

Built for Durability and Style

A Specifier's Guide to Anodised Aluminium Grates



lauxes
GRATES

INTRODUCTION

Due to its light weight, durability and aesthetic appeal, aluminium is a popular material for drainage products. However, if exposed to airborne oxygen and moisture, untreated aluminium may discolour and experience superficial local corrosion.

When exposed to the environment, aluminium naturally forms a thin layer of aluminium oxide, which gives the material its distinctive corrosion resistance. However, when this oxide film comes into contact with other environmental factors, it may deteriorate over time.

When looking for longer-lasting drainage solutions for water waste, builders and homeowners are increasingly choosing anodised aluminium grates. They offer more robust protection for architectural applications and an elegant and sustainable option for drainage systems in showers and bathrooms, balconies and swimming pools.

It is crucial to understand the anodising process, the significance of coating thickness, and the applicable performance standards in order to make the best choice for your next build. In this guide to anodised aluminium grates, we explore these topics and highlight how you can address product durability during the specification process.





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UNDERSTANDING ARCHITECTURAL ANODISING

The electrochemical process of anodising aluminium transforms the metal surface into an attractive, long-lasting, and corrosion-resistant anodic oxide finish. Although other nonferrous metals like titanium and magnesium can also be anodised, aluminium is the ideal material for the process.¹

Unlike paint or plating, this aluminium oxide layer is completely integrated with the underlying aluminium substrate, preventing it from peeling or chipping.² This process yields an extremely hard surface coating.

Compared to untreated aluminium, anodised aluminium exhibits greater resistance to corrosion. The oxide layer shields the metal from reactions with oxygen, water, or other substances that could lead to oxidation or corrosion.

As a result, anodised aluminium products have a longer lifespan and retain their quality and aesthetic appeal.

In addition to having an extremely long lifespan, anodised aluminium has a range of other architectural benefits. It offers economic advantages through maintenance and operational savings. In terms of design flexibility, anodising reduces or eliminates colour variations while providing an ever-growing range of colour, finishing and texture options.

In addition, anodised aluminium is more environmentally friendly than other metals and does not have any harmful effects on human health. There are no toxic waste products or dangerous chemicals used in the anodising process. It is also possible to recycle the oxide layer and reapply it with ease if necessary.

ROLE OF COATING THICKNESS

Coating thickness is important for the overall durability of the anodised product. Thicker coatings will be more wear and scratch resistant than thinner coatings. A high thickness will provide improved corrosion resistance as the product will be impervious to salt and other corrosive substances.

The component's service environment will determine what anodising coating thickness is appropriate. Coating thickness is measured in micrometres, or microns, which

is a unit of measurement equivalent to a millionth of a metre, and expressed using the symbol μm .

As a rule of thumb, anodised aluminium should have a coating thickness of $10\mu\text{m}$ – $20\mu\text{m}$ for interior applications and $15\mu\text{m}$ – $25\mu\text{m}$ for external applications. Extreme and challenging conditions may require anodised products with a coating thickness of $30\mu\text{m}$.





PERFORMANCE STANDARDS AND CRITERIA

AS 1231:2000 “Aluminium and aluminium alloys—Anodic oxidation coatings” is the Australian standard for architectural anodising. The performance specifications for anodised products are outlined in this standard according to their intended use.

For exterior applications, such as residential and small commercial building facades, AS 1231 requires a minimum micron thickness of 15µm. These structures are often low rise, with only a few storeys, and have low maintenance requirements.

Commercial and marine applications cover taller buildings or coastal environments that are exposed to aggressive salt spray and high levels of moisture in the air. These buildings are more difficult to maintain and are subject to

challenging environmental conditions, therefore requiring a minimum micron thickness of 25µm.

Monumental applications involve structures with intricate designs that exceed the functional requirements of a normal building. AS 1231 requires monumental buildings to have a highly durable anodised finish of 25µm or more.

AS 1231 further outlines the specific testing requirements for anodised products. The tests performed as part of the standard include:

- ISO 1463: Measurement of thickness;
- ISO 3210: Sealing tests;
- ISO 2143: Dye spot test; and
- ISO 2315: Light fastness.

WHY SPECIFY ANODISED ALUMINIUM GRATES

Anodising is a process used to increase the thickness of the natural oxide coating on the surface of aluminium, which prevents most additional corrosion from reaching inside the metal, thus extending the lifespan and performance of the product. These properties make anodised aluminium grates a great choice for new and existing builds

It is important for specifiers to be aware that an inadequately thick coating on an anodised aluminium grate can undermine the drainage system’s overall efficacy. Without sufficient protection, your linear drainage will be susceptible to scratches and corrosion. Based on standards and best practice, an anodised layer of 5µm–10µm is not enough to guarantee a long-lasting solution for most drainage applications.

Stainless steel is often offered as an alternative to anodised aluminium. Even though stainless steel is known to be

resistant to corrosion, it can react differently in corrosive environments. For this reason, depending on the application, stainless steel is available in various grades. If architectural versatility is a factor, aluminium remains the better choice due to its light weight, machinability and customisation options.

The aesthetic benefits of anodised aluminium grates are another reason to specify such grates for new and existing builds. Because pores are formed on the metal surface during the anodising process, a thick layer of aluminium oxide makes the metal surface more receptive to dying. When pigments are added to the metal, they completely fill the pores and penetrate into the depths of the material’s surface, making the colour finish highly durable as it cannot be scratched away.

LAUXES GRATES' SUPERIOR ANODISING PROCESS

Lauxes Grates prides itself on providing an exceptional product with an anodised finish at 25µm, making it suitable for even the most challenging coastal environments. This finish is achieved through a triple bath anodising process, a unique technique that goes above and beyond industry standards to enhance the strength and durability of the aluminium. The anodising process not only adds to the already impressive lifespan of the material but also allows for a sleek, attractive appearance that is easy to maintain.

The finish Lauxes Grates use prevents flaking or peeling and strengthens the metal, ensuring long-lasting performance. Anodising enhances scratch and corrosion resistance, making the grates durable. This not only extends the grates' lifespan but also reduces the need for replacements, promoting sustainability.

Customisation is essential to creating the ideal drainage system. When compared to more conventional stainless steel options, anodised aluminium grates offer unmatched versatility. They are easily cut and shaped to fit any space, allowing for a truly bespoke solution without sacrificing quality or functionality. Furthermore, anodised aluminium grates come with a lifetime rustproof warranty, ensuring your investment will remain in top condition no matter the environment.

One of the most notable benefits of anodised aluminium grates compared to alternative materials is their lightweight design. Not only does this make transportation to and installation on-site more manageable, but it also ensures simplified maintenance and cleaning down the line. With easy-to-follow instructions and complete support from Lauxes Grates, adding a high-quality anodised aluminium drainage system to your home or commercial space has never been easier.

Anodised Aluminium Grates – The Clear Choice

Anodised aluminium drainage solutions, like those offered by Lauxes Grates, provide an unmatched blend of durability, versatility, aesthetic appeal, and efficiency. By embracing these innovative products, you can increase the value of your commercial or residential projects, satisfy clients, and exceed industry standards.

Consider integrating Lauxes Grates' elegant and effective anodised aluminium drainage solutions into your next project to reap the benefits of this cutting-edge material and make a lasting impression on clients and end-users alike.

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REFERENCES

- ¹ Aluminum Anodizers Council. "What is Anodizing?" AAC. <https://www.anodizing.org/page/what-is-anodizing> (accessed 8 January 2024).
- ² Ibid.

All information provided correct as of January 2024