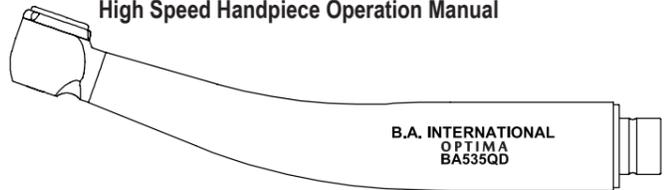


# BA-Optima

**BA535QD/BA538QD** Tiger 300N T<sup>+</sup> /Tiger 300N M<sup>+</sup>

High Speed Handpiece Operation Manual



## 1. Product Description



- Compatible with NSK® QD-J®
- Head size (BA535QD: standard, BA538QD: mini)
- Quadruple spray hole
- Press chucking
- Accessories: cleaning brush, nozzle cleaner needle

Indications for Use: BA535QD/BA538QD series high speed handpieces are intended for dental professionals for removing carious parts of tooth, proceeding cavity and crown preparations within a clinical environment.

## 2. Specifications

Head size	BA535QD(standard), BA538QD(mini)
Spray holes	Quadruple
Connection	NSK® QD-J®
Rotating speed (rpm)	BA535QD ≥ 300,000 BA538QD ≥ 350,000
Bur size-diameter / length (mm)	φ1.59~ φ1.60 / BA535QD(19-25) ; BA538QD(16-21)
Drive air pressure (bar)	2.7~3.3
Suggested drive air pressure (bar)	3
Water flow rate (ml/min)	>50
Water pressure (bar)	0.8~2.0
Air pressure (bar)	1.0~3.0

- Air pressure must be higher than water pressure. \*BA535QD: standard head BA538QD: mini head  
\*Pressure values are measured by multi gauge.

Air compressor and other devices used by the handpiece must be in accordance with ISO requirement. (MUST set air pressure higher than water pressure before operation.)

1. Using contaminated water and compressed air containing moisture, impurity or oil to drive air could shorten the lifetime of the cartridge/rotor, and block the spray nozzle.
2. If NOT follow the required configuration, the risks of damaging the devices and injury to people could occur.
3. Handpiece is reusable. After unpacking from package or before operating, please proceed the sterilization from step 7 to 9 by following the procedures: cleaning>lubrication>sterilization.

## 3. Safety Notes

1. If the handpiece is damaged (ie deformed caused by dropping) or improperly used (ie sterilized above suggested temperature), immediately stop using.
2. Before operation, always make sure the product and its accessories meet the specified requirements (ie drive air pressure. lubrication...etc).
3. Please contact BA International or our approved dealers with proof of purchase, whenever you have problems such as abnormal vibration, exceeding temperature or unusual noise... etc.
4. Avoid contact between the instrument head and soft tissue (risk of burning due to the press button heating up).

## 4. Installation



Fig. 1



Fig. 2



Fig. 3

1. Please follow the specification and properly use NSK® QD-J® coupling.
2. Please follow original manufacturers' operation manuals when use the above coupling.

## 5. Changing Bur

1. Follow the arrowhead direction show in the figure to take off or install the bur.
2. Put on protective gloves to reduce the risk of interactive inflection, especially not to touch the used burs without proper protection.
3. Make sure bur is tightly secured before operation, otherwise risks of injury to doctors, patients or the third party could occur.
4. Bur must be complied with ISO requirement. Burs not in good conditions such as being bent and damaged, or are deviated from ISO standards and in improper length may decrease the lifetime of the handpiece or even cause severe consequence such as injury to people.
5. Do not press the button while bur is rotating, otherwise it could harm internal parts.



## 6. Replacement of Rotor

1. Please contact BA International or our approved dealers and let the technicians replace the rotor.
2. Do not use unsuitable rotors or spare parts, otherwise could damage the handpiece and result in severe consequence during treatment.

## 7. Cleaning

1. Put on protective gloves to detach the handpiece from the coupling.
2. Use clean cloth with mild cleaning solution to clean the handpiece surface carefully, especially handpiece groove, and remove the residues.
3. Do not immerse handpiece or cartridges/rotor in disinfectant solution or water, not to be cleaned by ultrasonic process.
4. Cleaning solution must be non-erosive and harmless to human. Solution with 80%ethyl alcohol is recommended. Please also follow recommendation of the cleaning solution manufacturer for suggested usage.
5. Clean the spray nozzle with the nozzle cleaner needle when it is blocked (see above figure)



## 8. Lubrication and Maintenance

1. Use dental handpiece lubrication oil for maintenance, any unspecified oil not intended for lubricating handpieces could shorten the lifetime and harm human body.
2. To lubricate BA535QD/BA538QD series handpiece, put spray nozzle into nozzle of the lubrication oil can. Connect handpiece with the nozzle (Fig. 4) and inject lubrication oil for 2~3 seconds.
3. Be sure to lubricate the handpieces prior to sterilization and run the handpieces for 20~30 seconds to emit residual oil and dirt
4. To lubricate handpiece chucks, put Shaft Spray Nozzle into nozzle of the lubrication oil can and inject lubrication oil into the chuck (Fig. 5) for 1 second. It's recommended to lubricate chuck at least once a week and then proceeds step 2.
5. After unpacking and prior to first use, be sure to lubricate with oil and run the handpieces in low rotation speed for 30 seconds and in full speed for 20~30 seconds to emit residual oil.



Fig. 4

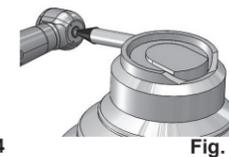


Fig. 5

## 9. Sterilization

BA International suggests sterilization in accordance with EN13060.



1. Place handpiece in single-use sterile bag and proceed steam prevacuum sterilization. Do not open the sterile bag before use in order to avoid contact infection.
2. Use qualified sterilization equipment specified by the authority/government for sterilization procedures.
3. Do not use chemical steam nor immerse handpiece or cartridge/rotor in disinfectant solution, otherwise could damage the handpiece and cause severe consequences.
4. Sterilization holding time a minimum of 4 minutes at 134°C. (drying time is 15 minutes)

## 10. Disclaimer

1. Information in this operation manual were carefully reviewed. We cannot assume any liability for any damage arising from improper use of the handpiece or from use of this manual.
  2. Products are subject to change without notice.
  3. Please refer to the bar code on the packing box for manufacturing and expiration date.
- NSK® & QD-J® are the registered trademarks of NAKANISHI INC. Japan.

## 11. Quality and Service

All of our products have passed strict QC procedures before delivery. Please note that improper use or not using the recommended parts and accessories or modifying our products without our approval may shorten the lifetime of the product or cause damage. Please contact BA International or our approved dealers or TTbio Corp. with proof of purchase for consultation whenever you have any questions.

## 12. Symbol

	Manufacturer		Sterilizable in a steam sterilizer at the temperature specified
	Consult instructions for use		European Conformity
	Caution		European Authorized Representative
	Washer-disinfector for thermal disinfection		

**EC REP**

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