

Crystal Ovens

Many of widely used non-linear crystals are susceptible to the ambient humidity, for example KD*P, BBO, LBO. The protective coatings applied to the surface can reduce degradation to some extent only. To improve the protection of surfaces of the crystals from the degradation it is desirable to keep the crystals at higher than ambient temperature, which helps avoid water vapor condensation on the crystal surfaces.

In addition, if the crystal is used for harmonics generation, the phase-matching angle depends on crystal temperature. For example, the output power of second harmonics generator based on KD*P crystal can decrease by 50 % if the crystal temperature change just by one degree, hence for good laser stability precise crystal temperature stabilization is necessary.

EKSPLA offers three different solutions for precise crystal heating. TK series of crystal ovens provide reliable, stable performance and can accommodate wide range of crystals.

TEMPERATURE CONTROLLER KK1 WITH OVEN TK1

TK1 and KK1 is high temperature set (up to 200 °C) consisting of thermocontroller TK1 and crystal oven KK1. TK1 has two independent outputs and can control two KK1 ovens simultaneously. Through RS232 computer interface it can be controlled from PC. Current temperature is shown on LED display.

The nonlinear crystal is mounted into adapter before insertion into oven KK1. Such design facilitates handling and replacement of the crystal. The non-linear crystal can be sealed with fused silica windows in order to provide extra protection. The standard adapters are 15, 30 and 50 mm long with apertures of 3×3, 4×4, 5×5, 6×6 mm size. By custom order adapters for crystals up to 12×12 mm size are available. In addition, adapters for Brewster-cut and PPLN crystals are available too.



OVEN TK3

TK3 is compact oven with build-in thermocontroller for temperature up to 60 °C. It is ideal for larger aperture crystals like KD*P. The crystals with up to 15×15 mm dimensions can be mounted. TK3L model can fit crystals with up to 30 mm long, while TK3XL can fit the crystals up to 50 mm long.

Each oven is made exactly for specified crystal, so it cannot be used for different size crystals.



OVEN TK4

TK4 is compact oven with build-in thermocontroller for temperature up to 60 °C. TK4 oven provides more crystal mounting options in comparison to TK3. Like in KK1, each crystal is mounted into adapter before insertion in oven. TK4 and KK1 crystal adapters are compatible. Maximum crystal size for this model is 12×12 mm. and the length of the crystal – 30 mm.

As in TK3, the pre-set temperature can be adjusted in ±5°C range by the help of potentiometer. The current temperature is not indicated. In addition, TK4 has “temperature ready” signal, changing state when pre-set temperature is reached. For additional protection of crystal surfaces from the dust or other contamination, we offer TK4W model – windowed version of TK4 oven.



SPECIFICATIONS

	TK1+KK1	TK3	TK4	TK4W
Temperature tuning range , °C	RT-200	± 5 ¹⁾	± 5 ¹⁾	± 5 ¹⁾
Maximum crystal dimensions, mm	12×12×30 ²⁾	15×15×15 ³⁾	12×12×15 ⁴⁾	12×12×15 ⁴⁾
Sealing	FS windows ⁵⁾	n/a	n/a	FS windows
Preset temperature °C	—	30–60 ⁶⁾	30–60 ⁶⁾	30–60 ⁶⁾
Accuracy °C	± 0.5	n/a	n/a	n/a
Long-term stability °C	± 0.1	± 0.2	± 0.2	± 0.2
Resolution °C	0.1	n/a	n/a	n/a
Powering requirements	100–240 VAC	12–15 VDC	12–15 VDC	12–15 VDC
Power consumption, W	45	6	6	6
Sensor type	PT1000	NTC Thermo resistor	NTC Thermo resistor	NTC Thermo resistor
Output connector	DB9	Molex 2 pin	Binder 719, 3 pin	Binder 719, 3pin
Serial interface	RS232 (DB 9)	n/a	n/a	n/a
Dimensions, WxHxD, mm	Ø52×50	48×44×26	48×50×36	48×50×36
Unit price, Euro	1320 ⁷⁾	290	310	510

¹⁾ In respect to preset temperature

²⁾ Ovens for 50 mm long crystals are available

³⁾ Ovens for 30 and 50 mm long crystals are available

⁴⁾ Ovens for 30 mm long crystals are available

⁵⁾ Optional

⁶⁾ Up to 80 °C version is available on request

⁷⁾ Price is for one thermocontroller KK1 and two TK1 ovens

RELATED PRODUCTS

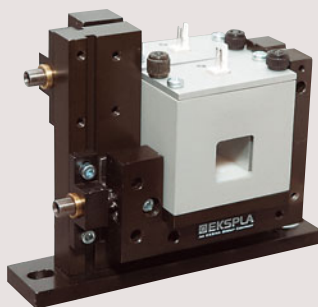
Mount H1

for fine tuning of TK3 or TK4 angle is available. The tuning range is ± 2.5°.



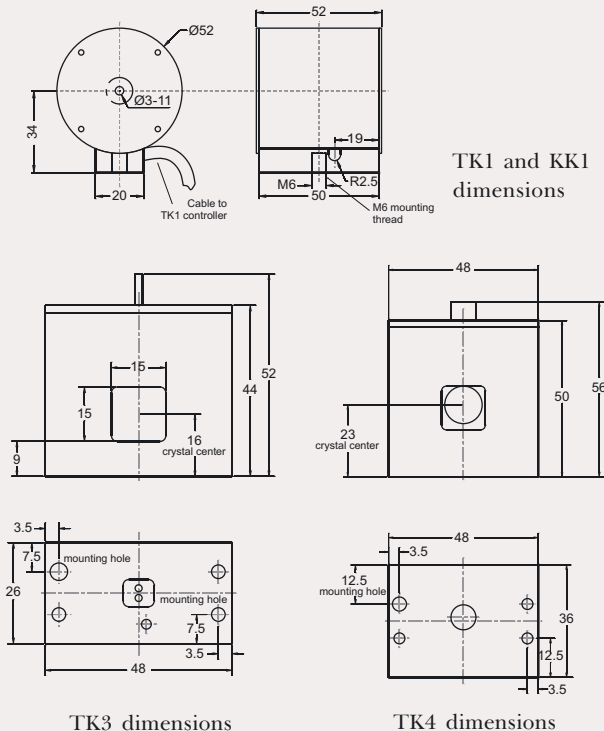
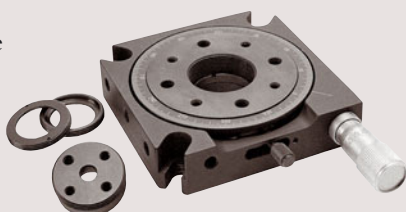
H2 type mount

can fit two TK3 type ovens and is ideal for third or fourth harmonics generators.



With adapter H4 the TK3 and TK4 ovens can be mounted on **rotary stage 860-0140** featuring ± 7.5 ° fine tuning range with position read-out.

Motorized version of the rotary stage is available as well.



EKSPLA
distributor in
United Kingdom

InCryS Laser Systems Ltd
14 Parris Road, Stokenchurch, High Wycombe, Bucks. UK
Tel.: + 44 (0) 1494 482541 | Fax: + 44 (0) 1494 482873
E-mail: sales@ingcryS.com | www.ingcryS.com

Nonlinear and Laser Crystals