

material characteristics	material number / grade	SWG 2738 / 2738H / 2738HH					
	DIN standard	40CrMnNiMo8-6-4					
	comparable grade	AISI P20+Ni					
	chemical composition - reference analysis [%]	C	Si	Mn	Cr	Mo	Ni
		0.36	0.25	1.50	1.80	0.20	1.10
	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		
			293-359	30-38	931-1140		
	delivery condition	Q+T	293-323	30-34	931-1025		
			308-341	32-36	978-1085		
	324-359		34-38	1029-1140			
maximum dimension	diameter			thickness			
	≤ 1300 mm			≤ 1200 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			

variation upon request

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: N3/A-3; for higher: 738HH or XPM
	weldability		■	■	■				CET = 0.68 % acc. DIN EN 1011-2
	texturability		■	■					for high texturing reliability: 738HH or XPM
	nitridability		■	■	■				nitriding hardness 700 - 850 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
		34.2	35.4	34.7	32.5
	coefficient of thermal expansion between 20 °C and ... [10 ⁻⁶ · K ⁻¹]	100 °C	200 °C	300 °C	500 °C
		11.8	12.9	13.4	14.2
	elastic modulus [kN/mm ²]	20 °C	200 °C	300 °C	500 °C
		212	207	192	175

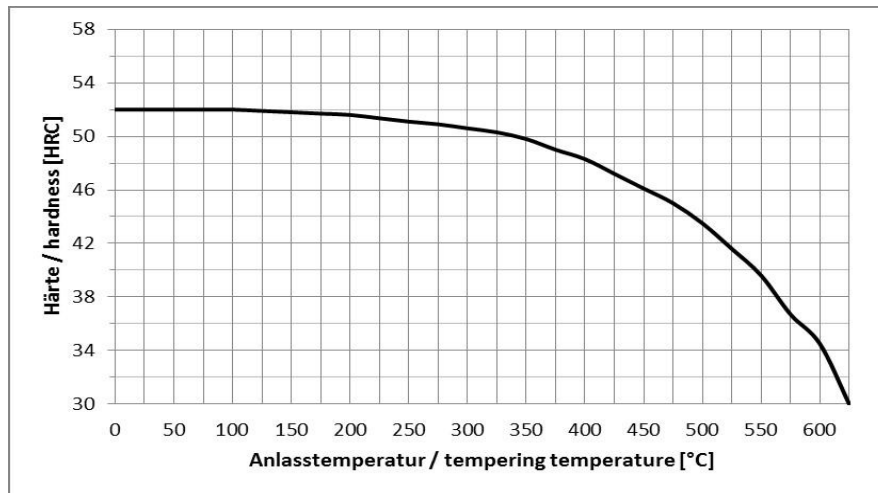
application	technology	mold making, injection molding
	tools	plastic molds, large mold frames, die-holder
	process temperature	< 250 °C
	tool size	medium- and large-sized molds
	final products	standard plastic parts
	features	quenched and tempered, can be used as replacement for 2311, for high surface requirements use XPM and XPM VICTORY ESR

SWG processing instructions	welding, texturing
-----------------------------	--------------------

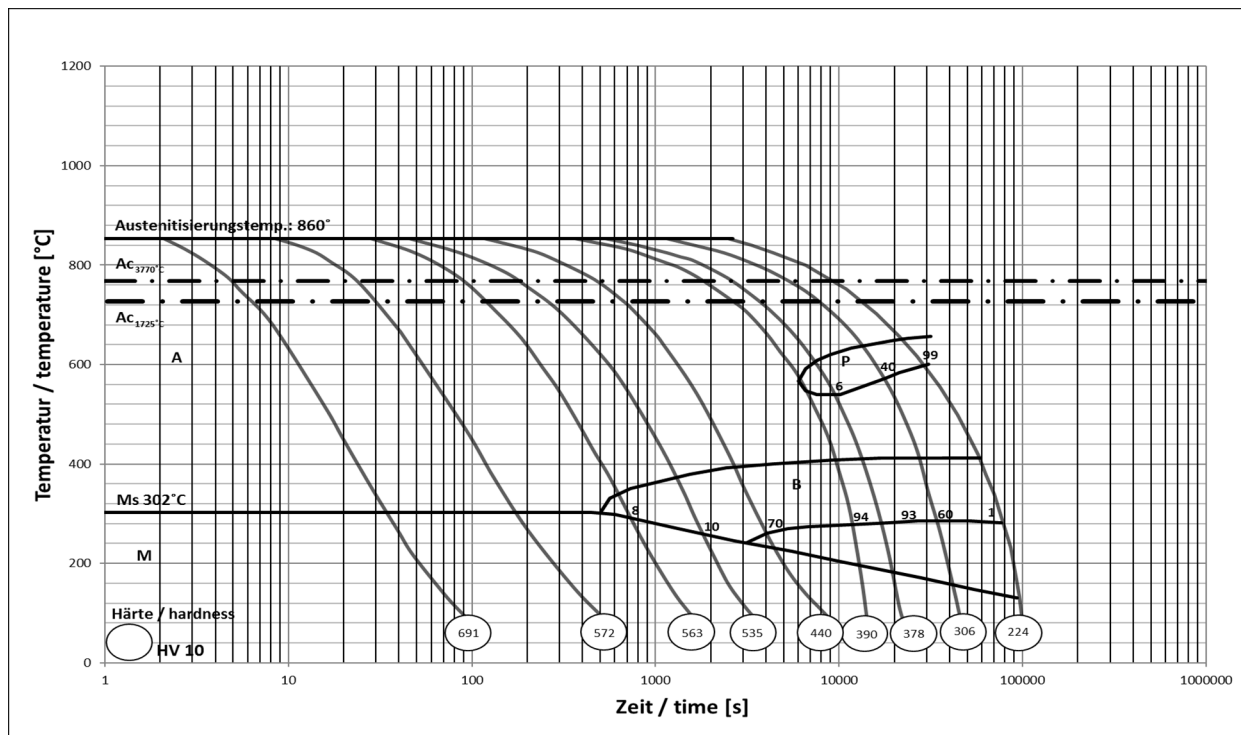
heat treatment		T min [°C]	T max [°C]	medium / comment
	annealing	710	740	air
	hardening	850	880	oil, polymer
	tempering	520	640	air
	stress relieving	490	550	min. 30 °C below tempering temp.
	pre-heating before welding	320	350	
	nitriding	400	550	min. 30 °C below tempering temp.
	PVD-treating	400	550	

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