

Cross section descriptions for FE programs

Berthold Höllmann

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1 Beam direction

1.1 POSEIDON

The x axis is directed along the beam, coinciding with the center of gravity (neutral axis) from the first node the second. The direction node defines local y direction. Direction nodes “-1”, “-2”, or “-3” define the local y direction in global x , y , or z direction respectively, “-4”, “-5”, or “-6” define the local y direction in negative global x , y , or z direction respectively.

1.2 Sesam

The x axis is directed along the beam, coinciding with the center of gravity (neutral axis) and pointing from node “1” to “2”. The GUNIVC record defines local z axis.

1.3 NASTRAN

The x axis is directed along the beam, coinciding with the shear center and pointing from node “A” to “B”. $G0$, or $X1$, $X2$, and $X3$ describe local y axis.

2 Describing beam cross sections in POSEIDON, Sesam, and Patran

2.1 Flat bar

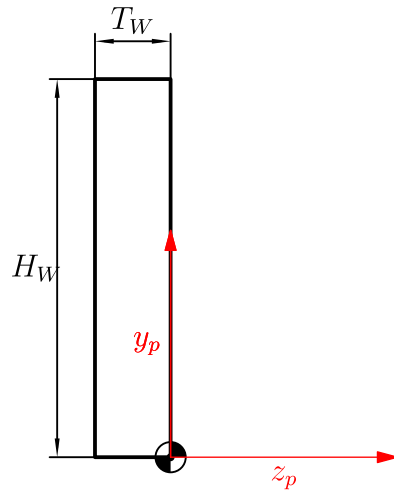


Figure 1: FB: Cross section dimensions in an POSEIDON flat bar.

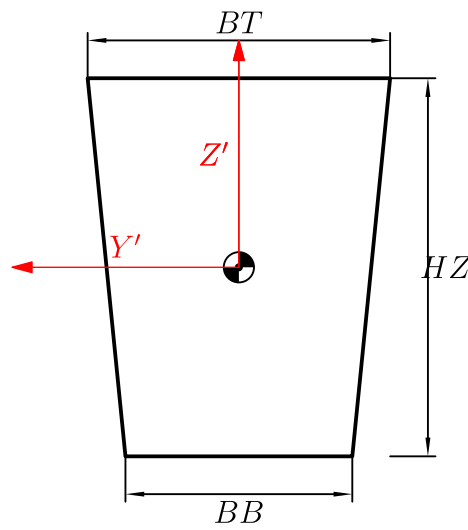


Figure 2: GBARM: Cross section dimensions in Sesam massive bar.

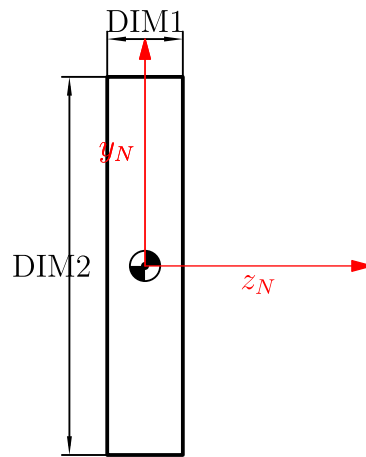


Figure 3: FB: Cross section dimensions in a NASTRAN flat bar.

2.2 L bar

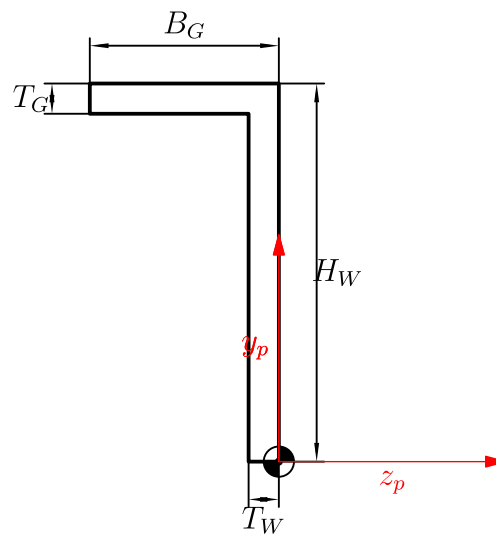


Figure 4: L: Cross section dimensions in a POSEIDON L profile section.

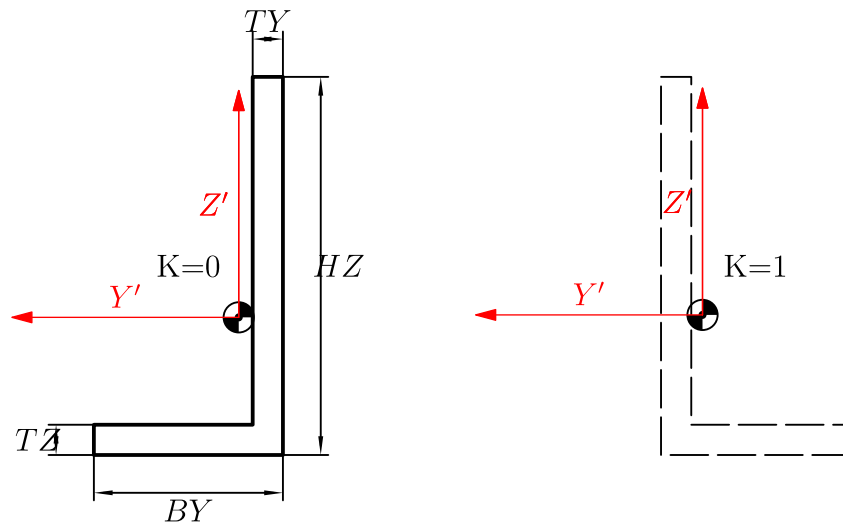


Figure 5: GLSEC: Cross section dimensions in a Sesam L profile section.

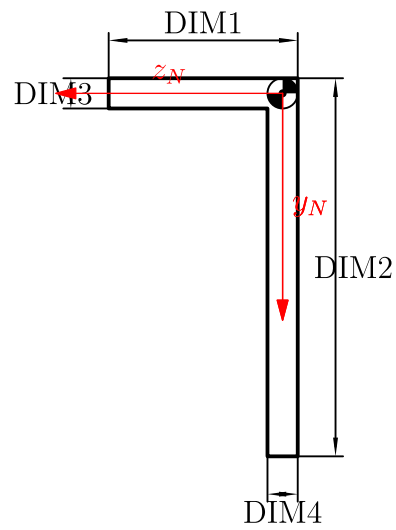


Figure 6: L: Cross section dimensions in a Nastran L profile section.

2.3 T beam

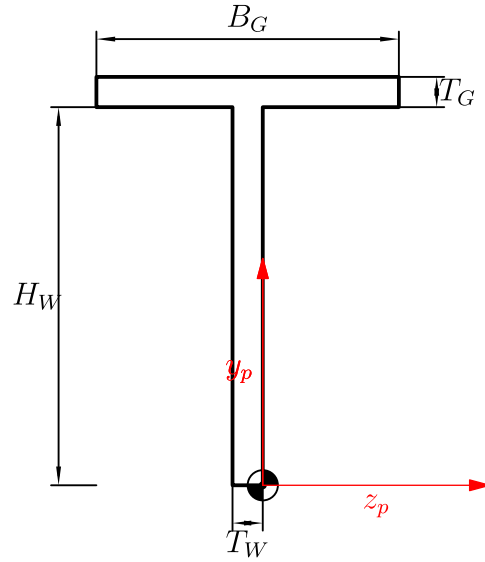


Figure 7: T: Cross section dimensions in a Poseidon T profile section.

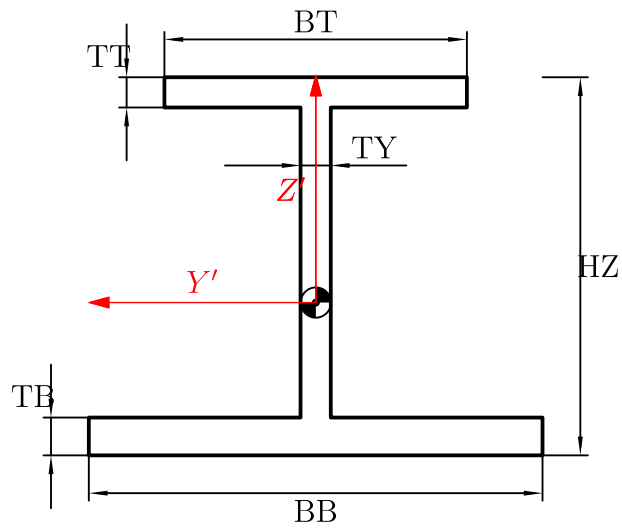


Figure 8: GIORH: Cross section dimensions in a Sesam GIORH profile section (used to model T sections).

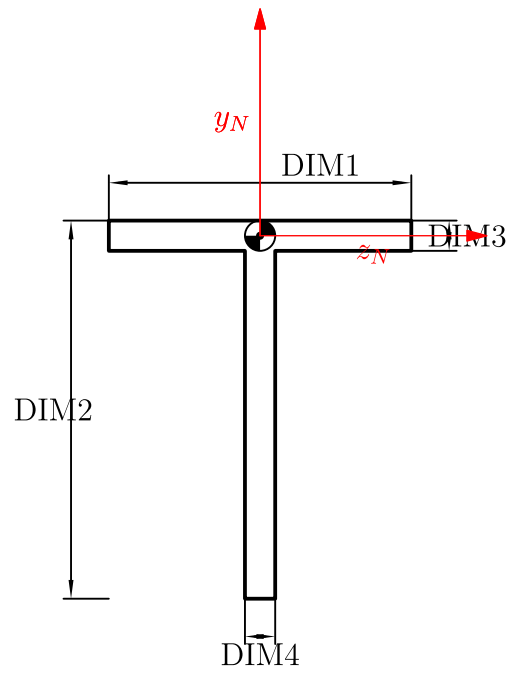


Figure 9: T: Cross section dimensions in a Nastran T profile section.

2.4 HP profile

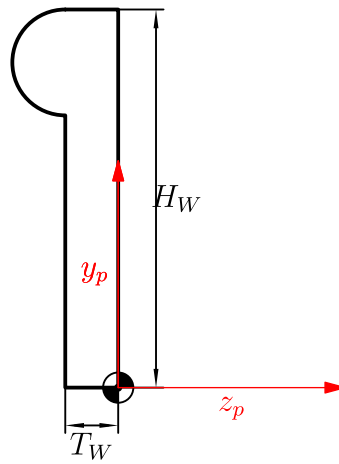


Figure 10: HP: Cross section dimensions in a POSEIDON HP profile section.