SEALIUM®

Extrusions

Description

This specification describes the properties and characteristics of Sealium® marine grade extrusions, created and delivered by Alcan Marine.
With best advantages specifically for aluminium designers, builders, operators and owners of modern technically advanced light marine crafts, Sealium® extrusions offer new ways to:

- Reduce total costs of metallic hull structure (after assembling),
- Radically improve vessel performance with the best available mechanical and corrosion resistance,
- Reduce weight and increase interior space.

Advantages

Sealium® extrusions combine the best available aluminium alloy for marine applications with optimised section designs.

Sealium® extrusions are to be used when a stronger aluminium structure is required, and whenever weight reduction or increased interior space is crucial.

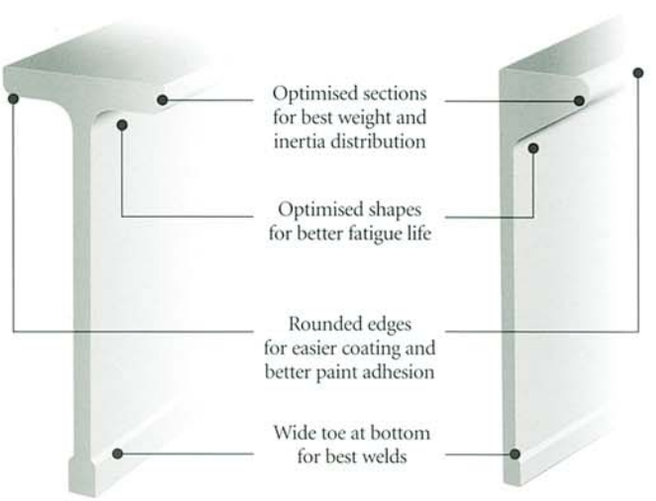
Sealium® extrusions perform best when used with Sealium® sheets and plates to give the best overall structural performance from same alloy construction.

- Best strength available for marine applications (e.g. 26 % higher welded Yield Stress than 6082),
- High corrosion resistance,
- Improved weight reduction,
- Increased interior space,
- Intelligent shapes,
- Improved fatigue behavior,
- Greater scantling flexibility,
- Greater recycling value for the entire Sealium® welded assembly.

Drawing and dimensions

Two types of sections are available:

- Tees and bulb-flats. Various dimensions are available as standard, from 50 mm to 140 mm.
  Further technical information can be downloaded at www.alcan-marine.com
- Shapes and dimensions have been specially designed to offer naval architects and boat builders new perspectives with optimised shapes to provide the best balance between highest section modulus, lowest weight and smallest dimensions.



Any other specific shape may be created on request.

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Extrusions

Comparison study

Better material and more effective section designs bring key advantages as described in the following examples:

not to scale


For same weight: increased strength

- Slightly taller section
- Section modulus is more than doubled !

	standard T6082	T70 Sealium®
Height mm	60	70
Section mm²	516	536
Mass Kg/m	1.412	1.427
Effective section modulus [1] (at bottom) cm³	3.7	8.1

not to scale


For equivalent section modulus at bottom: more interior space

- Reduced height (- 17 %)
- Mass nearly halved (- 44 %)

	standard T6082	T50 Sealium®
Height mm	60	50
Section mm²	516	299
Mass Kg/m	1.412	0.796
Effective section modulus [1] (at bottom) cm³	3.7	3.4

not to scale


For same height: greater scantling flexibility

- Reduced mass (- 22 %)
- Significant increased section modulus (+ 46 %)

	standard T6082	T60 Sealium®
Height mm	60	60
Section mm²	516	402
Mass Kg/m	1.412	1.071
Effective section modulus [1] (at bottom) cm³	3.7	5.4

[1] Effective section modulus is the geometric section modulus with the material strength contribution considered (material strength factored as per DNV $f1$ factor, with 6082 as the reference alloy).

Chemical composition

%	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr	other (max.)
min.				0.7	4.0					each: 0.05
max.	0.25	0.25	0.20	1.0	5.2	0.25	0.40	0.15	0.20	total: 0.15

Remainder: Al.
(Limits are in percent maximum unless stated otherwise).

Mechanical properties

Temper	$Rp_{0.2}$		Rm		A %
	MPa	ksi	MPa	ksi	%
H112 (Minimal)	190	27	310	45	13
H112 (Typical)	230	33	340	49	17

Sealium® extrusions are delivered in the H112 temper.
As information, welded Sealium® shows a $Rp_{0.2}$ minimal value of 145 MPa or 21 ksi to be compared to 115 MPa or 17 ksi for standard 6082 alloy.
This value is considered by the main classification societies.

Reference specification

Alcan Marine specification: Pat PR-001.

Class approval

Sealium® extrusions can be delivered with a certification stamp from one of the major classification societies.

Emirates TEAM NEW ZEALAND
TEAM SUPPLIER

SEAlium®

AFAQ ISO 9001 VERSION 2000

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