

Approval & Reception Procedure

DMC – Departamento de Materiais de Construção	
Steel Reinforcement Bars	Document no. ARP/DMC/015
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1 Reference standard

The Reference standard is the “Norma de Aços para Armaduras Ordinárias de Macau (NA)” (Macau Standard for Steel Reinforcement Bars) .

2 Approval procedures

Manufacturer’s information, such as production catalogue, accredited quality system certificates, and mill certificates of each type and size of steel reinforcement bars, shall be submitted for compliance verification before any delivery.

Compliance verification includes the followings:

- Geometrical properties : size, mass/meter run
- Chemical properties (in case of welding connection only) :C, S, P, Mn, Si, V, N, Cr, Ni, and Cu
- Mechanical properties: Yield strength, Tensile strength, and Elongation after broken, Bend and Rebend
- Evidence of production control implementation

3 Reception procedure

3.1 Stocking on the site

Each lot of steel bars shall be stocked separately by diameter, grade, and manufacturer, in an adequate manner, not in contact with soil and in a way to facilitate identification and sampling.

Note: Lot/Batch - Any quantity of bars of same size, grade and manufacturer, delivered to site and presented for reception at any one time.

3.2 Information to be submitted

Manufacturer’s Mill Certificates and Quantity of each delivery shall be submitted for reception sampling.

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3.3 Sampling for test

Sampling frequency shall be the followings:

Lot of less than 10 tons	: 3 specimens
Lot of 10 to 30 tons	: 6 specimens
Lot of more than 30 tons	: 9 specimens

Note: Specimen length shall be app. 1 m long.

3.4 Testing

The geometrical properties (mass per meter run) and tensile properties (yield strength, tensile strength and elongation after broken) shall be tested and verified the compliance of each test specimen with the requirements in Table 2 to Table 4 of the reference standard.

Bend and rebend, fatigue resistance and chemical composition will be tested only under request.

4 Acceptance criteria

If there are more than one unfavourable test result among all test specimens in a Lot/Batch, this Lot/Batch shall be rejected.

However, if there is only one unfavorable test result amongst all test specimens in a Lot/Batch, an identical number of test specimens may be taken from the same Lot/Batch. If any of the second set is unsatisfactory, this Lot/Batch shall be rejected.