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Strong

Synea Power Edition:
For the hardest materials.



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.



extra easy
bur changes with unique and distinctive black push-button design



extra precise
with new head design for better bur guidance

extra robust
for less service costs

extra solid
chucking system with more than 20% more clamping force

extra strong
with more torque and better removal rate

extra tough
for the removal of high-strength materials

extra durable
with at least 20% extended lifetime

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.

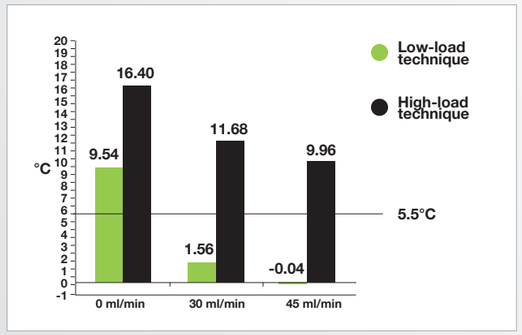
Higher power. Lower loads. The extra strong handpieces take on high-strength material in less time and with less effort compared to standard contra-angle handpieces. With an optimised gear ratio, they ensure the optimum bur speed and provide the additional torque required to cut hard materials efficiently.

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)



Mean value of temperature variation in relation to the 5.5° C limit line

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)

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



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!”

CE 0297

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:	3× (> 50 ml/min)		
Light (compact glass rod):	Yes		No
Light intensity:	25,000 lux		n. a.
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	

Bibliography

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