



Building a better future

**Global Leader**

ENGINEERING & MACHINERY

# HYUNDAI PUMP

Vertical Mixed / Axial Flow



**motralec**

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 **HYUNDAI**  
HEAVY INDUSTRIES CO.,LTD.



Circulating Water Pump for Yonghung Thermal Power Plant, Units 1 & 2, KOREA  
(1100m<sup>3</sup>/min X 20m X 4600kW, Model 3000VKANM, Variable pitch vane type)



# Superior Quality, Higher Performance

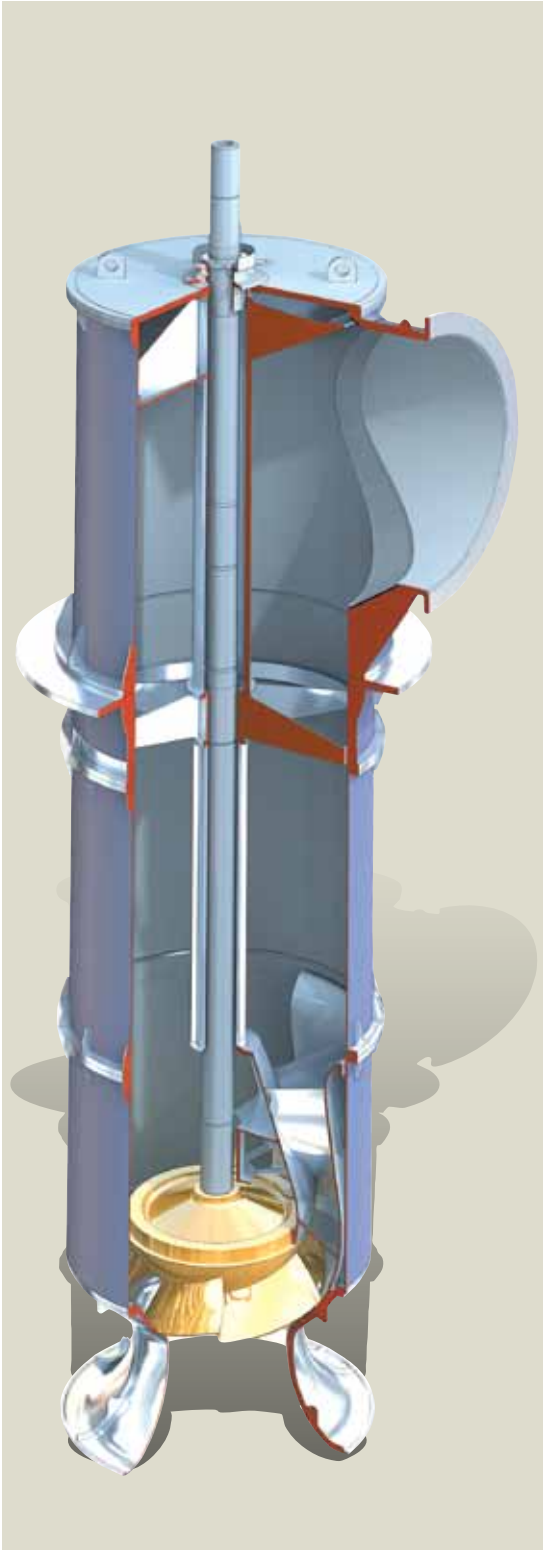
## ***Advantage of Hyundai Vertical Mixed / Axial Flow Pump***

- Stability in capacity, head and shaft power enables continuous operation without noise or vibration, even under circumstances where a wide variation of capacity is required.
- Comparative low revolution speed of pump attains high suction performance, eliminating cavitation problem, and is suitable for a system of a wide variation of water level.
- Superior quality and high performance.
- No fear for surging and overload.
- Large variety of options to meet all customer's requirements in combination of materials and constructions.

## ***Application***

- **Power Plant :**
  - Circulation water pump
  - Condensate pump
  - Sea water lift pump
- **Desalination Plant :**
  - Brine recirculation pump
  - Brine blow-down pump
  - Distillate pump
  - Sea water intake pump
- **Sewage Treatment Plant :**
  - Influent pump
  - Effluent pump
- **City Water :**
  - Intake pump
  - Transfer pump
- **Other Water Works :**
  - Rain water drainage pump
  - Irrigation pump
  - Fire fighting pump
  - Dock dewatering pump

# General Specification



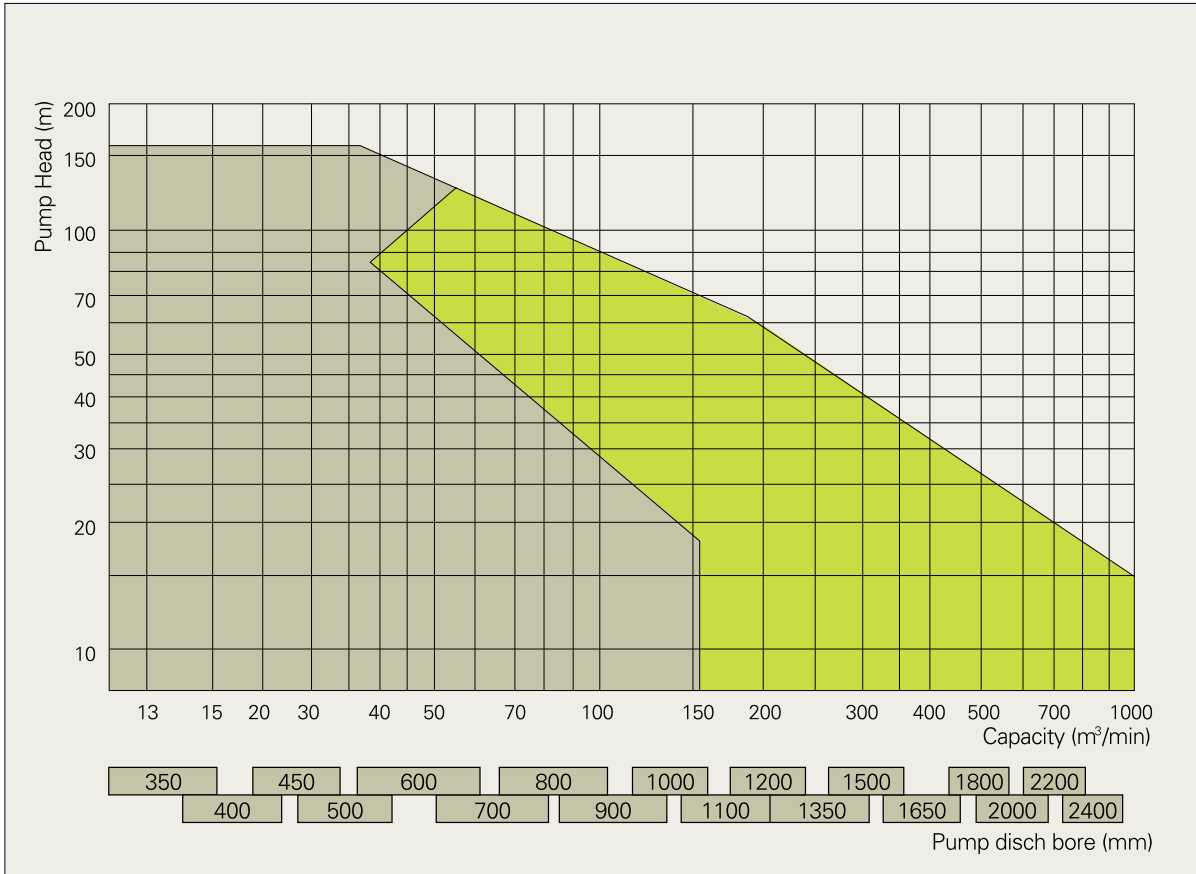
Vertical Mixed / Axial Flow Pump

Design factor	Standard	Option
Discharge bore	400mm (16 in.)~	
Flow rate	1500m <sup>3</sup> /hr (6600 US GPM)~	
Head	4m (13 ft)~	
Liquid	Fresh water, Sewage, Sea water	
Discharge connection	KS, JIS, ISO, DN, AWWA	Plain end, Any standard
Submerged bearing	Rubber bearing (water lubrication)	Dry bearing
Thrust bearing	Anti-friction bearing	Tilting pad bearing
Seal	Gland Packing	Mechanical seal
Accessories	Base, Anchor bolt, Drain pipe, Coupling	Rubber bearing lubrication system, Suction strainer, Pressure gauge, Auto air vent valve, Tools, and etc.



Shop test of Kudankulam Nuclear Power Plant, INDIA  
Sea Water Pump (735.5m<sup>3</sup>/min X 15.9m X 3200kW, Model 2200VKAM)

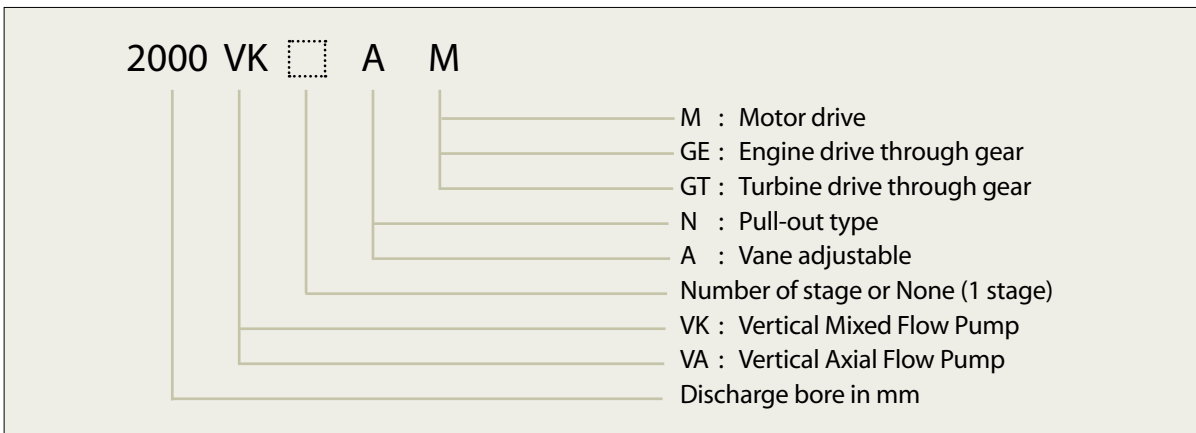
# Hydraulic Coverage



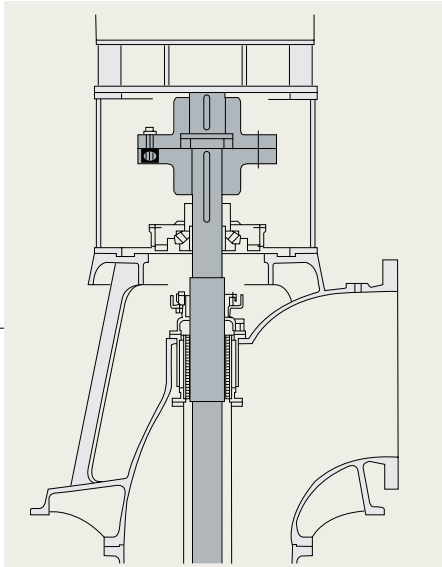
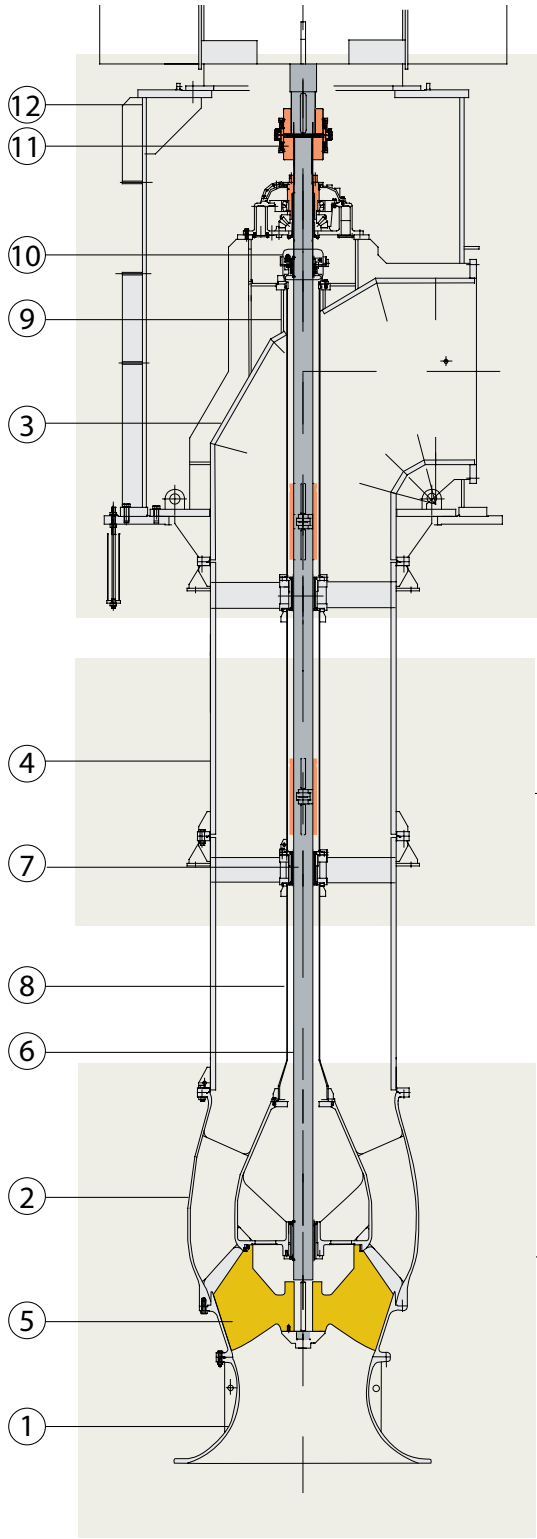
[Note]

- Pumps rating over this range are available also.
- colored section shows the type of pump of which thrust is supported by pump.

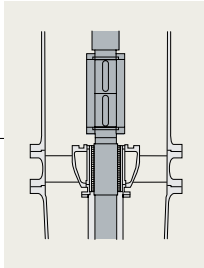
## Pump Model Name



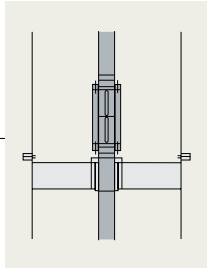
# Construction



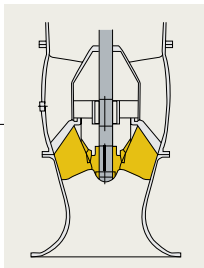
Thrust bearing in pump, enclosed line shaft



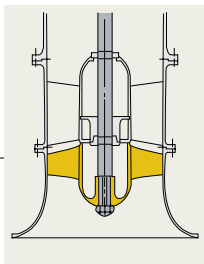
Open line shaft



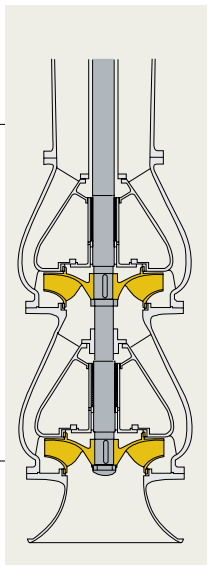
Fabricated column pipe



Low head impeller



Axial flow pump

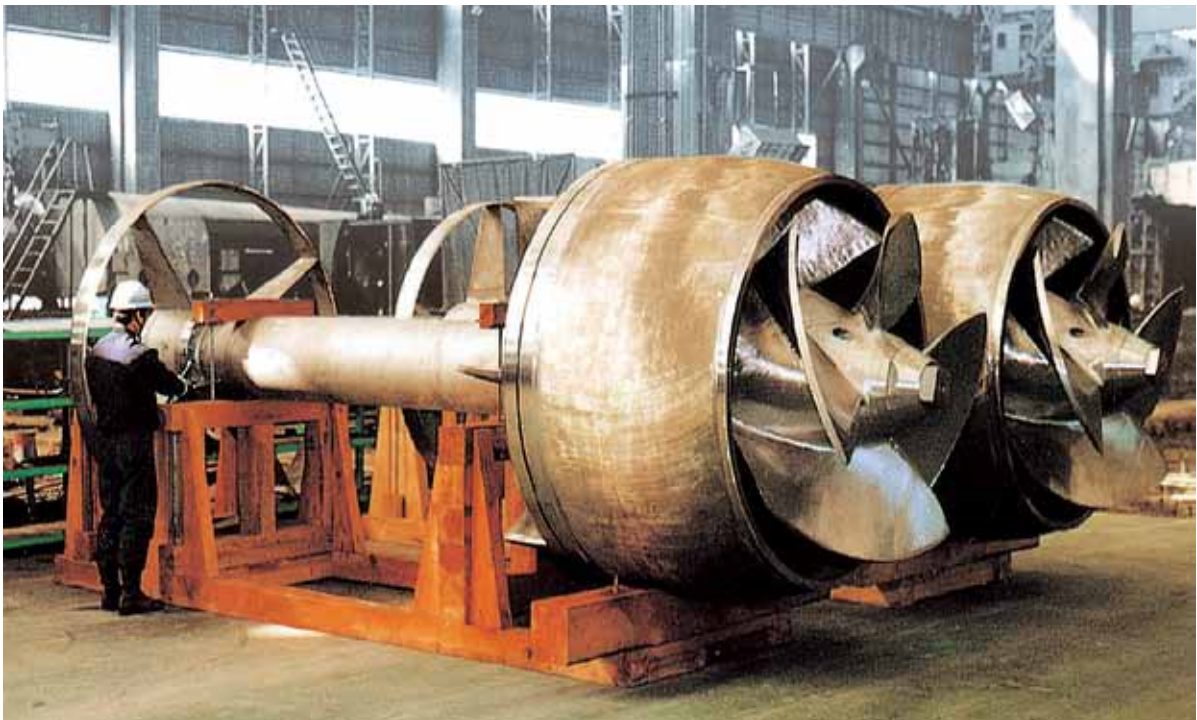


2 stage construction

# Materials

No.	Part	Fresh Water	Sewage	Sea Water
1	Suction bell	Cast iron, Ductile cast iron		Low alloy cast iron Ni-resist D2, Aluminium bronze, 316 S.S., Duplex S.S.
2	Bowl			
3	Discharge elbow	Cast iron, Ductile cast iron, Rolled steel		
4	Column pipe / Barrel			
5	Impeller	Bronze, 304 S.S.		Aluminium bronze, 316 S.S., Duplex S.S.
6	Shaft	Carbon steel	402 S.S.	Duplex S.S.
7	Sleeve	304 S.S.		316 L, Duplex S.S.
8	Shaft enclosing tube	Cuttless rubber	Bronze	316 S.S., Duplex S.S.
9	Bearing			Cuttless rubber, Teflon, etc.
10	Gland Packing	Carbonized fiber		Carbonized fiber
11	Flexible coupling	Gear type or etc.		
12	Driver pedestal	Carbon steel		

- Selection of material requires careful study of the properties of the liquid handled and the operating conditions, and etc.



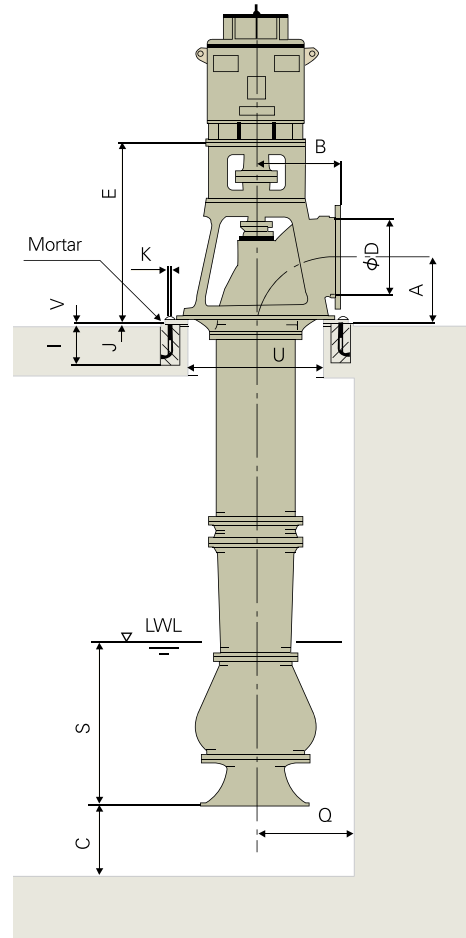
Pull out elements of Vertical Mixed Flow Pump (Model 2000VKNM, Pull-out type)

# Outline Dimensions

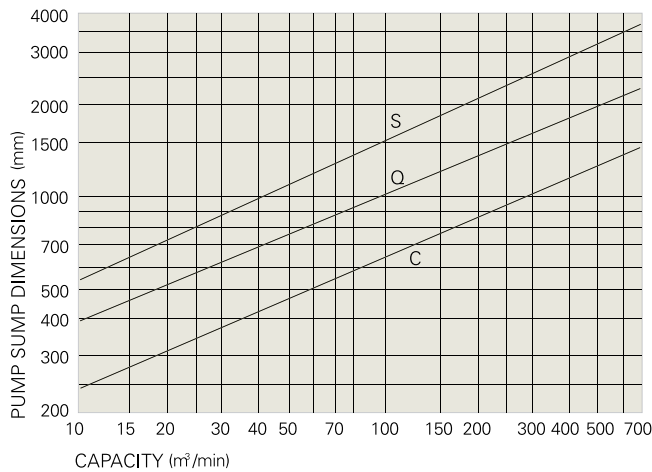
Unit : mm

Pump Discharge Bore	A	B	E	I	J	K	V	U	W	Y	N
350 (14)	445	400	1500	430	25	22	55	750	1150	1150	4
400 (16)	495	450	1600	500	30	24	60	850	1250	1260	4
450 (18)	550	500	1800	500	30	24	60	950	1400	1360	6
500 (20)	600	550	1900	500	30	24	60	1050	1500	1460	6
600 (24)	725	650	2300	630	40	24	90	1150	1700	1570	6
700 (28)	830	750	2400	630	40	24	90	1350	1850	1770	8
800 (32)	930	850	2500	630	40	24	90	1500	2000	1920	8
900 (36)	1040	950	2700	630	40	30	90	1700	2200	2120	8
1000 (40)	1150	1050	2800	800	50	30	100	1850	2450	2280	8
1100 (44)	1255	1150	3000	800	50	30	100	1950	2530	2380	8
1200 (48)	1355	1250	3100	800	50	30	100	2050	2610	2480	8
1350 (54)	1510	1400	3300	800	50	36	100	2150	2740	2580	12
1500 (60)	1660	1500	3500	800	50	36	100	2350	2900	2780	12
1650 (66)	1800	1600	3700	1000	50	36	120	2600	3200	3300	16
1800 (72)	1950	1800	3900	1000	50	36	120	2700	3600	3700	18
2000 (80)	2150	2000	4300	1000	50	36	120	2850	3800	3900	20
2200 (88)	2350	2200	4500	1000	50	42	150	3200	3960	4100	20
2400 (96)	2550	2400	4800	1300	50	42	150	3500	4250	4300	24

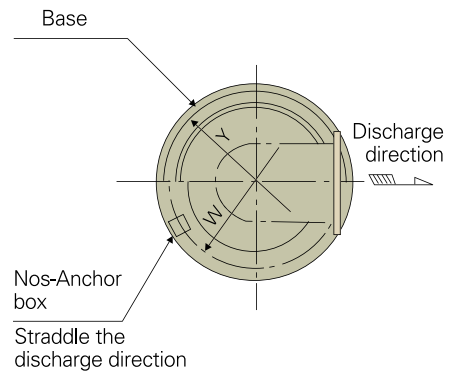
## Basic Type



# Pump Sump Dimensions



## Foundation



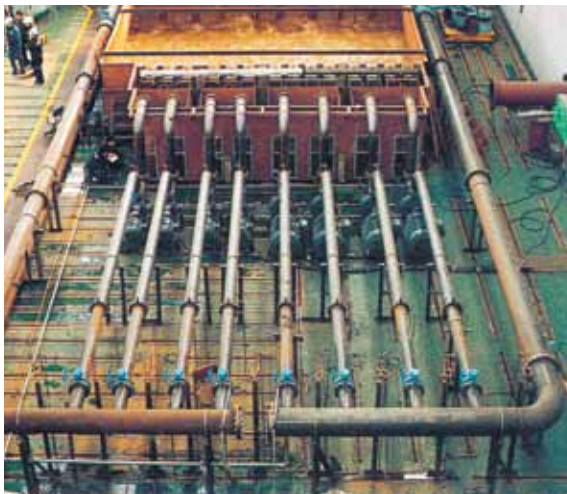
# Performance Test Facility

**Test Capacity: 93,240 m<sup>3</sup>/hr(Max. Flow Rate)**

## Electricity

Capacity : 23000kVA at 60Hz and  
3500 kVA at 50Hz

Voltage : 13800, 6600, 3300, 440, 380, 220 Volt



Sump model test layout



Computer aided dynamic balance test of impeller

## For Making Inquiries

In sending your inquiries for estimate or planning, please forward following:

- Capacity, Head.
- Application of pump, construction, and installation method.
- Water quality and temperature.
- Driver, type of driver system (Frequency of available electricity).
- Distance from installed level of pump to the lowest water level.
- Materials if you have any special requirements.

# Major Performance Records

No.	CUSTOMER/PROJECT	MODEL	QTY	SPECIFICATION				MATERIAL				DELIVERY	REMARKS
				Q(M <sup>3</sup> /Min)	H(M)	N(rpm)	L(kW)	CASING	IMPELLER	SHAFT	SLEEVE		
1	RAYTHEON, USA / ILIJAN 1200MW COMBINED CYCLE POWER PLANT CIRCULATION WATER PUMP	1800 VKM	4	424.07	16.76	16.76	16.76	A743-CF3M	A743-CF3M	A743-CF3M	A743-CF3M	'00.09	PHILIPPINE
2	KHNP / ULCHIN #5 & 6 NUCLEAR POWER PLANT (1000MW × 2 UNITS), CIRCULATING WATER PUMP	1800 VKNM	12	503.4	11	300	1300	A743-CF3M	SUPER S.S. (SR 50A)	SUPER S.S. (SR 50A)	A743-CF3M	#5 : '01.07 #6 : '01.09	KOREA
3	ALGERIA / SONATRACH COMPLEX GL2Z SEA WATER INTAKE PUMP	1800 VKNM	1	549	40.5	330	4600	A439-D2	A743-CF8M	A276-316	A743-CF8M	'03.10	ALGERIA
4	ASE(ATOMSTROYEXPORT) / KUDANKULAM POWER PLANT SEA WATER INTAKE PUMP	2200 VKAM	12	735.5	15.9	1000	3200	A743-CF3MN	A743-CF3MN	A276-S31803	A743-CF3MN	'04.08 (6SETS) '05.01 (6SETS)	INDIA
5	GECOL / BENGHAZI NORTH COMBINED CYCLE POWER PLANT MAIN CIRCULATING WATER PUMP	1800 VKNM	4	583.33	18	370	2400	A890-CD4MCU	A890-CD4MCU	A276-S31803	A890-CD6MN	'05.08	LIBYA
6	GECOL / ZAWIA COMBINED CYCLE POWER PLANT, CIRCULATING WATER PUMP	1500 VKNM	4	306.67	26	493	1700	A890-CD4MCU	A890-CD4MCU	A276-S31803	A890-CD6MN	'06.02	LIBYA
7	KOREA SOUTH-EAST POWER CO., LTD. / YONGHUNG THERMAL POWER PLANT, UNITS #3, 4 (870MW × 2) CIRCULATING WATER PUMP	3000 VKANM	4	1217	23	222	5179	A743-CF3MN	A743-CF3MN	A276-S31803	A743-CF3MN	#3: '06.08 #4: '06.10	KOREA VARI. PITCH VANE TYPE
8	HHI / MARAFIQ IWPP PROJECT CIRCULATING WATER PUMP FOR	1100 VKM	3	183.22	15.43	443	600	A890-CD4MCU	A890-CD4MCU	A276-S31803	A890-CD4MCU	'08.04	
9	ALSTOM/ TKS CAS RIO DE JANEIRO BRAZIL POWER PLANT MAIN COOLING WATER PUMP	1800 VKM	2	516	14.5	273	1580	CD4MCU-316L	A890-CD4MCU	A276-S31803	A890-CD4MCU	'08.05	BRAZIL
10	POSCO E&C / NUEVA VENTANAS POWER PROJECT MAIN CIRCULATING WATER PUMP	1650 VKNM	2	301.67	15.5	370	1050	A890-CD4MCU	A890-CD4MCU	A276-S31803	A890-CD4MCU	'08.05	CHILE
11	FISIA ITALIMPIANTI / SHUAIBA NORTH DESALINATION PROJECT SEA WATER SUPPLY PUMP	1650 VKNM	5	378.78	32	410	2600	A743-CF3MN	A743-CF3MN	A276-S31803	A240-S31803	'08.12	KUWAIT
12	ALSTOM/ FUJAIH F2 POWER PLANT MAIN COOLING WATER PUMP	1350 VKM	4	324	20.75	425	1450	A890-CD4MCU	A890-CD4MCU	A276-S31803	A890-CD4MCU	'09.04	U.A.E



Circulating Water Pump for Taeon Thermal Power Plant



Seawater Lift Pump for Taeon Thermal Power Plant

# Major Installation



Variable Pitch Vane Pump



Jebel Ali Gas Turbine & Desalination Station "E"



Circulating Water Pump for Zaiwa IWPP Project in Libya



CWP & ACWP of Marafiq IWPP Project in Saudi Arabia



Dock Dewatering Pump

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