

Euro Corporation Limited

Product Disclosure Information – 500E Ductile Steel Mesh

Product Name	Product Line	Product Identifier
XTRA Ductile Mesh	500E Ductile Steel Mesh	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:

XTRA ductile mesh is manufactured using Grade 500E MA (micro alloy) plain steel wire welded to 200mm pitch.

Steel Mesh is used in concrete structure for strength and durability. Design engineers specify the requirements of steel mesh as part of the design requirements of the building or concrete structure.

Item Codes:

Item Code	Wire Size	Plain	Longitudinal bars		Cross bars		Length	Width	Weight	kN/m	Net CVR (m ²)
			Number	Pitch	Number	Pitch					
SE620 Small	6.1 mm	√	11	200 mm	24	200 mm	4.68 m	2.05 m	23.05 kg	71	7.61
SE620 STD	6.1 mm	√	13	200 mm	30	200 mm	5.85 m	2.42 m	34.05 kg	71	11.93
SE720 STD	7.0 mm	√	13	200 mm	30	200 mm	5.85 m	2.42m	44.90 kg	93	11.93
SE820 STD	8.0 mm	√	13	200 mm	30	200 mm	5.85 m	2.42 m	58.72 kg	122	11.93
SE920 STD	9.0 mm	√	13	200 mm	30	200 mm	5.85 m	2.42 m	74.17 kg	154	11.93

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:

NZS 3101:2006 requires reinforcing steel to comply with AS/NZS 4671:2019. "E" stands for "Earthquake". These grades of steel are specifically developed to have the ductility needed to perform in seismic conditions.

Micro alloy (MA) process: trace elements such as vanadium and titanium used to provide strength and ductility.

AS/NZS 4671:2019, Clause 3.4.1, batches, Steel mesh are produced as batches, maximum of 1000 sheet per batch and each batch is tested for compliance to AS/NZS 4671:2019.

Batch test certificates are available on request.

Chemical analysis

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

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

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

Chemical analysis provided by steel mill holds good for any manufactured mesh. Mill test certificate available upon request for each cast or heat.

Grade 500E MA steel wire 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 (%)	Weld shear strength
Minimum (C _{VL})	500	1.15	10.0	50%
Maximum (C _{VU})	600	1.40		

Shear strength is determined in accordance with AS/NZS 4671:2019, Clause C.5

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 IANZ accredited test certificates as per AS/NZS 4671:2019, Clauses B.2, B.5.2, B.5.1 (a) and (b) for every batch of 1000 sheet. Test certificates are available upon request.

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



500E grade plain steel wire 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 steel welded mesh are reinforced concrete structure, pavements, retaining walls, precast concrete, masonry reinforcement, landscaping etc.

Before using 500E Grade steel mesh 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.

Limitations on the use of Mesh

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.

As per AS/NZS 4671:2019, clause 7.5.8, the presence of broken weld joints shall not constitute a cause for rejection unless, in mesh supplied in sheets, the number of broken welds per sheet exceeds 1% of the total number of welded joints or more than 50% of the permissible maximum number of broken welds are located on any one bar.

Design requirements that would support appropriate use of the Mesh.

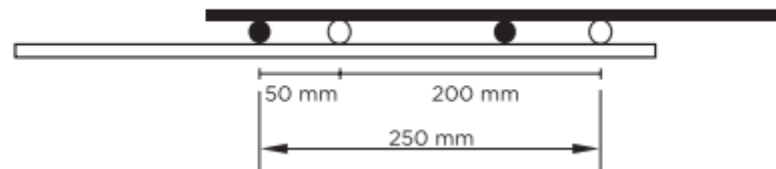
Design details must be in accordance with New Zealand standard NZS 3101:2006

Installation requirements

Lapping of mesh

The Verification Method B1/VM1 cites the Concrete Structures (Design) Standard NZS 3101:2006 which provides two methods for determining the lap length. Both methods will produce a lap that is at least as strong as the characteristic elastic yield strength of the longitudinal wire that is being lapped.

Using two cross wires for anchorage: Clause 8.7.6(a) of NZS 3101:2006 requires a lap of one mesh space plus 50mm. The minimum is 150mm for plain round wire mesh. This relies on a cross wire weld developing in shear half the elastic yield strength of the largest mesh wire at the joint. This method may be used for both plain and deformed wire mesh.



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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