

Instructions for use

Translation of the original operating manual



WASSERMANN
DENTAL-MASCHINEN

● Die Basis für Ihr Labor



CE

HSM-40
HSM-50

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Wassermann Symbols



WARNING!
(Risk of injury)



ATTENTION!
(to prevent damage occurring)



General explanations,
without risk to
persons or objects



Wassermann Service

Only for USA

Caution: Federal law restricts this device to sale by or on the order of a dentist, physician or any other practitioner licensed by the law of the state in which he or she practices to use or order the use of the device.

1. Introduction



For your safety and the safety of your team

These Instructions for use explain how to use your Wassermann product. However, we must also warn against possible hazardous situations. Your safety and the safety of your team are of paramount importance to us.



It is therefore essential to read the safety notes on Pages 10 to 11.

Intended use

The control unit is intended for rotating or machining use with all material processed in a dental laboratory, whereby the handpiece is guided by hand.



The control unit is **not** designed as a piece of **medical equipment!**

It is not permitted for use on patients!

Skilled application

The control unit is intended only for skilled application in the dental or medical field according to its purpose of use in compliance with the valid health and safety at work regulations, the valid accident prevention regulations as well as in compliance with these instructions for use. Non-compliance with these instructions or use of accessories and spare parts that are not approved by Wassermann invalidate all claims under warranty and any other claims.

Introduction

The HSM unit is in the condition as supplied by us

- > safety checked
- > carries the UL mark of quality
- > suppressed in accordance with pertinent standards.

This declaration is not valid for unintended external or internal attachments and the like.

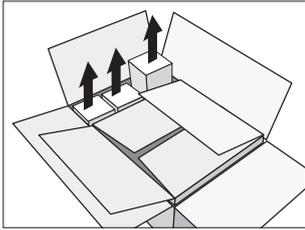


Responsibility of the manufacturer

Wassermann can only accept responsibility for the safety, reliability and performance of the HSM unit when there is compliance with the following directions:

-  > Consult Instructions for use
- > *This Instructions for Use also applies to the »E-type«-control units. »Motor handpiece« is to be understood accordingly as »E- Motor with ISO coupling« (HSM-40).*
- > The HSM unit has no components which can be repaired by the user. Assembly, modifications or repairs must only be undertaken by skilled personnel authorized by Wassermann.
- > Unauthorised opening of the equipment invalidates all claims under warranty and any other claims.

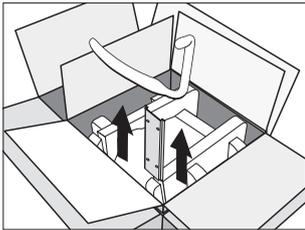
2. Unpacking



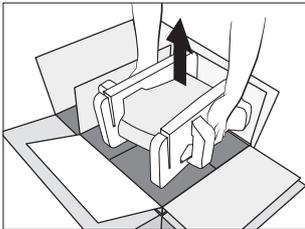
- 1 Lift out the accessories carton.

Wassermann packaging is environmentally friendly and can be disposed of through branch recycling companies.

However, we recommend that you keep the original packaging.



- 2 Knee control unit: Remove the holding plate and fitting for the blow out function.



- 3 Lift out insert with control unit.

3. HSM-40 equipment supplied (see also page 9)

Foot control unit	Knee control unit	Table control unit
<p>Control unit:</p> <ul style="list-style-type: none"><input type="radio"/> REF 111980 230 V<input type="radio"/> REF 111983 115 V <p><input type="radio"/> Motor cable 1.8 m REF 111110</p> <p>optional: »E-type«</p> <ul style="list-style-type: none"><input type="radio"/> <i>E-Motor with ISO coupling LA-3E, REF 111123</i>	<p>Control unit:</p> <ul style="list-style-type: none"><input type="radio"/> REF 111981 230 V<input type="radio"/> REF 111984 115 V <p><input type="radio"/> Operating controls LA-3D REF 111111</p> <p><input type="radio"/> Holding plate REF 111113</p> <p><input type="radio"/> Tapping screws REF 111114</p> <p><input type="radio"/> Motor cable 1.8 m REF 111110</p> <p>optional: »E-type«</p> <ul style="list-style-type: none"><input type="radio"/> <i>E-Motor with ISO coupling LA-3E, REF 111123</i>	<p>Control unit</p> <ul style="list-style-type: none"><input type="radio"/> REF 111982 230 V<input type="radio"/> REF 111985 115 V <p><input type="radio"/> Operating controls LA-3D REF 111111</p> <p><input type="radio"/> Foot-operated starter L-NV REF 111119</p> <p><input type="radio"/> Motor cable 1.8 m REF 111110</p> <p>optional: »E-type«</p> <ul style="list-style-type: none"><input type="radio"/> <i>E-Motor with ISO coupling LA-3E, REF 111123</i>

HSM-50 equipment supplied (see also page 9)

Foot control unit	Knee control unit	Table control unit
<p>Control unit:</p> <ul style="list-style-type: none"><input type="radio"/> REF 111986 230 V<input type="radio"/> REF 111977 115 V <ul style="list-style-type: none"><input type="radio"/> Hose for air supply REF 111115<input type="radio"/> Motor cable 1.8 m REF 111116	<p>Control unit:</p> <ul style="list-style-type: none"><input type="radio"/> REF 111987 230 V<input type="radio"/> REF 111978 115 V <ul style="list-style-type: none"><input type="radio"/> Operating controls LA-6D REF 111117<input type="radio"/> Holding plate REF 111113<input type="radio"/> Tapping screws REF 111114<input type="radio"/> Fitting for blow out function REF 111118<input type="radio"/> Hose for air supply REF 111115<input type="radio"/> Motor cable 1.8 m REF 111116	<p>Control unit:</p> <ul style="list-style-type: none"><input type="radio"/> REF 111988 230 V<input type="radio"/> REF 111979 115 V <ul style="list-style-type: none"><input type="radio"/> Operating controls LA-6D REF 111117<input type="radio"/> Foot-operated starter with blow out function L-NV REF 111119<input type="radio"/> Hose for air supply REF 111115<input type="radio"/> Motor cable 1.8 m REF 111116

HSM-40 and HSM-50 equipment supplied

- Motor handpiece LA-66 REF 111121
- Handpiece holder REF 111103
- Chuck key REF 111555
- Spanner REF 111541
- Service oil REF 111151
- Cleaning brush REF 111152

- Mains cable REF 111102 (Europe)

4. Safety notes



Please ensure that you carry out the following instructions

- > Only connect the HSM unit to a socket outlet with protective earthing.
- > Never touch rotary instruments which are still rotating.
- > Never touch the chuck mechanism / twist chuck of the motor handpiece while they are still running.
- > Comply with the necessary protective measures such as the wearing of safety goggles, use of protective screens etc.

for »E-type«:

- > *Only fit the straight or contra-angle handpiece when the motor is at a complete standstill. (HSM-40)*



Use only suitable and serviceable tools

Use only good quality rotary tools which comply with EN ISO 1797-1. Ensure that you comply with the tool manufacturer's instructions with respect to maximum speed, maximum torque, forward and reverse movement!

Inappropriate use

Improper use, in addition to incorrect assembly, installation, modification or repairs of the HSM unit or non-compliance with our instructions invalidates all claims under warranty and any other claims.

The control unit is only permitted for use in confined spaces (indoor use)!

Safety notes



Danger zone

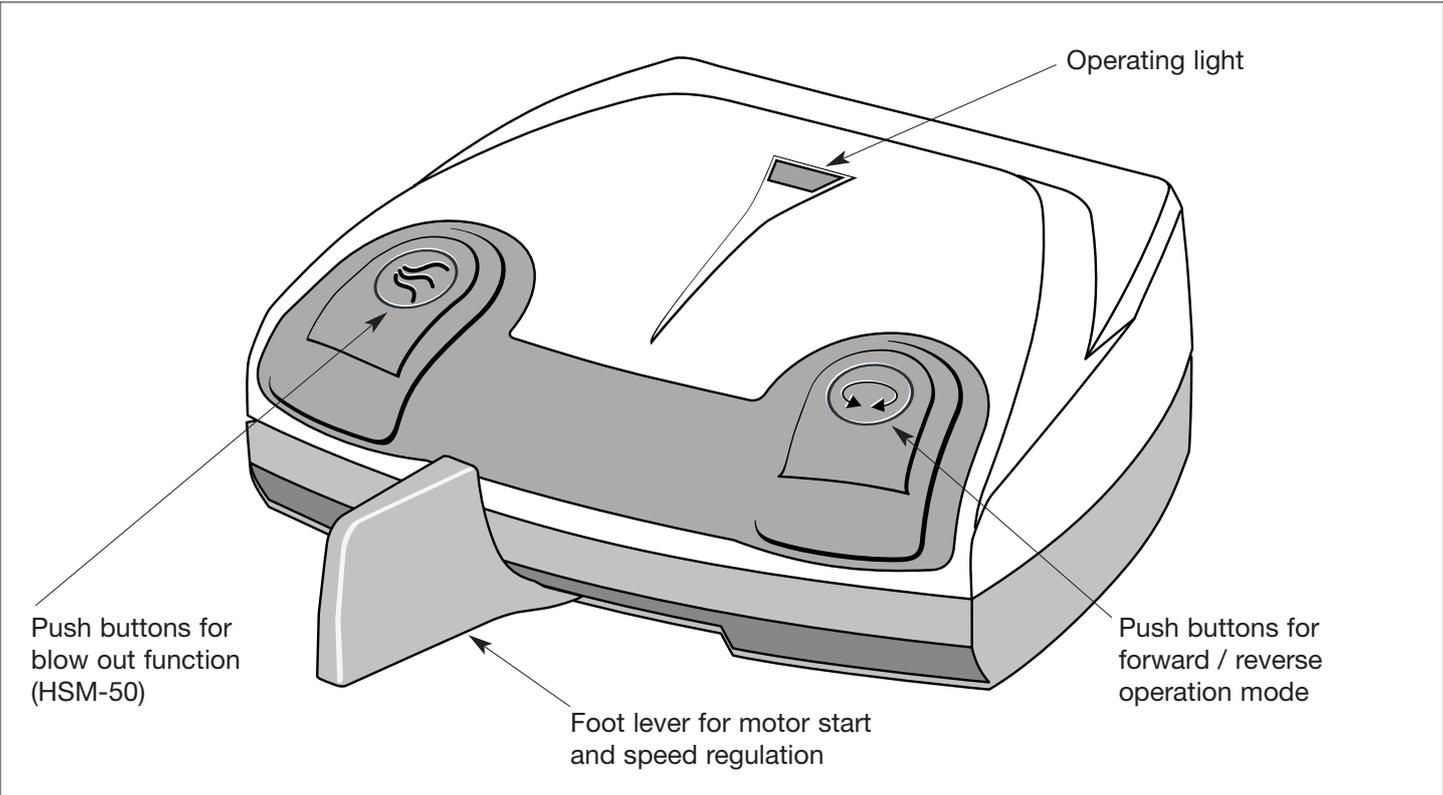
The control unit is not suitable for use in areas in which special conditions prevail (e.g. corrosive or explosive atmospheres).

Power failure

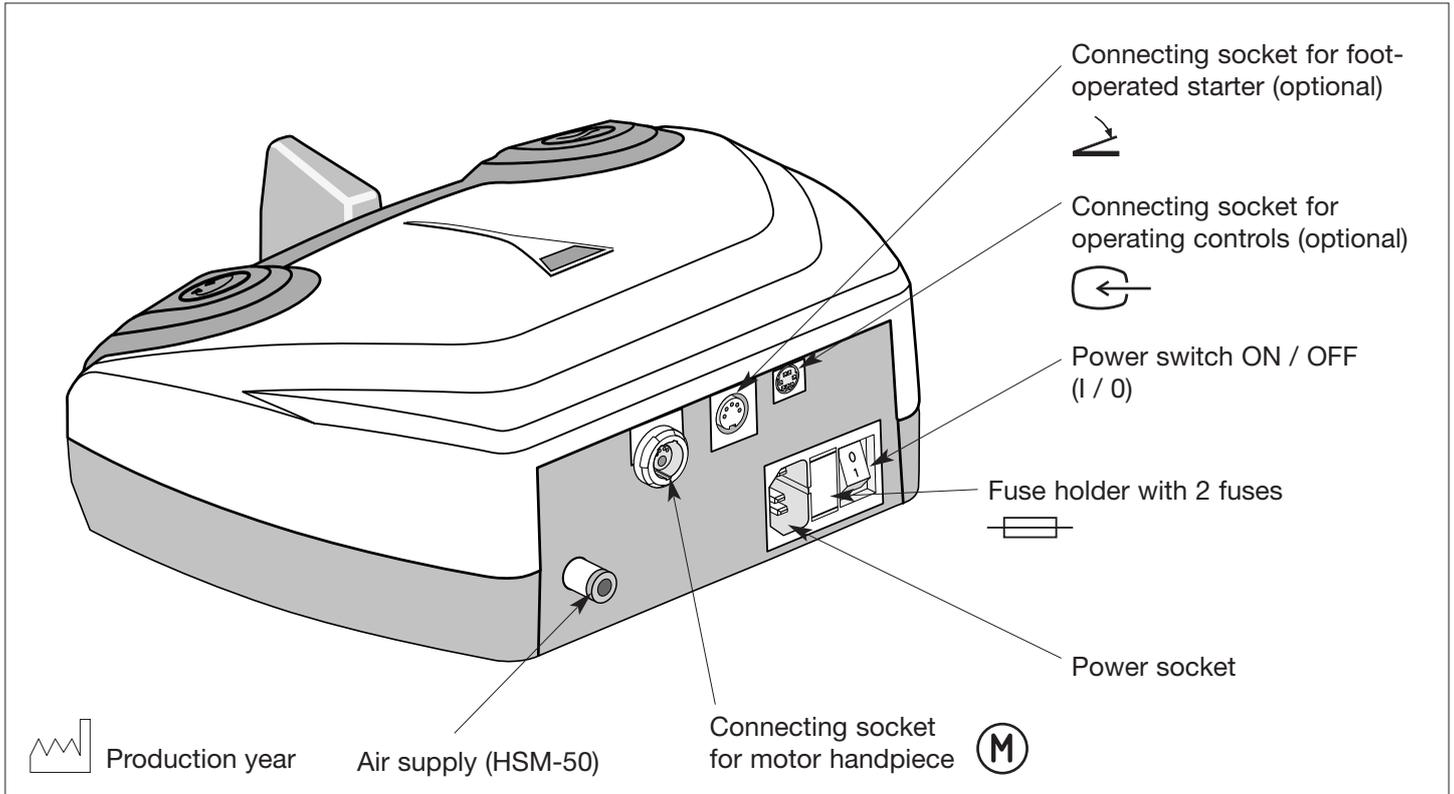
In the event of a power failure or if the HSM unit is switched off, the last speed set is saved and re-activated on power-up.

Intermittent operating mode S6 (4min/10min) is the designation for continuous operation with intermittent loading. The recommended loading time is 4 minutes at a running time of 10 minutes.

5. Description of foot control unit – front side

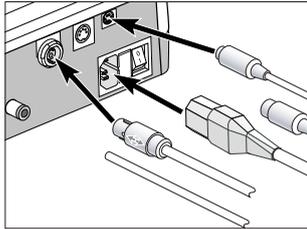


Description of foot control unit – reverse side

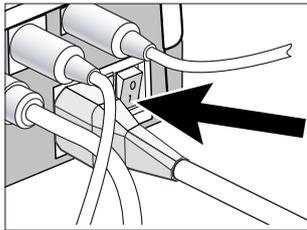


Starting operation the foot control unit

 Before connect or disconnect mains cable, motor cable, operating controls (optional), air hose (HSM-50), switch off the control unit.



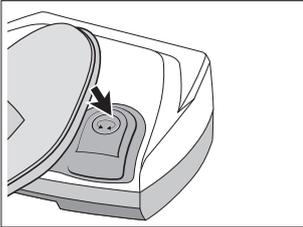
1 Connect the motor cable, operating controls (optional), air hose (HSM-50) and mains cable.
 Note the positioning!



2 Switch on control unit (I).

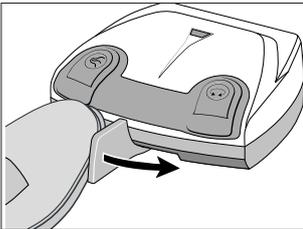
Operating the foot control unit

Reverse operation



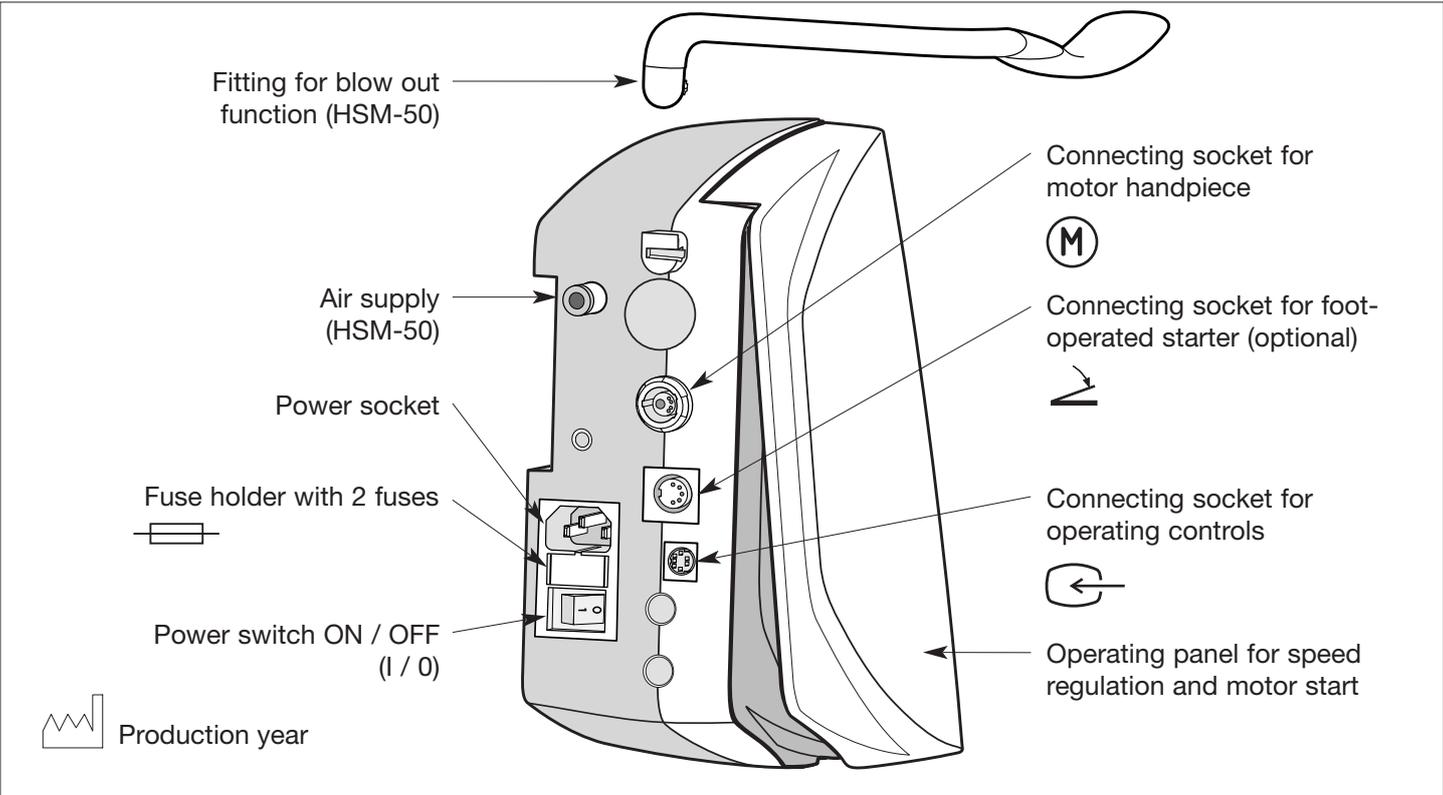
You can switch between forward and reverse operation by pressing the button.

Changing the speed

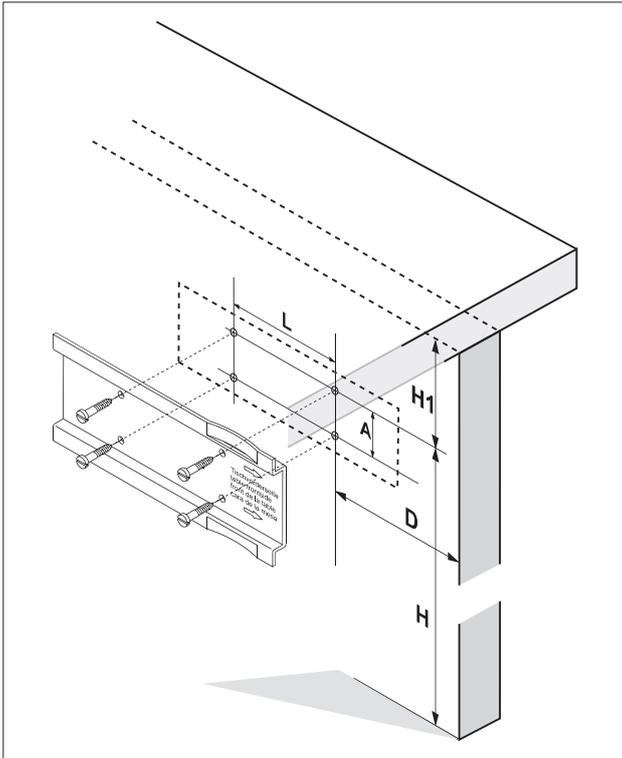


By activating the foot lever, the values 1,000 – 40,000 rpm (1,000 – 50,000 rpm with HSM-50) are continuously increased / decreased.

6. Description of knee control unit



Knee control unit assembly



❶ Mark the screw holes with the enclosed drilling template or holding plate.

❷ Pre-drill 4 screw holes with \varnothing 3 mm.

Note dimensions:

H = 550 to 600 mm

H1 = at least 90 mm

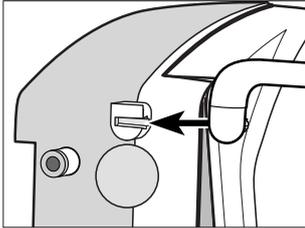
D = 90 mm (measured from the front edge of the bench)

L = 100 mm

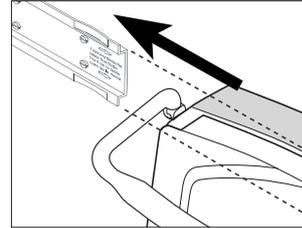
A = 40 mm

Knee control unit operation

 Before connect or disconnect mains cable, motor cable, operating controls, foot-operated starter (optional), air hose (HSM-50), switch off the control unit.

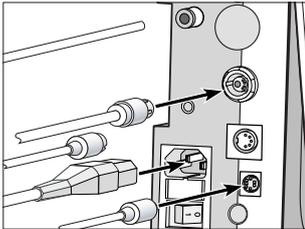


1 Push in the fitting for the blow out function up to the limit stop. (HSM-50).

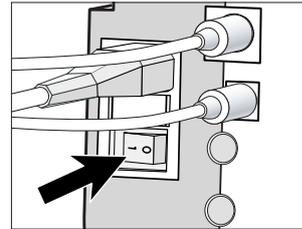


3 Insert control unit up to the limit stop on the holding plate.

 One drop of oil makes insertion easier.

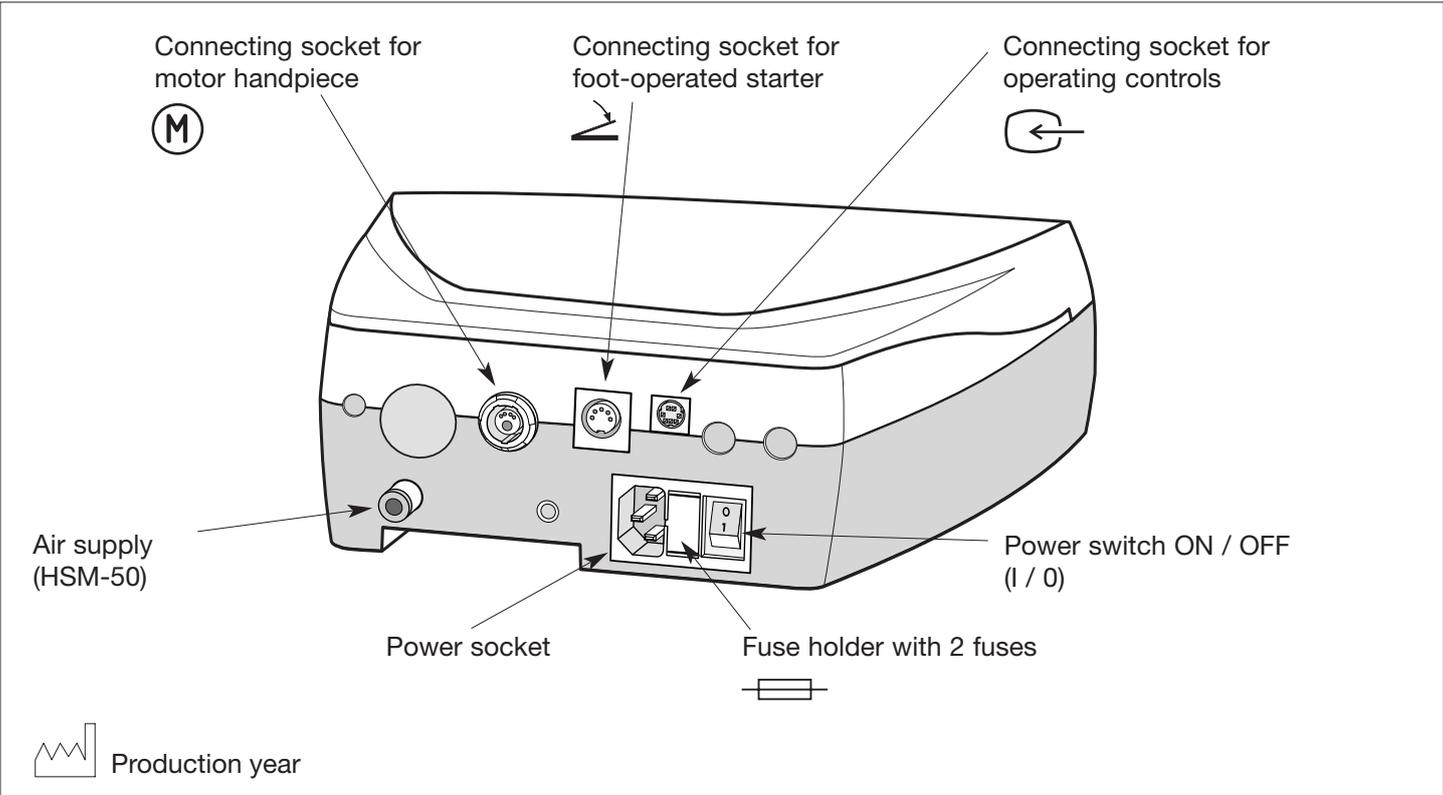


2 Connect the motor cable, operating controls, foot-operated starter (optional), air hose (HSM-50) and mains cable.
 Note the positioning!

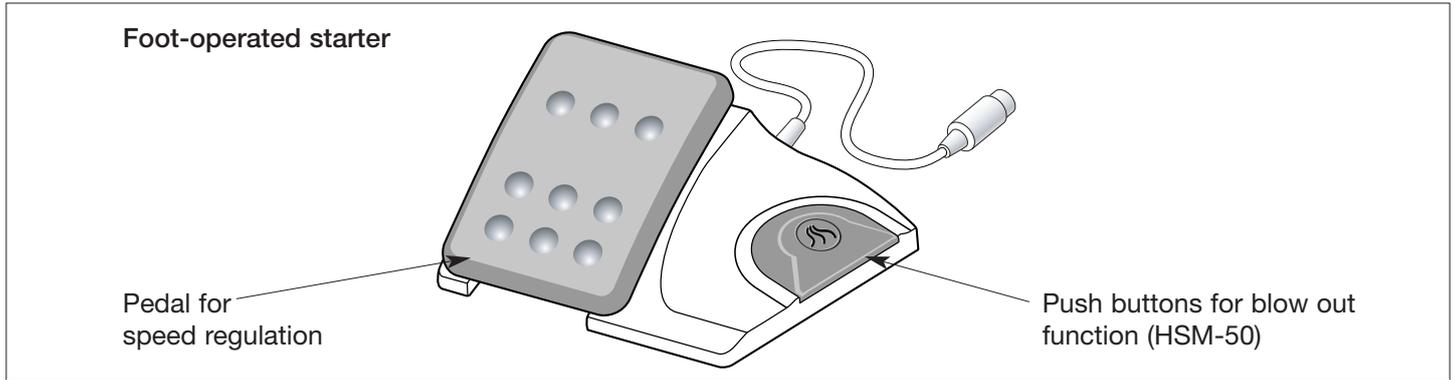


4 Switch on control unit (I).

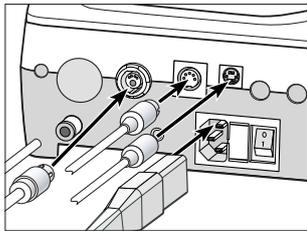
7. Description of table control unit



Starting operation – Table control unit

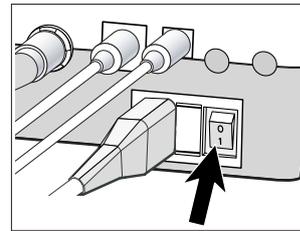


 Before connect or disconnect mains cable, motor cable, operating controls, foot-operated starter, air hose (HSM-50), switch off the control unit.



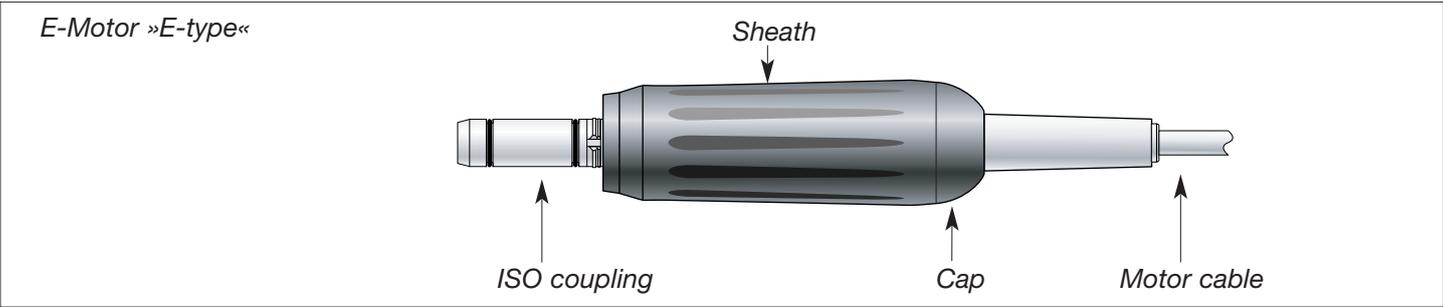
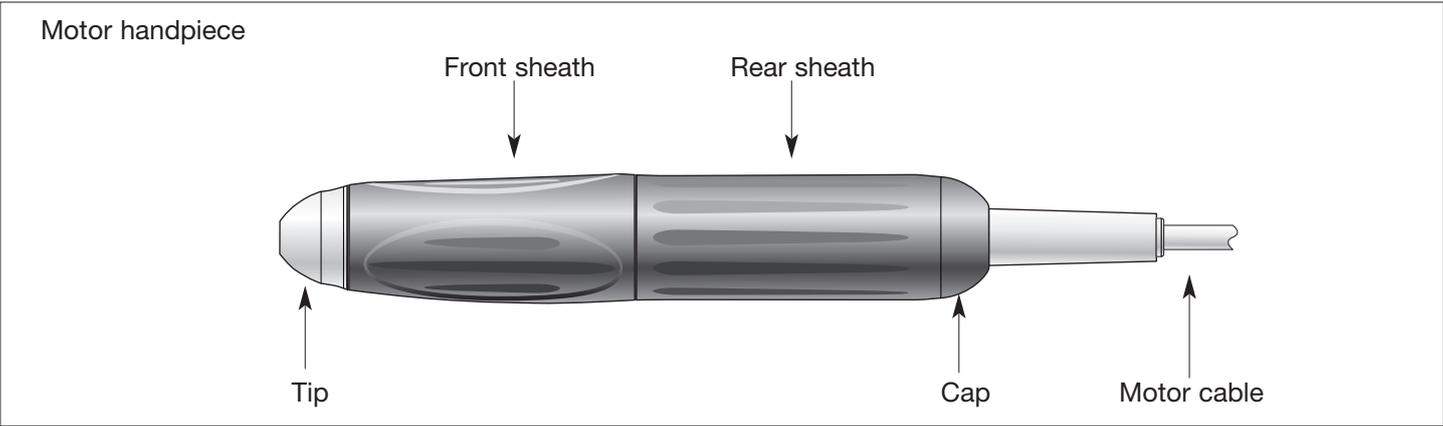
1 Connect the motor cable, operating controls, foot-operated starter, air hose (HSM-50) and mains cable.

 Note the positioning!



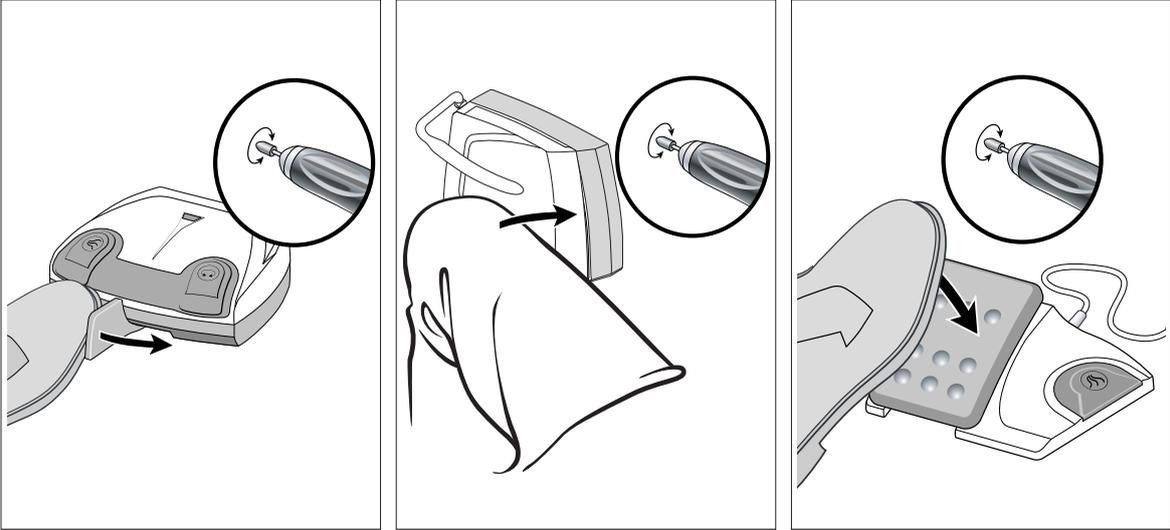
2 Switch on control unit (I).

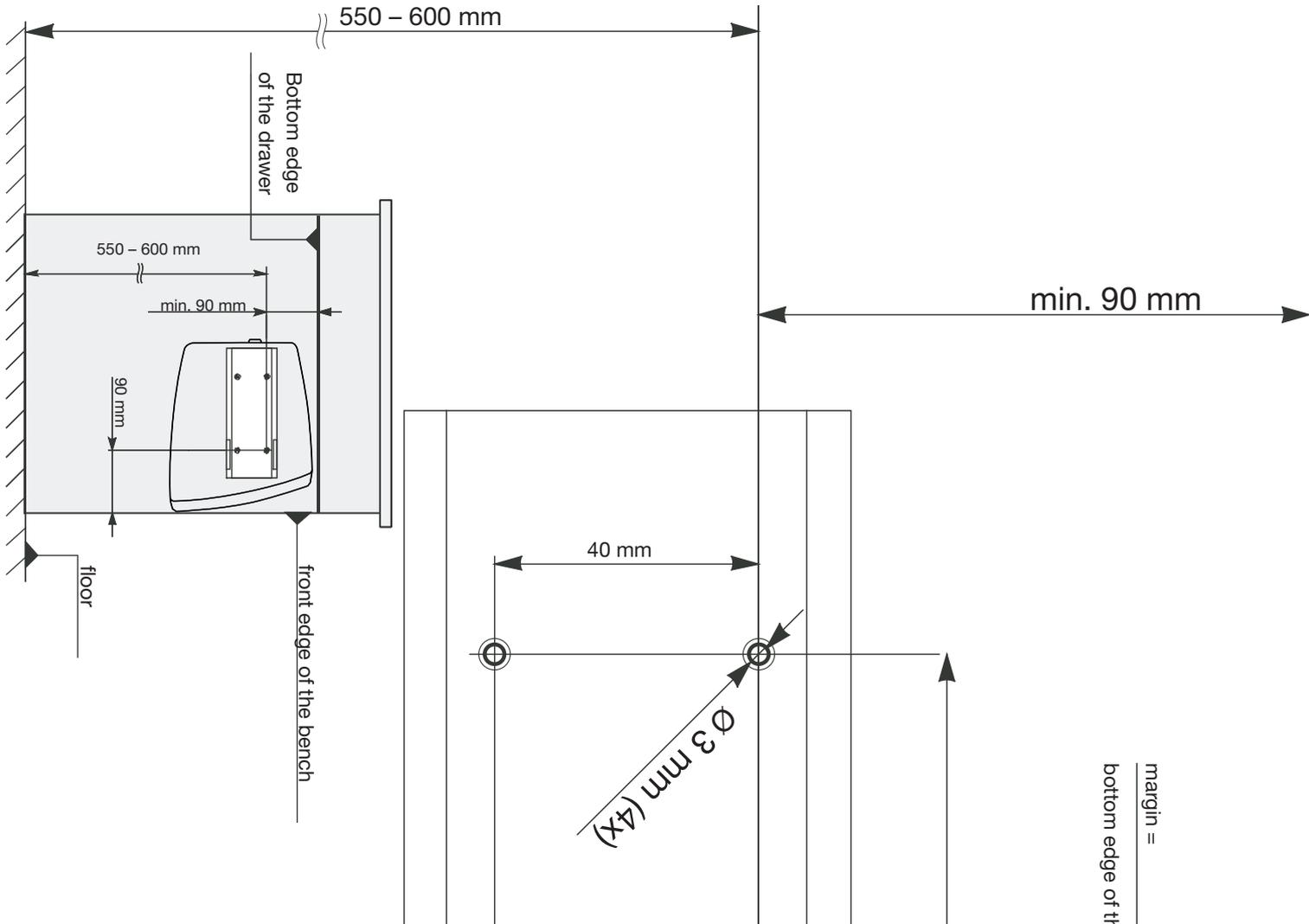
8. Description of the motor handpiece / *E-Motor »E-type«*

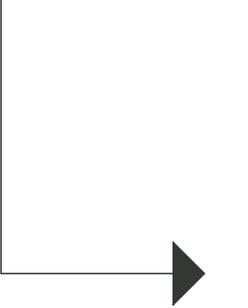


9. General operation – start motor handpiece

 Start motor handpiece by pressing the foot or knee control unit or the foot-operated starter.

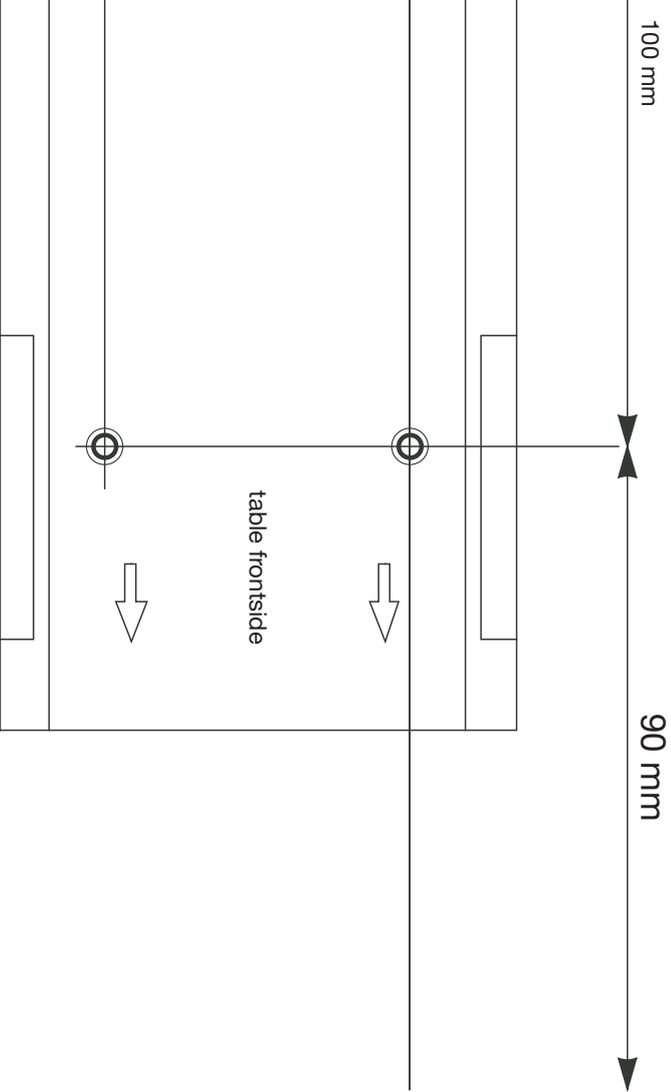






the drawer

margin =
front edge of the bench

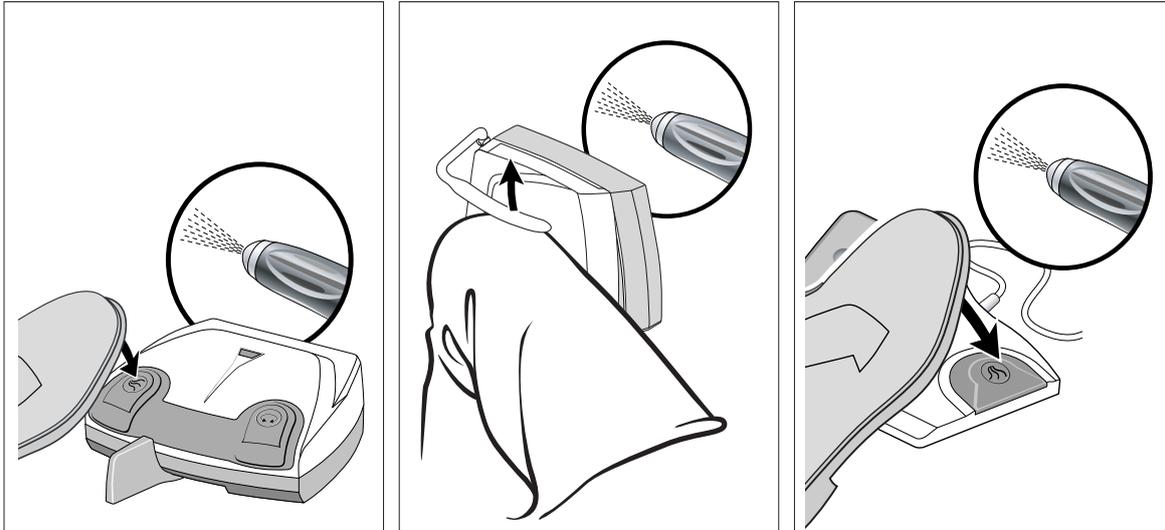


Drilling template knee control unit

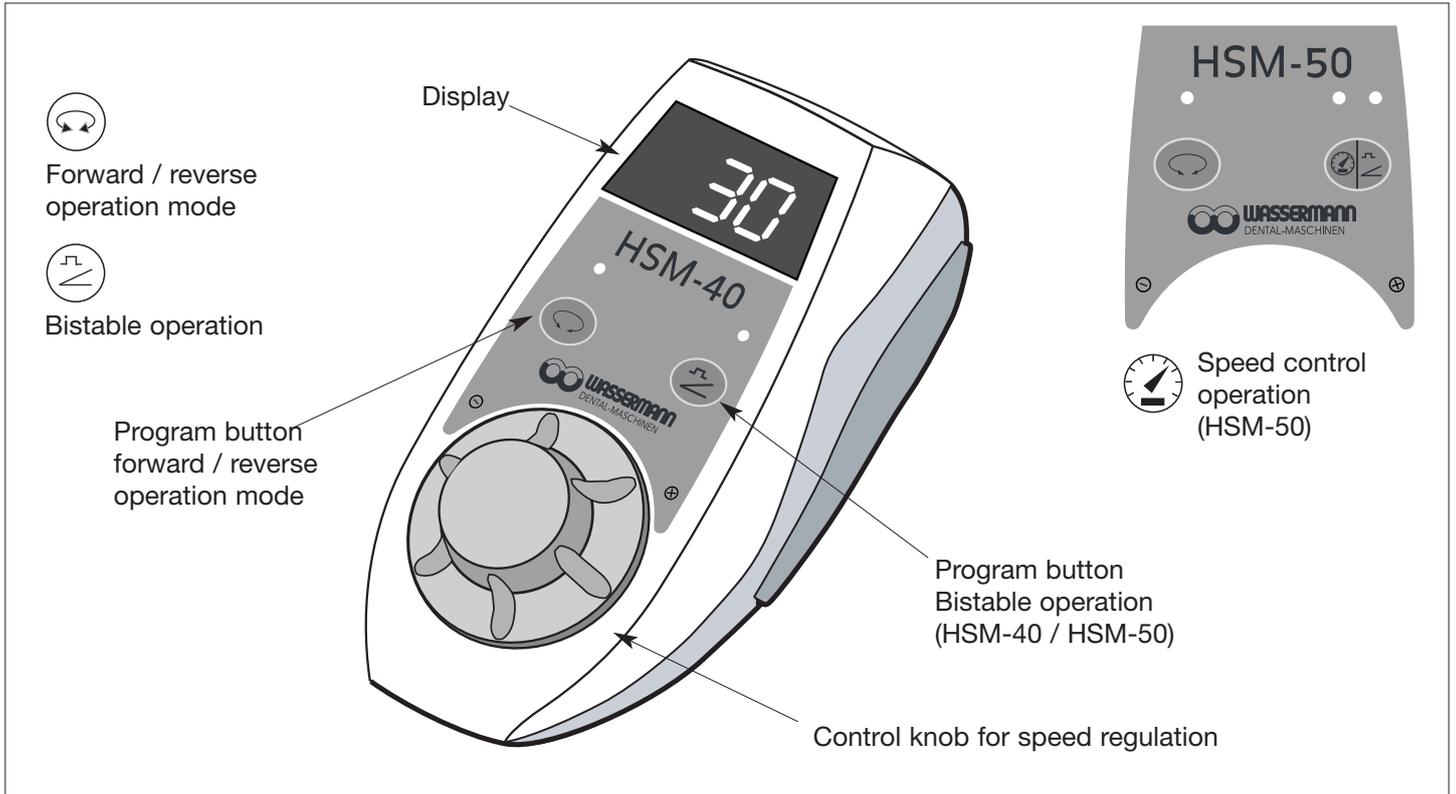
HSM-40 / HSM-50

General operation – blow out function (HSM-50)

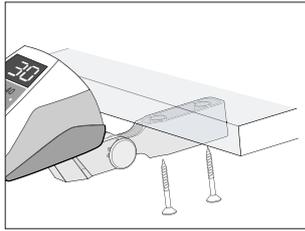
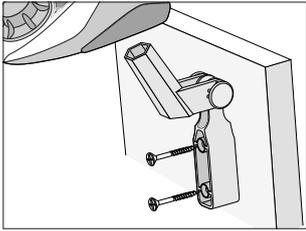
 Activate the blow out function by constantly pressing the button or lever.



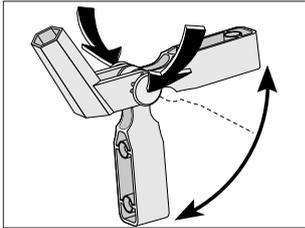
10. Description of operating controls



Description of the operating controls – Assemble support (optional)



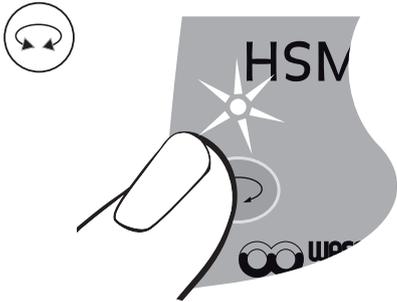
❶ Assemble the support (optional).



❷ The support can be moved into a variety of assembly positions by simultaneously pressing both buttons on the joint.

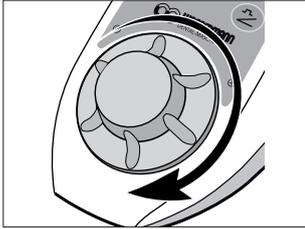
11. Operating controls – Reverse operation mode

 You can switch between forward and reverse operation by pressing the program button. When switching to reverse operation, an audible signal sounds and the LED illuminates.

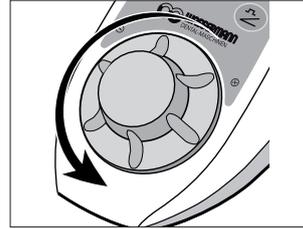


Operating controls – Changing the speed

 By turning the PLUS / MINUS control knob, the values 1,000 – 40,000 rpm are continuously increased / decreased.



1 Increase speed.

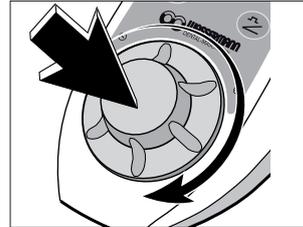


2 Decrease speed.

 Set the speeds from 40,000 to 50,000 rpm. (HSM-50)



1 Press the control knob.



2 Keep the control knob pressed down and turn it.

 Pre-selected maximum speed must not be exceeded during motor start.

Operating controls – Bistable operation

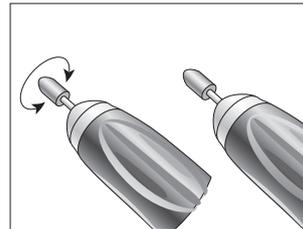
 During bistable operation, the selected maximum speed is automatically reached during motor start. The motor handpiece runs independently.



Deactivation of bistable operation: Press program button x 1 (HSM-50: Press the button x 2).



- 1** Press the button.
The LED illuminates.



- 3** Start or stop the motor handpiece by tapping the pedal, lever or flap.



- 2** Set the speed.

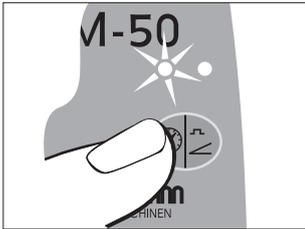
Operating controls – Speed control operation (HSM-50)



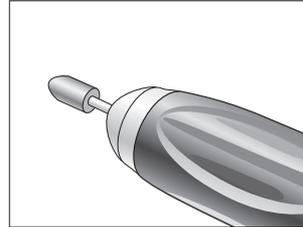
During speed control operation, the controlled speed is saved and automatically maintained. The motor handpiece runs independently.



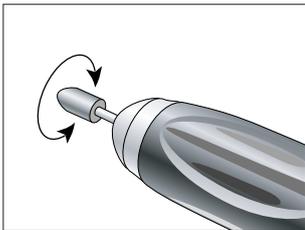
Deactivation of speed control operation: Press the program button x 1.



- 1 Press the button x 2.
LED illuminates.

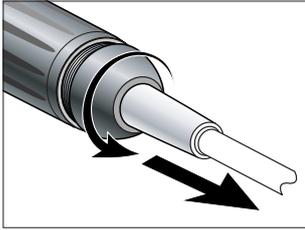


- 3 Stop the motor handpiece by tapping the pedal, lever or flap.

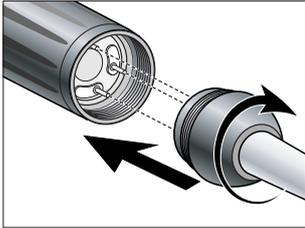


- 2 Start the motor handpiece until the required speed is reached.
After approx. 2 seconds, an audible signal sounds and the required speed is saved.

12. Removing and assembling the motor handpiece

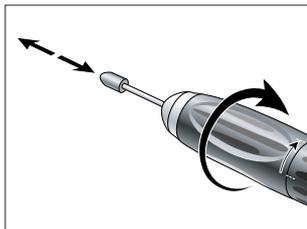


❶ Unscrew the cap.

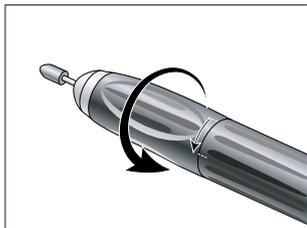


❷ Assemble and tighten the cap.
☞ Note the positioning!

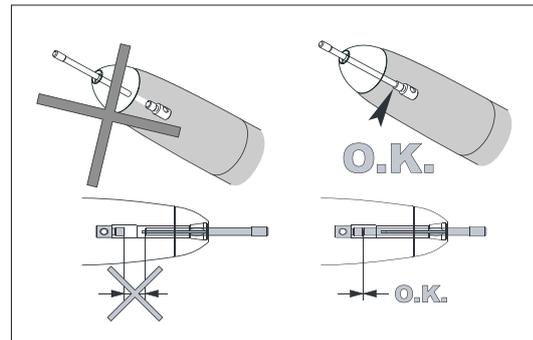
13. Change the rotary tool



❶ Turn the front sheath clockwise up to the limit stop. Push in the rotary tool up to the limit stop or remove.



❷ Turn the front sheath anti-clockwise until it engages audibly.



 When the chuck is open, the motor handpiece is blocked. In the event that the motor handpiece starts accidentally, the electronic system switches off.

Test run

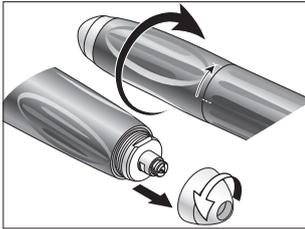
- > Start the motor handpiece.
- > If you observe problems (e.g. vibrations, unusual noise, overheating) contact your authorized service organization (see page 43).

14. Cleaning

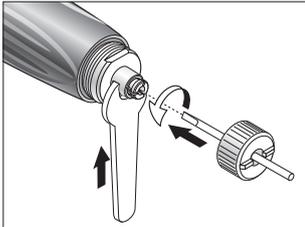
 The cleaning of the HSM unit (control unit), motor handpiece, operating controls (optional), foot-operated starter (optional) can take place by means of a dry cloth.

15. Cleaning / changing the chuck

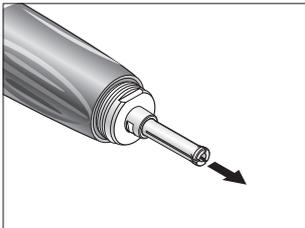
 Chuck key, spanner, cleaning brush are located on the underside of the handpiece holder.



- 1 Turn the front sheath clockwise up to the limit stop.
Unscrew the tip anti-clockwise.

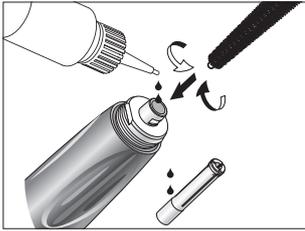


- 2 Insert the chuck key up to the limit stop in the chuck and unscrew anticlockwise.
 Hold the shaft firmly with the spanner.

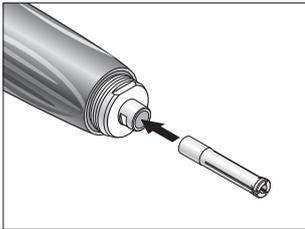


- 3 Remove the chuck.

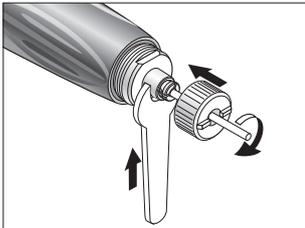
Cleaning / changing the chuck



- ④ Clean the inside and outside of the shaft using the cleaning brush.
Apply 2 drops of oil into the hole in the shaft and outside of the chuck.



- ⑤ Insert the chuck.



- ⑥ Insert the chuck key up to the limit stop in the chuck and screw clockwise.
Hold the shaft firmly with the spanner.

16. Error messages (as shown on display)

Error No.	Description	Remedy
E00	Electronics overheating – safety shutdown	Switch off the equipment, allow equipment to cool for at least 10 minutes and then re-start
E01	Motor handpiece overloading – Drive blocked	Connect motor handpiece or close the chuck mechanism
E07	Foot-operated starter error, initialising	Switch off the equipment, re-start, do not activate the foot / knee control when switching on
E09	Foot-operated starter error, Speed regulator (foot / knee control unit) error	Switch off the equipment, check the connection of the foot control, restart
E19	Run limiting control	Switch off the equipment and re-start
E99	System failure	Switch off the equipment and re-start



If one of the error messages described above cannot be rectified by switching off the HSM unit and then switching it on again, the equipment must be checked by a service and repair organization authorized by Wassermann (see Page 43).

If a total failure of the equipment occurs caused by external circumstances, the equipment must be switched off and then on again.

17. Wassermann Accessories

Use only original Wassermann accessories / spare parts
or accessories approved by Wassermann

111152	Cleaning brush
111555	Chuck key \varnothing 2.35 mm
111156	Chuck key \varnothing 3 mm
111541	Spanner
111105	Chuck \varnothing 2.35mm
111106	Chuck \varnothing 3 mm
111103	Handpiece holder
111151	Service oil
111122	Fuse T1.25L
111129	Fuse T2A
111110	Motor cable 1.8 m (HSM-40)
111116	Motor cable 1.8 m (HSM-50)
111124	Support for operating controls (optional)
111121	Motor handpiece LA-66
111123	<i>E-motor with ISO coupling LA-3E</i>
111115	Hose for air supply
111119	Foot-operated starter with / without blow-out function L-NV
111111	Operating controls LA-3D (HSM-40)
111117	Operating controls LA-6D (HSM-50)

18. Servicing

Repairs

If a defect occurs, always return all the equipment, due to the fact that with motor malfunctions, an inspection of the electronic controls is also necessary!

We recommend that only skilled personnel authorized by Wassermann should undertake this servicing and checking.

Returns

- > Refer all questions to your authorized dental dealer or to one of our service organizations (see Page 43).
- > Always return equipment in the original packaging!
- > Do not coil the cable around the motor handpiece and do not twist or kink the motor cable! (Risk of damage)

19. Technical Data

	HSM-40	HSM-50
Mech. output power	95 W	160 W
Torque	5.5 Ncm	7.8 Ncm
Speed	1,000 – 40,000 rpm	1,000 – 50,000 rpm
Power input	160 W	200 W
Supply voltage	100 – 130 VAC resp. 220 – 240 VAC	
Rated current	0.2 – 1.6 A resp. 0.1 – 0.8 A	
Supply fuse	250V – T2A / 250 V – T1.25L	
Voltage tolerance	+/- 10 %	
Frequency	50 – 60 Hz	
Operating mode	S6 (4/10min) Continuous operation with intermittent loading	
Noise	< 55 dBA	
Vibration	< 2.5 m/s ²	
Height / width / depth		
foot control unit	without lever: 97 / 253 / 202 mm, with lever: 97 / 253 / 275 mm	
knee control unit	without fitting: 236 / 108 / 282 mm, with fitting: 236 / 187 / 304 mm	
table control unit	88 / 236 / 282 mm	
Weight foot / knee / table control unit	2.5 / 3.7 / 4.0 kg	3.5 / 4.7 / 5.0 kg
Blown out air pressure (input)		max. 6 bar (87 psi / 600 kPa)
Chuck diameter	2.35 / 3.0 mm	
Bur concentricity accuracy	≤ 0,02 mm	

Technical Data

Physical characteristics

Temperature in storage:

-40 °C (-40 °F) to +70 °C (+158 °F)

Air humidity in storage:

8 % to 80 % (relative), non-condensing at +40 °C (+104 °F)

Temperature in operation:

+5 °C to +40 °C

Air humidity in operation:

maximum 80 % (relative) with a temperature of up to +31°C, decreasing arithmetically up to a maximum of 50 % (relative) with a temperature of up to +40°C

Pollution degree:

2

Overvoltage degree:

II

Altitude:

up to 2,000 m above sea level

20. Recycling and Disposal

Recycling

Wassermann considers that it has a special duty towards the environment. The HSM unit equipment along with its packaging has been designed to be as environmentally friendly as possible.



Disposal of the HSM unit (control unit), operating controls, foot-operated starter, motor handpiece

Follow your country-specific laws, directives, standards and guidelines for the disposal of used electrical devices.

Disposal of the packaging material

All packaging materials have been selected according to environmentally compatible and disposal aspects and can be recycled. Please send old packaging materials to the relevant collection and reprocessing system. In this way, you will contribute to the recycling of raw materials and the avoidance of waste.



Letter of indemnity

This Wassermann product has been manufactured with great care by highly qualified specialists. A wide variety of tests and controls guarantee faultless operation. Please note that claims under warranty can only be validated when all the directions in the Instructions for use have been followed.

As manufacturer, Wassermann is liable for material or manufacturing defects within a warranty period of 24 months from the date of purchase.

We accept no responsibility for damage caused by incorrect handling or by repairs carried out by third parties not authorized to do so by Wassermann!

Claims under warranty – accompanied by proof of purchase – must be sent to the vendor or to an authorized Wassermann service point. The provision of service under warranty extends neither the warranty period nor any other guarantee period.

24 months warranty

CE-Declaration of conformity



EC Declaration of Conformity

Wassermann Dental-Maschinen GmbH
Rudorffweg 15-17
D-21031 Hamburg

hereby declares that the following products:

Name: Dental laboratory units
Product name: HSM – 40 / 50
Type: as page 2
Ref. no.: as page 2
Serial no.: as page 2

conform to the following applicable regulations in the series production design:

Machinery Directive 2006/42/EC
Electromagnetic Compatibility Directive 2004/108/EC

During the design and manufacture of the products, the following harmonized standards were applied:

UL 61010-1:2004; EN 61326:1997+A1:1998+A2:2001+A3:2003; EN ISO 7785-2:1997;
EN ISO 14121-1:2007; EN 980:2008; EN ISO 12100-1:2003; EN ISO 12100-2:2003

Authorized for the compilation of technical documents:
Jens Kromski, Rudorffweg 15-17, D-21031 Hamburg

Hamburg, 30.12.2009

Geschäftsführer Dipl.Ing. Wilfried Wassermann

Type	Ref. no.:	Serial no. (from):
HSM-50 F	111986	131362
HSM-50 K	111987	137009
HSM-50 T	111988	136990
HSM-40 F	111980	137005
HSM-40 K	111981	136018
HSM-40 T	111982	137019

Wassermann Contacts

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Form-Nr. 50600 AEN

Rev. 006 / 30.12.2009

Subject to alterations

