ES 50 SW

Name:
X 210 CrW 12

Material No.:
1.2436

Typical analysis in %:

C	Cr	W
2.1	12.0	0.7

As-supplied condition:
Soft-annealed to max. 255 HB (855 N/mm²)

Characteristics:
Ledeburitic 12 % chromium steel, characteristics as ES 50 S but with improved hardenability and wear resistance.

General fields of application:
Cutting tools, shearing knives, broaches, woodworking tools, profile and flanging rollers, thread rolling tools, deep drawing and pressing tools, drawing mandrels, guide rails, extrusion dies, sand blast nozzles, rotary shear knives

Special note:
Not suitable for larger wire sections; for this we recommend ES 70 S, Mat. No. 1.2379.

Through-hardening workpiece ø for
64 HRC: 75 mm
62 HRC: 85 mm
60 HRC: 100 mm
58 HRC: 250 mm

Core hardness for ø 300 mm: approx. 56 HRC

Core hardness for ø 500 mm: approx. 41 HRC

Cooling:
blown air

Heat treatment data:

	Temperature	*Duration*	*Cooling*
Soft annealing	800 - 840 °C	2 - 5 h	furnace
Stress-relief annealing	600 - 650 °C	min. 4 h	furnace
Hardening	950 - 980 °C	Group III	oil, air, WB 500 °C
Tempering	200 - 550 °C see tempering curve	min. 2 h depending on cross section	still air

Physical characteristics:

Coefficient of thermal expansion: between 20 °C and:

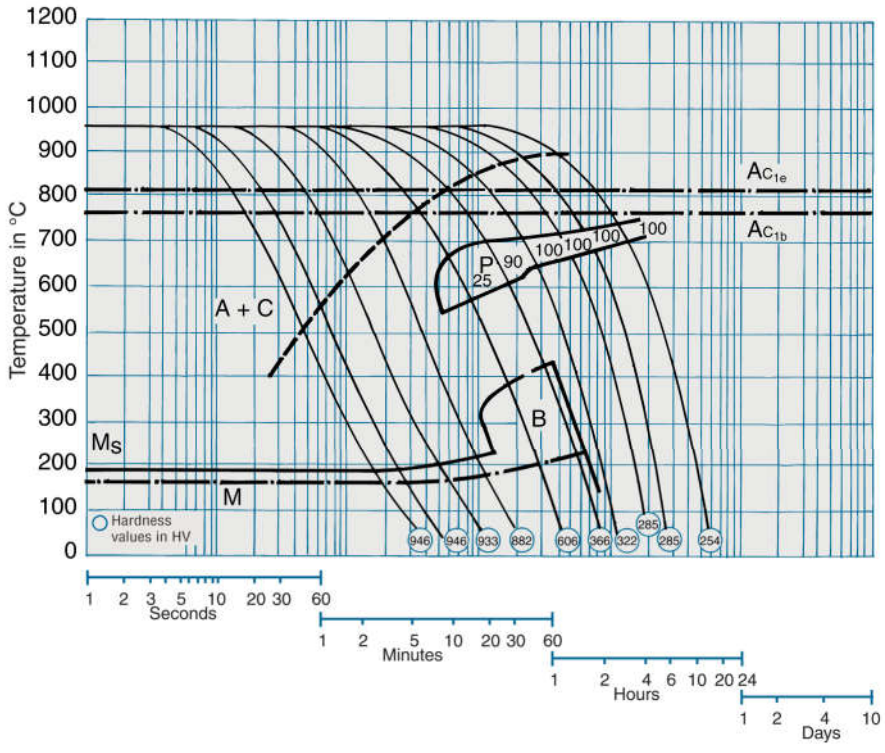
10^{-6} x m	100	200	300	400	500	600	700 °C
m x K	10.9	11.9	12.3	12.6	12.9	13.0	13.2

Thermal conductivity:

W	20	350	700 °C
m x K	16.7	20.5	24.2

Normal working hardness: 59 - 63 HRC

Continuous time-temperature-transformation diagram



Tempering curve