



SHRI VILE PARLE KELAVANI MANDAL'S  
**Institute of Technology, Dhule.**

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**“Industrial Visit to Maharashtra Oil Extraction Pvt. Ltd.”**

**Students: Third Year B. Tech Mechanical Engineering**

**Faculty: Dr. Hitesh Thakare**

**Mr. Dattatray Doifode**

**Resource Person: Mr. Shrikant D. Wani**

**Maintenance Manager**

**Name of Organization: Maharashtra Oil Extraction Pvt. Ltd.**

**Date of Visit: 10<sup>th</sup> January 2022**

**Objectives of visit:**

1. To understand the construction, actual working and application of steam boiler.
2. To understand the use of boiler mountings and accessories.
3. To understand the use of steam in the oil processing industry.

**Acknowledgement**

There is always a sense of gratitude which one express towards others for their help and supervision in achieving the goals. This formal piece of acknowledgement is an attempt to express the feeling of Gratitude towards people who helped us in successfully completing the Industrial visit.

We would like to thank all supporting staff of “Maharashtra oil Extraction Pvt. Ltd” who guided us in industrial visit. Our special thanks to Mr. **Shreekant Wani** who guided us to understand the working of Maharashtra Oil Extraction Pvt. Ltd during the visit. We are also highly indebted to **Principal Dr. Nilesh P. Salunke**, for the facilities provided to accomplish this Industrial visit.



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We would like to thank my head of the Department **Dr. Hitesh Thakare** for his constructive criticism throughout Industrial visit. We would also like to thank **Prof. D.S. Doifode** Department Industrial visit for their support and advice to get and complete an industrial visit in the above-said organization. We are extremely grateful to our department staff members and friends who helped me in the successful completion of this industrial visit.

## **INTRODUCTION:**

We the student of third year mechanical engineering of Shri vile parle Kelvani mandal's institute of technology, Dhule have visited Maharashtra oil extraction Pvt. Ltd Dhule as a part of the Applied Thermodynamics Lab academic activity, under guidance of Prof. Dattatray Doifode sir and Prof. Hitesh Thakre sir.

Maharashtra oil extraction Pvt. Ltd located at Plot No. E-140, MIDC, AWDHAN, Dhule – 424006. Oil Cotton, Palmolive Refined Oil, Soyabean Crude Oil, Cotton Wash Oil, Soya Bean, Meal, Soya Hipro, Soap Stock Soyabean, Soap Stock Cotton, Gums Soya Bean, Gums Cotton, Acid Oil this are the products of this organization. Main Products are Saya Bean Oil and Cotton Oil. This company Established in 1995, MOEPL today is one of India's leading integrated edible oil companies. The Company has been growing at a fast pace and has achieved significant milestones on its way to progress. MOEPL acquired 30,000 Sq. Mt Land in M.I.D.C area in Dhule, Maharashtra. Construction work started for SEP (Solvent Extraction Plant) & Refinery in the month of December. Commenced Solvent Extraction Plant with installed capacity of 100 MT Per Day & Batch Refinery with installed capacity of 20 MT Per Day. Effluent Treatment Plant installed with Capacity of 25 M3 Per Day.



## Infrastructure of MOEPL

Daily Capacity	500 MT Soyabean Seed Handling Capacity ( Solvent Plant) 200 MT Perday ( Refinery)
Plot Size	45000 Sq. M
Warehouse	17,500 MT
Total Staff	100 Persons
Solvent Extraction Plant	Made from Troika
Refinery	DeSmet Chemfeed Ltd., Bangalore
Boiler	Thermax Make (17 Tonnes Per Hour Capacity) Abrostar Make Broiler ( 42 MT Per Day Capacity) Walia Bros. Broiler (50 MT Per Day Capacity)
Two Way Bridges 80 MT   50 MT) –	Nitiraj make 15 Acre Land taken for green belt development 200 m3 perday –
ETP Plant	Effluent Treatment Plant

### Products of company: Soya Refined Oil



MURLI Soya Refined Oil is a clear and light oil manufactured under strict quality control and totally untouched by human hands with latest technology. It not only enhances the taste of your food but also keeps your family healthy and wise from dawn to dusk.

MURLI Soya Refined Oil is packed in a multilayer packing to retain the natural quality and freshness. It also contains good amount of PUFA and MUFA which are considered essential for the human body.



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## Cotton Refined Oil



MURLI Cotton Refined Oil is a clean and light oil manufactured under strict quality control and totally untouched by human hands with latest technology. It not only enhances the taste of your food but also keeps your family healthy and wise from dawn to dusk.

MURLI Cotton Refined Oil is packed in a multilayer packing to retain the natural quality and freshness. It also contains good amount of PUFA and MUFA which are considered essential for the human body. This oil is manufactured from Cotton Seeds.

### About Visit:



Group Photo of industrial visit in front of Maharashtra oil extraction Pvt. Ltd



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**Objectives of industrial visit:**

**To Observe actual working of Boiler.**

**To Observe Actual construction of Boiler.**

**To observe important accessories of boiler.**

**To observe safety norms followed while using boiler.**

**Boiler:**



**Boiler and Its Accessories**

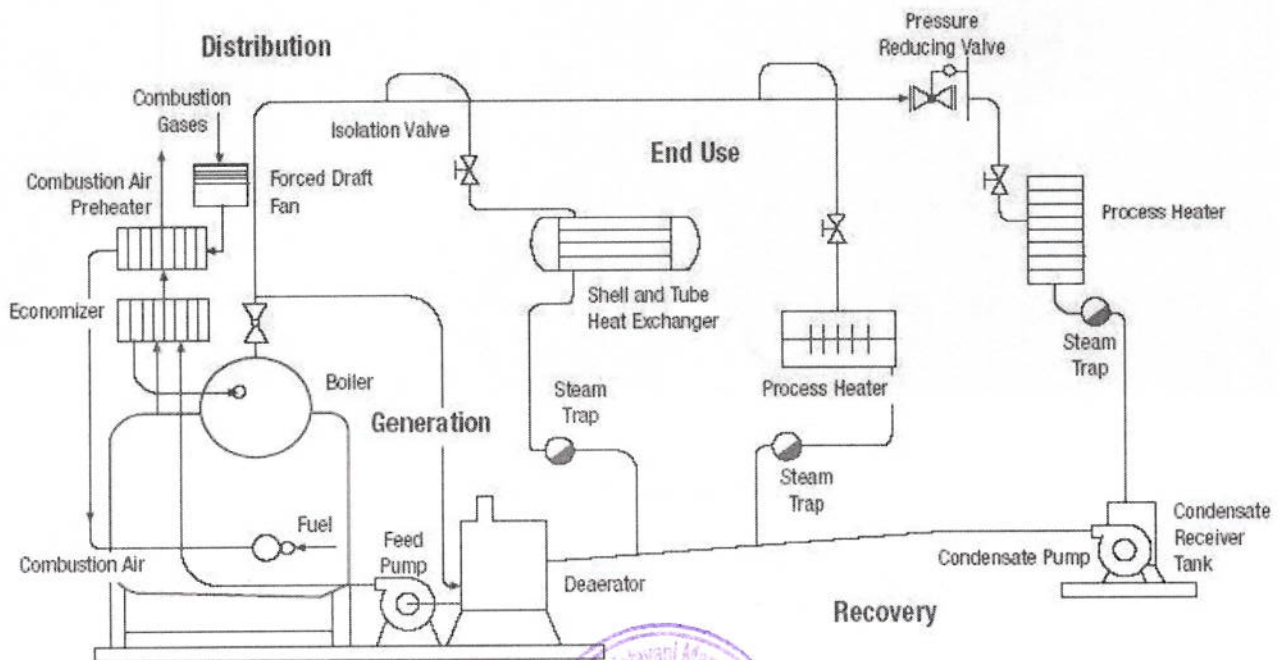


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- Name of Boiler Thermax Boiler
- Type of Boiler Fire Tube and Water tube (2 Pass Boiler)
- Capacity of Boiler 17 Tons per Hour
- Production of steam Per Day 80 tons per day
- Output Pressure Steam Maximum 15 Bar
- Output Temperature of Steam 180- 210 °C
- Fuel Required
  - Coal
  - Agro-Waste
- Mass of Fuel supplied to burner 14 tone/ hr
- Mass of Water Supplied 14-17 tons, 60% of capacity
- Numbers of fire tube 78
- Numbers of Water tube 308
- Furnace Temperature 950°C to 1000°C

#### Accessories of Boiler



## Accessories of Boiler:

- Air Preheater:

An air preheater is any device designed to heat air before another process (for example, combustion in a boiler with the primary objective of increasing the thermal efficiency of the process. They may be used alone or to replace a recuperative heat system or to replace a steam coil.

- Economizer:

An Economizer absorbs the flue gas heat into water thus, utilizing the heat from the exhaust gas which would otherwise be wasted. Plant efficiency is therefore further increased when viewed with respect to actual energy content of the fuel.

- Feed pump:

function of feed pump in a boiler is to feed water to boiler. Two type of feed pumps are generally used in boilers-positive displacement type and centrifugal type.in some pumps special device or accessory is used to keep the water at saturation pressure and release over pressure.

- Condenser:

The condenser is a heat exchanger which removes the latent heat from exhaust steam so that it condenses and can be pumped back into the feed system completes the cycle between boiler and turbine to enable the exhausted steam to return to the boiler as feedwater.

- Combustion Chamber

A combustion chamber is an enclosed space inside of a combustion engine in which a fuel and air mixture is burned. Burning fuel releases a gas that increases in temperature and volume. When you heat a gas, the atoms in the gas start bouncing off each other with more energy and vigor. The hard bouncing causes them to get thrown out farther and the whole gaseous cloud expands.

- Supply Lines and Return Lines:

Supply lines lead from the boiler and deliver the heated water or steam to distribution points around your building, such as radiators or heaters. When the water out at these points cools, or the steam cools and changes back to water, the return lines bring the water back to the boiler where it is reheated before being sent out again.



- Exhaust Stack

The exhaust stack – sometimes known as the chimney or flue – is designed to safely expel spent fuel away from the building's exterior. An exhaust stack may look like a traditional brick-built chimney, or it might be a series of metal pipes. The exhaust stack must be safely constructed so that dangerous gases such as carbon monoxide are diverted away from the interior of your property, as well as making sure it isn't expelled near windows and doors. It's also important that they are not constructed in such a way that could allow downdrafts of powerful winds to re-enter your commercial property.

- Controls:

The system controls allow the user to set water temperature, air and fuel supply mixtures, internal pressure and ignition. The controls regulate how often the burner fires, the quality of the mixture of fuel and oxygen, the rate at which the fuel is used, and how hot the water gets. The controls are also an important part of the safety system of your boiler.

Uncontrolled, high-pressure steam can be incredibly dangerous, and well-maintained system controls help to keep your boiler completely safe by making sure that the internal pressures within it don't go too high, the water stays within a safe temperature range and the system continues to operate properly.

#### Mountings of boiler

1. Water level indicator
2. Pressure gauge
3. Safety valve
4. Fusible plug
5. Steam stop valve
6. Blowoff valve or blowdown valve
7. Feed check valve

#### Water level indicator:

The water level indicator located in front of the boiler in such a position that the level of water can easily be seen by the attended.



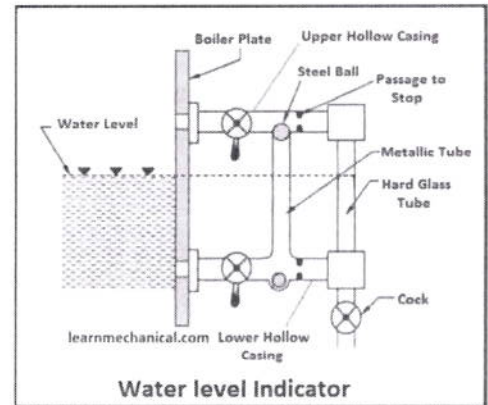


There are two indicators:

A water level indicator consists of a metal and a strong glass tube with marking. The upper and lower ends of these tubes are connected to two gunmetal hollow pipes.

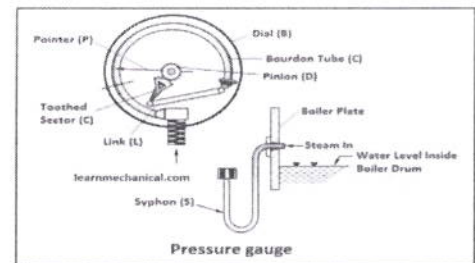
The upper pipe has a steam valve and the lower pipe has a water valve which is bolted to the boiler plated by two flanges. The upper pipe is opened to the steam and the lower pipe is open to the water with the help of steam and water valves, respectively.

In case of glass gauge breaks accidentally, the water and steam simultaneously rush out through the gunmetal pipe and they are carried away by water and steam and passages are closed. The water and steam valves are then closed and the glass gauge is replaced.



### Pressure gauge:

A pressure gauge is fitted in front of a boiler in such a position that the operated can conveniently read it. It reads the pressure of steam in the boiler and is connected to the steam space by a syphon tube.

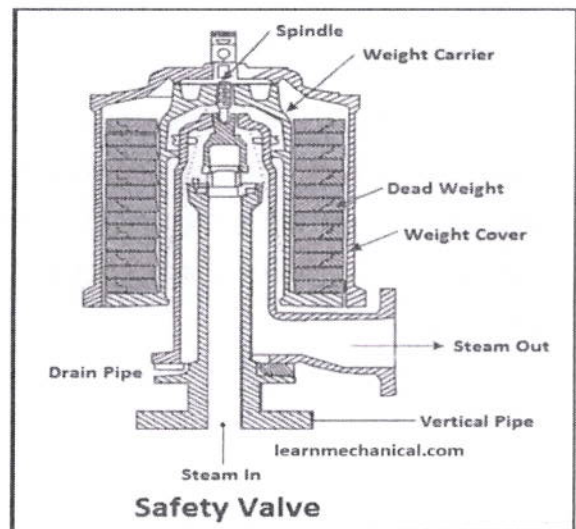


### Safety valve:

The safety valve is a relief valve that prevents the boiler pressure from raising over its normal working pressure by automatically opening when the boiler pressure exceeds the normal working pressure, thus allowing excess steam to escape into the atmosphere until the pressure comes down on its normal value. Thus, a safety valve ensures safety to a boiler from being damaged due to excessive steam pressure.

It also ensures safety to a pipe or vessel containing water under high pressure.

There are generally four types of safety valve.



**Fusible plug:**

The function of a fusible plug is to ensure safety to the boiler from being damaged by overheating due to water level falling very low in the boiler.

**Steam stop valve:**

The function of a steam stop valve (this is called main stop valve) is to control the flow of steam from within the boiler and to stop it completely when required.

**Blow-off valve or blow-down valve:**

The function of a blow-off valve is to remove periodically the sediments deposited at the bottom of the boiler while the boiler is in operation and to empty the boiler while it is to be cleaned or inspected. When the blow-off valve is opened the water which is under the pressure of steam, rushes out with tremendous velocity thus crying out the sediments along with it.

**Feed check valve:**

The function of a feed check valve is to control the flow of water from the feed pump to the boiler and to prevent the backflow of water from the boiler to the pump when the pump pressure is less than the boiler pressure or when the feed pump ceases to work.

**Conclusion:**

From this industrial visit we have learned that how oil extraction company uses boiler to extract oil from raw material and studied their construction and working. We also studied about the function of whole system as well as boiler accessories & mounting. We have also learned about the importance of boiler safety norms in actual industry. The maximum industry work was running on agro-waste or coal.





Following students of third year have attended the visit,

SR. NO.	NAME	Year
1	WANI TEJAS SHRIKANT	Third Year
2	PATIL ANUSHREE SANJAY	Third Year
3	CHAUDHARI JAY VILAS	Third Year
4	MORE MAYURESHWAR HITENDRA	Third Year
5	MAHALE NISHAT SUNIL	Third Year
6	GUJAR PRANAV KISHOR	Third Year
7	DEORE BHAVESH KISHOR	Third Year
8	KARANKAL KUNAL RAVINDRA	Third Year
9	PATIL ROHIT SUDHAKAR	Third Year
10	JADHAV MAYUR ANIL	Third Year
11	SONAR LOKESH SUNIL	Third Year
12	SONAR TEJAS MAHENDRA	Third Year
13	PATIL HRUTIK PRAMOD	Third Year
14	PATIL PRADYUMNA VILASRAO	Third Year
15	PATIL SUDIP SUNIL	Third Year
16	CHITTE CHINMAY SATISH	Third Year
17	JADHAV BHAVESH DILIP	Third Year
18	NAGPURE SANOOP DEEPAK	Third Year
19	CHAUDHARI HARSHAL VIJAY	Third Year
20	BHADANE YOGESH BHAUSAHEB	Third Year
21	MALI YOGESH BHIKAN	Third Year
22	BHAMARE OM MADHUKAR	Third Year
23	KHAN MUHAMMAD FAISAL VAJID	Third Year
24	ANSARI ADEEL AHMAD GHULAM	Third Year
25	BAIG JUNED SAMSHER	Third Year
26	PATHAN AAMIR KHAN ASHFAQUE	Third Year
27	QUAZI AABID HUSAIN BASHIRODDIN	Third Year
28	BAGUL SUMIT RAJESH	Third Year
29	SHINDE PRUTHVIRAJ TUSHAR	Third Year
30	RAJPUT TANMAY GOVIND	Third Year
31	GUDHE MEHUL ANNASAHEB	Third Year
32	JANGID PANKAJ MAHESH	Third Year
33	PATIL AJIT MAHESHRAO	Third Year
34	PATIL RAHUL RAJENDRA	Third Year



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35	AHIRE MANAS PRAVIN	Third Year
36	BHADANE PRASAD RAKESH	Third Year
37	PATIL PRANAV VILAS	Third Year
38	PATIL BHATU SANTOSH	Third Year
39	BHAGWAT RAHUL ARUN	Third Year
40	DEORE ANIKET GORAKH	Third Year
41	PATIL ANKIT PANDITRAO	Third Year



**Mr. Dattatray Doifode**  
Faculty Coordinator



**Dr. Hitesh Thakare**  
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**Dr. Nilesh Salunke**  
Principal & Patron  
**Principal**  
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