SUS - Mill Specifications

1. Stainless Steel Characteristics and Usage by Steel Type

		Characteristics	Usage
Austenite	301	Has lower Cr, Ni content than 304 steel. Its tensile strength increases with cold drawing. It is non-magnetic and acquires magnetism after cold drawing.	Trains, aircraft, belt conveyors, vehicles, bolts, spring
	301L	301steel is created by lowering the C content in 301 steel and by improving grain boundary corrosion resistance of the welding part. Strength deterioration due to reduced C content is reinforced by adding N.	Train frames, building exterior material
	303	Good free-cutting property by adding S and excellent anti-quenchability.	Shafts for electric appliances, OA products, bolts and nuts
	304	Most widely used steel type. Good corrosion resistance, thermal resistance, low-temperature strength and mechanical properties. Good drawability such as Deep Drawing, Bending and does not harden during heat treatment. (non-magnetic, usable temperature:-196~800•C)	Hollow and flat ware, sinks, interior piping, hot-water boilers, bath tubs, boilers, automobile parts (wiper, muffler, molding), medical instruments, building materials, facilities in chemical, food and dairy industries, vessel parts
	304L	304L steel is low carbon 304 steel. In normal conditions, it has similar corrosion resistance. Excellent resistance to inter-granular corrosion after welding and stress relieving. Has corrosion resistant properties without heat treatment and is generally used at temperatures under 400•C(non-magnetic, usable temperature:-196~800•C)	Machinery and tools used in the chemical, coal, and petroleum industry that require high inter-granular corrosion resistance, building materials, heat resistant part and parts that are difficult to implement heat treatment on
	304Cu	By adding Cu, it has good pliability and good drawability. Useful for deep drawing products which requires a hygienic environment	Thermos bottles, kitchen sinks, pots, group food serving facilities, door knobs, products requiring spinning or drawing
	304N1	304steel is made by lowering the S and Mn content in 304 steel and adding N to prevent ductility reduction. Strength is improved and thickness reduced.	Structural use, street lights, water tanks, water pipes
	304LN	Strength and inter-granular corrosion resistance are improved by adding N.	Structural use, heat exchange systems, chemical vessels
	304H,M,S	Steel types formed for wire rods by adjusting the C content in 304 steel. Strength increases with cold drawing.	H: wire ropes, hooks, CD Bars M: mesh, bolts, nuts, CD Bars S: mesh
	304HA,HC	Steel types formed for wire rods by adjusting the C content in 304. Good cold headability and free-cutting property.	HA: shaft HC: medium and large size bolts and nuts HD: CD Bars HN: nails
	305	High Ni content. Non-magnetic and suitable for deep drawing use due to good cold formality.	Dinnerware, electrical parts
	316	Excellent corrosion resistance, pitting corrosion resistance and high temperature strength by adding Mo. Useful in severe/harsh conditions. Excellent drawing hardening (non-magnetic).	Sea water equipment, equipment for chemicals, paper, dye, acetic acid, fertilizer, photo and food industry and construction in coastal areas, ropes, CD Bars, nuts and bolts
	316L	Low carbon steel type. Has the normal properties of 316 plus excellent inter-granular corrosion resistance.	Made with 316 steel, excellent inter-granular corrosion resistance, mesh
	316S	Has 316 steel properties and suitable for ultra fine wire.	Mesh
	321	By adding Ti, prevents intra-granular corrosion, suitable under 430•C~900•C•	Airplane exhaust pipes, boilers, heat exchangers.
Ferrite	409L	By adding Ti, has good weldability and drawability.	Used for automobile exhaust pipes, heat exchangers, container for which post-heat treatment is not applied.
	410L	Excellent welding bendability by lowering the C content in 410 steel; high temperature oxidation resistance (magnetic).	Machine frames, engine exhaust pipes, boiler combustors, burners
	430	Steel type that represents Ferrite; low thermal expansion rate and excellent drawing and oxidation resistance.	Heat resistant tools, burners, household electric appliances, sink covers, building materials, nuts and bolts, CD Bars, mesh
	430J1L	Adding Mo,Ti and Nb results in good corrosion resistance, weldability and high temperature oxidation resistance.	Washing machine tanks, automobile exhaust pipes, electric appliance parts, three fold bottom pots.
	436L	Adding Mo,Ti and Nb results in excellent corrosion resistance, drawability and weldability.	Automobile exhaust pipes, water supply facilities.
Martensite	410	Steel type that represents Martensite, goof strength but not suitable for use in harsh/severe corrosion conditions. Has excellent drawability and hardens with heat treatment (magnetic).	General knife blades, machine parts, petroleum refining apparatus, bolts, nuts, pump shafts, spoons, forks
	420J1	In quenching condition, has high strength and good corrosion resistance (magnetic)	General knife (dinner knife) turbine blades
	420J2	Compared to 420J1, higher post-quenching strength (magnetic).	Knife blades, nozzles, valves, rulers, scissors, general knives

Classification	Type	Chemical Composition (%)					Mechanical Property							Physical Property				Corresponding Specifications			
											Longitude										
	KS (JIS)	C	Cr	Ni	Mo	Other	Heat Condition	Yield Strength (N/m²)	Tensile Strength (N/m²)	Elongation (%)	HB	HRB	Hv	Specific Heat J/g°C	Elasticity Coefficient X10³N /m²	Thermal Expansion Coefficient X10cm/ cm/°C (20~100°C)	Thermal Conductivity X10cm/ cm/°C (20-100°C)	UNS	AISI	DIN	ISO
Austenite	301	0.15	16.0-18.0	6.00-8.00			S	205	520	40	207	95	218	0.50	194	16.9	16.3	S30100	301	X12CrNi17 7	14
	301L	0.030	16.0-18.0	6.00-8.00		N 0.20	S	215	550	45	187	90	200	0.50	194	16.9	16.3			S2CrNi18 7	
	303	0.15	17.0-19.0	8.00-10.0	(0.6)		S	205	520	40	187	90	200	0.50	194	16.8	16.3	S30300	303	X10CrNiS18 9	17
	304	0.08	18.0-20.2	8.00-10.50			S	205	520	40	187	90	200	0.50	194	17.3	16.3	S30400	304	X5CrNi18 10	11
	304J1	0.02-0.05	16.5-17.1	7.5-7.9		Cu 1.9-2.2	S	155	450	40	187	90	200	0.50	194	17.3	16.3				
	304L	0.030	18.0-20.0	9.00-13.00			S	175	480	40	187	90	200	0.50	194	17.3	16.3	S30403	304L	X2CrNi19 11	10
	304LN	0.030	17.0-19.0	8.50-11.50		N 0.12-0.22	S	245	650	40	217	95	220	0.50	193	17.3	16.3	S30453	304LN	X2CrNiN18 10	10N
	304N1	0.08	18.0-20.0	7.00-10.50		N 0.10-0.25	S	275	550	65	217	95	220	0.50	194	17.3	16.3	S30451	304N		
	305	0.12	17.0-19.0	10.50-13.0			S	175	480	40	187	90	200	0.50	193	17.3	16.3	S30500	305	X5CrNi18 12	13
	309S	0.08	22.0-24.0	12.0-15.0			S	205	520	40	187	90	200	0.50	193	14.9	13.8		309S		
	316	0.08	16.0-18.0	10.00-14.0	2.00-3.00		S	205	520	40	187	90	200	0.50	194	16.0	16.3	S31600	316	X5CrNiMo17 12 2 X5CrNiMo17 13 3	20,20a
	316L	0.03	16.0-18.0	12.00-15.0	2.00-3.00		S	175	480	40	187	90	200	0.50	193	16.0	16.3	S31603	316L	X5CrNiMo17 13 2 X5CrNiMo17 14 3	19,19a
	321	0.08	17.0-19.0	9.00-13.00		Ti 5xC% and over	S	205	520	40	187	90	200	0.50	194	15,H11	16.1	S32100	321	X6CrNiTi18 10	
Ferrite	409L	0.03	17.0-19.0			Ti 6xC%-0.75	A	175	360	25	162	80	175	0.46	200	11.7	24.9				
	410L	0.03	11.0-13.5				A	195	360	22	183	88	200	0.46	200	9.9	25.1				
	430LX	0.03	16.0-19.0			Ti or Nb 0.1-1.0	A	175	360	22	183	88	200	0.46	196	10.5	26.4				
	430	0.12	16.0-18.0					205	450	22	183	88	200	0.46	200	10.4	26.4	S43000	430	X6Cr17	8,H4
	430Ti	0.03	19.0-21.0			Ti 0.2-0.5	A	205	420	25	162	80	175	0.46							
	430J1L	0.025	16.0-20.0			Nb 8x(C%+N%)-0.8 Cu 0.30-0.80	A	205	390	22	192	90	200	0.46	200	10.4	25.0				
	436L	0.025	16.0-19.0		0.75-1.25	Ti,Nb,Zr 8x(C%+N%)-0.8	A	245	410	20	217	96	230	0.46	200	10.4	25.0	S43600	436		
	444	0.025	17.0-20.0		1.75-2.5	Ti,Nb,Zr 8x(C%+N%)-0.8	A	245	410	20	217	96	230	0.46				S44400			
Martensite	410	0.15	11.5-13.5				A	205	440	20	201	93	210	0.46	202	9.9	24.9	S41000	410	X10Cr13	3
	420J1	0.16-0.25	12.0-14.0				A	225	520	18	223	97	234	0.46	202	10.3	23.8	S42000	420	X20Cr13	4
	420J2	0.26-0.4	12.0-14.0				A	225	540	18	235	99	247	0.46	202	10.3	23.8	S42000	420	X20Cr13	5

* Heat Treatment Condition: S: Solution Heat Treatment, A: Annealing