



Technical Data Sheet	Grade	Code (SEL)	Cold work tool steel
	1.2085	X33CrS16	

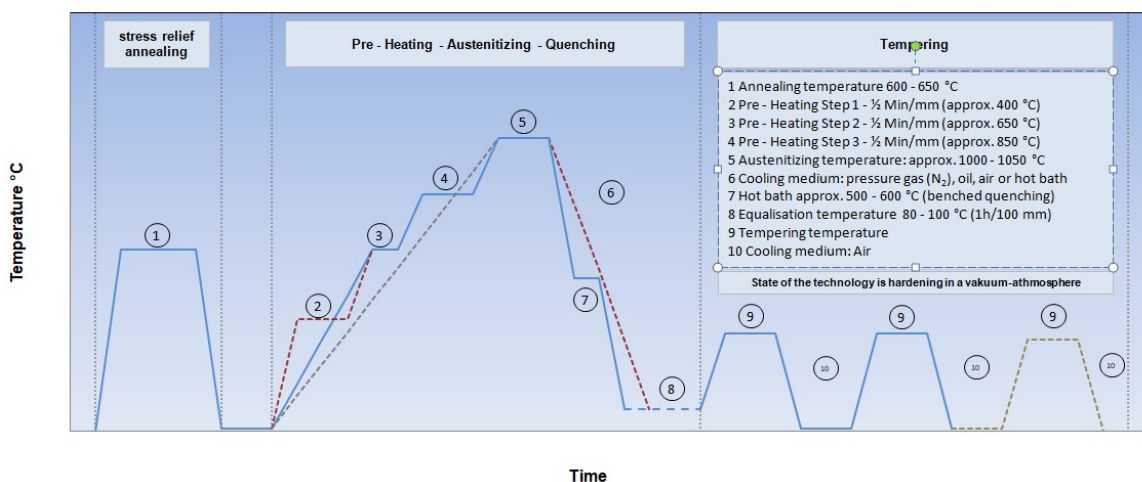
Standards	Steel properties
EN ISO 4957 - AFNOR Z35CD17+S BS - UNE - UNI - AISI 420 FM GOST -	Pre-hardened corrosion-resistant mould frame steel. Improved machinability in comparison to 1.2316.
	Suitable for: Mould frames, components, plastic moulds.

C	Si	Mn	Cr	Mo	Ni	V	W	Co	Sonst.
0,33	< 1,00	< 1,40	16,00	-	< 1,00	-	-	-	S ~ 0,07

Melting	EAF + VOD	Remarks Tensile strength converted acc. DIN EN ISO 18265 Tab. A.1
Density (g/cm³)	7,70	
Supply condition	quenched+tempered	
Hardness (HB)	280 - 325	
Tensile strength (N/mm²)	950 - 1100	
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	-	-	-	-	-	-	-	-	-
	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	850 - 880	Furnace	Controlled slow cooling in furnace
Stress-relief annealing	-	-	-
Hardening	1000 - 1050		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	-	-	-
	appr. 80	Oil	
	-	-	
	-	-	

Tempering Chart		Tempering – Hardness after tempering									
	Temperature °C	100	200	300	400	500	550	600	650	700	
	HRC	48	48	47	46	47	36	30	-	-	
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.											

