



AR

Submersible aerator



AR Submersible aerator

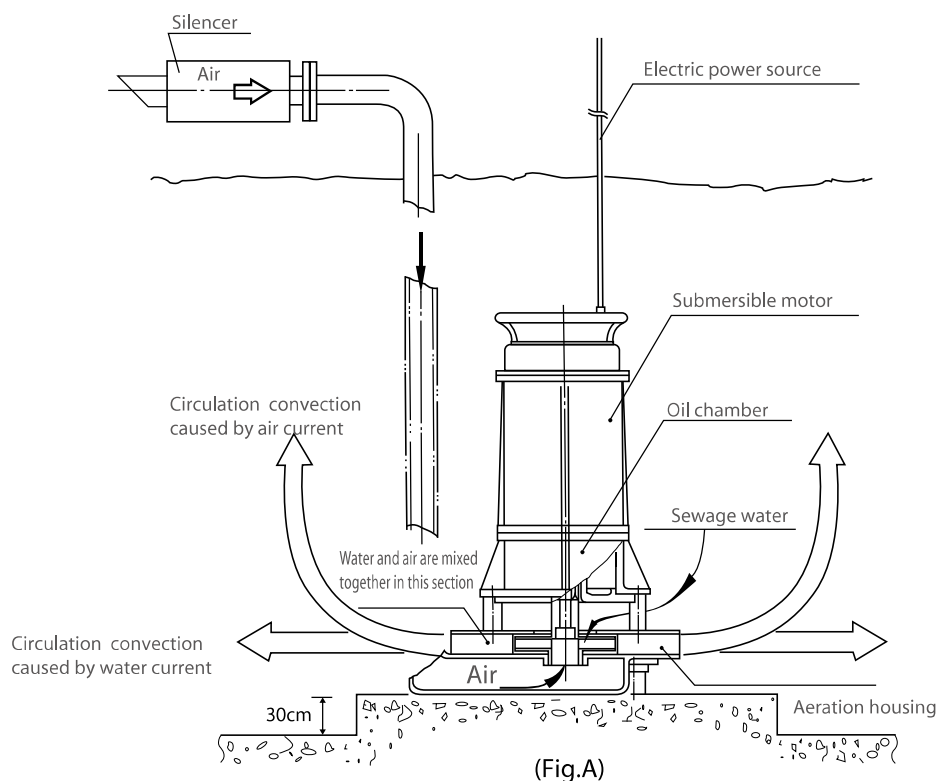
General

With fast industrial developments, human life became more materially civilized. On the contrary, gigantic quantities of waste-water were brought by the industrial manufacturing. In the meantime, large quantities of household waste water were also resulted from our daily life. All these have affected the living quality and damaged the environmental ecology. GSD has been making every endeavour in developing the waste water treatment equipment. In addition to waste water pumps, sewage pumps, sludge dehydration system, the company also developed submersible aerator and surface aerators for higher treatment rate of BOD and COD in the treatment of waste water. These aerators have been widely used in domestic and overseas waste water treatment plants.

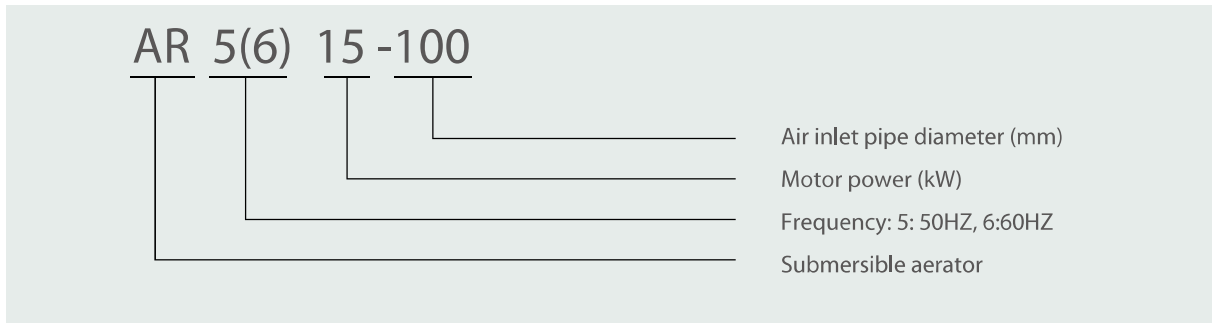
Characteristics (refer to fig.A)

Submersible aerator AR utilizes the rotation of the impeller coupled directly to the motor to create a centrifugal force, which makes local low pressure suck in water. Meanwhile the entrance of the impeller results in vacuum to draw air from atmosphere. Water and air mix in the channel of aeration housing. The air-water mixture current is discharged speedily by the centrifugal force.

Due to the water spurting extremely strong, make the fluid create convection and circulation effectively. Moreover the air becomes tiny bubbles. On the one hand the bubbles rise slowly, on the other hand the atmosphere oxygen is dissolved in water. Because the bubbles are tiny and numberless, their surface area is large, it makes the oxygen transfer rate per unit BHP higher than other types of aerator.

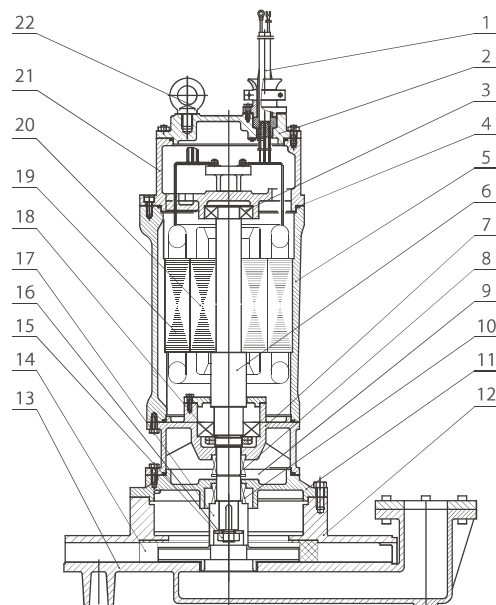


Type description



Construction

NO.	Name	Material	
		GB	JIS
1	Cable	2RNCT	2RNCT
2	The motor cover	HT200	FC200
3	Ball bearing	-	-
4	O-ring	NBR	NBR
5	Motor casing	HT200	FC200
6	Main shaft	2Cr13	SUS420J1
7	Bracket	HT200	FC200
8	Mechanical seal	C-Al ₂ O ₃	C-Al ₂ O ₃
9	Lubricant	ISO VG32	ISO VG32
10	Mechanical seal	SiC-SiC	SiC-SiC
11	Oil cover	HT200	FC200
12	Aeration housing	HT200	FC200
13	Bottom cover of aeration housing	HT200	FC200
14	Entrance panel board	NBR	NBR
15	Screw	A2-70	A2-70
16	Gasket	3Cr13	SUS420J2
17	Impeller	ZG0Cr18Ni9	SUS304
18	Ball bearing	-	-
19	Stator	-	-
20	Rotor	-	-
21	Terminal box	HT200	FC200
22	Lifting rings	0Cr18Ni9	SUS304



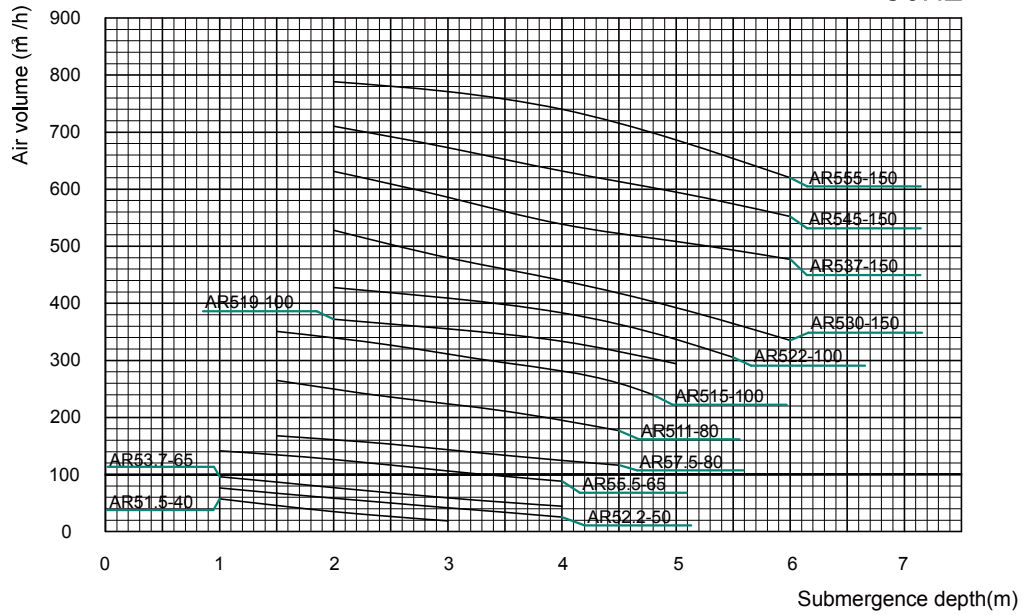
Features

- Submersible motor directly drive, low noise, high efficiency.
- It has unique design for gas mixing chamber whose air intake quantity is big. Air can be mixed well with water. It also has mixing function while aerating.
- Adopt double mechanical seal, can extend usefullife of motor.
- Dual protection :
 - 1.Using a high filtration rate of the filter mesh to prevent particles from entering aerator body while maintaining the air input capacity.
 - 2.Enlarge the space between the impeller and the mixing chamber to avoid the impeller being stuck by foreign material.
- Use guide rail to allow pump for easy installation, maintenance & repair.

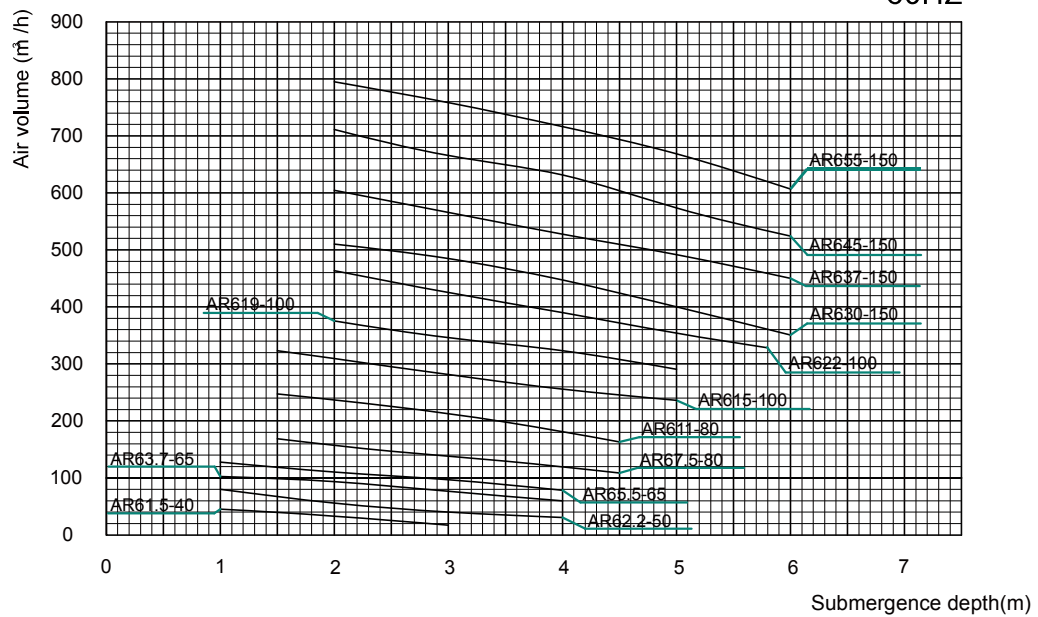
Performance curves

Air transfer specific curves

50HZ



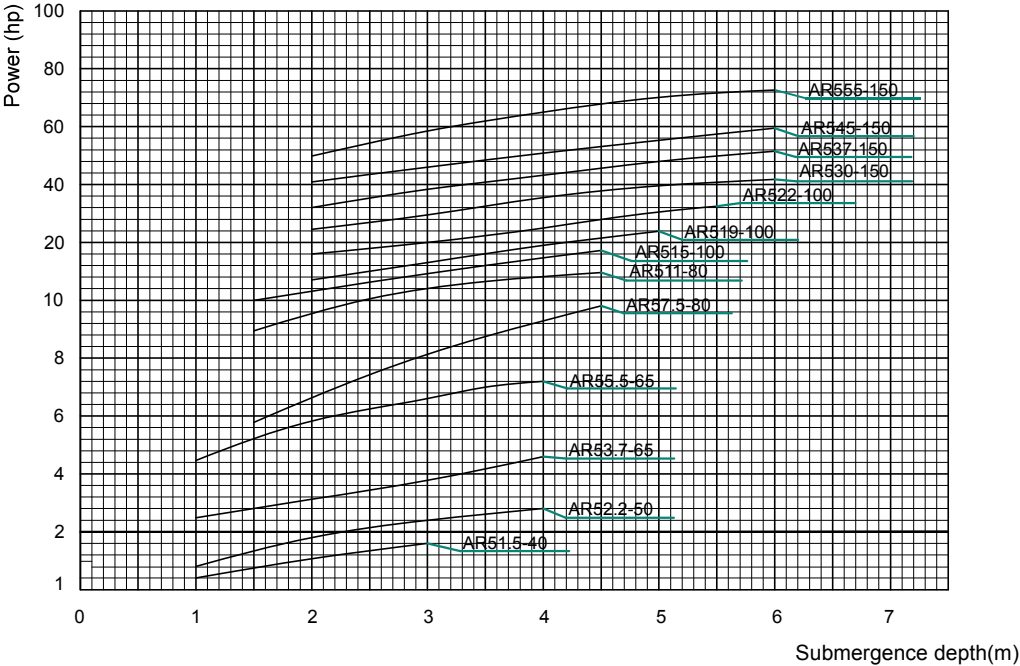
60HZ



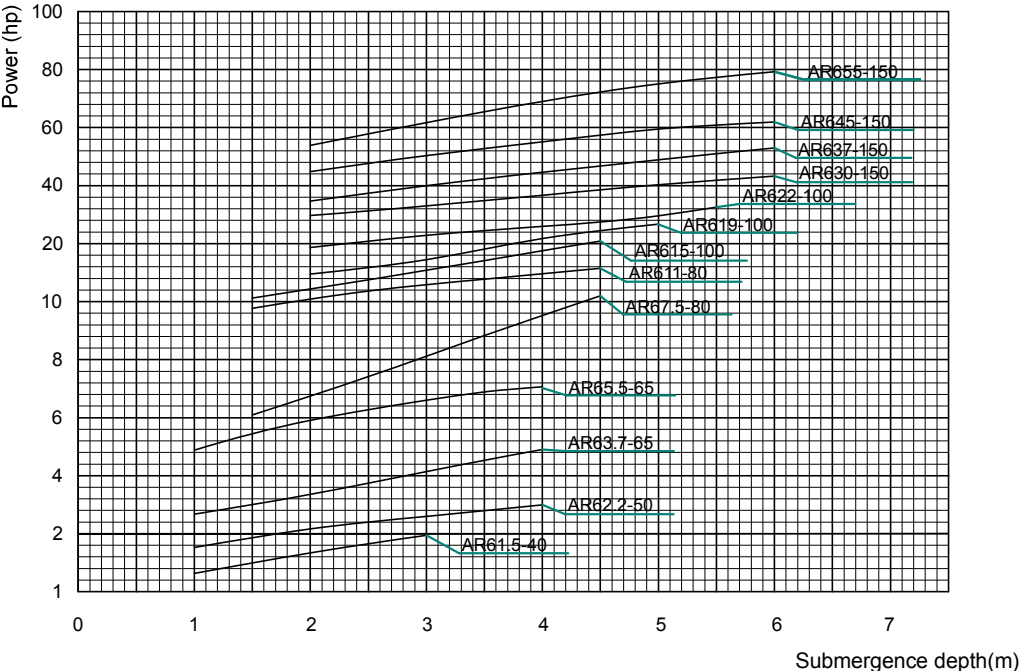
Performance curves

Power specific curves

50HZ



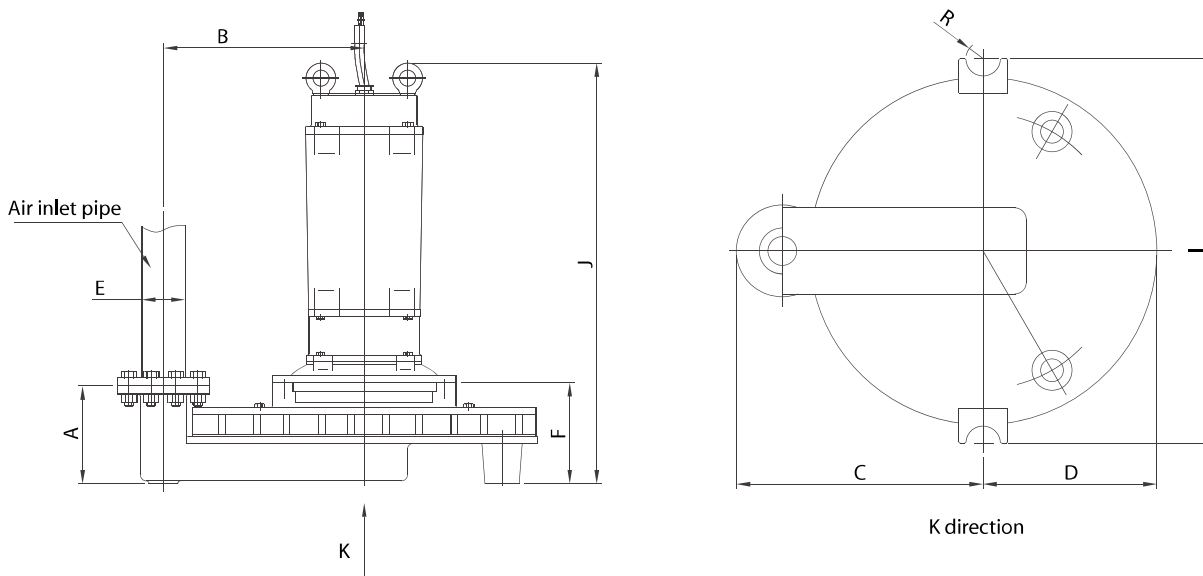
60HZ



Performance parameters

Type	Power		Operation range (m)	Min-max water depth (m)	Air inlet pipe diameter (mm)	The maximum intake of air (m ³ /h) 50HZ/60HZ	NO. of outlets 50HZ/60HZ	Weight (kg)	Cable					Material
	hp	kW							Power cable		Control cable		Length m	
									NO	Coresxmm ²	NO	Coresxmm ²		
AR5(6)1.5-40	2	1.5	1.0-2.0	1.0-3.0	40	40/40	8	135	1	3x1.5+1x1			6	
AR5(6)2.2-50	3	2.2	2.5-5.0	1.0-4.0	50	60/60	8	147	1	3x1.5+1x1			6	
AR5(6)3.7-65	5	4	3.0-6.0	1.0-4.0	65	90/80	8	160	1	3x1.5+1x1	1	4x1	6	
AR5(6)5.5-65	7.5	5.5	3.5-7.0	1.0-4.0	65	150/120	10/8	315	1	3x2.5+1x1	1	4x1	10	
AR5(6)7.5-80	10	7.5	4.5-9.0	1.5-4.5	80	170/160	10	320	2	3x2.5+1x1	1	4x1	10	
AR5(6)11-80	15	11	5.0-10.0	1.5-4.5	80	260/260	10	368	2	3x4+1x2.5	1	4x1	10	Chloroprene
AR5(6)15-100	20	15	5.8-11.5	1.5-4.5	100	340/320	10	385	2	3x4+1x2.5	1	4x1	10	Rubber or PVC
AR5(6)19-100	25	18.5	5.9-11.8	2.0-5.0	100	360/360	10	432	2	3x10+1x6	1	4x1	10	
AR5(6)22-100	30	22	6.0-12.0	2.0-5.5	100	440/460	10	456	2	3x10+1x6	1	4x1	10	
AR5(6)30-150	40	30	7.3-14.5	2.0-6.0	150	510/500	10	998	2	3x16+1x6	1	4x1	10	
AR5(6)37-150	50	37	7.5-15.0	2.0-6.0	150	600/600	12/10	1080	2	3x16+1x6	1	4x1	10	
AR5(6)45-150	60	45	7.8-15.5	2.0-6.0	150	700/700	12/10	1155	2	3x16+1x6	1	4x1	10	
AR5(6)55-150	75	55	8.0-16.0	2.0-6.0	150	780/800	12	1200	2	3x25+1x10	1	4x1	10	

Installation dimensions



50HZ

Type	Dimensions(mm)								
	A	B	C	D	E	F	I	J	R
AR51.5-40	165	300	365	252.5	40	173	576	617	30
AR52.2-50	170	350	430	302.5	50	176	670	698	30
AR53.7-65	170	350	430	302.5	65	176	670	732	30
AR55.5-65	223	435	540	362.5	65	242	800	855	32.5
AR57.5-80	223	435	540	362.5	80	243	800	855	32.5
AR511-80	223	435	540	362.5	80	248	800	950	32.5
AR515-100	223	435	540	362.5	100	252	800	955	32.5
AR519-100	223	435	540	362.5	100	252	800	1120	32.5
AR522-100	223	435	540	362.5	100	252	800	1120	32.5
AR530-150	338	600	740	475	150	346	1108	1448	39
AR537-150	338	600	740	475	150	367.5	1108	1467.5	39
AR545-150	338	600	740	475	150	367.5	1108	1467.5	39
AR555-150	338	600	740	475	150	367.5	1108	1702.5	39

60HZ

Type	Dimensions(mm)								
	A	B	C	D	E	F	I	J	R
AR61.5-40	165	300	365	252.5	40	172.5	576	617	30
AR62.2-50	165	300	380	252.5	50	172.5	576	695	30
AR63.7-65	170	350	430	302.5	65	176	670	732	30
AR65.5-65	170	350	430	302.5	65	176	670	788	30
AR67.5-80	223	435	540	362.5	80	243	800	855	32.5
AR611-80	223	435	540	362.5	80	243	800	945	32.5
AR615-100	223	435	540	362.5	100	248	800	950	32.5
AR619-100	223	435	540	362.5	100	252	800	1119	32.5
AR622-100	223	435	540	362.5	100	252	800	1119	32.5
AR630-150	223	435	540	362.5	150	252	800	1354	32.5
AR637-150	223	435	540	362.5	150	252	800	1354	32.5
AR645-150	338	600	740	475	150	346	1108	1448	39
AR655-150	338	600	740	475	150	346	1108	1681	39



Basin dimensions

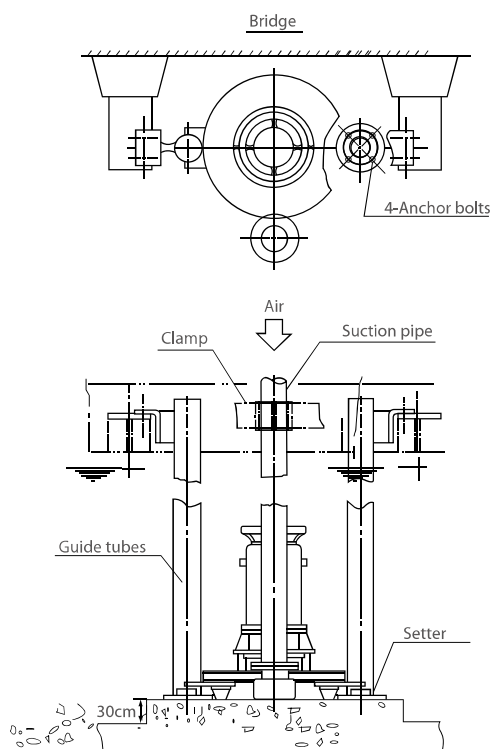
Type	Max water depth (m)	Shape and dimensions (m)		
		Round(Diameter)	Square	Rectangular
AR5(6)1.5-40	3	3.5	3.1 x 3.1	2.5 x 3.8
AR5(6)2.2-50	4	4.8	4.2 x 4.2	3.4 x 5.2
AR5(6)3.7-65	4	6.6	5.8 x 5.8	4.8 x 7.1
AR5(6)5.5-65	4	8.0	7.1 x 7.1	5.8 x 8.7
AR5(6)7.5-80	4.5	9.8	8.7 x 8.7	7.1 x 10.6
AR5(6)11-80	4.5	12.5	11.1 x 11.1	9.1 x 13.6
AR5(6)15-100	4.5	12.5	11.5 x 11.5	9.1 x 13.6
AR5(6)19-100	5	12.5	11.8 x 11.8	9.7 x 14.5
AR5(6)22-100	5.5	12.5	12.0 x 12.0	9.7 x 14.5
AR5(6)30-150	6	16	14.5 x 14.5	12.5 x 17.0
AR5(6)37-150	6	16	15.0 x 15.0	13.0 x 17.5
AR5(6)45-150	6	16	15.5 x 15.5	13.0 x 17.5
AR5(6)55-150	6	16	16 x 16	13.5 x 18.0

Note: To achieve higher efficient operation, oversize particles and long fibers should not in the aeration tank.

Installation

For better and easier maintenance of the aerator, following instructions shall be noticed:

- The setter should be fixed on concrete base of the aeration basin(Before the aeration basin was filled with waste water).
- When designing the strength of the bridge (As shown in below Fig.) construction, the warping and the lifting equipment should be considered.
- The guide tubes should be prepared in advance and it is advisable to use stainless steel tubes.
- The air pipes should be fixed if necessary depending upon the actual condition.



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