EN47

EN47 Grade Introduction:

En47 Spring Steel supplied in rolled condition. En47 Spring steel is suitable for oil hardening and tempering. When used in the oil hardened and tempered condition En47 spring steel combines spring characteristics with good wear and abrasion resistance. When hardened EN47 offers excellent toughness and shock resistance which make it a suitable alloy spring steel for parts exposed to stress, shock and vibration.

We have increase our range of spring steel bar to add EN47 Spring Steel Round Bar. It is also called as in various standards as 51CrV4 or 50CrV4 or DIN 1.8159 AISI 6150 spring steel in other countries. It is mainly used for tractors, heavy vehicles, stress and the diameter of the larger plate spring, industrial production load and helical spring. It is also used widely in many general engineering applications. When EN47 bar hardened it gives excellent shock resistance and toughness which make it a perfect alloy spring for parts exposed to shock, stress and vibration.

EN47 Grade Application:

EN47 spring steel is used widely in the motor vehicle industry and many general engineering applications. Suitable for applications that require high tensile strength and toughness. Typical applications include crankshafts, steering knuckles, gears, spindles and pumps.

EN47 Equivalent grades:

BS970 735A50 735A51 1.8159 AISI 6150 50CrV4 50CV4 ASTM A82

EN47 Chemical composition:

The following table shows the chemical composition of EN47 steel:

Element	C	Mn	Si	P	Cr	S	V	Ni
Content (%)	0.45-0.55	0.50-0.80	0.50	0.06	0.80-1.20	0.06	0.15	–

EN47 Mechanical Properties:

Hardening	840-870
Quenching	oil
Tempering	150-200

EN47 Hardness:

Brinell Rockwell Hardness	150-200

EN47 Heat treatment:

Heat treatment temperatures, including rate of heating, cooling and soaking times etc. will vary due to factors such as the shape and size of each component. Other considerations during the heat treatment process include the type of furnace, quenching medium and work piece transfer facilities. Please consult your heat treatment provider for full guidance on heat treatment of EN47.

EN47 Hardening:

Heat slowly to 650-700°C and thoroughly soak. Continue to heat the steel to the final hardening temperature of 830-860°C and allow the component to be heated through. Quench in oil.

EN47 Tempering:

Temper the EN47 spring steel component immediately after quenching whilst tools are still hand warm. Re-heat to the tempering temperature then soak for one hour per 25 millimeter of total thickness (2 hours minimum) Cool in air. For most applications tempering of this grade will be between 400-600°C.

EN47 Physical Properties:

DENSITY (G/CM 3)	**8.08**
DENSITY (LB/IN 3)	**0.292**
MELTING POINT (°C)	**1425**
MELTING POINT (°F)	**2600**

EN47 Thermal Properties:

EN47 Forging Properties:

Preheat the steel carefully, then raise temperature to 1050°C for forging. Do not forge below 840°C. After forging EN47 spring steel cool slowly, preferably in a furnace.

EN47 Stress Reliving:

EN47 Normalizing:

EN47 Annealing:

Heat slowly to 820-840°C, soak well. Cool slowly in the furnace.

EN47 Density:

Quantity	Value	Unit
Density	**7700**	**kg/m3**

EN47 Machinability:

EN47 Welding:

We recommend you to contact your welding consumables supplier who should provide you full assistance and information on welding EN47 chrome vanadium spring steel.