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EBARA

Effective solution for drought

INCLINED SUBMERSIBLE MOTOR PUMP

(Model : DSEI)

EBARA VIETNAM CORPORATION

Due to recent abnormal weather, drought occurs more frequently, which makes to unexpected drop in suction water level. The most of existing irrigation pumps will no more function even though just 50cm drops from low water level.

Therefore, it is necessary to propose an urgent measure against drought is strongly needed to stop spreading damage.

FEATURES OF THE SYSTEM

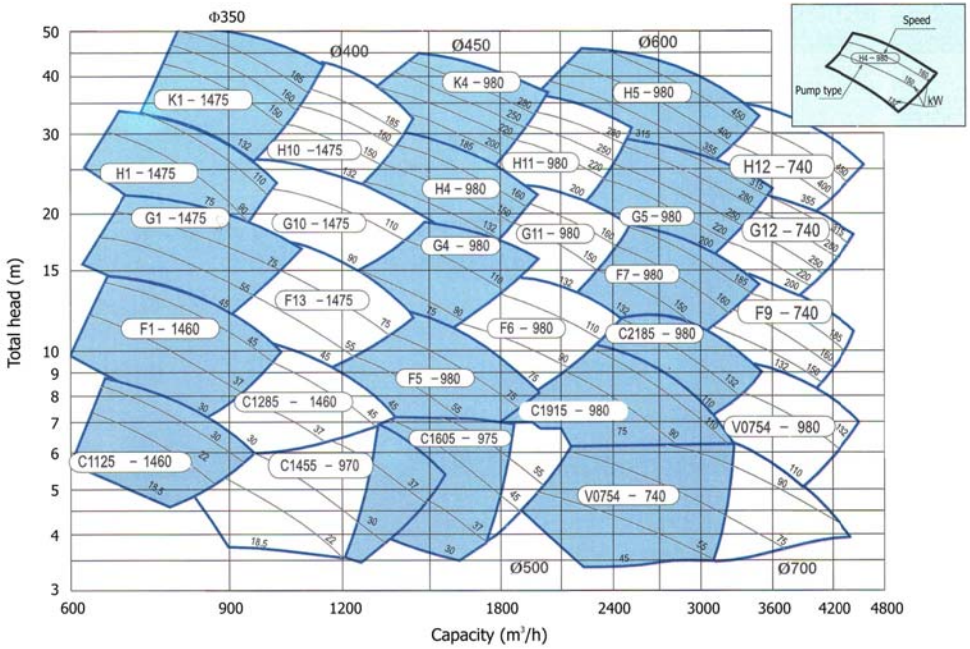
EBARA Corporation has developed **the inclined submersible motor pump system DSEI** to bring the best solution thanks to the following features:

1. **Minimize construction period due to less civil work**
2. **Change installation level easy to meet future lower water level**
3. **Share the pumps with some stations due to compatible site arrangement**

In addition, since **the DSEI pump system** has the following well-known features, it will fit various site condition:

1. **Minimize total cost because of no heavy civil structure**
2. **Apply for the river with high water fluctuation**
3. **Easily lift up/down pump due to the work can be done from top of the blank slope**

SELECTION CHART

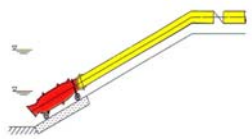
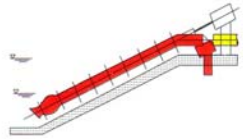
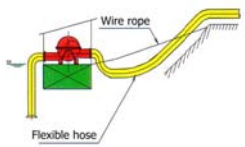


DIMENSIONS

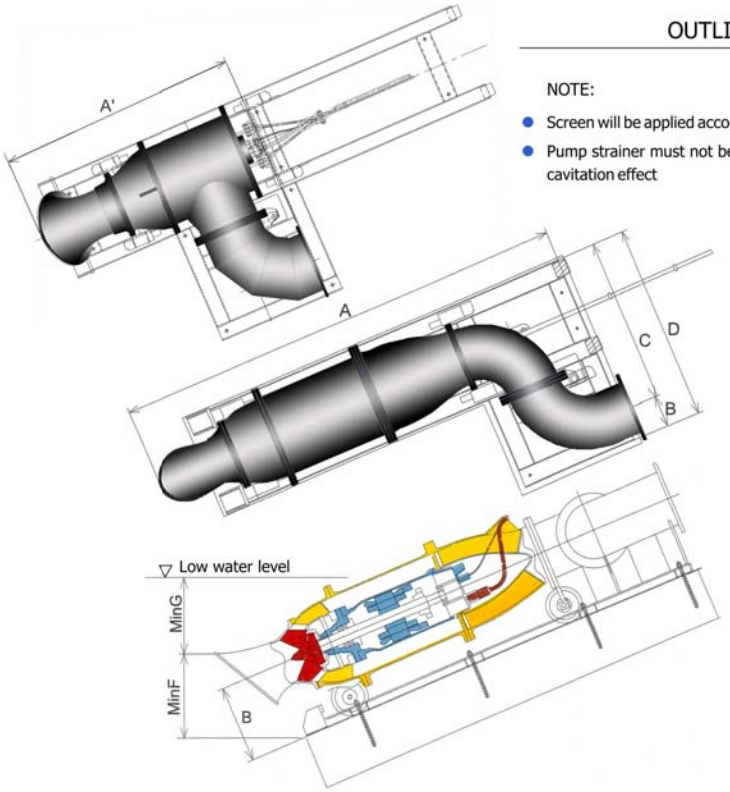
BORE	TYPE	NO. OF POLE	MOTOR	DIMENSIONS (MM)								WEIGHT (KG)	
mm			kW	A	A'	B	C	D	E	F	G	Pump	Pump base
350	C1125	4	18.5 ~ 30	2850		210	1075	1285	470	520	495	1700	500
	F1	4	30 ~ 45	3250		210	1075	1285	470	520	495	1800	500
	G1	4	45 ~ 75	3250		210	1075	1285	470	520	495	1900	500
	H1	4	75 ~ 110	3450		210	1110	1320	550	610	405	2200	500
	K1	4	132 ~ 185	3850		210	1110	1320	550	610	405	3000	500
400	C1455	6	18.5 ~ 37	3200	1600	240	1215	1455	510	560	600	1900	550
	C1285	4	30 ~ 45	3200		240	1215	1455	510	560	600	1900	550
	F13	4	45 ~ 75	3400		240	1215	1455	510	560	600	2000	550
	G10	4	90 ~ 110	3600		240	1275	1515	600	660	500	2400	550
	H10	4	132 ~ 185	3900		240	1245	1485	590	650	510	3000	550
450	C1455	6	22 ~ 37	3350		270	1355	1625	550	610	690	2100	600
	C1605	6	30 ~ 55	3550		270	1355	1625	550	610	690	2400	600
	F5	6	45 ~ 75	3750		270	1355	1625	550	610	690	2500	600
	G4	6	75 ~ 110	3950		270	1385	1655	600	660	645	2700	600
	H4	6	110 ~ 160	1400		270	1245	1515	590	650	655	3400	550
	K4	6	185 ~ 280	4350		270	1460	1730	640	700	605	5100	600
500	C1605	6	37 ~ 55	3700		300	1485	1785	590	650	800	2600	650
	F6	6	75 ~ 110	4100		300	1515	1815	640	700	750	2800	650
	G11	6	132 ~ 160	4500		300	1545	1845	680	750	700	3500	650
	H11	6	200 ~ 280	4800		300	1585	1885	800	880	570	6100	650
600	V0754	8	45 ~ 90	4450	2400	360	1805	2165	720	790	950	3900	850
	C1915	6	75 ~ 110	4350		360	1795	2155	720	790	950	3400	850
	C2185	6	110 ~ 132	4550		360	1795	2155	720	790	950	4000	850
	F7	6	132 ~ 185	4850		360	1795	2155	720	790	950	4100	850
	G5	6	200 ~ 315	5150		360	1795	2155	850	940	800	5900	850
	H5	6	315 ~ 450	5350		360	1855	2215	850	940	800	7000	850
700	V0754	8	55 ~ 90	4900		420	2065	2485	800	880	1150	4500	1100
		6	110 ~ 132	4900		420	2065	2485	800	880	1150	4500	1100
	F9	8	132 ~ 185	5400		420	2065	2485	810	890	1140	5600	1100
	G12	8	200 ~ 315	5800		420	2165	2585	930	1020	1010	6900	1100
	H12	8	355 ~ 450	6000		420	2115	2535	930	1020	1010	8400	1100

NOTE : Dimensions and weights are approximate only and not to be use for construction purposes

COMPARISON TABLE

APPLIED PUMP TYPE	INCLINED SUBMERSIBLE PUMP	INCLINED SHAFT PUMP	FLOATING PUMP
LAYOUT			
INSTALLATION WORK	**Easy** Delivery pipes can follow the natural slope of the bank.	**Complicated** Pump installation work requires high skill to keep alignment of a long shaft.	**Easy** Attention must be paid to anchoring for the barge and selection of suitable types of flexible hose
OPERATION	**Simple** Easy operation because of it is no auxiliary equipment system.	**Simple** Lubrication system for submersible bearings must be cared during operation time.	**Simple** Vacuum system is required to start. Cavitation may occur at higher water levels resulting from overcapacities.
MAINTENANCE & OVERHAUL WORK	**Easy** The pump can be easily lifted up and down by a certain lifting device for the maintenance and overhaul work.	**Complicated** Column pipes and shafts must be disassembled/assembled one by one for the maintenance work. The maintenance work require a long time and high skill.	**Complicated (at site)** Maintenance work on the barge is not recommended. Pump must be unloaded for maintenance and overhaul work.
CIVIL CONSTRUCTION	**Light** The pump set is installed on small foundation. So that need not to be strictly straight such as column pipe of the inclined shaft pump.	**Heavy** Heavy foundation against uneven subsidence is necessary to keep a long shaft straight. But uneven subsidence can not be avoided, even though strong foundation may be made.	**Light** Anchoring facilities to prevent the barge from capsizing and drifting are necessary.
APPLICABILITY	Recommendable	Not recommendable for mounting on a bank	Recommendable for small capacity

OUTLINE DRAWING



NOTE:

- Screen will be applied according to the site condition
- Pump strainer must not be applied to avoid the pump from cavitation effect

DINH THONG P/S (1998)

450 DSEI Pump 1800m^3/h x 15m x 980min^{-1} x 110kW

Installation level has changed due to drought

400 DSEI Pump 1400m^3/h x 12m x 1460min^{-1} x 55kW

High water level fluctuation in river

CAM GIANG P/S (2003)

TA LAI P/S (2007)

400 DSEI Pump 1200m^3/h x 13m x 1475min^{-1} x 75kW
High water level fluctuation in river

700 DSEI Pump 4000m^3/h x 7m x 740min^{-1} x 132kW
Emergency increase of drainage capacity

VAN DINH TEMPORARY P/S (2008)

CAO XUAN DUONG P/S (2009)

600 DSEI Pump 2700m^3/h x 8m x 980min^{-1} x 90kW
High water level fluctuation in river / Preparation for drought

500 DSEI Pump 2100m^3/h x 31m x 1460min^{-1} x 250kW

VANG VIEN PHI P/S - LAO (2000)