Plane and Wedged Windows

APPLICATION AND TYPES

We produce a wide range of the windows made of various crystal and glass materials for spectroscopy and laser applications, typically for FTIR spectroscopy, thermography, pyrometry, CO_2 lasers, Nd:YAG lasers, etc

MATERIALS

A very wide range of the materials is available.

Fluorides:	CaF_2 BaF_2
Salts:	NaCl KCl KBr
Semiconductor crystals:	Si (including High Resistivity Float Zone Si for FIR and THz applications) Ge ZnSe ZnS GaAs
Sapphire:	Sapphire
Quartz:	UV - IR Fused silica UV Fused silica Crystal quartz
Glass:	BK7 glass and its Russian analogue K8
Plastics:	TPX

SPECIFICATION AND TOLERANCES

We offer high quality optics at reasonable prices. The specification of the windows depends on the application and either is defined by the customer or offered by us considering the working conditions, desired performance of the optical component itself or the assembled optical system in toto, material properties, etc.

Tab.1 Specification of the windows for IR-spectroscopy

Specification	Typical	State-of-the-art
Diameter tolerance, mm	+0/-0.25	+0/-0.025
Thickness tolerance, mm	+/-0.25	+/-0.0025
Thickness matching, mm	-	+/-0.001
Surface quality, scr/dig	60/40 или 40/20	better than 20/10
Surface flatness, λ @ 633 nm	2	1/10
Parallelism (wedge tolerance)	5 arc min	5 arc sec

N.B. The best possible specification depends on material and parameters combination.

PLANE PARALLEL WINDOWS

We have long experience of supplying the windows of standard (catalogue) sizes for the commonly used instruments from Perkin Elmer, Nicolette, Bruker Optics, Pike, etc.

Tab.2 Commonly used standard windows for FTIR (IRspectroscopy) instruments

Discs	Rectangles
Diameter · Thickness	Length · Width · Thickness
6 x 1 mm	25 x 12 x 2 mm
13 x 1 mm	25 x 25 x 4 mm
13 x 2 mm	29.5 x 14.5 x 2 mm
15 x 2 mm	29.5 x 14.5 x 2 mm drilled
19 x 2 mm	29.5 x 14.5 x 4 mm
20 x 2 mm	29.5 x 14.5 x 4 mm drilled
22 x 2 mm	38.5 x 19.5 x 2 mm
22 x 4 mm	38.5 x 19.5 x 2 mm drilled
25 x 2 mm	38.5 x 19.5 x 4 mm
25 x 4 mm	38.5 x 19.5 x 4 mm drilled
25 x 5 mm	41 x 23 x 3 mm
32 x 3 mm	41 x 23 x 3 mm drilled
32 x 3 mm drilled	41 x 23 x 6 mm
38x3 mm	41 x 23 x 6 mm drilled
38x6 mm	45 x 20 x 6 mm
41x3 mm	45 x 20 x 6 mm drilled
49x6 mm	50 x 25 x 6 mm
50x3 mm	50 x 25 x 6 mm drilled

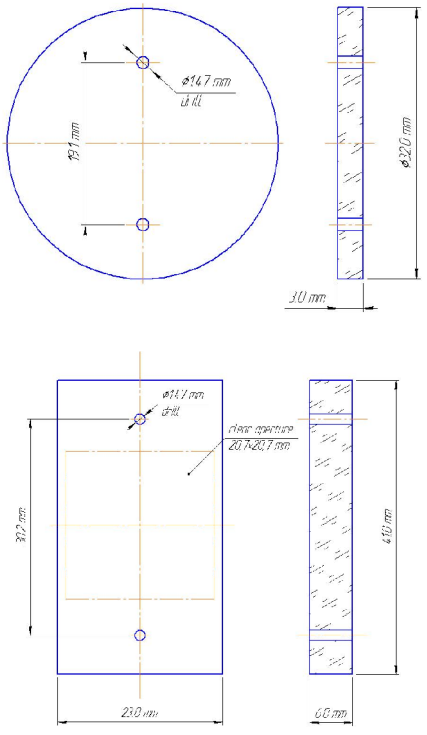

Fig.1 Drawings of the drilled windows

16 Domostroitelnaya str.
194292 St. Petersburg, Russia
www.tydex.ru

Phone: 7-812-3318702
Fax: 7-812-3092958
E-mail: optics@tydex.ru

TYDEX®

Plane and Wedged Windows

WEDGED WINDOWS

In order to avoid the influence of interference effects from the surface reflections on the transmission sometimes it is preferably to use the wedged windows.

A fabrication of the wedged windows with a variety of angles to customer specification is available.

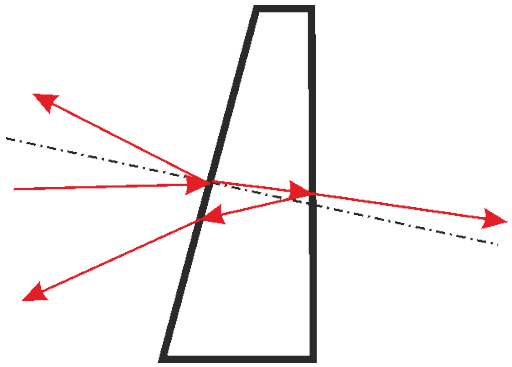

Fig.2 A method to rid the optical system of unwanted reflections with using the wedge

BREWSTER WINDOWS

For some laser applications the windows set at Brewster angle with respect to the incident light are often used in laser cavities. The p-polarized radiation transmits the Brewster angle window without any Fresnel losses and the window does not need to be coated which increases its lifetime in laser medium ambience.

Brewster angle window can be also used as a polarizer both in reflection and in transmission. In reflection, the output light is 100% s-polarized however there are some energy losses due to transmitted part of the light. In transmitted light we have 100% energy of p-polarized part of incident light however some of the s-polarized radiation is also transmitted, therefore series of windows are needed to obtain a high degree of polarization.

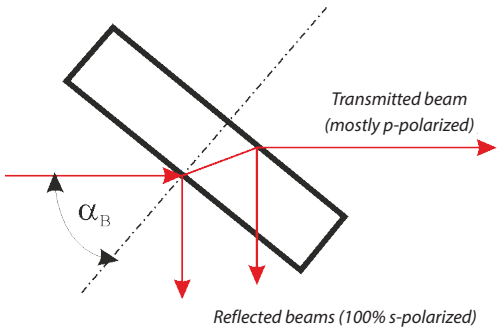

Fig.3 Brewster angle window

COATINGS

A wide range of anti-reflection (AR) and broadband anti-reflection (BBAR) coatings on the windows is available, as well as other types of coatings: partial reflecting (PR) beamsplitter coatings, wavelength separating/combining coatings, environment protection coating (diamond like or DLC).

16 Domostroitelnaya str.
194292 St. Petersburg, Russia
www.tydex.ru

Phone: 7-812-3318702
Fax: 7-812-3092958
E-mail: optics@tydex.ru

TYDEX®