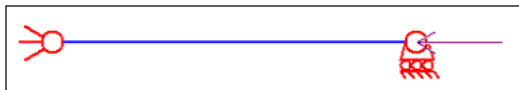


<b>TEST SCHEDULE B 6</b>	<b>EN 1993-1-1: 2005 (EUROCODE 3)</b>	<b>Sargon ©, Cescoplus ©</b>
BUCKLING	COMPRESSION	<b>EC3.BUC.NN.006</b>



**Program:** WEURO © version October 2007 for Sargon and Cescoplus  
**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

<b>BEAM</b>			
Length [mm]	Buckling factors	Left end	Right end
1000	$\beta_1=0 \quad \beta_2=1 \quad \beta_3=1$	HINGE	SIMPLY SUPPORTED

<b>LOAD</b>			
Type	Value	Point of application	
COMPRESSION	N=1.000.000N	RIGHT END	

<b>MATERIAL</b>	<b>S235</b>					
$f_y$ [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

<b>CROSS-SECTION</b>	<b>HE 200 B</b>	<b>CLASS: N<sup>o</sup> → 1</b>			
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> ]
7808	5,696e+07	2,003e+07	5,928e+05	5,696e+05	2,003e+05
$W_{pl2}$ [mm <sup>3</sup> ]	$W_{pl3}$ [mm <sup>3</sup> ]	$i_2$ [mm]	$i_3$ [mm]	$i_t$ [mm]	
6,426e+05	3,058e+05	85,40	50,70	57,74	
h	b	$t_w$	$t_f$	r	
200	200	9	15	18	

<b>OTHER DATA*</b>					
$\alpha_2$ (h/b < 1,2 $t_f$ < 100)	$\alpha_3$ (h/b < 1,2 $t_f$ < 100)	$\lambda_2$	$\lambda_3$	$\bar{\lambda}_2$	$\bar{\lambda}_3$
0,34	0,49	11,71	19,72	0,125	0,210
$\Phi_2$	$\Phi_3$	$\chi_2$	$\chi_3$	$N_{b2,Rd}$ [N]	$N_{b3,Rd}$ [N]
0,495	0,524	1,027 → 1	0,995	(1.668.073)	1.659.583

**TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS**

$$T_v = N / N_{b3,Rd}$$

$T_v$
6,026E-01

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

$C_v$	$(C_v - T_v) / T_v$
6,026E-01	<b>6,489E-05</b>

(\*) formulae for  $\lambda_{2,3}$ ,  $\bar{\lambda}_{2,3}$ ,  $\chi_{2,3}$  and  $N_{b2,3,Rd}$  are given in EN 1993-1-1 6.3.1