

## ES 65 S

**Name:**

**X 100 CrMoV 5**

**Material No.:**

1.2363

**Typical analysis in %:**

C	Cr	Mo	V
1.0	5.2	1.2	0.3

**As-supplied condition:**

Soft-annealed to max. 241 HB  
(810 N/mm<sup>2</sup>)

**Characteristics:**

Air-hardening special cold work steel, with respect to toughness and wear resistance it is between medium and high alloyed steels; good machinability, high hardenability, low dimensional

changes as a result of heat treatment, good through-hardening properties and excellent compressive strength

**General fields of application:**

Cutting and pressing tools, rollers, shearing knives, thread rolling dies, cold stamping tools, calibration and pilger mandrels, moulds for plastic processing, gauges and measuring tools

**Special note:**

If electrical discharge machining takes place after hardening then the material should be tempered three times above 520 °C after quenching.

**Heat treatment data:**

	Temperature	Duration	Cooling
Soft annealing	820 - 850 °C	4 - 6 h	furnace
Stress-relief annealing	600 - 650 °C	min. 4 h	furnace
Hardening	950 - 980 °C	Group II	oil, air, WB 500 °C
Tempering	180 - 600 °C see tempering curve	min. 2 h depending on cross section	still air

**Physical characteristics:**

**Coefficient of thermal expansion:** between 20 °C and:

10 <sup>-6</sup> x m	100	200	300	400 °C
m x K	9.9	12.5	13.2	14.5

**Thermal conductivity:**

W	20	350	700 °C
m x K	15.8	26.7	29.1

**Normal working hardness:** 58 - 62 HRC

**Continuous time-temperature-transformation diagram**

**Tempering curve**

