

Euro Corporation Limited

Product Disclosure Information – Links and Stirrups

Product Name	Product Line	Product Identifier
Links and Stirrups	Reinforcing steel-500E MA Grade	Refer to item codes

Legal and Trading name of the manufacturer

Place of Manufacturer: New Zealand

Legal Name of the manufacturer: Euro Corporation Limited, 21 Heritage Way, Otara, Auckland 2019, New Zealand.

Trading Names of the manufacturer: Summit Steel & Wire, and complete Reinforcing, 21 Heritage Way, Otara, Auckland 2019, New Zealand.

Web site: www.summitsteel.co.nz, www.completereinforcing.com

e-mail: sales@summitsteel.co.nz, quotes@completereo.co.nz

Legal and Trading name of the importer

Not Applicable

Product description and its intended use

Links and Stirrups are manufactured using Grade 500E MA (micro alloy) plain steel wire and commonly used in the construction of reinforced concrete structures to provide additional strength and durability to the concrete elements.

Item codes.

	Item Code	Description	Bundle Size
1	LHR690	HR6 Links X 90mm	25 Pieces
2	LHR6150	HR6 Links X 150mm	25 Pieces
3	LHR6200	HR6 Links X 200mm	25 Pieces
4	LHR250	HR6 Links X 250mm	25 Pieces
5	LHR6300	HR6 Links X 300mm	25 Pieces
6	LHR10150	HR10 Links X 150mm	25 Pieces
7	LHR10200	HR10 Links X 200mm	25 Pieces
8	LHR10250	HR10 Links X 250mm	25 Pieces
9	LHR10300	HR10 Links X 300mm	25 Pieces
10	STPHR61515	HR6 Stirrup 150 X 150mm	25 Pieces
11	STPHR62010	HR6 Stirrup 200 X 100mm	25 Pieces
12	STPHR62015	HR6 Stirrup 200 X 150mm	25 Pieces
13	STPHR62020	HR6 Stirrup 200 X 200mm	25 Pieces
14	STPHR62515	HR6 Stirrup 250 X 150mm	25 Pieces
15	STPHR62525	HR6 Stirrup 250 X 250mm	25 Pieces
16	STPHR63015	HR6 Stirrup 300 X 150mm	25 Pieces
17	STPHR63020	HR6 Stirrup 300 X 200mm	25 Pieces
18	STPHR63030	HR6 Stirrup 300 X 300mm	25 Pieces
19	STPHR64515	HR6 Stirrup 450 X 150mm	25 Pieces
20	STPHR101515	HR10 Stirrup 150 X 150mm	25 Pieces
21	STPHR102020	HR10 Stirrup 200 X 200mm	25 Pieces
22	STPHR102515	HR10 Stirrup 250 X 150mm	25 Pieces
23	STPHR102525	HR10 Stirrup 250 X 250mm	25 Pieces
24	STPHR103030	HR10 Stirrup 300 X 300mm	25 Pieces

Relevant building codes

B1 Structure: Functional requirements clause B1.2 and performance clauses; B1.3.1, B1.3.2, B1.3.3(f) and B1.3.4(d)

B2 Durability: Functional requirements clause B2.2

AS/NZS 4671:2019, Steel for the reinforcement of concrete.

NZS 3101-1 and 2:2006, Concrete Structure Standard, incorporation Amendment No. 1, 2, and 3.

NZS 3109:1997, Concrete construction

AS/NZS 1554.3, Structural steel Welding, Part3: Welding reinforcing steel

Contributions to compliance:

Links and stirrups are essential components in the construction of reinforced concrete structures, helping them withstand various types of loads and forces, including bending, shear, and axial loads. Their placement and quantity depend on the specific structural design requirements and the intended use of the concrete element.

Summit Steel & Wire links and stirrups are Grade 500E MA and manufactured using machinery that makes exact bends to meet NZ reinforcing specification. Stirrups are used for assembling of various reinforcing beams and assemblies.

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 and titanium used to provide strength and ductility.

NZS 3109:1997, Clause 3.3 Hooks and Bends

Chemical analysis

AS/NZS 4671:2019, Clause 7.1

Element	C (Carbon)	S (Sulphur)	P (Potassium)	CEV (Carbon equivalent value) *
Max%	0.24	0.055	0.055	0.51

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

Grade 500E MA plain bars 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 7.1.2

	Yield Stress (MPa)	Tensile Ratio	Uniform Elongation at maximum Load (%)
Minimum	500	1.15	10.0
Maximum	600	1.40	

Demonstration of Product conformity

As per AS/NZS 4671:2019, clause 9, the minimum requirements for demonstration product conformity shall be in accordance with Appendix A and Appendix B

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).

Euro Corporation limited provides batch LTQ statements as per AS/NZS 4671:2019, Clauses B.2, B.5.2, B.5.1 (a) and (b) for any decoiled plain bars used in Links and Stirrups

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, Identification, and certificates



500E Grade plain steel bar marked with a dot and dash. Steel producers add their identification next to the dash to show the differences.

Scope of use

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

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

Limitations on the use of Links and Stirrups

If reinforcement has been exposed to the weather for long periods, the surface may be corroded to the point where loose or flaking rust is evident on the surface. This is the point at which the surface condition of the reinforcement should no longer be regarded as acceptable, as the loose and flaking rust indicates a loss of steel material that can affect the design capacity, and it will also significantly affect the bond between the steel and concrete. If cleaning of the surface is proposed to remove the loose and flaking rust and reused after cleaning, then the mass of the steel bar after cleaning should be checked by calculating the mass per metre in accordance with Clause C3.3.3 of AS/NZS 4671 and ensuring that the value is no more than 4.5% less than the mass per metre values given in Table 7.5(A) of AS/NZS 4671 for the particular bar size.

Design requirements that would support appropriate use of Links and Stirrups.

Design details must be in accordance with New Zealand Building Code NZS 3101

Installation requirements

Spacing and Size:

The spacing between links and stirrups should adhere to the structural design specifications, which are based on the expected loads and structural requirements. The diameter and size of the links and stirrups should also conform to the design specifications. These dimensions are determined based on the required tensile and shear strength.

Cover requirements:

Links and stirrups should have adequate concrete cover, which is the distance between the reinforcement and the outer surface of the concrete element. This cover helps protect the reinforcement from corrosion and ensures bond strength. The required concrete cover is specified in building codes and design documents and varies depending on factors like exposure conditions and the type of structure.

Lap Splicing:

In cases where the length of the reinforcement is insufficient, lap splicing is used to connect two pieces of reinforcement. Proper lap lengths and lap splice details should be followed as per design requirements and codes.

Clear Spans:

Stirrups should have clear spans between their bends to allow for proper concrete placement and consolidation. This helps ensure that the concrete fully surrounds and bonds with the stirrups.

Proper Alignment:

Links and stirrups should be installed in a way that maintains their proper alignment and spacing throughout the construction process. They should not be bent or distorted during placement.

Typing and support:

Links and stirrups should be adequately tied and supported to maintain their position and prevent displacement during concrete placement and curing. The use of appropriate tie wire or ties is essential.

Inspection and quality control:

Regular inspections should be conducted during the installation process to ensure that the reinforcement is correctly placed and meets the design requirements. Quality control measures should be in place to verify the dimensions, placement, and spacing of links and stirrups.

Compliance with codes and standards:

All activities such as bending, welding, and galvanising performed on reinforcing steel shall comply with NZS 3101 and NZS 3109 standards.

Warning or ban under section 26 of the Building Act 2004

Yes **No**

Revision History

Version number	Purpose / Change	Date
Version 1	New Release	01/09/2023

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