**Calculation of temporary supports for Alinvest furnaces.**

**The most restrictive case is considered, which applies to the melter, whose temporary support length is 3,160 mm**.

Slimming formula:

**l** =

**λ**: Ratio of slenderness or mechanical slenderness.

**Lk**: Buckling length or effective length, which depends on the supporting conditions of the abutment.

**i**: Turning radius, which is obtained as follows:



I: Moment of inertia of the cross-section.

**A**: Cross-sectional area.

**Bi-articulated:**

* 𝛽=1

Beam data:

* L= 3.160mm = 316 cm =
* Beam: HEB 200
* E= 210.000 N/mm2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **x** | | **y** | |
| **I= Beam inertia** | 5.513,48 | cm4 | 2.001,03 | cm4 |
| **W= Resistant module** | 551,35 | cm3 | 200,10 | cm3 |
| **A= Area** | 75,30 | cm2 | 75,30 | cm2 |
| **i=turning radius** | 8,56 | cm | 5,16 | cm |

* **λ** = = 316/ 5,16 = 61,2
* Correction factor (w) = 1,32
* σ= 131 Kg/cm2
* Euler formule:

= 41.491Kgs Maximum load > 7.500 Kgs real load OK