



Submitted Technical Specification for Approval

Item No. : 1	Project:
Quantity : 1 set	Application : Brackish Water
Description	Consultant pump specification
<u>General Specification</u>	
Mark Name	OLYMPIA
Pump model	O-SAP 600-50
Pump type	Submersible propeller pump (direct drive)
Liquid Temperature	Not more than 60°C
Installation type	Installation with pipe column
<u>Pump Data</u>	
Impeller type	Axial Flow with statically and dynamically balanced
Performance Curve	see the drawings
Flow rate (Capacity)	1m ³ /sec (3600m ³ /hr)
Total dynamic head	7 m
Pump efficiency	81.8%
Overall efficiency	73.3%
Solid passage dia.	Dia. 110mm
Outer diameter of impeller	550 mm
Shaft power	84 kW
Speed	735 rpm
Total discharge conn.	D/N 800mm
Column size	D/N 1000mm
Power cable & Control cable	- 1x20 m Submersible power cable - 1x20 m Submersible auxiliary control cable
<u>Materials</u>	
Motor casing/housing	Cast Iron
Pump casing	Cast Iron with Zinc Anode
Impeller Vane/blades	Duplex SS 2205
Impeller Hub	Duplex SS 2205
Wearing ring	N/A
Shaft	SS 420
Studs, Nuts, Screws	Stainless steel
O-ring	NBR
Double Mechanical seal	Tungsten carbide & Silicon carbide
Heavy duty bearing	Roller bearing with grease lubricate
<u>Surface treatment</u>	Impeller is painted by epoxy resin Paintmaterial: bituminous epoxy resin All cast parts are primed with a re-rust paint The finishing coat is two pack paint The color is black paint
<u>Motor data</u>	
Drive unit / Motor model	110KW / 8P
Design Motor	Squirrel-cage, induction motor
Protection type	IP68
Insulation class	Class H
Main voltage	380v, 3 pH, 50 Hz.
Rated power of motor	110KW
Motor speed	735rpm
Motor efficiency	89.6%
Service factor	1.2
Starting method	VSD
Rated current	230A
<u>Monitoring system, Std.</u>	
Monitoring system, Std.	- 3 pcs PT100 at stator winding (A/B/C three phases) - PT100 at upper bearing - PT100 at lower bearing - Upper water leakage sensor (Float switch/ leakage electrode in motor junction chamber) - Lower water leakage sensor (Float switch/ leakage electrode in motor chamber) - Moisture sensor (HM1500 in motor junction chamber) - Vibration Sensor in top bearing housing - WLC Type Float Switch for LWL and HWL (external of pump)

**SUBMERSIBLE MOTOR PUMPS****MOTOR DATA****ELECTRICAL DATA**

Hz	Poles	Phaes	Output(kW)	Voltage(V)	Remarks
50	8	3	110	380	

Name Plate Rating	Output	kW	110
		Hp	150
	Phase		3
	Poles		8
	Voltage (V)		380
	Amperes (A)		230
	Speed (RPM)		735
	Rating		Continuous
	Rotor Type		Squirrel Cage
	Insulation Class		H
Capacitor	Start		-
Size - μF	Run		-
No Load Amperes			81
100% Load	Current (Amperes)		230
	Efficiency (%)		89.6
	Power Factor (%)		81.0
	Speed (RPM)		735
Start Current (A)			805
Full Load Torque (Kg-m)			145.77
Locked Rotor Torque (%)			115
Number of Starts Per Hour			6
Design Standard			IEC
Voltage Tolerance (%)			$\pm 10\%$
Frequency Tolerance (%)			$\pm 5\%$

ITEM	LOAD		
	50%	75%	100%
POWER INPUT[Kw]	61.4	92.1	122.8
POWER OUTPUT[kW]	55	82.5	110
CURRENT[A]	158.2	172.7	230.3
POWER FACTOR[%]	59.5	73.0	81
EFFICIENCY[%]	88.8	89.3	89.6
SPEED[RPM]	743	739	735



SUBMERSIBLE MOTOR PUMPS

CIRCLE DIAGRAM

MOTOR SPECIFICATION

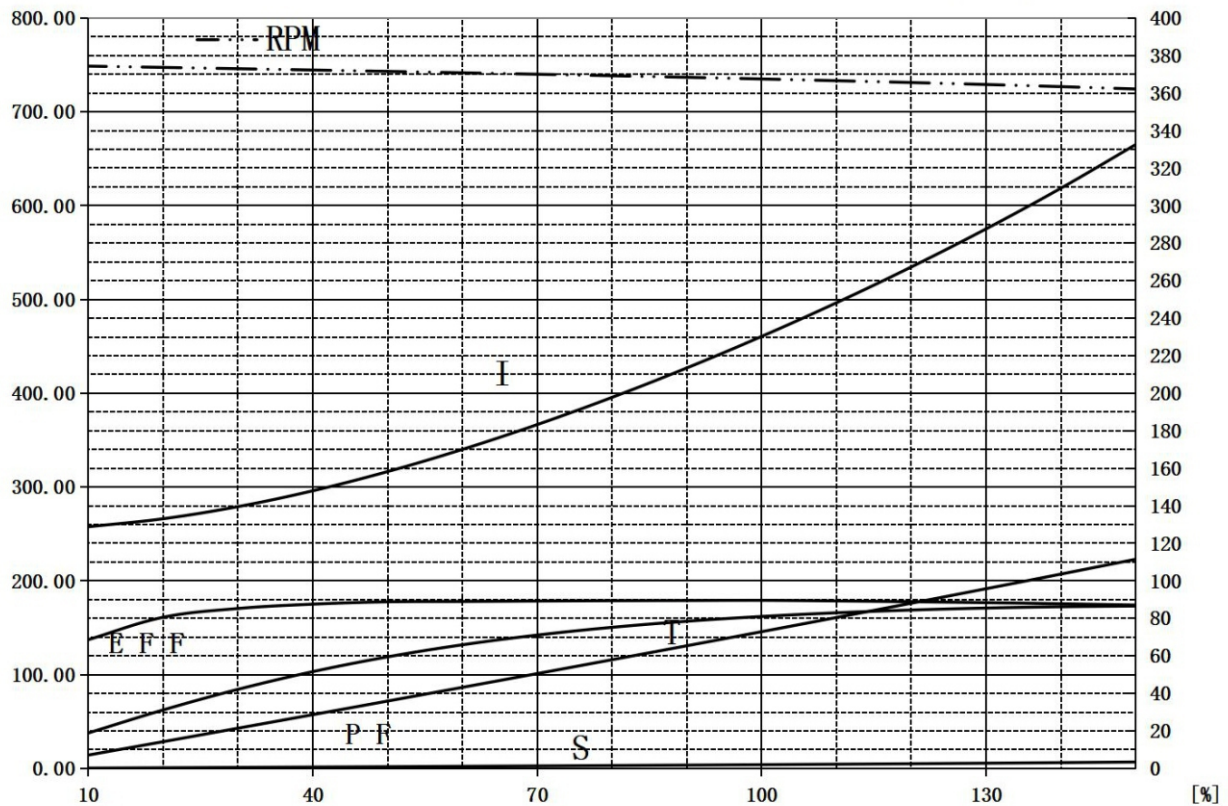
Motor Type	:	Totally Enclosed, Submerged Type (IP 68)				
Motor Output	:	110	[kW]	Voltage	:	380 [V]
Revolution	:	735	[rpm]	No. of Poles	:	8 [P]
Frequency	:	50	[Hz]	Rate Current	:	230 [A]
Efficiency	:	89.6	[%]	Power Factor	:	81.0 [%]
Rotor Type	:	Squirrel Cage			Ins. of Class:	H
Cooling Method	:	Water			Liquid Temp.	AMB
Starting Method:	:	VFD			Rating	CONT.

MOTOR CIRCLE DIAGRAM

(L- CIRCLE, 110 [kW])

Torque[Kg·m]/Current[A]/Revolution[RPM]

EFF[%]/PF[%]/Slip[%] POWER[KW]





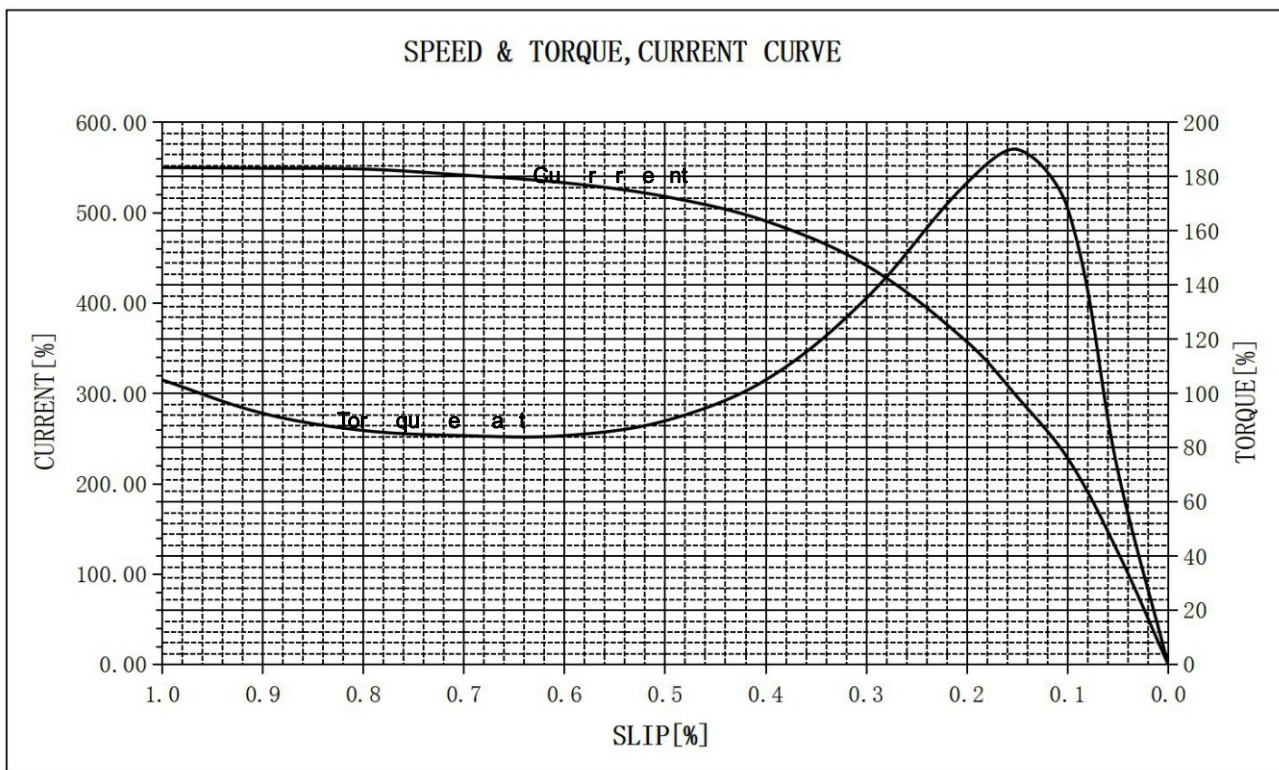
SUBMERSIBLE MOTOR PUMPS

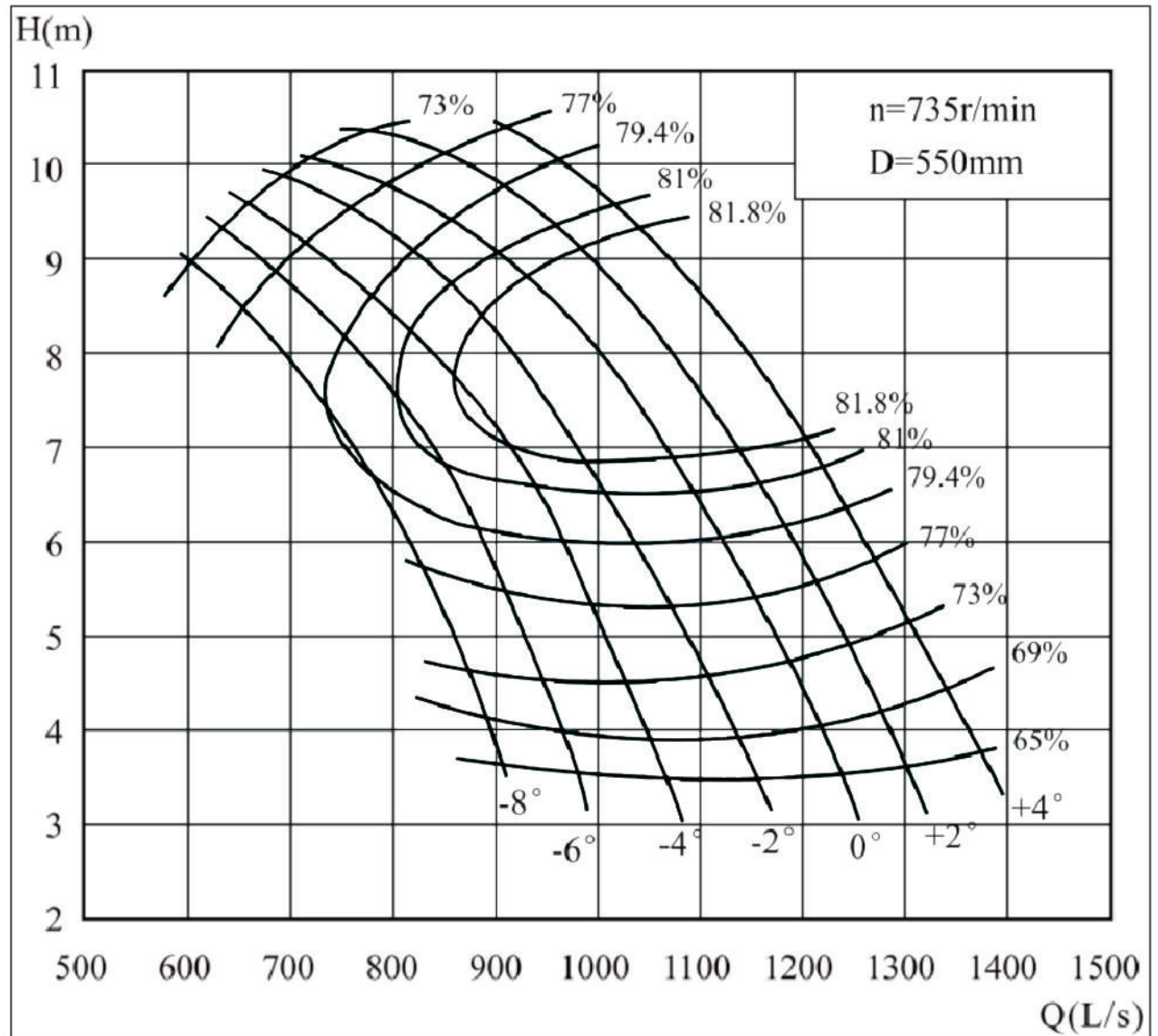
SPEED & TORQUE & CURRENT CURVE

MOTOR SPECIFICATION

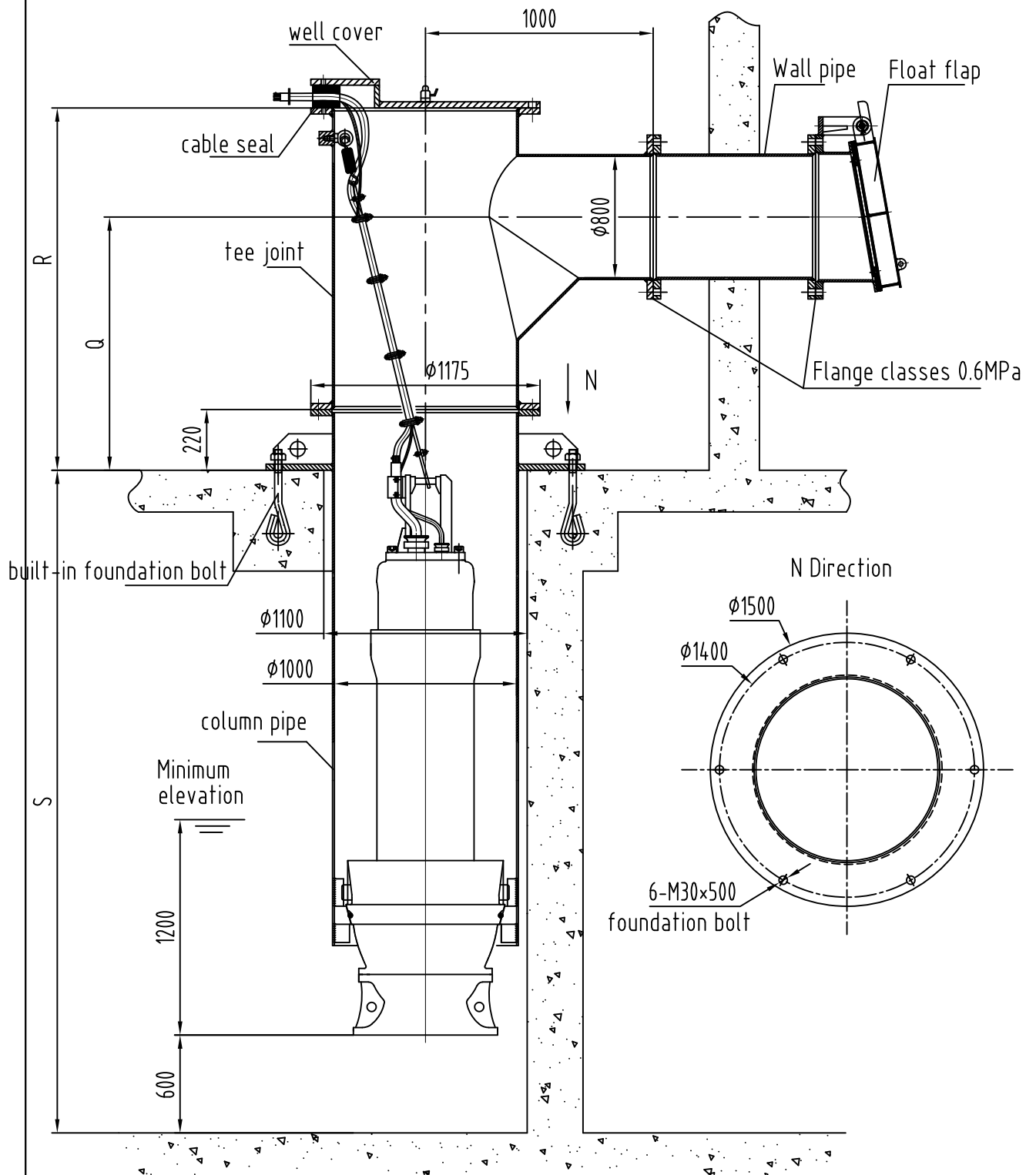
Motor Type	:	Totally Enclosed, Submerged Type (IP 68)					
Motor Output	:	110	[kW]	Voltage	:	380	[V]
Revolution	:	735	[rpm]	No. of Poles	:	8	[P]
Frequency	:	50	[Hz]	Rate Current	:	230	[A]
Torque	:	145.8	[%]	Starting Current	:	805	[A]
Starting Torque:		115	[%]	Ins. of Class	:	H	
Starting Method:		VFD		Liquid Temp.	:	AMB	
				Rating	:	CONT.	

SPEED & TORQUE & CURRENT CURVE





Angle	Capacity		Head (m)	Speed (r/min)	Power (kW)		Eff. η (%)	Outer diameter of impeller (mm)
	(m ³ /h)	(l /s)			Shaft power	Motor power		
0°	4352.4	1209	4.14	735	71.1	110	69.1	550
	3609	1002.5	7.86		93.5		82.7	
	2882.2	800.6	9.84		100.2		77.1	



pump model	O-SAP 600-50		
weight:	2100Kg	The axial water thrust:	28900N
speed:	735r/min		