Data Sheet



CARBON STEEL BLOCK SF-1

GENERAL:

AISI-SAE 1055

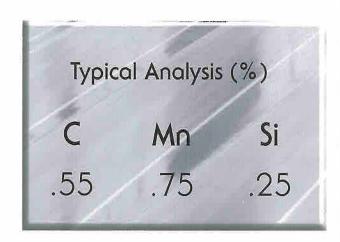
Delivery Condition:

Normalized and tempered to approx. 229 BHN (20 Rc)

SF-1 is a general purpose carbon steel.

SF-1 is melted by electric arc furnace, ladle refined and vacuum degassed to ensure superior quality.

SF-1 is forged using a 5000 ton press equipped with wide dies. Those characteristics combined with a minimum of 3 to 1 reduction ratio enhance effectively the density and provide homogeneity of the steel.



SF-1 is supplied in normalized and tempered condition.

SF-1 offers excellent machinability.

is compatible with the EDM process. We recommend removing the white oxide layer prior to texturizing.

SF-1 is weldable. Good results can be achieved if proper precautions are taken: elevate working temperature, good joint preparation and proper choice of consumables.

TYPICAL APPLICATIONS:

- Build-up material for tools
- Base plates for tools in plastic molding
- Prototype molds

- Base plates for pressure casting dies
- Die holders
- Structural components

■ HEAT TREATMENT

Hot Forming

Hot forming:

1950 -1500°F (1050-800°C)

Cooling: slow in furnace

Attainable Hardness: approx 200 BHN

Hardening

Preheat temperature: 1250°F (670°C)

Austenitizing temperature:

1650°F (900°C)

Quench: oil or water

Temper immediately when the tool reaches

150°F (65°C)

Tempering: temperature range between 480°F and 800°F (250°C and 420°C) Temper twice with intermediate cooling to

room temperature.

Attainable Surface Hardness: (42 to 48 Rc)

N.B.: Protect the part against decarburization and oxidation during hardening.

Tempering at low temperature gives a high stress level in the part and should be avoided.

Soft annealing

Temperature range:

1250-1350°F (680-730°C)

Slow cooling in furnace

Attainable Hardness: approx 290 BHN (31 Rc)

PROPERTIES

Thermal Conductivity

| W | 20 | 350 | 700°C |
|--------|------|------|-------|
| m x °K | 49.3 | 40.5 | 30.1 |

• Linear Thermal Expansion

| hw | _20 | 350 | 700°C |
|--------|------|------|-------|
| m x °K | 11.0 | 13.1 | 14.8 |

WELDING

- Standard welding procedure for SF-1
- Preheat at a temperature in between 500 to 930°F (260 to 500°C)
- Use consumables with the same chemical composition as the part.
- Postheat at 1050°F (565°C)

Sorel Forge 100 McCarthy Sorel, Quebec Canada J3R 3M8



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