LASER COMPONENTS®

Plane Substrates

Substrates with plane surfaces are used, for example, as bending mirrors, dichroic mirrors, or windows. The finest polished optics with a planarity of λ/10 are normally used in laser applications.

The polish specification of substrates depends on the application. When used as mirrors, the glasses are finely polished on at least one side. When used in transmission, both sides of the substrate are polished to laser grade quality.

The plane substrates differ in the specification of the wedge angle and are available in different forms and sizes.

Note

The right selection of material is important in laser optics. Furthermore, the materials can be provided with different levels of quality.

Before coating, the typical surface quality of 1.0" substrates made of BK7 or fused silica is as follows:

- Surface figure:
  3/0.2 (0.2/–) according to ISO 10110
  λ/10 according to MIL-O-1380A
- Surface quality:
  5/4x0.025 according to ISO 10110
  10-5 according to MIL-O-1380A

Rectangular/Square Plane Substrates

Rectangular windows as well as mirror substrates are primarily used at an angle of 45°, or steeper angles of incidence. They are often used for laser beams with a large diameter for efficient beam deflection.

Customer-specific substrates such as, for example, for Galvo mirrors are manufactured upon request.

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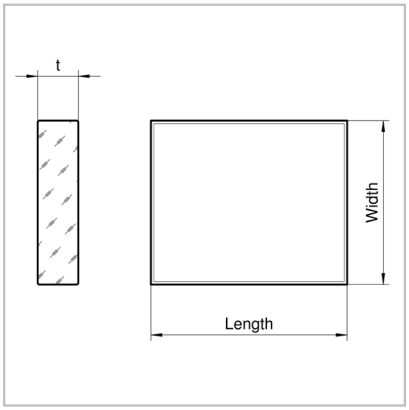
Rectangular Windows – RW Series

The RW series (**R**ectangular **W**indow) is used for thin film polarizers and dichroic optics at an angle of 45° if a laser beam has to be transmitted.

A crucial feature of this series is the high polishing quality of both sides. LASER COMPONENTS has standard components with a high surface figure and excellent cleanliness available.



Specifications

Material	BK7, fused silica
Dimension tolerance	+ 0.00 mm; – 0.20 mm
Thickness tolerance	± 0.20 mm
Surface quality	5/4 x 0.025 for 1.0" substrates according to ISO 10110 10-5 according to MIL-O-1380A
Wedge angle	< 5 arc minutes, other wedge angles upon request
Protective chamfer	0.2 – 0.4 mm x 45°
Clear aperture	85 % of the dimensions

Nomenclature

RW	28.6	-14.3	-3.2	UV
Product code (**R**ectangular **W**indow)	Length in mm	Width in mm	Thickness in mm	Material code UV: fused silica C: BK7

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Fused Silica Rectangular Windows

Part No.	Length [mm]	Width [mm]	Thickness t [mm]	Surface Figure	Material
RW18-14-2.3UV	**18.00**	**14.00**	**2.30**	**λ/4**	**Fused Silica**
RW18-14-3UV	**18.00**	**14.00**	**3.00**	**λ/10**	**Fused Silica**
RW20-10-6.35UV	20.00	10.00	6.35	λ/10	Fused Silica
RW23-14-3UV	**23.00**	**14.00**	**3.00**	**λ/10**	**Fused Silica**
RW25-20-3UV	**25.00**	**20.00**	**3.00**	**λ/10**	**Fused Silica**
RW28.6-14-3.2UV	**28.60**	**14.00**	**3.20**	**λ/10**	**Fused Silica**
RW36-26-1UV	**36.00**	**26.00**	**1.00**	**λ/2**	**Fused Silica**
RW40-25-3UV	40.00	25.00	3.00	λ/4	Fused Silica
RW50-27-3UV	**50.00**	**27.00**	**3.00**	**λ/2**	**Fused Silica**
RW50-30-12.7UV	50.00	30.00	12.70	λ/10	Fused Silica

Bold type indicates items available from stock. Other sizes and materials are available upon request.

BK7 Rectangular Windows

Part No.	Length [mm]	Width [mm]	Thickness t [mm]	Surface Figure	Material
RW23-14-3C	**23.00**	**14.00**	**3.00**	**λ/10**	**BK7**
RW28.6-14.3-3.2C	**28.60**	**14.30**	**3.20**	**λ/4**	**BK7**
RW35-28-3C	35.00	28.00	3.00	λ/2	BK7
RW40-25-9.53C	40.00	25.00	9.53	λ/10	BK7
RW50-30-12.7C	50.00	30.00	12.70	λ/10	BK7
RW100-70-10C	100.00	70.00	10.00	λ/4	BK7

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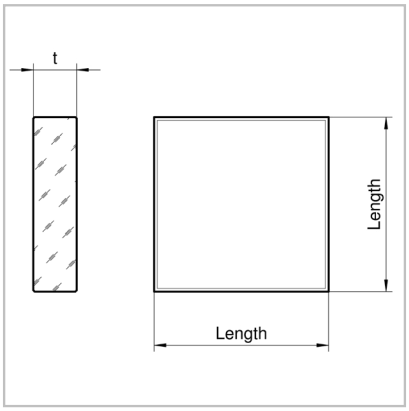
Square Windows – SW Series

The SW series (**S**quare **W**indow) is primarily used for the transmission of a laser beam at an angle of incidence of 0°.

A crucial feature of this series is the high polishing quality of both sides. LASER COMPONENTS has standard components with a high surface figure and excellent cleanliness available.



Specifications

Material	BK7, fused silica
Dimension tolerance	+ 0.00 mm; – 0.20 mm
Thickness tolerance	± 0.20 mm
Surface quality	5/4 x 0.025 for 1.0" substrates according to ISO 10110 10-5 according to MIL-O-1380A
Wedge angle	< 5 arc minutes, other wedge angles upon request
Protective chamfer	0.2 – 0.4 mm x 45°
Clear aperture	85 % of the dimensions

Nomenclature

SW	05	25	UV
Product code (**S**quare **W**indow)	Dimension in inches x 10	Thickness in inches x 100	Material code UV: fused silica C: BK7

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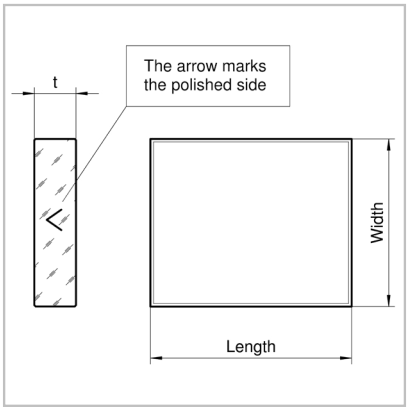
Rectangular Mirror Substrates – RS Series

The reasonably-priced RS series (**R**ectangular Mirror **S**ubstrates) is used when only one substrate surface of high laser quality is required. This series has the standard specifications while the backside is only commercially polished.



Specifications

Material	BK7, fused silica
Dimension tolerance	+ 0.00 mm; – 0.20 mm
Thickness tolerance	± 0.20 mm
Wedge angle	< 5 arc minutes
Protective chamfer	0.2 – 0.4 mm x 45°
Clear aperture	85 % of the dimensions
Surface quality Front side Rear side	 5/4 x 0.025 for 1.0" substrates according to ISO 10110 10-5 according to MIL-O-1380A commercial polish

Nomenclature

RS	28.6	-14.3	-3.2	UV
Product code (**R**ectangular Mirror **S**ubstrate)	Length in mm	Width in mm	Thickness in mm	Material code UV: fused silica C: BK7

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Fused Silica Rectangular Mirror Blanks

Part No.	Length [mm]	Width [mm]	Thickness t [mm]	Surface Figure	Material
RS20-10-6.35UV	20.00	10.00	6.35	λ/10	Fused Silica
RS28.6-14.3-3.2UV	**28.60**	**14.30**	**3.20**	**λ/10**	**Fused Silica**
RS40-25-9.5UV	40.00	25.00	9.50	λ/10	Fused Silica
RS50-27-3UV	**50.00**	**27.00**	**3.00**	**λ/2**	**Fused Silica**
RS50-30-12.7UV	50.00	30.00	12.70	λ/10	Fused Silica

Bold type indicates items available from stock. Other sizes and materials are available upon request.

BK7 Rectangular Mirror Blanks

Part No.	Length [mm]	Width [mm]	Thickness t [mm]	Surface Figure	Material
RS18-14-2.3C	**18.00**	**14.00**	**2.30**	**λ/10**	BK7
RS20-10-6.35C	20.00	10.00	6.35	λ/10	BK7
RS28.6-14.3-3.2C	**28.60**	**14.30**	**3.20**	**λ/4**	**BK7**
RS40-25-9.5C	40.00	25.00	9.50	λ/10	BK7
RS50-30-12.7C	50.00	30.00	12.70	λ/10	BK7
RS100-70-10C	100.00	70.00	10.00	λ/4	BK7

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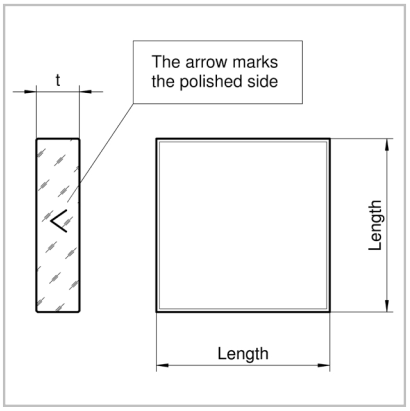
Square Mirror Substrates – QS Series

The reasonably-priced QS series (**S**quare Mirror **S**ubstrates) is used when only one substrate surface of high laser quality is required. This series has the standard specifications while the backside is only commercial polished.



Nomenclature

QS	05	25	UV
Product code (**S**quare Mirror **S**ubstrate)	Length in inches x 10	Thickness in inches x 100	Material code UV: fused silica C: BK7

Specifications

Material	BK7, fused silica
Dimension tolerance	+ 0.00 mm; – 0.20 mm
Thickness tolerance	± 0.20 mm
Wedge angle	< 5 arc minutes
Protective chamfer	0.2 – 0.4 mm x 45°
Clear aperture	85 % of the dimensions
Surface quality Front side Rear side	 5/4 x 0.025 for 1.0" substrates according to ISO 10110 10-5 according to MIL-O-1380A Commercial polish

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