NESSteel Inc.

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Viscount 44 Prehardened Tool Steel

Viscount 44 is a free-machining, prehardened, H-13 type hot work tool steel. It is produced using special melting, forging and heat treating processes, which provide the optimum in control and reproducibility of the performance characteristics of the steel. The sulfur makes the steel readily machinable at the supplied hardness range of 42 to 46 Rockwell C, and the composition provides the strength and wear resistance expected of and H-13 type steel. At the supplied hardness, the steel exhibits a yield strength of approximately 156 to 175 ksi (1076 to 1207 MPa), and an ultimate tensile strength of approximately 195 to 219 ksi (1345 to 1510 MPa).

Use of Viscount 44 eliminated time-consuming and costly heat treating and eliminates the need for post heat-treating finish machining and grinding. In addition, there are no concerns about how the tool might distort during a hardening heat treatment. Tools manufactured from Viscount 44 can be machined directly to finish dimensions.

In hot work tooling applications, Viscount 44 can be used where H-13 is commonly used. It excels as short-lead-time prototype dies, short run die casting cavities, cores and inserts, and perishable details such as ejector pins. Other hot work applications include shear blades, upsetting dies, piercing punches and plastic injection tooling.

As a “Ready to Use” tool steel, Viscount 44 is a popular choice for a wide variety of cold work tooling applications. Tooling can be manufactured with minimal lead time, and can be easily redressed after wear or damage. Popular applications include tool holders, gripper dies, vise jaws, shear blades, shafts, bending and forming dies and machine hold-down and fixtures.

Viscount 44 also excels as a maintenance steel. Worn or broken tooling can be quickly replaced from an in-house maintenance shop inventory to keep manufacturing processes up and running until new standard tooling can be manufactured. Machine down times can thus be reduced from weeks to days or from days to a few hours.

Typical Composition

C	S	Si	Cr	Mo	V
0.40	0.10	1.00	5.25	1.35	1.00

Physical Properties

Density: 0.280 lb/in^3)7750 kg/m^3)
Specific Gravity: 7.75
Machinability: 35-40% of a 1% carbon steel

Modulus of Elasticity

Temperature ˚F	Modulus psi x 10^6	Temperature ˚C	Modulus GPa
70	30.0	21	206.8
200	29.0	93	199.9
400	27.0	204	186.2
600	28.5	316	196.5
800	27.5	427	189.6
1000	23.0	538	158.6

Thermal Conductivity

Temperature ˚F	BTU/ hr-ft-˚F	Temperature ˚C	W/ m-˚C
80	10.17	27	17.6
400	13.52	204	23.4
800	14.50	427	25.1