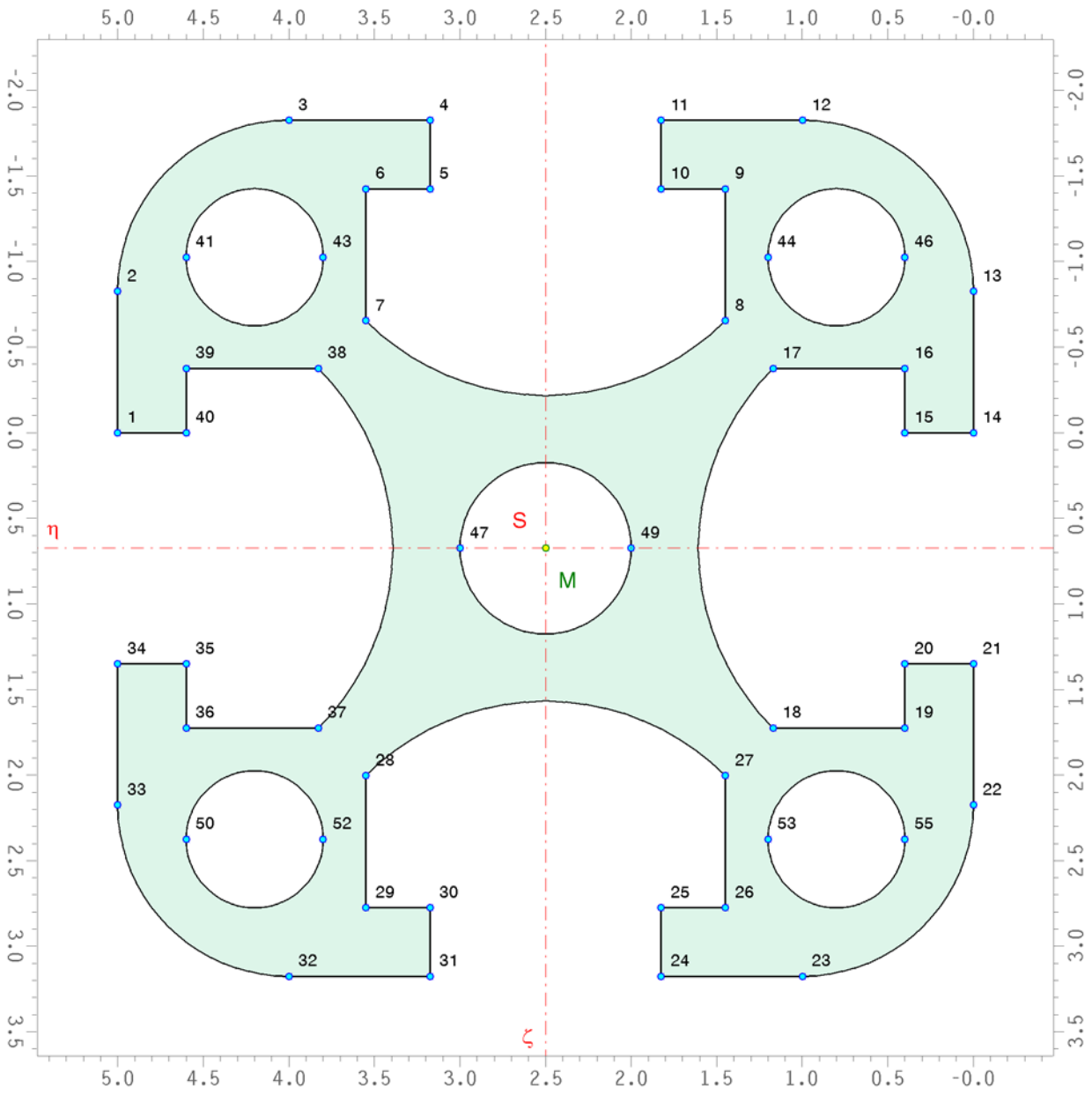
CROSS SECTION: ALU_2

polygonal chains

[y,z]: node coordinates [s]: arc rise of the line to the following node (positive to left side)

nodes -	y mm	z mm	s mm
1. created manually (+)			
1	50.00	0.00	0.000
2	50.00	-8.25	2.929
3	40.00	-18.25	0.000
4	31.75	-18.25	0.000
5	31.75	-14.25	0.000
6	35.50	-14.25	0.000
7	35.50	-6.54	-4.349
8	14.50	-6.54	0.000
9	14.50	-14.25	0.000
10	18.25	-14.25	0.000
11	18.25	-18.25	0.000
12	10.00	-18.25	2.929
13	0.00	-8.25	0.000
14	0.00	0.00	0.000
15	4.00	0.00	0.000
16	4.00	-3.75	0.000
17	11.71	-3.75	-4.349
18	11.71	17.25	0.000
19	4.00	17.25	0.000
20	4.00	13.50	0.000
21	0.00	13.50	0.000
22	0.00	21.75	2.929
23	10.00	31.75	0.000
24	18.25	31.75	0.000
25	18.25	27.75	0.000
26	14.50	27.75	0.000
27	14.50	20.04	-4.349
28	35.50	20.04	0.000
29	35.50	27.75	0.000
30	31.75	27.75	0.000
31	31.75	31.75	0.000
32	40.00	31.75	2.929
33	50.00	21.75	0.000
34	50.00	13.50	0.000
35	46.00	13.50	0.000
36	46.00	17.25	0.000
37	38.29	17.25	-4.349
38	38.29	-3.75	0.000
39	46.00	-3.75	0.000
40	46.00	0.00	0.000
2. created manually (-)			
41	46.00	-10.25	4.000
43	38.00	-10.25	4.000
3. created manually (-)			
44	12.00	-10.25	3.999
46	4.00	-10.25	3.999
4. created manually (-)			
47	30.00	6.75	5.000
49	20.00	6.75	5.000
5. created manually (-)			
50	46.00	23.75	4.000
52	38.00	23.75	4.000
6. created manually (-)			
53	12.00	23.75	3.999
55	4.00	23.75	3.999

plotting


5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 -0.0
-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 43 44 46 47 49 50 52 53 55
S
M
η
ζ

gross characteristic values

area, centroid and angle of principal axis

A =	10.19	cm^2	e_y =	2.50	cm	e_z =	0.68	cm	α =	0.00	°

spread

y_{max} =	5.00	cm	y_{min} =	0.00	cm	b =	5.00	cm	U_a =	34.59	cm
z_{max} =	3.18	cm	z_{min} =	-1.82	cm	h =	5.00	cm	U_i =	13.20	cm
									U =	47.78	cm

lmn-system: moments of inertia and section moduli, clearances and radii of gyration (lmn = ξηζ)

I_m =	22.92	cm^4	W_{m+} =	9.17	cm^3	h_{m+} =	2.50	cm	i_m =	1.50	cm
I_n =	22.92	cm^4	W_{m-} =	9.17	cm^3	h_{m-} =	-2.50	cm	i_n =	1.50	cm
I_p =	45.84	cm^4	W_{n+} =	9.17	cm^3	h_{n+} =	2.50	cm	i_p =	2.12	cm
			W_{n-} =	9.17	cm^3	h_{n-} =	-2.50	cm			

shear centre

y_M =	2.50	cm	y_{SM} =	0.00	cm	η_M =	0.00	cm			
z_M =	0.68	cm	z_{SM} =	0.00	cm	ζ_M =	0.00	cm			

shear area coefficient

κ_m =	2.95	-	A_m =	3.46	cm^2	κ_η =	2.95	-	A_η =	3.46	cm^2
κ_n =	2.95	-	A_n =	3.46	cm^2	κ_ζ =	2.95	-	A_ζ =	3.46	cm^2

torsion + warping

I_T =	3.78	cm^4	I_W =	16.90	cm^6	R_{Sy} =	0.00	cm^5	R_{Sz} =	0.00	cm^5
C_S =	16.90	cm^6	I_{pM} =	45.84	cm^4	$i_{\omega M}$ =	0.61	cm			
ω_{M+} =	3.29	cm^2	ω_{M-} =	-3.29	cm^2	$W_{\omega+}$ =	5.14	cm^4	$W_{\omega-}$ =	5.14	cm^4

section lines

i_M =	2.12	cm	r_η =	0.00	cm	r_ζ =	0.00	cm	r_ω =	0.00	cm