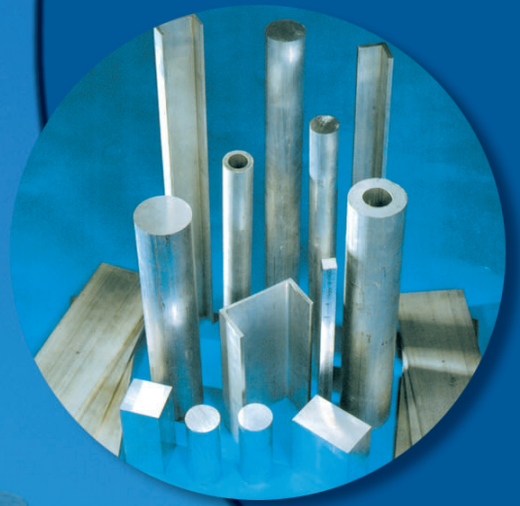


SUPERFIX[®]



Aluminium Alloys

Introduction

SUPERFIX®

- A Leader in Customer Service
- Products Of Consistent Quality
- Continuous Research & Development
- Competitive Pricing

Superfix offers a wide range of semi-finished products made from more than 100 different aluminium materials. These consist of rods, plates, heavy-walled and thin-walled tubes, and sections in stock.

We distribute our aluminium from Singapore to around the globe for commerce with various industries. We are able to help you get any facts and figures you need on non-standard materials. Our professional sales team places customer satisfaction as a top priority, attending to your various needs.

Key features of the system we implemented are the advisory service provided by our engineers, and a customer oriented logistics concept.

We specialise in the fabrication of Semi-Finished Aluminium, and offer a complete range of service to our customers, from basic to complex fabrication. There are no restrictions on the minimum quantity ordered. We have produced quantities from one or two pieces up to one million pieces.

If your product requires a secondary operation such as drilling, tapping or punching, we have the equipment and knowledge to perform the work. For the more demanding machining work requiring close-tolerance, our CNC machines centre provides us with both accuracy and flexibility. Our in-house coordinates measuring machine enables us to inspect the material to our customers' specifications.

The fabrication services listed above are only a brief overview of our capabilities. Send us your blue prints and specifications for a prompt quote without obligation.

For any enquiries, email us or contact us.

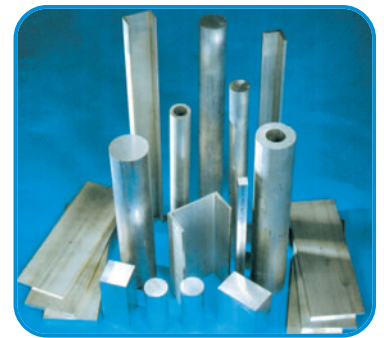


Table of Contents

Descriptions	Page
Mission Statement	1
Company Profile	1
Important Note	2
Industry Applications	3-4
Classification of Aluminium Alloys	5
Physical Properties	6
Mechanical Properties	7
Technological Properties	8
Principal Grades of Aluminium Alloys	9
AA 1100 (H14) Commercial Coil	10
AA 1100 (H14) Commercial sheet	11
AA 1100 Perforated Sheet	12
AA 2024 (T351) Sheet/Plate	13
AA 2024 (T351/T4) Round/Rod	14
AA 5052 (H32) Sheet/Plate	15
AA 5052 Checkered Plate (5 Bar Pattern)	16
AA 5052 Perforated Sheet	17
AA 5083 (H112/H321) Sheet/Plate	18-19
AA 5754 Checkered Plate	20
AA 6061 (T6/T6511) Econ-O-Plate	21
AA 6061 (T6/T651) Sheet/Plate	22-23
AA 6061 (T6) Flat Bar	24-26
AA 6061 (T6/T651) Round Rod	27
AA 6061 (T6/T651) Square Bar	28
AA 6061 (T6) Hexagon Bar	29
AA 6061 (T6) Equal Angle Bar	30
AA 6061 (T6) Unequal Angle Bar	31
AA 6061 (T6) U Channel	32
AA 6061 (T6) Round Tube	33
AA 6061 (T6) Square Tube	34
AA 6061 (T6) Rectangle Tube	35
AA 7075 (T6/T651) Sheet/Plate	36
AA 7075 (T6/T651) Round Rod	37
Aluminium Alca Plus Cast Plate	38
Machining Guidelines of Aluminium	39-40
Sales Agreement	41-42

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1. Mission Statement

A leader in customer service, with technical competence to ensure compliance to international standards of safety and quality, continuous research and development, and providing products of consistent quality at competitive prices.

2. Company Profile

Superfix was incorporated in 1987 to provide a wide range of semi-finished products made from more than 100 different Aluminium Alloys consist of rods, plates, sheet, coils, heavy-walled and thin-walled tubes, films and sections in stock.

Our focus is on providing a total solution, offering sales and services to a diverse base of customers in the electrical and electronic, aircraft, marine, automotive, automation, semi-conductor and disk drive industries.

Superfix name has become synonymous with engineered Aluminium Alloys that provide excellent properties for fatigue strength, shear strength, brinell hardness, melting range, coefficient of linear expansion, specific heat, temper, thermal conductivity, electrical resistivity, mechanical properties and anodising to any colour to a vast array of sectors.

Over the years, with our commitment to total quality excellence, we were able to build up a team of dedicated professionals with a wide spectrum of expertise. It was through their collective efforts, together with the support of valued clients and business partners, that we established our presence in the local industry, as well as the international arena.

Superfix is keen to establish a worldwide network of distributors and business partners. We look forward to technical discussions, sharing of knowledge and expertise, and building up multi-party, beneficial business relationships in an era where society and the world becomes a global village. We are adaptable to changes and embrace Information Technology as a necessary step towards excellence in customer service.

Share our vision. Join us as a business partner. Together, we can be more competitive and reach out more effectively to our customers to serve them better.

3. Important Note

3.1 Disclaimer

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- 3.2.2 The informations contained in this product catalogue and Technical Handbook are given for guidance only. They impose no liability on Superfix and do not constitute contractual undertakings. Guidance given here for the selection of the most appropriate material for an intended use must be checked by the user to take account of his own manufacturing conditions. The user must take all necessary steps to ensure that the materials selected are suitable for the intended application.

4. Industry Applications



Aircraft

- Upper Wing Skins
- Engine Pylon Support Structure
- Wing Spars (Plate)
- Wing Ribs (Plate)
- Seat Tracks
- Floor Beams



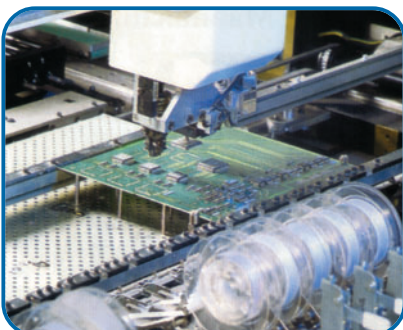
Marine

- Deck Cleats
- Ladders
- Bow Rails
- Ski Poles
- Panels for Decks and Side Walls
- Passenger Grab Handle
- Front and Rear Seat Bases



Automotive

- Brake Systems
- Shock Absorbers
- Components for Steering and Suspension
- Automatic Transmissions



Electronic

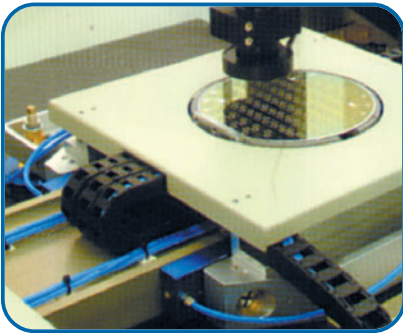
- Audio & Consumer Electronics
- Semi-Conductor Equipment
- Computers Peripheral
- Assembly & Carrier Plate
- Disc Drive Industry

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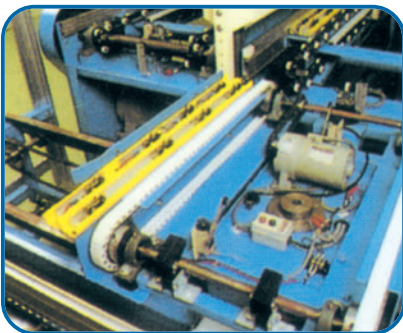
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4. Industry Applications



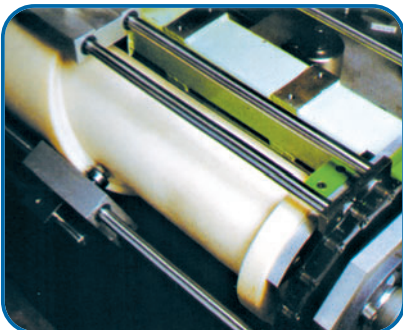
Semi-conductor

- E-beam Inspection of Wafers in Vacuum
- Magnetic Random Access Memory (MRAM) Machine
- Custom Air Bearing Equipment
- Structural Plate for Integrated Mechanical Air Bearing Stage Systems
- Multi Process Cluster Tool



Automation & Assembly

- Pick and Place Unit
- PCB Chain Insertion Conveyor
- Empty Pallet Return Lifter
- Twin Belt in Feed Conveyor Systems
- Automatic Robots Assembly Line



Mechanical Engineering

- Structural Rotating Plate for Conveyor
- Robotic Equipment & Components
- Cylinder & Valve
- Roller Guide
- Handling Module. Pick and Place Machinery



Chemical

- Boiler Making
- Barrels & Tanks
- Components & Housings
- Structural Stairways
- Sinks & Ducks

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Classification of Aluminium Alloys

1 Classification of wrought aluminium and aluminium alloys.

Very pure aluminium possesses high ductility together with low mechanical strength. It can be made significantly harder by adding elements which form alloys with aluminium.

And here, a distinction is drawn between :

- pure aluminium and alloys which do not harden by precipitation (i.e. which are not heat-treatable), and
- alloys which harden by precipitation (heat-treatable alloys).

1-1 PURE ALUMINIUM AND NON-PRECIPITATION-HARDENING ALLOYS (non-heat-treatable alloys)

In the case of this category, hardening is brought about by the combined effects of the alloying elements (magnesium, manganese, iron, silicon, etc.) and of the work-hardening of the metal resulting from shaping and forming. Also, by combining the effect of work-hardening and the effect of softening by means of annealing or recovery heat treatments, it is possible for each alloy to adjust hardness over a wide range, from the annealed (O) temper, characterised by maximum plasticity and minimum hardness, through to the extra-hard (H19) temper exhibiting maximum hardness and minimum plasticity.

This category consists of the alloys of Series 1000, 3000 and 5000.

Series 1000 - Pure aluminium

Pure aluminium is subdivided into grades distinguished by their aluminium contents. It exhibits excellent resistance to atmospheric corrosion, high thermal and electrical conductivities and excellent forming properties. Mechanical properties are relatively modest. It is very widely used: in the electrical engineering, chemical, petrochemical and building industries, in decorative applications, for home electrical appliances, etc.

Series 3000 - AlMn (Mg) alloys

Manganese is the principal alloying element in this series, the most representative member of which is 3003 alloy. Its excellent forming properties, ability to withstand atmospheric corrosion and good weldability mean that it is employed in a huge variety of applications, ranging over boilermaking and fabrication, pressing and drawing, the building industry, home electrical appliances (washing machine tubs, etc.), the manufacture of heat exchangers, etc.

Alloy 3004, which also incorporates magnesium, has found extensive applications in the manufacture of cans and of electrically welded tube.

Series 5000 - AlMg alloys

Magnesium, sometimes associated with additions of manganese and chromium, is the principal alloying element in this series. These alloys exhibit a broad range of medium mechanical properties, good general weldability, excellent low temperature performance (cryogenics) and excellent resistance to seawater and marine atmospheres. Their forming properties, which are good at low magnesium contents, fall off as the magnesium content increases. In the case of specific applications involving heating to temperatures above 65°C in moist or hostile atmospheres care has to be exercised when choosing the alloy and temper, particularly as concerns those alloys containing more than 3.5% magnesium. Applications for AlMg alloys vary very considerably: building, shipbuilding (hull and superstructure), chemical industry (seawater desalination) and foodstuffs (can manufacture and cooking utensils), haulage and transport (truck bodies, road tanks and vehicle coachwork) and general engineering (fabrication)

Among the better known alloys, special mention may be made of 5005, 5052, 5754, 5083, 5086 and 5182.

1-2 PRECIPITATION-HARDENING ALLOYS (heat-treatable alloys)

This family of alloys, containing copper, magnesium, silicon and zinc, can be precipitation-hardened by a process of heat treatments.

The first treatment stage, carried out at high temperature, is solution treatment, whereby the alloying elements are brought into solid solution. This is followed by very rapid cooling, generally by plunging into cold water, known as quenching, the purpose of which is to "freeze" at room temperature the structure obtained at the solution temperature. The quenched metal is in a metastable condition, which evolves at room temperature towards a more stable structure, the alloying elements being expelled from the super-saturated solution as precipitates. This phenomenon is accompanied by a significant increase in hardness and is known as precipitation hardening.

When it occurs at room temperature, the effect is known as natural ageing. It can be speeded up by holding at higher temperatures, thus yielding a greater degree of hardness in the case of certain alloys; this is known as age hardening or artificial ageing. The rate of precipitation hardening slows considerably if the metal is held temperatures below 0°C. Series 2000 rivets, for example, are stored in the cold room immediately after quenching and will then conserve their ductility until they are about to be used. Further details are to be found in section 3 - heat treatments. This family comprises the Series 2000, 6000 and 7000 alloys.

Series 2000 - AlCu alloys

Copper is the principal alloying element in this series of alloys, which, in the quenched and naturally aged temper, possess mechanical properties superior to those of mild steel, artificial ageing, carried out most frequently in the case of 2014, 2618A and, sometimes, 2024, increases yield strength at the expense of ductility.

These alloys, employed mainly for working structures, are distinguished by high mechanical properties in the T6 temper, good temperature performance, but less resistance to atmospheric corrosion than the copper-free alloys. They can, under certain conditions, be liable to intergranular corrosion. Special precautions can be taken (protection by cladding with a layer of pure aluminium or 6000 alloy, anodising, painting, etc.) to overcome this shortcoming. The Series 2000 alloys are weldable only by special techniques such as electron beam welding.

They are widely employed in the aerospace industry, weapons manufacture, mechanical engineering (rivets, light beams, etc.) and for sports equipment. The best-known members of the Series are 2017 and 2024.

Series 6000

The alloying elements in this family are magnesium and silicon, which combine to form the hardening compound Mg₂Si. These alloys are employed in the quenched/naturally aged or quenched/artificially aged tempers. They exhibit only average mechanical properties, inferior to those of the 2000 and 7000 alloys, but sufficient for the applications envisaged. They possess very good hot forming properties. They are the alloys for extrusion. Mention should also be made of their good cold forming properties in the annealed temper and, to a lesser extent, in the T4 temper, and of their satisfactory resistance to atmospheric corrosion and good weldability.

This series is in fact composed of two distinct groups of alloys. The first group, consisting of alloys containing higher proportions of magnesium and silicon, together with additions of manganese, chromium and zinc, exhibits the highest mechanical properties. These are mainly 6005A, 6061, 6082 and 6351. This group is intended for structural applications (structural frames, pylons, towers, bridges, crane jibs, etc.)

The second group, consisting of alloys containing less magnesium and silicon, combines high extrusion speeds with lower mechanical properties. Its applications are essentially in decoration, furniture and building (door and window frames). The most representative member is 6060. The 6106 alloy, which is closer to the first group described, is particularly well suited to light structural applications.

The variety of applications for the Series 6000 alloys is very considerable, including: decoration, building, structures, fabrication, piping, haulage and transport (coachwork, panelling, railcar sections, structural framing and sideboards) and sporting pursuits (boat masts, etc.).

Series 7000 - AlZn (Cu) alloys

Zinc, together with magnesium, is the principal alloying element in the alloys of this family, which, when they contain copper, exhibit the highest mechanical properties of all the aluminium alloys. They fall into two groups, depending on whether or not they contain copper.

- The alloys incorporating copper possess the highest mechanical strength. They can be welded only by special processes, particularly electron beam welding.

Their atmospheric corrosion resistance is low and the same protective precautions need to be taken as recommended for the 2000 series. These high performance alloys, the most representative of which is 7075, are employed mainly in the aerospace and weapons industries, but also in other applications (sporting goods, nuts and bolts, etc.)

- The copper-free alloys exhibit properties inferior to those of the group just described. Weldability on the other hand is good. In the T6 temper they are much more resistant to atmospheric corrosion than the copper-containing alloys. However, the T4 temper or thermally affected weld areas are susceptible to exfoliating corrosion. Applications for these alloys relate mainly to the weapons industry (armour-plating, Engineer Corps equipment, etc.), for which 7020 is used.

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Physical Properties

The data tabulated below and overleaf have in many cases been averaged over a variety of products differing in shape, size and methods of manufacture, and are not therefore representative of any specific category of product. The

table is merely intended to serve as a rough basis for comparison of alloys and tempers. No guarantee is given or implied, nor should the data tabulated be employed in design studies or calculations.

TYPICAL PHYSICAL PROPERTIES

<i>Alloy</i>	<i>Density</i>	<i>Melting range (approx.)</i>	<i>Coefficient of linear expansion</i>	<i>Specific heat</i>	<i>Temper</i>	<i>Thermal conductivity</i>	<i>Resistivity</i>
	<i>g/cm³</i>	<i>°C</i>	<i>(20° to 100° C) °C⁻¹ X 10⁶</i>	<i>(0° to 100° C) J/kg° C</i>		<i>(0° to 100° C) W/m° C</i>	<i>(20° C) μΩcm</i>
1050A	2,70	646-657	23,6	945	0 H18	231	2,8
1080	2,70	648-657	23,6	945	0 H18	234	2,8
1100 1200	2,71	643-657	23,6	950	0 H18	232 222	2,8 2,9
2011	2,83	540-645	23,2	905	T3	152	4,4
2014	2,80	508-635	22,5	920	T8 T4 T6	173 135 151	3,8 5,1 4,3
2017A	2,79	510-640	23,0	920	T4	134	5,1
2024	2,77	500-638	22,9	920	T3	120	5,7
2030	2,82	510-638	22,9	920	T3/T4	135	5,1
2618A	2,76	549-638	22,3	920	T6	146	4,6
3003	2,73	640-655	23,2	935	0 H18	180 155	3,5 4,2
3004	2,72	630-655	23,8	935	0-H18	163	4,1
3005	2,73	632-655	23,7	935	0-H18	166	3,9
3105	2,72	635-655	23,6	940	0-H18	172	3,8
5005	2,70	630-655	23,7	945	0-H38	205	3,3
5050	2,69	625-650	23,8	945	0-H38	192	3,4
5052	2,68	605-650	23,8	945	0-H38	138	4,9
5083	2,66	580-640	23,9	945	0-H32	120	6,0
5086	2,66	585-642	23,9	945	0-H32	126	5,6
5454	2,69	600-645	23,7	945	0-H34	136	5,1
5754	2,67	590-645	23,8	945	0-H34	132	5,3
6005A	2,70	605-655	23,6	940	T6	178	3,5
6060	2,70	615-655	23,4	945	T5	200	3,3
6061	2,70	575-650	23,6	940	T6	167	4,0
6082	2,71	570-645	23,5	935	T6	174	4,2
6106	2,70	610-655	23,5	940	T5	180	3,5
7020	2,78	605-645	23	920	T5	140	4,9
7075	2,80	475-630	23,5	915	T6	130	5,2

Standard values are quoted in this table. As is well known, these values can be affected by processing conditions, modifications, added materials and environmental influences. They are compiled on the basis of present experience and can only be regarded as non-binding. We cannot accept any responsibility for their accuracy.

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Mechanical Properties - at 20°C

Alloy/Temper	Mechanical properties			Brinell hardness	Modulus of elasticity*	Shear strength	Fatigue strength**
	R0,2	R	A5,65				
	0,2% PS, MPa	UTS, MPa	E5,65, %				
					MPa	MPa	MPa
							(10 ⁸ cycles)
1050A-0		80	42	21	69 000	55	25
H14	105	115	11	30	-	71	
H18	140	155	6	41	-	90	55
1080 -0		75	42	19	69 000	50	
H14	95	105	11	27	-	64	
1100 0		90	35	22	69 000	65	
1200							
H14	115	125	10	33	-	80	
H18	150	165	5	44	-	100	
2011 T3	290	340	13	95	71 000	210	125
T8	300	380	15	100	-	234	
2014 T4	280	420	18	105	74 000	260	
T6	420	480	12	137	-	290	145
2017A T4	280	420	18	105	74 000	260	135
2024 T3	320	465	18	120	73 000	285	140
2030 T3	390	450	10	115	73 000	275	135
2618A T6	390	440	8,5	135	74 000	270	140
3003 -0		115	38	28	69 000	75	
H14	140	155	8	42	-	95	60
H18	190	205	4	55	-	110	
3004 -0		180	27	45	69 000	110	
H34	200	240	8	64	-	125	
H38	250	285	5	77	-	145	
3005 -0		130	30	31	69 000	80	
H34	165	190	8	50	-	110	
3105 -0		120	30	30	69 000	85	
H14	155	175	7	46	-	105	
H18	195	220	4	58	-	117	
5005 -0		120	30	28	69 000	75	
H34	140	160	10	41	-	96	
H38	180	200	5	51	-	110	
5050 -0		145	28	36	69 000	105	
H34	165	190	9	53	-	125	
H38	200	220	5	63	-	140	
5052 -0		190	28	48	70 000	122	
H-24	205	250	12	68	-	142	
H-38	255	285	5	77	-	165	
5083 -0	160	305	23	70	71 000	185	115
H-166	230	335	20	-	-	200	
5086 -0	135	278	25	63	71 000	165	108
H32/H116	225	310	18	-	-	185	
5454 -0	110	250	22	62	70 000	159	
H34	230	300	6	81	-	180	
5754 -0	100	220	23	50	70 000	130	100
H24	215	270	10	68	-	150	
6005A***T6	260	285	12	90	79 500	185	97
6060 T6	190	220	16	75	69 500	150	72
**** T51	145	210	20	72	-	140	
6061 *** T6	270	305	13	95	69 000	205	98
6082 *** T6	280	315	12	95	69 500	218	102
T66	285	330	10	100	-	225	
6106 T5	230	265	13	85	69 500	175	84
7020 T5	320	380	12	120	71 500	245	125
7075 T6	495	565	11	150	72 000	330	162
T73	430	500	13	140	-	300	

* Average of tension and compression moduli. Compression modulus is some 2% greater than tension modulus.

** Using 20 - 22 mm diameter test pieces subjected to 10⁸ cycles of completely reversed stress on the ALKAN test rig.

*** Can be press-quenched.

**** Under-aged temper giving good bendability.

Standard values are quoted in this table. As is well known, these values can be affected by processing conditions, modifications, added materials and environmental influences. They are compiled on the basis of present experience and can only be regarded as non-binding. We cannot accept any responsibility for their accuracy.

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Technological Properties

Alloy	Atmospheric corrosion resistance		Anodisability			Weldability				Machinability		Drawability		Suitability for spinning	
	Temper	Normal atm.	Marine env.	Protective	Hard	Bright	Inert gas (TIG&MIG)	Resistance welding	Brazing	Electron deam	Break-up of chip	Brightness of machined surface	Stretch forming		Deep drawing
1050A 0		A	B	A	A	B	A	A	A	A	D	A	A	B	A
	H14	A	B	A	A	B	A	A	A	A	D	A	B	A	
	H18	A	B	A	A	B	A	A	A	A	C	A	D	B	
1080	0	A	A	A	A	A	A	B	A	A	D	A	A	B	A
	H14	A	A	A	A	A	A	B	A	A	D	A	B	A	
1100	0	A	B	A	A	C	A	A	A	A	D	A	A	B	A
	H14	A	B	A	A	C	A	A	A	A	D	A	B	A	
	H18	A	B	A	A	C	A	A	A	A	C	A	D	B	
2011		C	D	C	C/B	C	D		D		A	B	D	D	D
2014	T4	C	D	C	B	C	D	A	B	B	B	C	D	D	D
	T6	C	D	C	B	C	D	A	B	B	B	C	D	D	D
2017A	T4	C	D	C	B	C	D	A	B	B	B	B	D	D	D
2024	T4	C	D	C	B	C	D	A	B	B	B	B	D	D	D
2030	T3	C	D	C	C/B	C	D		D		A	C	D	D	D
2618A	T6	C	D	C	C	C	D	B	C	C	C	B	D	D	D
3003	0	A	B	A	B	C	A	A	A	A	D	A	A	B	B
3103	H14	A	B	A	B	C	A	A	A	A	D	A	B	A	
	H18	A	B	A	B	C	A	A	A	A	C	A	D	B	
		A	B	A	B	C	A	A	A	A	C	A	D	B	
3004	0	A	B	A	B	C	A	A	A	A	D	A	A	B	
	H34	A	B	A	B	C	A	A	A	A	C	A	C	A	
	H38	A	B	A	B	C	A	A	A	A	C	A	D	B	
3005	0	A	B	A	B	C	A	A	A	A	D	A	A	B	C
	H34	A	B	A	B	C	A	A	A	A	D	A	C	B	D
3105	0	A	B	A	B	C	A	A	A	A	D	A	A	B	C
	H14	A	B				A	A	A	A	D	A	C	A	D
	H18	A	B				A	A	A	A	C	A	D	B	D
5005	0	A	B	A	A	B	A	A	A	A	D	A	A	B	B
	H34	A	B	A	A	B	A	A	A	A	D	A	C	A	
	H38	A	B	A	A	B	A	A	A	A	C	A	D	B	
5050	0	A	B	A	A	B	B	B	B	A	D	A	A	B	
	H34	A	B	A	A	B	B	B	B	A	D	A	C	A	
	H38	A	B	A	A	B	B	B	B	A	C	A	D	B	
5052	0	A	A	A	A	B	B	B	B	A	C	A	A	A	C
	H24	A	A	A	A	B	B	B	B	A	C	A	C	A	
	H36	A	B	A	A	B	B	B	B	A	C	A	D	B	
5083	0	A**	A**	A	A	C	A	A	D	A	C	A	B	B	C
	H116	A**	A**	A	A	C	A	A	D	A	C	A	C	B	
5086	0	A(**)	A(**)	A	A	C	A	A	D	A	C	A	B	B	C
	H116	A(**)	A(**)	A	A	C	A	A	D	A	C	A	C	B	
5454	0	A	A	A	A	B	A	A	C	A	C	A	B	B	C
	H34	A	A	A	A	B	A	A	C	A	C	A	C	B	
5754	0	A	A	A	A	B	A	A	C	A	C	A	B	B	C
	H24	A	A	A	A	B	A	A	C	A	C	A	C	B	
6005A	T6	A	B	A	A	C	B	B	B	A	C	A	D	D	
6060	T5	A	B	A	A	B	B	A	A	A	C	A	D	C	
6061	0	A	B	A	A	C	B	C	B	A	D		A	A	B
	T6	A	B	A	A	C	B	B	B	A	C	A	D	D	
6082	0	A	B	A	A	C	B	C	B	A	D		A	A	B
	T6	A	B	A	A	C	B	A	B	A	C	A	D	D	
6106	T5	A	B	A	A	C	B	B	B	A	C	A	D		
7020	T5	B***	C***	B	A	C	B	B	B	B	B	B	D	D	
7075	T6	C****	D****	B	A	C	D	B	C	B	B	B	D	D	
7049A	T6	C****	D****	B	A	C	D	B	C	C	B	C	D	D	

Rating: A = very good B = good C = acceptable
D = poor or not recommended

- * Oxy-acetylene weldability as for inert gas welding.
- ** In T4 temper, or when welding in T5 et T6 tempers, suitable precautions should be taken to safeguard against corrosion.
- *** Risk of stress corrosion in T6 temper.

Standard values are quoted in this table. As is well known, these values can be affected by processing conditions, modifications, added materials and environmental influences. They are compiled on the basis of present experience and can only be regarded as non-binding. We cannot accept any responsibility for their accuracy.

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Principal Grades of Aluminium Alloys

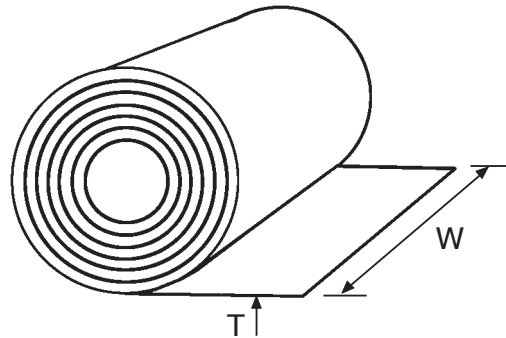
DESIGNATION										
ISO	France NF A02-104	U.S.A. ASTM*	West Germany DIN(1712-1725)		United-Kingdom B.S. Formerly New		Italy UNI	Switzerland VSM	Sweden SIS	Japan JIS**
Al99.5	1050A	(1050)	Al99.5	3.0255	1B	1050 A	4507	Al99.5	4007	A1050
Al99.7	1070A	(1070)	Al99.7	3.0275			4508	Al99.7	4005	A1070
Al99.8	1080	1080	Al99.8	3.0285	1A	1080A	4509	Al99.8	4004	A1080
Al99.0Cu	1100	1100								A1100
Al99.0	1200		Al99	3.0205	1C	1200	3567	Al99.0	4010	A1200
AlCu6BiPb	2011	2011	AlCuBiPb	3.1655	FC1	2011	6362	AlCu6BiPb	4355	A2011
AlCu4SiMg	2014	2014	AlCuSiMn	3.1255	(H15)	(2014A)	3581	AlCu4SiMn	4338	A2014
AlCu4MgSi	2017A	(2017)	AlCuMg1	3.1325			3579			(A2017)
AlCu4Mg1	2024	2024	AlCuMg2	3.1355			3583	AlCu4Mg1,5		A2024
AlCu4PbMg	2030		(AlCuMgPb)	(3.1645)				(AlCu4MgPb)		
AlCu2MgNi	2618A	(2618)			H16	2618A				
AlMn1Cu	3003	3003	AlMnCu	3.01517	(N3)	(3103)	7788	(AlMn)	(4054)	A3003
AlMn1Mg1	3004	3004	AlMn1Mg1	3.0526			6361			A3004
AlMn1Mg0,5	3005	3005	AlMn1Mg0,5	3.0525						A3005
AlMn0,5Mg0,5	3105	3105	AlMn0,5Mg0,5	3.0505	(N31)	3105				A3105
AlMg1	5005	5005	(AlMg1)	(3.3315)	N41	5005	5764	(AlMg1)	(4106)	A5005
AlMg1,5	5050	5050	(AlMg1,5)	(3.3316)			3573			
AlMg2,5	5052	5052	AlMg2,5	3.3523			3574	(AlMg2,5)	(4120)	A5052
AlMg5	5056A	(5056)	AlMg5	3.3555	N6	5056A	3576			A5056
AlMg4,5Mn	5083	5083	AlMg4,5Mn	3.3547	N8	5083	7790	AlMg4,5Mn	(4140)	A5083
AlMg4	5086	5086	AlMg4Mn	3.3545			5452	AlMg4Mn		A5086
AlMg2	5251		AlMg2Mn0,3	3.3525	N4	5251	4511			
AlMg3Mn	5454	5454	AlMg2,7Mn	3.3537	N51	5454	7789	AlMg2,7Mn		A5454
AlMg3	5754		AlMg3	3.3535				Al3Mg		
AlSiMg	6005A		AlMgSi0,7	3.3210				AlMgSi07		
AlMgSi	6060	(6063)	AlMgSi0,5	3.3206	(H9)	(6063)	(3569)	AlMgSi0,5	4103	(A6063)
AlMg1SiCu	6061	6061	AlMg1SiCu	3.3211	H20	6061	6170			A6061
AlSi1Mg	6082		AlMgSi1	3.2315	H30	6082	3571	AlMgSi1Mn	4212	
	6106***									
AlZn4,5Mg1	7020	(7005)	AlZn4,5Mg1	3.4335	H17	7020	7791	AlZn4,5Mg1	4425	
AlZn6MgCu	7075	7075	AlZnMgCu1,5	3.4365		7075	3735	AlZn6MgCu1,5		A7075

*UNS (Unified Numbering System): Under this system the normal ASTM designation is prefixed "A9": e.g. ASTM 1100 becomes A9 1100 under the UNS system.

Designations shown in brackets indicate that the alloy referred to is similar to, but not identical.

Standard values are quoted in this table. As is well known, these values can be affected by processing conditions, modifications, added materials and environmental influences. They are compiled on the basis of present experience and can only be regarded as non-binding. We cannot accept any responsibility for their accuracy.

Aluminium Commercial Coil (AA 1100 H14)



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
1100 Min	Si + Fe		0.05	-	-	-	-	-	-	-	-	-
Max	0.95		0.20	0.05	-	-	0.10	-	-	0.05	0.15	Balance

Applications

Electronic Component, Pharmaceutical, Containers, Appliances, Electrical-Industry, Signboard, Name Plates, Packaging, Building Architecture, Stamping Parts, Boilermaking, Construction Industry, General Sheet Fabrication.

Typical Physical Properties

Density g/cm³ : 2.71
 Melting range °C : 643 - 657
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa(*) : 69 000
 Thermal conductivity (0 to 100 °C) - W/m °C : O/h18 Temper: 222
 Resistivity at 20 °C - μΩ cm : O/H18 Temper: 2.9
 Specific heat (0 to 100 °C) J/kg °C : 950
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Weight
0.20 mm	1219 mm	1 to 7 tons
0.25 mm	1219 mm	1 to 7 tons
0.30 mm	1219 mm	1 to 7 tons
0.40 mm	1219 mm	1 to 7 tons
0.50 mm	1219 mm	1 to 7 tons
0.60 mm	1219 mm	1 to 7 tons
0.70 mm	1219 mm	1 to 7 tons
0.80 mm	1219 mm	1 to 7 tons

Thickness (T)	Width (W)	Weight
0.90 mm	1219 mm	1 to 7 tons
1.00 mm	1219 mm	1 to 7 tons
1.25 mm	1219 mm	1 to 7 tons
1.50 mm	1219 mm	1 to 7 tons
2.00 mm	1219 mm	1 to 7 tons
2.50 mm	1219 mm	1 to 7 tons
3.00 mm	1219 mm	1 to 7 tons

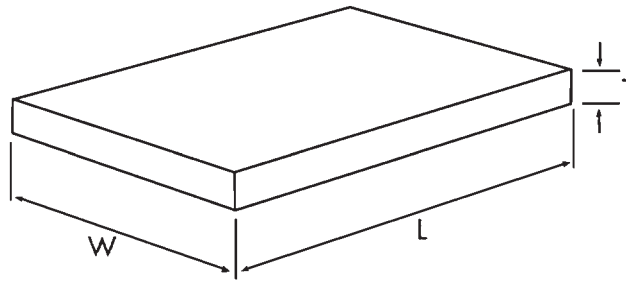
We slitt any width from 10mm to 550mm. There are no minimum quantities.

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Aluminium Commercial Sheet (AA 1100 H14)



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
1100 Min	Si + Fe		0.05	-	-	-	-	-	-	-	-	-
Max	0.95		0.20	0.05	-	-	0.10	-	-	0.05	0.15	Balance

Applications

Electronic Component, Pharmaceutical, Containers, Appliances, Electrical-Industry, Signboard, Name Plates, Packaging, Building Architecture, Stamping Parts, Boilermaking, Construction Industry, General Sheet Fabrication.

Typical Physical Properties

Density g/cm³ : 2.71
 Melting range °C : 643 - 657
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa(*) : 69 000
 Thermal conductivity (0 to 100 °C) - W/m °C : O/h18 Temper: 222
 Resistivity at 20 °C - μΩ cm : O/H18 Temper: 2.9
 Specific heat (0 to 100 °C) J/kg °C : 950
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
0.4 mm	4 ft	8 ft
0.5 mm	4 ft	8 ft
0.6 mm	4 ft	8 ft
0.7 mm	4 ft	8 ft
0.8 mm	4 ft	8 ft
0.9 mm	4 ft	8 ft
1 mm	4 ft	8/12 ft
1.2 mm	4 ft	8/12 ft
1.5 mm	4 ft	8/12 ft

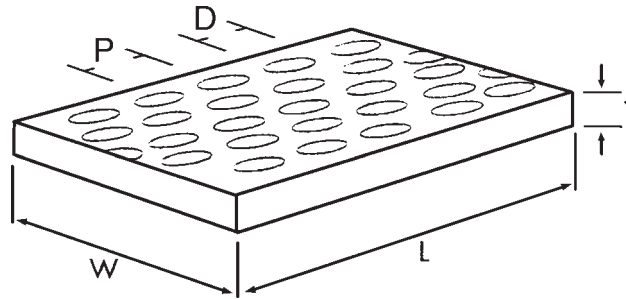
Thickness (T)	Width (W)	Length (L)
1.6 mm	4 ft	8/12 ft
2 mm	4 ft	8/12 ft
2.5 mm	4 ft	8/12 ft
3 mm	4 ft	8/12 ft
4 mm	4 ft	8/12 ft
4.5 mm	4 ft	8/12 ft
5 mm	4 ft	8/12 ft
6 mm	4 ft	8/12 ft

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Aluminium Perforated Sheet (AA 1100)



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
1100 Min	Si + Fe		0.05	-	-	-	-	-	-	-	-	-
Max	0.95		0.20	0.05	-	-	0.10	-	-	0.05	0.15	Balance

Applications

Ventilation Panel, Building Architecture, Packaging, Containers, Vacuum Boxes, Household-appliance Fittings, Equipment Cover, Food Industries, Decorative Panels, Construction Industry.

Typical Physical Properties

Density g/cm ³	:	2.71
Melting range °C	:	643 - 657
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	23.6
Modulus of elasticity MPa ^(*)	:	69 000
Thermal conductivity (0 to 100 °C) - W/m °C	:	O/h18 Temper: 222
Resistivity at 20 °C - μΩ cm	:	O/H18 Temper: 2.9
Specific heat (0 to 100 °C) J/kg °C	:	950
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

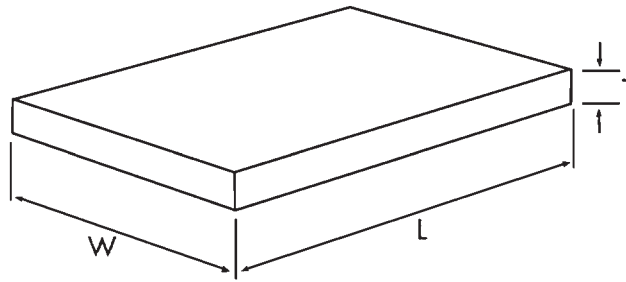
Thickness (T)	Width (W)	Length (L)	Diameter (D)	Pitch (P)
0.5 mm	4 ft	8 ft	3 mm	5 mm
0.6 mm	4 ft	8 ft	3 mm	5 mm
0.7 mm	4 ft	8 ft	3 mm	5 mm
0.8 mm	4 ft	8 ft	3 mm	5 mm
1 mm	4 ft	8 ft	3 mm	5 mm
1 mm	4 ft	8 ft	5 mm	8 mm
1.2 mm	4 ft	8 ft	2.5 mm	5 mm
1.2 mm	4 ft	8 ft	3 mm	5 mm
1.2 mm	4 ft	8 ft	5 mm	8 mm
1.5 mm	4 ft	8 ft	3 mm	5 mm
1.5 mm	4 ft	8 ft	5 mm	8 mm
2 mm	4 ft	8 ft	3 mm	5 mm
2 mm	4 ft	8 ft	5 mm	8 mm
3 mm	4 ft	8 ft	3 mm	5 mm

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Aluminium Alloy Sheet-Plate (AA 2024 T351)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	3.8	0.30	1.2	-	-	-	Zr + Ti	-	-	-
Max	0.50	0.50	4.9	0.9	1.8	0.10	0.25	0.15	0.20	0.05	0.15	Balance

Applications

Aircraft Fitting, Gears and Shafts, Clock Parts, Socket, Hydraulics Valve, Computer Parts, Couplings, Missile Parts, Ammunitions Parts, Equipment Components, Precision Engineering, Military Equipment, Machine Building.

Typical Physical Properties

Density g/cm ³	:	2.77
Melting range °C	:	500 - 638
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	22.9
Modulus of elasticity MPa ^(*)	:	73 000
Thermal conductivity (0 to 100 °C) - W/m °C	:	T3 Temper: 120
Resistivity at 20 °C - μΩ cm	:	T3 Temper: 5.7
Specific heat (0 to 100 °C) J/kg °C	:	920
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Thickness (T)	Width (W)	Length (L)
6mm	4 ft	8 ft
1/4 "	4 ft	8 ft
8 mm	4 ft	8 ft
9 mm	4 ft	8 ft
3/8 "	4 ft	8 ft
10 mm	4 ft	8 ft
12 mm	4 ft	8 ft
1/2 "	4 ft	8 ft
5/8 "	4 ft	8 ft
3/4 "	4 ft	8 ft
20 mm	4 ft	8 ft
7/8 "	4 ft	8 ft
1 "	4 ft	8 ft

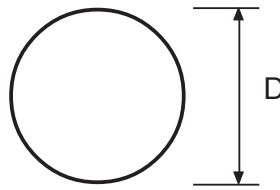
Thickness (T)	Width (W)	Length (L)
29 mm	4 ft	8 ft
1.1/4 "	4 ft	8 ft
35 mm	4 ft	8 ft
1.1/2 "	4 ft	8 ft
1.3/4 "	4 ft	8 ft
2 mm	4 ft	8 ft
2.1/2 "	4 ft	8 ft
70 mm	4 ft	8 ft
3 "	4 ft	8 ft
90 mm	4 ft	8 ft
4 "	4 ft	8 ft
5 "	4 ft	8 ft
6 "	4 ft	8 ft

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Aluminium Alloy Round Rod (AA 2024 T351/T4)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	3.8	0.30	1.2	-	-	-	Zr + Ti	-	-	-
Max	0.50	0.50	4.9	0.9	1.8	0.10	0.25	0.15	0.20	0.05	0.15	Balance

Applications

Aircraft Fitting, Gears and Shafts, Clock Parts, Rivets, Sockets, Hydraulics Valve, Computer Parts, Ammunitions Parts, Pistons Equipment Components, Precision Engineering.

Typical Physical Properties

Density g/cm ³	:	2.77
Melting range °C	:	500 - 638
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	22.9
Modulus of elasticity MPa ^(*)	:	73 000
Thermal conductivity (0 to 100 °C) - W/m °C	:	T3 Temper: 120
Resistivity at 20 °C - μΩ cm	:	T3 Temper: 5.7
Specific heat (0 to 100 °C) J/kg °C	:	920
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Diameter (D)	Length (L)
1/4 "	16 ft
3/8 "	16 ft
1/2 "	16 ft
5/8 "	16 ft
3/4 "	16 ft
7/8 "	16 ft
1 "	16 ft
1.1/4 "	16 ft
1.1/2 "	16 ft
1.3/4 "	16 ft
2 "	16 ft

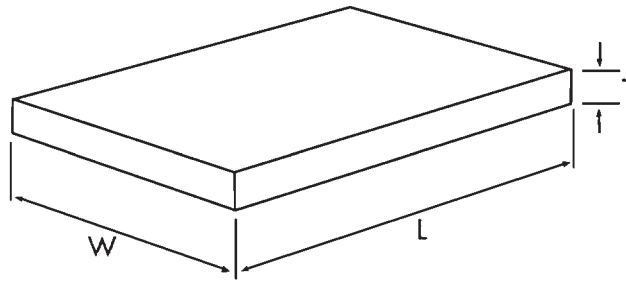
Diameter (D)	Length (L)
2.1/4 "	16 ft
2.1/2 "	16 ft
3 "	16 ft
3.1/2 "	16 ft
4 "	16 ft
4.1/2 "	16 ft
5 "	12 ft
6 "	12 ft
7 "	12 ft
8 "	12 ft

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Aluminium Alloy Sheet-Plate (AA 5052 H32)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	-	-	2.2	0.15	-	-	-	-	-	-
Max	0.25	0.40	0.10	0.10	2.8	0.35	0.10	-	-	0.05	0.15	Balance

Applications

Chemical Industry, Packaging-Equipment, Electronic Component, Household-Appliance, Stamping Parts, Signboard, Name Plates, Hydraulics, General Sheet Fabrication, Construction Industry.

Typical Physical Properties

Density g/cm³ : 2.68
 Melting range °C : 605 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.8
 Modulus of elasticity MPa(*) : 70 000
 Thermal conductivity (0 to 100 °C) - W/m °C : O/H38 Temper: 138
 Resistivity at 20 °C - μΩ cm : O/H38 Temper: 4.9
 Specific heat (0 to 100 °C) J/kg °C : 945
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
0.5 mm	4 ft	8/12 ft
0.6 mm	4 ft	8/12 ft
0.7 mm	4 ft	8/12 ft
0.8 mm	4 ft	8/12 ft
1 mm	4 ft	8/12 ft
1.2 mm	4 ft	8/12 ft
1.5 mm	4 ft	8/12 ft
1.6 mm	4 ft	8/12 ft
2 mm	4 ft	8/12 ft
2.3 mm	4 ft	8/12 ft
2.38 mm	4 ft	8/12 ft
2.5 mm	4 ft	8/12 ft

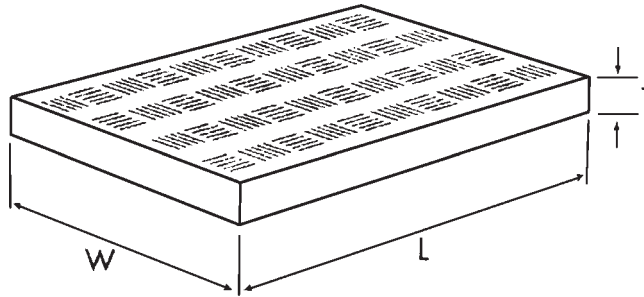
Thickness (T)	Width (W)	Length (L)
3 mm	4 ft	8/12 ft
4 mm	4 ft	8/12 ft
4.5 mm	4 ft	8/12 ft
5 mm	4 ft	8/12 ft
6 mm	4 ft	8/12 ft
6 mm	4 ft	8/12 ft
8 mm	4 ft	8/12 ft
9 mm	4 ft	8/12 ft
9.5 mm	4 ft	8/12 ft
10 mm	4 ft	8/12 ft
12 mm	4 ft	8/12 ft

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Aluminium Alloy Checkered Plate (AA 5052 / 5 Bar Pattern)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	-	-	2.2	0.15	-	-	-	-	-	-
Max	0.25	0.40	0.10	0.10	2.8	0.35	0.10	-	-	0.05	0.15	Balance

Applications

Abrasion for Lifts, Trucks and Flooring,
 Decorative Panels, Chemical Industry,
 Refinery Industry, Metal Staircase,
 Structured Staircase, Equipment
 Manufacturing, General Sheet Fabrication.

Typical Physical Properties

Density g/cm³ : 2.68
 Melting range °C : 605 - 650
 Coefficient of linear expansion
 (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.8
 Modulus of elasticity MPa^(*) : 70 000
 Thermal conductivity
 (0 to 100 °C) - W/m °C : O/H38 Temper :138
 Resistivity at 20 °C - μΩ cm : O/H38 Temper: 4.9
 Specific heat (0 to 100 °C)
 J/kg °C : 945
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

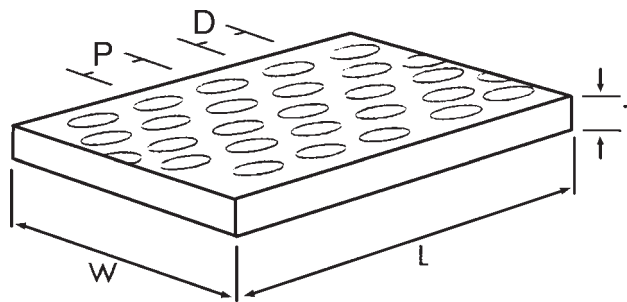
Thickness (T)	Width (W)	Length (L)
3 mm	4/5 ft	8/12 ft
4.5 mm	4/5 ft	8/12 ft
6 mm	4/5 ft	8/12 ft
6.35 mm	4/5 ft	8/12 ft

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Aluminium Perforated Sheet (AA 5052)



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	-	-	2.2	0.15	-	-	-	-	-	-
Max	0.25	0.40	0.10	0.10	2.8	0.35	0.10	-	-	0.05	0.15	Balance

Applications

Ventilation Panel, Building Architecture, Packaging, Containers, Vacuum Boxes, Chemical Industry, Household-appliance Fittings, Equipment Covers, Food Industries, Decorative Panels, Construction Industry.

Typical Physical Properties

Density g/cm³ : 2.68
 Melting range °C : 605 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.8
 Modulus of elasticity MPa(*) : 70 000
 Thermal conductivity (0 to 100 °C) - W/m °C : O/H38 Temper: 138
 Resistivity at 20 °C - μΩ cm : O/H38 Temper: 4.9
 Specific heat (0 to 100 °C) J/kg °C : 945
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

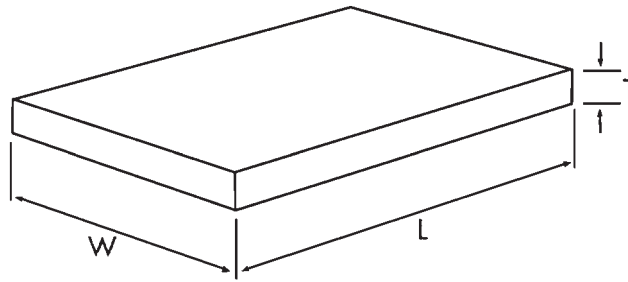
Thickness (T)	Width (W)	Length (L)	Diameter (D)	Pitch (P)
0.5 mm	4 ft	8 ft	3 mm	5 mm
0.6 mm	4 ft	8 ft	3 mm	5 mm
0.7 mm	4 ft	8 ft	3 mm	5 mm
0.8 mm	4 ft	8 ft	3 mm	5 mm
1 mm	4 ft	8 ft	3 mm	5 mm
1 mm	4 ft	8 ft	5 mm	8 mm
1.2 mm	4 ft	8 ft	3 mm	5 mm
1.2 mm	4 ft	8 ft	5 mm	8 mm
1.5 mm	4 ft	8 ft	3 mm	5 mm
1.5 mm	4 ft	8 ft	5 mm	8 mm
2 mm	4 ft	8 ft	3 mm	5 mm
2 mm	4 ft	8 ft	5 mm	8 mm
3 mm	4 ft	8 ft	3 mm	5 mm

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Aluminium Alloy Sheet-Plate (AA 5083 H112/H321) with D.N.V. Cert



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	-	0.40	4.0	0.05	-	-	-	-	-	-
Max	0.40	0.40	0.10	1.0	4.9	0.25	0.25	0.15	-	0.05	0.15	Balance

Applications

Shipbuilding, Boiler Making, Chemical Industry and Cryogenics, Welded Structures, Structural Base Plate, Transport & Conveyor Technology, Electronic Industry, Mechanical Engineering Industry, Precision Engineering.

Typical Physical Properties

Density g/cm³ : 2.66
 Melting range °C : 580 - 640
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.9
 Modulus of elasticity MPa(*) : 71 000
 Thermal conductivity (0 to 100 °C) - W/m °C : O/H32 Temper: 120
 Resistivity at 20 °C - μΩ cm : O/H32 Temper: 6.0
 Specific heat (0 to 100 °C) J/kg °C : 945
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
2 mm	4 ft	8/12 ft
2.5 mm	4 ft	8/12 ft
3 mm	4 ft	8/12 ft
4 mm	4 ft	8/12 ft
4.5 mm	4 ft	8/12 ft
3/16 "	4 ft	8/12 ft
5 mm	4 ft	8/12 ft
6 mm	4 ft	8/12 ft
1/4 "	4 ft	8/12 ft
7 mm	4 ft	8/12 ft
8 mm	4 ft	8/12 ft
9 mm	4 ft	8/12 ft
3/8 "	4 ft	8/12 ft
10 mm	4 ft	8/12 ft
12 mm	4 ft	8/12 ft
1/2 "	4 ft	8/12 ft
15 mm	4 ft	8/12 ft
16 mm	4 ft	8/12 ft
19 mm	4 ft	8/12 ft
20 mm	4 ft	8/12 ft

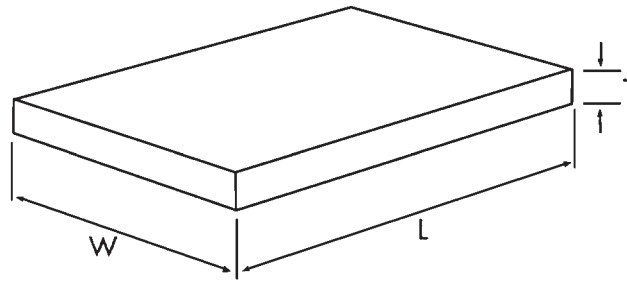
Thickness (T)	Width (W)	Length (L)
7/8 "	4 ft	8/12 ft
25 mm	4 ft	8/12 ft
1 "	4 ft	8/12 ft
28 mm	4 ft	8/12 ft
30 mm	4 ft	8/12 ft
1.1/4 "	4 ft	8/12 ft
35 mm	4 ft	8/12 ft
1.1/2 "	4 ft	8/12 ft
40 mm	4 ft	8/12 ft
1.3/4 "	4 ft	8/12 ft
50 mm	4 ft	8/12 ft
2 "	4 ft	8/12 ft
60 mm	4 ft	8/12 ft
2.1/2 "	4 ft	8/12 ft
65 mm	4 ft	8/12 ft
70 mm	4 ft	8/12 ft
3 "	4 ft	8/12 ft
4 "	4 ft	8/12 ft
5 "	4 ft	8/12 ft

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Aluminium Alloy Sheet-Plate (AA 5083 H112/H321) With D.N.V. Cert



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	-	0.40	4.0	0.05	-	-	-	-	-	-
Max	0.40	0.40	0.10	1.0	4.9	0.25	0.25	0.15	-	0.05	0.15	Balance

Applications

Shipbuilding, Boiler Making, Chemical Industry and Cryogenics, Welded Structures, Structural Base Plate, Transport & Conveyor Technology, Electronic Industry, Mechanical Engineering Industry, Precision Engineering.

Typical Physical Properties

Density g/cm³ : 2.66
 Melting range °C : 580 - 640
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.9
 Modulus of elasticity MPa(*) : 71 000
 Thermal conductivity (0 to 100 °C) - W/m °C : O/H32 Temper: 120
 Resistivity at 20 °C - μΩ cm : O/H32 Temper: 6.0
 Specific heat (0 to 100 °C) J/kg °C : 945
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
3 mm	1.5 m	6 m
4 mm	1.5 m	6 m
5 mm	1.5 m	6 m
6 mm	1.5 m	6 m
8 mm	1.5 m	6 m
9 mm	1.5 m	6 m
10 mm	1.5 m	6 m
12 mm	1.5 m	6 m
16 mm	1.5 m	6 m
20 mm	1.5 m	6 m
25.5 mm	1.5 m	6 m

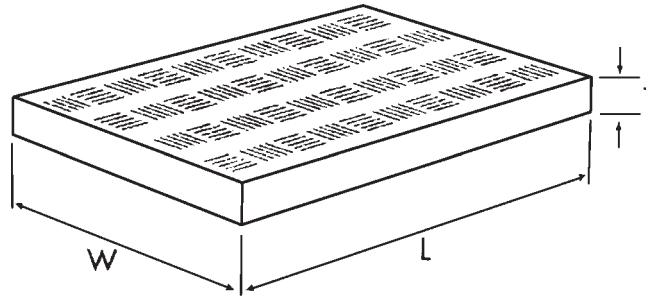
Thickness (T)	Width (W)	Length (L)
3 mm	2 m	6 m
4 mm	2 m	6 m
5 mm	2 m	6 m
6 mm	2 m	6 m
7 mm	2 m	6 m
8 mm	2 m	6 m
10 mm	2 m	6 m
12 mm	2 m	6 m
16 mm	2 m	6 m
20 mm	2 m	6 m

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Aluminium Alloy Checkered Plate (AA 5754 / 5 Bar Pattern)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	-	-	2.6	-	-	-	Mn + Cr =	-	-	-
Max	0.40	0.40	0.10	0.50	3.6	0.30	0.20	0.15	0.10 - 0.6	0.05	0.15	Balance

Applications

Abrasion for Lifts, Trucks and Flooring,
Decorative Panels, Chemical Industry,
Refinery Industry, Metal Staircase,
Structural Staircase, General Sheet
Fabrication, Equipment Manufacturing.

Typical Physical Properties

Density g/cm³ : 2.67
 Melting range °C : 590 - 645
 Coefficient of linear expansion
 (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.8
 Modulus of elasticity MPa^(*) : 70 000
 Thermal conductivity
 (0 to 100 °C) - W/m °C : O/H34 Temper: 132
 Resistivity at 20 °C - μΩ cm : O/H34 Temper: 5.3
 Specific heat (0 to 100 °C)
 J/kg °C : 945
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

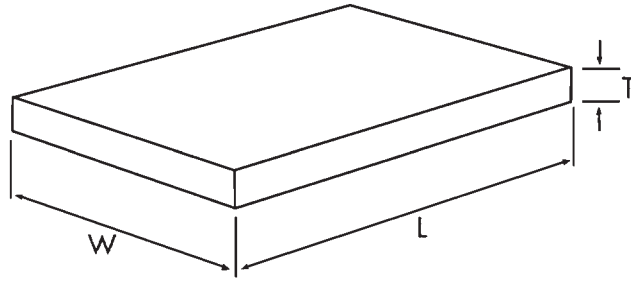
Thickness (T)	Width (W)	Length (L)
3 mm	4/5 ft	8/12 ft
4.5 mm	4/5 ft	8/12 ft
6 mm	4/5 ft	8/12 ft
6.35 mm	4/5 ft	8/12 ft

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Aluminium Econ-O-Plate (AA 6061 T6/T6511)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Processing-Machinery, Electronic Engineering, Semi-Conductor, Equipment Manufacturing, Structural Base Plate, Aircraft Fittings, Camera Parts, Mechanical Engineering, Jig & Fixtures, Material Handling, Precision Engineering, Construction Industry.

Typical Physical Properties

Tensile strength Ultimate (KSI) 38 to 42
 Yield (KSI) 35 to 38
 Elongation³ Percent Min. in 2 inch or 4D⁴ 8 to 10
 Typical Brinell Hardness (500 kg Load/ 10mm ball) 95
 Typical Ultimate Shearing Strength (KSI) 30
 Longitudinal Direction Min Ultimate (PSI) 38,000
 Min Yield (PSI) 35,000
 Specifications ASTM B 221 ASME SB 221

Thickness (T)	Width (W)	Length (L)
3/8 "	8 "	12 ft
3/8 "	10 "	12 ft
3/8 "	12 "	12 ft
1/2 "	8 "	12 ft
1/2 "	10 "	12 ft
1/2 "	12 "	12 ft
5/8 "	8 "	12 ft
5/8 "	10 "	12 ft
5/8 "	12 "	12 ft
3/4 "	8 "	12 ft
3/4 "	10 "	12 ft
3/4 "	12 "	12 ft

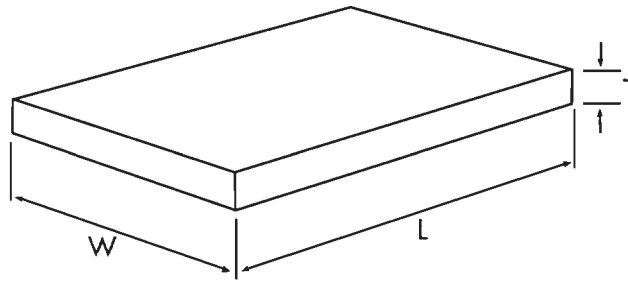
Thickness (T)	Width (W)	Length (L)
1 "	19 "	12 ft
1.1/4 "	18 "	12 ft
1.1/2 "	18 "	12 ft
1.3/4 "	18 "	12 ft
2 "	16 "	12 ft
2.1/4 "	16 "	12 ft
2.1/2 "	16 "	12 ft
2.3/4 "	16 "	12 ft
3 "	16 "	12 ft
3.1/4 "	16 "	12 ft
3.1/2 "	14 "	12 ft
4 "	16 "	12 ft

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Aluminium Alloy Sheet-Plate (AA 6061 T6/T651)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Processing-Machinery, Electronic Engineering, Disc Drive Industry, Semi-Conductor Equipment manufacturing, Structural Base Plate, Aircraft Fittings, Camera Parts, Mechanical Engineering, General Jig & Fixture, Material Handling, Precision Engineering, Construction Industry.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa(*) : 69 500
 Thermal conductivity (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C) J/kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
1 mm	4 ft	8/12 ft
1.5 mm	4 ft	8/12 ft
2.0 mm	4 ft	8/12 ft
2.5 mm	4 ft	8/12 ft
3 mm	4 ft	8/12 ft
1/8 "	4 ft	8/12 ft
4.06 mm	4 ft	8/12 ft
3/16 "	4 ft	8/12 ft
5 mm	4 ft	8/12 ft
6 mm	4 ft	8/12 ft
1/4 "	4 ft	8/12 ft
8 mm	4 ft	8/12 ft
9 mm	4 ft	8/12 ft
3/8 "	4 ft	8/12 ft
10 mm	4 ft	8/12 ft

Thickness (T)	Width (W)	Length (L)
12 mm	4 ft	8/12 ft
1/2 "	4 ft	8/12 ft
14 mm	4 ft	8/12 ft
15 mm	4 ft	8/12 ft
5/8 "	4 ft	8/12 ft
16 mm	4 ft	8/12 ft
3/4 "	4 ft	8/12 ft
20 mm	4 ft	8/12 ft
7/8 "	4 ft	8/12 ft
1 "	4 ft	8/12 ft
1.1/8 "	4 ft	8/12 ft
30 mm	4 ft	8/12 ft
1.1/4 "	4 ft	8/12 ft
35 mm	4 ft	8/12 ft
1.1/2 "	4 ft	8/12 ft

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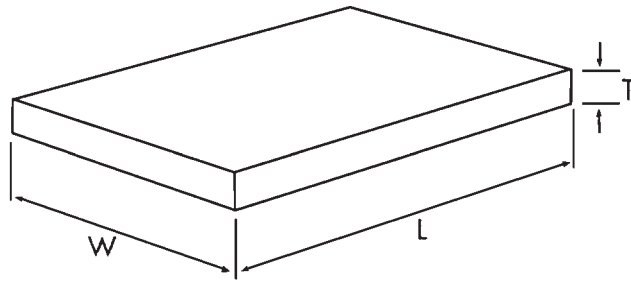
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cont'

Aluminium Alloy Sheet-Plate (AA 6061 T6/T651)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	1.50	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Processing-
Machinery, Electronic Engineering, Disc
Drive Industry, Semi-Conductor
Equipment manufacturing, Structural Base
Plate, Aircraft Fittings, Camera Parts,
Mechanical Engineering, General Jig &
Fixture, Material Handling, Precision
Engineering, Construction Industry.

Typical Physical Properties

Density g/cm ³	:	2.70
Melting range °C	:	575 - 650
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	23.6
Modulus of elasticity MPa ^(*)	:	69 500
Thermal conductivity (0 to 100 °C) - W/m °C	:	T6 Temper: 167
Resistivity at 20 °C - μΩ cm	:	T6 Temper: 4.0
Specific heat (0 to 100 °C) J/kg °C	:	940
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Thickness (T)	Width (W)	Length (L)
1.3/4 "	4 ft	8/12 ft
2 "	4 ft	8/12 ft
2.1/4 "	4 ft	8/12 ft
2.1/2 "	4 ft	8/12 ft
2.3/4 "	4 ft	8/12 ft
3 "	4 ft	8/12 ft
3.1/2 "	4 ft	8/12 ft

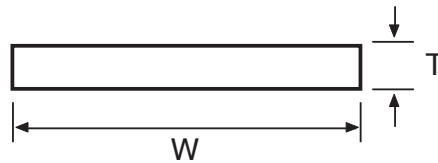
Thickness (T)	Width (W)	Length (L)
4 "	4 ft	8/12 ft
4.1/2 "	4 ft	8/12 ft
5 "	4 ft	8/12 ft
5.1/2 "	4 ft	8/12 ft
6 "	4 ft	8/12 ft
7 "	4 ft	8/12 ft
8 "	4 ft	8/12 ft
10 "	4 ft	8/12 ft

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Aluminium Alloy Flat Bar (AA 6061 T6)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Processsing-
Machinery, Electronic Engineering, Disc
Drive Industry, Semi-conductor
Equipment Manufacturing, Structural
Base Plate, Aircraft Fittings, Camera
Parts, Mechanical Engineering, General
Jig & Fixture, Material Handling,
Precision Engineering, Construction
Industry

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion
 (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity Mpa^(*) : 69 500
 Thermal conductivity
 (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C)
 J/kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
1/8 "	3/8 "	16 ft
	1/2 "	16 ft
	5/8 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
	8 "	16 ft

Thickness (T)	Width (W)	Length (L)
4.5 mm	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
3/16 "	3/8 "	16 ft
	1/2 "	16 ft
	5/8 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft

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cont' **Aluminium Alloy Flat Bar (AA 6061 T6)**
 (refer to page 24 for Technical Specification)



Thickness (T)	Width (W)	Length (L)
3/16 "	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
6 mm	1.1/4 "	16 ft
	1.1/2 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
1/4 "	5/16 "	16 ft
	3/8 "	16 ft
	1/2 "	16 ft
	5/8 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.3/8 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
6 "	16 ft	
5/16 "	1/2 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.1/2 "	16 ft

Thickness (T)	Width (W)	Length (L)
5/16 "	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
3/8 "	1/2 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
6 "	16 ft	
12 mm	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
1/2 "	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
5 "	16 ft	
6 "	16 ft	

.../ cont on page 26

cont' Aluminium Alloy Flat Bar (AA 6061 T6)
(refer to page 24 for Technical Specification)



Thickness (T)	Width (W)	Length (L)
5/8 "	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
	8 "	16 ft
	3/4 "	1 "
1.1/4 "		16 ft
1.1/2 "		16 ft
1.3/4 "		16 ft
2 "		16 ft
2.1/2 "		16 ft
3 "		16 ft
3.1/2 "		16 ft
4 "		16 ft
5 "		16 ft
6 "	16 ft	
1 "	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
8 "	16 ft	
1.1/4 "	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft

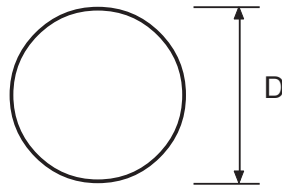
Thickness (T)	Width (W)	Length (L)
1.1/2 "	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
1.3/4 "	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
2 "	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
	8 "	16 ft
	2.1/2 "	3 "
3.1/2 "		16 ft
4 "		16 ft
5 "		16 ft
6 "		16 ft
3 "	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	6 "	16 ft
	8 "	16 ft

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Aluminium Alloy Round Rod (AA 6061 T6/T651)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Valve Seats, Seal Rings, Couplings,
 Camera Lens, Electrical-Connectors,
 Magneto Parts, Brake Pistons, Retaining
 Rings, Ball Valve Seats, Bearing Cages,
 Sockets, Clamp Rings, Bearings,
 Distributor Valves, High Heat Insulator
 Bushings, Lantern Rings.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion
 (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa(*) : 69 500
 Thermal conductivity
 (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C)
 J/kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Diameter (D)	Length (L)
3/16 "	16 ft
6 mm	16 ft
1/4 "	16 ft
5/16 "	16 ft
3/8 "	16 ft
10 mm	16 ft
12 mm	16 ft
1/2 "	16 ft
5/8 "	16 ft
3/4 "	16 ft
7/8 "	16 ft
1 "	16 ft
1.1/8 "	16 ft
1.1/4 "	16 ft
1.3/8 "	16 ft
1.1/2 "	16 ft
1.5/8 "	16 ft

Diameter (D)	Length (L)
1.3/4 "	16 ft
1.7/8 "	16 ft
2 "	16 ft
2.1/8 "	16 ft
2.1/4 "	16 ft
2.3/8 "	16 ft
2.1/2 "	16 ft
2.3/4 "	16 ft
3 "	16 ft
3.1/4 "	16 ft
3.1/2 "	16 ft
93.5 mm	16 ft
3.3/4 "	16 ft
4 "	16 ft
4.1/4 "	16 ft
4.1/2 "	16 ft
4.3/4 "	16 ft

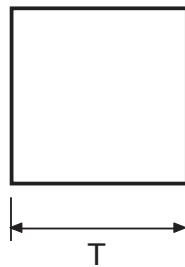
Diameter (D)	Length (L)
5 "	12 ft
5.1/4 "	12 ft
5.1/2 "	12 ft
5.3/4 "	12 ft
6 "	12 ft
6.1/2 "	12 ft
7 "	12 ft
7.1/2 "	12 ft
8 "	12 ft
8.1/2 "	12 ft
9 "	12 ft
9.1/2 "	12 ft
10 "	8 ft
10.1/2 "	8 ft
11 "	8 ft
12 "	6 ft

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Aluminium Alloy Square Bar (AA 6061 T6/T651)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Processing-Machinery, Electronic Industry, Disc Drive Industry, Semi-Conductor Equipment Manufacturing, Structural Base Plate, Aircraft Fittings, Camera Parts, Mechanical Engineering, Jig & Fixtures, Precision Engineering, Construction Industry.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa^(*) : 69 500
 Thermal conductivity (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C) J/kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Length (L)
1/4 "	16 ft
5/16 "	16 ft
3/8 "	16 ft
10 mm	16 ft
12 mm	16 ft
1/2 "	16 ft
5/8 "	16 ft
3/4 "	16 ft
7/8 "	16 ft
1 "	16 ft
1.1/4 "	16 ft
1.1/2 "	16 ft
1.3/4 "	16 ft
2 "	16 ft

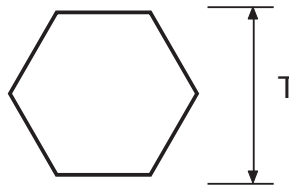
Thickness (T)	Length (L)
2.1/4 "	16 ft
2.1/2 "	16 ft
2.3/4 "	16 ft
3 "	16 ft
3.1/4 "	16 ft
3.1/2 "	16 ft
3.3/4 "	16 ft
4 "	16 ft
4.1/2 "	16 ft
5 "	12 ft
6 "	12 ft
7 "	12 ft
8 "	12 ft

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Aluminium Alloy Hexagon Bar (AA 6061 T6)



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Household Appliances, Electrical Industry,
Precision Parts, Couplings, Valve Seats,
Seal Rings, Retaining Ring, Socket
Bearing Cages, Bearings, Magneto Parts,
High Heat Insulator Bushings.

Typical Physical Properties

Density g/cm ³	:	2.70
Melting range °C	:	575 - 650
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	23.6
Modulus of elasticity MPa ^(*)	:	69 500
Thermal conductivity (0 to 100 °C) - W/m °C	:	T6 Temper: 167
Resistivity at 20 °C - μΩ cm	:	T6 Temper: 4.0
Specific heat (0 to 100 °C) J/kg °C	:	940
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Thickness (T)	Length (L)
1/4 "	16 ft
5/16 "	16 ft
3/8 "	16 ft
7/16 "	16 ft
1/2 "	16 ft
9/16 "	16 ft
5/8 "	16 ft
3/4 "	16 ft

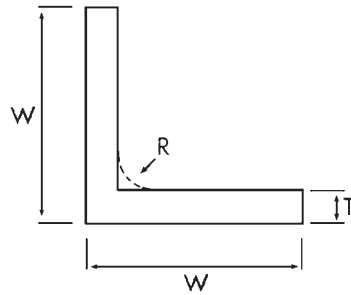
Thickness (T)	Length (L)
7/8 "	16 ft
1 "	16 ft
1.1/8 "	16 ft
1.1/4 "	16 ft
1.1/2 "	16 ft
1.3/4 "	16 ft
2 "	16 ft

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Aluminium Alloy Equal Angle Bar (AA 6061 T6)



Chemical Composition

According to BS EN573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Processing Machinery, Electrical Engineering, Production Material Handling, Construction Industry, Rail Guides, Equipment Manufacturing, Automation Assembly, Packaging Machinery, Transport & Conveyor.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa(*) : 69 500
 Thermal conductivity (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C) J/kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
2 mm	1/2 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/2 "	16 ft
	2 "	16 ft
3 mm	1/2 "	16 ft
	5/8 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
4.5 mm	4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
4 "	16 ft	

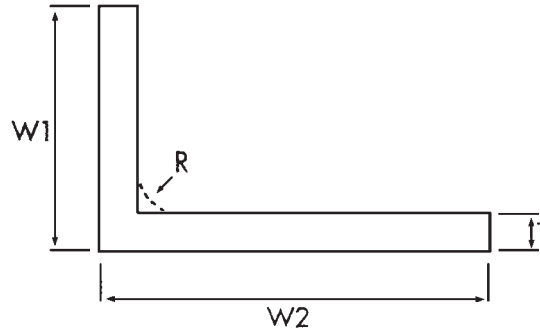
Thickness (T)	Width (W)	Length (L)
6 mm	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
8 mm	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	2 "	16 ft
9 mm	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
12 mm	3 "	16 ft
	4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
12 mm	3.1/2 "	16 ft
	4 "	16 ft
	4 "	16 ft

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Aluminium Alloy Unequal Bar (AA 6061 T6)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automatic Assembly, Electronic Industry, Disc Drive Industry, Semi-Conductor, Equipment Manufacturing, Structural Base Plate, Aircraft Fittings, Camera Parts, Mechanical Engineering, Jig & Fixture, Production Material Handling.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa(*) : 69 500
 Thermal Conductivity (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C) J/Kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W1)	Width (W2)	Length (L)	
3 mm	1/2 "	1 "	16 ft	
	3/4 "	1 "	16 ft	
	3/4 "	1.1/2 "	16 ft	
	1 "	1.1/2 "	16 ft	
	1 "	2 "	16 ft	
	1 "	3 "	16 ft	
	1 "	4 "	16 ft	
	1.1/2 "	2 "	16 ft	
	1.1/2 "	2.1/2 "	16 ft	
	1.1/2 "	3 "	16 ft	
	1.1/2 "	4 "	16 ft	
	2 "	2.1/2 "	16 ft	
	2 "	3 "	16 ft	
	2 "	4 "	16 ft	
	4.5 mm	1 "	2 "	16 ft
		1 "	3 "	16 ft
1.1/2 "		2 "	16 ft	
1.1/2 "		2.1/2 "	16 ft	
1.1/2 "		3 "	16 ft	
1.1/2 "		4 "	16 ft	
2 "		2.1/2 "	16 ft	

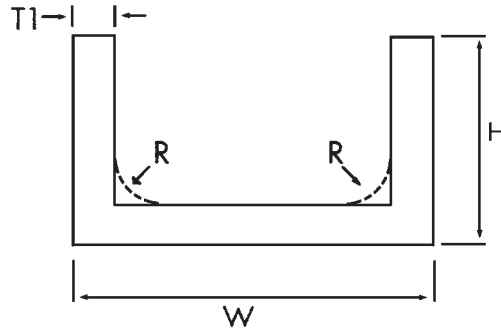
Thickness (T)	Width (W1)	Width (W2)	Length (L)
4.5 mm	3 "	3 "	16 ft
	4 "	4 "	16 ft
6 mm	1 "	2 "	16 ft
	1 "	3 "	16 ft
	1.1/2 "	2 "	16 ft
	1.1/2 "	2.1/2 "	16 ft
	1.1/2 "	3 "	16 ft
	2 "	2.1/2 "	16 ft
	2 "	3 "	16 ft
	2 "	4 "	16 ft
	2 "	6 "	16 ft
	2 "	4 "	16 ft
2 "	5 "	16 ft	
2 "	6 "	16 ft	
3/8 "	2 "	3 "	16 ft
	2 "	4 "	16 ft
	2 "	5 "	16 ft
	2 "	6 "	16 ft
	3 "	4 "	16 ft
	3 "	5 "	16 ft
3 "	6 "	16 ft	

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Aluminium Alloy U Channel (AA 6061 T6)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Processing Machinery, Electronic Engineering, Mechanical Engineering, Production Materials Handling, Construction Industry, Rail Guides, Equipment Manufacturing, Automation Assembly, Packaging Machinery, Transport And Conveyor.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa^(*) : 69 500
 Thermal conductivity (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20 °C - μΩ cm : T6 Temper: 4.0
 Specific heat(0 to 100 °C) J/kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Height (H)	Width (W)	Length (L)
3 mm	1 "	1 "	16 ft
	1.1/4 "	1.1/4 "	16 ft
	1.1/2 "	1.1/2 "	16 ft
	2 "	2 "	16 ft
	3/4 "	1.1/2 "	16 ft
	1 "	2 "	16 ft
	1 "	3 "	16 ft
	1 "	4 "	16 ft
	1.1/2 "	3 "	16 ft
	2 "	4 "	16 ft

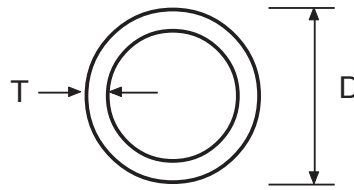
Thickness (T)	Height (H)	Width (W)	Length (L)
6 mm	1 "	2 "	16 ft
	1 "	3 "	16 ft
	1 "	4 "	16 ft
	1.1/2 "	3 "	16 ft
	2 "	3 "	16 ft
	2 "	4 "	16 ft
	2 "	5 "	16 ft

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Aluminium Alloy Round Tube (AA 6061 T6)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	Balance
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	

Applications

Valve Seats, Seal Rings, Coupling, Camera Lens, Electrical-Connectors, Magnet Parts, Brake Pistons, Retaining Rings, Ball Valve Seats, Bearing Cages, Sockets, Clamp Rings, Bearings, Distributor Valves, High Heat Insulator, Lantern Rings

Typical Physical Properties

Density g/cm ³	:	2.70
Melting range °C	:	575 - 650
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	23.6
Modulus of elasticity MPa ^(*)	:	69 500
Thermal conductivity (0 to 100 °C) - W/m °C	:	T6 Temper: 167
Resistivity at 20 °C - μΩ cm	:	T6 Temper: 4.0
Specific heat (0 to 100 °C) J/kg °C	:	940
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Thickness (T)	Diameter (D)	Length (L)
3 mm	1/2 "	16 ft
	5/8 "	16 ft
	3/4 "	16 ft
	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	3.1/2 "	16 ft
	4 "	16 ft
	5 "	16 ft
	4.5 mm	1 "
1.1/4 "		16 ft
1.1/2 "		16 ft
1.3/4 "		16 ft
2 "		16 ft
2.1/2 "		16 ft
3 "		16 ft
3.1/2 "		16 ft
4 "		16 ft
6 mm		1 "
1.1/4 "	16 ft	
1.1/2 "	16 ft	
1.3/4 "	16 ft	

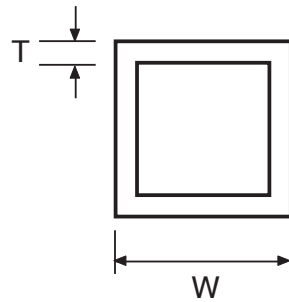
Thickness (T)	Diameter (D)	Length (L)	
6 mm	2 "	16 ft	
	2.1/2 "	16 ft	
	3 "	16 ft	
	3.1/2 "	16 ft	
	4 "	16 ft	
	4.1/2 "	16 ft	
	5 "	16 ft	
	5.1/2 "	16 ft	
	6 "	16 ft	
	3/8 "	2 "	16 ft
		2.1/2 "	16 ft
		3.1/2 "	16 ft
		4 "	16 ft
		5 "	16 ft
6 "		16 ft	
1/2 "	1.1/2 "	16 ft	
	2 "	16 ft	
	2.1/2 "	16 ft	
	3 "	16 ft	
	3.1/2 "	16 ft	
	4 "	16 ft	
	4.1/2 "	16 ft	
	5 "	16 ft	
	5.1/2 "	16 ft	
	6.1/2 "	16 ft	

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Aluminium Alloy Square Tube (AA 6061 T6)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Electrical Engineering, Packaging Machinery, Construction Industry, Mechanical Engineering, Precision Engineering, Material Handling, Bearing Cage, Hand Rail Tubing, Connectors, Distributor Valves.

Typical Physical Properties

Density g/cm³ : 2.70
 Melting range °C : 575 - 650
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.6
 Modulus of elasticity MPa^(*) : 69 500
 Thermal Conductivity (0 to 100 °C) - W/m °C : T6 Temper: 167
 Resistivity at 20° C - μΩ cm : T6 Temper: 4.0
 Specific heat (0 to 100 °C) J/Kg °C : 940
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Thickness (T)	Width (W)	Length (L)
2 mm	1 "	16 ft
	1.1/4 "	16 ft
	1.1/2 "	16 ft
	2 "	16 ft
	3 "	16 ft
	4 "	16 ft
	3 mm	1/2 "
3/4 "		16 ft
1 "		16 ft
1.1/4 "		16 ft
1.1/2 "		16 ft
1.3/4 "		16 ft
2 "		16 ft
2.1/2 "		16 ft
3 "		16 ft
4 "		16 ft

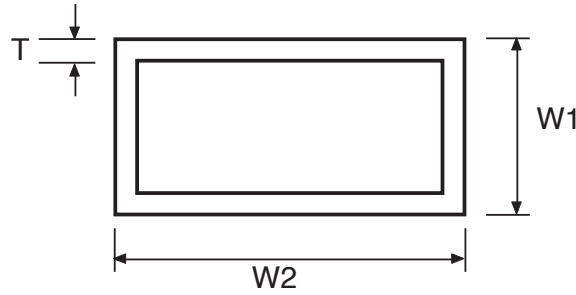
Thickness (T)	Width (W)	Length (L)
4.5 mm	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
6 mm	1.1/2 "	16 ft
	1.3/4 "	16 ft
	2 "	16 ft
	2.1/2 "	16 ft
	3 "	16 ft
	4 "	16 ft
5 "	16 ft	
6 "	16 ft	

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Aluminium Alloy Rectangular Tube (AA 6061 T6)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	0.40	-	0.15	-	0.8	0.04	-	-	-	-	-	-
Max	0.8	0.7	0.40	0.15	1.2	0.35	0.25	0.15	-	0.05	0.15	Balance

Applications

Automation Assembly, Electrical Engineering, Packaging Machinery, Construction Industry, Mechanical Engineering, Precision Engineering, Material Handling, Bearing Cage, Hand Rail Tubing, Connectors, Distributor Valves.

Typical Physical Properties

Density g/cm ³	:	2.70
Melting range °C	:	575 - 650
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	23.6
Modulus of elasticity MPa ^(*)	:	69 500
Thermal Conductivity (0 to 100 °C) - W/m °C	:	T6 Temper: 167
Resistivity at 20 °C - μΩ cm	:	T6 Temper: 4.0
Specific heat (0 to 100 °C) J/Kg °C	:	940
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Thickness (T)	Width (W1)	Width (W2)	Length (L)
2 mm	1/2 "	2 "	16 ft
	3/4 "	1.1/2 "	16 ft
	1 "	2 "	16 ft
	1.1/2 "	3 "	16 ft
	2 "	3 "	16 ft
	2 "	4 "	16 ft
	3 mm	1 "	1.1/2 "
1 "		2 "	16 ft
1 "		2.1/2 "	16 ft
1 "		3 "	16 ft
1 "		4 "	16 ft
1.1/2 "		2 "	16 ft
1.1/2 "		3 "	16 ft
1.1/2 "		4 "	16 ft

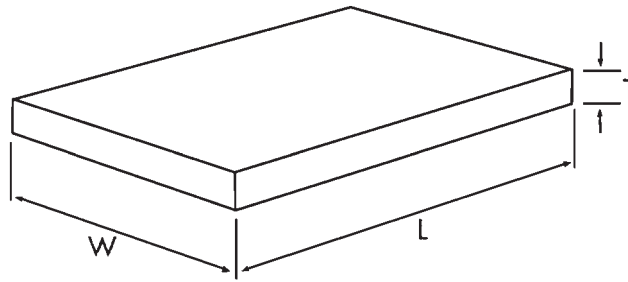
Thickness (T)	Width (W1)	Width (W2)	Length (L)
3 mm	2 "	3 "	16 ft
	2 "	4 "	16 ft
	2 "	5 "	16 ft
	2 "	6 "	16 ft
	3 "	4 "	16 ft
	3 "	5 "	16 ft
	3 "	6 "	16 ft
4.5 mm	1.1/2 "	3 "	16 ft
	2 "	3 "	16 ft
	2 "	4 "	16 ft
6 mm	3 "	4 "	16 ft
	2 "	3 "	16 ft
	2 "	4 "	16 ft

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Aluminium Alloy Sheet – Plate (AA 7075 T6/T651)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	1.2	-	2.1	0.18	5.1	-	Zr + Ti	-	-	-
Max	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.25	0.05	0.15	Balance

Applications

Aircraft Fittings, Gears and Shafts, Meter Shafts and Gears, Missile Parts, Military Equipment, Defense Industry, Machine Buildings, Precision Engineering, Structural Aircraft Parts.

Typical Physical Properties

Density g/cm ³	:	2.80
Melting range °C	:	475 - 630
Coefficient of linear expansion (0 to 100 °C) - °C ⁻¹ x 10 ⁶	:	23.5
Modulus of elasticity MPa ^(*)	:	72 000
Thermal Conductivity (0 to 100 °C) - W/m °C	:	T6 Temper: 130
Resistivity at 20 °C - μΩ cm	:	T6 Temper: 5.2
Specific heat (0 to 100 °C) J/Kg °C	:	915
1 MPa = 1 N/mm ²		
(*) Average of tension and compression moduli		

Thickness (T)	Width (W)	Length (L)
1/8 "	4 ft	8 ft
3/16 "	4 ft	8 ft
1/4 "	4 ft	8 ft
3/8 "	4 ft	8 ft
1/2 "	4 ft	8 ft
5/8 "	4 ft	8 ft
3/4 "	4 ft	8 ft
1 "	4 ft	8 ft
1.1/4 "	4 ft	8 ft
1.1/2 "	4 ft	8 ft
1.3/4 "	4 ft	8 ft

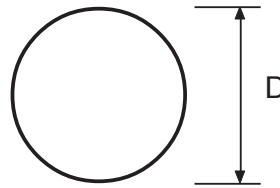
Thickness (T)	Width (W)	Length (L)
2 "	4 ft	8 ft
2.1/2 "	4 ft	8 ft
3 "	4 ft	8 ft
3.1/2 "	4 ft	8 ft
4 "	4 ft	8 ft
5 "	4 ft	8 ft
5.1/2 "	4 ft	8 ft
6 "	4 ft	8 ft

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Aluminium Alloy Round Rod (AA 7075 T6/ T651)



Chemical Composition

According to BS EN 573-1

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	-	Other		Alu
										Each	Total	
Min	-	-	1.2	-	2.1	0.18	5.1	-	Zr + Ti	-	-	-
Max	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.25	0.05	0.15	Balance

Applications

Aircraft Fittings, Gears and Shafts, Clock Parts, Rivets, Sockets, Hydraulics Valve, Computer Parts, Couplings, Missile Parts, Ammunitions Parts, Pistons, Equipment Components, Precision Engineering.

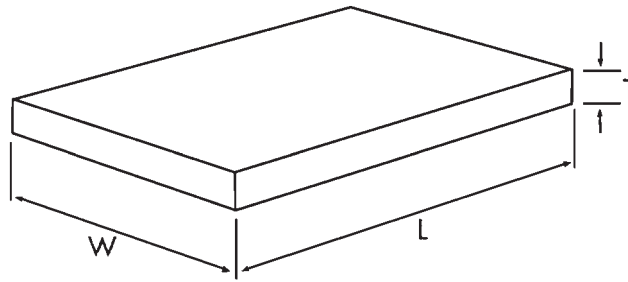
Typical Physical Properties

Density g/cm³ : 2.80
 Melting range °C : 475 - 630
 Coefficient of linear expansion (0 to 100 °C) - °C⁻¹ x 10⁶ : 23.5
 Modulus of elasticity MPa(*) : 72 000
 Thermal Conductivity (0 to 100 °C) - W/m °C : T6 Temper: 130
 Resistivity at 20 °C - μΩ cm : T6 Temper: 5.2
 Specific heat (0 to 100 °C) J/Kg °C : 915
 1 MPa = 1 N/mm²
 (*) Average of tension and compression moduli

Diameter (D)	Length (L)
1/8 "	16 ft
1/4 "	16 ft
3/8 "	16 ft
1/2 "	16 ft
5/8 "	16 ft
3/4 "	16 ft
7/8 "	16 ft
1 "	16 ft
1.1/4 "	16 ft

Diameter (D)	Length (L)
1.1/2 "	16 ft
1.3/4 "	16 ft
2 "	16 ft
2.1/2 "	16 ft
3 "	16 ft
3.1/2 "	16 ft
4 "	16 ft
5 "	16 ft
6 "	16 ft

Aluminium Alca Plus Cast Plate



Chemical Composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ni	-	Other		Alu
										Each	Total	
-	0.70	0.70	1.20	0.20	1.70	0.10	3.80	-	-	0.05	0.10	Balance

Applications

Disk Drive Bases, Electronics, Machining Fixtures, Mounting Plate, Template, Compression Moulds, Injection Moulds, Packaging Components, Structural Base Plate.

Typical Physical Properties

	Minimum Design	Typical
Tensile Strength*	19,000 psi	26,000 psi
Yield Strength*	11,000 psi	15,000 psi
Elongation in 2", %*		
0.250" to 1.000" Thickness, incl.	3	7
>1.000" to 2.000" Thickness, incl.	1.5	5
Brinell Hardness		65
Specific Gravity		2.80
Density, lb/cu in.		0.101
Coefficient of Thermal Expansion (Avg./°F) 68-212°F		13.1 x 10 ⁻⁶
(Avg./°F) 68-392°F		13.6 x 10 ⁻⁶
Thermal Conductivity Cal/cm.s °C		0.33
Electrical conductivity (68°F), % IACS		35
Modulus of Elasticity		10.3 x 10 ⁶ psi

**Mechanical properties obtained using test bars cut from plate; not separately cast test bars*

Thickness (T)	Width (W)	Length (L)
1/4 "	4 ft	8 ft
5/16 "	4 ft	8 ft
3/8 "	4 ft	8 ft
1/2 "	4 ft	8 ft
5/8 "	4 ft	8 ft
3/4 "	4 ft	8 ft
7/8 "	4 ft	8 ft
1 "	4 ft	8 ft
1.1/4 "	4 ft	8 ft
1.1/2 "	4 ft	8 ft
1.3/4 "	4 ft	8 ft
2 "	4 ft	8 ft
2.1/4 "	4 ft	8 ft
2.1/2 "	4 ft	8 ft
3 "	4 ft	8 ft
3.1/2 "	4 ft	8 ft
4 "	4 ft	8 ft

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Machining Guidelines of Aluminium

APPLICATIONS OF ALUMINIUM PLATE
for Tools, Moulds, Jigs and Fixtures in the Machine Industry

II. Processing

a) machining	
b) joining	Welding, riveting, screwing work, etc. (see respective aluminium codes of practice and „Metalworking with Aluminium“)
c) forming	Bending and selected deformation by compression are possible to a restricted degree but are rarely utilized for the above applications.

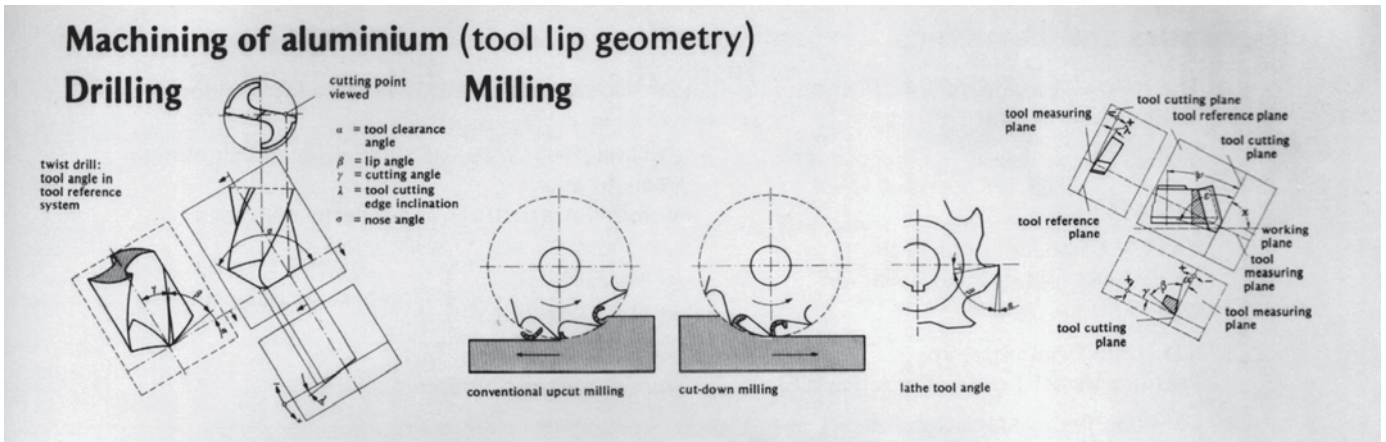
Standard Values

for turning, milling, drilling and cutting of aluminium

Alloys	Cutting conditions	Machining method, cutting tools and surface quality							
		Turning				Milling			
		high-speed steel tool		carbide tool		high-speed steel tool		carbide tool	
		▽	▽▽	▽	▽▽	▽	▽▽	▽	▽▽
non-heat-treatable and heat treatable alloys in soft temper	clearance angle	10 to 7°		12 to 10°		12 to 8°		12 to 8°	
	cutting angle	45 to 35°		35 to 20°		30 to 25°		25 to 20°	
	cutting speed in m/min.	200 to 450	400 to 1000	600 to 1200	to 2400	300 to 600	to 1200	to 2500	to 3000
	advance feed in mm/rev. or mm/tooth	to 1	0,1 to 0,3	0,3 to 0,6	to 0,15	0,1 to 0,5	0,03 to 0,1	0,1 to 0,6	0,03 to 0,1
	depth of cut in mm angle of twist	to 6	to 1	to 6	to 0,5	to 6	to 0,5	to 7	to 0,5
strain-hardened and heat-treated wrought alloy materials	clearance angle	10 to 7°		10 to 8°		10 to 6°		10 to 6°	
	cutting angle	40 to 30°		24 to 10°		25 to 20°		20 to 15°	
	cutting speed in m/min.	100 to 200	200 to 500	150 to 400	250 to 700	150 to 300	250 to 800	300 to 800	500 to 1000
	advance feed in mm/rev. or mm/tooth	0,2 to 0,5	0,05 to 0,25	0,3 to 0,6	0,05 to 0,1	0,1 to 0,5	0,03 to 0,1	0,1 to 0,6	0,03 to 0,1
	depth of cut in mm angle of twist	to 5	to 0,5	to 5	to 0,5	to 6	to 0,5	to 7	to 0,5
						30 - 40°			

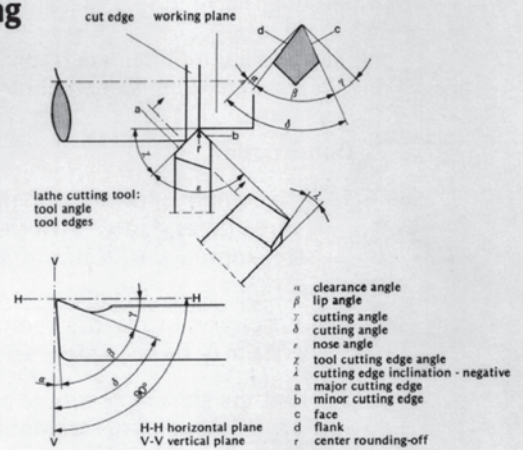
¹⁾ relief grinding angle ²⁾ angle of twist ³⁾ tooth pitch - medium ⁴⁾ tooth pitch - coarse ▽ roughing ▽▽ smoothing or superfinish tooling
For reference values for high-speed processing see also aluminium code of practice „B 2“.

Machining Guidelines of Aluminium

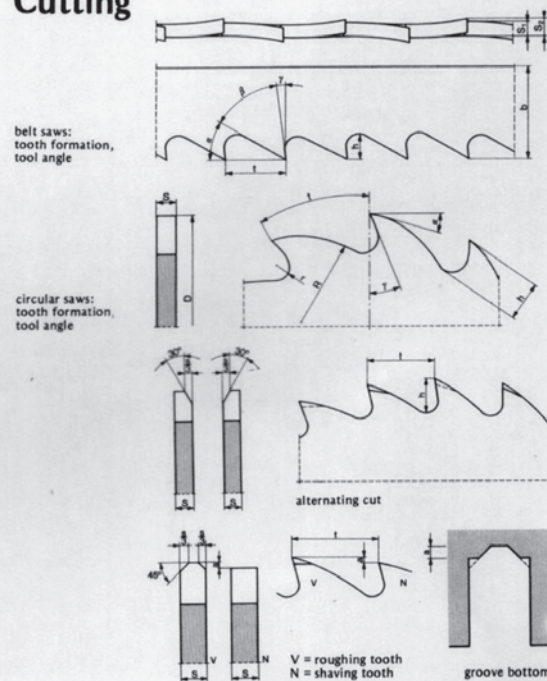


Drilling		Cutting (circular saw)	
high-speed steel tool	carbide tool	high-speed steel tool	carbide tool
17 to 15° ¹⁾	12° ¹⁾	8°	9 to 7°
45 to 30° ²⁾	15 to 10° ²⁾	25°	10°
100 to 120	200 to 300	800 to 2000 ³⁾	to 2500 ⁴⁾
400 to 600 ⁴⁾			
0,02 to 0,50	0,06 to 0,30	to 0,02 ³⁾	to 0,03 ⁴⁾
15° ¹⁾	12° ¹⁾	8°	9 to 7°
35 to 20° ²⁾	15 to 10° ²⁾	25°	8°
80 to 100	100 to 140	300 to 500 ³⁾	to 1500 ⁴⁾
200 to 300 ⁴⁾			
0,02 to 0,50	0,06 to 0,30	to 0,02 ³⁾	to 0,03 ⁴⁾

Turning



Cutting



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Sales Agreement

1. Agreement for sale

The Seller agrees to sell and the Buyer agrees to buy the Goods at the total purchase price stated in the Purchase Order accepted by the Seller and on the terms and conditions set out in the Purchase Order, and the terms and conditions herein which form part of this agreement. Property in, and risk of loss or damage to, the Goods shall pass to the Buyer as soon as the Seller accepts the Buyer's Purchase Order.

2. Payment

The Buyer will pay the Initial Payment (if any) to the Seller on or before the signing of this agreement, and will pay the balance of the total purchase price to the Seller at the address stated (or at such other address as the Seller may specify in writing to the Buyer at the expiry of 30 days from the date of delivery of the goods / acceptance of the Purchase Order by the Seller. Payments by post shall be at the risk of the Buyer.

3. Seller's remedies

The Buyer acknowledges that punctual payment of the balance of the total purchase price is of the essence of this agreement, and that, if the Credit Limit is exceeded and / or if, the Initial Payment or the balance of the total purchase price or any part thereof remains unpaid for more than 7 days after becoming due, the Buyer will be deemed to have repudiated this agreement and:

- 3.1 the full remaining balance of the total purchase price shall immediately become due and payable with interest rate which is 2% above the average prime rate of The Development Bank of Singapore Limited from time to time in force, such interest to accrue from day to day and to run after as well as before any judgement; and
- 3.2 the Seller shall have the option to resell the Goods and on such resale:
 - 3.2.1 this agreement shall be withdrawn, clause 3.1 shall cease to have effect and the Buyer will cease to have any property or interest in the Goods, but notwithstanding such withdrawal, the Seller will be entitled to retain all payments made by the Buyer under this agreement and to recover from the Buyer the amount of any deficiency in the total purchase price shown after resale together with interest and costs as provided below;
 - 3.2.2 the Buyer will at the Buyer's own expense deliver up possession of the Goods to the purchaser at such address within Singapore as the purchaser may require, and on default the Buyer will indemnify the Seller against all loss and expense sustained by the Seller as a result of such default including, but not limited to the amount of any liability the Seller may insure to the purchaser by reason of the Buyer's default; and
 - 3.2.3 except for the payment of any surplus payable to the Buyer pursuant to clause 4 below, all liabilities of the Seller to the Buyer shall be extinguished and the Buyer will have no rights or claims against the Seller of any kind whatsoever under or arising out of this agreement.

4. Proceeds of resale

The proceeds of any resale under clause 3.2 above shall, after deducting the costs and expenses of insurance (if any), storage, transport and resale, be applied in paying to the Seller the unpaid balance of the total purchase price and interest payable under this agreement with all costs incurred by the Seller (including legal costs on a full indemnity basis) in taking steps to enforce payment by the Buyer or to locate and resell the Goods. If such proceeds of sale are insufficient for that purpose, the Buyer will pay to the Seller on demand the amount of the deficiency. If such proceeds of sale exceed the amount to be paid to or retained by the Seller under this clause, the excess shall be paid to the Buyer, but the Seller will be entitled to retain and set off against what would otherwise be due to the Buyer under this clause such sum as in the sole opinion of the Seller necessary to provide the Seller with the Indemnities due to the Seller from the Buyer under this agreement.

5. Insurance

The Buyer will keep the Goods insured in their full replacement value and with Insurers to be approved by the Seller against loss or damage by fire and such other risks (including third party risks) as are usually covered by insurance in the type of business for which the Goods are for the time being used and such further risks as the Seller reasonably requires in making good the damage; or if the Goods are damaged beyond repair in replacing the Goods by other similar Goods to which the terms of this agreement shall apply.

Sales Agreement (con't)

6. Indemnity against third party claims

As an obligation surviving termination of this agreement, the Buyer will indemnify the Seller in respect of any claims made against the Seller and all damages, costs and expenses suffered or incurred by the Seller as a result of a claim made by a third party arising out of the state, condition or use of the Goods, or in any way arising out of the Goods being sold under this agreement.

7. Condition of Goods

It is now mutually agreed that:

- 7.1 The Buyer declares that he has examined the Goods and that they are in every respect satisfactory;
- 7.2 The Seller does not sell the Goods subject to any condition or warranty, express or implied, save those implied by the provisions of the Sale of Goods Act (Cap 393) Section 12 (relating to the title of the Seller to the Goods), so that (without prejudice to the generality of the foregoing) there is excluded:
 - 7.2.1 any condition of fitness of the Goods for any particular purpose;
 - 7.2.2 in cases where the Goods are sold by reference to a description, any condition that the Goods will correspond with the description; or
 - 7.2.3 where the Goods are sold by reference to a sample, any condition that the bulk will correspond with the sample in quality, that the Buyer will have a reasonable opportunity of comparing the bulk with the sample, and that the Goods will be free from any defect rendering them unmerchantable which would not be apparent on reasonable examination of the sample; and
 - 7.2.4 any condition of merchantable quality in respect of the Goods.

8. Notices

Any notice or demand served under this agreement shall be sufficiently served if sent by prepaid letter post or telex to the usual or last known place of business of the addressee, and proof of dispatch shall be conclusive evidence of receipt by the addressee in due course of transmission.

9. Disclosure

The Seller may disclose details of and relating to the transaction evidenced by this agreement to any credit reference agency or any other party at the Seller's discretion, and the Seller may refuse to enter into this agreement without stating a reason.

10. Interpretation and miscellaneous

- 10.1 The clause headings do not form part of this agreement and shall not be taken into account in its construction or interpretation.
- 10.2 Words importing one gender include all other genders and words importing the singular include the plural and vice versa.
- 10.3 References to the Seller shall where the context so admits include the Seller's successors in the title and references to the Goods include all replacements and renewals of the Goods and all accessories and additions to the Goods.
- 10.4 The rights conferred on the Seller under this agreement shall be in addition to, and not in substitution for, any rights conferred on the Seller by the Sale of Goods Act (Cap 393) or at common law.
- 10.5 This agreement contains all the terms agreed between the Seller and the Buyer. The Buyer has not relied upon any representation or warranty by the Seller except as expressly stated or referred to in this agreement. No variation of this agreement shall be effective unless it be in writing and signed by or on behalf of the Seller and the Buyer. The rights of the Seller under this agreement shall not in any way be affected by any time or other indulgence granted by the Seller.
- 10.6 Any reference in this agreement to a statutory provision shall be construed as a reference to that provision as from time to time amended or reenacted.

SUPERFIX®

Superfix is keen to establish a worldwide network of distributors and business partners. We look forward to technical discussions on Aluminium Alloys, sharing of knowledge and expertise, and building up multi-party, beneficial business relationships in an era where society and the world becomes a global village. We are adaptable to changes and embrace Information Technology as a necessary step towards excellence in customer service.

Share our vision. Join us as a business partner. Together, we can be more competitive and reach out more effectively to our customers to serve them better.



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