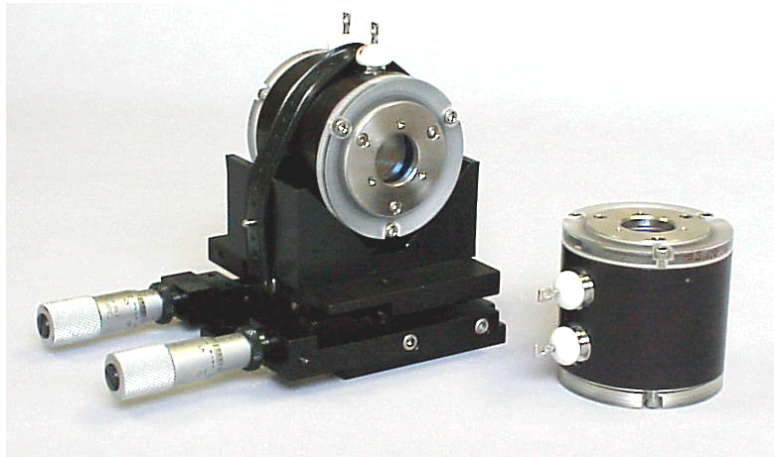


**SOL GEL
AR COATINGS
Are Available
On All Models
In This Series**



Model 1058-16 Mounted on MGV-145 Pitch/Azimuth Gimbal

Lasermetrics 1058 Q-switches are large aperture electro-optic devices that are used in high energy lasers having beam diameters up to 20 mm diameter. The 1058 Series was used in the earliest Ruby and Nd:YAG medical lasers and the latest, improved versions are presently used in several medical laser systems marketed throughout the world. They will reliably accommodate the most demanding high peak power laser applications. All models within the series utilize an enhanced internal crystal support and superior sealing system. The devices incorporate highest quality crystals, fused quartz windows and high damage threshold antireflection coatings.

1058 Series E-O performance is based on highly deuterated (98⁺%)D-KDP (KD*P) crystals, selected for the absence of strain and stria, lowest residual birefringence and wavefront distortion. A cylindrical ring electrode-crystal configuration produces the most uniform retardation field currently available. Crystals are mounted in durable and mechanically stable aluminum housings. . Stainless steel aperture plates are used in all models. Windows are bubble and strain-free fused quartz with high efficiency antireflection coatings.

Sol Gel antireflection coatings can be applied to the crystal for highest peak and average power applications in the wavelength range of 650 nm to 1100 nm. Sol Gel coatings are extremely efficient, having reflectance losses of $\approx 0.05\%$.

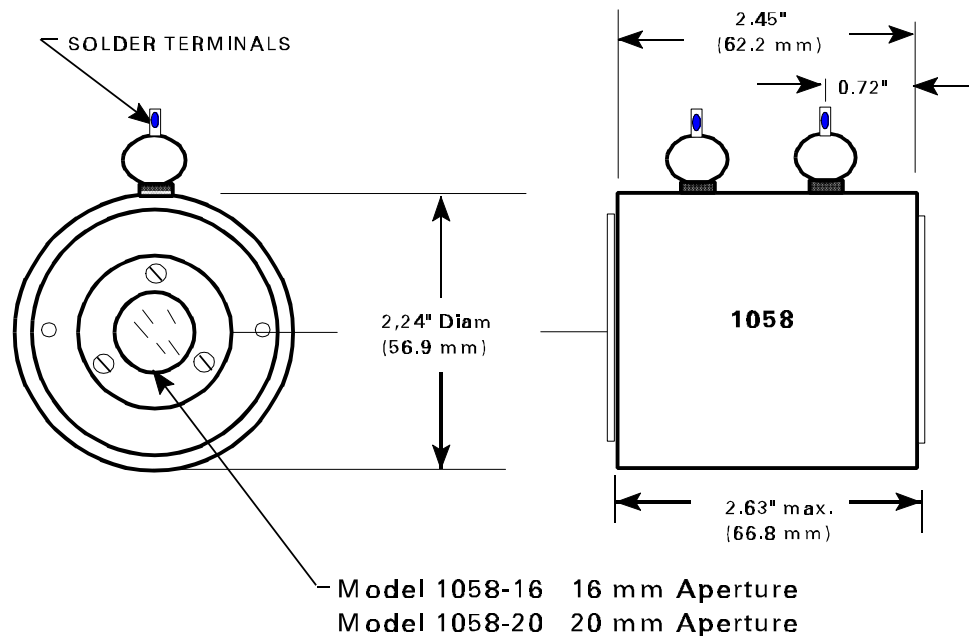
Damage threshold for Sol Gel coatings is at least as high as that of the KD*P crystal material. For many low repetition rate applications index matching fluid is employed in the hermetically sealed, vacuum tested housing to minimize reflection losses at the window-crystal interfaces.

A variety of antireflection coatings and index matching fluid options are available. A key feature of the 1058 Series is the user's ability to adjust the alignment of the fused quartz windows. This may be done while the device is in position in the laser optical train. Simple hex wrench adjustments can tilt each window to be precisely on or off-axis by as much as 2 degrees. All models can be specified with wedged or parallel window surfaces and with the crystal cut at a desired off-axis or wedge angle.

In fast pulse gating applications, with laser pulses less than 100 picoseconds width, the 1058 Series has a damage threshold of ≥ 20 Gigawatts/cm². In Q-switching the devices will tolerate in excess of 850 Megawatts/cm² at less than 20 nanoseconds pulse width.

Lasermetrics Q-switch drivers 5048, 5055SC, 5056, 8006; 8025S pulse choppers; 5046E and 5046SC pulse extractors, can be used with all 1058 models within the series. The 1058 models have been used with the 8403 HV Amplifiers in polarization and circular dichroism studies.

1058 SERIES - NOMINAL SPECIFICATIONS	1058-16	1058-20
Aperture Diameter, mm	16	20
Crystal Material	98.5 + % Deuterated D-KDP (KD*P)	
Peak Optical Power Density Capability (Uniform Beam, no Hot Spots)	850 Megawatt/cm ² for pulses < 20 nsec wide 10 Gigawatt/cm ² for pulses < 500 psec wide ≥ 20 Gigawatt/cm ² for pulses < 100 psec wide	
λ Range for Peak Power Density	450-1100 nanometers	
Transmission Range	≈ 98% from ≈ 400 nm to 1064 nm	
¼ Wave Retardation Voltage, @ 694 nm @ 1064 nm	≈ 2.1 kilovolts	≈ 2.3 kilovolts
	≈ 3.2 kilovolts	≈ 3.5 kilovolts
Extinction Ratio (Contrast Ratio) with Full Aperture Beam	≥ 1000:1 at 633 nm	
Rise Time	< 350 picoseconds	
Capacitance	≤ 6 picofarads	
Weight (approximate)	90 grams	



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