PRODUCT **DATA SHEET**



BISALLOY® ARMOUR HHA 500 STEEL

Introduction

BISALLOY® ARMOUR HHA500 steel (High Hardness Armour) - a quenched and tempered steel armour plate suitable for use in both military and civil applications where light weight and resistance to ballistic projectiles is required.

Brinell hardness

| Thickness (mm) | Specification | Typical |
|----------------|---------------|---------|
| 5 - 50¹ | 477 - 534 HB | 500 HB |

Tensile properties

| Property | Typical |
|--------------------------|----------|
| 0.2% Proof Stress | 1300 MPa |
| Tensile Strength | 1640 MPa |
| Elongation in 50 mm G.L. | 10% |

Charpy impact values

| Thickness (mm) | Test Piece | Test Temp | Min. Energy (Transverse) | Min. Energy (Longitudinal) |
|----------------|------------|-----------|--------------------------|----------------------------|
| 5 | 10 x Thk | -40°C | By Agreement | By Agreement |
| 6 - <8 | 10 x 5 | -40°C | 8 J | 10 J |
| 8 - <12 | 10 x 7.5 | -40°C | 12 J | 15 J |
| ≥12 | 10 x 10 | -40°C | 16 J | 20 J |

Chemistry

The chemical specification conforms to the requirements of MIL-DTL-46100, although it is tighter than the requirements of that specification so as to optimise the material's performance. Product chemical analyses are taken on a per-heat basis. Chemical analysis is as follows:

Chemical composition

| Thickness (mm) | Weight % | С | Р | Mn | Si | S | Ni | Cr | Мо | В | CE(IIW) | CET |
|---------------------|----------|------|-------|------|------|-------|------|------|------|-------|---------|-------|
| 5 - 50 ¹ | Maximum | 0.32 | 0.025 | 0.80 | 0.50 | 0.005 | 0.50 | 1.20 | 0.30 | 0.002 | 0.61* | 0.40* |

Thickness tolerance

| Thickness (mm) | Special Tolerance |
|----------------|-------------------|
| 5 - 25 | -0.0 + 1.0 |
| >25 - 50 | -0.0 + 1.2 |

Test frequency

| Per Plate | Per Batch | By Agreement |
|-----------|------------------------|--|
| Hardness | Charpy (L), Charpy (T) | Thickness, Tensile, Ballistic Properties, Product Analysis |





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Other

| Equivalent Specification | Surface Finish | |
|--------------------------|----------------|--|
| MIL - DTL - 46100 | Shotblasted | |

Fabrication

For advice on fabrication refer to relevant Bisalloy technical brochures. Contact Bisalloy direct or visit www.bisalloy.com.au

PLEASE NOTE: Every care has been taken to ensure the accuracy of information contained in this manual which supersedes earlier publications, however Bisalloy Steels shall not be liable for any loss or damage whatsoever caused from the application of such information. Typical values are provided for reference information only and no guarantee is given that a specific plate will provide these properties. Information is subject to change without notice. **Published November 2019**





^{*} Typical for 12mm plate

¹ Other thicknesses may be available on application