



## ATT 2714 MOD (2714 ISO-B MOD)

### CHEMICAL ANALYSIS (PERCENTAGE BY MASS)

	C	Si	Mn	P	S	Cr	Ni	Mo	V
Guide analysis	0.52	0.25	0.95	0.015	0.005	1.10	2.00	0.75	0.10
Standard	0.50-0.60	0.10-0.40	0.60-0.90	≤ 0.030	≤ 0.030	0.80-1.20	1.50-1.80	0.35 -0.55	0.05-0.15

### CHARACTERISTICS

NiCrMoV alloyed die steel based on material No. 1.2714, but with optimized composition to achieve full quenching and tempering in dimensions up to 800mm reference diameter, improved thermal strength properties and increased wear resistance compared with the standard.

SEL	~55NiCrMoV7 MOD
DIN EN ISO 4957	~55NiCrMoV7 MOD
AFNOR	~55NCD07-05 MOD
AISI	~L6 MOD

### APPLICATION

Large press dies for forming aluminium, forging dies with high volumes, die and mold holders, tool holders and press mandrel holders, tool cassettes. Hydroforming moulds (IHU).

**Note:** For the largest dimensions, we recommend contour hardening.

### DELIVERED CONDITION

Annealed to max. 248 HB

Hardened and tempered to 370 - 415 HB (approx. 1,250 - 1,400 MPa) or according to customer specification

### PHYSICAL PROPERTIES

Thermal Conductivity (W/m.K) at	20°C	250°C	500°C
	36.0	37.5	34.8
Thermal Expansion (µm/m) from 20°C to	100°C	250°C	500°C
	12.2	13.1	14.2
Young's modulus (GPa)	20°C	250°C	500°C
	215	198	175

### HIGH TEMPERATURE YIELD STRENGTH

Quenched and tempered state	0.2 % yield strength in MPa at temperature			
	450°C	500°C	550°C	600°C
~1570 MPa	910	750	470	230
~1370 MPa	830	605	410	215
~1180 MPa	630	480	305	165

\* Surface hardness in Brinell, converted to DIN EN ISO 18265 Table A.1.

The information contained herein is intended to provide general knowledge on our products and their uses. It should not be construed as a warranty of specific properties of the products described, or a warranty of fitness for a particular purpose. Each user of products from Advanced Tooling Tek (Shanghai) Co Ltd ("ATT") is responsible for making its own determination as to the suitability of ATT's products and services.



www.att-metal.com



WeChat

#### Advanced Tooling Tek (Shanghai) Co Ltd

No. 255 Xinxiao Road, Xinqiao Town, Songjiang Dist., Shanghai 201612 China  
Tel: +86 21 3373 8146 | Fax: +86 21 3373 8193

#### Guangdong branch

No.1G, Sanhe Road, Hecheng Sub-district, Gaoming Zone, Foshan, Guangdong 528511 China  
Tel: +86 757 8862 2983 | Fax: +86 757 8862 2983

info@att-metal.com

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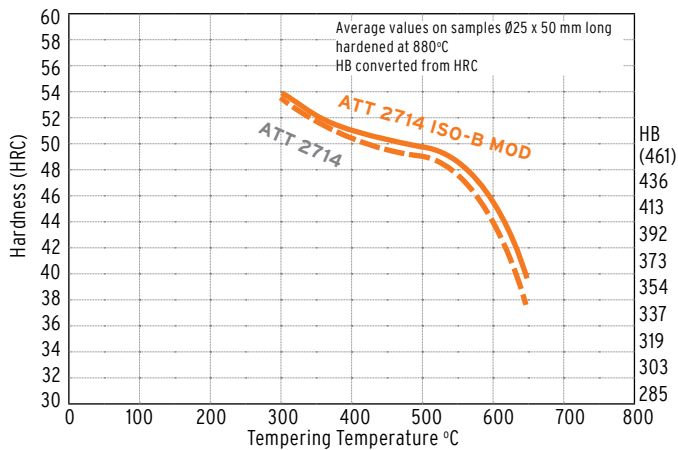
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**HEAT TREATMENT**

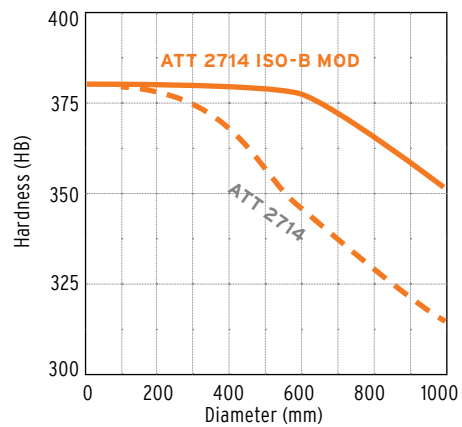
Stress relieving	Temperature	Approx. 650°C in the annealed state
	Duration	1 hour per 50 mm wall thickness
	Cooling	Furnace
Soft annealing	Temperature	700°C
	Duration	1 hour per 25mm wall thickness
	Cooling	Furnace
Hardening	Temperature	880°C
	Duration	1 min per mm wall thickness
Quenching hardness	Max. 58 HRC	in water/oil, protective atmosphere/oil, oil, hot bath or vacuum
	Temperature	See tempering curve
Tempering	Duration	1 hour per 25 mm wall thickness
	Cooling	Air
Working hardness	300-440 HB	Depending on application

Note: pre-heating of the tools to 250-280 °C is recommended.

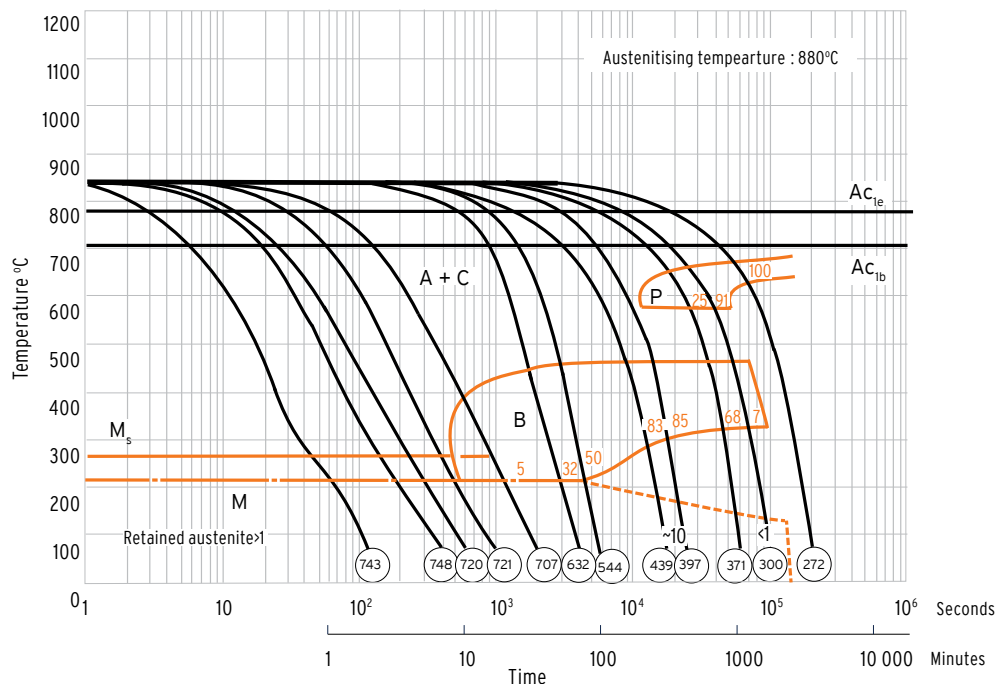
**Tempering curve**



**Comparison of core hardness (Schematic curve)**



**TTT curve (continuous)**



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