

CHEMICAL COMPOSITION

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

SAFETY DATA SHEET SDS: A

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
- Cold drawn and cold rolled material is typically 10-40 HB harder

DESCRIPTION

ETI 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

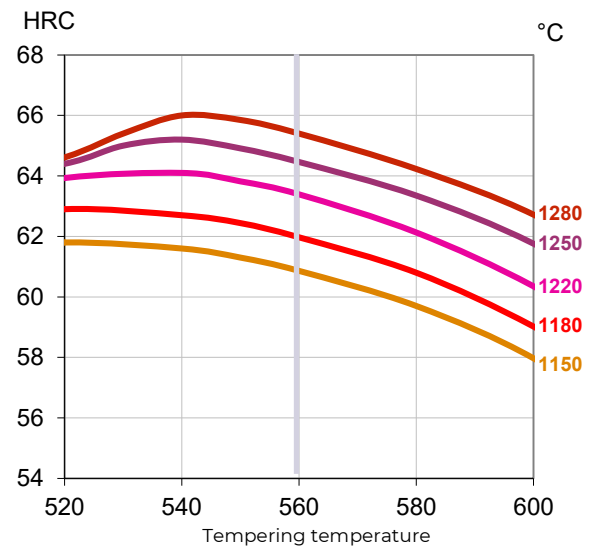
- Flat bars
- Square bars
- Sheets
- Discs
- Strips

Available surface conditions: drawn, ground, hot rolled, cold 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



Hardness after hardening, quenching and tempering 2x1 hour

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

ETI 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

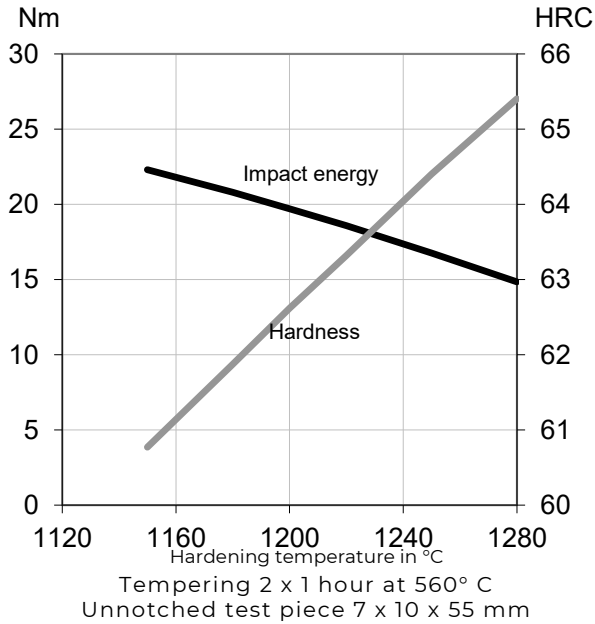
The steel grade is a perfect substrate material for PVD coating. If nitriding is requested, a small diffusion zone is recommended but avoid compound and oxidized layers.

PROPERTIES

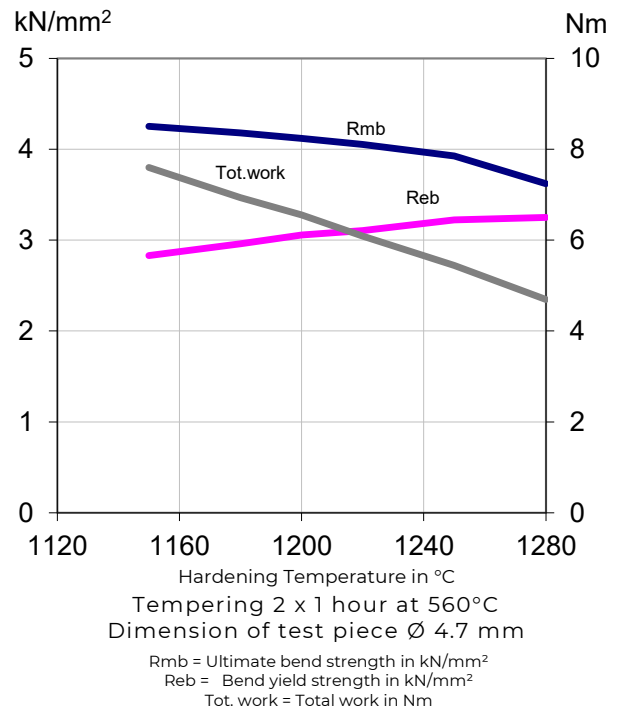
PHYSICAL PROPERTIES

Temperature	20°C
Density g /cm ³	8.7

IMPACT TOUGHNESS



4-POINT BEND STRENGTH



COMPARATIVE PROPERTIES

