

# Cirex. Wide range of alloys

As Cirex produces his own alloys, the possibilities are virtually unlimited. Cirex experts are glad to be of service to you when choosing the optimum alloy for your application. The table below provides a few examples of commonly used alloys and heat treatments. Other alloys upon request.

class	W.N. *	DIN *	similar to*	heat treatment	tensile strength (N/mm <sup>2</sup> )	elongation (%)	hardness	typical application		
construction steels	Tempering	1.0619	GS C25	-	Normalized	490-590	>=22	70-90 HRb	constructional components with low to high tensile strength combined with high ductility (engine parts, transmission parts, pressure valves, equipment)	
		1.0503	GS 60 / C 45	SAE	Tempered	700-850	>=8	15-25 HRc		
		1.7225	G 42 CrMo 4	SAE 4140	Tempered	800-950	>=10	22-31 HRc		
		1.6582	G 34 CrNiMo 6	-	Tempered	1100-1300	>=6	34-40 HRc		
		1.7273	G 25 CrMo 10	-	Normalized	680	20	75-97 HRb		
construction steels	Case hardening	1.0401	GS 38 / C 15	SAE M1015	Case hardened	750-900	-	>=700 HV	constructional components with high surface wear resistance combined with a ductile core (eg. transmission levers, cams, hinges)	
		1.5919	G 15 CrNi 6	SAE 3115	Case hardened	>=900	-	>=700 HV		
		1.7131	G 16 MnCr 5	SAE 5115	Case hardened	900-1200	-	>=700 HV		
		1.7242	G 16 CrMo 4	-	Case hardened	600-800	-	>=680 HV		
construction steels	Nitride steel	1.2343	GX 38 CrMoV 5-1	AISI H11	Nitrided	-	-	50-58 HRc	nitriding steel for components with high surface wear resistance combined with high strength (eg. cam followers)	
		-	GX 80 CrMoV 4-4-1	-	Nitrided	-	-	>=50 HRc		
tool steels		1.2602	GX 165 CrMoV 12	-	Tempered	-	-	55-61 HRc	tool components with high resistance to wear and impact (cutting/stamping tools, extrusion dies)	
		1.2419	GS 105 WCr 6	-	Tempered	-	-	>=60 HRc		
		1.2436	GX 210 CrW 12	-	Tempered	-	-	57-63 HRc		
stainless steels	Martensitic	1.4006	GX 10 Cr 13	AISI 410	Tempered	700-850	>=10	15-25 HRc	moderate corrosion resistance and moderate strength for aqueous environments till -550°C (eg. pumps and blades)	
		1.4122	GX 35 CrMo 17	-	Tempered	800-950	>=8	22-30 HRc		
		1.4059	GX 22 CrNi 17	ASTM A743	Tempered	800-950	>=8	22-30 HRc		
	Austenitic	1.4815	GX 8 CrNi 19-10	AISI 304	As cast	>=450	>=20	70-90 HRb		high corrosion resistance and fair strength, for aggressive environments and temperature -190 to 900°C (pumps, valves, turbines)
		1.4408	GX 8 CrNiMo 18-12	AISI CF-8M	As cast	>= 450	>=20	70-90 HRb		
		1.4404	GX 3 CrNiMo 18-12	AISI 316L	As cast	>= 450	>=20	70-90 HRb		
		1.4581	GX 5 CrNiMoNb 18-10	-	As cast	430-560	10-40	70-90 HRb		
	Duplex	1.4309	GX 2 CrNi 19-11	AISI 304L	As cast	440-460	>=30	70-80 HRb		normalised duplex steel for components in very aggressive environments with moderate strength (ball valves)
		1.4460	GX 8 CrNiMo 27-5	AISI 329	Quenched	±710	14	91-99 HRb		
		1.4462	GX 2 CrNiMoN 22-5-3	ASTM A240	Normalized	680-880	>=30	>=93 HRb		
special alloys		1.4841	GX 15 CrNiSi 25-20	AISI 314	As cast	500-750	>=30	70-95 HRb	constructional components with fair to moderate tensile strength at high temperatures (turbines, combustion chambers)	
		1.4540	GX 4 CrNiCuNb 16-4	17-4PH	Solution annealed and precipitation hardened	>=1200	-	>=40 HRc		solution heat treated components with moderate strength and high corrosion resistance at high temperatures (turbines, combustion chambers etc.)
		2.4964	GX 275 CoCrW 55-30-12'stellite'		As cast	>=750	-	37-43 HRc		
		2.4603	NiCr30FeMo	'hastelloy'	As cast	-	8	-		typical nikkel based alloy for excellent corrosion resistance up to 1100°C.

\* Equal or comparable