

# Investment casting materials

## Stainless and acid-resistant steels, austenitic



Designation	Material no.	Standard	Common heat treatment condition	Mechanical-technological characteristics			Impact work (ISO-V)	Hardness	Application/particular use cases
				0,2-Yield strength RP <sub>0,2</sub>	Tensile strength RM (MPa)	Elongation A <sub>5</sub> (%)	Notched bar impact work (J)	Glow hardness (HB)	
X 8 CrNiS 18 9	1.4305	DIN 17440 EN 10088	Solution heat treated and quenched	≥ 175	440-640	≈20		130-200	similar to 1.4308; for castings with extensive mechanical machining, especially thread cutting; welding not recommended
G X 2 CrNiN 18 9 X 2 CrNi 19 11	1.4306	SEW 410 EN 10088	Solution heat treated and quenched	≥ 205	440-640	≈30	80	130-200	fittings and parts for pumps, center joints etc.; suitable filler metal 1.4302, 1.4551, 1.4316; food industry, dairies, beverage industry; similar to 1.4309 and 304L
G X 6 CrNi 18 9 G X 5 CrNi 19 10	1.4308	DIN 17445 EN 10283	Solution heat treated and quenched	≥ 175	440-640	≈30	60	130-200	frequently used "V2A" quality; similar to forging quality 1.4301 and 304; fittings, pumps, food industry, dairies
X 5 CrNiMo 17 12 2	1.4401	DIN 17440	Solution heat treated and quenched	≥ 185	440-640	≈20	60	130-200	cast parts with the same corrosion resistance as forged quality, but lower strength; standardized as casting material under 1.4408; similar to 316 L
G X 2 CrNiMoN 18 10 X 2 CrNiMo 17 12 2	1.4404	SEW 410 EN 10088	Solution heat treated and quenched	≥ 205	440-640	≈30	80	130-200	castings where resistance to intergranular corrosion is paramount; no further heat treatment required after welding; suitable filler material 1.4430, 1.4576; similar to 1.4409 and 316 Lw
G X 2 CrNiMo 19 11 2	1.4009	EN 10283	Solution heat treated and quenched	≥ 195	440-640	≈30	80	130-200	similar to 316 L; castings with increased resistance to intergranular corrosion, after welding without post-treatment
G X 6 CrNiMo 18 10 G X 5 CrNiMo 19 11 2	1.4408	EN 10213 EN 10283	Solution heat treated and quenched	≥ 185	440-640	≈20	60	130-200	castings for the pulp, textile and chemical industries; fittings, pumps; suitable filler metal 1.4403

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X 2 CrNiMoN17 13 5	1.4439	DIN 17445 EN 10088	Solution heat treated and quenched	≥ 210	490-630	≈20	50	130-200	good IK resistance, resistant to high chlorine concentrations and high temperatures, good pitting resistance, chemical industry
X 2 CrNiMo 18 14 3	1.4435 S31603 CF3M	DIN 17440 MR 0175 ASTM A 743	Solution heat treated and quenched	≥ 200	500-700	≈30	50	≤ 215	material according to NACE MR 0175; similar to 1.4439, 316 L
G X 6 CrNiMo 17 13	1.4448	DIN 17445 EN 10283	Solution heat treated and quenched	≥ 185	440-640	≈20	60	130-200	higher chemical resistance, good pitting resistance in the presence of chlorine ions; fittings and fitting construction
X 1 NiCrMoCuN 25 20 5 G X 1 NiCrMoCuN 25 20 5	1.4539 1.4538	SEW 400	Solution heat treated and quenched	-220 ≥ 185	≥ 450	(≈35) ≈30	-80 60		good resistance to pitting and stress corrosion cracking; fully austenitic; especially suitable for use in seawater; similar to 1.4584/ 1.4529
G X 5 CrNiNb 18 9 G X 5 CrNiNb 19 11	1.4552	EN 10213 EN 10283	Solution heat treated and quenched	≥ 175	440-640	≈20	35	130-200	castings in the food, film, photographic, paint, soap, paper, textile and saltpetre industries; suitable welding filler metal 1.4551
G X 5 CrNiMoNb 18 10 G X 5 CrNiMoNb 19 11 2	1.4581	WL 1.4581 EN 10283	Solution heat treated and quenched	≥ 185	440-640	≈20	35	130-200	Similar to 1.4552; suitable welding filler metal 1.4576
X 45 CrNiW 18 9	1.4873	DIN 17480	Solution heat treated and quenched						for thin-walled castings with good high-temperature strength; standardized as forging material in DIN 17 480

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G X 6 CrNi 18 10	1.6902	SEW 685	Solution heat treated and quenched	≥ 180	440-640	≈20	80	130-200	cold-tough cast steel acc. to SEW 685; notched impact work at -196°C min. 50 J.; (Iso-V) -253°C min. 27J.