TORONTECH™

CATALOGUE

2014

TTAAO-Series of Submersible sewage pumps

PRODUCT BROCHURE

TORONTECH™
PUMPS

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TORONTECH™

Torontech™ is a leading North American based international manufacturer and supplier of pumps, pipes, valves & actuators. The Torontech™ group has established an extensive network in the USA as well as international markets and remains to be a preferred vendor of choice supplying quality pumps for today's leading corporations.

Creating comprehensive solutions for our clients has always been the core value of our company. From sales, to order execution, and post-sales support; every staff member is here to assist you in selecting the solution that best suits your unique requirements and budget.

The Torontech™ group offers a complete range of quality pumps that are,ANSI to ISO approved and engineered to last, ensuring your company continuous production without interruptions.

Since the beginning, we have succeeded in only offering quality manufactured pumps that are currently being used worldwide. We offer the best value for your investment and provide world-class support.

Due to the demand for our quality pumps, Torontech™ has experience explosive growth primarily in the oil & gas, water filtration and chemical refinery industries.

We offer an extensive range of solutions and products for oil & gas projects, refineries, petrochemical plants, and marine applications. Our main class of pumps includes API (American Petroleum Institute) Standard, Mining, Water & Sewage and Firefighting applications. The pumps are offered in various configurations depending on orientation of the pump, required head and type of fuel used for operation.

CONTENTS

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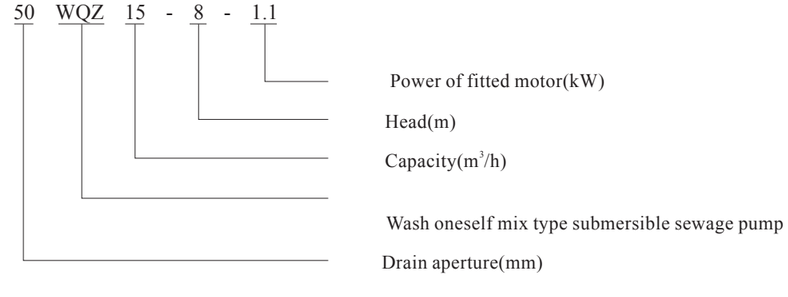
TORONTECH™ Pumps and Valves
TTAAO

TTAAO-Series of Submersible sewage pumps

Purpose

TTAAO-WQZ is mainly used for municipal works, industrial buildings, hotels, hospitals, civil air defence, mines etc. trades to drain off the sewage, waste water, rainwater and living water in cities containing solid grains and various long fabrics.

TTAAO Model meaning



Characteristic

TTAAO-WQZ series self-flushing stirring-type submergible sewage pump is a renewal product on the basis of model WQ submergible sewage pump and the design principle ofit comes as drilling several reverse flushing water holes on the pump casing so as to get partial pressurized water inside of the casing, when the pump is at work, through these holes and, in a divergent state, flushing onto the bottom of a sewage pool, the huge flushing force produced therein makes the deposits on the said bottom up and stirred, then mixed with sewage, sucked into the pump cavity and drained out finally. In addition to the excellent performance with model WQ sewage pump, this pump can also prevent the deposits from depositing on a pool bottom to purify the pool wit hout need of periodic clear-up, saving the cost on both labor and material.

Conditions of use

1. The medium temperature should not be over 40℃, the density 1050kg/m³, and the PH value within 5-9.

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2. During running, the pump must not be lower than the lowest liquid level, see " ▼ lowest liquid level" in the drawing of installation dimensions(covering the automatic cooling system), ▽ means lowest liquid level without no automatic cooling system.

3. Rated voltage 380V, rated frequency 50HZ, the motor can run successfully only under the condition the deviations of both rated voltage and frequency are not over ±5%.

4. The maximum diameter of the solid grain going through the pump has not to be larger than 50% of that of the pump outlet.

Rotating direction

The impeller rotates CCW as viewed from the suction.

Structures description

Bearing:

Impoted SKF or NTN bearing, which, with a reasonable configuration, can oxtend the duration of the pump.

Cooling:

The buit-in cooling system can have the pump normally work whether the motor is on or under the liquid surface. A part of the liquid is extracted to bring out the beat produced by the motor from the pump circulation to the cooling barrel and to the pump casing and, when external cooling is required, the cooling sleeve may be separated from the pump casing and individually connected to the cooling system.

Motor:

Of F class insulation, max. working temperature 155℃, and of a protective grade IPX8 with the effective seal.

Mechanicalseal:

Use Bogman mechanical seal of Germany, two ways of the seal are in series with each other and individually work to separate the motor from the pump seal to provide the motor with a dual protection.

The sealing material on the pump side is tungsten carbide/silicon carbide while on the motor side, graphite/tungsten carbide.

Oilchamber:

Oil can lubricate and cool the mechanical seal and realize the attached function of safety by preventing liquid from penetrating into the motor. The air of a certain amount left inside of the chamber can lower the pressure accumulatively raised.

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Impeller:

With the optimized design, the impeller will not be blocked up when to transport liquid with its optimum flow and rate and the maximum efficiency. There are suitable impellers at choice for.

There are single-geat, dual-geat and three-blade impellers available at choice per the medium to be extracted.

Pumpcasing:

Use of CAD/CAM know-how makes the pump a maximum efficiency and a minimum frictional loss and the unique structural design makes partial pressurized water flushing onto the bottom of a sewage pool in a divergent state, the huge reverse flushing force produced therein gets the deposits on the said bottom up and mixed with the sewage, then sucked into the pump cavity and drained out at last.

Shaft:

The pump is coaxial with the motor and the sealing device on the end of the shaft prevents against contacting with the medium to protect it from corrosion.

The as short as possible designed stretched rotating shaft can be reduced with its deflection and vibration, extend the duration of both mechanical seal and bearing and lower the noise at running.

Monitorsystem:

Inside of the stator there are three inlaid series heat-control switches, which are in the state of "N.O." at the normal temperature and opened when the temperature on the stator gets to 125℃.

A water-leakage probe is mounted inside the oil chamber to check water leakage and it will give a warning signal (the indicator lights), when the mechanical seal on the pump side leaks and the oil-water retio in the oil chamber reaches a certain concentration, to automatically cut off the power to stop the work of the pump.

Serviceman should replace the oil timely and check the mechanical seal on the pump side and replace it if necessary.

All the wiring box of the motor with a power not lower than 30kW is mounted with the leakage probe to check if a leak with the cable seal.

Floatswitch:

The float switch will give a warning sigual (the indicator lights), when leakage occurs on the mechanical seal on the motor side, the liquid goes into the switch room and reaches a certain height, to stop the pump. Serviceman should check the mechanical seal and replace it if necessary.

The function to check if the motor lack of phase is available with the electric control cabinet so as to prevent it from burning due any lack of phase.

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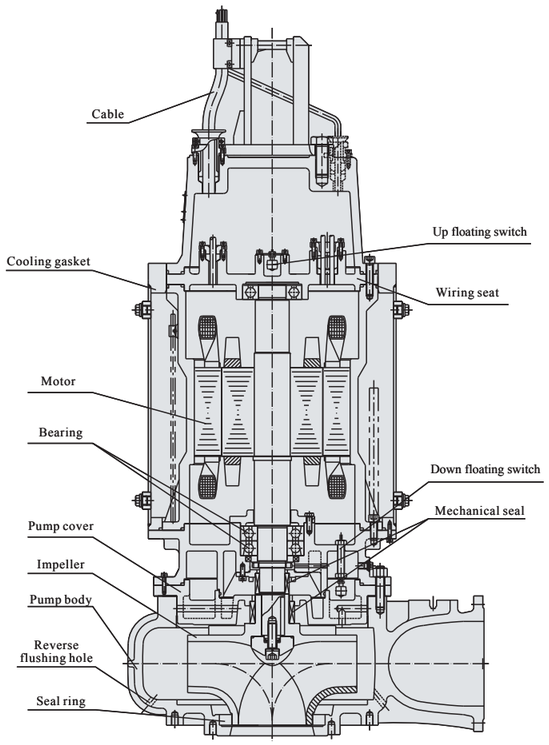
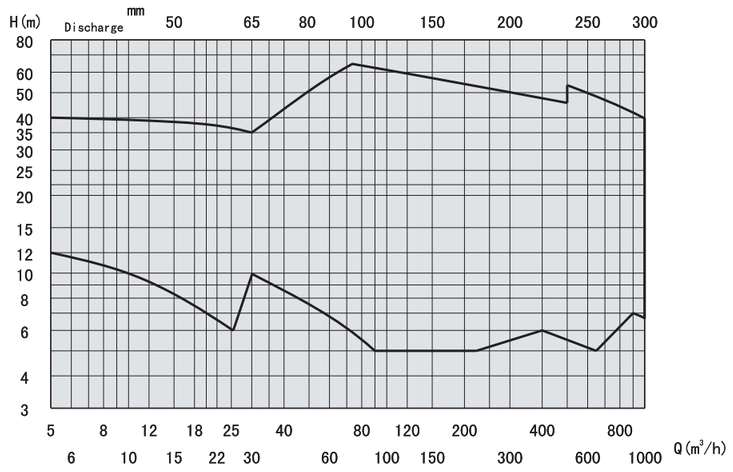
TTAAO WQZ type structure drawing



TTAAO WQZ type atlas of style



TTAAO WQZ type pump performance

No.	Type	Outlet diameter (mm)	Capacity (m^3/h)	Capacity (L/s)	Head (m)	Speed (r/min)	Power (kW)	Efficiency (%)	Weight (Kg)
1	50WQZ15-8-1.1	50	10 15 20	2.8 4.2 5.6	10 8 7	2825	1.1	48 52 56	40
2	50WQZ15-12-1.1	50	10 15 20	2.8 4.2 5.6	14 12 10	2825	1.1	48 52 56	42
3	50WQZ15-16-1.5	50	10 15 20	2.8 4.2 6.9	18 16 10	2840	1.5	48 52 56	50
4	50WQZ15-22-2.2	50	10 15 20	2.8 4.2 6.9	25 22 16	2840	2.2	48 52 56	55
5	50WQZ15-30-3	50	10 15 20	2.8 4.2 6.9	33 30 20	2880	3	45 50 54	75
6	50WQZ25-25-4	50	20 25 40	5.6 6.9 11.1	28 25 18	2880	4	43 48 53	85
7	50WQZ25-32-5.5	50	20 25 40	5.6 6.9 11.1	35 32 25	1440	5.5	43 48 55	110
8	50WQZ25-36-7.5	50	20 25 40	5.6 6.9 11.1	38 36 33	1440	7.5	43 48 55	125
9	65WQZ30-10-2.2	65	20 30 45	5.6 8.3 12.5	12 10 8	1420	2.2	50 62 64	75
10	65WQZ30-15-3	65	20 30 45	5.6 8.3 12.5	17 15 12	1420	3	50 62 64	85
11	65WQZ30-22-4	65	20 30 45	5.6 8.3 12.5	24 22 16	1440	4	44 52 57	95
12	65WQZ30-30-5.5	65	20 30 45	5.6 8.3 12.5	32 30 22	1440	5.5	44 52 57	120
13	65WQZ30-35-7.5	65	20 30 45	5.6 8.3 12.5	37 35 30	1440	7.5	44 50 57	135
14	80WQZ50-8-2.2	80	40 50 75	11.1 13.9 20.8	10 8 6	1420	2.2	56 60 63	85
15	80WQZ50-10-3	80	40 50 75	11.1 13.9 20.8	13 10 8	1420	3	56 60 62	95
16	80WQZ50-15-4	80	40 50 75	11.1 13.9 20.8	18 15 10	1440	4	55 58 60	105
17	80WQZ50-20-5.5	80	40 50 75	11.1 13.9 20.8	23 20 16	1440	5.5	48 55 66	130
18	80WQZ50-25-7.5	80	40 50 75	11.1 13.9 20.8	28 25 21	1440	7.5	48 55 63	145
19	80WQZ50-35-11	80	40 50 75	11.1 13.9 20.8	40 35 27	2930	11	48 55 63	210
20	80WQZ50-40-15	80	40 50 75	11.1 13.9 20.8	42 40 37	2930	15	46 52 60	235
21	100WQZ80-7-3	100	65 80 120	18.1 22.2 33.3	8 7 5	1420	3	62 64 60	105
22	100WQZ80-10-4	100	65 80 120	18.1 22.2 33.3	12 10 7	1440	4	62 64 62	115
23	100WQZ8013-5.5	100	65 80 120	18.1 22.2 33.3	15 13 10	1440	5.5	58 64 67	140
24	100WQZ80-18-7.5	100	65 80 120	18.1 22.2 33.3	21 18 13	1440	7.5	58 64 67	155
25	100WQZ80-24-11	100	65 80 120	18.1 22.2 33.3	28 24 20	2930	11	58 64 67	220
26	100WQZ80-32-15	100	65 80 120	18.1 22.2 33.3	35 32 25	2930	15	54 58 62	245
27	100WQZ80-36-18.5	100	65 80 120	18.1 22.2 33.3	40 36 30	2930	18.5	50 55 60	310
28	100WQZ80-40-22	100	65 80 120	18.1 22.2 33.3	45 40 35	2940	22	50 55 60	320
29	150WQZ150-7-5.5	150	100 150 220	27.8 41.7 61.1	9 7 5	1440	5.5	63 72 70	150
30	150WQZ150-10-7.5	150	100 150 220	27.8 41.7 61.1	12 10 7	1440	7.5	63 72 70	170

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TTAAO WQZ type pump performance

No.	Type	Outlet diameter (mm)	Capacity (m^3/h)	Capacity (L/s)	Head (m)	Speed (r/min)	Power (kW)	Efficiency (%)	Weight (Kg)
31	150WQZ150-15-11	150	100 150 220	27.8 41.7 61.1	18 15 11	1460	11	67 72 68	245
32	150WQZ150-20-15	150	100 150 220	27.8 41.7 61.1	23 20 17	1460	15	60 68 64	270
33	150WQZ150-25-18.5	150	100 150 220	27.8 41.7 61.1	28 25 19	1470	18.5	60 68 64	330
34	150WQZ150-30-22	150	100 150 200	27.8 41.7 55.6	33 30 25	1470	22	60 65 68	350
35	150WQZ150-40-30	150	100 150 200	27.8 41.7 55.6	42 40 33	1470	30	60 65 68	620
36	150WQZ150-45-37	150	100 150 200	27.8 41.7 55.6	47 45 38	1470	37	55 62 65	690
37	150WQZ150-50-45	150	100 150 200	27.8 41.7 55.6	52 50 47	1470	45	55 62 65	790
38	150WQZ100-60-55	150	80 100 150	22.2 27.8 41.7	62 60 56	1470	55	53 60 63	890
39	200WQZ300-7-11	200	250 300 400	69.4 83.3 111.1	8 7 6	1460	11	72 74 69	310
40	200WQZ300-10-15	200	250 300 400	69.4 83.3 111.1	11 10 8	1460	15	72 74 69	330
41	200WQZ300-13-18.5	200	250 300 400	69.4 83.3 111.1	15 13 10	1470	18.5	66 68 65	400
42	200WQZ300-15-22	200	250 300 400	69.4 83.3 111.1	17 15 13	1470	22	66 68 65	410
43	200WQZ300-20-30	200	250 300 400	69.4 83.3 111.1	22 20 17	980	30	66 67 67	690
44	200WQZ300-25-37	200	250 300 400	69.4 83.3 111.1	27 25 20	980	37	66 67 68	760
45	200WQZ400-27-45	200	250 400 500	69.4 111.1 138.9	35 27 24	980	45	65 74 78	890
46	200WQZ400-34-55	200	250 400 500	69.4 111.1 138.9	39 34 30	980	55	65 74 78	990
47	250WQZ400-7-15	200	300 400 600	83.3 111.1 166.7	9 7 5	1460	15	75 69 62	480
48	250WQZ400-10-18.5	250	300 400 600	83.3 111.1 166.7	12 10 7	1470	18.5	68 75 70	580
49	250WQZ400-13-22	250	300 400 600	83.3 111.1 166.7	16 13 9	1470	22	68 73 60	610
50	250WQZ500-12-30	250	400 500 700	111.1 138.9 194.4	15 12 8	980	30	70 72 78	740
51	250WQZ500-16-37	250	400 500 700	111.1 138.9 194.4	18 16 14	980	37	70 72 78	820
52	250WQZ500-20-45	250	400 500 700	111.1 138.9 194.4	22 20 16	980	45	70 72 78	1090
53	250WQZ500-25-55	250	400 500 700	111.1 138.9 194.4	28 25 19	980	55	72 74 72	1160
54	300WQZ600-6-18.5	300	500 600 700	138.9 166.7 208.3	7 6 5	1470	18.5	69 65 61	680
55	300WQZ600-7-22	300	550 600 750	138.9 166.7 208.3	8 7 6	1470	22	69 65 61	690
56	300WQZ700-11-30	300	550 700 1000	152.8 194.4 277.8	13 11 8	980	30	72 78 77	820
57	300WQZ700-14-37	300	550 700 1000	152.8 194.4 277.8	16 14 10	980	37	72 78 77	920
58	300WQZ700-16-45	300	550 700 1000	152.8 194.4 277.8	18 16 12	980	45	72 78 77	1200
59	300WQZ700-19-55	300	550 700 1000	152.8 194.4 277.8	21 19 14	980	55	70 75 73	1260

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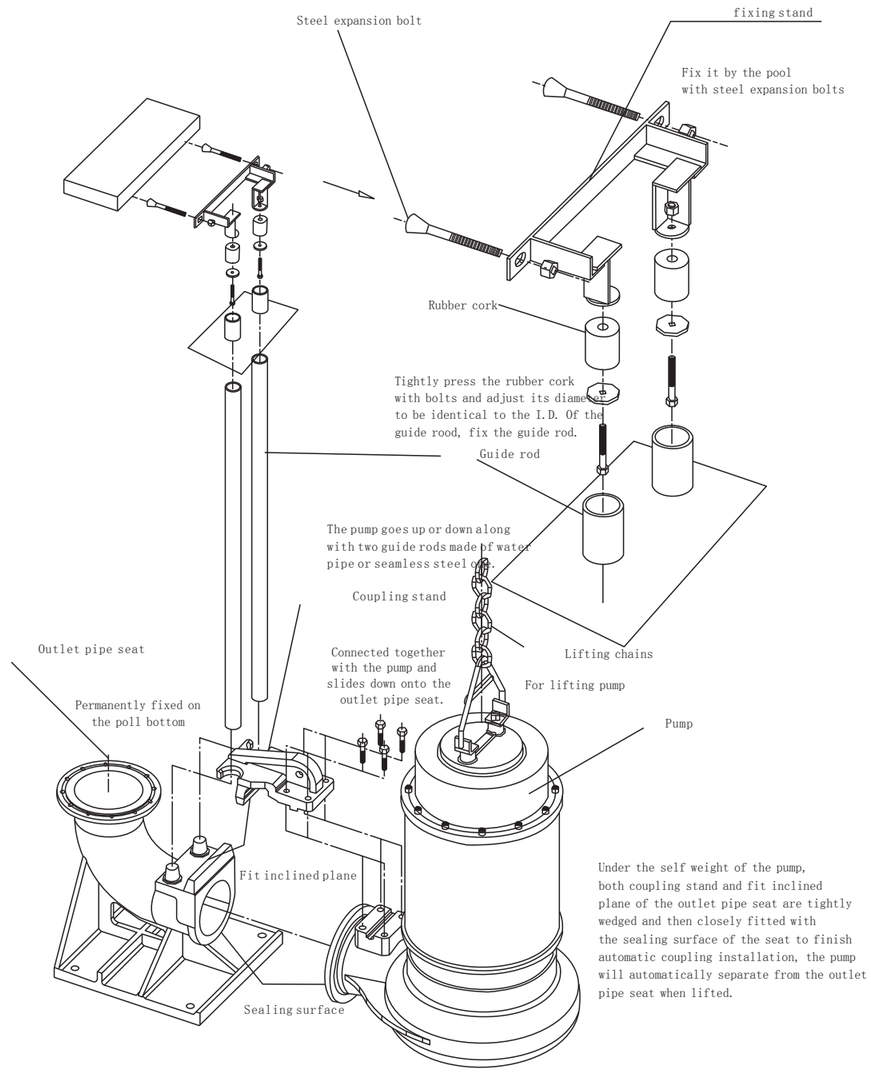
TTAAO WQZ type pump installation method

1、

Auto-coupled installation

The pump is placed down along with the guide rod and automatically connected to the drainage pipeline system. Less cost for mounting and lowering the cost for repair.

SCHEMATIC DRAWING OF COUPLING DEVICE INSTALLATION



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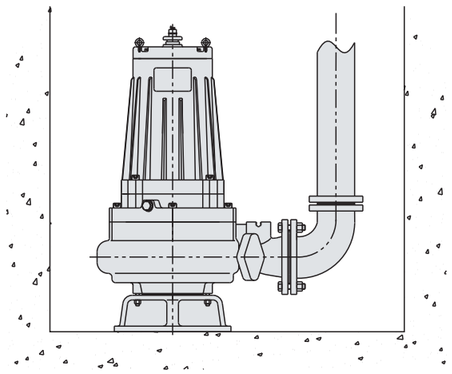
TTAAO WQZ type pump installation method

2.Movable Hard Pipe Installtion

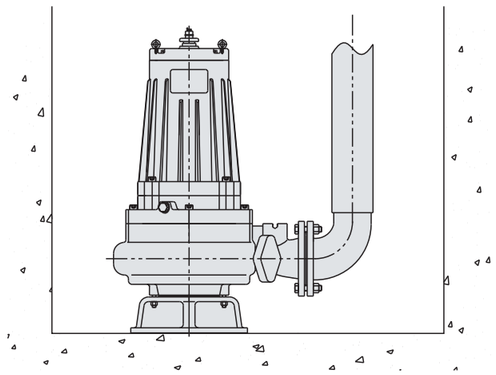
The pump is supported by its foundation, the hard pipe joint is connected to the pipeline system.

3.Movable Soft Pipe Installation

The pump is supported by its foundation, the soft pipe joint is connected to the outlet rubber pipe, of multiple purposes, easy to be mounted, the pump can be easily moved from one sewage well to another.

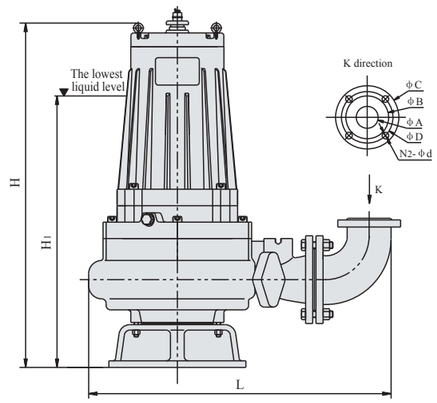


Movable hard pipe installation

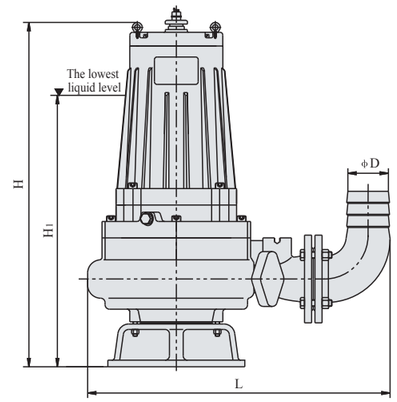


Movable soft pipe installation

TTAAO WQZ type pump dimension table and drawing



Hard pipe connection dimension



Soft pipe connection dimension

No.	Type	Hard pipe connection dimension								Soft pipe connection dimension			
		ϕA	ϕB	ϕC	ϕD	N2-ϕd	H	H1	L	ϕD	L	H	H1
1	50WQZ15-8-1.1	50	90	140	110	4-ϕ13.5	575	380	495	60	460	575	380
2	50WQZ15-12-1.1	50	90	140	110	4-ϕ13.5	575	380	495	60	460	575	380
3	50WQZ15-16-1.5	50	90	140	110	4-ϕ13.5	605	385	495	60	460	605	385
4	50WQZ15-22-2.2	50	90	140	110	4-ϕ13.5	605	385	495	60	460	605	385
5	50WQZ15-30-3	50	90	140	110	4-ϕ13.5	665	420	520	60	485	665	420
6	50WQZ25-25-4	50	90	140	110	4-ϕ13.5	675	515	520	60	485	675	515
7	50WQZ25-32-5.5	50	90	140	110	4-ϕ13.5	760	515	650	60	615	760	515
8	50WQZ25-36-7.5	50	90	140	110	4-ϕ13.5	760	515	650	60	615	760	515
9	65WQZ30-10-2.2	65	110	160	130	4-ϕ13.5	685	460	610	74	550	685	460
10	65WQZ30-15-3	65	110	160	130	4-ϕ13.5	685	460	610	74	550	685	460
11	65WQZ30-22-4	65	110	160	130	4-ϕ13.5	695	465	680	74	620	695	465
12	65WQZ30-30-5.5	65	110	160	130	4-ϕ13.5	760	515	680	74	620	760	515
13	65WQZ30-35-7.5	65	110	160	130	4-ϕ13.5	760	515	680	74	620	760	515
14	80WQZ50-8-2.2	80	128	190	150	4-ϕ17.5	755	470	700	86	600	755	470
15	80WQZ50-10-3	80	128	190	150	4-ϕ17.5	755	470	700	86	600	755	470
16	80WQZ50-15-4	80	128	190	150	4-ϕ17.5	765	470	700	86	600	765	470
17	80WQZ50-20-5.5	80	128	190	150	4-ϕ17.5	830	515	740	86	640	830	515
18	80WQZ50-25-7.5	80	128	190	150	4-ϕ17.5	830	515	740	86	640	830	515
19	100WQZ80-7-3	100	148	210	170	4-ϕ17.5	755	515	720	100	618	755	515
20	100WQZ80-10-4	100	148	210	170	4-ϕ17.5	765	515	720	100	618	765	515
21	100WQZ80-13-5.5	100	148	210	170	4-ϕ17.5	830	565	770	100	668	830	565
22	100WQZ80-18-7.5	100	148	210	170	4-ϕ17.5	830	565	770	100	668	830	565
23	150WQZ150-7-5.5	150	202	265	225	8-ϕ17.5	885	550	910	150	853	885	550
24	150WQZ150-10-7.5	150	202	265	225	8-ϕ17.5	885	550	910	150	853	885	550

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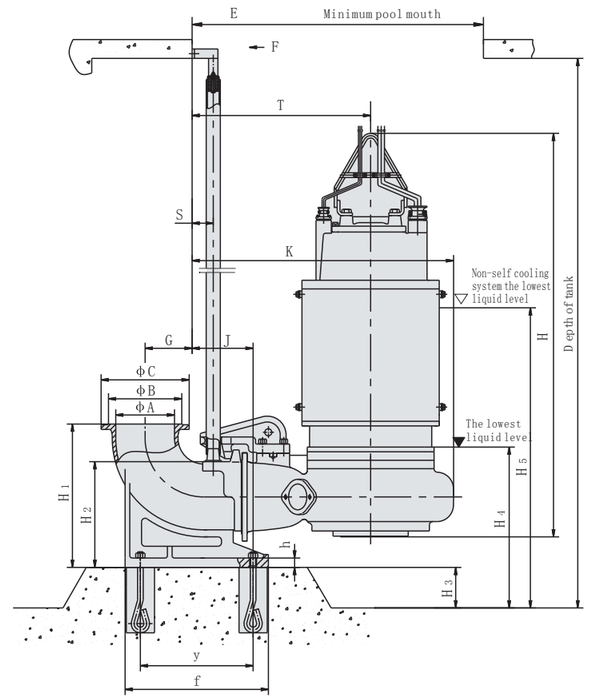
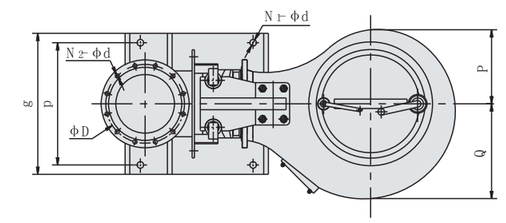
TTAAO WQZ type pump auto-coupled installation dimensions table

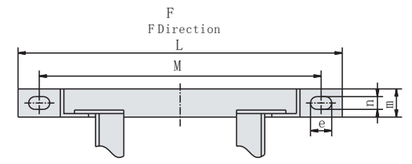
No.	Type	ϕA	ϕB	ϕC	ϕD	N2-ϕd	H	H1	H2	H3	H4	H5	h	G	J	S	T	g	f	p	y	N1-ϕd
1	50WQZ15-8-0.75	50	90	140	110	4-ϕ 13.5	495	215	150	50	-	430	20	65	105	55	315	260	310	230	210	4-ϕ 20
2	50WQZ15-12-1.1	50	90	140	110	4-ϕ 13.5	495	215	150	50	-	430	20	65	105	55	315	260	310	230	210	4-ϕ 20
3	50WQZ15-16-1.5	50	90	140	110	4-ϕ 13.5	525	215	150	50	-	430	20	65	105	55	315	260	310	230	210	4-ϕ 20
4	50WQZ15-22-2.2	50	90	140	110	4-ϕ 13.5	525	215	150	50	-	430	20	65	105	55	315	260	310	230	210	4-ϕ 20
5	50WQZ15-30-3	50	90	140	110	4-ϕ 13.5	585	215	150	50	-	490	20	65	105	55	340	260	310	230	210	4-ϕ 20
6	50WQZ25-25-4	50	90	140	110	4-ϕ 13.5	595	215	150	50	-	530	20	65	105	55	340	260	310	230	210	4-ϕ 20
7	50WQZ25-32-5.5	50	90	140	110	4-ϕ 13.5	680	215	150	50	-	555	20	65	105	55	395	260	310	230	210	4-ϕ 20
8	50WQZ25-36-7.5	50	90	140	110	4-ϕ 13.5	680	215	150	50	-	555	20	65	105	55	395	260	310	230	210	4-ϕ 20
9	65WQZ30-10-2.2	65	110	160	130	4-ϕ 13.5	605	240	170	65	-	545	20	80	120	55	365	275	310	250	225	4-ϕ 20
10	65WQZ30-15-3	65	110	160	130	4-ϕ 13.5	605	240	170	65	-	545	20	80	120	55	365	275	310	250	225	4-ϕ 20
11	65WQZ30-22-4	65	110	160	130	4-ϕ 13.5	615	240	170	65	-	565	20	80	120	55	395	275	310	250	225	4-ϕ 20
12	65WQZ30-30-5.5	65	110	160	130	4-ϕ 13.5	680	240	170	65	-	615	20	80	120	55	395	275	310	250	225	4-ϕ 20
13	65WQZ30-35-7.5	65	110	160	130	4-ϕ 13.5	680	240	170	65	-	615	20	80	120	55	395	275	310	250	225	4-ϕ 20
14	80WQZ50-8-2.2	80	128	190	150	4-ϕ 17.5	635	275	200	80	-	595	25	70	175	90	455	290	340	255	260	4-ϕ 20
15	80WQZ50-10-3	80	128	190	150	4-ϕ 17.5	635	275	200	80	-	595	25	70	175	90	455	290	340	255	260	4-ϕ 20
16	80WQZ50-15-4	80	128	190	150	4-ϕ 17.5	645	275	200	80	-	615	25	70	175	90	455	290	340	255	260	4-ϕ 20
17	80WQZ50-20-5.5	80	128	190	150	4-ϕ 17.5	710	275	200	80	-	660	25	70	175	90	475	290	340	255	260	4-ϕ 20
18	80WQZ50-25-7.5	80	128	190	150	4-ϕ 17.5	710	275	200	80	-	660	25	70	175	90	475	290	340	255	260	4-ϕ 20
19	80WQZ50-35-11	80	128	190	150	4-ϕ 17.5	915	275	200	80	-	790	25	70	175	90	455	290	340	255	260	4-ϕ 20
20	80WQZ50-40-15	80	128	190	150	4-ϕ 17.5	915	275	200	80	-	790	25	70	175	90	455	290	340	255	260	4-ϕ 20
21	100WQZ80-7-3	100	148	210	170	4-ϕ 17.5	635	330	230	100	-	650	25	90	215	90	465	340	410	305	310	4-ϕ 20
22	100WQZ80-10-4	100	148	210	170	4-ϕ 17.5	645	330	230	100	-	650	25	90	215	90	465	340	410	305	310	4-ϕ 20
23	100WQZ80-13-5.5	100	148	210	170	4-ϕ 17.5	710	330	230	100	-	690	25	90	215	90	505	340	410	305	310	4-ϕ 20
24	100WQZ80-18-7.5	100	148	210	170	4-ϕ 17.5	710	330	230	100	-	690	25	90	215	90	505	340	410	305	310	4-ϕ 20
25	100WQZ80-24-11	100	148	210	170	4-ϕ 17.5	915	330	230	100	-	825	25	90	215	90	485	340	410	305	310	4-ϕ 20
26	100WQZ80-32-15	100	148	210	170	4-ϕ 17.5	915	330	230	100	-	825	25	90	215	90	485	340	410	305	310	4-ϕ 20
27	100WQZ80-36-18.5	100	148	210	170	4-ϕ 17.5	915	330	230	100	-	825	25	90	215	90	485	340	410	305	310	4-ϕ 20
28	100WQZ80-40-22	100	148	210	170	4-ϕ 17.5	960	330	230	100	-	825	25	90	215	90	485	340	410	305	310	4-ϕ 20
29	150WQZ150-7-5.5	150	202	265	225	8-ϕ 17.5	765	485	335	150	-	845	35	125	260	90	545	480	500	440	400	4-ϕ 20
30	150WQZ150-10-7.5	150	202	265	225	8-ϕ 17.5	765	485	335	150	-	845	35	125	260	90	545	480	500	440	400	4-ϕ 20

TTAAO WQZ type pump auto-coupled installation dimensions table

P	Q	K	L	M	e	n	m	E
98	108	420	260	210	30	18	40	700×570
98	108	420	260	210	30	18	40	700×570
98	108	420	260	210	30	18	40	700×570
98	108	420	260	210	30	18	40	700×570
118	127	465	260	210	30	18	40	850×700
118	127	465	260	210	30	18	40	850×700
195	210	500	260	210	30	18	40	850×700
195	210	500	260	210	30	18	40	850×700
152	173	527	260	210	30	18	40	850×700
152	173	527	260	210	30	18	40	850×700
194	210	596	260	210	30	18	40	900×750
194	210	596	260	210	30	18	40	900×750
194	210	596	260	210	30	18	40	900×750
163	190	630	380	320	30	18	40	850×700
163	190	630	380	320	30	18	40	850×700
163	190	630	380	320	30	18	40	850×700
185	205	670	380	320	30	18	40	950×750
185	205	670	380	320	30	18	40	950×750
163	180	625	380	320	30	18	40	950×750
163	180	625	380	320	30	18	40	950×750
169	202	650	380	320	30	18	40	950×750
169	202	650	380	320	30	18	40	950×750
180	207	700	380	320	30	18	40	950×750
180	207	700	380	320	30	18	40	950×750
163	186	655	380	320	30	18	40	950×750
163	186	655	380	320	30	18	40	950×750
163	186	655	380	320	30	18	40	950×750
163	186	655	380	320	30	18	40	1000×700
203	250	772	380	320	30	18	40	950×750
203	250	772	380	320	30	18	40	950×750







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TORONTECH™
Pumps and Valves
TTAAO

Use, check and service

1.Precautionsatuse

It is not proper to use the pump in a medium environment easy to explode and burn and to extract any combustible liquid.

It is strictly prohibited to impact or press the cable and use it as a lifting rope, and pull it at will when the pump is running so as not to damage it , which may result in an electric shock, or lowering the cable sealness, or the insulation performance of the wiring box of the motor.

When to use the way of fixed automatic couoling installation, lift or lower down the pump with the lifting chains locking the handle and take care to handle it.

The pump has to be vertically lifted when it is placed in water and not horizontally landed, further more, not sunk into sludge.

A flow regulating valve must be equipped with the spitting pipeline to avoid overload of the motor due to a too heavy flow.

2.Checkbeforeuse

Carefully check if there is any deformation or damage with the pump and any looseness or fall-off with the fasteners during transport, storage and installation.

Check if any damage or fracture with the cable, if the seal on its inlet intact and make a proper treatment in time if any possible leakage or bad seal is found.

Measure the dielectric resistance between the phases and between the phase and ground with a 500V megohm 2 meter, the value of which has not to be lower than megohm, otherwise a drying treatment must be taken for the stator winding of the motor with a temperature not over 120℃ or notify the manufacturer for help.

Check if there is oil in the oil chamber and do not stop filling it until it overflows on the filler.

Check if the screw cork and sealing pad on the oil chamber are full and if the screw cork presses the sealing pad tightly.

Check if the impeller rotates flexibly.

Check if the power device safe, reliable or normal and if the grounding wire inside of the cable reliably grounded.

Before placing the pump in the pool, check if it is in a correct. Direction of rotation by way of dot moving and cut off the power and change the U,V, W three wires with any two of which in the electric control cabinet if not correct.

3.Starting

Close the flow regulating valve on the spitting pipeline at starting and gradually open it when the pump gets in the full speed running. Note the pump can not run for a long time with the valve closed.

4.Stopping

Lift the pump, clean it and place it in a dry place when intended not to use it up to half a month and lift it out of the water and let the liquid inside of it drain out to prevent it from being frozen when the temperature is very low.

5.Check

Periodically check the dielectric resistance between phases and between phase and ground, the value of which should not be lower than 2 megohm, otherwise it has to be removed to overhaul, and, at the same time, check if the grounding is secured and reliable.

Replace the seal ring with a new one when the max.interval of it, mounted on the impeller neck and pump casing,is over 2mm.

After half a year running of the pump under the provided working medium condition, check the state of the oil chamber and replace it with N10 mechanical oil if it shows emulsified state. It is possible that the mechanical seal on the pump. Side is made damaged when the leakage probe gives a warning with the pump running for a short time after the oil replacement and replace it at once. More often check the pump when it is used under a very adverse working condition.

After one year work of the pump under the normal working condition, a big overhaul must be taken for replacing the worn-out parts, checking the fasteners and supple-menting or replacing the grease on the bearing so as to ensure a good lubrication of the pump during its running.

To disassemble, do not knock at it at will in order to avoid damaging the seal and do not allow non-skilled persons to do that in order not cause it leaking or the motor damaged.

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TORONTECH™ Pumps and Valves
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Failures causes and troubleshooting

Failure	Possible causes	Troubleshooting
1、 Flow not enough or not water out	a) Impeller reversedly rotates b) Geat blocked up c) Too high concentration of the medium to be extracted d) Too high head e) Impeller seriously worn out	a) Correct its direction b) Get rid of foreign matters c) Get it thinned with water d) Change the pump or lower the head e) Replace it
2、 Unable to start	a) Lack of phase b) Impeller blocked c) Circuit breaking of winding joint or cable d) Stator winding burnt e) Electric control fault	a) Check the circuit b) Get rid of foreign matters c) Check and repair with an ohmmeter d) Repair or replace it e) Check electric control cabinet and replace faulty components
3、 Stator burnt	a) Running with phase lack b) Too high concentration of the medium extracted c) Impeller blocked or loose d) Seal damaged and water going in the motor e) Fasteners loose to make water in the motor	After repair, it is required before use: a) To check the circuit and clear off the failures b) Get it thinned with water c) Get rid of dirt, tighten the screws on impeller d) Replace mechanical seal or "O"-ring seal e) Tighten fasteners on every part
4、 Too heavy current	a) Pipeline, impeller blocked up b) Too high density or viscosity of the liquid extracted c) Too heavy flow	a) Clear up both b) Change either of both c) Close the outlet valve a little to reduce the flow

Reference table for pipeline loss

Brief table for the frictional loss of a straight pipe(for evaluation).the lost meters of a 100m straight pipe takes the newly cast iron pipe as the standard and multiple for the old one.

Capacity (L/s)	1	2	4	6	8	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	160	180	200		
Pipe diameter (mm)																										
25	32.7	13.0																								
38	3.5	14	55																							
50	0.8	3.1	13	29																						
65		1.6	3.2	7.1	13	20																				
75		0.4	0.8	3.3	5.9	9.6	21.6																			
100			0.23	0.8	1.3	2.1	6.8	8.6	13	19.4																
125				0.23	0.4	0.63	1.3	2.7	4.1	5.9	10.7															
150					0.16	0.26	0.58	1.1	1.6	2.3	4.2	6.4	9.4													
175						0.11	0.27	0.5	0.74	1.05	1.9	2.9	4.3	5.8	7.7	9.6										
200							0.13	0.26	0.37	0.53	0.93	1.5	2.1	2.9	3.7	4.7	6.1	7.2	8.5							
250								0.07	0.12	0.18	0.30	0.48	0.68	0.93	1.2	1.5	1.9	2.3	2.8	3.3	3.7	4.9	5.2			
300										0.07	0.12	0.19	0.27	0.37	0.49	0.61	0.76	0.9	1.1	1.3	1.5	2.0	2.4	3.0		

The length of a straight pipe converted into from both valve and elbow(each)

Variety	Convert into the times of the diameter of a straight pipe	Remark
Standard elbow	12	Multiple in case of unopen
Fully opened gate valve	25	
Back valve	100	
Foot valve	100	Partial block-up multipled

Note:For instance, a 100mmdiameter pipe, the foot valve has a 100×100=10000mm=10m diameter when which is converted into 100 times that of the pipe s diameter. Suppose the flow is 8L/s, looked into the above table, the loss of the straight pipe is 1.3m each 100m, then the one for 100mm is 0.13m, that is, for a 100mm foot valve with a flow 8L/s, its head loww is 0.13m.

Limit of the maximun flow for a pipe with a certain diameter

Pipeline diameter (mm)	Maximum flow (L/s)	Meximum flow rate (m/s)	Pipeline diameter (mm)	Maximum flow (L/s)	Meximum flow rate (m/s)
25	1	2.04	125	30.0	2.44
38	2.5	1.69	150	43.0	2.45
50	4.17	2.12	175	60.0	2.49
65	6.67	2.01	200	83.3	2.69
75	10.0	2.26	250	133.0	2.72
100	18.4	2.33	300	192.0	2.71

Note: The pipeline loss would be made greatly increased once the limit is over.

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