

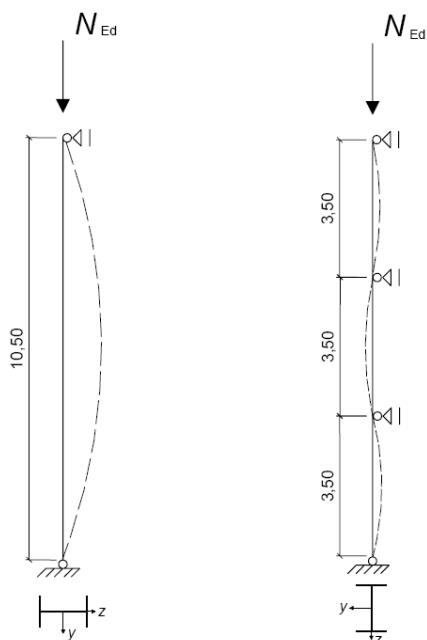
## Access Steel Document SX002a-EN-EU

Scia Engineer Version 10.0.86

### Introduction

This benchmark concerns the example *SX002a-EN-EU Buckling resistance of a pinned column with intermediate restraints* of Access Steel, <http://www.access-steel.com/>, 2005.

This worked example concerns the procedure to determine the buckling resistance of a pinned column with intermediate restraints.



### Reference Results

The reference gives following results:

Member Buckling resistance in compression			
$N_{cr,y}$	1964,5 kN	$N_{cr,z}$	6206,0 kN
red $\lambda_{,y}$	1,019	red $\lambda_{,z}$	0,573
$\alpha_y$	0,34	$\alpha_z$	0,49
$\chi_y$	0,585	$\chi_z$	0,801
$N_{b,Rd}$	1193 kN		

## Scia Engineer Results

Buckling parameters	yy	zz	
type	non-sway	non-sway	
Slenderness	95.46	53.83	
Reduced slenderness	1.02	0.57	
Buckling curve	b	c	
Imperfection	0.34	0.49	
Reduction factor	0.59	0.80	
Length	10.50	3.50	m
Buckling factor	1.00	1.00	
Buckling length	10.50	3.50	m
Critical Euler load	1974.02	6209.39	kN

**Buckling check**  
according to article EN 1993-1-1 : 6.3.1.1. and formula EN 1993-1-1 : (6.46)

Table of values		
Nb.Rd	1196.49	kN
unity check	0.84	

## Comments

- The results correspond to the benchmark results.
- There are some small round-off differences between the cross-section properties. In Scia Engineer the cross-section according to the Arbed catalogue has been used