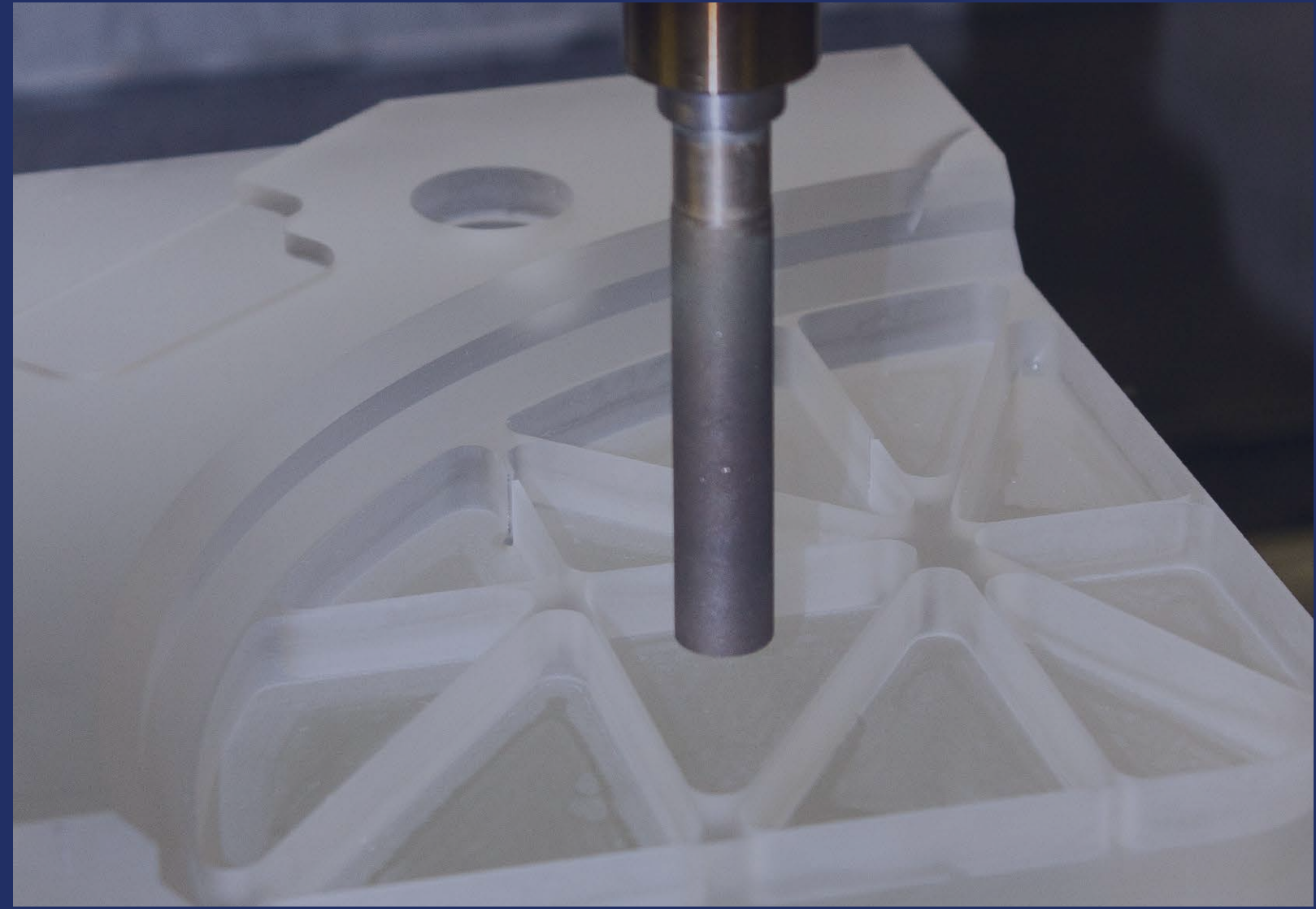


OptiSonic Series



Ultrasonic Machining Centers



Trusted Technology.

Take your machining to the next level.

Machining glass and ceramic materials can present challenges such as accelerated tool wear and long cycle times. Overcome these obstacles with OptiSonic, the latest in ultrasonic machining technology. Engineered specifically for glass and ceramics processing, OptiSonic features the highest quality machine components coupled with proprietary IntelliSonic software to help companies maximize manufacturing efficiency:

- ☞ **Superior grinding improvements:** Heavy duty cast iron "meehanite" machine base provides vibration dampening and stability along with liquid-cooled ceramic bearing high precision HSK 63F grinding spindles
- ☞ **Faster cycle times:** State-of-the-art ultrasonic technology allows for faster speeds and feeds than competitive platforms
- ☞ **High performance spindles:** Liquid cooled spindles for process consistency, direct drive spindles for better process control, integral high torque spindle motor for more cutting power
- ☞ **High accuracy tool and work spindles:** HSK 63 quick-change holders with different options ensure tools run true
- ☞ **Streamlined manufacturing:** Different automatic tool changers available allows for multiple grinding operations in one cycle
- ☞ **G Series Software (Optional):** Easy-to-use GUI for precision optics that guides operators through all aspects of the process

Driven by IntelliSonic, ultrasonic oscillation of the tool ensures optimal cutting performance throughout the machining cycle. The adaptive frequency control and automated "tool frequency tuning" creates several benefits:

- ☞ **Faster set-up times**
- ☞ **Rapid material removal and shorter cycle times due to increased processing speeds and feeds**
- ☞ **Reduced force endured by tool and part during machining**
- ☞ **Reduced tool wear and longer tool life**

The bottom line is faster and more precise manufacturing of glass and ceramic materials that adds significant value to your bottom line. Take your machining to the next level with OptiSonic.

The right platform for your application:



500 Series

500mm of X-axis travel

Available with

3 axes (OptiSonic 530)

4 axes (OptiSonic 540)

5 axes (OptiSonic 550)

with G Series (OptiSonic 550X)



800 Series

800mm of X-axis travel

Available with

3 axes (OptiSonic 830)

4 axes (OptiSonic 840)

5 axes (OptiSonic 850)

with G Series (OptiSonic 850X)



1100 Series

1100mm of X-axis travel

Available with

3 axes (OptiSonic 1130)

4 axes (OptiSonic 1140)

5 axes (OptiSonic 1150)

with G Series (OptiSonic 1150X)



1200 Series

1200mm of X-axis travel

Available with

3 axes (OptiSonic 1230)

4 axes (OptiSonic 1240)

5 axes (OptiSonic 1250)

with G Series (OptiSonic 1250X)

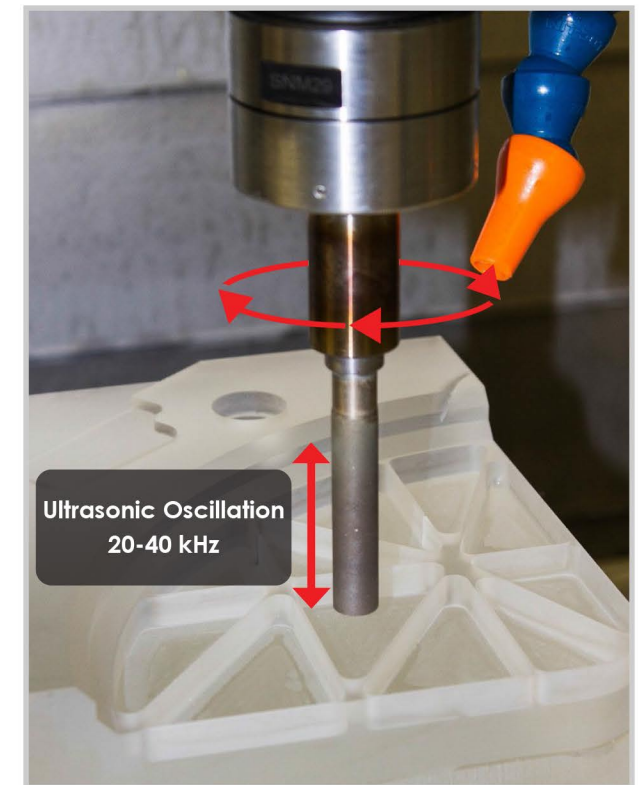
High Performance Ultrasonic Technology

Through the use of a custom designed tool holder, a piezo-electric transducer produces controlled oscillations in the micrometer amplitude range when the tool is at its natural resonant frequency. Since each tool has a different shape and mass, its natural resonant frequency will be different. OptiPro's proprietary IntelliSonic software identifies the resonant frequency for the tool being utilized, then automatically adjusts the frequency based on changing machining conditions to keep the tool oscillating at its optimal resonant frequency, ensuring maximum efficiency.



Reliable OptiSonic Spindle

All power is transferred within the black housing of the OptiSonic spindle. A labyrinth seal and air purging within the housing prevents any coolant or other particulate from interfering with the power transfer during the machining process. This allows for safe and reliable transfer of power to the tool holder.



Ultrasonic Oscillation
20-40 kHz

Powerful IntelliSonic Software

Frequency Sweep
Automatically determines the ideal frequency based on tool geometry

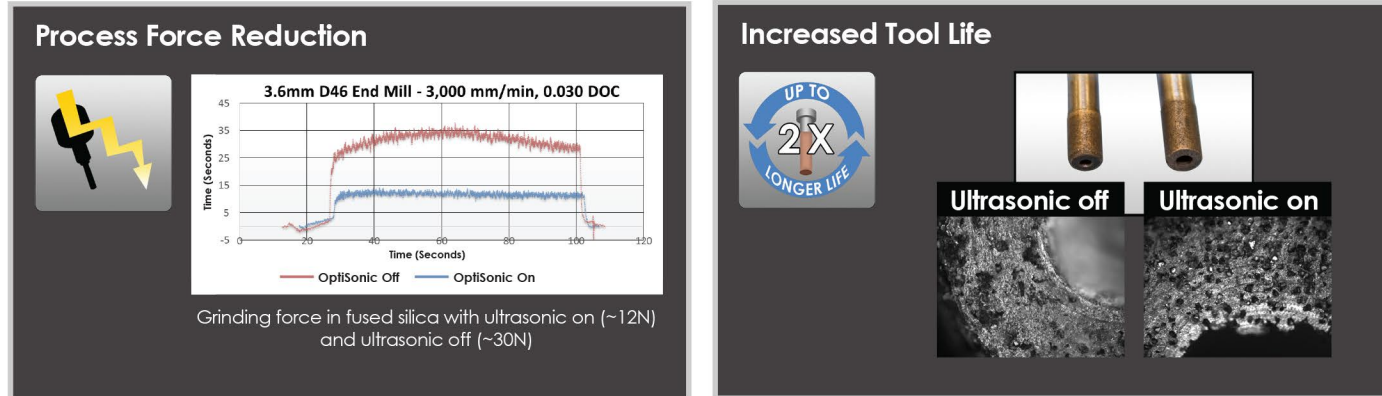
FAGOR
FAGOR AUTOMATION
CNC Integration
Full integration into the Fagor Tool Library

Adaptive Frequency Control
Adjusts frequency of the tool during machining to ensure optimal cutting performance

FREQUENCY (HZ)

Benefits

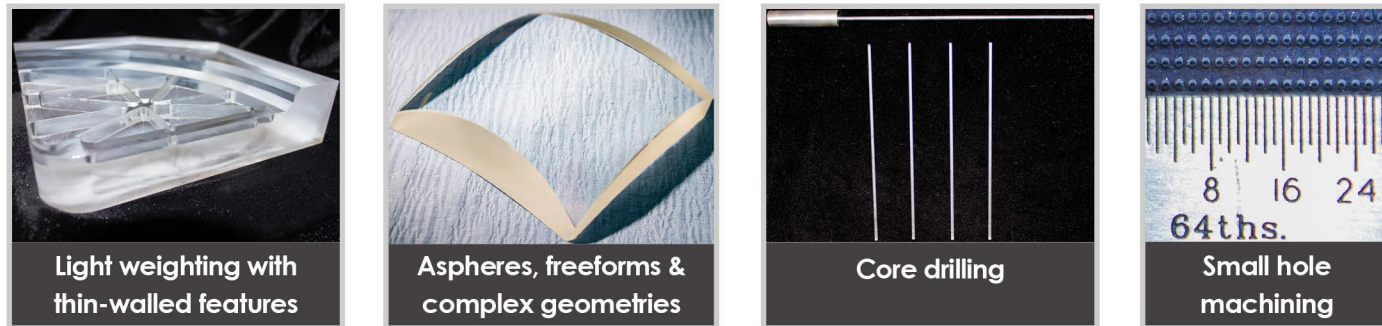
OptiPro's intelligent ultrasonic technology (IntelliSonic) allows manufacturers to greatly reduce grinding times when processing optical glasses and ceramic materials. How? Ultrasonic tool vibration promotes free cutting of material, resulting in significant process force reduction. This gives manufacturers the ability to increase processing speeds and cutting feed rates. A reduction of force on the part also means less force on the tool, specifically the diamond section, resulting in minimal tool wear and longer tool life.



Applications

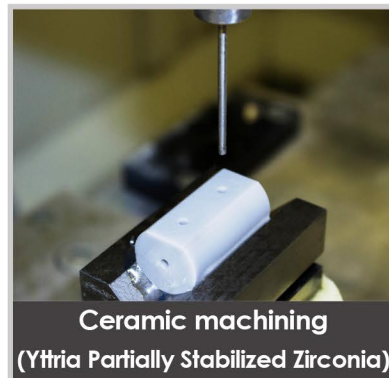
Multiple industries can benefit from OptiSonic's fast and precise machining performance. Whether you are manufacturing precision components for a semiconductor device, consumer electronic product, medical device, defense system, or other application, the technology found on OptiSonic platforms enable companies to enhance their current capabilities with extreme confidence. From optical materials such as BK7 and fused silica to hard ceramics such as alumina, sapphire and silicon carbide, you can increase production and profitability by greatly reducing cycle times.

Various applications involving 3, 4, or 5 axis machining, including:



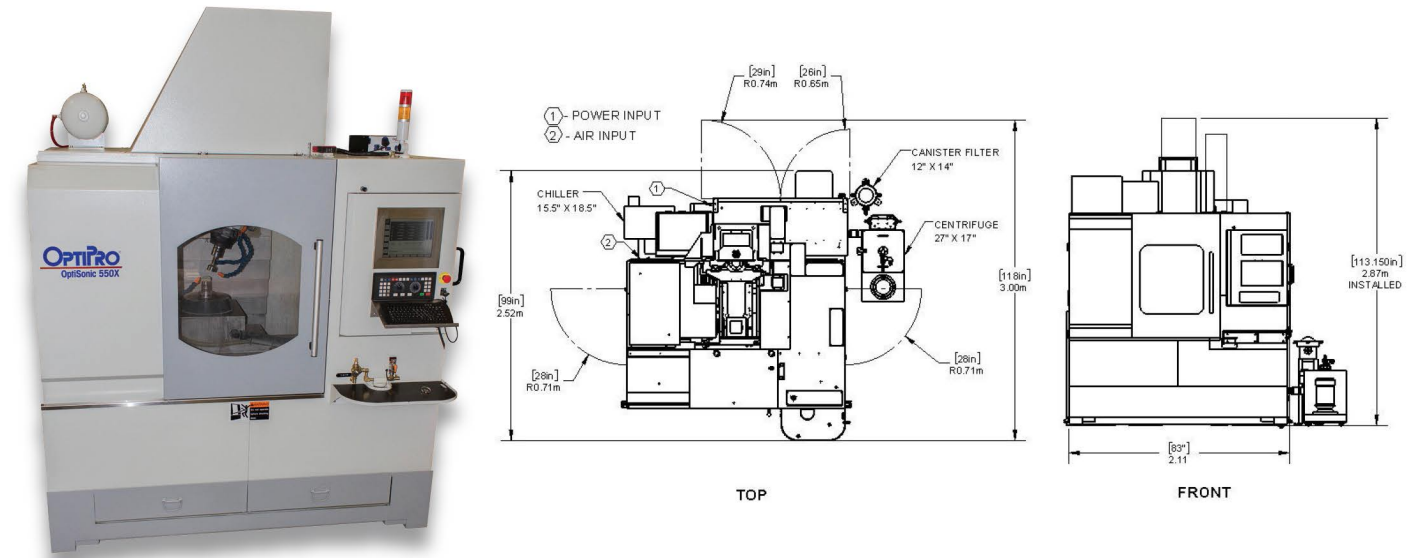
Soft optical glass to hard ceramic materials:

- BK7
- Pyrex
- Sapphire
- Zerodur
- ALON
- Spinel
- Fused Quartz
- Zirconia
- Silicon Carbide
- Fused Silica
- PCA
- Other glass and ceramics



OptiSonic 500 Series

Entry-level platform with 500mm of X-axis travel
Available in 3, 4, or 5 axis configurations



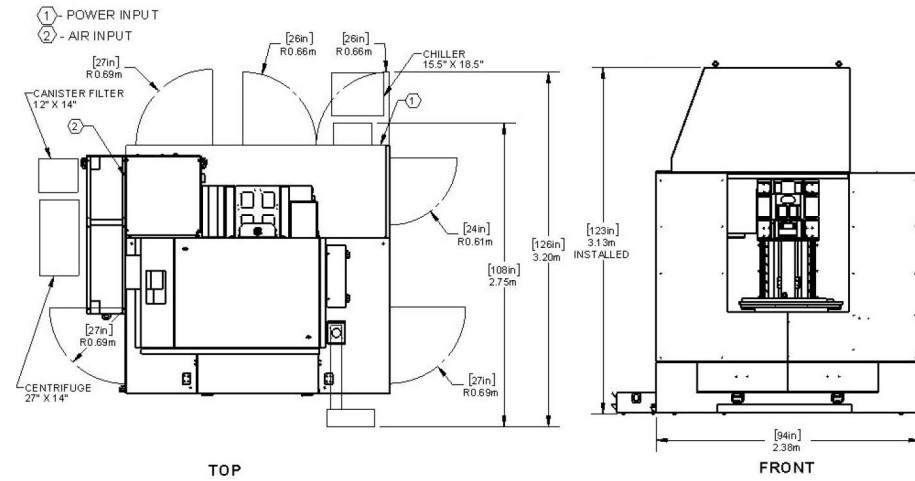
Specifications*	OptiSonic 530	OptiSonic 540	OptiSonic 550	OptiSonic 550X
Travels X - Axis Travel Y - Axis Travel Z - Axis Travel B - Axis Travel C - Axis Travel	500 mm (19.6") 400 mm (15.7") 500 mm (19.6") — —	500 mm (19.6") 400 mm (15.7") 500 mm (19.6") -90° to 90° (Optional) 0° to 360° (Optional)	500 mm (19.6") 400 mm (15.7") 500 mm (19.6") -90° to 90° 0° to 360°	500 mm (19.6") 400 mm (15.7") 500 mm (19.6") -90° to 90° 0° to 360°
Workpiece Part Size Max Plano Diameter Capability** Max Weight	475 mm x 375 mm (18.7" x 14.8") — 300 kg (660 lbs.)	475 mm x 375 mm (18.7" x 14.8") — 250 kg (550 lbs.)	475 mm x 375 mm (18.7" x 14.8") — 250 kg (550 lbs.)	Ø 5 - 300 mm (.2 - 11.8") Ø 350 mm (13.7") 129 kg (284 lbs.)
Workpiece Rotation Spindle Speed Hydro-Expansion Chuck C-Axis Position and Hold	— Optional —	Positional C-Axis N/A Standard Standard	Positional C-Axis N/A Standard Standard	Work Spindle 0 - 200 rpm Standard Standard
Tool Spindle Max Tool Diameter*** Max Tool Weight Tool Spindle Speed Max Power Tool Holder Style Coolant Through Spindle	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard
Automatic Tool Changer	Optional (6, 24 or 30-Tool)	Optional (6, 24 or 30-Tool)	Optional (6, 24 or 30-Tool)	Optional (6, 24 or 30-Tool)
Facility Requirements Electrical Air Supply	480V +/- 5%, 50A 100PSI, 3-5 CFM clean dry air	480V +/- 5%, 57A 100PSI, 3-5 CFM clean dry air	480V +/- 5%, 57A 100PSI, 3-5 CFM clean dry air	480V +/- 5%, 57A 100PSI, 3-5 CFM clean dry air
Workpiece Probing Tool Probing Integrated Spherometer Asphere Fabrication Freeform Fabrication	Standard Standard — — —	Standard Standard — — Optional	Standard Standard — — Optional	Standard Standard Optional Optional Optional

* Specifications subject to change. Contact OptiPro for the latest specifications.
** Machine is capable of manufacturing maximum plano size in small volume. For medium and large production quantities of max plano size, consider OptiPro's larger platform.
*** Max tool diameter is 75 mm (3") with a full Automatic Tool Changer magazine.
All platforms come standard with USB and ethernet communication.

OptiSonic 800 Series

Intermediate platform with 800mm X-axis travel

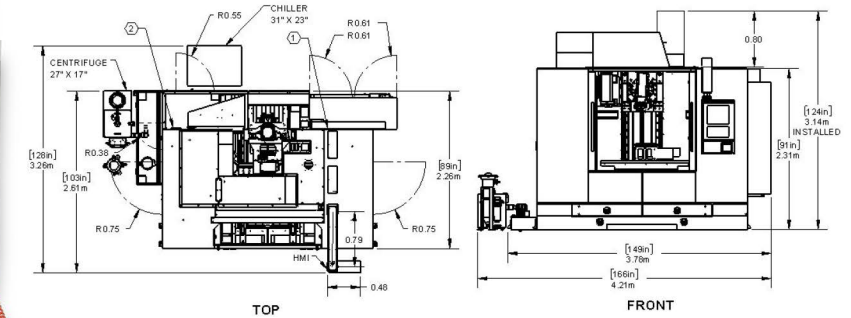
Available in 3, 4, or 5 axis configurations



OptiSonic 1100 Series

Extended platform with 1100mm of X-axis travel

Available in 3, 4, or 5 axis configurations



Specifications*	OptiSonic 830	OptiSonic 840	OptiSonic 850	OptiSonic 850X
Travels				
X - Axis Travel	800 mm (31.5")	800 mm (31.5")	800 mm (31.5")	800 mm (31.5")
Y - Axis Travel	490 mm (19.3")	490 mm (19.3")	490 mm (19.3")	490 mm (19.3")
Z - Axis Travel	550 mm (21.6")	550 mm (21.6")	550 mm (21.6")	550 mm (21.6")
B - Axis Travel	—	-90° to 90° (Optional)	-90° to 90°	-90° to 90°
C- Axis Travel	—	0° to 360° (Optional)	0° to 360°	0° to 360°
Workpiece				
Part Size	775 mm x 465 mm (30.5" x 18.3")	775 mm x 465 mm (30.5" x 18.3")	775 mm x 465 mm (30.5" x 18.3")	Ø 5 - 400 mm (.2" - 15.7")
Max Plano Diameter Capability**	—	—	—	Ø 450mm (17.7")
Max Weight	600 kg (1322.8 lbs.)	250 kg (550 kg)	250 kg (550 kg)	154 kg (340 lbs.)
Workpiece Rotation				
Spindle Speed	—	Positional C-Axis	Positional C-Axis	Work Spindle
Hydro-Expansion Chuck	Optional	N/A	N/A	0 - 200 rpm
C-Axis Position and Hold	—	Standard	Standard	Standard
Tool Spindle				
Max Tool Diameter***	250 mm (9.8")	250 mm (9.8")	250 mm (9.8")	250 mm (9.8")
Max Tool Weight	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)
Tool Spindle Speed	1,000 - 18,000 rpm	1,000 - 18,000 rpm	1,000 - 18,000 rpm	1,000 - 18,000 rpm
Max Power	18kW (24hp)	18kW (24hp)	18kW (24hp)	18kW (24hp)
Tool Holder Style	HSK63F	HSK63F	HSK63F	HSK63F
Coolant Through Spindle	Standard	Standard	Standard	Standard
Automatic Tool Changer	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)
Facility Requirements				
Electrical	480V +/- 5%, 50A	480V +/- 5%, 60A	480V +/- 5%, 60A	480V +/- 5%, 60A
Air Supply	100PSI, 3-5 CFM clean dry air	100PSI, 3-5 CFM clean dry air	100PSI, 3-5 CFM clean dry air	100PSI, 3-5 CFM clean dry air
Workpiece Probing	Standard	Standard	Standard	Standard
Tool Probing	Standard	Standard	Standard	Standard
Integrated Spherometer	—	—	—	Optional
Asphere Fabrication	—	—	—	Optional
Freeform Fabrication	—	Optional	Optional	Optional

* Specifications subject to change. Contact OptiPro for the latest specifications.
 ** Machine is capable of manufacturing maximum plano size in small volume. For medium and large production quantities of max plano size, consider OptiPro's larger platform.
 *** Max tool diameter is 75 mm (3") with a full Automatic Tool Changer magazine.
 All platforms come standard with USB and ethernet communication.

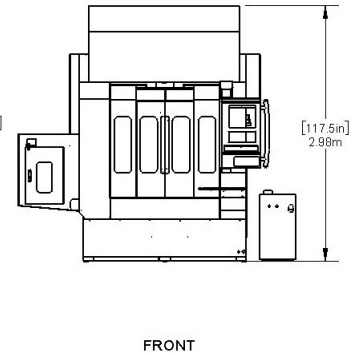
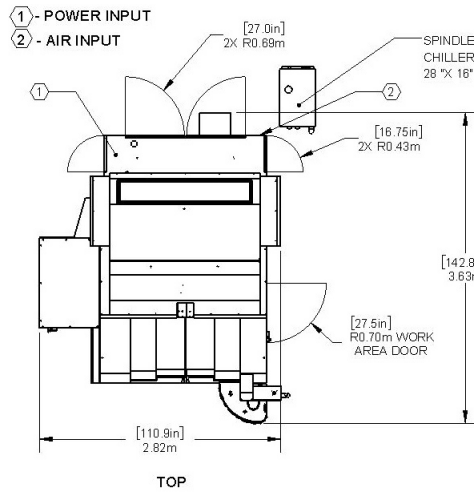
Specifications*	OptiSonic 1130	OptiSonic 1140	OptiSonic 1150	OptiSonic 1150X
Travels				
X - Axis Travel	1100 mm (43.3")	1100 mm (43.3")	1100 mm (43.3")	1100 mm (43.3")
Y - Axis Travel	600 mm (23.6")	600 mm (23.6")	600 mm (23.6")	600 mm (23.6")
Z - Axis Travel	800 mm (31.5")	800 mm (31.5")	800 mm (31.5")	800 mm (31.5")
B - Axis Travel	—	-90° to 90° (Optional)	-90° to 90°	-90° to 90°
C- Axis Travel	—	0° to 360° (Optional)	0° to 360°	0° to 360°
Workpiece				
Part Size	1,075mm x 575mm (42.3" - 22.6")	1,075mm x 575mm (42.3" - 22.6")	1,075mm x 575mm (42.3" - 22.6")	Ø 10 - 500 mm (.4" - 19.6")
Max Plano Diameter Capability**	—	—	—	Ø 550 mm (21.7")
Max Weight	800 kg (1763.7 lbs.)	350 kg (770 lbs.)	350 kg (770 lbs.)	154 kg (340 lbs.)
Workpiece Rotation				
Spindle Speed	—	Positional C-Axis	Positional C-Axis	Positional C-Axis w/ Spindle Mode
Hydro-Expansion Chuck	Optional	N/A	N/A	0 - 200 rpm
C-Axis Position and Hold	—	Standard	Standard	Standard
Tool Spindle				
Max Tool Diameter***	250 mm (9.8")	250 mm (9.8")	250 mm (9.8")	250 mm (9.8")
Max Tool Weight	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)	6 kg (13.2 lbs.)
Tool Spindle Speed	1,000 - 18,000 rpm	1,000 - 18,000 rpm	1,000 - 18,000 rpm	1,000 - 18,000 rpm
Max Power	18kW (24hp)	18kW (24hp)	18kW (24hp)	18kW (24hp)
Tool Holder Style	HSK63F	HSK63F	HSK63F	HSK63F
Coolant Through Spindle	Standard	Standard	Standard	Standard
Automatic Tool Changer	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)
Facility Requirements				
Electrical	480V +/- 5%, 60A	480V +/- 5%, 65A	480V +/- 5%, 75A	480V +/- 5%, 75A
Air Supply	100PSI, 3-5 CFM clean dry air	100PSI, 3-5 CFM clean dry air	100PSI, 3-5 CFM clean dry air	100PSI, 3-5 CFM clean dry air
Workpiece Probing	Standard	Standard	Standard	Standard
Tool Probing	Standard	Standard	Standard	Standard
Integrated Spherometer	—	—	—	Optional
Asphere Fabrication	—	—	—	Optional
Freeform Fabrication	—	Optional	Optional	Optional

* Specifications subject to change. Contact OptiPro for the latest specifications.
 ** Machine is capable of manufacturing maximum plano size in small volume. For medium and large production quantities of max plano size, consider OptiPro's larger platform.
 *** Max tool diameter is 75 mm (3") with a full Automatic Tool Changer magazine.
 All platforms come standard with USB and ethernet communication.

OptiSonic 1200 Series

Large, bridge-style platform with 1200mm of X-Axis Travel

Available in 3, 4 or 5 axis configurations



Specifications*	OptiSonic 1230	OptiSonic 1240	OptiSonic 1250	OptiSonic 1250X
Travels X - Axis Travel Y - Axis Travel Z - Axis Travel B - Axis Travel C- Axis Travel	1,200 mm (47.2") 700 mm (27.6") 500 mm (19.6") — —	1,200 mm (47.2") 700 mm (27.6") 500 mm (19.6") -90° to 90° (Optional) 0° to 360° (Optional)	1,200 mm (47.2") 700 mm (27.6") 500 mm (19.6") -90° to 90° 0° to 360°	1,200 mm (47.2") 700 mm (27.6") 500 mm (19.6") -90° to 90° 0° to 360°
Workpiece Part Size Max Plano Diameter Capability** Max Weight	1,175mm x 675mm (46.2" x 26.6") — 800 kg (1763.7 lbs.)	1,175mm x 675mm (46.2" x 26.6") — 350 kg (770 lbs.)	1,175mm x 675mm (46.2" x 26.6") — 350 kg (770 lbs.)	10 - 500 mm (.4" - 19.6") Ø 550 mm (21.7") 154 kg (340 lbs.)
Workpiece Rotation Spindle Speed Hydro-Expansion Chuck C-Axis Position and Hold	— Optional —	Positional C-Axis N/A Standard Standard	Positional C-Axis N/A Standard Standard	Work Spindle 0 - 200 rpm Standard Standard
Tool Spindle Max Tool Diameter*** Max Tool Weight Tool Spindle Speed Max Power Tool Holder Style Coolant Through Spindle	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard	250 mm (9.8") 6 kg (13.2 lbs.) 1,000 - 18,000 rpm 18kW (24hp) HSK63F Standard
Automatic Tool Changer	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)	Standard (24 or 30-Tool)
Facility Requirements Electrical Air Supply	480V +/- 5%, 57A 100PSI, 3-5 CFM clean dry air	480V +/- 5%, 60A 100PSI, 3-5 CFM clean dry air	480V +/- 5%, 67A 100PSI, 3-5 CFM clean dry air	480V +/- 10%, 67A 100PSI, 3-5 CFM clean dry air
Workpiece Probing Tool Probing Integrated Spherometer Asphere Fabrication Freeform Fabrication	Standard Standard — — —	Standard Standard — — Optional	Standard Standard — — Optional	Standard Standard Optional Optional Optional

* Specifications subject to change. Contact OptiPro for the latest specifications.

** Machine is capable of manufacturing maximum plano size in small volume. For medium and large production quantities of max plano size, consider OptiPro's larger platform.

*** Max tool diameter is 75 mm (3") with a full Automatic Tool Changer magazine.

All platforms come standard with USB and ethernet communication.



Scan to watch
OptiSonic in action >

