

TEST SCHEDULE R 32	EN 1993-1-1: 2005 (EUROCODE 3)	Sargon ©, Cescoplus ©
RESISTANCE	SHEAR 3 + BENDING 2	EC3.RES.T3M2.003



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
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BEAM						
Length [mm]	Left end	Right end				
1 (*)	FREE	FIXED				
LOADS						
Type	Value	Point of application				
BENDING MOMENT M ₂	M=1.500.000Nmm	LEFT END				
Type	Value	Point of application				
SHEAR FORCE T ₃	T=35.000N	LEFT END				
MATERIAL	A572/42					
f _y [N/mm ²]	f _u [N/mm ²]	E [N/mm ²]	ν	γ _{M0}	γ _{M1}	γ _{M2}
290	414	2,000e+05	0,3	1,1	1,1	1,25
CROSS SECTION		O 54x3,2				
		CLASS: M ₂ →1				
A [mm ²]	J ₂ [mm ⁴]	J ₃ [mm ⁴]	J _t [mm ⁴]	W ₂ [mm ³]	W ₃ [mm ³]	
510,7	1,654e+05	1,654e+05	3,308e+05	6,126e+03	6,126e+03	
W _{pl2} [mm ³]	W _{pl3} [mm ³]	i ₂ [mm]	i ₃ [mm]	i _t [mm]		
8,269E+03	8,269E+03	18	18	0		
OTHER DATA						
A _V =2A/π [mm ²]	V _{pl3} =A _V *f _y /(√3 γ _{M0})[N]	T ₃ >0,5V _{pl} ?	M _{pl} =W _{pl2} *f _y /γ _{M0} [Nmm]	η=√1-(T/V _{pl}) ² **		
325,1	49.487	YES	2.180.001	0,707		

TARGET VALUES BASED ON PRELIMINAR COMPUTATIONS

$$T_v = M / (M_{pl} \cdot \eta) \quad **$$

T_v
9,960E-01

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

C_v	$(C_v - T_v) / T_v$
9,960E-01	0,000E+00

(*) length is only 1mm in order to diminish the increase of moment along the beam
(**) formulae given in J. Rondal, K.-G. Wurker, D.Dutta, J. Wardenier, N. Yeomans, *Structural stability of hollow sections*, Verlag TUV Rheinland, 1992

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