

TEST SCHEDULE B 19	EN 1993-1-1: 2005 (EUROCODE 3)	Sargon ©, Cescoplus ©
BUCKLING	BENDING 2 (LATERAL TORSIONAL)	EC3.BUC.Q3.004



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

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 ²]	f_u [N/mm ²]	E [N/mm ²]	ν	γ_{M0}	γ_{M1}	γ_{M2}
235	360	2,10E+05	0,3	1,1	1,1	1,25
CROSS-SECTION		HE 200 B	CLASS: $M_2 \rightarrow 1$			
A [mm ²]	J_2 [mm ⁴]	J_3 [mm ⁴]	J_t [mm ⁴]	W_2 [mm ³]	W_3 [mm ³]	
7808	5,696e+07	2,003e+07	5,928e+05	5,696e+05	2,003e+05	
W_{pl2} [mm ³]	W_{pl3} [mm ³]	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		
OTHER DATA*						
h/b	α_{LT}	I_{ω}	G			
1,00	0,21	1,711E+11	8,077E+04			
χ_{LT}	ϕ_{LT}	λ_{LT}	M_{cr}	C_1		
0,921	0,663	0,511	5,776E+08	1,132		

TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

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

T_v
9,691E-01

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

C_v	$(C_v - T_v) / T_v$
9,692E-01	5,594E-05

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