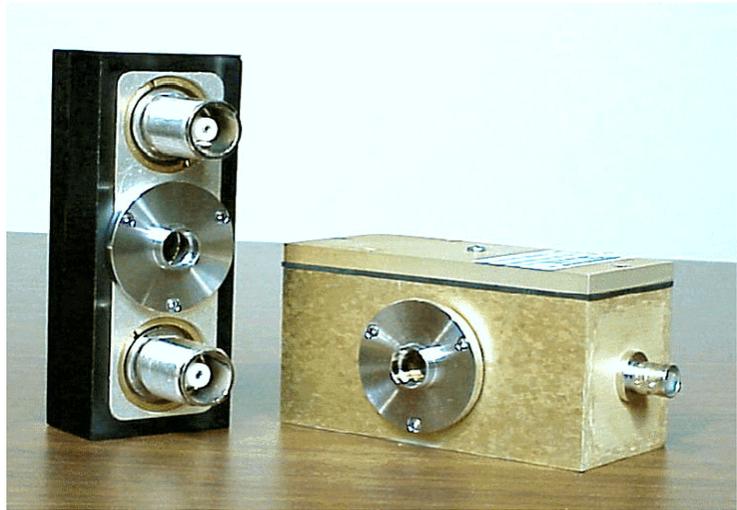


**SOL GEL  
AR COATINGS  
Are Standard  
On All Models  
In This Series**



1070 Series, 50 Ohm Pockels Cells were the first impedance matched E-O devices to be produced. Their design has been continuously upgraded to obtain even the smallest performance improvement possible. They are, consequently the industry's most widely utilized constant impedance Pockels Cells. The 1070 Series insures less than 10% voltage reflection (as measured on a Time Domain Reflectometer) into a 50 ohm source, thus providing efficient application of the electric field across the crystal and negligible spurious signal levels.

Single crystal devices (Models 1071 and 1073) are supplied in 50 ohm stripline format. Dual crystal units (Models 1072 and 1074) are coaxial designs. Single crystal devices are slightly faster but dual crystal models require only half the drive voltage.

Crystals used in the 1070 Series are KD\*P (98+%D<sub>2</sub> -- KD<sub>2</sub>PO<sub>4</sub>) grown and fabricated at Lasermetrics. They are selected to be free from strain, stria and inclusions. The standard optical finish on crystals is: flatness: 1/8 wave and parallelism: 10 arcseconds. Wedged crystals and windows as well as integrally mounted polarizers, antireflection coatings and index matching fluids are available options.

Sol Gel antireflection coatings can be applied to the crystal(s) for highest peak and average power applications. Sol gel coatings on KD\*P crystals are most efficient in the 510 to 1100 nm range. Sol Gel antireflection coatings are now standard on all 1070 Series devices.

Sol Gel coatings are extremely efficient, having reflectance losses of about 0.05%/surface. Damage threshold for Sol Gel coatings is at least as high as that of the KD\*P crystal material. The coating will not cause beam blooming or focusing in high power applications.

For applications between 280 to 500 nm, index matching fluid matching fluid may be employed in the hermetically sealed, vacuum tested housing to minimize reflection losses at the window-crystal interfaces. Fluid thickness at the interfaces is minimized.

A variety of antireflection coatings and index matching fluid options are available. A key feature of the 1070 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°. All models can be specified with wedged or parallel window surfaces and with the crystal cut at a desired off-axis or wedge angle.

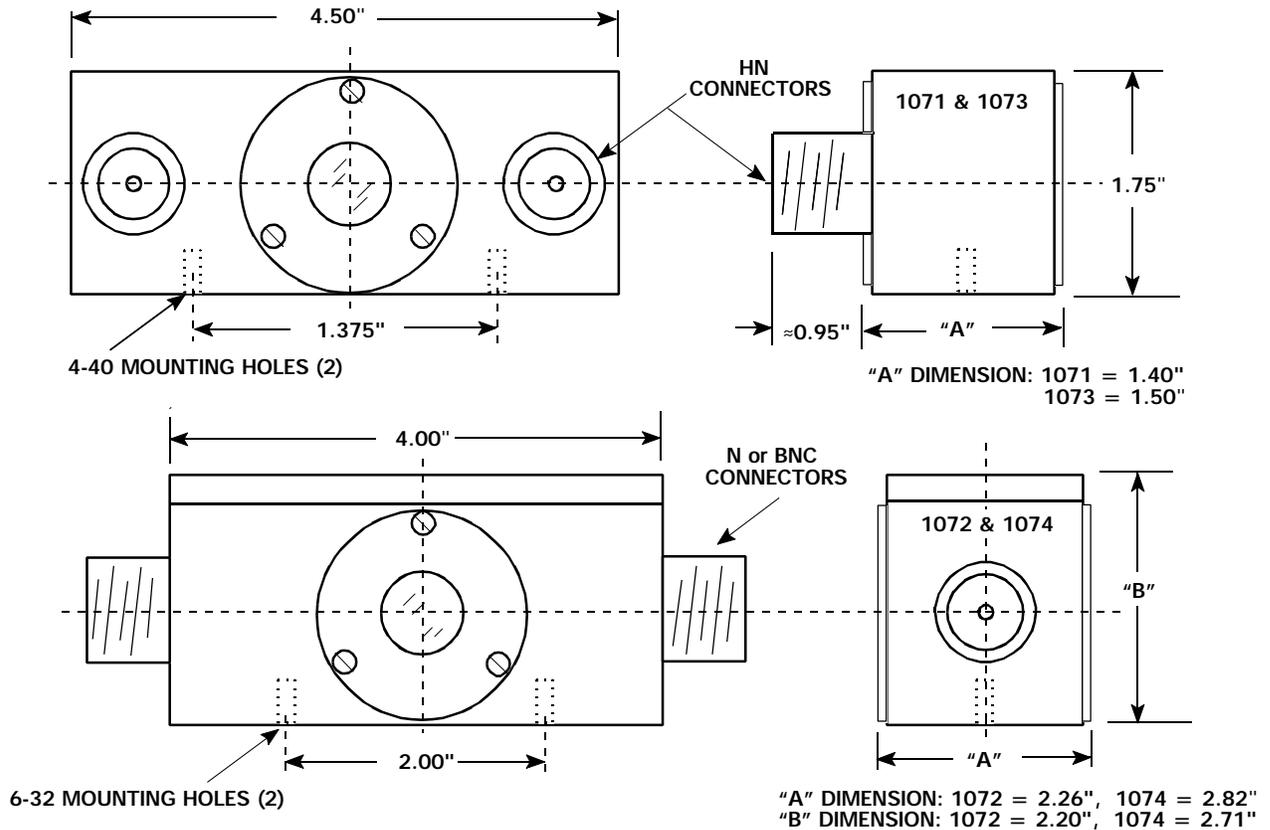
In very fast pulse gating applications, with laser pulses less than 100 picoseconds width, the 1070 Series has a nominal damage threshold of 20 Gigawatts/cm<sup>2</sup>. In Q-switching the devices will tolerate in excess of 750 Megawatts/cm<sup>2</sup> at less than 20 nanoseconds pulse width.

The 1070 Series is intended for pulsed voltage operation only. We do not recommend the application of static, DC voltage to these units.

# 1070 SERIES - NOMINAL SPECIFICATIONS

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MODEL	1071	1072	1073	1074
Aperture Diameter, mm	10	10	16	16
Number of Crystals	1	2	1	2
Crystal Material	98.5+ % Deuterated D-KDP (KD*P)			
Peak Optical Power Density Capability, Uniform Beam, No Hot Spots	750 Megawatts/cm <sup>2</sup> for pulses < 20 nsec wide 10 Gigawatts/cm <sup>2</sup> for pulses < 500 psec wide 20 Gigawatts/cm <sup>2</sup> for pulses < 100 psec wide			
Range for Peak Power Density	450 to 1100 nanometers			
Transmission: from 400 to 1064 nm	1071 & 1073 ≈ 98% 1072 & 1074 ≈ 97%			
¼ Wave Retardation, kV @ 694 nm Voltage, approx.: kV @1064 nm	2.1 3.2	1.1 1.7	2.2 3.3	1.2 1.8
Extinction Ratio (Contrast Ratio), Full Aperture Beam @ 633 nm	> 1000:1	> 800:1	> 1000:1	> 700:1
Rise Time, picoseconds	< 350	< 350	< 500	< 500
Connectors Available	HN	N, C	HN	N, C
Weight (approximate) kilograms	0.5	0.75	0.4	0.75



50 Ω IMPEDANCE POCKELS CELLS  
10 mm APERTURE  
16 mm APERTURE

SINGLE CRYSTAL  
MODEL 1071  
MODEL 1073

DUAL CRYSTAL  
MODEL 1072  
MODEL 1074