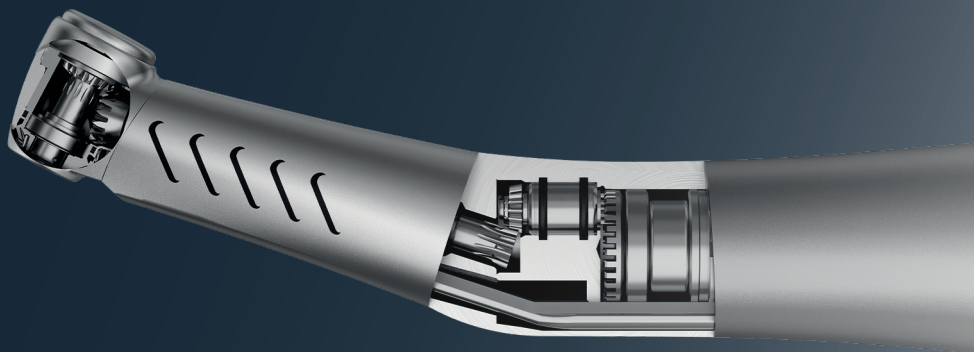


Maintaining KaVo instruments in dental practice.

Tips for extending the useful life
of rotating instruments.



KAVO

Contents

Foreword.....	4
1 General	6
1.1 KaVo original spare parts	7
2. Maintaining the clamping system	8
2.1 Rotating instruments or drills.....	8
2.2 Dimensions of cutters and grinders	8
2.3 Removing crowns and bridges.....	10
2.4 Releasing the bur-clamp.....	11
3. Maintaining the ball bearings	13
4. Maintenance in case of drop damage/fall damage.....	14
4.1 Preventing drop damage/fall damage.....	14
5. Common errors during use.....	15
5.1 Reprocessing.....	15
5.2 Maintenance.....	16
5.3 Drying and storage.....	17
6. Eliminating malfunctions	18
6.1 Removing blockages.....	18
6.2 Replacing the water filter	19
6.3 Replacing O-rings	20
7. Maintenance products and spare parts	21
8. Notes	23

Introduction



We are pleased that you have chosen high-quality KaVo instruments, and in this brochure we would like to give you tips on how you can keep using your KaVo instruments as long as possible.

KaVo investigates complaints very conscientiously. Many defects can be avoided if some rules for reprocessing of instruments are followed.

With good cleaning and maintenance, your KaVo instruments can be used reliably for many years.

Over

50%

of instrument failures are caused by inadequate cleaning and maintenance or errors during use.

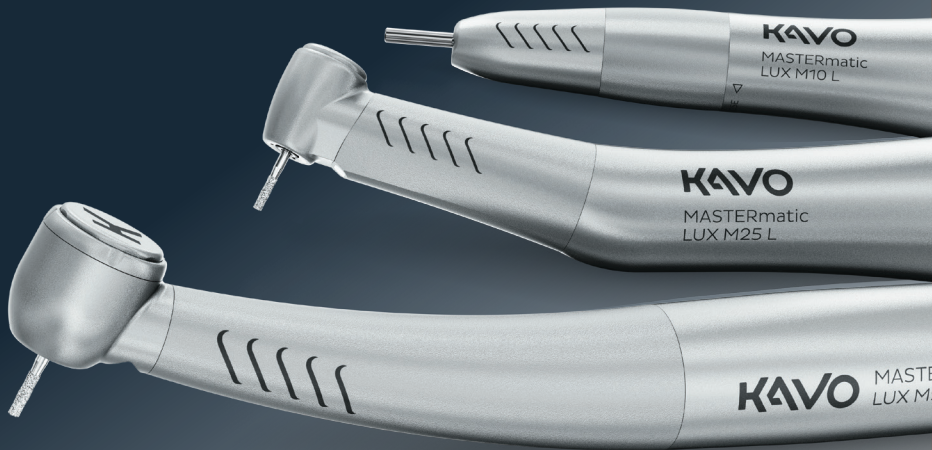
Incorrectly maintained instruments



Properly maintained instruments



1. General



1.1 KaVo original spare parts

Non-original or counterfeit spare parts can cause damage to the product.

Advantages of KaVo original spare parts:

- Highest patient and user safety
- Longevity through endurance tests and constant improvements
- KaVo repair guarantee

If the user does not use KaVo original spare parts, he or she is working with a medical device that is no longer approved by KaVo:

- The spare parts manufacturer or the dentist then becomes the manufacturer of the medical device
- The KaVo warranty then expires
- There have been accidents caused by counterfeit spare parts used by dentists



KaVo original factory repair

In the event of a repair, please send your product to the KaVo Original Factory Repair Service via **www.kavo.com**

KaVo Technical Service:

For technical questions or complaints, please contact KaVo Technical Service:
+49 (0) 7351 56-1000
service.instruments@kavokerr.com

2. Maintaining the clamping system

2.1 Rotating instruments or drills

If drills are used for purposes other than those intended by KaVo, the instrument can suffer significant damage. Damage includes, for example: defects on the clamping system or on the drill shaft.

Damaged shafts with grooves

(Grooves are felt when running the fingernail over the shafts)



2.2 Dimensions of the cutters and grinders

Manufacturer's information on length, diameter, shaft shape and max. rotation speed is contained in the respective instructions for use of the transmission instruments.

Note on inserted shaft clamping length:

The drill shaft must be smooth over the minimum inserted shaft clamping length.

- For KaVo mini turbines and high-speed M05 L, the min. inserted shaft clamping length is 9 mm
- For KaVo standard turbines and high-speed machines, the min. inserted shaft clamping length is 11 mm

Consequences of failing to adhere to the manufacturer's instructions:

- The drill retention force may be too low due to a worn shaft and the drill may fall out during treatment
- The shaft can twist in the bur-clamp and destroy the bur-clamp
The tool may fall out
- The ball bearings, the gears and the bur-clamp can, e.g. be overloaded by tools that are too long
- A shaft with a recess/groove can become jammed in the inserted clamping area of the instrument

Recesses/grooves in the clamping area can lead to accelerated wear/jamming of the clamping system.



2. Maintaining the clamping system

2.3 Removing crowns and bridges

Drill manufacturers offer crown separators adapted to different crown materials. For example, they recommend using a special crown separator made of tungsten carbide for metal or ceramic crowns. By contrast, zirconia crowns require the use of a diamond crown separator.

Please adhere to the recommended speeds of the drill manufacturer. For straight- or cross-cut crown separators, these are often lower than diamond-cut crown separators.

When hooking in the crown separator, the instrument should be stopped immediately!

If toothed crown separators are recommended, cross-toothed crown separators are preferable because straight-toothed crown separators are more apt to hook into the crown material. If there is abrupt hooking-in, the clamping system of the contra-angle or turbine is exposed to severe stress and the bur-clamp and the crown separator may experience faster wear.

A straight-toothed crown separator is not recommended



Regardless of the type of crown separator used, excessive contact pressure also leads to faster wear of the clamping system. KaVo recommends a contact pressure of 2-3 N.

The service life of the handpiece and/or turbine essentially depends on the lubrication of the clamping system, the ball bearings and the gearbox. KaVo therefore recommends switching to a freshly maintained instrument in cases when the operating time is more than 20 minutes within a single treatment.

2.4 Releasing the bur-clamp

Instrument without drill



Instrument with inserted drill



The bur-clamp should be released during storage to increase the life. When storing instruments with a drill, there is a risk of injury or infection.

Close the clamping ring of the handpiece

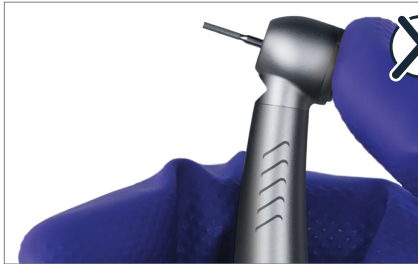
Never operate the straight handpiece with an open bur-clamp, because the bur-clamp of the handpiece is blocked

Never press the button during operation

Never press the button on the turbine or the contra-angle while the instrument is rotating. Make sure that there is enough space between the button and cheek/soft tissue during preparation.

2. Maintaining the clamping system

Button is pressed during operation



Consequences of actuation during operation are:

- Malfunction of the button
- The bur-clamp does not trigger, or only with difficulty
- Metallic abrasions from the lid can get into the ball bearings
- The button can get very hot
- Heavy wear on the drive/rotor

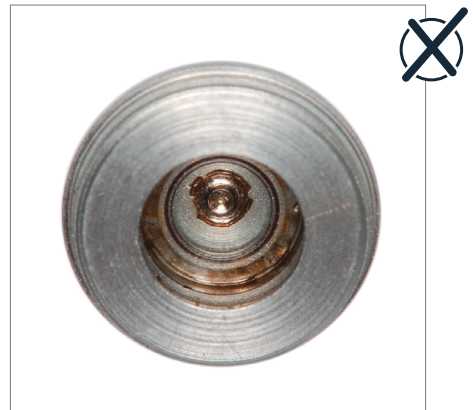
Never hold the patient's cheek away with the button.

The friction between the button and the clamping system causes heat, which can lead to burning of the oral mucosa.

Button during correct use



Wear of the button from incorrect use



3. Maintaining the ball bearings

Maintain ball bearings e.g. with KaVo Spray or with QUATTROcare:

Insufficient maintenance of the ball bearings may cause them to suffer severe wear and possibly damage them. To avoid consequential damage, have defective ball bearings replaced promptly.

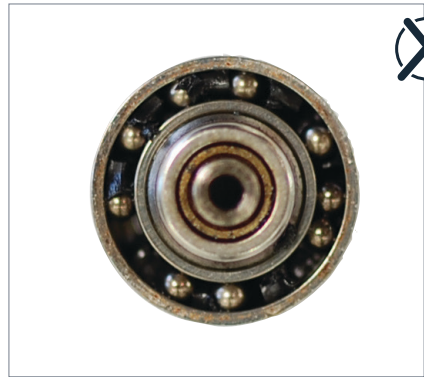
Signs of defective ball bearings are:

- Loud running noise
- Eccentric running
- Complete blockage of the instrument
- Significant rise in temperature

Properly maintained ball bearing



Incorrectly or not maintained ball bearing



Even one-time failure to perform maintenance, in particular after an internal cleaning, can lead to initial damage to the ball bearing.

4. Maintenance in case of drop damage/fall damage

4.1 Avoiding drop damage/fall damage

Visually inspect the instrument for changes, to protect the instrument and the patient.

Instruments with drop damage/fall damage.



Consequential damage, such as jamming of ball bearings, can cause thermal damage to the ball bearings and thus rapid failure.

Procedure for detecting drop damage/fall damage:

- Visual inspection for external damage shows deformation
- Function test shows too loud running noise or excessive heating

In the event of uncertainty concerning drop damage/fall damage, contact KaVo Service to avoid consequential damage.

5. Common errors during use

5.1 Reprocessing



The instrument should never be immersed in a disinfectant/ultrasonic bath, because:

- The ball bearings can be ruined
- Additional technical defects on the instrument may occur

Approved media/disinfectants:

Never use chloride-containing disinfectants. Unsuitable disinfectants can lead to corrosion. Use exclusively manufacturer-approved agents; see instructions for use.



Recommended wipe disinfection



If too much or an unapproved disinfectant is sprayed on the instrument or the motor/turbine coupling, malfunctions may occur.



If the disinfectant runs into the instrument or into the motor/turbine coupling, defects in the coupling and motor may occur.

For more information on processing dental instruments, please refer to the KaVo preparation poster as well as the respective instructions for use of the KaVo instruments.

5. Common errors during use

5.2 Maintenance

The service life of the hand pieces, contra-angles and turbines depends substantially on the maintenance of the clamping system, the ball bearings and the gearbox. In general, machine maintenance with the QUATTROcare PLUS is preferable to manual maintenance. KaVo only guarantees that the KaVo products function properly when using the maintenance products approved by KaVo.

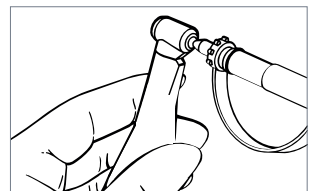
Perform maintenance on the instruments after each cleaning and disinfection. If possible, maintain the instruments and heads separately.

Perform maintenance on the bur-clamp at least once a week, and even more frequently during intensive use (e.g., separating crowns).

The following options are available:

1. For QUATTROcare PLUS with "chuck maintenance" (0.411.7603)
2. With the nipple on the "spray head INTRA" (0.411.9911) of the "KaVo Sprays 2112A" (0.411.9640).
3. With the chuck maintenance set (1.003.1253) for the QUATTROcare Plus Spray

Bur-clamp maintenance



The QUATTROcare PLUS minimises maintenance errors and consequential costs due to repairs. KaVo recommends switching to a freshly maintained instrument within a single treatment for an operating time of more than 20 minutes.

All O-rings of the maintenance couplings on the QUATTROcare PLUS must be in defect-free condition. Otherwise the instrument will not be properly maintained. KaVo electric motors must not be maintained with oil, as they have permanent lubrication. Maintain air-powered motors according to the instructions for use.

5.3 Drying and storage

To prevent damage to the medical device caused by liquid residues, dry the medical device inside and out. Remove the residual fluid with compressed air inside and out, otherwise corrosion may occur.



- Always use an instrument stand for storage (3.005.5204)
- Excess oil flows out
- Otherwise, the instrument may become too hot during subsequent operation, and this may result in damage to the ball bearings

Never put the maintained instrument on the motor/turbine coupling and store in the quiver. The oil flows into the hose and it can cause a defect in on the coupling.

6. Eliminating malfunctions

6.1 Removing blockages

6.1.1 Instruments

Clogging of the spray channels can be caused by calcareous water. In case of too little spray from the spray openings, please check whether the spray channels are blocked and clean them immediately if necessary.

Too little water may cause damage to the tooth and the pulp due to overheating.

Rapid fault elimination:

The spray nozzles may only be cleaned with the nozzle needles supplied by the manufacturer for this purpose; never use a root canal needle to pierce the spray nozzles. Otherwise, the spray channels may be damaged.

Caution: Never place the instrument in a decalcifier or spray decalcifier into it, as corrosion can occur.

Nozzle needle from KaVo



Use of the root canal needle



Cleaning of the spray nozzle should be performed by a KaVo repair centre.

6.2 Replacing the water filter

The consequences of a dirty water filter are poor spray quality and too little water. Replacement of the water filter is described in the respective operating instructions.

Replacing a water filter



*New water filter
(for the material number see chapter 8)*



6. Eliminating malfunctions

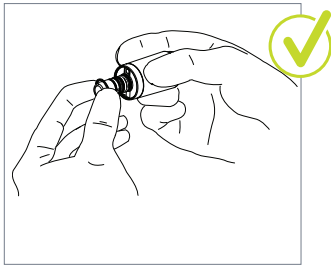
6.3 Replacing O-rings

Procedure for replacing the O-rings:

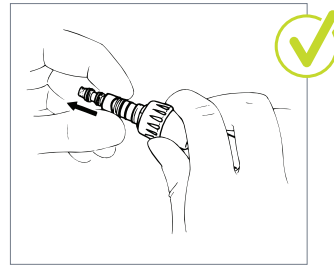
When replacing O-rings, always replace all O-rings. Do not use any sharp/hard tools.

- Squeeze the O-rings between your fingers so that the O-ring lifts slightly
- Pull the O-rings forwards

*O-ring change on an
INTRAmatic coupling*



*O-ring change on a
MULTIflex coupling*



Maintenance of the O-rings:

- Use only recommended greases and oils (KaVo-Spray) because other chemicals may cause the O-rings to disintegrate or swell
- Do not use Vaseline

Tips to extend the life of the O-rings:

- When placing the instrument on the motor/turbine coupling or removing it, make sure these components are oriented in a straight line and use a slight twisting motion
- The O-rings should only be oiled with a cotton ball moistened with KaVo oil

7. Maintenance products and spare parts

Product name	Material number
Water filter (GENTLEforce, GENTLEsince, GENTLEmini)	1.000.4823
Water filter (COMFORTdrive, MASTERmatic, GENTLEpower, MASTERtorque, EXPERTtorque, EXPERTmatic)	1.002.0271
Wrench for water filter	1.002.0321
O-ring (MULTIflex coupling, black), 10 pcs.	1.004.2776
O-ring (MULTIflex coupling, white), 10 pcs.	1.004.2775
O-ring (INTRAMatic Motor), 10 pcs.	0.200.6120
Multi LED (instruments)	1.007.5372
High pressure lamp (MULTIflex LUX couplings, pneumatic and electric motors)	1.002.2928
Nozzle needle (spray tubes INTRA, INTRAMatic)	0.410.0931
Nozzle needle (instruments)	0.410.0921
Spray repair kit (INTRA, INTRA LUX)	0.410.0610
Instrument stands	3.005.5204
Insert for instrument stand (MULTIflex)	0.411.9902
Insert for instrument stands (COMFORTdrive)	1.006.0525
Cellulose support (for instrument stands)	0.411.9862

7. Maintenance products and spare parts

Product name	Material number
KaVo Spray 2112A (box with 6 cans) for manual maintenance with oil	0.411.9640
Spray head (INTRA) for hand pieces and contra-angles, heads, bur-clamps	0.411.9911
Spray head (COMFORTdrive)	1.005.3154
Spray head (MULTIflex) for turbines, SONICflex, INTRAflex	0.411.9921
Cleanpac pack, 10 pcs.	0.411.9691
QUATTROcare PLUS 2124A maintenance unit	1.008.3805
QUATTROcare PLUS Spray 2140P (Box with 6 cans)	1.005.4525
INTRAMatic short	1.011.7380
Maintenance coupling for KaVo instrument heads	0.411.7941
Maintenance coupling MULTIflex	1.009.6142
Maintenance coupling COMFORTdrive	1.005.1707
Maintenance coupling for bur-clamp (for automatic maintenance of the bur-clamps)	0.411.7603
Bur-clamp maintenance set (for manual maintenance with QUATTROcare Plus Spray)	1.003.1253

8. Notes

We are constantly working to increase our customer satisfaction and have compiled information in this brochure to help you extend the life of your rotating instruments.

If you know of other typical maintenance mistakes from your everyday practice or you see a need for a more detailed explanation of a topic, we would appreciate your feedback to **service.instruments@kavokerr.com**.

Thank you!

Dental excellence in every area.



Equipment for the practice

KaVo treatment units, treatment lights, treatment chairs, patient communication system, dental microscopes and other accessories for the dental practice.



Instruments:

Dental hand pieces and contra-angles, turbines, powder blasting hand pieces and small devices for all areas of application, from diagnostics to prophylaxis to restorations, surgery, endodontics and instrument maintenance.



Imaging

Intraoral radiators, sensors and imaging plates, panoramic and cephalometric radiography, also with DVT combination, as well as dedicated DVT Devices for every indication in dentistry.



CAD/CAM

Dental CAD/CAM solutions for highly aesthetic, completely natural-looking and long-lasting restorations, suitable for dentists and dental technicians.