



Technical Data Sheet	Grade	Code (SEL)	Die steel
	1.2714 QT	55NiCrMoV7	

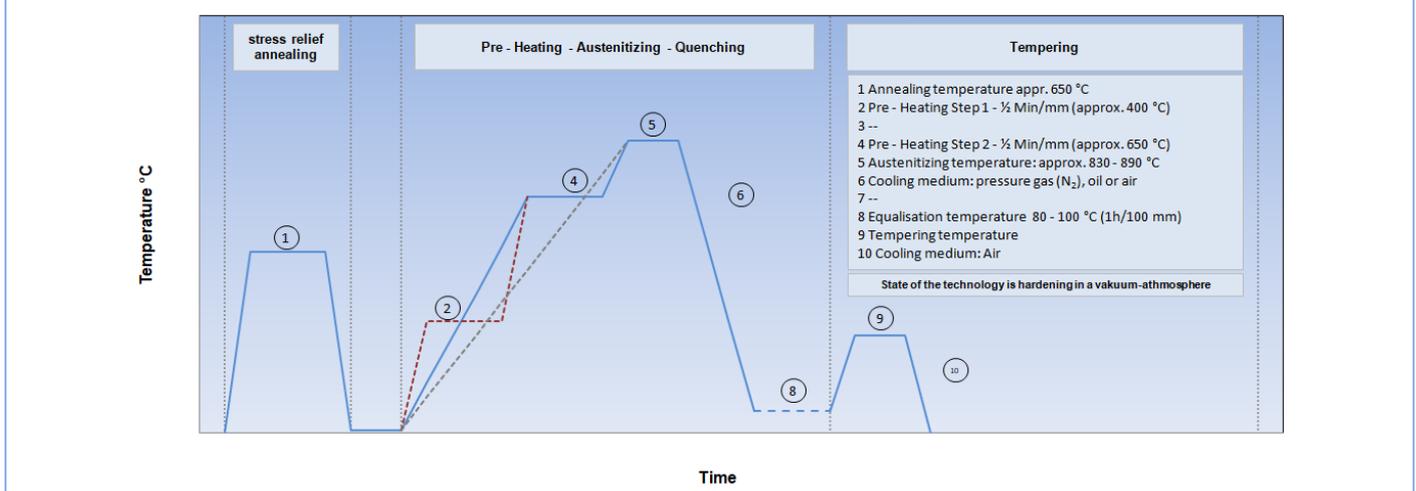
Standards	Steel properties
<b>EN ISO 4957</b> 55NiCrMoV7 <b>AFNOR</b> 55NCDV7 <b>BS</b> - <b>UNE</b> F.520.B (F.5307) <b>UNI</b> 56NiCrMoV7KU <b>AISI</b> L 6 <b>GOST</b> 5XH2MΦ	<p>Tough, Ni-alloyed die steel with high tempering resistance, high through-hardening properties, toughness, compression strength and heat resistance.</p> <p><b>Suitable for:</b></p> <p>Standard steel for forging dies of all types, hammer forging dies up to the largest dimensions, particularly also with heavy embossing, part dies, die holders, plungers for extrusion presses, press dies, extrusion dies, retainer plates, armoured trim dies, hot-shear blades and tool holders.</p>

C	Si	Mn	Cr	Mo	Ni	V	W	Co	Sonst.
0,55	0,20	0,80	1,10	0,50	1,70	0,10	-	-	-

<b>Melting</b> EAF + VOD <b>Density (g/cm³)</b> 7,80 <b>Supply condition</b> quenched+tempered <b>Hardness (HB)</b> 383 - 434 <b>Tensile strength (N/mm²)</b> 1250 - 1420 <b>Work hardness (HRC)</b> <b>Structure</b> - <b>Cleanness (DIN 50602)</b> -	<b>Remarks</b> <p>Tensile strength converted acc. DIN EN ISO 18265 Tab. A.1</p> <p>Preheating before use: 250 - 300 °C – is recommended.</p>
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Physical properties		20 °C	100 °C	200 °C	300 °C	350 °C	400 °C	500 °C	600 °C	700 °C
<b>Thermal expansion coefficient</b>	10 <sup>-6</sup> * K (20 °C bis ...)	-	12,2	13,0	13,3	-	13,7	14,2	14,4	-
<b>Thermal conductivity (W / m * K)</b>	annealed	36,0				38,0				35,0
	quenched + tempered	-				-				-

**Thermal Cycle Diagram (Heat treatment)**



Hinweis: Die in diesem Datenblatt enthaltenen Angaben dienen der Beschreibung, eine Haftung ist ausgeschlossen.



Heat treatment	Temperature (°C)	Cooling	Remarks heat treatment
<b>Soft annealing</b>	650 - 700	Furnace	Controlled slow cooling in furnace
<b>Stress-relief annealing</b>	500 - 550	Furnace	The recommended temperature of 500 - 550 °C is valid for the quenched and tempered condition.
<b>Hardening</b>	840 - 890		After through-heating hold for 15-30 minutes
Pre – heating Step 1	appr. 400		If subsequent QT - process required. Time in furnace 1 hour for each 20 mm of workpiece thickness but at least 2 hours. Cooling in air.
Pre – heating Step 2	appr. 650		
Pre – heating Step 3	-		
<b>Quenching</b>	-	-	831 - 870 °C (Oil) and 860 - 900 °C (Air)
	appr. 80	Oil	Quenching medium Air: Hardness values ca. 2-3 HRC lower
	appr. 80	Air	Interrupt at appr. 150 °C or vacuum hardening.
	appr. 80	pressure gas	

Tempering Chart		Tempering – Hardness after tempering									
	Temperature °C	100	200	300	400	500	550	600	650	700	
	HRC	57	54	52	49	46	43	38	24	-	
<b>Remarks for tempering</b> Slow heating to tempering temperature immediately after hardening. Time in furnace 1 hour for each 20 mm of workpiece thickness but at least 2 hours.											

