

COMPARABLE STANDARD

UNI	EURONORM	W Nr	DIN	AFNOR	AISI/SAE	BS
X37CrMoV51KU	X37CrMoV51	1.2343	X38CrMoV51	Z38CDV5	H11	BH11

COMPOSITION

C	Si	Mn	Cr	Mo	V
0,37	1,0	0,4	5,0	1,3	0,4

CHARACTERISTICS OF THE PRODUCT

This steel grade can be produced by the conventional process as well as electroslag remelting (ESR). The forging and homogenization treatment practices give the product good machinability and polishability during the manufacture of the die. After the hardening and tempering treatment, due to a more homogeneous distribution of Cr, Mo, V carbides, high levels of mechanical properties are reached, such as

- *high temperature toughness*
- *shock and thermal fatigue strength* during the operation of the die.

This steel is characterized by good dimensional stability during thermal treatment and it is suitable for surface-hardening by nitriding.

PRODUCT APPLICATIONS

In view of its excellent range of characteristics, this steel is particularly suitable for the manufacture of: – dies for die-casting of aluminium alloys, magnesium, etc. – dies for the hot extrusion of aluminium alloys. – dies, punches and insert for press and hammer forging. – hot-shearing blades. – moulds for plastic materials. – collets for dies in hard metal. It is also supplied as drawn wire for hard-facing.

DELIVERY CONDITION

Annealed for machining HB ≤ 220.

HEAT TREATMENT

The steel is supplied in the annealed condition for optimum machinability. After the operations of rough-machining (and possibly stress relieving), it is hardened and tempered to achieve characteristics required by the application.

Soft annealing: heating to 810 ÷ 850°C, holding at temperature, furnace cooling to 650°C (10°C/hour), then cooling in stationary air.

Stress relieving: after rough-machining, heating to 600 ÷ 650°C, holding at temperature, furnace cooling to 500°C, then cooling in stationary air.

Hardening: preheating at 650 ÷ 750°C, austenitization at 990 ÷ 1020°C, air/oil-quenching or in thermal bath at 500 ÷ 550°C.

Tempering: heating to 560 ÷ 620°C, holding at temperature. Make at least 2 temperings.

MECHANICAL CHARACTERISTICS

TEMP °C	180	200	300	400	500	600
DUREZZA HRC	54	54	53	54	55	46

