



BISPLATE HHA

High Hardness Armour Plate

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|---------------------------------|--|---|---|----------|-------------------------------|-----------|--|----------------------|-----------|-----------|----------|-----------------|------------|
| Applications | BISPLATE High Hardness Armour (BISPLATE HHA) – 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. | | | | | | | | | | | | |
| Chemical Composition | The chemical specification conforms to the requirements of MIL-A-46100 although tighter so as to optimise the material's performance. Chemical analyses are taken on a per heat basis. | | | | | | | | | | | | |
| | Thickness | | C | P | Mn | Si | S | Ni | Cr | Mo | B | CE (IIW) | PCM |
| | 5-25 ¹ | Maximum | 0.32 | 0.025 | 0.40 | 0.35 | 0.005 | 0.35 | 1.20 | 0.30 | 0.002 | 0.61 | 0.40 |
| Mechanical Properties | | 0.2% Proof Stress | Tensile Strength | | Elongation in 50 mm GL | | | | | | | | |
| (AS 1391) | typical | 1400 MPa | 1640 MPa | | 14% | | | | | | | | |
| Charpy Impact Properties | Thickness | Test Piece | Min Energy, Transverse, -20°C | | | | Min Energy, Longitudinal, -20°C | | | | | | |
| (AS 1544.2) | 5 mm | 10 x thk | by agreement | | | | by agreement | | | | | | |
| | 6-<9.5 mm | 10 x 5 | 8J | | | | 10J | | | | | | |
| | 9.5-<12 mm | 10 x 7.5 | 12J | | | | 15J | | | | | | |
| | ≥12 mm | 10 x 10 | 16J | | | | 20J | | | | | | |
| Hardness | specification | 477 – 534 HB. | | | | | | | | | | | |
| (AS 1816) | typical | 500 HB. | | | | | | | | | | | |
| Thickness Tolerance | Thickness | Special Tolerance | | | | | | | | | | | |
| | 5-25mm | -0.0 + 1.0 | | | | | | | | | | | |
| Test Frequency | Per Plate | - | Hardness. | | | | | | | | | | |
| | Per Batch | - | Charpy (L), Charpy (T). | | | | | | | | | | |
| | By Agreement | - | Thickness, Tensile, Ballistic Properties, Product Analysis. | | | | | | | | | | |
| Ballistic Properties | AS 2343 Part 2 – Bullet Resistant Panels for Interior: Opaque Panels | | | | | | | | | | | | |
| | Class² Calibre | Ammunition | Velocity @ Distance From Muzzle | | | | Range | Min Thickness | | | | | |
| | G2 44 Magnum | 15.6 lead semi-wad cutter bullet | 488 ± 10m/s @ 1.5m | | | | 3m | 6mm | | | | | |
| | S0 12 Gauge (Full Choke) | 12 gauge 70 mm high velocity magnum 32g SG shot | 403 ± 10m/s @ 1.5m | | | | 3m | 6mm | | | | | |
| | S1 12 Gauge (Full Choke) | 12 gauge 70 mm 24.8G single slug | 477 ± 10m/s @ 1.5m | | | | 3m | 6mm | | | | | |
| | R1 5.56 mm | M193 5.56 mm 3.6g full metal case bullet | 980 ± 15m/s @ 5m | | | | 10m | 10 mm | | | | | |

¹ Other thicknesses may be available on application

² Class G – Hand Gun, Class S – Shotgun, Class R - Rifles

| | | | | | | |
|---------------------------------|---|---------|---|------------------|-----|------|
| | R2 | 7.62 mm | NATO standard 7.62mm 9.3g full metal case bullet | 853 ± 10m/s @ 5m | 10m | 6 mm |
| Equivalent Specification | BISPLATE HHA conforms to the requirements of MIL-A-46100. | | | | | |
| Surface Finish | Shotblasted. | | | | | |
| Plate Colour Code | Black with red strip. | | | | | |
| Fabrication | For advice on fabrication refer to relevant Bisalloy technical brochures. Contact Bisalloy direct or visit www.bisalloy.com.au . | | | | | |