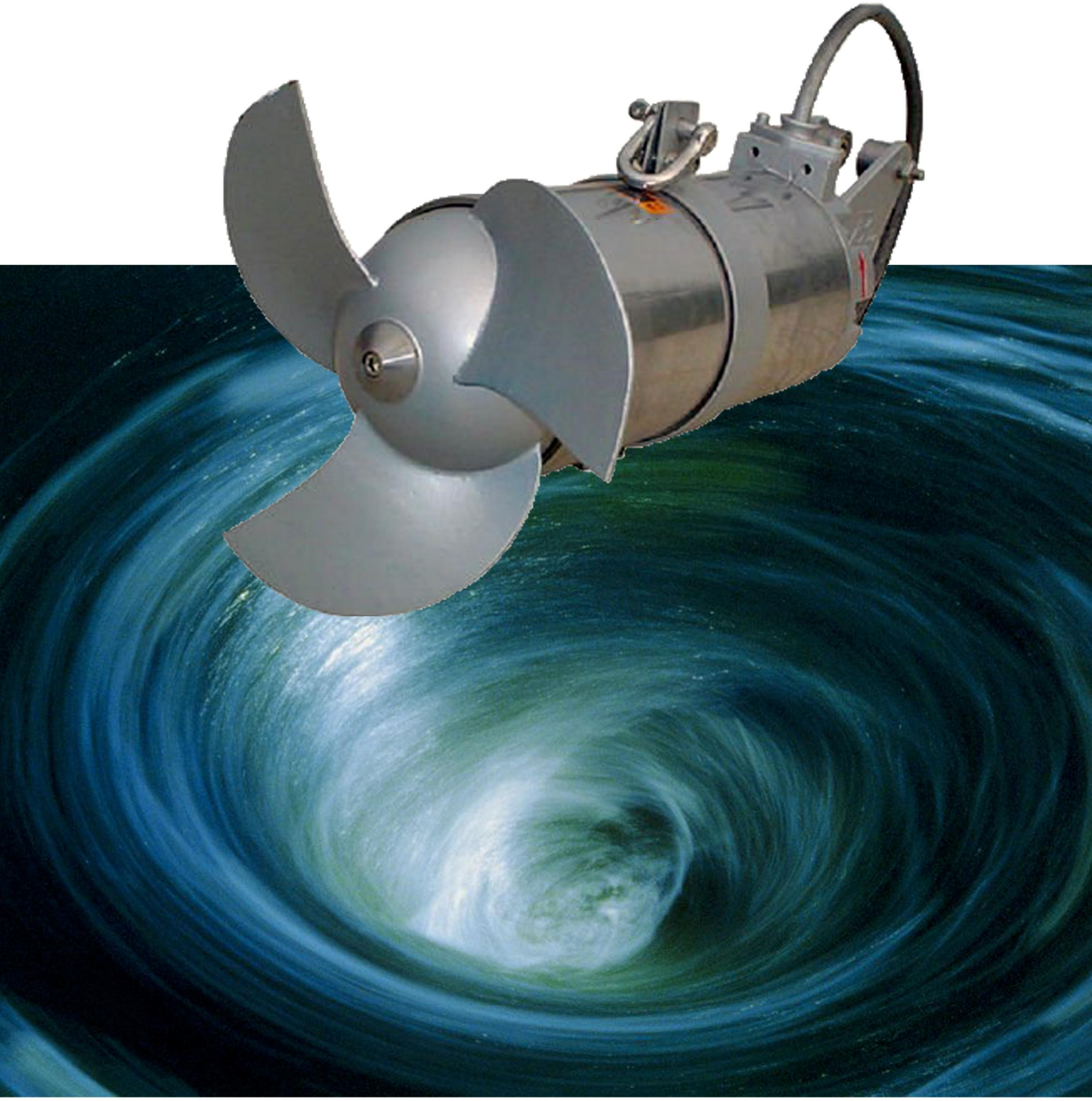
APEC-SUN

Submersible Mixer



APPLICATIONS:

The submersible mixers include mixing agitator and low-speed flow propeller, mainly used for ;

- The purposes of mixing, agitating and making ring flows in the process of municipal and industrial sewage treatment: Activated sludge tank, bioreactor tank, mixing tank, sludge silos, equalizing reservoir, sewage tank and etc.
- The maintenance equipment for the lankscape water environment, improving the quality of the water body.
- Creating water flow, effectively preventing the sedimentation of the suspended substances.

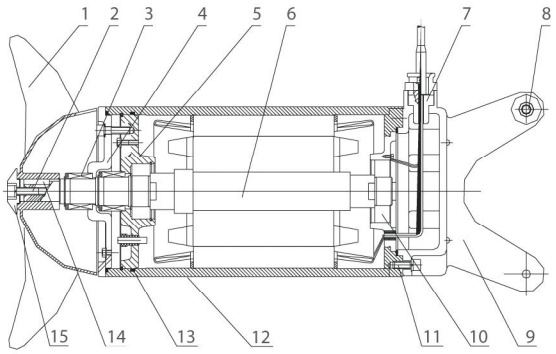
WORKING CONDITION:

- The highest temperature of the media shall not exceed 40 ^{o}C.
- The pH value of the media: 5-9.
- The density of the media shall not exceed 1,150 kg/m^{3}.
- The depth of submersion shall not exceed 20 m.
- The electric power supply: 380V, 50Hz.
- The motor: F class insulatin and in accordance with IP68, continuous operating in 24 hr.
- The submersible mixer must operate in the complete submersion into water.

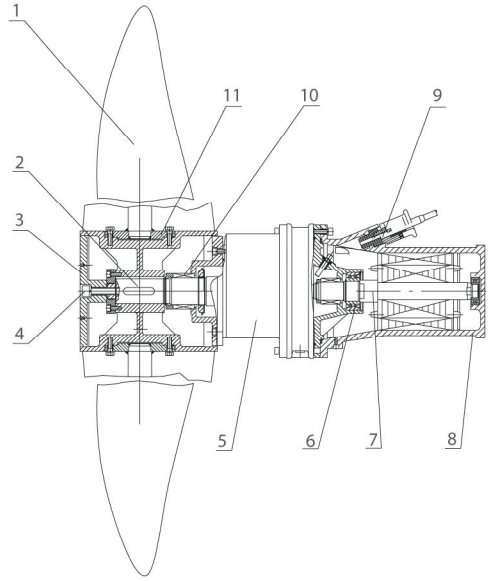
FEATURES:

- The two rows of independent mechanical sealing ensure the long-term and reliable operation of the submersible motor.
- The imported high-quality one-service lubricated bearings have the designed service life for 100,000 hours.
- The unique sealing design for the cables removes the hidden danger of water leakage for the cables.
- The shafe of the motor employs the stainless steel; and the rotors are inspected with the use of dynamic balancing, leading to smooth rotation.
- The in-built leakage sensor and the device for the overtemperature protection for the windings of the stator (None for MA0.37/4 MA0.55/4 MA0.85/8 MA1.5/6).
- The mixer agitator have the stainless steel and carbon steel finishing-cast welded impeller, which are of the sweptback shape through the optimized design, resulted in high efficiency and self-cleaning fuction.
- The vanes of the low-speed flow propeller are made of elastic PU, resulting in the ability for bearing the varying load, the propelling power is equalized distribution and the availability of the optimized hydraulic design.
- On the low-speed flow propeller, all the tightening pieces for the contact media employ the stainless-steel material.

CONSTRUCTION:

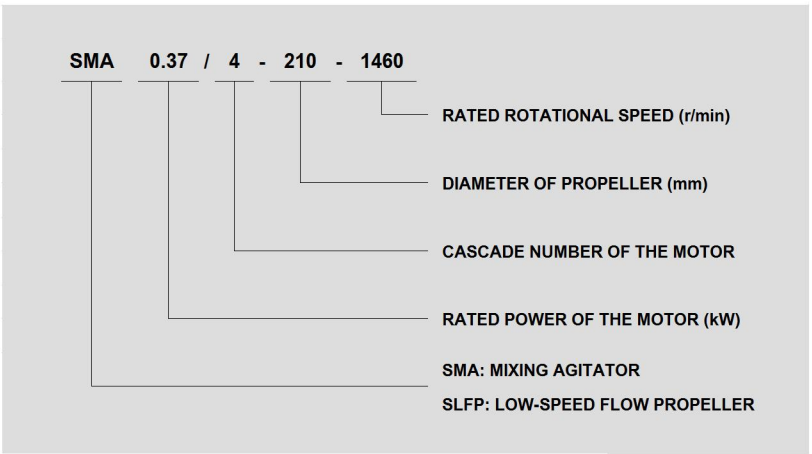


NO.	NAME	MATERIAL	
		GB	JIS
1	Propeller	0Cr19Ni10	SUS304
2	Lock Nut	0Cr19Ni10	SUS304
3	Mechanical Seal	SiC-SiC	SiC-SiC
4	Mechanical Seal Stand	0Cr19Ni10	SUS304
5	Front Bearing Support	HT200	FC200
6	Main Shaft	2Cr13	SUS420J1
7	Watertight Head	VR	VR
8	Roller	0Cr19Ni10	SUS304
9	Junction Box	0Cr19Ni10	SUS304
10	Bearing	-	-
11	Inner Hexagonal Screw	0Cr19Ni10	SUS304
12	Sheath	0Cr19Ni10	SUS304
13	O-Type Sealant Ring	NBR-70	NBR-70
14	General Flat Key	45	S45C
15	Wheel Clamp Ring	0Cr19Ni10	SUS304



NO.	NAME	MATERIAL	
		GB	JIS
1	Propeller	PU	PU
2	Output Shaft	2Cr13	SUS420J1
3	End Cap	HT200	FC200
4	Bolt	0Cr19Ni10	SUS304
5	Deceleration Cabinet	HT200	FC200
6	Bearing	-	-
7	Stator Shaft	2Cr13	SUS420J1
8	Sheath	HT200	FC200
9	Splicing Kits for Power Cable	-	-
10	Mechanical Sealing	SiC-SiC	SiC-SiC
11	Wheel Boss	HT200	FC200

TYPE DESCRIPTION:



PERFORMANCE PARAMETERS:

Mixing agitator (With dome)

Mixing agitator (Without dome)

Low-speed flow propeller

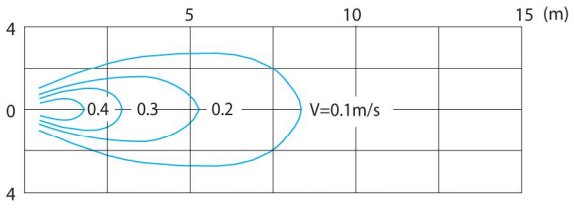
PUMP MODEL	POWER (kW)	RATED CURRENT (A)	RPM of PROPELLER (r/min)	DIAMETER of IMPELLER (mm)	THRUST (N)	WEIGHT (kg)
SMA0.37/6-220-960	0.37	1.3	960	220	138	45 / 50
SMA0.55/4-220-1400	0.55	1.6	1400	220	145	45 / 50
SMA0.85/8-260-740	0.85	3.2	740	260	163	55 / 65
SMA1.5/6-260-960	1.5	4.0	960	260	290	55 / 65
SMA2.2/8-320-740	2.2	5.9	740	320	582	88 / 93
SMA4/6-320-960	4.0	10.3	960	320	609	88 / 93
SMA1.5/8-400-740	1.5	5.2	740	400	600	74 / 82
SMA2.5/8-400-740	2.5	7.0	740	400	800	74 / 82
SMA3/8-400-740	3.0	8.6	740	400	920	74 / 82
SMA4/6-400-960	4.0	10.3	960	400	1200	74 / 82
SMA4/12-620-480	4.0	14.0	480	620	1400	190 / 206
SMA5/12-620-480	5.0	18.2	480	620	1800	196 / 212
SMA7.5/12-620-480	7.5	28.0	480	620	2600	240 / 256
SMA10/12-620-480	10.0	32.0	480	620	3300	250 / 266

- In the above table, the value listed in the column of "weight" respectively contains the weight of without or with the dome.
- Mixer agitator whose propeller diameter 220 mm. has two vanes, other has three vanes.

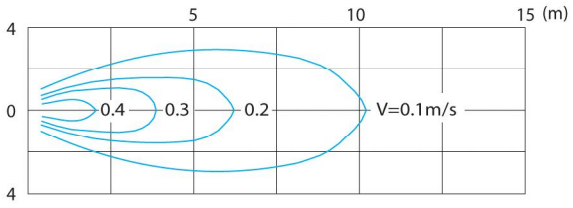
PUMP MODEL	POWER (kW)	RATED CURRENT (A)	RPM of PROPELLER (r/min)	DIAMETER of IMPELLER (mm)	THRUST (N)	WEIGHT (kg)
SLFP1.5/4-1100-52	1.5	4.0	52	1100	860	215
SLFP2.2/4-1100-63	2.2	4.9	63	1100	1260	215
SLFP3/4-1100-85	3.0	6.8	85	1100	1790	215
SLFP2.2/4-1800-34	2.2	4.9	34	1800	2380	230
SLFP3/4-1800-42	3.0	6.8	42	1800	2540	230
SLFP3/4-2500-34	3.0	6.8	34	2500	3200	260
SLFP4/4-2500-42	4.0	9.0	42	2500	3420	260

- Low-speed flow propeller has two vanes.

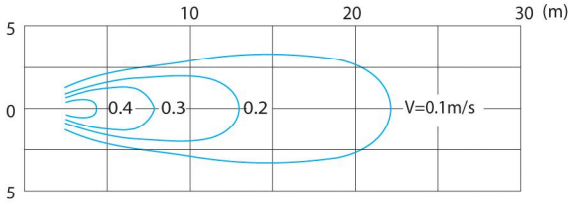
DIAGRAMS OF THE FLOW FIELD:



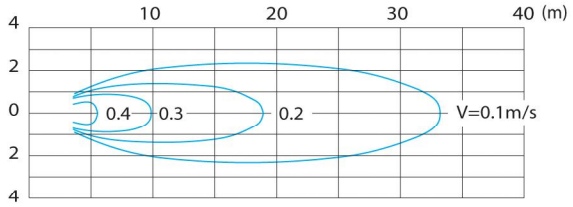
SMA0.37/6-220-960



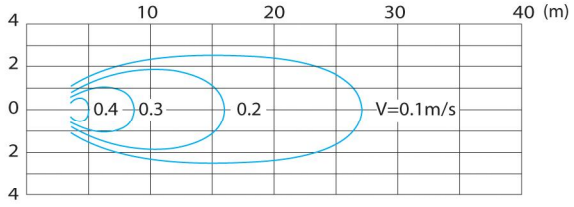
SMA0.55/4-220-1400



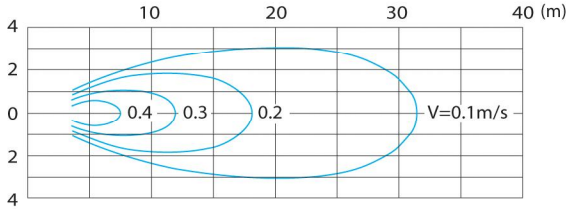
SMA0.85/8-260-740



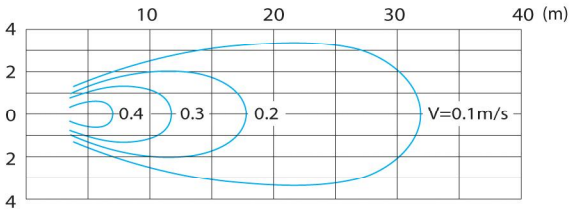
SMA1.5/6-260-960



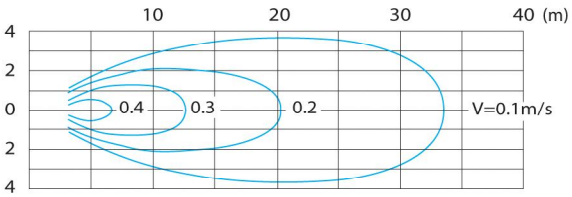
SMA1.5/8-400-740



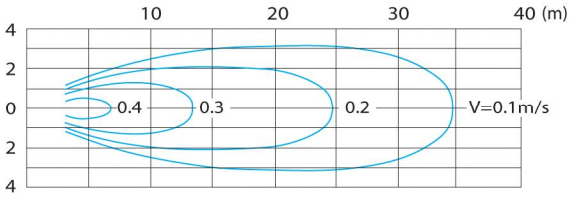
SMA2.2/8-320-740



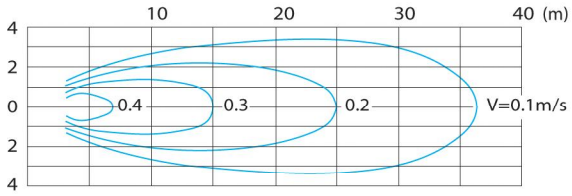
SMA2.5/8-400-740



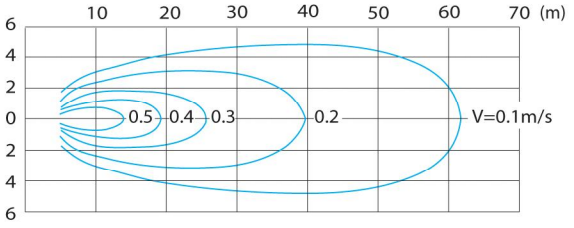
SMA3/8-400-740



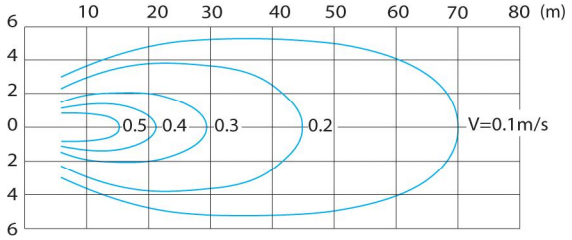
SMA4/6-320-960



SMA4/6-400-960

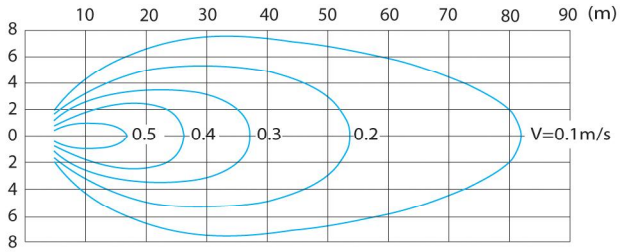


SMA4/12-620-480

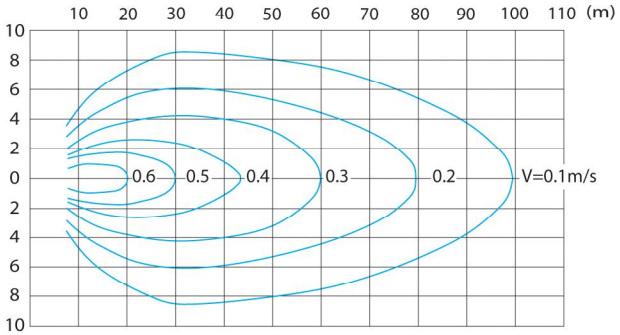


SMA5/12-620-480

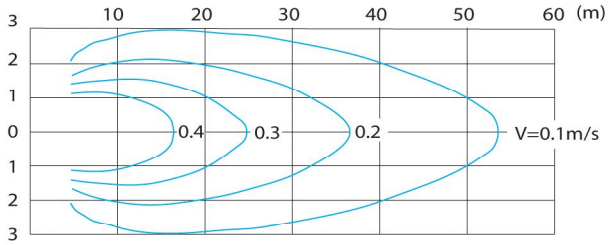
DIAGRAMS OF THE FLOW FIELD:



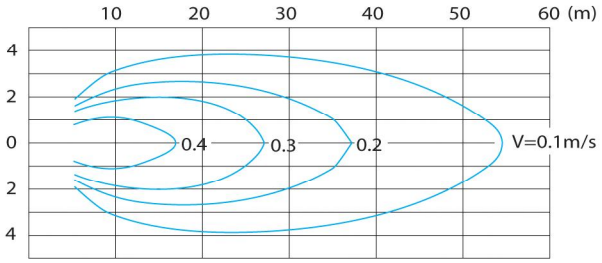
SMA7.5/12-620-480



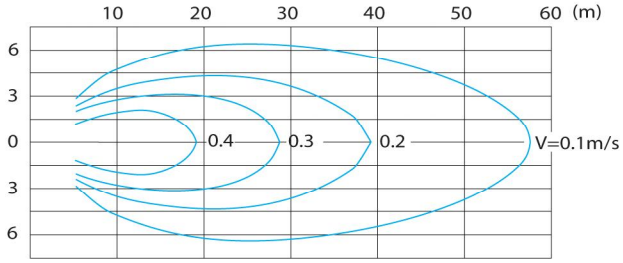
SMA10/12-620-480



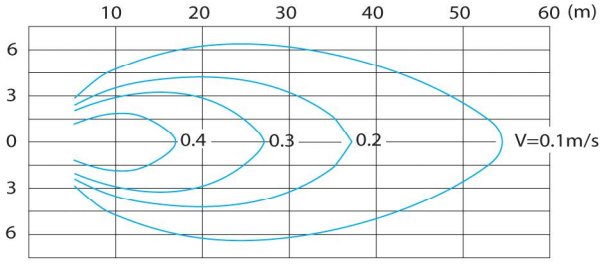
SLFP1.5/4-1100-52



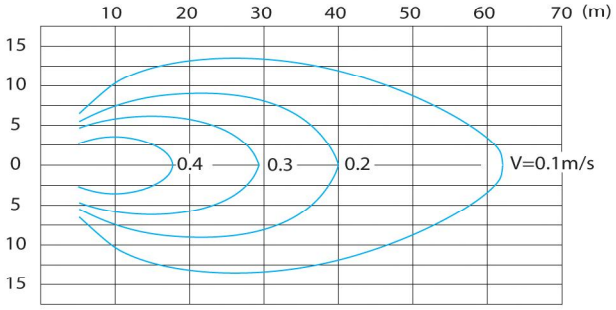
SLFP2.2/4-1100-63



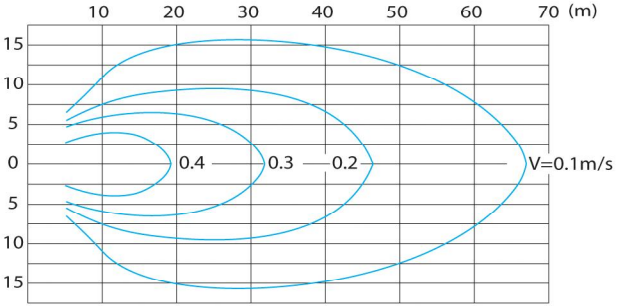
SLFP3/4-1100-85



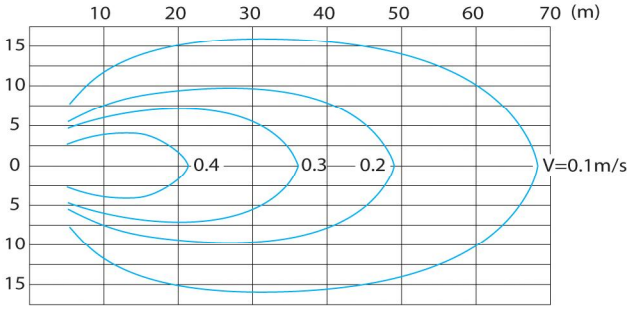
SLFP2.2/4-1800-34



SLFP3/4-1800-42



SLFP3/4-2500-34



SLFP4/4-2500-42

DIMENSIONS:

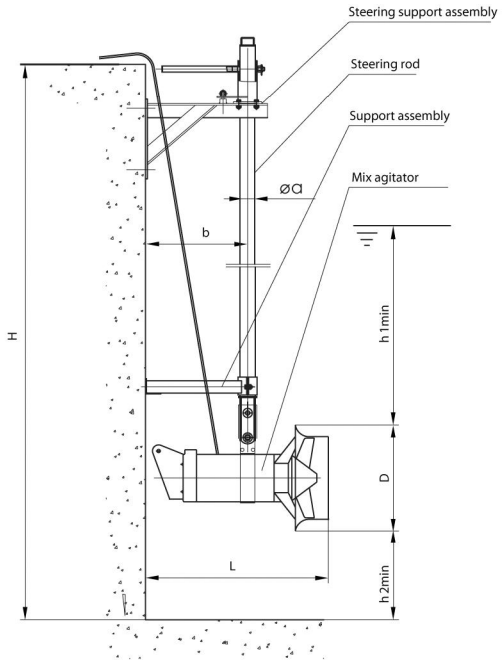
PUMP MODEL	DIMENSION (mm)						INSTALLATION SYSTEM
	Øa	D	b	L	H_{1min}	H_{2min}	
SMA0.37/6-220-960	Ø40 / Ø50	340	330 / 235	520 / 960	500 / 800	110 / 150	I / II
SMA0.55/4-220-1400	Ø40 / Ø50	340	330 / 235	520 / 960	500 / 800	110 / 150	I / II
SMA0.85/8-260-740	Ø48 / Ø50	360	330 / 235	630 / 960	500 / 800	110 / 150	I / II
SMA1.5/6-260-960	Ø48 / Ø50	360	330 / 235	630 / 960	500 / 800	110 / 150	I / II
SMA2.2/8-320-740	Ø70	460	320	970	800	150	II
SMA4/6-320-960	Ø70	460	320	970	800	150	II
SMA1.5/8-400-740	Ø70	530	320	960	800	200	II
SMA2.5/8-400-740	Ø70	530	320	960	800	200	II
SMA3/8-400-740	Ø70	530	320	1010	800	200	II
SMA4/6-400-960	Ø70	530	320	1010	800	300	II
SMA4/12-620-480	Ø100	760	335	1150	1100	300	III
SMA5/12-620-480	Ø100	760	335	1150	1100	300	III
SMA7.5/12-620-480	Ø100	760	335	1280	1500	300	III
SMA10/12-620-480	Ø100	760	335	1280	1500	300	III

PUMP MODEL	DIMENSION (mm)						INSTALLATION SYSTEM
	Øa	D	b	L	H_{1min}	H_{2min}	
SLFP1.5/4-1100-52	Ø100	1100	200	1130	1000	270	IV
SLFP2.2/4-1100-63	Ø100	1100	200	1130	1000	270	IV
SLFP3/4-1100-85	Ø100	1100	200	1130	1000	270	IV
SLFP2.2/4-1800-34	Ø100	1800	200	1150	800	125	IV
SLFP3/4-1800-42	Ø100	1800	200	1150	800	125	IV
SLFP3/4-2500-34	Ø100	2500	200	1150	1000	125	IV
SLFP4/4-2500-42	Ø100	2500	200	1150	1000	125	IV

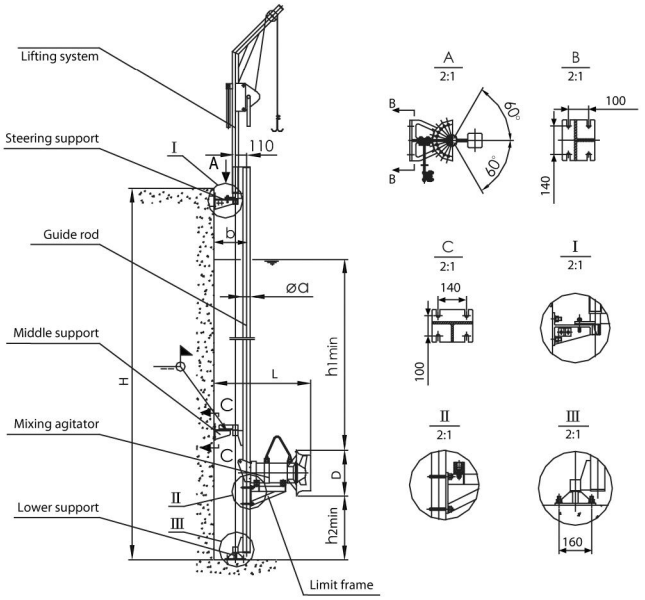
Note:

- The special installation systems for the submersible mixers can facilitate the quick installation and dismantling of the submersible mixers under the conditions of no need for draining off sewage from the pond.
- Installation system I is only suitable for H ≤ 3 m. and the mixer models of MA0.37/6, MA0.55/4, MA0.85/8 and MA1.5/6, and with the possibility of adjusting the angles in both horizontal direction and langitudinal directions.
- For installation systems II and III, the guide rod can rotate round the axial line of the guide rod along the hirizontal direction with the maximumangle of rotation $\pm 60^{\circ}$, if H > 4 m., it is necessary to add a supporting frame between the guide rods.
- The sypporting frame and the lower support shall be fixed onto the pond wall and the pond bottom with the use of expansion bolts or chemical anchors. For the big diameter impellers and the big power mixers the best choice is to pro-embed.
- While placing an order by customer. Please supply the pond depth H and the drawing of the pond shape so as to determine the dimensions of the guide rod and the number of the supporting frames.
- A multiple of mixers with the same installation system can share one lifting system.
- The installation systems may employ the material of stainless steel or carbon steel for the selection of the corrosion-resisting properties.

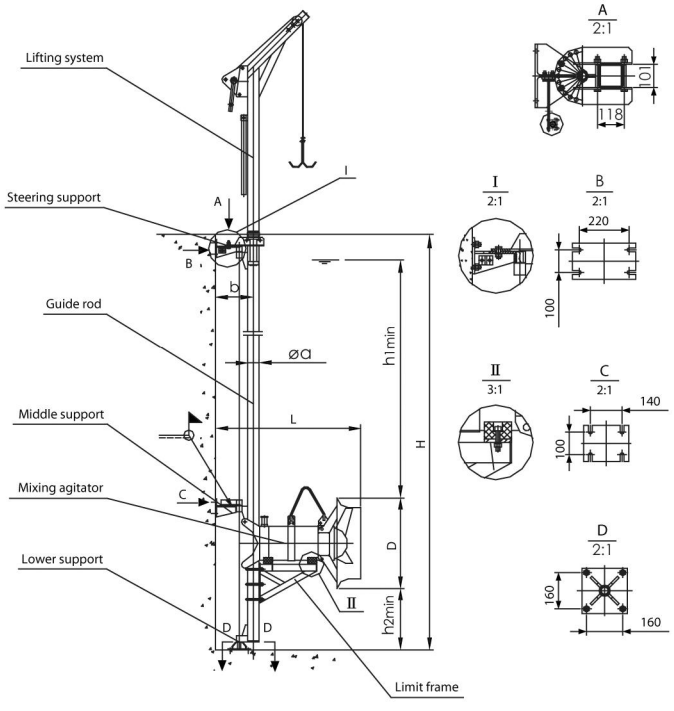
DIMENSIONS:



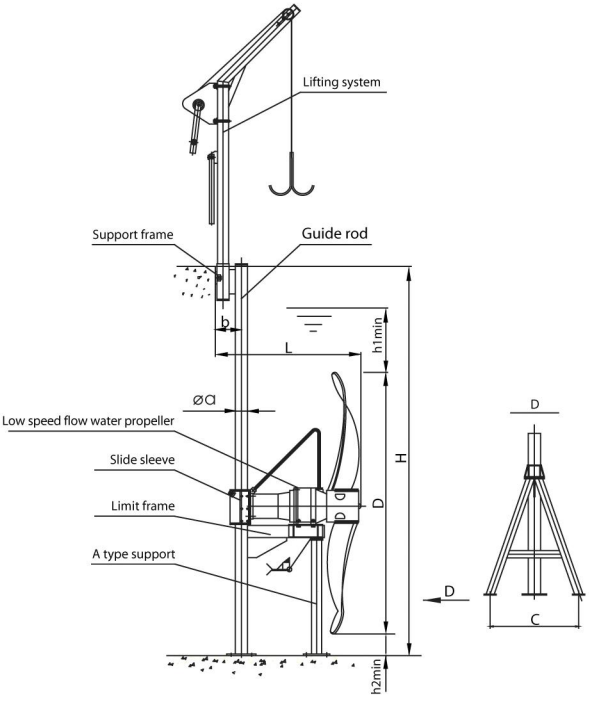
System I



System II



System III



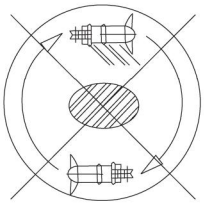
System IV

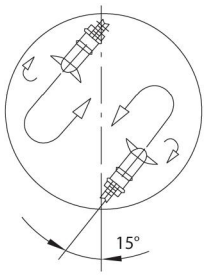
ARRANGING SKETCH MAP:

The installation and positioning of the submersible mixers will produce a great impact on the effect of mixing. In order to obtain the perfect operation result, it is suggested that the advice of the specialized designers shall be follower and full consideration given to the shape of the pond, position of the water inlet and outlet, the vortex resulting frm the outfow from the mixer onto the structures and some other conditions. Every effort shall be made to reduce the short-cirduit circulation and the occurrence of dead corners and avoid the dashing of the flow against the pond wall for lowering the flow velocity. Making reference to the arranging sketch map below will help you to make a reasonable selection of the mixers and their installation modes.

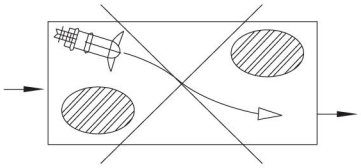
MIXING AGITATOR:

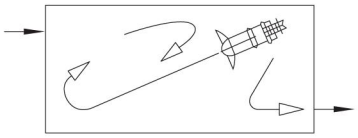
Avoid short circuit flows



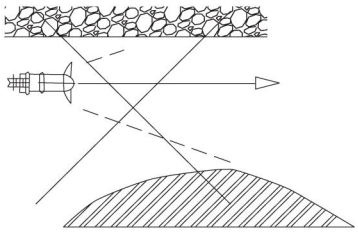


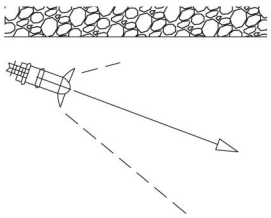
Take inlet and outlet into account





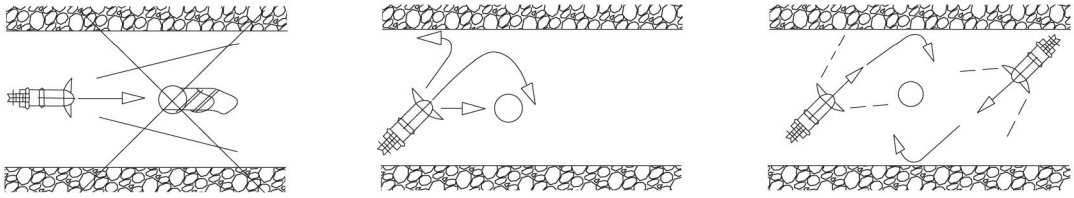
Take jet expansion into account, no unnecessary wall friction



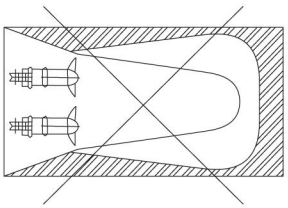


MIXING AGITATOR:

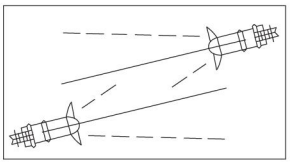
Installations cause dead zones



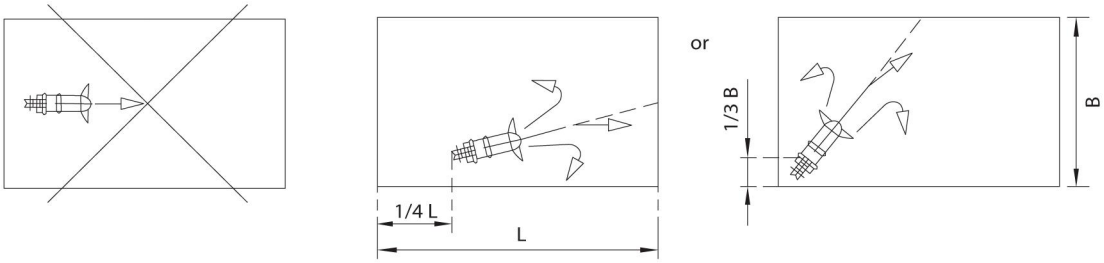
Jet intersections



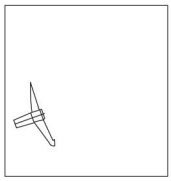
Take uniform energy supply into account



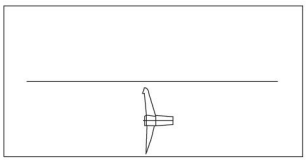
Use wall reflections



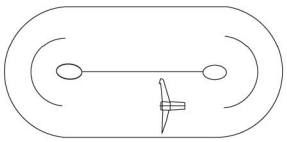
LOW-SPEED FLOW PROPELLER:



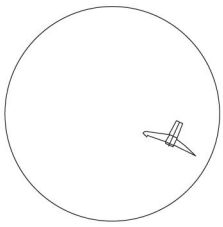
Square pond



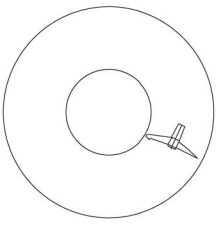
Rectangular pond



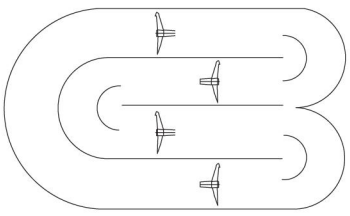
Track-shaped pond



Circular pond



Ring-shaped pond



S-shaped pond