

Material information sheet

Material-number: 1.2379
Material: X153 Cr Mo V 12
Steel-group: Alloyed tool steels

Usage: Tool steels for cold work:

Tool for fragile cuts, thread rolling bakes and rolls, scissor knives, broach, cutter, sendzimir milling, blanking die, tailor's tools for high strength material, plastic moulds, measuring tools, matrices, and stamps

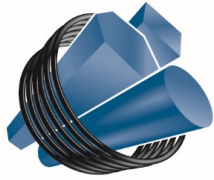
High performance cutting steel, moderate machinability but good dimensional stability and toughness, hardwearing and low-warpage, good retention of annealing, all kinds of dimensions good hardness penetration. High compressive strength for cutting hard and thick materials multifunctional purpose, can be easily nitrided

Chemical Composition:

	C	Si	Mn	P	S	Cr	Mo	V
Minimum	1,45	0,10	0,20	0,00	0,00	11,00	0,70	0,70
Maximum	1,60	0,60	0,60	0,030	0,030	13,00	1,00	1,00

Heat-treatment:

Soft-annealing (+A)	Stress relief annealing	Hardening in oil	Tempering
850 - 1000 °C	850 - 700 °C	1000 - 1050 °C	100 - 600 °C



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Mechanical characteristics:

Hardness after glowing	$R_m \leq 800 \text{ MPa}$
Hardness after quenching	~ 63 HRC
Quenching and tempering values:	
tempered at ~ 100 °C	~ 63 HRC
tempered at ~ 200 °C	~ 61 HRC
tempered at ~ 300 °C	~ 58 HRC
tempered at ~ 400 °C	~ 58 HRC
tempered at ~ 500 °C	~ 58 HRC
tempered at ~ 600 °C	~ 50 HRC $\approx R_m = 1700 \text{ MPa}$