

Branches



ABERDEEN

41 Castle Terrace
Aberdeen AB11 5EA
Tel: 01224 596611
Fax: 01224 596622
e-mail: aberdeen@aalco.co.uk

BELFAST

The Belfast Metal Centre
McKinney Industrial Estate
54 Mallusk Road
Newtownabbey BT36 4PX
Tel: 02890 838 838
Fax: 02890 837 837
e-mail: belfast@aalco.co.uk

BIRMINGHAM

Shelah Road
Halesowen
West Midlands B63 3PH
Tel: 0121 585 3600
Fax: 0121 585 6864
e-mail: birmingham@aalco.co.uk

CHEPSTOW

Avenue West
Newhouse Park Estate
Chepstow
Monmouthshire NP16 6UD
Tel: 01291 638 638
Fax: 01291 638 600
e-mail: chepstow@aalco.co.uk

DYFED

Units 3-4
Capel Hendre Industrial Estate
Ammanford
Carmarthenshire SA18 3SJ
Tel: 01269 842044
Fax: 01269 845276
e-mail: dyfed@aalco.co.uk

GLASGOW

117 Clydesmill Place
Cambuslang Investment Park
Glasgow G32 8RF
Tel: 0141 646 3200
Fax: 0141 646 3260
e-mail: glasgow@aalco.co.uk

HULL

Saxon Way
Priory Park West
Hessle
Hull HU13 9PB
Tel: 01482 626262
Fax: 01482 626263
e-mail: hull@aalco.co.uk

LEEDS

Unit 1, Revie Road
off Elland Road
Leeds LS11 8JG
Tel: 0113 276 3300
Fax: 0113 276 0382
e-mail: leeds@aalco.co.uk

LIVERPOOL

207 Great Howard Street
Liverpool L5 9ZH
Tel: 0151 207 3551
Fax: 0151 207 2657
e-mail: liverpool@aalco.co.uk

MANCHESTER

Express Trading Estate
Stone Hill Road
Farnworth
Bolton BL4 9NN
Tel: 01204 863456
Fax: 01204 863430
e-mail: manchester@aalco.co.uk

NEWCASTLE

First Avenue
Team Valley Trading Estate
Gateshead
Tyne & Wear NE11 0NU
Tel: 0191 491 1133
Fax: 0191 491 1177
e-mail: newcastle@aalco.co.uk

NORWICH

Roundtree Way
Mousehold Lane
Norwich NR7 8SR
Tel: 01603 787878
Fax: 01603 789999
e-mail: norwich@aalco.co.uk

NOTTINGHAM

Harrimans Lane
Dunkirk
Nottingham NG7 2SD
Tel: 0115 988 2600
Fax: 0115 988 2636
e-mail: nottingham@aalco.co.uk

SLOUGH

Unit 2, 552 Fairlie Road
Slough Trading Estate
Slough
Berkshire SL1 4PY
Tel: 01753 619900
Fax: 01753 512227
e-mail: slough@aalco.co.uk

SOUTHAMPTON

Test Lane
Nursling
Southampton SO16 9TA
Tel: 02380 875200
Fax: 02380 875275
e-mail: southampton@aalco.co.uk

STOKE

Unit F, Forge Way
Brown Lees Industrial Estate
Biddulph
Stoke-on-Trent ST8 7DN
Tel: 01782 375700
Fax: 01782 375701
e-mail: stoke@aalco.co.uk

SWANLEY

Units 6 & 7
Pedham Place Industrial Estate
Wested Lane
Swanley
Kent BR8 8TE
Tel: 01322 610900
Fax: 01322 610910
e-mail: swanley@aalco.co.uk

For further information on Stainless Plate & Sheet, a copy of the full product catalogue, pricing, or to place an order, please contact your local Aalco branch.



www.aalco.co.uk

aalco

aalco

Type 1.4003 Stainless Steel Plate & Sheet



Panama Canal

Type 1.4003 stainless steel is a utility ferritic stainless steel, often used in place of mild steel. It offers the benefits of more highly alloyed stainless steels such as strength, corrosion and abrasion resistance, durability and low maintenance. In addition type 1.4003 is weldable and formable allowing it to be fabricated using conventional techniques. Benefits of using type 1.4003 stainless steel:

- 250 times greater corrosion resistance than mild steel
- Corrosion/abrasion resistance
- Economical – Low initial cost, low maintenance
- High Strength
- Excellent impact resistance
- Can be welded by conventional methods
- Can eliminate need for protective coating
- Can eliminate need for corrosion allowance
- Proven success in many applications across a wide range of industries
- Good performance at elevated temperatures
- Lower cost than austenitic stainless

This has led to the use of type 1.4003 stainless steel in many applications across a broad range of industries:

Applications

- Bulk wet materials handling
- Vehicle frames/chassis
- Rail car hoppers
- Sweeper/gritter vehicles
- Conveyors, chutes, screen, troughs
- Bunkers & hoppers
- Tanks & containers
- Chimneys & ducting
- Enclosures & cabinets
- Walkways, stairs & railings
- Cable trays

Industries

- Road & Rail Transport (Passenger & Freight)
- Bulk Handling
- Water
- Railway Infrastructure
- Power Generation
- Sugar Manufacture
- Agriculture
- Telecommunications & Electrical
- General Engineering
- Mining

Specifications

Type 1.4003 Stainless Steel Plate & Sheet

Cost Benefit

Type 1.4003 is proven to offer lower life-cycle costs than traditional materials where service conditions involve corrosion and/or abrasion. As compared to traditional materials there are options to reduce initial cost through the elimination of protective coatings and corrosion allowances. In service cost savings come from reduced maintenance, improved productivity and significantly longer life.

As type 1.4003 does not contain significant quantities of expensive alloying elements such as Nickel and Molybdenum is a lower cost material than austenitic stainless steel and can thus be considered as an option where these grades are not an economically viable choice.

Corrosion/Abrasion

The cycle of abrasive removal of a metal surface following surface corrosion rapidly erodes mild/carbon steels even when costly coatings are applied. In wet or damp conditions where abrasion is present type 1.4003 provides excellent performance by resisting corrosion attack and thus maintaining better flow and slideability compared to non-alloyed or low-alloy steels including abrasion resistant grades.

Weldability

Type 1.4003 has a fine-grained microstructure which reduces grain growth in the heat-affected zone (HAZ) and allow high integrity welds in section thicknesses up to 30mm. Suitable weld processes include SMAW, GTAW, FCAW, PAW, Laser, Spot and Seam. Design and welding procedure consideration must be taken to avoid sensitization occurring in service.

Strength & Stiffness

Type 1.4003 offers higher strength than, and equal structural stiffness to, mild steels such as BSEN10113 Grade Fe430A (ASTM A36). It also offers greater impact and energy resistance than aluminium. It behaves much like austenitic steel in that it gradually yields and does not show a definite yield point.

Coating & Painting

Type 1.4003 provides good corrosion resistance and excellent abrasion resistance, hence does not need coating or painting systems to be applied for performance reasons. However, for aesthetic reasons it may be desirable in some applications to apply paint, especially as type 1.4003 will tend to discolour in corrosive conditions. Type 1.4003 has exceptional under-paint corrosion resistance and will continue to resist corrosion even where the paint coat has been damaged. Normal preparation is required, such as ensuring a clean surface free of grease and other contamination. A primer coat is recommended for cold-rolled material due to its smoother surface, but hot rolled 1D finish material may be suitably painted in a single coat.

Dimensional Tolerances

Cold Rolled in accordance with BS EN 10259
Hot Rolled up to 6mm thick in accordance with BS EN 10051 Category B

Certification

Type 1.4003 stainless steel conforms to BS EN 10088-2: 1995, ASTM A240 UNS41003 and EN 10028-7: 2000 which covers stainless steels suitable for pressure purposes and includes minimum specified impact strength values. Certification is to EN 10204.

Size Range

Hot Rolled 1D Finish

Size (mm)	Weight per plate (Kg)
2500 x 1250 x 2.0	50.9
3000 x 1500 x 2.0	73.4
2000 x 1000 x 3.0	48.9
2500 x 1250 x 3.0	76.4
3000 x 1500 x 3.0	110.0
2500 x 1250 x 4.0	102.0
3000 x 1500 x 4.0	147.0
2500 x 1250 x 5.0	127.0
2500 x 1250 x 6.0	153.0

Cold Rolled 2B Finish

Size (mm)	Weight per plate (Kg)
2000 x 1000 x 1.0	16.3
2500 x 1250 x 1.0	24.5
2000 x 1000 x 1.2	19.6
2500 x 1250 x 1.2	30.6
2000 x 1000 x 1.5	24.5
2500 x 1250 x 1.5	38.2
3000 x 1500 x 1.5	55.0
2000 x 1000 x 2.0	32.6
2500 x 1250 x 2.0	50.9
3000 x 1500 x 2.0	73.4
2000 x 1000 x 2.5	40.8
2500 x 1250 x 2.5	63.7
3000 x 1500 x 2.5	91.7

*Other thicknesses and plate/sheet sizes are available to order.
Other product forms available include welded tube (round, square & rectangular) flat bar and various sections.*

Chemical Composition to BS EN 10088-2

Carbon	0.03% Max	Sulphur	0.015% Max
Silicon	1.00% Max	Chromium	10.50 to 12.50%
Manganese	1.50% Max	Nickel	0.30 to 1.00%
Phosphorus	0.040% Max	Nitrogen	0.03% Max

Transverse Mechanical Properties To BS EN 10088-2 at ambient temperatures

Property	Thickness	Range	Typical
UTS N/mm ²	All	450-650	522
Rp0.2% N/mm ²	Up to 6.0mm	320 Min	376
	Over 6.0mm	280 Min	361
Elongation	Up to 6.0mm	20% Min	23%
	Over 6.0mm	18% Min	26%
Hardness	Up to 12.0mm	220 Max	165
	Over 12.0mm	250 Max	165
Charpy	6.0 – 20.0mm	50J Min	85J
	25mm & Above	To be agreed	–

Physical Properties

Property	Range	Value
Density		7.74
Modulus of Elasticity	Tension	200 GPa
	Torsion	77 GPa
Specific Heat Capacity		478 J/kg.K
Thermal Conductivity	100°C	30.5 W/m.K
	500°C	40 W/m.K
Electrical Resistivity		67.8 µ/cm
Coefficient of Thermal Expansion	0 – 100°C	11.1 µm/mK
	0 – 300°C	11.7
	0 – 500°C	12.3
Melting Range		1430 – 1510°C
Relative Permeability		Ferromagnetic
Magnetic Permeability		700 – 1000

Other Properties

Poisson's Ratio	0.32
Initial Shear Modulus	108 GPa
Limit of Proportionality	130 GPa (Tension)
Ultimate Shear Strength	245 MPa