



Gujarat Perfect Engineering Limited



DESIGN

## About Us

“We have the largest Batteries of Furnaces in Gujarat and have been providing Heat Treatment since over 30 years.”

In 1983, an industry from Gujarat announced a Public issue. This was Gujarat Perfect Engineering Ltd., the Group’s flagship that manufactures Bullets for the bulk transportation of LPG on semi-articulated trailers and also specialises in LPG/Ammonia Storage and Handling Systems.

Meanwhile, with the technical assistance from Cooper Heat, U.k., the group installed a huge Heat Treatment Furnace with revolutionary design, for the first time in India.

Since last 30 years, we are providing Heat treatment services to our clients. We have battery of furnaces, to cater to various requirements of Heat Treatments. With continuous technical upgradations of furnaces, we have capabilities to handle other than carbon steel, now newly developed alloys.



F2 Furnace: Annealing of High chrome casting in Progress



High chrome casting 12 ton

## Furnaces

“We have commissioned India’s largest Ceramic- Fiber-Lined Furnace to service 21st century.”

All the furnaces are Oil fired, i.e. HSD or LDO. These fuels have very low sulphur content. Furnaces 1, 2, 3 and 4 respectively, are bogie type furnaces.

They are equipped with a lining of multi layer ceramic fibre blankets held by steel studs and wire settings to offer precise uniform temperature control.

The furnaces have well designed exhaust ducting for achieving maximum uniformity of unidirectional distribution of fuel gases through the chimney.

These furnaces can maintain temperatures up to 1200 °C and have a multi point integrated temperature recordings facility.

Furnace 1(F1) has an alternate LPG Combustion System, where the Complete PWHT-Stress relieving of the equipment is done with LPG to ensure minimum scaling and best Quality Heat treatment.

Furnace 5 is of Modular design, especially to handle jobs of Dimensions more than 6 meters for PWHT. Also, these furnaces can be erected and set up at the Clients’ Site.

We undertake jobs under third party inspection agencies like Lloyds Register, EIL, FEDO, Bureau Veritas TUV, IBR , BARC, NPCIL.

Our Entire facilities are IBR Approved.

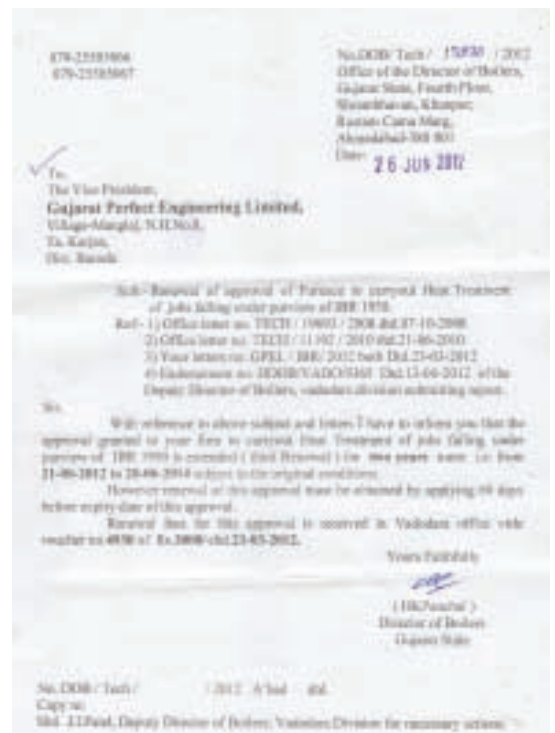


Our Batteries of Furnaces



Ceramic Fibre Lining Bogie Furnace

Our entire facilities are IBR approved



## Furnace Specification

Given below is our detailed furnace specifications and types of services rendered by us.

Furnace 1 (F1)	5 meters width	5 meters height	15 meters length accommodates to 6/9/12 meter also
Furnace 2 (F2)	5 meters width	2.5 meters height	5 meters length
Furnace 3 (F3)	3.5 meters width	4 meters height	12 meters length accommodates to 5/7/9 meter also
Furnace 4 (F4)	1.2 meters width	1 meters height	1.5 meters length
Furnace 5 (modular)	6 meters width	4.8 meters height	1.5 meters length (one module dimension)



- a) 4.5 meters dia. Vessel for PWHT loaded in F1
- b) Stress Relieving of SAW pipes
- c) Heat Treatment Boiler

## Our Services

1. Stress Relieving
2. Normalizing
3. Quench Tempering
4. Solution Annealing
5. Annealing
6. Spinning Beam Cleaning Solutions





Large dia. Pipes for PWHT



Solution Annealing of 4.5 meters dia.  
SS Dishend



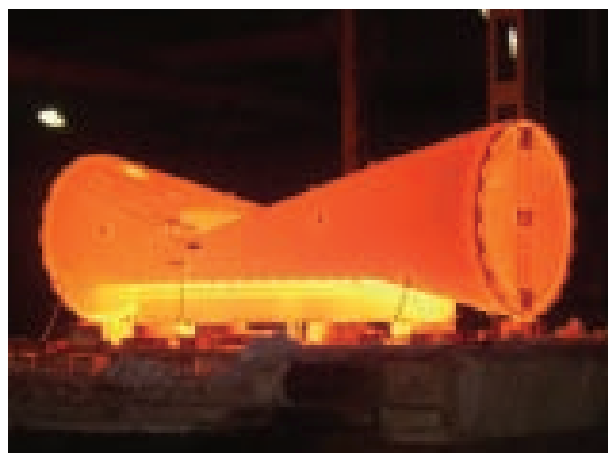
Inconel Heat treatment Component



Spinning die Cleaning Heat treatment



PWHT - 25 MT Vessel



Inconel Mixing Chamber  
Heat treatment

## **1. Stress Relieving**

Stress Relieving : Is a heat treatment process carried out after welding (PWHT) or after heavy machining under controlled heating & cooling temperatures to avoid cracking (known as hydrogen induced cracking) of weld joints and also to retain shape and dimensions of the equipment, over a period of time. This is the reason stress relieving in case of machining becomes necessary, this removes more than 90% of induced stresses.

## **2. Normalizing**

Normalizing : Normalizing is a technique used to provide uniformity in grain size and composition throughout steel. Normalising is done to Dished ends in Post fabrication or even intermediated stages also.

## **3. Quench Tempering**

Quench-Tempering: First the metal is heated uniformly to its austenitic transformation temperature & then rapidly cooled by water or forced air. Then the material is re-heated to the desired temperature to achieve required hardness, ductility, toughness, strength & structural stability.



PWHT SS claded Vessel L&T Ranoli



Forced Air Cooling SS claded Vessel

#### **4.Solution Annealing**

Solution Annealing: First the metal is heated uniformly to its austenitic transformation temperature & then rapidly cooled by water spraying or by forced air cooling.

#### **5.Annealing**

Annealing : Annealing consists of heating a metal to a specific temperature and then cooling at a rate that will produce a refined micro structure. The rate of cooling is generally slow. Annealing is most often used to soften a metal for cold working, to improve machinability.

#### **6.Spinning Beam Cleaning Solutions**

Spinning Beam Cleaning Solutions: Involves de-clogging of the spinning beam with the help of correct heat treatment and high pressure nitrogen flushing.



Solution annealing 4.5 dia. SS Dished end



PWHT of 12 meters Length Vessel

## Our Clients

1. L & T Ranoli Ltd
2. L & T Hazira Ltd
3. Vijay Tanks & Vessels
4. Baroda Equipments
5. SE Forge Ltd
6. Chamunda Engineering
7. Anup Engineering Ltd
8. Tube Products Incorporate
9. Gujarat Infra Pipes Ltd
10. Cerec-Metal Form
11. Rhine Engineering Ltd
12. China Light & Power, Paguthan
13. Man Industries (I) Ltd
14. Jindal Saw Pipes Ltd
15. Welspun , Anjar
16. Shri Shyam Filament



60 MT MG roller



14 feet dia. MG roller PWHT



PWHT Heat Exchanger



## Gujarat Perfect Engineering Limited

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**Office:**

Nizami Compound, Makarpura Road,  
Baroda - 390009.

Telephone: 0265-2642140/2646711

Telefax: 0265-2651834

**Works:**

Manglej, NH no.8, Near Por, Tal. Karjan.

TelePhone: 02666-271156

Email: [gpel@gmail.com](mailto:gpel@gmail.com)

Website: [www.gpel.co.in](http://www.gpel.co.in)