

## Structural and constructional steels

Material No	Sembol (DIN)	Chemical Composition								Applicable Heat Treatment	Standard Physical Properties			
		C	Si	Mn	Cr	Mo	Ni	V	Diğer		Rp0,2 N/mm2	Rm N/mm2	A5 %	Hardness
1.0406	C25	0,22-0,29	<0,40	0,40-0,70	<0,40	<0,10	<0,40			-	Hard+Temper	320	550	>19
1.0503	C45	0,42-0,50	<0,40	0,50-0,80	<0,40	<0,10	<0,40			-	Hard+Temper	430	700	>14
1.5919	15CrNi6	0,14-0,19	<0,40	0,40-0,60	1,40-1,70	1,40-1,70				-	Carburizing	630	800	>8
1.6511	36CrNiMo4	0,32-0,40	<0,40	0,50-0,80	0,90-1,20	0,15-0,30	0,90-1,20			-	Hard+Temper	800	1100	>10
1.7131	16MnCr5	0,14-0,19	<0,40	1,00-1,30	0,80-1,10					-	Carburizing	600	900	>9
1.7218	25CrMo4	0,22-0,29	<0,40	0,60-0,90	0,90-1,20	0,15-0,30				-	Hard+Temper	600	800	>12
1.7225	42CrMo4	0,38-0,45	<0,60	0,60-1,00	0,80-1,20	0,20-0,30				-	Hard+Temper	750	1100	>10
1.8159	50CrV4	0,47-0,55	0,40	0,70-1,10	0,90-1,20			0,10-0,25		-	Hard+Temper	800	1100	>9

## Nitriding Steels

Material No	Sembol (DIN)	Chemical Composition								Applicable Heat Treatment	Standard Physical Properties			
		C	Si	Mn	Cr	Mo	Ni	V	Diğer		Rp0,2 N/mm2	Rm N/mm2	A5 %	Hardness
1.8519	31Cr MoV9	0,27-0,34	<0,40	0,40-0,70	2,30-2,70	0,15-0,25		0,10-0,20		-	Nitrasyon	800	1100	>10 >800HV
1.8550	34CrAlNi7	0,30-0,37	<0,40	0,40-0,70	1,50-1,80	0,15-0,25	0,85-1,15		Al: 0,80-1,20	-	Nitrasyon	650	1050	>12 >950HV

## Tool Steels

Material No	Sembol (DIN)	Chemical Composition								Applicable Heat Treatment	Standard Physical Properties			
		C	Si	Mn	Cr	Mo	Ni	V	Diğer		Rp0,2 N/mm2	Rm N/mm2	A5 %	Hardness
1.2067	100Cr6	0,95-1,10	0,15-0,35	0,20-0,40	1,35-1,65	<0,10	<0,40			-	Hard+Temper			<64 HRC
1.2343	X38CrMoV5 1	0,33-0,41	0,80-1,20	0,25-0,50	4,80-5,50	1,10-1,50		0,30-0,50		-	Hard+Temper			38-50 HRC
1.2419	105WCr6	1,0-1,10	0,10-0,40	0,80-1,10	0,90-1,10				W:1,0-1,30	-	Hard+Temper			<64 HRC
1.2436	X210 CrW12	2,0-2,30	0,10-0,40	0,30-0,60	11,0-13,0				W:0,60-0,80	-	Hard+Temper			<64 HRC
1.2601	X165CrMoMoV12	1,55-1,75	0,25-0,40	0,20-0,40	11,0-12,0	0,50-0,70		0,10-0,50	W:0,40-0,60	-	Hard+Temper			<63 HRC
1.2714	56NiCrMoV7	0,50-0,60	0,10-0,40	0,60-0,90	0,80-1,20	0,35-0,55	1,50-1,80	0,05-0,15		-	Hard+Temper			38-50 HRC
1.2842	90MnCrV8	0,85-0,95	0,10-0,40	1,80-2,20	0,20-0,50			0,05-0,20		-	Hard+Temper			<64 HRC

## Stainless steels, heat-resisting steels, wear-resistant steels

Material No	Sembol (DIN)	Chemical Composition								Applicable Heat Treatment	Standard Physical Properties			
		C	Si	Mn	Cr	Mo	Ni	V	Diğer		Rp0,2 N/mm2	Rm N/mm2	A5 %	Hardness
1.4008	G-X7CrNiMo12 1	<0,10	<1,0	<1,0	12,0-13,50	0,20-0,50	1,0-2,0			-	Hard+Temper	440	600	>15
1.4027	G-X20Cr14	0,16-0,23	<1,0	<1,0	12,50-14,50		<1,0			-	Hard+Temper	440	600	>12
1.4059	G-X22CrNi17	0,20-0,27	<1,0	<1,0	16,0-18,0		1,0-2,0			-	Hard+Temper	590	780	>4
1.4112	X90CrMoV18	0,85-0,95	<1,0	<1,0	17,0-19,0	0,90-1,30		0,07-0,12		-	Hard+Temper			<57HRC
1.4122	X39CrMo17-1	0,33-0,45	<1,0	<1,50	15,50-17,50	0,80-1,30	<1			-	Hard+Temper			<61HRC
1.4305	X8CrNiS18-9	<0,10	<1,0	<2,0	17,0-19,0		8,0-10,0		S:0,15-0,35	-	Hard+Temper	190	500	>35 <230 HB
1.4308	G-X5CrNi19-10	<0,07	<1,50	<1,50	18,0-20,0		8,0-11,0			-	Solution Treat.	175	440	>30 130-200 HB
1.4405	GX4CrNiMo16-5-1	<0,06	<0,80	<1,0	15,0-18,0	0,70-1,50	4,0-6,0			-	Solution Treat.	540	800	>15 240-300HB
1.4408	GX5CrNiMo19-11-2	<0,07	<1,50	<1,50	18,0-20,0	2,0-2,50	9,0-12,0			-	Solution Treat.	185	440	>30 130-200 HB
1.4542	X5CrNiCuNb16-4 <sup>(1)</sup>	<0,07	<0,70	<1,50	15,0-17,0	<0,80	3,0-5,0		Cu: 3,0-5,0 Nb: 5xC<=0,45	-	Solution Treat.	900	1200	>10 240-380 HB
1.4552	GX5CrNiNb19-11	<0,07	<1,50	<1,50	18,0-20,0		9,0-12,0		Nb: 8xC<=1,0	-	Solution Treat.	175	440	>25 130-200 HB
1.4581	GX5CrNiMoNb19-11-2	<0,07	<1,50	<1,50	18,0-20,0	2,0-2,50	9,0-12,0		Nb: >=8xC<=1,0	-	Solution Treat.	185	440	>20 130-200 HB
1.4585	GX7CrNiMoCuNb18-18	<0,08	<1,50	<2,0	16,50-18,50	2,0-2,50	19,0-21,0		Cu: 1,80-2,40 Nb: >=8xC	-	Solution Treat.	175	440	>15 130-180 HB
1.4777	G-X130CrSi29	1,20-1,40	1,0-2,50	0,5-1,0	27,0-30,0	<0,50	<1,0			-	-			
1.4841	X15CrNiSi25-20	<0,20	1,50-2,50	<2,0	24,0-26,0		19,0-22,0		N<0,11	-	-			

<sup>(1)</sup> 17-4pH

## Aluminum Alloys

Material No	Sembol (DIN)	Chemical Composition							Applicable Heat Treatment	Standard Physical Properties				
		Si	Fe	Cu	Mn	Mg	Ti	Al		Diğer	Rp0,2 N/mm2	Rm N/mm2	A5 %	Hardness
3.2384	AlSi7Mg0.6 (A357)	6,50-7,50	<0,20	<0,20	<0,10	0,40-0,70	0,04-0,20	Kalan		-	T6	220	270	>5 >90HB
3.2374	AlSi7Mg0.3 (A356)	6,50-7,50	<0,20	<0,20	<0,10	0,25-0,45	<0,20	Kalan		-	T6	185	225	>3 >80HB
3.1371	AlCu4TiMg (A201)	0,05	<0,10	4,0-5,0	0,20-0,40	0,15-0,35	0,15-0,35	Kalan		-	T6	200	300	>3 >95HB

## Copper Alloys

Malzeme No	Sembol (DIN)	Chemical Composition							Applicable Heat Treatment	Standard Physical Properties				
		Al	Ni	Fe	Mn	Cu	Sn	Pb		Diğer	Rp0,2 N/mm2	Rm N/mm2	A5 %	Hardness
2.9750	CuAl10Ni	8,5-11,0	4,0-6,5	3,5-5,5	<3,0	Kalan	-	-		-	-			>160HB
2.1052	CuSn12	-	<2,0	-	-	84-88	11-13	<1,0		-	-			>80HB