

ES 235 W

Name:

X 37 CrMoV 5-1

Material No.:

1.2343

Typical analysis in %:

C	Si	Cr	Mo	V
0.37	1.0	5.3	1.3	0.4

As-supplied condition:

Soft-annealed to max. 229 HB (770 N/mm²)

Characteristics:

Hot work steel with good high temperature strength and very good toughness, high resistance to thermal shock and wear, nitridable, good polishability

General fields of application:

Tools for forging machines, dies, die inserts, extrusion tools, hot shearing knives and tools for plastics processing

Special note:

If nitrided, the nitriding depth should not be too deep otherwise increased thermal cracking may occur.

Preheating to 200 - 300 °C before starting work is recommended.

Also available in EST and ESR grades.

If grained or polished ES 235 W in EST grade should be used.

We recommend our ES Maximum 500 steel for highly polished mirrored finishes and for the highest toughness requirements.

Heat treatment data:

	Temperature	Duration	Cooling
Soft annealing	800 - 860 °C	2 - 5 h	furnace
Stress-relief annealing	600 - 650 °C	min. 4 h	furnace
Hardening	1020 - 1060 °C	Group II	oil, air, WB 500 °C
Tempering	530 - 700 °C 3 x, see tempering curve	min. 2 h depending on cross section	still air

Physical characteristics:

Coefficient of thermal expansion: between 20 °C and:

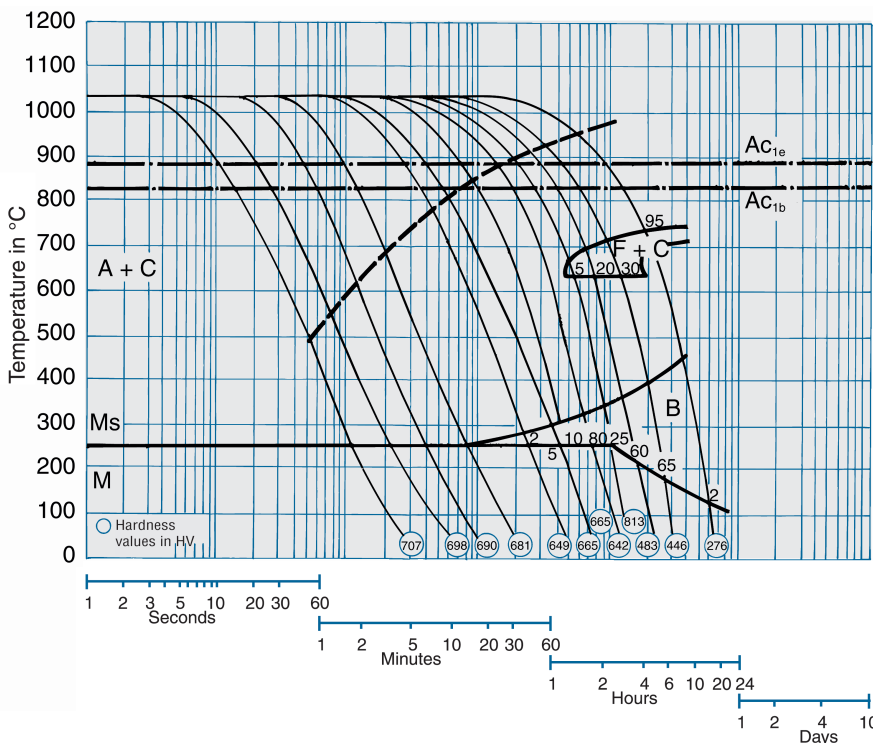
10 ⁻⁶ x m	100	200	300	400	500	600	700 °C
m x K	10.8	11.4	11.8	12.0	12.4	12.8	12.9

Thermal conductivity:

W	20	350	700 °C
m x K	25.3	27.2	30.5

Normal working hardness: 30 - 53 HRC (1000 - 1850 N/mm²)

Continuous time-temperature-transformation diagram



Tempering curve

