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# We've harnessed air

Constant removal rate  
without loss of speed



Adjustable bur speed  
60,000 to 320,000 rpm

**primea**  
advanced air

# World first: Primea Advanced Air

Control and precision with ease

With the Primea Advanced Air you now have the air under perfect control. It is the world's first air-driven high-speed drive solution with an adjustable bur speed to provide constant removal rate, even with increasing pressure. This allows you to work with the optimal application speed and maximum treatment efficacy at all times: a unique symbiosis of power and ease for extra control combined with premium comfort.

## Adjustable bur speed

Wide range of applications and controlled preparation at constant speeds thanks to **adjustable bur speed between 60,000 and 320,000 rpm**.



## Further product advantages

- Optimal view with 5x Ring LED+
- Perfect cooling thanks to 5x spray
- Fatigue-free working thanks to ideal ergonomics and lightweight handpiece
- Best tactile feedback with quiet operation
- Value retention thanks to special scratch-resistant coating
- Added control thanks to non-slip grip profile
- Ultimate safety due to patented hygienic head system
- Maximum access thanks to small head

## Constant removal rate

Automatic power adjustment with electronic air control thanks to **Advanced Air technology**.

St  
p

Staatspreis  
Innovation  
2018

des Bundesministeriums  
für Digitalisierung  
und Wirtschaftsstandort

## State prize winner 2018

The State Prize for Innovation awarded by the Federal Ministry for Digital and Economic Affairs

## High-speed under control

You can always rely on Primea Advanced Air. It adapts to your personal preparation requirements and works together with you hand in hand. You regulate the speed and benefit from maximum control. A perfect combination, which represents a real competitive advantage for air driven dental units and is an interesting alternative to conventional turbines and red contra-angle handpieces for units with electric motors.

### Optimal speed ranges for the Primea Advanced Air



## Treatment success pre-programmed

With the Advanced Air technology, loss of speed is a thing of the past. A sensor in the head of the turbine measures the actual rotation speed of the bur on the tooth constantly. As soon as the speed threatens to slow, the control module adjusts the air supply immediately so as to ensure the constant removal of tooth structure.



### Speed setting

You can set the required/recommended bur speed for the respective application on the display.

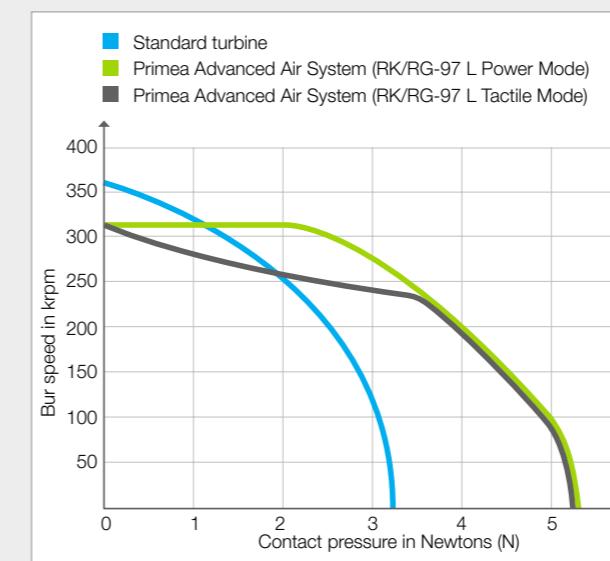
### Speed check

The speed actually measured in the bur head is checked against the set speed.

### Speed regulation

If the actual speed deviates from the set value, the air supply is accordingly adjusted immediately.

### Speed comparison\*



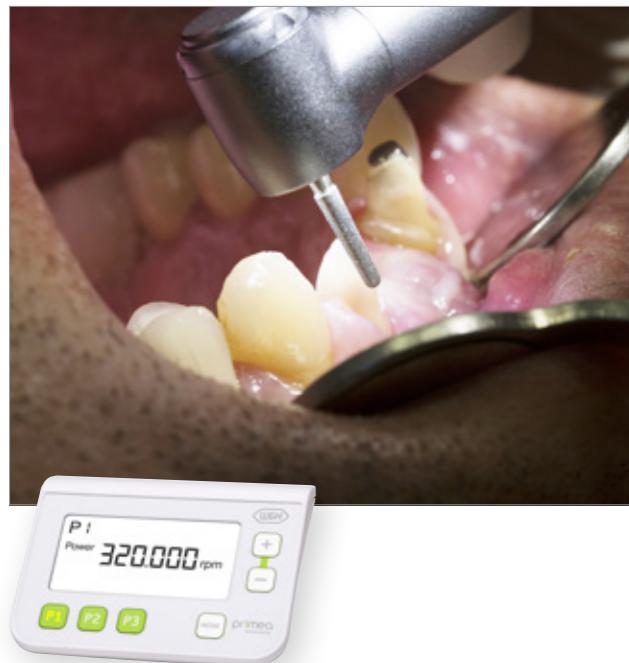
### Additional function: operating mode

Whilst the set speed is always maintained constant under increasing pressure in "Power" mode, "Tactile" mode permits reduction of the speed. This makes it possible to perform sensitive steps with even more control and even more minimally invasively.

\* Measured parameters: Bur: 836KR 314 016, depth: 3 mm (half cutting part length), Feed in: 0.8 mm (half cutting part diameter), material: marble, TK-98 L: 3 bar, RG-97 L: 320 k rpm, chip air: 2 bar, water: 1.5 bar, all pressure measurements taken directly at RQ-24 coupling

# Optimal speed creates added value

Effortless opening of cavities, easy cutting of crowns and bridges, removal of old fillings at lightning speed and finishing of preparation margins with ultimate precision: Your clinical advantages with the Primea Advanced Air are at your fingertips. Work with the bur speed recommended by the bur manufacturer for your instruments and experience a new quality of high-speed preparation.



## Preparation of cavities and crowns with minimal effort

The constantly high bur speed of 320,000 rpm allows efficient, controlled and precise performance of high-speed tasks. You cannot only open cavities effortlessly, but also shape crown preparations safely and guarantee effective treatment.

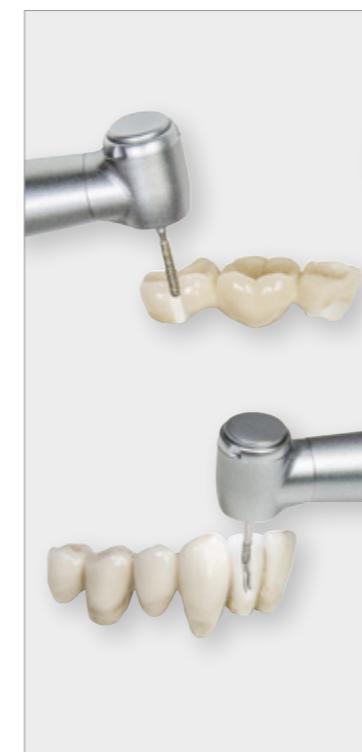


**Prof. RADM  
Suchada Vuddhakanok**  
Bangkok, Thailand

“That's it. This is exactly what I have been waiting for!”

**Dr. James Klim**  
Santa Rosa, CA, USA

“With the Advanced Air technology I can significantly reduce the treatment time of my patients.”



## Cut crowns and bridges faster

Whether ceramic or metal, the removal and cutting of extremely robust, indirect restorations is a mighty challenge for the dentist and instrument alike. The Primea Advanced Air allows you to set the recommended speed for the specific instruments and enjoy optimal, constant removal rate.



## Remove fillings safely and efficiently

From A for amalgam to C for composite to Z for zirconium dioxide: the Primea Advanced Air allows you to remove old fillings quickly and safely. The optimal ratio of minimum heat development to high removal rate is achieved at a speed of 160,000 rpm.



## Controlled finishing

With the Primea Advanced Air you can perform this sensitive step with a constantly low bur speed of just 60,000 rpm. This allows you to profile the preparation surface even more minimally invasively and finish the preparation margins with even more control than with a classic turbine handpiece.



**Dr. Christian Müller**  
Salzburg, Austria

“I love the tactile feedback. I feel the smallest imperfections on the tooth and can thus increase the quality of my work.”



**Dr. Michael VanGorden**  
St.Helens, OR, USA

“Combines the control of an electric motor with the cutting efficiency of an air-driven high-speed handpiece.”

## Add-on

System can be optimally integrated into your personalised workflow. Choose the smart Add-on with flexible installation options.



The CE of your dental unit is not affected by the W&H add-on solutions.

### Add-on

If you intend to use the Add-on as a table-top unit, the sterilizable tray offers an additional surface for resting instruments on.

### Removable display

The display can be removed from the Add-on and positioned independently of the control module.

### Installation options

You can also install the Add-on below or on the side of the table used for your dental unit.

## Built-in

Selected unit manufacturers offer the Primea Advanced Air technology as a fully integrated drive solution within the scope of a complete system. It can be controlled simply and conveniently via your dental unit's control panel. Ask W&H or your unit manufacturer about the Primea Advanced Air System.



# A perfect symbiosis

In addition to the innovative drive technology, both Primea Advanced Air turbines also boast all the advantages of classic, high-quality W&H turbine handpieces. Whilst the RK-97 L scores extra points with a 5x Ring LED+, the RG-97 L amazes with LED+. And thanks to the Roto Quick coupling the entire system is remarkably light.



## Optimum cooling

Thanks to the 5x spray the bur tip is optimally cooled in every application position.



## Shadowless illumination

The 5x Ring LED+ offers an optimal view of the treatment site with perfect contrasts.



## Extraordinary value retention

Everyday like new with the special, scratch-resistant coating.



## The choice is yours

The Primea Advanced Air System is available with a 5x Ring LED+ (RK-97 L) or LED+ (RG-97 L).



## Excellent ergonomics

Fatigue-free working and high tactile feedback thanks to low weight and quiet operation.

# Technical data

## Primea Advanced Air Add-on

CE 0297

Type:	AF-100
Speed range:	60,000 – 320,000 min <sup>-1</sup>
Modes:	Power / Tactile
Mains voltage:	100 – 240 V
Dimensions (height x width x depth):	92 x 156 x 211 mm
Weight:	1.33 kg
Warranty:	24 months
Inlet pressure for air supply hose:	600 – 800 kPa (6 – 8 bar, 87 – 116 psi)
Air consumption:	Maximum 65 Nl/min

## The perfect accessories (optionally available)

- Supports: Fastening options for flexible installation and customised positioning.
- Tray: The practical tray for your instruments can be disinfected and sterilized.

## Primea Advanced Air turbines

CE 0297 135°C

Type:	RK-97 L	RG-97 L
Speed range as Advanced Air turbine:	60,000 – 320,000 rpm	
Maximum power as Advanced Air turbine (Add-on):	27 W ± 10% at 6 – 8 bar inlet pressure	
Maximum power as Advanced Air turbine (Built-in):	30 W ± 10% at 5.5 – 5.9 bar inlet pressure	
Speed range as standard turbine:	400,000 ± 30,000 rpm	
Maximum power as standard turbine:	21 W at 3 bar inlet pressure	
Head size:	Ø 10 mm	
Head height with bur (19 mm):	21.1 mm	
Weight:	39 g	
Rotary instruments:	FG bur dia. 1.6 mm, compliant with ISO 1797	
Maximum working part diameter:	2 mm	
Maximum permissible length:	21 mm	
Coupling:	Roto Quick	
Light:	Ring LED+	LED+
Spray:	5x	
Ball bearing:	Ceramic	
Warranty:	24 months	12 months



# We've harnessed air

Constant removal rate  
without loss of speed

## With the Primea Advanced Air you have the air under perfect control.

It is the world's first air-driven high-speed drive solution with an adjustable bur speed and constant removal rate, even with increasing pressure. As such, you can always work with the optimum speed for the job.



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# The most legendary contra-angles

in the world from W&H



synea



**synea** VISION

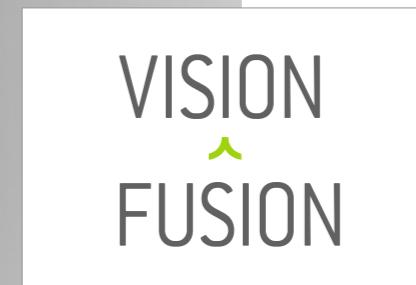
The instrument line for the highest demands. Customised straight and contra-angle handpieces with maximum precision, elegance and performance.

**synea** FUSION

The efficient and economical solution. Straight and contra-angle handpieces with the well-known Synea quality have never been so affordable!

## The premium straight and contra-angle handpieces from W&H

People have Priority:  
To make it easier to select one of our Synea straight and contra-angle handpieces, we listened to your requirements and have developed two lines perfectly suited to your needs. Synea Vision: with innovations such as special scratch-resistant coating. Synea Fusion: a series with top quality and maximum economy.



**Two instrument lines**  
Synea is available in Vision and Fusion lines.



**Quiet**  
Noticeably quieter – thanks to gearing technology.



**Monoblock design**  
Ergonomics cast from a single piece – for optimal hygiene.



**Customised production**  
Different head sizes for optimal access options.



**Synea Vision Short Edition**  
The short route to better ergonomics.



**Synea Power Edition**  
For the hardest materials.

## Synea Vision: the ultimate straight and contra-angle handpieces

A range for all applications: W&H has developed a range of top quality instruments with the Synea Vision line. Two high-speed head sizes are available for surprising access options. And a special coating improves aesthetics even more – and extends their life.

### Instruments for the future

- › Different head sizes
- › Perfect ergonomics and quiet operation
- › Lasting quality
- › Scratch-resistant surface
- › Long service life
- › 36 months warranty



**Excellent preparation results**  
with outstandingly quiet operation  
and optimised head sizes.

**synea** VISION



### Small heads

Two high-speed head sizes and the world's lowest head height among slow-speeds. Also ideal for patients with limited access.

### Scratch-resistant surface

A special coating resists signs of wear – for long-lasting aesthetics and pleasure equal to that experienced on the first day.

### 5x spray

The 5x spray for high-speed contra-angle handpieces ensures even cooling of the treatment site under all conditions.

### Versatile range

The right straight or contra-angle handpiece for every application – in Synea quality!

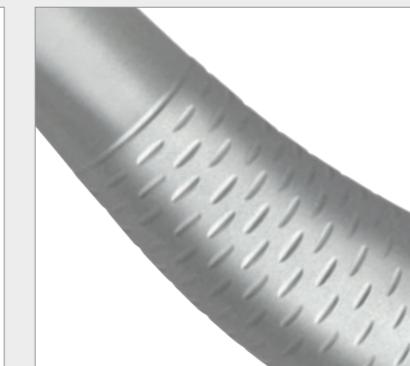
## Synea Vision Short Edition: the perfect balance between power and ergonomics

The Synea Vision Short Edition makes the treatment process considerably easier due to the reduction in weight and length. Choose from the classic range of high and slow-speeds. The perfect balance between ergonomics and power when combined with the ultra-short micromotor EM-12 L.



### Small but powerful

The micromotor EM-12 L with LED for bright as daylight illumination of the treatment area.



**Scratch-resistant surface**  
even on the small Synea Vision contra-angle handpieces.



**Best results**  
due to easy access and  
small head sizes.



**Contra-angle handpieces  
for all situations**  
The Synea Vision Short Edition in the classic range and with two different head sizes for high-speeds.

**Perfect balance**  
Fit perfectly in your hand: the contra-angle handpieces of the Short Edition.

The contra-angle handpieces of the Synea Vision Short Edition can be used on micromotors with an ISO coupling length of 23 mm or less. Please check compatibility with your existing micromotors.

Your specialist consultant will be glad to assist you.

## Synea Power Edition:

### High-performance handpieces for high-strength materials

With the special Synea 900-series, W&H has designed three extra powerful speed-increasing transmission instruments. The premium line of the Synea range – the Synea Vision – is complemented with the WK-900 LT, while the Synea Fusion portfolio is reinforced with the WG-900 A and the WG-900 LT.



**synea**  
POWER EDITION

## Synea Vision:

### Technical data

CE 0297 135°C



Types with light: (compact glass rod)	WK-900 LT	WK-99 LT WK-99 LT S	WK-93 LT WK-93 LT S
<b>Head size:</b>	Ø 10.7 mm	Ø 9.5 mm	Ø 9.1 mm
<b>Head height: with 19 mm (FG bur) or 22.5 mm (Contra-angle handpiece bur):</b>	22.9 mm	22.3 mm	22 mm
<b>Rotary instruments:</b>		FG bur	
<b>Max. operating part diameter:</b>	Ø 2.5		Ø 2
<b>Max. length:</b>	25 mm		21 mm
<b>Transmission ratio:</b>	1:4	1:5	1:4.5
<b>Spray:</b>	3x		5x
<b>Indications:</b>	<ul style="list-style-type: none"> <li>&gt; Crown and cavity preparations</li> <li>&gt; Trepaining</li> <li>&gt; Resections</li> <li>&gt; Finishing</li> <li>&gt; Removing fillings and metal</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Crown and cavity preparations</li> <li>&gt; Trepaining</li> <li>&gt; Resections</li> <li>&gt; Finishing</li> <li>&gt; Removing fillings and metal</li> </ul>	

CE 0297 135°C



Types with light: (compact glass rod)	WK-86 LT	WK-66 LT WK-66 LT S	WK-56 LT WK-56 LT S	HK-43 LT
<b>Head size:</b>		Ø 9.5 mm		–
<b>Head height: with 19 mm (FG bur) or 22.5 mm (Contra-angle handpiece bur):</b>		24.1 mm		–
<b>Rotary instruments:</b>		Contra-angle handpiece bur		Straight and contra-angle handpiece burs
<b>Max. operating part diameter:</b>		–		–
<b>Max. length:</b>		34 mm		34 mm
<b>Transmission ratio:</b>	8:1	2:1	1:1	1:1
<b>Spray:</b>		1x		
<b>Indications:</b>	<ul style="list-style-type: none"> <li>&gt; Excavating</li> <li>&gt; Preparations close to the pulp</li> <li>&gt; Root canal filling</li> <li>&gt; Cementing</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Excavating</li> <li>&gt; Preparations close to the pulp</li> <li>&gt; Finishing</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Cavity preparations</li> <li>&gt; Trepaining</li> <li>&gt; Resections</li> <li>&gt; Separating</li> <li>&gt; Finishing of cavity margins and fillings</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Preparing</li> <li>&gt; Separating</li> <li>&gt; Trepaining</li> <li>&gt; Resections in anterior area</li> <li>&gt; Minor technical procedures</li> </ul>

# Synea Fusion:

## Ultimate price-performance ratio



Proven Synea quality has never been so economical: With the Synea Fusion line W&H has developed a range of instruments in which economy is as important as quality.



**Good illumination**  
Compact glass rod for good illumination of the treatment site.



**Optimal cooling from four sides**  
Continuous cooling with 4x spray for high-speed contra-angle handpieces.



**Small head**  
Best visibility and optimal access thanks to small head sizes.



**Quality that pays for itself**

- Proven Synea quality
- Maximum efficiency in use
- Uncompromising user comfort



**Optimised grip profile**  
for secure grip and optimum hygiene.

**Special instruments**  
Special reciprocating contra-angle handpieces for areas that are difficult to access.

# Synea Fusion:

## Technical data



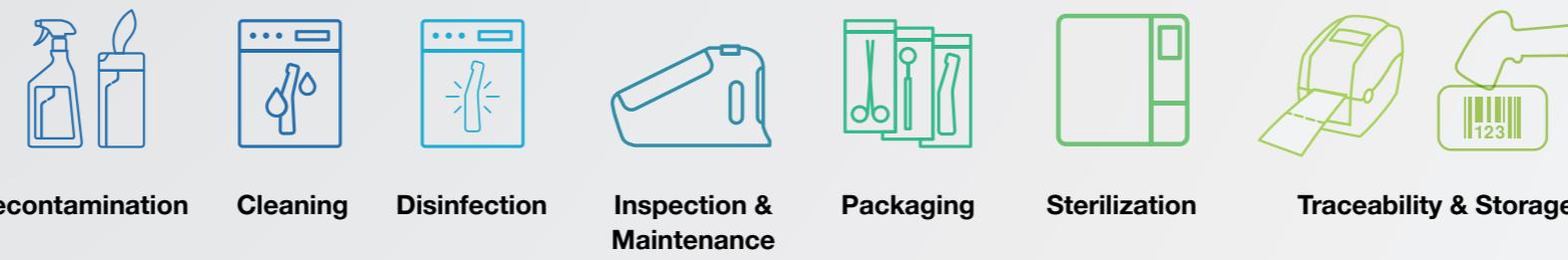
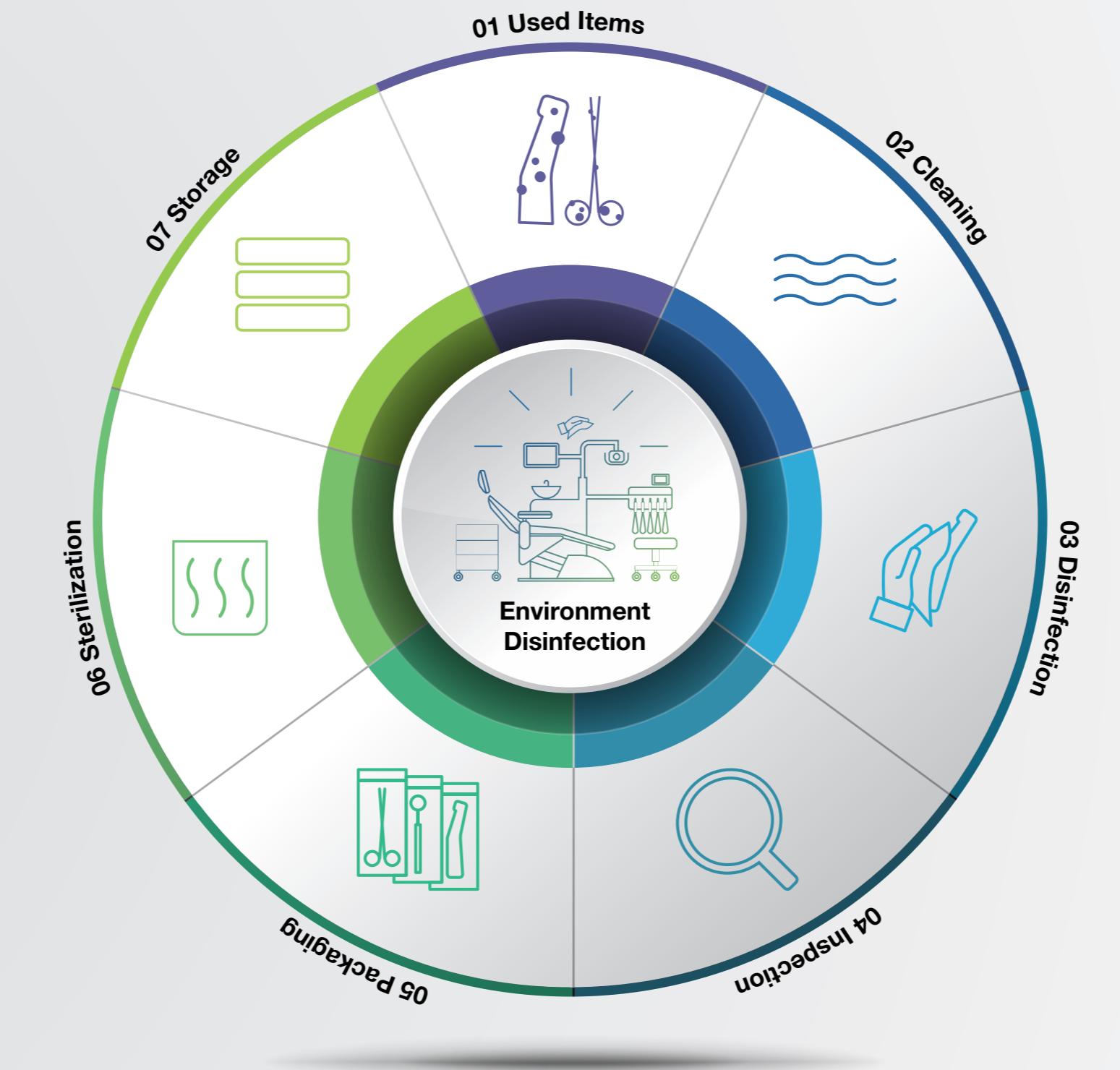
Types with light: (compact glass rod)	WG-900 LT	WG-99 LT	WG-69 LT	WG-67 LT
Types without light:	WG-900 A	WG-99 A	WG-69 A	WG-67 A
<b>Head size:</b>	Ø 10.7 mm	Ø 9.5 mm	Ø 10 mm	Ø 8.2 mm
<b>Head height: with 19 mm (FG bur) or 22.5 mm (Contra-angle handpiece bur):</b>	22.9 mm	22.3 mm	—	—
<b>Rotary instruments:</b>	FG bur		Stroke 0.9 for Intensiv files	Stroke 1.1 for Dentatus tips
<b>Max. operating part diameter:</b>	Ø 2.5		defined by the available files and tips	
<b>Max. length:</b>	25 mm		—	
<b>Transmission ratio:</b>	1:4	1:5	2:1	
<b>Spray:</b>	3x	4x	1x	
<b>Indications:</b>	<ul style="list-style-type: none"> <li>› Crown and cavity preparations</li> <li>› Removing fillings and metal</li> <li>› Trepaining</li> <li>› Resections</li> <li>› Finishing</li> <li>› Removing fillings and metal</li> </ul>	<ul style="list-style-type: none"> <li>› Crown and cavity preparations</li> <li>› Trepaining</li> <li>› Resections</li> <li>› Finishing</li> <li>› Removing fillings and metal</li> </ul>	<ul style="list-style-type: none"> <li>› Finishing of interproximal and subgingival areas and cavity margins</li> <li>› Chamfering of the preparation edges and of cavities</li> <li>› Removal of sub gingival plaque</li> <li>› Stripping in orthodontics</li> <li>› Max. rotational speed 40,000 rpm</li> </ul>	<ul style="list-style-type: none"> <li>› Removal of excess materials</li> <li>› Prepolishing</li> <li>› Fine polishing</li> <li>› Buffing in the interdental and subgingival areas</li> <li>› Max. rotational speed 20,000 rpm</li> </ul>



Types with light: (compact glass rod)	WG-66 LT	WG-57 LT	WG-56 LT	—		
Types without light:	WG-66 A	—	WG-56 A	HG-43 A		
<b>Head size:</b>	Ø 9.5 mm			—		
<b>Head height: with 19 mm (FG bur) or 22.5 mm (Contra-angle handpiece bur):</b>	24 mm	22.9 mm	24.1 mm	—		
<b>Rotary instruments:</b>	Contra-angle handpiece bur	FG bur	Contra-angle handpiece bur	Straight and contra-angle handpiece burs		
<b>Max. operating part diameter:</b>	—	Ø 2.5	—	—		
<b>Max. length:</b>	34 mm	25 mm	34 mm			
<b>Transmission ratio:</b>	2:1	1:1				
<b>Spray:</b>	1x					
<b>Indications:</b>	<ul style="list-style-type: none"> <li>› Excavating</li> <li>› Preparations close to the pulp</li> <li>› Removal of decayed materials</li> <li>› Crown and cavity preparations</li> <li>› Trepaining</li> <li>› Resections</li> <li>› Separating</li> <li>› Finishing of cavity margins and fillings</li> </ul>	<ul style="list-style-type: none"> <li>› Removal of decayed materials</li> <li>› Crown and cavity preparations</li> <li>› Trepaining</li> <li>› Resections</li> <li>› Separating</li> <li>› Finishing of cavity margins and fillings</li> </ul>	<ul style="list-style-type: none"> <li>› Preparing</li> <li>› Separating</li> <li>› Trepaining</li> <li>› Resections in anterior area</li> <li>› Minor technical procedures</li> </ul>	<ul style="list-style-type: none"> <li>› Preparing</li> <li>› Separating</li> <li>› Trepaining</li> <li>› Resections in anterior area</li> <li>› Minor technical procedures</li> </ul>		

Hygiene is extremely important in the dental practice. W&H AIMS is here to help: with a wide product portfolio, fundamental knowledge and all relevant information at a glance.

For your safety and the safety of your patients. [aims.wh.com](http://aims.wh.com)



# The most successful contra-angles

in the world from W&H



## Manufacturer:

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# Reliable. Efficient. Precise.

Turbines

alegra



#### TRIPLE SPRAY

for optimal cooling of the treatment site from all sides.

#### OPTIMAL LED POSITION

for optimal view and illumination of the treatment site.

#### HIGH TORQUE

for fast removal of tooth structure.

#### PRECISION MANUFACTURE

for vibration-free and quiet operation.



#### SMALL TURBINE HEAD

for optimal view of the treatment site.

#### PUSH-BUTTON CHUCKING SYSTEM

for simple, rapid bur changes with low actuating force.

#### CERAMIC BALL BEARINGS

for extremely quiet operation and a long service life.

#### WATER FILTER

for perfect spray function.

#### INNOVATIVE GENERATOR SYSTEM

in the Roto Quick quick coupling for use with Alegra light turbines.

## Long service life and extremely quiet operation

Discover the new Alegra turbines with extremely quiet operation for daily use in your practice. Designed to meet your needs with state-of-the-art technology. Made in Austria: For your best treatment results.



#### Long service life

Ceramic ball bearings guarantee minimum wear. Particularly with optimum care and maintenance!



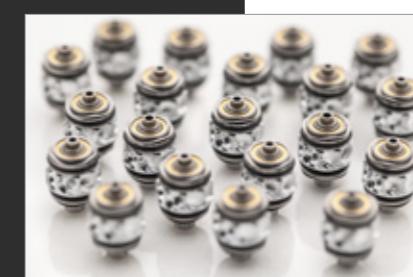
#### Quiet

Alegra turbines offer top quality, vibration-free, quiet operation thanks to precision manufacture.



#### Replaceable water filter

Prevents dirt particles from entering the turbine.



#### Your reliable partner

This combination makes W&H turbines a reliable partner when working on your patients.



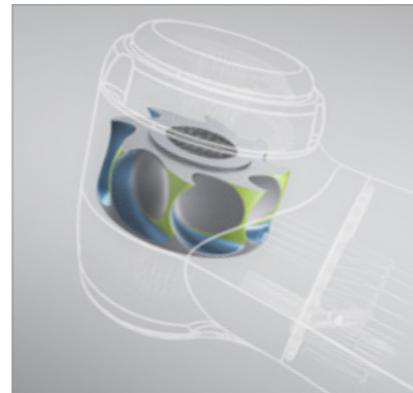
Made in  
AUSTRIA





## Maximum efficiency and safety during treatment

The Alegra range of turbines offers high-end technology for top preparation results! Experience maximum efficiency during use combined with maximum safety: for you and your patients.



### Full steam ahead with the Power Blade rotor

The optimized blade geometry allows higher rotor efficiency. For maximum torque and optimal power throughout preparation.



### Precision cooling

The triple spray during treatment cools the treatment site from all sides and guarantees safety during treatment.



### Tailor-made turbines

From hard-to-reach areas to fast removal of tooth structure: The right head size for every application.



### Patented hygienic head system

The circulating air in the turbine head ensures no aerosol particles are sucked into the turbine as the rotor slows down.



### Simple bur changing

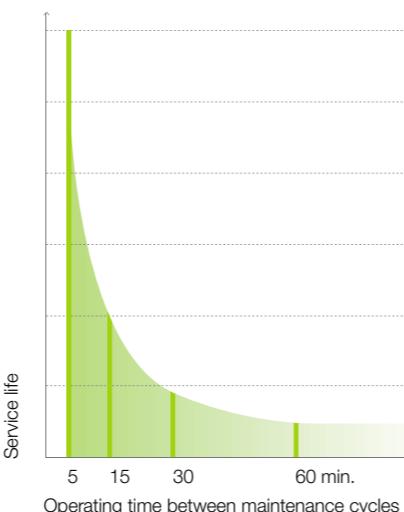
Optimum balance between easy operation of the push-button and maximum retention force of the chucking system. No tools required!

## Hygiene & maintenance of your turbines

“The better the care, the longer the pleasure.” Regular cleaning and care of your instruments protects them against premature wear and unnecessary service costs.



Short lubrication intervals –  
long service life



### For every application

W&H Service Oil F1 is a product of W&H research. It was developed hand in hand with the leading edge W&H drive technology. This oil gives you the security of knowing that you are providing your W&H products with the best possible lubrication.

### Perfect for manual lubrication

W&H Service Oil F1 in the spray can cleans and lubricates your turbines to guarantee troublefree use.

### Maintenance at the press of a button

The range of W&H maintenance units offers you optimal lubrication for your turbines. And all in record time!

## Optimal view and independent LED

The integration of a generator in the Roto Quick quick coupling gives you a low-cost option of adding an LED turbine to your selection of Alegra turbines. The advantages for you: Flexibility in use and in hygienic preparation.



### LED turbine + quick coupling with generator = independent light

A generator in the Roto Quick quick coupling enables the use of light turbines on the turbine hose without a power supply.



### Optimal view

The position of the LED in the turbine head guarantees optimal view and illumination of the treatment site.

# Technical data



Turbines with LED: Couplings with generator: Turbines without light:	TE-97 LQ* RQ-53 / RQ-54 TE-97 / TE-97 RM / TE-97 BC	TE-98 LQ* RQ-53 / RQ-54 TE-98 / TE-98 RM / TE-98 BC	TE-95 RM / TE-95 BC
<b>Light (LED version):</b>	LED and generator		–
<b>Head size:</b>	Ø 10.4 mm	Ø 12.2 mm	
<b>Power**:</b>	16 W	18 W	
<b>Speed (min<sup>-1</sup>):</b>	390,000 ± 30,000	330,000 ± 30,000	
<b>Rotary instruments:</b>	FG bur, in acc. with ISO 1797-1, Ø 1.6 mm		
<b>Max. working part diameter:</b>	2 mm		
<b>Max. length:</b>	21 mm	25 mm	
<b>Weight:</b>			
> <b>Turbines with LED</b>	46 g	48 g	
> <b>Couplings with generator</b>	26 g / 20 g	26 g / 20 g	
> <b>Turbines without light</b>	46 g / 47 g / 47 g	48 g / 50 g / 50 g	49 g / 49 g
<b>Operating pressure:</b>	2.2–2.8 bar (recommended: 2.5 bar) (32–40 PSI)		
<b>Ball bearings:</b>	Ceramic		
<b>Spray:</b>	Triple		

\* TE-97 LQ and TE-98 LQ turbines with LED are intended for use with W&H RQ-53 and RQ-54 Roto Quick couplings only.

\*\* Performance value applies at a rated pressure of 2.5 bar for turbines without light, of 2.8 bar for turbines with light and exhaust air pressure of max. 0.2 bar. When operating with the maximum permissible operating pressure of 2.8 bar, it is possible to reach 16 watt for TE-97, TE-97 RM, TE-97 BC and 18 watt for TE-98, TE-98 RM, TE-98 BC.

**Attention:** Not all products mentioned in this brochure are available in all countries. Please contact your local W&H representative for details.

## Manufacturer:

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# Strong

Synea Power Edition:  
For the hardest materials.

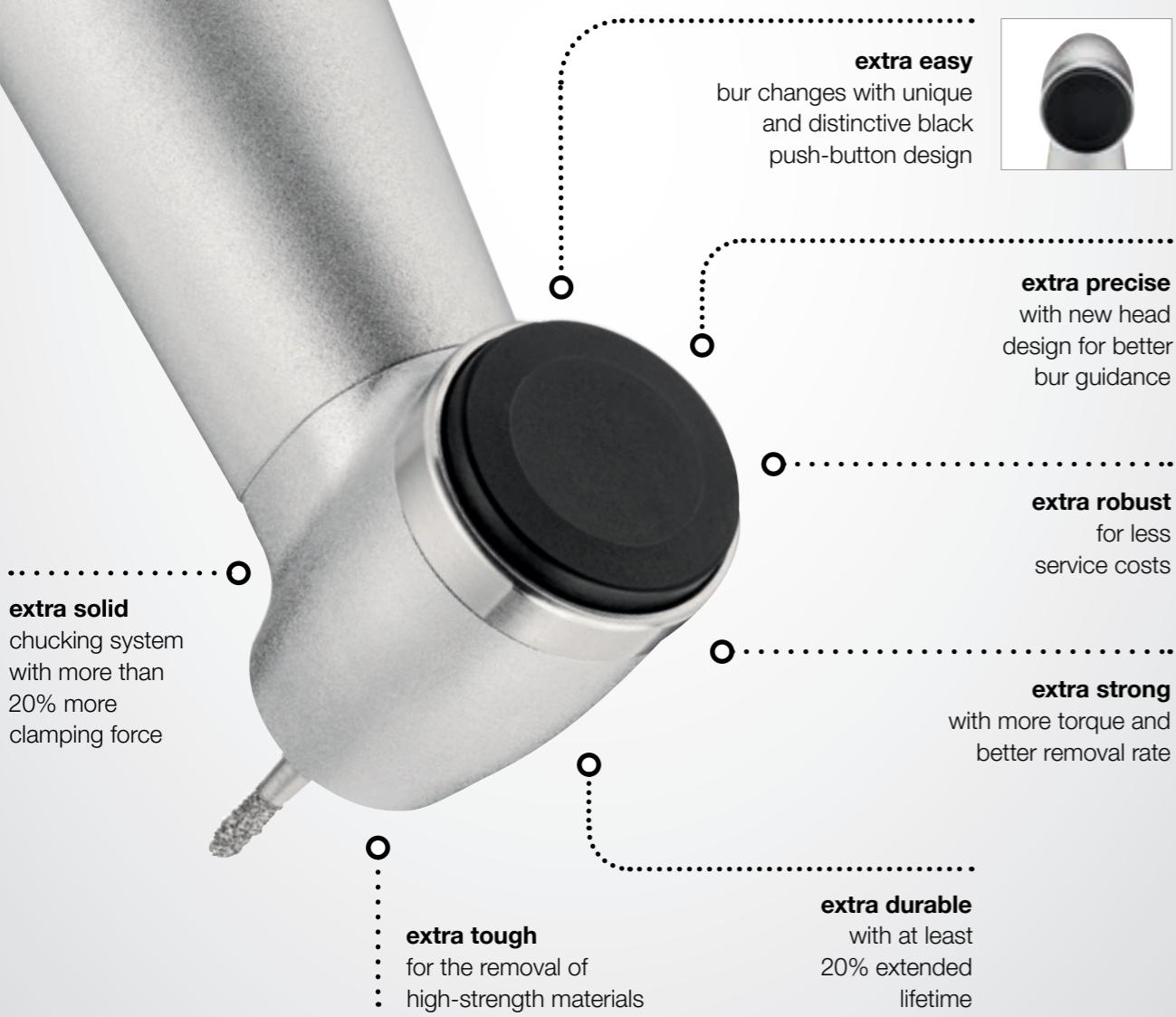
NEW



**synea**  
POWER EDITION

## High-performance handpieces for high-strength materials

The Synea Power Edition is especially designed for heavy-duty applications, such as the removal of decayed materials, cavities, fillings, crowns, and bridges. These new high-speed contra-angle handpieces with a unique black push-button are built extra strong and durable. They are the optimal solution for advanced ceramic material like zirconia that is increasingly being used in restorative dentistry. Thus, this up-to-date addition to the Synea family is the perfect complement to your existing handpiece range.



## Zirconia as restorative material: **Boone and bane**



Zirconia-based dental restorations are becoming used more commonly. However, limited attention has been given to the difficulties experienced, concerning cutting, in removing the restorations when needed. (1)

Dental zirconia has posed a problem in removal [...] due to its high flexural strength and hardness. Attempts to section dental zirconia often result in destroying multiple burs, loss of chair time, and frustration by the dentist and patient. (3)

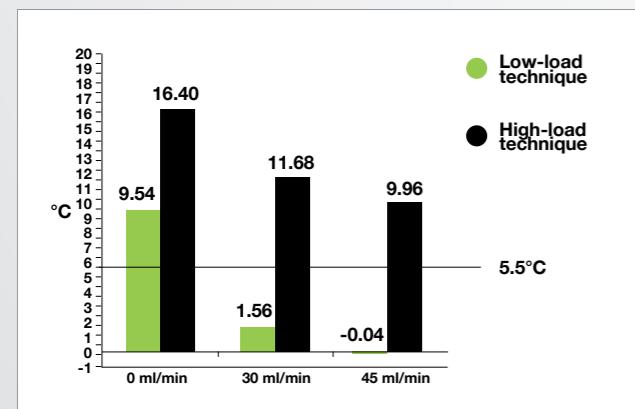
[...] cutting of Zir [Zirconia] took about 1.5- and 7-fold longer than cutting of LD [lithium disilicate glass-ceramic] and L [leucite glass-ceramic], respectively. (1)



# zirconia

The removal of zirconia restorations is a demanding procedure. Conventional contra-angle handpieces are struggling to keep up with cutting performance. Applying even more load to improve removal rate wears out the bur much faster (1) and may risk thermal damage to vital teeth (2). With the Synea Power Edition cutting efficiency is improved without having to apply extra heavy loads.

**Higher power. Lower loads.** The extra strong handpieces take on high-strength material in less time and with less effort compared to standard contra-angle handpieces. With an optimised gear ratio, they ensure the optimum bur speed and provide the additional torque required to cut hard materials efficiently.



## Generated heat vs. load-technique

Studies show that temperature increases far above the critical 5.5° limit when using a high-load technique, even with higher water flows. These findings confirm the necessity of a high water flow as well as a low-load cutting technique. (2)

## Studies show that

[...] high cutting force will decrease cutting efficiency on zirconia, rather than improve it. (1)

[...] a higher force for cutting of Zir [...] increases the damage to the diamond burs, resulting in a decrease of the total cutting depth. (1)

[...] higher force may cause more damage to super coarse burs, which may decrease their cutting efficiency over time. (3)



## Optimised gear ratio for better removal rate

Cutting efficiency is maximised by the optimum ratio of torque and speed. Heavy-duty applications require additional torque for the recommended bur speed. A contra-angle handpiece with a transmission rate of 1:4 is an especially convenient solution, since it always provides the optimal bur speed of 160,000 rpm recommended by most bur manufacturers without having to change the standard setting of 40,000 rpm on the electric motor.

## Longer service life, less service costs

When cutting harder materials, conventional contra-angle handpieces are subject to considerable wear. Long downtimes and high maintenance costs are the result. In contrast, Synea Power Edition contra-angle handpieces are extra durable and feature an especially robust clamping system. They are less susceptible to mechanical failures and offer an incomparably longer service life of at least 20% compared to standard transmission instruments.

# Solid



### Extra robust chucking system for higher clamping force

With an unbelievable 20% increase in clamping force, the newly designed FG chucking system is made for heavy-load applications.

## Chic and functional: New push-button design for easier bur change

Even rotary instruments designed for heavy-load applications show decreasing removal rate over time when cutting hard materials (1, 4). To keep up with cutting performance, rotary instruments need to be changed more frequently. Hence, you will appreciate the newly designed black push-button of the Synea Power Edition. It makes the bur change noticeably easier as forces are better distributed.

### Scientific findings

[...] cutting efficiency continually worsened over time due to the damage sustained by the burs and by debris accumulation. (4)

Bur cutting efficiency is maximized for all burs when limiting the cutting time of 3Y-TZP to 100 seconds with a new diamond bur. (3)

[...] it is recommended that, in order to cut a zirconia prosthesis, diamond burs with SC grains (in which the grain size is about 300 µm) should be used with a cutting force of 0.9 N and the bur should be replaced with a new one at certain intervals (i.e. after 10 min of operating time). (1)



## More power at all levels



### New head design and optimal ergonomics

For better bur guidance, the head is placed slightly higher. With the optimised shaft design, a secure grip and a perfect balance is ensured, especially in combination with the small electric motors from W&H.



### Multiple spray with high water flow for proper cooling

Spray droplets have higher moistening capabilities and achieve better cooling than a water jet. The bur also gets cleaned of debris more efficiently, which supports the overall cutting ability. In addition, the higher the coolant flow, the higher the cutting efficiency (3). With three enlarged nozzles smartly placed around the bur and a water flow of more than 50 ml/min, the Synea Power Edition provides an impressive cooling and cutting level. The integrated maintenance-free spray filter reliably prevents nozzle clogging and ensures a constant high-water quality.

## All good things come in threes

With the special Synea 900-series, W&H has designed three extra powerful speed-increasing transmission instruments. The premium line of the Synea range – the Synea Vision – is complemented with the WK-900 LT, while the Synea Fusion portfolio is reinforced with the WG-900 A and the WG-900 LT.



### Synea qualities at a glance

In addition to the extra robust design and the optimised gear ratio, this series of especially strong contra-angle handpieces features all the proven Synea qualities, such as:

- Ceramic ball bearings for smooth operation with less vibration
- Monobloc design for better hygiene
- HeatBlocker technology that keeps the push-button cool, to protect you and your patients from burns
- Compact glass rod for constant light quality and the optimal illumination of the treatment site (WK-900 LT/WG-900 LT)
- ScratchBlocker coating for long-term value retention (WK-900 LT)
- 36-month warranty (WK-900 LT) and 24-month warranty (WG-900 LT/A)

power  
Edition

power  
Edition



# Powerful



Dr Simon Enzinger, Salzburg (Austria): "Simply ingenious, the four-wheel drive among contra-angle handpieces!"

Dr Klaus Kohlpaintner, Bürmoos (Austria): "I am thrilled with the clamping system, it offers a better workflow when changing burs!"

Dr Romana Krapf, Weißenhorn (Germany): "The Jeep® among contra-angle handpieces: robust, less susceptible to repair, reliable!"

Dr Florian Krekel, Munich (Germany): "A safe contra-angle handpiece for crown or bridge removal that also protects existing contra-angle handpieces!"



Product name:	Synea Vision	Synea Fusion	Synea Fusion
Type:	WK-900 LT	WG-900 LT	WG-900 A
Head size:	Ø 10.7 mm		
Head height with bur (19 mm):	22.9 mm		
Rotary instruments:	FG bur		
Max. working part diameter:	Ø 2.5		
Max. length:	25 mm		
Transmission ratio:	1:4		
Max. bur speed:	160,000 rpm		
Spray:	3x (> 50 ml/min)		
Light (compact glass rod):	Yes		
Light intensity:	25,000 lux		
Coupling:	ISO 3964		
Areas of application:	Removal of decayed materials, cavities and crown preparation, removal of fillings		
ScratchBlocker:	Yes		No
HeatBlocker:		Yes	
Warranty:	36 months	24 months	





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# W&H couplings

Versatile system interfaces



rotQ quick

## Versatile system interfaces

The Roto Quick coupling is a connector that transfers the distribution of air, water, electricity and light between the supply hose of the dental unit and air drive.



### Versatile

For all turbine handpieces, air motors and scalers with Roto Quick connections.



### Compatible

Compatible with all standardized turbine hoses.



### Hygienic

Non-retraction valve reduces the backflow of contaminated spray water and minimizes the risk of infection.



### Intelligent

The power transmission enables you to take advantage of revolutionary technologies, such as the 5x Ring LED+.



### Flexible

360° instrument rotation for easy and ergonomic handling.



### Ergonomic

Lightest system available to date.



### Customizable

Continuous regulation of the spray water supply for rapid adjustment by the user – even during treatment.



# W&H Roto Quick couplings

Light, flexible and sterilizable:  
W&H Roto Quick couplings are versatile and suitable for use with transmission instruments with LED+, LED and halogen lights. 24 months warranty (except RQ-53 and RQ-54 with 12 months warranty).



Roto Quick couplings:	RQ-03	RQ-04	RQ-14	RQ-24	RQ-34	RQ-53*	RQ-54*
<b>Light:</b>	–	–	–	Yes	Yes	Yes	Yes
<b>Spray regulator:</b>	–	–	Yes	–	Yes	–	–
<b>Connection:</b>	2(3)-hole	Standard 4-hole	Standard 4-hole	6-hole	6-hole	2(3)-hole	Standard 4-hole

\* with integrated light generator



## W&H coupling for Multiflex®\* connection:

<b>Light:</b>	LED
<b>Spray regulator:</b>	Yes
<b>Connection:</b>	6-hole



## W&H RM-34 LED coupling for Multiflex®\* connection

Simple and uncompromising: The W&H RM-34 LED coupling is ready for use right away. This means: The coupling with LED can be used in addition to conventional halogen couplings without making the slightest changes to the dental unit. Long lifespan – 24 months warranty.

\* Multiflex® is a trademark of Kaltenbach & Voigt GmbH, Germany

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# W&H couplings

Versatile system interfaces



rotQ quick

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<b>Light:</b>	–	–	–	Yes	Yes	Yes	Yes
<b>Spray regulator:</b>	–	–	Yes	–	Yes	–	–
<b>Connection:</b>	2(3)-hole	Standard 4-hole	Standard 4-hole	6-hole	6-hole	2(3)-hole	Standard 4-hole

\* with integrated light generator



## W&H coupling for Multiflex®\* connection:

<b>Light:</b>	LED
<b>Spray regulator:</b>	Yes
<b>Connection:</b>	6-hole



## W&H RM-34 LED coupling for Multiflex®\* connection

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# Compact. Lightweight.



## LED light

The LED in the air motor guarantees optimal view and illumination of the treatment site.



## Excellent ergonomics

Easy 360° rotation of the contra-angle handpiece on the motor and the short, lightweight design ensure fatigue-free operation.



## Fast removal of tooth structure

Extremely powerful motor for efficient operation with high torque.

# Air motors

# Technical data

CE 0297 135°C

Type:	AM-25 L RM	AM-25 A RM / AM-25 E RM / AM-25 RM	AM-25 A BC / AM-25 E BC / AM-25 BC	AM-25 LT* / AM-25 A*	AM-25 RQ
<b>Coupling hose end:</b>	Fixed connection Standard 6-hole	Fixed connection Standard 4-hole	Fixed connection Borden 2(3)-hole	Roto Quick	
<b>Light (LED version):</b>	Yes	–	–	Yes / –	–
<b>Spray:</b>	Internal	Internal / External / –	–	Internal / Internal	–
<b>Weight:</b>	77 g	78 g / 75 g / 73 g	78 g / 74 g / 73 g	82 g / 84 g	71 g
<b>Power:</b>			30 W		
<b>Speed range (min<sup>-1</sup>) at an operating pressure of:</b>			2.5 bar: 5,000–20,000** 3 bar: 5,000–25,000**		
<b>Direction of rotation:</b>			Forward / Reverse drive		
<b>Warranty:</b>			24 months		

\* Not suitable for thermal washer disinfector.

\*\* The power and speed of air drives depend on the quality of the turbine hose and may differ from the specified value.

CE 0297 135°C

Type:	AM-20 E RM / AM-20 RM	AM-20 E BC / AM-20 BC	AM-20 RQ
<b>Coupling hose end:</b>	Fixed connection Standard 4-hole	Fixed connection Borden 2(3)-hole	Roto Quick
<b>Light (LED version):</b>	–	–	–
<b>Spray:</b>	External / –	–	–
<b>Weight:</b>	58 g / 55 g	57 g / 55 g	54 g
<b>Power:</b>	30 W		
<b>Speed range (min<sup>-1</sup>) at an operating pressure of:</b>	2.5 bar: 5,000–20,000* 3 bar: 5,000–25,000*		
<b>Direction of rotation:</b>	Forward / Reverse drive		
<b>Warranty:</b>	24 months		

\* The power and speed of air drives depend on the quality of the turbine hose and may differ from the specified value.

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# Electric motor

## Functionality meets comfort

Powerful. Versatile. Small.



# Perfect balance

## of power and ergonomics

W&H brushless electric motors offer impressive functionality and comfort. They are particularly small and surprisingly lightweight, are comfortable to hold and, in addition to the consistently high power, also score extra points with features such as LED technology, long service life and quiet operation.



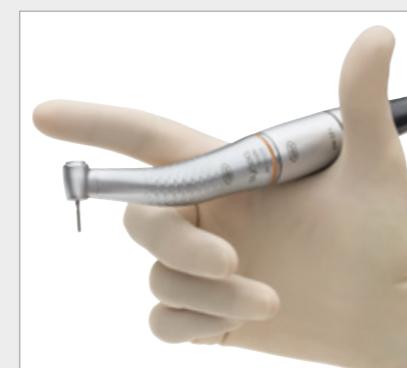
### Particularly small

The comparison shows: the W&H electric motors are no larger than a matchbox.



### 25% lighter, 15% shorter

Combine the EM-12 L or EM-11 L with the contra-angle handpieces from the Synea Vision Short Edition range for a considerably shorter and noticeably lighter complete system. This makes it possible to satisfy the highest ergonomic demands and effectively avoid fatigue, even when working for extended periods of time.



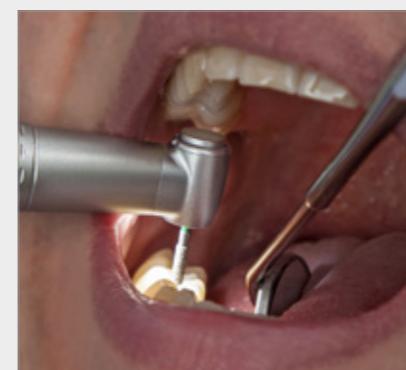
### Perfectly balanced

Short, slim and lightweight: ideal weight distribution means the electric motors from W&H are perfectly balanced in your hand.

**Compatible**  
ISO short coupling: can be used with all conventional straight and contra-angle handpieces, including Short Edition.



**Consistently high power**  
High power, reliable durability and a broad spectrum of speeds from 100 to 40,000 rpm.



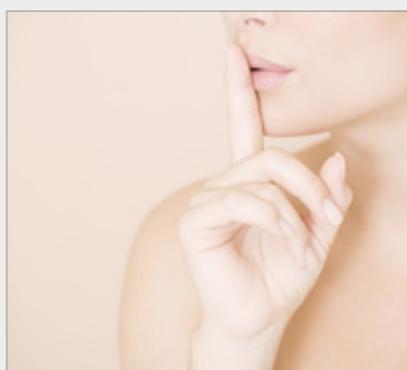
### Improved visibility with LED light

The LED technology integrated in the motor enables the treatment site to be illuminated as bright as day.



### Low maintenance and preserved value

The long-lasting brushless drive means reduced service and maintenance costs plus increased service life.

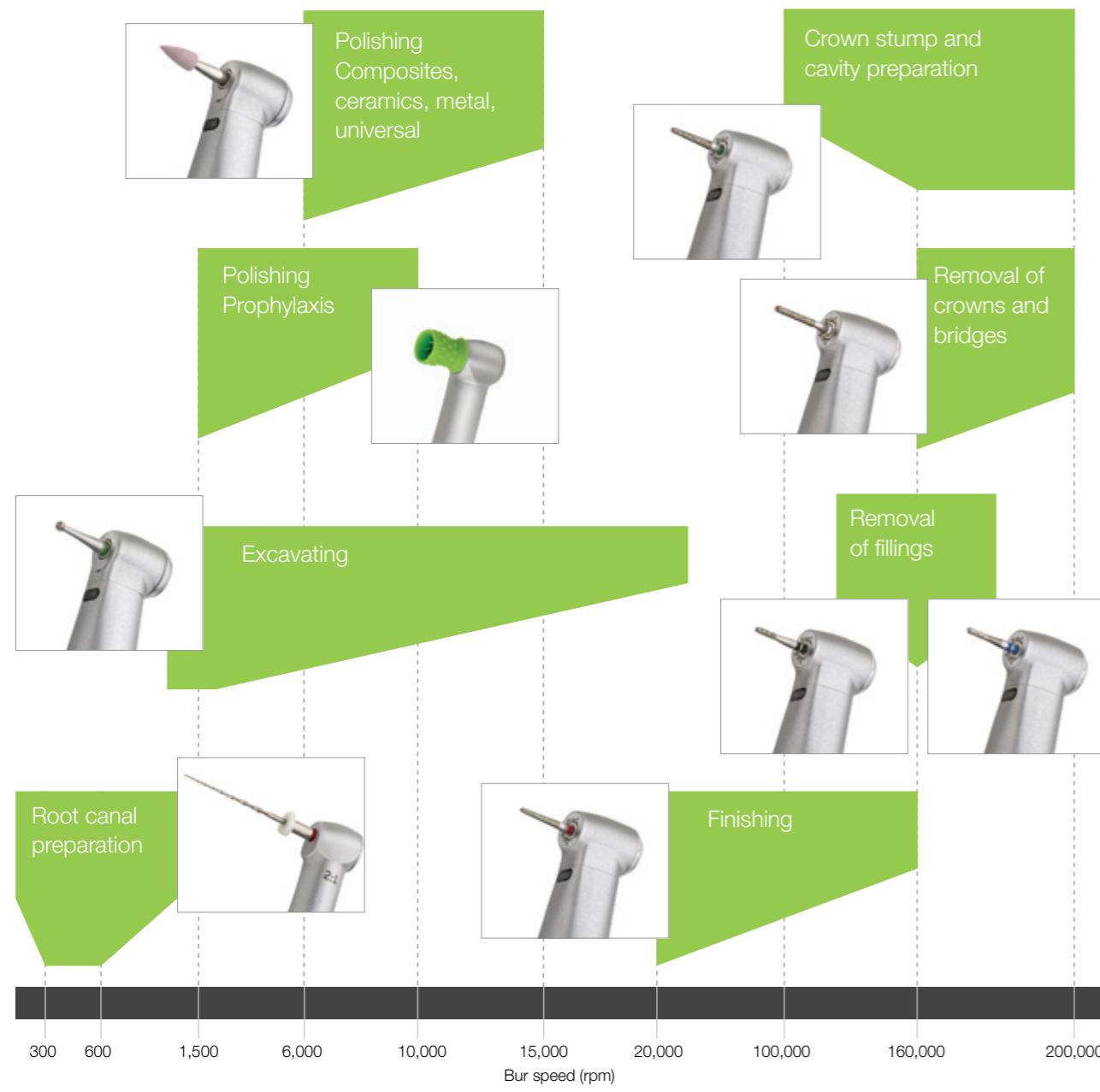


**Quiet and low vibration**  
Extremely quiet and largely vibration-free operation thanks to sensor-controlled drive technology.

## Range of applications with electric power

You can prepare, excavate, polish and even perform endodontic treatments with the EM-12 L: simply select the transmission instrument, set the speed and work with the recommended bur speeds.

For optimal treatment results in a wide range of applications.



## An ingenious system

The W&H EM-12 L electric motor is ideal for integrating into your individual workflow. You can either choose the smart add-on with flexible installation options or take advantage of a built-in solution with convenient full integration into your dental unit.



### Add-on

If you use the add-on as a tabletop device, the sterilizable tray offers an additional storage area.



### Removable display

The display can be removed from the add-on and can be positioned independently from the control module.



### Installation options

You can also install the add-on below or on the side of the table used for your dental unit.



### Built-in solution

Select unit manufacturers offer both W&H electric motors as a fully integrated drive solution as part of the overall system. Operation is simple and convenient via the control panel of your dental unit. Ask W&H or your unit manufacturer about the W&H electric motor range as a built-in solution.



# The choice is yours

With or without the endo function, the EM-12 L electric motor is always reliable and capable. Equip your dental unit with innovative drives and new functionalities from W&H. W&H's straight and contra-angle handpieces are suitable for a wide range of applications.



## Built-in motor with control knob

The EM-12 L for restoration, prosthetics and prophylaxis has a speed range of 2,000 to 40,000 rpm.



## Built-in motor with display

Easy operation via the display enables precise speed setting.



## Built-in set with two motors

One display and two motors mean you have at your disposal the perfect contra-angle handpiece for both low and high speed applications.



## Endo systems for all situations

W&H endo systems for automated preparation of the root canal for even safer and more precise preparation.



## Integrated endo function

Expand your range of treatments: the integrated EM-12 L with endo function has a speed range of 100 to 40,000 rpm. The electronic torque control minimises the risk of file breakage.

# Technical data



Electric motor	EM-12 L	EM-11 L
<b>Speed range*:</b>	100–40,000 min <sup>-1</sup>	2,000–40,000 min <sup>-1</sup>
<b>Maximum power:</b>	59 W	
<b>Length (effective, without ISO connection):</b>	31.55 mm	
<b>Weight:</b>	57 g	
<b>Noise level:</b>	43 dB (A)	
<b>Light:</b>	LED	
<b>Spray:</b>	internal	
<b>Cooling air:</b>	6–8 Nl/min	
<b>Direction of rotation:</b>	forward/reverse operation	
<b>Instrument coupling:</b>	ISO 3964 (short) compatible	
<b>Warranty:</b>	24 months	
<b>Endo function:</b>	yes	no

\* Speed range dependent on motor/system variants



Add-on control unit for EM-12 L	MF-100
<b>Speed range:</b>	2,000–40,000 min <sup>-1</sup>
<b>Supply voltage:</b>	100–240 V, 47–63 Hz
<b>Dimensions (height x width x depth):</b>	92 x 156 x 211 mm
<b>Weight:</b>	1.06 kg
<b>Warranty:</b>	24 months



## EM-11 L built-in set

The EM-11 L is the latest fully integrated drive solution from W&H. It was specially developed for restorative and prosthetic applications, but also features an LED light and is just as small, lightweight, quiet, powerful and durable as the EM-12 L.



# Electric motor EM-12 L

## Functionality meets comfort



### Expert tip

**Dr Sergio Ariosto Hernández Delgado**

Mexico City, Mexico

An electric motor with high-speed contra-angle handpieces is the best choice for the preparation of CAD/CAM treatments:

"The most important benefits that I can comment on from my own experience are the following: control of the preparation, precise, neat and uniform margins that are easy to scan. Less vibration compared with turbine handpieces, thus less fatigue and force required during the preparation procedure."

Read the full interview at [wh.com](http://wh.com)

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