

material characteristics	material number / grade	SWG 2711mod						
	short designation	54NiCrMoV6mod						
	comparable grade	-						
	chemical composition - reference analysis [%]	C	Si	Mn	Cr	Mo	Ni	V
		0.55	0.25	1.00	1.10	0.80	2.00	0.10
	production technology	EAF/LF/VD, forging, Q+T						
	service hardness / strength converted acc. to DIN EN ISO 18265 table G.2		HB	HRC	N/mm ²			variation upon request
			340 - 383	36 - 40.4	1093 - 1255			
	delivery condition	Q+T	295 - 383	30.4 - 40.4	935 - 1255			
	maximum dimension	diameter		thickness				
	≤ 1200 mm		≤ 1000 mm					
US-specification	EN 10228-3		SEP 1921					
	table 3 - type 1 - qual. class 2		group 3 - class C,c					
cleanliness	DIN 50602		ASTM E45 method A					
	K4 ≤ 20		A ≤ 1,5; B, C, D ≤ 2					

technological properties		0	1	2	3	4	5	comment	
	toughness		■	■	■				in relation to service hardness
	hot strength at working temp.		■	■	■				
	wear resistance		■	■	■	■			
	corrosion resistance	■							
	machinability		■	■					Q+T
	polishability		■	■					ISO/SPI: N2/A-2
	weldability		■	■					CET = 0.84 % acc. DIN EN 1011-2
	texturability		■	■					for high texturing reliability: XPM
	nitridability		■	■					nitriding hardness 550 - 700 HV1
chrome-platability		■	■						

rating properties: 0 = not suitable; 1 = low; 2 = middle; 3 = good; 4 = very good; 5 = perfectly suitable

physical properties	thermal conductivity [W · m ⁻¹ · K ⁻¹]	20 °C	200 °C	300 °C	500 °C
		37.5	39.7	39.0	36.1
	coefficient of thermal expansion between 20 °C and ... [10 ⁻⁶ · K ⁻¹]	100 °C	200 °C	300 °C	500 °C
		12.5	13.1	13.4	14.0
elastic modulus [kN/mm ²]	20 °C	200 °C	300 °C	500 °C	
	212	199	192	175	

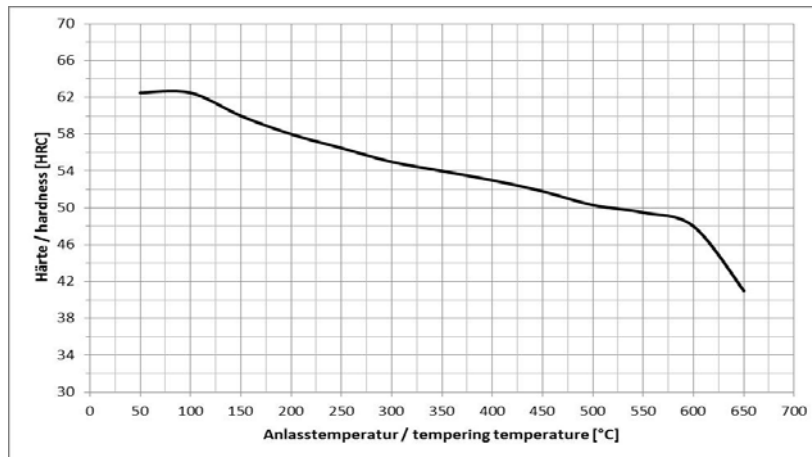
application	technology	mold making, injection molding, press-molding
	tools	large plastic molds, large die-holder
	process temperature	< 250 °C
	tool size	large-sized molds up to 650 mm thickness
	final products	glas-fiber reinforced plastic parts, press-forming plastic parts
	features	pre-hardened, high hard, for high surface requirements: XPM and XPM VICTORY ESR

SWG processing instructions	welding, texturing
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heat treatment		T min [°C]	T max [°C]	medium / comment
	annealing	720	750	air
	hardening	840	870	oil, polymer
	tempering	550	680	air
	stress relieving	500	550	max. 30 °C below tempering temp.
	pre-heating before welding	300	320	
	nitriding	400	500	max. 30 °C below tempering temp.
	PVD-treating	400	500	

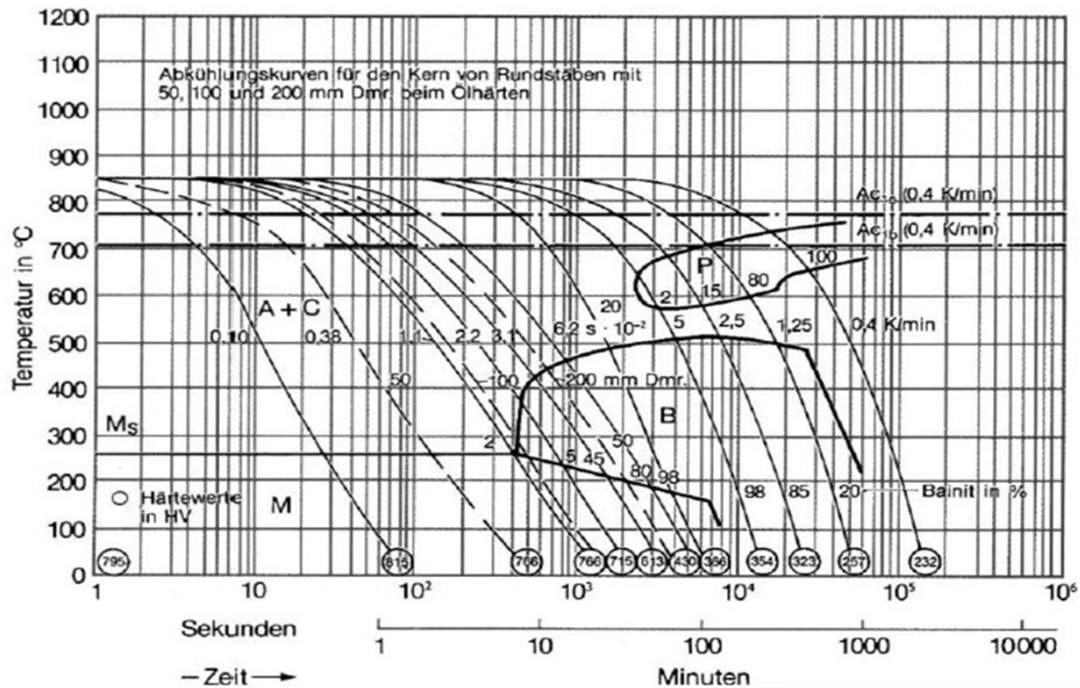
diagrams / structure	TTT-diagram	yes
	tempering diagram	yes
	advice on heat treatment	pre-hardened
	microstructure	martensitic/bainitic

Tempering diagram: Average values on samples dia 25 mm x length 50 mm; hardened at 850 °C in oil



TTT-diagram (continuous)

Kontinuierliches Zeit-Temperatur-Umwandlungsschaubild



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