Since 1996

九譽

Submersible mixer

沉水攪拌機

FINE REPUTATION CO., LTD.

攪拌機設備
submersible mixer

特點 Features

- 兩道獨立的機械密封，保證沉水馬達長期可靠運行。
- 高質量免維護軸承，使用壽命長。
- 獨特的電纜密封設計，排除了電纜漏水的隱患。
- 馬達軸採用不鏽鋼材質，轉子經動平衡檢測，運轉平穩。
- 內部沒有洩漏傳感器和定子繞組超溫保護裝置(PJ0.37/6、PJ0.55/4無洩漏傳感器)。
- 混合攪拌器的不鏽鋼沖壓葉槳，經優化設計，效率高，具有自清潔功能。
- 低速推流器槳葉由增強聚氨酯製成，具有自清潔功能；葉槳光滑的流線型表面，使推力被平均分配。
- 低速推流器所有接觸介質的固件均採用不鏽鋼材質；減速裝置採用安全係數較高的一體化減速機。

- The two rows of independent mechanical sealing ensure the long-term and reliable operation of the submersible motor.
- The international well-known high-quality bearings have longer service life, which are maintenance free.
- The unique sealing design for the cables removes the hidden danger of water leakage for the cables.
- The shaft 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(No leakage sensor for PJ 0.37/6 or PJ 0.55/4).
- The mixer agitators have the stainless steel pressing impeller, which are of the sweptback shape through the optimized design, resulted in high efficiency and self-cleaning function.
- The vanes of the low-speed flow propeller are made of enhanced PU, which are sweptback shape, have the self-cleaning function, the smooth and streamlined propeller surface distributes the propelling power equally.
- On the low-speed flow propeller, all the tightening pieces which will contact media employ the stainless-steel material; The decelerator employs integrated reducer with high safty coefficient, whose standard configuration is CYCLO, you can also choose helical gear speed reducer.

用途 Purpose

沉水攪拌機分為混合攪拌器與低速推流器，主要適用於：市政和工業污水處理過程中的混合、攪拌和環流：活性污泥池、生物反應池、攪拌池、貯泥井、均衡池、污水池等；景觀水環境的養護設備，改善水體質量；創建水流，有效阻止懸浮物沉積。

The submersible mixers in our company 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 landscape water environment, improving the quality of the water body; Creating water flow, effectively preventing the sedimentation of the suspended substances.

混合攪拌器(帶導流罩)
Mixing agitator (With dome)

混合攪拌器
Mixing agitator

低速推流器
Low-speed flow propeller

適用條件

- 介質溫度： ≤40 ℃
- 介質ph值 : 5 - 9
- 介質密度： ≤1150 kg/m³
- 沉水深度： ≤20 m
- 電源： 380V，60Hz
- 馬達： F級絕緣並符合IP68，24小時連續運轉

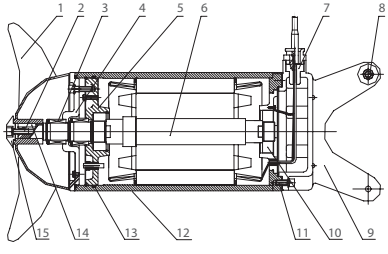
Conditions of usage

- The highest temperature of the media shall not exceed 40℃
- The pH value of the media: 5~9
- The density of the media shall not exceed 1150kg/m_3
- The depth of submersion shall not exceed 20m
- The electric power supply: 380V, 60Hz
- The motor: F class insulation and in accordance with IP68, continuous operating in 24hr
- The submersible mixer must operate in the complete submersion into water

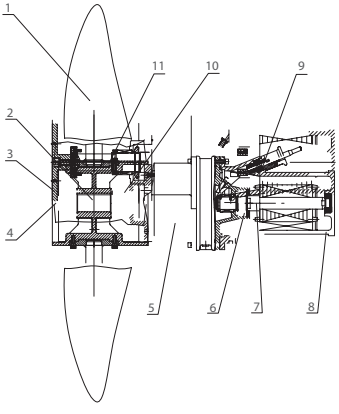
結構圖 Construction

不同功率結構略有不同

The structure will be different according to the power.

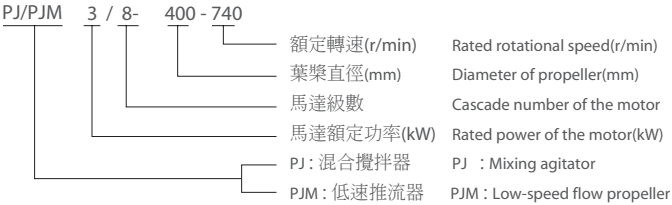


	Name		材質	Material
			GB	JIS
1	葉槳	Propeller	0Cr19Ni10	SUS304
2	螺栓	Lock nut	0Cr19Ni10	SUS304
3	機械密封	Mechanical seal	SiC-SiC	SiC-SiC
4	機封座	Mechanical seal stand	0Cr19Ni10	SUS304
5	前軸承座	Front bearing support	HT200	FC200
6	主軸	Main shaft	2Cr13	SUS420J1
7	水密頭	Watertight head	硫化橡胶	VR
8	滾輪	Roller	0Cr19Ni10	SUS304
9	機座	Frame	0Cr19Ni10	SUS304
10	軸承	Bearing	-	-
11	內六角螺絲	Inner hexagonal screw	0Cr19Ni10	SUS304
12	機殼	Sheath	0Cr19Ni10	SUS304
13	O型橡膠密封圈	O-type sealant ring	丁晴-70/NBR-70	NBR-70
14	普通平鍵	General flat key	45	S45C
15	葉輪壓緊圈	Wheel clamp ring	0Cr19Ni10	SUS304



	名稱		材質	Material
			GB	JIS
1	葉槳	Propeller	GRP	GRP
2	輸出軸	Output shaft	2Cr13	SUS420J1
3	端蓋	End cap	HT200	FC200
4	螺栓	Bolt	0Cr19Ni10	SUS304
5	減速機殼	Deceleration cabinet	HT200	FC200
6	軸承	Bearing	-	-
7	定子軸	Stator shaft	2Cr13	SUS420J1
8	機殼	Sheath	HT200	FC200
9	電纜密封組件	Splicing kits for power cable	-	-
10	機械密封	Mechanical sealing	SiC-SiC	SiC-SiC
11	輪殼	Wheel boss	HT200	FC200

型號說明 Type description

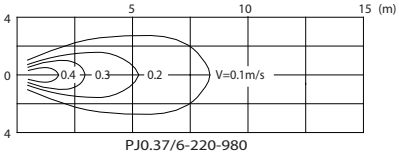


性能參數表 Performance parameters

攪拌器型號 *Pump model*		馬達功率 (kW) *Motor power*	額定電流 (A) *Rated current*	葉槳直徑 (mm) *rpm of propeller*	葉槳轉速 (r/min) *Diameter of propeller*	推力 (N) *Thrust*	重量 (kg) *Weight*
	PJ0.37/6-220-980	0.37	1.5	220	980	138	45/50
	PJ0.55/4-220-1450	0.55	1.6	220	1450	145	45/50
	PJ0.85/8-260-740	0.85	3.2	260	740	180	55
	PJ1.5/6-260-980	1.5	4.0	260	980	260	55
	PJ2.2/8-400-740	2.2	5.9	320	740	780	110
	PJ4/6-320-980	4	10.3	320	980	690	115
	PJ1.5/8-400-740	1.5	5.2	400	740	600	100
	PJ2.5/8-400-740	2.5	7.1	400	740	800	110
	PJ3/8-400-740	3	8.6	400	740	900	115
	PJ4/6-400-980	4	10.3	400	980	1100	115
	PJ4/12-620-480	4	14	620	480	1200	184
	PJ5/12-620-480	5	18.2	620	480	1500	184
	PJ7.5/12-620-480	7.5	28	620	480	1900	229
	PJ10/12-620-480	10	32	620	480	2200	229
	PJ11/12-620-480	11	34	620	480	2450	229
	PJ15/12-620-480	15	42	620	480	3300	250
	PJ18.5/12-620-480	18.5	55	620	480	3500	270
	PJ22/12-620-480	22	65	620	480	3900	290
推流器型號 *Pump model*		馬達功率 (kW) *Motor power*	額定電流 (A) *Rated current*	葉槳直徑 (mm) *rpm of propeller*	葉槳轉速 (r/min) *Diameter of propeller*	推力 (N) *Thrust*	重量 (kg) *Weight*
兩葉槳 two vanes	PJM1.5/4-1100-43	1.5	3.7	1100	43	865	135
	PJM2.2/4-1100-52	2.2	4.9	1100	52	1100	135
	PJM3/4-1100-87	3	6.7	1100	87	1700	140
	PJM4/4-1100-115	4	8.7	1100	115	1860	140
	PJM2.2/4-1400-43	2.2	4.9	1400	43	1420	140
	PJM3/4-1400-63	3	6.7	1400	63	1870	140
	PJM4/4-1400-87	4	8.7	1400	87	2300	140
	PJM2.2/4-1600-38	2.2	4.9	1400	38	1600	145
	PJM3/4-1600-43	3	6.7	1600	43	1850	145
	PJM4/4-1600-52	4	8.7	1600	52	2520	145
	PJM2.2/4-1800-38	2.2	4.9	1800	38	1750	158
	PJM3/4-1800-43	3	6.7	1800	43	1960	158
	PJM4/4-1800-52	4	8.7	1800	52	2750	162
	PJM5/4-1800-63	5	11.3	1800	63	3120	162
	PJM2.2/4-2200-34	2.2	4.9	2200	34	1810	165
	PJM3/4-2200-38	3	6.7	2200	38	2140	165
	PJM4/4-2200-43	4	8.7	2200	43	2780	170
	PJM5/4-2200-52	5	11.3	2200	52	3600	170
	PJM2.2/4-2500-34	2.2	3.7	2500	34	1750	175
	PJM3/4-2500-38	3	6.7	2500	38	2090	175
	PJM4/4-2500-43	4	8.7	2500	43	3200	205
	PJM5/4-2500-45	5	11.3	2500	45	1750	205
三葉槳 three vanes	PJM4/4-1600/3-43	4	8.7	1600	43	3110	160
	PJM5/4-1600/3-52	5	11.3	1600	52	3400	160
	PJM4/4-1800/3-43	4	8.7	1800	43	3110	180
	PJM5/4-1800/3-52	5	11.3	1800	52	3500	180
	PJM7.5/4-1800/3-57	7.5	15.5	1800	57	4010	210
	PJM4/4-2500/3-38	4	8.7	2500	38	3290	230
	PJM5/4-2500/3-43	5	11.3	2500	43	3940	235
	PJM7.5/4-2500/3-52	7.5	15.5	2500	52	4280	245

In the above table, the value listed in the column of "weight" respectively contains the weight of without or with the dome.

攪拌機- 流場圖　Diagrams of the flow field



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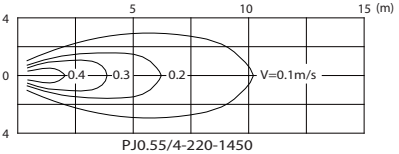

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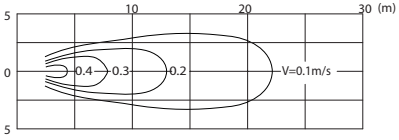

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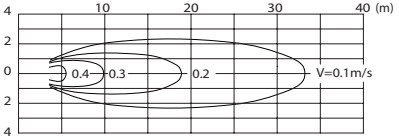

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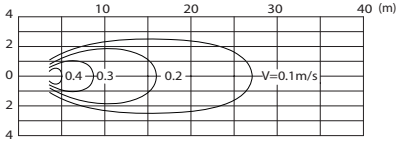

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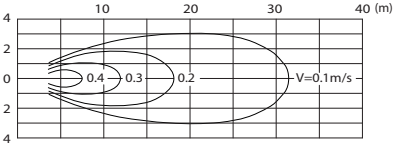

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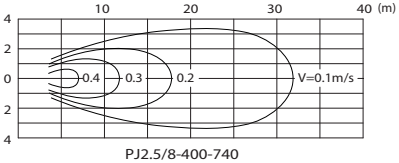

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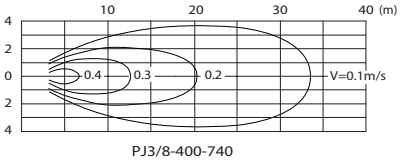

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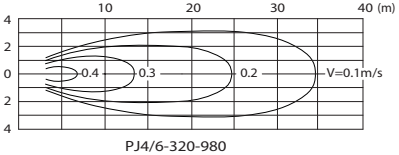

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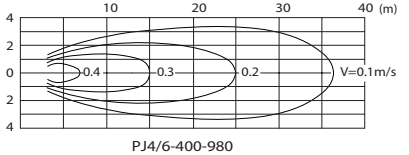

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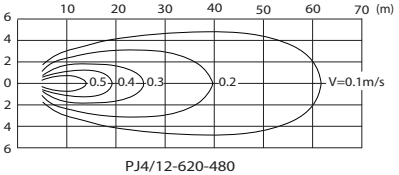

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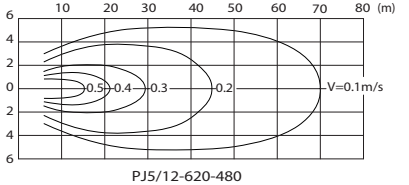

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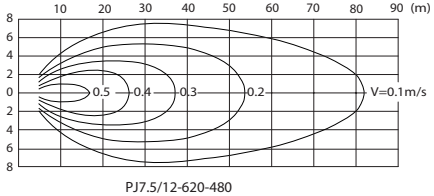

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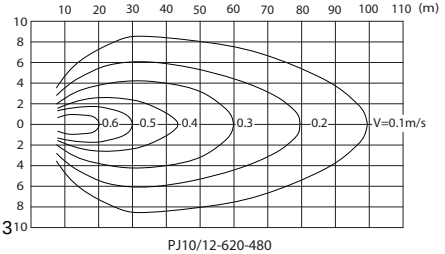
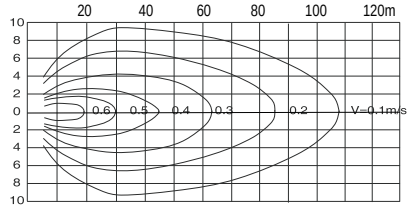


PJ10/12-620-480

攪拌機-流場圖 Diagrams of the flow field



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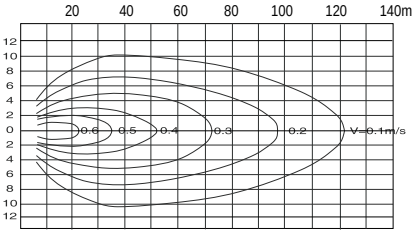

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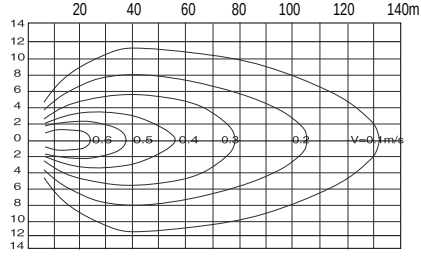

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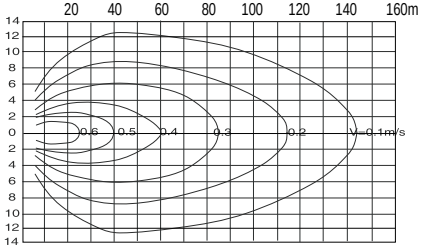
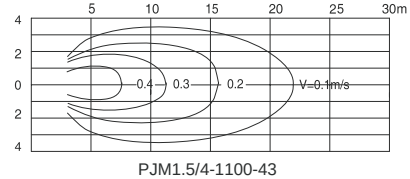


PJ22/12-620-480

推流器-流場圖



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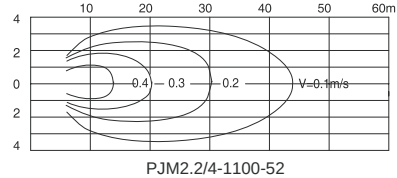

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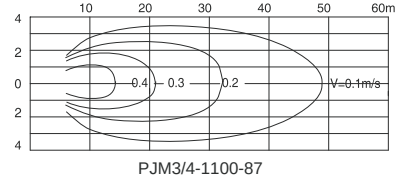

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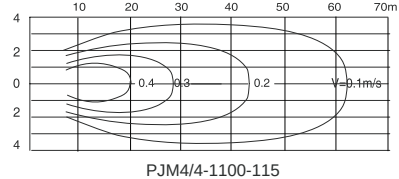

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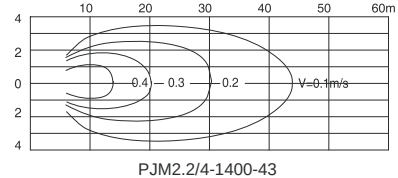

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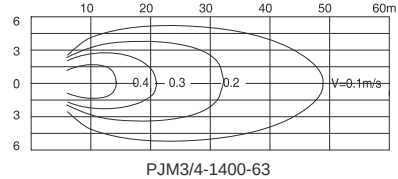
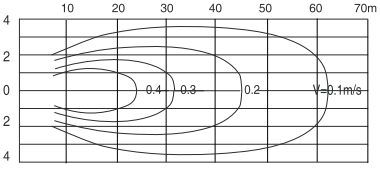


PJM3/4-1400-63

推流器-流場圖 Diagrams of the flow field



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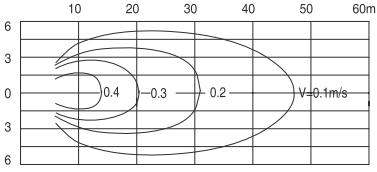

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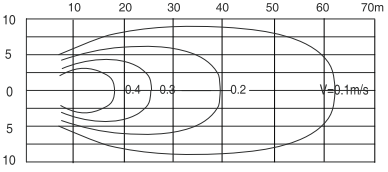

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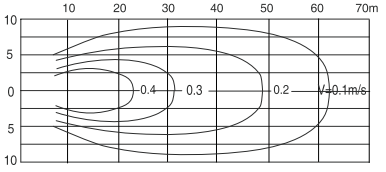

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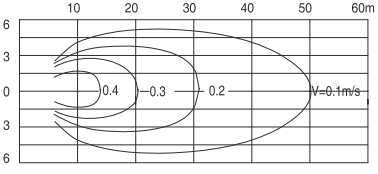

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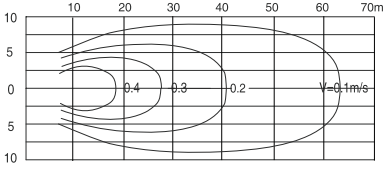

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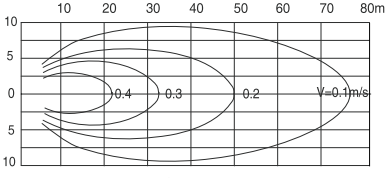

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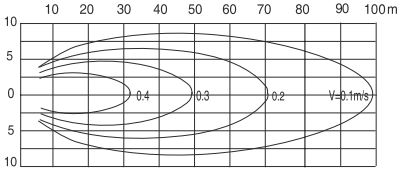

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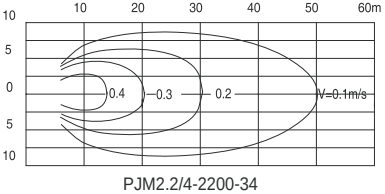

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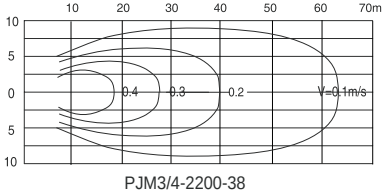

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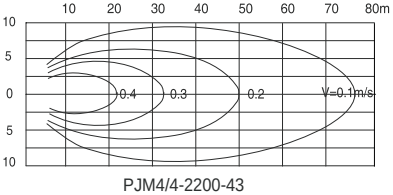

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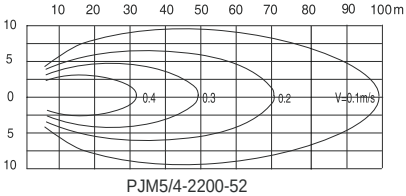
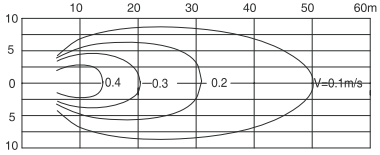


PJM5/4-2200-52

攪拌機/推流器-流場圖 Diagrams of the flow field



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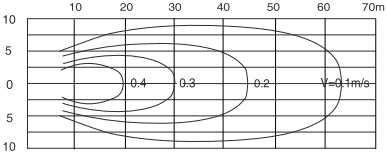

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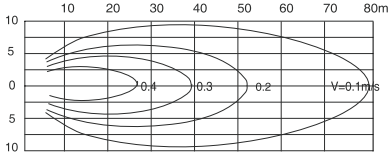

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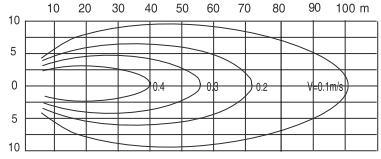

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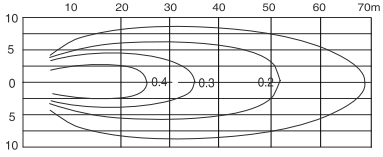

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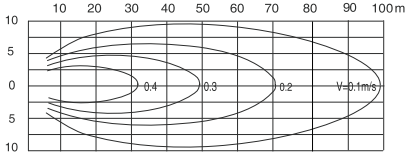

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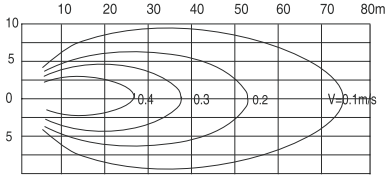

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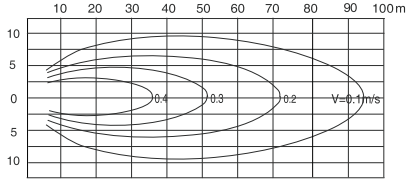

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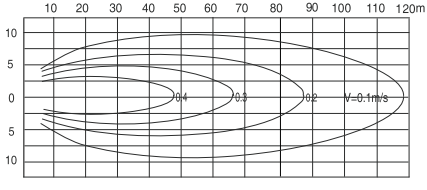

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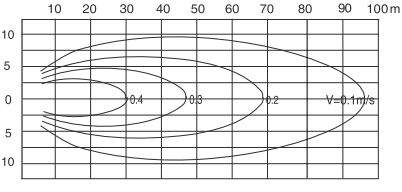

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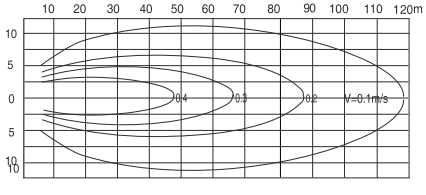

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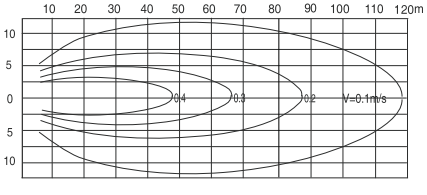


PJM7.5/4-2500/3-52

安裝方式及尺寸

沉水攪拌機可以有多種安裝方式，提供四種最通用的方式供選擇，尺寸可參考下表。我司還可以根據用戶要求做特殊設計。

Installation modes and dimensions

The submersible mixers can be installed in a multiple of modes．Here are four generally accepted modes of installation for selection with reference made to the following table．Our company can also provide the special designs in accordance with the demand of the users.

型號	a	D	b	L	H_{1min}	H_{2min}	安裝系統
PJ0.37/6-220-980	Ø60 □40	360	330	630	500	110	I II
PJ0.55/4-220-1450	Ø60 □40	360	330	630	500	110	I II
PJ0.85/8-260-740	Ø60 □40	360	330	630	500	110	I II
PJ1.5/6-260-980	Ø60 □40	360	330	630	500	110	I II
PJ2.2/8-400-740	□70	460	320	970	800	150	II
PJ4/6-320-980	□70	460	320	970	800	150	II
PJ1.5/8-400-740	□70	530	320	960	800	200	II
PJ2.5/8-400-740	□70	530	320	960	800	200	II
PJ3/8-400-740	□70	530	320	1010	800	200	II
PJ4/6-400-980	□70	530	320	1010	800	300	II
PJ4/12-620-480	□100	760	335	1150	1100	300	III
PJ5/12-620-480	□100	760	335	1150	1100	300	III
PJ7.5/12-620-480	□100	760	335	1280	1500	300	III
PJ10/12-620-480	□100	760	335	1280	1500	300	III
PJ11/12-620-480	□100	760	335	1150	1100	300	III
PJ15/12-620-480	□100	760	335	1280	1100	300	III
PJ18.5/12-620-480	□100	760	335	1280	1500	300	III
PJ22/12-620-480	□100	760	335	1100	1500	300	III
PJM1.5/4-1100-43	□100	1100	200	1100	1000	280	IV
PJM2.2/4-1100-52	□100	1100	200	1100	1000	280	IV
PJM3/4-1100-87	□100	1100	200	1100	750	280	IV
PJM4/4-1100-115	□100	1100	200	1100	750	280	IV
PJM2.2/4-1400-43	□100	1400	200	1100	750	280	IV
PJM3/4-1400-63	□100	1400	200	1100	800	280	IV
PJM4/4-1400-87	□100	1400	200	1100	800	280	IV
PJM2.2/4-1600-38	□100	1600	200	1100	800	280	IV
PJM3/4-1600-43	□100	1600	200	1100	900	280	IV
PJM4/4-1600-52	□100	1600	200	1100	750	280	IV
PJM2.2/4-1800-38	□100	1800	200	1100	800	280	IV
PJM3/4-1800-43	□100	1800	200	1100	800	280	IV
PJM4/4-1800-52	□100	1800	200	1100	750	280	IV
PJM5/4-1800-63	□100	1800	200	1200	800	280	IV
PJM2.2/4-2200-34	□100	2200	200	1200	800	280	IV
PJM3/4-2200-38	□100	2200	335	1200	1500	300	III
PJM4/4-2200-43	□100	2200	200	1200	1000	280	IV
PJM5/4-2200-52	□100	2200	200	1200	1000	280	IV
PJM2.2/4-2500-34	□100	2500	200	1200	750	280	IV
PJM3/4-2500-38	□100	2500	200	1200	750	280	IV
PJM4/4-2500-43	□100	2500	200	1200	750	280	IV
PJM5/4-2500-45	□100	2500	200	1200	800	280	IV
PJM4/4-1600/3-43	□100	1600	200	1100	800	280	IV
PJM5/4-1600/3-52	□100	1600	200	1100	800	280	IV
PJM4/4-1800/3-43	□100	1800	200	1100	900	280	IV
PJM5/4-1800/3-52	□100	1800	200	1100	750	280	IV
PJM7.5/4-1800/3-57	□100	1800	200	1100	800	280	IV
PJM4/4-2500/3-38	□100	2500	200	1200	800	280	IV
PJM5/4-2500/3-43	□100	2500	200	1200	750	280	IV
PJM7.5/4-2500/3-52	□100	2500	200	1200	800	280	IV

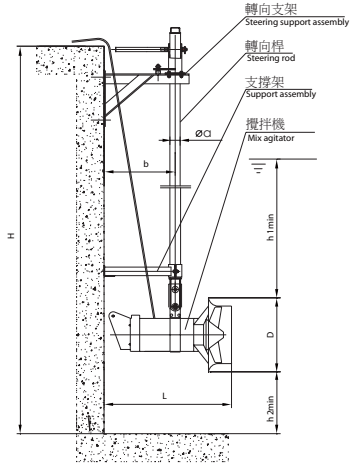
備註：

- 沉水攪拌機的專用安裝系統，可在無需排出池中污水的情況下，快速安裝和拆卸。
- 安裝系統I只適用**H≤3m**，機型為 **PJ0.37/6、PJ0.55/4、PJ0.85/8** 和 **PJ1.5/6** ，可在水平方向和垂直方向調節角度。
- 安裝系統II、III導桿可沿水平方向繞導桿軸旋轉，最大轉角±60° ，當H>4m時需在導桿中間添加一支撐架。
- 支撐架和下托架與池壁，池底均可用膨脹螺栓或化學錨栓固定，對於大直徑葉輪和大功率攪拌機最好採用預埋。
- 客戶訂貨時，請提供池深及池型圖，以便確定導桿尺寸和支撐架個數。
- 同一種安裝系統，多台攪拌機可共用一套起吊系統。
- 安裝系統可選擇採用不銹鋼或碳鋼防腐材質。

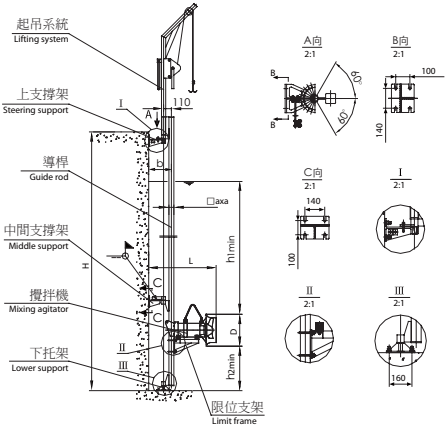
Notes:

- 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≤3m and the mixer models of PJ0.37/6 , PJ0.55/4 , PJ0.85/8 and PJ1.5/6, and with the possibility of adjusting the angles in both horizontal direction and langitudinal direction.
- For installation systems II and III, the guide rod can rotate round the axial line of the guide rod along the horizontal direction with the maximum angle of rotation ±60°, if H>4m, it is necessary to add a supporting frame between the guide rods.
- The supporting 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 pre-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.

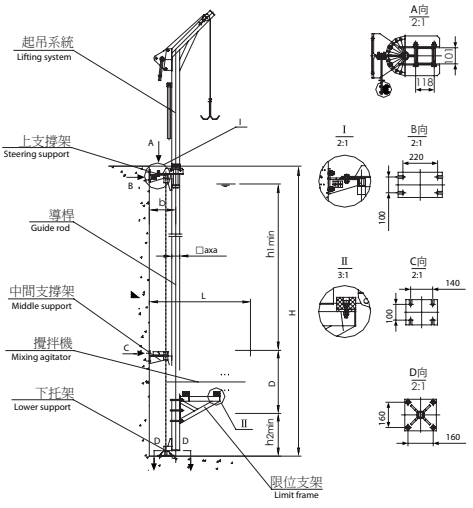
外型及安裝尺寸 Installation dimensions



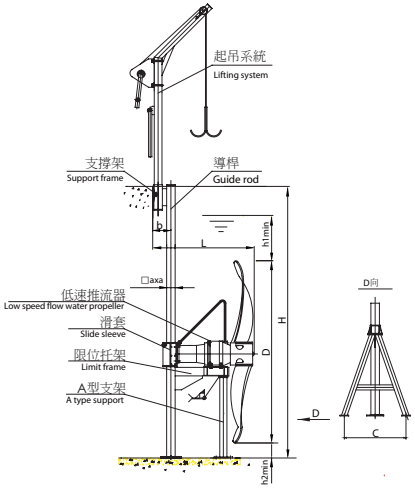
System I



System II



System III



System IV

配置示意圖

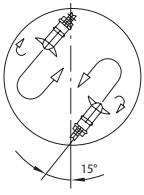
沉水攪拌機的安裝定位對其攪拌效果有很大的影響，為了達到良好的運行效果，我們建議用戶按照專業設計人員的要求去做，要充分考慮到水池形狀，進出水的位置以及攪拌機的水流反射到牆面而引起的渦流等情況，盡量減少短路循環和死角的產生，避免與池壁的撞擊而降低流速。參照下面的配置示意圖，可幫助您合理選擇攪拌機和安裝型式。

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 operating result, it is suggested that the advice of the specialized designers shall be followed and full consideration given to the shape of the pond, position of the water inlet and outlet, the vortex resulting from the outflow from the mixer onto the structures and some other conditions. Every effort shall be made to reduce the short-circuit 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.

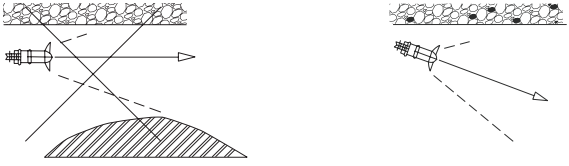
攪拌機 Mixing agitator

避免短路循環
Avoid short circuit flows

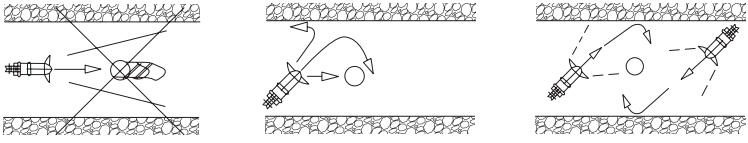


考慮進出口
Take inlet and outlet into account

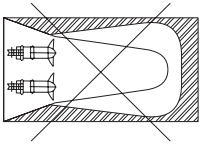
考慮噴射流範圍，避免與池壁發生不必要的衝撞
Take jet expansion into account, no unnecessary wall friction



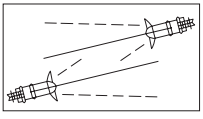
安裝引起的死角
Installations cause dead zones



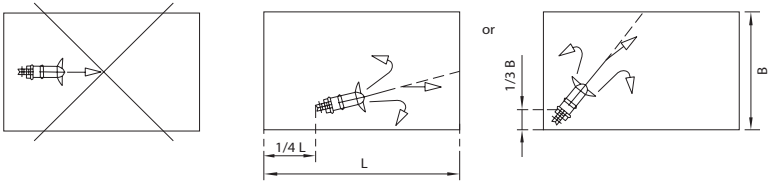
噴射流的交叉
Jet intersections



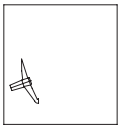
考慮到恆一能量的供應
Take uniform energy supply into account



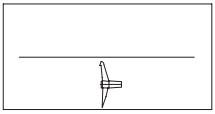
利用池壁反射
Use wall reflections



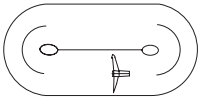
低速推流器 Low-speed flow propeller



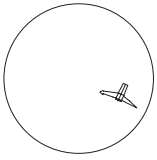
方型池 Square pond



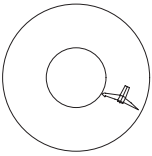
矩形池 Rectangular pond



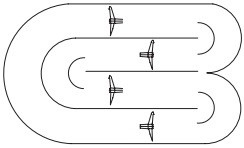
橢圓形池 Track-shaped pond



圓形池 Circular pond



環形池 Ring-shaped pond



S曲線形池 S-shaped pond