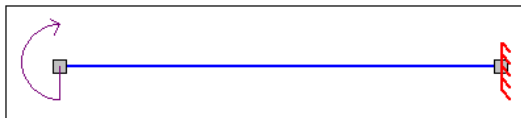


<b>TEST SCHEDULE B 13</b>	<b>EN 1993-1-1: 2005 (EUROCODE 3)</b>	<b>Sargon ©, Cescopius ©</b>
BUCKLING	BENDING 2 (LATERAL TORSIONAL)	<b>EC3.BUC.M2.002</b>



**Program:** WEURO © version October 2007 for Sargon and Cescopius  
**Keywords:** EN 1993, Eurocode 3, example, validation, benchmark, reliability, quality control, error measure. **Parole chiave:** Eurocodice 3, esempio, validazione, test ,affidabilità, controllo di qualità, misura dell'errore  
**Tv**=exploitation target value, **Cv**=exploitation computed value  
**Authors:** Ing. Marco Croci, Ing. Paolo Rugarli

BEAM			
Length [mm]	Buckling factors		Left end
3500	$\beta_1=2$	$\beta_2=2$	FREE
	$\beta_3=2$		FIXED

LOAD		
Type	Value	Point of application
BENDING MOMENT $M_2$	$M=100.000.000\text{Nmm}$	LEFT END

MATERIAL		S235				
$f_y$ [N/mm <sup>2</sup> ]	$f_u$ [N/mm <sup>2</sup> ]	$E$ [N/mm <sup>2</sup> ]	$\nu$	$\gamma_{M0}$	$\gamma_{M1}$	$\gamma_{M2}$
235	360	2,10E+05	0,3	1,1	1,1	1,25

CROSS SECTION		IPE 360				CLASS: $M_2 \rightarrow 1$	
$A$ [mm <sup>2</sup> ]	$J_2$ [mm <sup>4</sup> ]	$J_3$ [mm <sup>4</sup> ]	$J_t$ [mm <sup>4</sup> ]	$W_2$ [mm <sup>3</sup> ]	$W_3$ [mm <sup>3</sup> ]		
7273	1,627E+08	1,043E+07	3,732E+05	9,037E+05	1,228E+05		
$W_{pl2}$ [mm <sup>3</sup> ]	$W_{pl3}$	$i_2$ [mm]	$i_3$ [mm]	$i_t$ [mm]			
1,019E+06	1,911E+05	149,5	37,9	49,07			
$h$	$b$	$t_w$	$t_f$	$r$			
360	170	8	12,7	18			

OTHER DATA*				
$h/b$	$\alpha_{LT}$	$I_\omega$	$G$	
2,12	0,34	3,136E+11	8,077E+04	
$\chi_{LT}$	$\phi_{LT}$	$\lambda_{LT}$	$M_{cr}$	$C_1$
0,525	1,281	1,118	1,916E+08	1

### TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

$$T_v = M / (\chi_{LT} W_{pl} f_y / \gamma_{M1})$$

$T_v$
8,757E-01

### CHECKER'S RESULTS (COMPUTED VALUES) AND COMPARISON WITH THE TARGET

$C_v$	$(C_v - T_v) / T_v$
8,755E-01	-2,429E-04

In Sargon was fixed the same  $C_1$  value reported in Other Data section