

Brilliance Steel Limited

Product Disclosure Information ---Grade 500E MA reinforcing bars

Product Name	Product Line	Product Identifier
HBIS 500E Rebar	Reinforcing Steel-500E MA Grade	Refer to item codes

Legal and Trading name of the manufacturer

- ❖ Place of Manufacturer: China
- ❖ Legal Name of the manufacturer: HBIS Company Limited

Web site: www.hbisco.com

Legal and Trading name of the importer

- ❖ Legal Name of the Importer: Brilliance Steel Limited, East Tamaki, Auckland 2013, New Zealand.
- ❖ Trading names of the Importer: Brilliance Steel Limited, Auckland 2019, New Zealand.

Web site: <https://www.Brilliancesteel.co.nz>

Product description and its intended use

- ❖ HBIS rebars are manufactured to Grade 500E MA specification given in AS/NZS 4671:2019 standard.
- ❖ Rebars are commonly used in the construction of reinforced concrete structures to provide additional strength and durability to the concrete elements.

Item Code	Bar Diameter	Length
D12	10mm	6meters
D16	12mm	6meters
D20	16mm	6meters
HD10	10mm	6meters
HD12	12mm	6meters/12meters
HD16	16mm	6meters/12meters
HD20	20mm	12meters
HD25	25mm	12meters
HD32	32mm	12meters

Contributions to compliance

Rebars are essential components in the construction of reinforced concrete structures, helping them withstand various types of loads and forces, including bending, shear, and

NZS 3101-part1:2006 specifies reinforcing bars are to comply to AS/NZS 4671 standard. Grade 500E MA meets the minimum product and testing requirements

NZS 3101:2006 requires reinforcing steel to comply with AS/NZS 4671:2019. "E" stands for "Earthquake". Micro alloy (MA) process: trace elements such as vanadium

Chemical Composition

AS/NZS 4671:2019, Clause 7.1, Chemical composition, and weldability

Element	C(Carbon)	S(Sulphur)	P(Potassium)	CEV (Carbon equivalent value)
Max%	0.21	0.031	0.031	0.46

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

Grade 500E MA rebars that comply to AS/NZS 4671:2019 standard is weldable as per AS/NZS 1554.3, Structural steel Welding, Part3: Welding reinforcing steel.

Mechanical properties

AS/NZS 4671:2019, Clause 7.2.1, general

	Yield Stress (MPa)	Tensile Ratio	Uniform Elongation at maximum Load
Minimum	500	1.15	10.0
Maximum	600	1.14	

Demonstration of Product conformity

Long term mechanical characteristic values determined statistically in accordance with AS/NZS 4671:2019, Clause B.5.2 and reported as per the clauses B.5.1 (a) and (b).

HBIS provides IANZ LTQ statements as per AS/NZS 4671:2019, Clauses B.2, B.5.2, B.5.1

Mass tolerance

AS/NZS 4671:2019, Clause 7.3.1

The mass per meter length of any size bar shall have a tolerance of $\pm 4.5\%$

Grade 500E Identification – Bar Marking

AS/NZS 4671:2019, Clause 10.1(e), Identification, and certificates



HBIS Marking



Size



Grade & Ductility Class

Scope of use

As per NZS 3101: Part2:2006, clause C5.3.2, amendment 3, ductile reinforcement, grade 300E or grade 500E, should be used in all structural elements, which may be subjected to:

- (a) Yielding due to seismic forces or displacements
- (b) Appreciable moment redistribution under any loading combination
- (c) Redistribution of structural actions due to stage-by-stage construction or by creep redistribution of actions.
- (d) Opening of crack due to shrinkage, thermal and creep movement in the concrete, or due to settlement of foundations.

Some of the common application of 500E Grade Rebars are used in Reinforced concrete beams, columns, concrete slabs, concrete footings and retaining walls.

Before using 500E Grade Rebars used in any construction project, consult structural engineers and architects who are familiar with NZS 3101 and NZS 3109 standards and regulations. They can provide guidance on the appropriate specifications, placement, and installation to ensure it meets the required standards and contributes to the safety and longevity of the structure.

Installation requirements

All activities such as bending, welding, and galvanising performed on reinforcing steel shall comply with NZS 3101 and NZS 3109 standards. Proper installation requires attention to detail and adherence to NZS 3101 and NZS 3109 standards and engineering specifications. Here are some essential installation requirements for rebar

Design and Engineering Specifications:

Follow the design and engineering drawings and specifications provided for the project, including the type, size, spacing, and location of the rebar.

Cleanliness:

Ensure that the rebar is clean and free from rust, oil, grease, or any other contaminants that could compromise the bond between the rebar and concrete.

Placement and Alignment:

Position the rebar accurately in accordance with the design. Use spacers or chairs to maintain proper cover (the distance between the rebar and the concrete surface) and ensure alignment.

Bending and Cutting:

Bend and cut rebar according to NZS 3109, table 3.1 requirements, and make sure the bends are smooth to avoid stress concentrations. Do not over-bend or straighten rebar excessively, as it can weaken the material.

Overlap and Splicing:

Follow specified overlap and splicing requirements when connecting rebar sections. Proper overlap and splice lengths are essential for maintaining the continuity of reinforcement.

Tying:

Securely tie rebar intersections and connections with wire ties or other approved fastening methods. Ensure that ties are tight enough to prevent movement during the concrete pouring process.

Spacing and Clearances:

Adhere to the specified spacing between rebar and clearances from edges and forms, ensuring that rebar is properly distributed throughout the concrete element.

Inspection and Quality Control:

Regularly inspect the rebar installation to confirm that it meets project requirements, industry standards, and local building codes. Address any discrepancies promptly.

Protection from Environmental Factors:

Protect rebar from exposure to corrosive elements, such as moisture and chemicals. Apply appropriate coatings or corrosion inhibitors as needed.

Documentation:

Maintain accurate records of rebar installation, including the type and size of rebar used, placement details, inspection reports, and any deviations from the original design.