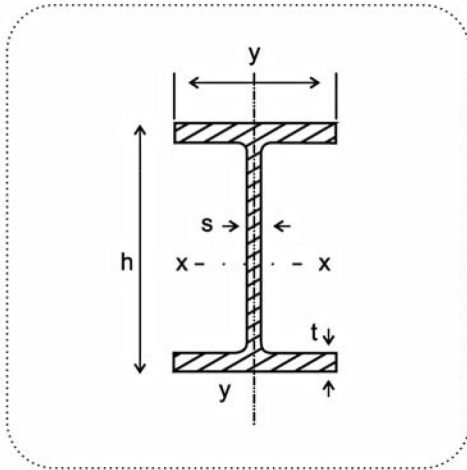


Parallel Flange Beam (I-Beam)



Parallel Flange Beam (IPE) equivalent to following standards:

- Dimension as per DIN 1025-5
 - Technical Specification as per EN 10025-2
 - Permissible Variation as per EN 10034
- according to Iranian National Standard No.1791

Table1. Physical Specification of Parallel Flange Beam.

Size	Dimension(mm)									Weight	
	Height (h)		Flange width(b)		Web thickness(s)		Flange thickness(t)		Radius of curvature	Unit weight W (kg/m)	Tolerance (%)
	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance			
12	120		64		4.4		6.3	+1.5 -0.5	7	10.4	±6
14	140	+3	73		4.7		6.9		7	12.9	
16	160	-2	82	+4	5.0		7.4		9	15.8	
18	180		91	-1	5.3		8.0		9	18.8	
20	200		100		5.6	±0.70	8.5	+2 -1	12	22.4	
22	220	+4	110		5.9		9.2		12	26.2	
24	240	±2	120	+4	6.2		9.8		15	30.7	
27	270		135	-2	6.6		10.2	+2.5	15	36.1	
30	300		150		7.1	±1.0	10.7	-1.5	15	42.2	

Table2. Static Data of Parallel Flange Beam.

Size	Sectional area (A) cm ²	Unit surface area (U) m ² /m	Moment of inertia relative to bending axis						Static Moment of half cross section S _x cm ³	Distance between compression & tension axis S _t cm
			x-x axis			y-y axis				
			Moment of inertia i _x cm ⁴	Section modulus W _x cm ³	Radius of gyration i _x cm	Moment of inertia I _y cm ⁴	Section modulus W _y cm ³	Radius of gyration i _y cm		
12	13.2	0.475	318	53.0	4.90	27.7	8.65	1.45	30.4	10.5
14	16.4	0.551	541	77.3	5.74	44.9	12.30	1.65	44.2	12.3
16	20.1	0.623	869	109	6.58	68.3	16.70	1.84	61.9	14.0
18	23.9	0.698	1320	146	7.42	101	22.20	2.05	83.2	15.8
20	28.5	0.768	1940	194	8.26	142	28.50	2.24	110	17.6
22	33.4	0.848	2770	252	9.11	205	37.30	2.48	143	19.4
24	39.1	0.922	3890	324	9.97	284	47.30	2.69	183	21.2
27	45.9	1.04	5790	429	11.2	420	62.20	3.02	242	23.9
30	53.8	1.16	8360	557	12.5	604	80.50	3.35	314	26.6

Table3. Chemical Composition of Parallel Flange Beam.

Steel grade	Weight of elements (%)						Max. carbon equivalent (%)
	C (max)	Si	Mn	P(max)	S(max)	N(max)	
ST37 (S235JR)	0.19	0.12-0.40	0.25-1.50	0.050	0.050	0.014	%35
ST44 (S275JR)	0.24	0.15-0.45	0.40-1.60	0.050	0.050	0.014	%40
ST52 (S355JR)	0.27	≤0.60	≤1.70	0.050	0.050	0.014	%45

Table4. Mechanical Properties of Parallel Flange Beam.

Steel grade	Tensile test			Angle
	Min Yield Strength N/(mm) ²	Min Tensile Strength N/(mm) ²	Elongation %A ₅₀	Bend mandrel diameter in terms of specimen thickness (S)
ST37 (S235JR)	235	360-510	26	1S
ST37 (S275JR)	275	410-560	23	2.5 S
ST37 (S255JR)	355	470-630	22	2.5 S