

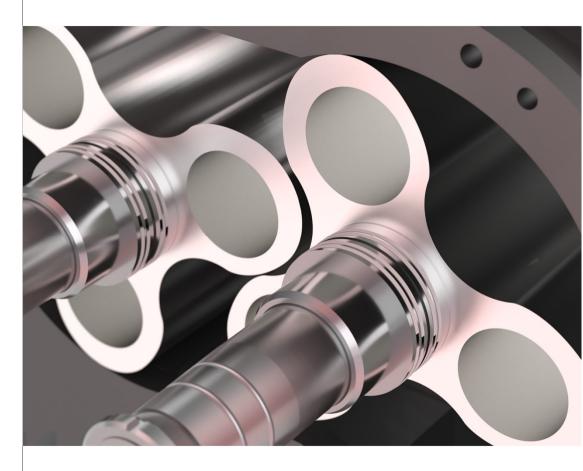
# Engineered to Touch Your Life Everyday!

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.





# >>>

#### **Corporate Office:**

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

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# **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.

# **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.





# Content

01	Tri Lobes Roots Blowers
02	Functioning Principle and Characteristics
03	Difference between Twin/ Tri Lobes Roots Blowers
04	Exploded View of 3MTL Series
05	Performance Chart of Tri Lobes Roots Blowers
06	Gas Duty Roots Blowers
07	Water cooled Tri-Lobes Blowers
08	Truck Mounted Tri Lobe Roots Blowers
09	Spare Parts
10	Our Commitment to Quality
11	Contact Us

Engineered to Touch Your Life Everyday!



# **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 technocommercial 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

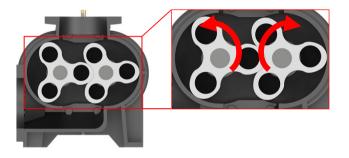


3MTL TRILOBE AIR COOLED



3MTL TRILOBE WATER COOLED

# 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.



3MTL TRILOBE TRUCK MOUNTED



3MTL TRILOBE GAS DUTY

## 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 ℃
- Application Versatility
- Rigid Machine Design
- Variable Speed Operation
- Reliability



# Decoding the Difference: Twin vs. Tri



## 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.

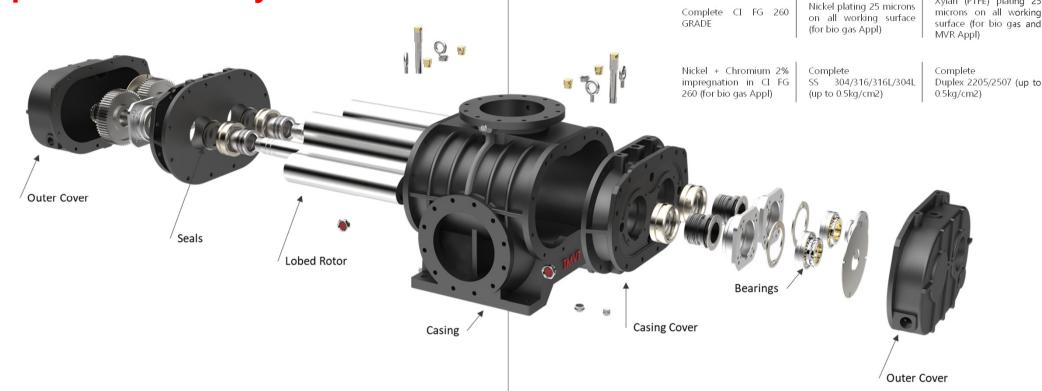
## 4. Pulsation and Vibration:

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**

#### Material Versatility



#### **Casing Cover**

Purposefully designed to differentiate the working chamber from driving mechanism.

#### **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.

#### 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.

#### 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.

#### Silencer

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

#### Seals

The design that allow for oil-free operation, making them suitable applications where oil for 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.

#### Lobed Rotor

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

#### Filter

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

#### **Cooling System**

In high-capacity or continuousduty applications, a cooling system can be incorporated to dissipate heat generated durina compression.

#### 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.

Xylan (PTFE) plating 25 microns on all working surface (for bio gas and

# **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.

#### 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

# Performance Chart: Tri Lobes Roots Blowers

## **Performance Ranges**

- Shaft Power 1 HP to 750 HP
- Capacity 32 M3/hr to 22000 M3/hr
- Pipe Size 40NB to 400NB
- Speed 900 RPM to 1800 RPM

		mmWG	10	00	20	00	30	000	4	000	5	000	60	00	70	000	80	000	9000		10000		11000		12000	
<del>a</del>	ТҮРЕ	RPM	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW	M3/hr	BKW
ologic	3MTL - 045	1250 2250	59 139	1.22 1.90	47 131	1.32 2.06	42 124	1.41 2.23	36 116	1.55 2.43	32 110	1.66 2.65	- 105	- 2.92	- 100	- 3.39	-	-	-	-	-	-	-	-	-	-
techn	3MTL - 050	1025 1750	82 175	0.49	70 163	0.96	61 154	1.40 2.39	53 146	1.82 3.11	45 139	2.22 3.78	40 133	2.59 4.43	35 128	2.95 5.05	31 125	3.30 5.64	-	-	-	-	-	-	-	-
s and	3MTL - 065	1025 1750	160 310	0.75	150 300	1.46	138 289	2.12	129 279	2.76 4.71	121 271	3.36 5.73	114 263	3.93 6.71	108 257	4.48	101	5.00 8.55	-	-	-	•	-	-	-	-
detail	3MTL - 080A	1000	217	1.21	198	2.32	181	3.33	164	4.25	150	5.13 5.12 8.96	137	5.92	125	6.65	114	7.34 12.85	-	-	- - 328	-	-	-	-	-
ricate	3MTL - 080	1750 1025	257	2.11 1.35	434 235	4.05	417 215	5.82 3.71	401 197	7.45 4.75	386 180	5.71	373 165	10.35 6.60	361 152	11.64 7.42	351 140	8.19	338 125	14.14 9.02	113	15.6 9.94	-	-	•	•
he int	3MTL - 100	1750 950	518 398	2.30 1.75	496 362	4.41 3.35	476 329	6.33 4.82	458 300	8.11 6.16	441 275	9.75 7.41	426 252	11.26 8.56	413 232	12.67 9.63	401 215	13.98 10.63	386 200	15.39 12.16	374 176	16.97 13.24	-	-	•	-
Explore the intricate details and technological	3MTL - 125A	1800 750	828 491	3.32 2.06	791 449	6.35 3.94	759 411	8.51 5.67	729 376	11.67 7.25	704 346	14.03 8.72	681 318	16.22 10.07	661 291	18.25 11.33	644 269	20.13 12.51	629 251	23.04 14.13	606 236	25.09 15.38	-	-	-	-
		<u>1650</u> 1025	1176 881	4.53 3.54	1134 828	8.66 6.78	1096 781	<u>12.46</u> 9.74	1061 736	15.95 12.47	<u>1031</u> 698	19.18 14.99	1002 663	22.16 17.32	977 630	24.94 19.49	954 602	27.53 21.52	936 579	31.09 24.30	921 560	33.84 26.45	-	-	-	-
lower	3MTL - 125	1750 1200	1576	6.05 -	1523	11.56 -	1475 -	16.63 -	1431 -	21.29	1393	25.59	1357 -	29.57 -	1325 -	33.28	1297 770	36.73 25.18	1274 747	41.48 28.44	1255 728	45.15 30.96	- 566	- 38.50	- 405	- 46.50
Roots Blowers	3MTL - 125 TMH	1650 1025	- 1139	- 4.57	- 1097	- 8.74	- 1058	- 12.56	- 1025	- 16.08	- 992	- 19.33	- 963	- 22.34	- 940	- 25.14	1201 916	34.63 27.74	1178 889	39.11 31.33	1159 863	42.57 34.10	995	53.00	835	59.50
onr	3MTL - 150	1750 1200	2034	7.80	1992	14.91	1954	21.43	1919	27.45	1887	33.00	1859	38.14	1835	42.91	1812 1132	47.36 32.47	1785 1105	53.49 36.67	1759 1079	58.22 39.92	- 895	- 53.27	- 711	- 56.85
ion of	3MTL - 150 TMH	1650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1688	44.65	1661	50.43	1635	54.89	1367	63.78	1099	69.24
precision .	3MTL - 160	900 1650	1254 2434	5.10 9.40	1200 2381	9.80 17.90	1151 2332	14.10 25.80	1116 2288	18.00 33.00	1067 2247	21.60 39.60	1031 2210	25.00 45.80	1001 2181	28.10 51.60	971 2151	31.00 56.90	937 2116	35.00 64.30	903 2084	38.20 69.90	-	-	-	-
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nparal ch cate	3MTL - 200	950 1500	1814 3062	7.67 12.11	1751 2998	14.67 23.17	1696 2944	21.09 33.31	1646 2894	27.01 42.65	1606 2853	32.48 51.28	1570 2817	37.54 59.28	1538 2785	42.25 66.71	1513 2760	46.64 73.64	1479 2726	52.00 82.09	1451 2699	56.60 89.36	-	-	-	-
the u ish ear	3MTL - 250	1000 1500	3049 4782	12.33 18.50		23.59 35.39	2880 4612	33.92 50.89	2807 4539	43.44 65.16	2741 4474	52.23 78.34	2682 4414	60.37 90.56	2630 4363	67.94 101.90	2585 4318	75.00 112.50	2512 4244	83.61 125.42	2464 4196	91.02 136.53	-	-	-	-
ook at stingu	3MTL - 300A	900 1600	4214 7995	17.30 30.77		33.10 58.85	3949 7731	47.60 84.63	3835 7617	60.90 108.36	3733 7515	73.30	3641 7422	84.70 150.60	3560 7342	95.30 169.46	3490 7271	105.20 187.09	3376 7157	117.30 208.57	3301 7082	127.70 227.05	-	-	•	-
oser lo hat di	3MTL - 300	900 1500	5538 9540	22.00 36.00		39.00 65.00	5224 9228	56.00 93.00	5124 9126	72.00 119.00	5030 9036	88.00 147.00	4957 8958	103.00 172.00	4857 8883	119.00 199.00	4804 8808	133.00 222.00	4737 8742	155.00 258.00		171.00 284.00	-	-	-	-
Take a closer look at the unparalleled marvels that distinguish each category	3MTL - 301	600 1500		15.34	3537	27.50 68.74	3424 9805	39.56 98.90	3318 9696	50.68 126.76	3218 9601	62.51 156.29	3140 9518	73.19 182.96	3034 9438	84.46 211.12	2977 9359	94.38 235.98	2906 9288	109.48 273.70	2836	120.79 301.96	-	-	•	-
Tak ma	3MTL - 350	900	9585	37.50	9226	67.20 104.50	9042 14815	96.70 150.40	8868 14638	123.80 192.60	8706 14483	152.70	8579	178.80 278.20	8406 14194	206.30	8314	230.70 358.80	8198 13974	267.50 416.10	8083	295.10 459.10	-	-	•	•
		1400			16073	112.00	15873	161.10	15684	206.40	15517			298.00	15207	343.9		358.80 384.40	-	-	-	-	-	-	•	-

Performance Chart (Tri-Lobe Blower Series)

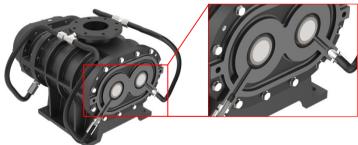
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# **Gas Duty Mastery: TMVT's Specialized Roots Blowers**



## 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

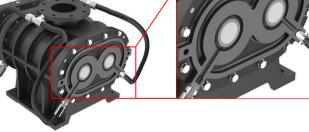
07 Water cooled Tri-Lobes Blowers

# **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.

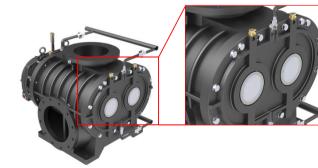


that if any kind of gas leaked from the working chamber then it enters in the intermediate chamber from that through hose (Flexible) pipe, leaked medium will be transferred to the working chamber.

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 H2S Gas







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/cm2 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.



# **Spare Parts Arsenal: Ensuring Uninterrupted Performance**







GEAR

BEARING







**OIL SEAL** 

LOCK WASHER

LOCK NUT

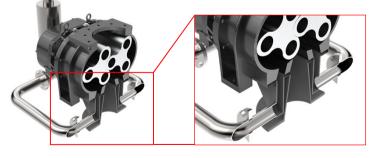




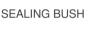


TRI LOBE ROTOR

TWIN LOBE ROTOR



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



# **Certified Excellence: Our Quality Commitment**







	TMVT INDUSTRIES PVT LTD
	: - QUAUTY POLICY: -
	e, at TMrT industries Pvt. Ltd. are committed to satisfy our customers by
	identianding customer requirements, designing and providing quality Twin, Tri- be Roots Blowen, and variaum sumos with related scares requirements.
	e educate our customer for our product knowledge and application to utilize
	strusage from our product.
	is provide customer a value for the money by providing products and related
м	rvices as per we promise during contract.
. 5	achieve our policy, we endeavor towards following objectives:
	Development of our vendors and providing technical support for
	improvement of processes and products they supply to us
	Continually improve upon customer feedback and mechanism to sustain pain in our QMS
	gain in our QMS Reduction of cost of product through advanced technology, product
	design and manufacturing related improvements
•	Creating congenial work environment suitable for team work and motivation through individual recognition for their hard work
M.D	
A. Y. I	Manekial

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.

TMVT INDUSTRIES PVT LTD Oute: 01.04.2029 Vatva, Ahmedabad

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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.

#### 11 **Contact Us**

# **Your Gateway to Excellence: Contact TMVT Now**

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