



**TMVT Industries Pvt. Ltd.**

(T. MANEKLAL GROUP)

## Engineered to Touch Your Life Everyday!

The T. Maneklal group is a third-generation family-owned group of companies started by Mr. T. Maneklal in 1948. **TMVT**, a group company was established in 1991 by Mr. Yogesh T. Maneklal, TMVT today is one of India's leading and most experienced manufacturers of **Twin and Three Lobe Roots Blower and Liquid Ring Vacuum Pumps** which we supply to major Blue Chip Public Sector companies and Private Sector Corporates all over India and internationally.

Backed by the best in the industry, we provide effective solutions to our customers by offering them specialized and tailor-made products such as **Most Energy Efficient High Speed Gearless Turbo Blowers and Extremely Superior High Vacuum Systems.**

With numerous design features, the widest capacity range available at fiercely competitive pricing, we can certainly match the demanding air and gas handling market requirements. We provide the highest level of services, combining a talented management team with more than 40 years of experience in the blower and pump industry and a hardworking and dedicated support staff.



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### Corporate Office:

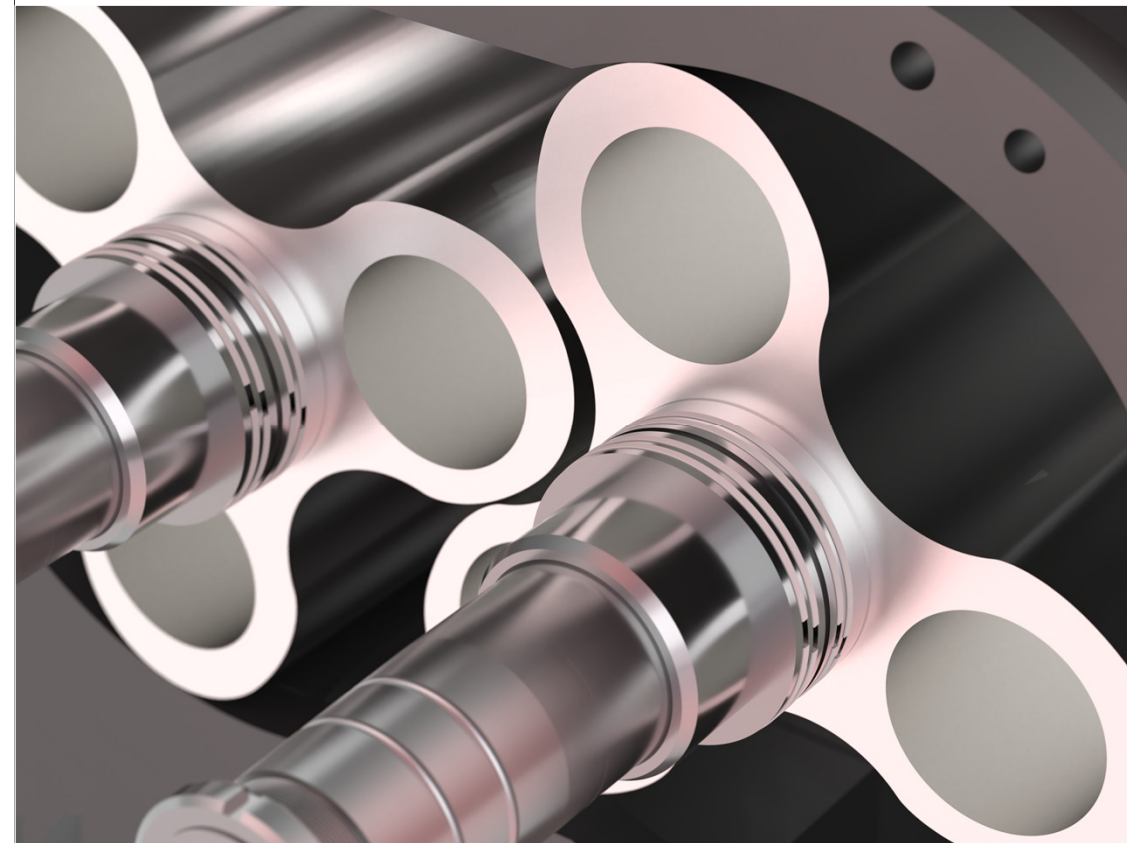
TMVT Industries Private Limited  
502, Manek Mahal, 5th Floor,  
90, Veer Nariman Road, Churchgate,  
Mumbai - 400 020, India.

Contact : +91 (0) 22- 22830060/68 /  
+91 (0) 22 -35219523/9539/9359/9796  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtmumbai@tmvt.com](mailto:tmvtmumbai@tmvt.com)

### Manufacturing Unit:

TMVT Industries Private Limited  
Plot No. 84/A, F Road, Phase I, GIDC,  
Vatva, Ahmedabad,  
Gujarat - 382 445, India.

Contact : +91 (0) 79-40084284 / 40084286  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtahmedabad@tmvt.com](mailto:tmvtahmedabad@tmvt.com)



## TMVT Roots Blowers

TMVT's Twin/Tri Lobe Roots Blower Series redefines industry standards, delivering unparalleled efficiency and innovation – a powerful blend of precision engineering for a transformative future.

Efficiency | Innovation | Performance

# TMVT Roots Blower Series

Precision in Air & Gas Handling

## Efficiency | Innovation | Performance

Welcome to TMVT's Roots Blower Series, where the convergence of power and precision defines a new era in industrial air & gas handling solutions. This brochure serves as your gateway into the intricate world of positive displacement technology, showcasing the Trilobe 3MTL Series as pillars of innovation.

Turning the pages, the 3MTL Series takes center stage, shaping Tomorrow's Blowing Solutions. Offering a customizable approach to air and gas handling, these Tri Lobes Roots Blowers redefine versatility. With an emphasis on service and maintenance ease through experimentally developed processes, this series ensures not just functionality but an experience defined by precision, high performance, and operational reliability. Designed for applications ranging from wastewater treatment to pneumatic conveying, these blowers feature a meticulous interplay of rotors, delivering not just performance, but a symphony of reliability and efficiency.

This preface sets the stage for a journey through the subsequent pages, where you will delve into the very essence of these groundbreaking technologies. From the fundamental principles underlying our blowers' operations to the specialized designs catering to gas duty, water cooling, and truck-mounted applications, each page unfolds a facet of innovation and commitment to excellence.

As you navigate through this brochure, anticipate discovering the intricate details, benefits, and unique features that make TMVT Roots Blower Series a benchmark in the realm of air & gas handling solutions. Join us in redefining standards and embracing the future of industrial air & gas handling technology.



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## 3MTL Series: Shaping Tomorrow's Blowing Solutions



### Precision in Blower Engineering

The Tri-Lobe Roots Blowers, featured prominently in TMVT's innovative product lineup, represent a significant leap forward in positive displacement technology. Technological advancements define these blowers, offering a blend of efficiency, reliability, and adaptability. Through meticulous engineering, the tri-lobe configuration enhances air and gas handling capabilities, ensuring precision in every rotation. This technological prowess translates into heightened performance across diverse applications, from industrial processes to specialized gas-duty operations.

### Strategic Efficiency for Optimal Performance

In addition to their technological prowess, the commercial impact of TMVT's Tri-Lobe Roots Blowers is profound. The experimentally developed process system ensures service and maintenance friendliness, reducing downtime and operational costs. The precise machine design enhances operational reliability, making them a sound investment for industries that demand uninterrupted performance. Furthermore, the physical separation between the working chamber and the outer area contributes to minimized space requirements, offering a compact solution without compromising on high performance. These techno-commercial attributes position TMVT's Tri-Lobe Roots Blowers as a strategic asset for businesses seeking both efficiency and economic viability in their air handling solutions.

### Versatile Performance, Unmatched Precision

What sets the Tri-Lobe Roots Blowers apart is their unparalleled versatility. Optimally customizable to meet specific process and application requirements, these blowers become integral across a spectrum of industries. From continuous operations to standby applications, they excel in delivering consistent performance. The adaptability of the 3MTL Series ensures that it can handle various media with ease, making it a cornerstone solution for applications requiring precision, efficiency, and a reliable air-handling powerhouse.

## Beneath the Surface: The Tri Lobe Advantage



3MTL TRILOBE AIR COOLED



3MTL TRILOBE WATER COOLED

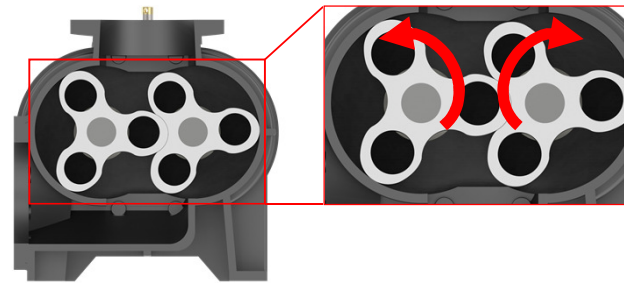


3MTL TRILOBE TRUCK MOUNTED



3MTL TRILOBE GAS DUTY

## Unravelling the Engineering Marvel



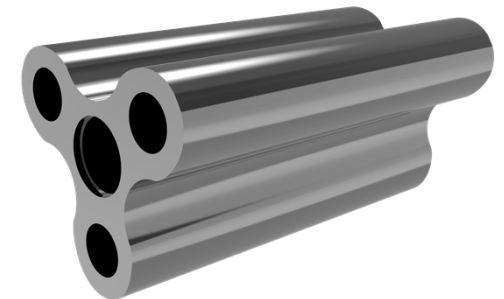
### Functioning principle

The Trilobe Roots blower is a type of positive displacement blower used for various applications, including pneumatic conveying, wastewater treatment, and industrial processes. Its functioning principle is based on the interaction between three lobed two rotors within a casing.

It works by using the synchronized rotation of two Trilobe rotors to draw in, transfer, and discharge air or gas. Its positive displacement design makes it well-suited for applications where a continuous and consistent flow is required.

### Characteristics

- Positive Displacement
- Suitable for air and different gas mediums
- Triangular Lobes
- Low Pulsation
- Oil free Operation
- High Efficiency
- Operating at temperature rise up to 100 °C
- Application Versatility
- Rigid Machine Design
- Variable Speed Operation
- Reliability



## Decoding the Difference: Twin vs. Tri



Twin Lobes Roots Blowers



Tri Lobes Roots Blowers

## Tailoring Blower Solutions to Your Needs

### 1. Number of Lobes:

**Twin Lobe Roots Blower:** This type of blower has two lobes on each rotors, typically rotating in opposite directions. The lobes trap and move air from the inlet to the outlet.

**Tri Lobe Roots Blower:** Tri lobe Roots blowers have three lobes on each rotors. Similar to twin lobe blowers, the lobes rotate to move air through the blower.

### 2. Design and Operation:

**Twin Lobe Roots Blower:** The twin lobe design is simpler and often results in lower manufacturing costs. The lobes generate pulsating airflow, which can lead to some vibration and noise.

**Tri Lobe Roots Blower:** The tri lobe design is an improvement over twin lobe blowers. The additional lobe helps to reduce pulsations in the airflow, resulting in smoother operation and lower noise levels.

### 3. Efficiency:

**Twin Lobe Roots Blower:** Generally, twin lobe blowers may have slightly lower efficiency compared to tri lobe blowers due to the pulsating nature of the airflow.

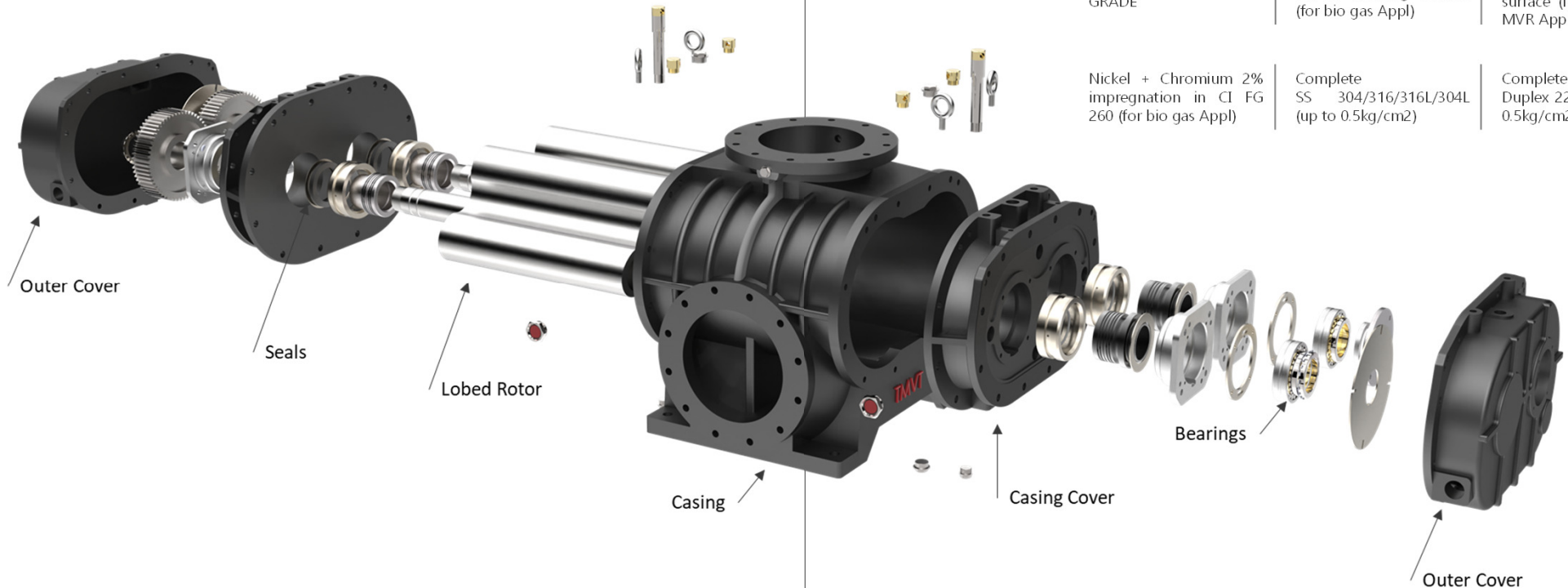
**Tri Lobe Roots Blower:** The design of tri lobe blowers often results in improved efficiency, especially in applications where a more consistent airflow is crucial.

### 4. Pulsation and Vibration:

**Twin Lobe Roots Blower:** Twin lobe blowers may produce more pulsations and vibrations in the airflow due to the alternating compression and expansion of the lobes.

**Tri Lobe Roots Blower:** The tri lobe design helps mitigate pulsations and vibrations, providing a more stable and continuous flow of air.

# Inside Out: Explore the Anatomy of 3MTL Series



## Casing Cover

Purposefully designed to differentiate the working chamber from driving mechanism.

## Casing

The rotors are enclosed in a casing that has an inlet and an outlet. The casing is designed to create separate chambers between the lobes of the rotors.

## Silencer

Specially designed Silencers added to the inlet and outlet ports to minimize the noise generated during operation.

## Lobed Rotor

The Trilobe Roots Blower has two rotors with three lobes (hence the "Tri-Lobe" name) that are designed to mesh without touching.

## Cooling System

In high-capacity or continuous-duty applications, a cooling system can be incorporated to dissipate heat generated during compression.

## Bearings

Bearings are installed to support the shafts and reduce friction during rotation. They are typically located at both ends of the shafts within the blower housing.

## Drive Mechanism

A drive mechanism is used to rotate the lobed rotors. It can be direct drive or V belt drive; this can be with an electric motor, a diesel engine, or another power source, depending on the application and power requirements.

## Inlet and Outlet

The blower has inlet and outlet ports with flanges or connections for attaching pipes or ductwork. The inlet port allows ambient air or gas to enter, while the outlet port expels the pressurized air or gas.

## Seals

The design that allow for oil-free operation, making them suitable for applications where oil contamination is a concern. In such cases, special seals and coatings may be used to ensure that the air or gas remains free from oil particles.

## Filter

Filters are uniquely designed as per the application type to restrict the foreign particle entry into the working chamber.

## Safety Features

Depending on the application, safety features such as pressure relief valves, temperature sensors, and emergency shutdown systems included protecting the blower and the surrounding environment.

## Mounting Base

Blowers are mounted on a base or skid for stability and ease of installation. This base can also include vibration isolation mounts to reduce vibration transmission to surrounding structures

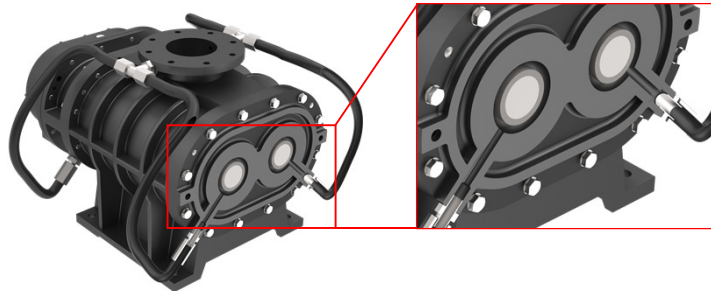


## Gas Duty Mastery: TMVT's Specialized Roots Blowers



### Powering Industries with Precision Handling

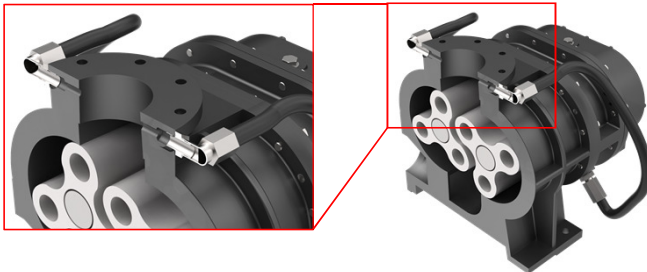
We have designed our machine in a way that it can be operated in variety of dangerous condition where the working medium will be hazardous like ammonia, nitrogen, Sulphur etc. So in this condition we ensure complete safety of our client's premises. Accordingly we have developed intermediate chamber which differentiates the working chamber from outer chamber.



This design works in a way that if any kind of gas leaked from the working chamber then it enters in the intermediate chamber from that through hose (Flexible) pipe, leaked medium will be transferred to the working chamber.

This operation method ensures that any leaked material will not be exposed in environment; it'll circulate from working chamber to intermediate chamber and from intermediate chamber to working chamber.

Type of allowable mediums /  
Application area:  
Ammonia Gas  
Nitrogen Gas  
H<sub>2</sub>S Gas

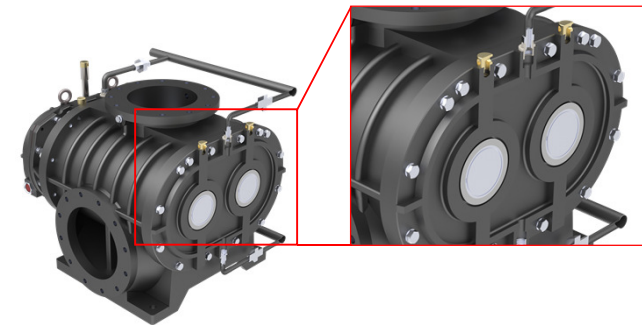


## Cooling Revolution: Water Cooled Tri Lobe Excellence



### Elevating Performance, Managing Temperatures

The blower has one of the major issues of heat generation during continuous operation at high pressure. As the pressure increases, temperature increases in a 10X ratio so it becomes mandatory to control that.



To solve that problem we have precisely designed machine parts that will allow water to circulate over working surfaces. That reduces temperature effectively to 30-40 degree Celsius.  
Application area:  
Above 0.8kg/cm<sup>2</sup> continuous operation

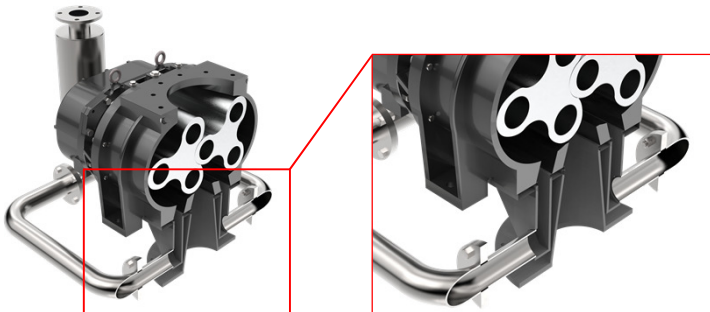


## On the Move: Truck Mounted Blower Technology



### Driving Efficiency, Anywhere, Anytime

The blower is very much efficient in jetting and sewage work, but in jetting & sewage work the process is so heavy that the machine gets heat up very soon. There is also a challenge in machine arrangements that there is no feasibility of water supply to cool down this machine.

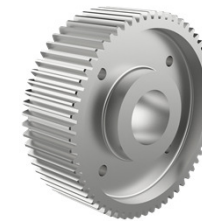


To eliminate the problem we have developed a new design and accessories which provides an additional suction arrangement to the machine which allows cool air to get inside the working chamber. This arrangement reduces the temperature significantly by 40 to 45 degree Celsius.  
Application:  
Sewage work  
Waste Material jetting work

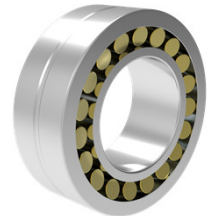
## Spare Parts Arsenal: Ensuring Uninterrupted Performance



SEALING BUSH



GEAR



BEARING



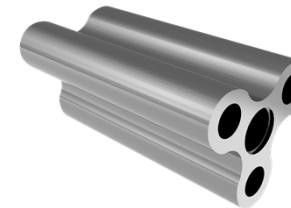
OIL SEAL



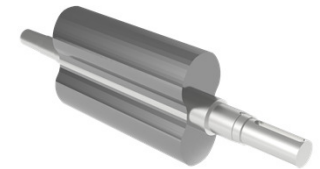
LOCK WASHER



LOCK NUT



TRI LOBE ROTOR



TWIN LOBE ROTOR

# Certified Excellence: Our Quality Commitment



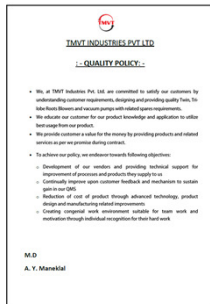
ISO 9001:2015



ISO 45001:2018



ISO 14001:2015



Quality Policy

The images of our certifications and policies symbolize our pledge to excellence and reflect our dedication to maintaining the highest standards across all facets of our operations.



EHS Policy

At TMVT, our commitment to quality is unwavering. We take pride in our ISO certifications – 9001:2015 for quality, 45001:2018 for occupational health & safety and 14001:2015 for environmental management. These certifications underscore our dedication to delivering products and services that not only meet but exceed international standards.

Rigorous quality control measures are integrated into our processes, ensuring precision and reliability at every stage. We believe in continuous improvement, aligning our practices with global benchmarks, and prioritizing environmental sustainability and the well-being of our workforce.

# Your Gateway to Excellence: Contact TMVT Now

## Corporate Office

502, Manek Mahal, 5th Floor,  
90, Veer Nariman Road, Churchgate,  
Mumbai - 400 020, India.

Contact : +91 (0) 22- 22830060/68  
+91 (0) 22 – 35219523/9539/9359/9796  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtmumbai@tmvt.com](mailto:tmvtmumbai@tmvt.com), [tmvtvacuum@tmvt.com](mailto:tmvtvacuum@tmvt.com)

## For International Enquiries

Write Us On [tmvtmumbai@tmvt.com](mailto:tmvtmumbai@tmvt.com)  
Call Us on +91 9892356000

## Manufacturing Plants

Unit-1  
Plot No. 84/A, F Road, Phase I, GIDC,  
Vatva, Ahmedabad, Gujarat 382 445, India.

Contact : +91 (0) 79-40084284 / 40084286  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtahmedabad@tmvt.com](mailto:tmvtahmedabad@tmvt.com)

## Sales & Service Offices

### Delhi Office

Contact : +91 7827013211, 7827030301  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtdelhi@tmvt.com](mailto:tmvtdelhi@tmvt.com)

### Bangalore Office

Contact : +91 7777003871, 8655836554  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtbangalore@tmvt.com](mailto:tmvtbangalore@tmvt.com)

### Ahmedabad Office

Contact : +91 7069030588  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtahmedabad@tmvt.com](mailto:tmvtahmedabad@tmvt.com)



Unit-2  
Plot No. 64/A/1, F Road, Phase I, GIDC,  
Vatva, Ahmedabad, Gujarat 382 445, India.

Contact : +91 (0) 79-40084284 / 40084286  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtahmedabad@tmvt.com](mailto:tmvtahmedabad@tmvt.com)

### Chennai Office

Contact : +91 8144118121, 7069003882  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtchennai@tmvt.com](mailto:tmvtchennai@tmvt.com)

### Hyderabad Office

Contact : +91 7569054466, 8655836554  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtHyderabad@tmvt.com](mailto:tmvtHyderabad@tmvt.com)

### Mumbai Office

Contact : +91 (0) 22-22830060/68  
Website : [www.tmvt.com](http://www.tmvt.com)  
Email : [tmvtmumbai@tmvt.com](mailto:tmvtmumbai@tmvt.com)