

Main Alloys Cast and Chemical Composition

Alloy Type	Standard Specification					C	Si	Mn	P	S	Cr	Ni	Mo	Others	σ _b Mpa	σ _s Mpa	δ %	Hardness HBS	Heat Treatment
	DIN (W-Nr.)	AISI	ASTM ACI	BS3100 BS3146	JIS														
Carbon Steel & Low Alloy Steel	1.0416 GS-38	1020	415-205	CLA1A	SC410	.15-.25	.2-.6	.4-1.0	.04	.04				415	205			Anneal	
	1.0446 GS-45	1025	WCB	CLA1B	SC450	.2-.3	.2-.6	.4-1.0	.04	.04				485	250	22		Anneal	
	GS-34CrMo4	4135			SCM435	.3-.37	.3-.5	.5-.8	.035	.035	.8-1.2		.2-.3	880-1080	665	12	269-332	hardening+temper	
	GS-42CrMo4	4140		CLA3	SCM440	.38-.43	.15-.35	.75-1.0	.035	.04	.8-1.1		.15-.25	980-1180	765	11	285-352	hardening+temper	
		8620		805A20	SNM220	.18-.23	.15-.35	.7-.9	.035	.04	.4-.6	.4-.7	.15-.25	830		17	248-341	hardening+temper	
Tool Steel	100MnCrW4		01	B01	SKS3	.9-1.0	1.0	.9-1.2	.04	.04	.5-1.0			W0.5-1			HRB<96	Anneal	
	4Cr5MoSiV1		H13	BH13	SKD61	.32-.42	.8-1.2	0.75	.04	.04	4.5-5.5		1.0-1.5	V.8-1.2			HRC>53		
	W6Mo5Cr4V2		M2	BM2	SKH9	.8-.9	<1.0	0.75	.04	.04	3.8-4.5	W5.5-6.7	4.5-5.5	V1.6-2.2			HRC>62	hardening+temper	
High Manganese Steel	G-X120Mn13		B-3	BW-10		1.1-1.3	1.0	12-14	.07	.04				637		20	<229	hardening+temper	
			B-1		SCMn12	0.9-1.2	0.8	11-14	.07	.04				735		35	<229	Quenching	
Stainless Steel	1.4305	303		303S21	SUS303	0.15	1.0	2.0	0.2	>.15	17-19	8-10	(0.6)					Quenching	
	1.4308	304	CF-8	ANC3A	SCS13	0.08	2.0	1.5	0.04		18-21	8-11	(0.5)		440	185	30	183	Solution annealing
	1.4306	304L	CF-8	304C12	SCS19A	0.03	2.0	1.5	0.04		17-21	8-12	(0.5)		48	205	33	183	Solution annealing
	1.4408	316	CF-8M	ANC4B	SCS14A	0.08	1.5	1.5	0.04		18-21	9-12	2-3		485	205	30	183	Solution annealing
	1.4404	316L	CF-3M	316C12	SCS16A	0.03	1.5	1.5	0.04		17-21	9-13	2-3		485	205	30	183	Solution annealing
	G-X10Cr13	410	CA-15	410C21	SCS1	0.15	1.5	1.0	0.04		11.5-14	(1.0)	(0.5)		620	450	18	183	hardening+temper
	1.4507	431		ANC2	SUS431	0.2	0.2-1	0.2-1	0.035		15.5-20	1.5-3			850-1000		8	248-302	hardening+temper
	1.4581	318	CF8C	ABC4C	SCS21	0.08	2.0	1.5	0.04		18-21	9-12	Nb 8xC-1.55		485	205	28	183	Solution annealing
	17-4	CB7Cu-1		SCS24	0.07	1.0	1.0	0.04		15.5-17.5	3.5-5		Cu2.5-4 Nb.15-.45	980	885	9	311	PrecipitationH1025	
Heat- Resisting Steel	GX40CrNiSi2512		HH		SCH13	0.2-0.5	2.0	2.0	.04	.04	24-28	11-14	(0.5)		515	240	10		Not heat treated
			HU	309C35		.35-.75	2.0	2.5	.04	.04	17-21	37-41	(0.5)		450		4		Not heat treated
	G-X15CrNiSi2520		HK30	331C40	SCH21	0.2-0.6	2.0	2.0	.04	.04	24-28	18-22	(0.5)		450	240	10		Not heat treated
	G-X40CrNiSi2520		HK40	310C40	SCH22	.35-.45	1.75	1.5	.04	.04	19-22	23-27	(0.5)	N<0.2	235	440	8		Not heat treated
	G-X40CrNiSi3525		HP		SCH24	.35-.75	2.0	2.5	.04	.04	24-28	33-37	(0.5)		430	235	4.5		Not heat treated

Alloy Type	Standard ASTM	C	Si	Mn	S	P	Cr	Ni	Mo	W	Co	Fe	Others	σ _b Mpa	σ _s Mpa	δ %	Hardness HRC	Heat Treatment
Nickel Based Alloys	MORE2	0.15	0.5	0.5	.03	.03	34.5	47	0.5	15		<3.1						Not heat treated
	Hastelloy X	0.2	1.0	10.	.04	.03	20.5-23	Balance	8-10	0.2-1.0	0.5-2.5	17-20		434-483	283-310	10-15	85-96 HRB	Not heat treated
	NW-22	0.05-0.15	0.25-0.75	0.3-1.0	0.03	0.015	20-24	Balance	1-3	13-15	<5	<3	A10.2-0.5					Not heat treated
Cobalt Based Alloys	UMCo50	0.08	0.75	0.65			28				50	20.5					55-60	Not heat treated
	Cobalt J	2.2-2.7	1.0	1.0	.03	.03	31-34	2.5		16-19	Balance	3	0.25B					Not heat treated
	Cobalt 21	0.2-0.3	1.0	1.0	.04	.04	25-29	1.75-3.75	5-6		Balance	3	0.007B	655-895	448-655	8-20	24-32	Not heat treated

The above lists give details of the main alloys cast, and whilst many other material are also regularly cast, it is not practical to include them all in this brochure. However, we will pleased to discuss any other material with you. As the list is only intended as a guide, for full information, the relevant standard specifications should be referred to. The comparable specifications have been compiled on the basis of chemical analysis ranges and it is important for other relevant factors to be taken into account.