your problem, please contact your service company.

11. MAINTENANCE

On principle, maintenance of the IML-RESI drilling instrument will be carried out by the manufacturer or by an authorized service company. According to the conditions of guarantee, the drilling instrument will have to be sent in for a first inspection after 500 measurements or after one year at the latest. Afterwards, we recommend an inspection after every 1000 measurements or at least once a year.

The drilling instrument must not be opened by any person but the manufacturer or an authorized service company. If it is opened by an unauthorized person, the guarantee will become extinct (see also the following Guarantee Conditions).

12. GUARANTEE CONDITIONS

The term of guarantee for the IML-RESI system is nine months. Guarantee is based on the condition that the instrument will be used exclusively for the purposes it has been designed for and that the safety instructions above are observed. The manufacturer will not be liable for damages owing to inappropriate utilization or handling. The warranty for defects does not cover normal wear and tear, nor damages that occur after passage of the risk and result from inappropriate or negligent handling and excessive strain that have not been provided in the contract of purchase. As to further general conditions of guarantee, see the manufacturer's 'General Terms of Business'.

For normal utilization of the IML-RESI system, opening of the drilling instrument or of the storage battery unit will not be required. If the drilling instrument and/or the storage battery unit has/have was opened by any person that has not been authorized by IML, the guarantee will immediately become extinct.

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