AUSTRALIAN MADE

Bisalloy STRUCTURAL

HIGH STRENGTH STRUCTURAL STEEL

KEY FACTS

BISALLOY® Structural steel has been the product of choice for iconic construction projects including:

- Grosvenor Place – commercial office tower
- Star City Lyric Theatre – entertainment venue
- The Latitude at World Square – office and retail complex

BISALLOY® - performance for life.

Since 1980, Bisalloy Steels has proudly been Australia's only manufacturer of quenched and tempered steel plate used for armour, structural and wear-resistant steel applications and has established an outstanding international reputation for quality products and technical support.

Our vision is to "Enable innovation with steel" so we work closely with manufacturers, specifiers, distributors and channel partners to deliver innovative products and service solutions and have become the trusted performance steel partner to customers across Australia and the world.

Technical data at your fingertips

Visit www.bisalloy.com.au to quickly access detailed:

- **Information on Bisalloy Steels' products and solutions, services and distributors**
- **Reference materials including a range of Technical Guides with detailed information on fabrication, performance, specifications and product comparisons**
- **Case studies on projects utilising Bisalloy Steels' performance steel products and also the latest company news**

Your performance steel partner

As a specialist supplier of quenched and tempered steel plate, Bisalloy Steels is highly responsive and agile in partnering with our customers to meet their demands, specialised needs and market challenges in Australia and across the globe.

- To fully meet the challenges of our customers, we focus on our performance first to ensure we consistently excel in our field of expertise and deliver the best in performance steel products
- We form strong partnerships with our customers and develop a deep understanding of their businesses and needs, enabling us to deliver value-added products and services that support their success
- We collaborate with leaders in science, technology and steel manufacture on intensive research programs involving critical testing and evaluation of materials to produce innovations at the forefront of steel technology worldwide

BISALLOY® Structural steel

Just as the outstanding reputation of Bisalloy Steels continues to grow, so too do many buildings and a multitude of other constructions grow stronger and taller each day with the support of BISALLOY® Structural steel grades.

The BISALLOY® Structural steel range of high strength steels sets free the modern designer's imagination and opens up exciting new possibilities, delivering increased strength which allows engineers and architects to design and write specifications for structures that only a few years ago would have been impossible to build.

BISALLOY® Structural steel now makes it possible to build taller towers, specify smaller columns and span larger rooms while actually reducing the amount of steel needed, thereby also reducing build time and costs with reductions in frame weight leading to savings on foundations, fabrication and construction cost.

And the benefits of BISALLOY® Structural steel reach far beyond the construction site, with equipment such as dump truck bodies, storage bins, hoppers and chutes now able to be manufactured with an overall lighter weight while maintaining the same strength.

With other benefits including lower costs of material, freight and fabrication – plus easier handling – it's no surprise that BISALLOY® Structural steel plays such a strong role in our modern world.

The benefits of choosing BISALLOY® Structural steel

Australian made

This represents the highest standards in quality and service, which customers in Australia and our global markets have relied upon for decades.

Known and trusted

You have the confidence of working with known and trusted, quality products from an Australian steel manufacturer with over 40 years of expertise in producing market-leading structural grade steel and other performance steel products for Australia and the world.

Technical expertise

Our people are experts in specifying, developing, manufacturing and using our products. Bisalloy Steels' range of structural plate grades are specifically designed, hot rolled and heat treated to provide the best solution in a wide range of applications.

Product quality

Bisalloy Steels' product quality is world class and second to none, with our structural grades complying with many of the world's quenched and tempered steel plate standards.

Partnership Focused

With Bisalloy Steels, you are partnering with a company that works closely with customers, and engages with leaders in science and technology, to deliver truly innovative and tailored product solutions and services.

Product range

We locally produce a wide range of quenched and tempered steel products to meet the varying requirements and needs of our many customers – and are committed to ongoing research and development to ensure Bisalloy Steels' product range remains at the leading edge of available quenched and tempered steels.

The BISALLOY® Structural steel range

Performance steels are already well established in the Australian steel plate market, with designers, fabricators and end-users utilising the enhanced properties of these steels in a range of applications.

While there has been significant use of high strength performance steels for structural applications in a number of international markets, Australian designers and builders are yet to fully capitalize on the potential benefits available from using these products.

The increased strength available from the BISALLOY® Structural steel range allows engineers and architects to design and write environmentally positive specifications for structures that capitalize on potential advantages from lighter structures and greater load carrying capacities.

With BISALLOY® Structural steel it can be possible to build taller towers, span larger rooms, specify smaller columns while actually reducing the amount of steel needed. Reductions in frame weight can lead to savings on foundations, fabrication and construction costs.

Bisalloy Steels has recently introduced a new product nomenclature. The following table details the grade equivalents.

Note: Only the designation has changed – not the product

Previous Name	New Name
BISPLATE® 60	BISALLOY® Structural 60 steel
BISPLATE® 70	BISALLOY® Structural 70 steel
BISPLATE® 80	BISALLOY® Structural 80 steel
BISPLATE® 100	BISALLOY® Structural 100 steel
BISPLATE® 80PV	BISALLOY® Structural 80 Pressure Vessel steel

PRODUCT **DATA SHEET**

Bisalloy STRUCTURAL

BISALLOY® STRUCTURAL 60 STEEL

Introduction

BISALLOY® STRUCTURAL 60 steel is a low carbon, low alloy, high strength structural steel exhibiting excellent cold formability and low temperature fracture toughness.

Applications

BISALLOY® STRUCTURAL 60 steels offers excellent mechanical properties combined with ease of fabrication, delivering economic advantages in many structural applications including:

- Storage Tanks for Water, Oil and Gas
- Columns for Low and High Rise Buildings
- Transfer Beams for Low and High Rise Buildings
- Mobile Lifting Equipment
- Overhead Cranes

BISALLOY® STRUCTURAL 60 steel is manufactured in accordance with AS/NZS 3597 Grade 500.

Mechanical properties

Hardness (Typical)	
Plate Thickness (mm)	Brinell Hardness (HB 3000/10)
5 - 100	210

Tensile			
Plate Thickness (mm)	0.2% Proof Stress (MPa) Min	Tensile Strength (MPa)	% Elongation (50 mm G.L) Min
5 - 100	500	590 - 730	20

Charpy V-Notch Impact			
Plate Thickness (mm)	Energy (J) (Min)	Test Temp. (°C)	Test Directions
5	By Agmnt	-40	L
6 - <8.5	45	-40	L
8.5 - <12	60	-40	L
12 - 65	80	-40	L
70 - 100	80	-20	L

Chemical composition

Thickness (mm)	Weight %	C	P	Mn	Si	S	Cr	Mo	B	CE(IIW)*	CET*
5 - <30	Maximum	0.18	0.025	1.2	0.60	0.008	1.00	0.25	0.002	0.44	0.26
≥30 - 80	Maximum	0.18	0.025	1.3	0.60	0.008	1.00	0.25	0.002	0.54	0.32
>80 - 100	Maximum	0.18	0.025	1.5	0.60	0.008	1.20	0.25	0.002	0.58	0.34

*Typical average

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Bisalloy STRUCTURAL

BISALLOY® STRUCTURAL 70 STEEL

Introduction

BISALLOY® STRUCTURAL 70 steel is a low carbon, low alloy, high strength structural steel exhibiting excellent cold formability and low temperature fracture toughness. BISALLOY® STRUCTURAL 70 steel can be welded with minimal pre-heat and has excellent low temperature fracture toughness.

Applications

The combination of BISALLOY® STRUCTURAL 70 steel's mechanical properties and ease of fabrication offers economic advantages in many structural applications such as:

- Transport Equipment such as Trays, Low Loaders and Trailer Outriggers
- Storage Tanks for Water, Oil and Gas
- Columns for Low and High Rise Buildings
- Transfer Beams for Low and High Rise Buildings
- Structural Components for Mining Dump Trucks and other Mobile Equipment
- Underground Longwall Mining Supports
- Mobile Lifting Equipment
- Overhead Cranes

BISALLOY® STRUCTURAL 70 steel is manufactured in accordance with AS/NZS 3597 Grade 600.

Mechanical properties

Hardness (Typical)	
Plate Thickness (mm)	Brinell Hardness (HB 3000/10)
5 - 100	210

Tensile			
Plate Thickness (mm)	0.2% Proof Stress (MPa) Min	Tensile Strength (MPa)	% Elongation (50 mm G.L) Min
5 - 100	600	690 - 830	20

Charpy V-Notch Impact			
Plate Thickness (mm)	Energy (J) (Min)	Test Temp. (°C)	Test Directions
5	By Agmnt	-40	L
6 - <8.5	40	-40	L
8.5 - <12	60	-40	L
12 - 65	75	-40	L
70 - 100	75	-20	L

Chemical composition

Thickness (mm)	Weight %	C	P	Mn	Si	S	Cr	Mo	B	CE(IIW)*	CET*
5 - <30	Maximum	0.18	0.025	1.2	0.60	0.008	1.00	0.25	0.002	0.44	0.26
≥30 - 80	Maximum	0.18	0.025	1.3	0.60	0.008	1.00	0.25	0.002	0.54	0.32
>80 - 100	Maximum	0.18	0.025	1.5	0.60	0.008	1.20	0.25	0.002	0.58	0.34

*Typical average

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Bisalloy STRUCTURAL

BISALLOY® STRUCTURAL 80 STEEL

Introduction

One of Bisalloy Steels' original grades, BISALLOY® STRUCTURAL 80 steel has been continually manufactured in Australia for over 40 years and is low alloy, high strength steel plate with a yield stress three times that of carbon steel and featuring low carbon, excellent notch toughness and excellent weldability and formability.

Applications

Utilising the high strength properties of BISALLOY® STRUCTURAL 80 steel allows reduction in section thickness without loss of structural integrity. The following are some applications where the strength advantage of BISALLOY® STRUCTURAL 80 steel has been realised:

- Transport Equipment such as Low Loaders
- Structural Components for Mining Dump Trucks and other Mobile Equipment
- Mining Equipment Roll Over Protection Systems (ROPS)
- Underground Longwall Mining Supports
- Storage Tanks for Water, Oil and Gas
- Columns for Low and High Rise Buildings
- Transfer Beams for Low and High Rise Buildings
- Road and Rail Bridge Beams and Columns
- Excavator Buckets
- Mobile Lifting Equipment
- Overhead Cranes
- Container Handling Equipment
- High Stress and High Fatigue Applications including Induced Draft Fans

BISALLOY® STRUCTURAL 80 steel is manufactured in accordance with AS/NZS 3597 Grade 700.

Mechanical properties

Hardness (Typical)	
Plate Thickness (mm)	Brinell Hardness (HB 3000/10)
5 - 100	255

Tensile			
Plate Thickness (mm)	0.2% Proof Stress (MPa) Min	Tensile Strength (MPa)	% Elongation (50 mm G.L) Min
5	650	750 - 900	18
6 - 65	690	790 - 930	18
70 - 100	620	720 - 900	16

Charpy V-Notch Impact			
Plate Thickness (mm)	Energy (J) (Min)	Test Temp. (°C)	Test Directions
5	By Agmnt	-40	L
6 - <8.5	20	-40	L
8.5 - <12	30	-40	L
12 - <60	40	-40	L
60 - 100	40	-20	L

Note: >100 -120mm available by request

Chemical composition

Thickness (mm)	Weight %	C	P	Mn	Si	S	Cr	Mo	B	CE(IIW)*	CET*
5 - <30	Maximum	0.18	0.025	1.2	0.60	0.008	1.00	0.25	0.002	0.44	0.26
≥30 - 80	Maximum	0.18	0.025	1.3	0.60	0.008	1.00	0.25	0.002	0.54	0.32
>80 - 100	Maximum	0.18	0.025	1.5	0.60	0.008	1.20	0.25	0.002	0.58	0.34

*Typical average

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Bisalloy STRUCTURAL

BISALLOY® STRUCTURAL 80 PRESSURE VESSEL STEEL

Introduction

BISALLOY® STRUCTURAL 80 Pressure Vessel steel is a high strength steel alternative for designers of unfired pressure vessels that meets the requirements of AS1210 and achieves a light weight structure.

Applications

BISALLOY® STRUCTURAL 80 Pressure Vessel steel has been approved by statutory authorities and complies with the requirements of AS1210 for pressure applications and is supplied ultrasonically tested to AS1710-Level 1. Its high strength offers substantial weight reductions in the following areas:

- Transportable road tankers
- Storage tanks (Spherical and cylindrical)
- Railroad tankers (LPG/Liquid ammonia)
- Refinery and petrochemical equipment (Tube plates/Channel covers)

BISALLOY® STRUCTURAL 80 Pressure Vessel steel is manufactured in accordance with AS/NZS 3597 Grade 700PV.

Mechanical properties

Hardness (Typical)	
Plate Thickness (mm)	Brinell Hardness (HB 3000/10)
6 - 100	255

Tensile			
Plate Thickness (mm)	0.2% Proof Stress (MPa) Min	Tensile Strength (MPa)	% Elongation (50 mm G.L) Min
6 - 65 70 - 100	690 620	790 - 930 720 - 900	18 16

Charpy V-Notch Impact			
Plate Thickness (mm)	Lateral Expansion (mm) Min	Test Temp. (°C)	Test Directions
6 - 100	0.38	By Agmnt max. 0°C	T

Chemical composition

Thickness (mm)	Weight %	C	P	Mn	Si	S	Cr	Mo	B	CE(IIW)*	CET*
6 - <30	Maximum	0.18	0.025	1.2	0.60	0.008	1.00	0.25	0.002	0.44	0.26
≥30 - 80	Maximum	0.18	0.025	1.3	0.60	0.008	1.00	0.25	0.002	0.54	0.32
>80 - 100	Maximum	0.18	0.025	1.5	0.60	0.008	1.20	0.25	0.002	0.58	0.34

*Typical average. Low heat input butt welding required to ensure transverse weld tensile properties are achieved. Alternate chemistry may be specified when necessary

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Bisalloy STRUCTURAL

BISALLOY® STRUCTURAL 100 STEEL

Introduction

BISALLOY® STRUCTURAL 100 steel is a low alloy, high strength steel plate with very high yield strength (over three times that of carbon steel) and featuring low carbon, excellent notch toughness and good weldability and formability.

Applications

Utilising the high strength properties of BISALLOY® STRUCTURAL 100 steel allows reduction in section thickness without loss of structural integrity. Some applications where the strength advantages of BISALLOY® STRUCTURAL 100 steel have been realised include:

- Transport Equipment such as Low Loaders
- Columns for Low and High Rise Buildings
- Transfer Beams for Low and High Rise Buildings
- Road and Rail Bridge Beams and Columns
- Mobile Lifting Equipment
- Overhead Cranes
- Container Handling Equipment

BISALLOY® STRUCTURAL 100 steel is manufactured in accordance with AS/NZS 3597 Grade 900.

Mechanical properties

Hardness (Typical)	
Plate Thickness (mm)	Brinell Hardness (HB 3000/10)
5 - <30	320

Tensile			
Plate Thickness (mm)	0.2% Proof Stress (MPa) Min	Tensile Strength (MPa)	% Elongation (50 mm G.L) Min
5 - <30	890	940 - 1100	13

Charpy V-Notch Impact			
Plate Thickness (mm)	Energy (J) (Min)	Test Temp. (°C)	Test Directions
5	By Agmnt	-20	L
6 - <8.5	20	-20	L
8.5 - <12	30	-20	L
12 - 30	40	-20	L

Chemical composition

Thickness (mm)	Weight %	C	P	Mn	Si	S	Cr	Mo	B	CE(IIW)*	CET*
5 - <30	Maximum	0.18	0.025	1.2	0.60	0.008	1.00	0.25	0.002	0.44	0.26

*Typical average. Low heat input butt welding required to ensure transverse weld tensile properties are achieved. Alternate chemistry may be specified when necessary

LIGHTER | STRONGER | SUSTAINABLE

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BIS0391 - BISALLOY® Structural steels