

# AL DAWLIA 21 – EXTRUCOAT 21

## Overview For Production Procedures



## 1 Who we are...

- ❑ Our founders' experience in the aluminum coating industry goes back to the 1980s. Leveraging their experience and reputation, the founders came together in 1994 to establish Dawlia for treating and painting metals, our group's first aluminum painting factory. Ten years later, Dawlia 21 for producing colored aluminum profiles was founded with state-of-the-art electrostatic vertical and wood-effect lines. Dawlia 21 also became one of the biggest aluminum retailers in the local market.
- ❑ Over the years, our group has managed to create for itself a strong reputation as the pioneer job coater in the Egyptian market by consistently maintaining European quality standards. This reputation attracted customers to our products and created a growing demand in the market to guarantee the same level of painting quality on the profiles as well. But because it was not easy to find high-quality aluminum profiles in the local market, the founders saw a gap in the aluminum extrusion industry and decided to fill that gap.
- ❑ Capitalizing on their strong reputation created over the years and the growing demand on the Dawlia brand in the local aluminum industry, the founders established Extrucoat 21 for extruding aluminum profiles in 2014. Extrucoat inaugurated its operations in the fourth quarter of 2016 with a plant built over a total land area of 30,000 sqm, equipped with the latest technologies of aluminum extrusion and painting production lines.
- ❑ With a total investment value of over EGP 300 million and a plan to reach almost EGP 1 billion of total investments over the next five years, our group has over 30 percent share of the aluminum painting market in Egypt and has ambitious plans to continue expanding aggressively in the local as well as export aluminum markets.
- ❑ In fulfillment of our core value "striving for more than customer satisfaction", our companies use the finest European raw materials and are certified by multiple world-class institutions guaranteeing our maintenance of the highest quality of product and management process.

## 2 Our Vision...

- ❑ To maintain our position as a market leader in the Egyptian aluminum painting market and become a global leader in the aluminum extrusion and painting markets.

## 3 Our mission ...

- ❑ To produce and paint architectural and industrial aluminum profiles at the highest quality, by consistently meeting international quality standards, at competitive prices, to become the pioneers of our industry locally and internationally.

## 4 Products

1. Volcano 120.
2. Volcano 70.
3. Volcano 44.
4. Volcano Thermal Break Hinged System.
5. Volcano thermal Break sliding system.
6. We are agents and authorized manufacture for: SMART façade systems (Authorized solitary agent).
7. Volcano 70 Anox.
8. Volcano 120 Anox.
9. MH-50 VOLCANO WINDOW WALL.
10. Volcano 55 Hinged Systems.
11. Volcano Slim For Sliding System.
12. Standard Section Profiles.

## 5 Our Philosophy...



### Quality

High criteria of material and production combined with strict management leads to the perfect performance of our aluminum profile.



### Choice

Different aluminum alloy and surface treatment fits to different application, moreover we could supply material at different sizes .

### Cost

High effective supply chain management reduce total cost to help customer stand out and be more profitable.



### Service

Good communication and quick reaction is believed to serve our customer the best way . And our teamwork will always bring extraordinary results .





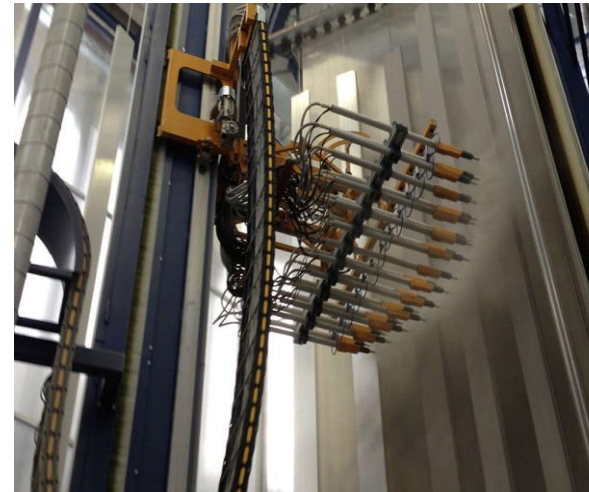
## Extrusion:

Our extrusion plant is equipped with state-of-the-art technology to ensure our aluminum profiles are manufactured in accordance with the highest European quality standards.



## Painting:

With a 100-ton daily painting capacity, our companies have the largest market share in the Egyptian aluminum painting market. We offer the painting service for all windows, facades, and kitchen systems.



## Technical support:

With a team of experienced technical support engineers, our group supports clients in studying projects, making cost analysis and shop drawings, and providing all the technical support needed for projects.

## RESERSH AND DEVOLPMENT DEPARTMENT (R&D)

Our R&D department consistently works on developing new products in accordance with European quality standards to meet our customers' requirements and continuously adapt to market changes.





## DAWLIA 21

### ISO 9001:2015

The quality management system is applicable to:

Treatment, Coating and Wholesale of Aluminum Profiles.

### ISO 14001:2015

The environmental management system is applicable to:

Treatment, Coating and Wholesale of Aluminum Profiles.

### ISO 45001:2018

The occupational health and safety management system is applicable to:

Treatment, Coating and Wholesale of Aluminum Profiles.

- AL DAWLIA 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT JOTUN DURASOL** A PRODUCT FROM JOTUN POWDER COATINGS.
- AL DAWLIA 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT JOTUN FACADE** A PRODUCT FROM JOTUN POWDER COATINGS.
- AL DAWLIA 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT JOTUN SUPER DURABLE** A PRODUCT FROM JOTUN POWDER COATINGS.
- AL DAWLIA 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT AKZONOBLE POWER COATING SERIES D1000**.
- AL DAWLIA 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT AKZONOBLE POWER COATING SERIES D2000**.
- AL DAWLIA 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT AKZONOBLE POWER COATING SERIES D3000**.
- QUALICOAT CERTIFICATION.
- QUALI MIDDLE EAST ASSOCIATION CERTIFICATION.

## EXTRUCOAT 21

### ISO 9001:2015

The quality management system is applicable to:

Extrusion , Treatment , Coating and Wholesale of Aluminum Profiles.

### ISO 14001:2015

The environmental management system is applicable to:

Extrusion , Treatment , Coating and Wholesale of Aluminum Profiles.

### ISO 45001:2018

The management system is applicable to:

Extrusion , Treatment , Coating and Wholesale of Aluminum Profiles.

- EXTRUCOAT 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT JOTUN DURASOL** A PRODUCT FROM JOTUN POWDER COATINGS.
- EXTRUCOAT 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT JOTUN FACADE** A PRODUCT FROM JOTUN POWDER COATINGS.
- EXTRUCOAT 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT JOTUN SUPER DURABLE** A PRODUCT FROM JOTUN POWDER COATINGS.
- EXTRUCOAT 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT AKZONOBLE POWER COATING SERIES D1000**.
- EXTRUCOAT 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT AKZONOBLE POWER COATING SERIES D2000**.
- EXTRUCOAT 21 IS CERTIFIED AS AN APPROVAD APPLICATOR TO **COAT AKZONOBLE POWER COATING SERIES D3000**.
- QUALICOAT CERTIFICATION.



# COMPANY CERTIFICATION FOR DAWLIA 21



## CERTIFICATE OF REGISTRATION



This is to certify that the quality management system of:  
**Al Dawlia 21 for Producing Coloring Aluminium Profiles**

Main Site: Third Industrial Zone - Piece 576 - 6th October City - Egypt  
has been registered by Intertek as conforming to the requirements of:

**ISO 9001:2015**

The quality management system is applicable to:

Treatment, Coating and Wholesale of Aluminium Profiles.

Certificate Number: 0908209  
Initial Certification Date: 03 December 2010  
Last Certificate Expiry Date: 30 November 2019  
Date Last Re-certification Audit: 25 & 26 November 2019  
Certification Cycle Start Date: 27 December 2019  
Certification Decision Date: 27 December 2019  
Certificate Issue Date: 27 December 2019  
Certificate Expiry Date: 30 November 2022



Intertek  
Calin Moldoveanu  
President, Business Assurance  
Intertek Certification Limited  
25A Victoria Park, Victoria Road  
Derby DE24 8EJ, United Kingdom  
Intertek Certification Limited is a  
UKAS accredited body under  
schedule of accreditation no. 014.

In the absence of this certificate, Intertek assumes no liability to any party other than the Client, and that only its accreditation with the relevant Certification Authority. This certificate is valid only in respect to the registration number and the scope of accreditation. The certificate is not valid for any other purpose. The certificate is the property of Intertek. Intertek is not responsible for any misuse.



## CERTIFICATE OF REGISTRATION



This is to certify that the occupational health and safety management system of:

**Al Dawlia 21 for Producing Coloring Aluminium Profiles**

Main Site: Third Industrial Zone - Piece 576 - 6th October City - Egypt  
has been registered by Intertek as conforming to the requirements of:

**ISO 45001:2018**

The occupational health and safety management system is applicable to:

Treatment, Coating and Wholesale of Aluminium Profiles.

Certificate Number: 0908271  
Initial Certification Date: 03 December 2010  
Last Certificate Expiry Date: 30 November 2019  
Date Last Re-certification Audit: 25 & 26 November 2019  
Certification Cycle Start Date: 27 December 2019  
Certification Decision Date: 27 December 2019  
Certificate Issue Date: 27 December 2019  
Certificate Expiry Date: 30 November 2022



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## CERTIFICATE OF REGISTRATION



This is to certify that the environmental management system of:

**Al Dawlia 21 for Producing Coloring Aluminium Profiles**

Main Site: Third Industrial Zone - Piece 576 - 6th October City - Egypt  
has been registered by Intertek as conforming to the requirements of:

**ISO 14001:2015**

The environmental management system is applicable to:

Treatment, Coating and Wholesale of Aluminium Profiles.

Certificate Number: 0908270  
Initial Certification Date: 03 December 2010  
Last Certificate Expiry Date: 30 November 2019  
Date Last Re-certification Audit: 25 & 26 November 2019  
Certification Cycle Start Date: 27 December 2019  
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### Certificate of Approval

**Al Dawlia 21**

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

This Company fulfils 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, 2021  
(Certificate valid for one year from date above)

Authorised Signatory  
Jotun Powder Coatings UAE (LLC)

### Certificate of Approval

**Al Dawlia 21**

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

This Company fulfils 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, 2021  
(Certificate valid for one year from date above)

Authorised Signatory  
Jotun Powder Coatings UAE (LLC)

### Certificate of Approval

**Al Dawlia 21**

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

This Company fulfils 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, 2021  
(Certificate valid for one year from date above)

Authorised Signatory  
Jotun Powder Coatings UAE (LLC)

Interpon D Approved Applicator

### Series D1000

**Al Dawlia 21 for producing Colored aluminium Profiles**  
6th October City, 3rd Industrial Zone, Piece 576, Giza Egypt

Has fulfilled AkzoNobel's tests and inspection regarding the pre-treatment, application, quality management standards and procedures, and complies with the requirements of the Architectural Range Approved Applicator schedule.

This certificate is effective from  
**24th JANUARY, 2021 to 23rd January, 2022**

Approved for Aluminium Alloys AA6063  
Approved for Pre-treatment Type Chrome

Wael Mahmoud  
Sales & Marketing Manager  
North Africa  
24/1/2021

Interpon D Approved Applicator

### Series D2000

**Al Dawlia 21 for producing Colored aluminium Profiles**  
6th October City, 3rd Industrial Zone, Piece 576, Giza Egypt

Has fulfilled AkzoNobel's tests and inspection regarding the pre-treatment, application, quality management standards and procedures, and complies with the requirements of the Architectural Range Approved Applicator schedule.

This certificate is effective from  
**24th JANUARY, 2021 to 23rd January, 2022**

Approved for Aluminium Alloys AA6063  
Approved for Pre-treatment Type Chrome

Wael Mahmoud  
Sales & Marketing Manager  
North Africa  
24/1/2021

Interpon D Approved Applicator

### Series D3000

**Al Dawlia 21 for producing Colored aluminium Profiles**  
6th October City, 3rd Industrial Zone, Piece 576, Giza Egypt

Has fulfilled AkzoNobel's tests and inspection regarding the pre-treatment, application, quality management standards and procedures, and complies with the requirements of the Architectural Range Approved Applicator schedule.

This certificate is effective from  
**24th JANUARY, 2021 to 23rd January, 2022**

Approved for Aluminium Alloys AA6063  
Approved for Pre-treatment Type Chrome

Wael Mahmoud  
Sales & Marketing Manager  
North Africa  
24/1/2021

## CERTIFICATE

for a COATING APPLICATOR

hereby authorises

**DAWLIA21 FOR PRODUCING COLORED ALUMINUM PROFILES**  
3rd Industrial Zone, Block E, Land # 576  
12566 6 October City  
Egypt

to use the quality label in conformity with the  
16th Edition of the QUALICOAT Specifications valid from 1 July 2019

Licence No.:	1601
Date of Granting:	20.08.2009
Valid until:	31.12.2020

Zurich, 27 May 2020

QUALICOAT

M. C. Panam  
Mohammed C. Panam  
President

Sue C. C. Paredi  
Managing Director

QUALICOAT | Tödistrasse 48, 8002 Zurich, Switzerland | [www.qualicoat.net](http://www.qualicoat.net)

## MEMBERSHIP CERTIFICATION

This is to certify that

**DAWLIA21 FOR PRODUCING COLORED ALUMINUM PROFILES**  
PIECE 576, THIRD INDUSTRIAL ZONE, 6TH OF OCTOBER CITY, EGYPT

Membership Ref.: A023

is a member of the Quali Middle East Association and is a signatory to the policies and procedures related to the membership of the Association.

Period of validity of the certificate: until 31.12.2020

Dubai, 5 January 2020

QUALI MIDDLE EAST ASSOCIATION

Nasir Fahmeed  
General Secretary

Mailing address: Quali Middle East Association  
c/o Dubai Association Centre, Office 207 (16), Level 2  
Building 2 at One Central, Dubai World Trade Centre  
Dubai, United Arab Emirates

P.O. Box 23070, Dubai-UAE  
Phone: +971 4 516 3052-3  
E-Mail: [admin@qualimiddleeast.com](mailto:admin@qualimiddleeast.com)  
Internet: [www.qualimiddleeast.com](http://www.qualimiddleeast.com)

QMEA License No: DAC-0039 issued by Dubai Chamber of Commerce & Industry

## CERTIFICATE

for a DECORATOR

hereby authorises

**Al Dawlia 21**  
Plot 576, Third Ind. Zone  
6th of October City  
Egypt

to use the quality label in conformity with the  
QUALIDECO Specifications 4th Edition valid from 1. October 2019

Licence No.:	ET-0001
Date of Granting:	02.03.2015
Valid until:	31.12.2020

Zurich, 20 January 2020

QUALICOAT

M. C. Panam  
Mohammed C. Panam  
President

Sue C. C. Paredi  
Managing Director

QUALICOAT | Tödistrasse 48, 8002 Zurich, Switzerland | [www.qualicoat.net](http://www.qualicoat.net)

## Certificate of Approval

**AL Dawlia21**

for producing colored  
aluminum profiles  
6th October City, 3rd industrialzone, piece576,  
Giza, Egypt

Is certified as an Approved Applicator to  
ALUMINUM DECORATOR AND USING  
SUBLIMATION WOOD GRAIN, Qualideco - class 2

TRANSFER FILM MANUFACTURED AND SUPPLIED BY  
SUBLITEX  
A MIROGLIO GROUP COMPANY

SUBLITEX s.r.l.  
Strada Tagliata, 25 - 12051 Alba (Cn) Italy

July, 16 2020  
Certificate valid for one year from date above

Sue C. C. Paredi  
Managing Director

# COMPANY CERTIFICATION FOR EXTRUCOAT 21



**CERTIFICATE OF REGISTRATION**

This is to certify that the management system of:

**Extrucoat 21 for Aluminum Extrusion**

Main Site: Piece 213-T15- Engineering Square Northern Expansions of Industrial Zones, 6th of October City - Egypt  
 has been registered by Intertek as conforming to the requirements of:

**ISO 9001:2015**

The management system is applicable to:

Extrusion, Treatment, Coating and Wholesale of Aluminum Profiles

**Intertek**  
Total Quality Assurance

Certificate Number: 0107643  
 Initial Certification Date: 20 November 2020  
 Date of Certification Decision: 20 November 2020  
 Issuing Date: 20 November 2020  
 Valid Until: 19 November 2023

**Calin Moldovan**  
President, Business Assurance

**Intertek**

**CERTIFICATE OF REGISTRATION**

This is to certify that the management system of:

**Extrucoat 21 for Aluminum Extrusion**

Main Site: Piece 213-T15- Engineering Square Northern Expansions of Industrial Zones, 6th of October City - Egypt  
 has been registered by Intertek as conforming to the requirements of:

**ISO 45001:2018**

The management system is applicable to:

Extrusion, Treatment, Coating and Wholesale of Aluminum Profiles

**Intertek**  
Total Quality Assurance

Certificate Number: 0107662  
 Initial Certification Date: 20 November 2020  
 Date of Certification Decision: 20 November 2020  
 Issuing Date: 20 November 2020  
 Valid Until: 19 November 2023

**Calin Moldovan**  
President, Business Assurance

**Intertek**

**CERTIFICATE OF REGISTRATION**

This is to certify that the management system of:

**Extrucoat 21 for Aluminum Extrusion**

Main Site: Piece 213-T15- Engineering Square Northern Expansions of Industrial Zones, 6th of October City - Egypt  
 has been registered by Intertek as conforming to the requirements of:

**ISO 14001:2015**

The management system is applicable to:

Extrusion, Treatment, Coating and Wholesale of Aluminum Profiles

**Intertek**  
Total Quality Assurance

Certificate Number: 0107662  
 Initial Certification Date: 20 November 2020  
 Date of Certification Decision: 20 November 2020  
 Issuing Date: 20 November 2020  
 Valid Until: 19 November 2023

**Calin Moldovan**  
President, Business Assurance

**Intertek**

**JOTUN**

*Certificate of Approval*

**Extrucoat 21 for Extruding Aluminium Profiles**

is certified as an Approved Applicator to coat

**Jotun Facade**

a product from Jotun Powder Coatings

This Company fulfils 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, 2021

Authorised Signatory  
Jotun Powder Coatings UAE (LLC)

**JOTUN**

*Certificate of Approval*

**Extrucoat 21 for Extruding Aluminium Profiles**

is certified as an Approved Applicator to coat

**Jotun Super Durable**

a product from Jotun Powder Coatings

This Company fulfils 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, 2021

Authorised Signatory  
Jotun Powder Coatings UAE (LLC)

**JOTUN**

*Certificate of Approval*

**Extrucoat 21 for Extruding Aluminium Profiles**

is certified as an Approved Applicator to coat

**Jotun Durasol**

a product from Jotun Powder Coatings

This Company fulfils 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, 2021

Authorised Signatory  
Jotun Powder Coatings UAE (LLC)

**CERTIFICATE**

for a COATING APPLICATOR

**QUALICOAT**

hereby authorises

**EXTRUCOAT 21 FOR EXTRUDING ALUMINIUM PROFILES**

Piece 213-T15, Engineering Square  
 Northern Expansions Industrial Zones  
 12566 6th of October City  
 Egypt

to use the quality label in conformity with the 16<sup>th</sup> Edition of the QUALICOAT Specifications valid from 1 July 2019

Licence No.: 1604

Date of Granting: 11.08.2017

Valid until: 31.12.2020

Zurich, 1 January 2020

**QUALICOAT**

M.C. Panam  
Mohammed C. Panam  
President

Sue C. C. Pareti  
Managing Director

**Interpon**  
POWDER COATINGS

**AkzoNobel**

Interpon D Approved Applicator

**Series D1000**

**EXTRUCOAT 21 FOR EXTRUDING ALUMINIUM PROFILES.**

Piece 213- T15- Engineering square, Northern Expansions of industrial zone 6th of October Giza, Egypt.

Has fulfilled AkzoNobel's tests and inspection regarding the pre-treatment, application, quality management standards and procedures, and complies with the requirements of the Architectural Range Approved Applicator schedule.

This certificate is effective from  
**24<sup>TH</sup> JANUARY, 2021 to 23<sup>rd</sup> January, 2022**

Approved for Aluminium Alloys AA6063  
 Approved for Pre-treatment Type Chrome

Wael Mahmoud  
Sales & Marketing Manager  
North Africa

24/1/2021

AkzoNobel Industrial Paints

**Interpon**  
POWDER COATINGS

**AkzoNobel**

Interpon D Approved Applicator

**Series D2000**

**EXTRUCOAT 21 FOR EXTRUDING ALUMINIUM PROFILES.**

Piece 213- T15- Engineering square, Northern Expansions of industrial zone 6th of October Giza, Egypt.

Has fulfilled AkzoNobel's tests and inspection regarding the pre-treatment, application, quality management standards and procedures, and complies with the requirements of the Architectural Range Approved Applicator schedule.

This certificate is effective from  
**24<sup>TH</sup> JANUARY, 2021 to 23<sup>rd</sup> January, 2022**

Approved for Aluminium Alloys AA6063  
 Approved for Pre-treatment Type Chrome

Wael Mahmoud  
Sales & Marketing Manager  
North Africa

24/1/2021

AkzoNobel Industrial Paints

**Interpon**  
POWDER COATINGS

**AkzoNobel**

Interpon D Approved Applicator

**Series D3000**

**EXTRUCOAT 21 FOR EXTRUDING ALUMINIUM PROFILES.**

Piece 213- T15- Engineering square, Northern Expansions of industrial zone 6th of October Giza, Egypt.

Has fulfilled AkzoNobel's tests and inspection regarding the pre-treatment, application, quality management standards and procedures, and complies with the requirements of the Architectural Range Approved Applicator schedule.

This certificate is effective from  
**24<sup>TH</sup> JANUARY, 2021 to 23<sup>rd</sup> January, 2022**

Approved for Aluminium Alloys AA6063  
 Approved for Pre-treatment Type Chrome

Wael Mahmoud  
Sales & Marketing Manager  
North Africa

24/1/2021

AkzoNobel Industrial Paints

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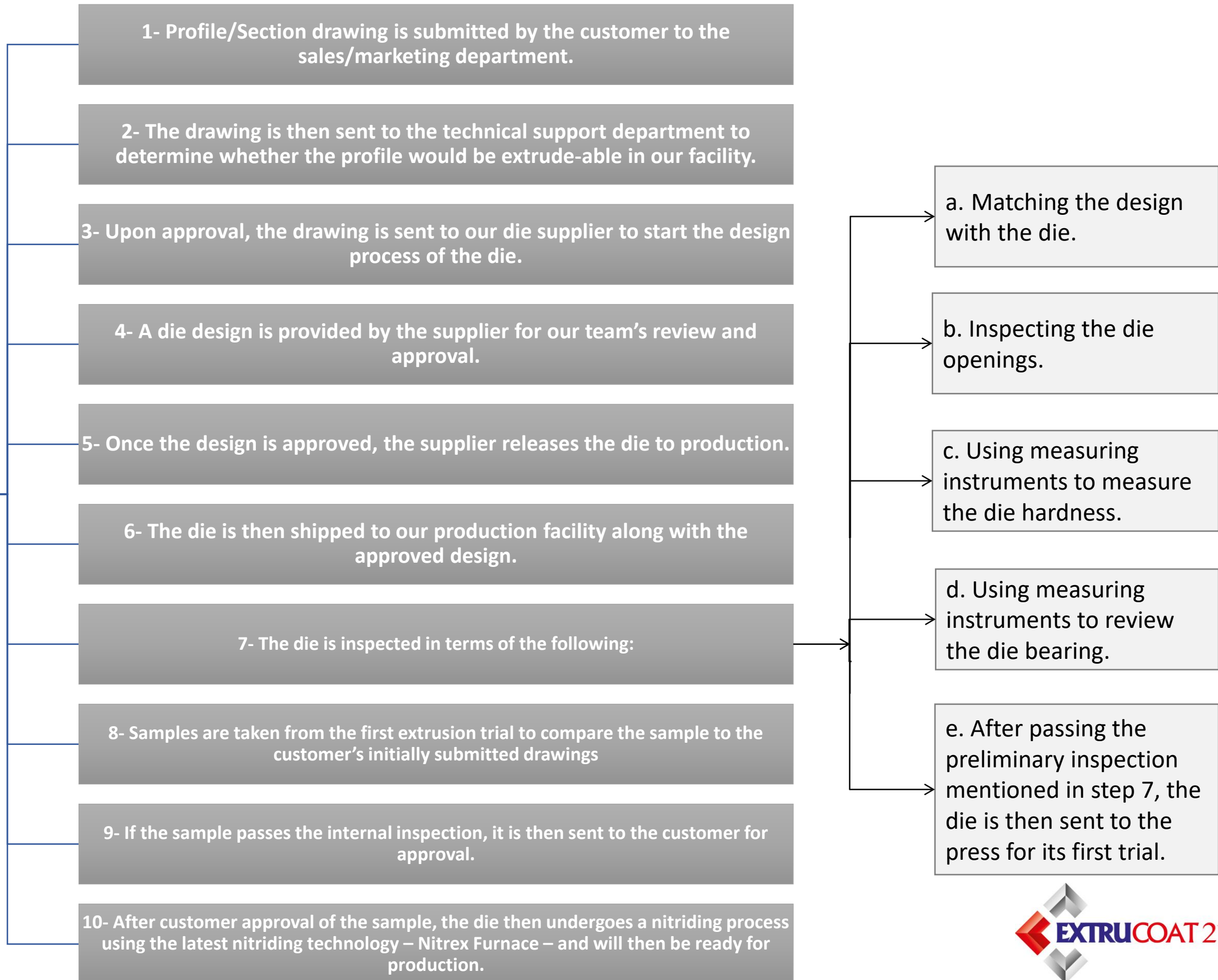


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## Detailed Production Procedure





## Log Receiving Procedure

- 1- Upon the arrival of logs from suppliers, a sample is taken from each melt and cast.
- 2- A straightness inspection is performed on the sample. **(According to BS EN 573-3)**
- 3- Along with shipping documents, a certified chemical analysis for the alloy is attached and reviewed. **(According to BS EN 573-3)**
- 4- Once the analysis yields conformity with the universal alloy chemical composition, the log sample is then transferred to production.
- 5- The log sample is then extruded into profiles.
- 6- The extruded profile samples are then sent to a certified lab to verify the data mentioned in the datasheet and chemical composition analysis. **(According to BS EN 573-3)**
- 7- After passing all the mentioned above inspections, the logs are released to production.





## Extrusion Production Procedure and Quality Checks

### Die Transfer and First Billet

- 1- Dies are transferred from the die shop to production with their corresponding production order and die ID card.
- 2- The dies are assembled inside the appropriate die ring and then are put inside the die oven for preheating before extrusion.
- 3- The die is then left to soak for a minimum of 4 hours and a maximum of 8 hours at a temperature of 450 Degree Celsius.
- 4- When the die is removed from the oven, its temperature is then measured, using the proper measuring instruments, to ensure that it is around 450 Degree Celsius before extrusion.
- 5- The die is then mounted on the die cassette and is ready for production.
- 6- Upon the emergence of the first sample from the first billet of the extrusion, a qualified quality inspector reviews the shape and dimensions of the profile using the proper gauges and measuring instruments. **(According to BS EN 755-9)**
- 7- After passing the first quality check, the operator then proceeds with calling more billets.





## Extrusion Process

1-Automatic production starts using latest technology double puller system that minimizes human interference and, consequently, human error.



2-A qualified quality inspector takes samples throughout the extrusion process according to the universal sampling tables approved by our quality assurance department and stated by Six Sigma process.

3-Extrusions are then left to cool down to the desired temperature before proceeding with the stretching process. (**Quenching process according to BS EN 515**)





## Washing Dies

1-After operation dies , wash dies by soda conc (28-38)% ,temp less than 80°C for removal residue of aluminum .

2- the process takes (4-8) hrs..

Sand blasting: stage for removal residue of chemical washing for dies and return it the normal state.

Used sand (90-120)  $\mu$  under pressure (6 bar)

Before sanding



after sanding





**Nitriding for Dies : stage for protect the dies**

**Used gas (NH<sub>3</sub>+N<sub>2</sub>)**

**(STAGE 1+2):heating used NH<sub>3</sub> 1.4 l/min for one hrs. under 365 °C then reach to 530°C at stage 2**

**(STAGE 3+4):cooling used N<sub>2</sub> 24.4 l/min for 2 hrs. under pressure 10 m bar then used N<sub>2</sub> 8.2 l/min for 1.5 hrs. under pressure 5 m bar till 100°C**





## Stretching, Final Cutting, and Stacking

1. Profiles are then stretched to a percentage of the total extrusion length to achieve the desired straightness, achieve optimum mechanical properties, and to prevent any straightness deformation after ageing process.
2. After stretching, the extrusions are then stacked in bundles to proceed to the final cutting stage.
3. Each order has a specified desired cutting length for the profiles.
4. The final saw operator proceeds with cutting the extrusions to length using an automated final cutting station.
5. After cutting, the semi-finished profiles then pass through two more quality inspectors that observe any surface defects and inspect the profile straightness and length.
6. The profiles are then automatically stacked inside skids to prepare them for the ageing process.
7. The stacking process is fully automated which minimizes any risk of surface damage or stacking defects that might affect profile straightness.



8. Each skid is then finally inspected and approved by a quality control engineer that guarantees that all the prior quality gates have done their purpose and that all the profiles inside the skid are accepted as per the customer drawing. **(According to BS EN 755-9)**
9. The skids are then stacked in batches of 18 skids per charge to prepare for the ageing process.



## Ageing and Packaging

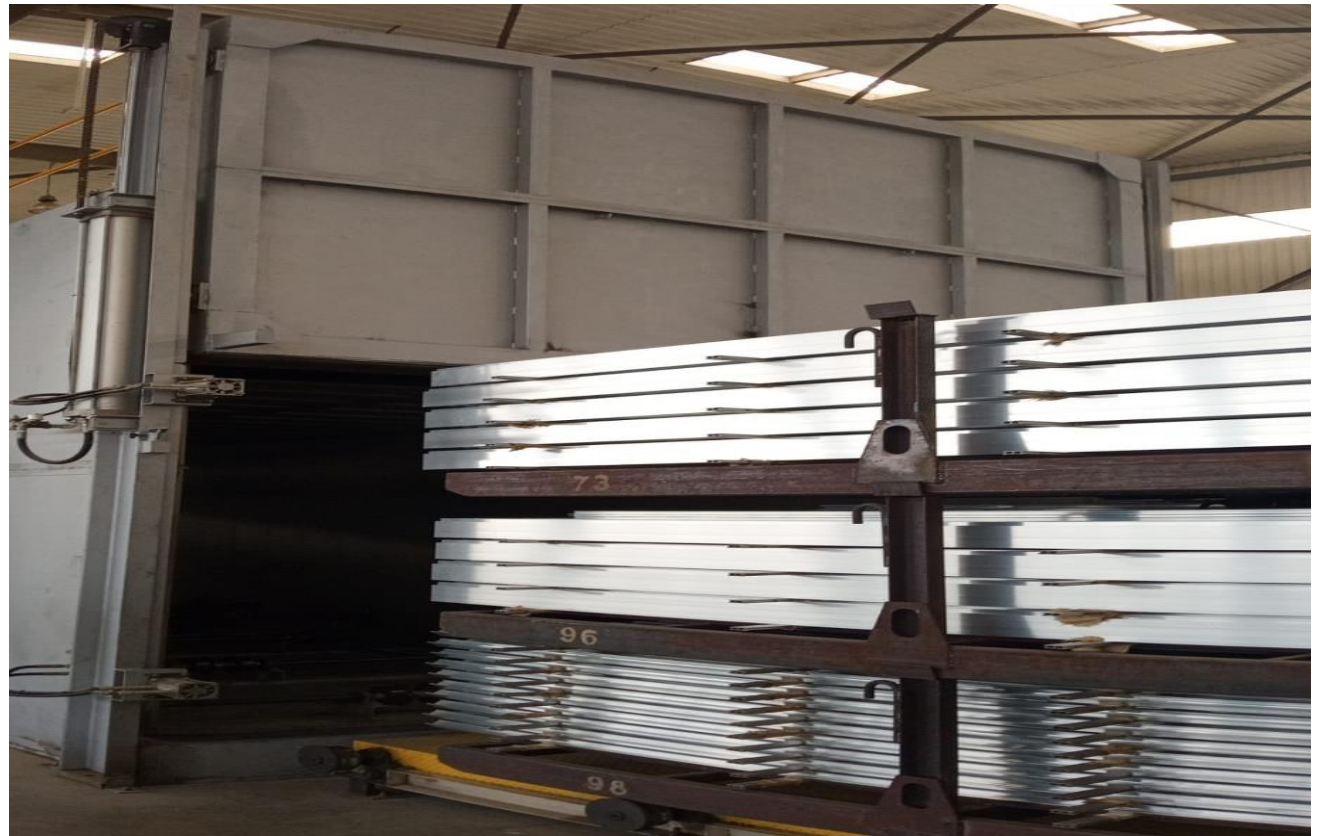
1. The ageing process starts with preheating the oven for 1-2 hours depending on the load to reach the soaking temperature of 190 Degree Celsius.
2. The batch is then soaked for 4 hours.
3. After ageing, the oven starts cooling the profiles using air fans to assure the desired heat tampering is achieved.
4. After the profiles are cooled, a quality control engineer uses the proper measuring instruments to inspect the hardness of the profiles and to ensure that the ageing process was successful.
5. A final inspection station consisting of 2 qualified quality inspectors proceed with de-stacking and bundling of the profiles to the desired quantities. And inspects the profiles in the process in terms of surface quality, profile straightness and dimensions. **(According to BS EN 755-9)**
6. Our complete heat treatment process, from quenching to ageing, always fulfill the requirements to qualify as T6 Heat Treatment. **(According to BS EN 515)**
7. The bundles are then taken to be wrapped in protective nylon.
8. Finally, a quality control engineer collects random samples, according to the universal sampling tables approved by our quality control department and stated by Six Sigma process, and after inspection the product is sent to be dispatched. **(According to BS EN 755-9)**
9. Samples are then taken from the final billet of production and are inspected by a Quality Control Engineer. **(According to BS EN 755-9)**
10. The samples are then stored for 6 months to ensure traceability in case of any customer complaints.



# AI DAWLIA 21 – EXTRUCOAT 21 ( Extrusion & Coater )



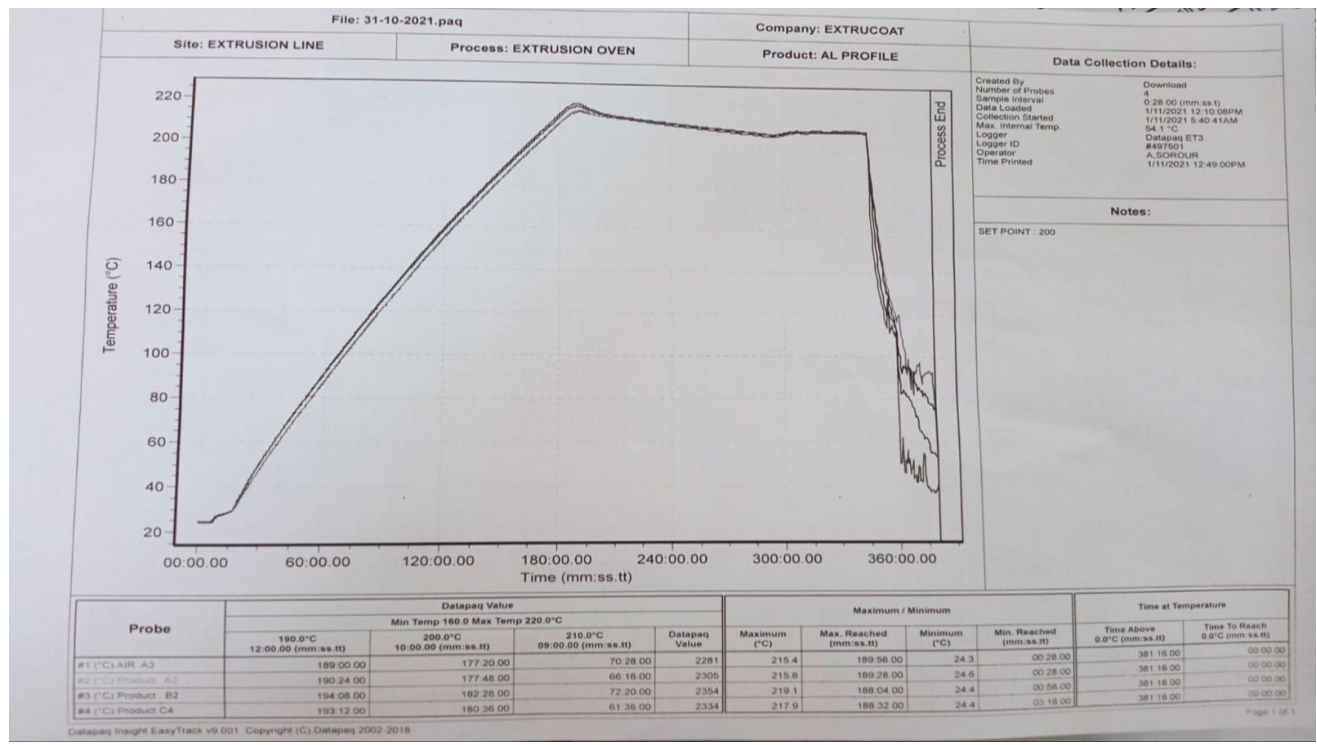
## AGING OVEN



-plus follow the oven by printing the curve of oven each two months



- Follow the general state for aging oven by doing test each three months using data paq



# AI DAWLIA 21 – EXTRUCOAT 21 ( Extrusion & Coater )



## Mechanical Test

**A-hard Matic (hardness tester for new die):** measure hardness for dies before operation

measuring range (46-48) HRC



## **B.Webistr test:**

measure hardness for product after aging stage, and measure the samples that tested by test metric

measuring range (8-14) webistr



**C. Test metric –tests to measure elongation-tensile strength for profiles (according to EN-755-9)**

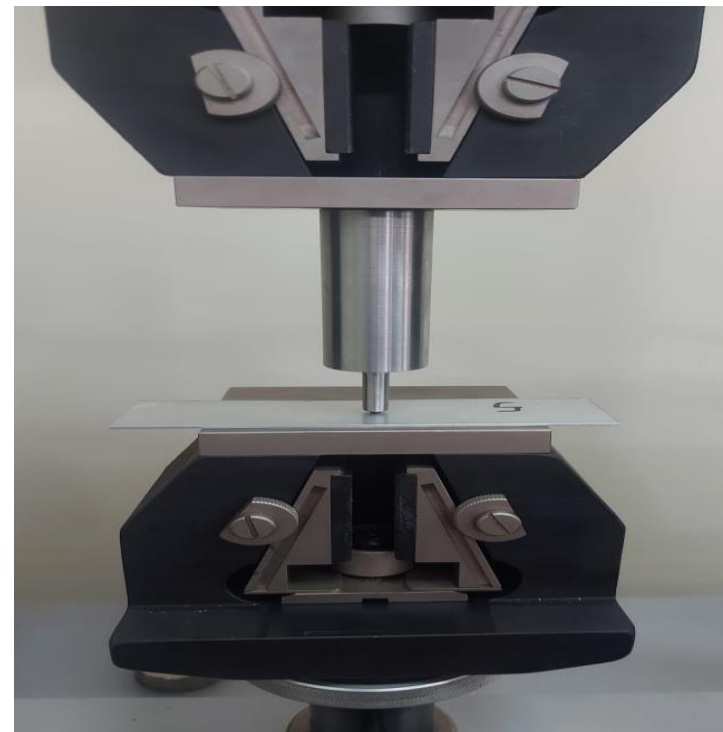
Tensile strength\*width\*thickness=5000kg/cm<sup>2</sup>

Alloy used 6063

Samples are taken from our production (Weekly-Monthly-Quarter)



**Test metric –tests to measure Brinell (according to EN-755-9)**





## Material Receiving (Paint line)

1. Upon arrival of raw materials (Powder, Chemicals or Packaging materials), the attached data sheet is reviewed to assess the raw material compliance with the relevant universal quality standards. **(According to ISO 9001 and Qualicoat Standards)**
2. Random samples are taken for internal quality inspection from each new batch of raw material.
  - a. For powder, a sample is taken and tested mechanically, chemically, and visually. After passing all tests the powder is released for production.

## Painting Production Procedure and Quality Checks

### Preparation and Loading

1. Profiles are checked by our team of trained technicians for any possible surface defects before they are introduced to our vertical painting line. This process is controlled by a team of highly skilled quality assurance engineers that do random checks on the quality of the mill finish profiles that are introduced into the production process.





## Chemical Pre-treatment

**1. The profiles are then moved automatically by a conveyor to undergo the chemical treatment process. Our chemical treatment process consists of the following stages:**

- a. Alkaline degreaser
- b. Two-stage water rinsing to remove any excess chemicals
- c. Alkaline etching
- d. Two-stage water rinsing to remove any excess chemicals
- e. Acid etching
- f. Two-stage water rinsing to remove any excess chemicals
- g. Chromating
- h. Water rinsing
- i. DI Water

\*\*\*The stages mentioned above are followed to ensure maximum powder adhesion.

**2. The process mentioned in point B is controlled by a Quality Assurance Engineer by the following procedures.**

- a. Titrating each chemical tank every 8 working hours to make sure the concentration is within the range to comply with the chemical supplier standard according to the supplied manual.
- b. First test is made on Q panel samples to calculate the Etching rate to make sure it complies with the Qualicoat standard.
- c. Second test is made on Q panel samples to calculate the Coating Weight to make sure it complies with the Qualicoat standard.
- d. The oil content in degreasing tank is monitored closely during production and recorded in the corresponding report.
- e. Each dosing pump used in the process is calibrated monthly.
- f. Chemical tank temperatures can be monitored from control room PLC screen.
- g. Conductivity and PH levels of each water rinsing stage is monitored.

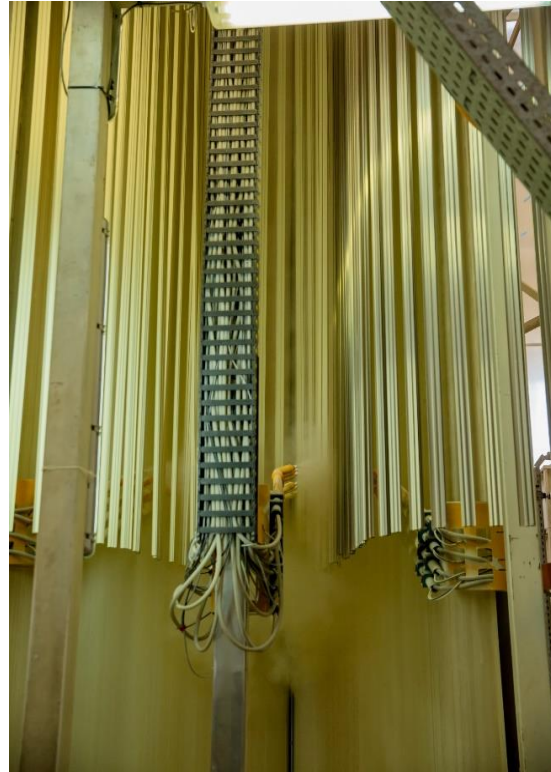


## Drying Stage

1. The profiles then move to drying oven at a temperature of  $95^{\circ}\text{C} \pm 10^{\circ}\text{C}$  to remove any moisture from the profiles to prepare it for powder coating. The drying oven is calibrated weekly to make sure it operates according to standards at the required temperatures.
2. The profiles proceed to painting booth to be coated with the required color.



## Powder Coating



1. The powder coating process is controlled by the following procedures:
  - a. Our booths are sealed from the outside environment to prevent any contamination.
  - b. Each powder spraying gun is calibrated twice per year to ensure the output is homogeneous from all the guns for a perfect surface finish.
  - c. Any gun that does not achieve the required output or electric conductivity is replaced by a brand new one or maintained.
  - d. During production, any recycled powder is separately tested using Q panels to ensure its conformity with Qualicoat standards.
  - e. Booth technician monitors the powder layer thickness to ensure a minimum layer of 60-90 microns using a pre-curing thickness measuring instrument. And this instrument is calibrated daily to ensure its efficiency.

## Polymerization Stage

1. After coating, the profiles then move to the polymerization oven to be cured.
2. Polymerization process is controlled by the following procedures:
  - a. The polymerization oven temperature curve is monitored by testing it once every week to make sure that the oven curve is behaving normally to ensure highest quality.
  - b. The oven is cleaned twice per week to prevent any contamination. The cleaning process is monitored by Quality assurance engineer and Production Engineer.

## Unloading, Quality Inspection, and Packaging

1. The profiles are then cooled and detached from the conveyor to proceed to be inspected before packaging process.
2. A team of trained technicians start a process of elimination to set aside any profile that have any surface defect due to painting and this process is assured by quality assurance engineer that maintains a visual inspection of minimum 10% of total number of accepted profiles. Any profile that is set aside is then stripped from paint layer. Our target for defected profiles is a maximum of 0.035% of our total production.
3. On a sample of 10% of our total production, a quality control engineer measures the powder layer thickness on the profiles being detached before packaging process. The readings are recorded in a report to make sure that all the profiles are coated with a powder layer of a minimum 60-90 microns.
4. On a sample of 10% of our total production, quality control engineer measures the gloss level and compare the color with the standard Q panels that are kept for record to ensure that the color always complies with our customer's choice.
5. Finally, after passing all the quality inspections and production stages the product is packaged and dispatch to delivery.



## Extrusion Process Procedure

- 1- Profile Drawing Approval
- 2- Order Receiving
- 3- Die inspection and Dispatch
- 4- Extrusion Process
- 5- Initial Quality Check
- 6- Stretching and Cutting to Length
- 7- Intermediate Quality Check
- 8- Ageing Process
- 9- Final Quality Inspection and Packaging

## Painting Process Procedure

- 1- Profile Receiving and Visual Inspection.
- 2- Profile Preparation and Loading
- 3- Pre-treatment Tunnel Process (Chemical Treatment)
- 4- Drying Process
- 5- Powder Coating Process
- 6- Polymerization Process
- 7- Cooling and Quality Inspection
- 8- Packaging



## Process Quality Assurance and Verification

### Painting Process Quality Assurance

1. As a general check for all the processes together a Q panel samples are attached to the profiles at a rate of 3 samples every 15 minutes to perform the following tests:

#### **1-Mechanical Tests**

- i. Impact – to ensure the coating polymerization and powder adhesion. This is judged by ensuring that there is not any appearance of cracks. **(Procedure according to ISO 6272-2)**
- ii. Cross hatch – to ensure powder adhesion. **(Procedure according to ISO 2409)**
- iii. Cylindrical – to ensure the coating polymerization and powder adhesion. **(Procedure according to ISO 1519)**
- iv. Cupping – to ensure the coating polymerization and powder adhesion. According to specifications the powder must withstand at least 5 mm of deformation. At our facility we maintain deformation of 9 mm before any micro cracks appear. **(Procedure according to ISO 1520)**
- v. Hardness – to ensure the powder resistance to sharp edges. **(Procedure according to ISO 2815)**





## Process Quality Assurance and Verification

### Painting Process Quality Assurance

#### 2-Chemical Tests

- i. Xylene – to ensure the coating polymerization and test the powder resistance to chemicals. **(Procedure according to Qualicoat)**
- ii. Macho – to ensure the coating resistance to salts. **(Procedure according to Qualicoat)**
- iii. Wet adhesion – to ensure the coating resistance to high temperatures and pressures. Also, to ensure powder adhesion under harsh conditions. **(Procedure according to ISO 2409)**
- iv. Salt spray – multiple tests to ensure the coating quality and resistance to harsh conditions. Depending on the sample resistance to corrosion in hours we issue our guarantee on coated products. **(Procedure according to ISO 9227 and Evaluation according to ISO 4628-2)**



#### 3-Accelerated Weathering Tests

- i. Xenon Arc – to ensure that the coating resistance to harsh conditions by measuring gloss retention and color change. **(Procedure according to ISO 16474-2, Gloss retention according to ISO 2813 and Color change ISO 11664-4)**



#### Extrusion Process Quality Verification

1. Random samples are taken from our production monthly and sent to a certified government lab (Chemistry Administration – Ministry of Trade and Industry) to perform the following tests:
  - a. Chemical Analysis – to ensure that the chemical composition of our products is according to **BS EN 573-3** standard.
  - b. Hardness – to ensure that our products mechanical properties conform with **BS EN 755-2** standard.
  - c. Tensile Strength – to ensure that our products mechanical properties conform with **BS EN 755-2** standard.
  - d. Elongation – to ensure that our products mechanical properties conform with **BS EN 755-2** standard.
  - e. Yield Strength – to ensure that our products mechanical properties conform with **BS EN 755-2** standard.