



# ProLine™

Long lasting, easy to install borehole riser pipe

**New & Improved Design**

## Features

- Cost effective
- Corrosion proof
- Light weight for easy handling
- Energy saving pipe
- Maximum load carrying capacity
- Super Heavy series are supplied with an extra-long coupler for higher load pulling strength
- 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 material blending in-house



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



Threaded column pipe available in standard, medium, heavy and super heavy variants and different diameters to suit a wide range of installations.

1" to 2" pipes available in 3m / 10 ft lengths. 2.5" pipes and up are available in either 3m / 10 ft or 6m / 20 ft lengths.

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 screw-locking system design. The screw-lock prevents the opening of pipe joints and works as an additional safety feature. Additional sealing within the coupling is accomplished through our industry leading permanent locking through freezing technology, which prevents leakage, controls vibration and helps avoid over tightening.

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:

- Tube wells / bore wells
- Commercial irrigation
- Livestock watering
- Drinking water supply lines
- Main line for sprinklers / drip irrigation

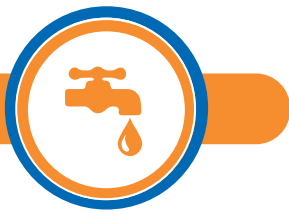
**Where Water Gets Better**

## Models

Model Number	Type & Size	Net Weight (kg)	Ultimate Breaking Load (kg)	Max			Recommended Installation					
				Pulling Load with Chain Pulley or Crane (kg)	Maximum Permissible Pressure Rating (kg/cm <sup>2</sup> )	Total Shut Off Head of the Pump (m)	Depth of Pipes (m)	Depth of Pipes (ft)	Approx. Weight of Pipe Column at Depth (kg) (A)	Weight of Water at Depth (kg) (B)	Weight of Pump & Motor at Depth (kg) (C)	Total Weight at Depth (A+B+C) (kg)
<b>OD: 33mm (1") NB: 25 mm</b>												
uPVC-MED-1.00-PL	Medium	1.3	1500	800	21	210	147	482	64	72	42	178
uPVC-STD-1.00-PL	Standard	1.7	2200	1250	27	270	189	620	103	93	45	241
<b>OD: 42mm (1.25") NB: 32 mm</b>												
uPVC-MED-1.25-PL	Medium	1.9	1800	1150	21	210	147	482	95	118	40	253
uPVC-STD-1.25-PL	Standard	2.1	2650	1400	27	270	189	620	135	152	60	347
uPVC-HVY-1.25-PL	Heavy	2.8	3100	1800	35	350	245	804	230	197	84	511
<b>OD: 48mm (1.5") NB: 40 mm</b>												
uPVC-MED-1.50-PL	Medium	2.3	2300	1200	21	210	147	482	113	185	60	358
uPVC-STD-1.50-PL	Standard	2.6	3200	1700	27	270	189	620	165	237	75	477
uPVC-HVY-1.50-PL	Heavy	3.5	4200	2200	35	350	245	804	285	308	86	679
<b>OD: 60mm (2") NB: 50 mm</b>												
uPVC-MED-2.00	Medium	2.7	3040	2000	18	180	126	413	113	247	80	440
uPVC-STD-2.00	Standard	3.9	5098	2700	21	210	147	482	191	288	110	589
uPVC-HVY-2.00	Heavy	4.6	5682	3200	27	270	189	620	290	371	128	789
uPVC-SHVY-2.00	Super Heavy	5.5	6200	3600	35	350	245	804	449	481	145	1075
<b>OD: 75mm (2.5") NB: 65 mm</b>												
uPVC-MED-2.50	Medium	3.9	4496	2800	15	150	105	344	138	348	98	584
uPVC-STD-2.50	Standard	4.8	5934	3600	18	180	126	413	200	418	125	743
uPVC-HVY-2.50	Heavy	6.1	7432	4200	27	270	189	620	386	627	180	1193
uPVC-SHVY-2.50	Super Heavy	7.8	9194	5300	35	350	245	804	636	812	203	1651
<b>OD: 88mm (3") NB: 80 mm</b>												
uPVC-MED-3.00	Medium	4.9	5934	4000	11	110	77	253	126	349	120	595
uPVC-STD-3.00	Standard	6.6	9112	5010	18	180	126	413	277	572	220	1069
uPVC-HVY-3.00	Heavy	8.7	10000	6000	27	270	189	620	548	857	380	1785
uPVC-SHVY-3.00	Super Heavy	10.6	12000	7250	35	350	245	804	870	1111	418	2399
<b>OD: 113mm (4") NB: 100 mm</b>												
uPVC-MED-4.00	Medium	7.6	11402	4500	10	100	70	230	175	549	181	905
uPVC-STD-4.00	Standard	9.8	12150	7250	16	160	112	367	363	879	326	1568
uPVC-HVY-4.00	Heavy	14.5	15980	5950	27	270	189	620	910	1484	441	2835
uPVC-SHVY-4.00	Super Heavy	16.5	19500	12000	35	350	245	804	1349	1924	455	3728
<b>OD: 140mm (5") NB: 125 mm</b>												
uPVC-MED-5.00	Medium	13.3	12000	7540	10	100	70	230	305	859	176	1340
uPVC-STD-5.00	Standard	16.2	16000	10100	16	160	112	367	598	1374	377	2349
uPVC-HVY-5.00	Heavy	18.9	23860	15100	27	270	189	620	1191	2319	465	3975
uPVC-SHVY-5.00	Super Heavy	24.5	30000	18000	35	350	245	804	2009	3006	478	5493
<b>OD: 165mm (6") NB: 150 mm</b>												
uPVC-STD-6.00	Standard	30.0	22500	12550	16	160	112	367	1110	1979	650	3739
uPVC-HVY-6.00	Heavy	35.0	40000	23500	27	270	189	620	2520	3340	980	6840

Total Pipe Length: 3000mm or 6000mm (for 2.5" pipes and above)  
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.

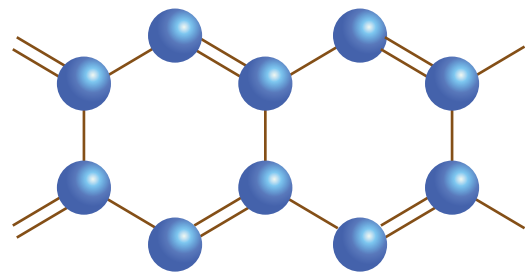
ProLine riser pipe formulation provides dual function protection.

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  $35 \text{ kg/cm}^2$ . 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 or more. The ability to handle this dual load is a unique feature and requires special manufacturing techniques.

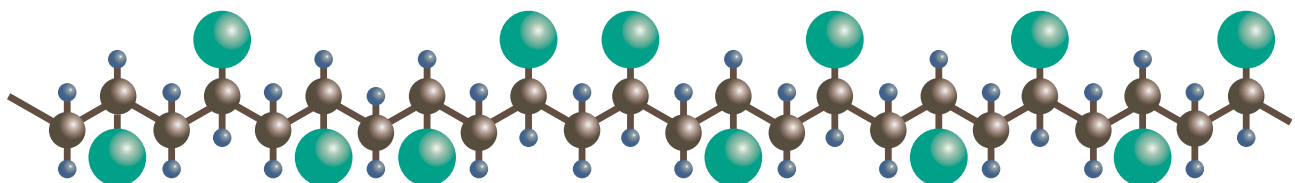
## Bi-axial orientation

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 Adapters / Connectors:

Stainless steel top adapters are used to connect the top pipe to the wellhead fitting.

### 2. Bottom Adapters / Connectors:

Stainless steel bottom adapters are used to join the bottom pipe to the pump.

### 3. Pump Guard:

The pump guard is installed between the bottom pipe and bottom adapter. 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

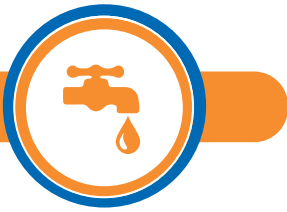
The height to which water is to be pumped has to be estimated very accurately. This is very important, especially in steep terrains.

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

Model Number	Type	Discharge of Pump (l/min)											
		40	60	80	100	120	150	180	240	300	360	400	500
<b>OD: 33mm (1") NB: 25 mm</b>													
uPVC-MED-1.00-PL	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
uPVC-STD-1.00-PL	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
<b>OD: 42mm (1.25") NB: 32 mm</b>													
uPVC-MED-1.25-PL	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
uPVC-STD-1.25-PL	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
uPVC-HVY-1.25-PL	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
<b>OD: 48mm (1.5") NB: 40 mm</b>													
uPVC-MED-1.50-PL	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
uPVC-STD-1.50-PL	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
uPVC-HVY-1.50-PL	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
<b>OD: 60mm (2") NB: 50 mm</b>													
uPVC-MED-2.00	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
uPVC-STD-2.00	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
uPVC-HVY-2.00	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
uPVC-SHVY-2.00	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
<b>OD: 75mm (2.5") NB: 65 mm</b>													
uPVC-MED-2.50	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
uPVC-STD-2.50	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
uPVC-HVY-2.50	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
uPVC-SHVY-2.50	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
<b>OD: 88mm (3") NB: 80 mm</b>													
uPVC-MED-3.00	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
uPVC-STD-3.00	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
uPVC-HVY-3.00	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
uPVC-SHVY-3.00	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
<b>OD: 113mm (4") NB: 100 mm</b>													
uPVC-MED-4.00	Medium	0.01	0.01	0.02	0.03	0.07	0.70	0.09	0.16	0.24	0.33	0.41	0.62
uPVC-STD-4.00	Standard	0.01	0.01	0.02	0.04	0.08	0.08	0.11	0.19	0.29	0.4	0.49	0.74
uPVC-HVY-4.00	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
uPVC-SHVY-4.00	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
<b>OD: 140mm (5") NB: 125 mm</b>													
uPVC-MED-5.00	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
uPVC-STD-5.00	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
uPVC-HVY-5.00	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
uPVC-SHVY-5.00	Super Heavy	0.00	0.01	0.02	0.03	0.04	0.06	0.09	0.16	0.24	0.33	0.40	0.61
<b>OD: 165mm (6") NB: 150 mm</b>													
uPVC-STD-6.00	Standard	0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.09	0.11	0.17
uPVC-HVY-6.00	Heavy	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.08	0.12	0.14	0.22

Approximate frictional head loss in m/100m



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## uPVC Column Pipe - Technical data

Pipe Wall Thickness							
Nominal Diameter		Nominal OD (mm)	OD Incl. Coupler (mm)	Minimum Wall Thickness (at ends) in mm			
mm	inch			Medium	Standard	Heavy	Super Heavy
25	1"	33.3	46.1	3.5	4.8	-	-
32	1.25"	42.2	55.1	4.2	5.0	6.4	-
40	1.5"	48.3	62.5	4.3	5.2	6.0	-
50	2"	60.3	79.0	4.8	6.0	7.3	8.0
65	2.5"	75.2	91.8	5.3	6.6	8.7	10.0
80	3"	88.2	110.0	6.0	7.4	9.9	10.5
100	4"	113.3	136.5	6.8	8.5	12.0	12.5
125	5"	141.3	165.0	7.7	10.2	15.2	-
150	6"	165.0	205.0	-	-	16.5	-

Maximum Permissible Pressure Rating (kg/cm <sup>2</sup> )					
Pipe Size		Medium	Standard	Heavy	Super Heavy
mm	inch				
25	1"	21	27	-	-
32	1.25"	21	27	35	-
40	1.5"	21	27	35	-
50	2"	18	21	27	35
65	2.5"	15	18	27	35
80	3"	11	18	27	35
100	4"	10	16	27	35
125	5"	10	16	27	-
150	6"	-	16	27	-

Note: Pump Shut off Head must not exceed above mentioned Permissible Pressure rating of the Pipe.

Packing Details (No. of Pipes Per Bundle)		
Pipe Size Inches	Qty/ Bundle	
	Length: 3m (10 ft)	Length: 6m (20 ft)
1"	25	-
1.25"	25	-
1.5"	20	-
2"	10	-
2.5"	10	5
3"	5	3
4"	5	3
5"	3	2
6"	3	2