

Nd:YAG Laser Q-LAS

Installation & Handling



A.R.C.
LASER

enlighten your surgery.



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BASIC LASER SAFETY INSTRUCTIONS



In case of any eye injury due to disregard of the eye protection by safety goggles, an ophthalmologist has to be consulted.

To avoid any injuries and to use the Q-Las laser safely it is important to follow the laser safety guide lines:

1. The laser system should only be used by a trained personnel, undergone training by A.R.C. Laser or A.R.C. Laser approved trainer.
2. The room or area, where the laser system is used must be marked with the included warning signs in clear and visible way, to warn against entering the room/area without adequate protection while the laser is in use.
3. The laser system should never be used, in case of a doubt the device or any of its component are faulty. The fiber delivery system should periodically be tested, by aiming the beam to a flat surface (at approx. 5cm distance) and observing the spot shape.
4. The device indicates when the laser is placed on "Ready" mode. Any third person present at the area where laser radiation can occur (laser treatment area / laser room) should wear laser safety goggles, to protect the eyes from laser radiation.
5. The laser device must be used only for its defined application; never irradiate other material / or areas not detailed in the application description.
6. Special care should be taken to avoid irra-



diating reflecting materials, since reflected laser radiation can still cause serious harm.

7. Always switch off the laser from its „Ready“ mode when not in use; e. g. during long pauses or at the end of the procedure.

LASER RADIATION & TEMPERATURE EFFECT

TEMPERATURE	EFFECT
> 40° C	Enzyme induction, membrane disaggregation, edema
45° – 65° C	Tissue damage, irreversibility depends on irradiation time
> 65° C	Coagulation
> 100° C	Dehydration
> 150° C	Carbonisation

Absorption is mainly derived by the laser radiation physical properties (wavelength). Absorption defines how much of the laser radiation is converted into heat, which causes the desired clinical effects (coagulation / vaporisation).



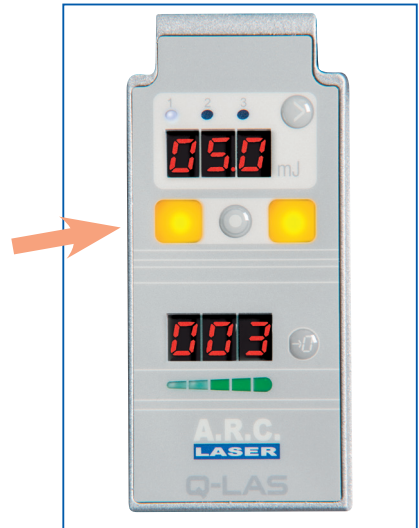
At low energy densities (large laser beam spot or low laser power), heat gradually built within the tissue. The smaller the beam spot size, or the higher the power, the faster heat will built. Above a certain limit, the tissue can no longer tolerate the amount of absorbed heat, proteins starts to denaturants and coagulation occurs. If continuing to heat up the tissue, the tissue water (intra and extracellular water) will suddenly evaporates (> 300° C). Tissue is fragmented and destroyed - cutting / evaporation is achieved.

BASIC LASER SAFETY INSTRUCTIONS



READY-Screen

Always switch off the laser from its „Ready“ mode when not in use; e. g. during long pauses or at the end of the procedure.



1. The laser packaging

The Q-Las is shipped in two separate boxes:



The entire system includes the following parts, which can be ordered separately at any time.

- ① The slit-lamp, additional chin rest plus laser transmission and control unit.
- ② Table system with lifting ability for two legs.

Usually there are no extra safety goggles included due to the fact that there is a built in protection filter for the surgeon.

2. Unpacking the table

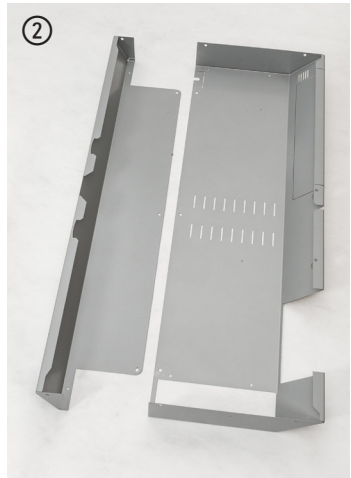
The first layer contains the table legs ① and feet ②.



Layer 2 holds the table plate, that has to become joint to the legs.

3. Opening the table plate cover

By removing the cover plates ② you will receive access to the mounting plates for the foot legs ①. The power socket needs to be removed to receive full access to the mounting plate ③



You have to get rid of 4 screws - as displayed - to release the power bar. proceed with the next page:

4. Mounting the legs

Both legs will find their place in the described mounting plates. Fix them with the short screws ① and take care the the cables are inserted ② + ③. At the same time make sure, that all the connectoers to power supplies are tightly + inserted ④.



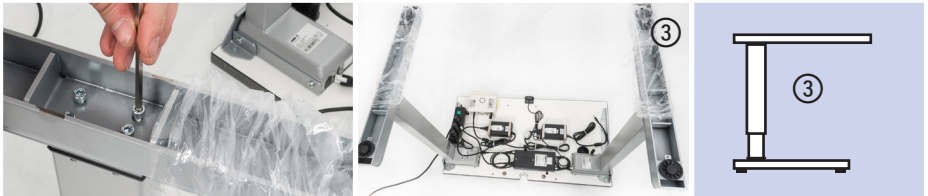
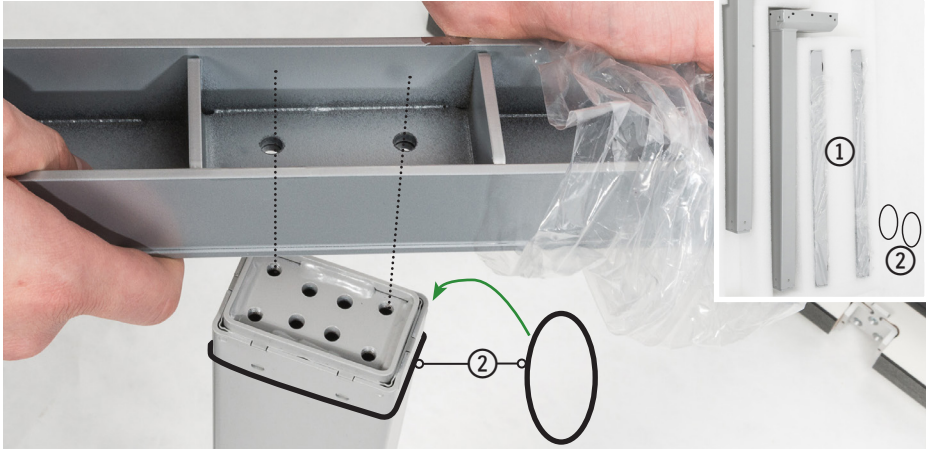
Not inserting those connectors will lead to the loss of lifting ability of the table.

5. Mounting the feet

Four screws are necessary to connect each foot to the table.

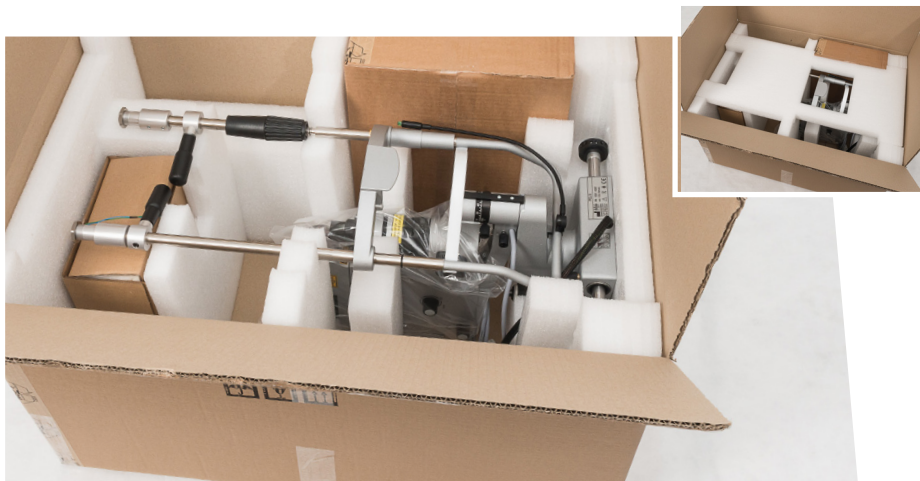
Use one protector ring ② for each leg. Two rings are included in the package. Place the ring at the lowest end of the leg.

Make sure to have the short side facing the short end of the table. ③



6. Opening the laser package

The laser package is easy to open and covered by a protective foam. Anyway, please do not open it with a knife, you might harm the content.



Content of the laser package

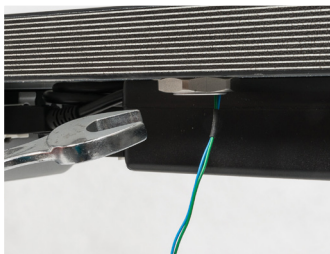
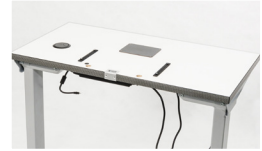


1. Chin rest + cable
2. side cover
3. slit lamp +laser housing
4. remote cable 1
5. power supply
6. spare light bulb
7. chn rest paper
8. focus stab
9. remote cable 2
10. keys
11. tubus
12. dust cover



7. Mounting the chin rest on the table

The table contains mounting holes for the chin rest. As displayed the left side receives the leg with the power cable for the fixation light. Close the screw as tight as possible without using too much of force.



The provided power Supply unit needs to be connected to the socket at the side panel. Additionally the foot switch has to be plugged into the blue colored port.

8. Unpacking the Q-Las

In box ① you will find the tubus.

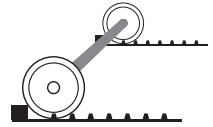
Box ② contains the slit lamp accessories for the Q-Las

To lift the Q-Las out of the box please use both hands to lift the base ④ and the slit lamp well.



9. Mounting Slitlamp and Tubus

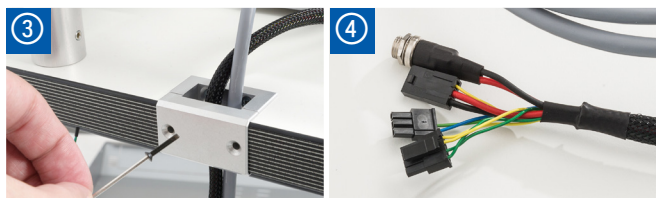
Place the necessary parts as displayed here on the table. To correctly put the slit lamp onto the table, please check that both rolls are straightly in Line. Mounting the tubus is performed by screwing the „pigeon-tale“ ④ connector by means of your hand. Do not overstretch the screw.



The slit lamp can be tested now mechanically: moving it left / right or up and down to check its functionality.

10. Cables for the slitlamp

There are two cables to supply the Q-Las with power and to fulfill the remote requirements. Put both of them ① through the opened table opening ② and close it again. Make sure you give them space for manoeuvring ③. The next step will be to join all the cables to supply the slit lamp and fixation light with power.



In case one cable is missing please have a look at the next page „Trigger Box“

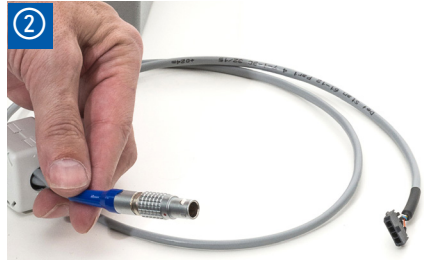
11. Connecting the Trigger Box

There are two cables to supply the Trigger box ③.

The parallel cable ① to connect to the Q-Las slit lamp regards to the edited values and signals.

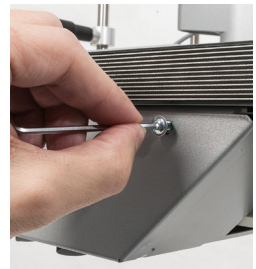
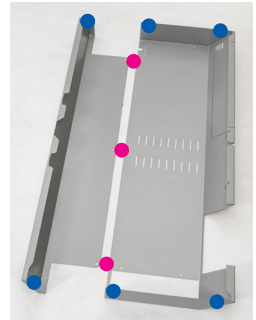
③ connects the trigger with its box.

Both connections have to be connected as shown in the following.



12. Close the table-housing

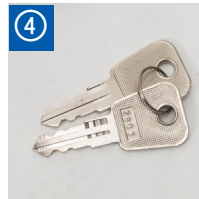
Start with the small housing plate ①. Put the available cables into it and mount it under the table. Please refer to the „blue“ markings and mount it with the corresponding screws ●. ②



Now the larger plate should be no problem to be mounted - proceed the same way you did with the steps before. Use the three screws ● to join and mount the two plates together. please make sure that the cables will find space to keep their space ③.

1. Starting the laser

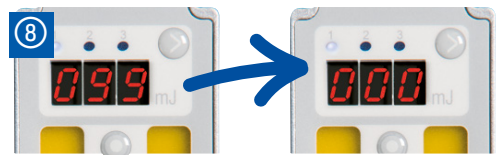
For a stable stand, the table has to be put on a flat surface to avoid instability.



1. The height adjustment at the feet will help you setting up the table properly.
2. Connect the cables to the socket, connect the mains to your wall mount.
Switch on the main power supply
3. Adjust the lifting table according to your desired height level
4. Take the laser keys and
5. switch on the system
6. Make sure the Emergency-STOP button has been withdrawn.
7. Wait until the initializeing process is done.
The laser executes its system check automatically upon startup. Right after that the laser is going to wait for manual calibration. See page 23.

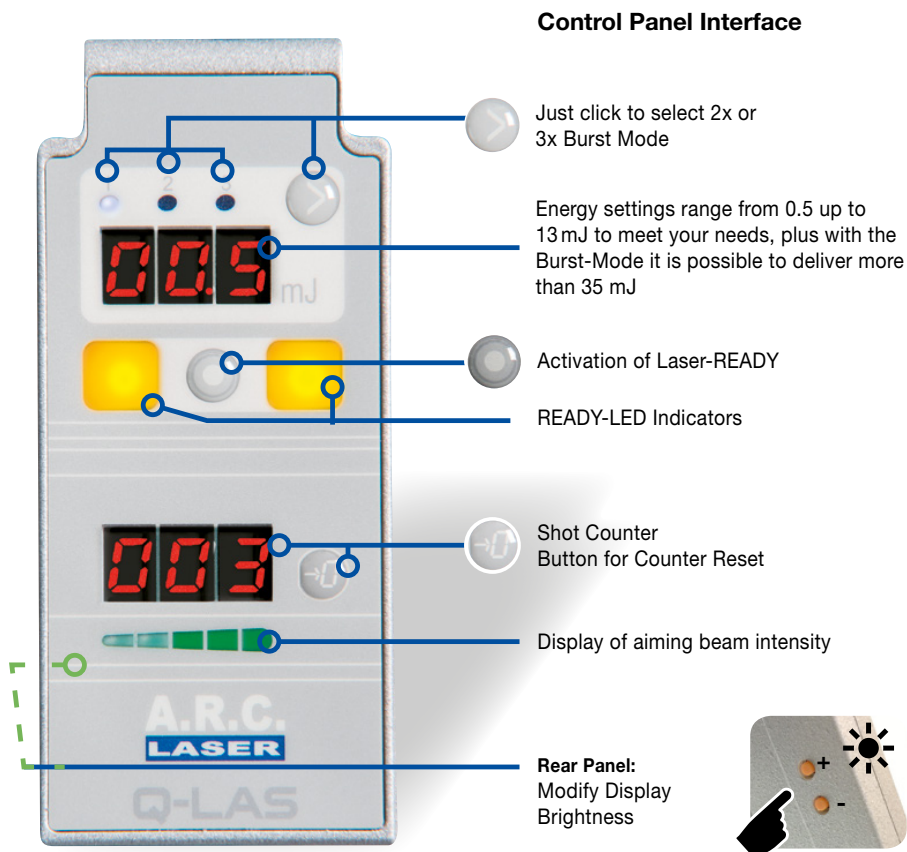


During this process the Q-Las counts to ZERO



2. Display front

The control panel interface is joining all the necessary buttons and display modules in the front of the device.



For more information, please refer to the user manual.

3. Handling of slitlamp and laser

Please refer to the description below:



4. Calibration

Set the laser to a power value of **05.0 mJ**



symbolic picture



Set the power to 05.0 mJ



The calibration starts as soon as you set the value of 05.0 mJ.

Please NOTE: An ERROR occurs when you continue turning the dial.

Calibration Process

Now the system automatically runs the calibration process - the READY-LEDs are indicating that with several blinks.



Ready to set your desired treatment parameters ...



Alter power level and start treatment

Please keep in mind that 05.0 mJ is a high level of power. You have to change the parameter. Otherwise the laser will not start.

After changing the parameter and pressing the READY button the system will blink for 2 seconds, then you can start your treatment.

To fire the laser you now have to swing out the illumination arm, either to the right or to left side.

All the Q-switch characteristics stay as precise and accurate as before.

We consulted many doctors to improve the quality of the new setup. For them it was easier to adjust and focus the laser beam on the capsule.



„Beep“ in case of covering the laser beam

That's why the prism has to be moved out of the line of sight either left or right.

To allow the YAG laser to be focused, microswitch controlled and alerted with a loud beep – by cutting out the laser if the prism is in the line of sight and covers the laser beam.



Improvement

The new slit illumination does not „feather up“ any more. The capsule visibility is optimized.

Acoustic signal

In case the illumination prism is in front of your optics, the system will alert with an acoustic beep.



5. Brakes / Stopping Spots

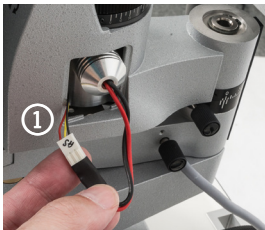
To loosen or to fixate the slit lamp you can close (tighten) or open (loosen) those three knobs by means of a small rotation. Turn clockwise to close.



1. Changing the LED light

Best is to open both of the light boxes. To replace the LED light only use A.R.C. Laser supplied light „bulbs“. Ask your A.R.C. representative for the proper spare parts.

Unwire ① the LED and replace the light source as shown. Have a close look at the alignment - a flat side ② at the bulb will guide you.

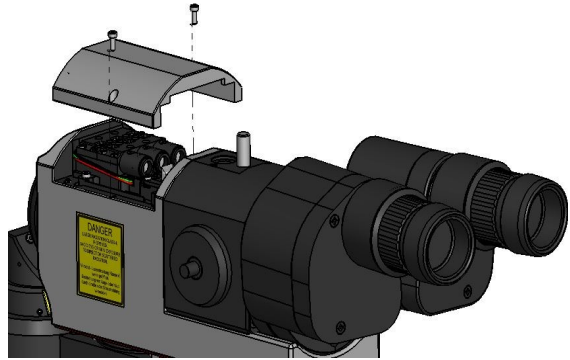


Please check the opposite side, the alternative power cable could have dropped out! Put it into the holder and close the lamp again.



2. Aiming beam adjustment

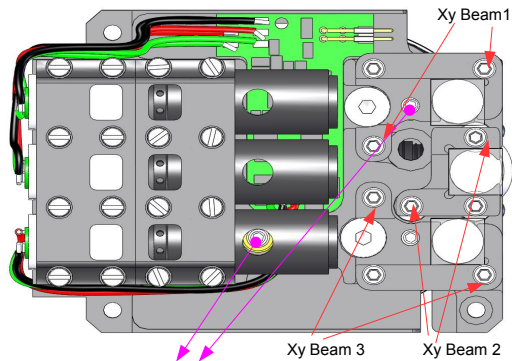
Step 1 Remove both screws and take off the cap



Step 2

Lay the 3 aiming beam points on top of each other. In order to do this you have to tilt the respective prisms by use of the x and y adjustment screws. It is advisable/easier to always block out one of the aiming beams by covering it with a paper.

Note: You have to pay attention that the torque of the respective adjustments screws is not too lax. In case of need you have to retighten the three screws which hold the tilted mirror (prism). After that please secure the screws with protection varnish.



With these two screws you can move the last bending mirror, which will enable you to adjust the position of the laser spot.

Attention: After moving the last bending mirror, the aiming beam position has to be readjusted as well.

Contact, packaging and disposal information

Disposal of old Electrical and Electronic Equipment

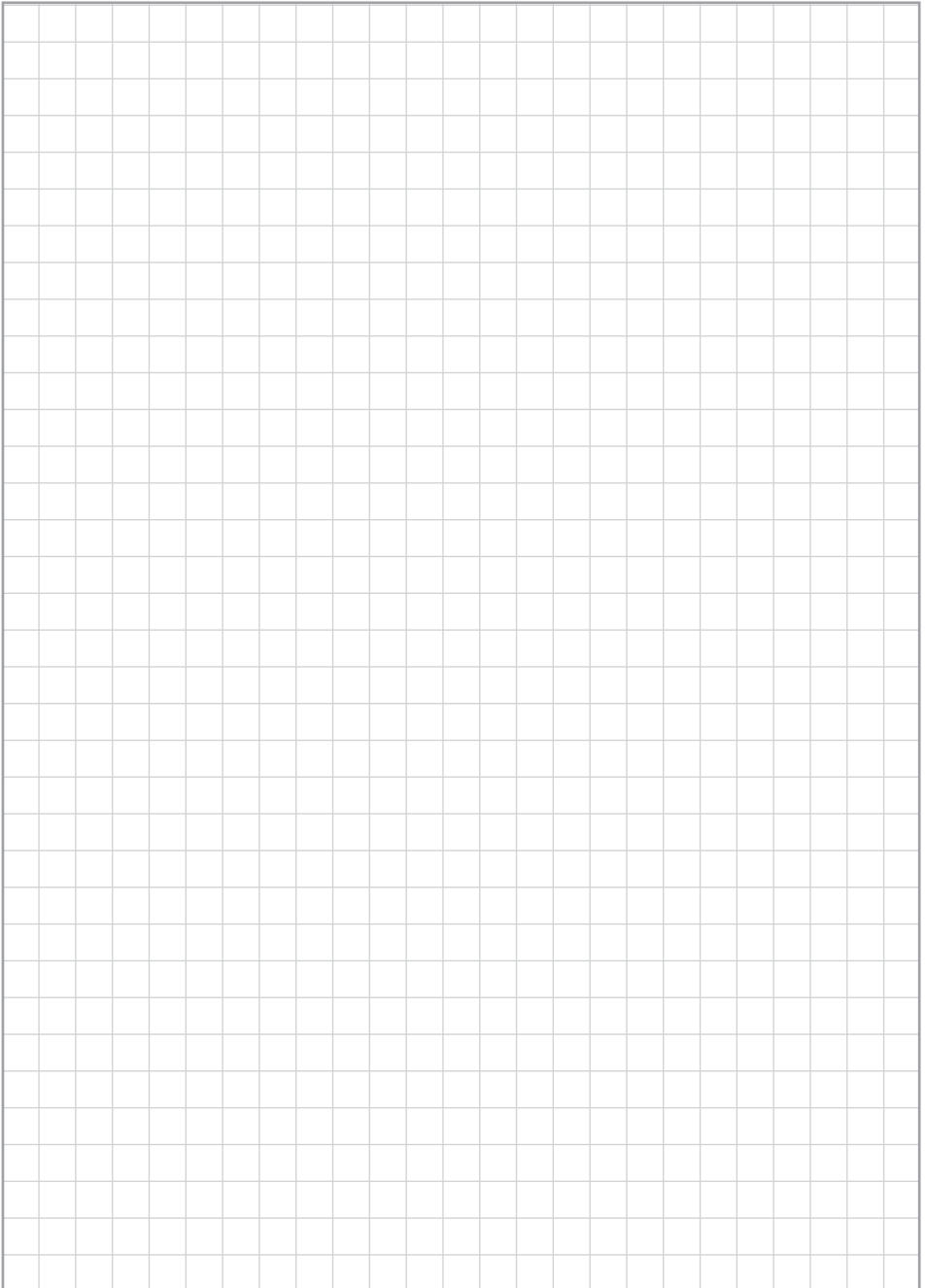
(Applicable in the European Union and other European Countries with separate Collection Systems).



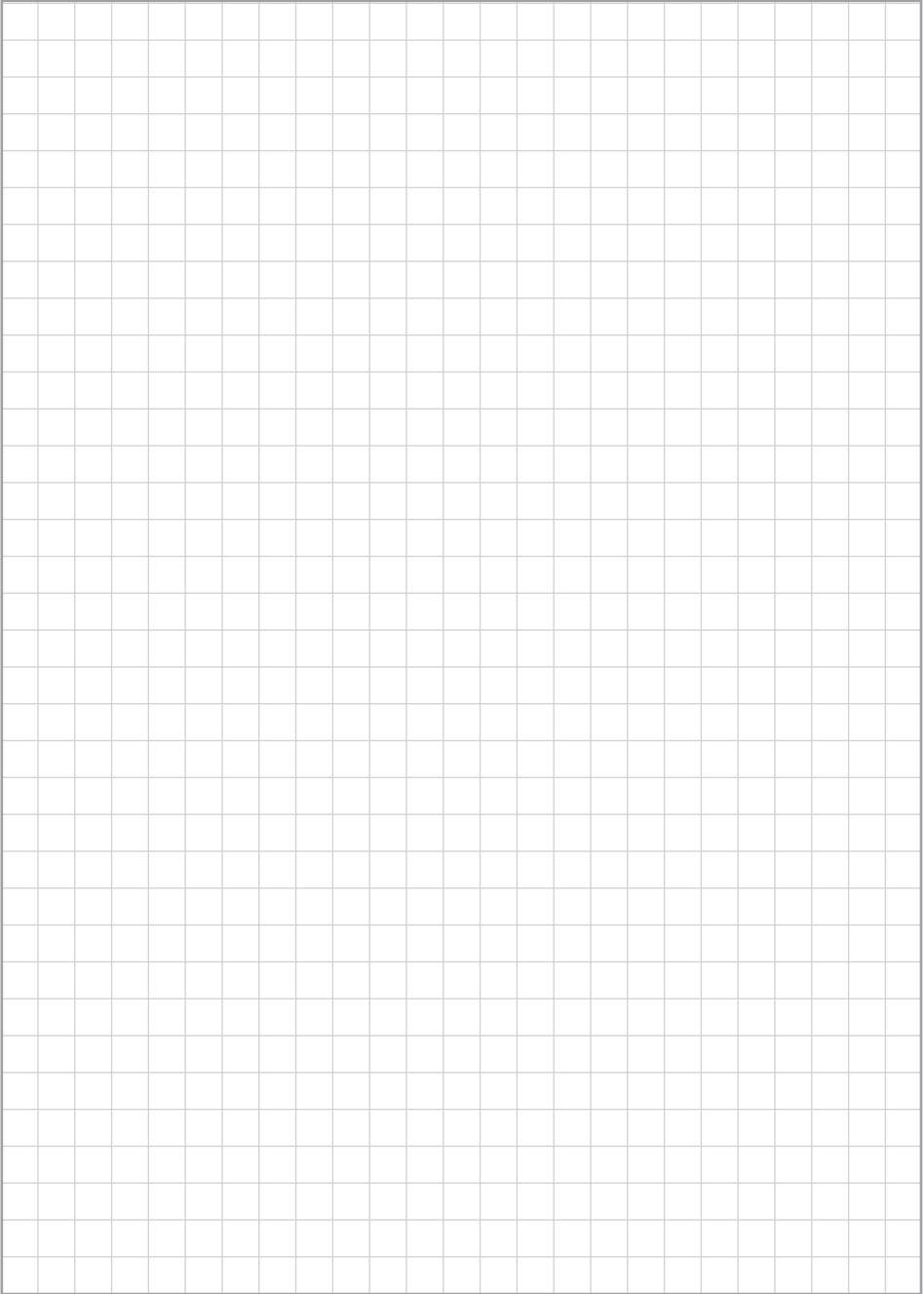
This Symbol on the Product or on its Packaging and instructions indicates that it was put on the market place after August 2005 and that this product shall not be treated as Household Waste.

To Reduce the Environmental impact of WEEE (Waste Electrical Electronic Equipment) and minimise the volume of WEEE entering landfills we encourage at Product end of life that this Equipment is recycled and reused.

NOTES



NOTES







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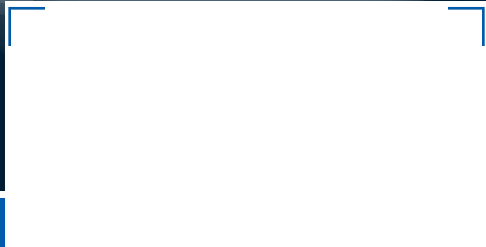
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