NATIONAL ALUMINIUM
PRODUCTS COMPANY SAOG

Pre - Qualification Document

03-2023-V.04

Contents

Pre Qualification Statement

Title	Description
Names	National Aluminium Products Co. SAOG
Products / Business	Manufacturer of Aluminium Extrusion in Various Finishes and Design of Associated Systems.
Head Office & Factory Address	P.O.Box: 15, PC 124, Rusayl, Sultanate of Oman
Business Territories	GCC, Middle East, Africa, Asia, Europe
Chief Executive Officer	Mr. Ali Al Shamsi
Commercial Registration No	1220250
Type of Establishment	Public Listed Company
Telephone	+968 24446450 / 24446451
Fax	+968 24446453 / 24446449
Email	sales@napco.co.om / info@napco.co.om
Website	www.napcooman.com
Branch Office	Office 103, 2020 Building Sheikh Zayed Road, Dubai Telephone : +971 48784240

About Us

National Aluminium Products Company SAOG (NAPCO) was established in 1984 and is one of the leading extruders of aluminum profiles in the GCC market. Located in the Sultanate of Oman, the manufacturing plant is spread over 65,000 sq. meters in the Rusayl Industrial Estate.

NAPCO offers a wide range of aluminum profile extrusions in finishes that suit functional modern design specifications. The company has left its mark on the architectural landscape of the Middle East, with its renowned quality products being used in several prominent structures.

Our annual production capacity is 42,000 MT, with four (4) state of the art presses. The extrusion presses are complemented by one anodizing line and two powder coating lines (vertical & horizontal). NAPCO also houses two wood finish lines and a crimping and fabrication facility.

NAPCO's commitment to quality has made it the first extrusion company in the Gulf to receive ISO certifications. We are also the only public limited aluminum extrusion company in the entire GCC. With a consistent focus on innovative production skills and high service standards, we will continue our objective to meet customer demands and expectations.


napco

Chairperson's Message

The aluminum industry in the GCC region has become a major sector and contributor to the economic growth of the GCC countries. Aside from the oil & gas sector, the GCC is looking at the overall diversification of its economy, specifically at its industrial base. Primary aluminum products and aluminum processing (Extrusion, Rolling and Casting) activities are significantly increasing and adding to the growth of the GCC's overall aluminum market.

With the completion of the expansion project in 2016 now the company's objectives are focused on value-added products to enhance its competitive advantage to achieve better growth and profitability in the future.

To compete effectively, the company is being vigilant on implementing efficiency measures and expanding customer base. We believe that these strategies will benefit our customers in getting reliable products at a convenient time and will also bright the company's future.

Chairperson

Quality Policy

NAPCO is committed to serving its customers through

- Consistent and reliable quality.
- Consistent and timely deliveries.
- Competitive prices.
- Safe and healthy environment.

NAPCO is committed to work towards converting customer satisfaction to customer delight for each of its customers through proactively striving to understand its customer's needs and finding innovative ways to fulfil them.

NAPCO is committed to select, train and develop each of its employees so that they are continuously challenged to improve processes with a view to ensuring customer delight. Continuous improvement of all its activities will be a hallmark of NAPCO's business processes.

NAPCO's business and operational processes will completely align all its resources through its quality management system to deliver extreme satisfaction to all its stakeholders.

NAPCO is committed to mitigate all risks involved into customer delight and fulfil all applicable requirements.

Chief Executive Officer

Environmental, Health & Safety Policy

The primary objective of our organizationis to deliver world classproduct to our customer by adhering all applicable legal & other compliance requirements while executing our business and striving to enhance customer satisfaction.

While executing our work at our plant, we are fully committed to conduct all of our operations with due regards to minimizing significant environmental impacts & protect workers from work related injury and ill health.

NAPCO achieve its HSE target by encouraging our employees actively participate in Hazard analysis, opportunity identification, training needs, suggestions on control measures, communications, incident investigations and IMS system reviews.

We consult our employees while preparing the Policies & Procedures, assigning roles, fulfilling legal requirements, controls for interested parties, audit program, and continual improvements.

To achieve our objectives, the IMS program shall include but are not limited to continually improve Environmental, Occupational Health and Safety Management system to enhance its performance.

- ✓ to provide adequate control of the health and safety risks arising from our work activities in line with the prevailing rules in the Sultanate of Oman.
- ✓ to provide and maintain safe plant and equipment;
- ✓ to ensure safe handling and use of substances;
- ✓ to provide information, instruction and supervision for employees;
- ✓ to ensure all employees are competent to do their tasks and to give them adequate training;
- ✓ to prevent/Eliminate accidents and cases of work-related ill health;
- ✓ to maintain safe and healthy working conditions and to protect the environment;

Chief Executive Officer

Mission

Maximise stakeholders value producing high quality aluminium extrusion with a reliable process, while promoting national pride and employee's satisfaction

Vision

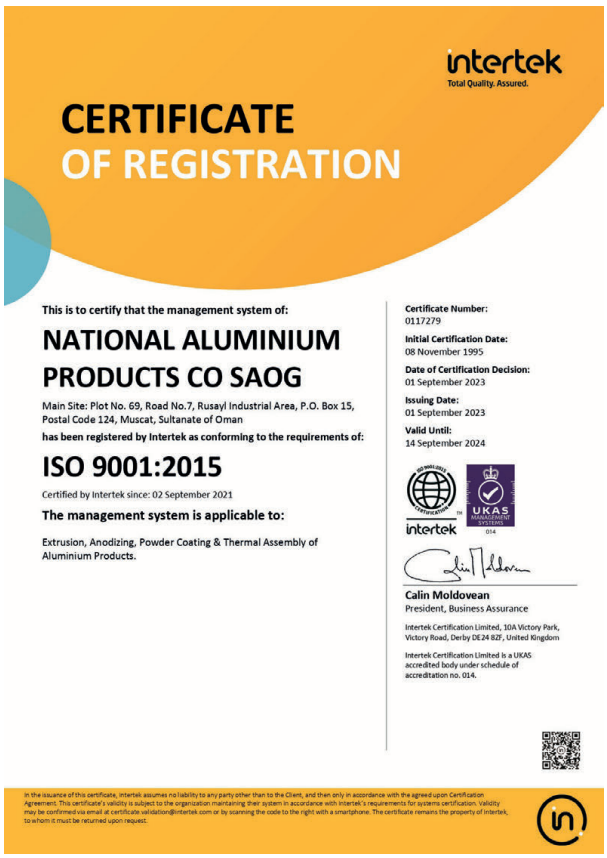
To achieve market leadership in the aluminium extrusion industry being the top choice for customers and employees by operational excellence, integrity and sustainability.

Values

Agility - Care - Trust - Commitment - Accountability

Objective

To achieve and exceed customer expectations and strive to fulfill the highest integrity in a highly demanding market.



intertek
Total Quality. Assured.

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of:

NATIONAL ALUMINIUM PRODUCTS CO SAOG

Main Site: Plot No. 69, Road No.7, Rusayl Industrial Area, P.O. Box 15, Postal Code 124, Muscat, Sultanate of Oman

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

Certified by Intertek since: 02 September 2021

The management system is applicable to:

Extrusion, Anodizing, Powder Coating & Thermal Assembly of Aluminium Products.

Certificate Number:
0117279

Initial Certification Date:
08 November 1995

Date of Certification Decision:
01 September 2023

Issuing Date:
01 September 2023

Valid Until:
14 September 2024

intertek
UKAS
014

Calin Moldovean
President, Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

In the issuance of this certificate, intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The certificate remains the property of Intertek, to whom it must be returned upon request.

Quality

NAPCO is accredited to ISO 9001:2015 by UKAS. NAPCO is dedicated to produce high quality products exceeding our customers' expectations. NAPCO's testing laboratory uses the latest technology. The laboratory uses state of the art equipment and follows the latest standards set for mechanical and physical testing. NAPCO ensures that the quality of the products complies with international standards, as we ensure that European standards are met during manufacturing.

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ISO 9001:2015 CERTIFICATION intertek

UKAS MANAGEMENT SYSTEMS 014

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NATIONAL ALUMINIUM PRODUCTS CO SAOG

Main Site: Plot No. 69, Road No.7, Rusayl Industrial Area, P.O. Box 15, Postal Code 124, Muscat, Sultanate of Oman

has been registered by Intertek as conforming to the requirements of:

ISO 14001:2015

The management system is applicable to:

Extrusion, Anodizing, Powder Coating & Thermal Assembly of Aluminum Products.

Certificate Number:
0155863

Initial Certification Date:
01 September 2023

Date of Certification Decision:
01 September 2023

Issuing Date:
01 September 2023

Valid Until:
31 August 2026

intertek

UKAS MANAGEMENT SYSTEMS 014

Calin Moldovean
President, Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

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Total Quality. Assured.

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

NATIONAL ALUMINIUM PRODUCTS CO SAOG

Main Site: Plot No. 69, Road No.7, Rusayl Industrial Area, P.O. Box 15, Postal Code 124, Muscat, Sultanate of Oman

has been registered by Intertek as conforming to the requirements of:

ISO 45001:2018

The management system is applicable to:

Extrusion, Anodizing, Powder Coating & Thermal Assembly of Aluminum Products

Certificate Number:
0155864

Initial Certification Date:
01 September 2023

Date of Certification Decision:
01 September 2023

Issuing Date:
01 September 2023

Valid Until:
31 August 2026

ISO 45001:2018 CERTIFICATION intertek

UKAS MANAGEMENT SYSTEMS 014

Calin Moldovean
President, Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

Quali Middle East Association

MEMBERSHIP CERTIFICATION

This is to certify that

NATIONAL ALUMINIUM PRODUCTS COMPANY SAOG.

P.O. BOX 15, AL RUSAYL, MUSCAT, SULTANATE OF OMAN

Membership Ref.: A003

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 31.12.2023

Dubai, 1 January 2023

QUALI MIDDLE EAST ASSOCIATION

Faizur Rahman
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
Internet: www.qualimiddleeast.com

QMEA License No: 225591 issued by Dubai Chamber of Commerce & Industry

Qualicoat Certificate

CERTIFICATE

for a **COATING APPLICATOR**

QUALICOAT

SEASIDE

hereby authorises

NATIONAL ALUMINIUM PRODUCTS COMPANY SAOG
PB 15, PC 124
Al Rusayl Industrial Area
Oman

to use the quality label in conformity with the
QUALICOAT 2023 Specifications, applicable from 1 January 2023

Licence No.:	**3600**
Date of Granting:	**29.03.2007**
Valid until:	**31.12.2023**

Zurich, 1 January 2023

QUALICOAT

Ivo Vermeeren
President

Pascale Bellot
Secretary General

QUALICOAT | Tödistrasse 48, 8002 Zurich, Switzerland | www.qualicoat.net

Qualanod Certificate

Authorization
to use the quality sign

QUALITY LABEL
INTERNATIONAL
Qualanod
FOR ANODISING
ARCHITECTURE

ARCO Association Management AG, Zurich certifies that the company

NATIONAL ALUMINIUM PRODUCTS COMPANY SAOG

Rusayl Industrial Area, P.O Box 15
OM – 124 Muscat

Licence number: 2600

is authorized to use the quality sign which is shown above, according to the regulations for the use of the quality label for ARCHITECTURAL ANODIZING as described in the current edition of the Specifications for the QUALANOD quality label for sulfuric acid-based anodizing of aluminium (Edition 01.07.2022). Architectural anodizing is one of the four types of anodizing covered by the Specifications.

Date of issue of the licence:	**29.03.2007**
Period of validity of the licence:	**until 31.12.2023**
Date of issue of the certificate:	**Zurich, 14 December 2022**

CERTIFICATION BODY

Sergio Marchionni
General Secretary
ARCO Association Management AG

Website of label: www.qualanod.net
E-Mail: qualanod@arco.swiss // Phone: +41 (0)43 305 09 77 / 81

Mailing address:
ARCO Association Management AG
P.O. Box, CH-8027 Zurich

Domicile:
ARCO Association Management AG
Dept. QUALANOD
Tödistrasse 42, CH-8002 Zurich

AkzoNobel Certificate

Interpon
powder coatings
EVERY COLOR IS GREEN

AkzoNobel

Interpon D Approved Applicator

Interpon D1000 Series

National Aluminium Product
Company SAOG. (NAPCO)
Rusayl Industrial Area, Muscat,
Sultanate of Oman

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

01 January 2023 to 31 December 2023

Approved for Aluminium Alloys AA 6063

Approved for Pre-treatment Type Chrome Free

António Balsinha
Business Manager
Powder Coatings – Middle East

Date: 31/12/2022
Certification number N° OMEN01D1

AkzoNobel U.A.E. Paints L.L.C.

Interpon
powder coatings
EVERY COLOR IS GREEN

AkzoNobel

Interpon D Approved Applicator

Interpon D2000 Series

National Aluminium Product
Company SAOG. (NAPCO)
Rusayl Industrial Area, Muscat,
Sultanate of Oman

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

01 January 2023 to 31 December 2023

Approved for Aluminium Alloys AA 6063

Approved for Pre-treatment Type Chrome Free

António Balsinha
Business Manager
Powder Coatings – Middle East

Date: 31/12/2022
Certification number N° OMEN01D2

AkzoNobel U.A.E. Paints L.L.C.

Jotun Certificate

JOTUN

Certificate of Approval

National Aluminium Products Co. SAOG

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, 2023

(Certificate valid for one year from date above)

Authorised Signatory

Jotun Powder Coatings UAE (LLC)

JOTUN

Certificate of Approval

National Aluminium Products Co. SAOG

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, 2023

(Certificate valid for one year from date above)

Authorised Signatory

Jotun Powder Coatings UAE (LLC)

JOTUN

Certificate of Approval

National Aluminium Products Co. SAOG

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, 2023

(Certificate valid for one year from date above)

Authorised Signatory

Jotun Powder Coatings UAE (LLC)

Environmental Product Declaration

NATIONAL ALUMINIUM PRODUCTS COMPANY (NAPCO) SAOG

Extruded Aluminum

ASTM INTERNATIONAL

1. General Information

Name of the Manufacturer: National Aluminium Products Company SAOG

Program Operator: ASTM International

Declaration Number: EPD 119

Reference PCR: IBU PCR Part A: Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project report – Version 1.3 (19.06.2014). & IBU PCR Part B: Requirements on the EPD for Products of aluminium and aluminium alloys – Version 1 (07.2014).

Date of Issuance: September 27, 2019

End of Validity: September 27, 2024

Product Name: Extruded Aluminum

Product Group: Products of aluminium and aluminium alloys

Declared Product/Declared Unit: 1 ton extruded aluminium

EPD Scope: Cradle-to-gate A1, A2, and A3

Verification:

The CEN Norm EN 15804 serves as the core PCR. Independent verification of the declaration according to ISO 14025 and ISO 21930.

☐ internal ☒ external

LCA Reviewer and EPD Verifier:

Name: Timothy S. Brooke
Organization: ASTM International

Signature: 

ASTM INTERNATIONAL

2. Product

2.1 Product Description

The declared unit is 1 metric ton extruded aluminium – as Manufactured at NAPCO's Oman facility. To convert from one metric tonne to one kilogram, a factor of 0.001 is applied. Product specifications for the extruded aluminium product line is available at: http://napcooman.com/single_page/download

The product group is representative of the entire range of extruded aluminium products produced at the facility.

The products are manufactured in accordance with the following standards:

- ASTM B221-13 / B221M-13 Standard specification for Aluminium and Aluminium-Alloy Extruded Bars, Rods, Wires, profiles, and Tubes
- BS EN 12020-2 Aluminium and Aluminium Alloy – Extruded Precision profiles in alloys EN AW-6060 and EN AW-6063; Tolerance on dimensions and form
- BS EN 755-3 Aluminium and Aluminium Alloy – Extruded Rod / bar, tube and profiles; Round bar, tolerances on dimensions and form
- BS EN 755-4 Aluminium and Aluminium Alloy – Extruded Rod / bar, tube and profiles; Square bar, tolerances on dimensions and form
- BS EN 755-5 Aluminium and Aluminium Alloy – Extruded Rod / bar, tube and profiles; Rectangular bar, tolerances on dimensions and form
- BS EN 755-6 Aluminium and Aluminium Alloy – Extruded Rod / bar, tube and profiles; Hexagonal bar, tolerances on dimensions and form
- BS EN 755-9 Aluminium and Aluminium Alloy – Extruded Rod / bar, tube and profiles; Profiles, tolerances on dimensions and form
- BS EN 755-2 Aluminium and Aluminium Alloy – Extruded Rod / bar, tube and profiles; Mechanical properties
- BS EN 573-3 Aluminium and Aluminium Alloy – Chemical composition and form of wrought products; Chemical composition and form of products
- BS EN 515 Aluminium and Aluminium Alloy – Wrought products – Temper designations
- BS EN 12020-1 Aluminium and Aluminium Alloy – Extruded Precision profiles in alloys EN AW-6060 and EN AW-6063; Technical condition for inspection and delivery

2.2 Application:

Extruded aluminium is used in a variety of applications (architectural, scaffolding, construction, industrial, automotive, electrical, electronics, etc). Various grades, thicknesses, and dimensions are specified according to requirements specific to the application.

2.3 Technical Data:

Table 1: Technical Information

Name	Value	Unit
Density	2.66-2.84	(kg/m3) x 10^3
Melting point (typical)	475-655	°C
Electrical conductivity (Typical) at 20°C/at 68˚F	Equal Volume:16-36	MS/m (0.58*%IACS)
Thermal conductivity (Typical) at 25˚c/at 77˚F	113-234	W/(m.K)
Average Coefficient of thermal expansion (Typical) 20˚ to 100˚c /68° to 212°F	22.3-23.9	per ˚C
Modulus of elasticity (Typical)	69-73	MPa x 10^3
Hardness (Typical)	19-150	HB
Yield strength (min)	15-490	MPa
Ultimate tensile strength (min)	60-560	MPa
Breaking elongation (min) (50mm & 4D)	>4	%
Strength and other technical properties vary and are available from the manufacturer for specific orders		

2.4 Delivery Status:

The declared unit is 1 ton extruded aluminium. The product is available in different dimensions and thicknesses.

2.5 Base Materials:

The extruded aluminium product is 100% aluminium. Aluminium is is an alloy that also contains small amounts of other base metals. For the purposes of toxicity screening, aluminium is considered a base ingredient with CAS # 7429-90-5.

2.6 Manufacturing:

The process that occurs at NAPCO's Facility includes: Receipt of aluminium billets, extrusion, anodizing, powder coating, crimping, fabrication, packing and dispatch of finished extruded aluminium products.

2.7 Environment and Health Considerations during Manufacturing:

Air: Hazardous air emission releases comply with regulatory thresholds.

Water/soil: Pollutants in wastewater discharge comply with regulatory thresholds.

Noise: Due to adequate acoustical absorption and mitigation devices, measurements of sound levels have shown that all values inside and outside the production plant comply with regulatory thresholds.

2.8 Product Processing/Installation:

The product is installed in a manner and with equipment that is specific to the application for which it was purchased.

2.9 Packaging:
Extruded aluminium is packaged in low density polyethylene plastic wrap. The product is secured to pallets using steel straps. Any other packaging that is required by a particular customer is negotiated separately from the materials contract and is thus outside the system boundary. No other packaging was included in the product system.

2.10 Conditions of Use:
No special features of contents are required for the period of use.

2.11 Environment and Health Considerations During Use:
Extruded aluminium is comprised of inert materials and poses no signficant environmental or health considerations during the use phase.

2.12 Reference Service Life:
No reference service life is declared in this EPD as the scope is limited to A1-A3.

2.13 Extraordinary Effects:
Fire: Aluminum products comply with all local and federal laws with respect to fire hazards and control.

Water: There is no evidence to suggest water runoff or exposure under normal and intended operation will violate general water quality standards.

Mechanical desctruction: Not relevant for aluminum extrusions.

2.14 Re-use Phase:
At the end of the product's service life, extruded aluminiums may be reused or recycled, however, neither of these are included in this EPD. No energy recovery possibilities exist.

2.15 Disposal:
The waste code in accordance with the European Waste Index is 17 04 02. At the end of service life the product may either be re-used, disposed in a landfill, or recycled.

2.16 Further Information:
No further information is reported in this EPD.

2.17 Content Declaration Regarding Potential Toxicity
This EPD makes no claim as to the potential toxicity of the product during use. As noted in Section 2.5, the product is 100% aluminium which is considered a base ingredient with CAS # 7429-90-5. No known health risks are associated the use of extruded aluminium.

3: LCA Calculation Rules

3.1 Declared Unit:

The declared unit is 1 ton extruded aluminium produced by National Aluminium Products Company (NAPCO) SAOG

3.2 System Boundary:

The system boundary for this study is limited to a cradle-to-gate focus. The following three life cycle stages as per the governing PCR are included in the study scope:

- A1- Raw material supply (upstream processes): bauxite extraction, handling, and smelting to produce aluminium billets.
- A2- Transportation: transportation of all input materials and fuels from the suppliers to the gate of the manufacturing facility.
- A3- Manufacturing (core process): the processes that occur at NAPCO's facility: material handling, extrusion, and packaging. Also includes the operations of the manufacturing facility and all process emissions that occur at the production facility.

3.3 Estimates and Assumptions:

All significant foreground data was gathered from the manufacturer based on measured values (i.e. without estimation). The weighted average product profile is assumed to be representative of the various dimensions and options offered by NAPCO.

3.4 Cut-off Criteria:

The cut-off criteria for all activity stage flows considered within the system boundary conform with ISO14044:2006, section 6 of the IBU PCR Part A:

- All inputs and outputs to a (unit) process were included in the calculation for which data is available. Data gaps were filled by conservative assumptions with average or generic data. Any assumptions for such choices were documented;
- In case of insufficient input data or data gaps for a unit process, the cut-off criteria were 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows, e.g. per module A1-A3 were a maximum of 5% of energy usage and mass. Conservative assumptions in combination with plausibility considerations and expert judgement were used to demonstrate compliance with these criteria;
- Particular care was taken to include material and energy flows known to have the potential to cause significant emissions into air and water or soil related to the environmental indicators of this standard. Conservative assumptions in combination with plausibility considerations and expert judgement were be used to demonstrate compliance with these criteria.

3.5 Background Data and 3.6 Data Quality:

Data was gathered for the primary material inputs used in the production of the extruded aluminium for calendar year 2018. Table 2 describe each LCI data source for raw materials (A1), transportation by mode (A2) and the core manufacture process (A3). Table 2 also includes a data quality assessment for all secondary data on the basis of the technological, temporal, and geographical representativeness as per the IBU PCR.

Table 2: Secondary Data Sources and Data Quality Assessment

A1: Raw Material Inputs				
Inputs	**LCI Data Source**	**Geography**	**Year**	**Data Quality Assessment**
Aluminium Billet	Ecoinvent 3.3: GM Aluminium, primary, ingot {IAI Area, EU27 & EFTA}| aluminium, ingot, primary, import from Middle East (Gulf cooperation Council) | Cut-off, U	Middle East	2018	**Technology:** very good Process models average global technology **Time:** very good Data is <5 years old **Geography:** very good Data is representative of global conditions.
PVDF Powder Coating	ecoinvent 3.3: Polyvinylfluoride {GLO}| market for | Cut-off, U	Global	2018	**Technology:** very good Process models average global technology **Time:** good Data is less < 5 years old **Geography:** very good Data is representative of global conditions.
Sulfuric Acid Anodizing Solution	ecoinvent 3.3: Sulfuric acid {GLO}| market for | Cut-off, U	Global	2018	**Technology:** very good Process models average global technology **Time:** good Data is less < 5 years old **Geography:** very good Data is representative of global conditions.
A2: Transportation				
Inputs	**LCI Data Source**	**Geography**	**Year**	**Data Quality Assessment**
Trucking	ecoinvent 3.3: Transport, freight, lorry >32 metric ton, EURO3 {GLO}| market for | Cut-off, U	Global	2018	**Technology:** very good Process models average global technology **Time:** good Data is 6 years old **Geography:** very good Data is representative of global conditions.

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A3: Manufacturing				
Energy	**LCI Data Source**	**Geography**	**Year**	**Data Quality Assessment**
Electricity	ecoinvent 3.3: Electricity, high voltage {OM}| market for electricity, high voltage | Cut-off, U	Oman	2018	**Technology**: very good Process models average Omani technology **Time**: very good Data is < 5 years old **Geography**: very good Data is representative of Oman electricity.
Natural Gas	ecoinvent 3.3: Heat, central or small-scale, natural gas {RoW}| heat production, natural gas, at boiler atmospheric low-NOx non-modulating <100kW | Alloc Rec, U GM	Global	2018	**Technology:** very good Process models average global technology **Time:** very good Data is <5 years old **Geography:** very good Data is representative of global conditions.
Diesel	ecoinvent 3.3: Heat, district or industrial, other than natural gas {RoW}| heat production, heavy fuel oil, at industrial furnace 1MW | Alloc Rec, U	Global	2018	**Technology:** very good Process models average global technology **Time:** very good Data is <5 years old **Geography:** very good Data is representative of global conditions.
Ancillary Materials and Packaging	**LCI Data Source**	**Geography**	**Year**	**Data Quality Assessment**
Pallets	ecoinvent 3.3: EUR-flat pallet {GLO}| market for | Alloc Rec, U UAE	Global	2018	**Technology:** very good Process models average global technology **Time:** very good Data is <5 years old **Geography:** very good Data is representative of global conditions.
Steel Straps	World Steel data for finished cold rolled coil	Global	2012	**Technology:** very good Process models average global technology **Time:** very good Data is 7 years old **Geography:** very good Data is representative of global conditions.

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Plastic Wrap	ecoinvent 3.3: Packaging film, low density polyethylene {GLO}| market for | Alloc Def, U Packaging	Global	2018	**Technology:** very good Process models average global technology **Time:** very good Data is <5 years old **Geography:** very good Data is representative of global conditions.
Lubricants	ecoinvent 3.3: Lubricating oil {GLO}| market for | Alloc Rec	Global	2018	**Technology:** very good Process models average global technology **Time:** very good Data is <5 years old **Geography:** very good Data is representative of global conditions.
Water	**LCI Data Source**	**Geography**	**Year**	**Data Quality Assessment**
Municipal Water	Modeled as elementary flow	N/A	N/A	N/A
Waste	**LCI Data Source**	**Geography**	**Year**	**Data Quality Assessment**
Aluminium recycled	Internally recycled	N/A	N/A	N/A

3.7 Period under Review:

Data was gathered for the primary material inputs used in the production of the extruded aluminium for calendar year 2018.

3.8 Allocation:

NAPCO produces valuable aluminium scrap and no other valuable coproducts from their extrusion operations. The IBU PCR requires economic allocation but, in this case, the overall value of the various coproducts was less than 5% of total revenue. Thus, in accordance with the PCR's principle of making conservative estimations, we did not allocate any of the environmental burden to the coproducts and instead allocated 100% to the primary product output.

Recycling processes were treated as closed loop recycling because the scrap is recycled in the same facility. No credits were given to the product system for the value of the recyclable materials and the burden to recycle the scrap was incorporated within the modeled unit processes.

3.9 Comparability:

This LCA was created using industry average data for upstream materials. Data variation can result from differences in supplier locations, manufacturing processes, manufacturing efficiency and fuel types used.

4: LCA: Scenarios and additional technical information

The scope of this EPD is limited to modules A1-A3 and thus no additional scenario or technical information is applicable.

5. LCA: Results

Life cycle impact assessment (LCIA) is the phase in which the set of results of the inventory analysis – the inventory flow table – is further processed and interpreted in terms of environmental impacts and resource use inventory metrics. As specified in the IBU PCR, Table 3 below summmarizes the LCA results for the cradle-to-gate (A1-A3) product system.

Table 3: LCA Results
Description of the System Boundary
(x : included in LCA; mnd: module not declared)

Product			Construction Installation		Use							End-of-life				Benefits of Loads Beyond the System Boundary		
Raw Material supply	Transport	Manufacturing	Transport	Construction/Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-Construction/ Demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd

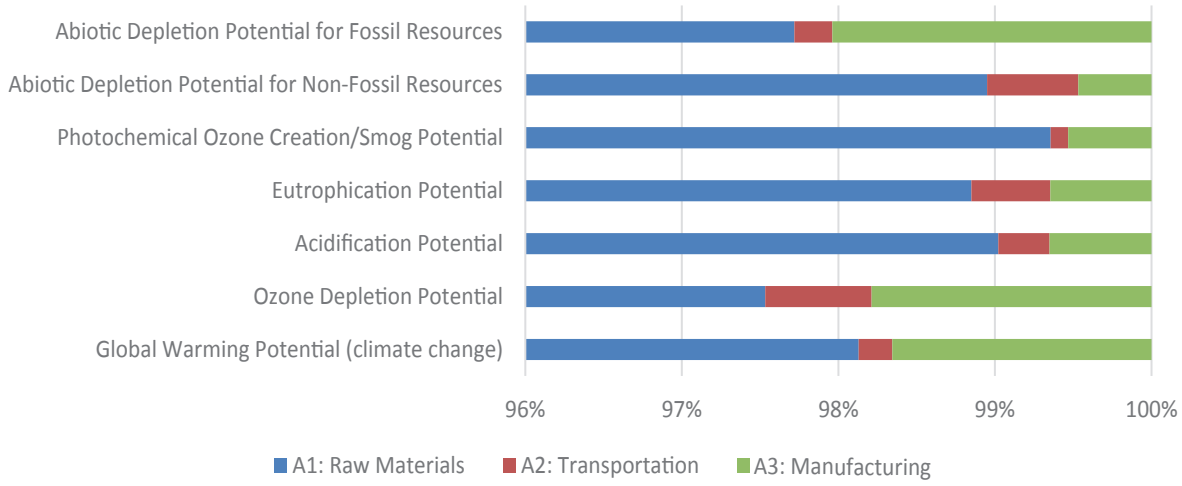
Table 3 Continued: Impact Assessment Results for 1 ton Extruded aluminium

LCIA Indicators		Unit	A1-A3 Total
GWP	Global Warming Potential (climate change)	kg CO2-eq	1.73E+04
ODP	Ozone Depletion Potential	kg CFC-11-eq	1.05E-03
AP	Acidification Potential	kg SO2-eq	5.89E+01
EP	Eutrophication Potential	kg PO4-eq	9.20E+00
POCP	Photochemical Ozone Creation/Smog Potential	kg C2H4 eq	5.96E+00
ADPE	Abiotic Depletion Potential for Non-Fossil Resources	kg Sb eq	1.39E-02
ADPF	Abiotic Depletion Potential for Fossil Resources	MJ Surplus	2.37E+05
Inventory Metrics – Resources		**Unit**	**A1-A3 Total**
PERE	Use of renewable primary energy as energy	MJ	2.21E+03
PERM	Use of renewable primary energy as a material	MJ	0.00E+00
PERT	Total use of renewable primary energy	MJ	2.21E+03
PENRE	Use of non-renewable primary energy as energy	MJ	2.64E+05
PENRM	Use of non-renewable primary energy as a material	MJ	0.00E+00
PENRT	Total use of non-renewable primary energy	MJ	2.64E+05
SM	Use of secondary materials	kg	0.00E+00
RSF	Use of renewable secondary fuels	MJ	0.00E+00
NRSF	Use of non-renewable secondary fuels	MJ	0.00E+00
FW	Use of freshwater resources	m3	4.52E+01
Inventory Metrics – Waste and Outputs		**Unit**	**A1-A3 Total**
HWD	Disposed of Hazardous Waste	kg	0.00E+00
NHWD	Disposed of Non-Hazardous Waste	kg	0.00E+00
RWD	Disposed of Radioactive Waste	kg	0.00E+00
CRU	Components for Reuse	kg	0.00E+00
MFR	Materials for Recycling	kg	0.00E+00
MER	Materials for Energy Recovery	kg	0.00E+00
EEE	Exported Electrical Energy (Waste to Energy)	kg	0.00E+00
ETE	Exported Thermal Energy (Waste to Energy)	kg	0.00E+00

6. Interpretation

Figure 1 shows the relative contribution to the cumulative impacts of the A1 through A3 phases of the cradle-to-gate life cycle. All impact categories are dominated by Module A1. This is due to the fact this module incorporates all the upstream extraction and refining of primary aluminum which is known to be an energy-intensive process. Module A2 (transporting the aluminum to the production facility) and Module A3 (the extrusion of the aluminum) cause between 1-2% of impacts and no more than 3% combined in any impact category.

Figure 1: Contribution of Modules A1, A2, and A3 to Environmental Impact Indicators



7. Requisite Evidence

No environemental claims beyond the LCA results are made in this EPD and thus no additional evidence is required.

8. References

1. Athena Institute: 2019 - A Cradle-to-Gate Life Cycle Assessment of Extruded aluminium Manufactured by NAPCO. Background LCA report to this EPD.
2. EN 15804:2012 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
3. IBU PCR Part A: Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project report – Version 1.3 (19.06.2014).
4. IBU PCR Part B: Requirements on the EPD for Products of aluminium and aluminium alloys – Version 1 (07.2014).
5. ISO 21930: 2017 Building construction – Sustainability in building construction – Environmental declaration of building products.
6. ISO 14025: 2006 Environmental labeling and declarations - Type III environmental declarations - Principles and procedures.
7. ISO 14044: 2006 Environmental management - Life cycle assessment - Requirements and guidelines.
8. ISO 14040: 2006 Environmental management - Life cycle assessment - Principles and framework.

Commercial Registration

Invest Easy استثمر بسهولة
One Stop Shop المحطة الواحدة

سلطنة عمان
Sultanate of Oman

شهادة السجل التجاري
Commercial Registration Certificate

CR Number	1220250 (Mortgaged)	(مرهون) 1220250	رقم السجل التجاري
Commercial Name		الشركة الوطنية لمنتجات الالمنيوم ش م ع ع	الاسم التجاري
Legal Type	Public Joint Stock Company	شركة مساهمة عمانية عامة	الشكل القانوني
Head Q	Rusayl Industrial City (Madayn) / Al-Seeb / Muscat Governorate	مدينة الرسيل الصناعية (مدائن) / السيب / محافظة مسقط	المركز الرئيسي
P.O.Box:	15 Postal Code: 124	124 :رمز بريدي	15 :ص.ب
Telephone:	968 92201787 Fax: 968 24446453	968 24446453 :فاكس	968 92201787 :هاتف
Email:			البريد الإلكتروني:
Establishment Date:	14/01/1984		1984/01/14 :تاريخ التأسيس
Registration Date:	08/12/1984 Active	نشط	1984/12/08 :تاريخ التسجيل التجاري
Expiry Date:	07/12/2024		2024/12/07 :تاريخ انتهاء السجل التجاري
Fiscal Year End:	31/12		12/31 :تاريخ انتهاء السنة المالية
Cash Capital:	3,357,145		3,357,145 :رأس المال النقدي
Kind Capital:	0		0 :رأس المال العيني
Total Capital (Omani Riyal):	3,357,145		3,357,145 :رأس المال الكلي (بالريال العماني)
No. of Shares:	3357145		3357145 :عدد الأسهم

Registered Commercial Activities — الأنشطة التجارية المسجلة

251106:Aluminium workshops	251106:ورش الألمنيوم
331101:Repair and maintenance of structural metal products	331101:إصلاح وصيانة المنتجات المعدنية الإنشائية
473005:Mobilizing private gas station (Diesel)(license pending)	473005:محطة تعبئة وقود خاصة (ديزل) (النشاط غير مرخص)

The Commercial Registration is not considered as an approval or a warranty for a license of bringing in labour.

لا يعتبر هذا السجل التجاري موافقة أو ضمانا للحصول على ترخيص باستقدام قوى عاملة وافدة

أمانة السجل التجاري
2019/12/09

إعادة طباعة :
SALAH KHAMIS AYIL

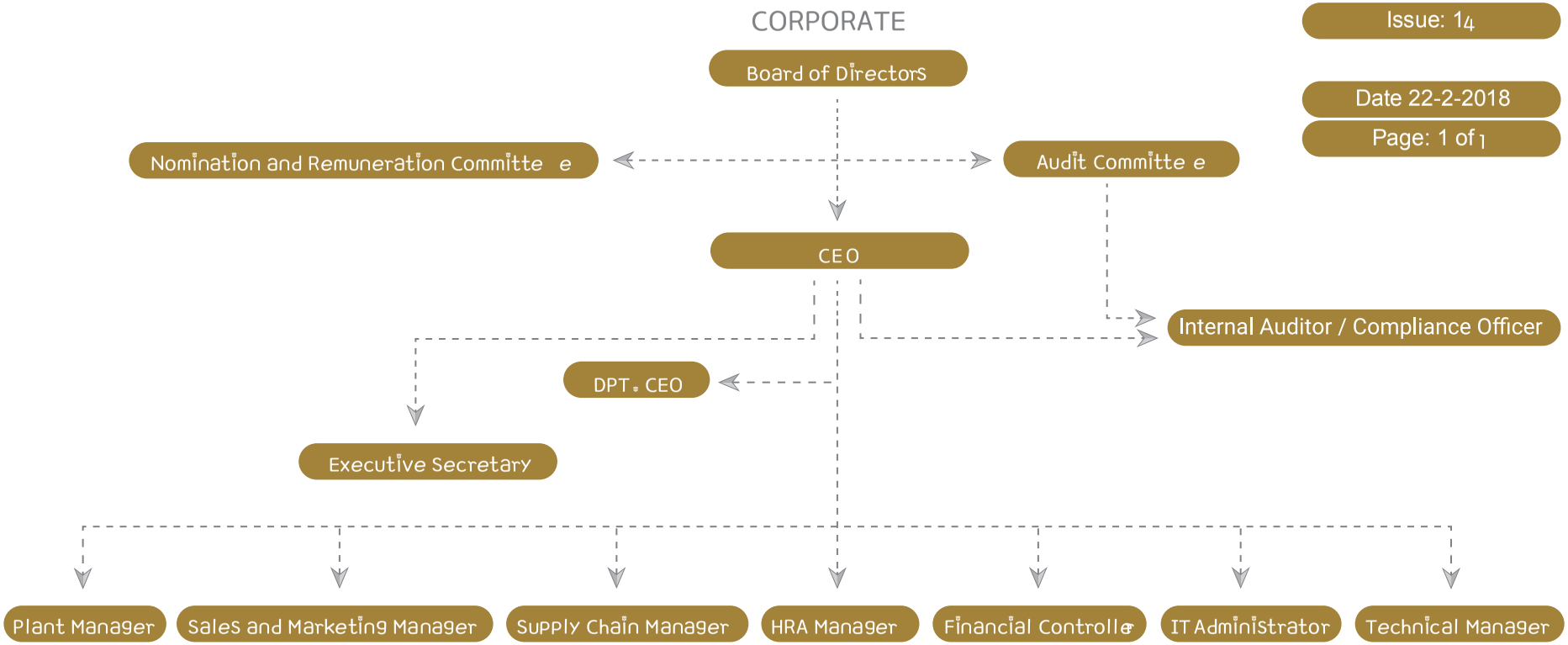
Page 1 of 12 صفحة 1 من 12

Email: investeasyhelp@moci.gov.om: البريد الإلكتروني
Investors Service Department Website: www.investeasy.gov.om موقع دائرة خدمات المستثمرين:
F: http://facebook.com/investeasy.oman, T: twitter.com/invest_easy, call center: 2481 7210 مركز الاتصال:

National Aluminium Products Co. S.A.O.G

Quality Manual
Organisation Chart
Ref: NA [M] MS-014
Issue: 14

Date 22-2-2018
Page: 1 of 1



CEO	1	Sales and Marketing Manager	1
DPT, CEO Supply Chain & Logistics	1	IT Head	1
Executive Secretary	1	HRA Manager	1
Financial Controller	1	Procurement & Logistics Manager	1
Plant Manager	1	Internal Auditor / Compliance Officer	1
Technical Manager	1	Total	11


USA
ETHIOPIA
ADDIS ABABA
EUROPE
INDIA
MUMBAI
UAE
DUBAI
SALES OFFICE
MIDDLE
EAST
NORTH
AFRICA

Products

Aluminium Extruded Profiles

Architectural Applications

- Door / Window
- Curtain Wall
- Louver
- Railing Fences
- Shop Front
- Handrail

Industrial Applications

- Transport
- Marine
- Furniture
- Scaffolding
- Tent
- Standard Profiles

Services

- Powder Coating
- Polishing
- Natural (Wood Coating)
- Anodizing
- Thermal Crimping

Other Services

- Mechanical Testing
- Metal Nitriding
- Non-contact dimensions check on Ascona

Quality Certifications

- ISO 9001:2015 (Quality Management System)
- Qualicoat
- Qualanod

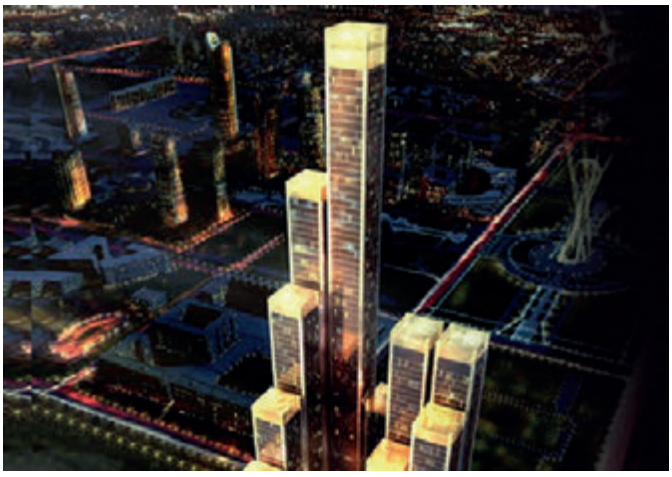
Environment Health & Safety Certifications

- ISO 14001 : 2015 (Environment Management System)
- ISO 45001 : 2018 (Occupahonal Health & Safety Management System)

Products and Architectural Applications

Architectural Applications

We always stood outstanding in the competitive market of GCC by adopting and developing the technologies based on the requirements.



Products / Architectural Applications

NAPCO Systems and Specifications

NAPCO has developed profiles based on market requirements

Sliding windows and doors

Sliding 55 mm | Sliding 80 mm | Sliding 92 mm | Sliding 95 mm | Sliding 100 mm
Sliding 105 mm | Sliding 120 mm | Sliding 121 mm | Sliding 124 mm | Sliding 125 mm

Hinged Windows and Doors

Hinged Windows and Doors 42 mm | Hinged Windows and Doors 45 mm
Hinged Windows and Doors 50 mm | Hinged Windows and Doors 55 mm

Cold Series

N45 mm Casement & Door | N105 mm Sliding |N50 mm Curtain Wall

Thermal Break

Cloud55 mm | Cloud 60 mm | Cloud 55 mm | Cloud 120 mm

In Addition to the above NAPCO has extensively developed profiles with wide variety where customer can choose the required profiles such as.

Curtain Walls

NAPCO has developed Mullions, Transoms, Pressure Plates, Cover Caps, Corner Mullions and Transoms, Special Beads suitable for the construction of curtain walls.

- Louver Profiles
- Shop Front Profiles
- Handrails
- Round, Square and Rectangular Tubes
- Flat Bars, U - Shaped Channels, T- Shaped Channels, L- Angles and Standard Profiles
- Corner Cleats
- Corner Cleats

Products / Industrial Applications

Facilities

Extrusion Press:

Press 1: 2000 MT, 8 Inch Press from SMS, Germany
Press 2: 2800 MT, 8 Inch Press from Danieli Breda, Italy (Advanced BICS Quenching Facility)
Press 3: 1800 MT, 7 Inch Press from Tecalex, Spain
Press 4: 1800 MT, 7 Inch Press from Tecalex, Spain

Anodizing Line:

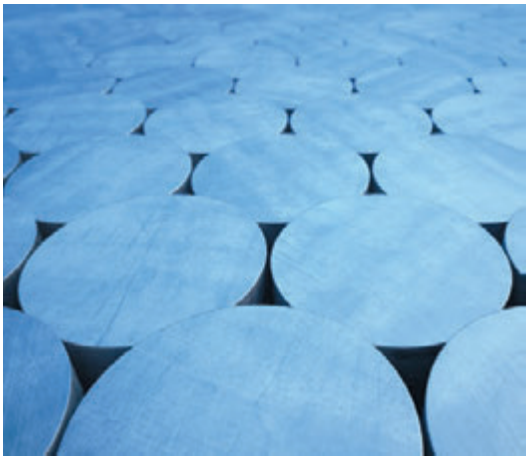
Anodizing Line: SAS, England (Qualanod Approved Line)

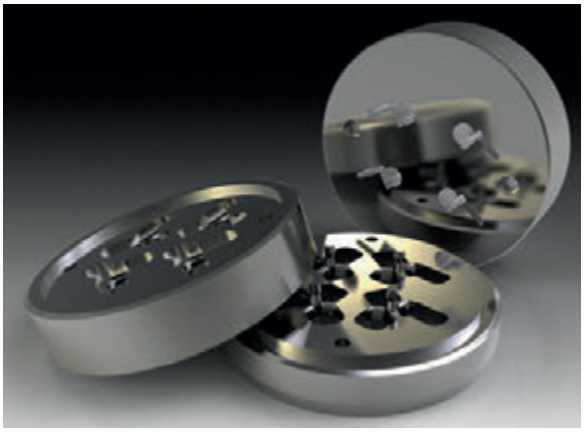
Powder Coating Line:

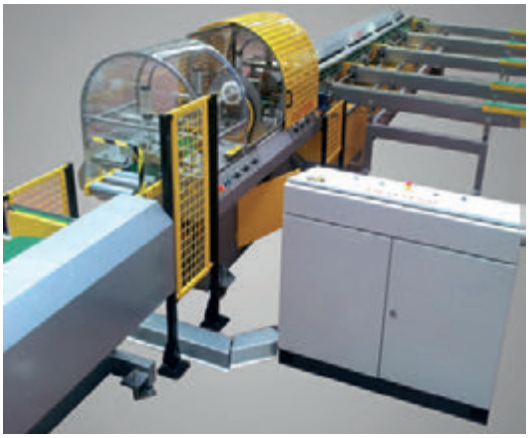
Horizontal Line: Ercon, UK (Seaside Qualicoat Approved Line)
Vertical Line: Transmetal, Italy (Qualicoat Approved Line)
Natural Line: Eurolacca, Italy

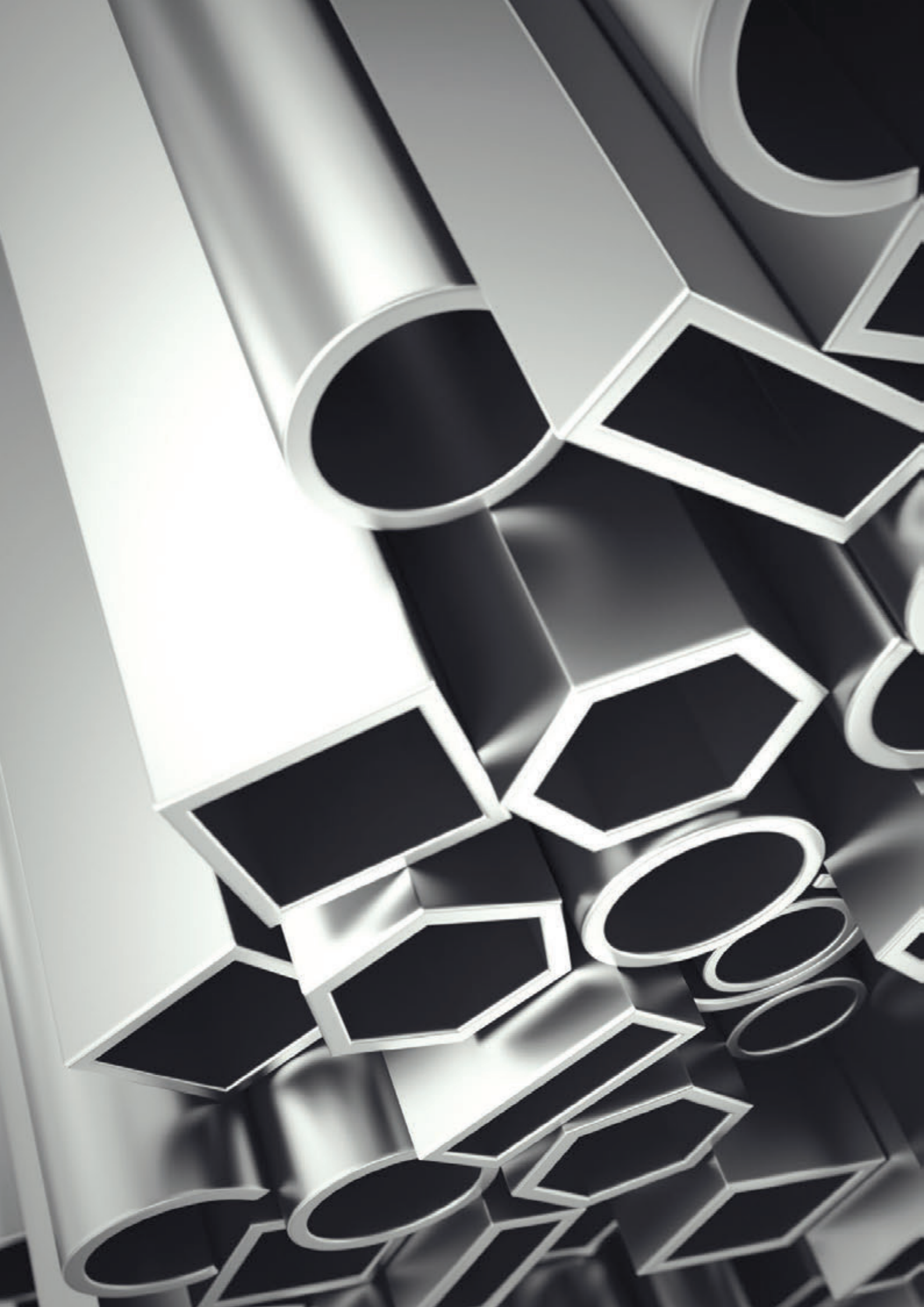
Thermal Break Line:

Crimping: Oemme, Italy









Selection of Alloy

a) Alloy Availability

Alloy AA6063	Alloy AA6061	Alloy AA6060	Alloy AA6082	Alloy AA6005W	Alloy AA6101
The most popular extrusion alloy. It has good surface finish, is corrosion resistant and can be heat treated for strength	Most versatile alloy of the group has an improved Magnesium Silicon alloy with the ability to develop strengths higher than 6063 alloy. Has good corrosion resistance and used in structural and transportation applications	6060 Aluminium alloy is an alloy in the wrought Aluminium-Magnesium-Silicon family. It can be formed by extrusion, but is commonly heat treated to produce tempers with a higher strength but lower ductility. It is commonly used alloy for very complex cross sections and has very good anodizing response.	This alloy has good tensile strength and has good extrudability. widely used for railways, automobiles, profile structures with complex sections, platforms, pipelines, masts for sailing, boats, furniture etc.	A versatile alloy that can be used for various structural and architectural applications in the transportation, industrial, electrical machinery and equipment industries. Alloy 6005A can be used to produce standard and custom shape extrusions that are solid (open) or hollow in design. 6005A provides good corrosion resistance and finishing characteristics for anodizing or paint.	This is high electrical conductivity Aluminium alloy also possessing good mechanical properties. It is hardened by heat treatment. It is commonly used in electrical bus bar application.

b) Chemical Composition of Alloys

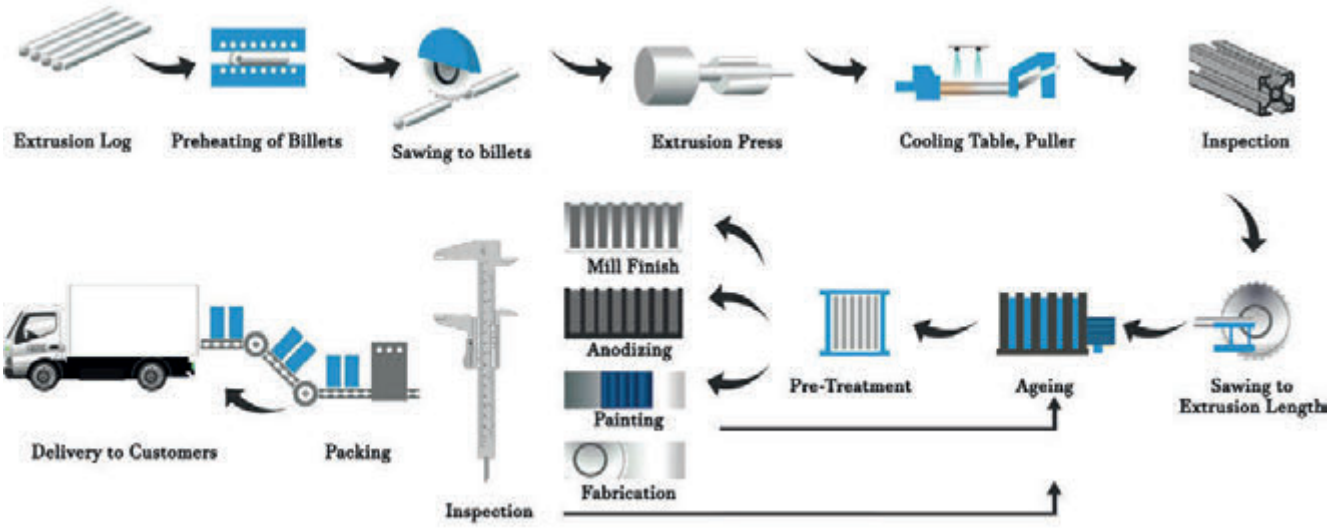
Percentage	Alloy AA6063	Alloy AA6060	Alloy AA6061	Alloy AA6082	Alloy AA6005A	Alloy AA6101
% Mg	0.45- 0.90	0.35-0.6	0.80 -1.20	0.6 -1.2	0.40- 0.70	0.35- 0.8
% Si	0.20 - 0.60	0.30-0.60	0.40-0.80	0.7 - 1.3	0.50- 0.90	0.3 - 0.7
% Cr	< 0.1	< 0.05	< 0.04 -0.35	< 0.25	< 0.3	< 0.10
% Zn	< 0.1	< 0.15	< 0.25	< 0.2	< 0.2	< 0.10
% Fe	< 0.35	0.1- 0.3	< 0.7	< 0.5	< 0.35	< 0.50
% Cu	< 0.1	< 0.1	0.15 - 0.40	< 0.1	< 0.3	< 0.10
% Mn	< 0.1	< 0.1	< 0.15	0.40-1.0	< 0.5	< 0.03
% Ti	< 0.1	< 0.1	< 0.15	< 0.1	< 0.1	-
Other Impurities	< 0.15 (0.05 Each)	< 0.15	< 0.15 (0.05 Each)	< 0.15 (0.05 Each)	0.15 (0.05 Each)	0.10 (0.03 Each)
Aluminium	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder

c) Mechanical Properties of Alloy

Different mechanical properties can be obtained by different aging cycle based on customer require – ments such as T4, T5 & T6

	6060			6063			6061			6082			6005			6101
	T4	T5	T6	T4	T5	T6	T4	T5	T6	T4	T5	T6	T4	T5	T6	T6
Ult. Tensile Strength N/mm² (min)	120	160	190	130	175	215	180	–	260	205	270	290	180	–	270	215
0.2% Proof Strength N/mm² (min)	60	120	150	65	130	170	110	–	240	110	230	250	90	–	215	160
Hardness (Brinell)	50	60	70	50	65	75	65	–	95	70	90	95	50		85-90	65
% Elongation on 50mm (min)	14	6	6	12	6	6	13	–	7	12	6	6	6	–	6	6
Density-g/cm³	2.7															
Melting Range -°C	585-650			650			600-650			580-650			580-650			585-650

Overview of Extrusion Department Method Statement



Following steps are involved in extrusion process

1: Billet preparation
2: Die preparation
3: Extrusion
4: Quality Inspection
5: Ageing

Billet Preparation:

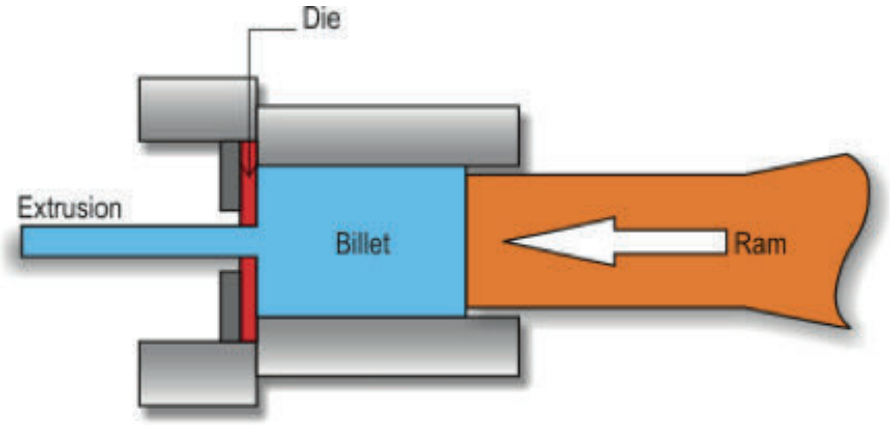
- Alloy will be selected from stock yard by considering requirement of customer. Logs will be cleaned with compressed water to remove dirt's and external impurities on log surface.
- Cleaned logs will be loaded on feeding table. Logs will be subjected for pre-heating. Logs will be heated between 420 – 520 C depending upon profile shape and criticality.
- Logs will be cut into smaller length, and this is called billets. Billet length will be calculated by considering profile length, stretching allowance, profile weight for best recovery.

Die Preparation:

- Dies will be polished and inspected before each production.
- Die will be assembled with supporting tools (Backer, die ring) and die will be subjected for pre-heating at 400-480 C depending upon profile shape and criticality.
- Die will be heated between 150-480 Mins depending upon oven type, die type and size.

Extrusion:

- Pre-heated die will be mounted on die slide along with extrusion supporting tools (bolster and sub-bolster).
- Billet will be transferred to container by cradle. Ram speed and puller force will be set as per extrusion ratio, die criticality and number of cavities.
- Quenching type will be selected by considering alloy, shape, and thickness of the profile.
- Profiles will be straightened by stretching process and profiles must be cooled down to room temperature before stretching.
- Straightened profiles will be transferred to finish saw cutting table to cut profiles into final length. After finish cut, profiles will be staked in skips (automatic / manual) in a way that profiles will not get damaged / dented with proper space for air circulation during ageing process.



Quality Inspection

- For quality inspection, sample from second billet will be selected and will be subjected for dimension check, surface check. Quality inspection will be performed as per standards mentioned in approved drawing.

- Dimension check will be performed by conventional tools (Vernier caliper, micrometer, tri-square, flat bar, protractor). Profiles will be checked with gauges for critical dimension (SC). Dimensions observed during inspection of sample from second billet will be recorded in extrusion profile check sheet.

- Profiles with complex shapes will be checked in Ascona (Non-contact dimension measuring instrument) and the value will be recorded.

- Surface of profile will be checked by polishing and black spray test. Dimension and surface check will be performed at the frequency of 5 billets.

- Dies which are not meeting dimension / surface requirement will be taken out of extrusion and will be sent for die correction.

Ageing:

- Profiles stacked in skips will be arranged in trolley for ageing process. Trolley with baskets staked with profiles will be placed inside ageing oven and ageing process starts with ramp up.
- Ageing parameter (temperature & time) will be set as per alloy and temper. Profiles will be subjected for heat treatment at set temperature and time and ageing oven will be opened automatically once ageing process is completed.
- Trolleys will be taken out of ageing oven and profiles will be allowed to cool down to room temperature.
- Hardness of profiles from each skip will be checked randomly at both end of profiles and the hardness will be recorded in ageing oven register.
- Profiles with various finishes will be identified with different color tags and skips will be transferred to WIP yard by considering the final finish for next process.

Extrusion Capability:

- Length: 3-10 meters (Less than 3 meters – Fabrication cut).
- Profile size: Flat bar – 300 mm. Hollow tube – 250 mm.
- Alloy: 6060, 6063, 6005, 6061, 6082, 6351, 6101 in T4, T5 & T6 temper

Extrusion Capability:

Following standards are followed in extrusions.

> BS EN 12020-2 / BS EN 755-9 – Dimension
> BS EN 755-2 – Mechanical properties
> BS EN 573-3 – Chemical composition
> ASTM B 221 M – Mechanical properties and chemical composition.

Anodizing

Jigging:

- Profiles will be jigged in anodizing beam at both ends by clamp or clips up to Max. 40 mm. Number of pieces per jig will be arrived by considering perimeter, length, and weight of profile. Proper jigging will be ensured for consistent surface finish during anodizing.

Degreasing:

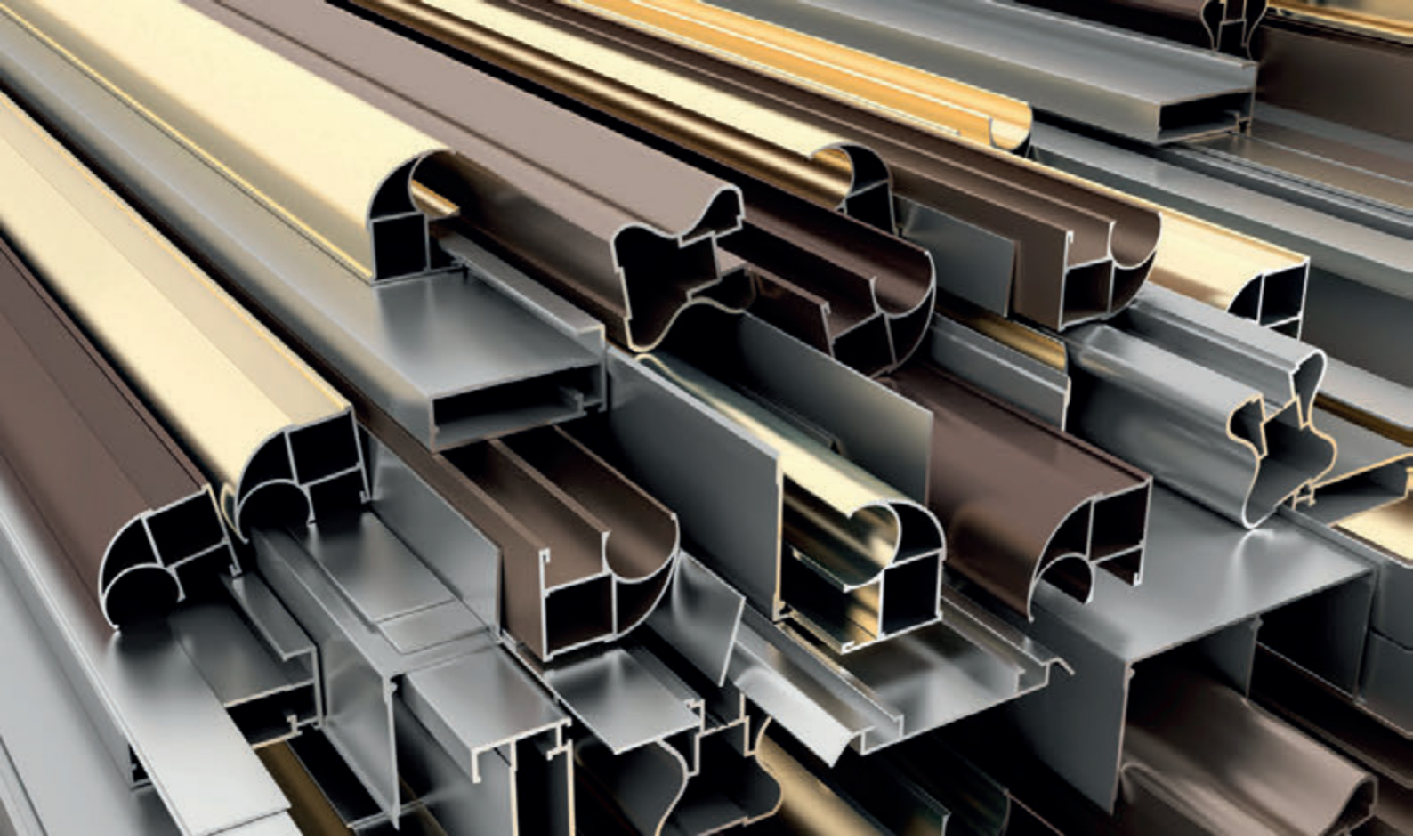
- Oil, grease, polishing paste and other foreign particles sticking on profiles from previous operations will be removed in this process. Degreasing tank will be maintained at 56-60 C for 2 -10 minutes with salt concentration of greater than 50 grams per liter.

Etching:

- Profiles after degreasing will be subjected for etching process. Profiles will be immersed in etching tank which contains sodium hydroxide solution with concentration of 60-80 grams per liter. Etching tank will be maintained between 60-70 C and process will take place for 8-15 minutes depending upon profile surface. Aluminium content in anodizing tank must be maintained less than 160 grams per liter.

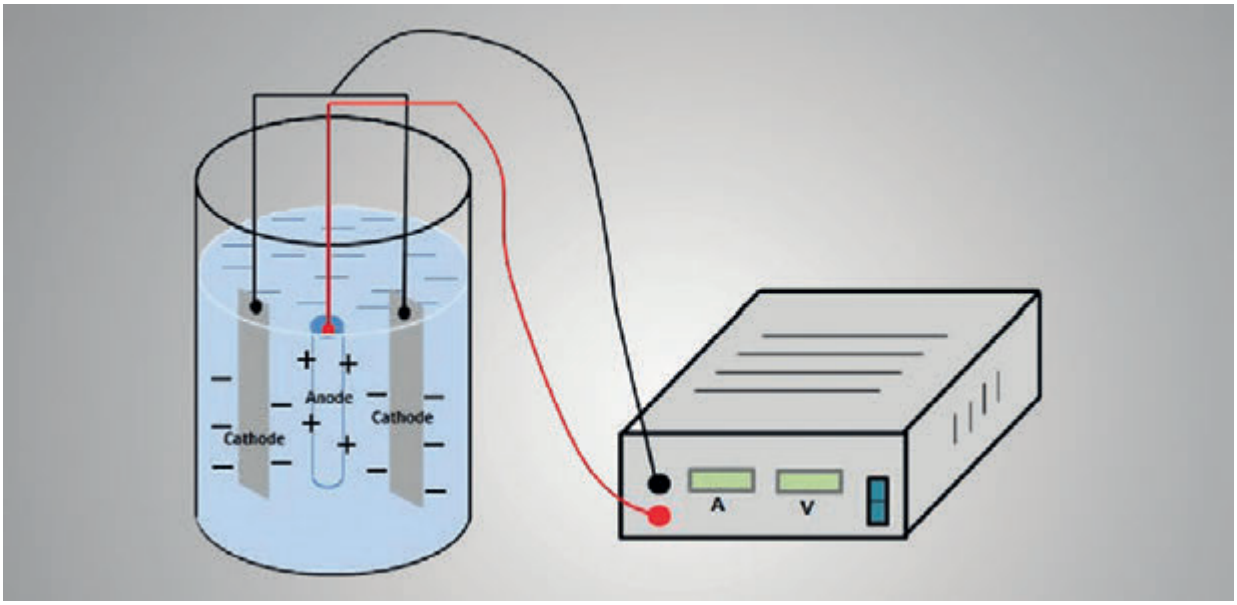
De-Smutting:

- Profiles will be immersed in de-smutting tank to remove smut formed during etching and de-oxidize the surface. Desmut tank will have nitric acid solution with concentration of less than 20 grams per liter maintained at ambient temperature. Profile will be immersed in Desumt tank for 3 minutes.



Anodizing:

- Profiles after de-smutting process will be immersed in anodizing tank filled with dilute sulphuric acid with concentration of 180-210 grams per liter. Anodizing is electrolytic process where, anodic layer (Aluminium Oxide layer) will form by initiating electrical contact between anode, cathode, and electrolyte. Anodizing must be maintained between 18-21 C. Aluminium content in anodizing tank must be maintained less than 16 grams per liter.



- Anodizing parameter will be set by considering thickness requirement and anodizing parameter (Current: 1.2-2.0 A/dm2, Voltage: 16-24 volts) and process time (2-3 minutes/micron) will be set as per requirement.
- After anodizing, profiles will be checked for micron and consistency before next process. Profiles will be subjected for water rinse before next process

Electrolytic Coloring:

- Profiles will be dipped in electro coloring tank filled with tin sulfate solution in controlled concentration (8-10 grams per liter).
- Process time (0.5-18 minutes) depends upon the final shade required by customer. Electro coloring parameter will be arrived by considering the share required by customer, perimeter, and shape of the profiles.
- Electro coloring is an electrolysis process where coloring metal will deposit on pores of anodic lay - er and forms color on anodic layer. Sulphuric acid is used as an electrolyte and this is maintained between 18-21 C with concentration of 10-20 grams per liter.
- After electro coloring, profiles will be inspected with standard / customer approved shade card for color matching and will be subjected for distilled water rinsing.

Sealing:

- Profiles after anodizing will be immersed in sealing tanks to improve performance / hardness of anodizing layer. Sealing tank will be maintained at 96 C for better performance. pH of sealing tank will be maintained between 5.5-6 and conductivity will be maintained less than 2000 micro siemens/cm.
- Sealing time (3 minutes/microns) depends upon the thickness of anodizing layer and sealing time will be set accordingly.

Quality Inspection:

- After sealing, profiles will be subjected for series of quality inspection as per Qualanod standards and all values observed during quality inspection will be recorded as per Qualanod standards. Below are the list of quality test performed on anodized profiles.

> Admittance test
> Dye spot test
> Weight loss test
> Micron test
> Color shade test
> Gloss check

- Apart from the above test, bath parameter of degreasing, etching, de-smut, anodizing, electro-coloring and sealing tanks will be checked and recorded as per Qualanod standards.

Capability:

- Length: 6.80 Meter (Max)
- Color: Silver, Bronze, Champagne, Black
- Finish: Matt, Polish

Reference Standard:

> Qualanod – Anodizing process
> BS 3987 – Anodizing process
> ISO 2143 – Dye spot test
> ISO 7668 – Gloss test
> ISO 3210 – Weight loss test
> ISO 2931 – Admittance test
> ISO 2360 – Thickness test
> ISO 8251 – Abrasion test

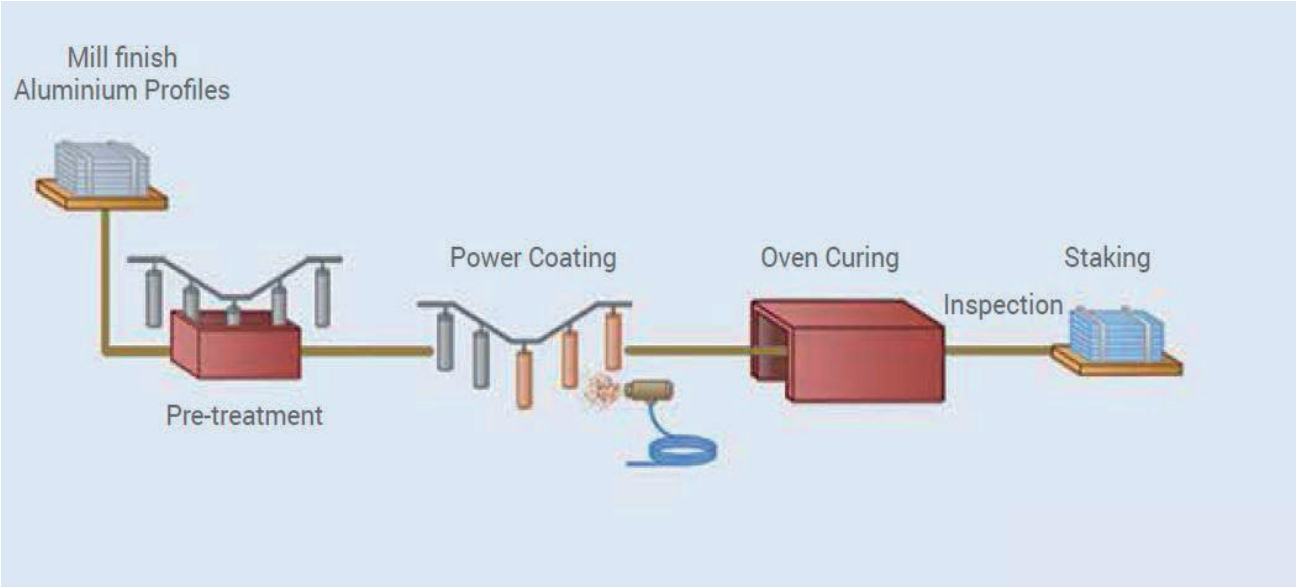
Powder Coating Process

Jigging:

- Profiles will be jigged in jigs by making holes (<45 mm) at both ends by drilling machine. Profiles will be fixed with jigs by aluminium wire. Number of pieces per jig will be arrived by considering profile weight, exposed surface, surface area, length and powder grade.
- Profiles will be inspected for surface abnormalities and any surface defects observed during pre-inspection will be segregated and isolated from workplace.

Degreasing:

- Profiles fixed in Jigs will be subjected for degreasing. In this process, profiles will be immersed into degreasing chemical which is maintained at 55-65 ^{O}C for 2-5 Minutes. Degreasing salt concentrating will be maintained between 25-50 grams per liter.



Etching:

- After Degreasing, profiles will be subjected for etching process. In this process, profiles will be immersed in sodium hydroxide solution maintained between 45-60 ^{O}C for 3-10 minutes in horizontal powder coating. In vertical powder coating, Alfideox chemical will be used with concentration of 20-45 grams per liter for 3-10 minutes. Etching process will make profile surface fine and matt finish which will enhance the final surface finish of profile there by ensuring proper adhesive surface.
- Aluminium content in etching tank will be maintained less than 160 grams per liter in horizontal powder coating and less than 10 grams per liter in vertical powder coatings.

De-smutting:

- Profiles after etching process will be subjected for de-smutting. Profiles will be immersed in de-smutting tank which contains Alfideox chemical of 10-16 grams per liter maintained at ambient temperature for 3-6 minutes. During de-smutting, residue from previous process will be removed from profiles.

Chrome free:

- After de-smutting, profiles will be subjected for DI rinse in tank maintained with conductivity of less than 30 micro siemens. After DI rinse, profiles will be immersed in chrome free treatment tank which is maintained at ambient temperature with chemical bath concentration of 8-12 grams per liter.
- This treatment will be done for 30-60 seconds and chrome free treatment will enhance powder attraction towards profile during coating process.

Dry off process:

- Profiles after DI rinse will be kept inside dry off oven for 15-25 mins which is maintained between 80-110 ^{O}C. During this process, all moisture, water which is accumulated on profile intricate surface will be evaporated and profiles will be ready for powder coating.
- Profiles with jigs will be transferred to conveyer system for powder coating.

Powder coating:

- Powder will be selected from powder storage room which is maintained at controlled atmosphere. Powder will be transferred to Hooper in a controlled way to prevent it from atmospheric / other contamination. Hooper system is connected to powder gun which sprays powder on profile surface. Powder booth shall be cleaned with vacuum system to prevent it from contamination from previous coatings / colors.
- Powder spray is controlled by adjusting voltage, flow, pressure and conveyer speed. Voltage will be maintained between 50-90 volts and powder flow is maintained between 2.5-6 m3/h. Pressure will be maintained between 1-3 bar and maximum conveyer speed is 2.5 meter/minute.
- During powder coating, powders will be attracted towards profiles surface by electrostatic phenomenon and powder will be absorbed over profile surface.
- Profiles will be transferred to curing oven which is maintained between 180-220 ^{O}C by considering powder suppliers recommendations for specific powders.
- Surface quality and thickness will be checked after curing and adjustments will be made on powder booth accordingly if required.

Quality Inspection:

- Powder coating film thickness will be checked by Positector, Isoscope, peramascope as per Qualicoat standards.
- Colour and texture will be checked as per powder supplier / customer agreed master sample.
- Powder coated profiles will be subjected for visual inspection as per Qualicoat / customer specifications for surface abnormalities.
- Apart from above inspection, below are the list of testing which will be performed on powder coated sample as per Qualicoat specification.

- Adhesion test
- Impact test
- Bend test
- Gloss check
- MEK Test

Reference Standard:

- Qualicoat – Powder coating process
- BS 6496 – Powder coating process
- ISO 1519 – Bend test
- ISO 2815 – Indentation test
- ISO 6272 – Impact test
- ISO 2360 – thickness check
- ISO 2813 – Gloss
- ISO 2409 – Adhesion test

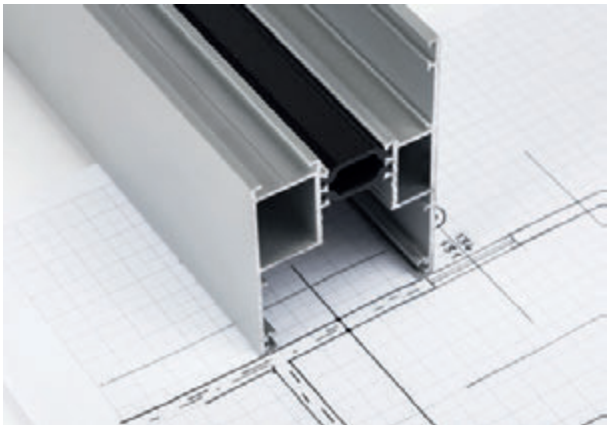
Natural Powder Coating

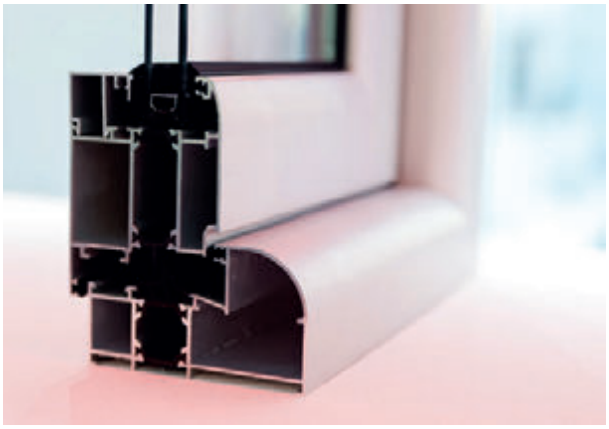
- Natural powder coating of profiles involves 2 steps:
  1. Base Coat
  2. Vein Coat
- Base coat will be done at powder coating line with curing temperature of 80 C. After base coat, profiles will be transferred to natural line for vein coat.
- Profiles will be arranged on vein coat table in a way that exposed surface will be directly exposed to diaphragm which is molded as per required design. Diaphragm is kept above profile surface and powder will be sprayed over diaphragm. Powder will be spread over diaphragm and during this process, powder will be poured on profile surface as per diaphragm design.
- After vein coat, profile will be transferred to curing oven which is maintained between 190-210 C for 15-25 minutes depending upon powder specification and supplier recommendation.
- After curing, profiles will be taken out of oven and allowed to cool down to ambient temperature.

Powder Coating:

- Vein coated surface will be subjected for surface finish check. Any surface abnormalities on profile surface will be segregated and isolated from good profiles.
- Vein coated surface will be inspected for texture and color check with master sample.
- MEK test will be performed on vein coated surface to ensure that there is no perceptible changes after test.

Thermal Assembly





- Thermal assembly of profiles involves 3 steps.
  1. Knurling
  2. Strip Insertion
  3. Crimping

Knurling:

- Profiles will be subjected for knurling in grooves for better shear strength after crimping process. Knurling will be performed on child profiles and dept of knurling will be inspected with magnifying glass.
- Knurled profiles (child profiles) will be staked in ships to prevent it from damages strip

Strip Insertion:

- Knurled profiles will be oriented as per final assembly and polyamide strips will be inserted as per customer drawing.
- Strips can be procured as rolls or standard length. In case of rolls, strip will be cut as per customer final profile length.
- Correct orientation of strips must be ensured before crimping process.

Crimping:

- Assembled profiles with polyamide strips will be transferred to crimping machine. Crimping rolls will be changed as per profile size, shape and depth.
- Crimping force will be arrived by considering profile shape, dimension requirement and shear strength requirement.
- Assembled profile will be crimped with set parameters and dimension after crimping will be inspected with customer drawing. Adjustments on crimping parameters will be done based on outcome of inspection result.
- 100 mm will be cut from crimped profile and this sample will be subjected for shear strength testing. Minimum shear strength required is 350 kgs/100 mm.
- Once dimension and shear strength are meeting the requirement, assembled profiles will be crimped and quality check will be performed at periodic intervals as per requirement.
- In some case, profiles will be protection taped on exposed surface to prevent it from surface abnormalities which arises due to direct contact of profile surface with crimping rollers.

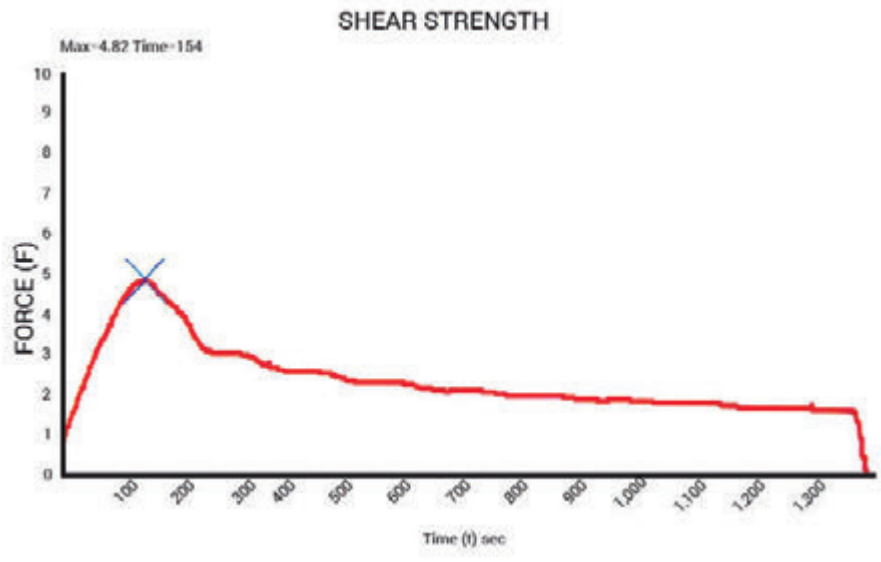
Mechanical Testing

Tensile Testing

NAPCO has an automated tensile testing machine used for testing the mechanical properties of the extruded aged aluminum profiles as per BS EN 755 – 2:

Shear Strength Testing

NAPCO has the facility for checking shear strength on thermal break profile.



NAPCO Quality Control Plan - Extrusion

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
1	Incoming Billet Inspection	Manual	Chemical Composition	-	BS EN 573-3	Supplier Test report	100%	Every Batch	Supplier TC	Segregate, Inform supplier
			Diameter	-	203 ±1.00mm 178 ±1.00mm	Caliper	5%	Every Batch	Incoming Inspection report	Segregate, Inform supplier
2	Billet Preheating	Log Heater	-	Billet Temperature	420-520 C	IR Cameras / Hand held pyrometer	100%	Every Billet	Billet Temperature input panel	Adjust Temperature, Inform Supervisor
3	Die Preheating	Die oven	-	Die Temperature	450-480 C	Die oven panel / Hand held pyrometer	100%	Every die	Die Temperature input panel	Adjust Temperature, Inform Supervisor
				Preheating time	150 - 300 Mins		100%	Every die	Die Temperature input panel	Adjust Time, Inform Supervisor
4	Extrusion	Extrusion press	-	Ram speed	As per recipe	Extrusion control panel	100%	Every Billet	Extrusion Production report	Adjust speed, Inform Supervisor

NAPCO Quality Control Plan - Extrusion

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Reaction Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
4	Extrusion	Extrusion Press	-	Billet length	As per Production card	Extrusion control panel	100%	Every Batch	Extrusion production report	Adjust length, Inform Supervisor
			Exit Temperature	-	520-580 C	IR Camera	100%	Every billet	Cross check with Pyrometer	Segregate, Inform Supervisor
				Cooling rate	As per alloy and profile requirement	Quenching control panel	100%	Every Billet	Cross check with hand held instrument	Segregate, Inform Supervisor
		Stretching Machine		Stretch rate	50-150 mm	Stretching machine control panel	100%	Every stretching	Control panel	Adjust stretch rate, Inform Supervisor
		Saw cutting Machine	Profile length		As per BS EN 755-9 / BS EN 12020-2	Measuring tape	1	Every 5 cuts	Extrusion Production report	Segregate, Inform Supervisor
			Cutting ends		Smooth cut / No burrs	Visual	100%	Every cut	Extrusion Production report	Segregate, Rework, Inform Supervisor

NAPCO Quality Control Plan - Extrusion

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Reaction Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
4	Extrusion	Quality Inspection	Dimension	-	As per BS EN 755-9 / BS EN 12020-2 / Customer drawing	Ascona, Vernier caliper, Micrometer, Tri-square, Feeler gauge & other conventional tools	1	Every 5 billets	Extrusion press profile inspection check sheet	Inform Supervisor, Quality Engineer, Plant Manager (If required)
			Surface	-	No die lines, bearing marks, streak lines, surface abnormalities	Visual, Polished, Black spray test	1	Every 5 billets	Extrusion press profile inspection check sheet	Inform Supervisor, Quality Engineer, Plant Manager (If required)
			-	Stacking	As per profile complexity	Visual	100%	Every skips	Visual	Inform Supervisor
5	Ageing	Ageing oven	-	Temperature	190 C (6063, 6060), 185 C (6082, 6061)	Ageing oven panel	100%	Every ageing lot	Ageing register	Segregate, Inform Supervisor
			-	Time	300 Mins (6063, 6060), 420 Mins (6082, 6061)	Ageing oven panel	100%	Every ageing lot	Ageing register	Segregate, Inform Supervisor

NAPCO Quality Control Plan - Extrusion

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Reaction Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
5	Ageing	Webster Hardness tester	Hardness	-	>10 Wb (6063, 6060) >15 Wb (6061) >16 Wb (6082)	Hardness check	5%	Every skips	Ageing register	Segregate, Inform Supervisor
		Ultimate testing machine	Tensile strength	-	As per BS EN 755-2	Mechanical properties check	1	On customer request	Tensile test report / MTC	Segregate, Inform Quality Engineer
			Proof strength	-	As per BS EN 755-2	Mechanical properties check	1	On customer request	Tensile test report / MTC	Segregate, Inform Quality Engineer
			Elongation	-	As per BS EN 755-2	Mechanical properties check	1	On customer request	Tensile test report / MTC	Segregate, Inform Quality Engineer

NAPCO Quality Control Plan - Anodizing

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
6	Polishing	Polishing Machine	-	Polishing mop	In good condition	Visual	100%	Every shift	Polishing report	Inform supervisor
			-	Polishing paste	Proper spray	Visual	100%	Every batch	Polishing report	Inform supervisor
			-	Orientation	As per profile shape	Visual	100%	Every batch	Polishing report	Inform supervisor
			Surface finish	-	Proper polishing, No surface deformities	Visual	100%	Every batch	Polishing report	Segregate, rework, Inform supervisor
7	Anodizing	Jigging	Pre-inspection	-	No surface deformities, damages	Visual	100%	Every beam	Anodizing report	Segregate, Inform supervisors
		Jigging	Number of pieces/ beam	-	As per profile shape and weight	Preimeter, weight and length of profile	100%	Every beam	Anodizing Beam card	Inform supervisor

NAPCO Quality Control Plan - Anodizing

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
7	Anodizing	Jigging	-	Jigging allowance	40 mm (Max) (Each End)	Visual / Measuring tape	100%	Every beam	Quality Plan	Segregate, Re-work, Inform supervisor
		Degreasing	-	Bath Temperature	50-65 C	Temperature display	100%	Every beam	Quality Plan	Inform Chemist, supervisor
			-	Degreasing time	2-30 Mins	Timer	100%	Every beam	Quality Plan	Inform supervisor
			-	Salt concentration	25-50 gpl	Titration	1	Per day	Lab analysis report	Inform Chemist, supervisor
		Etching (Not appicable for polish finish)	-	Bath Temperature	60-70 C	Temperature display	1	Per day	Production report	Inform Chemist, supervisor
			-	Etching time	8-15 Mins	Timer	100%	Every beam	Quality Plan	Inform supervisor

NAPCO Quality Control Plan - Anodizing

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
7	Anodizing	Etching	-	Sodium Hydroxide concentration	60-80 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
			-	Aluminium content	<160 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
		Desmut	-	Desmut time	>3 Mins	Timer	100%	Every beam	Quality Plan	Inform supervisor
			-	Sulphuric acid concentration	>100 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
			-	Bath Temperature	Ambient Temperature	Temperature display	100%	Every beam	Quality Plan	Inform Chemist, supervisor

NAPCO Quality Control Plan - Anodizing

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
7	Anodizing	Anodizing	-	Sulphuric acid concentration	180-210 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
			-	Aluminium content	<16 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
			-	Bath Temperature	18-21 C	Temperature display	100%	Every beam	Lab analysis report	Inform Chemist, supervisor
			-	Anodizing time	2-3 Mins/Micron	Timer	100%	Every beam	Production report	Inform supervisor
			-	Current	1.2-2.0 A/dm2	Ammeter	100%	Every beam	Beam card	Inform supervisor
			-	Voltage	16-24 volt	Voltmeter	100%	Every beam	Control panel	Inform supervisor

NAPCO Quality Control Plan - Anodizing

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
7	Anodizing	Anodizing	Micron thickness	-	As per customer requirement	Isoscope / Peramascope	2	Per Beam	Beam Card	Inform chemist, supervisor
		Electro-coloring (Not applicable for sliver finish)	-	Bath Temperature	18-24 C	Temperature display	1	Per day	Quality Plan	Inform supervisor
			-	Coloring time	0.5-18 Mins	Timer, Visual	1	Per day	Quality Plan	Inform supervisor
			-	Tin concentration	8-10 gpl	Titration	1	Per day	Lab analysis report	Inform Chemist, supervisor
			-	Sulphuric acid concentration	10-20 gpl	Titration	1	Per day	Lab analysis report	Inform Chemist, supervisor
			Color	-	As per shade card / customer sample (min-max)	Visual	10%	Every beam	Quality Plan	Inform supervisor

NAPCO Quality Control Plan - Anodizing

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
7	Anodizing	Sealing	-	Bath Temperature	>96 C	Temperature display	1	Random	Lab analysis report	Inform chemist, supervisor
			-	Sealing time	3 Mins/Micron	Timer	100%	Every beam	Beam card	Inform supervisor
			-	Sealing bath PH	5.5-6.0	PH Meter	6	Per day	Sealing report	Inform chemist, supervisor
			-	Conductivity	<6000 microsiements/ cm	Conductivity meter	1	Per day	Lab analysis report	Inform chemist, supervisor
			Sealing check	-	Qualanod standard	Anotest	1	Per shift	Quality Report	Inform chemist, supervisor
			Weight loss check	-	<30 mg/sqdm	Weighing scale	1	Per week	Acid dissolution report	Inform chemist, supervisor

NAPCO Quality Control Plan - Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
8	Powder coating	Jigging	Pre-inspection	-	No surface deformities, damages	Visual	100%	Every Jigs	Quality Plan	Segregate, Inform supervisors
			Number of pieces/ beam	-	As per profile shape and weight	Perimeter, weight and length of profile	100%	Every Jigs	PC report	Inform supervisor
			Jig Marks	-	<45 mm each end	Visual, Measuring tape	2	Every Jigs	Quality Plan	Inform supervisor
		Degreasing	-	Bath Temperature	55-65 C	Thermometer	100%	Every Jigs	Lab analysis report	Inform Chemist, supervisor
			-	Degreasing time	2-5 Mins	Manual	100%	Every Jigs	Quality Plan	Inform supervisor
			-	Degreasing salt concentration	25-50 gpl	Titration	1	Per day	Lab analysis report	Inform Chemist, supervisor

NAPCO Quality Control Plan - Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
8	Powder coating	Etching	-	Bath Temperature	45-60 C	Thermometer	1	Per day	Lab analysis report	Inform chemist, supervisors
			-	Etching time	3-10 Mins	Timer	100%	Every Jigs	Quality Plan	Inform supervisor
			-	Sodium Hydroxide concentration (HPC) Alpfideox (VPC)	40-65 gpl (HPC) 20-30 gpl (VPC)	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
			-	Aluminium content	<180 gpl (HPC) <10 gpl (VPC)	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor
		Desmut	-	Desmut time	3-5 Mins	Timer	100%	Every Jigs	Quality Plan	Inform supervisor
			-	Nitric acid concentration	30-60 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisor

NAPCO Quality Control Plan - Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
8	Powder coating	Desmut	-	Bath Temperature	Ambient	Thermometer	100%	Every Jigs	Quality Plan	Inform chemist, supervisors
		DI Rinse	-	Conductivity	<30 Microsiemens	Conductivity meter	1	Per day	Lab report	Inform chemist, supervisors
		Chrome free	-	Bath Temperature	Ambient	Thermometer	100%	Every Jigs	Quality Plan	Inform chemist, supervisors
			-	Control of time	30-60 Sec	Timer	100%	Every Jigs	Quality Plan	Inform supervisor
			-	Bath Concentration	8-12 gpl	Titration	1	Per day	Lab analysis report	Inform chemist, supervisors
		Dry off oven	-	Oven Temperature	60-110 C	Thermometer	1	Per week	Temp tracker	Inform supervisor

NAPCO Quality Control Plan - Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
8	Powder coating	Dry off oven	-	Dry time	15-25 Mins	Thermometer	100%	Every Jigs	Quality Plan	Inform supervisors
		Powder coating booth	-	Voltage	50-90 Volts	Voltmeter	100%	Every Jigs	Quality Plan	Inform supervisors
			-	Powder flow	2.5-6 m3/h	Flow meter	100%	Every Jigs	Quality Plan	Inform supervisors
			-	Preassure	1-3 Bar	Pressure Gauge	100%	Every Jigs	Quality Plan	Inform supervisors
			-	Conveyer speed	Max3.4 mtr/min	Control panel	100%	Every Jigs	Quality Plan	Inform supervisors
		Curing oven	-	Curing temperature	180-220 C (Normal) 80^{o}C (For base coat)	Thermometer	1	Per shift	Curing register	Inform supervisor

NAPCO Quality Control Plan - Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
8	Powder coating	Powder coating check	Film thickness	-	Qualicoat specification	Positector, peramascope, Isoscope	1	Every 5 Jigs	PC Quality control report	Inform supervisor
			Color	-	As per master sample	Visual	1	Per batch	PC Quality control report	Inform supervisor
			Adhesion	-	ISO 2409	Cross hatch scrapper	1	Per batch	PC Quality control report	Inform supervisor
			Impact test	-	ISO 6272-1	Impact testing unit	1	Per batch	PC Quality control report	Inform supervisor
			Gloss	-	EN ISO 2813	Glossmeter	1	Per batch	PC Quality control report	Inform supervisor
			Curing	-	No perceptible change. Cannot be scratched by finger nail.	MEK Solution	1	Per batch	PC Quality control report	Inform supervisor

NAPCO Quality Control Plan - Natural Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
9	Natural Powder coating	Curing Oven	-	Oven Temperature	190-210 C	Thermometer	1	Per shift	NPC Quality control report	Inform supervisor
			-	Curing time	15-30 Mins	Timer	1	Each lot	NPC Quality control report	Inform supervisor
		Natural Quality Inspection	Curing	-	No perceptible change. Cannot be scratched by finger nail	MEK Solution	1	Per lot	NPC Quality control report	Inform supervisor
			Color	-	As per sample	Visual	100%	Per lot	NPC Quality control report	Inform supervisor
			Appearance	-	Good finish	Visual	100%	Per lot	NPC Quality control report	Inform supervisor

NAPCO Quality Control Plan - Natural Powder Coating

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
10	Final Inspection	Dimension	Length	-	As per BS EN 755-9 / BS EN 12020-2 / Customer standard	Measuring tape	5%	Each lot	Final Quality checklist	Inform supervisor
			Overall dimension, thickness, twist, flatness, camber	-	As per customer approved drawing	Conventional measuring tools (Vernier caliper, micrometer, protractor, flat bar tri-square etc)	5%	Each lot	Final Quality checklist	Inform supervisor
		Surface finish	Surface check	-	No surface abnormalities, free from dents, damages, die lines, bearing marks.	Visual	100%	Each lot	Final Quality checklist	Inform supervisor
			Film thickness	-	Qualicoat specification	Isoscope, positector, Peramascope	5%	Each lot	Final Quality checklist	Inform supervisor
			Color	-	As per customer requirement, master sample	Visual	5%	Each lot	Final Quality checklist	Inform supervisor

NAPCO Quality Control Plan - Thermal Break

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
11	Thermal Break	Knurling Machine	Knurling Depth	-	0.2 mm	Visual by lens, Nail sense	1	Each lot	Knurling register	Inform supervisor
		Insertion Machine		Polyamide insertion	As per customer drawing	Visual	100%	Each lot	Crimping register	Inform supervisor
		Crimping Machine		Crimping force	As per shear strength requirement	Shear strength testing	1	Each lot	Crimping register	Inform supervisor
		TB Inspection	Dimension	-	As per customer drawing	Conventional tools	1	Every 50 Nos	Crimping register	Inform supervisor
		TB Inspection	Surface finish	-	No surface abnormalities / Roller marks	Visual	100%	Each lot	Crimping register	Inform supervisor
		TB Inspection	Shear strength	-	>350 kgs/100 mm, Customer requirement	Shear strength testing machine	1	As per WI	Shear strength Graph	Inform supervisor

NAPCO Quality Control Plan - Final Inspection

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
10	Final Inspection	Dimension	Length	-	As per BS EN 755-9 / BS EN 12020-2 / Customer standard	Measuring tape	5%	Each lot	Final Quality checklist	Inform supervisor
			Overall dimension, thickness, twist, flatness, camber	-	As per customer approved drawing	Conventional measuring tools (Vernier caliper, micrometer, protractor, flat bar tri-square etc)	5%	Each lot	Final Quality checklist	Inform supervisor
		Surface finish	Surface check	-	No surface abnormalities, free from dents, damages, die lines, bearing marks.	Visual	100%	Each lot	Final Quality checklist	Inform supervisor
			Film thickness	-	Qualicoat / Qualicoat EN 12373-1 / BS 6496:1984	Isoscope, positector, Peramascope	5%	Each lot	Final Quality checklist	Inform supervisor
			Color	-	As per customer requirement master sample	Visual	5%	Each lot	Final Quality checklist	Inform supervisor

NAPCO Quality Control Plan - Packing & Dispatch

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
11	Packing	Protection tape	-	Self adhesive tape	As per customer requirement	Visual	100%	Each lot	Production Card	Inform supervisor
		Manual	-	Interleaving	As per customer requirement	Visual	100%	Each lot	Production Card	Inform supervisor
		Wrapping Machine	-	Wrapping	As per customer requirement	Visual	100%	Each lot	Packing drawing	Inform supervisor
		Labeling Machine	-	Label	As per customer requirement	Visual	100%	Each lot	Production Card, ERP	Inform supervisor
	Crating	Manual	-	Assembly	800X800 (Max)-Standard, As per customer requirement	Measuring tape	100%	Each crates	Bundle order status	Inform supervisor
			-	Strapping	Cord, PET, Metal strap	PET strap machine	100%	Each crates	Bundle order status	Inform supervisor

NAPCO Quality Control Plan - Packing & Dispatch

Process Number	Process Name / Operations Description	Machine, Device for Manufacturing	Characteristics		Methods		Sampling		Control Method	Contingency Plan
			Product	Process	Product / Process / Specification / Tolerance	Evaluation / Measurement Technique	Size	Frequency		
			-	Labeling	As per customer requirement	Visual	100%	Each crates	Bundle order status, ERP	Inform supervisor
	Storage	Mobile equipment's	-	Location	Mill finish - Under shed, Surface treated - Under shed / Open area	Visual	100%	Each crates	Process Audit, SOP	Inform supervisor
		Allocation	-	Customer wise storage	As per layout	Visual	100%	Each lot	Visual display's Audits	Inform supervisor
	Ageing (Stock)	ERP System	-	Ageing period	< 90 days	Daily analysis	1	Per day	FG Ageing report	Inform supervisor
	Loading	Mobile equipment's	-	Crate alignment	No dislocation / damage	Visual	100%	Each trailer	Photo	Inform supervisor
	Loading	Inspection	Visual inspection	-	Free from damages, dislocations	Visual	100%	Each trailer	Photo	Inform supervisor

Featured Projects

Location: Muscat, Sultanate of Oman
Attribute: Arts Complex

The Opera House Muscat (ROHM) is Oman's premier venue for musical arts and culture. The opera house located in Shati Al-Qurm district of Muscat, Oman. Built on the royal orders of His Majesty Sultan Qaboos bin Said of Oman, the Royal Opera House reflects contemporary Omani architecture, and has a capacity to accommodate maximum of 1,100 people. The opera house complex consists of a concert theatre, auditorium, formal landscaped gardens, and cultural market with retail, luxury restaurants and an art center for musical, theatrical, and operatic productions.

Location: Muscat, Sultanate of Oman
Attribute: International Airport

Muscat International Airport (IATA: MCT, ICAO: OOMS), also called Seeb International Airport is the largest airport in Oman. Situated 32 km from Muscat, the capital of Oman, spread over an area of 21 square kilometers (8.1 sq. mi). The airport currently has one terminal with another due to be completed in 2014. The new terminal will have capacity of 12 million passengers a year. Oman Air, the national carrier of Oman is based on the grounds of Muscat International Airport.

Location: Muscat, Sultanate of Oman
Attribute: Residential Project

The Wave, Muscat offers outstanding lifestyle and leisure experiences that comprises residential properties interspersed with green spaces, pedestrian walkways and inland waterways, exciting retail and dining facilities and Oman's only signature PGA Standard 18 hole links golf course, designed by Greg Norman.

The Wave, Muscat is also home to a number of luxurious hotels managed by internationally renowned hospitality brands, including the Kempinski and Shaza Hotels. Its retail marina village and beautifully-landscaped public spaces meet the recreational needs of the community as well as providing a destination for visitors.

Location: Dubai, UAE
Attribute: Commercial Tower

Situated on its own island, Burj Al Arab features ultra-luxurious suites overlooking the sea, 9 signature restaurants and an opulent full-service spa. Burj Al Arab stands on an artificial island 280 m (920 ft.) from Jumeirah beach and is connected to the mainland by a private curving bridge.

It has been called "The world's only 7-star Hotel" and is the fourth tallest hotel in the world. The shape of the structure is designed to mimic the sail of a ship. It has a helipad near the roof at a height of 210 m (689 ft.) above ground.

Location: Dubai, UAE
Attribute: Commercial Tower

The Jumeirah Emirates Towers is one of the most stunning architectural highlights on the Dubai skyline. Jumeirah Emirates Towers in Dubai redefines the business hotel experience; seamlessly combining high technology, efficiency, and unparalleled luxury. And with our unique and prestigious shopping destination, the Boulevard, you'll find shopping, dining, and nightlife opportunities to rival any luxury destination in the world.

The 400 spacious, newly furnished rooms and suites, paired with state-of-the-art meeting and business facilities, make Jumeirah Emirates Towers one of the most popular choices for the corporate traveler and one of the finest business hotels in Dubai.

Location: Dubai, UAE
Attribute: Airport

The Airport of Abu Dhabi city is the second largest in the UAE, serving over 12 million passengers in 2010. It has three operational passenger terminals—Terminal 1 (divided into Terminals 1A and 1B), Terminal 2, Terminal 3. Abu Dhabi International Airport is spread over an area of 3,400 hectares (8,500 acres). Its terminal spaces are dominated by Etihad Airways which is the United Arab Emirates' second largest air carrier after Emirates.

Location: Victoria, Australia
Attribute: Hospital

The Bendigo Hospital project is the largest regional hospital development in Victoria. It will deliver a world class regional hospital which will incorporate the latest design and technology solutions, in a tranquil and caring environment. The construction began in 2013 and Stage One of the Bendigo Hospital Project was completed in late January 2017. Stage Two is poised to be completed mid-2018. The new facilities include 372 inpatient beds, 72 same day beds, 10 new operating theatres, a regional cancer center, an 80-bed integrated mental health facility, a mother and baby unit, a helipad and parking for 1,350 cars.

Location: Astana, Kazakhstan
Attribute: Mix Development

The Abu Dhabi Plaza is a major mixed-use development located in Astana, Kazakhstan, comprising of a retail podium, residential apartments, international grade office accommodation, and leisure facilities. This integrated community will have a gross leasable area of 244,604 square meters, including 446 apartments, 190 hotel rooms, and 100 serviced apartments.

When completed, the project will have many towers reaching different heights, the tallest reaching a height of 320 m with 75 floors and will be the tallest building in Central Asia. Completion is expected in the fourth quarter of 2018.

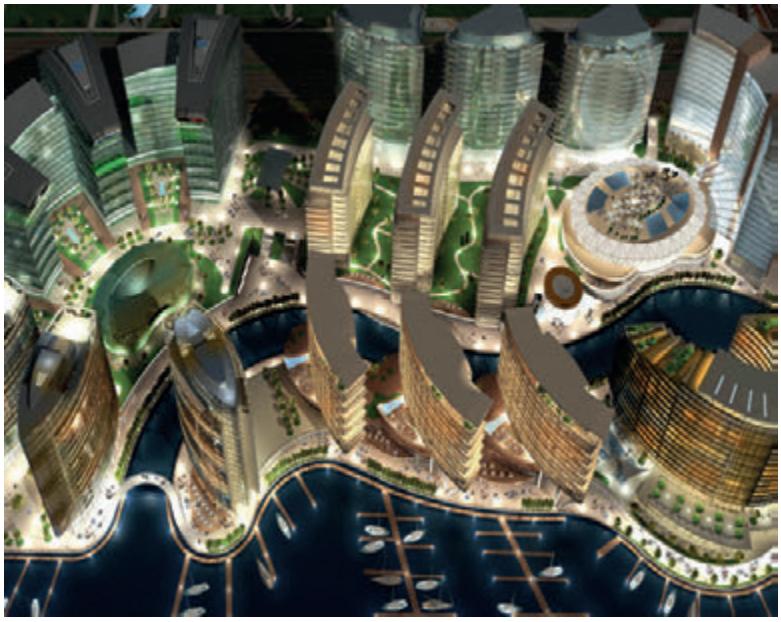
Location: Dubai, UAE
Attribute: Mix Development

Dubai Design District, d3, has been carefully developed to provide a creative ecosystem that surpasses the expectations of a typical creative neighborhood. It has its own beating heart, its own spirit, and its own very personal style. This is a place where bohemians can live, work and play. Where aspiring designers can cut their teeth and learn their trade; where local talent can work alongside international design, art, and fashion houses. It is, at its heart, a place where creative minds can come together to realize their dreams.
Since Dubai Design District was announced in June 2013, progress has been rapid, and we are pleased that Phase 1 of d3's construction has been completed on-schedule. We now have 220 business partners joining us as part of the community and look forward to many more milestones during the coming months and years.

Location: Dubai, UAE
Attribute: Hospital Buildings

The Jewel of the Creek project in Dubai, which will include hotels, apartments, offices, and a conference center, is set to be completed in the first half of 2019.

The Roads and Transport Authority (RTA) said in comments published by state news agency WAM that the Jewel of the Creek has been designed as a "landmark tourist destination adding further prominence to the city and the tourist profile of the area".



Location: Dubai, UAE
Attribute: Mix use Tower

ICD Brookfield Place is about 282 meter-high, It will contain more than 900,00 0 sq. ft. of Grade A office space and connect to a 150,000 sq. ft., five-stores retail center. There will also be an 18,000 sq. ft. public area flanked by restaurants that will feature regular arts and cultural events, and the complex will have parking for 2,700 cars.

The top three floors of the tower are being built as Sky View suites with internal gardens and the project has been designed with a view to achieving Lead Gold certification, a top-level sustainability and green building rating. The building is expected to be completed in the fourth quarter of 2018, with the first tenants likely to occupy in early 2019.

Location: Dubai, UAE
Attribute: Retail & Commercial

The podium provides a base anchoring the tower to the ground, allowing on grade access from three different sides to three different levels of the building. Fully glazed entry pavilions constructed with a suspended cable-net structure provide separate entries for the Corporate Suites at B1 and Concourse Levels, the Burj Khalifa residences at Ground Level and the Armani Hotel at Level 1.

Location: Dubai, UAE
Attribute: Resort & Residential

Located on Palm Jumeirah, the $1.4 (AED5.14), which will operate as a sister hotel to Atlantis, The Palm – will boast almost 800 guest rooms and more than 230 serviced apartments upon completion.

Location: Dubai, UAE
Attribute: Retail & Commercial

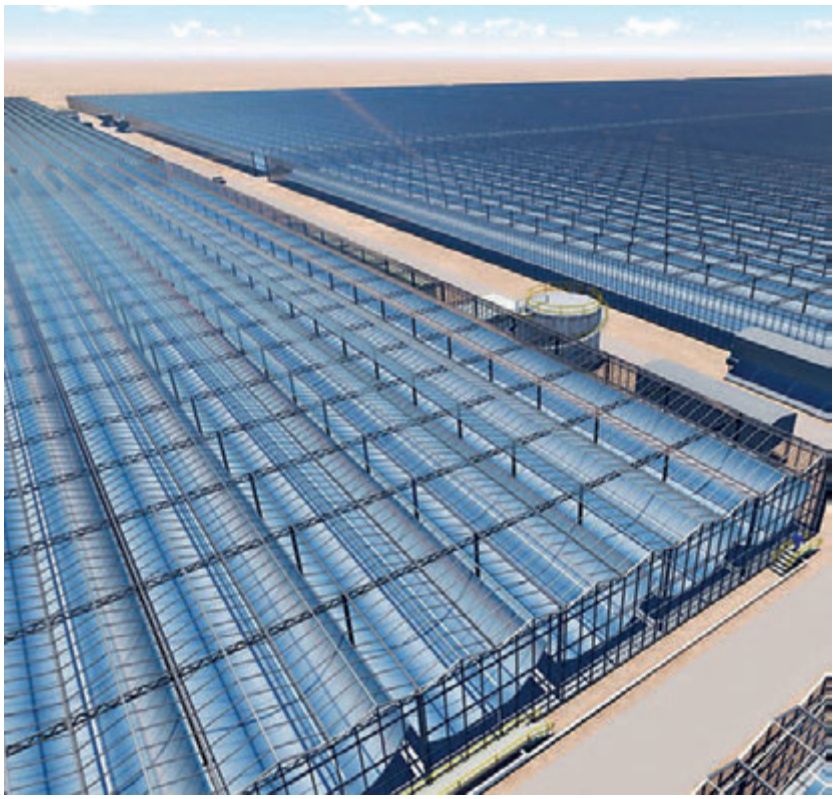
ABU DHABI COMMERCIAL BANK commonly called ADCB. Abu Dhabi Commercial Bank (ADCB) was formed in 1985 as a public shareholding company with limited liability. ADCB is one of the largest in the UAE in terms of shareholder funds and market capitalization.

Location: Dubai, UAE
Attribute: Residential & Commercial

City Walk is a master development by Meraas and is located in the heart of Jumeirah. It is a unique community offering both commercial and residential projects that are exclusive and stands apart from other areas in Dubai.

It consists of thirty-four 5 & 6 stores low-rise buildings. These buildings feature 1, 2, 3, and 4 spacious and luxury furnished residential apartments. City Walk also have penthouses, duplexes, and units that offer unique layouts and modern designs. Residential unit buildings range from 12m, 15m and 18m, with available parking spaces.

Location: Sultanate of Omman
Attribute: Industrial



Mirrah Solar Project translated as 'mirror' in Arabic, Miraah is a 1,021MW solar thermal facility located in South Oman, and is one of the world's biggest solar plants. Construction of the plant commenced in October 2015. First steam was produced in November 2017 and the plant was officially inaugurated in February 2018. The thermal energy produced in the form of steam is used for thermal enhanced oil recovery (EOR) to extract heavy and viscous oil at the Amal oilfield. Touted to enhance well productivity by up to 300%, Thermal EOR uses high-pressure steam, which is injected into the oilfield reservoirs to make the oil easier to be pumped to the surface.

Location: Dubai, UAE
Attribute: Hospitality, Residnetial & Retail

The palm gateway is located at the entrance to Palm Jumeirah with convenient transport links to other parts of the island and the rest of Dubai, The Palm Gateway comprises three individually- designed high-rise residential buildings with one-, two- and three-bedroom apartments, available for lease. The towers will house a hotel and serviced apartment units. The towers will be constructed on the existing Palm Monorail Gateway. Tubular Tower is of 61-storey and 261 meters tall. Central Tower is of 49-storey and 211 meters tall. The Beach Tower will be of 48 floors and 205 meters tall. The scope will include a beach club, retail, dining, and health & fitness facilities. The project will have a total number of 1,262 units.

Location: Manama, Kingdom of Bahrain
Attribute: Airport

Within the framework of the development of the Kingdom of Bahrain, the Bahrain Airport Company (BAC) is developing a masterplan for the existing airport and its extension planned for 2020-2030. With a built-up area of around 250,000 m², distributed over four above ground floors and a basement, the new terminal will boost Bahrain International Airport's capacity to 14 million passengers per year.

Location: Dubai, UAE
Attribute: Residential

Jumeirah Emirates Hotel Tower is a 56-storey hotel in the city of Dubai, United Arab Emirates. The hotel includes 40 luxury suites and is operated by the Jumeirah International Group. Connected with 54-floor Emirates Office Tower by a retail boulevard, the two towers form the Emirates Towers complex. At a structural height of 309 m (1,014 ft), Emirates Towers Hotel is the smaller of the two sister towers. It ranks as the 48th-tallest building in the world. It is the world's third-tallest all-hotel building.

Location: Manama, Kingdom of Bahrain
Attribute: Industrial

The Bahrain World Trade Center (also called Bahrain WTC or BWTC) is a 240-metre-high (787 ft), 50-floor, twin tower complex located in Manama, Bahrain. The towers were built in 2008 by the multi-national architectural firm Atkins. It is the first skyscraper in the world to integrate wind turbines into its design. The wind turbines were developed, built, and installed by the Danish company Norwin A/S.

The structure is constructed close to the King Faisal Highway, near popular landmarks such as the towers of Bahrain Financial Harbour (BFH), NBB and Abraj Al Lulu. It currently ranks as the second-tallest building in Bahrain, after the twin towers of the Bahrain Financial Harbour. The project has received several awards for sustainability.

Location: Dubai, UAE
Attribute: Mix Use

Hilton Dubai Creek is a hotel in Dubai Creek in Dubai, United Arab Emirates. It is part of the Hilton World-wide chain of hotels.

The hotel has 150 rooms and suites, with views of Dubai's creek from the balconies. It is also home to a seafood restaurant.

Location: Dubai, UAE
Attribute: Resort & Residential

The 21st Century Tower is a 55-story sky-scraper along the Sheikh Zayed Road in Dubai. When it was completed in 2003 it took the title of the world's tallest residen-tial building.

Location: Dubai, UAE
Attribute: Residential & Commercial

A gated residential haven that many aspire for, but only an elite few can own, Millennium Estates comes across as a visionary attempt to evoke and inspire the spirit of community living in a reserved yet flourishing neighborhood.

The Dh1.2 billion gated community will comprise 198 villas built over 3.8 million square feet of land and will be available on a freehold basis. The villas will be offered in three distinct types catering to different taste and lifestyle requirements. They will range in size between 5400 square feet of livable space and 6,800 square feet and will have ample garden space. The development will also include walkways and common parks.

Location: Dubai, UAE
Attribute: Commercial & Residential
New residential and commercial tower located in Business Bay, Dubai.

Location: Dubai, UAE
Attribute: Residential & Commercial

Al Mankhool is located in Dubai, United Arab Emirates (UAE). In western Dubai, in the area of Bur Dubai, Al Mankhool is largely a residential area. However, several restaurants, hotels and financial service corporations (such as Citibank and Emirates NBD) are located in Al Mankhool. Route D 90 (Al Mankhool Road) runs east–west through the locality, while Khaled bin Al Waleed Street runs perpendicular to Al Mankhool road. The section of Khaled bin Waleed Street that is in the proximity of Al Mankhool is sometimes referred to as Bank Street [2][3] by expatriates.

Al Mankhool is bordered by Umm Hurair in the north, Al Rifa in the west, Al Karama to the east and Al Jafiliya to the south. Important landmarks in Al Mankhool include the Al Mankhool Community Health Centre and the Bur Dubai Etisalat service center.

Location: Mumbai, India
Attribute: Mix use Tower

The Worli Mixed-use development consists of 82-storey residential tower and a 52-storey mixed-use tower (office and hotel).

Corporate Social Reponsibility

National Aluminium Products Co. SAOG believes it is our Corporate Social Responsibility to demonstrate environmental stewardship and promote sustainability – as we profitably grow our business. In today's world, it is imperative that we deal effectively with the triple bottom line of people, planet, and profits. We will continue donating to charities, sponsoring socio-health related activities, recycling and getting involved in other related tasks to promote a better Oman.

NAPCO to sponsor Oman's top runner Sami Al Saidi 18 February 2016

In line with its Corporate Social Responsibility (CSR), National Aluminium Products Company SAOG (NAPCO), one of the leading extruders of aluminum profiles in the GCC, has announced its sponsorship for Sami Al Saidi, a top Omani runner and the winner of the fifth edition of the Muscat Marathon. The company will extend financial support to Al Saidi which includes entry fees to events, accommodation, food and running kit. The sponsorship agreement is until December 2016.

Sami Al Saidi is Oman's prominent runner who has finished many notable races in the last few years. Recently, he was declared the overall winner and the winner of the men's event at the Muscat Marathon, where he finished the full marathon in 2 hours, 50 minutes, and 20 seconds.

NAPCO gives away 30 wheelchairs to Oman Association for Disabled 20 July 2015

National Aluminium Products Company SAOG (NAPCO), one of the leading extruders of aluminum profiles in the GCC, NAPCO provided 30 wheelchairs to the Oman Association for Disabled. The donation is in line with the company's roster of activities in celebration of Eid, as well as its continuous Corporate Social Responsibility initiatives. Established in 1995 through a Ministerial Decision, the Oman Association for Disabled is a distinguished non-profit organization that aims to provide support, education, and leisure activities to people with disabilities. Sayyid Wasfi Jamshid Abdullah Al Said, Chairman of the Board of Directors, NAPCO, said: "We believe that the Oman Association for the Disabled is a very fitting partner in NAPCO's efforts to reach out to the Omani people. We highly commend the group's steadfast commitment to foster a better understanding of the needs of people with disabilities among the community. We hope that our contribution to their cause in the spirit of Eid will bring joy to those in need."

NAPCO staff and management conducted a Blood Donation Campaign in cooperation with the Blood Bank at the Boucher Health Complex

NAPCO employees and management organized a blood donation campaign on the 3rd of September 2018. The campaign was part of NAPCO's commitment to the community and our social responsibili – ties. We would like to thank the Department of Blood Banks Services for their collaboration and perfect organization.

National Aluminum Products Company (NAPCO) Staff visit to patients in the Royal Hospital

As part on National Aluminum Products Company (S.A.O.G) commitment to plant seeds of happiness in the Patient Children who are in-Patient in Royal Hospital, a Company team visited the Children on 14th August 2018 to comfort them and presented a symbolic gift before Eid.

Social services are one of the most important pillars that contribute to social development and strengthen relations between the corporate world and the surrounding community.

Social services are one of the most important pillars that contribute to social development and strengthen relations between the corporate world and the surrounding community. The National Al - uminium Products Company recognized this key factor and the General As assembly supported. this initiative by agreeing to spend ten thousand Riyals (RO 10,000) as the Social Services Support Ini- tiative.

Local community leaders have been asked to nominate suitable projects that will enhance social co - hesion with the support of National Aluminum Products Company to provide the necessary aluminum Profiles through the local owners of the existing workshops. The company has received twenty-three (23) applications from various projects. After examining all the applications and the allocated budget, the company decided to grant seven (7) projects that vary between: public councils, mosques, schools of the Quran, teams, and sports clubs. The company will continue to support the local community in the coming years with similar hurdles to develop the seeds of good in society.

Green Oman

One of the largest initiatives from Madayn was introducing green Oman by getting many industrial area companies getting involved in the initiative. National Aluminium Products S.A.O.G considered as one of the pioneering companies which got involved immediately by sponsoring the event what will keep Oman a clear environment and will enhance to develop green Oman. NAPCO CSR team is actively coop erating in several environmental activates.

Take Them Beyond

NAPCO is collaboration with Souq Es Sabt Al MouJ Muscat hosted a special needs stall to promote their small businesses on 14th of December 2019.

100% of sales revenue what have been earned in this event are for the benefit of the association for the welfare of the handicap children. Such events are very important for the society and to change public minds of handicap.

NAPCO ECO - GREEN BILLETS

Sustainable Aluminum for your Sustainable Applications:

With years of extensive research in Billets and Profiles, NAPCO ECO-GREEN Billets are the future for green Buildings. Alloys of recycled aluminum have now become a fact. This aims to reduce the consumption of raw materials and the waste generated. Re-melting aluminum and processing it into new alloys, NAPCO contributes to a greener environment by reducing its carbon footprint.

So why select NAPCO ECO-GREEN Billets?

With years of extensive research in Billets and Profiles, NAPCO ECO-GREEN Billets are the future for green Buildings. Alloys of recycled aluminum have now become a fact. This aims to reduce the consumption of raw materials and the waste generated. Re-melting aluminum and processing it into new alloys, NAPCO contributes to a greener environment by reducing its carbon footprint.

- Complying with European and International standards
- The quality of recycled green aluminum is equal to that of primary aluminum
- The pre-consumer recycled content and post-consumer recycled content is in the range of 90-95%
- Reduction of 60 to 80% CO2 emission in comparison to exploiting primary aluminum
- Re-melting requires only 5% of the energy in comparison to exploiting primary aluminum
- Applicable for many alloys

Your Sustainable Partner for Aluminum Profiles:

Since its inception in 1984, NAPCO has been operating professionally and innovatively. As a result of the synergy in the NAPCO's organization via Billets and Profiles, the company has become conscious of its social and economic responsibilities.

Why make NAPCO your Aluminum Extrusion Partner:

- One of the best quality extrusion plant in GCC & MENA region
- Focus on sustainable solutions
- Customer-oriented, flexible and dependable
- Stock share holder company, with diverse financial resources
- Modern equipment and digitally controlled measuring systems
- Focus on R & D with efficient production capacity

Guaranteed Sustainable Aluminum Solutions:

NAPCO is emerging as a strong international player in the development aluminum as an eco-friendly solution. In addition, we work in close partnership with our customers. This enables us to keep investing in quality and reliability.

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PRODUCTS COMPANY SAOG

OMAN

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