Table B.5 — Guidelines on the temperatures for hot forming and heat treatment [a] of precipitation hardening corrosion resistant steels

Steel designation		Hot forming		Heat treatment symbol	Solution annealing		Precipitation hardening
Name	Number	Temperature °C	Type of cooling		Temperature [b] °C	Type of cooling	Temperature °C
Standard grades							
X5CrNiCuNb16-4	1.4542	1150 to 900	furnace, air	+AT [c]	1030 to 1050	oil, air	-
				+P800	1030 to 1050		2 h 760 °C/air + 4 h 620 °C/air
				+P930	1030 to 1050		4 h 620 °C/air
				+P960	1030 to 1050		4 h 590 °C/air
				+P1070	1030 to 1050		4 h 550 °C/air
X7CrNiAl17-7	1.4568		air	+AT	1060 to 1080	water, air	-
X5CrNiMoCuNb14-5	1.4594		furnace, air	+AT [c]	1030 to 1050	oil, air	-
				+P930	1030 to 1050		4 h 620 °C/air
				+P1000	1030 to 1050		4 h 580 °C/air
				+P1070	1030 to 1050		4 h 550 °C/air
Special grades							
X1CrNiMoAlTi12-9-2	1.4530	1200 to 800	air	+AT	820 to 860	oil, air	-
				+P1200	820 to 860	oil, air	4 h 540 to 560 °C/air
X1CrNiMoAlTi12-10-2	1.4596		air	+AT	820 to 860	oil, air	-
				+P1400	820 to 860	oil, air	4 h ≥ 530 °C/air
X1CrNiMoAlTi12-11-2	1.4612	1150 to 900	air	+AT	830 to 850	Oil, water+ deep freezing at - 80 °C	
				+P1510	830 to 850		8 h 538 °C
				+P1650	830 to 850		8 h 510 °C
X5NiCrTiMoVB25-12-2	1.4606	1100 to 950	air, oil, water	+AT [c]	970 to 990	water, oil	-
				+P880			16 h 720 °C/air

[a] Temperatures of solution annealing shall be agreed for simulated heat-treated test pieces.

[b] If heat treatment is carried out in a continuous furnace, the upper part of the range specified is usually preferred, or even exceeded.

[c] Not suitable for direct application, prompt precipitation hardening after solution annealing is recommended to avoid cracking.