

INDUSTRIAL VISIT REPORT



Name of college : Madras Institute of Technology,
Anna University, Chennai – 44.

Department : B.E Production Engineering,
Department of Production
Technology

Date of visit : 14-March-2024 (AN)

Name of Company : Madras Hydraulic Hose Pvt.Ltd

Number of students : 57 students from SEM VI

Faculty : 1. Dr.E.Pavithra, AP,PT
Accompanied (99620 17333)
2. Mr.K.Tamilarasan, TF,PT
(8667689172)

COMPANY OVERVIEW

Madras Hydraulic Hose (P) Ltd was started in 1992 and is a leader in the manufacture of stainless steel flexible, corrugated hoses, interlock hoses and End fittings.

Their leadership in the field was made possible by years of dedication in producing only the highest quality stainless steel flexible corrugated hoses.

Their strict quality control guidelines, coupled with modern manufacturing practices, designs from US, and dedicated team of personnel, assures you the best possible products and technical services.

The Hoses are used for conveying chemicals, chemically corrosive Fluids, Steam, Gases etc., in very hostile environments. They can also be used in extreme temperature i.e. from cryogenic temperature to temperature as high as 800 degree C.

These can be used to accommodate lateral and axial movements during operations of machines and can absorb vibration to a great extent. These hoses depending on the application can also be used instead of rubber/plastic hoses.



Madras Hydraulic Hose

Product profile of company:

I. Stainless steel Corrugated Hose

Stainless steel corrugated flexible hoses are widely used in fertilizer industries, refineries, petrochemicals plants, chemical and pharmaceuticals plants.



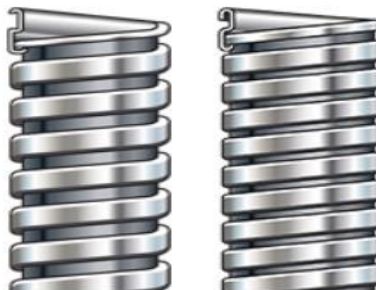
II. Stainless Steel Braid

Stainless braid is designed to be used around the corrugated tube to try and improve the strength of the hose. Without this a hose can be vulnerable to elongation when pressurised. It's usual that one layer of braid will be added to prevent this, and this is usually a basket weave.



III. Stripwound Metal Hose

Stripwound hose is used as a guard, exhaust hose, and for the transfer of dry bulk materials. Designed to reduce damage to delicate materials, another steel strip is added inside a roughbore hose to provide a smooth interior surface.



IV. Metal Expansion Joints

Expansion joints are used to absorb thermal expansion. They can also be used to absorb contraction in cryogenic lines and to reduce vibration in piping systems. Materials of construction for the bellows can be stainless steel or rubber or even a composite material.



AIM OF THE INDUSTRIAL VISIT:

- 1) To learn about different forming processes inside the industry.
- 2) To make student aware of the industrial procedures required to work in any company.
- 3) To experience the working environment in industry and visualize all the important divisions in the Industry.
- 4) To prepare the students for the selection of carrier path in different departments of the industry.
- 5) To interact the students with industry personnels.

VISIT AGENDA

Introduction:

We were welcomed by the officials working there who provided a comprehensive introduction to the company's history, vision, and mission. A brief introduction about metallic bellows and hoses along with its widespread application have been given.

Manufacturing Process:

We were given an insightful overview of the manufacturing process for metallic bellows. The step-by-step explanation of how raw materials are transformed into finished products are particularly enlightening. The forming process of metallic bellows involves shaping flat metal sheets into corrugation, like structure that can expand and contract while maintaining its structural integrity. Metal bellows are available in a variety of materials.

The process begins with selecting appropriate materials based on the intended application. The selected metal sheets are sheared into the desired size and shape. The sheets were rolled and welded. Welding of sheet metal is carried by **long seam welding**.

These sheets will form the pleated layers of the bellows. The metal sheets are then rolled or formed into a corrugated shape. Then the welded part is tested for welding defects by conducting **Dye Penetrant test**. Bellow shape is obtained by forming process. They use hydro, mechanical and roll forming majorly for forming bellows based on the type of bellow that is needed.

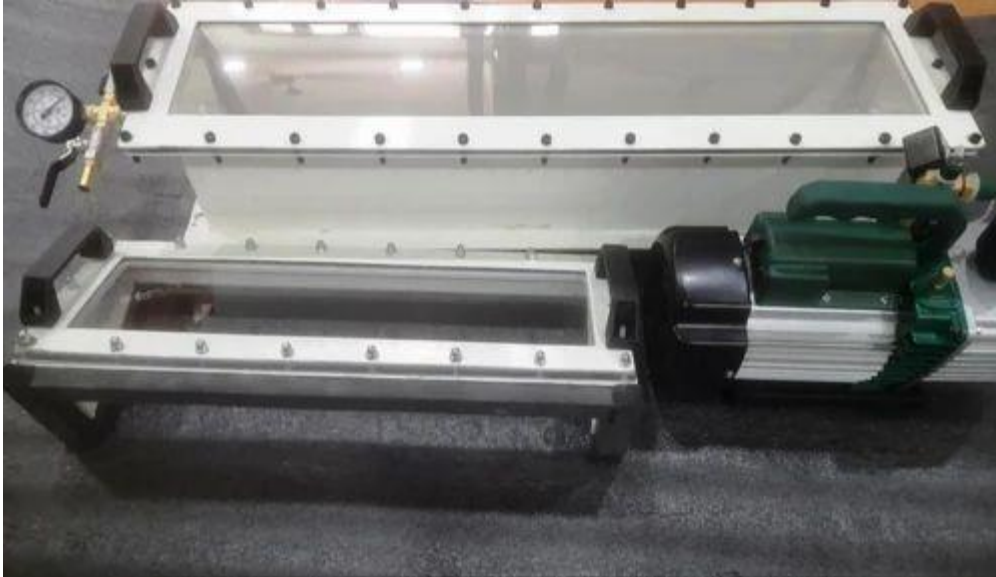


Long seam welding machine

Finally, the assembly of bellows is carried out. In some cases, a heat treatment process may be applied to the assembled bellows to relieve internal stresses and enhance its mechanical properties. The bellows at last undergo superfinishing process like buffing. A brief detail about DP test and leak test is given below

- **DP test:** Dye penetrant inspection (DPI), also called liquid penetrate inspection (LPI) or penetrant testing (PT), is a widely applied and low-cost inspection method used to check surface-breaking defects in all non-porous materials (metals, plastics, or ceramics). DPI is based upon capillary action, where low surface tension fluid penetrates into clean and dry surface-breaking discontinuities. The penetrant may be applied to the test component by dipping, spraying, or brushing. After adequate penetration time has been allowed, the excess penetrant is removed and a developer is applied. The developer helps to draw penetrant out of the flaw so that an invisible indication becomes visible to the inspector

- **Leak test:** A leak testing in welding is done to make sure that no gas leaks out from small holes and defects in the pipe. The test is done by first passing air or high pressure gas through the pipes. The pipes are then submerged under water. If there are leaks present in the pipe, there would be bubbles on the water.



Nondestructive Leak test machine

About Interlock and braided hoses:

The manufacturing department also showcased their machining procedures of components like hoses, interlock and braided hoses along with their quality control and testing sections present in the other plant. Applications of those components were also elucidated in detail by the officials.

Technology Showcase:

We had the opportunity to witness the advanced machinery and equipment used in the production process. The integration of technology and automation was impressive and reflected the company's focus on efficiency and precision.

Safety Measures:

During the visit, it was evident that safety measures were a top priority. An overview of the safety protocols employed there in place to ensure a secure working environment has been explained.

KEY LEARNINGS

- Understanding the intricate process of manufacturing metallic bellows, hoses, interlock and braid hoses including material selection, forming, welding, and testing.
- Witnessing super finishing processes like buffing and other forming process like profile rolling about which we have theoretically learnt.
- Appreciating the role of quality control in ensuring the reliability and durability of the final products.
- Observing the application of advanced technology and automation to optimize production efficiency.
- Gaining insights into the company's commitment to employee safety and adherence to industry standards.

INFERENCE

The industrial visit to Madras Hydraulic Hose Pvt. Ltd. was a valuable experience for all participants. It provided us with a deeper understanding of the production process and the dedication required to maintain high product quality. We appreciate the time and effort that your team dedicated to making the visit informative and engaging. We extend our gratitude to the Management of the company and the entire team at Madras Hydraulic Hose Pvt. Ltd. for hosting us and for sharing their expertise and insights with our group. We look forward to the possibility of collaborating further and exploring opportunities for mutual growth.

Thank you once again for your hospitality and for making our visit both educational and enjoyable.

The Moments at Madras Hydraulic Hose (P) Limited:



List of students attended: (III Year, VI sem – B.E., Production Engineering)

S.no	NAME	REGISTER NUMBER
1	ABISHIEK V	2021507001
2	ABISHEK S	2021507002
3	ANISH KUMAR R	2021507004
4	ARAVINDKUMAR K R	2021507005
5	ARUL PRAKASH K	2021507007
6	BHARATH RAJ R	2021507008
7	DAFNA MA	2021507009
8	DEENADAYALAN P	2021507010
9	DHANA PRIYA V	2021507011
10	DHANU MALAYAN L R	2021507012
11	DHANUSHKODI G	2021507013
12	DINESH P	2021507014
13	DINESH T	2021507015
14	GOPIKA SHRI V	2021507017
15	GOWTHAM S	2021507018
16	HARISHDHARSHAN V	2021507019
17	HARSHATH M	2021507020
18	JANCYRANI P	2021507022
19	JEGANATH Y P	2021507024
20	JYOTHIRMAI DIVYA P	2021507025
21	KEERTHANA PRIYA S	2021507026
22	MANIVASAGAN G	2021507027
23	MOHAMMED EJAJ M	2021507028
24	MUGESHWARI M	2021507029
25	NIJERSON JEYASEELAN A	2021507030
26	PAVIS S L	2021507031
27	PONRAMKUMAR A	2021507032
28	PRASHANNA S R	2021507033
29	PRAVEEN T	2021507034
30	PRAVINA C	2021507035
31	ROSHAN G	2021507036
32	SAMUEL BENEDICT D	2021507037
33	SARVESH C	2021507039
34	SELVALAKSHMI M	2021507040
35	SERENA CATHLN T	2021507041
36	SHAHILA C	2021507042
37	SHALINI M	2021507043
38	SHANMITHA S	2021507044
39	THRUSHALA T	2021507048
40	VINODHINI K	2021507049
41	HARISH P	2021507301
42	VIGNESH A	2021507302
43	DHANUSH M	2021507303
44	ERIC S	2021507304
45	ANISH H	2021507305
46	ARAVIND R	2021507306
47	DHINESH K	2021507307
48	MUKESH L	2021507308
49	SELVALINGAM B	2021507309
50	SHANTHOSH S	2021507310
51	SANTHOSH M	2021507312
52	GOKULAKANNAN N	2021507313

53	venu gopal B S	2021507314
54	MAHESHWARTHAN P B	2021507315
55	ARUNKUMAR K	2021507316
56	RAGUNATH S	2021507317
57	PRAVEEN D	2021507318

Requisition Letter to visit the industry:



UNIVERSITY DEPARTMENTS OF ANNA UNIVERSITY
DEPARTMENT OF PRODUCTION TECHNOLOGY
Madras Institute of Technology Campus
Chennai-600044



Dr. A. Siddharthan

Associate Professor & Head-in-charge

Phone: +91-44-22516033/6132

Email: hodptmit@annauniv.edu; hodpt@mitindia.edu

Lr. No: 2023/09/08

12th September 2023

To

The Director
Madras Hydraulic Hose
Gummidipoondi,
Chennai-601201

Sub:- Industrial Visit – Reg.

Dear sir,

The Department of Production Technology, seeks permission for a batch of 60 students studying in B.E production engineering (3rd year) to visit your esteemed organization on 3rd week of September, preferably on 15/09/2023, Friday. The visit would be helpful for the students for better understanding of various concepts on manufacturing metal hoses, Production Line & Quality Inspection.

Mr.K.Tamilarasan, Teaching Fellow (Mobile:8667689172) shall be accompanying the students.

Thanking you,

Yours faithfully,

[Signature]
12/9/2023
HOD, PT, MIT

PROFESSOR & HEAD
DEPARTMENT OF PRODUCTION TECHNOLOGY
ANNA UNIVERSITY M.I.T. CAMPUS,
CHROMEPET, CHENNAI-600 044.



Mail Requisition to the Industry:

Industrial visit on 14 March 2023 @ 2pm - reg

DE

Dr. PAVITHRA EKAMBARAM

To: info@madrashydraulic.com

Cc: seshadri@madrashydraulic.com; DEPARTMENT OF PRODUCTION TECHNOLOGY; tamil4731102@gmail.com

Sir/Madam,

Warm Greetings,

With reference to the discussion had with Mr Seshadri, the industry visit is scheduled on 14 March 2023 at 2:00 pm.

The students form B.E., Production Engineering - III year (VI semester) will report to the industry along with two faculty members.

Total No of Students : 60

Faculty Advisor : Mr Tamilarasan (8667689172)

Regards,


Pavithra Ekambaram PhD

9962047333

Assistant Professor

Department of Production Technology


Anna University, Chennai 600 044




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Wed 3/13/2024 2:51 PM