

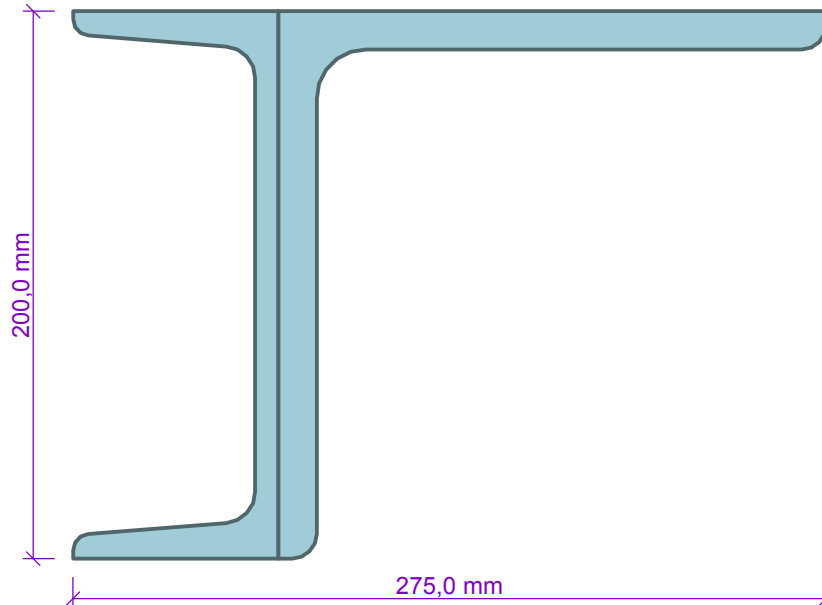
## Project

Section name : Ocelový svařenec: U 200 + L 200x200x14

Job name : Demo02

Date : 20. 4. 2011

## Input data



## Section objects

no.	Type	Description	Material	Area [mm <sup>2</sup> ]	Elastic modulus [MPa]
1	Profile	U(UPN) 200	EN 10025 : Fe 360	3220,0	210000,0
2	Profile	L 200 x 200 x 14	EN 10025 : Fe 360	5440,0	210000,0

## Section object parameters

**Object no.1:** U(UPN) 200

Centre of gravity position [mm]: [0,0 , 0,0]; rotation: 180,0°

**Object no.2:** L 200 x 200 x 14

Centre of gravity position [mm]: [74,4 , 45,7]; rotation: -90,0°

## Results

Table of values	
Real sectional characteristics calculated.	
Position of centre of gravity with respect to global coordinate system	
horizontal position of centre of gravity with respect to origin of coordinate system	x = 46,7 mm
vertical position of centre of gravity with respect to origin of coordinate system	y = 28,7 mm
Cross-sectional characteristics	
cross-sectional area	A = 8657,3 mm <sup>2</sup>
cross-section perimeter	P = 1444,9 mm
distance of centroid from left edge of min. cross-section envelope	y <sub>cg</sub> = 101,7 mm
distance of centroid from bottom edge of min. cross-section envelope	z <sub>cg</sub> = 128,7 mm

Table of values

moment of inertia w.r.t. horizontal centroidal axis	$I_y = 44,07E+06 \text{ mm}^4$
moment of inertia w.r.t. vertical centroidal axis	$I_z = 33,46E+06 \text{ mm}^4$
mixed moment of inertia w.r.t. centroidal axes	$D_{yz} = 19,11E+06 \text{ mm}^4$
inclination of principal centroidal axes	$\phi = -37,2^\circ$
radius of gyration normal to horizontal centroidal axis	$i_y = 71,3 \text{ mm}$
radius of gyration normal to vertical centroidal axis	$i_z = 62,2 \text{ mm}$
moment of inertia w.r.t. principal Y-axis	$I_{yh} = 58,60E+06 \text{ mm}^4$
moment of inertia w.r.t. principal Z-axis	$I_{zh} = 18,93E+06 \text{ mm}^4$
radius of gyration normal to principal Y-axis	$i_{yh} = 82,3 \text{ mm}$
radius of gyration normal to principal Z-axis	$i_{zh} = 46,8 \text{ mm}$
rigidity moment in simple torsion	$I_k = 1,811E+06 \text{ mm}^4$
polar moment of inertia	$I_p = 77,53E+06 \text{ mm}^4$
polar moment of inertia	$i_p = 94,6 \text{ mm}$
shear area due to shear force in direction of Y-axis	$A_y = 9,7 \text{ mm}^2$
shear area due to shear force in direction of Z-axis	$A_z = 479,4 \text{ mm}^2$
cross-sectional modulus w.r.t. centroidal y-axis at upper edge of cross-section	$W_{y1} = 617,6E+03 \text{ mm}^3$
cross-sectional modulus w.r.t. centroidal y-axis at bottom edge of cross-section	$W_{y2} = -342,5E+03 \text{ mm}^3$
cross-sectional modulus w.r.t. centroidal z-axis at right edge of cross-section	$W_{z1} = -193,1E+03 \text{ mm}^3$
cross-sectional modulus w.r.t. centroidal z-axis at left edge of cross-section	$W_{z2} = 329,1E+03 \text{ mm}^3$