



Technical Data Sheet	Grade	Code (SEL)	Cold work tool steel
	1.2363	X100CrMoV5	

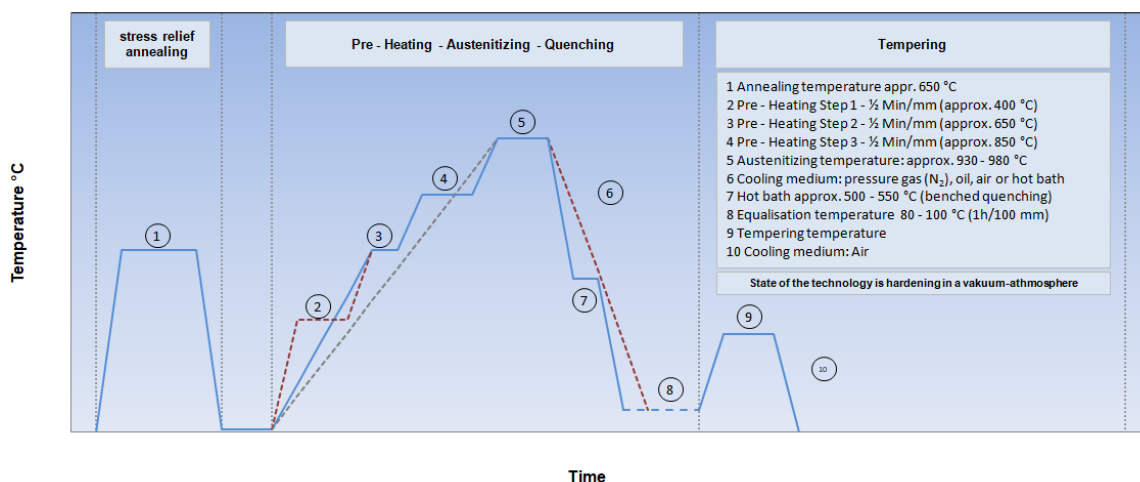
Standards	Steel properties
EN ISO 4957 X100CrMoV5	Air-hardenable cold working tool steel (appr. 1% Carbon) with high potential hardness increase, excellent through hardenability, high wear resistance and high compression strength. High dimensional stability during heat treatment. Because of the reduced Cr-content (appr. 5%) 1.2363 has in comparison to ledeburitic grades 1.2379, 1.2436, 1.2080 an enhanced toughness (lower characteristic of hard carbides)
AFNOR Z100CDV5	
BS BA 2	
UNE F.536 (F.5227)	
UNI -	
AISI A 2	
GOST 95X5ГМ	Suitable for: Cutting tools, rolls, shear blades, cold pilger mandrels, cold stamping tools, moulds for plastics processing.

C	Si	Mn	Cr	Mo	Ni	V	W	Co	Sonst.
1,00	0,30	0,60	5,20	1,10	-	0,25	-	-	-

Melting	EAF + VOD	Remarks Sheets: spheroidized annealed in protection atmosphere
Density (g/cm³)	7,70	
Supply condition	soft annealed	
Hardness (HB)	max. 240	
Tensile strength (N/mm²)	-	
Work hardness (HRC)	-	
Structure	-	
Cleanness (DIN 50602)	-	

Physical properties		20 °C	100 °C	200 °C	300 °C	350 °C	400 °C	500 °C	600 °C	700 °C
Thermal expansion coefficient	10 ⁻⁶ * K (20 °C bis ...)	-	-	-	-	-	-	-	-	-
Thermal conductivity (W / m * K)	annealed	15,8				26,7				29,1
	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
Soft annealing	800 - 840	Furnace	Controlled slow cooling in furnace
Stress-relief annealing	ca. 650	Furnace	Slow cooling in furnace. After extensive machining process or complex shapes
Hardening	930 - 980		After through-heating hold for 15-30 minutes
Pre – heating Step 1	appr. 400		
Pre – heating Step 2	appr. 650		
Pre – heating Step 3	appr. 850		
Quenching	500 - 550	hot bath	To reduce as possible thermal stress, size alteration and distorsion it is recommended to use the softest quenching medium.
	appr. 80	Oil	Oftentimes a hot bath hardening with the advantage of less thermal stress.
	appr. 80	Air	To avoid stress corrosion cracks the steel has to be carried out immediately after hardening and when the steel is at appr. 80 °C.
	appr. 80	pressure gas	
Cooling down to RT has to be disabled.			

Tempering Chart		Tempering – Hardness after tempering									
	Temperature °C	100	200	300	400	500	550	600	650	700	
	HRC	63	62	59	57	59	-	52	-	-	
Remarks for tempering 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.											

