

ES 245 W ESR

Name:

X 40 CrMoV 5-1

Material No.:

1.2344 ESR

Typical analysis in %:

C	Si	Cr	Mo	V
0.4	1.0	5.3	1.4	1.0

As-supplied condition:

Structurally treated to max. 229 HB (770 N/mm²)

Characteristics:

Cr-Mo-V alloyed hot work steel with very high homogeneity and cleanliness factor, excellent high temperature strength, good high temperature wear resistance and the highest thermal

shock resistance. These characteristics match the highest requirements encountered in use.

General fields of application:

Extremely highly loaded hot work tools with particular requirements for homogeneity and toughness in injection moulds. Tools for forging machines, dies, extrusion tools such as press dies for light metal processing. Tools for hot shearing knives and plastic 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.

Heat treatment data:

	Temperature	Duration	Cooling
Soft annealing	820 - 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 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	12.7	13.0	13.3	13.5

Thermal conductivity:

W	20	350	700 °C
m x K	24.5	26.8	28.8

Normal working hardness: 30 - 54 HRC (1000 - 1900 N/mm²)

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Continuous time-temperature-transformation diagram **Tempering curve**

