

REALITY NOW

THE INFORMATION SOURCE FOR ESTHETIC DENTISTRY

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25th Anniversary

The Ratings | HANDPIECES – AIR – HIGHSPEED

Editor's Note: Highspeed air turbine handpieces have ruled the North American market for many years and, for the most part, they have performed satisfactorily, even though it is well known that air turbine handpieces lose torque when the bur hits the tooth. This power loss experienced by air-powered handpieces has led to the emergence of electric handpieces, which are the standard in Europe and are beginning to take hold in other areas of the world.

The electrics have tremendous torque, which tends to increase when the bur hits the tooth so that your cutting power is constant. However, electric handpieces are significantly heavier than air-powered versions and may not be easily integrated into an existing dental unit.

This report features two, air-powered handpieces, one of which claims to bridge the gap between electric and conventional air-powered versions, while the second instrument purports to offer first class performance at an economy price. The third commentary in this issue is a FirstLook preview of what we believe is the first truly disposable highspeed handpiece that presumably can handle virtually all operative procedures. Read on to see if these products achieve their lofty goals.

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(4.5)



RAVES & RANTS

- + Awesome torque
- + Doesn't stall when heavy pressure is applied
- Installation requires an advanced engineering degree
- Entry level price is relatively steep

MANUFACTURER

Dentsply Professional
www.stylusatc.com

WARRANTY

2 years (handpieces)
3 years (control box,
coupler, and tubing)

PRICES

SYSTEM

\$4,788.00 (includes
2 handpieces, control
box, coupler, and cords)

REPLACEMENT HANDPIECES

\$1,469.00

Midwest Stylus ATC

NEW

INTRODUCTION/MANUFACTURER'S CLAIMS

Air-powered highspeed handpiece that looks and feels like the handpiece you may be using right now. The real advantage of the ATC over conventional air-powered handpieces is its coupler and control box. This is where the ATC (Adaptive Torque Control) comes from. As explained by the manufacturer, a sensor in the coupler tells the control box you are about to cut through, for example, a nonprecious metal coping to remove a crown and you need more power. The control box, which is referred to as an electronic "brain", then increases the air pressure that gives the handpiece the turbo boost necessary to cut through the hard metal. For light cutting tasks, the opposite effect is supposed to occur, i.e., adequate torque at low speeds. In addition, the turbine has been redesigned to handle the higher air pressures.

This is actually the second version of the ATC and, according to one evaluator, is far better than the first, in which the automatic torque controller was inconsistent.

HANDPIECE

Contemporary, almost seamless design with numerous shallow dimples to facilitate a positive grip.

CONTROL BOX

Cream plastic. Measures 4.9in/12.5cm long, 3.9in/10.0cm wide, and 2.0in/5.0cm high. It needs to be mounted somewhere inconspicuously near your dental unit and comes with integral tubing that replaces whatever you are using now. Our unit was mounted on the arm behind our continental-style, dental delivery unit.

LIGHT INTENSITY (LUX)

12,800. This level of illumination is the highest we have ever recorded for an air-powered handpiece (although two electrics tested higher). Half of the evaluators thought it seemed brighter than most other handpieces, 40% felt it was about the same, and 10% wanted more light.

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WATER SPRAY

4-port, arranged around the bur for the full-sized version.

1-port for the mini version.

Half of the evaluators thought it did an excellent job keeping the prep cool and visible, another 20% thought it was about the same as other high-speeds, while the remaining 30% had problems with the water spray. One evaluator was not able to adjust the water below firehose quantities, while another one stated that the water spray did not start until the handpiece had been activated for 20-30 seconds.

Since the test units at **REALITY** did not exhibit these issues, we suspect the water spray problems were the result of improper installation. This system does indeed require more diligence during its installation and some techs may not have had proper training. Therefore, if your system does not seem to be performing properly, it could be that it wasn't installed as directed by the manufacturer.

DURABILITY (TURBINE)

Minimum guaranteed 1,250 sterilization cycles. With all the new technology built into this handpiece, one evaluator was hopeful, but somewhat anxious over its long-term durability.

NOISE (DBA)

70 @ 73 psi. Among the quietest we have tested. While our sound meter is not discriminatory and records all sound emitted by the handpiece, the pitch or "shrillness" of the ATC is audibly lower than other air-powered handpieces and should cause less shivers from your patients. Half of the evaluators thought it was quieter than other highspeeds while the other half thought it was about the same.

TORQUE

21 watts. Most (60%) of the evaluators thought it cut better than other high-speeds, while the other 40% considered it on par with others. An even higher percentage (70%) stated that the ATC didn't lose power when heavy cutting was performed, while the other 30% could not "feel" the increased power as more pressure was applied to the bur.

In addition, 60% of the evaluators did not notice the momentary, turbo-like lag when you first apply pressure to the foot control. After this short hiccup, the handpiece accelerates quickly similar to a turbo-charged engine in a sports car. Of the 40% of the evaluators who noticed the lag, only one commented it was slightly bothersome.

One evaluator stated that the ATC was significantly more powerful than other air-powered highspeeds, but another evaluator commented that it was difficult finding a comfortable cutting pressure. Still another evaluator could not feel the difference between the ATC and other, air-powered handpieces and was even able to stall out the bur with heavy pressure. However, the evaluator with the stall-out problem also had water spray problems, indicating again that the performance was probably affected by an installation problem, since we were unable to stall out any of our in-house test units.

MAXIMUM OPERATING SPEED

330,000 rpm

MAXIMUM OPERATING PRESSURE

80 psi

RECOMMENDED OPERATING PRESSURE

73 ± 5 psi

WEIGHT (INCLUDING COUPLER)

3.3oz/93.6g. Middle of the air-powered pack, but much less than even the lightest of the electrics. Most (70%) of the evaluators thought it felt about the same compared to other highspeeds, while 20% thought it was lighter and 10% thought it was heavier. One evaluator commented that he considered it too lightweight and wanted it to weigh more.

BALANCE

Very good. Half of the evaluators thought its balance and comfort were on par with other highspeeds, 40% felt it had better balance, and 10% did not think it was as balanced and/or comfortable to hold compared to other high-speeds. One evaluator commented that it was much better than electrics.

HANDPIECE DIMENSIONS (MM)

Diameter	16.4mm
Length	120.0mm

HEAD DIMENSIONS (MM)

<i>Full-size</i>	
Diameter	10.7mm
Length (w/330 bur)	21.4mm

<i>Mini</i>	
Diameter	10.7mm
Length (w/330 bur)	21.3mm

Note: The length of mini head is 19.8mm with a short shank bur.

One evaluator preferred the mini head over the regular one, while another evaluator thought the mini head was still too large.

ANGLE OF THE HEAD

108.5°. Most (67%) of the evaluators considered its angle about the same as other highspeeds, 22% thought it was better, and 11% thought it was not as good. One evaluator in particular preferred a more obtuse angle.

MAINTENANCE

Most (90%) evaluators found it about the same as other highspeeds when it came to cleaning and lubricating it, while the other 10% considered it easier to perform these procedures. Its satin-like finish is smooth and easy to clean.

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RAVES & RANTS

- + Strong illumination
- + Very inexpensive
- Torque is just mediocre
- Gap between handpiece and coupler

MANUFACTURER

Spring Health
www.springhealthproducts.com

PRICES

HANDPIECE
\$425.00

COUPLERS
\$145.00 for 5-hole w/ conventional bulb
\$180.00 for 6-hole w/ LED bulb

WARRANTY

1 year for shell
6 months for turbine

Spring 705 **NEW**

INTRODUCTION/MANUFACTURER'S CLAIMS

Full size with ceramic bearings, which is stated to reduce weight, friction, and heat. It has a conventional, highly polished design with a diamond-shaped pattern near the head to facilitate a positive grip. Most (75%) of the evaluators considered its design to be similar to other highspeed handpieces, while the other 25% thought it had a better design. However, when you seat the handpiece on the coupler, a gap remains between the two sections that makes you think that the handpiece is not installed properly.

LIGHT INTENSITY (LUX)

11,500 (w/ LED bulb). Half of the evaluators thought it provided more light compared to the competition, while 25% felt it was about the same as other units and 25% considering that it needed more light.

WATER SPRAY

3-port, arranged around the bur.

DURABILITY (TURBINE)

Minimum guaranteed 400 sterilization cycles.

NOISE (DBA)

73 @ 32 psi. Most (75%) of the evaluators thought it was about the same as other units while the other 25% considered it to be quieter than other highsPEEDS.

TORQUE

18 watts. Half of the evaluators considered on par with others, while the other half thought it did not cut as well.

MAXIMUM OPERATING SPEED

400,000 rpm

MAXIMUM OPERATING PRESSURE

40 psi

RECOMMENDED OPERATING PRESSURE

32-34 psi

WEIGHT (INCLUDING COUPLER)

3.0oz/85.0g. Most (75%) of the evaluators thought it felt lighter compared to other highsPEEDS, while 25% thought it was about the same.

BALANCE

Half of the evaluators found it to be more comfortable to hold and balance compared to competing units, 25% thought it was about the same, and 25% did not like it as much in this regard. In terms of ease of use, all the evaluators considered it to be about the same as other handpieces. Furthermore, most (75%) of the evaluators felt controlling the handpiece was similar to others, with 25% believing it wasn't as good.

HANDPIECE DIMENSIONS (MM)

Diameter	16.8mm
Length	123.0mm

HEAD DIMENSIONS (MM)

Diameter	11.1mm
Length (w/330 bur)	21.8mm

ANGLE OF THE HEAD

104°

MAINTENANCE

All evaluators thought its cleaning and maintenance tasks were about the same as other units.

REALITY

MIDWEST STYLUS ATC

Strengths Exceptional power that doesn't falter when heavy pressure is applied. Cuts very fast and smoothly with minimal vibration. Makes prepping very efficient. Cuts through gold and hard ceramics easily.

Has a sleek design and the nubs where your fingers hold the handpiece give it a nice tactile feel.

Relatively lightweight and quiet, especially the low pitch. Best-in-class illumination.

Weaknesses While the highspeed/high torque combo was easy to appreciate, the lowspeed/high torque claim was more difficult to use. Coupler doesn't rotate as easily as some competitive models. Initial system cost is significantly higher than just buying a new highspeed handpiece. Performance of the system is highly dependent on skill, training, and experience of the installer. At least two evaluators had major installation problems and other evaluators commented that the installer needed to make several visits to get it right.

BOTTOM LINE Does not possess the unbridled power of an electric, but its inventive engineering has produced a handpiece that is significantly lighter than all electrics and it will outperform conventional air-powered versions assuming its somewhat tricky installation is handled properly.

SPRING 705

Strengths Inexpensive, good balance and should be comfortable in most hands, lightweight, reasonably quiet, strong illumination.

Weaknesses Torque was found to be mediocre. Gap between the coupler and handpiece.

BOTTOM LINE Although the torque could use a boost, the 705 performs admirably, especially when you consider the bargain pricing.

FirstLook | HANDPIECES – AIR – HIGH SPEED – DISPOSABLE



Azenic DHP

NEW

Azenic

www.azenic.com

PRICES:

\$276.00/12 (\$23.00 ea)

What happens if your favorite highspeed air turbine handpiece has a maintenance issue or is firmly ensconced in the autoclave when you really need it? You will probably grab for another handpiece that may or may not be in prime working condition. Another option would be to use a brand new handpiece that comes in a sealed and sterile bag and never requires lubrication, cleaning, or autoclaving. That's because the handpiece is disposable – use it once and throw it away.

That's the idea behind the azenic DHP (disposable hand piece). It is being marketed as fast, strong, lightweight, precise, ergonomic, and reliable. Pretty heady claims for a plastic handpiece. And, amazingly, we agree with virtually all of them as long as you keep in mind that this instrument is, indeed, plastic and it is meant to be disposable.

In the first place, it looks like a conventional, air-powered handpiece. And, a pretty cool one at that, with a metallic silver-like ABS molded plastic cladding and a textured finish that keeps it from slipping in your hand even when it's wet. Its length, 126.7mm measured from the tubing connection, is virtually the same as many metallic handpieces. Although at its widest, its diameter is 20.1mm, which makes it more rotund than most metallic versions, it doesn't really feel bulky in your hand. Even the length (22.4mm), width (12.7mm), and angle (108°) of the head are within normal parameters.

In addition, you would be hard pressed to find a handpiece weighing less than the DHP, which is 0.6oz/17.0g. Contrast that with conventional handpieces that typically weigh 3.3oz/93.6g and you can appreciate why it feels feather light in your hand.

It attaches to your dental unit's tubing directly – as expected, there is no coupler. The 1-port water spray is adequate and there is a fiber optic rod running through it if you still have an old-style light source at the base of your dental chair and which transmits light through your tubing. But, since the light source of most contemporary handpieces is in the coupler, you will probably not be able to take advantage of its fiber optic potential.

The procedures for inserting and changing burs are also a throwback to a simpler era before the advent of push-button chucks. With the DHP, you insert a bur into the chuck and then apply pressure by pushing the end of the bur against the small concavity on the backend of the violet plastic cap that you remove from the back of the handpiece before connecting it to your delivery system. To remove the bur, you are told to merely grab it with your fingers and pull it out or you insert the thin metal rod in the aforementioned cap into the hole in the back of the DHP and push the bur out. We found pulling the bur was an exercise in futility, so pushing it out is definitely the method of choice.

In our short clinical evaluation for this preview, we were impressed with its 20 watts of cutting power and a top speed of 325,000 rpm – it performs with authority. And, since it is being promoted as a complement, not a replacement, for conventional handpieces, we found it lives up to its bluster. On the other hand, make sure you don your earplugs – its noise test produced 92.6 dBA, which is the highest reading we have ever recorded.

At \$23 each, the cost of these handpieces could add up pretty quickly, so using them judiciously would be a wise move. Nevertheless, for those times when you need a reliable backup or when you perform outreach services, the DHP could be one less item to worry about.