Cross section descriptions for FE programs

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Contents

1 Beam direction

1.1 POSEIDON

The *x* axis is directed along the beam, coinciding with a foot point 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 and pointing from node “1” to “2”. The `GUNIVEC` 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

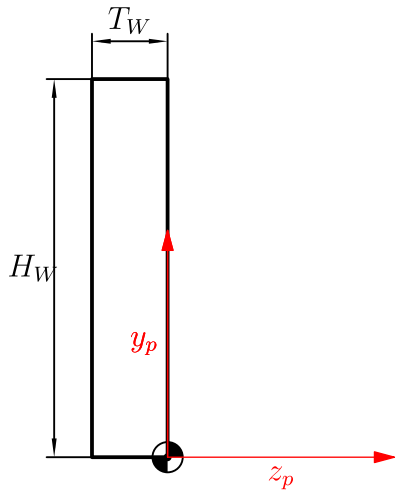

Figure 1: `FB`: Cross section dimensions in an POSEIDON flat bar.

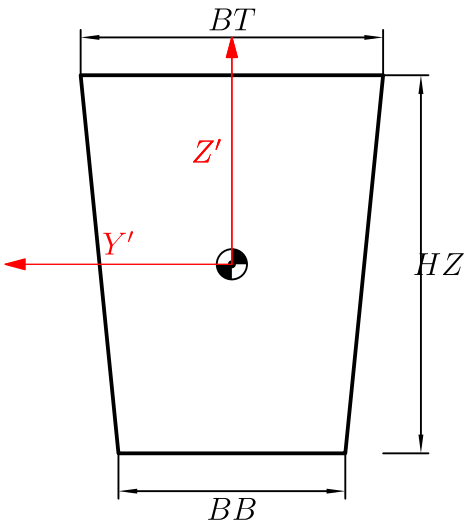

Figure 2: `GBARM`: Cross section dimensions in Sesam massive bar.

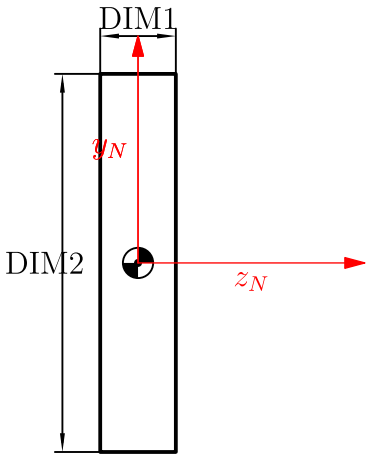

Figure 3: FB: Cross section dimensions in a NASTRAN flat bar.

2.2 L bar

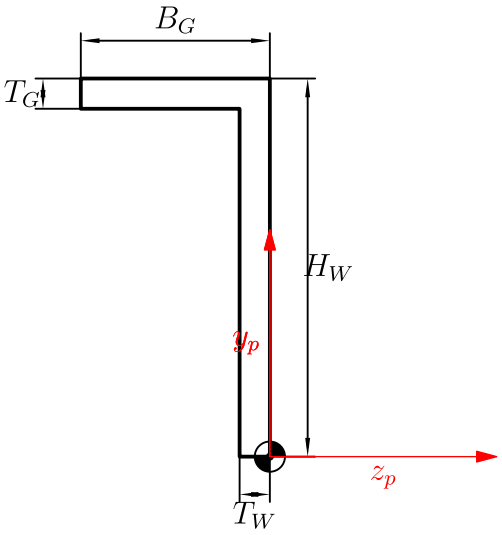

Figure 4: L: Cross section dimensions in a POSEIDON L profile section.

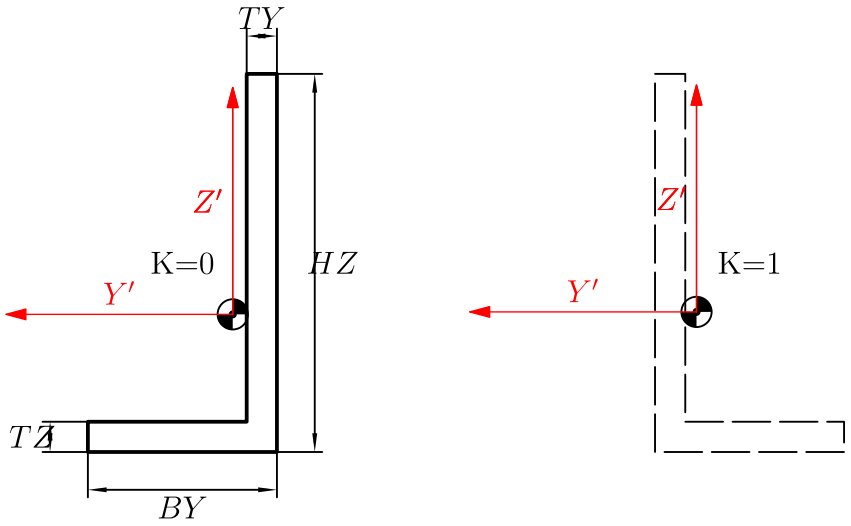

Figure 5: `GLSEC`: Cross section dimensions in a Sesam L profile section.

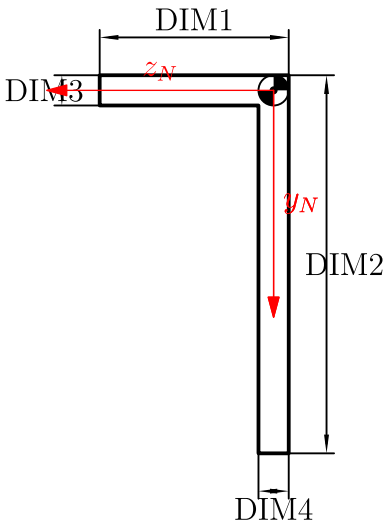

Figure 6: `L`: Cross section dimensions in a Nastran L profile section.

2.3 T beam

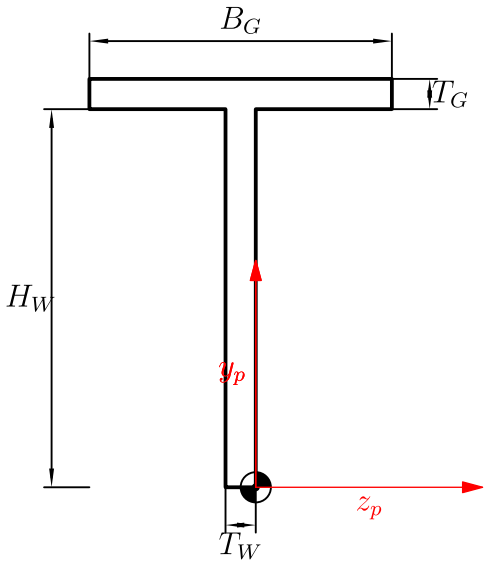

Figure 7: `T`: Cross section dimensions in a Poseidon T profile section.

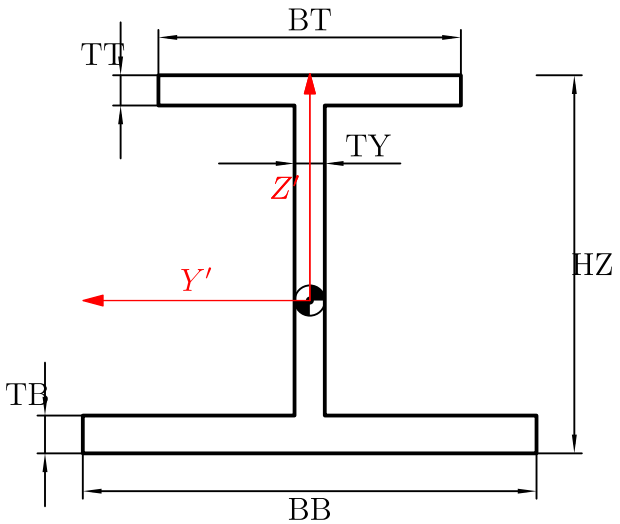

Figure 8: `GIORH`: Cross section dimensions in a Sesam GIORH profile section (used to model T sections).

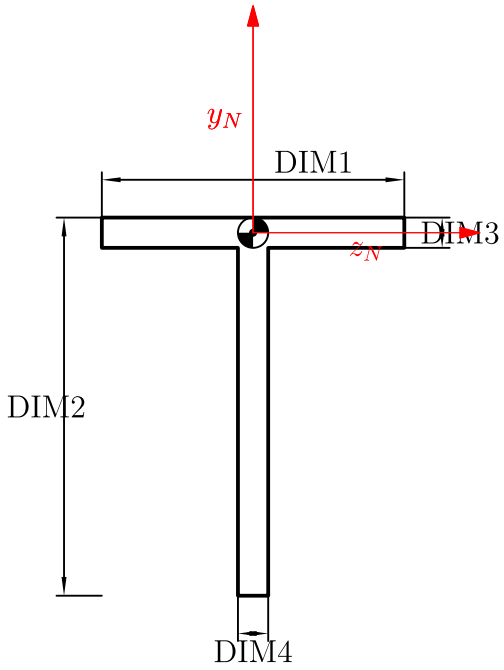

Figure 9: `T`: Cross section dimensions in a Nastran T profile section.

2.4 HP profile

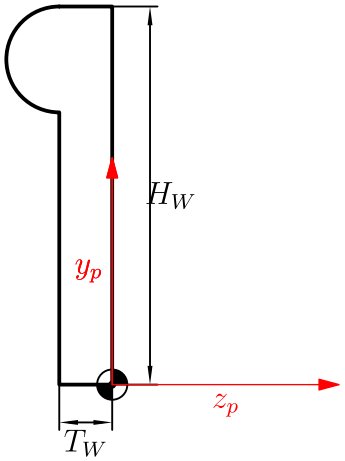

Figure 10: `HP`: Cross section dimensions in a POSEIDON HP profile section.