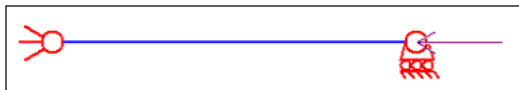


<b>TEST SCHEDULE B 9</b>	<b>EN 1993-1-1: 2005 (EUROCODE 3)</b>	<b>Sargon ©, Cescoplus ©</b>
<b>BUCKLING</b>	<b>COMPRESSION</b>	<b>EC3.BUC.NN.009</b>



**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
3500	$\beta_1=0 \quad \beta_2=1 \quad \beta_3=1$	HINGE	SIMPLY SUPPORTED

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

<b>MATERIAL</b>		<b>S275</b>				
$f_y$ [N/mm <sup>2</sup> ]	$f_u$ [N/mm <sup>2</sup> ]	E [N/mm <sup>2</sup> ]	$\nu$	$\gamma_{M0}$	$\gamma_{M1}$	$\gamma_{M2}$
275	430	2,10E+05	0,3	1,1	1,1	1,25

<b>CROSS-SECTION</b>		<b>HE 240 A</b>				<b>CLASS: N → 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> ]		
7684	7,763E+07	2,769E+07	4,155E+05	6,751E+05	2,307E+05		
$W_{pl2}$ [mm <sup>3</sup> ]	$W_{pl3}$ [mm <sup>3</sup> ]	$i_2$ [mm]	$i_3$ [mm]	$i_t$ [mm]			
7,446E+05	3,517E+05	100,5	60	69,28			
h	b	$t_w$	$t_f$	r			
230	240	7,5	12	21			

<b>OTHER DATA*</b>					
$\alpha_2$ (h/b<1,2 t <sub>f</sub> <100)	$\alpha_3$ (h/b<1,2 t <sub>f</sub> <100)	$\lambda_2$	$\lambda_3$	$\bar{\lambda}_2$	$\bar{\lambda}_3$
0,34	0,49	34,8	58,3	0,401	0,672
$\Phi_2$	$\Phi_3$	$\chi_2$	$\chi_3$	$N_{b2,Rd}$ [N]	$N_{b3,Rd}$ [N]
0,615	0,841	0,926	0,742	(1.778.109)	1.425.357

**TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS**

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

$T_v$
7,016E-01

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

$C_v$	$(C_v - T_v)/T_v$
7,016E-01	<b>3,077E-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