



GUMEN

Industrial Furnace & Machine

EDITION · 2026

ALUMINIUM SYSTEMS CATALOGUE

Aluminium Line Solutions

Aluminium Industrial Furnace & Process Line Catalogue

From melting to end-of-line — single-source engineering, manufacturing and commissioning for your entire aluminium production facility. 18+ years of expertise, 100% domestic engineering, turn-key integration.

18+

YEARS OF EXPERIENCE

9+

TURNKEY PROJECTS

7

COUNTRIES EXPORTED

100%

DOMESTIC ENGINEERING

PROCESS FLOW · END-TO-END

Complete Aluminium Line from a Single Supplier

From scrap charging to billet end-of-line — a fully integrated aluminium production line, designed and manufactured under one roof.



WHY GUMEN

Gumen Industrial Furnace & Machine

 FULLY INTEGRATED DESIGN Entire line from a single engineering team — furnace, automation, mechanical and process data from one supplier; integration and maintenance simplified.	 ENERGY EFFICIENCY Regenerative burners, heat-recovery treatment, smart recipe management — 20%+ savings in operational costs.	 PATENTS & STANDARDS Patent-pending in-line UT system. AMS 2154, ASTM B594, EN 12804, MIL-STD-2154 and AQAP-2110 compliant design.
 TR 100% DOMESTIC MANUFACTURING All mechanical and electrical components in our own facility. Spare parts in stock, fast service, low TCO.	 PLC & SCADA Native PLC + SCADA + IIoT integration on Siemens / Allen-Bradley platforms. OPC-UA-ready data layer.	 GLOBAL DELIVERY Exports to 7+ countries. On-site installation, FAT/SAT, operator training, lifetime engineering support.

MELTING · REFINING · CASTING

Melting & Casting Systems



REGENERATIVE BURNER · 5T – 100T

Melting & Holding Furnaces

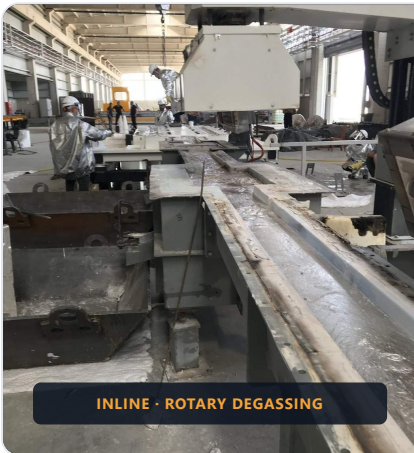
High-performance solutions for efficient aluminium melting and stable temperature holding throughout the process. Capacity-specific melting/holding furnaces, optimised for homogeneous temperature distribution and low energy consumption.

Capacity: 5–100 ton

Fuel: Natural Gas / LNG / LPG

Twin-chamber optional

Regenerative burner



INLINE · ROTARY DEGASSING

Inline Degassing, Filtration & Launder

Dissolved hydrogen and oxide particles cause porosity, cracks and segregation in billets. Inline rotary degassing + ceramic foam filter + heat-controlled launder systems bring metal quality to aerospace grade.

Hydrogen: <0.10 ml/100g

Rotary degasser

CFF / DBF filter

Heated launder



VDC · 75–500 mm Ø BILLET

Vertical Direct Chill Casting Machine (VDC)

Industry standard for aluminium billet and slab production. The GUMEN VDC system operates fully integrated with melting/degassing line; automatic casting speed control, water flow management and recipe-based parameter recording.

Billet Ø: 75–300 mm

Vertical DC (Air-Casting)

Alloys: 1xxx–7xxx

PLC + closed-loop cooling

HOMOGENIZATION · HEATING · TREATMENT

Heat Treatment & Preparation Furnaces



Aluminium Homogenization Furnace

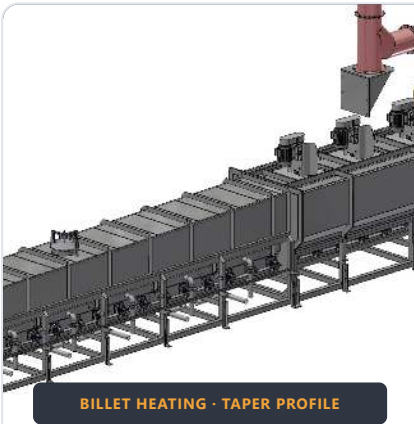
Heterogeneous microstructure, segregation and dendritic structure after VDC casting cause extrusion defects. Homogenization diffuses alloy elements into the matrix for a homogeneous structure; profile quality and die life increase.

Temperature: 480–600 °C

Duration: 4–48 hours

Forced air cooling

Recipe management



Extrusion Billet & Die Heating

Billet temperature and uniformity entering the extrusion press directly affect profile quality and die life. Taper-temperature profile (rising temperature end-to-end) optimises pressure management.

Temperature: 380–500 °C

Taper option

Die furnace included

Rapid heating



Aluminium Heat Treatment Furnaces

Heat treatment is a critical process for extrusion and casting plants — improving the mechanical properties of profiles and cast parts. Solution treatment, quench, artificial ageing (T5/T6/T7) — complete solution under a single facility.

Solution: 480–540 °C

Ageing: 150–200 °C

T5/T6/T7

Integrated quench tank

DROP BOTTOM · COIL/FOIL · AGEING

Special-Purpose Heat Treatment Furnaces

Specialised heat treatment furnaces for aerospace solution treatment, coil & foil annealing, and artificial ageing.



Drop Bottom Heat Treatment Furnace

Critical for aerospace and defence industries. After solution treatment, aluminium structural parts are dropped into the quench tank within seconds — cooling time minimised, T6/T7 strength maximised. Ideal for structural wing components, landing gear and engine parts.

Temperature: 480–540 °C

Quench: <15 sec

Water / Polymer

AMS 2770 compliant



Coil & Foil Annealing Furnaces

Batch, continuous and bell-type furnaces for annealing aluminium coil, foil and strip. Hydrogen/nitrogen atmosphere control, controlled heating-cooling ramps, surface quality preserving design for flat/bright surface output.

Temperature: 250–600 °C

Batch / Continuous / Bell-type

H₂ / N₂ atmosphere

Capacity: 10–80+ ton/charge

Coil width up to 2200 mm



Artificial Ageing Oven

Controlled low-temperature ageing after solution treatment + quench — optimises alloy hardness and strength. Forklift or conveyor loading, multi-shelf, precise temperature control (± 2 °C). For extrusion profiles and cast parts.

Temperature: 150–220 °C

Precision: ± 2 °C

Multi-shelf

Recipe management

QUALITY · CUTTING · LOGISTICS

Quality Control & End-of-Line



Automatic Saw & Ultrasonic Testing System

Quality control is the most critical link in the aluminium billet casting process. Patent-pending, integrated into the VDC casting line, in-line automatic UT scanning — eliminates dependency on traditional offline UT labs. The only domestic system with this architecture in Türkiye.

FBH: \varnothing 0.4 mm

Frequency: 2–10 MHz

VDC sync

Auto PDF

AMS 2154



Automatic Billet Cutting Machine

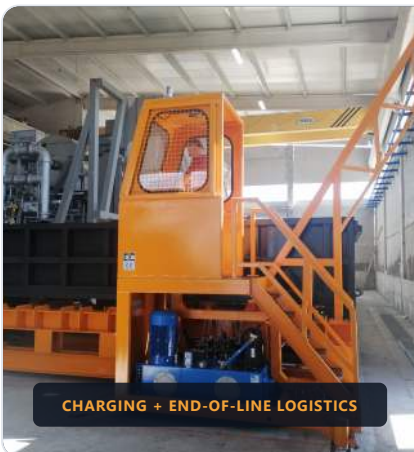
Precision cutting to prepare billets produced on the casting line for the extrusion press. CNC control, automatic chip evacuation, blade-life management and full sync with the casting line.

Diameter: 75–500 mm

Length: 100–1500 mm

CNC servo

Auto chip evac



Charging, Loading & End-of-Line Systems

Rail/wheeled charging cars for scrap aluminium, ingot and pot charging; conveyor, robot gripper and transfer cars for billet/profile end-of-line. Operator intervention and downtime reduced to a minimum.

Charging car

Robot gripper

Conveyor lines

Transfer car

Auto stacking

Let's Evaluate Your Project Together

18+

YEARS OF EXPERIENCE

9+

TURNKEY PROJECTS

7

COUNTRIES EXPORTED

100%

DOMESTIC ENGINEERING

Selected References

PMS Aluminium

Kurtoğlu Aluminium

AL Metal Aluminium

Çuhadaroğlu Metal

Alfa Metal Aluminium

GNS Aluminium

Panda Aluminium

Simgetek (Steel)

New Line · Modernisation · Service

For new facility setup, capacity/efficiency upgrades on existing lines, retrofit projects or 24/7 service, contact our team. **Initial technical evaluation is free of charge.**

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