



ZWII

50Hz

Non-clogging Self-Priming Sewage Pump



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ZHEJIANG NANBENG FLUID MACHINERY CO.,LTD.

Company Profile



Zhejiang Nanbeng Fluid Machinery Co.,Ltd. is a leading pump manufacturer committed to the Chinese people's water safety to make our own contribution. The team who founded the company is the first generation research and development of stainless steel centrifugal pump in China, has accumulated more than 30 years of technology research and development experience, core members presided over and participated in the development of national standard of the "light, small multistage centrifugal pump", national science and technology support plans for the 11th, 12th and 13th five-years plan, "national torch project", "national key new product project" and other projects of research and development, design and production. R&D centre equipped with industry-leading CFD fluid 3D simulation design software, domestic top stamping equipment and automatic production line to ensure high performance and high stability of products, our comprehensive R & D and production strength achieve domestic advanced level.

The construction area of the company is 82,000 square meters, design output value is one billion per year. We can offer you a wide range of stainless steel stamping and welding centrifugal pump, pipeline circulation pump, end suction centrifugal pump, sewage submersible pump, high pressure pump, fire pump and water supply and drainage complete sets of products for many applications as highest performance in booster sets and pressurization, building services, water treatment, industry, irrigation and industrial process, fire-fighting sets, pumping of underground water, drainage and sewage, utilities and desalination. Now we are looking for more partners around the world, we sincerely looking forward to your joining at Huzhou China. Global water challenges as well as opportunities, require excellence in pumping technologies and close cooperation between pump designers and manufacturers. Let's cooperate and make our contribution to the water security for more people all over the world.

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Product overview

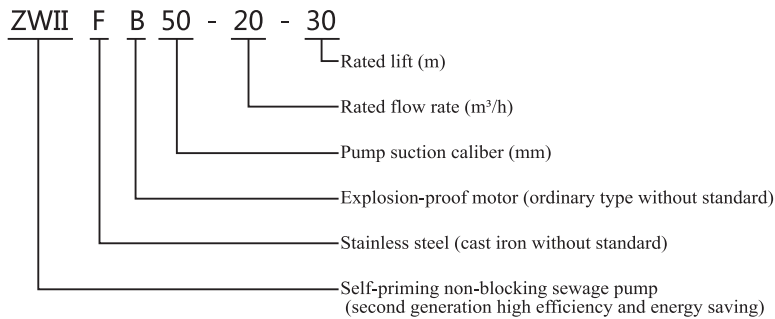
ZWII series second generation high efficiency, energy-saving, self-priming and non-blocking sewage pump is designed jointly by our company and Zhejiang University of Technology. On the basis of repeated research on similar technologies at home and abroad, a new product with novel structure has been developed. Applicable to municipal sewage engineering, pond farming, environmental protection, light industry, paper making, textile, food, chemical industry, electrical industry, fibers, dyes and mixed suspension and other chemical media, the most ideal impurity pump.

Product characteristics

ZWII second generation high-efficiency energy-saving self-priming non-blocking sewage pump integrates self-priming and non-blocking sewage discharge. Axial reflux external mixing is adopted. It can not only be like the general self-priming clean water pump without installation of bottom valves and irrigation diversion, but also can suck and drain liquids containing large particles of solid and long fiber impurities.

After optimizing and redesigning the pump body and impeller, the efficiency of the pump is generally increased by more than 10% compared with the old ZW Self-priming sewage pump. The pump runs steadily and has reliable performance, thus achieving the effect of high efficiency and energy saving.

Model description



Scope of use

1. The ambient temperature is less than 50 °C and the medium temperature is less than 80 °C. Special requirements can be up to 200 °C (need to be customized machine sealing rinse water cooling).
2. The medium weight should not exceed 1240Kg/m³.
3. Medium PH value cast iron material 6-9, stainless steel 2-13.
4. The self-priming height should not exceed the prescribed value (4-5 meters), and the length of the suction tube should be less than 10 meters. (Water temperature 20 °C, standard atmospheric pressure)
5. The diameter of suspended particles is 60% of the diameter of the pump and the length of fibers is 5 times of the diameter of the pump.
6. When the medium temperature is high, the self-priming height and the length of the suction tube need to be reduced.

Material Table of Major Parts

Part name	Pump body	Pump cover	Impeller	Import and export pipe	Base	Pump shaft	Check valve	Bearing block	Machine seal
Texture of material	HT200	HT200	HT200	HT200	Stell plate folding	40Cr	304	HT200	Tungsten carbide/ tungsten carbide
	QT400	QT400	QT400	QT400		2Cr13	316L		
	304	304	304	304		304			
	316	316	316	316		316L			
	316L	316L	316L	316L					

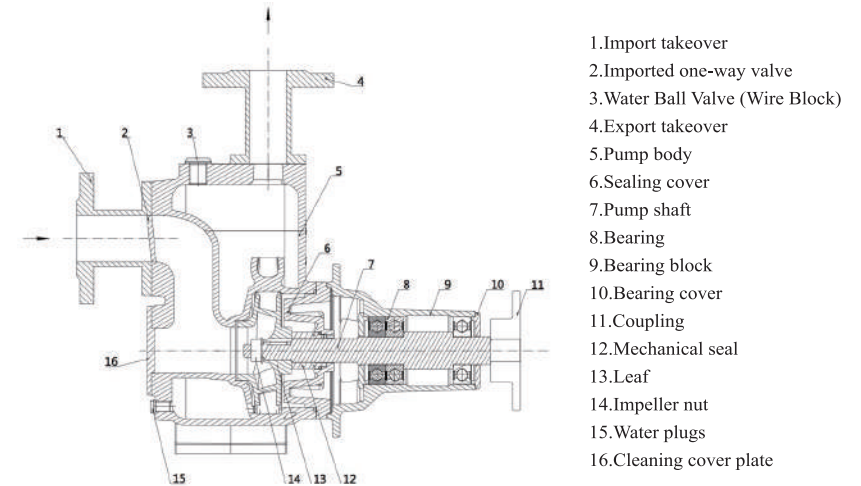
Structure and working principle

1. Structure of Self-priming Pump

ZWII series second generation high efficiency energy-saving self-priming blockless sewage pump, mainly by the pump body, impeller, sealing cover, mechanical seal, pump shaft, bearing seat, import single directional valve, filing ball valve (wire plug), inlet and outlet nozzle, etc. The pump body is a double-layer structure, and the inner body is a vortex chamber.

The lower part of the cavity formed by the inner and outer bodies is a liquid storage chamber, and the upper part is a gas-liquid separation chamber. The lower part of the storage chamber has a reflux hole.

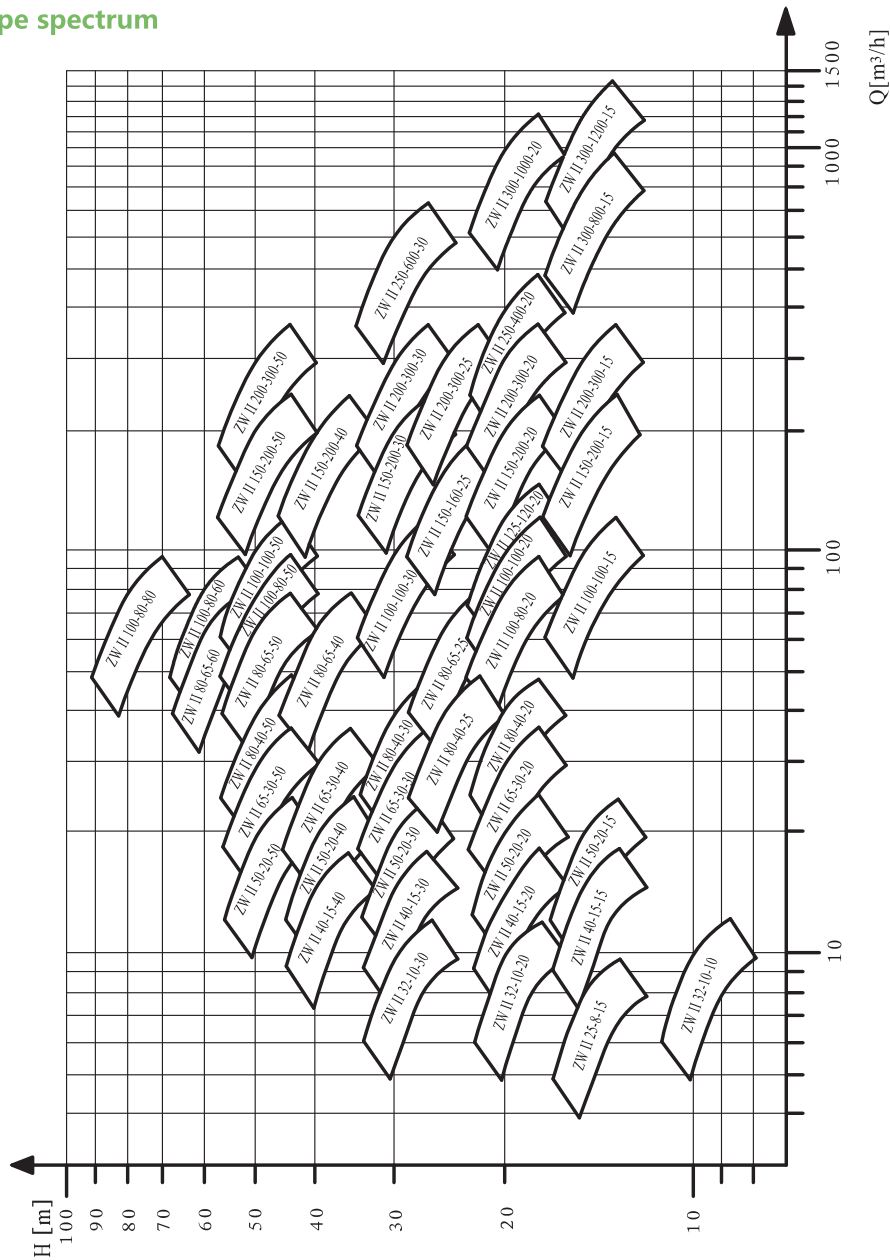
The structure of the pump is shown in the diagram:



2. Working Principle of Pump

The pump body is provided with a liquid storage chamber. After starting, the pump is rotated by the impeller. The air and water in the suction pipeline are mixed and discharged into the gas-liquid separation chamber for separation. The outlet of the gas discharge pump at the upper part of the gas-liquid separation chamber. The lower liquid flows back to the impeller outlet through the return hole, and then mixes with the gas at the impeller outlet. Discharge to the gas-liquid separation chamber. So repeatedly, all the gas in the inhalation pipeline is exhausted to achieve self-suction. During the second operation, a one-way valve is installed at the suction port of the pump. Therefore, it can be started without additional storage.

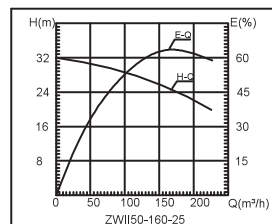
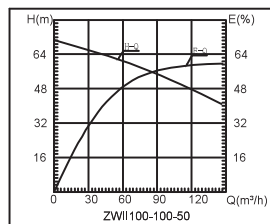
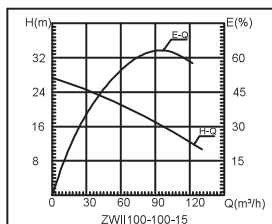
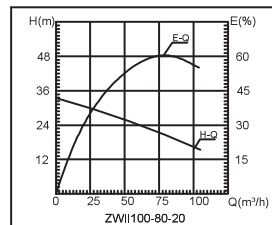
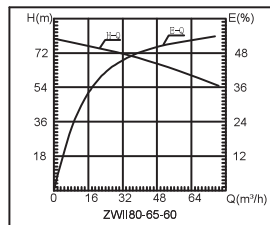
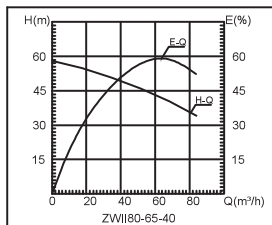
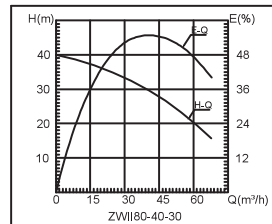
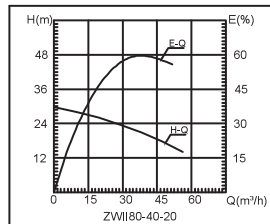
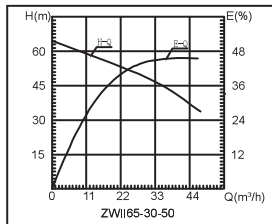
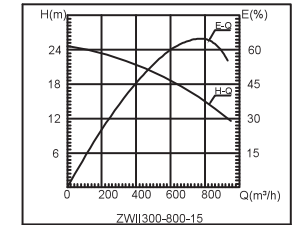
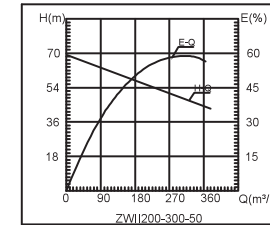
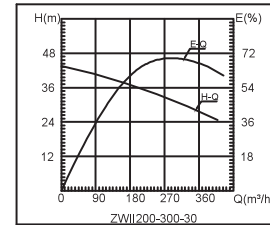
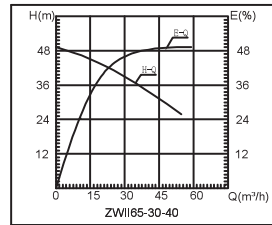
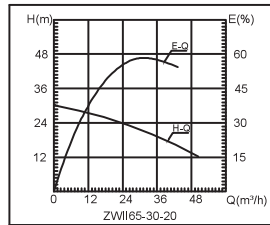
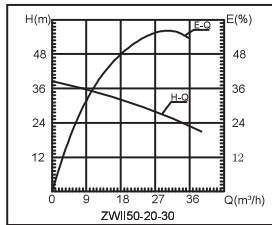
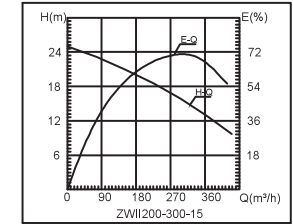
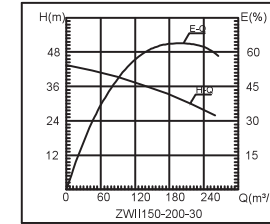
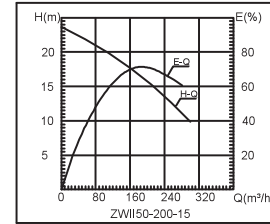
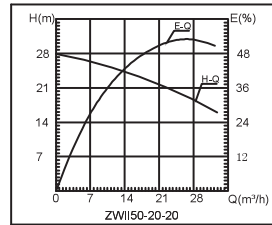
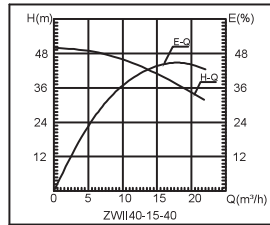
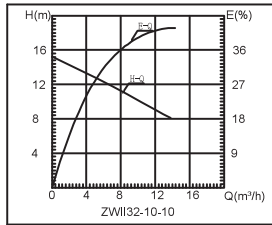
Type spectrum



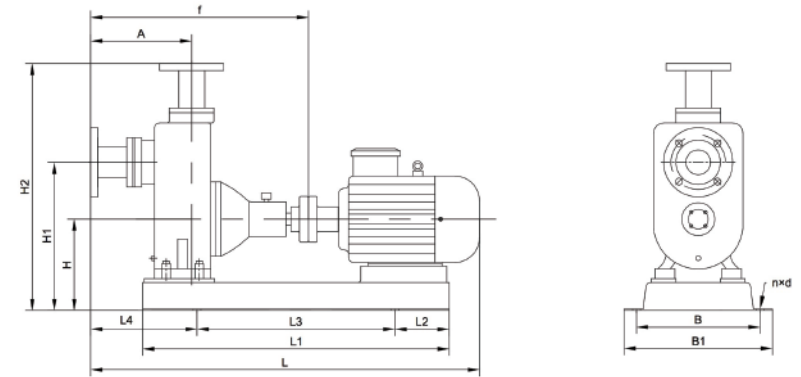
Model and performance parameters

Type	Inlet diameter (mm)	Outlet diameter (mm)	Flow (m³/h)	Lift (m)	Capacity (kw)	Rotationrate (r/min)	Efficiency (%)	Cavitation allowance (m)	Suction lift (m)	Pressure control range (Mpa)	Weight (kg)
ZWII25-8-15	25	25	8	15	1.1	2900	40	3.5	4.5	0.10-0.18	80
ZWII32-10-10	32	32	10	10	1.1	2900	40	3.5	4.5	0.07-0.12	85
ZWII32-10-20	32	32	10	20	1.5	2900	48	3.5	4.5	0.15-0.22	80
ZWII32-10-30	32	32	10	30	2.2	2900	48	3.5	5	0.24-0.32	90
ZWII40-15-15	40	32	15	15	1.5	2900	50	3.5	4.5	0.10-0.18	90
ZWII40-15-20	40	32	15	20	2.2	2900	50	3.5	5	0.15-0.22	90
ZWII40-15-30	40	32	15	30	3	2900	50	3.5	5	0.25-0.32	120
ZWII40-15-40	40	32	15	40	4	2900	45	3.5	5	0.35-0.42	150
ZWII50-20-15	50	40	20	15	2.2	2900	50	3.5	4.5	0.10-0.18	95
ZWII50-20-20	50	40	20	20	3	2900	50	3.5	4.5	0.15-0.22	100
ZWII50-20-30	50	40	20	30	4	2900	50	3.5	5	0.25-0.32	145
ZWII50-20-40	50	40	20	40	5.5	2900	50	3.5	4.5	0.35-0.42	170
ZWII50-20-50	50	40	20	50	7.5	2900	50	3.5	5	0.45-0.52	175
ZWII65-30-20	65	65	30	20	4	2900	60	3.5	5	0.15-0.22	160
ZWII65-30-30	65	65	30	30	5.5	2900	55	3.5	4.5	0.25-0.32	190
ZWII65-30-40	65	65	30	40	7.5	2900	50	3.5	5	0.35-0.42	195
ZWII65-30-50	65	65	30	50	11	2900	50	3.5	5	0.45-0.52	260
ZWII80-40-20	80	65	40	20	5.5	2900	60	3.5	5	0.15-0.22	180
ZWII80-40-25	80	65	40	25	5.5	2900	60	3.5	5	0.20-0.27	185
ZWII80-40-30	80	65	40	30	7.5	2900	60	3.5	5	0.25-0.32	190
ZWII80-40-50	80	65	40	50	15	2900	55	3.5	5	0.45-0.52	275
ZWII80-65-25	80	65	65	25	11	2900	60	3.8	5	0.20-0.27	260
ZWII80-65-40	80	65	65	40	15	2900	60	3.8	5	0.35-0.43	275
ZWII80-65-50	80	65	65	50	22	2900	55	3.8	5	0.45-0.52	350
ZWII80-65-60	80	65	65	60	30	2900	55	3.8	5	0.55-0.62	415
ZWII100-80-20	100	80	80	20	11	2900	60	4.5	5	0.15-0.22	280
ZWII100-80-50	100	80	80	50	22	2900	60	4.5	5	0.45-0.52	365
ZWII100-80-60	100	80	80	60	30	2900	60	4.5	5	0.55-0.62	425
ZWII100-80-80	100	80	80	80	37	2900	60	4.5	5	0.75-0.83	460
ZWII100-100-15	100	80	100	15	7.5	2900	65	5.5	4.5	0.10-0.18	230
ZWII100-100-20	100	80	100	20	11	2900	65	5.5	4.5	0.15-0.22	280
ZWII100-100-30	100	80	100	30	15	2900	65	5.5	4.5	0.25-0.32	290
ZWII100-100-45	100	80	100	45	22	2900	50	5.5	4.5	0.40-0.47	390
ZWII100-100-50	100	80	100	50	30	2900	60	5.5	4.5	0.45-0.52	450
ZWII100-100-55	100	80	100	55	30	2900	57	5.5	4.5	0.45-0.52	450
ZWII125-120-20	125	125	120	20	15	1450	65	5	5	0.15-0.22	450
ZWII150-160-25	150	125	160	25	22	1450	65	5	5	0.20-0.28	530
ZWII150-200-15	150	125	200	15	15	1450	65	5	4.5	0.10-0.18	495
ZWII150-200-20	150	125	200	20	22	1450	65	5	4.5	0.15-0.22	570
ZWII150-200-30	150	125	200	30	30	1450	65	5	5	0.25-0.32	630
ZWII150-200-40	150	125	200	40	45	1450	65	5	4.5	0.35-0.43	930
ZWII150-200-50	150	125	200	50	55	1450	65	5	4.5	0.45-0.53	1020
ZWII200-300-15	200	150	300	15	22	1450	65	5	5	0.10-0.18	595
ZWII200-300-20	200	150	300	20	30	1450	65	5	5	0.15-0.22	740
ZWII200-300-25	200	150	300	25	37	1450	65	5	4.5	0.20-0.28	780
ZWII200-300-30	200	150	300	30	45	1450	65	5	5	0.25-0.32	800
ZWII200-300-50	200	150	300	50	90	1450	60	5	4.5	0.45-0.52	1440
ZWII250-600-30	250	200	600	30	90	1450	65	5.5	4	0.25-0.33	1650
ZWII300-800-15	300	250	800	15	75	1450	65	5.5	4	0.10-0.18	1800
ZWII300-800-20	300	250	800	20	75	1450	63	5.5	4	0.15-0.22	1800

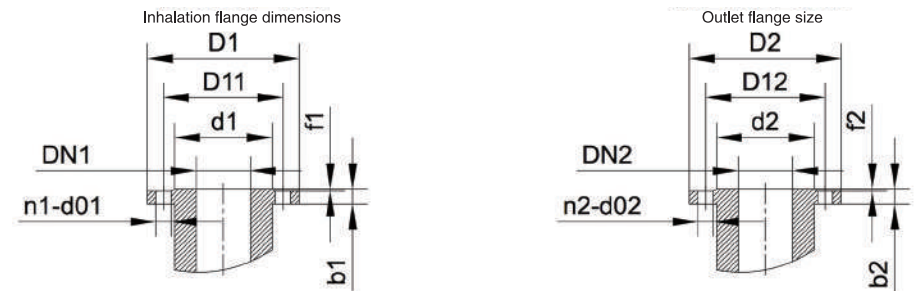
Performance curve



Outline Installation Dimension Diagram



Suction port, Dimension Diagram of Exhaust Flange



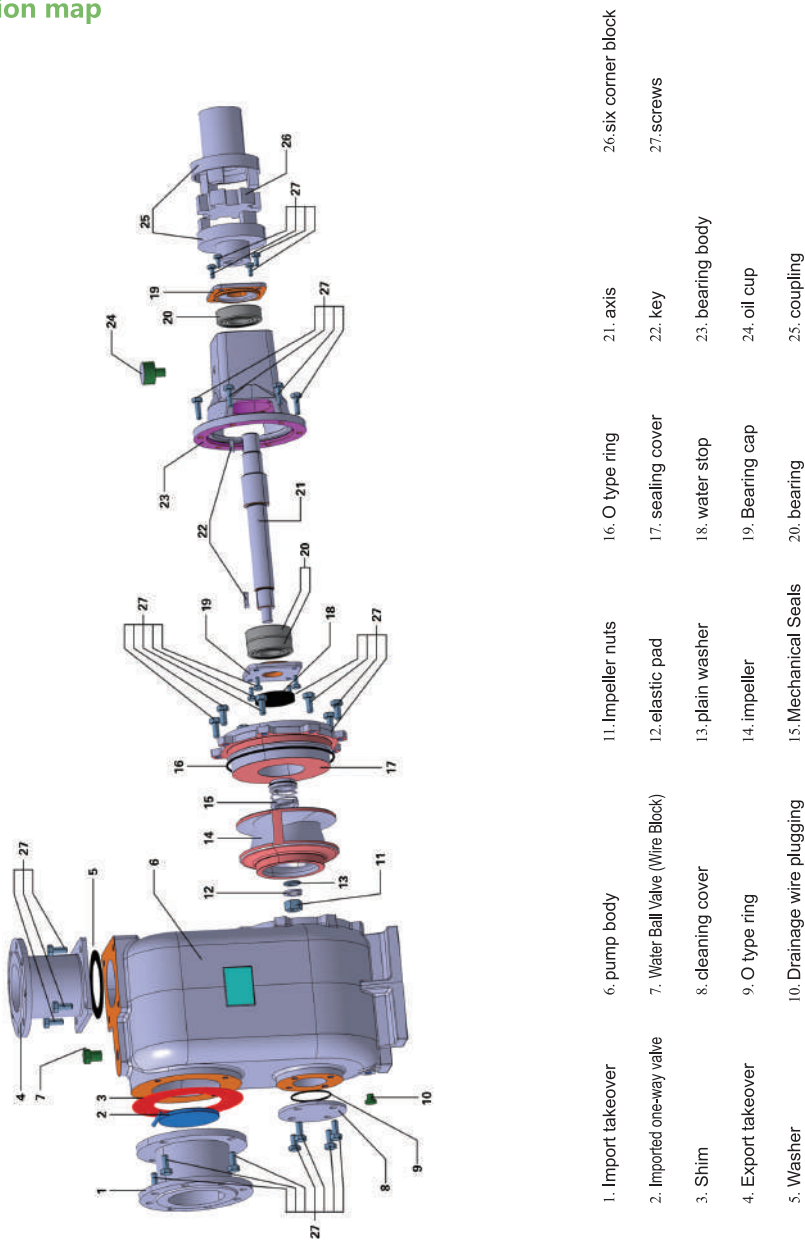
Shape and Installation Dimensions

Type	L	L1	L2	L3	L4	A	F	B	B1	H1	H2	H3	n × d
ZWII25-8-15	815	620	75	480	170	210	490	250	290	170	290	470	4×Φ16
ZWII32-10-10	810	620	65	490	175	213	495	250	290	170	290	465	4×Φ16
ZWII32-10-20	835	620	70	490	185	225	510	250	290	175	315	490	4×Φ16
ZWII32-10-30	830	650	95	490	165	202	480	280	320	190	330	507	4×Φ16
ZWII40-15-15	825	620	70	490	180	218	500	250	290	175	300	480	4×Φ16
ZWII40-15-20	840	650	90	495	175	207	490	280	320	175	315	495	4×Φ16
ZWII40-15-30	920	700	90	510	185	214	535	280	320	195	325	505	4×Φ16
ZWII40-15-40	940	735	100	550	190	223	540	350	390	205	365	550	4×Φ18
ZWII50-20-15	855	650	90	485	180	220	505	280	320	175	305	490	4×Φ16
ZWII50-20-20	890	680	95	515	180	220	505	280	320	175	305	490	4×Φ16
ZWII50-20-30	935	735	105	520	180	214	535	350	390	205	335	515	4×Φ18
ZWII50-20-40	1025	780	100	605	188	218	535	350	405	220	390	580	4×Φ18
ZWII50-20-50	1025	780	100	605	188	218	555	350	405	220	390	580	4×Φ18
ZWII65-30-20	1035	735	95	555	210	246	565	350	390	205	365	571	4×Φ18
ZWII65-30-30	1060	780	95	615	209	250	590	350	405	220	400	605	4×Φ18
ZWII65-30-40	1060	780	95	615	209	250	590	350	405	220	400	605	4×Φ18
ZWII65-30-50	1230	940	135	720	215	268	612	400	450	235	405	620	4×Φ23
ZWII80-40-20	1070	820	105	625	215	258	600	350	405	205	375	580	4×Φ18
ZWII80-40-25	1093	820	95	635	226	278	623	350	405	205	375	590	4×Φ18
ZWII80-40-30	1093	820	95	635	226	278	623	350	405	205	375	590	4×Φ18
ZWII80-40-50	1232	940	130	730	216	273	617	400	450	235	435	650	4×Φ23
ZWII80-65-25	1265	990	145	735	237	300	649	400	450	235	435	655	4×Φ23
ZWII80-65-40	1233	940	130	730	214	274	618	400	450	235	425	641	4×Φ23
ZWII80-65-50	1353	1070	185	775	232	289	653	440	490	260	480	700	4×Φ23
ZWII80-65-60	1423	1115	205	815	232	289	653	480	530	260	480	700	4×Φ23
ZWII100-80-20	1293	990	130	750	254	326	678	400	450	235	435	685	4×Φ23
ZWII100-80-50	1377	1070	170	785	243	308	677	440	490	266	486	735	4×Φ23
ZWII100-80-60	1434	1115	190	825	237	297	664	480	530	260	480	720	4×Φ23
ZWII100-80-80	1436	1115	190	825	239	299	666	480	530	280	500	736	4×Φ23
ZWII100-100-15	1151	900	110	660	259	322	681	400	450	245	445	695	4×Φ23
ZWII100-100-20	1262	990	145	725	243	296	647	400	450	235	455	691	4×Φ23
ZWII100-100-30	1262	990	145	725	243	296	647	400	450	235	455	691	4×Φ23
ZWII100-100-45	1377	1070	170	785	243	308	677	440	490	266	486	735	4×Φ23
ZWII100-100-50	1447	1155	205	830	243	308	677	480	530	266	486	735	4×Φ23
ZWII100-100-55	1447	1155	205	830	243	308	677	480	530	266	486	735	4×Φ23
ZWII125-120-20	1514	1170	170	845	344	421	844	440	490	290	600	915	4×Φ23
ZWII150-160-25	1615	1220	180	900	346	430	875	480	530	310	640	940	4×Φ23
ZWII150-200-15	1557	1170	160	870	362	447	887	480	530	300	610	915	4×Φ23
ZWII150-200-20	1645	1245	185	910	367	452	905	520	580	322	652	960	4×Φ27
ZWII150-200-30	1675	1260	185	935	367	452	905	520	580	322	652	960	4×Φ27
ZWII150-200-40	1725	1330	210	970	357	436	879	520	580	365	735	1045	4×Φ27
ZWII150-200-50	1795	1410	240	1010	357	436	879	570	630	365	735	1045	4×Φ27
ZWII200-300-15	1716	1330	200	945	403	502	976	520	580	335	645	985	4×Φ27
ZWII200-300-20	1723	1300	195	950	400	493	953	520	580	355	715	1085	4×Φ27
ZWII200-300-25	1770	1330	190	990	398	493	953	520	580	355	715	1085	4×Φ27
ZWII200-300-30	1798	1360	205	1005	398	493	953	520	580	355	715	1085	4×Φ27
ZWII200-300-50	2034	1610	280	1160	395	517	1009	650	700	465	835	1215	4×Φ27
ZWII250-600-30	2181	1685	280	1215	488	602	1156	660	710	515	895	1315	4×Φ27
ZWII300-800-15	2240	1780	240	1300	470	650	1235	660	710	535	1005	1545	4×Φ27
ZWII300-800-20	2240	1780	240	1300	470	650	1235	660	710	535	1005	1545	4×Φ27

Size of import and export flange

Type	Inhalation flange dimensions							Outlet flange size						
	DN1	D1	D11	d1	b1	f1	n1-d1	DN2	D2	D12	d2	b2	f2	n2-d2
ZWII25-8-15	25	115	85	65	16	3	4-Φ14	25	115	85	65	16	3	4-Φ14
ZWII32-10-10	32	140	100	76	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII32-10-20	32	140	100	76	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII32-10-30	32	140	100	76	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII40-15-15	40	150	110	84	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII40-15-20	40	150	110	84	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII40-15-30	40	150	110	84	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII40-15-40	40	150	110	84	18	3	4-Φ19	32	140	100	76	18	3	4-Φ19
ZWII50-20-15	50	165	125	99	20	3	4-Φ19	40	150	110	84	18	3	4-Φ19
ZWII50-20-20	50	165	125	99	20	3	4-Φ19	40	150	110	84	18	3	4-Φ19
ZWII50-20-30	50	165	125	99	20	3	4-Φ19	40	150	110	84	18	3	4-Φ19
ZWII50-20-40	50	165	125	99	20	3	4-Φ19	40	150	110	84	18	3	4-Φ19
ZWII50-20-50	50	165	125	99	20	3	4-Φ19	40	150	110	84	18	3	4-Φ19
ZWII65-30-20	65	185	145	118	20	3	4-Φ19	65	185	145	118	20	3	4-Φ19
ZWII65-30-30	65	185	145	118	20	3	4-Φ19	65	185	145	118	20	3	4-Φ19
ZWII65-30-40	65	185	145	118	20	3	4-Φ19	65	185	145	118	20	3	4-Φ19
ZWII65-30-50	65	185	145	118	20	3	4-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-40-20	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-40-25	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-40-30	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-40-50	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-65-25	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-65-40	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-65-50	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII80-65-60	80	200	160	132	22	3	8-Φ19	65	185	145	118	20	3	4-Φ19
ZWII100-80-20	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-80-50	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-80-60	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-80-80	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-100-15	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-100-20	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-100-30	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-100-45	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-100-50	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII100-100-55	100	220	180	156	24	3	8-Φ19	80	200	160	132	22	3	8-Φ19
ZWII125-120-20	125	250	210	184	26	3	8-Φ19	125	250	210	184	26	3	8-Φ19
ZWII150-160-25	150	285	240	211	26	3	8-Φ23	125	250	210	184	26	3	8-Φ19
ZWII150-200-15	150	285	240	211	26	3	8-Φ23	125	250	210	184	26	3	8-Φ19
ZWII150-200-20	150	285	240	211	26	3	8-Φ23	125	250	210	184	26	3	8-Φ19
ZWII150-200-30	150	285	240	211	26	3	8-Φ23	125	250	210	184	26	3	8-Φ19
ZWII150-200-40	150	285	240	211	26	3	8-Φ23	125	250	210	184	26	3	8-Φ19
ZWII150-200-50	150	285	240	211	26	3	8-Φ23	125	250	210	184	26	3	8-Φ19
ZWII20														

Explosion map



Installation of Pump Unit

1. Before installing the self-priming pump, check whether the fastener of the unit is loose or not, and whether the flow passage of the pump body is blocked by foreign bodies, so as to avoid damaging the impeller and pump body when the pump is running.
2. Check whether the foundation is flat, do a good job of vibration isolation pad or isolator, and tighten the foot bolts (steel plate folding base must be cement poured), so as to avoid the impact of vibration on pump components and performance when starting.
3. Flexible rubber soft joint is installed at the outlet connection end of the self-priming pump. The inlet and outlet pipelines connected with the pump are well supported, and the lower part of the inlet pipeline is fixed. The self-priming pump can not withstand any pipeline pressure to avoid damaging the pump.
4. In order to ensure the suction flow and flow rate of the self-priming pump, the inlet and outlet pipes should not be expanded or retracted. The total length of the inlet pipes should be less than 10 meters. Self-priming pump intake pipe is installed independently.
5. The distance between the end of the inlet pipeline and the bottom and wall of the catchment pit should be more than 0.5m. The suction pipe should not be installed near the water flow (there may be eddies). If there are two or more suction pipes in the same catchment pit, the distance between the pipes and the pipes should be greater than three times the diameter of the pipes.
6. If the pump is equipped with a filter, the flow area of the filter is 4-6 times that of the suction pipe, and the maximum diameter of the filter through the particle is smaller than the maximum diameter of the pump through the particle.
7. The outlet pipe of the self-priming pump should be vertical upward 1 meter to ensure that there is backflow water when the pump is self-priming.
8. Self-priming pumps are not full-head pumps. Pressure gauges, automatic exhaust valves and flow control valves should be installed on the outlet pipelines to ensure that the pumps operate within the rated lift and flow range. Increase the service life of self-priming pump.
9. The connecting flange in the suction pipeline must not leak air, otherwise it can not self-suck.
10. Pump shaft should be switched after installation. The impeller should be free of friction noise or stuck. Otherwise, the pump should be removed to check the cause. And check the concentricity of the connection between pump and motor.

Use of pumps

Preparations and inspections before start-up:

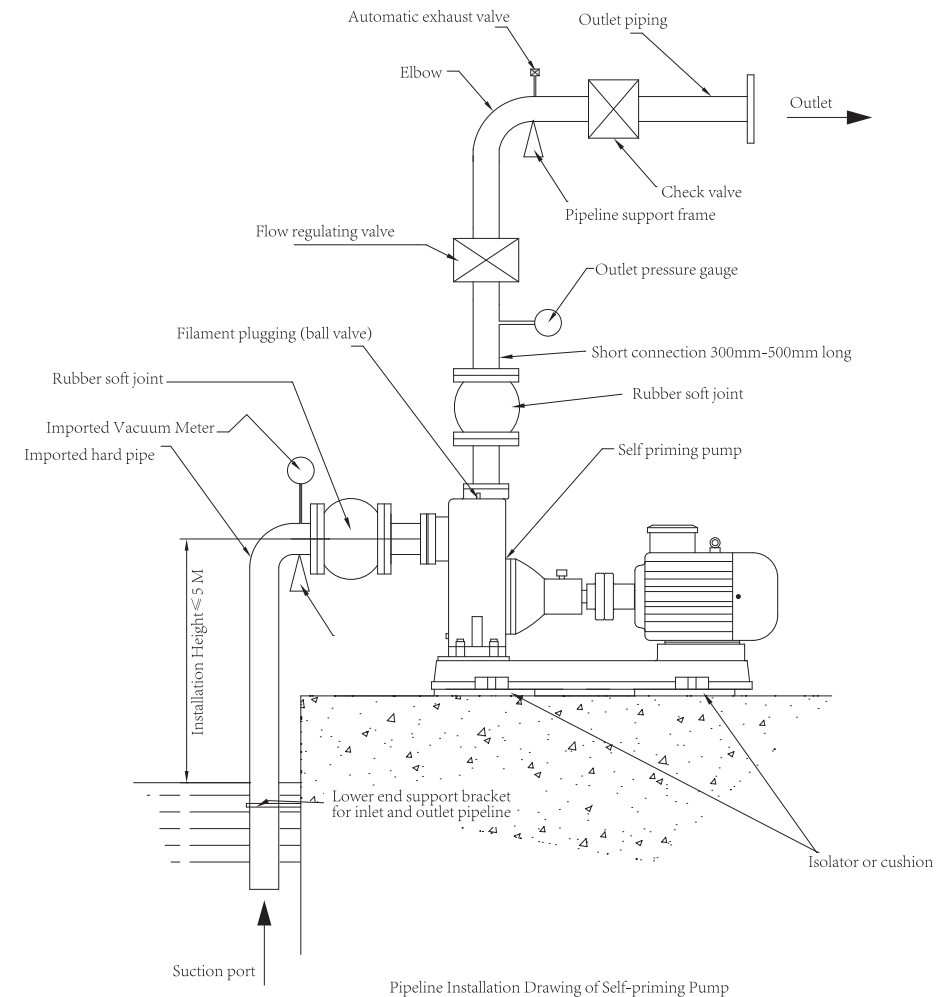
1. This series of self-priming pumps are lubricated with high quality 3 # lithium grease butter (the new pump does not need to add grease).
2. Check whether the reservoir in the pump body is higher than the upper edge of the impeller. If it is not enough, the reservoir can be directly injected into the pump body from the filling ball valve (wire plug) on the pump body. It is strictly forbidden to start operation under the condition of insufficient liquid storage. Otherwise, the pump can not work properly and is liable to damage the mechanical seal.
3. Check whether the rotating parts of the pump are stuck or not.
4. Check whether the bolts and bushes at the bottom and foot of the pump body are loosened or not.
5. Check the coaxiality and parallelism of pump shaft and motor spindle.
6. Check whether the inlet pipeline is leaking. If there is a leak, we must try to eliminate it.
7. Open the valve of the suction line and slightly open the outlet regulating valve (not all open).

Start-up and operation:

1. Point the self-priming pump, pay attention to the correct rotation of the pump shaft. From the motor end, it should turn clockwise (Reversal is strictly prohibited).
2. Pay attention to abnormal sound and vibration when rotating.
3. Pay attention to the reading of pressure gauge and vacuum gauge. After starting, when the reading of pressure gauge and vacuum gauge fluctuates for a period of time, it indicates that the pump has been filled with liquid and entered the normal infusion operation.
4. Before the pump enters the normal infusion operation, i.e. during the self-priming process, special attention should be paid to the increase of water temperature in the pump chamber. If the process is too long and the water temperature in the pump is too high, the pump should be stopped immediately to check the causes.
5. If the temperature of the liquid in the pump chamber is too high to cause self-priming difficulties, then the pump can be temporarily stopped, and the liquid in the exhaust pipeline can be used to reverse flow back to the pump body or to directly replenish the liquid in the pump body at the place where the storage ball valve (silk plug) is added to the pump body, so that the liquid in the pump body can be cooled, and then start up.
6. If strong vibration and noise occur in the working process of the pump, it may be caused by cavitation of the pump. There are two reasons for cavitation: one is that the flow velocity of the inlet pipe is too high, the other is that the suction distance is too high. When the flow rate is too high, the outlet flow regulating valve can be adjusted, and the reading of the outlet pressure gauge can be increased. When the suction distance is too high, the installation height of the pump can be reduced appropriately. When the import pipeline is blocked, it should be removed in time.
7. When the pump stops for some reason in the working process and needs to be restarted, the outlet flow regulating valve should be slightly opened (not completely closed), which is conducive to the discharge of gas from the outlet during the self-priming process, and can ensure that the pump starts at a lighter load.
8. Pay attention to check whether there is leakage in the pipeline system.

Pump shutdown:

1. First of all, the valve in the pipeline must be turned off.
2. Stop the pump from turning.
3. In the cold winter season, the liquid storage in the pump body and the water in the cooling chamber of the bearing should be emptied to prevent frost cracking of the machine parts.



Maintenance and disassembly

The pump is characterized by simple and reliable structure and durability. Normally, the pump does not need to be disassembled and maintained frequently. When the fault is found, it can be removed at any time.

1. When maintaining the pump, attention should be paid to several main parts:

A. Rolling bearing: When the bearing wears to a certain extent after long-term operation of the pump, it must be replaced.

B. Mechanical seals: Mechanical seals should not be disassembled and inspected without leakage. If the water retaining ring sprays water outward, the mechanical seal shall be disassembled and inspected. When assembling and disassembling mechanical seals, it is necessary to handle them lightly, pay attention to the cleaning of the mating surface, and protect the mirror of the static ring and the moving ring. Strictly prohibit knocking and collision. The leakage of mechanical seals is mainly caused by the brushing of friction surfaces. Another reason is the improper installation of "O" rubber sealing ring (or cushion) and the aging of deformation. At this time, it is necessary to adjust the "O" rubber sealing ring (or cushion) for reassembly or replacement of the machine seal.

2. Pump disassembly sequence:

A. Remove the motor or the coupling.

B. Remove the bearing assembly (rotor assembly), check the radial clearance of impeller and pump body orifice ring, check whether the impeller nut is loose.

C. Remove the impeller nut and pull out the impeller. Pull out the moving ring part of the mechanical seal, check the fit of the end faces of the dynamic and static rings, and check the sealing condition of the "O" type rubber seal ring (or cushion).

D. Pull-out coupling.

E. Remove bearing cap and pump shaft and bearing.

F. Installation can be done in reverse order.

Troubleshooting

Fault phenomenon	Reason	Elimination method
No water coming out of the pump.	1.No or insufficient liquid storage in pump chamber 2. Leakage and blockage of inhalation pipeline 3.Low Voltage 4.The suction range is too high or the suction line is too long. 5.Excessive leakage of mechanical seals	1.Plus feet 2.Eliminate pipeline leakage and clear up blockage 3.Voltage adjustment 4.Reduce the suction distance or shorten the pipeline 5.Repair or replace
Insufficient pump effluent	1.Impeller runner or suction line is blocked due to improper use 2.Impeller wear seriously 3.Insufficient power and low speed	1.Eliminate clogging 2.Replacement of impellers 3.Adjust to rated speed
Excessive Noise and Vibration of Pump	1.Base instability 2.Serious wear of bearings 3.Pump and motor spindle are different 4.Cavitation of pump	1.Reinforcement 2.Replacement of bearings 3.Adjusting coaxiality 4.Adjust the outlet control valve to eliminate cavitation
Bearing temperature is too high	1.Deterioration or drying of grease 2.Bearing damage	1.Replacement of grease 2.Replacement of bearings
Pump leakage	1.Loosening of bolts at joints 2.Mechanical Seal Damage	1. Tight 2. Replacement

Pipeline Loss Meter

pipe diameter (mm)	Flow rate (L/s)																						
	1	2	4	6	8	10	15	20	25	30													
25	3.27	13																					
40	3.50	14	15																				
50	0.80	3.10	13	29																			
65		0.80	3.20	7.10	13	20																	
80		0.40	1.60	3.30	5.90	9.60	21.60																
100			0.40	0.80	1.30	2.10	6.80	8.60	13	19.40													
125				0.23	0.40	0.63	1.30	2.70	4.10	5.90	10.70												
150					0.16	0.26	0.58	1.10	1.60	2.30	4.20	6.40	9.40										
175						0.11	0.27	0.50	0.74	1.05	1.90	2.90	4.30	5.80	7.70	9.60							
200							0.13	0.26	0.37	0.53	0.93	1.50	2.10	2.90	3.70	4.70	6.10	7.20	8.50				
250								0.07	0.12	0.18	0.30	0.48	0.68	0.93	1.20	1.50	1.90	2.30	2.80	3.30			
300									0.07	0.12	0.19	0.27	0.37	0.49	0.61	0.76	0.90	1.10	1.30	1.50	2.00	2.40	3.00

Loss of meters per 100 meters straight pipe. According to the new cast iron pipe, the old pipe is doubled.

type	Converted Pipeline Diameter Multiplier	Remarks
Full gate valve	15	Unopened double
Standard elbow	25	
Check valve	100	
Bottom valve	100	Partial blockage doubled

Note: For example, 10 mm diameter pipe, bottom valve is 100 times diameter, that is 100 x 100 = 10000 mm = 10m Straight pipe length. Assuming that the flow rate is 8L/s, look up the table. If the straight pipe loses 1.3 meters per 100 meters, it loses 10 meters, 0.13 meters. That is a 100 mm bottom valve, when the flow rate is 8L/s, the loss of lift is 0.13m.

Pipe diameter (mm)	Maximum flow rate (L/s)	Maximum velocity (m/s)	Pipe diameter (mm)	Maximum flow rate (L/s)	Maximum velocity (m/s)
25	1	2.04	125	30	2.44
40	2.5	2.2	150	43	2.45
50	4.17	2.12	175	60	2.49
65	6.67	2.01	200	83.3	2.69
80	10	2.26	250	133.3	2.72
100	18.4	2.33	300	192	2.72

Over this limit, the pipeline loss increases significantly.