

Figure 5 Buckling mode instability curve of a beam with the cross-section 460x150x4x7.

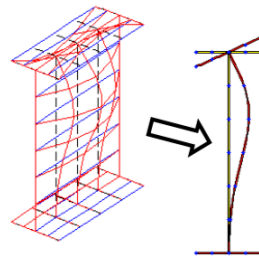


Figure 6 Buckling mode shape of a beam with the cross-section 460x150x3x4 and 340 mm.



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Selected Publications:

- Andre Reis, Nuno Lopes and Paulo Vila Real, "Shear-bending interaction in steel plate girders subjected to elevated temperatures", *Thin-Walled Structures*, Vol. 104, pp 34-43, July 2016
- Carlos Couto, Paulo Vila Real, Nuno Lopes and Bin Zhao, "Local buckling in laterally restrained steel beam-columns in case of fire", *Journal of Constructional Steel Research*, Vol. 122, pp 543-556, July 2016
- Elio Maia, Carlos Couto, Paulo Vila Real and Nuno Lopes, "Critical temperatures of class 4 cross-sections", *Journal of Constructional Steel Research*, Vol. 121, pp 370-382, June 2016
- Andre Reis, Nuno Lopes and Paulo Vila Real, "Numerical study of steel plate girders under shear loading at elevated temperatures", *Journal of Constructional Steel Research*, Vol. 117, pp 1-12, February 2016,
- Carlos Couto, Paulo Vila Real, Nuno Lopes and Bin Zhao, "Effective width method to account for the local buckling of thin plates at elevated temperatures", *Thin-Walled Structures*, Vol. 84, pp 134-149, November 2014
- Lopes, N. and Vila Real, P.M.M, "Class 4 stainless steel I-beams subjected to fire", (date and publisher not given in the pdf file. Most recent citation is dated 2012)
- N. Lopes, P. Vila Real, L. Simões da Silva, J.-M. Franssen, Numerical modelling of thin-walled stainless steel structural elements in case of fire, *Fire Technology* 46/1 (2010) 91-108.

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