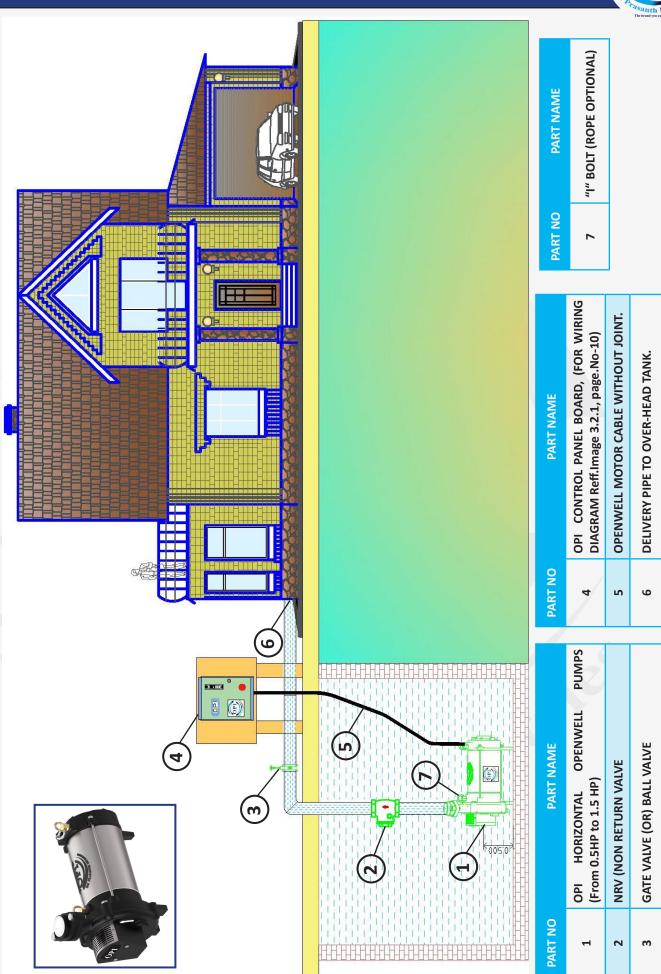
OM PRASANTH INDUSTRIES - OPI PUMPS & MOTORS HORIZONTAL OPENWELL **SUBMERSIBLE PUMPSET** 50 Hz, 220V Farming Domestic Gardening Water Supply Industrial

Mfg.by: OPI PUMPS

OM PRASANTH INDUSTRIES - OPI PUMPS & MOTORS SINGLE PHASE SUBMERSIBLE **OPENWELL**

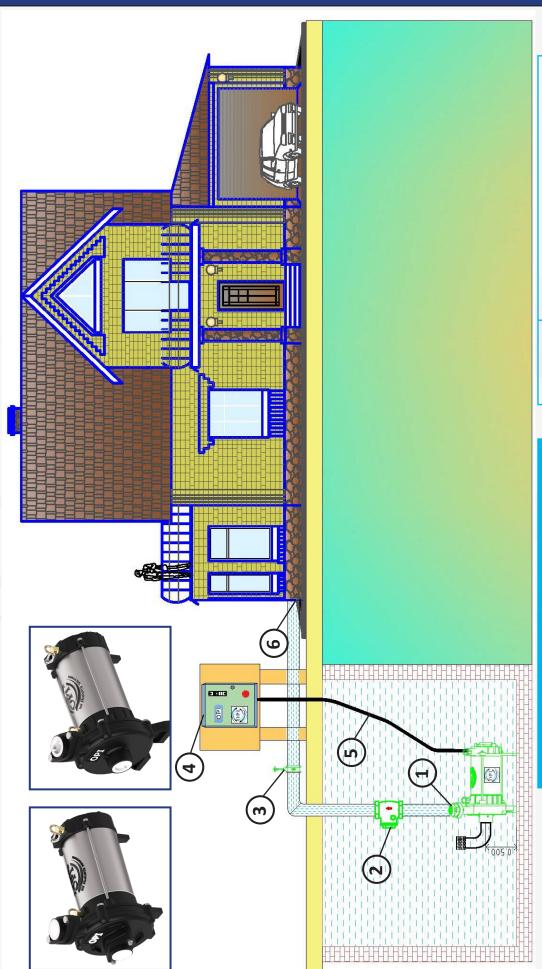
OPI HORIZONTAL OPENWELL





■ 13. INSTALLATION SCHEMATIC DIAGRAM FOR OPI HORIZONTAL OPENWELL





PART NO	PART NAME
4	OPI CONTROL PANEL BOARD, (FOR WIRING DIAGRAM Reff.Image 3.2.1, page.No-10)
5	OPENWELL MOTOR CABLE WITHOUT JOINT.
9	DELIVERY PIPE TO OVER-HEAD TANK.

PUMPS

OPENWELL

OPI HORIZONTAL (From 0.5HP to 1.5 HP)

PART NAME

PART NO

■ 14. INSTALLATION SCHEMATIC DIAGRAM FOR OPI HORIZONTAL OPENWELL

OM PRASANTH INDUSTRIES

GATE VALVE (OR) BALL VALVE

ന

NRV (NON RETURN VALVE

7



■15. STEP- BY -STEP INSTALLATION PROCEDURE:

STEP 1: Unbox Product From Package

- Assess Components :
 - Inspect the pump, strainer, pipes, electrical panel, and fittings for damage.
- Verify Location: :
- Ensure the pump will be installed below the suction lift limit and near the water source
- Gather Tools: :
- Wrenches, pipe tape, sealant, clamps, electrical tools, and safety gear.

STEP 2: Pump Installation in the Underground Tank (SUMP)

- Install the Pump :
 - Place the pump on a firm, level platform within the tank.
 - Use vibration dampers to reduce noise and wear.
- Connect the Strainer :
 - Attach the suction strainer to the inlet pipe, ensuring it is submerged properly.
 - Verify the strainer is at least 0.5 meters above the bottom of the tank to avoid debris.
- Install Suction Pipe :
 - Use a straight, appropriately sized pipe to minimize resistance.
 - Avoid sharp bends or restrictions in the suction line.
- Connect to the Pump :
 - Secure the suction pipe to the pump inlet using flanges or threaded joints.
 - Apply sealant to prevent leaks.

STEP 3: Pipe Routing to the House

- Install Delivery Pipe :
 - Attach the delivery pipe to the pump's discharge outlet.
 - Route the pipe up to the ground level and into the house, ensuring a smooth gradient to prevent airlocks.
- Connect the Strainer :
 - Attach the suction strainer to the inlet pipe, ensuring it is submerged properly.
 - Verify the strainer is at least 0.5 meters above the bottom of the tank to avoid debris.
- Install a Non-Return Valve: :
 - Place a non-return valve near the pump outlet to prevent backflow.
- Incorporate a Gate Valve::
 - Add a gate valve for maintenance purposes.

STEP 4: Electrical Connection

- Install the Control Panel:
 - Mount the control panel on the wall near the house, away from water and moisture.
 - Secure it at an accessible height(From Kids).
- Wire the Pump to the Panel :
 - Use appropriate gauge wires to connect the pump motor to the control panel.
 - Follow the wiring diagram provided with the pump. (Reff. Image 3.2.1)
- Connect the Power Supply :
 - Link the control panel to the main power supply with a proper earthing connection.



STEP 5: Prime and Test

- Prime the Pump:
- If the pump is not self-priming, fill the casing with water before starting.
- Test the System:
- Switch on the control panel and run the pump.
- Check for consistent water flow, and ensure no leaks or unusual noises.
- **Adjust Settings:**
- Configure any pressure switches or controllers as needed.

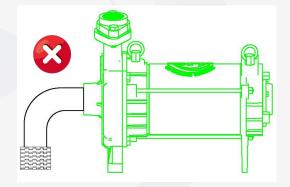
STEP 6: Finalization

- Secure All Joints:
 - Recheck all pipe joints and electrical connections for tightness...
- **Insulate Pipes:**
- Use insulation for pipes exposed to harsh weather conditions..
- Safety Measures :
 - Add protective covers for exposed wires and ensure the installation meets local safety standards.

■ 16. CAUTION :

Stainer Placement:

"Avoid placing the suction pipe bend downwards as shown in the image. This configuration may cause air pockets to form, leading to cavitation, reduced pump efficiency, and potential damage to the pump. Always ensure the suction line has a smooth and upward slope towards the pump to facilitate proper priming and prevent air entrapment."



17. HEAD CALCULATION: Quick Caluclation (with Example)

- **TOTAL HEAD = SUCTION HEAD + DELIVERY HEAD**
- SUCTION HEAD = Suction vertical Height (From Foot valve to Pump Centre) + Horizontal pipe line used + No of Bend (or) Elbow used in suction pipe line
- DELIVERY HEAD = Delivery vertical Height (From Pump Centre to Over head Tank) + Horizontal pipe line used + No of Bend (or) Elbow used in Delivery pipe line + NRV

NOTE:

- One Bend ≈ 0.5m loss in Pump Head
- 10 meters of horizontal distance \approx 1 meter of vertical head (10:1),(1m loss in pump vertical head).

CALCULATION TYPE	PARAMETERS	Actual Running	Head Conversion meter
SUCTION HEAD	Suction vertical height	3 m	3 m
	Horizontal pipe line used	8 m (1/10 * 8 = 0.8)	0.8 m
	No.of Bends	3 Nos (1 bends = 0.5m)	1.5 m
DELIVERY HEAD	Delivery Vertical Height	8 m	8 m
	Horizontal Pipe Line Used	20 m (1/10 * 20 = 2 m)	2 m
	Horizontal Height diff	5 m	5 m
	No. of Bends	5 Nos (1 bends = 0.5m)	2.5 m
	22.8 m		

Feet Conversion = Total Head x 3.280, Working Feet = $22.8 \times 3.280 = 74.80 \text{ ft}$

you can calculate the head loss in horizontal pipes more precisely using Darcy-Weisbach equation *

