ES 70 S

Name:
X 153 CrMoV 12

Material No.:
1.2379

Typical analysis in %:

C	Cr	Mo	V
1.53	12.0	0.7	1.0

As-supplied condition:
Soft-annealed to max. 255 HB (860 N/mm²)

Characteristics:
Ledeburitic 12 % chromium steel, high wear resistance, good toughness, high compressive strength, low distortion, nitridable.

General fields of application:
Deep drawing tools, sections susceptible to fracture, shearing knives, trimming dies, thread rolling tools, woodworking tools, hobbing tools, extrusion dies; compression and injection moulds for filled plastics, sprue bushings

Heat treatment data:

	Temperature	*Duration*	*Cooling*
Soft annealing	820 - 850 °C	2 - 5 h	furnace
Stress-relief annealing	600 - 650 °C	min. 4 h	furnace
Hardening	1000 - 1050 °C	Group III	oil, air, WB 500 °C
Tempering	480 - 580 °C	min. 2 h	still air
	3 x, see tempering curve	depending on cross section	

Physical characteristics:

Coefficient of thermal expansion: between 20 °C and:

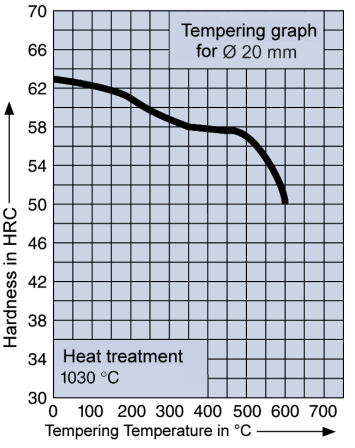
10^{-6} x m	100	200	300	400 °C
m x K	10.5	11.5	12.0	12.2

Thermal conductivity:

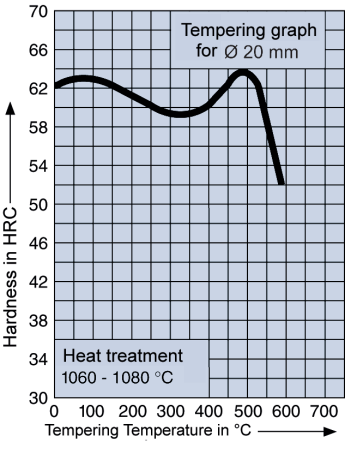
W	20	350	700 °C
m x K	16.7	20.5	24.2

Normal working hardness: 58 - 62 HRC

Tempering curve



Special heat treatment:
If the steel is electrical discharge machined or nitrided the tempering temperature must be above the secondary maximum. Triple tempering is recommended.



Continuous time-temperature-transformation diagram