



# galvanizing plants

design, supply & installation



international **QUALITY**

efficient **DESIGN**

simple **OPERATIONS**

low **CAPEX**

Hot Dip Galvanizing Plant  
High Velocity Galvanizing Furnace  
Top Heat Ceramic Bath  
Galvanizing Kettle  
Project Consultancy  
Plant Design and Layout

Pickling Plant  
Acid Fume Extraction  
Zinc Fume Extraction

## CONTACT

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## COMPANY INTRODUCTION

Corrotech came in to existence when a team of enthusiastic and experienced entrepreneurs came together with a view of forming an association to exploit the business opportunities by leveraging the knowledge gained over many years of experience. We have assembled our expertise to design and deliver galvanizing plants that are cost effective truly integrated technology that can improve the operations.

### Objective

It was noted that many new galvanizers looked upon the plant equipment suppliers from Europe and US since the products manufactured using Indian controls had defect rates more than 5 to 10 times more than in these countries. Also local firms not only lacked quality furnaces, but also absorption of supporting technologies such as precision temperature control; material engineering and product management was missing. Importing a plant from Europe/US not only increases the CAPEX exponentially but also fails to meet after sales service requirements of local galvanizers due to time zone difference and lack of proximity.

Corrotech aspires to produce quality furnaces using all components imported from European companies that give an opportunity to setup an efficient plant produced within India at a very competitive price.

Corrotech target those customers who look for superior, efficient and trouble free plant with the best technology. Our furnaces provide a very high value for money over a lengthy period of time.

### Manufacturing Facility

The company has a 2000+ square feet of in house facility for manufacturing and assembly of hot dip galvanizing furnace and its associated equipments.

### Quick Facts

Corrotech shall deliver products and service of very high quality that is at par with the leading suppliers present in developed countries. We have an edge over them as below

- Low cost infrastructure that provides high quality products matching to global standards.
- Design plants with less maintenance, easy to operate and deliver high operating performance in terms of productivity, fuel consumption & conversion cost.
- Easy and fast accessibility to our technical team to ensure smooth operation of the plant.

Corrotech is singularly focused on customer success. As a result, Corrotech shall offer its customers **round the clock after the sales service** and support to ensure that customers' plant is performing optimally, and are providing excellent on-going value.

### VISION

We shall deliver turnkey galvanizing plants with international quality standards, world-class service and performance using cost effective technology



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## HOT DIP GALVANIZING FURNACE

Corrotech designs galvanizing furnaces with 'High Velocity Burners' that have long lasting proven performance on delivering high production volumes, low fuel & zinc consumption, high kettle life and requiring less maintenance. The furnace could be designed as dual fuel, oil only or for gas only as fuel. The furnace contains full control trains mainly equipped with controls, safety solenoid valves, piping & fittings imported from UK, Germany, Hungary and Italy.



*High Velocity 'Dual Fuel' Furnace designed and supplied by Corrotech for GR Infraprojects Ltd*

### Salient Features - High Velocity Furnace

- Furnaces with High Velocity burners attain exit flue velocity of 150 m/s. The high velocity creates high turbulence inside the furnace, ensuring uniform and very high heat transfer rate.
- High Velocity Furnace is designed to increase convection heat transfer, regardless of the temperature level or loading in the furnace. The convection heat transfer may incidentally heat the kettle walls as well as the load, resulting in considerable radiation heating.
- The burner's High Velocity flame causes intense mixing of the products of combustion (POC) within the furnace chamber, resulting in excellent temperature uniformity and improved convective heat transfer.
- The High Velocity flame not only aids convection heating, but induces much recirculation of combustion gases within the furnace. This recirculation aids temperature uniformity and fuel economy by lowering the hot mix temperature while re-using the gases with several extra passes over the load. It also prevents stratification.
- At the burner's maximum output, optimal performance is achieved with regard to emissions, convective heat transfer, combustion efficiency, and typically temperature uniformity.





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## PULSE FIRED HIGH VELOCITY FURNACE

Pulse firing uses high velocity burners that fire high-off or high-low to control temperature input. Burners are at or near their maximum firing rates when "on." Therefore, they yield the highest possible convective heat transfer, which continuously moves the products of combustion (POC) through the entire furnace resulting in excellent temperature uniformity.



Corrotech designs and delivers

### **PULSE FIRED HIGH VELOCITY FURNACE**

that offers

- significant process
  - productivity benefits
  - fuel savings
  - improved temperature uniformity
  - lower nox emissions
  - improved turndown
- 
- Fuel Savings
    - efficient firing setting, maximum heat transfer with minimal fuel input
  - Temperature Uniformity
    - convective heat transfer to the load and mixing of atmosphere
    - firing the burners at their highest exit velocity
  - Lower Emissions
    - burners operate at high fire with low excess air
  - Maximized Productivity
    - maximum energy transfer to the furnace load in the least amount of time



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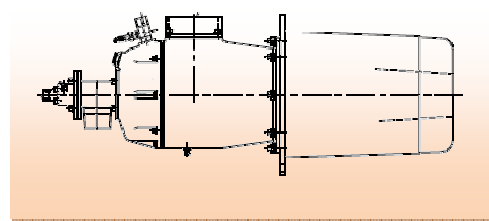
## HIGH VELOCITY BURNER

The High Velocity burner is a robust and extremely stable burner with high excess air capability which can deliver combustion gas velocities in excess of 150 m/s. This results in rapid & uniform heat circulation inside a furnace as well as improved and controlled heat transfer to the load.

Very high turn down ratio and capability of accepting very high excess air enable this burner to control furnace temperature in minute range

### Salient Features

- Suitable for natural gas, LPG, Light Diesel Oil
- Over 10/1 turndown on ratio on natural gas
- High turndown inlet option for up to 5000 % excess air on natural gas
- Outlet: Standard refractory quarl
- Ignition by direct spark or premix pilot
- UV flame detection
- Maximum furnace temperature: 1600°C
- Flame detection by single UV cell



### Benefits

- Rapid and uniform heat distribution
- Robust burner with high turndown and excess air capability
- Controlled firing pattern through choice of outlet
- Fuel savings with hot air version

CORROTECH IS COMMITTED TO DELIVER SUPERIOR PRODUCT PERFORMANCE WITH EFFICIENT CUSTOMER SERVICE AND NURTURE A LONG TERM RELATIONSHIP WITH EACH OF OUR CUSTOMERS

### High Velocity Furnace Performance – Data Based on Industry Reports

Parameter	Observed Outcome	Remarks
Kettle Life	8 to 9 yrs	Work Temp 4450C to 4500C
Zinc Consumption	3.2% to 3.8%	Average Steel Thickness = 6mm
Oil Consumption	16 to 18 lit/T of production	If OIL (LDO/HSD) as fuel
Gas Consumption	11 to 13 kg/T of production	If GAS as main fuel
Dross/Ash Generation	0.6% to 0.7% combined	Drossing after 1000 Tons
Production Volume	Very High	High temperature rise rate
Maintenance	Very Less	Only preventive maintenance

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## TOP HEATED CERAMIC LINED GALVANIZING FURNACE

High temperature galvanizing 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.

The ceramic tank is made of special refractory and insulating bricks and is assembled on site. Its major advantage over a steel tank is that it is not attacked by the liquid zinc (at 460 – 500°C), giving a theoretically infinite lifetime



## GALVANIZING KETTLES

### 'W PILLING', Germany Make Kettles

Ultrasonic tested,  
Automatic Electroslag Welded

- Fabricated out of a special plate with the following typical content

C 0.08% max; Mn 0.5% max; P 0.02% max;  
S 0.02% max; Si – trace

- Made of U-formed centre-sections with pre-welded pressed ends



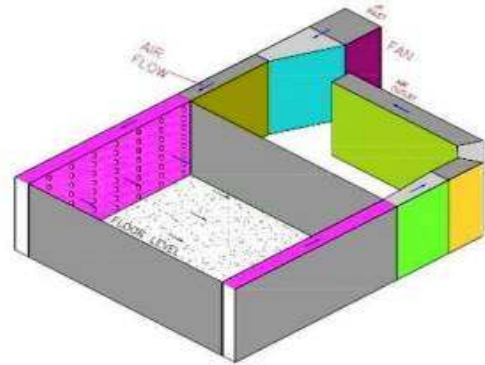
## KETTLE COVERS

- Spread over the length and width of the casing that ensures negligible heat loss through the open area of zinc kettle
- Sufficiently insulated using high density ceramic blankets and mineral wool
- Single piece structure with 2 lifting points for easy and quick placement of covers, even during breaks in the shifts.



## RE-CIRCULATING DRIERS

- Designed to pre-heat the structural steel by re-circulating the exhaust flue gases generated out of the furnace.
- Huge air volume is recycled within the drying chamber using a large centrifugal blower, so that the huge hot air flow blows over the items uniformly, and provides a quick and efficient drying without.
- The dryer is operated with a 2 door system equipped with a motorized crange moving over the rail mounted on the periphery of the dryer wall.



## DILUTION AIR EXHAUST SYSTEM

- Large Centrifugal Air Fan contained with Inlet and Outlet Ducts is used when waste gases are released to atmosphere through exhaust stack.
- Inlet ducts are insulated with ceramic blankets. Damper over the inlet duct is installed to control pressure and air flow to maintain the required temperature.
- Pitot tubs in inlet and outlet ducts are provide to measure the differential presure.





## ZINC FUME EXTRACTION SYSTEMS

The hot dip galvanizing process generates particulate emissions which need to be dealt with. These particles are sub-micron that means the material is hygroscopic (moist air). When steel is dipped in to the molten zinc, very fine particles of Zinc Oxide are generated and Ammonium Chloride is also emitted.

CORROTECH designs most simple, efficient and affordable

### FUME EXTRACTION SYSTEMS

#### ❖ Zinc Fume Suction Slot Duct

furnace is mounted with a lip extraction suction duct on one side of the kettle

suction slots drag out the fumes over the top of the furnace

#### ❖ Fume Splash Enclosure

- Fixed Enclosure
- Crane Mounted

extraction rate designed at high degree

internal lighting system and viewing windows

pneumatically operated doors equipped with safety devices

#### ❖ Wet Scrubber

perfect answer to the problem of extremely hygroscopic Zinc Ammonium

consists of a scrubbing vessel, ductwork and fan system, mist eliminator, pumping, and an exhaust stack

#### ❖ Zinc Dust Collection Cyclone

removes fine dust from the fume air stream



Suction Slot Duct Extraction System

Fixed Fume Splash Enclosure



Crane Mounted Fume Splash Enclosure



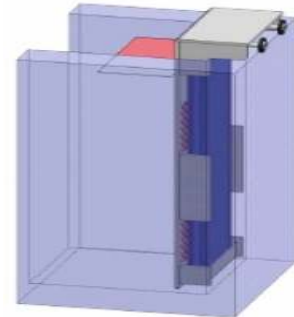
Wet Scrubber with Dust Collecting Cyclone



## FLUX HEATING SYSTEM

### 'LBTEC INDUfinish', Netherlands, Heat Exchanger

- utilizes the hot water of the quench tank to heat the flux solution
- designed for temperatures, pressures, media and capacities as per plant requirements.
- produced out of high quality plastic



### 'Corrotech' SS Heat Exchanger

- utilizes the hot water of the quench tank to heat the flux solution
- fabricated out of SS 316L pipe
- laid across the length of tank
- uniform heating thus giving efficient fluxing



### Over the Side Heaters

- electrical Heater for corrosive fluids
- compatible with most plating tank solutions, inert to acids, and pickling solutions up to 212°F. temperature.
- low watt density for long service life
- non-contaminating Teflon covered stainless steel elements.
- single phase only
- vapor-tight polypropylene terminal enclosure

