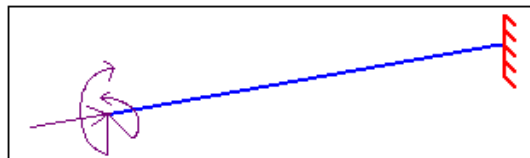


TEST SCHEDULE R 42	EN 1993-1-1: 2005 (EUROCODE 3)	Sargon ©, Cescoplus ©
RESISTANCE	COMPRESSION + BENDING 2 + BENDING 3	EC3.RES.NNM2M3.003



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]		Left end			Right end	
1000		FREE			FIXED	
LOADS						
Type		Value		Point of application		
BENDING MOMENT M ₂		M=4.000.000.000Nmm		LEFT END		
Type		Value		Point of application		
BENDING MOMENT M ₃		M=3.000.000.000Nmm		LEFT END		
Type		Value		Point of application		
COMPRESSION		N=25.000.000N		LEFT END		
MATERIAL		S490				
f _y [N/mm ²]	f _u [N/mm ²]	E [N/mm ²]	ν	γ _{M0}	γ _{M1}	γ _{M2}
490	570	2,10E+05	0,3	1,1	1,1	1,25
CROSS SECTION						
HSH 600X828		CLASS: N ⁻ →1 M ₂ →1 M ₃ →1 N ⁻ + M ₂ + M ₃ →1 (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]	
1,055E+05	6,544e+09	2,737e+09	1,813e+08	2,181e+07	9,124e+06	
W _{pl2} [mm ³]	W _{pl3} [mm ³]	i ₂ [mm]	i ₃ [mm]	i _t [mm]		
2,550e+07	1,379e+07	149	161	173,2		
h	b ₁ =b ₂	t _w	t _{f1} =t _{f2}			
600	600	32	76			
OTHER DATA						
a=(A-2bt _f)/A	N _{pl} =A _f ·f _y /γ _{M0} [N]	M _{pl2} =W _{pl2} f _y /γ _{M0} [Nmm]	M _{pl3} =W _{pl3} f _y /γ _{M0} [Nmm]	n=N/N _{pl}		
0,136	43.173.818	10.431.818.182	5.641.363.636	0,579		
α	β=5n	M _{N2} =M _{pl2} (1-n)/(1-0,5a) [Nmm]	M _{N3} =M _{pl3} [1-((n-a)/(1-a)) ²] [Nmm]	Reduced f _y [N/mm ²]		
2	2,895	4.711.615.234	4.157.919.488	450		

TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

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

T_v
1,109E+00

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

C_v	$(C_v - T_v)/T_v$
1,109E+00	-3,722E-04

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

NOTE: According to table 3.1 when cross section thickness is higher than 40mm yield stress should be decreased: here a yield stress equal to 450N/mm² has been used.

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