

**NATIONAL ALUMINIUM  
EXTRUSION LLC**



**ELITE**  
GROUP OF COMPANIES

A member of Elite Group of Companies

Manufacturer of Aluminum Extruded Profiles

# Poised to Scale Great Heights

National Aluminium Extrusion Co. LLC (NALEXCO) is one of the leading companies for extrusion of aluminium profiles in the United Arab Emirates.

It's part of Elite Group of Companies since 2009 and strategically placed in Dubai Investment Park to cover the hub's demand of Dubai and logistic connected to the south part of the Emirates.

The Company is recognized as one of the most effective partner for customer service that is consistent with on-time delivery of quality products. Large quantity of aluminium extruded profiles can be supplied even at short notice tanks to the organized workflow which is a distinctive sign.

Professionals at Nalexco have the required industry expertise to assist in design and consult as pre-sales stage, give punctual update during the manufacturing and finishing processes of the aluminium profiles and serve a post-sales support for components and assembly service through our group fabrication division.





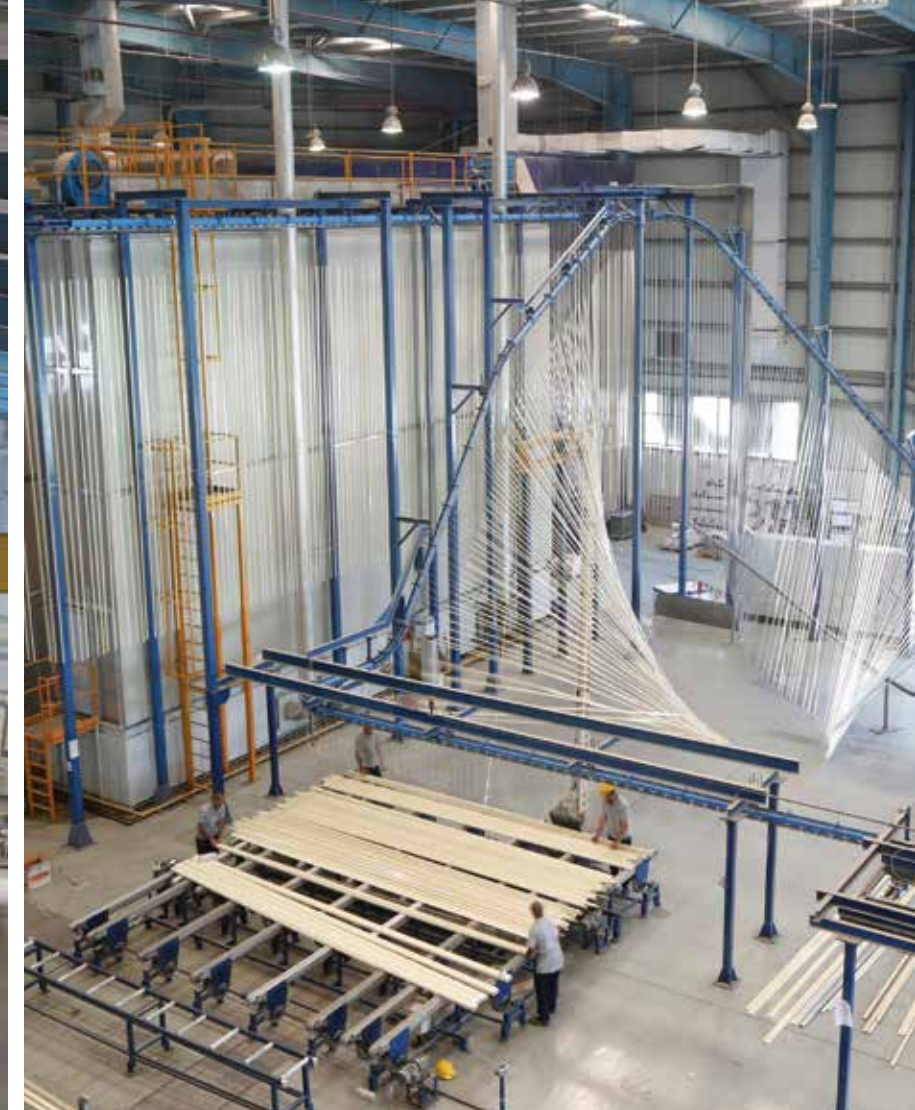
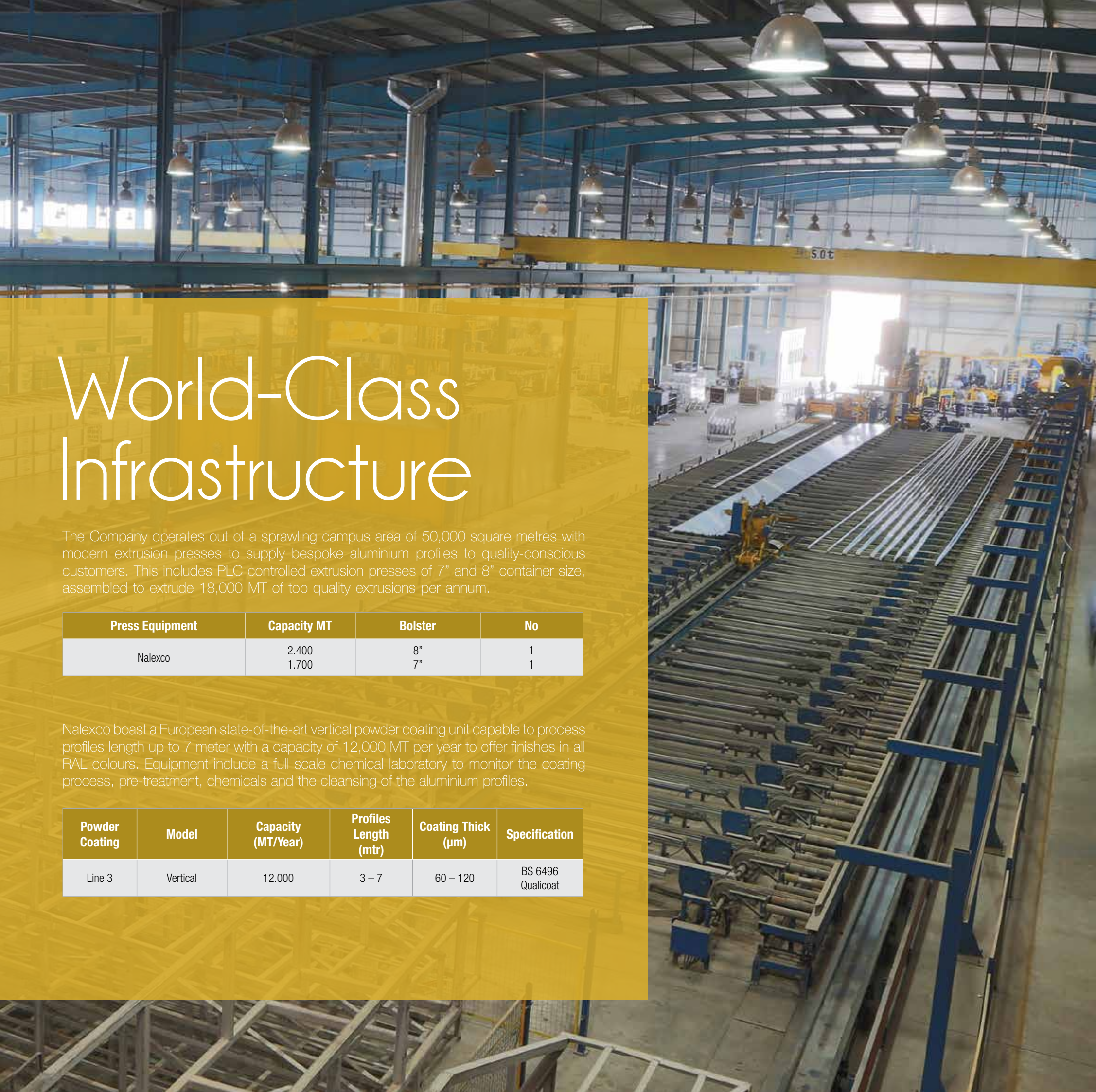
# World-Class Infrastructure

The Company operates out of a sprawling campus area of 50,000 square metres with modern extrusion presses to supply bespoke aluminium profiles to quality-conscious customers. This includes PLC controlled extrusion presses of 7" and 8" container size, assembled to extrude 18,000 MT of top quality extrusions per annum.

Press Equipment	Capacity MT	Bolster	No
Nalexco	2.400	8"	1
	1.700	7"	1

Nalexco boast a European state-of-the-art vertical powder coating unit capable to process profiles length up to 7 meter with a capacity of 12,000 MT per year to offer finishes in all RAL colours. Equipment include a full scale chemical laboratory to monitor the coating process, pre-treatment, chemicals and the cleansing of the aluminium profiles.

Powder Coating	Model	Capacity (MT/Year)	Profiles Length (mtr)	Coating Thick ( $\mu\text{m}$ )	Specification
Line 3	Vertical	12.000	3 – 7	60 – 120	BS 6496 Qualicoat





# Portfolio of Aluminium Products

NALEXCO manufactures both standard and customized aluminium profiles for architectural, non-architectural and industrial sector.

Aluminium product offer includes profiles for a wide range of application like windows & doors (casement, sliding & hinged version), curtain walls, louvers & grills, handrails & balustrades, kitchen profiles, air conditioning, sign board, scaffolding sections and furniture and partition sections among others. In addition all the most common sections like bars, equal & unequal angles, round, rectangular & squared tubes with different design, dimensions and thicknesses.

Moreover in Nalexco, as member of Elite Group, we are pleased to support the protected design for extruding world-wide known glazing systems such as Gutmann and Vistawall. Thus available to cooperate for customized product to be their trusted extruder.

## Thermal and Non-thermal Break Systems

In architecture and building construction a thermal break is an element of low thermal conductivity placed in an assembly to reduce or prevent the flow of thermal energy between conductive materials. Subsequently aluminum windows and doors separating the frame into two separate interior and exterior pieces joined with a less conductive material reduces temperature transfer.

Thermal breaks are made of hardy, rigid, low thermal conductive polyamide or polyurethane which is mechanically locked in aluminum window framing. Moreover thermal breaks can have the added benefit of reducing sound transmittance by dampening vibration.

Nalexco is a licensed extruder of the following glazing system.:

- THERMOS 110® and THERMOS 120® sliding series, thermal break.
- ECO 500 ® casement and sliding series, thermal break.
- Elegant 65® & Elegant 50® Structural Glazing System, thermal break.
- AL-WIN 80® casement series and AL-WIN 105® sliding series, no-thermal break.

Hence Nalexco complete product range includes:

- Mill finish profiles
- Thermal break systems
- No-thermal break systems
- Powder coated profiles
- Wood finish profiles
- Anodized profiles

## Product specification

CHEMICAL COMPOSITION	ALLOY 6063	ALLOY 6061	ALLOY 6082
Mg	0.45%-0.9%	0.80 % - 1.20 %	0.40 % - 1.20 %
Si	0.20%-0.6%	0.40 % - 0.80 %	0.60 % - 1.30 %
Cr	0.10%	0.04 % - 0.35 %	0.25%
Zn	0.10%	0.25%	0.10%
Fe	0.35%	0.70%	0.60%
Cu	0.10%	0.15 % - 0.40 %	0.10%
Mn	0.10%	0.15%	0.40 % - 1.00 %
Ti	0.10%	0.15%	-
Others (each)	0.05%	0.05%	0.05%
Others (Total)	0.15%	0.15%	0.15%
Aluminium	Remainder	Remainder	Remainder

MECHANICAL PROPERTIES	ALLOY 6063	ALLOY 6061	ALLOY 6082
UIL Tensile Strength N/mm2	205	260	310
0.2 % Proof Stress N/mm2	170	240	270
Hardness (Brinell) BHN	75	85	95
Elongation on 50 mm %	9	8	7
Density g/cm3	2.71	2.71	2.70
Modulus of Elasticity N/mm2	67000	69000	70000

## Additional Equipment

In addition to the in-house equipment Nalexco can offer further services through Elite Group facilities and machineries deployed in the territory.

Therefore Nalexco can accommodate more request and clients' needs and widen its offer of treatments & finishing with the following additional equipment:

- Wood coating line for profiles length range from 1,5 to 7 meters
- Anodizing line finishing to process profiles length range from 1 to 6,8 meters.
- Horizontal coating lines to process profiles length of 1 meter up to 7,5 meters.
- Ageing ovens to process profiles up to 9 meters length
- Crimping machineries and equipment for thermal broken section manufacturing
- Machineries and equipment for matt, polished and brush treatment.



## Powder coating process

Powder coating is a type of coating that is applied as a free-flowing, dry powder. The main difference between conventional liquid paint and powder coating is that the powder coating does not require a solvent to keep the binder and filler parts in a liquid suspension form. The coating is typically applied electrostatically and is then cured under heat to allow it to flow and form a "skin". The powder may be a thermoplastic or a thermoset polymer. It is usually used to create a hard finish that is tougher than conventional paint.

After application of the powder coatings, the extruded aluminum proceed to an indirectly heated convection oven for a complete cure of the powder coatings. The natural gas fired ovens are very energy efficient in design and provide the optimum environment to cure the powder coatings. Indirectly heating the powder cure oven eliminates the concerns about possible contaminants from the burner and helps provide excellent control over the temperature profile within the oven.



## Die Design and Die Shop

The die is the heart in the extrusion process and can be made to form a limitless array of shapes and sizes. The die is placed in the extrusion press along with the necessary supporting tools like backer, bolsters, die ring and plates that provide support for the die itself, improve tolerance and control the extrusion.

There are three basic types of extrusion dies and the same can be provide by NALEXCO:

- Solid
- Hollow
- Semi-hollow

A die can extrude separate profiles simultaneously. The lifecycle of an extrusion die is generally determined by the wear of the bearing which is the surface of the extruding aperture at the right angles to the die front that controls the metal flow and the velocity.

NALEXCO design, develop and manufacture an average of 200 dies each month through its in-house facility but still related to the main overseas' suppliers in order to satisfy the most critical shape and guarantee a perfect final product. Technicians, Quality machineries, bolstered by innovation and fully equipped CAD-CAM design units assure the precision on this service.





# Raise the Bar for Quality Standards

NALEXCO is ISO 9001:2008 certified Company in the process to update and received the last ISO 9001:2015 version.

We accredited with Emirates Quality Mark and Qualicoat and we adhere to international standards of quality and utilize only premium quality raw materials. The input are aluminium logs, which are of 100% priming exclusively provided by Dubai – one of the world's largest primary aluminium producer.

From procurement to final output all the departments work as unique team to produce high grade extrusion products. Full work streamline is in compliance with the ISO procedure for end-to-end testing and the pledge of quality

## Certificate

Standard **ISO 9001:2008**  
Certificate Registr. No. 01 100 1622567

Certificate Holder: **NALEXCO**  
NATIONAL ALUMINIUM EXTRUSION LLC  
National Aluminium Extrusion L.L.C.  
P.O. Box – 474100, DIP 2, Dubai, United Arab Emirates

Scope: Manufacturing and Supply of Aluminium Extruded Profiles in Mill Finish, Powder Coated, Anodized and Wood Finish for Architectural & Industrial Applications

Proof has been furnished by means of an audit that the requirements of ISO 9001:2008 are met.

Validity: The certificate is valid from 2016-08-12 until 2018-09-14.  
First certification 2010

2016-08-12

**TÜVRheinland**  
Precisely Right.

www.tuv.com

## Authorization to use the quality sign



This is to certify that  
**NATIONAL ALUMINIUM EXTRUSION L.L.C (NALEXCO)**  
Dubai Investment Park 2  
P.O.Box 474100  
AE – Dubai

**Licence number: 1917**

is capable of providing products meeting the requirements for SEASIDE Class and is authorized to use the quality sign which is shown above according to the REGULATIONS FOR THE USE OF THE QUALICOAT QUALITY SIGN FOR PAINT, LACQUER AND POWDER COATINGS ON ALUMINIUM FOR ARCHITECTURAL APPLICATIONS.

Date of issue of the licence: **01.01.2014**  
Period of validity of the licence: **until 31.12.2017**

Zurich, 15 November 2016

QUALICOAT CERTIFICATION BODY

**M.C. Panam** **Urim**  
Mohammed C. Panam Josef Schoppig  
President AC-Fiduciaire SA

Mailing address: QUALICOAT, P.O. Box 1907, CH-8027 Zurich  
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E-mail: info@qualicoat.net  
Internet: www.qualicoat.net

## LICENSE FOR THE USE OF EMIRATES QUALITY MARK (AL-ALAMA)



رقم الرخصة: 0030-15/Q14-08-000147  
تاريخ الإصدار: 15 January 2015  
تاريخ الإنتهاء: 14 January 2018  
اصدرتالى: NATIONAL ALUMINIUM EXTRUSION CO L.L.C  
P.O. Box 474100, Dubai Investment Park, Dubai, UAE

Based on the Emirates Product Certification Scheme Agreement No. 0030-15/Q14-08-000147 for the following:  
Product for which the license is granted: **EXTRUDED ALUMINIUM PROFILES**  
Product Description: **EXTRUDED ALUMINIUM PROFILES**  
Standard: **BS EN 755-9:2008**

**Abdulla Al Maatani**  
Acting Director General

## شهادة المطابقة CERTIFICATE OF CONFORMITY EMIRATES QUALITY MARK



Certificate No. 0030-15/Q14-08-000147 Issue Date: 15 January 2015 Valid Until: 14 January 2018

The Emirates Authority for Standardization & Metrology (ESMA)


Hereby certify that:  
**NATIONAL ALUMINIUM EXTRUSION Co L.L.C.**  
P.O. Box 474100, Dubai Investment Park, Dubai,  
United Arab Emirates

Has complied with the following published documents:  
**ESMA General Rules for Emirates Product Certification Scheme**  
in respect of a certification scheme for the manufacture of  
**EXTRUDED ALUMINIUM PROFILES**

These rules have among other things necessitated the submission of samples of the scheduled products for examination and testing by ESMA to the Standards referred to in the schedule. Additionally, the scheme requires the firm  
(A) To permit their facilities namely National Aluminium Extrusion Co LLC at P.O. Box 474100, Dubai Investment Park, Dubai, UAE, to be periodically inspected by ESMA.  
(B) To allow samples of the scheduled products to be selected from production, or from the market or independent testing and examination for assurance that conformity of conformity is being maintained.

The firm hereby agrees with ESMA to duly observe and comply with the requirements of the scheduled standards, the general and specific rules and with any regulations for the scheme that ESMA may establish.

Signed on behalf of ESMA: **Abdulla Al Maatani**, Acting Director General  
Signed on behalf of National Aluminium Extrusion Co L.L.C.: **Mr. R. Hari Kumar**, Group General Manager



## Certificate of Approval

**National Aluminium Extrusion LLC**

is certified as an Approved Applicator to coat  
**Jotun Facade**  
a product from Jotun Powder Coatings

This Company fulfills the requirements set by Jotun Powder Coatings for pre-treatment and application of powder coatings. These include having the necessary equipment, process controls and technical knowledge to comply with Jotun Powder Coatings' standards.

January 01, 2017  
(Certificate valid for one year from date above)

**Jotun Powder Coatings UAE (LLC)**



## Certificate of Approval

**National Aluminium Extrusion LLC**

is certified as an Approved Applicator to coat  
**Jotun Durasol**  
a product from Jotun Powder Coatings

This company fulfills the requirements set by Jotun Powder Coatings for pre-treatment and application of powder coatings. These include having the necessary equipment, process controls and technical knowledge to comply with Jotun Powder Coatings' standards.

January 01, 2017  
(Certificate valid for one year from date above)

**Jotun Powder Coatings UAE (LLC)**

\*Once certificates are expired, will be available the renewed one

# General Information

## Advantages of Aluminium Extrusion

### Advantages of aluminium

- **Strength:** Aluminium alloys usually have tensile strengths of between 70 and 700 MPa. Unlike most steel and other metals, aluminium becomes strong at low temperatures. Extruded aluminium products possess high strength and low weight. This unique combination makes them ideal for applications like aerospace, truck trailer and bridges.
- **Lightweight:** Aluminium is about 1/3 the weight of iron, steel, copper or brass, making aluminium extrusions easier to handle and inexpensive to ship.
- **Resilient:** Aluminium is a strong and flexible metal. Moreover have the ability to resume both shape and size which is good when flexible strength is required. Aluminium can flex under loads or recoil from the shock of impact. Hence extruded components can be used in automotive crash management systems.
- **Corrosion resistant:** Aluminium extrusions do not corrode and the aluminium surface is protected by its own naturally occurring oxide film that could be enhanced by anodizing or other finishing processes.
- **Excellent thermal conductors:** Aluminium is an excellent conductor of heat and electricity. Making aluminium extrusion ideal for applications that requiring heat exchangers. Extrusions' design flexibility allows designers to optimize heat dissipation in residential buildings.
- **Non-sparking:** Aluminium doesn't emit sparks. So it is ideal for applications involving explosive materials.
- **Non-magnetic:** Aluminium does not acquire a magnetic charge. Aluminium extrusions are handy in high-voltage applications and in electronics, wherein magnetic fields are active.
- **Non-combustible & Non-toxic:** Aluminium is fire-resistant and even at very high temperatures does not produce toxic fumes.
- **Reflective:** Aluminium is a good reflector of both visible light and radiated heat. Hence aluminium extrusion is an attractive option for lighting applications or for applications where it is desirable to shield areas from light and infrared radiation.
- **Joinable:** Extrusion of aluminium facilitates easy jointing features that can be incorporated into the design. Fusion welding, Friction Stir Welding, bonding and taping are also used for joining.
- **Recyclable:** Aluminium is an environment friendly and sustainable metal. It is 100% recyclable and retains all the properties of aluminium.

### Aluminium Extrusion Process Advantages:

- **Attractive:** Aluminium has an attractive and natural finish. Extruded aluminium offers designers the optimum design flexibility.
- **Wide Range of Finishes:** An array of finishes can be applied to aluminium to enhance its surface characteristics, or alter its appearance. The metallic surface may be coloured by chemical or anodising processes. Coatings such as liquid paint, powder coatings, anodizing, lacquer, enamel, electroplating or laminate may also be applied.
- **Seamless:** Complex shapes can be realized in one-piece extruded aluminium sections without having to rely on mechanical joining methods. This makes the parts stronger and less likely to loosen or leak over time.
- **Complex Shapes:** Being a versatile metal, aluminium can be extruded into intricate, complex shapes of various sizes. And offer designers and engineers to come up with infinite design possibilities.
- **Fastening and Assembly:** Aluminium profiles produced by extrusion process do not require joining or assembly. Aluminium extrusion process offers flexibility in product designs that reduce fastener and assembly costs. And can even be designed to snap-fit together with other extruded profiles.
- **Fabrication:** Extruded aluminium is easy to fabricate and assemble. And custom fabrication is possible for any application.
- **Cost-effective:** The malleable qualities of aluminium permit flexible options in design and cost-effective production.

- **Tolerances:** Aluminium extrusions, and extrusion-based components, can be produced to very precise tolerances, as well as per accepted "industry standard" dimensional tolerances.
- **Short Lead Times:** Tooling for aluminium extrusion is cost-effective with generally short lead times. It facilitates prototype development, testing, and product launch. Thus make it quick to market alu

### Tolerances

The specified acceptable range of deviation from a given dimension is known as tolerance. Tolerances generally cover such characteristic as straightness, flatness, and cross-sectional dimensions like thickness, angles, contours and corners. Dimensional tolerances then are central part in the extrusion.

NALEXCO operates as per BS EN 755-9:2008 (for full details see technical catalogue)

### Alloys & Tempers

Aluminium alloys are the ones in which aluminium (Al) is the predominant metal and other alloying elements are copper, magnesium, manganese, silicon, iron, nickel and zinc that are usually added to aluminium in amounts ranging from 0,05% to 7.0%.

Aluminum extrusion is made in a wide range of alloys and temper and selection is made to meet different needs and requirements in terms of strength, weldability, type of fabrication, forming characteristic, corrosion resistance for the best end use.

Principal elements in alloy	Series
Aluminium 99%	1xxx
Copper	2xxx
Manganese	3xxx
Silicon	4xxx
Magnesium	5xxx
Magnesium & Silicon	6xxx
Zinc	7xxx
Tin	8xxx

The 6xxx series are the ones most selected for extrusion applications.

**6063:** The most popular extrusion alloy. Easily welded, excellent corrosion and good natural finish, can be heat treated for strength. Is used in architecture and in those application where stress is moderate.

**6061:** Most versatile alloy with a high tensile properties and good corrosion resistance. After thermal treatment it can develop a strength comparable to steel, therefore suitable for structural applications.

**6082:** It has the highest strength of 6000 series with still good extrudability. Large use for structural engineering, pylons, platforms and scaffolding with the benefit of lightness, stiffness and god corrosion resistance.

All aluminium alloys are also classified as either heat treatable or no-heat treatable. Heat treatable alloys attain their maximum strength through controlled heat treatment.

The temper designation is as follow:

- F. As extruded.....No special thermal control or strain hardening
- O. Annealed.....Thermally treated to obtain the lowest strength temper
- H. Strain hardened.....Cold working used to increase strength and hardness
- T. Thermally treated.....Heat treatment to produce stable tempers

Elite Extrusion produces the most of clients' requirements using alloys 6061, 6063 and 6082 with T4, T5 and T6 tempers.

T4 Solution heat treated and naturally aged to stable condition

T5 Cooled from an elevated temperature and artificially aged hardened

T6 Solution heat treated and artificially aged





**ELITE EXTRUSION LLC**



**NATIONAL ALUMINIUM EXTRUSION LLC**



**AL HAMAD INDUSTRIAL CO. LLC**



**ALUMILL TECH GULF LLC**



**THERMOSET**



**GLOBAL PIONEER  
ALUMINIUM INDUSTRIES LLC**



**JORDAN  
ALUMINIUM EXTRUSION**



**UNITED POWDER COATING FZC**

**GLOBAL DIES**





Empowering Aluminium



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