

**Table B.4 — Guidelines on the temperatures for hot forming and heat treatment <sup>a</sup> of martensitic corrosion resistant steels**

Steel designation		Hot forming		Heat treatment symbol	Annealing		Quenching		Tempering
Name	Number	Temperature °C	Type of cooling		Temperature <sup>b</sup> °C	Type of cooling	Temperature <sup>b</sup> °C	Type of cooling	Temperature °C
Standard grades									
X12Cr13	1.4006	1100 to 800	air	+A	745 to 825	air	-	-	-
				+QT650	-	-	950 to 1000	oil, air	680 to 780
X12CrS13	1.4005			+A	745 to 825	air	-	-	-
				+QT650	-	-	950 to 1000	oil, air	680 to 780
X15Cr13	1.4024		Slow cooling	+A	750 to 800	furn., air	-	-	-
				+QT650	-	-	950 to 1030	oil, air	700 to 750
X20Cr13	1.4021			+A	745 to 825	air	-	-	-
				+QT700	-	-	950 to 1050	oil, air	650 to 750
				+QT800	-	-	950 to 1050	oil, air	600 to 700
X30Cr13	1.4028			+A	745 to 825	air	-	-	-
				+QT850	-	-	950 to 1050	oil, air	625 to 675
X39Cr13	1.4031			+A	750 to 850	furn., air	-	-	-
				+QT800	-	-	950 to 1050	oil, air	650 to 700
X46Cr13	1.4034			+A	750 to 850	furn., air	-	-	-
				+QT850	-	-	950 to 1050	oil, air	650 to 700
X65Cr13	1.4037			+A	750 to 850	furn., air			
X17CrNi16-2	1.4057		Slow cooling	+A <sup>c</sup>	680 to 800	furn., air	-	-	-
				+QT800 <sup>d</sup>	-	-	950 to 1050	oil, air	750 to 800 + 650 to 700 <sup>d</sup>
				+QT900	-	-	950 to 1050	oil, air	600 to 650
X38CrMo14	1.4419			+A	750 to 830	furn., air	-	-	-
X55CrMo14	1.4110			+A	750 to 850	furn., air	-	-	-
X3CrNiMo13-4	1.4313	1150 to 900	Air	+A <sup>e</sup>	600 to 650	furn., air	-	-	-
				+QT700	-	-	950 to 1050	oil, air	650 to 700 + 600 to 620
				+QT780	-	-	950 to 1050	oil, air	550 to 600
				+QT900	-	-	950 to 1050	oil, air	520 to 580
X50CrMoV15	1.4116	1100 to 800	sl. cool.	+A	750 to 850	furn., air	-	-	-
X14CrMoS17	1.4104	1100 to 800	air	+A	750 to 850		-	-	-
				+QT650	-	-	950 to 1070	oil, air	550 to 650