

## AK Steel ASTM A 1011, Grade 45 Type 1 Hot Rolled Carbon Steel, Structural Steel (SS)

Category : Metal , Ferrous Metal , Carbon Steel , Low Carbon Steel

### Material Notes:

Information provided by AK Steel

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_AK-Steel-ASTM-A-1011-Grade-45-Type-1-Hot-Rolled-Carbon-Steel-Structural-Steel-SS.php](http://www.lookpolymers.com/polymer_AK-Steel-ASTM-A-1011-Grade-45-Type-1-Hot-Rolled-Carbon-Steel-Structural-Steel-SS.php)

| Physical Properties | Metric               | English                  | Comments |
|---------------------|----------------------|--------------------------|----------|
| Density             | 7.87 g/cc            | 0.284 lb/in <sup>3</sup> |          |
|                     | @Temperature 20.0 °C | @Temperature 68.0 °F     |          |

| Mechanical Properties      | Metric               | English              | Comments |
|----------------------------|----------------------|----------------------|----------|
| Tensile Strength, Ultimate | >= 410 MPa           | >= 59500 psi         |          |
| Tensile Strength, Yield    | >= 310 MPa           | >= 45000 psi         |          |
| Elongation at Break        | >= 19 %              | >= 19 %              |          |
| Modulus of Elasticity      | 200 GPa              | 29000 ksi            |          |
|                            | @Temperature 20.0 °C | @Temperature 68.0 °F |          |

| Thermal Properties     | Metric                     | English                           | Comments |
|------------------------|----------------------------|-----------------------------------|----------|
| CTE, linear            | 12.4 µm/m-°C               | 6.89 µin/in-°F                    |          |
|                        | @Temperature 20.0 - 100 °C | @Temperature 68.0 - 212 °F        |          |
| Specific Heat Capacity | 0.481 J/g-°C               | 0.115 BTU/lb-°F                   |          |
|                        | @Temperature 50.0 - 100 °C | @Temperature 122 - 212 °F         |          |
| Thermal Conductivity   | 89.0 W/m-K                 | 618 BTU-in/hr-ft <sup>2</sup> -°F |          |
|                        | @Temperature 20.0 °C       | @Temperature 68.0 °F              |          |

| Electrical Properties  | Metric               | English              | Comments |
|------------------------|----------------------|----------------------|----------|
| Electrical Resistivity | 0.000142 ohm-cm      | 0.000142 ohm-cm      |          |
|                        | @Temperature 20.0 °C | @Temperature 68.0 °F |          |

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