



# G.AL<sup>®</sup> DYNAMIC


**MORE ENDURANCE. MORE EFFICIENCY. MORE ALUMINIUM.**

# G.AL® DYNAMIC

The optimized material for applications under dynamic loads – increases the service life up to 40 times.

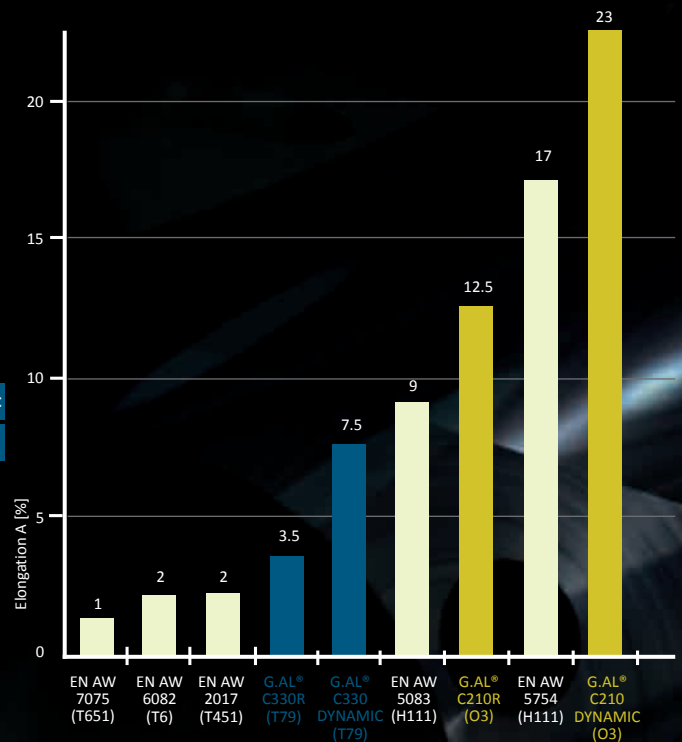
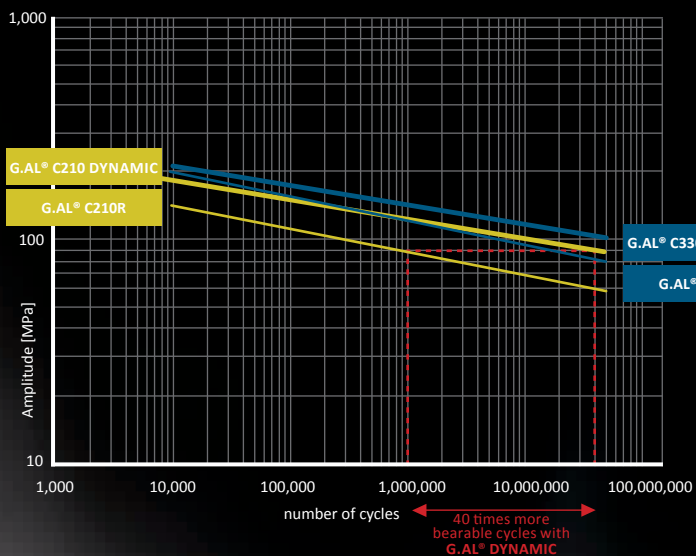
Component failure due to the formation of fatigue cracks in the material is a common problem that has come into the focus of design engineers because of increasing competitive pressures and increasing downtime costs. Cracking most commonly occurs under dynamic loads and is attributed to the microstructure of the material.

Our solution: **G.AL® DYNAMIC!**

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- › Higher long-life endurance strength
  - › 99.9% non-porous
  - › Homogeneous microstructure
  - › Outstanding machinability
  - › Excellent damping characteristics
  - › First-rate polishability
  - › Ideally suited for applications under dynamic loads

**SPECIFIC NOTES**

## Up to 40 times longer component service life!

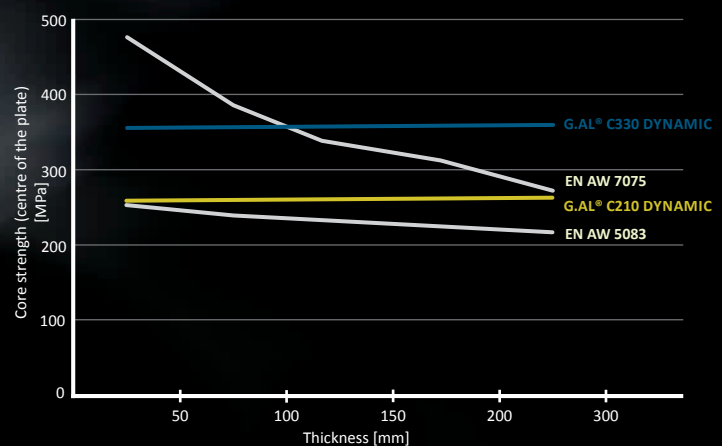


The significantly improved elongation of G.AL® DYNAMIC protects components against cracking.

## Reduction of production times!

Significantly reduced machining times by using G.AL® cast aluminium plates due to the absence of internal stress.

G.AL® DYNAMIC		ALUMINIUM ROLLED PLATES	
✓	Form stability	✗	
✓	Machining time	✗	
✓	Stress relieved	✗	
✓	High degree of machining	✗	



Constant strength characteristics of G.AL® DYNAMIC over the entire cross section of material.

## FIELDS OF APPLICATION

Typical fields of application of **G.AL® DYNAMIC** are, for example, mould making (plastics industry), mechanical engineering and jig making, medical engineering and laser technology.

The product group **G.AL® DYNAMIC** includes two materials:

### G.AL® C210 DYNAMIC

The very good damping characteristics of **G.AL® C210 DYNAMIC** make it ideally suited for applications under dynamic loads.



Control elements in **G.AL® C210 DYNAMIC**

- > Vacuum technology
- > Pneumatics
- > Injection moulds for prototypes
- > Deep-drawing and casting moulds for the plastics industry
- > Foaming and blowing moulds (low pressure)

### G.AL® C330 DYNAMIC

**G.AL® C330 DYNAMIC** with improved strength values is suitable for applications under high dynamic loads. The good thermal conductivity predestines **G.AL® C330 DYNAMIC** for blow moulds and injection moulds.



Hydraulic control elements in **G.AL® C330 DYNAMIC**

- > Vacuum technology
- > Pneumatics and hydraulics
- > Bearing blocks
- > All kinds of gearboxes
- > Tool holders and carriers
- > All kinds of moulds (low and medium pressure)

# Your success is our goal!

## RAISING EFFICIENCY WITH G.AL® DYNAMIC:

- > Increase of component service life and consequently lower downtime costs
- > Reduction of manufacturing costs

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## G.AL® DYNAMIC IN FLUID TECHNOLOGY

A well-known manufacturer of hydraulic control systems for cranes and tractors had problems with leaks in hydraulic components. Besides the failure of the components and the associated costs, the manufacturer was very dissatisfied regarding the machining with a rejection rate of up to 20% during CNC machining. They used the alloy 7075 T7351.

GLEICH Aluminium recommended the use of **G.AL® C330 DYNAMIC**. The first series of tests led to a more than satisfactory result: **G.AL® C330 DYNAMIC** was used immediately in mass production without any further failures in the hydraulic control blocks.

## G.AL® DYNAMIC IN MOULD-MAKING

The Argentine mould-making company Rida de Argentina, a supplier to the automotive and textile industries, tested **G.AL® C330 DYNAMIC** to substitute the high-strength rolled material EN AW 7010. The company constructed an injection mould to manufacture covers for the vehicle interior which should withstand 50,000 cycles. Walter Perez, head of construction describes the result as follows: 'The material **G.AL® C330 DYNAMIC** significantly exceeded our expectations. Now, after approximately 60,000 cycles, no signs of wear of the mould can be seen. Moreover, the production time of the mould was reduced by 40% compared to previously used materials.'

PRODUCT NAME		G.AL® C210 DYNAMIC	G.AL® C330 DYNAMIC
<b>Alloy</b> (according to EN 573-3)	EN AW Chemical symbol Material no. Type	5083 AlMg4,5Mn0,7 3.3547 not heat-treatable	7021 AlZn5,5Mg1,5 heat-treatable
<b>Temper</b>		O3	T79
<b>Surface</b>	Texture Roughness R <sub>a</sub>	six-sides sawn < 15 µm / <0.000591 in.	six-sides sawn < 15 µm / <0.000591 in.
<b>Mechanical Properties<sup>1)</sup></b>			
Yield strength R <sub>p0,2</sub>	[MPa] / [ksi]	115 – 130 / 17 – 19	290 – 330 / 42 – 48
Ultimate tensile strength R <sub>m</sub>	[MPa] / [ksi]	250 – 280 / 36 – 41	350 – 370 / 51 – 54
Elongation A	[%]	18 – 25	5 – 8
Hardness HBW	[2.5/62.5]	75 – 80	110 – 115
<b>Physical Properties<sup>1)</sup></b>			
Density	[g/cm³] / [lbs/cu. in.]	2.66 / 0.096	2.80 / 0.101
Module of elasticity	[GPa] / [ksi · 10³]	70 / 10.2	70 / 10.2
Electrical conductivity	[m/Ω · mm²] / [% IACS]	16 – 18 / 29 – 32	21 – 24 / 38 – 44
Coefficient of thermal expansion	[K <sup>-1</sup> · 10 <sup>-6</sup> ] / [10 <sup>-6</sup> /°F]	23.3 / 13.1	23.0 / 12.9
Thermal conductivity	[W/m · K] / [BTU in/ft²hr°F]	110 – 130 / 64 – 75	125 – 155 / 72 – 90
Specific heat capacity	[J/kg · K] / [BTU/lb°F]	900 / 0.212	875 / 0.206
<b>Processing Characteristics<sup>2)</sup></b>			
Dimensional stability		1	2
Machinability		1 – 2	1
Weldability			
(Gas / TIG / MIG / resistance / EB)		4 / 2 / 2 / 2 / 1	6 / 5 / 2 / 6 / 1
Corrosion resistance			
(seawater / weather / stress cracking)		1 / 1 / 2	4 / 3 / 2
Use at temperatures <sup>3)</sup>			
(max. °C long / short / terms) / (max. °F / long / short / terms)		180 / 280 / 356 / 536	120 / 140 / 248 / 284
Anodising <sup>4)</sup>			
(technical / decorative / hard-)		2 / 4 / 2	3 / 6 / 2
Polishability		2	1
Etching		3 – 4	2
Contact with food (according to EN 602)		yes	no
<b>Tolerances</b>			
Thickness in [mm] / [in.]		≤ 150 mm: -0/+2.5 mm    > 150 mm: -0/+5 mm / ≤ 5.90 in. = -0/+0.1    > 5.90 in. = -0/+0.2	
Sawing tolerance width / length [mm]		Thickness ≤ 150 mm = DIN ISO 2768-1m / Thickness > 150 mm = -0/+5 mm Thickness ≤ 5.90 in. = DIN ISO 27-1m / Thickness > 5.90 in. = -0/+0.2 in.	

1) Typical values at room temperature. 2) Ratings from 1 (very good) to 6 (inapplicable). 3) Without loss of strength after cooling down. 4) No warranty towards optical demands.

## HEADQUARTERS

## SALES INTERNATIONAL

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