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EVENSENFURNACES

C. H. Evensen Industriovner AS

LEADING TECHNOLOGY FOR THE HOT DIP GALVANIZING INDUSTRY

C. H. Evensen Industriovner AS

CONTENTS

The company was founded in 1937 and have been a leading supplier to the Hot Dip Galvanizing Industry. We have all resources In-house; Production, electrical and mechanical design. All furnaces and advanced equipment are manufactured by us. Low cost applications are manufactured at our subsidiaries. We have at present a total work force of 50 people in Norway, Sweden and Lithuania.

SERVICE

For clients that wish to maintain a secure operation of their equipment. Evensen can make service agreements where the performance and status of the equipment is tested and controlled at regular intervals.
We can also modernize and refurbish existing furnaces, with modern equipment such as new control systems, higher degree of automation, efficient heating systems, low energy loss thermal linings, solutions for increased capacities etc.
Further, we are able to supply and install special components such as heating elements, burners, thermocouples, furnace fixtures, conveyors, temperature resistant materials, blowers etc., also for heating equipment that has not been delivered by us.

MODERNIZATIONS

Evensen can offer furnace renovations and modernizations for capacity, energy and environmental improvement measures in accordance with applicable safety requirements based on current directives and standards.

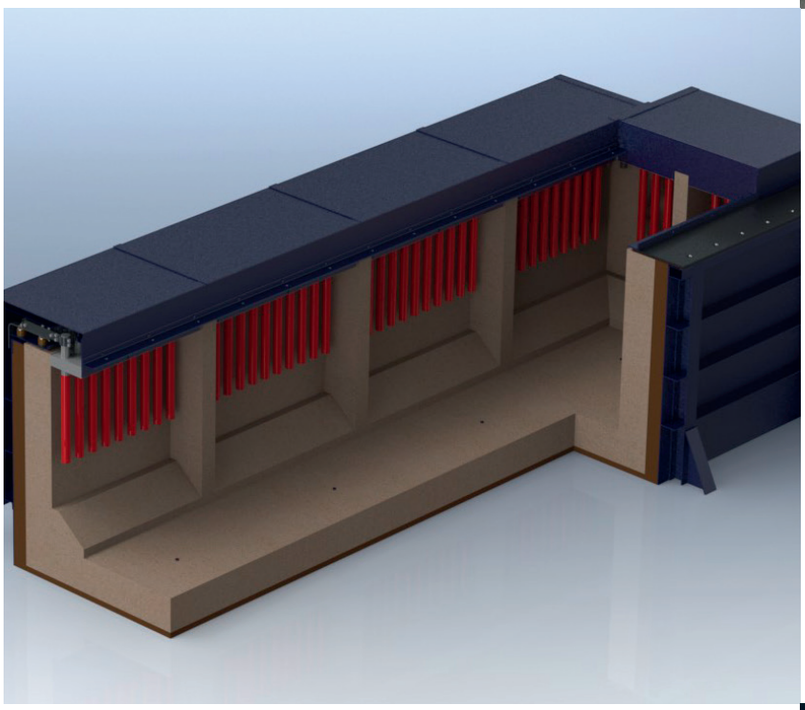
PRODUCTION AND INSTALLATION

Evensen has a modern workshop with an experienced workforce, with more than 50 employees in Norway and Lithuania. This includes our In-House electrical department where control boards, control systems and heating elements are designed built and tested.

Our engineers keeps a close follow-up of our products throughout production, installation and commissioning. This ensures that our deliveries will be in accordance with the specified requirements, and our engineering department will always be updated with new experience and the latest developments.

WORLD LEADERS IN HIGH TEMPERATURE GALVANIZING FURNACES

The innovation of ceramic furnaces made high temperature galvanizing possible. High temperature galvanizing is applied at spin work plants for galvanizing of threaded products, nails, brackets and various fasteners.
CHE pioneered ceramic galvanizing furnaces as early as 1948 and has installed one of the largest galvanizing furnaces in the world with 1100 tons of zinc. We have installed more than 120 ceramic furnaces worldwide.



WORLD LEADERS IN ELECTRIC HEATED FURNACES

Originating from an area where electricity is the prime energy source, we have had the opportunity to gradually develop our heating systems to a very high level of efficiency, long life and secure operation. Both the Silicoat® immersion heating rod and radiant wall for steel kettles were innovated in our engineering department.

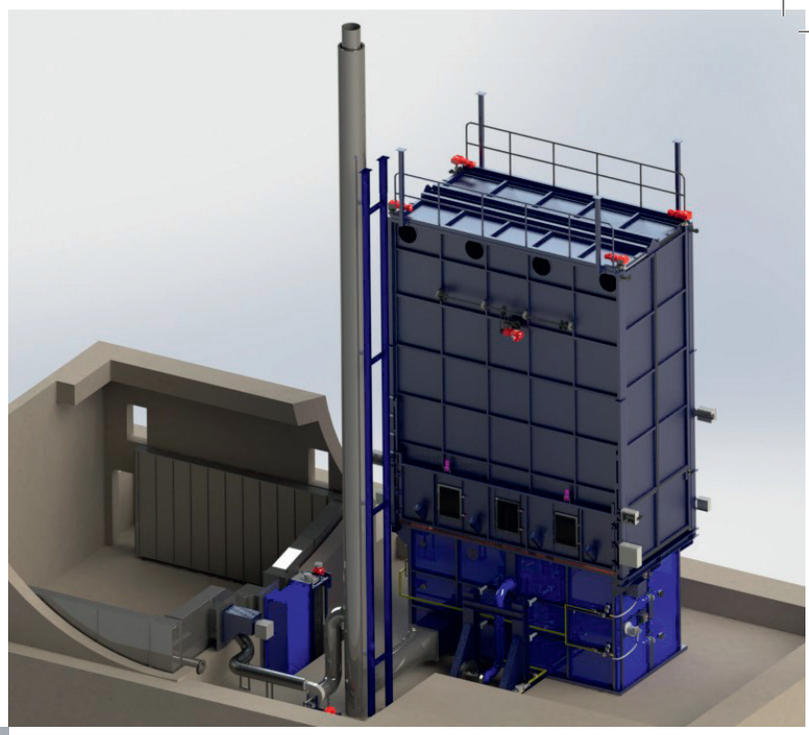
30 YEARS EXPERIENCE IN AUTOMATIC ASH SKIMMING SYSTEMS

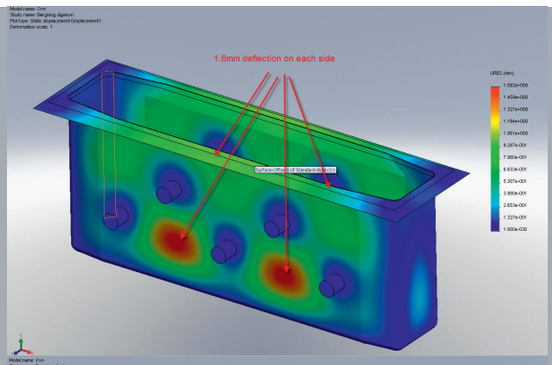
The first company in the world that successfully designed a fully automatic ash skimming system for a galvanizing furnace.
The quality and repeatability of the system has been proven in automated Hot Dip Galvanizing lines for automotive Components.

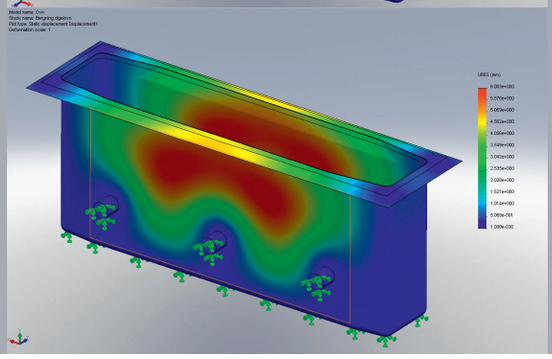
TURN KEY GALVANIZING PLANTS. ENVIRONMENTAL EQUIPMENT

In close collaboration with other specialists in their field, we supply turnkey galvanizing plants based on efficient handling systems and state of the art cleaning plants

Energy Recovery
Through computerized programs we calculate heat exchangers for flue gases, energy loss reductions and optimal heat transfer conditions.







PRODUCT DEVELOPMENT AND ENGINEERING

We have our own engineering department where our products undergo continuous development. With innovative design concepts and visions CHE has been the pioneers in many fields of Hot Dip Galvanizing.

Computerized design
Today we apply 2D and 3D design tools for drawings and illustrations. We use computer programs for energy balances, heat and gas flow simulation and calculation of kettle strength and energy load.

FULL FIELD SERVICE-WORLDWIDE

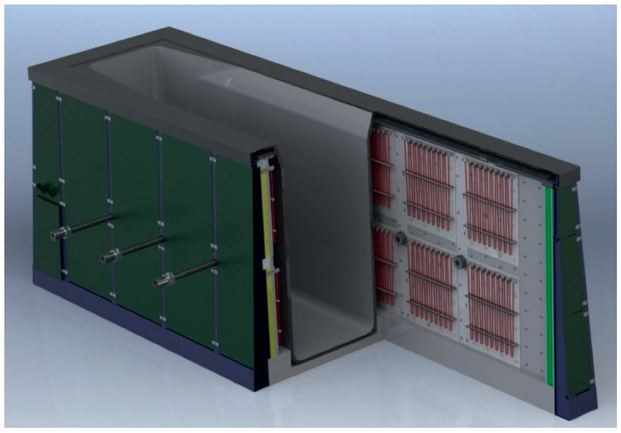
Our technical support is available 24 hours per day, and we use PLC / modems for online troubleshooting and service. We can make service contacts with our clients and are available for all maintenance works, repairs and kettle changes.

SERVICE:
+47 954 33 333

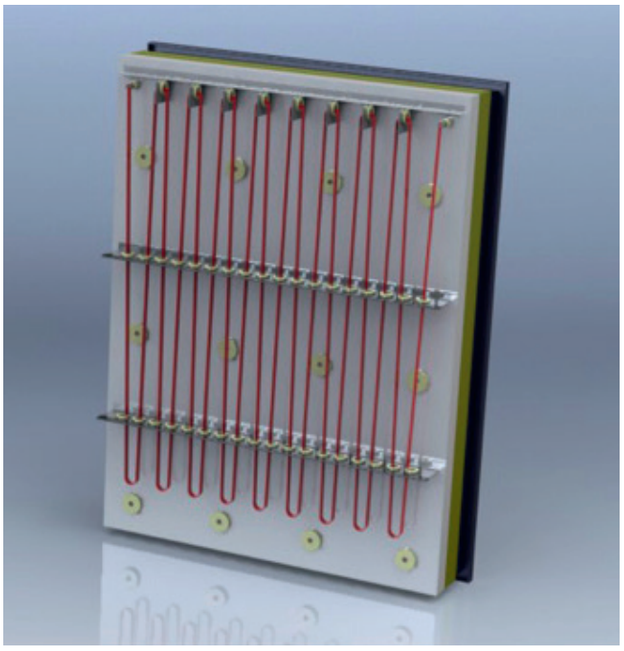
ELECTRIC RESISTANCE HEATED GALVANIZING FURNACE WITH RADIANT WALL

REMOVABLE HEATING ELEMENTS
The kettle is heated through a system of separate panels with ribbon heating elements from Cr20Ni80 alloy.
There is one connection terminal only for each panel. The panels can be removed separately for service with minimal interruption of production.

RADIANT WALL WITH REDUCED RISK OF HOT SPOTS
The system of heating panels creates a radiant wall against the kettle. This ensures optimal conditions for extended life of the kettle.



MINIMUM HEAT LOSSES AND HIGH EFFICIENCY
The furnace is lined with high temperature ceramic fibre, to minimize the heat losses from the furnace. The kettle top flange is insulated in order to reduce heat emission from the flange surface. Electric resistance heating results in high thermal efficiency.



No energy loss due to cooling equipment as with induction heating and no flue gas heat loss as with combustion heating.

FURNACE AND KETTLE AS SEPARATE UNITS
The furnace is constructed as a separate unit. The steel kettle can be lifted out without removing the heating system or furnace walls.

TEMPERATURE CONTROL ON KETTLE WALL
The temperature control is through indirect measurement of the zinc temperature.

TWO ZONE TEMPERATURE CONTROL
The heating system can easily be divided in two zones, upper and lower zone. This can reduce possible top dross problems.

SAFETY FEATURES
The control is through a PLC with a GSM modem or VPN connection. There are separate controllers for temperature protection and a Zinc leakage warning system

GAS FIRED RECIRCULATION FURNACE WITH HIGH VELOCITY BURNERS

We only use burners and components from well known suppliers such as Eclipse Kromschroeder etc.

The burner flames are short and the kettle is equipped with insulated heat shields. The danger of hot spots is eliminated.

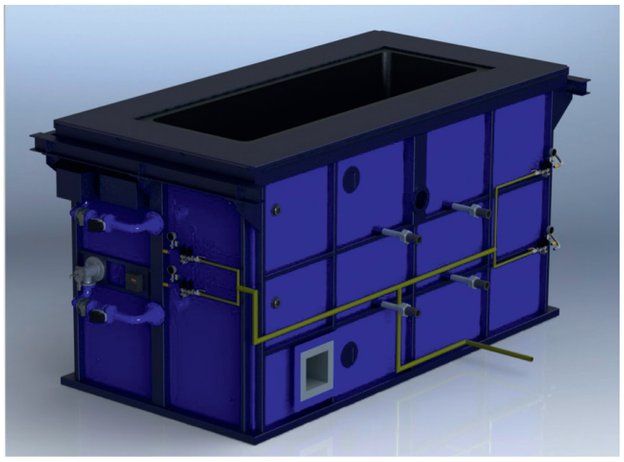
The temperature of each firing lane is monitored by a separate temperature controller.

Gas and air flows can be metered and the pressure is monitored by pressure switches.

The furnace is lined with a ceramic fibre wall, ensuring that the heat losses from the outer furnace walls are very low.

Furnace and kettle as separate units
The furnace is constructed as a separate unit. The steel kettle can be lifted out without removing the heating system or furnace walls.

PLC / MODEM
All our furnaces are controlled from a PLC unit equipped with a modem for GSM or VPN connection with our office. This enables quick troubleshooting in case of operational failure



TEMPERATURE CONTROL
The temperature control is through indirect measurement of the zinc temperature, no thermocouples immersed in the zinc bath.

OPTIONAL TWO ZONE REGULATION
The heating system can easily be separated in two zones, upper and lower zone. This can reduce possible top dross problems.

SUPERVISION OF THE KETTLE TEMPERATURE
To protect the kettle against overheating, the control system is equipped with temperature monitoring of the kettle wall.

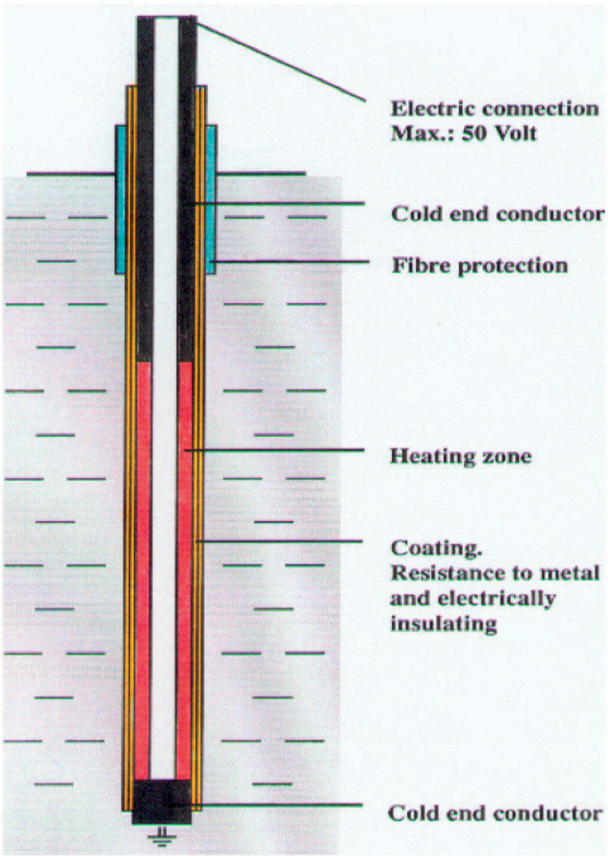
WARNING SYSTEM FOR ZINC LEAKAGE
The furnaces is equipped with a warning system, if Zinc should leak from the kettle.

OUR FURNACES CAN BE SUPPLIED WITH PULSE FIRING TECHNOLOGY

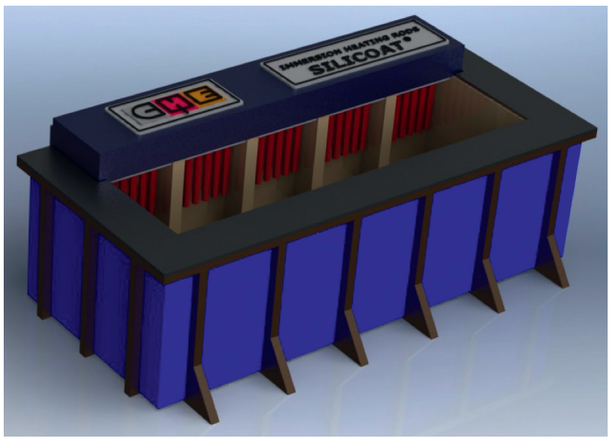
CERAMIC LINED GALVANIZING FURNACE WITH IMMERSION HEATING RODS

The development of the Silicoat® immersion heating rod has enabled a new concept for electric resistance heating of metals. With the unique physical and electrical properties of the rod, it can be installed directly in molten metals.

The total energy from the **Silicoat®** immersion rod is transferred directly to the metal by conduction. Hence, there is no energy loss from the energy source.



The Silicoat® immersion heating rods are applicable to the proven CHE design of ceramic lined galvanizing baths.



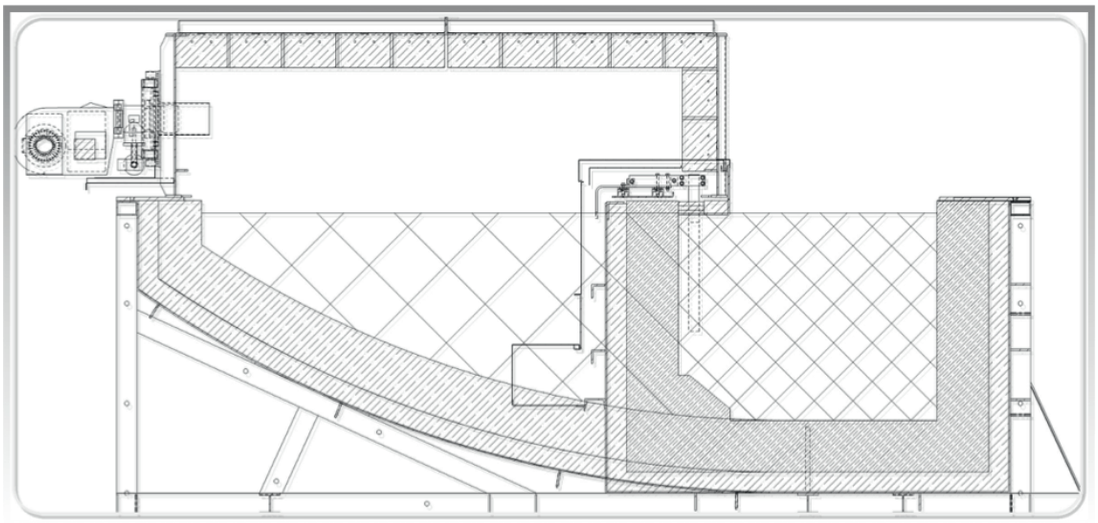
The voltage applied to the rods is limited to 50V, being transformed from line voltage through a multistep transformer.

The zinc temperature is controlled by PLC-unit with modem, connected to thyristors in the supply voltage line.

Silicoat® immersion heating rods and Ceramic Lined Galvanizing baths contribute to high thermal efficiency of the heating system, high power installations for high production rates in small zinc volumes and long life galvanizing bath.

HIGH TEMPERATURE GALVANIZING
High temperature galvanizing up to 610°C is used for galvanizing small components such as fasteners, threaded bolts, nails and brackets. High temperature galvanizing gives uniform and controllable coatings, also to silicon and aluminium kitted steels.

”TOPFIRED CERAMIC LINED GALVANIZING FURNACE” VS ”CERAMIC LINED GALVANIZING FURNACE WITH IMMERSION HEATING RODS (SILICOAT®)”



TOPFIRED:

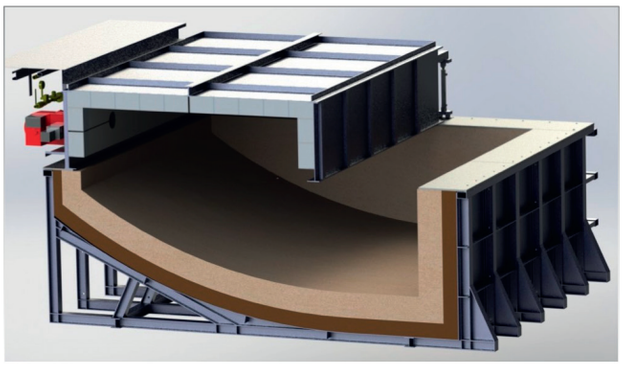
- *HIGHER ZINC VOLUME (DUE TO HEAT TRANSFER SURFACE)*
- *HIGHER LOSSES FROM FURNACE CONSTRUCTION*
- *MORE SPACE NEEDED*

SILICOAT®:

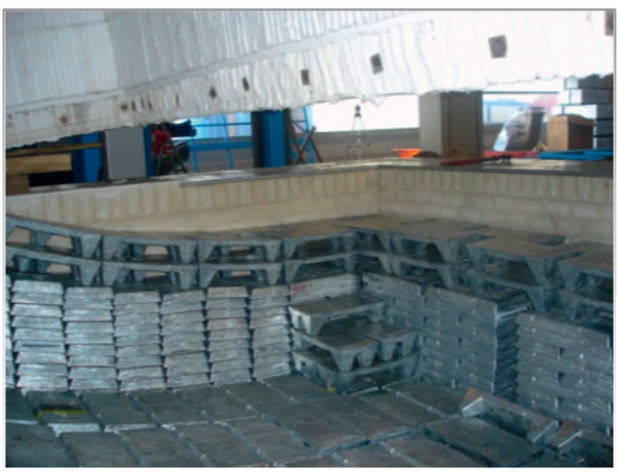
- *LESS ENERGY CONSUMPTION*
- *LESS ZINC VOLUME (UP TO 60%)*
- *LESS LOSSES FROM FURNACE CONSTRUCTION*
- *LESS SPACE NEEDED*

TOP HEATED CERAMIC LINED GALVANIZING FURNACE

The many advantages of ceramic lined galvanizing baths should be well known to most galvanizers. The fact that molten zinc does not form a chemical composition with refractory materials, as it does by formation of zinc ferrite with iron in a steel kettle, prevents the inconvenience and high cost of kettle changes, as ceramic lined baths will have an indefinite life.



The ceramic lined galvanizing baths have over the years been subjected to continues developments. These have mainly been directed towards the design of the refractory lining, the refractory materials and the steel structure supporting the zinc and the refractories.



Most of the development work in this field has been carried out by C.H.Evensen. The extremely long life of ceramic lined galvanizing baths of C.H.Evensen design, proves that any possibilities of zinc leakage or zinc penetration through the refractory lining due to thermal expansions and high hydraulic pressure, has been abolished, even at high temperature galvanizing.

Top heated baths of C.H.E design have been in continuous operation for nearly fifty years without any damage of the refractory bath lining. C.H.E. has know how and experience from installation of gas, oil and electric heated top heated baths of depth up to 2,8 m and length up to 17,5 m.

HIGH TEMPERATURE GALVANIZING

High temperature galvanizing at 560°C is used for galvanizing small components such as fasteners, threaded bolts, nails and brackets. High temperature galvanizing gives uniform and controllable coatings, also to silicon and aluminium killed steels.

FUME CAPTURE PLANT WITH OPTIONAL INTEGRATED COVER LID

The fume capture plants from CHE are custom designed solutions. The design will vary with the plant layout, handling system and operator positions.

All enclosures are designed for max. capture of zinc fumes and for the best and cleanest environment possible in the galvanizing plant.

Extraction ducts are positioned for efficient transport of the fumes to the zinc dust separator.

The enclosure can be operated through the PLC-unit of the galvanizing furnace. With a modem, troubleshooting and service can be carried out on-line.

All doors and moving parts are designed for max. safety of the operator, doors are for example locked in their positions and are monitored by electronic switches.

As the hood also will capture a lot of zinc splashes, easy cleaning is given much attention in our solutions. But most important is easy access to the zinc area and the work being galvanized.

HOT AIR DRYERS FOR GALVANIZING

HOT AIR RECIRCULATION
C.H.E.'s design of dryers with recirculating air are based on know-how and experience from forced recirculating furnaces in the metallurgical industry with high efficiency heating and temperature uniformity.

ANY ENERGY SOURCE CAN BE APPLIED
The energy can be supplied to the recirculating air system by direct electric or gas heating of the air or through the supply of super-heated air from heat exchanging the flue gases from a gas or oil fired galvanizing furnace.

COVERS AND LIDS
For reduced energy consumption's or for high temperature operation, the dryers can be equipped with covers or doors with automatic drives. The C.H.E. dryers are equipped with automatic temperature control systems.

RECIRCULATION FANS
The dryers are equipped with recirculation fans which supply the dryer with high velocity air through air nozzles in the air supply channels. Separate air channels return the recirculating air to the recirculation fans.

REDUCED ZINC CONSUMPTION
The installation of a dryer will result in considerable reduction of flux fume and zinc splashes when charging the zinc bath.
Further, the zinc consumption and the formation of dross and zinc ash is reduced and the production capacity of the galvanizing plant will be increased.

TURBO DRYER
Our turbo dryer is designed for extremely short heating-up time, and is equipped with high velocity air and heating power. Applied in special alloy galvanizing.

- Custom made equipment
- Turn-key installations
- Service 24 hours
- Renovations and repairs
- Furnace control and calibration
- Automatic integrated kettle covers
- Kettle support systems.
  Inkl. 3D modeling and calculations
- Pump-out assistance. Optional with containers
- Fume filters
- Centrifuge machines
- Ultrasonic kettle testing,
  without the need to remove zinc
- Pre-treatment tanks
- Zinc pumps
- Chemical treatment equipment
- Thermocouples
- Plant room ventilation
- Drossing grabs
- Zinc pumps

ESTABLISHED 1937
LOCATED IN FREDRIKSTAD, NORWAY

MORE THAN 3000
INSTALLATIONS WORLDWIDE

VISIT US ON
YouTube
EVENSENFURNACES

C. H. Evensen Industriovner AS
Tomteveien 19
NO-1618 Fredrikstad, Norway

Tel. +47 69 94 91 00 I Fax +47 69 94 91 01
e-mail: post@che.no