



JFE`s Stainless Steel for Cutlery



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JFE Steel has extensive experience in manufacturing martensitic stainless steel for cutlery. In order to reduce the variations in hardness, our steels are manufactured by strictly controlling their elements within a very narrow range.

Manufacturing Steel Grade

Steel Grade	Standards	Basic Composition	Examples of Hardness after Quenching		Features	Applications
			HV	HRC		
SUS410	JIS Standard	13Cr - 0.1C	430	43	13-Cr stainless steels	Western tableware, Mechanical parts
SUS420J1	JIS Standard	13Cr - 0.2C	530	51	Suitable for parts requiring wear resistance	Western tableware, cutlery, straightedges
SUS420J2	JIS Standard	13Cr - 0.3C	630	57	Steel with a higher quench hardness than SUS420J1	Cutlery
EN1.4116	EN Standard	14Cr - 0.5C	700	60	Steel with a higher quench hardness than SUS420J2	Deluxe kitchen knives

Cr: Chrome, C: Carbon

Chemical Composition

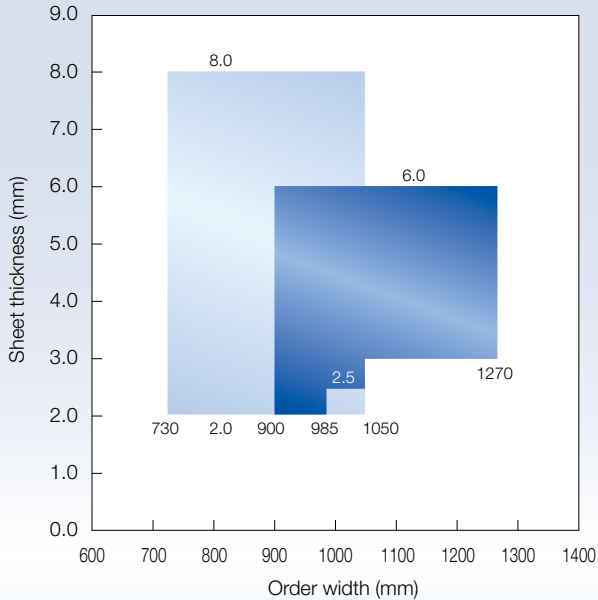
Steel Grade	Standards	C (Carbon)	Si (Silicon)	Mn (Manganese)	P (Phosphorus)	S (Sulfur)	Cr (Chrome)	Mo (Molybdenum)	V (Vanadium)	N (Nitrogen)
SUS410	JIS Standard	≤0.15	≤1.00	≤1.00	≤0.040	≤0.030	11.50~13.50	—	—	—
SUS420J1	JIS Standard	0.16~0.25	≤1.00	≤1.00	≤0.040	≤0.030	12.00~14.00	—	—	—
SUS420J2	JIS Standard	0.26~0.40	≤1.00	≤1.00	≤0.040	≤0.030	12.00~14.00	—	—	—
EN1.4116	EN Standard	0.45~0.55	≤1.00	≤1.00	≤0.040	≤0.015	14.00~15.00	0.50~0.80	0.10~0.20	—

Mechanical Properties Annealing status (At time of shipment)

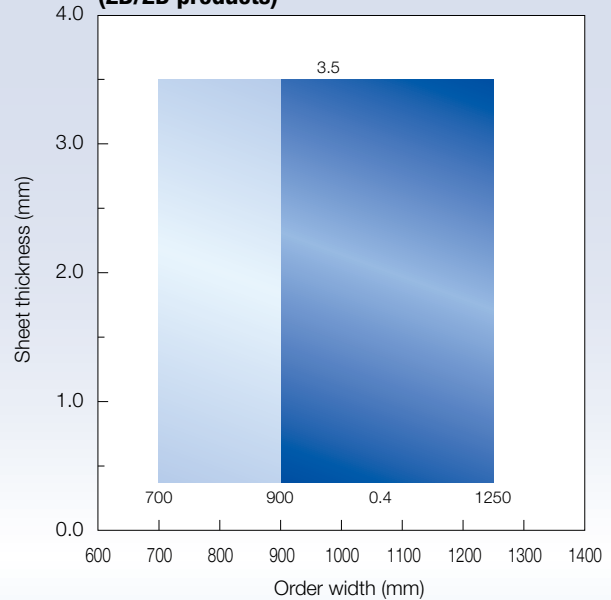
Steel Grade	Standards	0.2%Proof Stress N/mm ²	Tensile Strength N/mm ²	Elongation %	Hardness	
					HRB	HV
SUS410	JIS Standard	≥205	≥440	≥20	≤93	≤210
SUS420J1	JIS Standard	≥225	≥520	≥18	≤97	≤234
SUS420J2	JIS Standard	≥225	≥540	≥18	≤99	≤247
EN1.4116	EN Standard	—	≤850	≥12	≤100	≤280


Manufacturing Dimensions

SUS420J1/SUS420J2 hot-rolled steel strips



SUS420J1/SUS420J2 cold-rolled steel strips (2B/2D products)



 : Manufacturing available

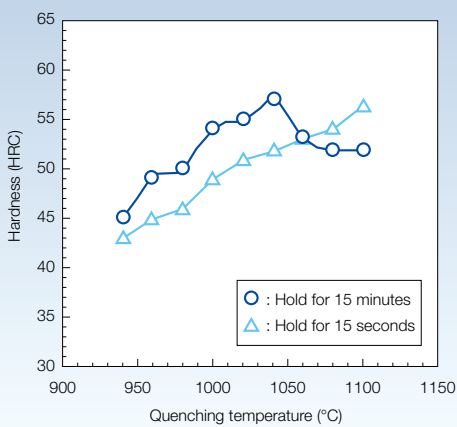
 : Please consult us

For EN1.4116, please consult us.

Reference Example of quenching and tempering characteristics

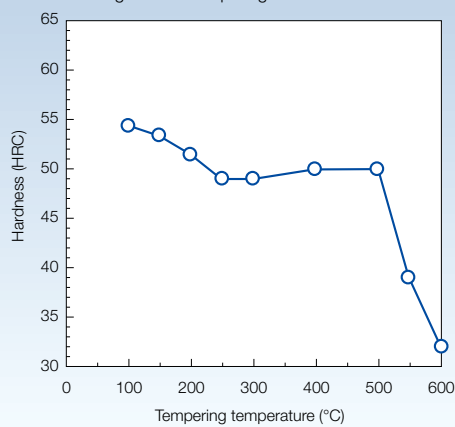
SUS420J2 Example of quenching characteristics of SUS420J2 cold-rolled steel

Sheet thickness: 1.5 mm
Cooling condition: Air cooling



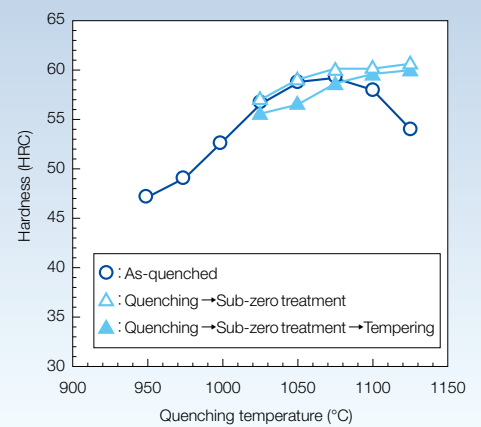
SUS420J2 Example of tempering characteristics of SUS420J2 cold-rolled steel

Sheet thickness: 1.5 mm
Quenching condition: Air cooling after holding for 15 minutes at 1040 °C
As-quenched hardness (HRC) = 57
Holding time for tempering: 2 hours



EN1.4116 Example of quenching and tempering characteristics of EN1.4116 hot-rolled steel

Sheet thickness: 2.5 mm
Holding time for quenching: 15 minutes
Tempering conditions: Hold for 30 minutes at 200 °C
Sub-zero treatment condition: Hold for 30 minutes at -78 °C



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