



# Technical specification tables

## products

### ★ Rebar mass variation criteria (in accordance with Iranian national code ISIRI-3132)

Nominal diameter (mm)	Weight tolerance (%)	
	Single lengths	Bundle
<10	8+	7+
	8-	7-
10 - 16	5/5+	5+
	6-	5-
16 - 25	4+	4+
	5-	4-
25 - 40	3+	3/5+
	4-	3/5-

### ★ Typical rebar chemical composition

Material	C	Si	Mn	P	S	Cr	Ni
ST55P	MAX 0.37	MAX 0.30	MAX 0.45	MAX 0.040	MAX 0.050	MAX 0.3	MAX 0.3

### ★ Rebar mechanical properties

Grade of steel	Yield strength	Ultimate tensile strength (Mpa)	Yield strength (Mpa)
AJ-340	350-405	480-600	19-23
AJ-400	415-525	595-710	17-19
AJ-500/520	520-600	645-780	16-17

### ★ IPE beam mechanical properties (conform to ISIRI-1791)

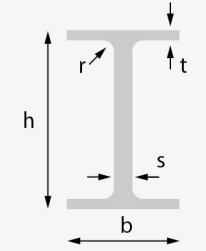
Grade of steel	Minimum Yield strength	Ultimate tensile strength (MPa)	Elongation (%)
St-37	235	360-510	26
St-44	275	430-580	22
St-52	355	510-680	22

### ★ Typical wire rode chemical composition

Material	C	Si	Mn	P	S
RST34-2	MAX 0.12	MAX 0.3	0.26 0.54	MAX 0.040	MAX 0.040
SAE 1006	MAX 0.08	--	0.25 0.040	MAX 0.040	MAX 0.050
SAE 1008	MAX 0.10	--	0.30 0.50	MAX 0.040	MAX 0.050
SAE 1010	0.08 0.13	---	0.30 0.60	MAX 0.040	MAX 0.050
SWRY 11	MAX 0.09	MAX 0.03	0.35 0.65	MAX 0.020	MAX 0.020
SWRY 21	0.10 0.15	MAX 0.03	0.35 0.65	MAX 0.020	MAX 0.020
C67	0.65 0.72	0.15 0.35	0.60 0.90	MAX 0.045	MAX 0.045

### ★ IPE beam dimensions and mass (Tolerance conform to ISIRI-1791)

IPE Number	Dimensions and tolerances (mm)										Weight (Kg/m)	Tolerance%
	Height (h)		Width (b)		Thickness (s)		Thickness (t)		r	Tolerance%		
	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance				
14	140		73		4.7		6.9		7	12.9	± 6	
16	160	+ 3.0	82	+ 3.0	5.0		7.4		9	15.8		
18	180	- 2.0	91	- 2.0	5.3	± 0.75	8.0	± 0.75	9	18.8		
20	200		100		5.6		8.5		12	22.4		
22	220	± 3.0	110	± 3.0	5.9		9.2		12	26.2		



### ★ Dimension tolerance of bright bars according to the relevant standards

Diameter (mm)	Tolerance DIN-668/h11		Tolerance DIN-671/h9		Tolerance DIN-59361/h6	
	min	max	min	max	min	max
6-10	90 -	0	36 -	0	9 -	0
10-18	110 -	0	43 -	0	11 -	0
18-30	130 -	0	52 -	0	13 -	0
30-50	160 -	0	62 -	0	16 -	0
50-80	190 -	0	74 -	0	19 -	0
80-120	220 -	0	87 -	0	22 -	0
120-180	250 -	0	100 -	0	25 -	0
180-250	290 -	0	115 -	0	29 -	0

• Tolerance numbers must be multiplied by 0.001 mm

### ★ Rebar truss girder weight estimation

Lower rebar diameter (mm)	Upper rebar diameter (mm)	Zigzag rod diameter (mm)	Maximum weight/unit length	
			Height	
			20 cm	25 cm
208	80	4	1.64	1.74
208	80	4.2	1.68	1.80
208	80	4.5	1.75	1.89
208	80	4.7	1.80	1.95
2010	1010	4	2.28	2.40
2010	1010	4.2	2.32	2.44
2010	1010	4.5	2.39	2.53
2010	1010	4.7	2.45	2.60
2012	1012	5.5	3.53	3.74
2014	1014	6	4.69	4.94

### ★ Weight comparison between automatically and manually welded rebar trusses

Automatic weight reduction to manual	Zigzag (lateral rebar)		Upper rebar		Lower rebar		Length of span (m)
	Automatic	Manual	Automatic	Manual	Automatic	Manual	
22 %	Φ4.7	Φ6	Φ8	Φ10	2Φ8	2Φ10	3 ≥ L
21 %	Φ4.7	Φ6	Φ8	Φ10	2Φ10	2Φ12	4 ≥ L > 3
18 %	Φ4.7	Φ6	Φ10	Φ10	2Φ10 + Φ8	2Φ14	5 ≥ L > 4
20 %	Φ4.7	Φ6	Φ12	Φ12	2Φ10 + Φ14	3Φ14	6 ≥ L > 5
15 %	Φ4.7	Φ8	Φ12	Φ14	2Φ10 + Φ16	3Φ16	7 ≥ L > 6

- Rebar type: Grade-400
- Height: 25 cm
- Dead load: 550 kg/m2
- Live load: 200 kg/m2
- Specified compressive strength: 250 kg/cm2

### ★ Flat bar dimensions and weight

Width (mm)	Thickness (mm)	Bars weight (Kg/6m)	Number of bars in each bundle	Bundle weight (Kg)
8	150	56	28	1600
8	200	75	42	3300
8	250	94	34	3300
10	150	70	23	1600
10	200	94	34	3300
10	250	117	27	3300
10	300	141	22	3300
12	150	85	19	1600
12	200	113	28	3300
12	250	141	22	3300
12	300	169	19	3300
15	150	105	31	3300
15	200	141	22	3300
15	250	176	18	3300
15	300	211	15	3300
20	200	188	17	3300
20	250	234	13	3300
20	300	281	11	3300
25	200	234	13	3300
25	250	293	11	3300
25	300	351	9	3300
30	200	281	11	3300
30	250	351	9	3300
30	300	421	7	3300