SAS POLYMERS

PRIVATE LIMITED

A manufacturer of PVC-O Pipes

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OUR TEAM

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PVC-O Pipes

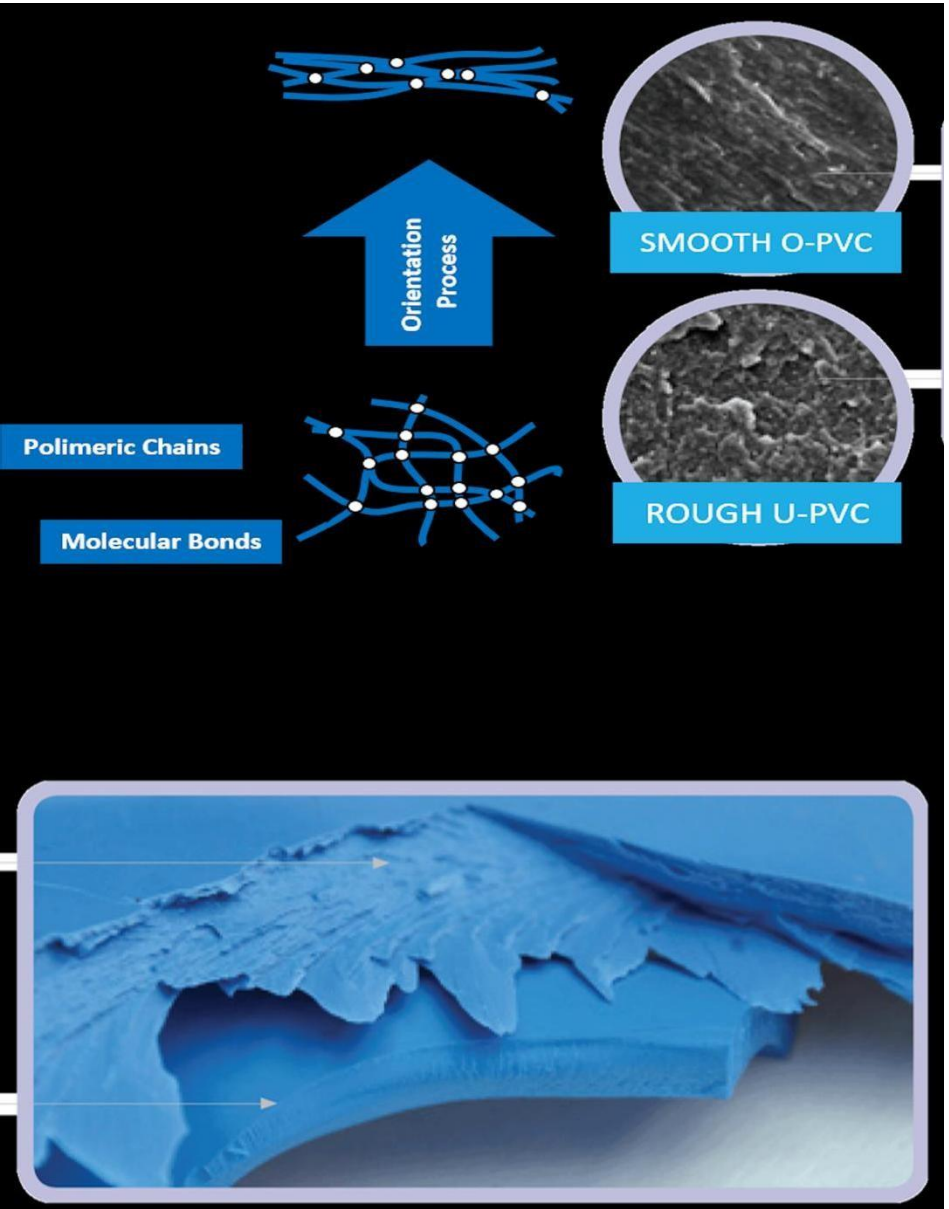
By

SAS Polymers Pvt. Ltd.

History

The proverb “neccessity is the mother of invention” suits to the introduction of PVC-O (A polymer) pipes. Due to tremendous cost increasing by leaps and bounds in a traditional piping project, PVC-O pipe has taken its own place in India like other European countries and China too.

Due to low cost, more strength, easy installation, durability and other various favourable properties, PVC-O has been proved as a better material than other traditional material in piping industries.



What is PVC-O pipes and how it is different from other pipes

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1. PVC-O is a Poly Vinyl Chloride Oriented material which is produced by molecular orientation (circumferential as well as axially) in direction.
2. Due to Molecular orientation, its thickness gets reduced which gives more internal dia of pipe resulting better Hydraulic characteristics as well as less material cost than other pipes.
3. Higher Impact strength, layered structure (resulting Better Crack Propagation), flexibility and elasticity proves it better than PVC, HDPE, D.I. and other Pipes.

Technical details of SAS PVC-O Pipes IS Code:- 16647:2017

1. Diameter : From 110 mm OD to 250 mm OD
2. Pressure Rating : PN 12.5 , PN 16, PN 20 & PN 25
3. Material Grade : MRS 450 (45 MPa)
   MRS 500 (50 MPa)
4. Design Coefficient : 1.4 and 1.6
5. Color: Grey, Blue or Cream

DimensionalChart of PVC-Opipes

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MRS 500 (Design Factor 1.4)				
Nominal Diameter OD (mm)	Wall Thickness (mm)			
	PN 12.5	PN 16	PN 20	PN 25
110	2.0	2.6	3.2	4.0
160	2.9	3.7	4.6	5.8
200	3.6	4.6	5.7	7.2
250	4.5	5.8	7.2	9.0

MRS 500 (Design Factor 1.6)					
Nominal Diameter OD (mm)	Wall Thickness (mm)				
	PN 10	PN 12.5	PN 16	PN 20	PN 25
110	1.8	2.3	2.9	3.6	4.5
160	2.6	3.3	4.2	5.1	6.5
200	3.3	4.1	5.2	6.4	8.1
250	4.1	5.1	6.5	8.0	10.2

Properties of PVC-O pipes

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- Long Term Hydrostatic Resistance
- Resistance to Creep Rupture Test
- Flexibility and Elasticity
- Less thickness so better Hydraulic Characteristics & Cost Effective
- Leak proof & Airtight Joints
- Good Chemical Resistance
- Installation easy and Quick
- No Skilled Team is required for installation.
- High Impact Strength
- Durability (Designed Life is 50 Years)

Properties of PVC-O pipes

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- No crack propagation.
- High temperature resistance (1°C to 45°C).
- No changes in strength even in very cold climatic conditions.
- Being lighter material, handling cost at the execution gets reduced as compared to Metallic Pipes (6-12 times Lighter than D.I).
- Due to its material characteristics, Surge Pressure Would be very less as Compared to D.I. pipes.
- Due to higher C factor, it has low friction losses which reduces the pumping cost.

Pipe Specials (accessories) Details

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- All pipe specials of PVC-O pipe for a piping project, are available. Some are given below:-

i. 90° Elbow
ii. 45° Elbow
iii. Equal or Unequal Tee
iv. Tapping Saddles
v. Flanged Connections (Screw/Flanged End)
vi. Reducers

Jointing Technology

- SPIGOT-BELL joint, which is a perfect water tight joint.

One pipe has a seal composed of a polypropylene ring and EPDM (Ethylene Polypropylene Diane Monomer). A Synthetic Rubber clip that makes them be an integral part of the pipe and prevent them in displacement during installation.

Procedures for jointing of socketed pipes

- Make a proper alignment (horizontally as well as vertically) of both pipes which are to be joined.
- Make sure that socket and bevel ends (outside and inside both) are clean and free from oil and dust.
- Lubricate the bevel and socket with a thin layer of joint lubricant (mostly lubricating soap).
- In smaller Dia pipe (up to 110mm OD), manual hand pressure would be sufficient to couple the pipes. In case of Higher Dia, Levers can be used with wooden block to give sufficient pressure for proper joining of 2 pipes.

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Applications

- Municipal Corporation & Public Utilities:-

1. Pumping Main
2. Water Distribution System
3. Raw Water Intake
4. Water treatment Plant
5. Industrial application

Other Applications

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- Industrial
- Treated and Untreated Effluent
- Desalination Plant
- Hydel Power Plant (Intake, Distribution)
- Dredging & Sand Stowing
- Fire Fighting System
- Slurry Pipe Line (Fly ash, Ore)
- Chemical and Fertilizer plant (In plant Chemical Lines)
- De-Watering

Govt. approvals for PVC-O pipes in India

PHED, M.P.
PHED, CHHATISGARH
PHED, GOA
PHED, WEST BENGAL
MAHARASTRA JEEVAN PRADHIKARAN
BANGLORE WATER SUPPLY & SEWERAGE BOARD
CENTRAL PUBLIC HEALTH & ENVIRONMENT ENG. ORG (CP HEEO)
TAMILNADU WATER SUPPLY & DRAINAGE BOARD
CHENNAI METRO POLITAN WATER SUPPLY & SEWERAGE BOARD
ODISA INDUSRTRIAL INFRASTRUCTURE DEV. CORP
BUIDCO, BIHAR
WRD, BIHAR
RURAL WATER & URBAN, A. P.

Techincal Comparision of PVC-O pipes with D.I. pipes.

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Sr. No.	Criteria	PVC-O Pipe	D.I. Pipe	Remarks
1	Pipe Performance	Pipe line Efficiency does not detoriate with time	Pipe line Efficiency detoriate with time	Designed life of PVC-O is more than D.I. pipes , flow Characteristics of PVC-O is better than D.I. pipes
2	Physical Properties a) Impact Strength b) Surge Pressure c) E-Modulus d) Toughness	a) Very High b) Very Less c) Very less (4000 Mpa) d) Verh High	a) Low b) Very High c) Very High (1,65,000 Mpa) d) Low	
3	Chemical Resistance	Excellent. Almost chemically inert. Resistance to all Chemicals having PH value from 0 to 14	Poor chemical resistance.	After removal of CML (Cement Mortar lining), DI Pipe gets corrode very fast. While, PVC-O being a Polymer, no Corrosion takes place.
4	Bending of Pipes	Bending is possible up to a limited Dia in limited radius of curvature.	Being a rigid material. It can't be bent at any angle so require additional fillings in curves/sharp bend	Installation of PVC-O would be easier than D.I. Pipes
5	Flow Characteristies	Having 'C' factor 140-150 gives less head loss.	It's C factor is in the range of 100-110 which further reduces up to 80-100 once CML goes off. Consequently head loss increases.	For the same dia of pipe, 20%-30% flow is more in PVC-O than in D.I. Pipe
6	Installation Time	Due to Rubber Ring Joint, the installation of PVC-O pipe becomes very easy and quick.	Due to heavy weight and rigid material, it requires levelingto join 2 Pipes so installation becomes tough and more time consuming than PVC-O pipe	30-40% time is saved in PVC-O jointing as compared to that of DI Pipes

Techincal Comparision of PVC-O pipes with D.I. pipes.

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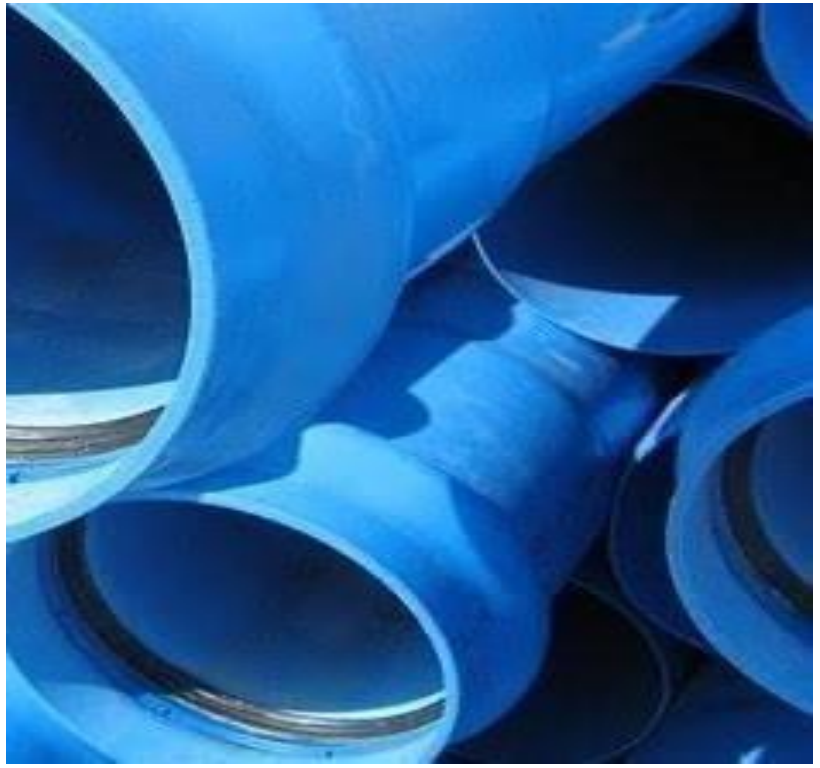
7	Weight of Pipe	Being a Polymer material and having less thickness, weight of these pipes are 8 times lighter than DI Pipes	Being a metallic pipe, weight of these pipes are 8 times higher than PVC-O Pipes	Due to Heavy weight, the transportation, handling and installation of D.I. Pipe is more difficult than PVC-O Pipes
8	Cost Effectiveness	PVC-O Pipes are having less thickness as compared to D.I. pipe for the same Dia and service parameters so material cost is very less than D.I. Pipes	D.I. Pipes are metallic and heavy Pipes. So it's Cost is more than PVC-O Pipes	Huge cost saving is using PVC-O Pipes.
9	Wide Range for Selection in Dia and Pr.Rating	These pipes are having a wide range of Dia and Pressure Rating for selection of right size and pressure during designing of the Project which reduces the project cost up to a great extent.	These Pipes are having limited sizes and pressure class, So Clients / Consultant has no other option except going for higher dia and higher pressure rating which increases the Project Cost.	Project Cost gets reduced by drastically by using optimum designing of dia and Pressure Class in selection of PVC-O pipes.
10	Pumping Cost	Recurring pumping cost could be saved if PVC-O Pipes are designed because low head pumps are required due to less frictional losses.	Since Head loss in D.I. Pipe is more than PVC-O so more H.P. of Prime Mover would be used which increases the Recurring Pumping Cost.	Pumping Cost to a great extent could be saved in case of PVC-O for the same Project.
11	Abrasion and wear Resistance	Since PVC-O Pipe are having very smooth inside surface so it's abrasion and wear Resistance is excellent. It Could be used for transportation of Slurry, Corrosive fluid.	D.I. Pipes are having not so smooth inside surface and after removal of CML (Cement Mortar Lining) it becomes very rough and corrosive so not fit for transportation of slurry, corrosive fluids	Abrasion and wear Resistance of PVC-O, are far better than that of D.I. Pipes.

Pictures of PVC-O pipe

Rubber Ring



PVC - O Pipes

Manufacturing of PVC-O pipes in SAS Plant

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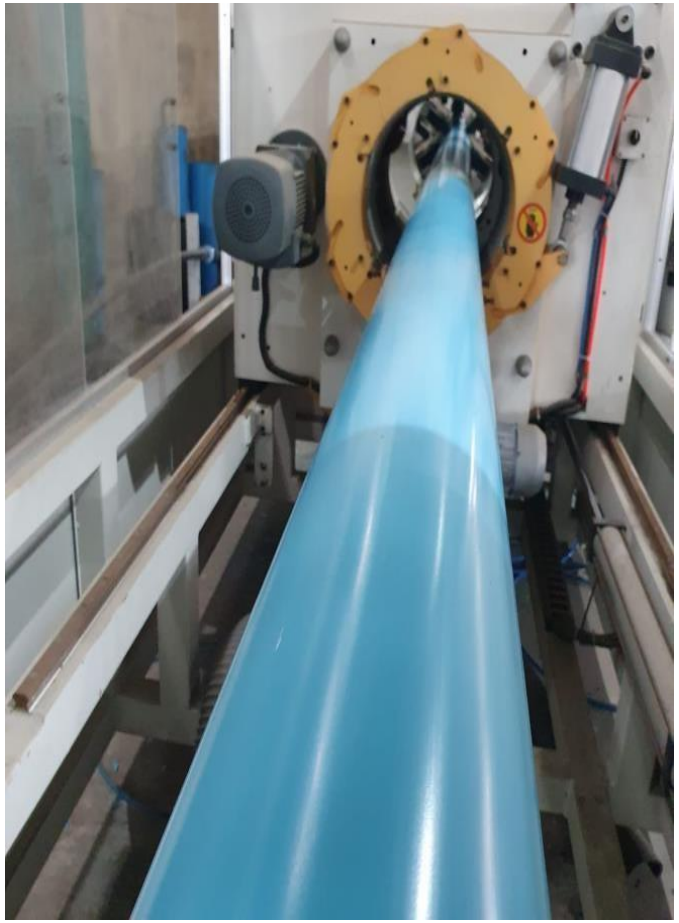

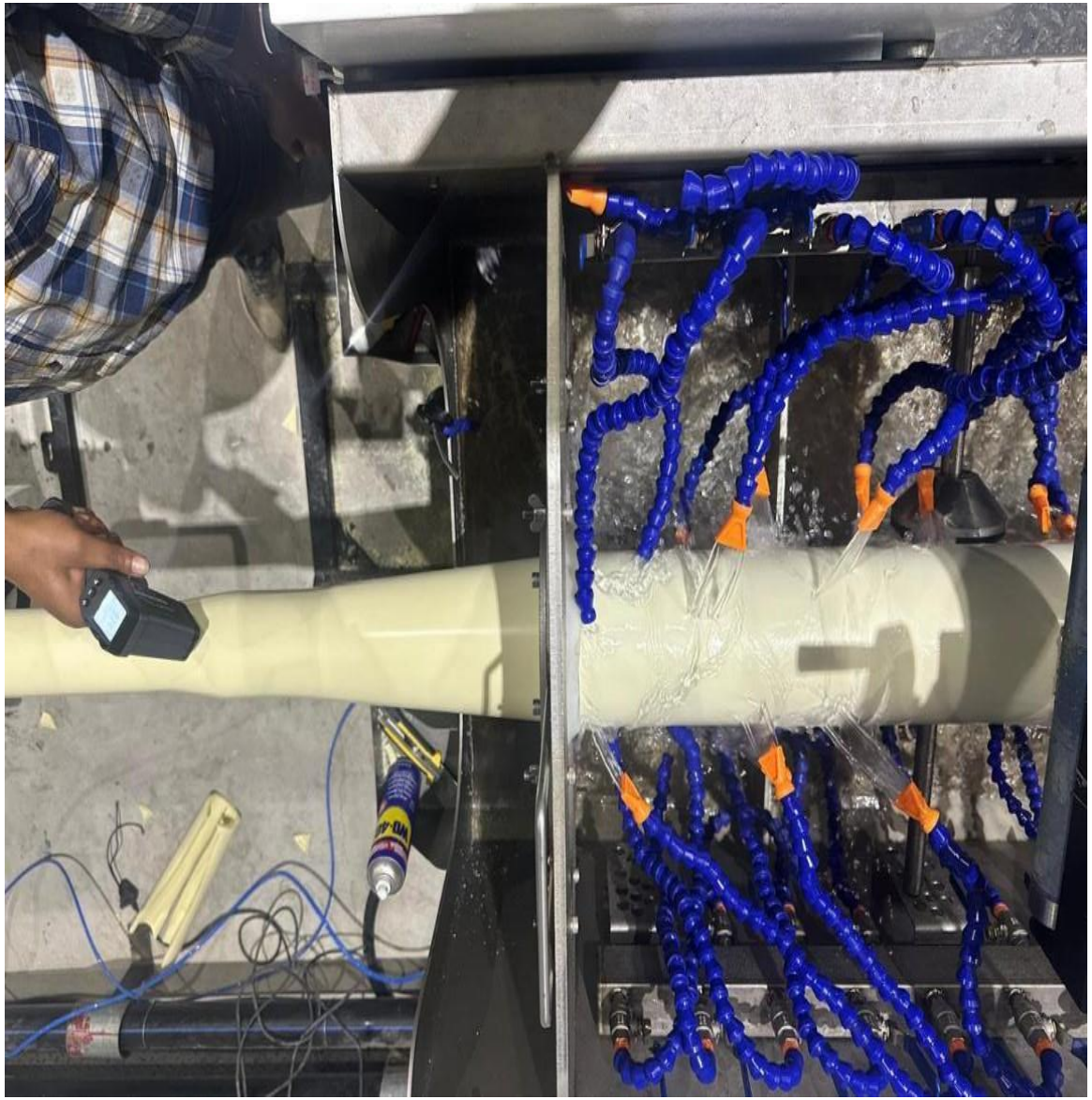

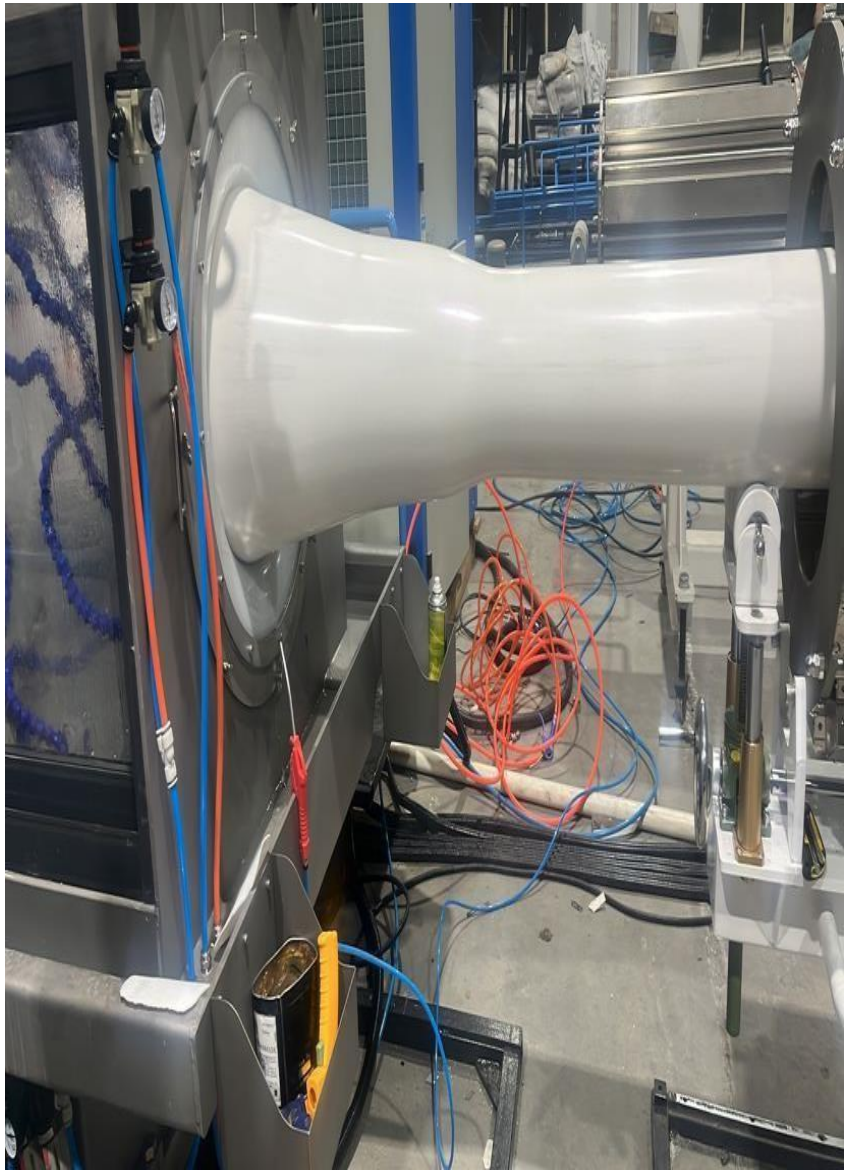

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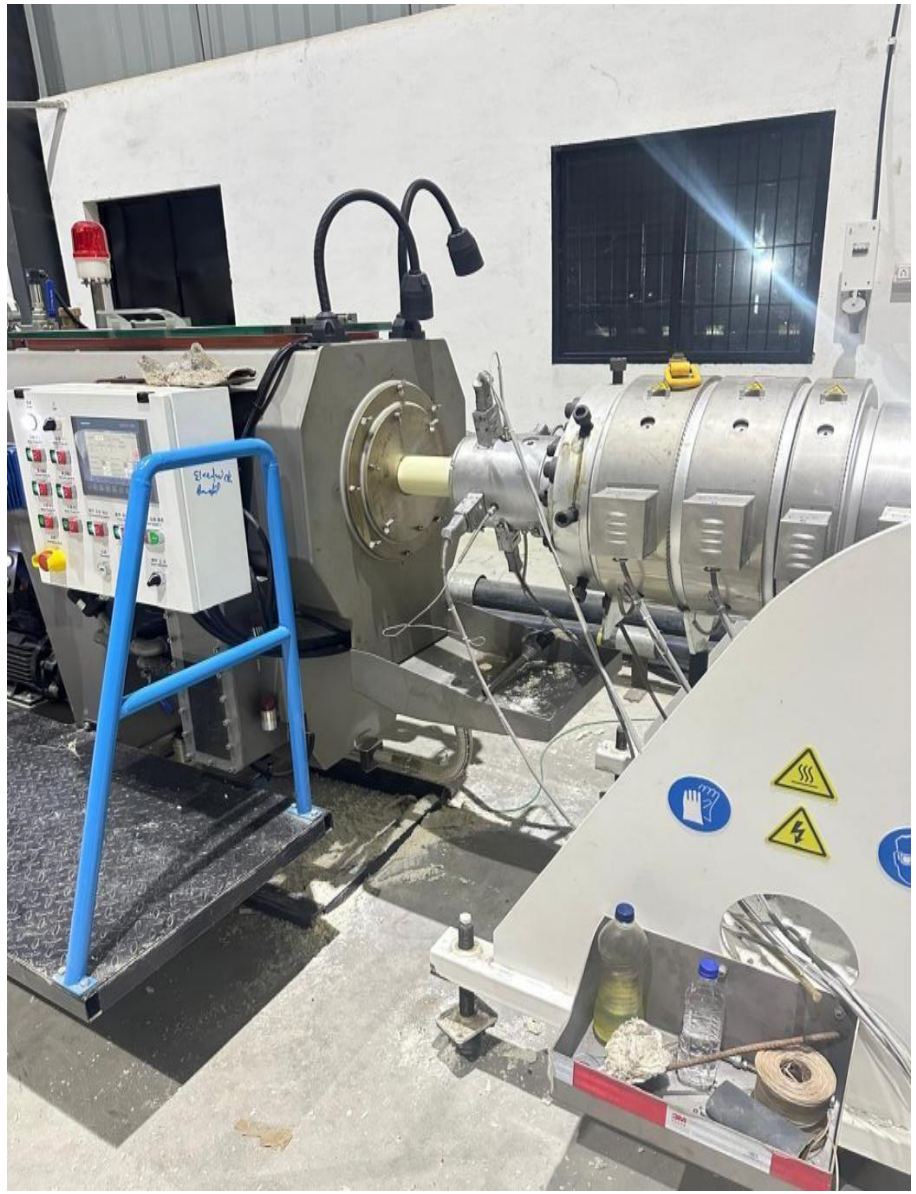

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QUALITY LAB

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