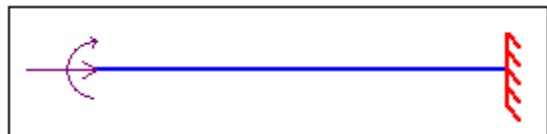


TEST SCHEDULE R 37	EN 1993-1-1: 2005 (EUROCODE 3)	Sargon ©, Cescoplus ©
RESISTANCE	COMPRESSION + BENDING 2	EC3.RES.NNM2.002



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]		Left end			Right end	
5000		FREE			FIXED	
LOADS						
Type		Value		Point of application		
BENDING MOMENT M_2		M=100.000.000Nmm		LEFT END		
Type		Value		Point of application		
COMPRESSION		N=850.000N		LEFT END		
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 240 A		CLASS: N ⁻ →1 M ₂ →1 N ⁻ + M ₂ →1 (reclasses method*)				
A [mm ²]	J ₂ [mm ⁴]	J ₃ [mm ⁴]	J _t [mm ⁴]	W ₂ [mm ³]	W ₃ [mm ³]	
7684	7,763E+07	2,769E+07	4,155E+05	6,751E+05	2,307E+05	
W _{pl2} [mm ³]	W _{pl3} [mm ³]	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						
a=(A-2bt _f)/A	N _{pl} [N]	n=N _{sd} /N _{pl}	M _p =W _{pl} *f _y /γ _{M0} [Nmm]	M _N =M _{pl} (1-n)/(1-0,5a) [Nmm]		
0,250	1,642E+06	0,518	1,591E+08	8,768E+07		

TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

$T_v = M_2 / M_N$
1,140E+00

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

C_v	$(C_v - T_v) / T_v$
1,140E+00	-4,024E-04

(*) P. Rugarli, *Strutture in acciaio, La classificazione delle sezioni, Commento all'Eurocodice 3*, EPC Libri, 2007