

---

## **Corus Construction and Industrial,**

## **Boron Steels**

---

### **Corus Construction & Industrial offers a range of boron steels for improved hardenability.**

To improve hardenability during heat treatment a range of steels with deliberate boron additions are available.

- Low carbon manganese boron BS3111 Type 9 grades
- Medium carbon manganese boron BS3111 Type 10 grades

With other grades available on request.

#### **Boron steels**

Boron steels possess hardenability equivalent to that of much higher carbon steels and more expensive low alloy heat treatable steels. Tempering, following oil or water quenching after forming, toughens boron steels.

The addition of only 0.001-0.003% soluble boron to a suitably protected base steel can produce an increased hardenability compared to that obtained by additions of about 0.5% manganese, chromium or molybdenum, but with little effect on the as-rolled, normalised or annealed strength. Additions of titanium and aluminium are usually made to boron steels to protect and maintain the correct soluble boron content.

#### **Advantages of boron steels over higher carbon steels and low alloy steels include:**

- Improved cold formability
- Lower delivered hardness giving improved blanking tooling life
- Improved weldability through lower Carbon Equivalent Value (CEV)
- Lower tempering temperatures giving energy savings and good case hardening response

#### **Typical applications include:**

- Fork lift truck arms
- Earth moving and agricultural tools
- Mower blades
- Chain components
- Fasteners