

# 3.0 TOLERANCES AND SHRINKAGE VALUES

## 3.1 Prior remarks

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## 3.2 PLEXIGLAS® GS

.....

- Sheets
- .....

- Blocks
- .....

## 3.3 PLEXIGLAS® XT

.....

- Sheets
- .....

## 3.4 PLEXIGLAS®

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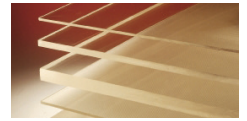
- Multi-skin sheets
- .....

- Corrugated Sheets
- .....

- Rods and Tubes
- .....

## 3.1 Prior remarks

### TOLERANCES AND SHRINKAGE VALUES



**On the following pages, the tolerances and shrinkage values are given for the product groups**

- PLEXIGLAS® GS
- PLEXIGLAS® XT
- PLEXIGLAS® SP
- PLEXIGLAS® WP
- PLEXIGLAS® tubes/rods

#### **Explanation of symbols:**

< smaller than

> greater than

≤ smaller than or equal to

≥ greater than or equal to

% per cent

‰ per thousand

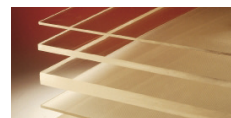
°C degrees centigrade (temperature)

The tolerance values are valid to ISO 291 and apply at 23° C ± 2 °C and 50 % ± 5 % relative humidity.

## 3.2 PLEXIGLAS® GS

### Sheets

#### TOLERANCES AND SHRINKAGE VALUES



#### Thickness tolerances ( $\pm$ mm) to ISO 7823-1

Length (mm)	Width (mm)	Thickness in mm											
		2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0	
3000	2000												2.9
3050	2030	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.6	1.9	2.4		

#### Tolerance formula:

$$\text{Tolerance} = \pm (0.4 + 0.1 \times \text{Thickness})$$

#### Tolerances for length and width

for the sizes in the table above:

$$0 / + 3 \text{ ‰}$$

#### for cut-to-size sheets:

up to 500 mm:  $\pm 0.5$  mm

up to 1500 mm:  $\pm 1.0$  mm

over 1500 mm:  $\pm 1.0 \text{ ‰}$

#### Tolerances for rectangularity (calculated on 1000 mm leg length)

for sizes and cut-to-size sheets:

$$\pm 1 \text{ mm}$$

#### Tolerance for planarity (calculated on 1000 mm chord length)

deviation

$$\leq 3 \text{ mm}$$

#### Shrinkage in length and width upon heating to forming temperature

$$\leq 2 \%$$

## 3.2 PLEXIGLAS® GS

Blocks

### TOLERANCES AND SHRINKAGE VALUES



#### Thickness tolerances in mm

Length (mm)	Width (mm)	Thickness in mm												
		30	35	40	50	60	70	80	90	100	110	120	150	160
3000	2000	-2/+2	-2/+3	-2/+3	-2/+3	-2/+3	-2/+3	-2/+6	-3/+9	-3/+9	-3/+10	-3/+10	-5/+11	-6/+12

#### Tolerances for length and width

for sizes and cut-to-size sheets:

up to 1000 mm:  $\pm 1.5$  mm

over 1000 mm:  $\pm 1.5$  ‰

#### Tolerances for rectangularity (calculated on 1000 mm leg length)

for sizes and cut-to-size sheets:

$\pm 1.5$  mm

#### Tolerances for planarity (calculated on 1000 mm chord length)

deviation:

$\leq 10$  mm

#### Shrinkage in length and width upon heating to forming temperature

1.5 to 2.2 %

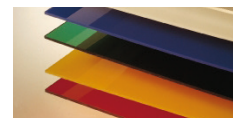
#### Reference:

For tolerances of tubes and rods, see Section A, Sales Range!

# 3.3 PLEXIGLAS® XT

## Sheets

### TOLERANCES AND SHRINKAGE VALUES



#### Thickness tolerances

< 3 mm thickness:  
 ± 10 %  
 ≥ 3 mm thickness:  
 ± 5 %

#### Tolerances for length and width

Length/Width	Sizes and cut-to-size sheets from production	Special cutting service		
		up to 500 mm	up to 1500 mm	up to 1500 mm
≤ 4050 mm	0/+ 3 ‰	± 0.5 mm	± 1.0 mm	± 1 ‰
> 4050 mm	0/+ 4 ‰ (as a supplement to ISO 7823-2)			

#### Tolerances for rectangularity

Sizes and cut-to-size sheets from production	Special cutting service
≤ 3,5 mm • w	≤ 1 mm • w

calculated on sheet width w [in m] according to ISO 7823-2:1996, expressed as the difference in length [in mm] of the sheet diagonals multiplied by w)

#### Shrinkage in extrusion direction upon heating to forming temperature

Smooth surface 1.5 to < 2 mm thickness:  
 ≤ 10 %  
 Smooth surface 2.0 to < 3 mm thickness:  
 ≤ 6 %  
 Smooth surface > 3 mm thickness:  
 ≤ 3 %  
 Satin surfaces, > 3 mm thickness:  
 PLEXIGLAS® Satinice: ≤ 3 %  
 Textured surfaces, all thicknesses:  
 Sheets with texture AR, texture C, Honeycomb etc.: ≤ 6 %

#### Tolerances for planarity (calculated on 1000 mm chord length)

deviation: ≤ 3 mm

# 3.4 PLEXIGLAS®

Multi-skin sheets

## TOLERANCES AND SHRINKAGE VALUES



### Width tolerances

Geometry	Tolerance
<b>Standard widths</b>	
SDP 8/1200-16	1200 -3/+2 mm
SDP 16/980-32	980 -2/+4 mm
SDP 16/1200-32	1200 -2/+4 mm
SDP 16/980-64	980 -2/+4 mm
SDP 16/1053-64	1053 -2/+4 mm
SDP 16/1200-64	1200 -2/+4 mm
S4P 32/1230-32	1230 ±4 mm
S5P 32/1230-32	1230 ±4 mm
<b>Cut-to-size widths</b>	
Centered, without trimmed edges	±10 mm
Width with trimmed edges	±3 mm

### Thickness tolerances

Geometry	Tolerance
SDP 8/1200-16	8 ± 0.5 mm
PSDP 16/980-32	16 ± 0.8 mm
SDP 16/1200-32	16 ± 0.8 mm
SDP 16/980-64	16 ± 0.8 mm
SDP 16/1053-64	16 ± 0.8 mm
SDP 16/1200-64	16 ± 0.8 mm
S4P 32/1230-32	32 ± 1.0 mm
S5P 32/1230-32	32 ± 1.0 mm

#### Tolerances for planarity

a) in extrusion direction:

allowable variation = sheet length [m] x 1.5

b) at right angles to extrusion direction,  
in relation to extrusion width:

Extrusion width:	Deviation:
980 mm:	≤ 1.9 mm
1053 mm:	≤ 2.2 mm
1200 mm:	≤ 2.8 mm
1230 mm:	≤ 3.0 mm

#### Tolerances for lateral straightness

For extrusion widths, per metre of sheet length: 1.0 mm

#### Length tolerances

≤ 3000 mm length:

0/+ 6 mm

> 3000 mm Length:

0/+ 2 mm per metre

#### Tolerances for rectangularity (calculated on 1000 mm leg length)

deviation: ± 3 mm

## 3.4 PLEXIGLAS®

Corrugated sheets

### TOLERANCES AND SHRINKAGE VALUES



#### Width tolerances

all grades: 0/+ 5 mm

#### Length tolerances

up to 3000 mm length: 0/+ 6 mm

from 3000 mm length: 0/+ 2 mm pro Meter

#### Tolerances for rectangularity (per 1000 mm leg length)

deviation:  $\pm 3.0$  mm

#### Tolerances for spacing of corrugations

WP 76/18:  $76 \pm 1$  mm

WP 130/30:  $130 \pm 2$  mm

WP 177/51:  $177 \pm 3$  mm

#### Tolerances for height of corrugations

WP 76/18:  $18 -2/+ 1$  mm

WP 130/30:  $30 \pm 1.5$  mm

WP 177/51:  $51 \pm 3$  mm

#### Tolerances for planarity (per 1000 mm chord length)

deviation:  $\leq 3.0$  mm

#### Tolerances for lateral straightness (per 1000 mm chord length)

deviation:  $\leq 1.0$  mm

## 3.4 PLEXIGLAS®

### Rods and tubes

#### TOLERANCES AND SHRINKAGE VALUES



#### Tolerances for wall thickness and exterior diameter

see Section A, Sales Range PLEXIGLAS® XT-tubes and -rods and GS-rods

#### Tolerances for length

The standard tolerances from extruder at  $\leq 6000$  mm length are as follows:

XT tubes:	-0/+5 mm
XT rods round (2–10 mm):	-0/+40 mm
XT rods round (12–60 mm):	-0/+15 mm
GS rods round:	-0/+100 mm

#### Special manufacturing service:

#### Length tolerances for rods and tubes

Outer diameter	Length 50–500 mm	Length >500–4000 mm
up to 8 mm	$\pm 2.0$ mm	$\pm 4.0$ mm
10–16 mm	$\pm 1.0$ mm	$\pm 2.0$ mm
20–160 mm	$\pm 0.5$ mm	$\pm 1.0$ mm

Outer diameter 160–500 mm, only cuttings from extruder from 1000 mm length available.

#### Straightness of tubes

Diameter mm	Deviation mm
up to 10 mm	10
>10 up to 20 mm	8
>20 up to 30 mm	6.5
>30 up to 50 mm	5
>50 up to 300 mm	3
>300 up to 500 mm	2

Maximum deviation per 1000 mm of chord length