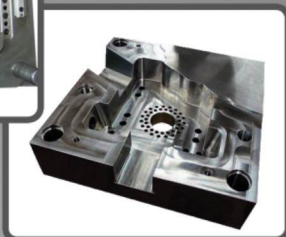
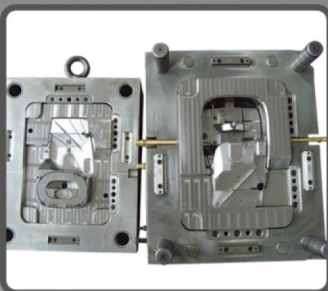


**Vacuum Heat Treatment Services**



# VACUUM FURNACE WITH ADVANCED TECHNOLOGIES

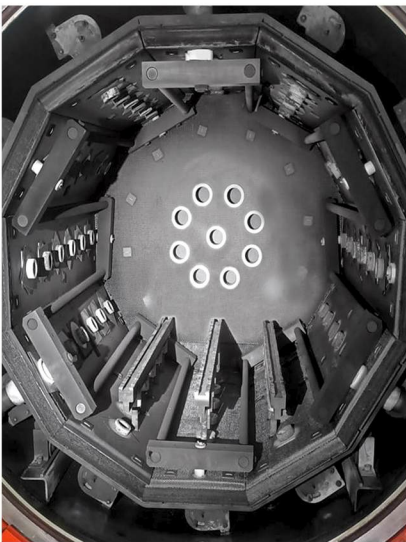


Just as choosing the correct die steel is very important, equally important is the proper heat treatment of the same. Proper heat treatment is critical to realize the full potential of the chosen alloy and also to retain the dimensional integrity of heat treated tools. Our supplier offers Vacuum Furnaces, with know-how from DYNA VAC Technologies, Bangalore, that can meet the demanding process specifications of the industry.

Our Vacuum Furnaces are suitable for a wide range of Heat Treatment of Tools & Die Steels including Vacuum Hardening, Vacuum Tempering, Vacuum Annealing & Vacuum Stress Relieving as well as Vacuum Sintering & Vacuum Brazing. Heating is done under Vacuum up to  $10^{-5}$  millibar & quenching is done in-situ using Nitrogen gas with pressures ranging up to 10 Bar (absolute).

## Managing Partner :

**Mr.M.V.Sudakar**, with an **M.Tech** in **Metallurgy** from NIT Warangal & **B.Tech** from MREC Jaipur, serves as the Managing Partner of **PMTLee Vacuum Technologies** & its group companies in the Heat Treatment industry viz., **Precision Metal Treaters (PMT)** & **Sushmitha Metal Treaters (SMT)**. With 40 years of hands on experience and distinguished leadership, he has shaped projects from inception and driven their growth. Under his leadership, **PMT** and **SMT** in Hyderabad earned recognition for delivering high-quality, reliable services in conventional heat treatment of tools & die steels. **PMTLee** also became well known for its expertise in vacuum heat treatment. His substantial knowledge in Metallurgy & farsighted leadership acted as the driving force behind the success.



## OUR FURNACE ADVANTAGE :

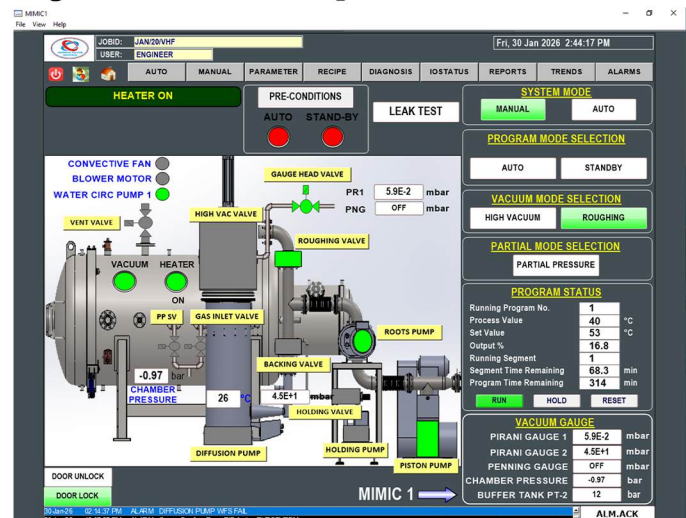
Our Vacuum Furnace is built to perform consistently and the modular structure of the furnace make it easy to install and maintain effectively.

- Graphite foil boned carbon composite lining of the heating chamber, along with the graphite heating elements, is designed to deliver fast, uniform and efficient heating.
- The unique double heat exchanger Cooling System (DECS) together with the high powered fan results in rapid and uniform quenching for achieving the maximum attainable hardness with maximum transformation of martensite.
- Effective Uniform quenching is possible with equally distributed Molybdenum nozzles in 360 degrees and exiting the Nitrogen gas from both the ends through double heat exchanger.
- The double walled structure with water jacketing lowers the skin temperature.

## THE VACUUM ADVANTAGE:

Advantages of Vacuum Technology over conventional heat treatment :

- \*Eco friendly and clean process involving zero emission and zero solid/liquid wastes
- \*Isothermal quenching makes distortion free heat treatment possible
- \*Prevents oxidation and decarburization of the job resulting in brighter surface finish
- \*Rapid quenching makes maximum hardness possible and also increases the depth of hardenability
- \*Process automation possible from start to finish for improving the reliability and repeatability of results
- \*Ability to define different processes for different steels
- \*Incase of martensitic and precipitation hardening stainless steels, you can heat treat finished components without any post treatment operations.



# SYSTEM FOR PRECISION HEAT TREATMENT RESULTS

We follow NADCA, ASTM & ASM Standards



## Cryogenic Treatment (Sub-Zero Quenching):

To convert and minimize the retained austenite and to gain full martensitic structure, for good strength and better mechanical properties this treatment is very much important and is to be followed immediately after Quenching. Our sub zero chamber is capable of attaining -120°C.



## Our Mission :

Providing Vacuum Heat Treatment services with modern technology to our esteemed customers with competitive terms & customer satisfaction.

## Our Vision :

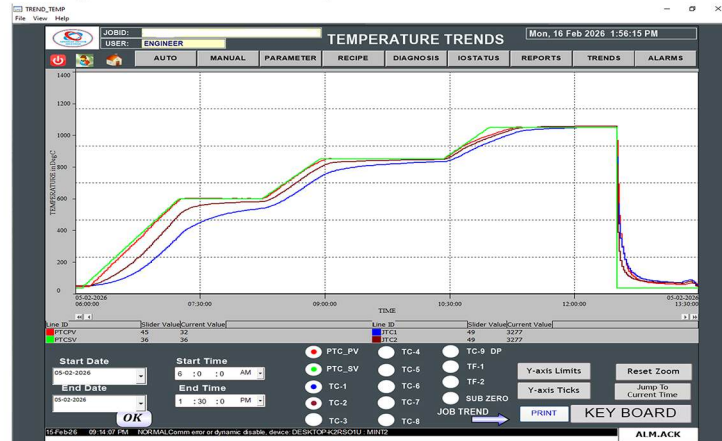
Regularly upgrading our procedures on-par with available latest technologies.

## Typical steels that can be heat treated :

## PROCESS CONTROL :

With our Vacuum Furnace providing uniform heating and controlled cooling, achieving the right balance between wear resistance and toughness is no longer an art but a sure science.

- The Heat Treatment Cycle is fully PLC controlled and automatized from start to finish - eliminating human intervention and thereby improving the process reliability
- PC based on-line monitoring of process and data acquisition for analytical reports
- Different time-temperature cycles can be stored as programmes for future use thereby ensuring reliability & repeatability of processes
- The Furnace is equipped with a Variable Frequency Drive for the quench fan motor and multiple thermocouples for chamber, job surface and core temperatures for Isothermal Quenching resulting in distortion free heat treatment with best metallurgical results
- The furnace is thyristor controlled to achieve temperature uniformity within  $\pm 5^{\circ}\text{C}$



High Speed Tool Steels	M2, M35, M42, T42, T2, VANADIS 10, SKH51, ASP GRADES, S390, S600, YXR33 ETC.
Cold Work Tool Steels	D2, D6, DC53, A2, K110, SLD, SWERKER 21, SKD11, SKD21, SV3 ETC.,
High Work Tool Steels (Hot Die Steels)	H10A, H11, H12, H13, H21, ORVAR SUPREME, DAC10, DIEVAR, ESKYLOS 2083, W300, W302, STAVAX, W360. SKD SERIES, DAC SERIES, HP SERIES, CALMAX ETC.,
Stainless Steels & Plastic Mould Steels	SS420, SS440C, Precipitation Hardening, Stainless Steels, M300, P20, HPM SERIES, NIMAX ETC.,

## Vacuum Tempering :

We have the Tempering Furnace with facility of not only Vacuum level of  $10^{-2}$  m bar but also protective atmosphere of Nitrogen.

### Our USP

We (PMTLee Vacuum Technologies) are the first & foremost in providing a unique combination of all advanced facilities ( like High vacuum of  $10^{-5}$  mbar, Partial purging HT, 10 bar quenching, Cryogenic treatment & Vacuum tempering ) related to vacuum heat treatment under one roof.

### Process Manager : A.Madhu Sudhan Reddy (B-Tech)

As an experienced Electrical Engineer, he is responsible for deciding and executing process parameters/ heat treatment cycles to the satisfaction of our customers in terms of quality and delivery schedule & ensuring compliance with the given specifications..

### FURNACE SPECIFICATIONS :

S.NO	DESCRIPTION	VACUUM HARDENING FURNACE	VACUUM TEMPERING FURNACE	TEMPERING FURNACE
1	Max. Load	550 to 600kgs	550 to 600kgs	450 to 500kgs
2	Working dimensions W x D x H (Aprox)	600 x 1000 x 600mm	600 x 1000 x 600mm	600 x 800 x 450mm
3	Max. Operating temperature	1250°C	700°C	700°C
4	Temp. Uniformity @ 500-700°C	Within ±5°C	Within ±5°C	Within ±5°C
5	Temp. Uniformity over 700°C	Within ±5°C	NA	NA
6	Max Vacuum	$10^{-5}$ m bar range	$10^{-2}$ m bar range	NA
7	Nitrogen Cooling pressure	10 bar abs Max.	2 bar abs Max.	2 bar abs Max.

### Registered Vendors :

- ★ Registered vendor to BDL, DRDL, DRDO, MIDHAANI, ARC, RCI, ASL.
- ★ Vendor registration is in progress with NFC, ORDINANCE, HAL, ISRO, LPSC & VSSC.
- ★ ISO 9001:2015 Certified, GeM registered, and currently undergoing AS9001D certification.



### GROUP COMPANIES

#### M/S PRECISION METAL TREATERS

Unit-7, T.I.E., Near Union Bank of India, Balanagar, Hyderabad - 500 037.



E-mail: pmt.hyderabad@gmail.com  
Ph: +91 40 2307 8785, 4200 6112  
+91 98490 06115, 95024 39413  
**GSTIN : 36AAPFP3819H1ZW**

#### M/S SUSHMITHA METAL TREATERS

Unit-7, T.I.E., Near Union Bank of India, Balanagar, Hyderabad - 500 037.



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