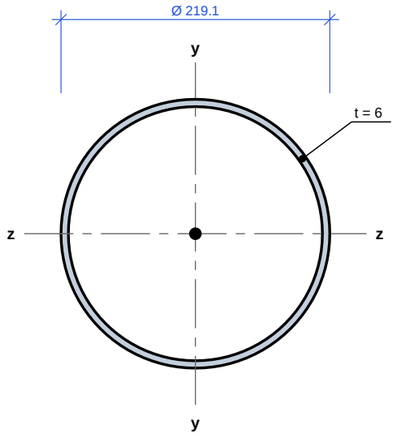
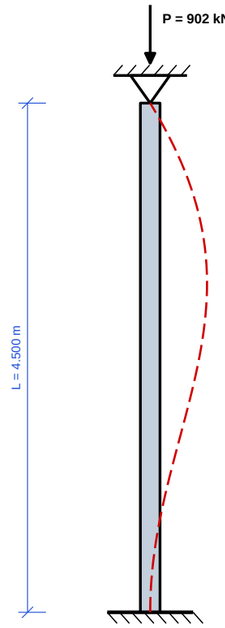


CROSS SECTION

SCALE 1:5

BUCKLING ABOUT z-z

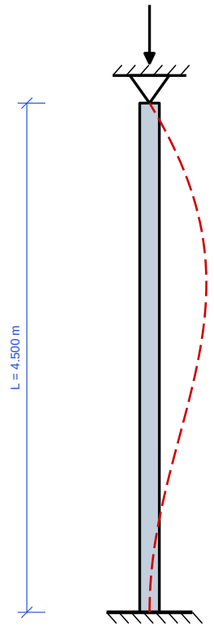


KL = 0.8 × 4.500 = 3.600 m

KL/r = 3600 / 75.3 = 47.8

curve b, fcd = 236.1 N/mm²

BUCKLING ABOUT y-y

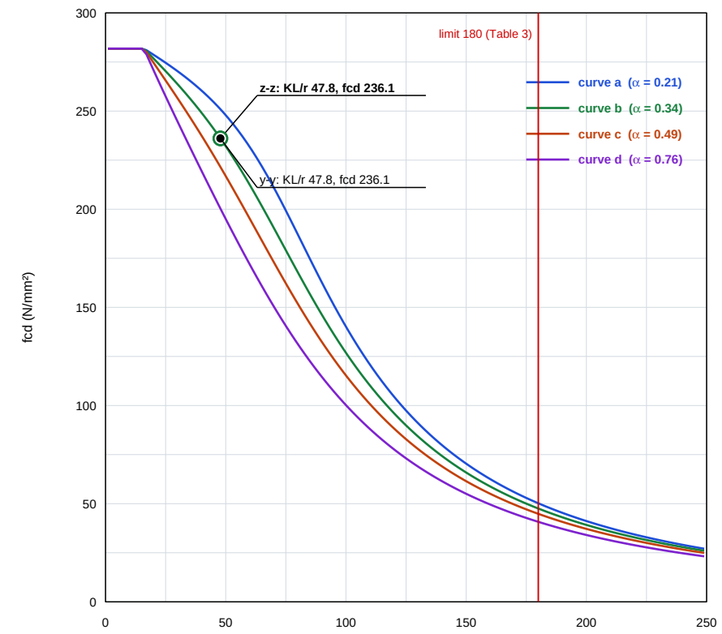


KL = 0.8 × 4.500 = 3.600 m

KL/r = 3600 / 75.3 = 47.8

curve b, fcd = 236.1 N/mm²

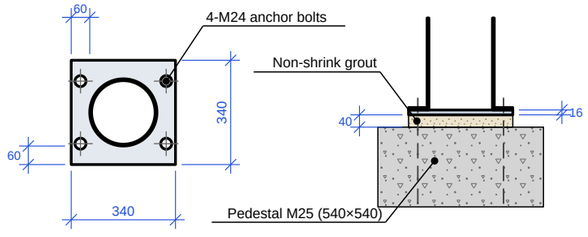
IS 800 BUCKLING CURVES (Cl. 7.1.2.1, Table 10) - fy = 310 N/mm²



DESIGN SUMMARY (IS 800:2007)

Section	**CHS 219.1 × 6**
Mass	**31.5 kg/m**
Steel	**YSt 310 (fy = 310, fu = 450 N/mm²)**
Section class	**Semi-compact**
Design load P	**902.1 kN**
Governing axis	**z-z (KL/r = 47.8, buckling class b)**
fcd	**236.1 N/mm²**
Pd	**947.6 kN**
Base plate	**340 × 340 × 16 mm**

Result: **ALL CHECKS SATISFIED**



BASE PLATE - PLAN

SCALE 1:20

SECTION

SCALE 1:20

NOTES

1. All dimensions are in mm unless noted otherwise.
2. Structural steel YSt 310 to IS 2062 / IS 4923; bolts to IS 1367, grade 4.6.
3. Welding to IS 816 with E41 electrodes; fillet welds 6 mm min.
4. Holes drilled, d0 = d + 2 mm (d + 3 mm above M24).
5. Erect plumb within H/1000; grout base plates before loading.

Tubular column TC1

Member C1 · CHS 219.1 × 6

Designed: - Checked: -

Date: 31 Oct 2026 Scale: as shown Sheet 1 of 1