Instructions for use

Highspeed Air Handpieces

Alegra
300 series

0297
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A-dec | W&H symbols instructions for use

CAUTION!
(to prevent damage occurring)

WARNING!
(risk of injury)

General explanations, without risk to persons or objects

Do not dispose of with domestic waste
A-dec | W&H symbols handpiece / Roto Quick coupling / packaging

CE 0297 from the manufacturer

Sterilizable up to the stated temperature

UL Component Recognition Mark indicates compliance with Canadian and U.S. requirements

Type B applied part (not suitable for direct cardiac application)
1. Introduction

Creating customer success is a key foundation to the A-dec|W&H quality policy. In support of that effort, this A-dec|W&H product has been developed, manufactured, and subjected to final inspection according to legal regulations, quality norms, and industry standards.

For your safety and the safety of your patients
Prior to initial use please read the instructions for use completely; they explain how to use your A-dec|W&H product and ensure proper, efficient, and safe operation.

Intended use
The dental handpiece is intended for the following applications: Removal of decayed materials, cavities and crown preparation, removal of fillings, finishing of tooth and restoration surfaces.

The Roto Quick coupling is intended for the following applications: Connector for media transfer (air, water, electricity and light) between the handpiece tubing and the dental unit and air driven motors.
Always follow the manufacturer’s recommendations for the handpiece / Roto quick coupling. Misuse may damage the handpiece / Roto Quick coupling, create risks, and pose hazards for patients, users, and others.

Qualifications of the user
We have based our development and design of the dental handpiece / Roto Quick coupling on the dentists, dental hygienists, dental employees (prophylaxis), and dental assistants target group.

Production according to EU Directive
The handpiece / Roto Quick coupling is a medical product according to the EU Directive 93/42/EEC.

Device labeling statement
U.S. 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 this device.
Responsibility of the manufacturer

The manufacturer can only accept responsibility for the safety, reliability, and performance of the handpiece / Roto Quick coupling when it is used in compliance with the following directions:

> The handpiece / Roto Quick coupling must be used in accordance with these instructions for use.
> Only the components approved by the manufacturer may be replaced (rotor, O-rings, generator, and water filter).
> Repairs must only be undertaken by authorized A-dec | W&H repair locations.
Skilled application
The handpiece / Roto Quick coupling is intended for use only by trained dental or medical practitioners for the purposes listed under the Indications for Use, in accordance with this document, the applicable health and safety regulations, and the valid accident prevention regulations.
The handpiece / Roto Quick coupling should be prepared for use and maintained by staff who are trained in procedures for infection control, personal safety, and patient safety.
Improper use, (e.g., through poor hygiene and maintenance), non-compliance with our instructions, or the use of accessories and spare parts that are not approved by A-dec | W&H invalidates all claims under warranty and any other claims.

Operating malfunction of the handpiece / Roto Quick coupling
> Correct the malfunction as described in the Maintenance section on pages 44 and 45.
> If it proves impossible to correct the malfunction, please contact your local retail A-dec dealer or A-dec customer service.
> Repairs must only be undertaken by authorized A-dec | W&H repair locations.
2. General safety notes

> The operation of the handpiece / Roto Quick coupling is permitted only on dental units which correspond to the standards IEC 60601-1 (EN 60601-1) and IEC 60601-1-2 (EN 60601-1-2).
> Use only handpiece tubings as specified by EN ISO 9168.
> Use only non-contaminated, filtered, oil-free, and dry compressed drive air to operate the handpiece.
> Run the rinse function for the dental unit once per day.

> Always ensure the correct operating conditions and cooling function.
> Always ensure that sufficient and adequate cooling is delivered and ensure adequate suction.
> In case of coolant supply failure, the handpiece must be stopped immediately.
> Check the handpiece / Roto Quick coupling for damage and loose parts each time before using (e.g., push-button chuck, connection between the Roto Quick coupling and handpiece tubing).
> Do not operate the handpiece if it is damaged.
> Do not operate the Roto Quick coupling if it is leaking.
> Perform a test run each time before using.
> Never touch the push-button chuck of the handpiece during operation or while it is still running down.

> Do not use the handpiece if there are soft tissue wounds in the mouth. The air pressure can cause septic substances to enter the tissue or trigger embolisms.
> Do not touch the soft tissue with the handpiece head (risk of burning due to the push-button chuck heating up)!
> Avoid overheating at the treatment site.
Cleaning and maintenance prior to initial use

Ensure that the handpiece / Roto Quick coupling is in clean condition and sealed in polyethylene (PE) film when the product is first delivered.

- Lubricate the handpiece prior to initial use.
- Sterilize the handpiece and the cleaning wire prior to initial use.

> See lubrication instructions on page 38
> See sterilization instructions on page 42
3. Safety notes for TE-97 LQ / TE-98 LQ / RQ-54

The TE-97 LQ / TE-98 LQ handpiece requires the Roto Quick coupling RQ-54 for proper operation.

- Avoid contact between optic outlet and soft tissue (risk of burning due to the optic outlet heating up).
- Do not use the handpiece as light sensor.
- Do not look directly into the optic outlet.

The handpiece / Roto Quick coupling is not suitable for use in oxygen enriched atmospheres.
Danger zones M and G

In accordance with IEC 60601-1 / ANSI/AAMI ES 60601-1, the handpiece / Roto Quick coupling is not suitable for use in potentially explosive atmospheres or with potentially explosive mixtures of anaesthetic substances containing oxygen or nitrous oxide.

Zone M is defined as a »medical environment« and constitutes the part of a room in which potentially explosive atmospheres may form due to the use of anaesthetics or medical antiseptics and antibacterial soaps; such atmospheres are typically localized and temporary.

Zone M comprises a truncated pyramid below the operating table which is tilted outwards at a 30° angle.

Zone G, also known as an »enclosed medical gas system«, does not necessarily include areas enclosed around all sides, in which explosive mixtures are continuously or temporarily generated, directed or used in small quantities.
Risks due to electromagnetic fields

The functionality of implantable systems, such as cardiac pacemakers and implantable cardioverter defibrillator (ICD) can be affected by electric, magnetic, and electromagnetic fields.

> Find out if patient and user have implanted systems before using the product and consider the application.
> Weigh the risks and benefits.
> Keep the product away from implanted systems.
> Make appropriate emergency provisions and take immediate action on any signs of ill-health.
> Symptoms such as raised heartbeat, irregular pulse, and dizziness can be signs of a problem with a cardiac pacemaker or ICD.
4. Product description RQ-54

Roto Quick coupling with generator
1. O-rings
2. Electrical contacts
3. Nut
4. Gasket
5. Water filter with resuction stop
6. Generator

Connections
7. Drive air
8. Water
9. Spray air
10. Exhaust
Product description TE-97 LQ / TE-98 LQ

Handpiece with light and Roto Quick connection
1 Push-button chuck
2 Spray ports
3 Optic outlet (LED)
4 Sheath
5 Cleaning wire
6 Roto Quick connection

The TE-97 LQ / TE-98 LQ handpiece requires the Roto Quick coupling RQ-54 for proper operation.
Product description TE-97 / TE-98

Handpiece without light and Roto Quick connection

1. Push-button chuck
2. Spray ports
3. Sheath
4. Cleaning wire
5. Roto Quick connection
Product description TE-97 RM / TE-98 RM

Handpiece without light and Ritter-Midwest (RM) connection
1. Push-button chuck
2. Spray ports
3. Sheath
4. Cleaning wire
5. Gasket
6. Water filter with resuction stop
7. Handpiece tubing

Connections
8. Drive air
9. Water
10. Spray air
11. Exhaust
5. Operation – assembly/removal

RQ-54

1. Insert the Roto Quick coupling into the apertures of the handpiece tubing.
2. Screw the union nut on.
3. Check the connection (see page 23) between the Roto Quick coupling and handpiece tubing.

or

4. Unscrew the union nut.
5. Remove the Roto Quick coupling from the handpiece tubing.
Check the connection between the Roto Quick coupling and handpiece tubing
> Block the water outlet at the tip of the Roto Quick coupling with a piece of rubber or leather.
> Switch on the water.

No water should leak out between the Roto Quick coupling and the handpiece tubing after 10 seconds of blockage.

In the event of malfunctions (e.g., vibrations, unusual noise, leaks), stop the Roto Quick coupling immediately.
> Correct the malfunction as described in the Maintenance section on pages 44 and 45.
> If it proves impossible to correct the malfunction, please contact your local retail A-dec dealer or A-dec customer service.
> Repairs must only be undertaken by authorized A-dec/W&H repair locations.
Do not assemble or remove the handpiece during operation!

TE-97 LQ / TE-98 LQ / TE-97 / TE-98

1. Push the handpiece onto the Roto Quick coupling.
2. Verify that the connection is secure.

or

3. Pull the retention sleeve of the Roto Quick coupling back.
4. Remove the handpiece by pulling in an axial direction.
TE-97 RM / TE-98 RM

1 Insert the handpiece into the apertures of the handpiece tubing.
2 Screw the union nut on.
3 Check the connection between the handpiece and handpiece tubing.

or

4 Unscrew on the union nut.
5 Remove the handpiece from the handpiece tubing.
Dental burs

> Use only dental burs in good condition with shanks that meet the requirements of the ISO 1797-1 standard. Follow the manufacturer’s operating instructions.
> Insert the dental bur only when the handpiece is stationary.
> Never touch the dental bur when it is in motion.
> Do not activate the push-button chuck when the handpiece is in operation. This leads to dental bur detachment, damage the rotary chuck, and/or may cause the push-button chuck to overheat (risk of injury).
Insert and remove the dental bur

1. Insert the dental bur.
2. Activate the push-button chuck, at the same time insert the dental bur until it reaches the limit stop (a).
3. Pull slightly on the dental bur to verify a secure connection.
   or
4. Activate the push-button chuck and remove the dental bur.
Test

⚠️ Do not hold the handpiece at eye level when testing to avoid possible injury.

> Insert the handpiece with Roto Quick connection on the Roto Quick coupling on the handpiece tubing.

or

> Screw the handpiece with RM connection onto the handpiece tubing.

> Insert the dental bur.

> Start the handpiece.
In the event of malfunctions, such as vibrations, unusual noise, overheating, smell, coolant supply failure, leakage, or discoloration of the LED, **stop the handpiece / Roto Quick coupling immediately.**

> Correct the malfunction as described in the maintenance section on pages 44 and 45.
> If it proves impossible to correct the malfunction, please contact your local retail A-dec dealer or A-dec customer service.
> Repairs must only be undertaken by authorized A-dec/W&H repair locations.
6. Cleaning and maintenance

Follow your local directives, standards, and guidelines for cleaning, disinfection, and sterilization.

> You can process the handpiece manually or automatically.

> Wear protective clothing and personal protective equipment (PPE).

> Remove the handpiece from the Roto Quick coupling or handpiece tubing.

> Remove the dental bur.

Cleaning wire

> Clean and disinfect the cleaning wire in an ultrasonic bath or disinfection bath.

> Sterilize the cleaning wire following manual cleaning and disinfection.
Handpiece

> Clean and disinfect the handpiece immediately after each patient, to flush out any liquid (such as blood, saliva etc.) and to prevent debris from settling on the internal parts.
> After manual cleaning, disinfection, and lubrication you must sterilize the (wrapped) handpiece using a steam sterilizer.
> Sterilize the handpiece following manual or automated cleaning, disinfection, and lubrication.

Roto Quick coupling

> Clean and disinfect the Roto Quick coupling immediately after each patient.
> Lubricate the generator of the Roto Quick coupling once a month.

⚠️ The Roto Quick coupling is not approved for thermal washer disinfection and sterilization.
Pre-cleaning

> If heavily soiled, clean first with disinfectant cloths.

⚠️ Do not use disinfectants that contain chlorine or protein fixatives. See manual disinfection on page 36.
Manual cleaning internal and external

1. Rinse and brush off under demineralized water (< 100°F / < 38°C).
2. Remove any liquid residues (absorbent cloth, blow dry with compressed air).

⚠️ Do not place the handpiece / Roto Quick coupling in liquid disinfectant or in an ultrasonic bath.
Cleaning of the spray ports
> Use the cleaning wire to carefully remove dirt and deposits from the spray ports.

Cleaning of the coolant channel
> Use an air syringe to blow air through the coolant channel.
In case of blocked spray ports
In case of blocked coolant channel

> Correct the malfunction as described in the Maintenance section on pages 44 and 45.
> If it proves impossible to correct the malfunction, please contact your local retail A-dec dealer or A-dec customer service.
> Repairs must only be undertaken by authorized A-dec|W&H repair locations.
TE-97 LQ / TE-98 LQ

Cleaning of the optic outlet

⚠️ Clean the handpiece with care and avoid scratching of the optic outlet!

1 Wash the optic outlet with cleaning/disinfectant fluid and a soft cloth.
Dry the optic outlet with an air syringe or soft cloth.

Inspect after each cleaning process. If the optic outlet is damaged, do not use the handpiece and contact your local retail A-dec dealer or A-dec customer service.
Manual disinfection

We recommend wiping the handpiece / Roto Quick coupling down with disinfectant.

> Use only disinfectants that do not contain chlorine and are certified by officially recognized institutes.
> Use EPA-registered surface disinfectants.
> Note the manufacturer’s specifications for the use of the disinfectants.
Handpiece

Automated internal and external cleaning and disinfection
The handpiece can be cleaned and disinfected in a thermal washer disinfector.

> Note the manufacturer’s specifications on equipment, cleaning agents, and detergents.

> Make sure that the handpiece is completely dry internally and externally after thermal washer disinfection. Remove any liquid residues with compressed air.
> Lubricate the dry handpiece immediately after thermal washer disinfection.
Daily lubrication

Recommended lubrication cycles
> Essential after every internal cleaning
> Before each sterilization
or
> After 30 minutes of use or at least once daily

With W&H Service Oil F1, MD-400
> Follow the instructions on the oil spray can and on the packaging.
or

With A-dec W&H Assistina 301 plus
> See the Assistina instructions for use.
Weekly lubrication of the chuck system

With W&H Service Oil F1, MD-400
> Fit the spray cap REF 02036100 on the spray can.
> Hold the handpiece firmly.
> Press the tip of the spray nozzle firmly into the chuck system.
> Spray for approximately 1 second.

or

With A-dec W&H Assistina 301 plus
> See the Assistina instructions for use.
RQ-54

Monthly lubrication of the generator

With W&H Service Oil F1, MD-400
> Fit the spray cap REF 02036100 on the spray can.
> Hold the generator firmly.
> Press the tip of the spray nozzle firmly into the generator.
> Spray for approximately 1 second.

or

With A-dec|W&H Assistina 301 plus
> See the Assistina instructions for use.
Test following lubrication

1. Place the handpiece with the head positioned downward.
2. Start the handpiece for 30 seconds to remove excessive oil.

Repeat the entire cleaning and maintenance process if dirt emerges.

3. Wipe the handpiece / Roto Quick coupling with gauze or soft cloth.

Sterilize the handpiece.
Sterilization and storage

- Note the instructions of the unit manufacturer.
- Clean, disinfect, and lubricate the handpiece before sterilizing.
- Place the handpiece and the accessory in a standard handpiece sterilization pouch.
- Make sure that you only remove dry sterile goods from the sterilizer.
- Store sterile goods dust-free and dry.

The standard ISO 14457 stipulates a durability of at least 250 sterilization cycles. We recommend that you regularly service the A-dec W&H handpiece after 1,000 sterilization cycles or one year of use.

The Roto Quick coupling is not approved for sterilization. The Roto Quick coupling can be kept on the handpiece tubing.
Approved sterilization procedures

Follow your local directives, standards, and guidelines.

> Dynamic-air-removal sterilizers: 270°F (132°C) for 4 minutes or
> Gravity displacement sterilizers: 270°F (132°C) for 15 minutes

> All other sterilization methods are not approved and must not be used.

> Do not exceed 277°F (136°C) during sterilization.
> Allow the load to dry for approximately 20 to 30 minutes before removing from the sterilizer.
### 7. Maintenance – operating malfunction

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<th>Correction of malfunctions</th>
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</tr>
<tr>
<td></td>
<td>&gt; Check the operating pressure</td>
</tr>
<tr>
<td></td>
<td>&gt; Perform an oil service</td>
</tr>
<tr>
<td></td>
<td>&gt; Check/replace the O-rings</td>
</tr>
<tr>
<td></td>
<td>&gt; Replace the rotor</td>
</tr>
<tr>
<td>Insufficient/no cooling</td>
<td>&gt; Check the operating pressure</td>
</tr>
<tr>
<td></td>
<td>&gt; Clean the spray nozzles</td>
</tr>
<tr>
<td></td>
<td>&gt; Clean/replace the water filter</td>
</tr>
<tr>
<td></td>
<td>&gt; Check/replace the O-rings</td>
</tr>
<tr>
<td>Malfunction</td>
<td>Correction of malfunctions</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Inadequate hold of rotating instrument</td>
<td>&gt; Perform an oil service</td>
</tr>
<tr>
<td></td>
<td>&gt; Replace the push-button</td>
</tr>
<tr>
<td></td>
<td>&gt; Replace the rotor</td>
</tr>
<tr>
<td>Insufficient/no light</td>
<td>&gt; Check the operating pressure</td>
</tr>
<tr>
<td>Attach another LED handpiece to determine whether the optic outlet on the handpiece or the generator in the Roto Quick coupling is defective.</td>
<td>&gt; Perform an oil service</td>
</tr>
<tr>
<td></td>
<td>&gt; Lubricate the generator</td>
</tr>
<tr>
<td></td>
<td>&gt; Replace the generator</td>
</tr>
</tbody>
</table>
Replacing the rotor

1. Unscrew the push-button using the hexagon wrench.
2. Push the rotor out of the handpiece head using the tip of a pair of tweezers.

Clean the inside of the handpiece head and the push-button with a cloth soaked in isopropyl alcohol.

3. Blow dry the push-button and the handpiece head with compressed air.
4. Place the new rotor into the push-button.
5. Place the rotor with the push-button into the handpiece head.
6 Screw the push-button onto the handpiece head.
7 Tighten the push-button using the hexagon wrench.
8 Check free running of the chucking system.
9 Activate the push-button and remove the mandrel.

> Perform a test run.
> Repeat the complete cleaning and maintenance process.
RQ-54  
TE-97 RM / TE-98 RM

Cleaning/Replacing the water filter

1. Remove the gasket.
2. Pull the water filter out using a pair of tweezers.

3. Clean the water filter (see page 49).  
or
4. Insert the new water filter.

5. Slide on the gasket.
Cleaning the water filter

1. Clean outlets carefully with the cleaning wire to remove dirt and deposits.

2. The water filter can be cleaned in an ultrasonic bath.

3. Repeat the complete cleaning and maintenance process.
RQ-54
Replacing the generator

1. Remove the gasket.
2. Pull the generator out.
3 Position the generator with the mark aligned with the notch on the Roto Quick coupling.
4 Insert the new generator until it reaches the limit stop.
5 Slide on the gasket.

⚠️ Clean and disinfect the Roto Quick coupling.
RQ-54

Replacing the O-rings

> Replace damaged or leaking O-rings immediately.
> Always replace all the O-rings.
> Do not use a sharp tool!

1. Squeeze the O-ring between your thumb and index finger so that it forms a loop.
2. Pull off the O-ring.
3. Push the new O-ring on in its place.
8. A-dec | W&H accessories and spare parts

Use only original A-dec | W&H accessories and spare parts or accessories approved by W&H. Suppliers: A-dec | W&H partners

<table>
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<tr>
<th>REF</th>
<th>Description</th>
<th>RQ-54</th>
</tr>
</thead>
<tbody>
<tr>
<td>02015100</td>
<td>Cleaning wire</td>
<td>x</td>
</tr>
<tr>
<td>07508900</td>
<td>0-ring set (2x large, 1x small)</td>
<td>x</td>
</tr>
<tr>
<td>02207300</td>
<td>RM gasket</td>
<td>x</td>
</tr>
<tr>
<td>06793002</td>
<td>Generator</td>
<td>x</td>
</tr>
<tr>
<td>07095502</td>
<td>Water filter with resuction stop</td>
<td>x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REF</th>
<th>Description</th>
<th>301 plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Assistina</td>
<td>x</td>
</tr>
<tr>
<td>02685000</td>
<td>Base adaptor for RQ-54 / TE-97 RM / TE-98 RM</td>
<td>x</td>
</tr>
<tr>
<td>02693000</td>
<td>Adaptor for chuck system</td>
<td>x</td>
</tr>
<tr>
<td>REF</td>
<td>Description</td>
<td>TE-97</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------------------------</td>
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</tr>
<tr>
<td>10940021</td>
<td>Service Oil F1, MD-400 (6 pcs)</td>
<td>✗</td>
</tr>
<tr>
<td>02015100</td>
<td>Cleaning wire</td>
<td>✗</td>
</tr>
<tr>
<td>02229200</td>
<td>Spray cap with nozzle</td>
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</tr>
<tr>
<td>02036100</td>
<td>Spray cap with nozzle</td>
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<tr>
<td>06641902</td>
<td>Push-button</td>
<td></td>
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<tr>
<td>07548002</td>
<td>Push-button</td>
<td>✗</td>
</tr>
<tr>
<td>02207300</td>
<td>RM gasket</td>
<td></td>
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<td>06787502</td>
<td>Rotor with hexagon wrench</td>
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<tr>
<td>07234102</td>
<td>Rotor with hexagon wrench</td>
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<tr>
<td>07508802</td>
<td>Torque wrench</td>
<td></td>
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<tr>
<td>07095502</td>
<td>Water filter with resuction stop</td>
<td></td>
</tr>
</tbody>
</table>
9. Technical data

The power and speed depend on the quality of the handpiece tubing used and may differ from the specified value.

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<th></th>
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<td>maximum 131°F (55°C)</td>
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<tr>
<td>Temperature of the handpiece at the patient side:</td>
<td>maximum 122°F (50°C)</td>
</tr>
<tr>
<td>Temperature of the working part (dental bur):</td>
<td>maximum 105.8°F (41°C)</td>
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<table>
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<th>Physical characteristics</th>
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<td>Temperature for storage and transport:</td>
<td>-40°F to +158°F (-40°C to +70°C)</td>
</tr>
<tr>
<td>Air humidity for storage and transport:</td>
<td>8% to 80% (relative), non-condensing</td>
</tr>
<tr>
<td>Ambient temperature during operation:</td>
<td>+50°F to +95°F (+10°C to +35°C)</td>
</tr>
<tr>
<td>Air humidity during operation:</td>
<td>15% to 80% (relative), non-condensing</td>
</tr>
<tr>
<td>Handpiece</td>
<td>TE-98 / TE-98 LQ</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>Connection</td>
<td>W&amp;H Roto Quick</td>
</tr>
<tr>
<td>Dental burs</td>
<td>ISO 1797-1 (Ø mm)</td>
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<tr>
<td>Maximum length approved by W&amp;H</td>
<td>(mm)</td>
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<tr>
<td>Minimum chucking length</td>
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<tr>
<td>Maximum operating part diameter</td>
<td>(mm)</td>
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<tr>
<td>Maximum idle mode speed (± 30,000 min⁻¹)</td>
<td>(min⁻¹)</td>
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<tr>
<td>Coolant volume</td>
<td>ISO 14457 (gal/min)</td>
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<td>Water setting range (recommended water pressure)</td>
<td>(psi)</td>
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<tr>
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<td>(psi)</td>
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<td>(psi)</td>
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<tr>
<td>Air consumption</td>
<td>(CFM)</td>
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</table>

min⁻¹ (revolutions per minute)
<table>
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<th>Handpiece</th>
<th>TE-98 RM</th>
<th>TE-97 RM</th>
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<td>Connection according to standard</td>
<td>EN ISO 9168:2009</td>
<td>Type 3: Standard 4-hole</td>
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<tr>
<td>Dental burs</td>
<td>ISO 1797-1 (Ø mm)</td>
<td>1.6 – 0.01</td>
</tr>
<tr>
<td>Maximum length approved by W&amp;H</td>
<td>(mm) 25</td>
<td>21</td>
</tr>
<tr>
<td>Minimum chucking length</td>
<td>to the limit stop</td>
<td></td>
</tr>
<tr>
<td>Maximum operating part diameter</td>
<td>(mm) 2</td>
<td></td>
</tr>
<tr>
<td>Maximum idle mode speed (± 30,000 min⁻¹)</td>
<td>(min⁻¹) 330,000</td>
<td>390,000</td>
</tr>
<tr>
<td>Coolant volume</td>
<td>ISO 14457 (gal/min)</td>
<td>&gt; 0.0132086</td>
</tr>
<tr>
<td>Water setting range (recommended water pressure)</td>
<td>(psi) 10 – 29 (21.7)</td>
<td></td>
</tr>
<tr>
<td>Chip air setting range (recommended chip air pressure)</td>
<td>(psi) 21.7 – 43.5 (29)</td>
<td></td>
</tr>
<tr>
<td>Exhaust pressure</td>
<td>(psi) &lt; 7.2</td>
<td></td>
</tr>
<tr>
<td>Recommended operating pressure (drive air)</td>
<td>(psi) 31.9 – 40.6</td>
<td></td>
</tr>
<tr>
<td>Air consumption</td>
<td>(CFM) 1.062 – 1.593</td>
<td></td>
</tr>
</tbody>
</table>

min⁻¹ (revolutions per minute)
<table>
<thead>
<tr>
<th>Roto Quick coupling</th>
<th>RQ-54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection according to standard</td>
<td>EN ISO 9168:2009</td>
</tr>
<tr>
<td></td>
<td>Type 3: Standard 4-hole</td>
</tr>
<tr>
<td>Recommended operating pressure (drive air)</td>
<td>(psi)</td>
</tr>
<tr>
<td></td>
<td>31.9 – 40.6</td>
</tr>
</tbody>
</table>
10. Recycling and disposal

Recycling
A-dec | W&H considers that it has a special duty toward the environment. The handpiece / Roto Quick coupling along with its packaging has been designed to be as environmentally friendly as possible.

Disposal of the handpiece / Roto Quick coupling
> Follow your local laws, directives, standards, and guidelines for the disposal of used electrical devices.
> Ensure that the parts are not contaminated on disposal.

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. This way, you will contribute to the recycling of raw materials and the reduction of waste.
A-dec warrants all products in this document against defects in material or workmanship for one year from time of delivery. A-dec's sole obligation under the warranty is to provide parts for the repair, or at its option, to provide the replacement product (excluding labor). The buyer shall have no other remedy. All special, incidental, and coincidental damages are excluded.

Written notice of breach of warranty must be given to A-dec within the warranty period. The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse. The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilization chemicals and processes. Failure to follow instructions provided in the A-dec/W&H instructions for use (operation and maintenance instructions) may void the warranty.

No other warranties as to merchantability or otherwise are made.
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