

**APPLICATIONS**

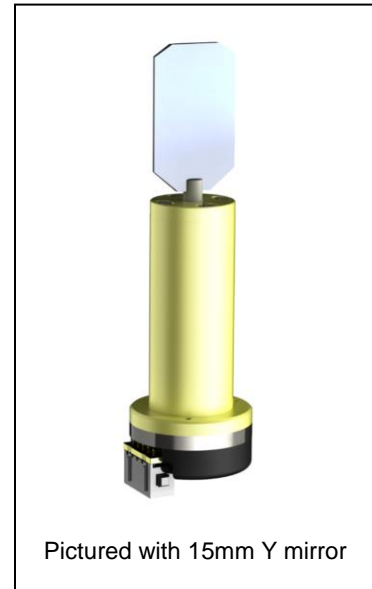
- Laser Marking
- Laser Welding
- Material Processing
- Selective Laser Sintering (SLS) 3D Printing

**UNIQUE ScannerMAX FEATURES**

- Stronger magnetic field
- Stronger rotor and shafts
- Long-life, SV30/silicon dioxide ceramic, hybrid bearings
- Trapezoidal position sensor with high output and low noise
- Cooler-running motor magnetic design

**BENEFITS**

- Size-compatible replacement for Cambridge 6230
- Wide-angle scanning, up to 110 degrees optical
- Low coil resistance for low heat generation during scanning
- Low thermal resistance for enhanced heat removal
- Low wobble and jitter



Pictured with 15mm Y mirror

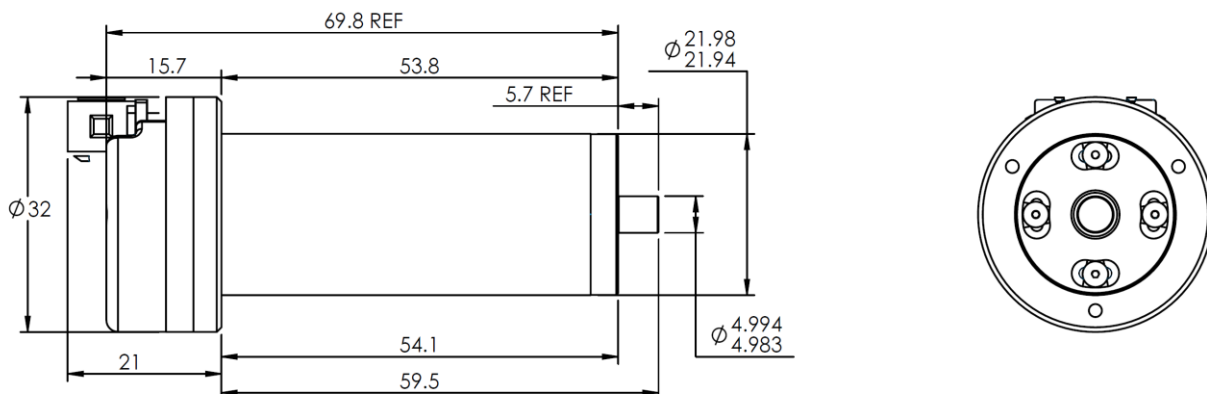
**GENERAL DESCRIPTION**

The *Saturn 15B* optical scanner is specifically designed to meet the demands of material processing applications in the 10mm to 15mm aperture range, such as laser marking, laser welding, via-hole drilling and SLS 3D printing. Step response times with a 10mm beam can be as fast as 240 microseconds for a small optical step, even with low gain.

The *Saturn 15B* has nearly the same dimensions as a Cambridge model 6230, so it may serve as a drop-in replacement which also offers a significant performance upgrade, particularly in applications that are electrical power and heat intensive.

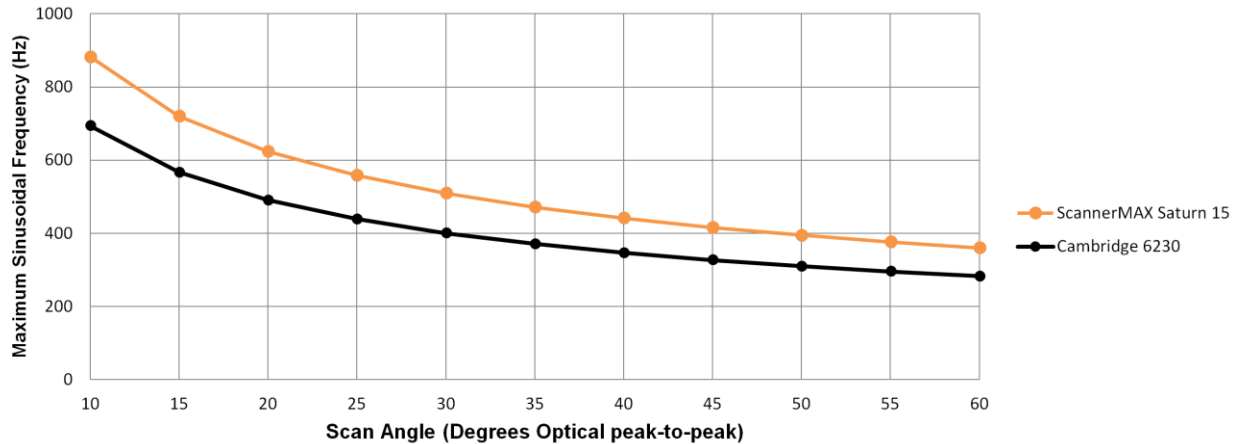
The *Saturn 15B* has a rotor inertia of 0.54 Gm•Cm<sup>2</sup>, which is an inertia presently not served by other galvos on the market today. This rotor inertia allows more torque to be transmitted to the mirror and less to be expended moving the rotor itself. This rotor inertia, coupled with our highly efficient and patented X3 magnetic design, allows this scanner to do the same job as conventional galvos, while generating around 1/3 of the heat.

**OUTLINE DRAWING**



Other shaft and connector configurations are available. Dimensions are in millimeters.

**Comparison of Saturn 15B and Cambridge 6230 at 10mm aperture**



**SPECIFICATIONS**

Parameter		Units
Optimal Mirror Size	10 – 15	Millimeters, clear aperture
Rotation Angle <sup>(2)</sup>	+/- 27.5	Degrees, Maximum (110 degrees optical)
Rotor Inertia	0.54	Gram • Centimeters <sup>2</sup>
Torque Constant	93,800	Dyne • Centimeters per Ampere
Maximum Rotor Temperature	110	Degrees Celsius
Operating Temperature Range <sup>(3)</sup>	-10 to +85	Degrees Celsius, non-condensing
Thermal Resistance	0.7	Degrees Celsius per Watt, Maximum
Coil Resistance	0.41	Ohms
Coil Inductance	152	µh
Back EMF Voltage <sup>(2)</sup>	164	µV per degree per second
Peak Current	25	Amperes, Maximum
RMS Current	11.7	Amperes at Tcase of 50°C
Electrical Power Handling Capacity	72	Watts at Tcase of 50°C
Small Angle Step Response	240	µS with ScannerMAX 10mm mirror set
PD Linearity over 20 degrees p-p <sup>(2)</sup>	99.9	% Minimum
PD Linearity over 40 degrees p-p <sup>(2)</sup>	99.5	% Typical
PD Output Signal (Common Mode) <sup>(2)</sup>	600	µA with LED current of 20mA
PD Output Signal (Differential Mode) <sup>(2)</sup>	43.6	µA per degree, with LED current of 20mA
Mass	140	Grams

Specifications are at a case temperature of 25° C. All mechanical and electrical specifications are +/-10%.  
ScannerMAX scanners can easily be fabricated with alternative configurations. Please contact us with your requirements.

**NOTES**

- Graph denotes theoretical maximum performance of each scanner due to thermal limitations, with case at 50°C. Other factors may prevent each scanner from reaching this maximum, such as servo driver and power supply.
- Angular specifications are in mechanical degrees. For most applications, optical angle = 2x mechanical angle.
- Several factors impact the operating temperature range. Please contact us before operating at or outside the extremes.