

CAPITOL STEEL CORPORATION

With Quality Assurance

Steel Bars Mechanical Properties

(PNS 49 : 1991)

Classification	PNS	Grade	ASTM	Yield Strength (MPa)	Tensile Strength (MPa)	Size	Elongation 200mm Gage Length (%)	Bending Angle (degree)	Pin Diameter	Color Coding
Hot-Rolled Non-Weldable Deformed Steel Bar	230	Structural	33	230	390	D<25	18	180	3D	White
	275	Intermediate	40	275	480	D>25	16	180	4D	Yellow
						D<25	10		4D	
	415	High Tensile	60	415	620	D>25	8	180	5D	Green
						D<25	8		5D	
	230	Structural	33	230	390	D<25	20	180	3D	White/Red
D>25						18	4D			
275	Intermediate	40	275	480	D<25	16	180	4D	Yel/Red	
					D>25	14		5D		
415	High Tensile	60	415 - 540	550*	D<25	14	180	5D	Green/Red	
					D>25	12		6D		

* Shall not be less than 1.25 times the actual yield strength

D=Nominal Diameter of Bar Specimen

Steel Bars Weight Table

Nominal Diameter mm	Dot Mark	Nominal Area mm ²	Unit Wt. kg/m	Nominal Weight per Length					ASTM A 615 : 1995			
				6m kg	7.5m kg	9m kg	10.5m kg	12m kg	Bar No.	Diameter in mm		
6		28.27	0.222	1.332					2.664	2	0.250	6.350
8	1	50.26	0.395	2.370					4.740			
10	2	78.54	0.616	3.696	4.620	5.544	6.468	7.392	3	0.375	9.525	
12	3	113.10	0.888	5.330	4.662	7.994	9.327	10.659	4	0.500	12.700	
16	4	201.06	1.579	9.474	11.843	14.211	16.580	18.948	5	0.625	15.875	
20	5	314.16	2.466	14.796	18.495	22.194	25.893	29.592	6	0.750	19.050	
25	6	490.88	3.854	23.124	28.905	34.686	40.467	46.248	8	1.000	25.400	
28	7	615.75	4.833	28.998	36.248	43.497	50.747	57.996	9	1.128	28.651	
32	8	804.25	6.313	37.878	47.348	56.817	66.287	75.756	10	1.270	32.258	
36	9	1017.88	7.991	47.946	59.933	71.919	83.906	95.892	11	1.410	35.814	
40	10	1256.64	9.865	59.190	73.987	88.785	103.582	118.380	14	1.693	43.002	
50		1963.49	15.413	92.478	115.597	138.717	161.836	184.956	18	2.257	57.328	

1) Permissible variation in actual weight of a steel bar from the theoretical weight shall not exceed 6%. While for 8mm diameter & below, it shall not exceed 10%.

2) 6mm diameter steel bar is covered by the PNS 211 standard.

Deformation Requirements

Unit : mm

Nominal Diameter [D]	Max. Average Spacing of Lugs [L]	Height of Lugs [H]		Max. Value Summation of Gaps of Lugs [G]
		Minimum	Maximum	
6	7.0	0.2	0.4	4.7
8	7.0	0.3	0.6	6.3
10	7.0	0.4	0.8	7.8
12	8.4	0.5	1.0	9.4
16	11.2	0.7	1.4	12.6
20	14.0	1.0	2.0	15.7
25	17.5	1.2	2.4	19.6
28	19.6	1.4	2.8	22.0
32	22.4	1.6	3.2	25.1
36	25.2	1.8	3.6	27.5
40	28.0	2.0	4.0	31.4
50	35.0	2.5	5.0	39.3