

Table 1: Physical specification of parallel flange I-Beams (IPE)

weight		Dimensions and tolerance -MM.										SIZ E 1-2
Tolerance		Unit weight t W (kg/m)	Radius of curvatur e	Flange thickness t		Web thickness s		Flange width b		Height H(mm)		
Package	piece			toleranc e	nomina l	toleranc e	nomina l	toleranc e	Nomina l	toleranc e	Nomina l	
±4	±±6	1/4 .	7	±1	6/3	±0/5	4/4	±2	64	±2	12.	12
		1/9 2	7	1/5	6/9	0/75	4/7	+3 -2	73	+3 -2	14.	14
		1/8 5	9		7/4		5/0		82		16.	16
		1/8 8	9		8/0		5/3		91		18.	18
		2/4 2	12	8/5	5/6	±3	100	±3	20.	20		
		2/2 6	12	9/2	5/9		110		22.	22		
		3/7 .	15	9/8	6/2		120		24.	24		
		3/1 6	15	10/2	6/6		135		27.	27		
		4/2 2	15	±2	10/7	±1	7/1	150	30.	30		

Table 2: Static data of parallel flange I-Beams (IPE)

Distance between compression & tension axis S' _x cm	State moment of half cross section S _x cm ³	Moment of inertia relative to bending axis						Unit surfaces area U (m ² / m)	Sectional Area A cm ³²	Size I-2
		y-y axis			x-x axis					
		Radius of gyration i _y cm	Section module W _y cm ³	Moment of inertia I _y cm ⁴	Radius of gyration i _x cm	Section module W _x cm ³	Moment of inertia I _x cm ⁴			
10/5	30/4	1/45	8/65	27/7	4/90	53/0	318	0/475	13/2	12
12/3	44/2	1/65	12/3	44/9	5/74	77/3	541	0/551	16/4	14
14/0	61/9	1/84	16/7	68/3	6/58	109	869	0/623	20/1	16
15/8	83/2	2/05	22/2	101	7/42	146	1320	0/698	23/9	18
17/6	110	2/24	28/5	142	8/26	194	1940	0/768	28/5	20
19/4	143	2/48	37/3	205	9/11	252	2770	0/848	33/4	22
21/2	183	2/69	47/3	284	9/97	324	3890	0/922	39/1	24
23/9	242	3/02	62/2	420	11/2	429	5790	1/04	45/9	27
26/6	314	3/35	80/5	604	12/5	557	8360	1/16	53/8	30

Table 3: Chemical composition of parallel flange I-Beams (IPE)

Weight of elements (%)						Steel grade
N(max)	S(max)	P(max)	Mn	Si	C(max)	
•/•.۱۱	•/•.۵۰	•/•.۵۰	•/۲۰-•/۷۵	•/۱۲-•/۳۵	•/۲۰	فولاد ۳۷
•/•.۱۱	•/•.۵۰	•/•.۵۰	•/۳۵-•/۹۰	•-۱۵-•/۴۵	•/۲۳	فولاد ۴۴
-	•/•.۴۵	•/•.۴۵	≤۱/۶۰	•≤/۶۰	•/۲۳	فولاد ۵۲

Table 4: Mechanical properties of parallel flange I-Beams (IPE)

Cold bend test at angle of 180	Tensile test			Steel grade
	Minimum Elongation $L = 5.65\sqrt{S}$	Tensile strength (N/mm^2)	Min.yield point (N/mm^2)	
Bend mandrel diameter in terms of specimen thickness (t)				
S۱	۲۶	۳۶۰-۵۱۰	۲۳۵	۳۷ ST
S۲/۵	۲۲	۴۳۰-۵۸۰	۳۷۵	۴۴ST
S۲/۵	۲۲	۵۱۰-۶۸۰	۳۵۵	۵۲ST