



ALUMINUM
FURNACE SYSTEMS



CAN-ENG FURNACES INTERNATIONAL LIMITED

GLOBAL
FURNACE
SYSTEMS
GROUP



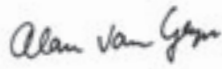
TO OUR CUSTOMERS:

Why buy equipment from CAN-ENG?

CAN-ENG Furnaces has the depth of experience to custom engineer heat treating equipment for the most demanding application. We pride ourselves in providing innovative, state-of-the-art equipment that helps our customers improve their bottom line and gain a competitive edge.

At CAN-ENG we are continuously improving and optimizing our technology, building progressive heat treating equipment through systematic innovation and partnerships. We are proud of the name we bolt onto every furnace. It stands for our commitment to serve our customers with integrity, professionalism and quality that endures.

Yours very truly,
CAN-ENG Furnaces International Limited



Alan Van Geyn
President

THERE REALLY IS NO STANDARD FURNACE.

Our team of engineers at CAN-ENG have the knowledge and depth of experience to design thermal processing equipment for the most demanding applications.

WE LISTEN. WE UNDERSTAND. WE INNOVATE. WE BUILD.

Our vision at CAN-ENG is to provide the best-designed and manufactured thermal processing equipment for the changing needs of our customers and the global marketplace.

THERE IS NO SUBSTITUTE FOR HARD WORK AND EXPERIENCE.

Our team at CAN-ENG is dedicated to providing the highest quality customer service from sale through commissioning to aftermarket support, because before we build a furnace we build a partnership.

INNOVATION IS THE CORNERSTONE OF ANY SUCCESSFUL ENTERPRISE.

Our engineering team at CAN-ENG works to improve and optimize existing technology to meet the changing needs of customers and the thermal processing marketplace, while continually developing new technology and new processes.

ALUMINUM FURNACE SYSTEMS

ALUMINUM FURNACE SYSTEMS



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ADDITIONAL PRODUCTS AND SERVICES

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BASKETLESS HEAT TREATING SYSTEMS

The marketplace has put increasing demands on manufacturers to reduce costs and increase product quality. CAN-ENG Furnaces' new Basketless Heat Treating System (BHTS®) has been engineered to meet these on-going and ever increasing production challenges.

Product is transferred through the Heat Treat system without the use of baskets or carriers. This eliminates the need for baskets, which require continuous repairs and replacement, reducing capital and operating costs. In addition, this concept greatly reduces energy consumption required to process product. Options exist for unique system layouts, which can be integrated into lean manufacturing cells.

SYSTEM BENEFITS

- Reduction of energy usage lowering \$/kg to process
- Eliminate ongoing basket repair and capital costs
- Short cycle processing benefits achieved through improved temperature distribution of the product
- Improved part to part properties
- Reduction of floor space requirements and elimination of pits
- Reduce material handling equipment and maintenance costs over conventional systems
- Lean manufacturing processing reducing work in progress inventory
- Modular expansion capabilities ensure capital investment grows only with production demands
- Design flexibility allows for multiple part geometries to be processed in the same system



APPLICATIONS

CAST, FORGED AND WROUGHT ALUMINUM INTENSIVE AUTOMOBILE COMPONENTS

ENGINE BLOCKS

CYLINDER HEADS

PISTONS

WHEELS

SUSPENSION COMPONENTS

HIGH PRESSURE GAS CYLINDERS

STRUCTURAL COMPONENTS

PROCESSES

T4, T5, T6, T7 PROCESSES SOLUTION AND ANNEALING PROCESSES

THERMAL SAND REMOVAL

RAPID TRANSFER WATER, POLYMER AND SPRAY QUENCH SYSTEMS

PRECISION AIR QUENCH SYSTEMS (PAQ)

SPRAY QUENCH

UNIQUE MATERIAL HANDLING APPLICATIONS



CONTINUOUS ALUMINUM HEAT TREATING SYSTEMS

Around the world, auto companies and their engineers seek ever greater fuel efficiency, engine life, and safety demands. They are accomplishing this through the creation of lighter vehicles incorporating aluminum in the manufacturing process.

CAN-ENG is at the forefront of the aluminum heat treating technology that makes breakthroughs in engine design and vehicle construction possible. From aluminum engine blocks and heads to aluminum fasteners, suspension components, structural components and beyond, CAN-ENG furnace technology excels where engineering ingenuity and innovation are required.

SYSTEM BENEFITS

- Batch and continuous designs
- Continuous roller hearth designs
- Continuous mesh belt designs
- Continuous pusher designs
- Continuous mono-rail designs
- Optimum temperature uniformity +/- 5°F (3°C)
- Rapid transfer between furnace and quench
- Heat treatment of aluminum components up to 1200°F (650°C)
- Complete turnkey systems
- Unique air flow systems for rapid heating - short cycle hot air impingement designs
- Up to 10,000 lbs/hr (4500 kgs/hr) capacity
- Unique water, polymer, immersion, spray quench and precision air quench designs that include rapid transfers systems that eliminate the need for pits or special foundations



APPLICATIONS

CAST, FORGED AND WROUGHT
ALUMINUM INTENSIVE AUTOMOBILE
COMPONENTS
ENGINE BLOCKS
CYLINDER HEADS
ALUMINUM /MAGNESIUM ALLOY
FASTENERS
PISTONS
WHEELS
SUSPENSION COMPONENTS
HIGH PRESSURE GAS CYLINDERS
STRUCTURAL COMPONENTS
ALUMINUM SHAPES,
SHEETS AND TUBING

PROCESSES

T4, T5, T6, T7 PROCESSES
THERMAL SAND REMOVAL
RAPID TRANSFER WATER QUENCH
SYSTEMS
PRECISION AIR QUENCH SYSTEMS
(PAQ)
SPRAY QUENCH
UNIQUE MATERIAL HANDLING
APPLICATIONS
HOMOGENIZING
ANNEALING



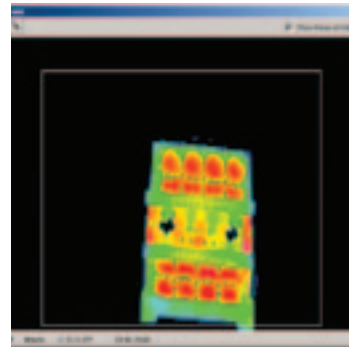
ALUMINUM QUENCH SYSTEMS

CAN-ENG's new development in Precision Air Quenching technology is able to deliver predictable metallurgical results, process cost control to exacting tolerances, multiple cooling rates on individual parts, tighter distortion control and uniform properties across each casting.



SYSTEM BENEFITS

- For the engineered quenching of production aluminum castings
- Uniform properties across each casting
- Tighter distortion control
- Multiple cooling rates on individual parts
- Process cost control to exacting tolerances
- Predictable metallurgical results
- Residual sand handling capabilities
- Improved system efficiency through single part quenching



APPLICATIONS

CAST, FORGED AND WROUGHT ALUMINUM INTENSIVE AUTOMOBILE COMPONENTS

ENGINE BLOCKS

CYLINDER HEADS

PISTONS

WHEELS

SUSPENSION COMPONENTS

HIGH PRESSURE GAS CYLINDERS

AUTOMOBILE STRUCTURAL COMPONENTS - SHOCK TOWERS

ALUMINUM SHAPES, SHEETS AND TUBING

ALUMINUM CASTINGS WITH CAST-IN METALLIC LINERS

THIN-WALLED CASTINGS

HIGH INTEGRITY ALUMINUM CASTINGS



PROCESSES

PRECISION AIR QUENCHING (PAQ)

AIR MIST QUENCHING

SPRAY QUENCHING

SOLUTION TREATING AND QUENCHING PROCESSES

POST ANNEALING/
HOMOGENIZING QUENCHING

MODULAR ALUMINUM HEAT TREATING SYSTEMS

CAN-ENG Furnaces' engineers routinely develop cost effective Modular Aluminum Heat Treatment systems which are ideally suited for new start-up manufacturing or pilot-processing products.



CAN-ENG's modular aluminum heat treatment systems allow users to integrate new state-of-the-art processing systems into existing manufacturing processes thus avoiding prohibitive large-scale continuous processing systems capital costs. Our systems are developed for flexible expansions, allowing manufacturers future access to the benefits associated with the continuous high volume processing.



DESIGNS INCLUDE:

- Multi-Chamber or station roller hearth solution and aging systems
- Flexible Water and Precision Air Quench (PAQ) systems
- Rapid heating - short cycle hot air impingement designs
- Rapid quench designs
- Monorail conveyor systems
- Close cell multi-chamber T-4, T-5, T6, T7 systems

APPLICATIONS

CAST, FORGED AND WROUGHT ALUMINUM INTENSIVE AUTOMOBILE COMPONENTS

ENGINE BLOCKS

CYLINDER HEADS

PISTONS

WHEELS

SUSPENSION COMPONENTS

HIGH PRESSURE GAS CYLINDERS

STRUCTURAL COMPONENTS

ALUMINUM SHAPES, SHEETS AND TUBING

PROCESSES

T4, T5, T6, T7 PROCESSES

RAPID TRANSFER WATER, POLYMER AND SPRAY QUENCH SYSTEMS

PRECISION AIR QUENCH SYSTEMS (PAQ)

BASKETLESS HEAT TREATING SYSTEMS

UNIQUE MATERIAL HANDLING APPLICATIONS



PRIMARY ALUMINUM PROCESSING FURNACE SYSTEMS

CAN-ENG Furnaces depth of experience in the non-ferrous industry is demonstrated in the wide range of furnaces and ovens that are proving themselves around the world.

CAN-ENG's primary aluminum ovens and furnaces provide practical, cost effective solutions to demanding processing challenges.

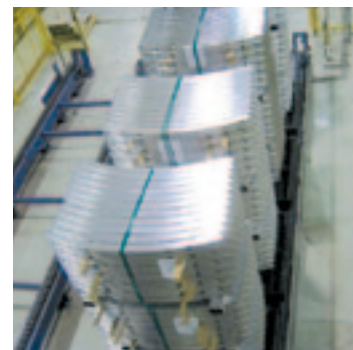
CAN-ENG has provided over 40 years of experience in servicing some the largest aluminum processors in the world.

During these years, CAN-ENG has always sought out to improve its designs and meet the ever changing needs of aluminum processors.

CAN-ENG manufactures standard and custom designed furnaces from small batch systems to large car bottom systems capable of processing over 150 tons of aluminum.

DESIGNS INCLUDE:

- Batch car bottom or tray designs
- Continuous pusher or conveyor designs
- Protective atmosphere systems
- Rapid cooling systems for improved system heating and reduced foot print
- Rapid heating, short cycle hot air impingement designs
- Ancillary charge car and manipulator equipment

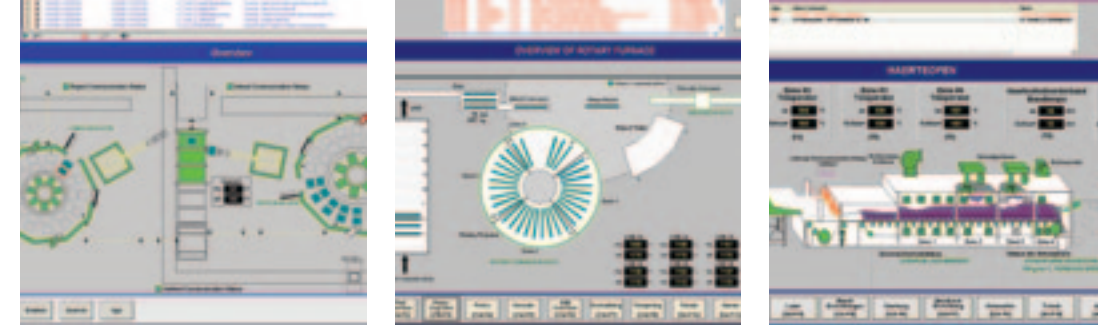


APPLICATIONS

SLAB
BLANKS
COILS
LOGS
FORMED PARTS
SHEETS
RODS

PROCESSES

HOT AIR IMPINGEMENT DESIGNS
HOMOGENIZING
ANNEALING
PREHEATING AND REHEATING FOR ROLLING



SCADA SYSTEM, LEVEL II AUTOMATION

More than forty years of control and data acquisition system design on our own heat treating equipment has led to the development of an advanced stand-alone supervisory control and data acquisition system. Our SCADA system, Level II Automation is not only available on new equipment but can be used to upgrade and enhance existing manufacturing processes.

CAN-ENG SCADA systems go well beyond just furnaces to include other equipment and processes in order to meet even the most stringent and advanced intelligent information software needs.

SYSTEM BENEFITS

- Supervisory control of equipment, machinery and processes
- Integrated system diagnostics
- Advanced data acquisition and part tracking features
- Flexible part recipe control for batch and continuous applications
- Real-time and historical data collection, storage and retrieval
- Automated System Diagnostics, Alarm data logging and maintenance notification
- Scheduling optimization and customized reporting tools
- Real-time & Historical Data Collection & Integrated Results Reporting
- Part tracking through easy to understand animations of work in progress
- Integration with existing MRP systems for advanced product scheduling



AUTOMATION AND MATERIAL HANDLING SOLUTIONS

CAN-ENG recognizes that the flow of product to and from the heat treating cell is an integral part to the overall heat treatment process. With this understanding CAN-ENG endeavours to produce reliable and rugged material handling solutions to ensure that completely automated solutions have the highest possible up time.

SYSTEM BENEFITS

- Material handling solutions custom integrated into customer's existing process flow
- Working in conjunction with Level II automation systems, full supervisory control is possible
- Multiple production line solutions are available
- Auxiliary equipment, pre-heat treatment and post-heat treatment designed, integrated and supplied by CAN-ENG
- Multiple robotic manufacturers are available



RESEARCH AND DEVELOPMENT

CAN-ENG leads improvements and changes in the industry with its Research and Development programs. These programs have three areas of industrial heating focus:

- Developing new technology
- Developing new processes
- Improving and optimizing existing technology

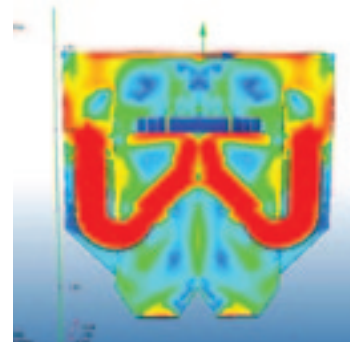
CAN-ENG utilizes existing engineering tools such as 3D modeling and computational fluid dynamic modeling in its research and development initiatives. CAN-ENG's Technology Development Center is dedicated to process development research and product testing. It is comprised of multifunctional pieces of equipment focusing on both ferrous and non-ferrous applications and is overseen by dedicated Research and Development Engineers. This new facility houses the following equipment and capabilities:

FERROUS APPLICATIONS TESTING EQUIPMENT

- High temperature 2400°F (1330°C) furnace for process, product and combustion system development
- Focus on the development of new immersion and spray quenching techniques
- Steel long product (bars, tubes, plates) quench and tempering testing and research

NON-FERROUS/ALUMINUM CASTING TESTING EQUIPMENT

- Low temperature 300°F to 1100°F (150°C to 600°C) development furnace
- Simulation of single part handling of aluminum intensive automobile components achieved in CAN-ENG's Basketless Heat Treatment System BHTS®
- Single part immersion quenching and spray quenching to achieve uniform part-to-part mechanical property results
- Single part Precision Air Quenching (PAQ) for developing processes that provide predictable metallurgical results while optimizing residual stress levels



OTHER APPLICATIONS TESTING EQUIPMENT

- Fluidized Bed heating reactor for heating and cooling process development
- Ability to utilize protective process atmospheres when testing
- Access to material testing laboratories
- All equipment is integrated with CAN-ENG's Supervisory Control and Data Acquisition and time elapsed thermal imaging systems

Whether you are looking for confirmation of material properties using a new process or trying to optimize your current processes or properties, CAN-ENG has the experience and tools available to support your current and future development needs.

CAN-ENG Furnaces is an ISO 9001:2008 certified company.

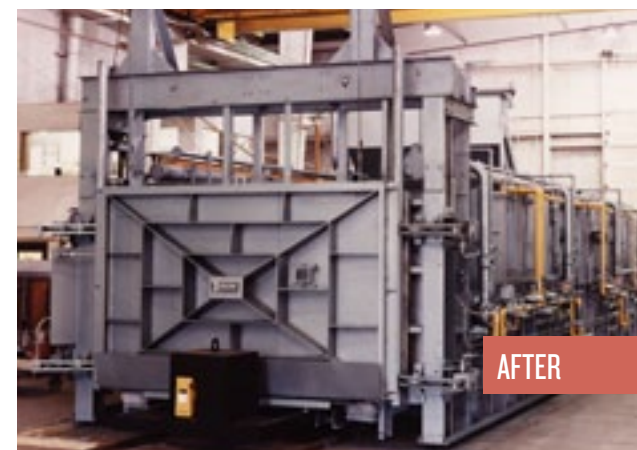
PARTS AND SERVICE

CAN-ENG specializes in providing standard and custom designed replacement parts for all thermal processing equipment. CAN-ENG also has a comprehensive OEM trained Field Service Department to meet any field service requirements.

- Energy Savings Programs
- Preventative Maintenance Programs
- Fuel conversions
- Recuperation of exhaust gas
- Feasibility Studies
- Upgrading controls and SCADA Systems
- Optimizing furnace loads
- Increasing production capacity
- OEM Parts and Service
- Support and technical service for owners of both CAN-ENG and other manufacturers' heat treating equipment
- Equipment relocation



BEFORE



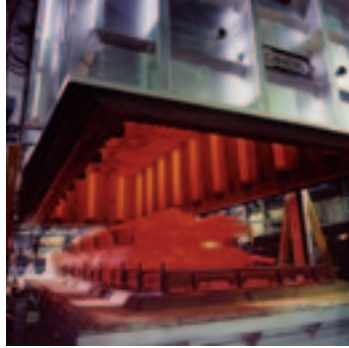
AFTER

REBUILDS AND RETROFITS

CAN-ENG, in addition to constantly upgrading its own designs and materials, keeps abreast of developments in the field of heat treating that contribute to increased reliability and/or energy efficiency. CAN-ENG passes these technological improvements on to its customers in the form of rebuilding and retrofitting services. In this way, CAN-ENG can bring outdated, uneconomical equipment up to a level of operating efficiency equal to that of present day furnaces.

CAN-ENG is well equipped to perform upgrading work in the areas of:

- **INSULATION:** Removal and replacement of worn or inefficient insulation with modern, energy saving insulating materials.
- **HEATING SYSTEMS:** Conversion from electric to fuel-fired systems or fuel-fired to electric to take advantage of relative energy savings. Retrofitting outdated heating systems with more efficient and effective technology.
- **CONTROL SYSTEMS:** To help its customers keep pace with increasingly stringent quality control requirements, CAN-ENG can upgrade a control system from the completely manual to an automatic, microprocessor-controlled operation.
- **MECHANICAL DESIGN:** Redesign and rebuilding of component parts or entire furnace systems to take advantage of the latest, most efficient furnace designs.



STEEL PLANT HEAT TREATING EQUIPMENT

CAN-ENG offers a wide range of Steel Plant Heat Treating Equipment, see our list below for just a few.

- **BATCH FURNACE SYSTEMS:**
Batch Integral Quench Furnace Systems, Car Bottom Furnace Systems
- **CONTINUOUS FURNACE SYSTEMS:** Continuous Bar Product Quench and Temper Heat Treatment Systems, Plate Heat Treatment Systems, Tube Heat Treatment Systems

CONTINUOUS MESH BELT ATMOSPHERE FURNACE SYSTEMS



For over three decades, CAN-ENG has been the industry leader for the supply of Continuous Mesh Belt Atmosphere Furnace Systems. Much of this can be attributed to design innovation which changed the industry and continues today. CAN-ENG's equipment leads the industry in up-time reliability, energy efficiency and soft handling features to deliver superior part cosmetics. Standard production capacities are available from 250 lbs/hr up to the largest systems in operation at over 7500 lbs/hr (100 kg/hr to 3400 kg/hr).

APPLICATIONS

- CONTINUOUS IRON OXIDE REDUCTION IN 100% H₂ ATMOSPHERE
- MOLTEN BISMUTH QUENCHING
- TRANSFORMER PCB DESTRUCTION FURNACE
- AUTOMOTIVE GLASS PROFILE BENDING FURNACE
- FLUID BED TECHNOLOGY
- ENAMEL FIRING
- SOLID WORKS DESIGN PLATFORM FOR 3-D MODELING OF PROCESSES
- DEMANDING PROCESS APPLICATIONS
- UNIQUE SOLUTIONS TO DIFFICULT CHALLENGES
- LEVEL II AUTOMATION SYSTEMS AVAILABLE

OTHER PRODUCTS

In our nearly half century of designing industrial furnaces, CAN-ENG Furnaces International Limited has completed some of the most complex and technically challenging systems in the world. These include both unique batch and continuous furnaces that make many modern processes and materials possible.

CAN-ENG Furnaces has the depth of experience to custom engineer heat treating equipment for the most demanding application. We pride ourselves in providing innovative, state-of-the-art equipment that helps our customers improve their bottom line and gain a competitive edge.



OUR CUSTOMERS

ADD YOUR NAME TO THE LIST OF WORLD CLASS COMPANIES USING CAN-ENG EQUIPMENT

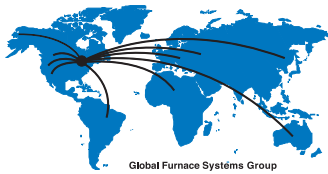
- 3M Company
- 6N Silicon Inc.
- A.O. Smith
- Ajax Metal Processing
- Albany-Chicago Company
- Alcan
- Alfe Heat Treating
- Allevard Rejna
- Altasteel Ltd.
- Alu'Die Extrusion Dies
- Aluminerie de Beaucour (ABI)
- Amcan Castings
- American Eagle Wheel
- ARI/AMSTEAD
- Associated Spring
- ASUSA
- Atlas Specialty Steels
- Atlas Tube
- AXIS LLC
- B & W Heat Treating
- Benteler Automotive
- Black & Decker
- Bodycote Thermal Processing
- Bohler Uddeholm Limited
- Bombardier
- Borg Warner Automotive
- Bresmex Tuberias SA de CV Mexico
- Camco Corporation
- Cascade Kenhar
- Castle Metals
- Celina Aluminum Precision Technologies (C.A.P.T)
- Chemplate
- Chrysler LLC
- CMC Impact Metals
- Commercial Steel Treating Corporation
- Corus L.P.
- Curtis Metal Finishing Company
- Dana Corporation
- Delphi
- Department of National Defense
- Dongkuk ENC
- Dubose Strapping Inc.
- Dupont
- Eagle Bend Manufacturing
- Eaton Corporation
- Edmonton Exchanger and Manufacturing Ltd.
- Erico
- Federal Products
- FIBA Technologies Inc.
- Filit
- Ford Motor Company
- General Die Cast Products
- General Electric
- General Motors Corp.
- GM Powertrain
- H&S Heat Treating
- Hendrickson Spring
- Honda
- Honda Manufacturing of Alabama
- Honda Canada
- Honeywell
- Hyundai
- I.B.M.
- Inco
- Indalex
- Industrial Heat Treating Inc.
- Industrial Steel Treating Company
- International Ordnance
- ISTIL
- ITW
- John Deere
- Karl Schmidt UNISIA
- LaSalle Steel
- Long Manufacturing
- Meadville Forging Group
- Meritor
- Mexican Mint
- Middlebury Enterprises Inc.
- Midland Steel Products
- MNP
- Moscow Pipe Plant Factory
- National Forge
- National Steel Car Ltd.
- Navistar
- Nedschroef
- Nematik
- NFK
- Nissan
- Noranda
- North American Hoganas
- Nucor
- Ontario Engineered Suspensions (OES)
- Parker Hannifin Corp.
- Pittsburgh Plate Glass
- Plydex
- Raymond
- Reynolds Aluminium
- Rheem Manufacturing
- Rockwell International
- Royal Canadian Mint
- Sabian Ltd.
- Serov Mechanical Plant
- Shannon Precision Fasteners
- Sharon Tube
- Slater Steels
- SPS Technologies
- SPX Contech Metal Forge
- Srubex S.A.
- Standen's Limited
- Stelco
- St. Gobain
- Termosan ISIL ISLEM A.S., Turkey
- Textron Fastening Systems
- Torrington Ingersoll-Rand
- Toyota Motor Mfg.
- True Temper Inc.
- TRW
- TVSZ, Russia
- U.S. Armed Forces
- Uddeholm
- Umicore Autocat Canada Corp.
- Vale Inco Ltd.
- Welded Tube of Canada
- Westinghouse
- White Consolidated



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