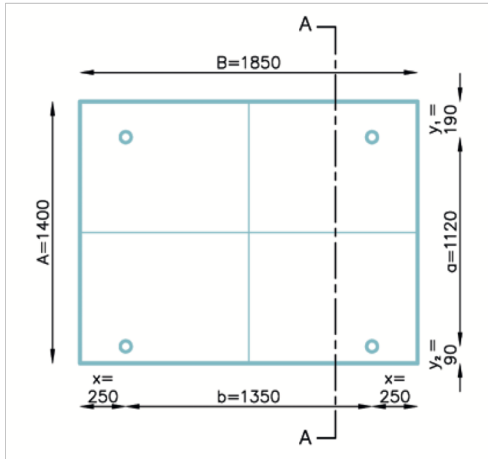


# 4 point fixing canopy

statically tested

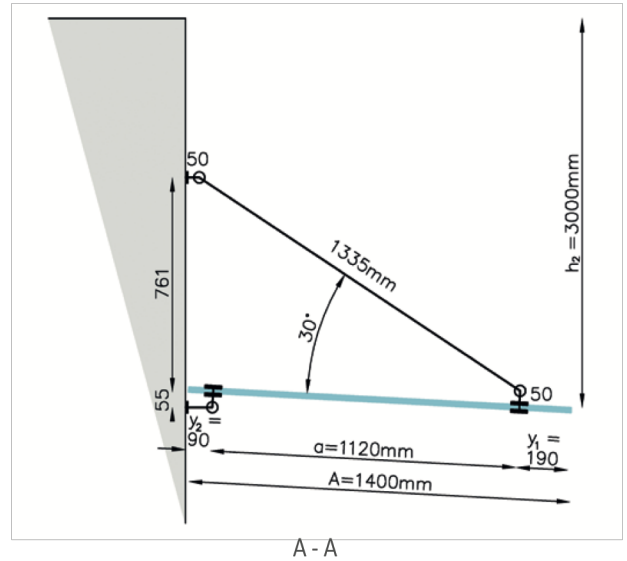
## INFO Geometry

$A = 1400 \text{ mm}$   
 $B = 1850 \text{ mm}$   
 $a = 1120 \text{ mm}$   
 $b = 1350 \text{ mm}$   
 $y_1 = 190 \text{ mm}$   
 $x = 250 \text{ mm}$   
 $h_2 = 3000 \text{ mm}$



no. of anchors = 4

$y_2 = 90 \text{ mm}$



## INFO Glass thickness and type

glass thickness = 17,52 mm

glass type = semi-toughened laminated (8 - 1,52 - 8 mm)

## INFO Hanging rods

angle of fixing = 30 deg.

$I = 491 \text{ mm}^4$

support rod = 10 mm

$A = 79 \text{ mm}^2$

rod length = 1335 mm

$W = 98 \text{ mm}^3$

## INFO Rod size

material: AISI 304

max.  $\sigma = 240 \text{ N/mm}^2$

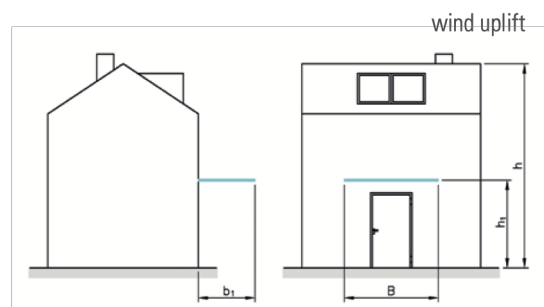
(allowable)

max. tension = 10,68 kN

**ok (uc = 0,18)**

max. compression = 2,29 kN

**ok (uc = 0,5)**



# 4 point fixing canopy

## INFO Loads

dead load = 0,438 kN/m<sup>2</sup>      h<sub>2</sub> = 3 m

snow load S = μ<sub>1</sub> C<sub>e</sub> C<sub>t</sub> S<sub>k</sub>

C<sub>e</sub> = 1

C<sub>t</sub> = 1

S<sub>k</sub> = 0,8 kN/m<sup>2</sup>

1 - μ<sub>1</sub> = 2 h<sub>1</sub> / S<sub>k</sub> = 7,5

l<sub>s</sub> = 5h = 15 m

l<sub>s</sub> = b = 1,40 m

l<sub>s</sub> = 1,40 m (the smaller result)

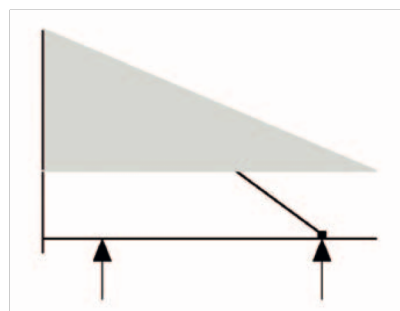
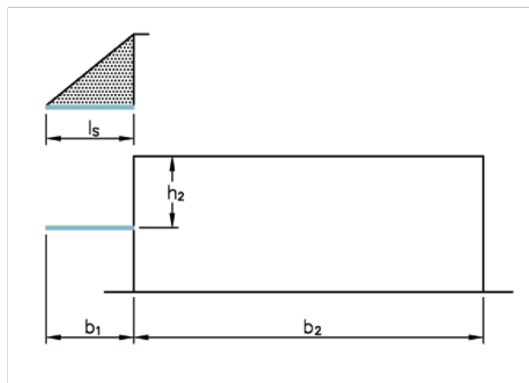
2 - OR μ<sub>1</sub> = 2b / l<sub>s</sub> = 2

3 - OR μ<sub>1</sub> = 5

then μ<sub>1</sub> = 2,00 (the smaller result)

snow load S = 2 x 1 x 1 x 0,8 = 1,6 kN/m<sup>2</sup>

W<sub>d</sub> = 1,35 x 0,44 + 1,5 x 0,8 x 1,6 = **2,51** kN/m<sup>2</sup>



## INFO Max. load on adapter

loading area = 0,6938 m<sup>2</sup> per adapter

max. load / adapter = 1,74 kN

axial tension in the rods = 1,74 / SIN 30 = 3,48 kN

= 3,48 x 1000 / 79 = 44,4 N/m<sup>2</sup> < 240 N/m<sup>2</sup>    ok

## INFO Wind uplift

d<sub>1</sub> = 1,40 m

press. coff. = 1,16

h<sub>1</sub> = 2,50 m

wind = 0,73 kN/m<sup>2</sup>

h<sub>1</sub> / h = 0,45

wind = 1,16 x 0,73 = 0,84 kN/m<sup>2</sup>

wind load area = 0,84 x 0,69375 = 0,59 kN    up force

dead load = 0,44 x 0,69375 = 0,30 kN    down force

total load = -0,3 + 1,5 x 0,59 = 0,58 kN

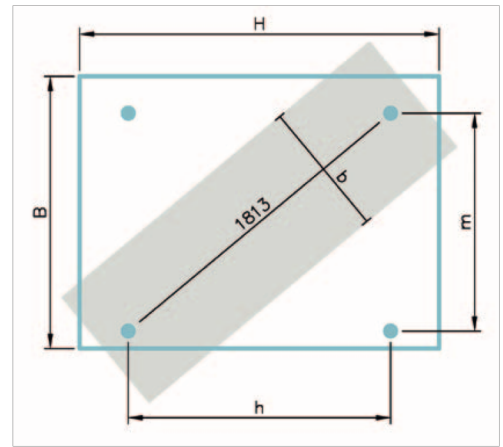
upload / adapter = 0,58 / SIN 30 = 1,15 kN

U.c = 1,15 / 2,29 = 0,50 kN < 1    **ok**

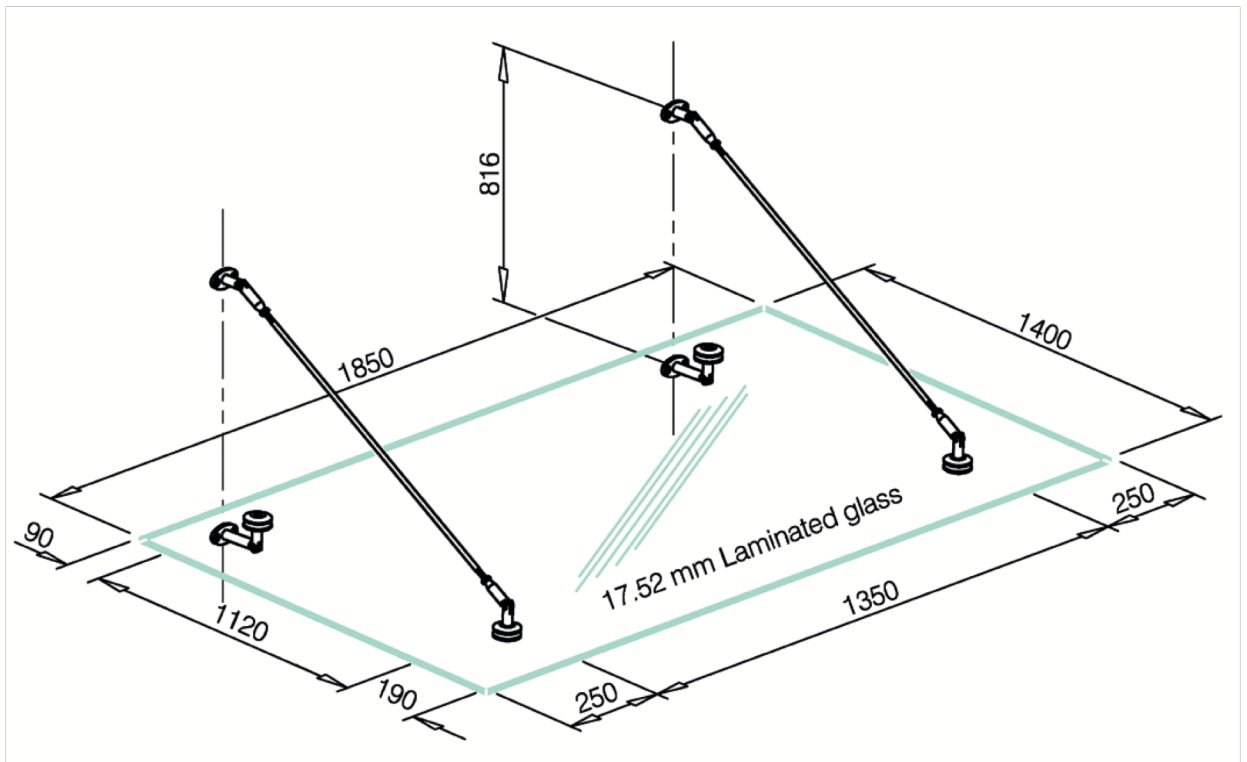
# 4 point fixing canopy

**INFO** Check deflection and stresses with the point fixing

thickness (t)	= 17,52 mm	glass type =	semi-toughened laminated (8 - 1,52 - 8 mm)
glass length (H)	= 1850 mm		
glass width (B)	= 1400 mm		
design load	= 2,51 kN/m <sup>2</sup>		
load width (b)	= 700 mm		
fix. distance (h)	= 1350 mm		
no. of adapters	= 4		
qd	= 1,76 kN/m <sup>1</sup>		
Md	= 0,72 kN.m		
W	= 14663 mm <sup>3</sup>		
σ	= 49 N/mm <sup>2</sup>	< 50 kN/mm <sup>2</sup>	
U	= 24 mm	< (1813/65) = 28 mm	<b>ok</b>



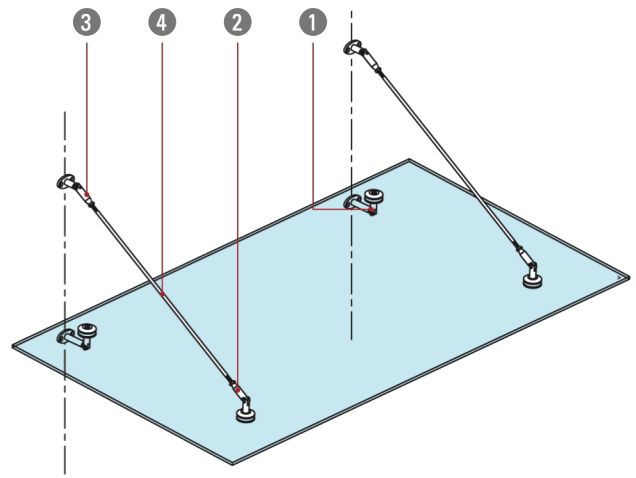
**INFO** Dimensions



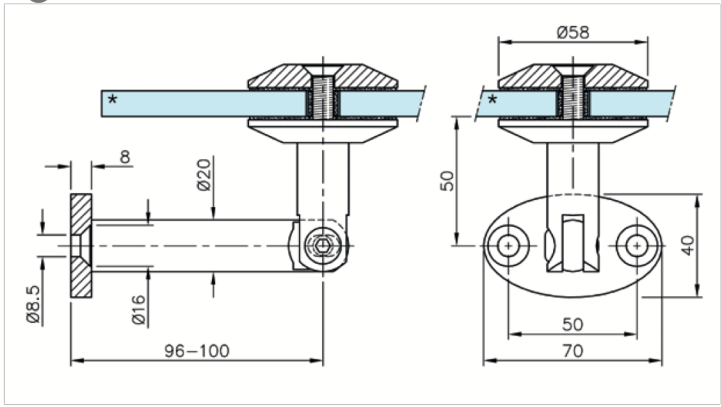
all dimensions in mm

# 4 point fixing canopy

**INFO** Products

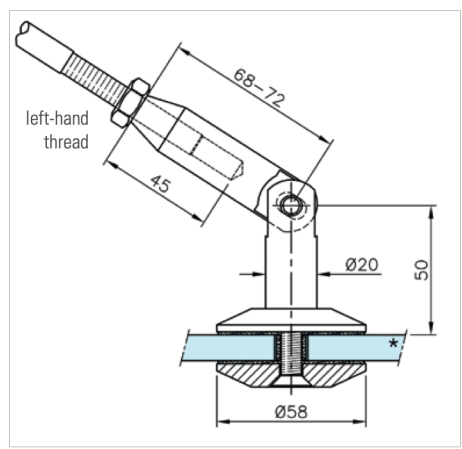


1 44.0201.010.12

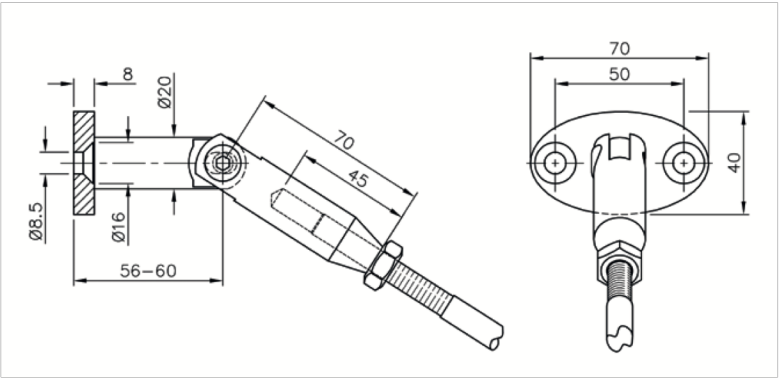


\* drawings show 10 mm glass

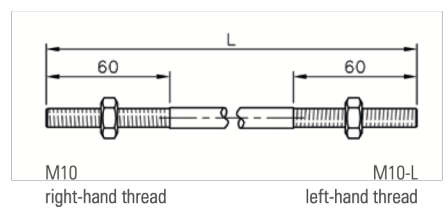
2 44.0202.010.12



3 44.0203.010.12



4 44.0299.010.12



**length (L)  
depending on glass expanse**