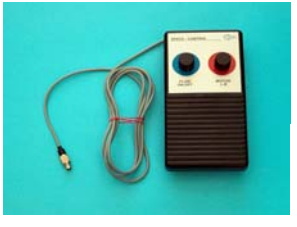
User´s Guide

Dental Unit



DSC **electronic**

DENTALE MEDIZINISCHE PRODUKTE

Hermann Löns Weg 2 - 6 D - 27412 Tarmstedt Tel. +49(0)4283 8080 Fax +49(0)4283 8347

HKM

HKM has established and is maintaining a quality system which meets all requirments of

DIN EN ISO 9001; DIN EN 46001

According to the certificate No. Q1 98 07 18137 004

HKM machines and products are in accordance with the decision according to annex II, clause 3 of council Directive No. 93/42/EWG concerning medical devices, and in comphance with the norms (EMC/ EMV) EN 55011/3,1991 EN 60601-1; EN 60601-1-2,1994

With the identification No.:

CE 1 2 3

DENTALE MEDIZINISCHE PRODUKTE Hans Karl Matysiak HKM

Hermann Löns Weg 2 - 6 D - 27412 Tarmstedt Tel. +49(0)4283 8080 Fax +49(0)4283 8347

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Safety

In the intrest of safety for patient and user the following instructions must be observed:

- The Dental Unit DSC electronic and it`s components should not be used if they show any electrical and/ or mechanical defect.
- Alternations and repairs to the unit and ist components may only be carried out by HKM Company or a third party, who have been expressly authorized by HKM company, to fulfil legal regulations and generally recognized standards.
- As with every technical apparatus this unit also requires correct operation as well as competent care and maintenance. The necessary measures are described on page 19 and following.
- Water and other liquids must not enter into the Dental Unit, as this might cause short circuits and corrosion.
- The Unit is not designed for operation in hazardous locations where danger of exlosion exists.
- The Dental Unit is supplied shock– resistent in a transport case. When trensporting or storing the unit, we recommend using the transport case.

Intended Use

The Dental Unit DSC electronic is a surgical dental Unit, which was developed especially for surgical procedures in implantology. Beside the preparation of bone cavities with mechanical irrigation it is also possible, with the stepless adjustable torque, to mechanically insert and remove screws.

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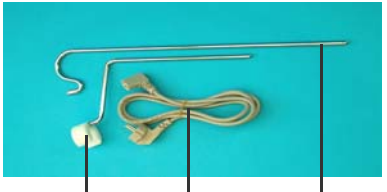
13 15 16 14 17



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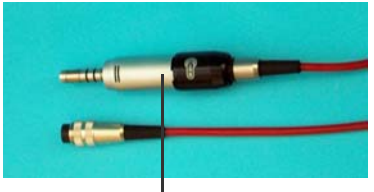

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Assembly

Support Rods

The support bars for the micromotor and for the coolant fluid bottle (19) are placed into the support device(17) on the rear side of the Unit.

When assembling and during operation please take care that the support bars for the micromotor and the coolant fluid bottle are adjusted above the Unit. If this is not the the case the Unit may become unstable.

Power cable

Prior to the connection of the power cable, it has to be checked, that the voltage switch(15) is set to the country´s specific voltage. If this is not the case the voltage switch has to be adjusted with a screwdriver or a small coin to the country´s specific voltage.

<u>The voltage switch is original set on 220 – 230 V !.</u>

When switch is setting on the voltage of 110 – 115 V the power fuse must be replaced with the attached 800mA fuse. Take out both power fuses (13) and replace it with the 800mA fuses. Power fuse can easiely exchange by a left turn, using a Screwdriver or coin .

Multi- function foot pedal

Place the multi– function foot pedal (22) in the desired position. The plug of the foot pedal cable is now inserted into the foot pedal socked (11) on the front plate of the dental unit and screwed into position.

Kicking the cable must be avoided. The multi–function pedal has to be placed flat on the grround floor, as otherwise the necessary stabilitiy for use cannot be guaranteed.

Preparation

Coolant hose System

After opening the sterile packing by the non– sterile assistent, the scrub nurse removes the hose fitting from the sterile packing.

The hose clamp and the sealing cap of the drip chamber are closed.

After opening the coolant pump housing(12) the non– sterile assistent places the reinforced part of the hose fitting with slight tension around the pump rotor and fixes it into the the slotted holding device. Then the spike of the drip chamber is inserted into the bottle with coolant fluid.

The thin end of the hose fiting is connected to the irrigation needle of the angulated handpiece by the scrub nurse

Cable/Motor clips should be fited together alaong the cable, using one remaining clip near the pump “OUT“ side, making a tube– loop for better solution flow.

After connection of the hose fitting is completed the hose clamp and the sealing cap are opened by the non– sterile assistent.

Please pay attention to the IN– and OUT direction when inserting the hose fitting for the coolant fluid. Optimumfunktion of the coolant pump is guaranteed only, if the original hose fitting of HKM is used.
This hose fitting is not re– sterilizable. To ensure sterility the hose fitting must be exchanged after every treatment

Micromotor

When using the non– autoclavable micromotor the non– sterile assistent opens the sterile packing of the foil for the micromotor. The scrub nurse removes the sterile foil and prepares it for the insertion of the micromotor cable by the non– sterile assistent. Micromotor(21), cable and plug are covered by the foil.

When using the sterilizable micromotor the non– sterile assistent opens the sterile pack of the micromotor. The scrub nurse removes the micromotor from the pack and gives the plug to the non– sterile assistent.

The plug is inserted into the upper socket (10) and is screwed into position. In the meantime the scrub nurse can place the micromotor into the support rod (20).

The micromotor has a standardized ISO coupling for connection to the contra– angel handpiece.

The handpiece is connected to the coupling of the micromotor. When reaching the final position both parts will be look. To unlock, the conta– angle handpiece is pulled off from the micromotor.

After use the handpiece should always be removed from the micromotor to avoid oil of the Handpiece entering into the micromotor.

For handling the Handpiece, pleace observe the manufacturer`s instruction

<u>When unlocking the handpiece from the micromotor do not hold or pull the cable.</u>

Speed Display (real revolutions)

According to the selected handpiece the transmission ratio is adjusted (8). Following possibilities are available :

- **20:1**
- **15:1**
- **10:1**
- **1:1**

The speed display (7) shows the actual revolutions (rpm). When the instrument is not in use the maximum set speed is shown.

Operation

Power Switch

The power switch (1) is located on the front panal/ bottom right side. The readiness of operation is shown by the power control indicator left of the power switch.

Speed Selection

The speed selection (7) is made stepless in the range of 100– 40,000 rpm. The display (6) shows the actual speed. The correct transmision ratio has to be set prior to operation the Dental Unit (8).

Torque Selection

The torque can be adjusted in the range of 30 Nmm– 500 Nmm. The relative torque level is selected on the gauge around the torque selector (4).
The optimum torque for various application is recommended in the following table:

Torque– selection table

Torque (Nmm)				
Reg-ler	1:1	10:1	15:1	20:1
1	0	0	0	0
2	3	20	29	50
3	6	39	57	100
4	9	59	86	150
5	12	78	114	200
6	15	98	143	250
7	18	117	171	300
8	21	137	200	350
9	25	163	238	417
0	30	195	285	500

Multi– function foot pedal

Pushing the foot pedal (22) downwards increases the speed. During surgery please observe, that the preset maximum speed is only reached when the foot pedal is completely pressed. (The interim speed is indicated.)

The rotation direction(alternatively– right or left) can be selected with the foot pedal. The right button on the foot pedal is lightly pressed. Anti– clockwise rotation(left turn) is indicated by the red warning indicator (9) and a acoustic signal.

The supply of the irrigaton lquid, as described above, is controlled with the left button of the foot pedal. The function is shown by the blue control indicator (3) beside the coolant selector.

The buttons of the foot pedal operate on a spring switch, so that only a light pressure is neeeded.

Coolant Delivery

The supply of the coolant liquid can be adjusted in the range of 0– 150ml per minute (2). We recommend a standard setting of 75ml per minute.

The funktion of the coolant supply is shown by the blue control indicator beside the coolant selector. The ON and OFF position is selected with the left blue button of the foot pedal

Maintenance

Prior to cleaning and disinfection of the unit the power switch has to be switched off the cable has to remove from the socket (16).

No coolant liquid must enter into the cable ports.

When sealing the micromotor into the sterilisation foil, kicking the cable must be avoided.

Cleaning

All unit components are wiped clean with a damp cloth and a mild detergent and then dryed with a dry cloth.

Handpieces

To clean contra– angled handpieces pleace refer to the handling instruction of the manufacturers.

Micromotor

For claning we recommend the following:

Loosen the black screw– cap and pull off the cable. Rinse the micromotor in water with a little detergent added for approx. One minute, allow the water to drain completly from the micromotor an dry the micromotor.

Connect the dry micromotor again to the unit and allow to run for 1– 2 minutes at medium speed.

Very dirty micromotors should be sent to HKM company for cleaning.

Disinfection

The unit and all components are to be wiped with disinfectant. No disinfectant Liquid should enter the unit.

The selected method must comply with legal regulations and guidelines of disinfection and explosion protection.

Sterilisation

Only the following components may be sterilized:

Micromotor with red power cable

For the micromotor a gentle sterilisation method is recommended. Sterilisation must always be made in a sterilization foil packing. The maximum sterilisation temperature shall not exceed 121° C. When sterilizing the micromotor it has to be guaranteed that the micromotor, especially the inner motor area, is completely dry. Neither oil nor salt residues should be inside the motor, as they crystallize during strilization. This can lead, at a later stage, to a loss of motor power and eventually lead to serious damage.

For the protection of the micromotor the handpieces should be lightly oiled only. Excess oil has to be removed. It is recommended that precautions are taken to drain excess oil completely. This achieved by placing the handpiece in an upright position for approx. One hour before sterilisation.

Support Rods

The support Rods can be sterilized in an autoclave at a maximum temperature of 121° C.

Functioning test of handpieces

The torque of the micromotor is calibrated according to the torque table. However, it has to be checked that the handpieces are funktioning correctly and rotate easily.

Therefore pleace check your instruments regularly after every 10 operations according to the following function test:

Place the handpiece onto the micromotor, set the speed to 20.000 rpm and the torque selector to 1,5.

When pressing the foot pedal the micromotor and handpiece schould operate with a slight start– up delay.

Micromotors and handpieces which cannot operate at this setting shall be returned for service to the manufacturer.

Trouble shooting

This chapter gives you an overwiew of what to do, when ...

... The drive is not working

Is the power control indicator on?
If not, pleace check, if the power cable is correcly connected to wall– socket.
If yes, pleace check, if the foot pedal is correctly connected to the multi– function foot pedal socket.
Is the speed display working?
If not, pleace send the unit for service to the customer`s service of HKM company.
The speed display shows the value zero and does not change when turning the speed selector?
If yes, pleace send the unit for service to the customer`s service of HKM company.
The speed display shows the value of 40.000 rpm and can only be change by turning the speed selector and not by pressing the foot pedal.
Pleace check, if the foot pedal is correctly connected to the the foot pedal socket.
If yes, pleace send the unit to your local distributor or directly to HKM company.

For the further test pleace adjust the torque to maximum power (set the torque selector to One).
When activating the micromotor, do you hear a slight whirrling?
If not, pleace check , whether the micromotor is connected. Properly.
Place the handpiece onto the micromotor and insert a drill. Does the drill rotate freely?
If not, pleace send the handpiece for service to the producers service department.

... The coolant supply is not functioning:

Set the coolant pump switch to a medium value (we recommend the middle position of the coolant selector).
Switch ON the coolant supply with the left button of the foot pedal. Is the blue control indicator on?
If not, pleace send the Unit for service to the producers service department.

Pleace check, if the hose fitting is placed with slight tension around the coolant pump rotor. Pleace check, if the hose clamp is opened.
Pleace check, if the areationcap of the drip chamber is open.
Remove the thin hose end from the irrigation needle of handpiece. Is the coolant supplyfunktioning?
If not, pleace check whether the fluid duct of the handpiece is blocked. If not replace the hose fitting.

Technical Data

Measurements (H x Lx P):	**7,5 cm x 25 cm x 17 cm**
Weight:	**3,8 kg**
Voltage:	**AC 110–115 /220– 240 V**
Frequent:	**50/60 Hz**
Max. power input:	**max. 60 W**
Motor output:	**250 W**
Schwachstrombetrieb:	**24/36 V**
Speed:	**100 – 40.000 upm**
Schutzklass:	**I**
Schutzgrad:	**BF**
Schutzart:	**IPX 4**
Fuse:	**AC 220– 240 V 400 mA,**
	AC 110– 115 V 800 mA, Motor 2,5 A

Notes

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Peace phone or fax at any time for addtional information.

DENTALE MEDIZINISCHE PRODUKTE Hans Karl Matysiak

Hermann Löns Weg 2 - 6 D - 27412 Tarmstedt Tel. +49(0)4283 8080 Fax +49(0)4283 8347

HKM