

## CHEMICAL COMPOSITION

C	Cr	Mo	W	Co	V
0.75	4.1	-	18.0	-	1.1

## STANDARDS

- USA: AISI T1
- Europe: HS 18-0-1
- Germany: 1.3355
- France: AFNOR Z80WCV.18.4.1
- Sweden: SS 2750
- Japan: JIS SKH2

## DELIVERY HARDNESS

- Typical soft annealed hardness is 260 HB

## DESCRIPTION

T1 is a tungsten alloyed high speed steel for abrasive wear applications.

## APPLICATIONS

- Twist drills
- Taps
- Milling cutters
- Wood knives
- Textile knives
- Paper knives

## FORM SUPPLIED

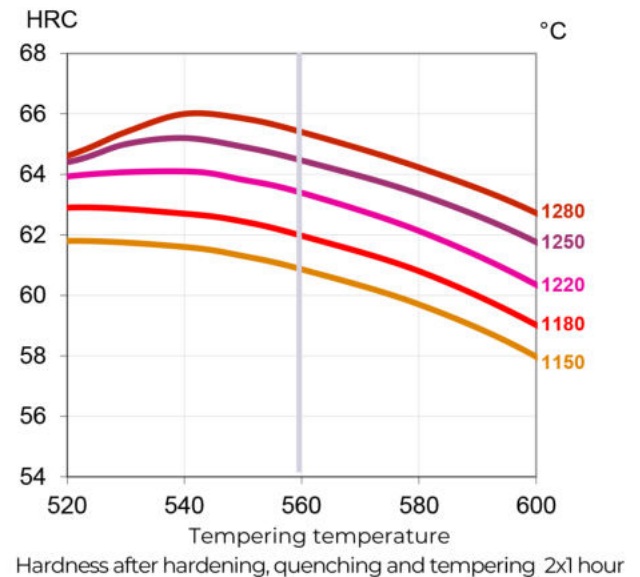
- Flat bars
- Square bars
- Rounds

Available surface conditions: ground, hot rolled

## HEAT TREATMENT

- Soft annealing in a protective atmosphere at 850-900°C for 3 hours, followed by slow cooling 10°C per hour down to 700°C, then air cooling.
- Stress-relieving at 600°C to 700°C for approximately 2 hours, slow cooling down to 500°C.
- Hardening in a protective atmosphere with pre-heating in 2 steps at 450-500°C and 850-900°C and austenitising at a temperature suitable for chosen working hardness.
- 2 tempers at 560°C are recommended with at least 1 hour holding time each time.

## GUIDELINES FOR HARDENING



Tool	Hardening	Tempering
Single-edge cutting tools	1280°C	550-570°C
Multi-edge cutting tools	1180-1280°C	550-570°C
Cold work tools	1150-1200°C	550-570°C

## PROCESSING

T1 can be worked as follows:

- machining (grinding, turning, milling)
- polishing
- hot forming
- electrical discharge machining
- welding (special procedure including preheating and filler materials of base material composition).

## GRINDING

During grinding, local heating of the surface, which can alter the temper, must be avoided. Grinding wheel manufacturers can provide advice on the choice of grinding wheels.

## SURFACE TREATMENT

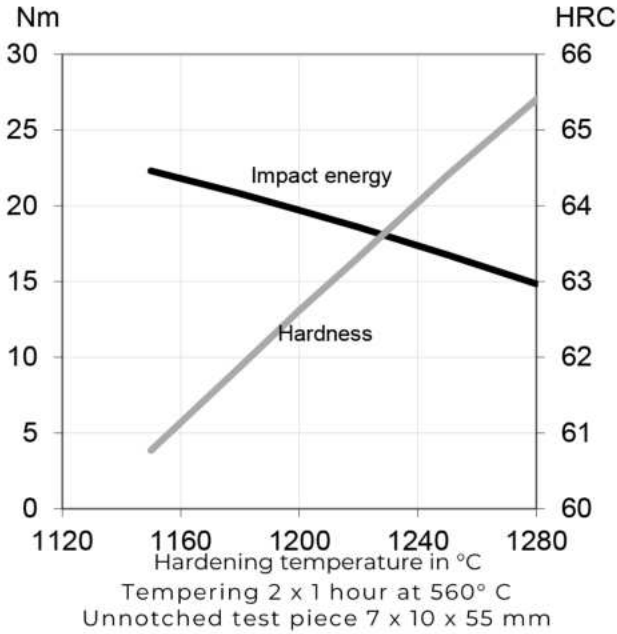
The steel grade is a perfect substrate material for PVD coating. If nitriding is requested, a small diffusion zone is recommended but avoid compound and oxidized layers.

**PROPERTIES**

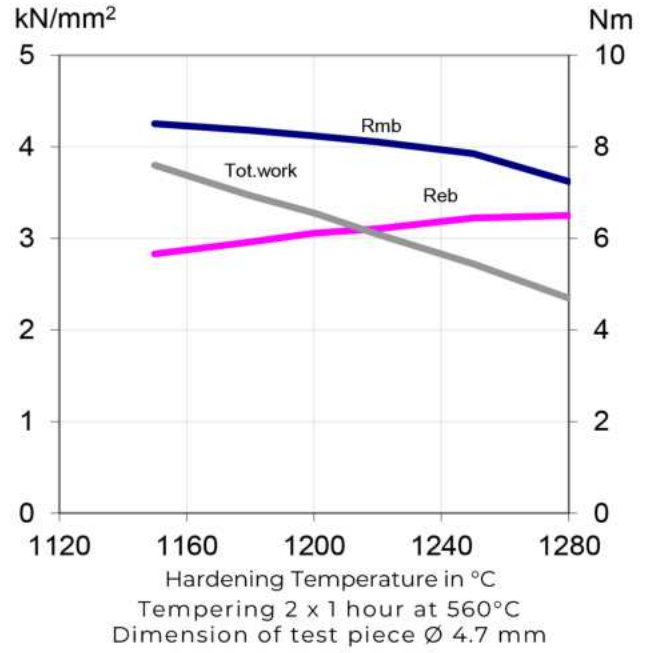
**PHYSICAL PROPERTIES**

Temperature	20°C
Density g/cm <sup>3</sup>	8.7

**IMPACT TOUGHNESS**



**4-POINT BEND STRENGTH**



Rmb = Ultimate bend strength in kN/mm<sup>2</sup>  
Reb = Bend yield strength in kN/mm<sup>2</sup>  
Tot. work = Total work in Nm

**COMPARATIVE PROPERTIES**

