



Aluminium Anodizing in Ireland: AMS Architectural & Metal Systems Ltd Chooses an Italian Partner for the Installation of Its First Anodizing Line

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AMS - Architectural & Metal Systems Ltd is Ireland's only independently owned manufacturer of extruded aluminium profiles. AMS can offer a complete, turnkey solution for all aluminium products and service requirements. Beside fabrication, powder coating, and wood effect finishes, since last June AMS is also capable of providing anodizing in different colours, from light bronze to black. The anodizing line was provided by the Italian SAT, which supplied a comprehensive system that includes a user-friendly software, a conveyor technology made by four different bridge cranes to ensure production flexibility and a high throughput of the line, up to a waste water treatment system.



According to many different industry reports, the Irish aluminium market skyrocketed in 2021, with a significant expansion in consumption as well.

AMS - Architectural & Metal Systems Ltd – Ireland's only independently owned manufacturer of extruded aluminium profiles – was established in Cork, in 1990, by Chris Martin, President, Pat O'Hara, CEO, and the late Dave Rawlings, Technical Director. AMS can offer a complete, turnkey solution for all aluminium products and service requirements. It specialises in aluminium extrusion, powder coating and sheet metal fabrication as well as providing many other services from its vast 450,000 sq. ft. (about 42.000 sqm) facility with 275 employees. The company's business divisions include standard engineering products, architectural glazing systems, curtain walling, a bespoke aluminium design & extrusions service, and providing a wide range of thermally efficient aluminium windows, door and other commercial systems to various industries globally.

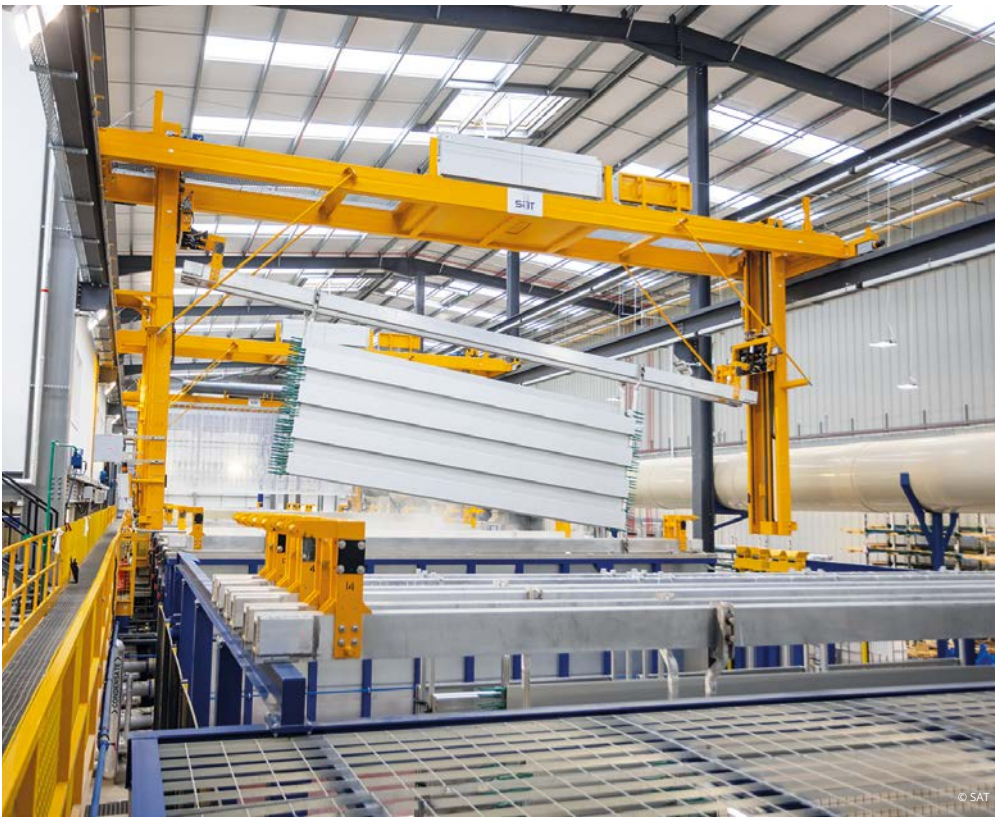
Two extrusion presses and a state-of-the-art powder coating, wood

finish and fabrication facility bring products from conception to project delivery all under one roof. AMS can offer consistency in service, quality, colour and complete traceability maintaining and ensuring quality standards such as ISO 9001, 14001 and 50001. Because the company has total control over all the processes from start to finish, it is able to offer its customers the best possible service to enable them to react to tight deadlines. In June last year, AMS started a new anodizing line to round up its offer of aluminium finishes and provide its customers with the most complete finishing service. For this project, it relied on the know-how and design skills of the Italian engineering company SAT, specialised in the supply of various kind of finishing systems for the aluminium industry.

Opening photo: General view of the anodizing line supplied by SAT. AMS new anodizing line supplied by SAT has an electro-colouring tank with the possibility to get a variety of colours, such as: champagne, bronze, brown, and black (here below).



The loading area.



The line is equipped with three bridge cranes which are able to handle two anodic bars at the same time.



Each bridge crane has a device on board to adjust the distance between the two anodic bars.

Focus on investments in technology and know-how

AMS understands the value of innovation, keeping ahead of the latest trends and technologies. Investments in research and development have greatly contributed to the growth of the company, which is very proud of its numerous innovative and patented products which include window, door and curtain wall systems.

“With over 180 dynamic and resourceful employees, we pride ourselves in supplying to the marketplace a professional, unrivalled high-quality service”, Chris Martin, President at AMS, states. “We have an experienced sales and design team who offer help and assistance to companies and architectural practices to bring their concepts to fruition. Our in-house capability further complements this system for the design and production of bespoke profiles tailored to suit modern and pioneering designs. These profiles come in an extensive range of colours and finishes, including our in-house wood-imitation finishes. Last but not least, we are proud to announce that we have just concluded the start-up of an anodizing line for which we have chosen an Italian engineering company, SAT in Verona. “We are the only extrusion company in Ireland. We put in our first press – a seven-inch press – in mid 2000s we have added a second press inch since then and we plan to put in a third press,” Pat O’Hara – AMS Chief Executive Officer, tells. “We moved to Little Island in 2001 and that’s when we started manufacturing and started powder coating. We put in a second powder coating line and eventually - as our business grew- we ordered a vertical paint line that was installed in 2008 and it’s been running very well since then. It’s been our dream, really, for many years to put in an anodizing line. When we started anodizing in the middle of May this year, we put through some scrap sections and they came up so well I couldn’t believe it. And within, I’d say, the next day we went into production. All this thanks to

SAT excellent design and manufacturing capabilities, to the user-friendly software developed by SAT to run the line and last but not least to the training sessions offered to our staff".

Today, we boast processes that are nowhere else offered in the island and the anodizing plant is the last piece of the jigsaw for AMS".

Features of the anodizing line

The design of the line foresees three anodizing tanks, each equipped with a rectifier of 15.000A (for a total size of the plant of 45.000A). SAT provided also one electro-colouring tank equipped with a transformer of 8000A, with the possibility to get the variety of tonality as: champagne/bronze/brown/black.

The line is equipped with a third bridge crane; these are special bridge cranes able to handle two anodic bars at the same time and have a device on board to adjust the distance between the two anodic bars.



Immersion of the bars in a process tank.

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Rectifiers in the anodizing tank and the spray rinsing stage (on the right).



SAT designed an extra crane with a special design, operating at a higher level than the other bridge cranes, to eliminate the drop of productivity due to the return in counter-flow of the empty bars along the tanks line.

To eliminate the drop of productivity due to the return in counter-flow of the empty bars along the tanks line, SAT designed an extra crane with special design, operating at a higher level than the other bridge cranes. Kevin Crowley, Plant Manager at AMS, goes on describing the anodizing line: "We have a control room run by one operator, the controller operator, who basically loads the program or the recipe. We have a loading area with six operators and an unloading area with two. The anodizing line stages are: degreasing, rinsing, E6 etching which is our strong aggressive etching, E0 etching which is a lighter etching for small hollow sections or for smaller profiles that have any channels. Then the process features a neutralization tank, a desmut tank (which is a stripping of any residual smut after the etching). Finally, we have the anodizing tanks themselves: we have the option of a colour tank of tin sulfate or straight to a hot seal tank of 98°C. The bronze colours that we are getting are very consistent.



As an example, we have just done a job with 1100 profiles and you probably couldn't tell the difference between the start and the end of the process. The lack of difference in colour has been unbelievable!

Another important feature to underline about this anodizing line is the software in support of the installation: it is very intuitive; we were trained by the SAT team on how to use the software and I learned how to run the line very quickly. After using it for some weeks, the software is probably a lot simpler than I was expecting it to be." "One of the main challenges we faced when designing the new line was the available footprint in the building" Andrea Trevisan – SAT Chief Executive Officer adds. "Outside these walls you literally have the seaside so we had to find innovative solutions to install the line within this perimeter. Each jig is loaded with two bars and the distance between these two anodic bars can be increased or decreased based on the stage where the jig is located. The line foresees three bridge cranes that are used to move the jigs through the process. But it is also equipped with a fourth bridge crane that is used to bring jigs back to the loading area in order not to affect the productivity of the line with a counter flow movement. As SAT, we supplied the complete system including the rectifiers, the bridge cranes and an effluent treatment plant. The important thing for SAT was to provide AMS with a complete solution and I think this is exactly what we did in the end".

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On the left Andrea Trevisan, SAT's CEO, with Pat O'Hara, AMS' CEO.

All in-house processes

"At AMS we have invested heavily in state-of-the-art extrusion facilities so, as well as extruding our own profiles, we can offer design and extrusion of aluminium profiles to third parties, not only to the façade industry, but to any industry where aluminium extrusions are being used. Imagine the flexibility of being able to have an extrusion that was previously not in stock, available the next day," Pat O'Hara enthuses. "Having the full control of the extrusion process inhouse allows us to extrude profiles of non-standard lengths to reduce optimised wastage for large contracts. The extrusion plant has brought AMS into various new markets e.g., aerospace, engineering, renewable energies, transportation to mention a few. It has also generated important export opportunities to many other markets in Europe including the UK and the USA.

We can produce over 16,000 tonnes of extrusion per annum on our two extrusion presses. Once the metal has been extruded the aluminium alloy is heat treated for strength. Once aging is complete, it can then be made available to the customer, or indeed, go into another process within the same building e.g. powder coating, wood-effect finishes, thermal break, sheet metal fabrication or, thanks to SAT new installation, anodizing".

AMS has capabilities, through its vertical and horizontal powder coating lines, to paint extruded profiles of all shapes and sizes inhouse.

"The benefit of having an inhouse painting service means we can offer consistency in colour, quality and efficient lead times," Chris Martin adds. "Our vertical paint line has the ability to paint over 4000 profiles up to 7.3 m in length in a shift, which is a huge improvement over the industry standard. It can perform a colour change in only 4 minutes, making it the most efficient method of powder coating aluminium profile systems. Our horizontal paint line is devoted to painting aluminium sheets and flashings, as well as section profiles with lengths up to 7.0 m and bespoke pieces. This service has proven very beneficial to many customers as both profiles and pressings can be painted in the one facility. The powder coating process of both lines is Qualicoat-approved and performs an 8-stage chrome-free pre-treatment. We stock a wide range of standard RAL colours to suit our customers' specific powder coating requirement and we rely on different powder coatings suppliers, among which Tiger, IGP, Syntha Pulvin, AkzoNobel and Axalta.

"With over 20 years' experience in this field, we have the dedication and knowledge to cater for all our customers' requirements. We pride ourselves in the production of quality fabricated profiles and pressings and we ensure customers' needs and delivery times are at the forefront of operation. The installation of an anodizing line early last year is the fulfilment of a dream and the icing on the cake for our services," Chris Martin concludes. ○

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