CHEMICAL COMPOSITION

C	Cr	Mo	W	Co	V
0.72	4.0	5.0	1.0	8.0	1.0

SAFETY DATA SHEET SDS: B

STANDARDS

- Europe: HS 1-5-1-8

DELIVERY HARDNESS

- Typical soft annealed hardness is 240 HB
- Cold drawn and cold rolled material is typically 10-40 HB harder

DESCRIPTION

EMatrixII is a high speed steel with excellent toughness combined with a good heat resistance.

APPLICATIONS

- Bi-metal saws
- Bandsaws
- Sabre saws

FORM SUPPLIED

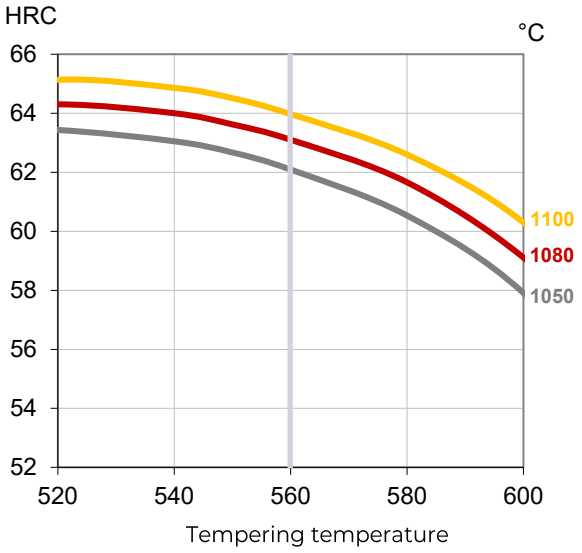
- Bi-metal edges
- Strips

Available surface conditions: 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
Saws	1050-1100°C	550-570°C

PROCESSING

EMATII 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

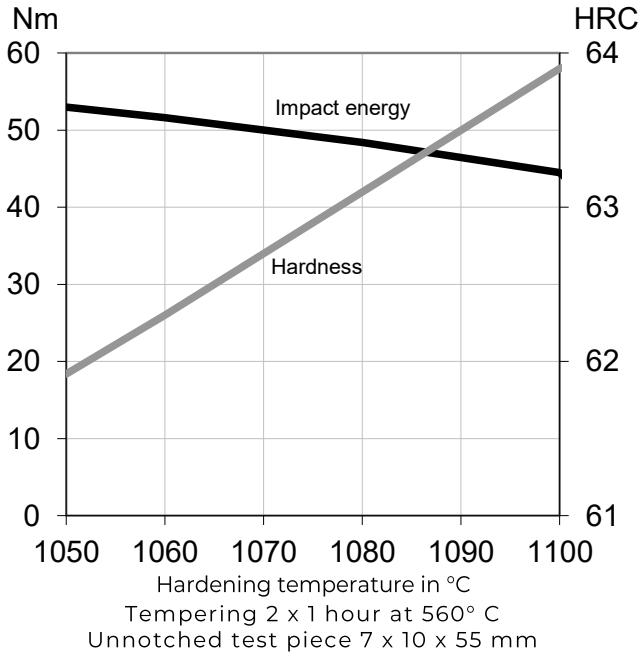
The steel grade is a perfect substrate material for PVD coating. If nitriding is requested, a small diffusion zone is recommended but avoid compound and oxidized layers.

PROPERTIES

PHYSICAL PROPERTIES

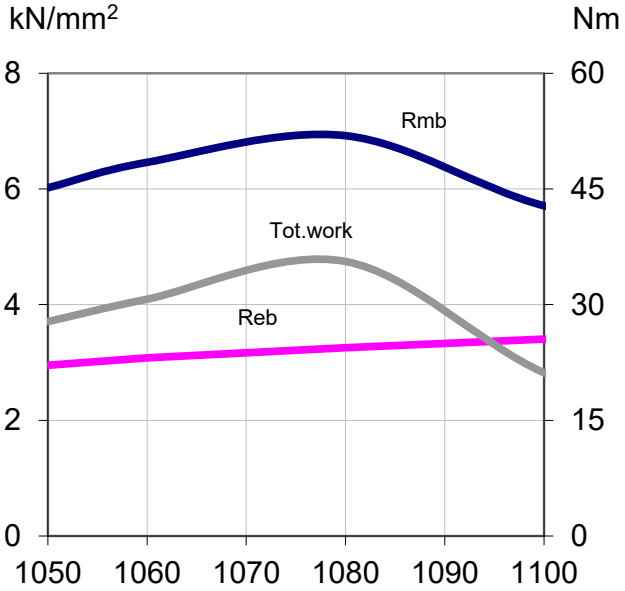
Temperature	20°C
Density g /cm³	7.9

IMPACT TOUGHNESS



Hardening temperature in °C
Tempering 2 x 1 hour at 560° C
Unnotched test piece 7 x 10 x 55 mm

4-POINT BEND STRENGTH



Hardening Temperature in °C
Tempering 2 x 1 hour at 560°C
Dimension of test piece Ø 4.7 mm

Rmb = Ultimate bend strength in kN/mm²
Reb = Bend yield strength in kN/mm²
Tot. work = Total work in Nm

COMPARATIVE PROPERTIES