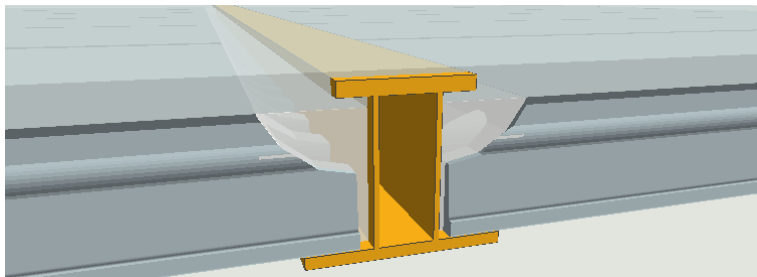


## PRE-Stress Flexible Support

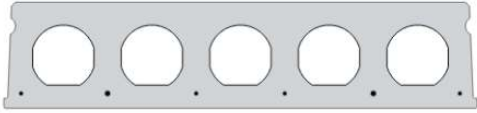
Calculate the utilization of the hollowcore cross section due to the deflection of beams.



- Calculations are according to the upcoming EN1168:2005+A4
- Fill in the detailed and easy to navigate user interface
- Add your own, or use the predefined, hollowcore and beam elements
- Define your cross sections using polyline-defined cross sections in dxf-files
- Results contains stresses, shear stresses and utilizations in ULS and SLS


### Input

#### Hollowcore



Hollowcore: HD/F 120/27 F155 -A408  
 Concrete: C45/55  
 Strands:  $\sigma_{50}$  : 850 MPa,  $L_{\text{anchor}}$  : 850 mm

#### Beam - HC interaction



Beam: HSQ no 2,  $L_{M0}$ : 7.2 m  
 Spanwidth HC: Left: 5 m, Right: 5 m  
 Topping: 50 mm  
 Interacting joint: C12/15  
 Supporting distance for HC on beam: 80 mm

#### Loading

ULS excl. dead load; Left: 2 kN/m<sup>2</sup>, Right: 2 kN/m<sup>2</sup>  
 SLS excl. dead load; Left: 1 kN/m<sup>2</sup>, Right: 1 kN/m<sup>2</sup>

### HollowCore

HollowCore:  [Edit](#)

Material:

$\sigma_{50}$ :  MPa

Anchorage length:  mm

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**Left**

Length (spanwidth):  m

ULS excl. dead load:  kN/m<sup>2</sup>

SLS excl. dead load:  kN/m<sup>2</sup>

**Right**

Length (spanwidth):  m

ULS excl. dead load:  kN/m<sup>2</sup>

SLS excl. dead load:  kN/m<sup>2</sup>

Support position

Upper

Lower

Topping  mm  
 Assuming density 2500 kg/m<sup>3</sup>

Interaction

### Output

**Ultimate Limit State, ULS:**  
 Stresses  $f_{ctd} = 1.800$  [MPa]:

$\sigma_1$	$\sigma_2$	$T_1$	$T_{2, \text{eff}}$	$\sigma_{ps}$	$\eta$ [%]
-0.375	21.568	0.275	1.860	1.703	94.6

Shear flow [kN/m] and effective shear stress [MPa] due to shear forces in the beam:

$S_f$	$T_{2, \text{eff}}$
253.54	1.860

( $\beta_f = 0.700$ ,  $\beta_{\text{top}} = 1.000$ ,  $T_{2, \text{top}} = 0.993$ ,  $T_{2, \text{imp}} = 1.665$ )

**Serviceability Limit State, SLS:**  
 $\epsilon_{cr} = 0.104$  mm  
 $1/f_{cur} = 0.001 \text{ m}^{-1}$ ,  $1/f_{allow} = 0.027 \text{ m}^{-1}$ ,  $\eta = 4.9$  %;

