

# Investment casting materials

## Stainless and acid-resistant steels, ferritic/ austenitic



Designation	Material no.	Standard	Common heat treatment condition	Mechanical-technological characteristics			Impact work (ISO-V)	Heat expansion 20°C – 300°C	Application/ particular use cases
				0,2-Yield strength	Tensile strength RM (MPa)	Elongation A5 (%)	Notched bar impact work (J)	Heat expansion $\alpha$ (10 <sup>-6</sup> K <sup>-1</sup> )	
G X 6 Cr NiN 26 7	1.4347	EN 10283	solution heat treated and quenched	≥ 420	590-790	≥ 20	≥ 30	14,5	parts stressed for toughness with higher yield strength compared to austenitic steels with partially equal or better corrosion resistance, suitable welding filler material 1.4462, pump housing
G X 2 CrNiMoN 26 7 4	1.4469 J93404	EN 10213 EN 10283 ASTM A 995	solution heat treated and quenched	≥ 480	≥ 650	≥ 22	≥ 50		for heavy corrosion stress, seawater or brackish water, operating temperature up to 300°C
G X 2 CrNiMoN 22 5 3	1.4470 J92205	SEW 400 EN 10283 ASTM A 995	solution heat treated and quenched	≥ 420	≥ 600	≥ 20	≥ 30	13	chemical and petrochemical industry, high resistance to stress corrosion cracking in media containing chlorine; similar to 1.4462
G X 2 CrNiMoCuN 25 6 3 3	1.4517	EN 10283	solution heat treated and quenched	≥ 480	650-850	≥ 22	≥ 50	14,9	Chemical and petrochemical industry, flue gas desulphurization; resistant to non-oxidizing acids, e.g. sulphuric acid
G X 12 Cr 13	1.4006	DIN 17440	tempered	≥ 420	600-800			170-210	similar to 1.4008, but slightly higher strength; suitable welding filler material 1.4009
G X 12 Cr 12	1.4011 J91150	EN 10283 ASTMA A743	tempered	≥ 420	600-800			170-210	similar to 1.4008, but slightly higher strength; suitable welding filler material 1.4009

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G X 8 CrNi 13 G X 7 CrNiMo 12 1	1.4008	DIN 17445 EN 10283	tempered	≥ 44	590-790	≈15	27	170-240	Resistant to air humidity, water, water vapor; pump parts, impellers, impeller blades; suitable welding filler material 1.4009
X 6 Cr 17	1.4016	DIN 17440	tempered	≥ 270	450-600	≈15			castings with higher corrosion resistance compared to 1.4008; suitable welding filler material 1.4302; good polishable
G X 20 Cr 14	1.4027	DIN 17445 SEW 410	tempered	≥ 440	590-790	≈12		170-240	for parts that must be resistant to air humidity, steam, water and frequent handling; suitable welding filler material 1.4009
X 46 Cr 13	1.4034	DIN 17440	tempered					(55 HRC)	hardenable cast steel for cutting tools, measuring tools, wear parts
G X 22 CrNi 17	1.4059	DIN 17445 SEW 410	tempered	≥ 590	780-980	≈4		230-300	corrosion-resistant, heat-treatable cast steel, e.g. for trailer couplings
X 14 CrMoS 17	1.4104	DIN 17440 SEW 310	tempered	≥ 550	750-950			225-275	similar to 1.4016; for castings that require complex mechanical finishing; welding not recommended
X 90 CrMoV 18	1.4112	SEW 400	tempered					(57 HRC)	wearing parts, scale pans and cutting

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X 20 CrMo 13	1.4120	DIN 17442 SEW 400	annealed or tempered	≥ 500	750-850	≈10		220-280	turbine blades, valve cones, superheated steam distributors for temperatures up to 500°C; suitable welding filler material 1.4302 and for medical instruments
G X 35 CrMo 17	1.4122	DIN 17442 SEW 400	annealed or tempered	≥ 500	750-850	≈10		220-280	parts for optical devices, medical instruments and measuring devices
G X 5 CrNi 13 4	1.4313	DIN 17445	tempered level 1 level 2	≥ 550	760-960	≈15	≥ 50	240-300	water turbines and pump parts; suitable welding filler material 1.4351
G X 4 CrNi 13 4	1.4317 J91540	EN 10283 ASTM A743	tempered level 1 level 2	≥ 830	900-1100	≈12	≤ 35	280-350	water turbines and pump parts; suitable welding filler material 1.4351
G X 5 CrNiMo 16 5 1	1.4405	SEW 410 EN 10283	tempered	≥ 540	760-960	≈15	≥ 60		for parts with increased corrosion resistance compared to 1.4313; suitable filler material 1.4405
X 90 CrCoMoV 17	1.4535		hardened					(59 HRC)	knives with high cutting hardness and chemical resistance
17/4 PH	1.4549	WL 1.4549	hardened .4 .6	≥ 830-1100	≥ 900-1240	≈8		(30 HRC)	age-hardening, high-strength stainless cast steel; aerospace material

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G X 4 CrNiCuNb 16.4	1.4540	AMS 5342	hardened .4 .6	≥ 830-1100	≥ 900-1240	≈6		(40 HRC)	age-hardening, high-strength stainless cast steel; aerospace material
15/5 PH	1.4524	AMS 5346 WL 1.4524	hardened .4 .6	≥ 830-1100	≥ 900-1200	≈8 ≈6		(30 HRC) (38 HRC)	age-hardening, high-strength stainless cast steel; aerospace material