

ProLine™

Long lasting, easy to install borehole riser pipe



Features

- Cost effective
- Corrosion proof
- Smooth handling
- Energy saving pipe
- Maximum load carrying capacity
- High friction square threading designed to withstand higher loads
- Smooth internal pipe surface reduces head loss and prevents scale build up
- Lower thermal conductivity than traditional pipes
- Virgin, high grade PVC and uPVC material blending in-house



Certifications may vary by model. Check with your GWS sales representative for more detailed information.

Threaded column pipe in 3m / 9.8ft lengths. Available in standard, medium, heavy and super heavy variants and different diameters to suit a wide range of installations.

A high quality and unique alternative for conventional steel pipes, ProLine™ series pipes are high-tensile, high-impact uPVC threaded pipe – commonly known as riser pipes or column pipes for submersible pumps.

Proline riser pipes are an excellent alternative to galvanized or stainless steel pipes as they are 100% corrosion resistant and bacteria free. Featuring 100% leak-proof and water tight joints, the ProLine series is the ideal solution for bore well and deep submersible pump delivery. Installed between the pump at the bottom of a well and the surface, ProLine pipes can be assembled easily without the need for sophisticated installation tools.

Proline riser pipes are differentiated from other pipes on the market due to the use of the exclusive power-lock and LPR design. The triple function power-lock adds additional support to the axial load, prevents the opening of pipe joints and works as an additional safety feature. The leak-proof ring (LPR) adds additional sealing points within the coupling in combination with the traditional O-rings.

Lightweight but not compromising on strength, the ProLine features bi-axial orientation, increased wall thickness and is perfectly aligned resulting in stronger, stress free pipe.

Applications

ProLine pipes are used for various applications, especially for water well installations and use with submersible pumps. Some agricultural and related applications are:

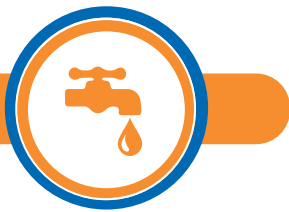
- Tubewells / borewells
- Commercial irrigation
- Livestock watering
- Drinking water supply lines
- Main line for sprinklers / drip irrigation

Models

Model Name	Type	Pipes/ Pack	Wall Thickness [mm]				Avg. Outer Diameter (mm)	Safe Pulling Load With Chain Pulley (kg)	Ultimate Breaking Load (kg)	Safe Allowable Hydraulic Pressure (kg/cm ²)	Safe Total Pump Delivery Head (ft)	Net Weight (kg)
			End Side		Middle Barrel Side							
			Min	Max	Min	Max						
Nominal Size 1" / 25mm												
uPVC-MED-1.00-PL	Medium	25	4.0	4.4	3.0	3.3	33.1	750	1250	16	450	1.42
uPVC-STD-1.00-PL	Standard	25	5.7	6.0	4.2	4.6	33.1	1100	1900	30	900	1.93
Nominal Size 1 1/4" / 32 mm												
uPVC-MED-1.25-PL	Medium	25	4.8	5.3	3.2	3.5	42.1	1100	1800	15	400	1.95
uPVC-STD-1.25-PL	Standard	25	6.0	6.5	4.3	4.6	42.1	1500	2550	25	750	2.47
uPVC-HVY-1.25-PL	Heavy	25	7.2	7.7	5.4	5.9	42.1	1800	3100	35	1050	3.35
Nominal Size 1 1/2" / 40 mm												
uPVC-MED-1.50-PL	Medium	20	5.2	5.7	3.8	4.2	48.1	1300	2500	15	400	2.40
uPVC-STD-1.50-PL	Standard	20	6.0	6.5	4.3	4.6	48.1	1700	2950	26	750	3.15
uPVC-HVY-1.50-PL	Heavy	20	8.4	8.9	6.1	6.5	48.1	2400	4000	35	1050	4.10
Nominal Size 2" / 50 mm												
uPVC-MED-2.00-PL	Medium	15	5.1	5.6	2.6	2.8	60.1	1450	2450	15	370	3.05
uPVC-STD-2.00-PL	Standard	15	6.4	6.9	4.1	4.4	60.1	2100	3600	25	700	3.90
uPVC-HVY-2.00-PL	Heavy	10	7.8	9.3	5.5	5.8	60.1	2800	4700	27	900	4.90
uPVC-SHVY-2.00-PL	Super Heavy	10	9.0	9.5	6.8	7.0	60.1	3350	5600	35	1100	6.25
Nominal Size 2 1/2" / 65 mm												
uPVC-MED-2.50-PL	Medium	10	5.1	5.6	2.8	3.1	75.1	1800	3100	12	295	3.95
uPVC-STD-2.50-PL	Standard	10	6.5	7.0	4.2	4.5	75.1	2700	4650	17	550	4.95
uPVC-HVY-2.50-PL	Heavy	10	9.0	9.5	6.5	6.9	75.1	4200	7000	26	750	7.10
uPVC-SHVY-2.50-PL	Super Heavy	10	10.8	11.5	8.6	8.8	75.1	5300	9000	35	1100	8.80
Nominal Size 3" / 80 mm												
uPVC-MED-3.00-PL	Medium	5	5.7	6.2	3.4	3.6	88.1	2600	4450	11	270	5.45
uPVC-STD-3.00-PL	Standard	5	7.5	8.2	5.2	5.6	88.1	4000	6800	17	500	6.55
uPVC-HVY-3.00-PL	Heavy	5	9.8	10.3	7.5	7.9	88.1	5650	9600	26	750	9.30
uPVC-SHVY-3.00-PL	Super Heavy	5	12.4	13.0	9.7	10.5	88.1	7300	12400	35	1100	13.15
Nominal Size 4" / 100 mm												
uPVC-MED-4.00-PL	Medium	4	6.3	7.0	4.0	4.4	113.1	4000	6800	11	270	7.50
uPVC-STD-4.00-PL	Standard	4	8.2	8.8	5.9	6.3	113.1	5700	10000	15	500	10.45
uPVC-HVY-4.00-PL	Heavy	4	12.2	12.8	9.6	10.1	113.1	9350	16000	26	700	15.10
uPVC-SHVY-4.00-PL	Super Heavy	4	15.8	16.4	13.3	13.7	113.1	11500	18500	35	1100	21.50
Nominal Size 5" / 125 mm												
uPVC-STD-5.00-PL	Medium	3	11.5	12.0	8.7	9.1	140.0	9000	16000	16	525	18.70
uPVC-HVY-5.00-PL	Standard	3	15.5	16.0	12.0	12.0	140.0	11200	24600	27	890	23.70
uPVC-SHVY-5.00-PL	Heavy	3	20.0	20.0	16.5	17.0	140.0	13700	31100	40	1150	31.00
Nominal Size 6" / 150 mm												
uPVC-HVY-6.00-PL	Medium	2	16.5	17	12	12.5	168.0	13100	27500	29	950	29.60
uPVC-SHVY-6.00-PL	Standard	2	20.8	21.3	26	26.5	168.0	15500	39200	40	1150	37.30

Total Pipe Length: 3000mm ± 10mm
Max. Working Temperature: 48°C / 118°F

Note: Minor dimensional variation might occur



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Special uPVC formulation

ProLine pipes are produced using a proprietary uPVC (unplasticized polyvinyl chloride) formulation. The formulation ensures that the pipes have high tensile and impact strength. These properties make the riser pipes capable of handling both the internal hydrostatic pressure and the huge vertical tensile load resulting from the water column and pump weight. It also ensures the threads do not become brittle or get chipped even after repeated loosening and/or tightening during their lifetime.

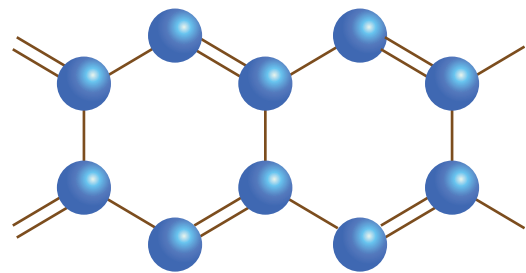
ProLine riser pipe formulation provides dual function protection.

On one hand, ProLine pipes have to withstand the hydrostatic pressure of the pump delivery. This pressure is generally highest in the first pipe connected to the pump and can run as high as 35 kg/cm². On the other hand, the top most pipe has to bear the entire load of the column filled with water along with the weight of the pump. Depending on well depth, the total load weight may reach up to 2 tons. The ability to handle this dual load is a unique feature and requires special manufacturing techniques.

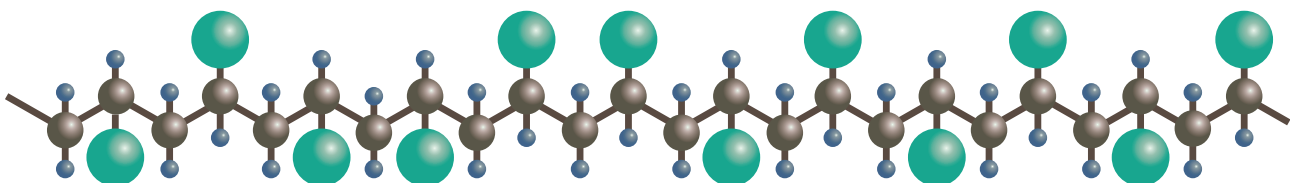
Bi-axial orientation

To make the ProLine pipes as strong as possible, the molecules are orientated in two axes during the extrusion of the pipes by simultaneously extruding and rotating.

The molecules then intersect, creating additional bonds between them. The realignment of the PVC strands increases the drop and notch impact resistance as well as the overall strength of the pipes.



Intersecting, joined PVC molecules



PVC molecule

Accessories

1. Top Adaptors / Connectors:

Top adaptors are available in cast iron or stainless steel and are used to connect the top riser pipe with the wellhead fitting.

2. Bottom Adaptors / Connectors:

The bottom adaptors are available in cast iron or stainless steel and are used in joining the bottom pipe with the pump.

3. Pump Guard:

The pump guard is installed between the bottom pipe and bottom adaptor. Pump guard is recommended for installations with extreme pump vibration due to substandard pumps, sand pumping, and other local conditions.

4. Lowering Fixture:

A lowering fixture is available for use with ProLine for lowering or extracting the riser pipes from the well.



ProLine™ frictional head loss

The height to which water is to be pumped has to be estimated very accurately. This is very important, especially in steep terrains.

The length of the pipeline and the height to which water is to be pumped, together with the depth of the water level and frictional head loss in the pipes determine the total head load on the pump set.

Approximate frictional head loss

Type	Discharge of Pump (l/min)											
	40	60	80	100	120	150	180	240	300	360	400	500
Nominal Size 1" / 25mm												
Medium	3.78	8.01	13.65	20.64	28.92	43.73	61.29	104.41	157.85	221.25	268.92	406.54
Standard	6.48	13.74	23.39	35.37	49.56	74.94	105.50	178.92	270.52	379.52	460.91	696.69
Nominal Size 1 1/4" / 32 mm												
Medium	1.06	2.26	3.84	5.81	8.14	12.31	17.25	29.39	44.43	62.28	75.7	114.44
Standard	1.48	3.13	5.33	8.06	11.30	17.09	23.95	40.80	61.68	86.47	105.10	158.86
Heavy	2.07	4.39	7.48	11.31	15.85	23.96	33.58	57.20	86.49	121.23	147.35	222.73
Nominal Size 1 1/2" / 40 mm												
Medium	0.53	1.11	1.90	2.87	4.02	6.07	8.51	14.50	21.93	30.74	37.36	56.47
Standard	0.66	1.40	2.39	3.62	5.07	7.66	10.74	18.29	27.66	38.77	47.13	71.23
Heavy	1.06	2.24	3.82	5.78	8.09	12.23	17.15	29.21	44.16	61.91	75.25	113.74
Nominal Size 2" / 50 mm												
Medium	0.17	0.35	0.60	0.91	1.28	1.94	2.71	4.62	6.99	9.80	11.91	18.01
Standard	0.18	0.39	0.67	1.01	1.41	2.14	3.00	5.11	7.72	10.82	13.15	19.88
Heavy	0.25	0.52	0.89	1.34	1.88	2.84	3.98	6.77	10.24	14.36	17.45	26.38
Super Heavy	0.31	0.67	1.13	1.72	2.40	3.64	5.1	8.68	13.12	18.40	22.36	33.80
Nominal Size 2 1/2" / 65 mm												
Medium	0.04	0.09	0.16	0.24	0.34	0.51	0.71	1.22	1.84	2.58	3.13	4.73
Standard	0.05	0.11	0.19	0.29	0.41	0.62	0.87	1.48	2.24	3.14	3.82	5.77
Heavy	0.08	0.16	0.28	0.42	0.59	0.88	1.25	2.12	3.21	4.50	5.46	8.26
Super Heavy	0.14	0.29	0.49	0.74	1.04	1.58	2.21	3.76	5.69	7.97	9.69	14.65
Nominal Size 3" / 75 mm												
Medium	0.02	0.04	0.07	0.11	0.15	0.23	0.33	0.56	0.85	1.18	1.44	2.18
Standard	0.03	0.05	0.09	0.14	0.19	0.29	0.41	0.70	1.05	1.47	1.79	2.71
Heavy	0.03	0.07	0.12	0.19	0.26	0.40	0.55	0.94	1.43	2.00	2.43	3.67
Super Heavy	0.05	0.10	0.17	0.26	0.37	0.55	0.78	1.33	2.00	2.81	3.41	5.16
Nominal Size 4" / 100 mm												
Medium	0.01	0.01	0.02	0.03	0.07	0.10	0.16	0.24	0.33	0.41	0.49	0.74
Standard	0.01	0.01	0.02	0.04	0.08	0.12	0.19	0.29	0.42	0.58	0.71	1.07
Heavy	0.01	0.02	0.04	0.05	0.12	0.12	0.27	0.27	0.42	0.58	0.71	1.07
Super Heavy	0.01	0.03	0.05	0.08	0.16	0.16	0.39	0.39	0.59	0.82	1.00	1.51
Nominal Size 5" / 125 mm												
Medium	0.00	0.01	0.01	0.01	0.02	0.03	0.04	0.07	0.10	0.15	0.18	0.27
Standard	0.00	0.01	0.01	0.02	0.02	0.03	0.05	0.08	0.13	0.18	0.21	0.32
Heavy	0.00	0.01	0.01	0.02	0.03	0.04	0.06	0.10	0.15	0.21	0.25	0.38
Nominal Size 6" / 150 mm												
Medium	0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.09	0.11	0.17