

<b>TEST SCHEDULE B 16</b>	<b>EN 1993-1-1: 2005 (EUROCODE 3)</b>	<b>Sargon ©, Cescopius ©</b>
BUCKLING	BENDING 2 (LATERAL TORSIONAL)	<b>EC3.BUC.Q3.001</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  
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BEAM						
Length [mm]	Buckling factors			Left end	Right end	
3500	$\beta_1=1$	$\beta_2=1$	$\beta_3=1$	FREE	FIXED	
LOAD						
Type	Value			Point of application		
DISTRIBUTED LOAD $q_3$	$q=80\text{N/mm}$					
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						
HE 240 A		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> ]	
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		
OTHER DATA*						
$h/b$	$\alpha_{LT}$	$I_\omega$	$G$			
0,96	0,21	3,285E+11	8,077E+04			
$\chi_{LT}$	$\phi_{LT}$	$\lambda_{LT}$	$M_{cr}$		$C_1$	
0,928	0,650	0,489	7,315E+08		1,132	

**TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS**

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

$T_v$
8,302E-01

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

$C_v$	$(C_v - T_v) / T_v$
8,301E-01	-7,756E-05

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