



MULHACÉN

Model trimmer

Ref. 080093



1945

Talleres MESTRAITUA, S.L. was founded.

1968

It is a key date for our company. After more than 20 years manufacturing tools for the Dental Lab, **MESTRA** launched its first machine: a model trimmer.

Since then we have invested a lot of work, hopes and hardships in developing our products... and why not just admit it, we have made errors: you learn from every experience.

Anyway, we feel that it has been well worth the effort, since now we have the choice to show you our new MULHACÉN trimmer, the fourth generation of this type of machine developed by **MESTRA**.

Over these almost 45 years our company has gained a lot of experience, and this is easily noticeable: noticeable in its design, in its security, in its smooth operation... it is so evident that we dare to affirm that the **Mulhacén** model trimmer probably is the most complete and evolved trimmer in the market nowadays.

We are also aware that such an emphatic statement should be properly argued. Therefore, we invite you to find out in this leaflet the objective reasons that led us to believe it.



Characteristics:

Height 340 mm • Width 420 mm • Depth 345 mm

Weight 14,5 kg • Voltage 230 V. 50/60 Hz.

Power 1600 W • 3000 rpm

Abrasive diameter 250 mm

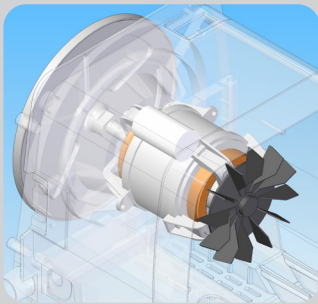
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SAFETY FIRST

Safety has been the main focus in the development of the Mulhacén project. Our engineers are well aware that a highly abrasive 10" disc, driven by a 1600 W engine and rotating at 3000 rpm is a serious matter. Even more if we take into account the presence of water.

And this is what led us to take strict safety measures, both active and passive.

Active safety



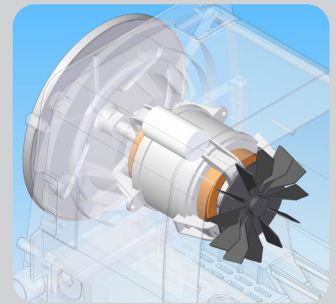
① Engine-brake. It works even when electricity goes off, stopping the disc in 3 seconds. During the reliability tests carried out by **MESTRA**, the brake is operated over 30 000 times.



② Zero-current switch. It prevents accidents caused by a sudden and unexpected start up, after a cut in electricity.

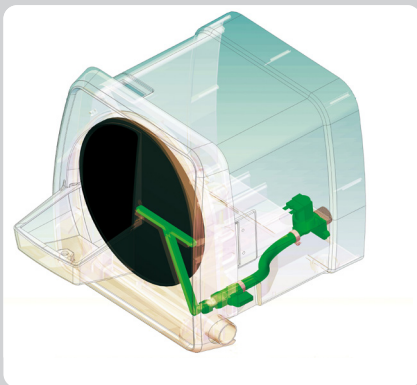


③ Interruptor de seguridad de puerta: En caso de que por error o descuido se intente abrir la tapa frontal con el motor en marcha, el disco frenaría de manera inmediata.



④ Safety switch in the door. If by error or inadvertently we tried to open the front door when the machine is working, the disc would stop immediately.

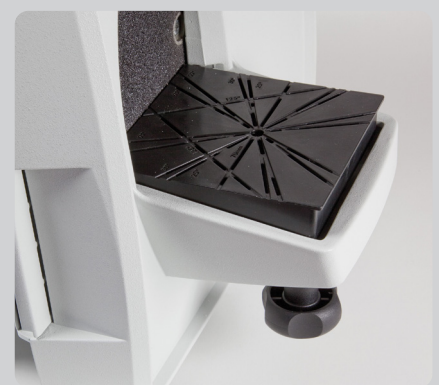
Seguridad pasiva



① External water circuit. The unit has been designed for the water circuit to be outside, without entering the chamber. It avoids the electric elements getting wet in case of leaks.



② The "a support in each corner" concept leads to a stable machine, whose "surface/height of gravity centre" ratio is just 12.35 cm²/cm. It means a perfect adherence to the ground, and avoids unexpected movements during operation that could cause an accident.



③ The worktable has been deliberately oversized up to a surface of 156 cm² and a total width of 121 mm. We have tried to prevent the user working in forced positions that can lead to accidents.

The importance of ergonomics



- ① The size of the window and the worktable are large, trying to avoid the discomfort created by narrow spaces. You can easily lean your hands on the worktable.



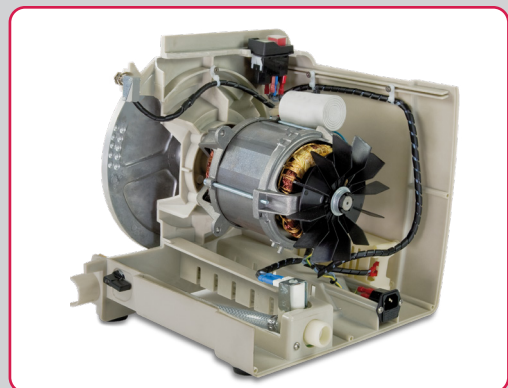
- ② You can access the abrasive disc easily through the door fitted with a quick opening hinge. You can open and close the lid in a few seconds. The disc maintenance, cleaning and replacement are surprisingly simple.



- ③ It is worth mentioning the system –a Velcro® type fastener– to fix the disc to the plate. Replacing the abrasive disc is so simple and comfortable, that you will not feel reluctant to do it. Every time you replace the disc, it will be like using a new machine for the first time



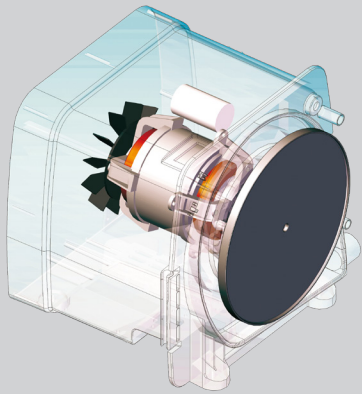
- ④ You don't need squares or any other tool to set the worktable in a completely horizontal position. Just align the lower front edge of the worktable with the front edge of the lid and you will get a perfect levelling.



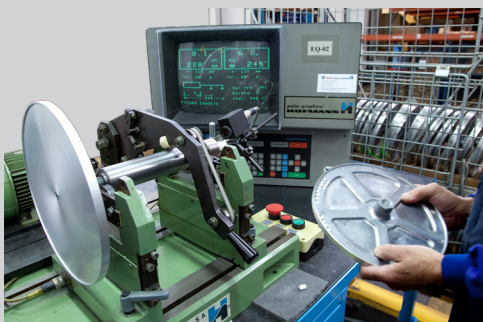
- ⑤ The core element of the unit is a powerful 1600 W engine. More than enough power to trim models by exerting a slight pressure against the disc.

Smooth operation

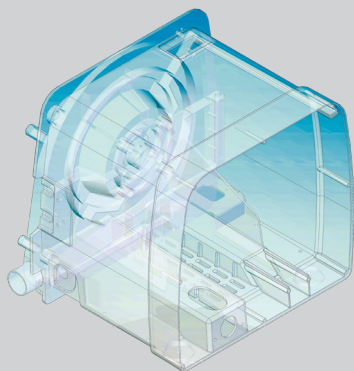
It is at this point where the long experience gained by **MESTRA** in manufacturing trimmers is particularly important.



- 1 "Principle of conservation of angular momentum". This is the difficult name used by our engineers to refer to the physical principle that makes our trimmers operate so smoothly. Basically, the bigger the mass and the diameter of the rotating disc, the better it keeps its axis of rotation steady. This principle is widely used in stabilizing ships, machinery, turbines... even buildings. Just type "gyroscopic stabilizer" in www.youtube.com, the well known video website, and you will understand through many examples what we are talking about.



- 2 All our discs are individually balanced according to the strict ISO-1940/2953 norm, the same norm used, for example, to balance the turbines of the jet planes. The tolerance allowed is 0.1 g/mm. The large mass of the disc (large angular momentum) and a thorough balancing result in a surprisingly smooth operation.



- 3 Our engineers have selected a one-piece bearing frame for the Mulhacén project. A unique resistant block bears all the strains and movements. The fact of being a single element gives the frame a great strength that results in a vibration free, smooth operation. It has been demonstrated by the finite element analysis of resistance carried out by **MESTRA**. While some other manufacturers use several pieces bolted together to build the frame, **MESTRA** uses only one, with a substantial gain in stiffness.

An important issue: cleaning the disc

The drainpipe has been placed in a tangential position to the disc rotation. The advantages of this positioning are very easily verifiable: start the machine up without water and put your hand on the drainpipe. You will notice a strong and steady air flow, which is not so noticeable in trimmers with the drainpipe placed towards the rear of the unit or in some other position.

The strong draining suction expels the dirt produced during the model trimming, making the cleaning of the disc and the chamber much easier. This entails a better maintenance, a longer working life (less dirt=longer life) and a lower water consumption.

In the Mulhacén trimmer, thanks to the "tangential blow" effect and to the efficient layout of the sprinklers and the "wave breaking" barriers, you can achieve a perfect dirt sweeping and keep the disc always clean, avoiding disgusting splashes towards the outside.



Water-inlet tap and lateral water outlet.

Integration into the workplace

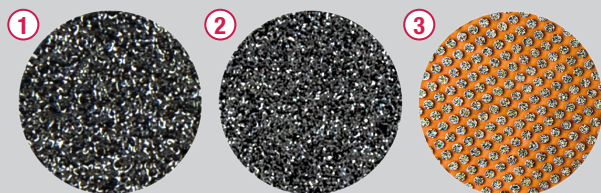


We are aware that there is not too much room in the lab or dental clinic. And this is why our engineers have tried to make the best use of the space available: the machine has been designed for a tray to be placed on its top to store models, tools or any other object that, otherwise, should be placed on the worktable, causing trouble, dirt and discomfort.

Improving the tidiness, the cleanness and the use of space are matters of concern for our engineers.



Accessories



1. 80 grit abrasive disc (coarse) Ref. 080093-04 (5 u.)
2. 120 grit abrasive disc (fine) Ref. 080093-05 (5 u.)
3. Diamond disc Ref. 080093-55 (1 u.)



Besides, the Mulhacén trimmer and the Mestra Ref. 080087 conform a perfect couple: they fit perfectly into the lab and take a minimum space. They are connected by very flexible threaded couplings, so in most of the cases can be installed by the user himself.



Quality and environment

In **MESTRA** we have always been deeply committed to offer quality to our customers. We are convinced that all the care we put on the quality of our products is the secret of having been in the market for almost 70 years. The Quality-Environment pairing is our hope for the future.

1. The finish and the quality of the Mulhacén trimmer are the tokens of our firm. Of course, the machine has the MESTRA guarantee, which gives our customers security and confidence.

2. The materials used in the Mulhacén trimmer are environmentally friendly. The use of a frame made of high resistance plastic is a clear proof of it: in the first place, it is a recyclable material. Besides, the ecological footprint of plastic is much shorter than that of the aluminium, material traditionally employed so far. Just a fact: 20 000 kWh are needed to produce a ton of aluminium, apart from highly polluting electrolytes, paint and different treatments that aluminium requires.

3. The power of the electric engine has been limited to 1600 W, more than enough. There is no technical or practical reason to exceed this limit; it would just be a waste of electric energy. The respect for the environment should include these issues.

4. The cleaning system has been designed to be highly efficient with minimum water consumption. Water is a scarce resource in our planet, and it must be rationally consumed.

Advice to choose a trimmer

You may be currently interested in buying a trimmer. In this case, you are lucky, because you will find many models and manufacturers of excellent products in the market. We would like to give you several useful tips for you to choose the most suitable model.

✓ First of all, be objective. Do not let names, nationality or any other information from the dealer influence you. Do not pay attention to set phrases like "there must be something wrong if it is so cheap", "you get what you pay for", "in XX (country) they have never been good at manufacturing machines" and so on. Take into account just reasons, facts and arguments. Never accept disparaging remarks from dealers. Compare at least three models (four, better) before choosing one.

✓ Safety first. Do not forget we are talking about a machine with a powerful engine that makes rotate a highly abrasive disc at 3000 rpm. Ask the dealer for a list of the safety measures taken by the manufacturer to prevent accidents. The longer the list, the better.

✓ To start with, distrust the models fitted with a safety brake that depends on the electric supply. They are cheaper and easier to implement, but they have a big disadvantage: they may fail when you need them the most. Would you use an elevator fitted with an electric safety brake? Would you stand under a loaded big crane fitted with an electric emergency brake? Imagine you are working on your trimmer in a dark winter afternoon, and suddenly the light goes off. The lab is in the dark. Could you imagine yourself and your fingers a couple of inches away from an abrasive disc rotating at 3000 rpm. Needless to say why electric emergency brakes are advised against in safety regulations.

✓ Make sure that ergonomics and ease of use are good: a wide window, an easy access to the disc chamber, a wide worktable. These features are extremely important.

✓ Check the elements used by the manufacturer to ensure a smooth and properly tuned operation. Bear in mind that a smooth operation depends on three variables:

1. A disc with enough mass to maintain an ideal angular momentum. Beware of discs made of thin metal sheets. Generally, their small mass leads to a too low angular momentum for an ideal operation.

2. A correct balancing. Openly ask your dealer if the product offered has been correctly balanced and how it has been done. Any balancing procedure (by mass addition or mass removal) should leave visible marks in the disc.

3. A firm and stable frame. One-piece frames are always recommended.

✓ Remember the advantages of a tangential arrangement of the drainpipe: to confirm this point, just start up the trimmer without water and place your hand on the drainpipe outlet. In this type of machines a good draining system prevents splashes and ensures cleanliness and water saving. This is why machines fitted with a tangential water outlet are preferable.

Once you have checked the previous points, ask for the price, the technical service and any other aspect offered by the manufacturer. Think all this information over very carefully and make your choice. If you follow these tips -whatever your choice-, be sure you will choose the right one.



At **MESTRA** we are specialized in the manufacture and distribution of dental machinery and appliances. We are a Spanish company based in Bizkaia. We currently export to clients in more than fifty countries on five continents and we have more than a thousand references in our catalogue.

We have maintained a line of constant expansion since our foundation in 1945, thanks to our best qualities: the high quality of our products that have earned the ISO 9001:2015 certification by TÜV Rheinland, a close and attentive relationship with our customers, and a constant technical innovation in the design of our products.

Our design philosophy is based on three fundamental pillars: the needs of our clients, the observation of the techniques used in dental laboratories and our more than 77 years of experience providing creative and contemporary solutions to the daily problems of professionals in the sector.

Do you want to take a virtual visit to our training and exhibition center?

Contact us and we'll show you!



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