

REDCOR®

weathering steel (plate)

AS/NZS 3678 – WR350LOB MOD 400, WR350LOZ35B MOD 400

General description

WR350B MOD 400 is a low phosphorous structural weathering steel with nominal yield strength of 400MPa for thicknesses from 10 to 70mm with guaranteed impact performance and an option for improved through-thickness ductility (z test).

Typical uses

Heavy engineering structural elements such as bridges & bridge girders, towers, walls, heavy sculptures, frames, circular hollow section constructions, railway rolling stock.

Features & benefits

Reduced atmospheric corrosion when used in the correct environments

Guaranteed minimum strength levels

Good toughness

Lower phosphorous levels for improved weldability

ACRS accreditation (ACRS Certificate No. 120802)



Warnings

This material should be used in conjunction with the appropriate structural design and welding standards.

The weathering properties of this material is due to the formation of an impervious oxide layer through the use of alloy additions. Damage to this layer, or environmental conditions affecting the development of this layer, will impact on the effectiveness of the corrosion resistance.

Colour retention across welds can be achieved by appropriate electrode selection. Welds may be susceptible to hot cracking

Weathering steels are not recommended without further protection for buried or submerged situations or for applications exposed to concentrated industrial fumes or severe marine conditions.

Oxide staining of surrounding areas may occur due to run-off from this material.

Free from coil break for 3 months after production.

Material should be stored under cover to avoid issues with storage related corrosion.

Refer to BlueScope Technical Bulletin No. 26 for more information regarding the use of this material.

Australian and International Standards

AS/NZS 3678:2016

AS/NZS 1365:1996 (R2016)

ISO 9001:2015 Quality System Certified

Normal / optional supply conditions

| | Normal | Optional |
|-----------------------|--------------------------|----------------------|
| Thickness Range | 10mm – 70mm | - |
| Length Range | By enquiry only | - |
| Availability | By enquiry only | - |
| Edge Condition | Trimmed | - |
| Tolerances | AS/NZS 1365:1996 (R2016) | - |
| Ultrasonic Inspection | - | AS 1710-2007 (R2017) |
| Surface Inspection | BlueScope | - |
| Certification | BlueScope | Third party endorsed |

Chemical composition

| Element | Guaranteed Maximum % (WR350L0B MOD 400) | Guaranteed Maximum % (WR350L0Z35B MOD 400) |
|------------|--|---|
| Carbon | 0.14 | 0.14 |
| Silicon | 0.75 | 0.75 |
| Manganese | 1.70 | 1.70 |
| Phosphorus | 0.04 | 0.04 |
| Sulfur | 0.030 | 0.005 |
| Chromium | 1.05 | 1.05 |
| Nickel | 0.55 | 0.55 |
| Copper | 0.50 | 0.50 |
| Molybdenum | 0.10 | 0.10 |
| Aluminium | 0.100* | 0.100* |
| Niobium** | 0.05 | 0.05 |
| Titanium | 0.040 | 0.040 |
| CEQ (IIW) | 0.52 | 0.52 |

All values shown refer to the relevant Australian Standard unless otherwise stated

$$CEQ(IIW) = C + \frac{Mn}{6} + \frac{(Cr + Mo + V)}{5} + \frac{(Cu + Ni)}{15}$$

* Values shown refer to the BlueScope internal standard

** Niobium + Titanium + Vanadium \leq 0.15%

Mechanical properties

| Tensile Properties (Transverse) | | Thickness (mm) | | | | |
|------------------------------------|----------------|----------------|-------------|-------------|-------------|-------------|
| | | 9.95 < t ≤ 12 | 12 < t ≤ 20 | 20 < t ≤ 32 | 32 < t ≤ 50 | 50 < t ≤ 70 |
| Yield Strength (MPa) | Guaranteed Min | 400 | 380 | 360 | 360 | 360 |
| Tensile Strength (MPa) | Guaranteed Min | 480 | 480 | 480 | 480 | 480 |
| Elongation 5.65√S ₀ (%) | Guaranteed Min | 18 | 18 | 18 | 18 | 18 |

| Charpy Impact Properties | Longitudinal on 10 x 10mm test piece | Test Temperature (°C) | Absorbed Energy (joules) | |
|--------------------------|--|-----------------------|--------------------------|------------|
| | | | Avg. of 3 | Individual |
| Guaranteed minimum | WR350L0B MOD 400 & WR350L0Z35B MOD 400 | 0 | 27 | 20 |

| Through-thickness Tensile Properties (z test) | | | Thickness (mm) |
|---|----------------|---------------------|----------------|
| | | | 15.95 < t ≤ 70 |
| Reduction in Area (%) | Guaranteed Min | WR350L0Z35B MOD 400 | 35 |

Fire resistance

| Regulation | Deemed |
|--|-----------------|
| National Construction Code NCC2022, Vol. 1, Part C2D10, 5b | Non-combustible |

RedCor®

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