

# TX SERIES

## KD\*P Pockels cell

TX2042 / 2650 / 3460 / 5065 / 7595 / 100D

TX series KD\*P Pockels cells are the most advanced large aperture optical isolators commercially available and are proven performers in high power applications.

Gooch & Housego is the leading producer of Pockels cells for the development of laser induced nuclear fusion and sub-micron microlithography. Nearly 300 units are in use worldwide; more than twice the total from all other manufacturers combined.

We have incorporated state-of-the-art features, such as specially modified cylindrical-ring electrode geometries for optimum aperture extinction and transmission uniformity and minimum optical path length. Series TX cells also feature axially adjustable windows for sub-millimeter control of window/crystal spacing and 224 TPI differential screws for arc-second adjustment of windows parallelism or net wedge. These units typically have a lifetime of many years and can often be rebuilt for a fraction of the cost of a new unit. Each unit comes with detailed 2-page/4-photo test documentation for quality assurance.

We install premium 50 ohm GHV series electrical receptacles on series TX cells because of their 20 kVDC and 1 GHz mil-spec ratings (used with RG-8 A/U or RG-213/U coaxial cable). We stock GHV bulkhead receptacles as well as cable-end plugs.



### Features


- Axially adjustable windows for sub-millimeter control of window/crystal spacing
- 224 TPI differential screws for arc-second adjustment of input/output windows parallelism
- Double fill/drain ports
- Individually accessible crystal faces for convenient inspection or cleaning
- 50  $\Omega$  transmission line drive configuration is standard.
- Precision milled and epoxy-free
- A range of apertures available

### Benefits

- Expanded beam allows for reduced intensity

### Applications

- Q-switching and optical isolators in pettawatt/terawatt lasers
- Optical isolation and low frequency modulation of high power visible to NIR laser beams

Typical Specifications	TX2042	TX2650	TX3460	TX5065	TX7595	TX100D
<b>PHYSICAL</b>						
L x H x W (mm) <sup>1</sup>	85x80x85	97x87x92	102x95x103	115x111x119	151x136x144	157x 161x169
Hard aperture	19.5 mm	25.5 mm	33.5 mm	49.5 mm	73.5 mm	99.0 mm
Weight	1.1 kg	1.4 kg	1.9 kg	2.7 kg	5.4 kg	7.5 kg
Crystal deuteration <sup>2</sup>	95%	95%	95%	95%	95%	95%
<b>OPTICAL (1064 nm)</b>						
Single pass insertion loss	3.5%	4%	5%	5%	6.5%	7%
<b>Voltage contrast ratio</b>						
Crossed polarizers	8000:1	8000:1	6000:1	3000:1	800:1	200:1
Parallel polarizers	3000:1	2500:1	1500:1	500:1	300:1	100:1
Maximum residual birefringence (typically < 1% of aperture)	< 10 nm	< 12 nm	< 18 nm	< 20 nm	< 40 nm	< 80 nm
DC halfway voltage	6.4 kV	6.4 kV	6.7 kV	6.9 kV	7.3 kV	7.7 kV
Single pass distortion	$\lambda/20$	$\lambda/20$	$\lambda/20$	$\lambda/20$	$\lambda/20$	$\lambda/20$
<b>ELECTRICAL</b>						
Capacitance @ 1 kHz	23 pF	27 pF	32 pF	56 pF	86 pF	115 pF
10-90% risetime (50 $\Omega$ line)	1 nsec	< 2 nsec	2 nsec	3 nsec	5 nsec	7 nsec
						

<sup>1</sup> L=housing length along optic axis direction; W=width between electrical terminals; H=height

<sup>2</sup> 99% deuterated KD\*P and UV-grade KDP also available in certain sizes. Please inquire.

**TX cell 50  $\Omega$  transmission mode wiring information:**

