

1. input data

a	b	hw	tw	bf	tf	tC	s	ReH	ta	ReH	$\sigma_x$	E	$\sigma_m$	$\tau$	sniped?
mm	mm	mm	mm	mm	mm	mm	mm	N/mm <sup>2</sup>	mm	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	
2730	645	200	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	250	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	300	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	350	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	400	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	450	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	500	13	0	0	3	645	315	10	315	180	206000	180	40	1
2730	645	550	13	0	0	3	645	315	10	315	180	206000	180	40	1

2. geometry properties

Ax	c	$\lambda c$	$\sigma_e$	$\phi$	K	$\lambda$	$\kappa x$	$l_{eff}$	$\kappa s$	$bm$	N	$y_f$	Ix	Wst
mm <sup>2</sup>								mm		mm	mm	mm	cm <sup>4</sup>	cm <sup>3</sup>
2000	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	2730	0.9258	458	36.9	173.1	2204.80	127.40
2500	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	50.9	209.1	4038.06	193.15
3000	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	66.4	243.6	6607.03	271.21
3500	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	83.0	277.0	10001.84	361.10
4000	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	100.6	309.4	14306.17	462.42
4500	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	119.0	341.0	19599.04	574.83
5000	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	138.2	371.8	25956.00	698.03
5500	1.13	0.8308	44.5646	1	4.00	1.3293	0.7094	1638	0.7407	458	157.8	402.2	33450.03	831.77

3. ultimate strength in lateral buckling mode(Ch6, Sec3, [4.2.1])

F_Ki	$\sigma_{x1}$	m1	m2	$\tau_1$	$p_z$	$c_{xa}$	$c_{px}$	$c_f$	w0	M0	$\sigma_b$	( $\sigma_a + \sigma_b$ )/ReH
N	N/mm <sup>2</sup>			N/mm <sup>2</sup>	N/mm <sup>2</sup>				mm	N.mm	N/mm <sup>2</sup>	
6.01E+06	235.81	1.47	0.49	0.00	2.0142	6.7019	0.0177	8.1058	31.9	6.35E+07	4.99E+02	1.583
1.10E+07	249.77	1.47	0.49	0.00	2.1334	6.7019	0.0097	14.7296	45.9	8.57E+07	4.44E+02	1.409
1.80E+07	263.72	1.47	0.49	0.00	2.2526	6.7019	0.0060	24.0106	61.4	1.15E+08	4.22E+02	1.341
2.73E+07	277.67	1.47	0.49	0.00	2.3718	6.7019	0.0039	36.2749	78.0	1.49E+08	4.12E+02	1.309
3.90E+07	291.63	1.47	0.49	0.00	2.4909	6.7019	0.0028	51.8247	95.6	1.88E+08	4.07E+02	1.294
5.35E+07	305.58	1.47	0.49	0.00	2.6101	6.7019	0.0020	70.9456	114.0	2.33E+08	4.05E+02	1.286
7.08E+07	319.53	1.47	0.49	0.00	2.7293	6.7019	0.0015	93.9107	133.2	2.82E+08	4.04E+02	1.283
9.13E+07	333.49	1.47	0.49	0.00	2.8485	6.7019	0.0012	120.9834	152.8	3.36E+08	4.04E+02	1.284

4. equivalent criteria(Ch6, Sec3, [4.2.3])

Ix_eq	Ix	Ix_eq/Ix
cm <sup>4</sup>	cm <sup>4</sup>	
7754.00	2204.80	3.52
14294.00	4038.06	3.54
23826.07	6607.03	3.61
36881.06	10001.84	3.69
53982.63	14306.17	3.77
75649.23	19599.04	3.86
102395.45	25956.00	3.94
134732.99	33450.03	4.03