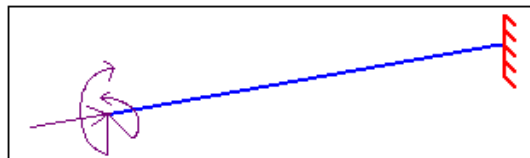


TEST SCHEDULE R 40	EN 1993-1-1: 2005 (EUROCODE 3)	Sargon ©, Cescoplus ©
RESISTANCE	COMPRESSION + BENDING 2 + BENDING 3	EC3.RES.NNM2M3.001



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		
BENDING MOMENT M_3		M=5.000.000Nmm		LEFT END		
Type		Value		Point of application		
COMPRESSION		N=800.000N		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		IPE 360 CLASS: N ⁻ →2 M ₂ →1 M ₃ →2 N ⁻ + M ₂ + M ₃ →2 (reclasses metod*)				
A [mm ²]	J ₂ [mm ⁴]	J ₃ [mm ⁴]	J _t [mm ⁴]	W ₂ [mm ³]	W ₃ [mm ³]	
7273	1,627E+08	1,043E+07	3,732E+05	9,037E+05	1,228E+05	
W _{pl2} [mm ³]	W _{pl3}	i ₂ [mm]	i ₃ [mm]	i _t [mm]		
1,019E+06	1,911E+05	149,5	37,9	49,07		
h	b	t _w	t _f	r		
360	170	8	12,7	18		
OTHER DATA						
a=(A-2bt _f)/A	N _{pl} [N]	n=N _{Ed} /N _{pl}	M _{pl,y} =W _{pl} *f _y /γ _{M0} [Nmm]	M _{Ny} =M _{pl,y} (1-n)/(1-0,5a) [Nmm]		
0,406	1,554E+06	0,515	2,177E+08	1,325E+08		
M _{pl,z} =W _{pl} *f _y /γ _{M0} [Nmm]	M _{Nz} =M _{pl,y} [1-((n-a)/(1-a)) ²] [Nmm]		α		β=5n	
4.083E+07	3.946E+07		2		2.574	

TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

$$Tv=(M_2/M_{N2})^\alpha+(M_3/M_{N3})^\beta$$

Tv
5,742E-01

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

Cv	(Cv-Tv)/Tv
5,740E-01	-3,644E-04

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