MACSTEEL®

Data Sheet

ALUMINIUM TREADPLATE | VASTRAP

Description

Aluminium Treadplate is a quality product which combines light weight with high strength. It is extremely hard wearing, does not rust and is non-slip. It ideal for heavy duty flooring surfaces in a wide variety of industrial applications. These include factory floors, loading bays, kick plates, stair treads and vehicle floors.

Our tread patterns in the 5 bar pattern (standard) are integral with the base metal and give positive grip in every direction. Due to the absence of recesses, dirt is prevented from accumulating and is easily washed down with hot water or detergent.

The hygienic and easy-to-clean properties of Aluminium treadplate make it well suited to applications in food processing plants, breweries and dairies.

4017 is noticeably shinier than grade 1050. 4017 is not anodisable and slightly less bendable than 1050. In most applications where anodising is not required 4017 offers a cost per kilogram advantage.

ALLOY 1050

Chemical composition (in weight %)

	Cu	Mg	Si	Fe	Mn	Zn	Ti	% Other Elements	
Max	0.05	0.05	0.25	0.40	0.05	0.07	0.05	0.03 each	0.10 total

Physical properties

Properties	Value	Unit
Density	2.71	g/cm^3
Modulus of elasticity	71	GPa
Modulus of rigidity	26.5	GPa
Melting range	650-660	°C
Specific heat between 10-100°C (283-373K)	0.92	J/gK
Co-efficient of linear expansion between 20-100°C (293-373K)	24×10^{-5}	/K
Thermal conductivity at 25°C (298K)	222	W/mK
Resistivity at 20°C (293K)	0.028×10^{-6}	Ω m

Maximum recommended service temperature

Alloy/ Temper	Proof (MPa)		UTS (MPa)		Elongation percentage in 50mm		Trade height (mm)		Recommended minimum bend radius (90°)
	Min	Max	Min	Max	Min	Max	Min	Max	
1050 H14	75	-	105	145	4%	-	0.6	-	0t

ALLOY 4017

Chemical composition (in weight %)

%	Si	Fe	Cu	Mn	Mg	Zn	% Other Elements	
Min	0.60	-	0.10	0.60	0.10	-		
Max	1.60	0.70	0.50	1.20	0.50	0.20	0.05 each	0.15 total

Physical properties

Properties		Unit
Density at 20°C	2.72	g/cm^3
Melting range	560-640	°C
Thermal capacity	900	J/kg°C
Thermal conductivity	200	W/m°C
Thermal expansion	10^{-5}	/°C
Resistivity at 20°	32	nΩm
Modulus of elasticity	70	GPa
Modulus of rigidity	27	GPa

Mechanical properties

Alloy/ Temper	Proof (MPa)		UTS (MPa)		Elongation percentage in 50mm		Trade height (mm)		Recommended minimum bend radius (90°)
	Min	Max	Min	Max	Min	Max	Min	Max	
4017-H22	55	-	130	170	8%	-	0.6	-	0t

Generic processing attributes of alloy 1050 and 4017

Attribute	Alloy 1050	Alloy 4017
Anodising	Excellent	Not suitable
Brazeability	Excellent	Excellent
Corrosion resistance	Excellent	Excellent
Formability	Excellent	Good
Machinability	Poor	Poor
Surface finish	Standard	Brighter than 1050 tread
Tread pattern	5 Bar	5 Bar
Weldability	Excellent - 4043 filler alloy recommended	Excellent - 4043 filler alloy recommended

Note: treadplate in 1050 and 4017 should NOT be used interchangeably in any fabricated product. The surface finish is different and physical properties are different.

Bending

Thickness (mm)	1.5	1.5 to 3.0	3.0 to 6.0
Min bend radius	1t	1.5t	2t

Welding

1050 and 4017 can be joined using MIG, TIG, LASER welding techniques. It is recommended that 4043 filler alloy is used.