June 2026

prayag®

BORETEC

Engineered for deep borewell performance and long service life.



- **Life Cycle: Up to 50 Years**
- **Joint Type: Lead-free, leak-proof threaded joints with rubber seals**
- **Standard: Classification as per IS 18166:2025**



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1. Introduction and Product Evolution

The technological shift in submersible pumping systems reached a critical milestone in 1995 with the introduction of u-PVC Column Pipes. Prior to this, Galvanized Iron (GI) pipes were the industry standard; however, the engineering community recognized a significant need for materials offering higher tensile load sustainability and superior resistance to chemical degradation.

The transition from GI to the Prayag Boretec u-PVC system is underpinned by the material's high hydrostatic pressure resistance and its ability to sustain the constant jerks and vertical loads inherent in deep-well submersible applications. Unlike traditional iron pipes, this system ensures the delivery of clean, uncontaminated water throughout its operational lifespan.



Quick Facts

Manufacturer: Prayag Polymers Pvt. Ltd.

Facility Locations: E-167, E-167A, E-168, E-263, E-264, RIICO Industrial Area, Kaharani, Bhiwadi Extn., Rajasthan - 301019

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2. Versatile Applications

Prayag Boretec u-PVC Column Pipes are engineered to provide the "best service" in the following specialized environments and sectors:

Bore Well Jet Pumps: Optimized for high-efficiency performance in jet pump configurations.

Unstable Geologies: Specifically designed for use in "loose boulder and stone" conditions where structural integrity is paramount.

Bore Collapse Mitigation: Effectively tackles "bore collapse" problems common in high-risk geographic areas.

Widely Used Sector Coverage:

Irrigation: Heavy-duty agricultural water distribution.

Industrial Mining: Durable enough for the rigorous demands of mining and resource extraction.

Chemical Distribution: Chemically inert properties allow for the safe transport of various industrial fluids.

Domestic Usage: Reliable, non-toxic water supply for residential applications.



3. Comparative Advantages: u-PVC vs. Conventional GI Pipes

Core Benefits Table

Feature	Prayag Boretec u-PVC Pipes	Conventional GI/Iron Pipes
Strength & Durability	High tensile load sustainability; impact resistant	Prone to structural fatigue and interior scaling
Weight	Significantly lightweight; low structural load	Heavy; complicates installation and handling
Flow Efficiency	Smooth internal surface; minimal friction loss	Rough internal surface; high head loss over time
Corrosion Resistance	100% corrosion-proof; non-reactive to chemicals	High oxidation risk; prone to rust and clogging

Operational Savings

The transition to u-PVC provides significant economic advantages regarding the "Total Cost of Ownership":

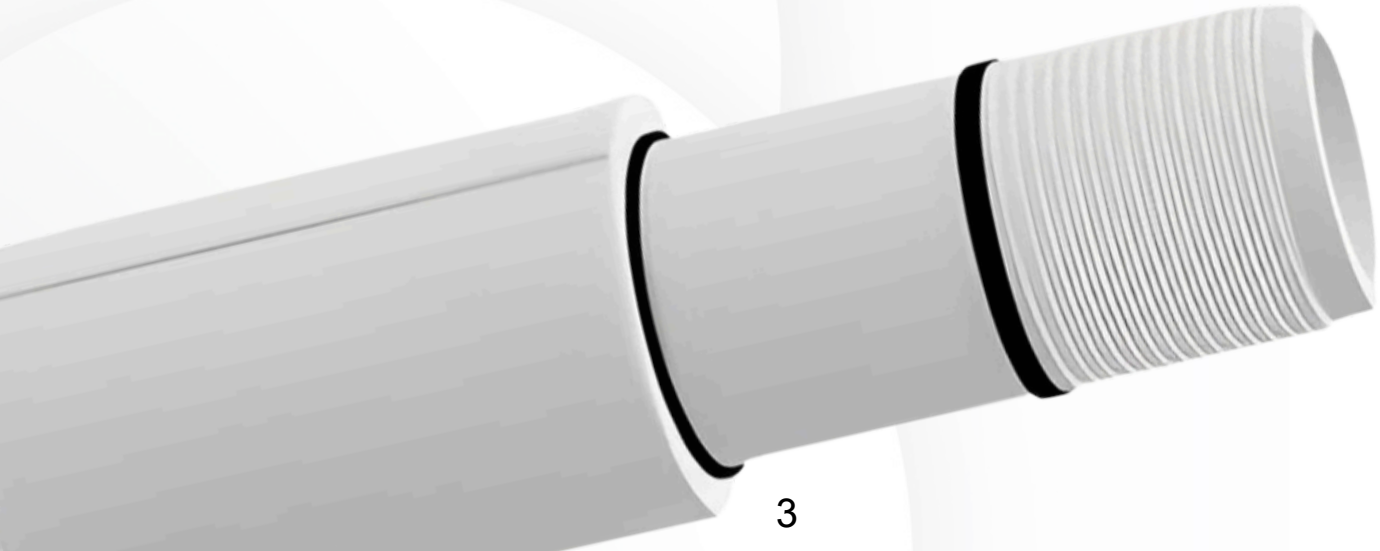
1. **Lower Transportation and Handling:** The lightweight profile reduces freight costs and manual labor requirements.
2. **No Heavy Machinery:** Installation is achieved without the need for cranes or specialized lifting equipment.
3. **Simplified On-site Logistics:** No welding machines or diesel gensets are required, reducing both energy costs and installation time.

System Integrity Features

- **CNC-Crafted Threads:** Specially designed threads, precision-machined on CNC equipment, provide excellent load-bearing capacity and ensure the system can sustain operational jerks without thread failure.
- **Advanced Leak-Proofing:** Special rubber seals are provided along with the threads to ensure leak-proof joints even under high hydrostatic pressure, maintaining optimum system head.

Longevity & Safety

- **50-Year Life Cycle:** These pipes offer a service life of up to five decades, drastically reducing replacement frequency.
- **Water Quality Integrity:** The material does not impart color, odor, or taste to the water, ensuring it remains potable and safe.

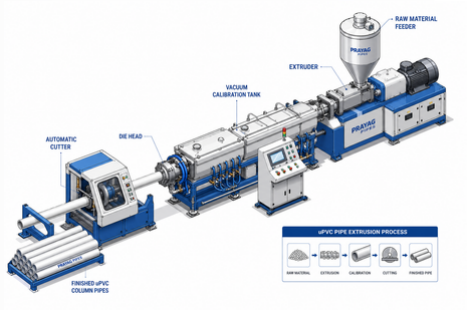


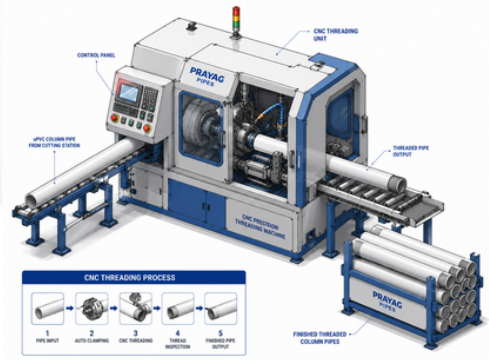
4. Manufacturing Process Flow

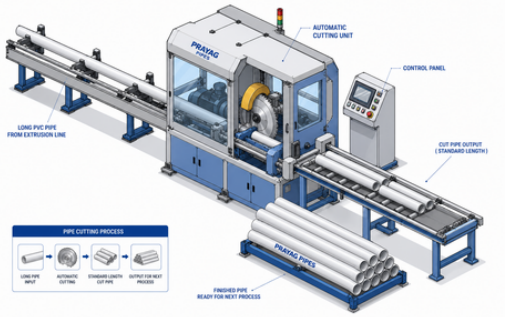
The manufacturing sequence at Prayag Polymers utilizes high-precision extrusion and machining to ensure consistency:

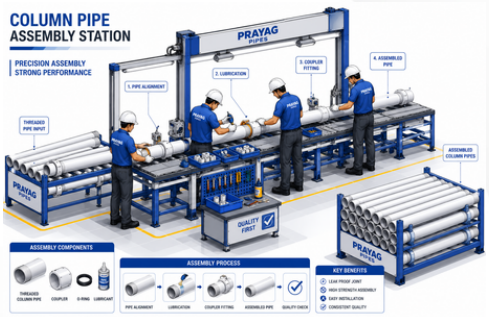
MIXER → MACHINE → CUTTER → THREADING IN CNC MACHINE → COLUMN PIPE ASSEMBLING → PACKING → DISPATCH

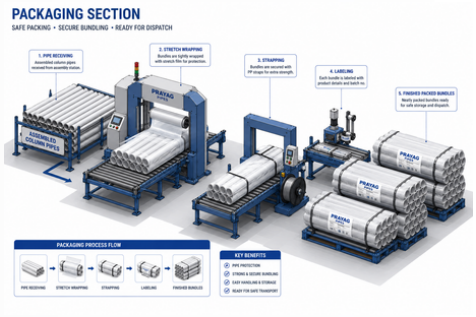














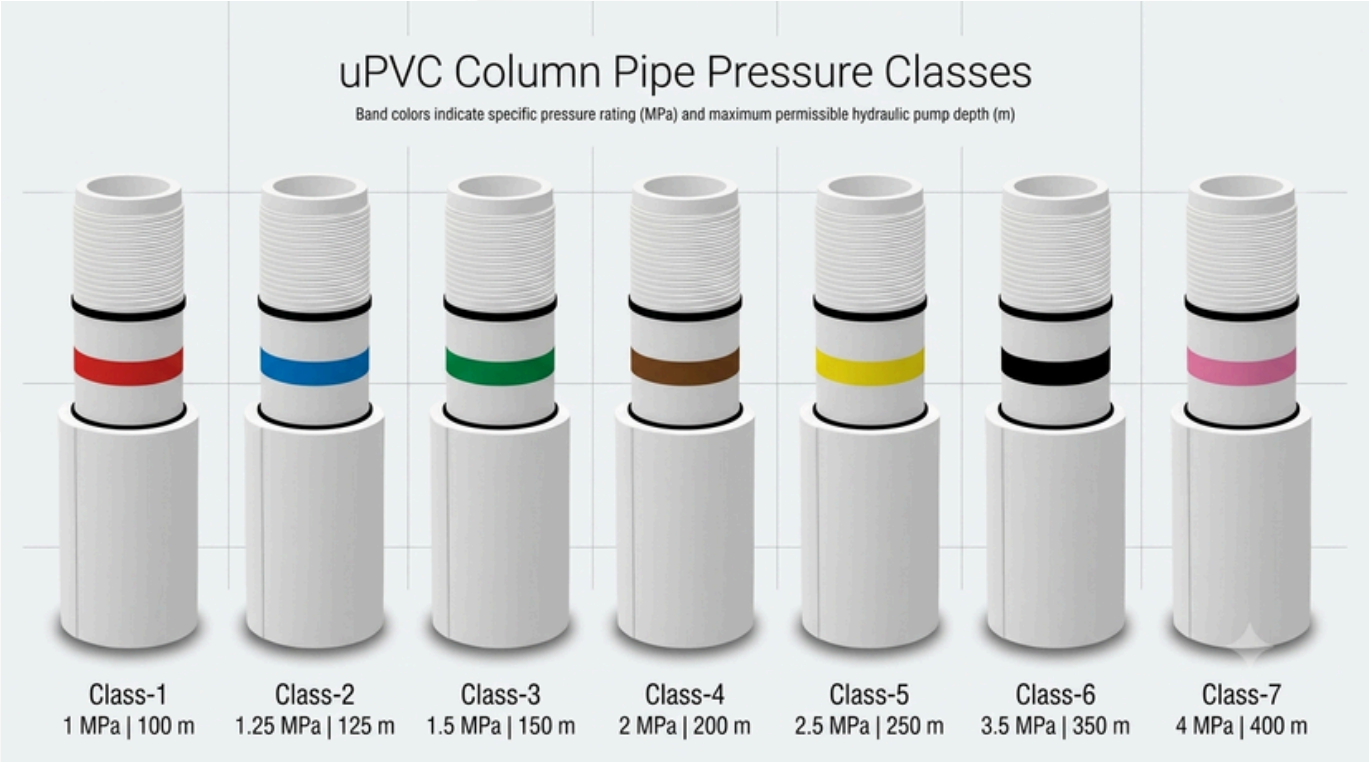
The Assembling Detail

The "Column Pipe Assembling" stage is a critical integration point where the Pipe Barrel, Coupler, Lock Ring, and Pressure Ring are assembled simultaneously. This specific design ensures that the coupler remains locked and cannot loosen during pump operation or system vibration.

5. Technical Specifications and Classification

Standard Classification (As per IS 18166:2025)

Class	Working Pressure (MPa)	Working Pressure (Kg/cm²)	Max. Permissible Hydraulic Pump (Meters)	Printing Color
Class-1	1	10	100	Red
Class-2	1.25	12.5	125	Blue
Class-3	1.5	15	150	Green
Class-4	2	20	200	Brown
Class-5	2.5	25	250	Yellow
Class-6	3.5	35	350	Black
Class-7	4	40	400	Pink



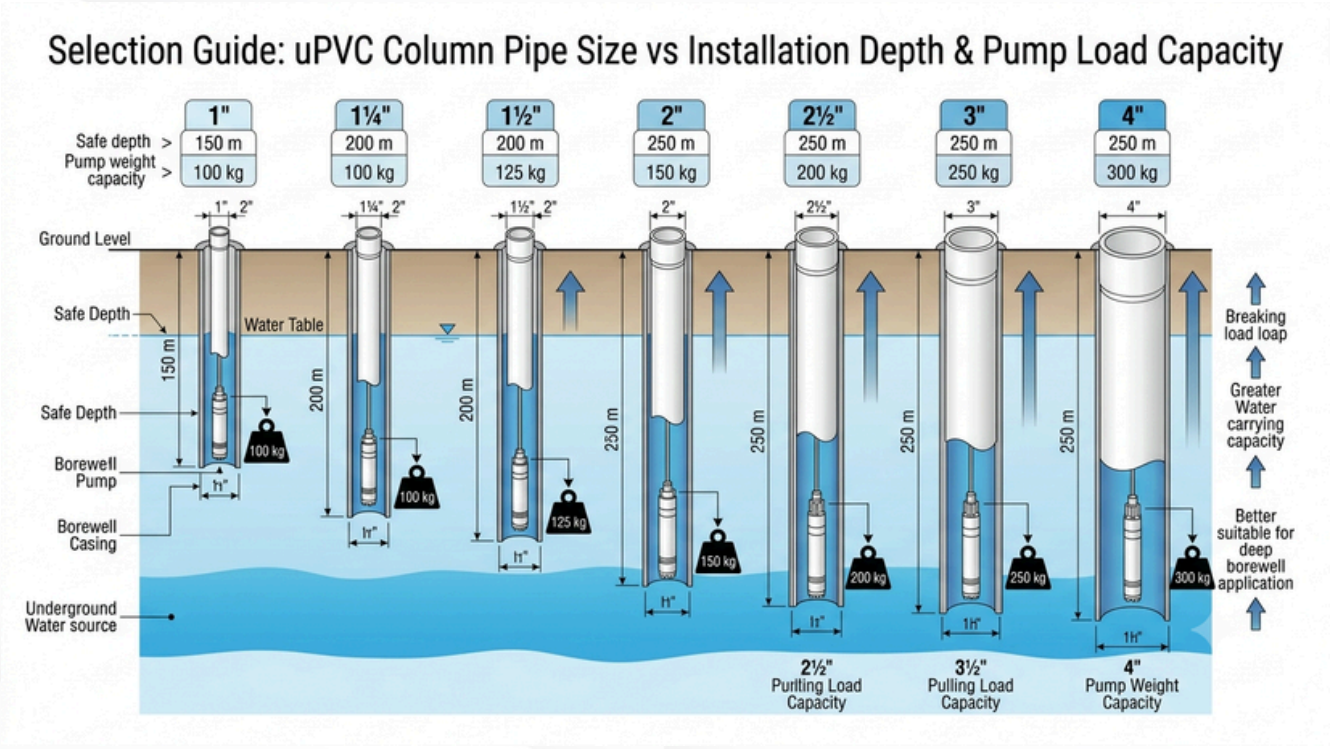
Comprehensive Dimension Details

Note: All dimensions are in MM (millimeter).

DN (mm)	Size (inch)	Class	Item Code	Pressure Rating	Mean OD	Wall Thickness (End)	Wall Thickness (Barrel)	Thick Portion Length
25	1"	Class-1	PB125	10	33.00-33.30	2.90-3.30	1.50-1.80	150
25	1"	Class-2	PB225	12.5	33.00-33.30	3.30-3.80	1.70-2.00	150
25	1"	Class-3	PB325	15	33.00-33.30	3.80-4.40	1.90-2.20	150
32	1¼"	Class-1	PB132	10	42.00-42.30	3.30-3.80	1.50-1.80	180
32	1¼"	Class-2	PB232	12.5	42.00-42.30	3.70-4.30	1.80-2.10	180
32	1¼"	Class-3	PB332	15	42.00-42.30	4.30-5.00	2.20-2.50	180
32	1¼"	Class-4	PB432	20	42.00-42.30	5.40-6.20	2.80-3.20	180
40	1½"	Class-2	PB240	12.5	48.00-48.30	4.10-4.70	2.10-2.40	180
40	1½"	Class-3	PB340	15	48.00-48.30	4.90-5.70	2.50-2.90	180
40	1½"	Class-4	PB440	20	48.00-48.30	5.90-6.80	3.20-3.70	180
50	2"	Class-3	PB350	15	60.00-60.30	5.90-6.80	3.10-3.60	180
50	2"	Class-4	PB450	20	60.00-60.30	7.20-8.30	4.00-4.60	200
50	2"	Class-5	PB550	25	60.00-60.30	8.80-10.10	5.00-5.80	200
65	2½"	Class-3	PB365	15	75.00-75.30	7.00-8.10	3.90-4.50	180
65	2½"	Class-4	PB465	20	75.00-75.30	8.60-9.90	5.00-5.80	200
65	2½"	Class-5	PB565	25	75.00-75.30	10.40-12.00	6.20-7.10	200
80	3"	Class-3	PB380	15	88.00-88.40	7.90-9.10	4.50-5.20	180
80	3"	Class-4	PB480	20	88.00-88.40	9.70-11.20	5.90-6.80	180
80	3"	Class-5	PB580	25	88.00-88.40	11.60-13.30	7.30-8.40	200
100	4"	Class-3	PB3100	15	113.00-113.40	9.60-11.00	5.80-6.70	180
100	4"	Class-4	PB4100	20	113.00-113.40	11.90-13.70	7.60-8.60	200
100	4"	Class-5	PB5100	25	113.00-113.40	14.30-16.65	9.30-10.70	200

Master Technical Specification (Load, Depth & Selection Data)

Size	Class	Item Code	Safe Hyd. Pressure (kg/cm²)	Safe Depth (Meter)	Ult. Breaking Load (kg)	Safe Pulling Load (kg)	Wt. of water in 500ft Pipe (B) (kg)	Max Pump Wt. (C) (kg)	Total Weight (kg) (A+B+C)
1"	Class-3	PB325	15	150	802	465	101	100	260
1¼"	Class-4	PB432	20	200	1552	900	157	100	360
1½"	Class-4	PB440	20	200	2027	1176	203	125	462
2"	Class-5	PB550	25	250	3889	2256	293	150	700
2½"	Class-5	PB565	25	250	6033	3499	457	200	1028
3"	Class-5	PB580	25	250	8332	4833	628	250	1398
4"	Class-5	PB5100	25	250	13639	7911	1047	300	2188



Quick Reference: Item Code Logic

PB: Prayag Boretec (Brand)

First Digit: Pipe Class (e.g., 1 = Class-1)

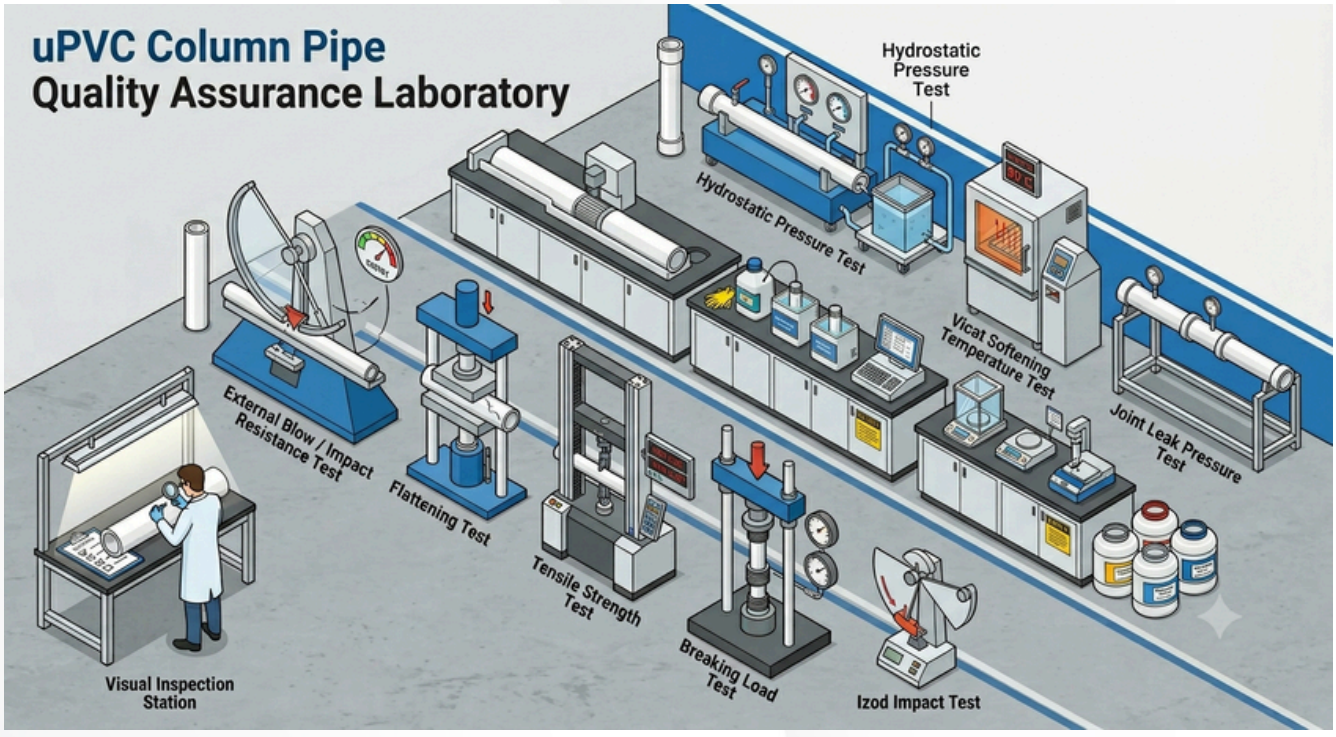
Remaining Digits: Size in mm (e.g., 25 = 25mm)

Example: PB325 refers to Prayag Boretec, Class-3, 25mm (1") pipe.

6. Quality Assurance and Testing Details

All products are subjected to an 11-point standardized testing protocol to verify mechanical and material compliance:

S.No.	Test Name	Specification Requirement
1	Visual Appearance	Conformity as per Specification
2	Resistance to External Blow @ 0° C	TIR not more Than 10 %
3	Flattening Test	No sign of Splitting , Cracking or Breaking
4	Tensile Strength & Elongation at Break	Not Less Than 45 Mpa, Elongation shall not be Less than 30 %
5	Ultimate Breaking Load	As per Specification
6	Izod Impact Strength Test	Not Less than 60 J/M
7	Resistance to Di-Chloromethane Test	No attack observed
8	Density	1.40 - 1.44 gm/cc
9	Vicat Softening Temp.	Shall not less than 80°C
10	Hydrostatic Pressure Test	As per Specification
11	Joint Leak Pressure Test	As per Specification



7. Professional Installation Guide

Pre-Installation Requirements

- **Thread Hygiene:** Meticulously wash all threads with clean water prior to joining.
- **Lubricant Warning:** Do not use oils or lubricants; the system is designed for dry-thread assembly.

Seal Integrity: Always confirm the presence and proper seating of the Rubber Profile Rings.

Step-by-Step Procedure

1. **Pump Connection:** Secure the metal connector to the submersible pump using a professional chain wrench.
2. **Cleaning:** Flush all pipe threads with clean water to remove any site debris.
3. **Safety Protocol:** Verify that the Pump Guard is installed properly to protect the intake and lower assembly.
4. **Handling:** Always hold the coupling firmly by hand when opening or joining a pipe or adopter.
5. **Tightening:** Hand-tighten the pipe until exactly half of the rubber ring is visible. For the final lock, apply a "last jerk" using a rope or felt wrench.
6. **Clamping:** When lowering, place the lower clamp specifically below the coupler. Ensure the top adopter is clamped securely with the final pipe.
7. **Lowering:** Carefully lower the entire column assembly using a chain pulley system.

Assembly Visualization Note

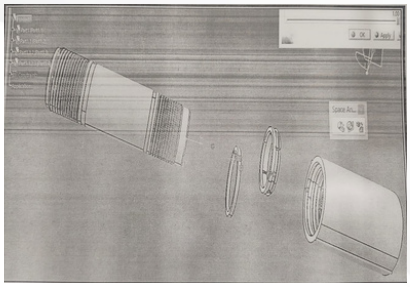


Image 1

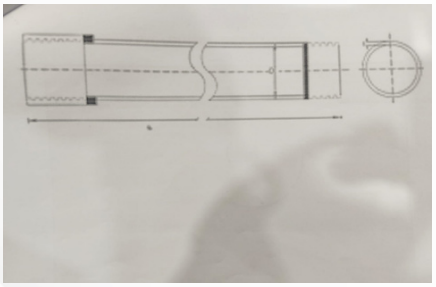


Image 2

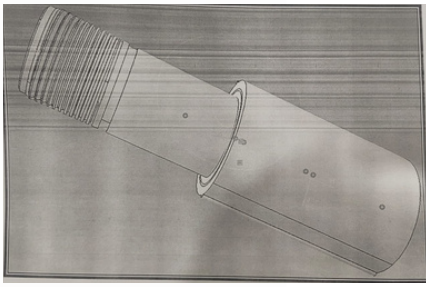


Image 3

Technical diagrams [IMAGE_1, 2, 3] illustrate the "Assembling" nuance. The coupler contains an internal Lock Ring and Pressure Ring. These components work in tandem with the CNC-machined threads to create a mechanical lock that prevents rotational loosening under the high torque of the submersible pump. The external profile ring (Rubber Seal) is what provides the primary hydrostatic seal for the system.

BORETEC

Reliable. Lightweight. Corrosion-Free.

Prayag Polymers Limited

Facility Locations:

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