

REBAR GRADES COMPARISON



Philippine National Standard | Japanese Industrial Standard

Strength Requirements

	PNS 49							JIS G 3112				
	280R	420R	520R	550R	280W	420W	550W	SD295A	SD295B	SD345	SD390	SD490
YS, min (MPa)	280	420	520	550	280	420	550	295	295	345	390	490
YS, max (MPa)	-	-	-	-	-	540	675	-	390	440	510	625
TS, min (MPa)	420	620	690	725	420	550	690	440	440	490	560	620
TS, max (MPa)	-	-	-	-	-	-	-	600	-	-	-	-
TS/YS, min	-	-	-	-	1.25	1.25	1.25	-	-	-	-	1.25

Elongation and Bendability Requirements

	PNS 49							JIS G 3112				
	280R	420R	520R	550R	280W	420W	550W	SD295A	SD295B	SD345	SD390	SD490
Elongation (%)												
10-16mm	12	9	7	7	16	14	12	16	16	18	16	12
20mm	12	9	7	7	16	14	12	17	17	19	17	13
25mm	12	9	7	7	14	12	12	17	17	19	17	13
28-36mm	8	7	6	6	14	12	12	17	17	19	17	13
Pin Diameter, d												
10-16mm	4d	5d	5d	5d	4d	4d	4d	1.5d	1.5d	1.5d	2.5d	2.5d
20-25mm	5d	5d	5d	5d	4d	4d	5d	2.0d	2.0d	2.0d	2.5d	3.0d
28-36mm	5d	7d	7d	7d	5d	6d	7d	2.0d	2.0d	2.0d	2.5d	3.0d
Bend Degree	180	180	180	180	180	180	180	180	180	180	180	90

Note: d is the nominal size of the steel bar.

Chemical Requirements

	PNS 49							JIS G 3112				
	280R	420R	520R	550R	280W	420W	550W	SD295A	SD295B	SD345	SD390	SD490
%C, max	-	-	-	-	0.33	0.33	0.33	-	0.27	0.27	0.29	0.32
%Mn, max	-	-	-	-	1.26	1.56	1.76	-	1.50	1.60	1.80	1.80
%Si, max	-	-	-	-	-	0.55	0.55	-	0.55	0.55	0.55	0.55
%S, max	0.062	0.062	0.062	0.062	0.058	0.058	0.058	0.050	0.040	0.040	0.040	0.040
%P, max	0.062	0.062	0.062	0.062	0.058	0.058	0.058	0.050	0.040	0.040	0.040	0.040
CEq	-	-	-	-	0.55	0.55	0.55	-	-	0.50	0.55	0.60

Note: PNS CEq = C + (Mn/6) + (Cu/40) + (Ni/20) + (Cr/10) - (Mo/50) - (V/10)