

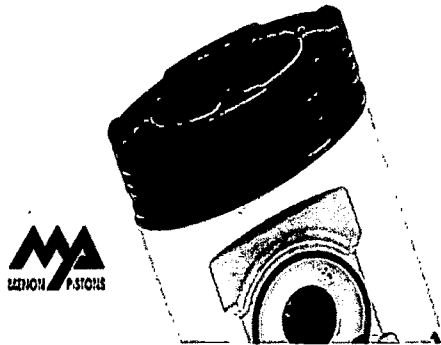
# *CHAPTER I*

## *COMPANY PROFILE*

## CHAPTER I -- COMPANY PROFILE

**MENON** *Group*

**A name you can *trust***



### 1.1 Introduction

Menon Pistons is the first manufacturer in India to succeed in making the Alfin Pistons both single and dual for diesel engines. Company is acknowledged by the OEM's in the country as pioneers in both technology and innovation. Their operations have been developed with the policy of high quality and superior development capability. Menon Pistons Ltd. is putting forth their energies to create a company atmosphere with technological development strengths which will enable them to supply high performance, low cost pistons with the goal of conforming to the future environment norms acceptable to the earth's environment, norms which will conform to environmental protection regulations.

Since its inception in 1969, Menon Pistons Ltd. has pioneered the development and manufacturing of newer products and designs on a continuing basis. Assimilating and adapting the latest technologies available the world over and through in-house research and development, MPL's trail blazing range of innovative products are unparalleled in India.

From plain pistons to single ring carrier pistons, double ring carrier to articulated two piece pistons, MPL has been first in India to develop,

manufacture and supply a diverse and varied range of pistons to top of the line automobile brands in India and abroad.

With cutting edge technology, trailblazing innovation and their emphasis on continually upgrading technology and designs has made them the preferred choice of top of the line OE customers in India and abroad with over 80 out of top 100 automobile manufacturers as our clients, we provide cutting edge solutions at cost effective prices. MPL's technological leadership has fuelled their consistent growth from their first plant 1972 at Kolhapur, second plant at Sangli in 1984, third plant at Kolhapur in 1993, 4<sup>th</sup> plant for rings at Kolhapur in 1996, they manufacture pistons and rings with consistency and reliability using a wide range of materials and coatings and design features.

It has today emerged as one of India's leading manufacturers of critical auto components like aluminum alloy pistons, piston pins, and piston rings applications include passenger cars, heavy and light commercial vehicles, heavy duty diesel engines for commercial vehicles, heavy duty diesel engines for power generation and earth movers, compressors etc.

Menon Pistons Ltd. is a flagship company in Menon Group which is considered as one of the fastest growing industrial houses in Kolhapur. The Menon Group involves eight units like, Menon & Menon Ltd., Menon Pistons Ltd., Menon Bearings Ltd., Menon Piston Rings Ltd., Menon Metallic Ltd., Menon Exports., and Menon Automobiles, Menon Engineering Services Ltd. Out of eight units Menon Pistons Ltd. is a unit which is producing commercial pistons from the year 1972 and had continuous growth in the past three decades. The company has 2 plants.

**Plant I**-This plant is present in Kolhapur (450 km away from Mumbai) which has heavily manufacturing facilities for piston and piston rings.

**Plant II**-This plant is present in Sangli (50 km from Kolhapur) and is fully equipped for manufacturing pistons and wide range of piston rings.

Together Menon group's plants have the capacity to produce 2.5 million pistons, 5 million rings and 1 million gudgeon pins per annum. Using technology that is state of the art yet cost effective, Menon Piston provides solutions that are globally cost competitive.

## **1.2 Establishment and Historical Background of Menon Pistons Ltd.**

The Menon Group of Industries commenced in 1956. **Menon Group** which is one of the largest Automotive Component manufacturers is situated in Kolhapur (which is about 400 Kilometers Southeast of Mumbai) have been the original Equipment suppliers of the most critical engine components like Aluminum Alloy Pistons, Piston Rings, Bimetallic Bearings, Bushes, Thrust Washers and large Complex Cast Iron Components like Cylinder Block and Cylinder Heads to major Automotive, Industrial Power Generation Engine/Vehicle manufacturers. Established in the early 70's today, employs a work force of more than 1200 in 6 of their manufacturing Units with an annual turnover of US \$ 70 Million with business activities spread over 24 Countries Companies round the Globe.

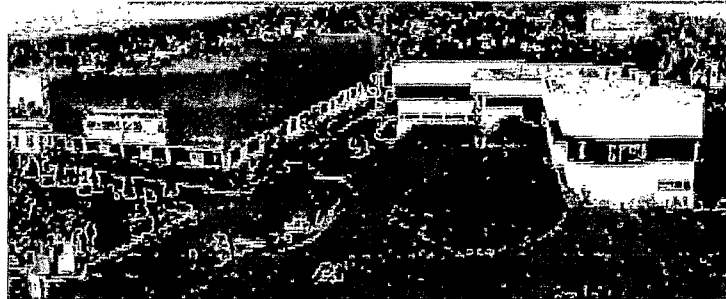
The Group had in the past Collaborations with world leaders like, M/s. Izumi Industries Ltd, Japan (for Pistons) and M/s. Nippon Piston Ring Co. Ltd, Japan (for Piston Rings) as well as with M/s. King Ltd of Israel for the manufacture of Bimetallic Bearings, Bushes and Thrust Washers. The faith that these Global leaders have reposed in joining hands with the Units of Menon Group is a testimony to the Technical and manufacturing capabilities and the Quality systems followed in the manufacturing by the Group Companies.

The following is a brief profile of the individual Companies in the Menon Group along with their infrastructure and product Profiles.

## 1. Menon Bearings Ltd.



Menon Bearings Ltd.

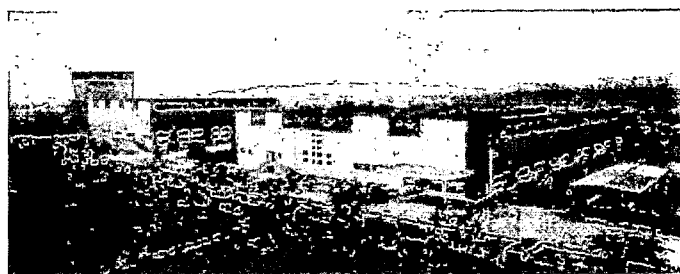


**Menon Bearings Ltd (MBL)**, manufactures a whole range of bi-metal Engine Bearings, Bushes and Thrust Washers for light Medium and Heavy Automobile Engines, Two Wheeler Engines as well as for Compressors and for Refrigerators and Air Conditioners. **Menon Bearings Ltd (MBL)** manufactures **Bearings** with Diameters ranging from 30 mm to 125 mm, bushes with diameters ranging from 15 to 120 mm and Thrust washers with diameters ranging from 50 mm to 225 mm. MBL is one of the very few Companies that manufacture Copper Lead, Aluminum Tin, and Lead Babbitt products under one roof. Exporting 30% of production capacity and with exports growth at more than 25% per Annum, the MBL brand enjoys strong equity among leading OEM's all over the world as the preferred OE supplier. These include interalia, MACK Trucks USA, Volvo Sweden, Cummins, John Deere, Tata Motors, Maruti Udyog, BEML, Greaves, Lister Petter-UK and many other Engine manufacturers in India and abroad. MBL Quality Systems are TS16949 Certified by TUV. MBL has been awarded "Ship to Use" certification by major OEMs the world over in recognition of its world class Quality Assurance Systems.

## 2. Menon Piston rings Ltd.



Menon Piston Rings (P) Ltd.

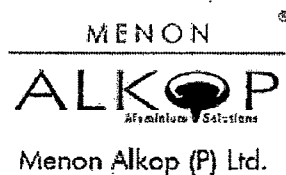


**Menon Piston Rings (P) Ltd (MPR)**, is equipped with the best manufacturing facilities for the manufacture of Piston Rings for New Generation Engines. From Foundry to Surface Treatment – MPR has all the facilities in house. MPR makes Cast Iron, Alloy Cast Iron, S.G. Iron (Ductile Cast Iron), Steel, Hard Chrome Plated, Hard Chrome Profile Ground, Moly Coated, Moly Plasma/Inlay Moly Rings with diameters ranging from 60 mm to 205 mm and applications that range from Passenger Cars to heavy Duty Engines for Marine and Power Generation. MPR manufactures 600000 rings per month. MPR is a trusted name by India's Automotive and Diesel Engine Majors, Escorts Tractors, Bharat Earth Movers Ltd, SAME, Eicher Tractors, Kirloskar Oil Engines Ltd, Kirloskar Pneumatic Co. Ltd, Greaves Ltd, to name a few.

Apart from supplies to Indian and Overseas OEMs, MPR export 35% of total production to USA and Latin America, UK, Bangladesh, Singapore, Iran, Dubai, Sri Lanka etc.

MPR is a supplier to world major like MACK / Volvo Trucks, Cummins and ARROW Engines, USA, MPR has been awarded status of "Preferred Supplier" from MACK Trucks, USA.

### 3. Menon Alkop ltd.



**Menon Alkop Pvt. Ltd.**, promoted under the leadership of our visionary chairman Mr. Ram Menon, is a subsidiary of Menon Bearings Ltd. With a fully atomized shop floor of more than 55000 square feet situated in an area of more than half a million square feet, the manufacturing facility of Menon Alkop Pvt. Ltd. at the Five Star MIDC area in Kagal, will deploy world class technology to

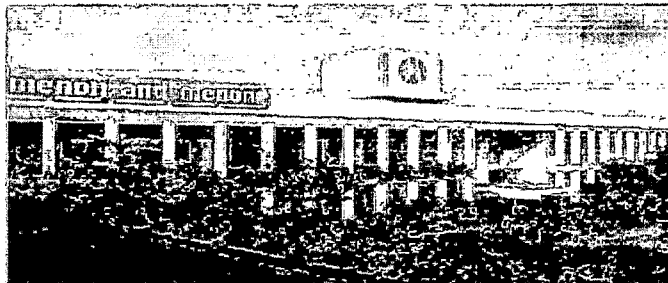
manufacture top of the line HPDC, LPDC & Gravity Die Cast products for critical, high value applications in the automobile sector. The Product range includes engine blocks cylinder heads, gear boxes, end shields etc. Menon Alkop will fill the large gap within supply & demand for high quality aluminum castings in the region.

The Menon Groups existing relationship with major customers & its network with logistics support centers at major locations across the world will help Menon Alkop gain a foothold at a fast pace.

#### 4. Menon and Menon ltd.



Menon & Menon Ltd.



**Menon and Menon Limited** is one of the leading engineering companies in India, manufacturing grey iron Cylinder Blocks and Cylinder Heads in as cast and machined condition. Its operations are certified to the TS 16949 standards by **Underwriters Laboratories Inc, USA**. The company is located approximately 425 Kilometers south of Mumbai, in the city of Kolhapur, Maharashtra. Its facility, covering a built up area of over 20,000 Square Meters, has a well equipped foundry and machine shop. It also has adequate capabilities to design tooling and gauges required for the manufacture of Cylinder Blocks and Cylinder Heads. It is the first company in India to be certified to the QS 9000 series of Quality System Standards. The company is presently working on the implementation of TPM (Total Productive Maintenance) practices and has set a target of challenging the JIPM (Japan Institute of Plant Maintenance) Award. It employs over 800 people and has been in existence since 1954.

## 5. Menon Pistons Ltd.



**Menon Pistons Ltd (MPL)** manufactures aluminum alloy Pistons, Piston Pins and Piston Rings for Passenger Cars, Heavy and Light Commercial Vehicles, Heavy Duty Diesel Engines for Power Generation and Earth movers, Compressors, etc. MPL is the first Company in India to develop Austenitic Ring Carrier (Alfin) Pistons. With the three manufacturing Plants located in and around Kolhapur, the Company manufactures 2.4 Million Pistons per Annum.

Today MPL is an ISO-TS-16949 accredited Company certified by TUV (Sud). MPL has also been awarded "Ship To Use" (STU) Status by Cummins India. MPL has the technical capability to design and manufacture Pistons of contemporary designs and Pistons for New Generation Engines. Major OE Customers of MPL include Tata Motors, Cummins India, Escorts Farm Trac. Maruti - Suzuki, Kirloskar, Eicher Tractor, BEML -Komatsu, SAME, New Holland, Greaves and Ford to name a few. MPL is OE supplier to world majors like MACK Trucks, Cummins and ARROW engines, USA and Lister Petter-UK and has been awarded Status of "Preferred Supplier" from MACK Trucks, USA. MPL exports about 25% of its produce to 24 countries in all parts of the world including countries like the USA, LATIN America, UK, Germany, France, Turkey, Israel, Singapore, Iran, Dubai, Sri Lanka, Bangladesh etc.

Menon Pistons Ltd. ventured into manufacture of Pistons in 1971 without any collaboration or technical assistance of any Piston manufacturer. Manufacturing plant was setup at the industrial estate in Shiroli, Kolhapur, a small industrial city, south east of Mumbai & delivered the **First Ring Carrier piston** to the Indian Diesel Engine Industry in 1971.



In the year 1985 a second unit was started in Sangli, yet again a small town 60 kms away from Kolhapur to manufacture Gudgeon Pins & Pistons for stationary & industrial applications. In the year 1996 a third unit was added in Shirolji industrial estate exclusively for the manufacture of small pistons to industrial applications & passenger cars. Currently this plant concentrates on the manufacturing of Pistons for passenger car as an “Exclusive & Single source “supplier to Maruti Suzuki Ltd, for their prize vehicle “SWIFT”

The company has kept pace with the growing trends by virtue of streamlining quality systems, development of quality culture, adoption of latest technology & equipment. All the three plants of Menon Pistons Ltd are certified for TS 16949 : 2002.

Products of Menon Pistons enjoy a high degree of customer satisfaction & value for the money & have been the choice of discerning customers as most cost effective supplier.

❖ **Milestones of Menon Pistons Ltd.**

1969		Company Incorporated on
1971		Developed Ring Carrier Piston (Alfin Piston) First Time in India for Cummins which was import substitution
1976	-	Signed Collaboration Agreement with Nippon Piston Ring Co. Japan.
1978	-	1,00,000 pistons production achieved for Cummins India Ltd.
1982 to 1984	-	Technology Upgradation Agreement with Sakura Kogyo Company Ltd. Japan for the manufacture of piston.
1985	-	First export of pistons to Russia upto 1990 supplied 4.5 million pistons to AUTO LADA and 40000 large die pistons to a tractor company in USSR.
1994	-	ISO 9002 certification by BVGI, U.K.
1994	-	Best Vendor Performance Award by Maruti Udyog Ltd.
1995	-	Ship to use status by Cummins India Ltd.
1996	-	Company became Public Ltd.
1996		Technical Tie up with M/s.Izumi Industries Ltd.Japan,one of the leading

		piston manufactures in the world.
1997	-	Tie up with Izumi Industries Ltd. Japan, one of the leading diesels piston manufacturers in the world.
1998	-	Approval by Cummins Daventry to manufacture KV pistons.
1999	-	QS 9000 certification by TUV Suddeuschland, Germany.
2000	-	Reached total supply of 1.0 million pistons to Cummins India Ltd.
2001	-	Manufacturing capacity achieved.
2004	-	Recertification of QS 9000 by TUV Suddeuschland,Germany.
2005	-	TS 16949 certification by TUV Suddeuschland,Germany
2006	-	Signed technical license agreement with M/s.Dong Yang Piston Co.Ltd,South Korea
2007	-	Development of cooled galary piston for heavy duty application.

### **1.3 Nature of Company**

The Menon Pistons Ltd. has pioneered the development and manufacturing of newer products and designs on a continuing basis. The piston production capacity at Menon Pistons Ltd. is more than 8 million pistons per annum. Assimilating and adopting the latest technologies available the world over and through in-house research and development, Menon Pistons Limited's trailblazing range of innovation products are unparallel in India. With over 80 out of top 100 automobile manufacturers are company's clients and company provide cutting edge solutions at cost effective prices.

### **1.4 Board of Directors for Menon pistons ltd.**

Chairman	:	Mr. Ram Menon
Managing Director	:	Mr. Sachin Menon
Directors	:	Mr. Nitin Menon
		Mr. R. D. Dixit
		Mr. Mani Mathew
		Mr. G.S.Rao
		Mr. Ajitkumar

### 1.5 Duty hours in a company

3 shifts per day	:	8.00 a.m. to 4.00 p.m.
		4.00 p.m. to 12.00 a.m.
		12.00 a.m. to 4.00 p.m.

### 1.6 About the products and production

#### I. Products of the company –

From plain pistons to single ring carrier pistons, double ring carrier to articulated two piece pistons, producing Menon Pistons Ltd. The bend of production of pistons is for fuel efficiency, lower oil consumption and confirming to the Euro Emission norms. There is also emphasis top power ratio. These are essentially required for diesel engines.

The pistons produced at Menon Pistons Ltd. should be autothermic pistons, ring carrier/Alfin pistons, dual ring carrier pistons, articulated steel cap pistons, thin walled pistons for cars, narrow groove pistons, hard anodizing on piston crown. These pistons should be sold for the use in heavy commercial vehicles, light commercial vehicles, tractors, passenger cars, jeep and utility vehicles, stationary engines bi-wheelers.

The product range of MenonPistons Ltd.boasts of Piston assemblies for diverse array of high tech features catering to the wide variety of applications such as:

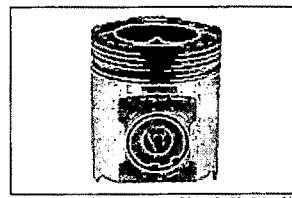
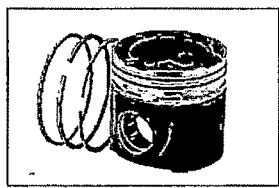
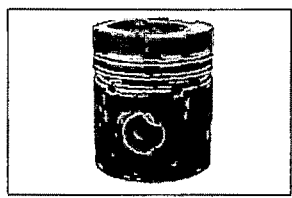
#### I.HeavyDutyDieselEnginesforPower

#### Generation / Off Highway Vehicles/Gas Engines

1 M W Piston

2.140 mm dia BEML Piston

3.Articulated Piston



For Heavy Duty Diesel Engines for Power Generation/Off Highway Vehicle applications, MPL develop and produce Pistons with diameters ranging from

**130 mm to 190 mm** featuring Single Alfin and **Dual Alfin Gravity Die Cast** Pistons.

MPL manufacture these Pistons on a dedicated manufacturing facility with special purpose CNC Machines to produce complex OD Profiles, and Pin bores with Oval Bore, trumpet bore or reliefs as per the requirement.

The complicated Core Profiles featuring on these Pistons are generated applying 3D Modeling facilities using **Pro-E Wildfire-2 foundation package** for **surface modeling, advanced modeling** extension and **Tool Design Package** for manufacturing to achieve targeted sections and effective control on the weight of the Piston for optimum balance of reciprocating masses.

Some of the special features which are provided in the design of these bigger size Pistons (Diameters of 110 mm to 170 mm range)

→ **Hard Anodizing of the Crown for Thermal Crack Protection**

→ **Dual Ring Carrier for enhanced life**

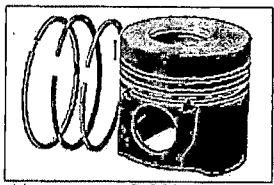
→ **Oval Gudgeon Pin Bore**

→ **Pistons with as cast side drain for effective Oil drain**

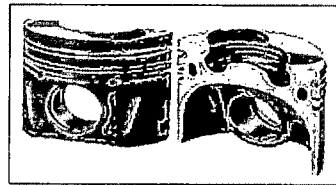
Two pieces constructions of Pistons (**ARTICULATED PISTONS**) with forged **Chrome Moly Steel Crown** coupled with Aluminium Alloy Skirt held together by a Piston Pin where the guidance and sealing function are separated from one another. Because of this design, the skirt is better shielded from hot Piston crown and rings Zone and can, therefore, be installed with smaller clearances than the one-piece Piston, which has a positive effect on **Quiet running**.

## **II. Heavy/Medium/Light Commercial Vehicles with Diesel Engines.**

1. Cooled Gallery Cut Section



2. TATA 4sp EURO III Piston



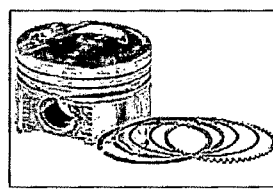
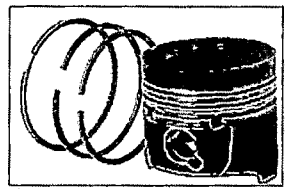
In view of the ensuing legislations and the keenness of the Government to provide **environmentally friendly ambience**, the modern Internal Combustion Engines need to introduce New Technologies for complying with the emission legislations. The new Technologies call for design of Pistons to withstand increased specific power output, increased injection pressures, high pressure turbo charging with after coolers, to comply with stringent emission regulations while satisfying the requirements of low fuel and lube oil consumption.

MPL manufactures wide range of Pistons in diameter range of **75 mm to 130 mm** with and without “Cooled Gallery” features. The design and manufacturing facilities available with MPL enables them to design, produce and optimize the features such as, “ as cast Oil drain Pockets”, Autothermic/Autothermatic Piston with “control expansion”, Steel struts to provide lesser fitting clearances for reduced noise levels, Gudgeon Pin Bore offset for effective load balancing/noise control, & Cooled Gallery Pistons

### III. Passenger Car (Diesel & Gasoline) Engines

75 mm Piston

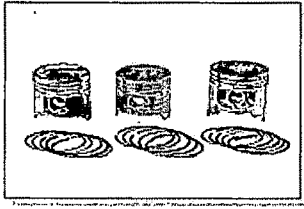
Zen/Maruti – SWIFT/Estem Vehicles



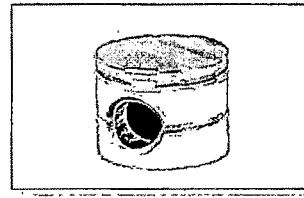
MPL designs and produces Pistons in the diameter range of **70 mm – 90 mm** for Passenger Car **Diesels** and **Gasoline Engines** applications. While the Pistons for Passenger Car Diesels which feature Ring Carriers **with/without Cooled Galley** and are made from Hyper Eutectic Aluminium Alloy which provide lesser fitting clearance between Piston and Cylinder Bore, the Pistons for Gasoline Engines are made from Eutectic Aluminium Alloy with as Cast Valve Pockets, light weight and environmentally friendly features. The most cost effective and proven quality of MPL Pistons have earned the “**Single Source Status**” for the Pistons for **Maruti – Suzuki** for their Prize models of **SWIFT/ZEN & Esteem Vehicles**.

#### IV. Bi-wheeler (4 Stroke) / Small Engine Applications

TVS Victor/Boxer /Caliber/Hero Honda



Copeland Pistons



A wide range of Pistons for 2 Stroke and 4 Stroke Engines in the diameter range of 40 to 60 mm for powering the Scooters, Motor Cycles and Refrigeration Air Compressors are made from Eutectic and Hypereutectic Aluminium Alloy which are very cost effective and provide value for the money. These Pistons are offered in attractively packed containers as assemblies consisting of Pistons, Gudgeon Pin, Piston Rings and Circlips.

MPL produces about 1.3 million pistons annually of 41mm diameter for Refrigeration Air compressor sealed units. These are manufactured on special purpose machines with close tolerance and extremely good surface finish to provide 'Quite' running of the compressors.

*More specifically the pistons producing at Menon Pistons Ltd. are of following characters.*

- (i) Piston with hard anodized at the top  
Crown protection at higher temperature through hard anodizing coating can be achieved.
- (ii) Piston with dual Alfin (Double Ring Carrier)  
Dual Ni-resist rings to reduce the wear in the piston 1<sup>st</sup> and 2<sup>nd</sup> groove and increase the piston life.
- (iii) Reduced top land distance piston  
This helps to reduce emission.
- (iv) Improved combustion bow design piston  
With a view to improve combustion efficient and reduce emission (Euro Emission Norms).
- (v) Oval Gudgeon pin bore piston

Pin box is given internal taper and oval to allow refluxing for gudgeon pin during the power stroke. Through this process it reduces the risk of premature failure of piston.

(vi) Autothermic piston

Autothermic pistons with steel struts to prevent uneven expansion at the gudgeon pin area with a view to reduce noise level at high V.P.M. Different coatings are also provided on piston to start for avoiding initial scuffing.

(vii) Articulated piston

Articulated piston which is combination of steel crown aluminum skirt section which can withstand high thermal stresses arising out of high compression ratio especially in the turbo charged engines.








(viii) Piston with pocket on gudgeon pin axis

To help reduction of oil consumption and to keep gudgeon pin areas cool.

### 1.7 Customers of Company and Market

. For an organization market is the destination where an owner presents his products in front of consumers. MPL is proud to be associated with the major manufacturers in **Automotive, Tractor, Stationary/Industrial application** segments in Domestic Market as well as some of the reputed Overseas Engine manufacturers The customers of Menon Pistons Ltd. are distributed all over India and it also exports the pistons.

**1.7(A) The customers of Menon Pistons Ltd. are as follows:-**

	Tata Motors Ltd.		Maruti Udyog Ltd.
	Cummins India Ltd.		Mahindra & Mahindra Ltd.
	Kirloskar Brothers Ltd.		EICHER Tractor Ltd.
	ARROW ENGINE COMPANY.		

**1.7(B) Market**

There are five types of market for Menon Pistons Ltd.

1. Original equipment manufacturer.
2. Original equipment spares
3. Replacement market
4. Institutional sales
5. Export

**1.8 Achievements and Awards**

The Menon Pistons Ltd. is a unit of Menon Group. It is an ISO 9001-2000 company. The Menon Pistons Ltd. has achieved an ISO 9002 certification by BVQI of U.K. In 1994. In the same year 1994 it has achieved best vendor performance award by Maruti Udyog Ltd. In 2000, Menon Pistons Ltd. had got QS 9000 certification by TUV Sudddeutschland, Germany. **ISO/TS: 16949 Certified by TUV Sudddeutschland in 2005**

**OUTSTANDING SUPPLIER FOR EXCELLENT PERFORMANCE” award from CUMMINS Group in July 2006**



## **1.9 Research and Development**

Menon Pistons Ltd. In their QUEST (Quality Up gradation through Enhancement of Systems and Technologies) have recently signed a Technical License agreement with M/S DONG YANG Piston Co. Ltd, South Korea, who are one of the leading manufacturers in south Korea, who have acquired their technology or skills and design and analyze capabilities through their fifteen year association with M/s Mahle,Gmbh of Germany. Menon Pistons Ltd has been actively associated with their customers in carrying out trails using their test facility for arriving ay mutually acceptable performance levels. The experienced design team of young engineers at MPL provides two dimensional and three dimensional solid modeling facilities and analysis utilizing the Pro-E wildfire -2 foundation packages for the surface modules, advance modeling extension and the relevant CAD and CAE facilities. With the experienced team MPL works as a complete solution provider to its customers by undertaking the product development from conceptual stage to product realization with the shortest possible lead time.MPL strives hard to pursue customer satisfaction through their process control and non destructive quality checks as well as maintenance and improvement of the quality systems. By use of rigorous quality standards and systems at various stages of manufacturing with the computerized online –Statistical Process Control Techniques, MPL ensures that products which reach the customers are defect free and have been produced with the highest International Qualitative Standards. All plants of MPL have been certified for “ISO/TS 16949”2002 and the systems and procedures based on TPM, Six Sigma Principles are practiced in all locations.

## **1.10 Quality Policy of the Company**

Quality to every customer means conformance to requirement by way of product performance, cost, delivery and service. MPL is committed to meet or exceed these requirements to give customers consistent satisfaction. Every activity of MPL is coordinated to achieve improvements in the areas of quality systems, Employee Development and Work Practices on a continuous basis. It

is always the endeavor to upgrade technologies and manufacturing capabilities to meet the challenges of time. MPL periodically monitor its own performance and put efforts to achieve higher goals.

**TPM policy-“Our primary responsibility at Menon Pistons Ltd, is to offer Cost Effective, Quality, Timely delivery and Services of our products to our customers”.**

***Towards This***

Menon Pistons Ltd. commits itself to maximize “overall plant effectiveness” and “total customer satisfaction” through,

- (a) Zero breakdowns, zero accidents and zero defects.
- (b) Minimizing all other losses and damages.
- (c) Improving “Human Resources” by proper & adequate training for skill enhancement.
- (d) Providing safer and cleaner environment with “Total Employee Empowerment”.

### **1.11 Vision of the Company**

The company is committing itself towards following vision.

- (i) Development of piston assemblies for global requirement by continuous proactive interaction and cooperation between customer and Menon Piston Ltd. team.
- (ii) Development of technologically superior piston assemblies.
- (iii) To be the most cost effective company in the competitive market.
- (iv) Continuous up gradation of manufacturing and quality assurance facilities to meet the latest international standards.
- (v) To improve Menon Pistons Ltd.’s R&D activities by mutually sharing information related to relevant areas and experiments.