

material characteristics	material number / grade	SWG XPM						
	short designation	25MnCrNiMoV6-6-4						
	comparable grade	-						
	chemical composition - reference analysis [%]	C	Si	Mn	Cr	Mo	Ni	others
		0.27	0.30	1.55	1.35	0.50	1.00	alloyed
	production technology	EAF/LF/VD, forging, Q+T						
	service hardness / strength converted acc. to DIN EN ISO 18265 table B2		HB	HRC	N/mm ²			
			315 - 400	33 - 42	1000 - 1270			
	delivery condition	Q+T	315 - 355	33 - 37.6	1000 - 1128			variation upon request
			359 - 400	38 - 42	1140 - 1270			
maximum dimension	diameter			thickness				
	-			≤ 1500 mm				
US-specification	EN 10228-3			SEP 1921				
	table 3 - type 1 - qual. class 3			group 3 - class D,d				
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 38-42 HRC
	hot strength at working temp.		■	■	■				
	wear resistance		■	■	■				
	corrosion resistance	■							
	machinability		■	■	■			Q+T	
	polishability		■	■	■			ISO/SPI: N2/A-2 (38-42 HRC); better than 2738	
	weldability		■	■	■	■		CET = 0.57 % acc. DIN EN 1011-2	
	texturability		■	■	■	■			
	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
		37.0	38.9	38.6	37.2
	coefficient of thermal expansion between 20 °C and ... [10 ⁻⁶ · K ⁻¹]	100 °C	200 °C	300 °C	500 °C
		11.8	12.5	13.1	14.8
elastic modulus [kN/mm ²]	20 °C	200 °C	300 °C	500 °C	
	212	207	192	175	

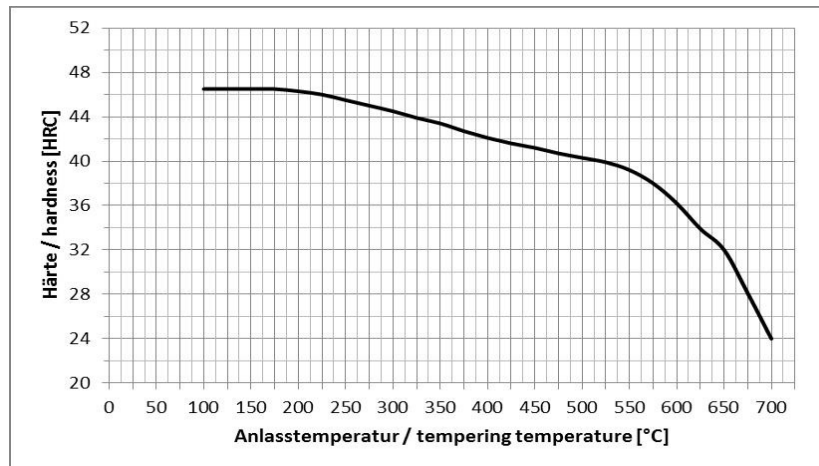
application	technology	mold making, injection molding, press-molding
	tools	large plastic molds, cavities, with high surface requirement
	process temperature	< 250 °C
	tool size	medium- and large-sized molds
	final products	TV housing, bumpers, interior car parts, car lights
	features	good texturing reliability

SWG processing instructions	welding, texturing, polishing, deep-hole drilling
-----------------------------	--

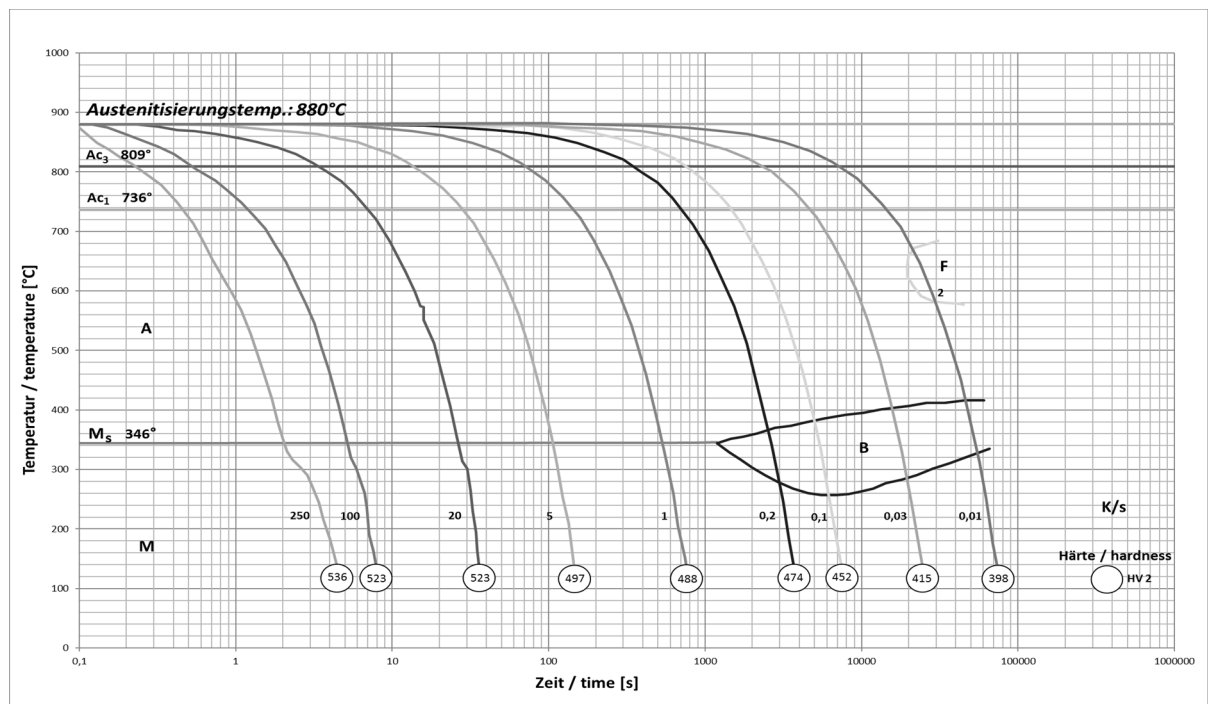
heat treatment		T min [°C]	T max [°C]	medium / comment
	annealing	710	740	air
	hardening	870	920	oil, polymer
	tempering	540	650	air
	stress relieving	500	530	min. 30 °C below tempering temp.
	pre-heating before welding	300	330	
	nitriding	450	530	min. 30 °C below tempering temp.
	PVD-treating	450	530	

diagrams/ structure	CCT-diagram	yes
	tempering diagram	yes
	advice on heat treatment	pre-hardened
	microstructure	mainly bainitic

Tempering diagram: Average values on samples dia 25 mm x length 50 mm; hardened at 880 °C in oil



CCT-diagram



PLEASE NOTE: The information contained in this data sheet is unbinding. It merely serves the first orientation of the user. Therefore, we do not assume any liability for the correctness, completeness or up-to-dateness of such data. In case of an order, the properties of the product are exclusively subject to the provisions of the respective contract.
© Schmiedewerke Gröditz GmbH, Gröditz