CROSS SECTION: HOHLKASTEN

polygonal chains

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

nodes	y	z	s
-	mm	mm	mm
1. new polygonal chain (+)			
1	0.00	0.00	0.000
2	5000.00	0.00	0.000
3	5750.00	0.00	0.000
4	5750.00	274.00	0.000
5	3530.00	464.00	0.000
6	2930.00	910.00	0.000
7	2500.00	2910.00	0.000
8	2200.00	3110.00	0.000
9	-2200.00	3110.00	0.000
10	-2500.00	2910.00	0.000
11	-2930.00	910.00	0.000
12	-3530.00	440.00	0.000
13	-5750.00	250.00	0.000
14	-5750.00	0.00	0.000
15	-5000.00	0.00	0.000
2. new polygonal chain (-)			
1	0.00	280.00	0.000
2	-1000.00	280.00	0.000
3	-2300.00	450.00	0.000
4	-2300.00	910.00	0.000
5	-2000.00	2510.00	0.000
6	-1800.00	2710.00	0.000
7	1800.00	2710.00	0.000
8	2000.00	2510.00	0.000
9	2300.00	910.00	0.000
10	2300.00	450.00	0.000
11	1000.00	280.00	0.000

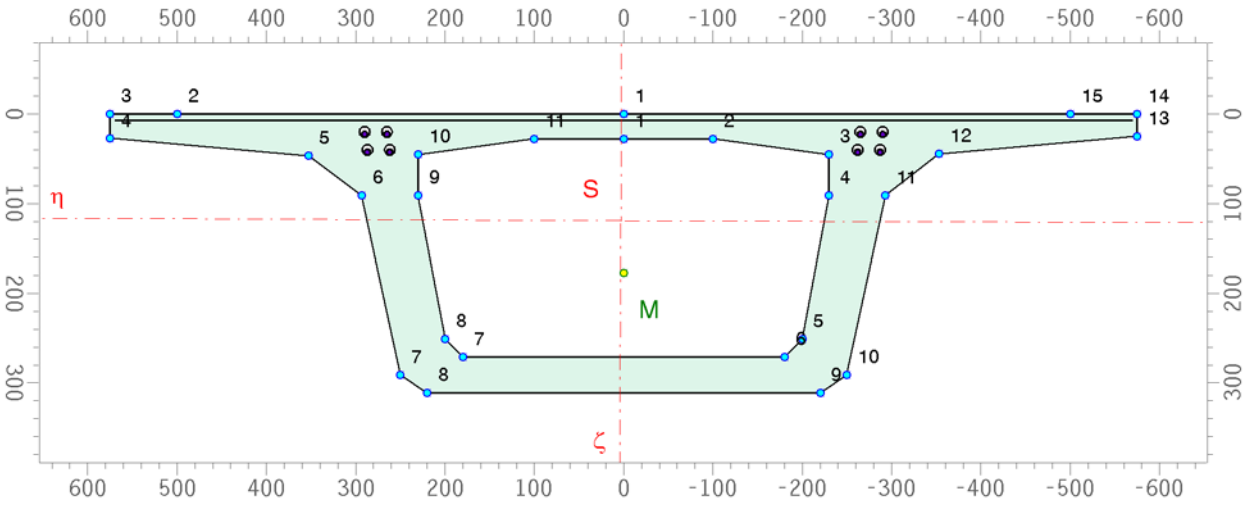
linear reinforcement

-	As	ya	za	ye	ze	Es/Ec	group
	cm²	mm	mm	mm	mm	-	-
99 Ø 28	609.595	-5690.00	70.00	5690.00	70.00	7.00	1

prestressing steel with cladding tube

As	ys	zs	Es/Ec	group	ØH	yH	zH
cm²	mm	mm	-	-	cm	mm	mm
33.000	2900.00	226.09	7.00	1	11.70	2900.00	200.00
33.000	-2900.00	226.09	7.00	1	11.70	-2900.00	200.00
33.000	-2650.00	226.09	7.00	1	11.70	-2650.00	200.00
33.000	2650.00	226.09	7.00	1	11.70	2650.00	200.00
33.000	-2620.00	426.09	7.00	1	11.70	-2620.00	400.00
33.000	2620.00	426.09	7.00	1	11.70	2620.00	400.00
33.000	2870.00	426.09	7.00	1	11.70	2870.00	400.00
33.000	-2870.00	426.09	7.00	1	11.70	-2870.00	400.00

plotting



net characteristic values

area, centroid and angle of principal axis

A =	913.19	dm^2	e_y =	0.30	dm	e_z =	12.04	dm	α =	-0.23	°

spread

y_{max} =	57.50	dm	y_{min} =	-57.50	dm	b =	115.00	dm	U_a =	272.03	dm
z_{max} =	31.10	dm	z_{min} =	0.00	dm	h =	31.10	dm	U_i =	129.64	dm
									U =	401.66	dm

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

I_m =	116753.26	dm^4	W_{m+} =	6125.15	dm^3	h_{m+} =	57.20	dm	i_m =	11.31	dm
I_n =	689965.35	dm^4	W_{m-} =	9698.15	dm^3	h_{m-} =	-57.80	dm	i_n =	27.49	dm
I_{mn} =	-2257.12	dm^4	W_{n+} =	12061.69	dm^3	h_{n+} =	19.06	dm			
			W_{n-} =	11937.74	dm^3	h_{n-} =	-12.04	dm			

$\xi\eta\zeta$-system: moments of inertia and section moduli, clearances and radii of gyration

I_η =	116744.37	dm^4	$W_{\eta+}$ =	6097.40	dm^3	$h_{\eta+}$ =	57.25	dm	i_η =	11.31	dm
I_ζ =	689974.24	dm^4	$W_{\eta-}$ =	9517.56	dm^3	$h_{\eta-}$ =	-57.76	dm	i_ζ =	27.49	dm
I_p =	806718.60	dm^4	$W_{\zeta+}$ =	12051.96	dm^3	$h_{\zeta+}$ =	19.15	dm	i_p =	29.72	dm
			$W_{\zeta-}$ =	11945.75	dm^3	$h_{\zeta-}$ =	-12.27	dm			

gross characteristic values

area, centroid and angle of principal axis

A =	921.79	dm^2	e_y =	0.29	dm	e_z =	11.95	dm	α =	-0.22	°

spread

y_{max} =	57.50	dm	y_{min} =	-57.50	dm	b =	115.00	dm	U_a =	272.03	dm
z_{max} =	31.10	dm	z_{min} =	0.00	dm	h =	31.10	dm	U_i =	129.64	dm
									U =	401.66	dm

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

I_m =	117458.73	dm^4	W_{m+} =	6135.02	dm^3	h_{m+} =	57.21	dm	i_m =	11.29	dm
I_n =	696532.41	dm^4	W_{m-} =	9825.58	dm^3	h_{m-} =	-57.79	dm	i_n =	27.49	dm
I_{mn} =	-2234.25	dm^4	W_{n+} =	12175.91	dm^3	h_{n+} =	19.15	dm			
			W_{n-} =	12051.94	dm^3	h_{n-} =	-11.95	dm			

$\xi\eta\zeta$-system: moments of inertia and section moduli, clearances and radii of gyration

I_η =	117450.11	dm^4	$W_{\eta+}$ =	6107.90	dm^3	$h_{\eta+}$ =	57.25	dm	i_η =	11.29	dm
I_ζ =	696541.03	dm^4	$W_{\eta-}$ =	9645.03	dm^3	$h_{\eta-}$ =	-57.76	dm	i_ζ =	27.49	dm
I_p =	813991.13	dm^4	$W_{\zeta+}$ =	12166.34	dm^3	$h_{\zeta+}$ =	19.23	dm	i_p =	29.72	dm
			$W_{\zeta-}$ =	12059.79	dm^3	$h_{\zeta-}$ =	-12.18	dm			

shear centre

y_M =	-0.03	dm	y_{SM} =	-0.32	dm	η_M =	-0.34	dm			
z_M =	17.67	dm	z_{SM} =	5.71	dm	ζ_M =	5.71	dm			

shear area coefficient

κ_m =	1.72	-	A_m =	535.52	dm^2	κ_η =	1.72	-	A_η =	535.52	dm^2
κ_n =	3.40	-	A_n =	271.43	dm^2	κ_ζ =	3.40	-	A_ζ =	271.43	dm^2

torsion + warping

I_T =	223055.16	dm^4	I_W =	12267446.60	dm^6	R_{Sy} =	-24785.83	dm^5	R_{Sz} =	-3979598.22	dm^5
C_S =	35016660.10	dm^6	I_{pM} =	844186.48	dm^4	$i_{\omega M}$ =	3.81	dm			
ω_{M+} =	297.43	dm^2	ω_{M-} =	-292.33	dm^2	$W_{\omega+}$ =	41245.31	dm^4	$W_{\omega-}$ =	41964.10	dm^4

section lines

i_M =	30.26	dm	r_η =	0.64	dm	r_ζ =	-36.17	dm	r_ω =	0.01	dm

ideally characteristic values

area, centroid and angle of principal axis

A =	974.20	dm^2	e_y =	0.28	dm	e_z =	11.39	dm	α =	-0.19	°

spread

y_{max} =	57.50	dm	y_{min} =	-57.50	dm	b =	115.00	dm	U_a =	272.03	dm
z_{max} =	31.10	dm	z_{min} =	0.00	dm	h =	31.10	dm	U_i =	129.64	dm
									U =	401.66	dm

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

I_m =	122995.07	dm^4	W_{m+} =	6240.39	dm^3	h_{m+} =	57.22	dm	i_m =	11.24	dm
I_n =	748101.12	dm^4	W_{m-} =	10798.05	dm^3	h_{m-} =	-57.78	dm	i_n =	27.71	dm
I_{mn} =	-2081.33	dm^4	W_{n+} =	13073.75	dm^3	h_{n+} =	19.71	dm			
			W_{n-} =	12947.77	dm^3	h_{n-} =	-11.39	dm			

$\xi\eta\zeta$-system: moments of inertia and section moduli, clearances and radii of gyration

I_η =	122988.14	dm^4	$W_{\eta+}$ =	6217.26	dm^3	$h_{\eta+}$ =	57.26	dm	i_η =	11.24	dm
I_ζ =	748108.05	dm^4	$W_{\eta-}$ =	10618.17	dm^3	$h_{\eta-}$ =	-57.75	dm	i_ζ =	27.71	dm
I_p =	871096.19	dm^4	$W_{\zeta+}$ =	13065.28	dm^3	$h_{\zeta+}$ =	19.78	dm	i_p =	29.90	dm
			$W_{\zeta-}$ =	12954.60	dm^3	$h_{\zeta-}$ =	-11.58	dm			