

ASTM A320 - Low-temperature bolting

Technical reference sheet | Rev. 29.09.2026

Bolts and studs in L7 and L7M, separate from A193 and linked to applicable nut and testing requirements.

L7 and L7M: low-temperature bolting

Quenched and tempered alloy steels for bolts and studs. L7M has different hardness and strength requirements from L7: M does not mean "metric". Specify minimum design temperature and required impact testing.

What to check for low-temperature service

Field	Check
Temperature	Minimum design temperature, test temperature and applicable code criteria
Charpy impact	Required energy, specimen and lot results
Nuts	Compatible grade and testing; for L7M assess A194 7M with applicable requirements
Marking and documents	Grade, lot and test traceability

Charpy test temperature is not automatically a universal minimum service temperature. Do not transfer A193 thermal values to A320.

L7 and L7M: separate enquiries

State the exact grade and project temperature conditions. The M suffix is not interpreted as a simple indication of metric thread.

Testing requirements

Include the tests and acceptance criteria required by the project. Documentation is reviewed against the configuration and supply lot.

Project-specific documentation

Assembly and traceability

Lot, markings, component list and conformity documents relevant to the supply.

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State the required documents. Applicability and availability are confirmed during enquiry review.

Testing and coatings

Dimensional reports, mechanical tests, coating reports and ROCAP where applicable to the specification.

Related standards and components

Bolts and studs for flanges, valves and pressure equipment: specify grade, class, dimensions and service conditions.

Nuts associated with bolting enquiries for high pressure and/or temperature service. Pairing depends on grade and service requirements.

Application sectors

Industrial and EPC projects, according to the specified application.

Enquiries and supply

Specify standard, grade, dimensions, finish, quantity and required documents. This technical reference sheet does not replace the lot documentation, manufacturer installation instructions or project design.