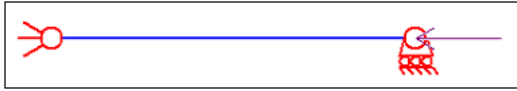


<b>TEST SCHEDULE B 11</b>	<b>EN 1993-1-1: 2005 (EUROCODE 3)</b>	<b>Sargon ©, Cescoplus ©</b>
BUCKLING	COMPRESSION	<b>EC3.BUC.NN.011</b>



**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	
2500	$\beta_1=0$	$\beta_2=1$	$\beta_3=1$	HINGE	SIMPLY SUPPORTED	
<b>LOAD</b>						
Type		Value		Point of application		
COMPRESSION		N=400.000N		RIGHT END		
<b>MATERIAL</b>						
S275						
$f_y$ [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>						
2 UPNH 140 10		CLASS: N' →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> ]	
4073	1,209E+07	3,323E+06	1,051E+05	1,728e+05	5,112e+04	
$W_{pl2}$ [mm <sup>3</sup> ]	$W_{pl3}$ [mm <sup>3</sup> ]	$i_2$ [mm]	$i_3$ [mm]	$i_t$ [mm]	d	
1,728e+05	9,188E+04	54,49	28,56	17,32	10	
h	b	$t_w$	$t_f$	r	r1	
140	60	7	10	10	5	
<b>OTHER DATA*</b>						
$\alpha_2$	$\alpha_3$	$\lambda_2$	$\lambda_3$	$\bar{\lambda}_2$	$\bar{\lambda}_3$	
0,49	0,49	45,9	87,5	0,528	1,008	
$\Phi_2$	$\Phi_3$	$\chi_2$	$\chi_3$	$N_{b2,Rd}$ [N]	$N_{b3,Rd}$ [N]	
0,720	1,206	0,827	0,535	842.022	544.968	

**TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS**

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

Tv
7,340E-01

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

Cv	(Cv-Tv)/Tv
7,340E-01	<b>1,712E-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