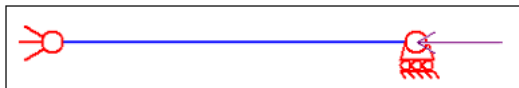


TEST SCHEDULE B 3	EN 1993-1-1: 2005 (EUROCODE 3)	Sargon ©, Cescoplus ©
BUCKLING	COMPRESSION	EC3.BUC.NN.003



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
1000	$\beta_1=0 \quad \beta_2=1 \quad \beta_3=1$	HINGE	SIMPLY SUPPORTED

LOAD			
Type	Value	Point of application	
COMPRESSION	N=1.000N	RIGHT END	

MATERIAL	S275					
f_y [N/mm ²]	f_u [N/mm ²]	E [N/mm ²]	ν	γ_{M0}	γ_{M1}	γ_{M2}
275	430	2,10E+05	0,3	1,1	1,1	1,25

CROSS SECTION	Tsh 20	CLASS: N' →1			
A [mm ²]	J_2 [mm ⁴]	J_3 [mm ⁴]	J_t [mm ⁴]	W_2 [mm ³]	W_3 [mm ³]
144	5,028e+03	2,752e+03	7,680e+02	3,709e+02	2,752e+02
W_{pl2} [mm ³]	W_{pl3} [mm ³]	i_2 [mm]	i_3 [mm]	i_t [mm]	
6,688e+02	4,640e+02	5,909	4,372	5,774	
h	b	t_w	t_f		
20	20	4	4		

OTHER DATA*					
α_2	α_3	λ_2	λ_3	$\bar{\lambda}_2$	$\bar{\lambda}_3$
0,76	0,76	169,23	228,73	1,949	2,635
Φ_2	Φ_3	χ_2	χ_3	$N_{b2,Rd}$ [N]	$N_{b3,Rd}$ [N]
3,065	4,896	0,184	0,111	6.630	3.990

NOTE: EN 1993-1-1 6.3.1 does not present imperfection factors for welded C and T sections: according with welded I and H sections which have more critical factors than rolled ones, was used $\alpha=0,76$ instead of 0,49.

TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

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

Tv
2,506E-01

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

Cv	(Cv-Tv)/Tv
2,507E-01	2,865E-04

NOTE: buckling curve 'd' was assumed for both axes because in Table 6.2 of EN 1993-1-1: 2005 welded T sections are not present

(*) 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