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Department of Civil and Hydraulic Engineering	Material: Metal constructions

Series No. 1: CHAPTER 2: CALCULATION OF PARTS REQUESTED IN SIMPLE COMPRESSION

EXERCISE 1:

Calculate the buckling resistance of a double-articulated column with HEA320 section in S235 steel, of length L0= 4.5m and loaded in axial compression equal to Nsd= 2500 KN. The support conditions are presented in the figure below :(Figure 1)

 1) Calculate the elastic critical load Ncr,y and Ncr,z

2) Check the buckling stability of the column according to EC3, CCM97.

EXERCISE 2:

Calculate the buckling resistance of a column doubly embedded according to (y.y) and doubly articulated according to (z.z) with a section in HEM450 in S235 steel, of length L0= 6m and stressed in axial compression equal to Nsd= 3000 KN.
1) Check the buckling stability of the column according to EC3, CCM97.

EXERCISE 3:

What is the maximum load that an 8m high HEB240 S235 steel post can support, embedded at the head and bottom in both directions.

EXERCISE 4:

Calculate the buckling resistance of a column bi-articulated along y.y and embedded-articulated along z.z with HEB section in S235 steel, length 8m and loaded in axial compression equal to Nsd = 2000KN,