



Ophthalmic Surgical System
Cube α



THE ART OF EYE CARE

Compact and Comprehensive
Powerful but Handy

Cube α

Gyro Torsional Technology



The Cube α incorporates a number of unique features for a comprehensive, handy platform to perform cataract surgery. The main console is compact, lightweight and can be separated from the stand for easy portability. This device incorporates new ultrasound technology that delivers more powerful and effective phacoemulsification. The functionality and design of the Cube α ensure excellent surgical ergonomics that minimize surgeon fatigue.

Gyro Torsional Technology

The Cube α incorporates Gyro torsional technology in a compact body. Torsional ultrasound oscillation ensures efficient delivery of ultrasound energy especially for moderate cataracts. Design enhancements increase surgical safety by protecting intraocular tissues.



Easy maneuverability

The Gyro tip for torsional ultrasound oscillation is designed to make the tip as straight as possible. The relatively straight shape of the tip enables surgeons to easily perform various surgical maneuvers.

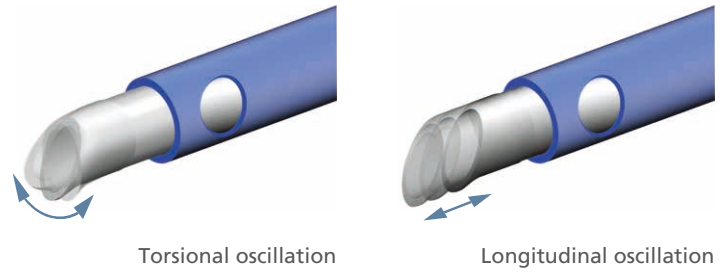
Less fluid turbulence

The Gyro tip's design which maintains a relatively straight shape, minimizes fluid turbulence during lens emulsification. Decreasing fluid turbulence from ultrasound oscillation can increase surgical efficiency.

Efficient Performance

Fragmentation ability

Torsional movement of the Gyro handpiece maximizes ultrasound energy delivery for faster lens fragmentation. Torsional oscillation improves holdability by reducing the instances of repulsion between the nucleus and phaco tip normally caused by longitudinal ultrasound oscillation.



Fluid dynamics

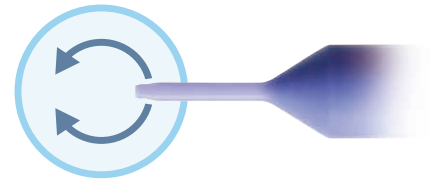
The improved stiffness profile of newly designed Neo sleeve series (Neo sleeve and MicroNeo sleeve) is unaffected by the compression force from the wound which directly relates to the fluid dynamics within the capsule. Better fluid dynamics enhance followability and increase phacoemulsification efficiency.



Flow with previous sleeve (Type SS)*



Flow with MicroNeo sleeve*

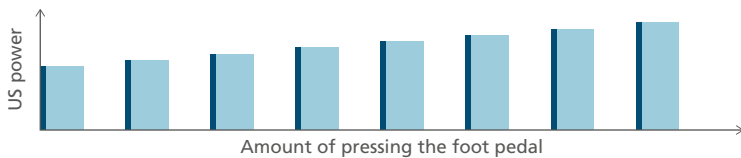


*Simulated irrigation flow through an incision on a 0.5mm silicone sheet

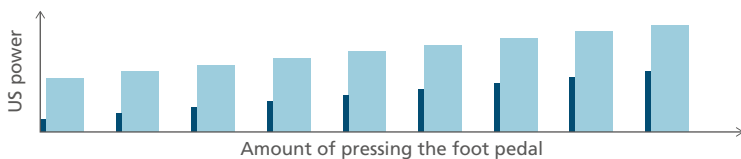
Variable ultrasound setting

Torsional and longitudinal oscillation can be combined to create customized oscillation patterns for different surgical techniques and nucleus hardness. Power and pulse duty can be controlled by varying the pressure exerted on the foot pedal.

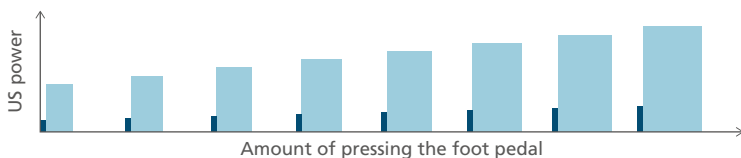
Ultrasound setting examples



- US power: Linear
- Combination ratio: Fixed
- Pulse duty: Fixed



- US power: Linear (Independent)
- Combination ratio: Fixed
- Pulse duty: Fixed

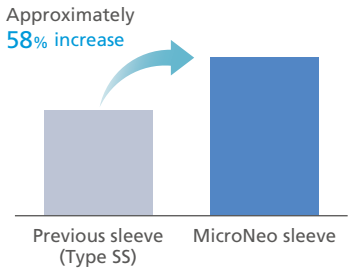


- US power: Linear (Independent)
- Combination ratio: Variable, based on foot pedal depression
- Pulse duty: Variable, based on foot pedal depression

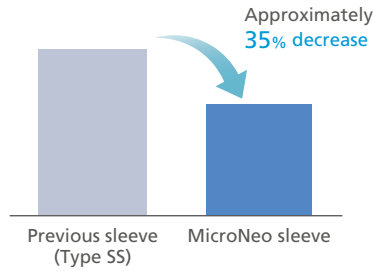
Enhanced Safety

Stable anterior chamber

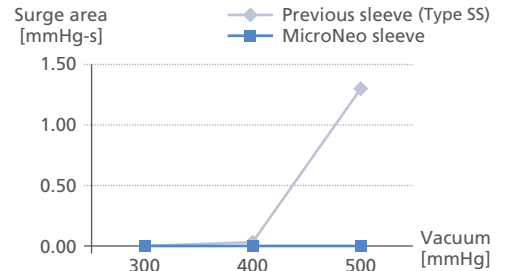
A new sleeve design provides greater irrigation into the eye to maintain anterior chamber stability. The surge area caused by occlusion break has been minimized compared to the previous sleeve.



Comparison of irrigation [mL/min]*1 (2.4 mm incision)



Comparison of change in IOP [mmHg]*1,2 (2.4 mm incision)



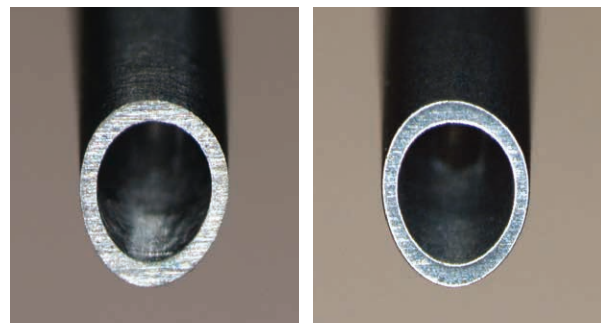
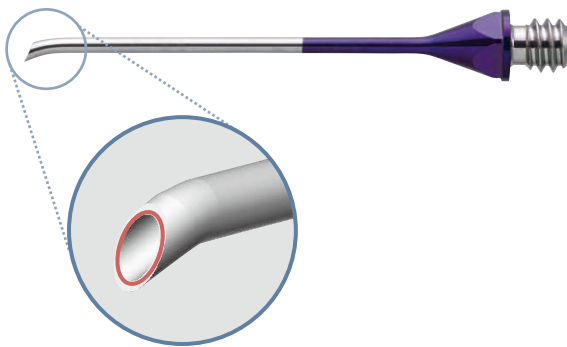
Comparison of surge area*1

*1 In-house data

*2 Standard deviation of IOP during laboratory simulations. IOP was monitored with a pressure sensor in a porcine eye using the same parameters.

Blast finished tip

The edge of the Gyro tip end is slightly rounded and textured by a blast finishing process. The unique tip end reduces the risk of ocular tissue damage during phacoemulsification.

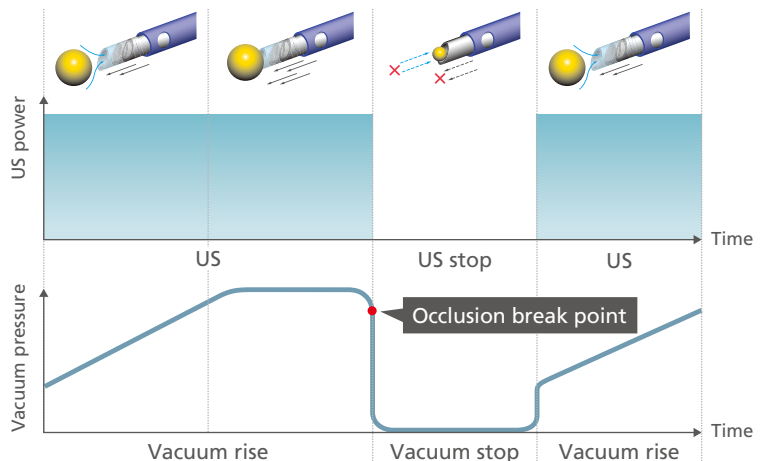


Without blast finishing

With blast finishing

US/flow restart

US/flow restart function automatically stops and restarts ultrasound and aspiration depending on occlusion status that is detected by changes in vacuum pressure. The vacuum pressure is monitored 1,000 times a second for immediate control of ultrasound and aspiration. The quick, automated control of pump function helps prevent intraoperative complications.



Postocclusion surge prevention

Selectable Tubing

The Cube α comes in two models based on the type of tubing: CV-9000 with a single-use cassette or CV-9000R with reusable tubing.



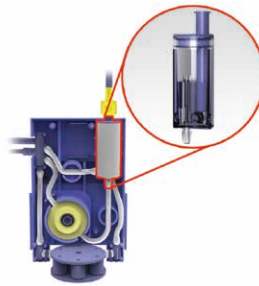
Cube α CV-9000



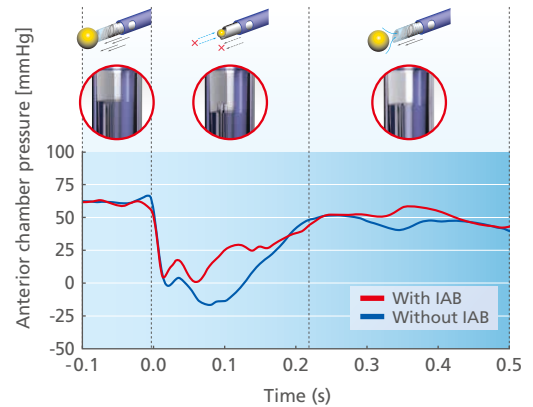
Cube α CV-9000R

Single-use cassette (CV-9000)

The phaco cassette for Cube α CV-9000 incorporates the unique irrigation assist bottle (IAB) to improve anterior chamber stability. The IAB contains irrigation solution and air. When the occlusion breaks, the air in IAB expands, instantly increasing irrigation into the anterior chamber and reduces occlusion break surge.



Inside of the cassette



Anterior chamber stability with IAB*

*In-house data. Set value: Vacuum – 400 mmHg, Flow rate – 30 mL/min, Pole height – 90 cm

Reusable tubing (CV-9000R)

The reusable irrigation and aspiration tube (I/A tube) for Cube α CV-9000R can be autoclaved up to 10 times for greater cost savings. The I/A tube maintains the aspiration rate over multiple uses.

Accessory Line-up

Wide variety of sleeves and tips are available for various surgical techniques.

		Incision Size	
		2.8 mm	2.4 mm
Silicone sleeve		Neo sleeve	MicroNeo sleeve
US tip	Gyro	21G	
	Standard	20G	21G
I/A tip		21G	

Single-use/reusable sleeves and US tips are available

15 degree / 30 degree are available for both gauges
20G is normal tip
21G is flared tip

Straight/curved are available

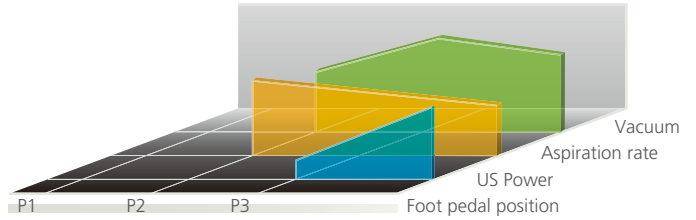
Gyro tips are only available for the Gyro handpiece.

Standard US tips, I/A tips, sleeves are available for both the Gyro and normal handpiece.

User Friendly Interface

ProPedal

The ProPedal mode allows customized programming of vacuum parameters, aspiration rate and US power at each foot pedal position. It enables subtle linear control of these parameters based on the level that the foot pedal is depressed.



ProPedal - simulated graph of parameters variation

Multi-functional foot pedal

The multi-functional foot pedal with six side switches allows the surgeon to change modes, adjust bottle height and other parameters without using the monitor during surgery. Different controls can be assigned to the six switches on the foot pedal based on surgeon preference.



Simple display

The intuitive touch-screen display presents parameters in large, easy-to-read sizes. A pop-up window is appeared to change parameters.



Navi mode

The Navi mode displays the setup procedure with images. This simple tutorial provides guidance for new users on connecting accessories to the device.



Cube α Specifications

Model	CV-9000	CV-9000R
Application	Cataract surgery	←
Aspiration		
Pump type	Peristaltic pump	←
Aspiration pressure	0 to 700 mmHg (I/A mode), 0 to 650 mmHg (US mode and Vit mode)	0 to 650 mmHg
Flow rate	0 to 60 mL/min	←
Tubing	Single-use cassette	Reusable tube
Ultrasound		
Transducer	Piezoelectric	
Frequency	Gyro handpiece: 42.5 kHz (longitudinal), 30.2 kHz (torsional) US handpiece: 40 kHz	←
Oscillation mode	Gyro handpiece: longitudinal, longitudinal (VIS), torsional, longitudinal/torsional, torsional/longitudinal US handpiece: longitudinal, longitudinal (VIS)	
Diathermy		
Frequency	515 kHz	←
Output	0.5 to 10 W (5 to 100%)	
Vitreous cutter		
Cutting system	Pneumatic driven guillotine system	←
Cutting rate	100 to 1,000 cpm using internal compressor	
Power supply	100 to 230 V AC 50/60 Hz	←
Power consumption	240 VA	←
Dimensions/mass	337 (W) x 452 (D) x 307 (H) mm / 18 kg 13.3 (W) x 17.8 (D) x 12.1 (H)" / 40 lbs.	337(W) x 452 (D) x 307 (H) mm / 17 kg 13.3 (W) x 17.8 (D) x 12.1 (H)" / 37 lbs.

Stand with motorized pole (optional)

Power supply	115/230 V AC 50/60 Hz
Power consumption	300 VA (including mainbody's power consumption)
Dimensions/mass	433 (W) x 567 (D) x 1,067 (H) mm / 38 kg 17.0 (W) x 22.3 (D) x 42.0 (H)" / 84 lbs.



Cube α CV-9000



Cube α CV-9000R

Product/model name: Ophthalmic Surgical System CV-9000

Ophthalmic Surgical System CV-9000R

Brochure and listed features of the device are intended for non-US practitioners.

Specifications may vary depending on circumstances in each country.

Specifications and design are subject to change without notice.

