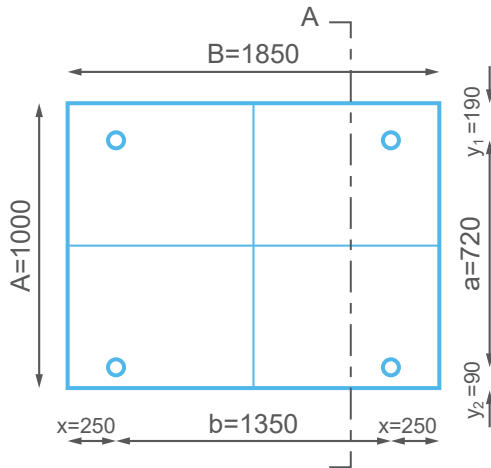


# 4 point fixing canopy

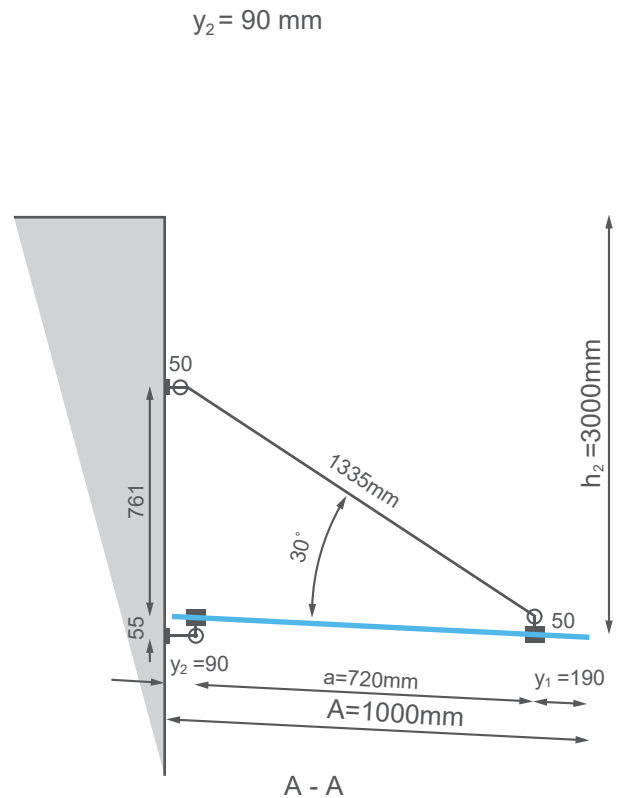
statically tested

## INFO Geometry

$A = 1000 \text{ mm}$   
 $B = 1850 \text{ mm}$   
 $a = 720 \text{ mm}$   
 $b = 1350 \text{ mm}$   
 $y_1 = 190 \text{ mm}$   
 $x = 250 \text{ mm}$   
 $h_2 = 3000 \text{ mm}$



no. of anchors = 4



## 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

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

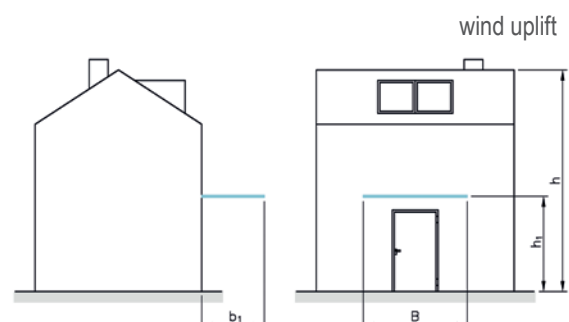
## INFO Rod size

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)



No rights can be derived from this calculation.

# 4 point fixing canopy

## INFO Loads

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

snow load  $S = \mu_i C_e C_t S_k$

$C_e = 1$

$C_t = 1$

$S_k = 0,8 \text{ kN/m}^2$

1 -  $\mu_1 = 2 h_1 / S_k = 7,5$

$l_s = 5h = 15 \text{ m}$

$l_s = b = 1,40 \text{ m}$

$l_s = 1,40 \text{ m}$  (the smaller result)

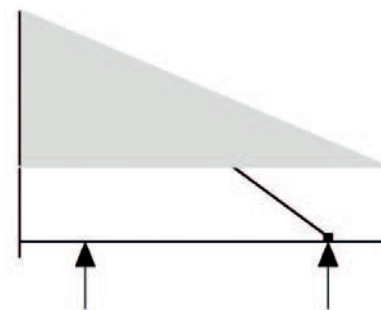
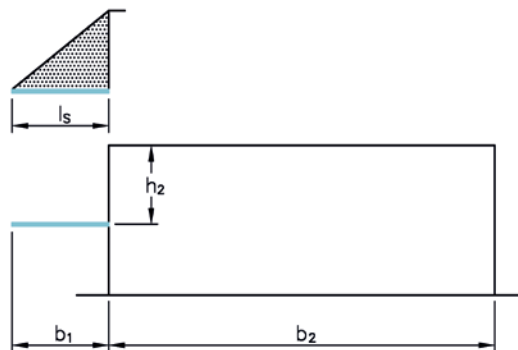
2 - OR  $\mu_1 = 2b / l_s = 2$

3 - OR  $\mu_1 = 5$

then  $\mu_1 = 2,00$  (the smaller result)

snow load  $S = 2 \times 1 \times 1 \times 0,8 = 1,6 \text{ kN/m}^2$

$W_d = 1,35 \times 0,44 + 1,5 \times 0,8 \times 1,6 = \boxed{2,51} \text{ kN/m}^2$



## 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. coeff. = 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

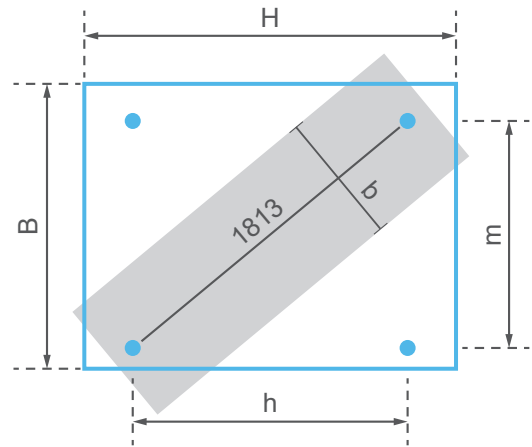
# 4 point fixing canopy

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

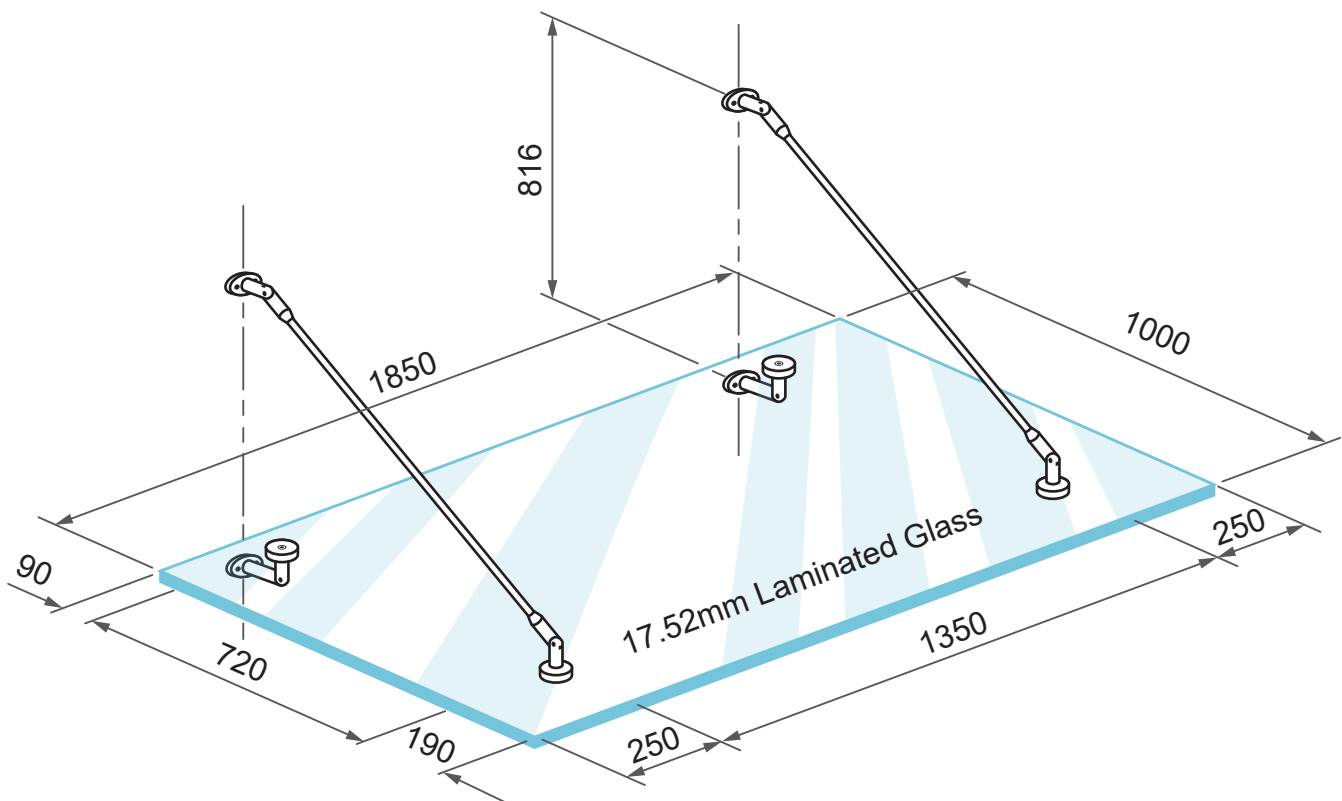
thickness (t) = 17,52 mm    glass type = semi-toughened laminated (8 - 1,52 - 8 mm)  
 glass length (H) = 1850 mm  
 glass width (B) = 1000 mm

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>  
 $\sigma$  = 49 N/mm<sup>2</sup> < 50 kN/mm<sup>2</sup>  
 U = 24 mm < (1813/65) = 28 mm  ok



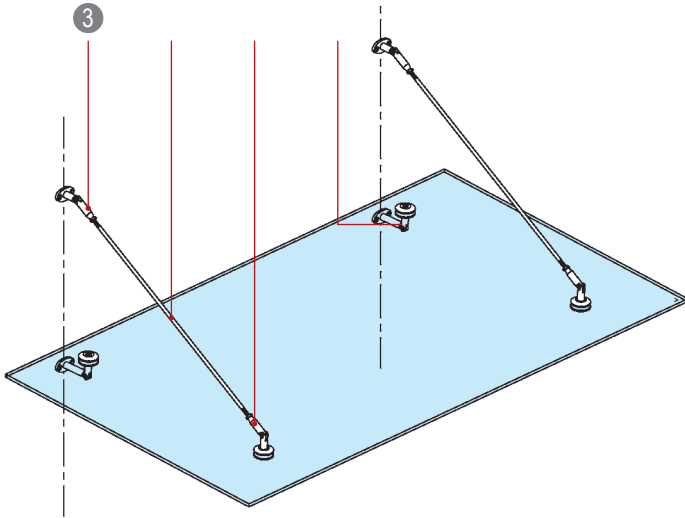
**INFO** Dimensions



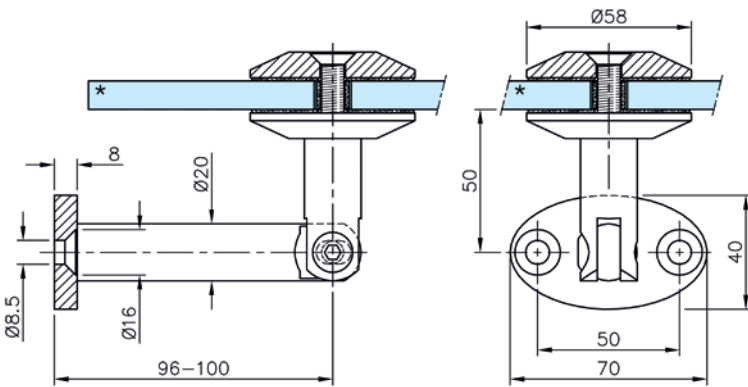
all dimensions in mm

# 4 point fixing canopy

INFO Products

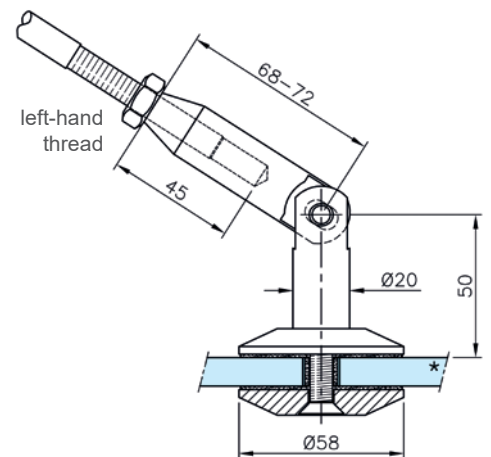


1 44.0201.010.12

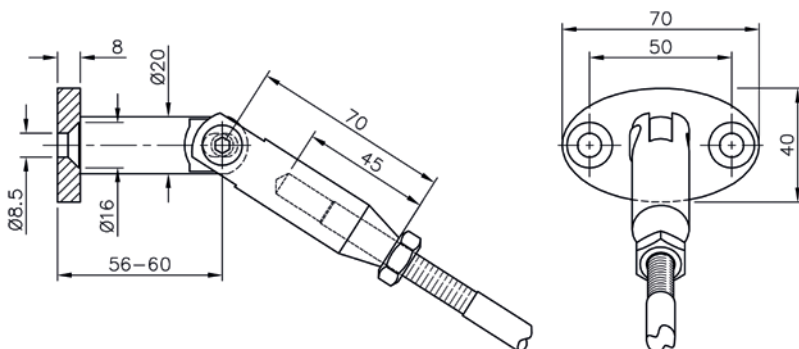


\* drawings show 10 mm glass

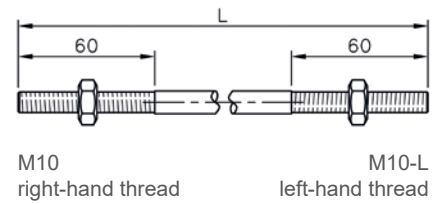
44.0202.010.12



3 44.0203.010.12



4 44.0299.010.12



length (L)  
depending on glass expanse