QUANTUM PUMPS SA

BOREHOLE PRODUCT RANGE

6VP 6" BOREHOLE PUMP

6MF 6" BOREHOLE PUMP

6" BOREHOLE MOTOR - OIL

6" BOREHOLE MOTOR - WATER

ANALOGUE STARTER PROTECTOR

2014 PRODUCT CATALOGUE

Q/S&M/BOREHOLE/6" CAT/14/02

6VP BOREHOLE PUMP

PUMP FEATURES

This borehole pump's key feature is its high pressure and delivery ratio.
The reduced stages ensure extended pump life and ease of operation.

OPERATING RANGE

These pumps are for domestic, agricultural and industrial use.

Head range:	4m - 489m
Flow rate:	70 l/m - 1300 l/m
Minimum immersion:	1m
Maximum sand content:	50g/m^3

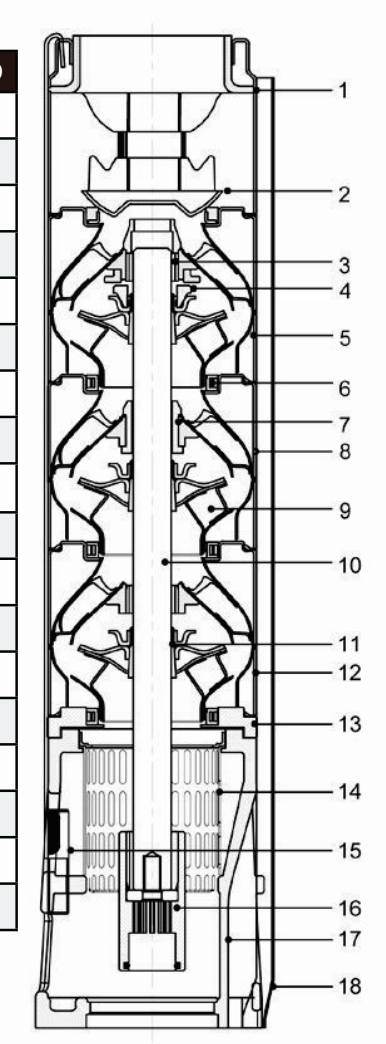
KEY MATERIALS

Suction, stage casing and discharge outlets:	stainless steel 304
Impellers:	stainless steel 304
Pump shaft:	SS AISI 431
Bearing bush:	anti friction rubber
Non return valve:	stainless steel 304
Cable guard and strainer:	stainless steel 304

Pump motor couplings are as per NEMA standards.

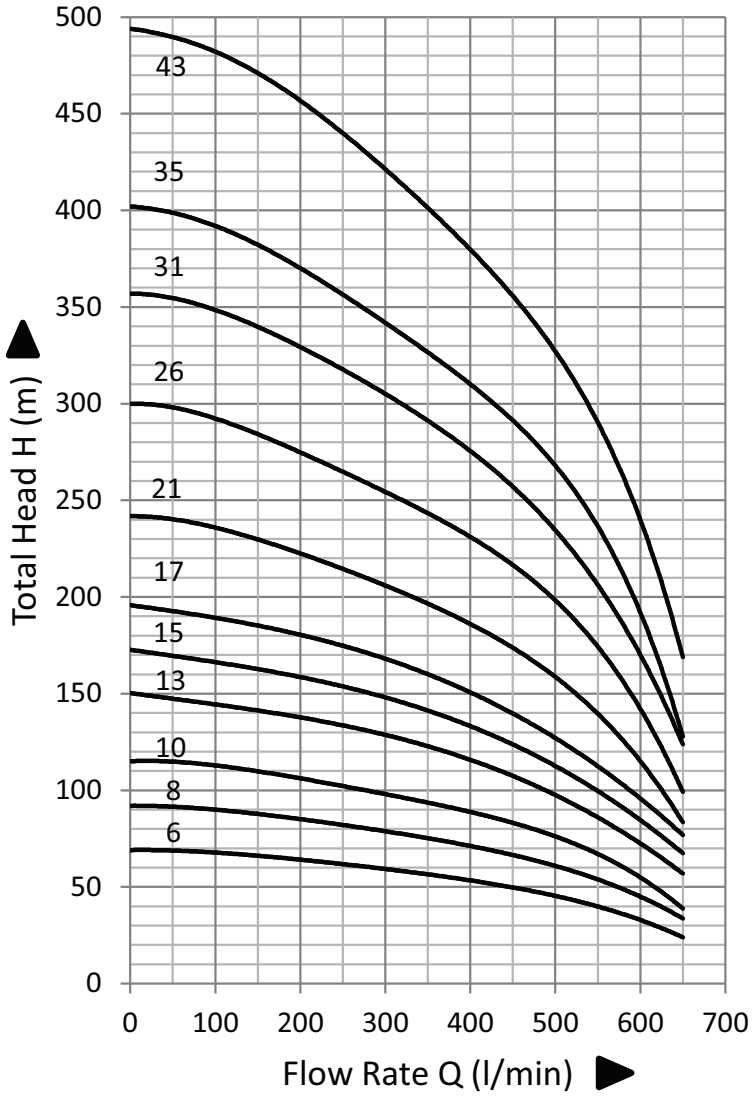
MATERIALS

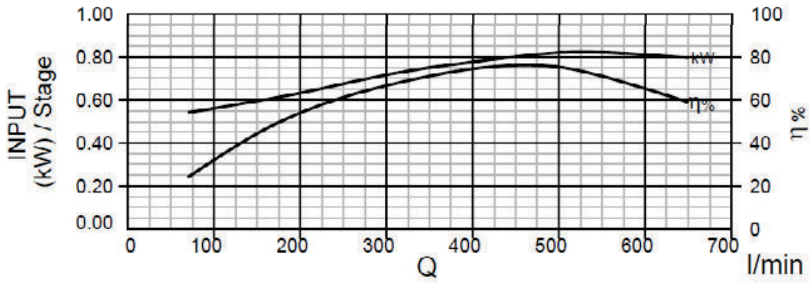
NO.	PART NAME	MATERIAL	STANDARD
1	Discharge Chamber	Stainless Steel	304
2	Valve	Stainless Steel	304
3	Top & First Bearing Bush	Stainless Steel + NBR	304
4	Spacing Washer	25CFT	
5	Intermediate Chamber Top	Stainless Steel	304
6	Neckring	NBR+PPS	
7	Bearing Bush	NBR	
8	Intermediate Chamber	Stainless Steel	304
9	Impeller	Stainless Steel	304
10	Pump Shaft	Stainless Steel	431
11	Collet & Collet Nut	Stainless Steel	304
12	Intermediate Chamber 1st	Stainless Steel	304
13	Suction Connector	Stainless Steel	304
14	Strainer	Stainless Steel	304
15	Clamping Strip	Stainless Steel	304
16	NEMA Coupling	Stainless Steel	304
17	Suction Interconnector	Stainless Steel	304
18	Cable Guard	Stainless Steel	304

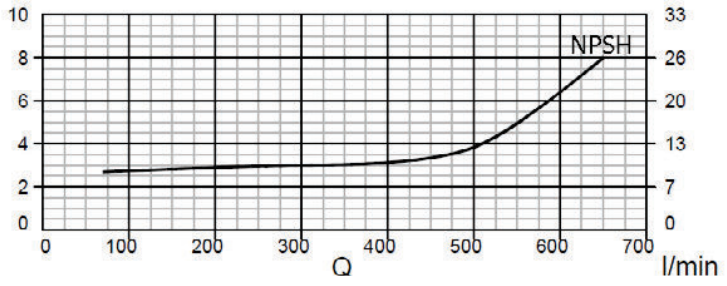


VP 30A

performance curves - vp 30a







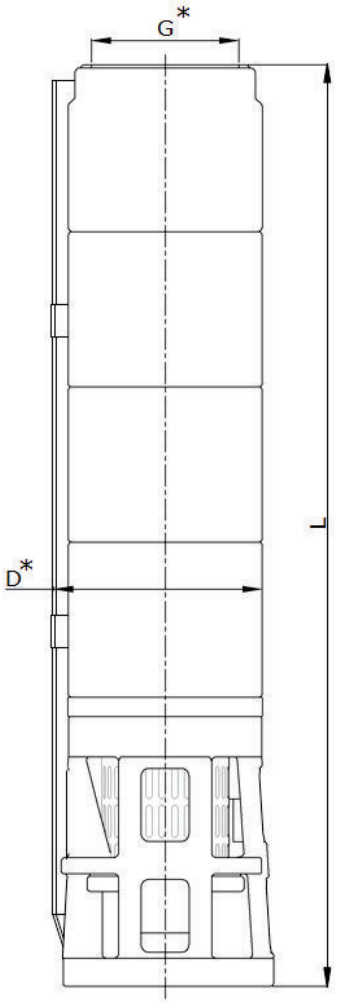
PERFORMANCE CHART

MODEL NAME		RATING		DISCHARGE									
Three-Phase	Stage	kW	HP	l/min	0	70	135	200	270	335	400	470	535	650
				m^3/h	0	4.2	8.1	12.0	16.2	20.1	24.0	28.2	32.1	39.0
VP30A-06	6	5.50	7.50	Head (m)	69	68	67	64	60	57	53	49	42	27
VP30A-08	8	7.50	10.00		92	91	89	85	81	76	71	65	56	35
VP30A-10	10	9.30	12.50		115	114	111	106	101	95	89	81	70	44
VP30A-13	13	11.00	15.00		150	148	145	138	131	124	116	106	92	57
VP30A-15	15	13.00	17.50		172	171	167	159	151	143	134	122	106	66
VP30A-17	17	15.00	20.00		196	193	189	180	171	162	151	138	120	75
VP30A-21	21	18.50	25.00		242	239	234	223	211	200	187	171	148	93
VP30A-26	26	22.00	30.00		299	296	289	276	262	247	232	212	183	115
VP30A-31	31	26.00	35.00		356	352	345	329	312	295	276	252	219	137
VP30A-35	35	30.00	40.00		402	398	389	371	352	333	312	285	247	155
VP30A-43	43	37.00	50.00		494	489	478	456	433	409	383	350	303	190

DIMENSIONS

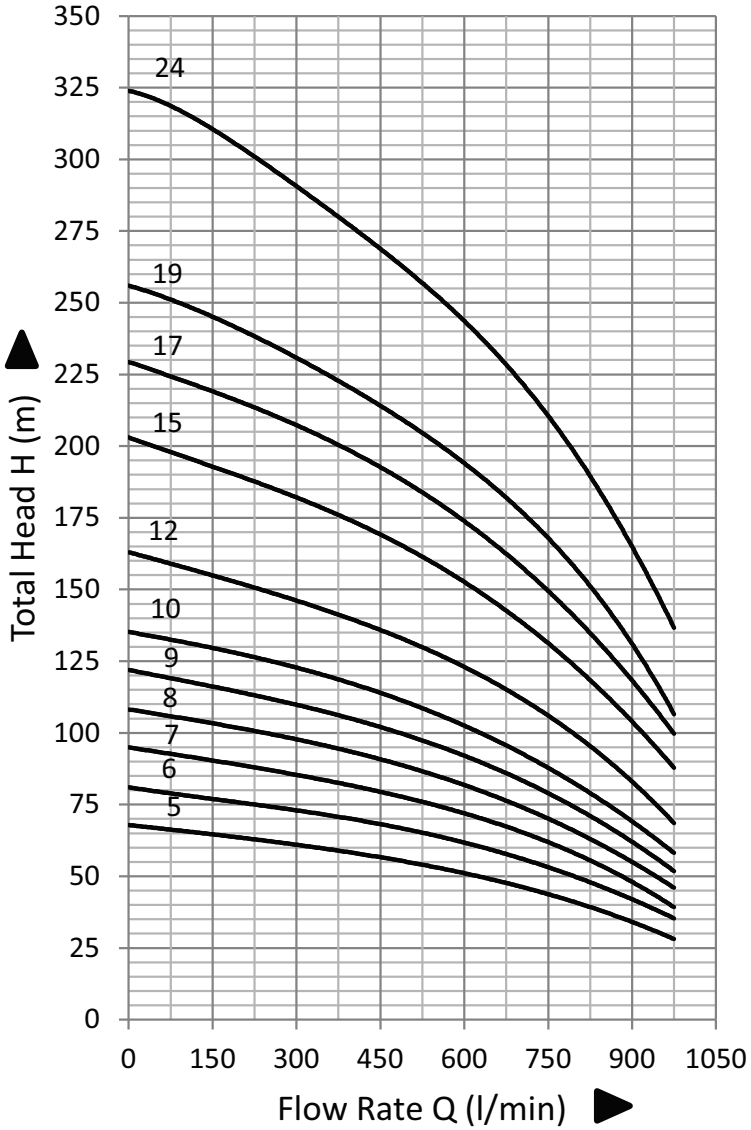
MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP30A-06	142	859	19	24
VP30A-08	142	1051	23	28
VP30A-10	142	1243	27	32
VP30A-13	142	1531	33	38
VP30A-15	142	1723	37	47
VP30A-17	142	1915	41	51
VP30A-21	142	2299	49	59
VP30A-26	142	2779	59	71
VP30A-31	142	3259	69	81
VP30A-35	142	3643	77	89
VP30A-43	142	4411	93	105

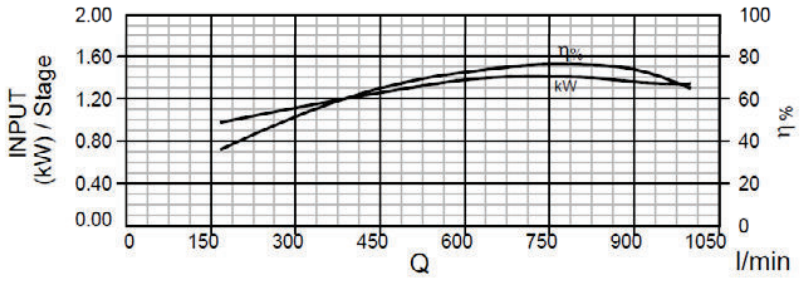
*G: available oulet size 3” & 4”
*D: with cable guard

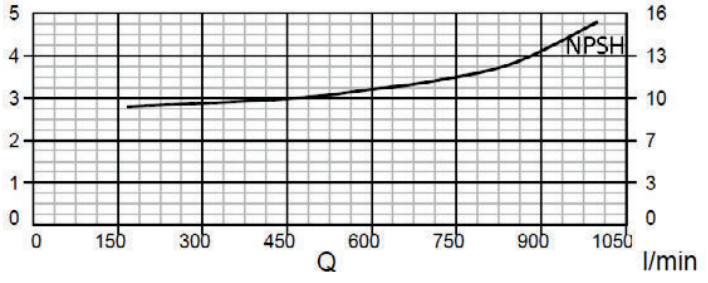


VP 46A

performance curves - vp 46a







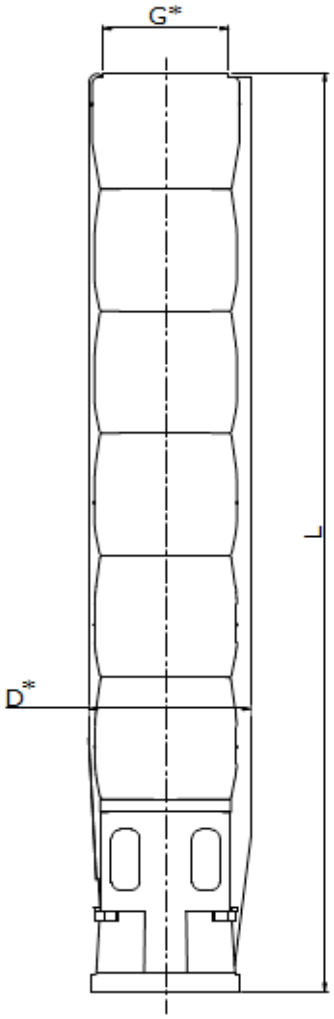
PERFORMANCE CHART

MODEL NAME		RATING		DISCHARGE										
Three-Phase	Stage	kW	HP	l/min	0	167	335	500	585	670	750	835	917	1000
				m^3/h	0	10.0	20.1	30.0	35.1	40.2	45.0	50.1	55.0	60.0
VP46A-05	5	7.50	10.00	Head (m)	68	64	60	55	52	48	44	39	33	27
VP46A-06	6	9.30	12.50		81	77	72	66	62	58	53	47	40	32
VP46A-07	7	11.00	15.00		94	90	84	77	73	68	62	55	47	37
VP46A-08	8	13.00	17.50		108	103	96	88	83	77	71	63	53	43
VP46A-09	9	15.00	17.50		122	116	108	99	93	87	79	70	60	48
VP46A-10	10	15.00	17.50		135	129	120	110	104	97	88	78	67	53
VP46A-12	12	18.50	25.00		162	155	144	132	124	116	106	94	80	64
VP46A-15	15	22.00	30.00		202	194	181	165	156	145	132	117	100	80
VP46A-17	17	26.00	35.00		230	219	205	187	176	164	150	133	113	91
VP46A-19	19	30.00	40.00		256	245	229	209	197	184	168	149	127	101
VP46A-24	24	37.00	50.00		324	310	289	264	249	232	212	188	160	128

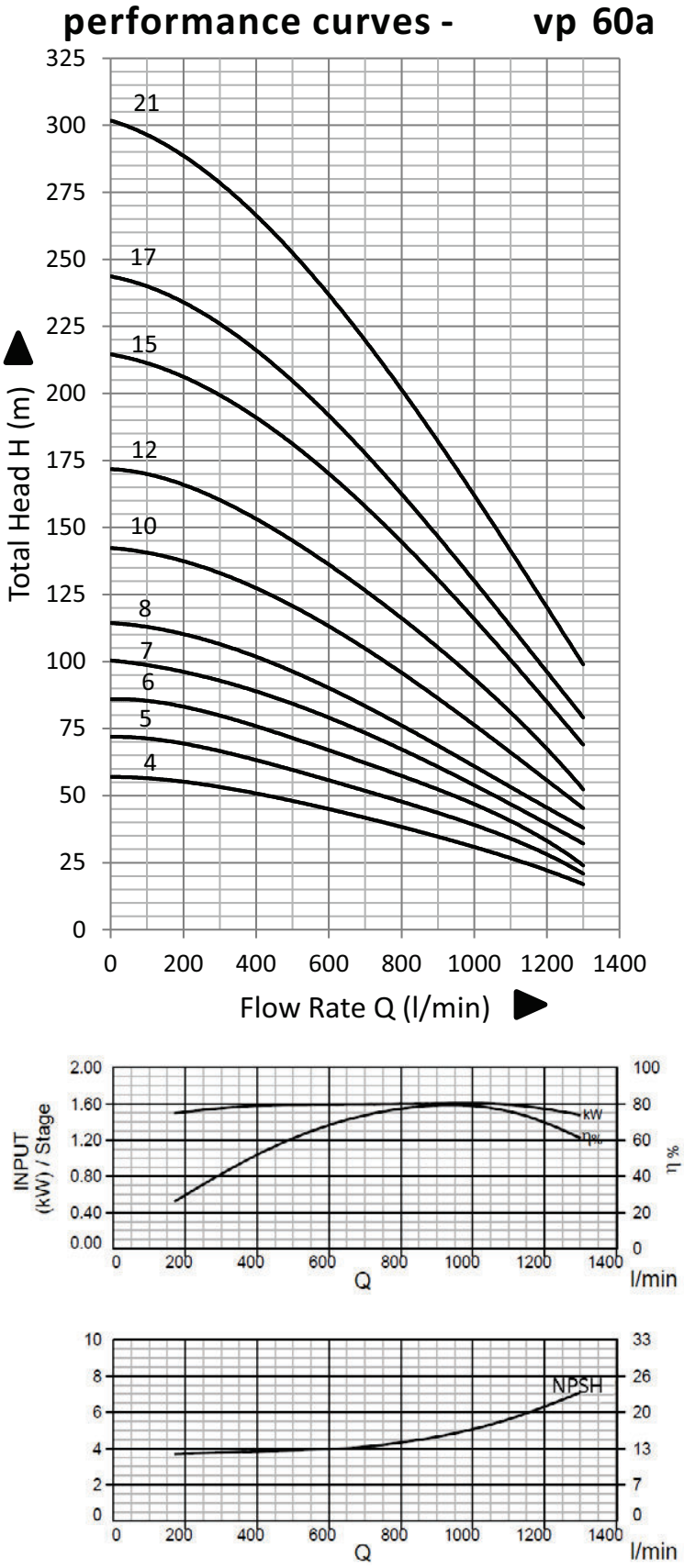
DIMENSIONS

MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP46A-05	147	848	20	24
VP46A-06	147	961	18	23
VP46A-07	147	1074	20	25
VP46A-08	147	1187	22	28
VP46A-09	147	1300	24	29
VP46A-10	147	1413	26	34
VP46A-12	147	1639	32	42
VP46A-15	147	1987	38	48
VP46A-17	147	2204	42	52
VP46A-19	147	2430	46	56
VP46A-24	147	995	62	67

*G: available oulet size 3” & 4”
*D: with cable guard



VP 60A


performance curves - vp 60a
Total Head H (m)
Flow Rate Q (l/min)
21
17
15
12
10
8
7
6
5
4
INPUT (kW) / Stage
kW
η%
η %
Q
l/min
NPSH

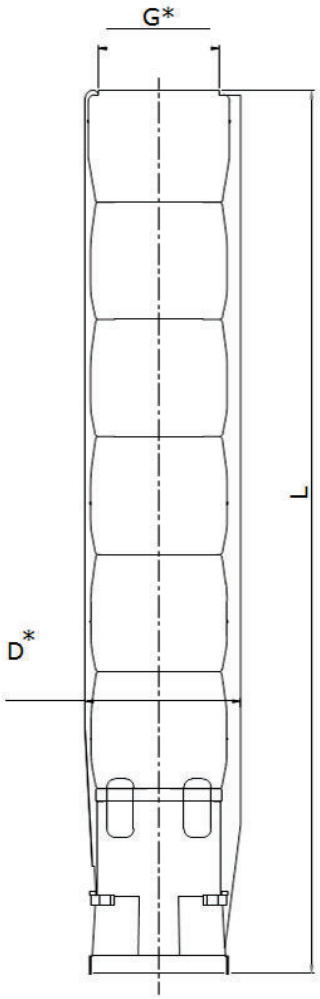
PERFORMANCE CHART

MODEL NAME		RATING		DISCHARGE								
Three-Phase	Stage	kW	HP	l/min	0	170	335	500	670	835	1000	1167	1300
				m^3/h	0	10.2	20.1	30.1	40.2	50.1	60.0	70.0	78.0
VP60A-04	4	7.50	10.00	Head (m)	57	56	53	48	42	37	32	25	17
VP60A-05	5	9.30	12.50		72	70	66	60	53	46	40	31	21
VP60A-06	6	11.00	15.00		86	84	80	72	64	55	47	37	25
VP60A-07	7	13.00	17.50		100	98	93	84	74	65	55	43	30
VP60A-08	8	15.00	20.00		115	112	106	96	85	74	63	49	34
VP60A-10	10	18.50	25.00		143	140	133	120	106	92	79	61	42
VP60A-12	12	22.00	30.00		172	168	159	145	127	111	95	74	51
VP60A-15	15	26.00	35.00		215	210	199	181	159	139	118	92	64
VP60A-17	17	30.00	40.00		244	238	226	205	181	157	134	104	72
VP60A-21	21	37.00	50.00		301	294	279	253	223	194	166	129	89

DIMENSIONS

MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP60A-04	147	735	18	21
VP60A-05	147	848	20	24
VP60A-06	147	961	18	23
VP60A-07	147	1074	20	25
VP60A-08	147	1187	22	28
VP60A-10	147	1413	26	34
VP60A-12	147	1639	32	42
VP60A-15	147	1978	38	48
VP60A-17	147	2204	42	52
VP60A-21	147	2656	50	60

*G: available oulet size 3” & 4”
*D: with cable guard



6MF BOREHOLE PUMP

PUMP FEATURES

This borehole pump's key feature is its noticeable axial trend of both impeller and diffuser resulting in a reduced diameter, large capacity and maintained head. The hydraulic and mechanical engineering ensures increased resistance to abrasion from sand carrying water.

OPERATING RANGE

These pumps are for domestic, agricultural and industrial use.

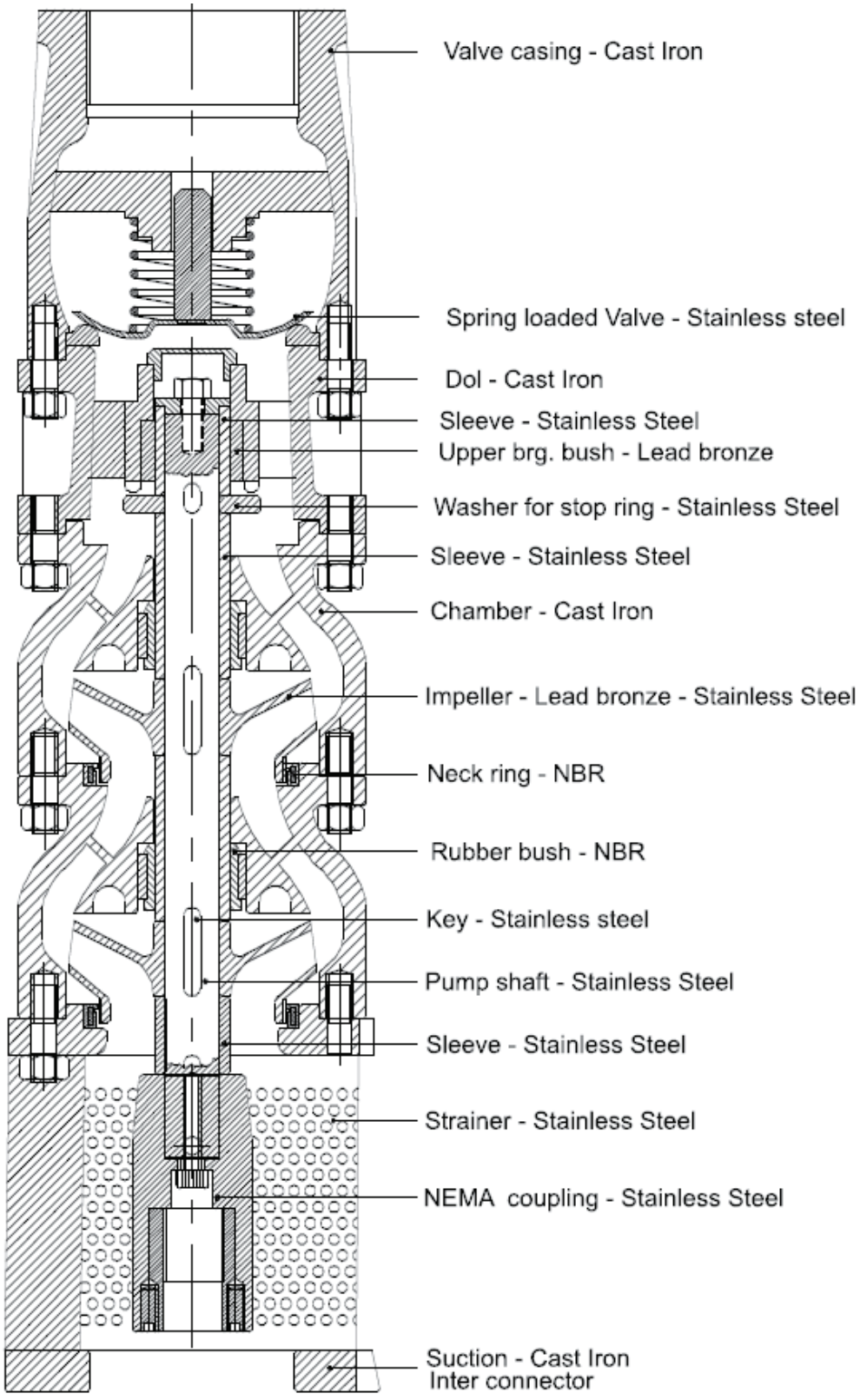
Head range:	4m - 227m
Flow rate:	140 l/m - 1700 l/m
Minimum immersion:	1m
Maximum sand content:	50g/m^3

KEY MATERIALS

Suction, stage casing & discharge outlets:	cast iron
Impellers:	stainless steel/bronze
Sleeves:	stainless steel reinforced with chronium
Pump shaft:	SS AISI 431
Bearing bush:	anti friction rubber
Non return valve:	stainless steel
Cable guard & strainer:	stainless steel

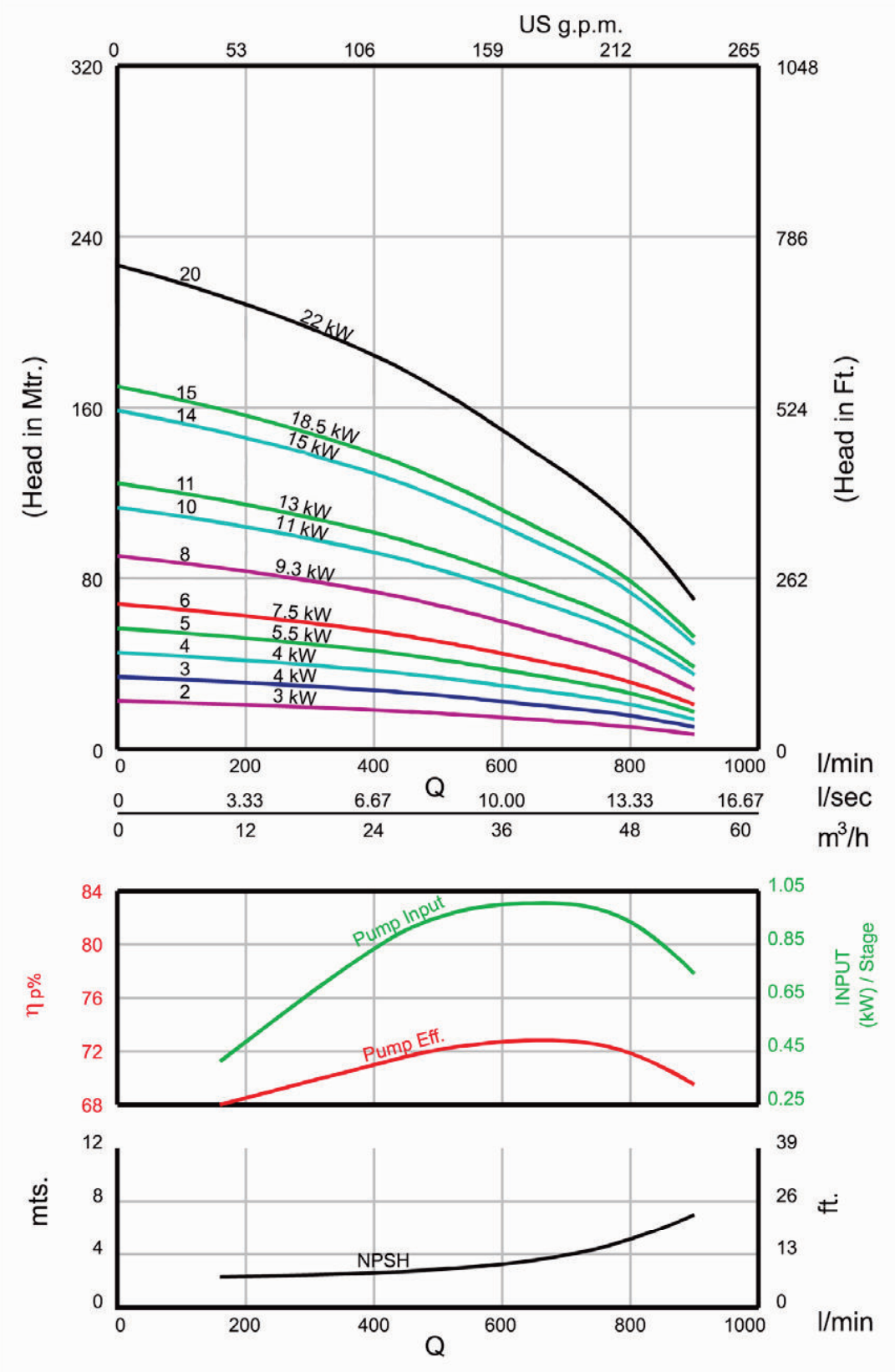
Pump motor couplings are as per NEMA standards.

MATERIALS


Valve casing - Cast Iron
Spring loaded Valve - Stainless steel
Dol - Cast Iron
Sleeve - Stainless Steel
Upper brg. bush - Lead bronze
Washer for stop ring - Stainless Steel
Sleeve - Stainless Steel
Chamber - Cast Iron
Impeller - Lead bronze - Stainless Steel
Neck ring - NBR
Rubber bush - NBR
Key - Stainless steel
Pump shaft - Stainless Steel
Sleeve - Stainless Steel
Strainer - Stainless Steel
NEMA coupling - Stainless Steel
Suction - Cast Iron
Inter connector

6MF-630

performance curves - 6 mf -630



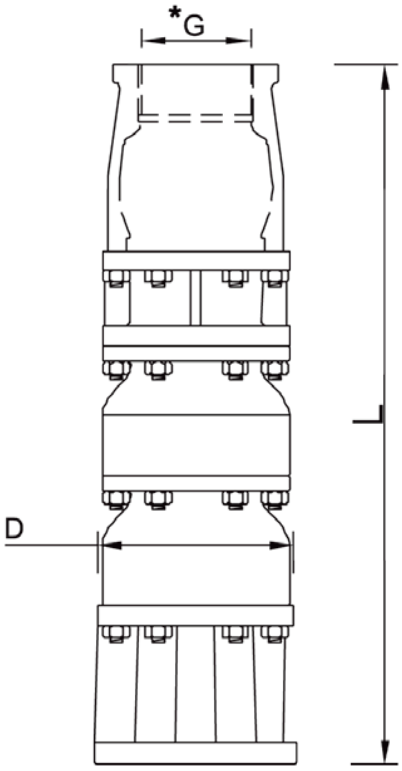
PERFORMANCE CHART

MODEL NAME		RATING		DISCHARGE							
Three-Phase	Stage	kW	HP	l/min	0	160	400	480	550	660	800	900
				m^3/h	0	9.6	24	28.8	33	39.6	48	54
6MF-630/02	2	3	4	Head (m)	23	21	19	17	16	14	11	7
6MF-630/03	3	4	5.5		34	32	28	26	24	21	16	10
6MF-630/04	4	4.5	6		45	43	37	34	32	27	22	14
6MF-630/05	5	5.5	7.5		57	54	46	43	40	34	28	18
6MF-630/06	6	7.5	10		68	64	56	52	48	41	33	21
6MF-630/08	8	9.3	12.5		91	86	74	69	64	55	44	28
6MF-630/10	10	11	15		113	107	93	86	80	68	55	35
6MF-630/11	11	13	17.5		125	118	102	95	88	75	60	38
6MF-630/14	14	15	20		159	150	130	120	112	96	77	49
6MF-630/15	15	18.5	25		170	160	140	129	120	103	82	52
6MF-630/20	20	22	30		227	214	186	172	160	137	110	70

DIMENSIONS

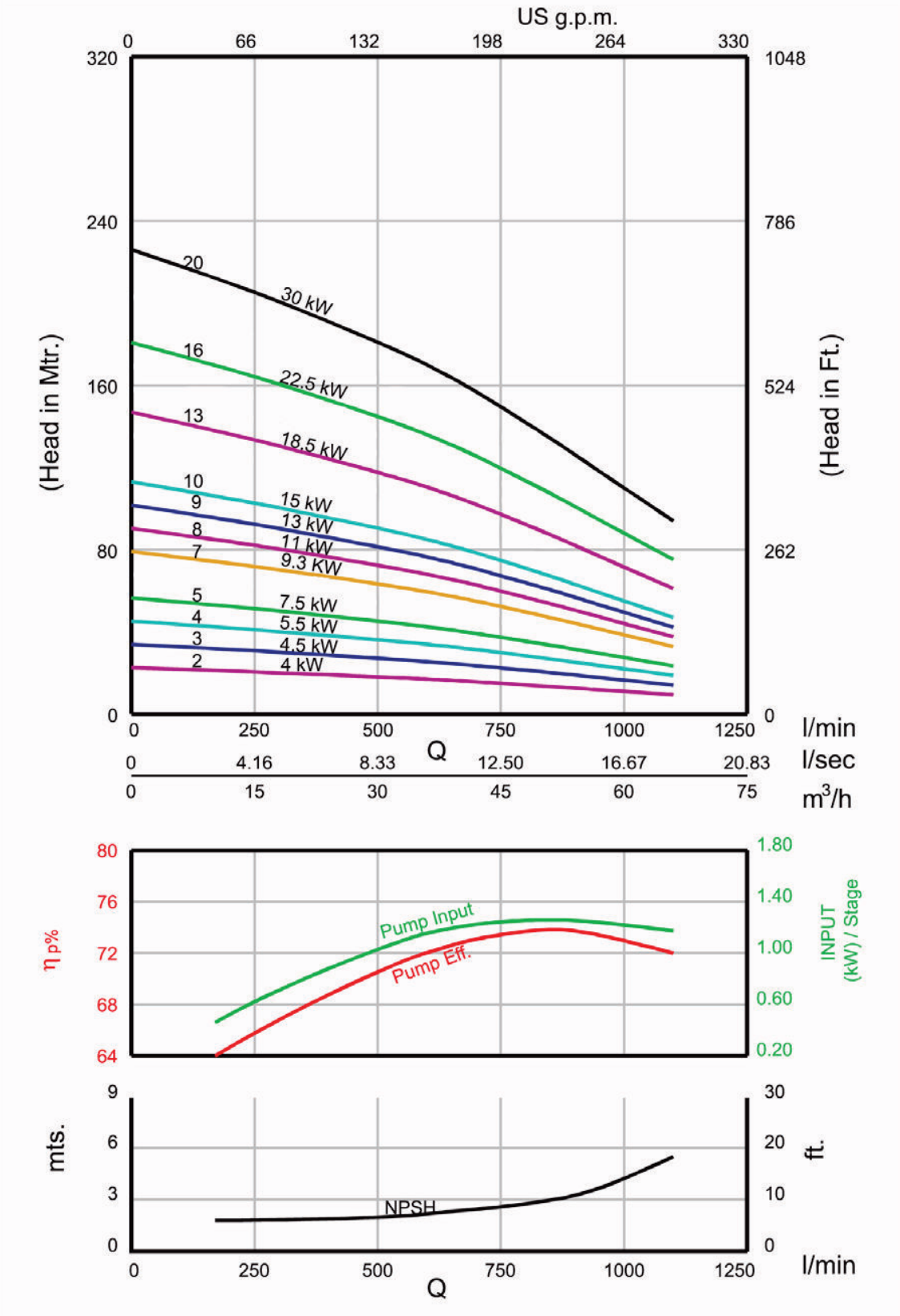
MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
6MF-630/02	144	590	24	32
6MF-630/03	144	690	29	37
6MF-630/04	144	790	34	42
6MF-630/05	144	890	39	47
6MF-630/06	144	990	44	52
6MF-630/08	144	1190	54	62
6MF-630/10	144	1390	64	72
6MF-630/11	144	1490	69	77
6MF-630/14	144	1790	84	92
6MF-630/15	144	1890	89	97
6MF-630/20	144	2190	114	121

*G= outlet size: 75mm



6MF-640

performance curves - 6 mf -640



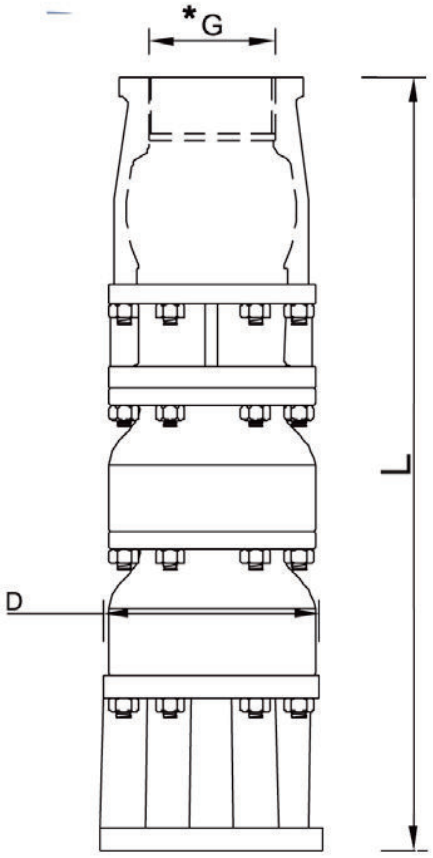
PERFORMANCE CHART

MODEL NAME		RATING		DISCHARGE										
Three-Phase	Stage	kW	HP	l/min	0	170	300	550	600	680	760	860	950	1100
				m^3/h	0	10.2	18	33	36	40.8	45.6	51.6	57	66
6MF-640/02	2	4	5.5	Head (m)	23	21	20	18	17	16	15	13	12	9
6MF-640/03	3	4.5	6		34	32	30	26	26	24	22	20	18	14
6MF-640/04	4	5.5	7.5		45	42	40	35	34	32	30	27	24	19
6MF-640/05	5	7.5	10		56	53	50	44	42	40	37	33	30	24
6MF-640/07	7	9.3	12.5		79	74	70	62	60	56	52	47	41	33
6MF-640/08	8	11	15		90	85	80	70	68	64	59	53	47	38
6MF-640/09	9	13	17.5		102	96	91	79	76	72	67	60	53	42
6MF-640/10	10	15	20		113	106	101	88	85	80	74	66	59	47
6MF-640/13	13	18.5	25		147	138	131	114	110	104	96	86	77	61
6MF-640/15	16	22.5	30		181	170	161	141	136	128	118	106	94	75
6MF-640/20	20	30	40		226	212	201	176	170	160	148	133	118	94

DIMENSIONS

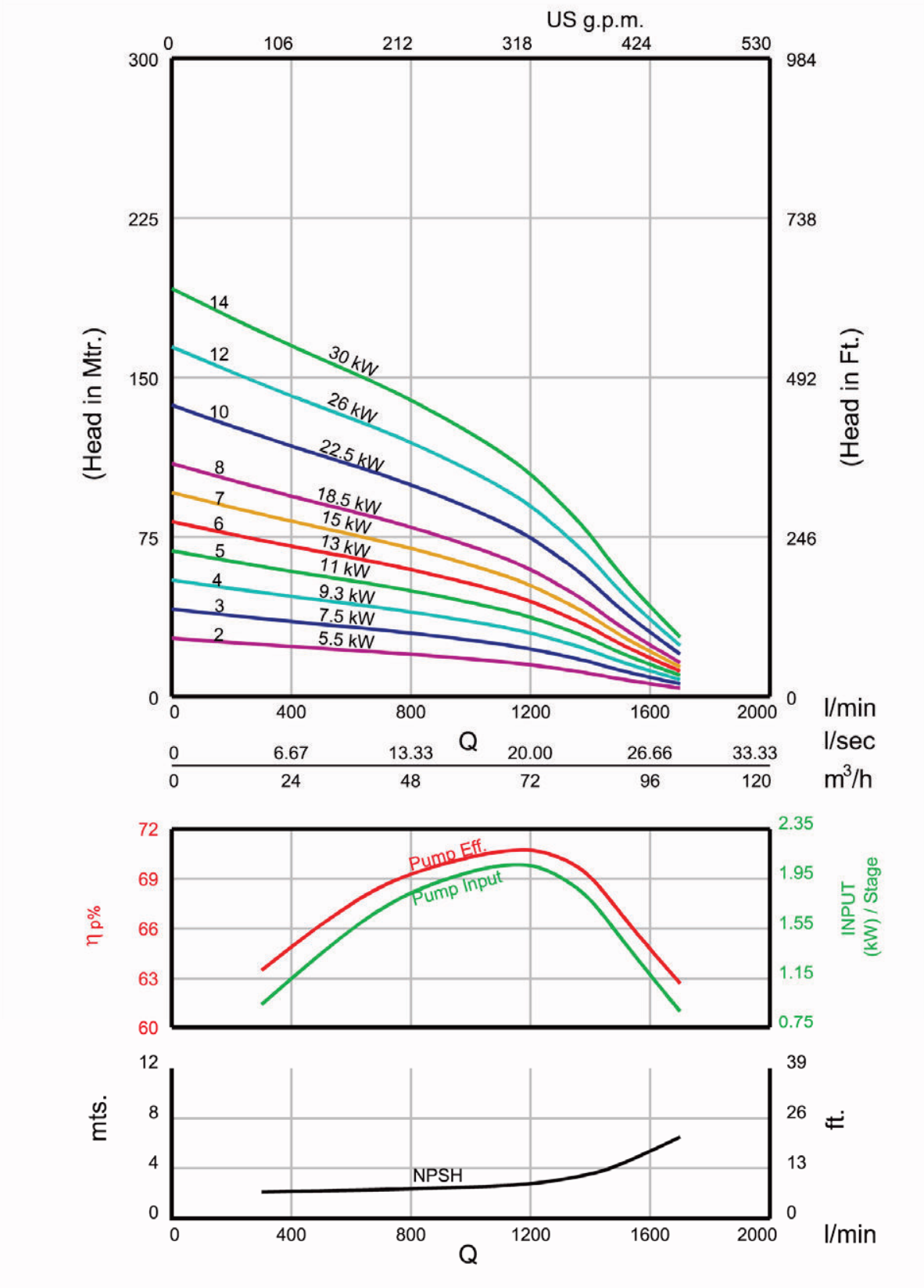
MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
6MF-640/02	144	571	24	32
6MF-640/03	144	676	30	38
6MF-640/04	144	781	35	43
6MF-640/05	144	886	40	48
6MF-640/07	144	1096	50	58
6MF-640/08	144	1201	55	63
6MF-640/09	144	1306	60	68
6MF-640/10	144	1411	66	74
6MF-630/13	144	1621	81	89
6MF-630/15	144	1936	97	105
6MF-630/20	144	2356	117	125

*G= outlet size: 75mm



6MF-670

performance curves - 6 mf -670



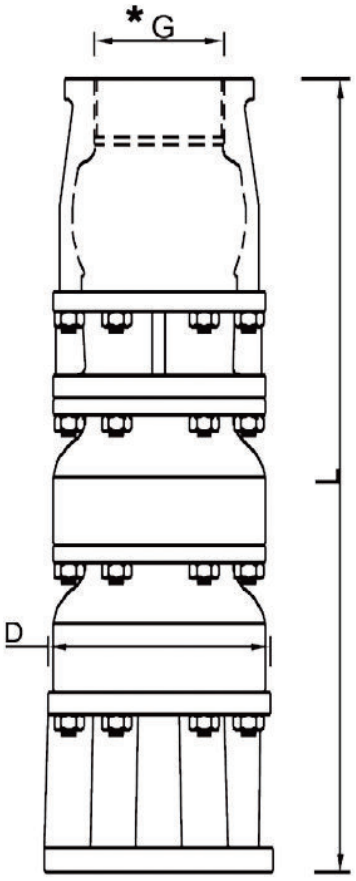
PERFORMANCE CHART

MODEL NAME		RATING		DISCHARGE									
Three-Phase	Stage	kW	HP	l/min	0	300	600	800	1150	1280	1400	1500	1700
				m^3/h	0	18	36	48	69	76.8	84	90	102
6MF-670/02	2	5.5	7.5	Head (m)	27	24	22	20	16	13	11	8	4
6MF-670/03	3	7.5	10		41	37	33	30	24	20	16	12	6
6MF-670/04	4	9.3	12.5		55	49	44	40	32	27	22	16	8
6MF-670/05	5	11	15		68	61	54	50	40	34	28	20	10
6MF-670/06	6	13	17.5		82	73	65	60	48	40	33	24	12
6MF-670/07	7	15	20		96	85	76	70	56	47	38	28	14
6MF-670/08	8	18.5	25		110	98	87	80	64	54	44	32	16
6MF-670/10	10	22.5	30		137	122	109	100	80	67	55	40	20
6MF-670/13	12	26	35		164	146	131	120	96	80	66	48	24
6MF-670/14	14	30	40		192	171	153	140	112	94	77	56	28

DIMENSIONS

MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
6MF-670/02	144	603	26	34
6MF-670/03	144	708	32	40
6MF-670/04	144	813	37	45
6MF-670/05	144	918	43	51
6MF-670/06	144	1023	48	56
6MF-670/07	144	1128	54	62
6MF-670/08	144	1233	59	67
6MF-670/10	144	1443	70	78
6MF-670/13	144	1653	81	89
6MF-670/14	144	1863	92	100

*G= outlet size: 75mm



6" BOREHOLE MOTOR - OIL FILLED

MOTOR RANGE

Three phase 5.5 to 30kW (7.5~ 40HP) 380V/50Hz

APPLICATIONS

This motor is designed for reliable operation in boreholes with a minimum diameter of 6 inches and in open water.

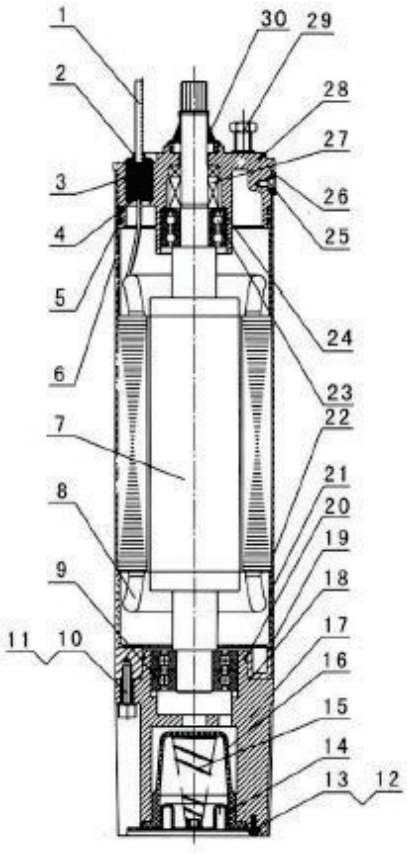
BASIC FEATURES

IEC34-1 standard squirrel motor - hermatically sealed
All stainless steel support and double flange design

Thrust load:	2500N
Degree of protection:	IP68
Maximum ambient temperature:	40oC
Water pH range:	6.5 - 8.0
Maximum submerged depth:	350m
Insulation:	Class F
Mounting:	Vertical/horizontal
Minimum cooling flow along the motor:	8cm/s
Maximum starts per hour:	30
Overload trip time:	<10 seconds at load of 5 times rated current

Designed for vertical and horizontal installation.
Motor protected by temperature compensated thermal relay and rapid trip overload.
Flat, waterproof lead out cable with separate earth wire.

MOTOR PARTS



NO.	DESCRIPTION	NO.	DESCRIPTION
1	Cable: YQSB	16	O-ring
2	Cable holder	17	Flange
3	Cable protector	18	O-ring
4	Cable protector washer	19	Insulation paper
5	O-ring	20	Lower motor cover
6	Insulation paper	21	Ball bearing
7	Rotor	22	Insulation paper
8	Stator and wire	23	Mechanical seal
9	Bearing	24	Ball bearing
10	Screw	25	Leaf spring
11	washer	26	Screw
12	screw	27	Pin
13	Spring	28	Top motor cover
14	Cup ring	29	Screw
15	Motor base	30	Washer

PERFORMANCE DATA

MODEL	POWER		CURRENT	COSϕ	SPEED	LENGTH	WEIGHT
	kW	HP			RPM	mm	kg
HTY6-5.5	5.5	7.5	12.3	0.83	2835	580	42
HTY6-7.5	7.5	10	16.5	0.85	2835	620	46
HTY6-9.2	9.2	12.5	20.2	0.86	2835	655	50
HTY6-11	11	15	23.6	0.86	2835	685	53
HTY6-13	13	17.5	27.6	0.86	2850	715	56
HTY6-15	15	20	31.8	0.86	2850	755	59
HTY6-18.5	18.5	25	38.2	0.86	2850	820	66
HTY6-22	22	30	45.2	0.86	2850	880	73
HTY6-26	26	35	53.5	0.86	2850	930	80
HTY6-30	30	40	61.6	0.86	2850	980	86

6" BOREHOLE MOTOR - WATER FILLED

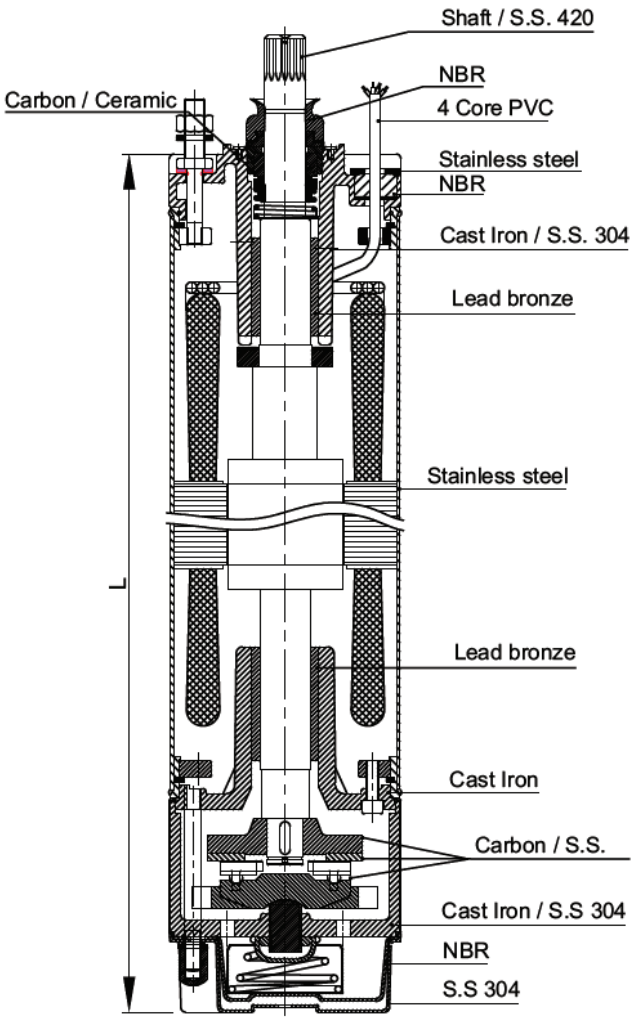
MOTOR TECHNICAL DATA

Winding wire:	polywrapped/PVC winding available on specific demand
Degree of protection:	IP68
Maximum water temperature:	35oC
Maximum starts per hour:	30
Allowable voltage variation:	+6% - 10%
Motor shaft:	Stainless steel
Stator shell:	Stainless steel
Maximum immersion depth:	350m
Mounting:	Vertical
Motor Cable Length:	3m/3 Core with separate earth cable
Cooling Flow:	V=0.2 m/s
Coolant:	Clear water
Stator replaceable	

MOTOR TECHNICAL DATA

Three phase 5.5kW - 37.5kW

MOTOR DRAWING



MOTOR SPECIFICATIONS

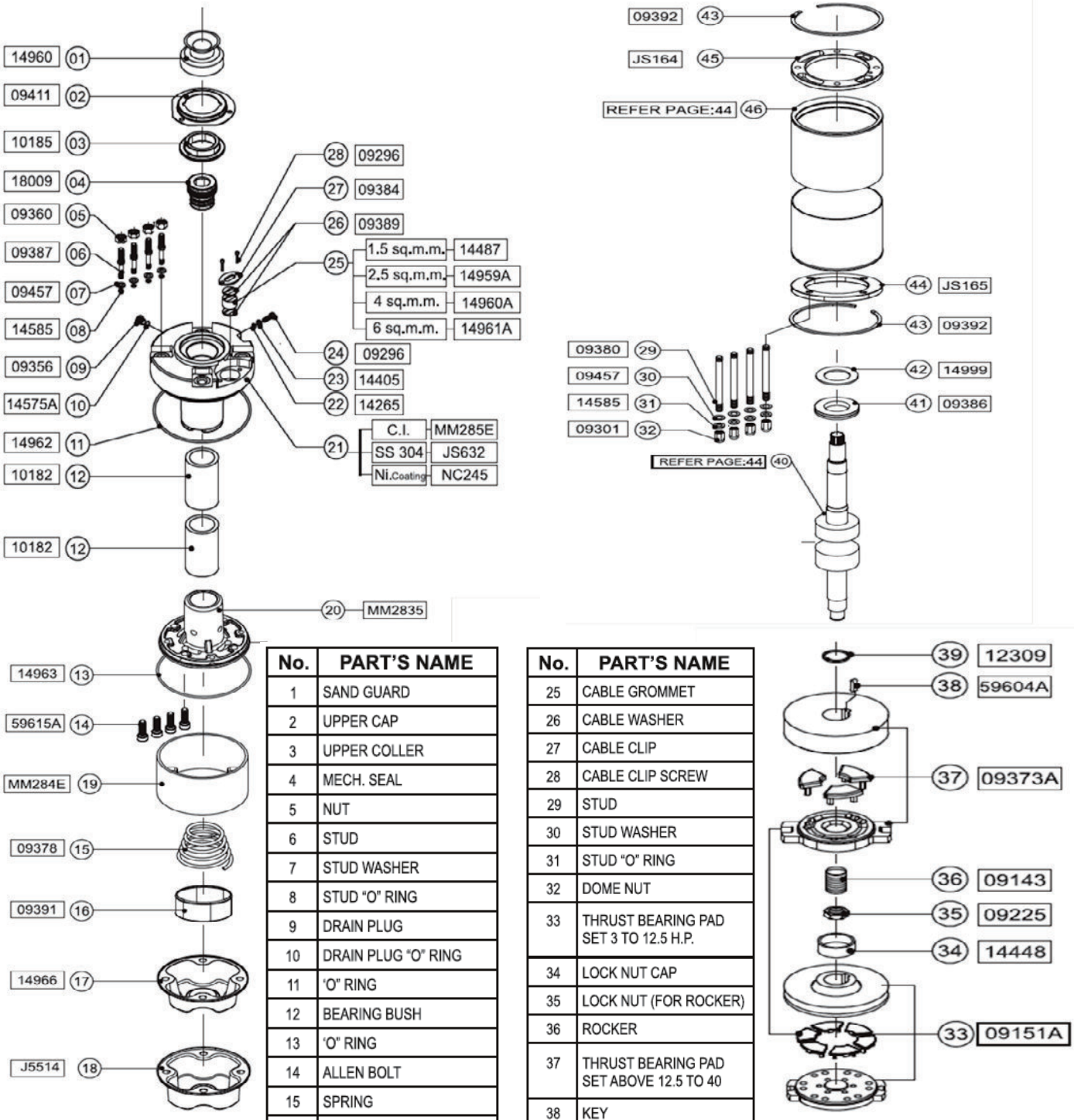
MOTOR POWER		PW L	WEIGHT (MOTOR O NLY)		WEIGHT (I NCL PACKAGI NG)	
(kW)	(HP)	(mm)	S.S. 304 (kg)	Cast Iron (kg)	S.S. 304 (kg)	Cast Iron (kg)
5.5	7.5	677	41.5	41.5	49.5	48.5
7.5	10	707	45.0	44.0	53.0	52.0
9.3	12.5	737	49.0	48.0	57.0	56.0
11	15	777	52.0	51.0	60.0	59.0
13	17.5	827	5.0	54.0	63.0	62.0
15	20	867	60.0	59.0	68.0	67.0
18.5	25	917	63.0	62.0	71.0	70.0
22	30	997	66.0	65.0	74.0	73.0
26	35	1057	69.0	68.0	77.0	76.0
30	40	1177	77.0	76.0	85.0	84.0
37.5	50	1277	84.0	83.0	92.0	91.0

PERFORMANCE DATA

P_N		THRUST LOAD	U_N	n_N	I_N	I_A	η (%)			COSφ			T_N	T_A
(kW)	(HP)	F(N)	(V)	(min-1)	(A)	(A)	50	75	100	50	75	100	(Nm)	(Nm)
5.5	7.5	15500	380	2860	13.7	48	74	76	75	0.67	0.78	0.83	18.3	15.5
7.5	10	15500	380	2860	18.3	59	77	78	76	0.70	0.80	0.84	25	19.2
9.3	12.5	15500	380	2850	22	74	79	80	78	0.71	0.80	0.84	31.1	25.9
11	15	15500	380	2860	25.8	93	78	80	78	0.71	0.80	0.85	36.7	31.5
13	17.5	15500	380	2880	30.1	118	80	81	80	0.68	0.79	0.84	43.1	45
15	20	15500	380	2880	33.9	140	81	82	81	0.71	0.81	0.85	49.7	53.9
18.5	25	15500	380	2860	42.3	172	81	82	81	0.68	0.78	0.84	61.7	75.2
22	30	15500	380	2880	49.1	218	82	84	83	0.68	0.78	0.84	72.6	91.2
26	35	15500	380	2880	57.5	268	83	84	83	0.68	0.79	0.86	86	120.4
30	40	15500	380	2900	66.4	328	82	84	83	0.67	0.78	0.84	98.8	135
37.5	50	15500	380	2890	82.0	409	83	84	83	0.67	0.78	0.84	122.1	192.8

P_N - Rated Output
U_N - Rated Voltage
n_N - RPM
I_N - Full Load Current
I_A - Starting Current
η - Motor Efficiency
cosφ- Power Factor
T_N - Full Load Torque
T_A - Starting Torque
$F_{[N[}$ - Axial Thrust Load

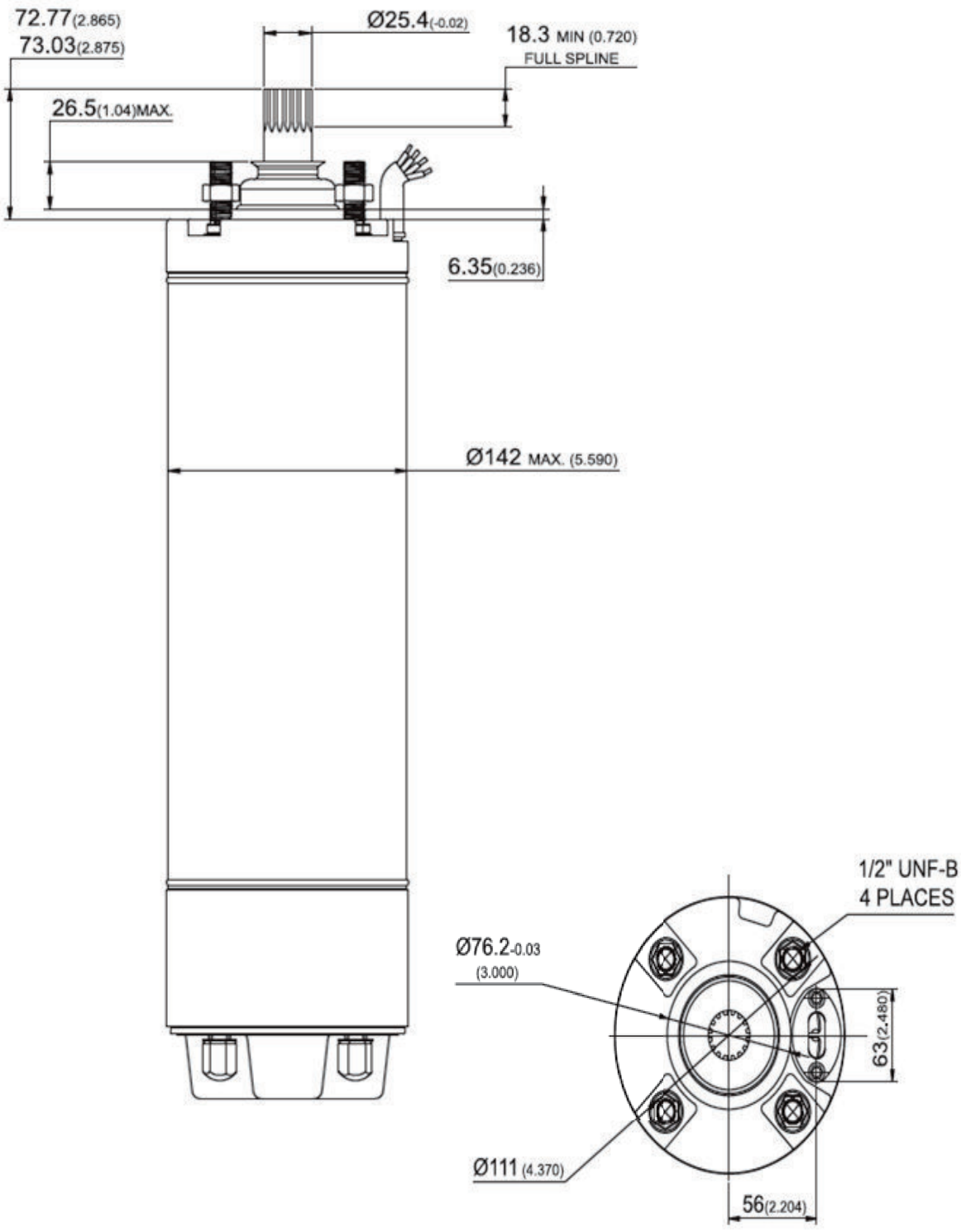
EXPLODED VIEWS



No.	PART'S NAME
1	SAND GUARD
2	UPPER CAP
3	UPPER COLLER
4	MECH. SEAL
5	NUT
6	STUD
7	STUD WASHER
8	STUD "O" RING
9	DRAIN PLUG
10	DRAIN PLUG "O" RING
11	'O" RING
12	BEARING BUSH
13	'O" RING
14	ALLEN BOLT
15	SPRING
16	SPRING JACKET
17	PRESSURE CUP
18	MOTOR BASE
19	LOWER HOUSING PART-2
20	LOWER HOUSING PART-1
21	UPPER HOUSING
22	DRAIN PLUG "O" RING
23	DRAIN PLUG WASHER

No.	PART'S NAME
25	CABLE GROMMET
26	CABLE WASHER
27	CABLE CLIP
28	CABLE CLIP SCREW
29	STUD
30	STUD WASHER
31	STUD "O" RING
32	DOME NUT
33	THRUST BEARING PAD SET 3 TO 12.5 H.P.
34	LOCK NUT CAP
35	LOCK NUT (FOR ROCKER)
36	ROCKER
37	THRUST BEARING PAD SET ABOVE 12.5 TO 40
38	KEY
39	CIRCLIP (EXTERNAL)
40	ROTOR SHFT
41	THRUST PLATE
42	THRUST RING
43	CIRCLIP (INTERNAL)
44	LOWER FLANGE
45	UPPER FLANGE
46	FINISH STATOR BODY

PUMP DIMENSIONS



ANALOGUE STARTER PROTECTOR - 3 PH ASE, 380V

GENERAL DESCRIPTION

The automatic control unit is an electronically controlled 3 phase unit rated for use up to 37 kW. It will control and protect pump motors in the following capacity:

1. Over current/under voltage protection is performed automatically by switching the main supply to the motor off in the case of detection.
2. In the event of a power failure or loss of a phase, power will also be switched off.
3. The unit can control liquid levels in a tank or reservoir by adjusting the pump motor power supply accordingly.

TECHNICAL INFORMATION

Input Power	380VAC, -5% to +10%, 50Hz
Output Power	4.5 - 22kW
Water Probe Voltage	24 VAC
Operating Temperature	-5°C to +40°C
Dimensions	300 x 400 x 240mm
Tanks	Dual water tank feature
Reaction time	Loss of phase < 2 sec
	Over load 3-100 sec adjustable

OPERATION

Water level control between two reservoirs or tanks can be performed simultaneously or for any one tank independently.

Over load protection: with the loss of a phase, the phase detection CCT will signal for the power contactor to drop out and switch the power supply to the pump motor off. Should the pump motor draw an over current (see current settings on page) the over current protection CCT will signal the power contactor to drop out and switch off power to the pump motor. This will be done automatically within the time limits set by the installer. The higher the current overload the faster the switch-off time.

OPERATION

In the event of phase loss or an overload condition, the green and red LED lights on the electro motor protection (BHQ-S-C), inside the main unit, will light up and indicate the relevant condition.

CCT SHORT PROTECTION

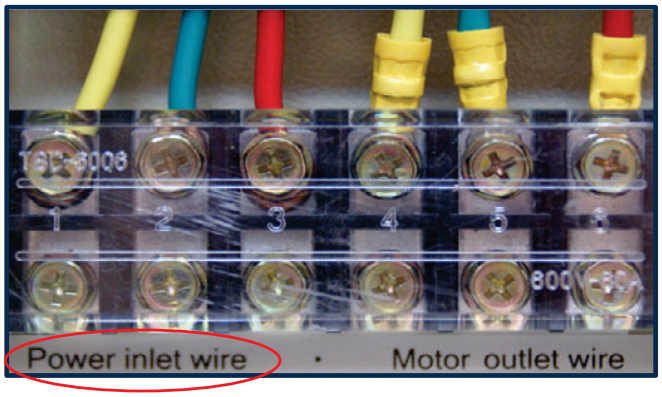
Should the power output connections be shorted out, either by electric motor problems or incorrect cabling, the protection sensing CCT will be activated and the power contactors will drop out and switch off the power to the motor. The control unit will react as if an overload condition (high Amperage) was detected and switch off. The unit is also protected by its slow blow fuses situated inside the control box unit, close to the top, and is marked as RT18. Also, for quick reaction, the 3 phase CCT breaker will drop out.

MANUAL CONTROL

When in manual position on the front panel, the pump motor will start and run irrespective of water levels in any of the two tanks or reservoirs.

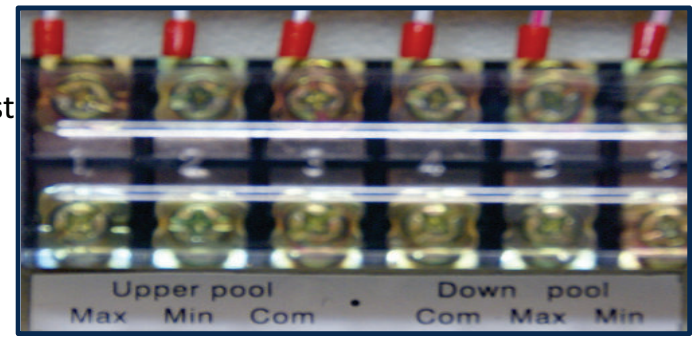
INSTALLATION

1. Fit the automatic control unit vertically to the appropriate area, avoiding direct sunlight, dust and rain.
2. Connect the input power to terminals as indicated.

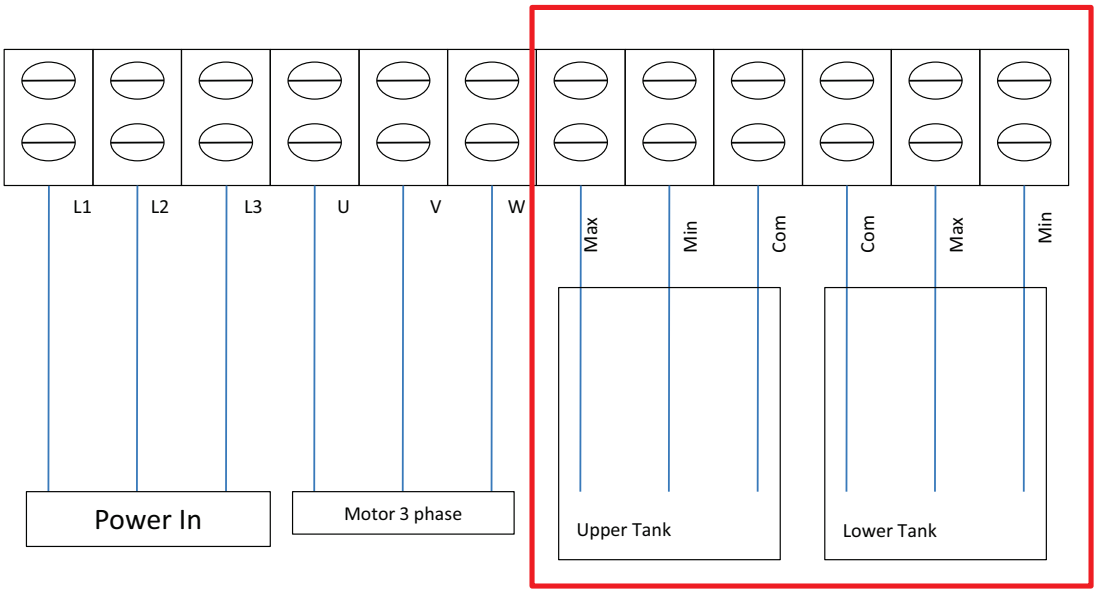


3. Connect the appropriate float level or electrode cables to the water reservoir/tank points as indicated at the bottom of the unit.

4. The position marked “com” is for the electrode that must be installed at its lowest level in a tank. This common connection will measure the difference between the minimum and maximum electrodes, relaying the liquid levels to the control circuit.

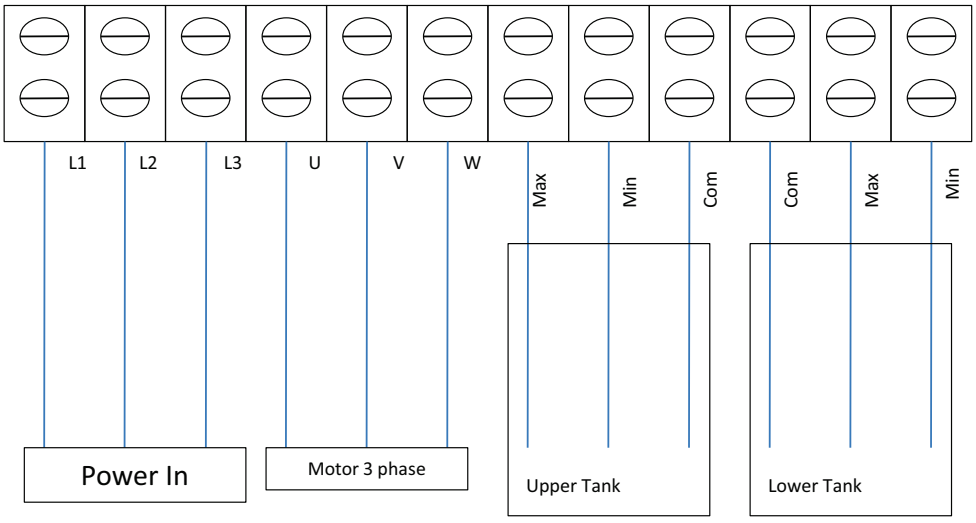


5. Note that the liquid level probes/electrodes must be fixed to a pole or the side of the tank to the appropriate minimum and maximum positions.



POWER CONNECTION

In the event of phase loss or an overload condition, the green and red LED lights on the electro motor protection (BHQ-S-C), inside the main unit, will light up and indicate the relevant condition.



SETTINGS AND ADJUSTMENTS

1. Switch off the 3 phase CCT breaker (DZ 47 D50) by pushing it down.

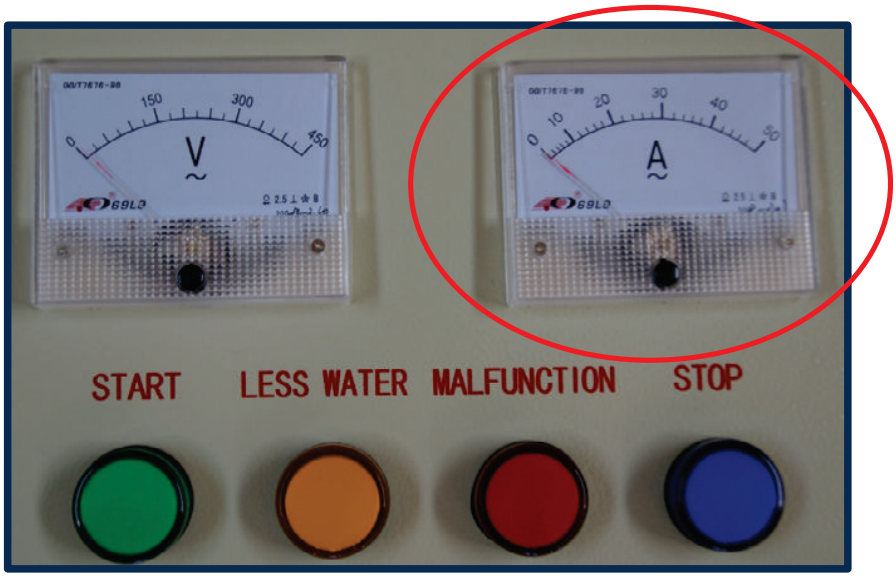
2. Adjust the “current setting screw” to the maximum on the electronic protector (BHQ-S-C) by turning it clockwise.

3. Switch to the appropriate position on the front of the panel.

4. To start the pump push the circuit breaker DZ47 up.

5. While the pump is running, the green LED “run” will be on. Slowly turn the “current setting screw” anti-clockwise until the red LED is on. Now turn the screw slowly clockwise so that the red LED goes off and does not flicker for at least 60 seconds. Lock your setting with the lock nut.

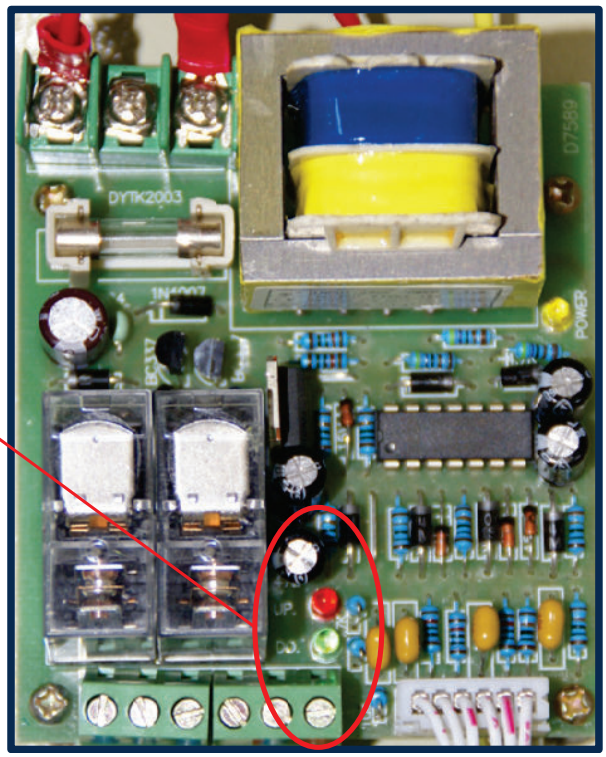
6. In order to set the “time delay setting” on the above mentioned unit, refer to the Amp meter on the front of the unit and set the delay for a bit longer than the starting time of the motor. The centre of the set screw should be around 150 seconds.



7 To test, switch the input power (at the 3 phase “outside supply”) off, and then back on again. The pump should run normally, indicating that the settings are correct.

8. Note that if the red and green LED’s or “Up” and “Down” on the DYTK2003 board are on, this means that both water tanks are full.

DYTK2003



FRONT PANEL SETTINGS

1. **Manual Control Switch**

Manual: The pump control unit is not in use as the pump motor is switched on directly and overrides the level switches.

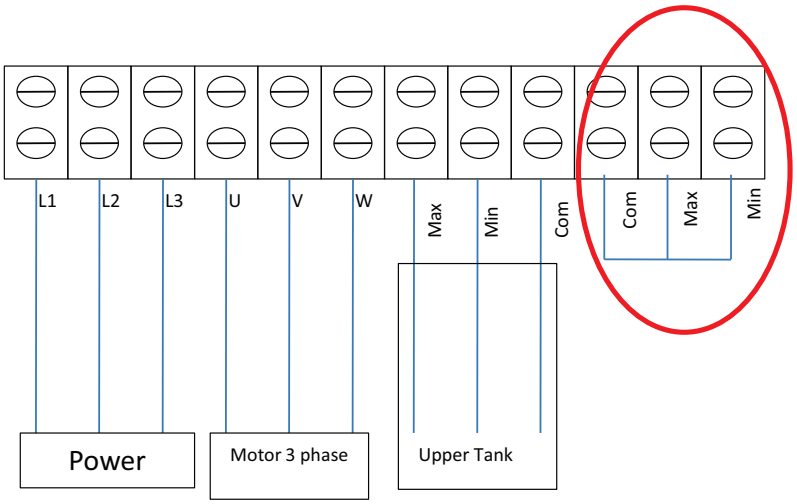
Water Tank: If the unit is switched to this position, it means that only one reservoir is under automatic control, marked as “upper pool” on the writing on the terminal inside unit.

Stop: This position switches the pump off and as well as all the associated control CCT’s inside the main control unit.

Water well: This position indicates that only the one tank marked “down down” is under automatic control as per the writing on the terminal inside the unit box.

Auto: This position indicates that both tanks/ reservoirs marked as “upper pool” and “down pool” are under automatic control.

Should only one tank be in use, the second tank’s terminals should be wired as shown.



2. **AC Volt meter**
   Indicates supply voltage.

3. **AC Amp meter**
   Indicates pump motor current. Should there be no or low current indication, it may mean that the load is less than the corresponding motor load requirements.

4. **Blue light**
   Blue light is on, indicating that the pump is not running but that the system is operating normally.

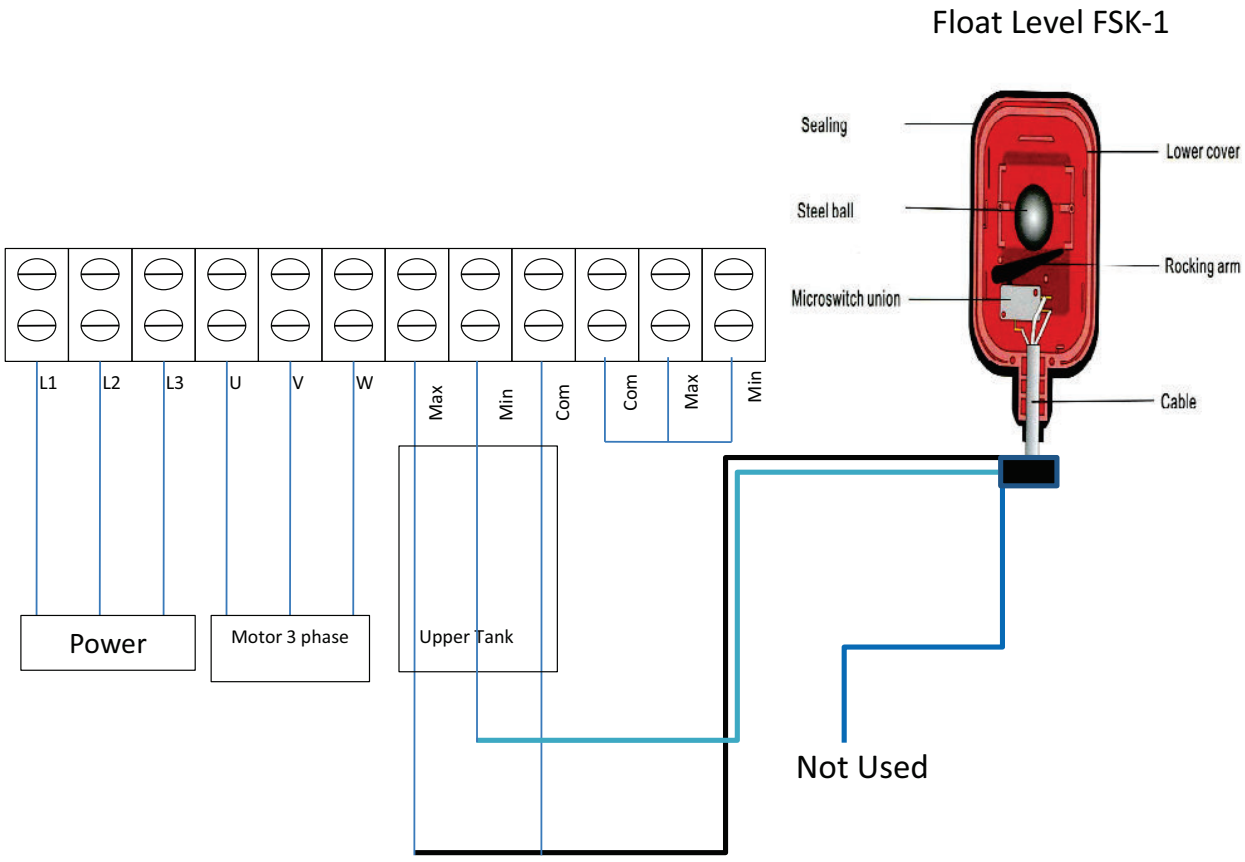
5. **malfunction**
   Red light is on, indicating that the motor is under overload protection.

6. **Less water**
   Yellow light is on, indicating that the upper or lower reservoir is at its minimum level.

7. **Start**
   Green light is on, showing that the pump is operating in automatic mode.

FLOAT LEVEL WIRING

Upper tank connection with float:



operation - water tank levels

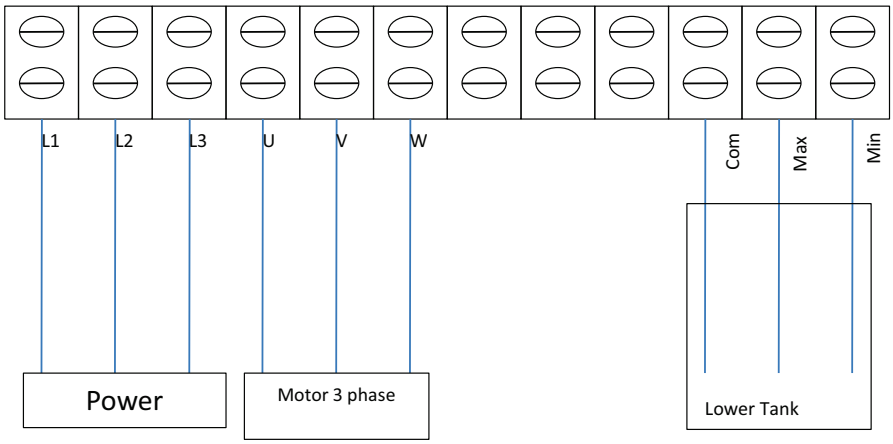
1. If the front panel is switched to “Water Tank” and the water level in the tank marked “downward pool” is at its maximum level, the power is disconnected via the electrical contactors to the pump motor. If the water level is at the minimum or lower level, the electric contactor will activate and supply power to the pump motor. The power will not be connected to the pump motor, should the tank stay full.

2. In the same position, “Water Tank”, the reservoir marked “upper pool” will supply power to the motor when the water level is at its minimum level.

POWER STANDING

Down Pool (lower tank)	**Upper Pool** (upper tank)
Max water level: On	Min water level: On
Min water level: Off	Max water level: Off

3. The “auto” switch on the front panel will activate both automatic CCT’s for the lower and upper reservoirs and will function accordingly.



4. Should the water levels in both reservoirs stay as it is, with “down pool” at its minimum level and “upper pool” at its maximum level, power will not be switched to the pump motor.

PRECAUTIONS

1. In the event of a fault in the control panel, rectify the fault first before attempting to re-start the pump.

2. Make sure that the supply voltage is correct before adjusting load current.

3. The control unit must always be sheltered from dust and rain and be installed at least 1.5m from the ground level.

FAULT FINDING

If the control unit is connected to either a water tank or pressure system and the pump motor does not operate correctly as per the installation instructions and "operation water tank levels" then check the system as follows:

1. Switch power off at the CCT breaker in the unit.
2. Ensure that the up and down pool wiring is done correctly and that it is not faulty in any way, open or short CCT.
3. If the wiring is correct and the system still does not operate correctly, remove the wiring and insert a wire/copper link between the max., min. and com. connections. Now start the pump motor by switching the main CCT breaker "on". If the pump runs normally, disconnect the links, connect it again and make sure the motor switches on and off normally. The above test will indicate that the control unit is in a good working condition and that the water system or wiring is at fault.
4. If the orange light on the front panel lights up, the same test can be followed to establish if wrong signals are being sent to the control unit. Again, it's either the wiring or water level probes that are not working properly. If the fault persists on the front panel then the control unit is faulty.
5. Should the yellow LED "phase failure" on the BHQ-S-C come on, the following must be performed: using a voltmeter, measure between the phases to establish the missing phase. If it is still missing, measure the outside 3 phase supply to establish faulty wiring from the supply. Should the 3 phase measure correctly at the input of the control unit, then check the CCT breaker and slow blow fuses, by replacing them all.
6. Should the red LED overload protection flicker on the same unit, check and make sure that the overload current setting is done correctly, then set a higher than normal running current.