CROSS SECTION: PETERSEN:1318

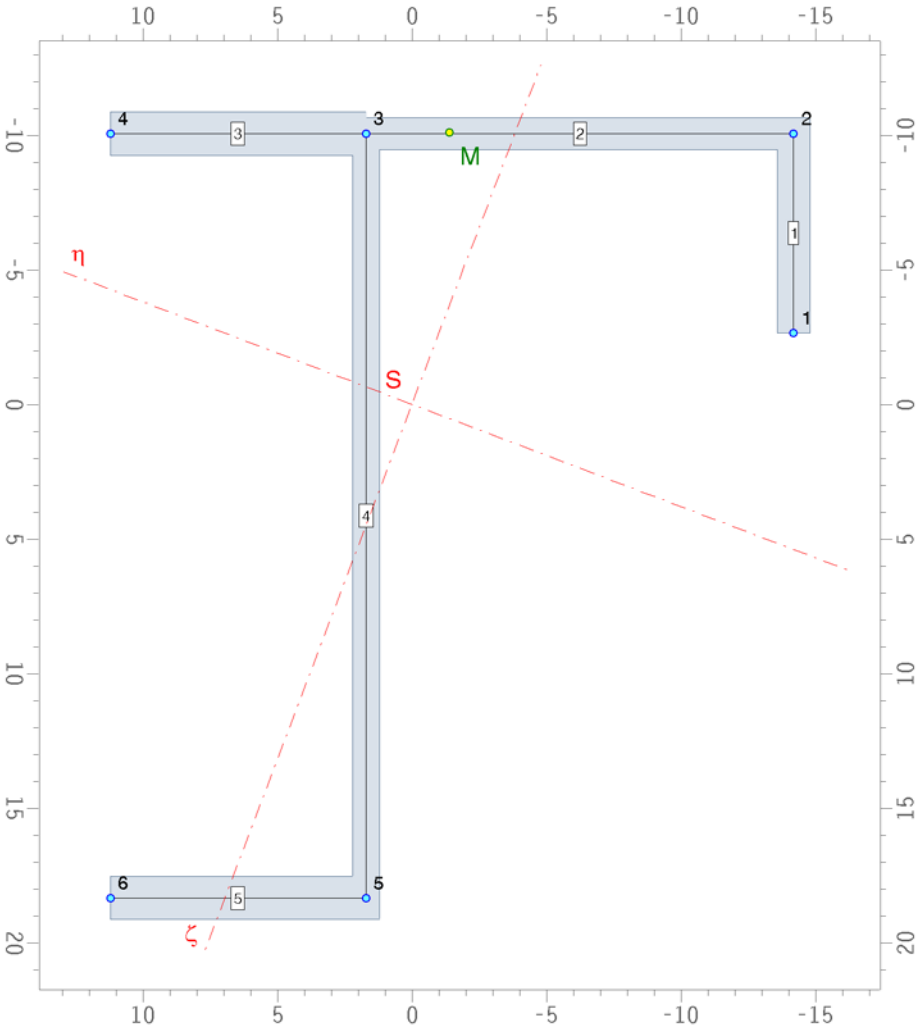
nodes

nodes	y	z	nodes	y	z
-	cm	cm	-	cm	cm
1	-14.17	-2.68	4	11.23	-10.08
2	-14.17	-10.08	5	1.73	18.32
3	1.73	-10.08	6	11.23	18.32

lines

line	from	to	thickn.A	thickn.E	arch rise	r_{ar}	r_{al}	r_{er}	r_{el}	Φa	Φe
-	-	-	cm	cm	cm	cm	cm	cm	cm	°	°
1	1	2	1.20	1.20	0.000	0.00	0.00	0.00	0.00	0.00	0.00
2	2	3	1.20	1.20	0.000	0.00	0.00	0.00	0.00	0.00	0.00
3	4	3	1.60	1.60	0.000	0.00	0.00	0.00	0.00	0.00	0.00
4	3	5	1.00	1.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00
5	6	5	1.60	1.60	0.000	0.00	0.00	0.00	0.00	0.00	0.00

plotting



characteristic values

area, centroid and angle of principal axis

A =	86.06	cm^2	e_y =	0.00	cm	e_z =	0.00	cm	α =	-20.81	°

spread

y_{max} =	11.23	cm	y_{min} =	-14.77	cm	b =	26.00	cm	U =	143.40	cm
z_{max} =	19.12	cm	z_{min} =	-10.88	cm	h =	30.00	cm			

lmn-system: moments of inertia and section moduli, clearances and radii of gyration

I_m =	11336.09	cm^4	W_{m+} =	592.96	cm^3	h_{m+} =	11.23	cm	i_m =	11.48	cm
I_n =	4519.91	cm^4	W_{m-} =	1041.71	cm^3	h_{m-} =	-14.77	cm	i_n =	7.25	cm
I_{mn} =	3027.23	cm^4	W_{n+} =	402.47	cm^3	h_{n+} =	19.12	cm			
			W_{n-} =	306.03	cm^3	h_{n-} =	-10.88	cm			

ξηζ-system: moments of inertia and section moduli, clearances and radii of gyration

I_η =	12486.42	cm^4	$W_{\eta+}$ =	571.19	cm^3	$h_{\eta+}$ =	14.36	cm	i_η =	12.05	cm
I_ζ =	3369.58	cm^4	$W_{\eta-}$ =	819.76	cm^3	$h_{\eta-}$ =	-12.85	cm	i_ζ =	6.26	cm
I_p =	15855.99	cm^4	$W_{\zeta+}$ =	234.59	cm^3	$h_{\zeta+}$ =	21.86	cm	i_p =	13.57	cm
			$W_{\zeta-}$ =	262.15	cm^3	$h_{\zeta-}$ =	-15.23	cm			

shear centre

y_M =	-1.37	cm	y_{SM} =	-1.37	cm	η_M =	2.32	cm			
z_M =	-10.14	cm	z_{SM} =	-10.14	cm	ζ_M =	-9.96	cm			

shear area coefficient

κ_m =	3.02	-	A_m =	28.47	cm^2	κ_η =	2.88	-	A_η =	29.91	cm^2
κ_n =	3.21	-	A_n =	26.84	cm^2	κ_ζ =	3.35	-	A_ζ =	25.68	cm^2

torsion + warping

I_T =	48.83	cm^4	I_W =	225340.14	cm^6	R_{Sy} =	14534.20	cm^5	R_{Sz} =	41217.33	cm^5
C_S =	619758.68	cm^6	I_{pM} =	24861.69	cm^4	$i_{\omega M}$ =	3.01	cm			
ω_{M+} =	86.55	cm^2	ω_{M-} =	-183.78	cm^2	$W_{\omega+}$ =	2603.54	cm^4	$W_{\omega-}$ =	1226.16	cm^4

section lines

i_M =	17.00	cm	r_η =	-10.26	cm	r_ζ =	24.94	cm	r_ω =	-1.23	cm

plastic characteristic values

$W_{ply,max}$ =	827.73	cm^3	$W_{plz,max}$ =	444.11	cm^3	$W_{pl\eta,max}$ =	861.73	cm^3	$W_{pl\zeta,max}$ =	423.97	cm^3
$W_{ply,red}$ =	772.66	cm^3	$W_{plz,red}$ =	424.90	cm^3	$W_{pl\eta,red}$ =	859.80	cm^3	$W_{pl\zeta,red}$ =	419.41	cm^3