

方鋼 Square Bar

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可產製尺寸 Available Sizes

	直方鋼 Straight Bar	捲狀方鋼 Square Bar in Coil
邊長 (A) Width	9.5-52.5mm	11.3-27.3mm
盤元內徑 (I.D.) Inner Diameter	-	950mm
盤元外徑 (O.D.) Outer Diameter	-	1,250mm
直棒長度 (L) Length	4-16mm	-
包裝重量 Weight	≒ 1500-2,000kg	≒ 1,500-2000kg
盤捲方向 Coiling Direction	-	順時針方向

可產製鋼種 Available Grades

分類 Division	規格 Spec.	材質記號 Symbol
一般結構用 General Structure	CNS 2473	SS330,SS400,SS490,SS540
	JIS G3101	
	ASTM A36	A36
	AS 3679.1	GR300
焊接結構用 Welded Structure	CNS 2947	SM400A,SM490A
	JIS G3106	
	CNS 13812	SN490B
	JIS G3136	
	ASTM A572	Grade 50 type 2
	ASTM A709	Grade 50 type 2
結構用 Structure	EN 10025-2	S235JR,S235J0,S235J2
		S275JR,S275J0,S275J2
		S355JR,S355J0,S355J2,S355K2

	冷打 (鍛) 碳鋼 Carbon Steels for Cold Heading (Forging)	機械構造碳鋼 Carbon Steels for Machine Structural Use	機械構造合金鋼 Low Alloy Steels for Machine Structural Use	快削鋼 Free Cutting Carbon Steels	一般結構用鋼 Rolled Steels form General Structure
CNS	8694 SWRCH8A~SWRCH22A	3828 S15C~S58C	3271 SNCM220 3229 SCM415~SCM440	4004 SUM23, SUM24L	2473 SS330~SS540 2947 SM400A, SM490A
JIS	G3507 SWRCH8A~SWRCH22A	G4051 S15C~S58C	G4053 SNCM220 G4053 SCM415~SCM440	G4804 SUM23, SUM24L	G3101 SS330~SS540 G3106 SM400A, SM490A
F.H. SPEC	1008~1060,1541		8620	1141,12L14	-
ASTM	-		-	A576	A570,A572, A36,A709
F.H. SPEC	10B21,1040ACR, 1040ACRM	1015S1,1015S2, 1045S1,1021MN	6135,6140, 4140MN	1215M, 1215MS	TC275
EN 10025-2	-	-	-	-	S235JR,S235J0 S235J2,S275JR S275J0,S275J2 S355JR,S355J0 S355J2,S355K2
AS 3679.1	-	-	-	-	GR300

化學成份 Chemical Requirements

規範鋼種 Spec.	材質記號 Symbol	化學成份 (wt%) Chemical Composition				
		C	Si	Mn	P	S
CNS 2473	SS330,SS400,SS490	-	-	-	0.050max	0.050max
JIS G3101	SS540	0.30max	-	1.60max	0.040max	0.040max
ASTM A36	A36	0.26max	0.40max	-	0.040max	0.050max
ASTM A572	Grade 50 type2	0.23max	0.40max	1.35max	0.040max	0.050max
ASTM A709	Grade 50 type2					

CNS 2947	SM400A	0.23max	-	2.5*Cmin	0.035max	0.035max
JIS G3106	SM490A	0.20max	0.55max	1.60max	0.035max	0.035max
CNS 13812	SN490B	0.18max	0.55max	1.60max	0.030max	0.015max
JIS G3136						
AS 3679.1	GR300	0.25max	0.50max	1.60max	0.040max	0.040max
EN 10025-2	S235JR	0.17max	-	1.40max	0.035max	0.035max
	S235J0	0.17max	-	1.40max	0.030max	0.030max
	S235J2	0.17max	-	1.40max	0.025max	0.025max
	S275JR	0.21max	-	1.50max	0.035max	0.035max
	S275J0	0.18max	-	1.50max	0.030max	0.030max
	S275J2	0.18max	-	1.50max	0.025max	0.025max
	S355JR	0.24max	0.55max	1.60max	0.035max	0.035max
	S355J0	0.20max	0.55max	1.60max	0.030max	0.030max
	S355J2	0.20max	0.55max	1.60max	0.025max	0.025max
	S355K2	0.20max	0.55max	1.60max	0.025max	0.025max

種類記號 Symbol	化學成份 (%) Composition											
	C	Si	Mn	P	S	Ni	Cr	Mo	Al	Cu	Pb	
SWRCH8R	0.10 max	-	0.60 max	0.040 max	0.040 max	-	-	-	-	-	-	
SWRCH10R	0.08-0.13	-	0.30-0.60	0.040 max	0.040 max	-	-	-	-	-	-	
SWRCH8A	0.10 max	0.10 max	0.60 max	0.030 max	0.035 max	-	-	-	0.020 min	-	-	
SWRCH10A	0.08-0.13	0.10 max	0.30-0.60	0.030 max	0.035 max	-	-	-	0.020 min	-	-	
SWRCH15A	0.13-0.18	0.10 max	0.30-0.60	0.030 max	0.035 max	-	-	-	0.020 min	-	-	
JIS	S15C	0.13-0.18	0.15-0.35	0.30-0.60	0.030 max	0.035 max	Cu 0.30%max Ni 0.20%max Cr 0.20%max Ni+Cr 0.35%max					
	S35C	0.32-0.38	0.15-0.35	0.60-0.90	0.030 max	0.035 max						
	S45C	0.42-0.48	0.15-0.35	0.60-0.90	0.030 max	0.035 max						
	S50C	0.47-0.53	0.15-0.35	0.60-0.90	0.030 max	0.035 max						

美國 汽車 工程 師 協 會 S A E	S55C	0.52-0.58	0.15-0.35	0.60-0.90	0.030 max	0.035 max						
	SUM23	0.09 max	-	0.75-1.05	0.040-0.090	0.26-0.35	-	-	-	-	-	-
	SUM24L	0.15 max	-	0.85-1.15	0.040-0.090	0.26-0.35	-	-	-	-	-	0.10-0.35
	SCM415	0.13-0.18	0.15-0.35	0.60-0.90	0.030 max	0.030 max	0.25 max	0.90-1.20	0.15-0.25	-	0.30 max	-
	SCM435	0.33-0.38	0.15-0.35	0.60-0.90	0.030 max	0.030 max	0.25 max	0.90-1.20	0.15-0.30	-	0.30 max	-
	SCM440	0.38-0.43	0.15-0.35	0.60-0.90	0.030 max	0.030 max	0.25 max	0.90-1.20	0.15-0.30	-	0.30 max	-
	SNCM220	0.17-0.23	0.15-0.35	0.60-0.90	0.030 max	0.030 max	0.40-0.70	0.40-0.60	0.15-0.25	-	0.30 max	-
	1008	0.10 max	-	0.30-0.50	0.030 max	0.050 max	-	-	-	-	-	-
	1010	0.08-0.13	-	0.30-0.60	0.030 max	0.050 max	-	-	-	-	-	-
	1015	0.13-0.18	-	0.30-0.60	0.030 max	0.050 max	-	-	-	-	-	-
	1021	0.18-0.23	-	0.60-0.90	0.030 max	0.050 max	-	-	-	-	-	-
	1026	0.22-0.28	-	0.60-0.90	0.030 max	0.050 max	-	-	-	-	-	-
	1035	0.32-0.38	-	0.60-0.90	0.030 max	0.050 max	-	-	-	-	-	-
	1045	0.43-0.50	-	0.60-0.90	0.030 max	0.050 max	-	-	-	-	-	-
1050	0.48-0.55	-	0.60-0.90	0.030 max	0.050 max	-	-	-	-	-	-	
1055	0.50-0.60	-	0.60-0.90	0.030 max	0.050 max	-	-	-	-	-	-	
12L14	0.15 max	-	0.85-1.15	0.040-0.090	0.26-0.35	-	-	-	-	-	0.15-0.35	
1215	0.09 max	-	0.75-1.05	0.040-0.090	0.26-0.35	-	-	-	-	-	-	
1541	0.36-0.44	-	1.35-1.65	0.030 max	0.050 max	-	-	-	-	-	-	
4140	0.38-0.43	0.15-0.35	0.75-1.00	0.030 max	0.040 max	0.25 max	0.80-1.10	0.15-0.25	-	0.35 max	-	

	8620	0.18-0.23	0.15-0.35	0.70-0.90	0.030 max	0.040 max	0.40-0.70	0.40-0.60	0.15-0.25	-	0.35 max	-
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機械性質 Mechanical Requirements

分類 Spec.	種類記號 Symbol	拉 伸 試 驗				180°彎曲 試片,內側 半徑 Bend Test 180° Inside Radius	衝擊試 驗 Impact test	
		降伏強度 Yield Strength N/mm ² (ksi)		抗拉強度 Tensile Strength N/mm ² (ksi)	伸長率 (%) Elongation			
		直徑 mm						
		t ≤ 16	16 < t ≤ 40					
CNS 2473 JIS G3101	SS330	205min	195min	330~430	26min[t ≤ 5]	0.5*t OK	-	
					21min[5 < t ≤ 16]			
					26min[16 < t ≤ 50]			
	SS440	245min	235min	400~510	400~510	21min[t ≤ 5]	1.5*t OK	-
						17min[5 < t ≤ 16]		
						21min[16 < t ≤ 50]		
	SS490	285min	275min	490~610	490~610	19min[t ≤ 5]	2.0*t OK	-
						15min[5 < t ≤ 16]		
						19min[16 < t ≤ 50]		
	SS540	400min	390min	540min	540min	16min[t ≤ 5]	2.0*t OK	-
						13min[5 < t ≤ 16]		
						17min[16 < t ≤ 50]		
ASTM A36	A36	250(36)min		400-550(58-80)	20min[標距(g.l)200mm]	-	-	
ASTM A572	Grade 50 type 2	345(50)min		450(65)min	18min[標距(g.l)200mm]	-	-	
ASTM A709								
CNS 2947 JIS G3106	SM400A	245min	235min	400~510	23min[t ≤ 5]	-	-	
					18min[5 < t ≤ 16]			
					22min[16 < t ≤ 50]			
	SM490A	325min	315min	490~610	490~610	22min[t ≤ 5]	-	-
				17min[5 < t ≤ 16]				

					21min[16<t≤50]		
CNS 13812 JIS G3136	SN490B	325~445(降伏比 80%以下)		490~610	17min[6≤t≤16]	-	依規格
					21min[16<t≤50]		
EN 10025-2	S235JR,S235J0, S235J2	235min	225min	360~510	26min(g.l=5.65√S0)	-	依規格
	S275JR,S275J0, S275J2	275min	265min	410~560	23min(g.l=5.65√S0)		
	S355JR,S355J0, S355J2,S355K2	355min	345min	470~630	22min(g.l=5.65√S0)		
AS 3679.1	GR300	t<11	11≤t≤17	440min	22min(g.l=5.65√S0)	-	-
		320min	300min				

產品用途 Products Use

一般構造用：建築構造、車輛、滑軌零件等。

特殊鋼：機械軸心、手工具、磨光棒、管路零件、汽機車傳動零件等。

General structure quality : use in structural frame.

Special bar quality : shafts,hand tools,polished bars,piping components,auto-transmission parts.