SAXSON PUMPS

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Borehole Product Range

International Organization for Standardization ISO 9001

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3 SDM BOREHOLE RANGE (3”)

3SDM

Applications

For water supply from borehole wells or reservoirs
For domestic use, for civil and industrial applications
For garden use and irrigation

Operating Conditions

Maximum fluid temperature up to	+ 35 ˚C
Maximum sand content:	0.25%
Maximum immersion:	100m
Minimum well diameter:	3”

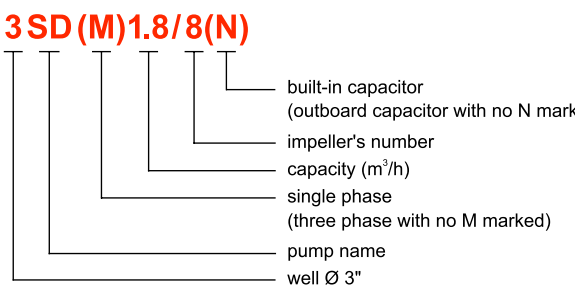
Motor and Pump

Replaceable Pump and Motor.
Single-Phase: 220 - 240V/50Hz
Equipped with start control box or digital auto-control box.
Curve tolerance according to ISO 9906

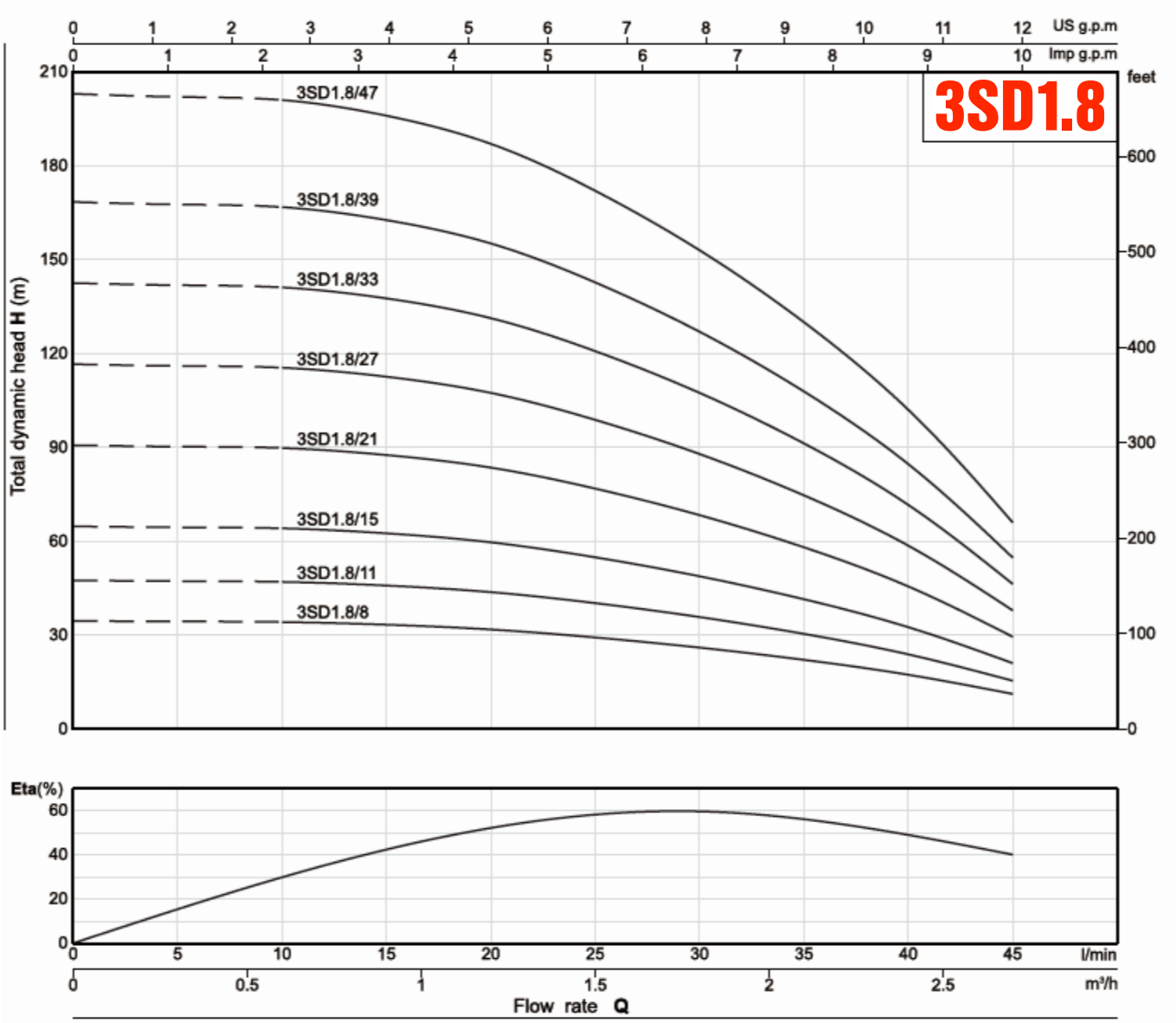
Warranty: 1 year

(according to our general sales conditions)

Components	Material
Pump external casing	AISI 304 SS
Delivery casing	Cast-Cu ASTM C85500
Suction lantern	Cast-Cu ASTM C85500
Diffuser	Plastic.PC
Impeller	Plastic.POM
Shaft	AISI 304 SS
Shaft coupling	AISI 304 SS
Wear ring	AISI 304 SS
Motor external casing	AISI 304 SS
Top chock	①Cast-Cu ASTM C85500
	②Cast-iron ASTM NO.30
Bottom support	AISI 304 SS
Mechanical seal	Special seal for deep well(Graphite-Ceramic/TC)
Shaft	AISI 304 SS-ASTM 5140
Bearing	NSK
Seal lubricant oil	Oil for food machinery and pharmaceutic use.



3 SDM 1.8



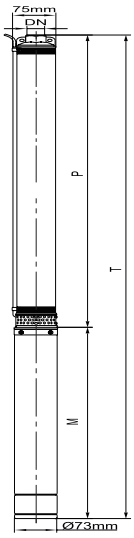
PERFORMANCE DATA 50 Hz

VERSION		MODEL	P2		CAP µf	DELIVERY									
1*	2**	3 ~ 380-415V	kW	HP		m3/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
						l/min	0	5	10	15	20	25	30	35	40	45
√	√	3SDM1.8/8	0.18	0.25	16	Head (m)	35	34	34	33	32	29	26	22	17	11
√	√	3SDM1.8/11	0.25	0.39	16		48	47	47	46	44	40	36	30	24	15
√	√	3SDM1.8/15	0.37	0.5	20		65	64	64	63	60	55	49	41	33	21
√	√	3SDM1.8/21	0.55	0.75	25		91	90	90	88	84	77	68	58	46	29
√	√	3SDM1.8/27	0.75	1	35		117	116	115	113	107	99	88	75	59	38
√		3SDM1.8/33	1.1	1.5	45		143	142	141	138	131	121	107	91	72	46
√		3SDM1.8/39	1.1	1.5	45		168	168	167	163	155	143	127	108	85	55
√		3SDM1.8/47	1.5	2	55		203	202	201	196	187	172	153	130	102	66

* Version 1 Pump, Motor & Control Box

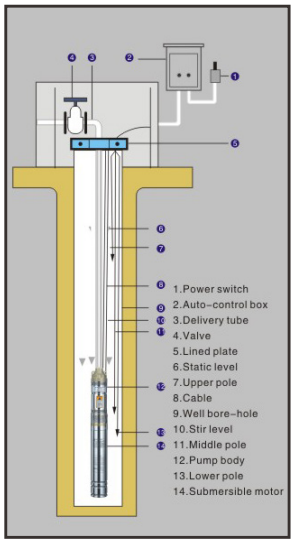
** Version 2 Pump, Motor, Control Box, Base plate, Cable (lenght - refer pricelist), Jiont & Rope.

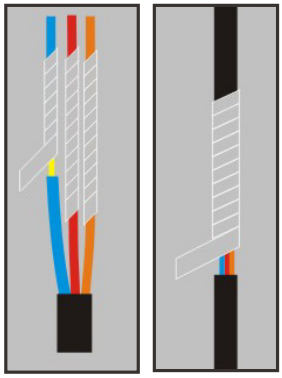
DIMENSIONS AND WEIGHTS



MODEL	DN	DIMENSIONS(mm)			WEIGHTS (kg)		
1 ~220-240		P	M	T	P	M	T
3 SDM 1.8 / 8	1 ¼"	377	288	665	1.8	4.0	5.8
3 SDM 1.8 / 11	1 ¼"	444	308	752	2.1	4.8	6.9
3 SDM 1.8 / 15	1 ¼"	535	338	873	2.4	5.6	8.0
3 SDM 1.8 / 21	1 ¼"	694	368	1062	3.2	6.4	9.6
3 SDM 1.8 / 27	1 ¼"	830	408	1238	3.5	7.5	11.0
3 SDM 1.8 / 33	1 ¼"	966	448	1414	4.3	8.7	13.0
3 SDM 1.8 / 39	1 ¼"	1101	493	1594	4.9	10.0	14.9
3 SDM 1.8 / 47	1 ¼"	1306	543	1849	5.8	11.3	17.1

INSTALLING A BOREHOLE PUMP AND MOTOR





SINGLE PHASE 3" OIL FILLED BOREHOLE MOTOR CAPACITOR RATINGS	
kW	Capacitor (mF)
0.18	12
0.25	16
0.37	20
0.55	25
0.75	35
1.1	45
1.5	55
2.2	75

MAXIMUM CABLE LENGTH FROM PUMP TO STARTER

TYPE	kW	i_n(A)	1.5 mm²	2.5 mm²	4 mm²	6 mm²	10 mm²
220V~/50H	0.18	2.2	171	290			
	0.25	3.9	122	207			
	0.37	4.2	111	185	295		
	0.55	4.5	80	133	211	315	
	0.75	6	58	96	153	229	377
	1.1	9	48	79	153	190	316
	1.5	10.3	34	57	92	137	228

PUMP CONTROLLER

MA CONTROL BOX SINGLE PHASE

TECHNICAL DATA

This single phase control box is equipped with a capacitor and thermal over-load protector.

APPLICATION RANGE

Type of motor:	Single phase motor
Motor power:	0.18-1.5kW
Voltage:	220V ~240V
Frequency:	50Hz

PRODUCT FUNCTIONS

Provides basic protection against short circuiting and over current.

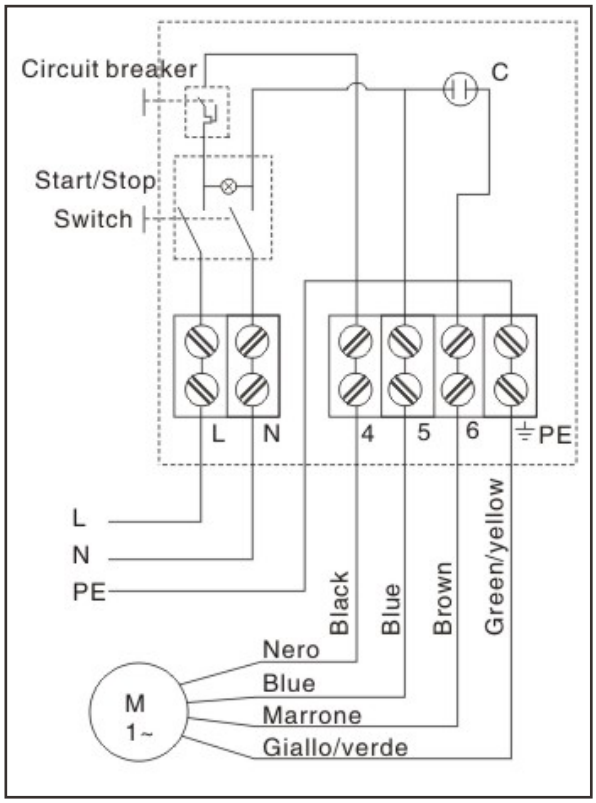
OPERATING METHOD

Manual control.

INSTALLATION ENVIRONMENT INDEX

Grade protection:	IP44
Environment temperature:	-25oC to +55oC
Environment humidity:	(20-90)%RH

POWER		RUNNING CAPACITOR	MCB
kW	HP	Microfarad (µF)	Amp
0.18	0.25	12	8
0.25	0.39	16	8
0.37	0.50	20	8
0.55	0.75	30	10
0.75	1.00	40	15
1.1	1.50	50	15
1.5	2.00	65	20



M521 DIGITAL CONTROL BOX SINGLE PHASE

PRODUCT FUNCTIONS

- Liquid level control for supply (borehole) and delivery (storage). Enabled for operation, utilising floating level switch / liquid level probe / pressure switch.
- Over / under voltage protection with adjustable parameters.
- Auto / Manual operation.
- Dynamic and interactive LCD display.
- Push Button Calibration
- Pump Accumulative Running Time Display
- Pump Last Five Fault condition Recording
- Controller enabled for operation with single phase motor fitted with internal or external capacitor from 0.37 to 1.5kw. Capacitor to be retro fitted for borehole motor use. Refer to capacitor size requirement as per table below.

APPLICATION RANGE

Type of motor:	Single phase motor
Motor power:	0.37-2.2kW
Voltage:	220V
Frequency:	50Hz

INSTALLATION ENVIRONMENT INDEX

Grade protection:	IP22
Environment temperature:	-25 ° C to + 55 ° C
Environment humidity:	(20-90)%RH

SINGLE PHASE 3" / 4" OIL FILLED BOREHOLE MOTOR CAPACITOR RATINGS	
kW	**Capacitor (mF)**
0.37	20
0.55	25
0.75	35
1.1	45
1.5	55

TECHNICAL DATA	
RATED OUTPUT POWER	0.18kW - 1.5kW
RATED INPUT VOLTAGE	AC220V/50Hz Single Phase
TRIP RESPONSE TIME OF OVER LOAD	5sec - 5min
TRIP RESPONSE TIME OF SHORT CIRCUIT	0.1sec
TRIP RESPONSE TIME OF UNDER / OVER VOLTAGE	5sec
TRIP RESPONSE TIME OF DRY RUN	6sec
RECOVERY TIME OF OVER LOAD	30min
RECOVERY TIME OF UNDER / OVER VOLTAGE	5min
RECOVERY TIME OF DRY RUN	30min
TRIP VOLTAGE OF OVER VOLTAGE	110% of rated input voltage
TRIP VOLTAGE OF UNDER VOLTAGE	80 of rated input volgage

PROTECTION FUNCTIONS

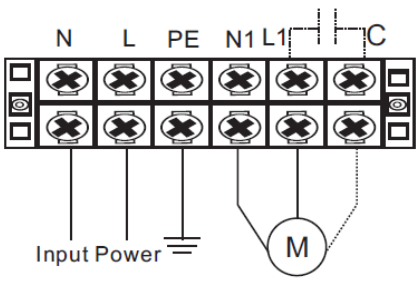
*Dry run *Over load *Transient surge *Under voltage
*Over voltage *Pump stalled *Short circuit

MEANING OF THE ICONS SHOWN ON THE LCD

Icon	Meaning/Description
	pump parameter configuration icon, when this icon appears, pump control box is in parameter adjusting manual;
	time displaying icon, when this icon appears, it means pump control box is displaying some parameter of time, eg: pump accumulative running time (unit: hour); counting down etc
	pump fault icon, when this icon appears, it means pump control box is displaying some fault information;
 ON LINE	network connection error icon, when this icon appears, it means there is no network connections or network connection error between pump control box and SC(slave controller) or computer;
 ON LINE	network normal connection icon, when this icon appears, it means the network connection between pump control box and SC (slave controller) or computer is normal;
V	voltage
M	minute
S	second
H	hour
%	percent
A	ampere
	pump running
	pump stops running
	low pressure or lack of pressure in the pipeline or pressure tank
	high pressure or full of pressure in the pipeline or pressure tank

INSTALLATION

ELECTRICAL CONNECTION TO THE POWER SUPPLY:




NOTES

4 ST BOREHOLE RANGE 4”

This Slimline submersible borehole pump is suitable for 4” or larger wells.
Manufactured from corrosion & abrasion resistant materials.
The closed couple pump is manufactured to the NEMA standard for submersible motors.
Designed for flow rates up to 1.5m³/h and heads of up to 325 meters.

Application

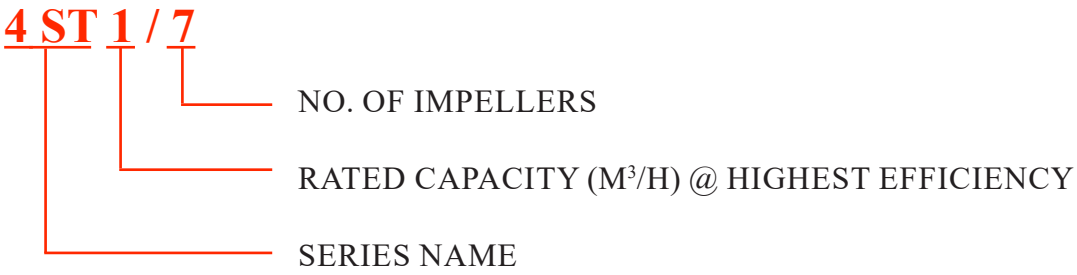
Groundwater supply to reservoirs.
Irrigation in horticulture and agriculture.
Groundwater Lowering.
Pressure boosting.

Specification

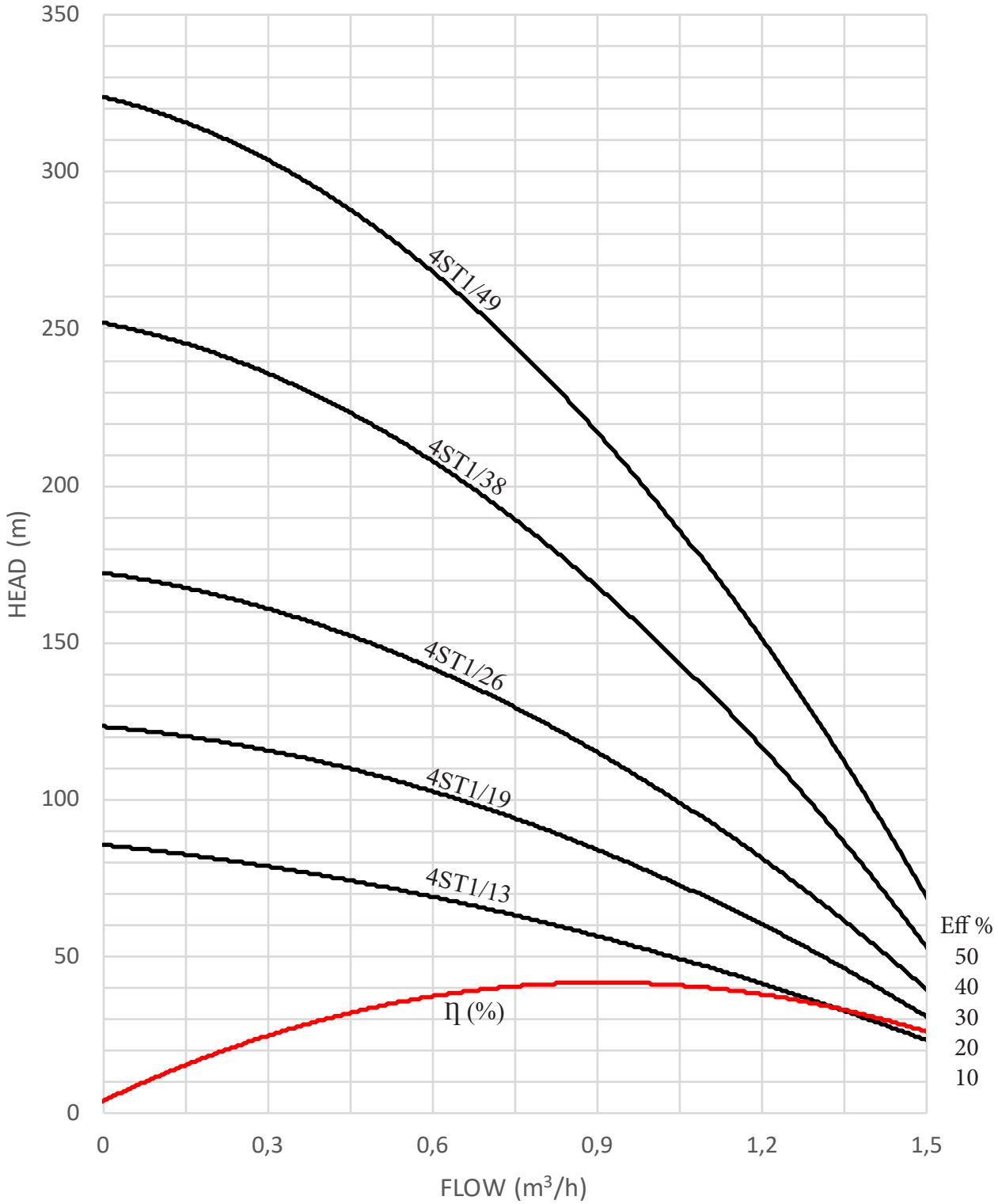
Capacity:	up to 1.5m3/h at 2850rpm, 50Hz
Head:	up to 325m at 2850rpm, 50Hz
Power:	0.37kW to 1.5kW
Power Supply:	Single-phase 220 ~ 240V
	Three-phase 380 ~ 415V
Water Temp:	up to 35°C
Solid Handeling:	less than 0.02%
Water PH:	6.5-8.0

Construction Characteristics

Abrasion-resistant construction. The front wear plate, combined with the floating impellers, ensure optimum resistance to abrasion.
The upper and lower support brackets are cast 304 SS and offer a sturdy platform for connection to motor and discharge pipe. Offers resistance to corrosion and abrasion.
The hexagonal pump shaft guarantees effective impeller rotation.
A Stainless Steel non-return valve is fitted in the discharge and prevents back flow of water.

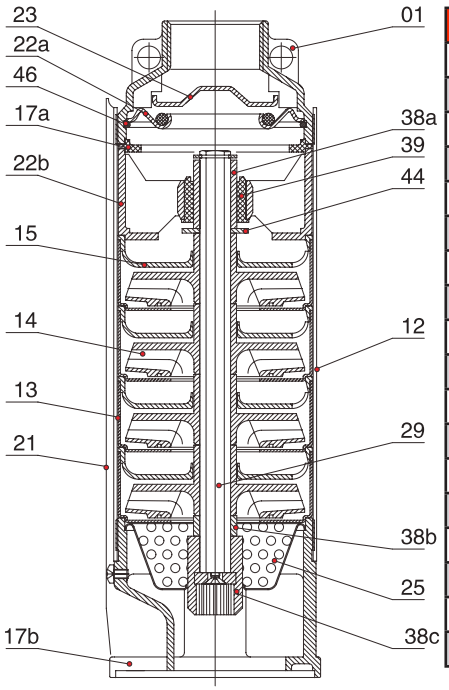


PERFORMANCE DATA

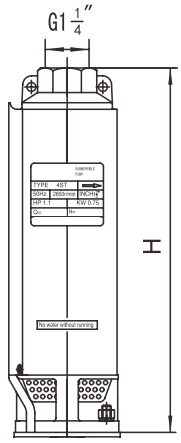


MODEL (50Hz)	MOTOR POWER		CAPACITY						
			l/min	0	5	10	15	20	25
	kW	HP	m³/h	0	0.3	0.6	0.9	1.2	1.5
4ST1/13	0.37	0.5	HEAD (m)	86	78	70	56	42	23
4ST1/19	0.55	0.75		126	110	105	86	60	30
4ST1/26	0.75	1		173	160	141	117	81	39
4ST1/38	1.1	1.5		253	234	208	169	117	52
4ST1/49	1.5	2		325	302	268	219	151	68

TECHNICAL DATA



ITEM No.	PART NAME	MATERIAL
1	Discharge head	AISI304SS
12	Outer Casing	AISI304SS
13	Bowl	AISI304SS
14	Impeller	PPO
15	Diffuser	PC
17a	Coupling ring	PC
17b	Motor adapter	AISI304SS
21	Cable tube	AISI304SS
22a	Valve seat	AISI304SS
22b	Seat assembly	PC
23	Valve	AISI304SS
25	Strainer	AISI304SS
29	Shaft	AISI304SS
38a	Shaft sleeve	AISI304SS
38b	Coupling spline	AISI304SS
39	Bush bearing	PU
44a	Washer	AISI304SS
44b	Adjusting washer	AISI304SS



MODEL (50Hz)	MOTOR POWER		DIMENSIONS & WIGHTS	
	kW	HP	LENGHT (mm)	N.W kg
4ST1/13	**0.37**	**0.5**	382	3.7
4ST1/19	**0.55**	**0.75**	481	4.7
4ST1/26	**0.75**	**1**	596	5.8
4ST1/38	**1.1**	**1.5**	832	8.1
4ST1/49	**1.5**	**2**	1052	10.45

4 SD BOREHOLE RANGE (4”)

4 SD BOREHOLE RANGE (4”)

4SD

Applicatins

For water supply from borehole wells or reservoirs
For domestic use, for civil and ındustrial applications
For garden use and irrigation

Operating conditions

Maximum fluid temperature up to	+ 35 ˚C
Maximum sand content:	0.25%
Minimum well diameter:	4”

Motor and Pump

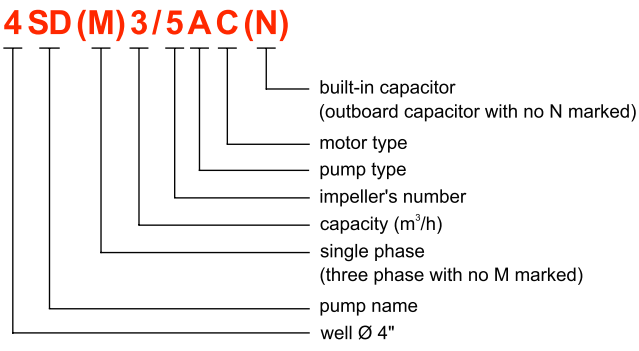
Single-phase:	220 ~240V/50Hz
Three-phase:	380 ~415V/50Hz

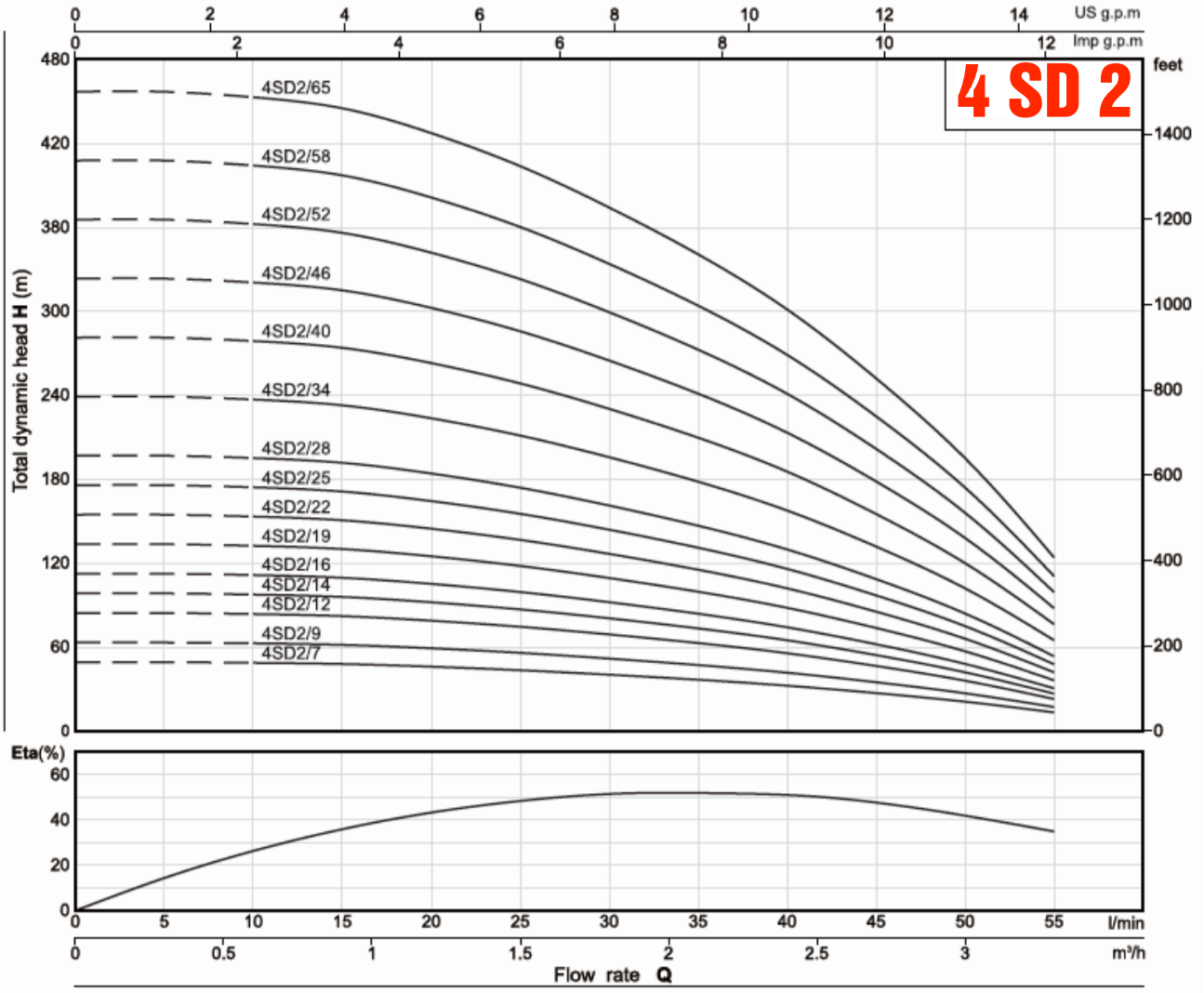
Equip with start control box or digital auto-control box
Nema dimension standards
Curve tolerance according to ISO 9906

Warranty: 1year

(according to our general sales conditions)

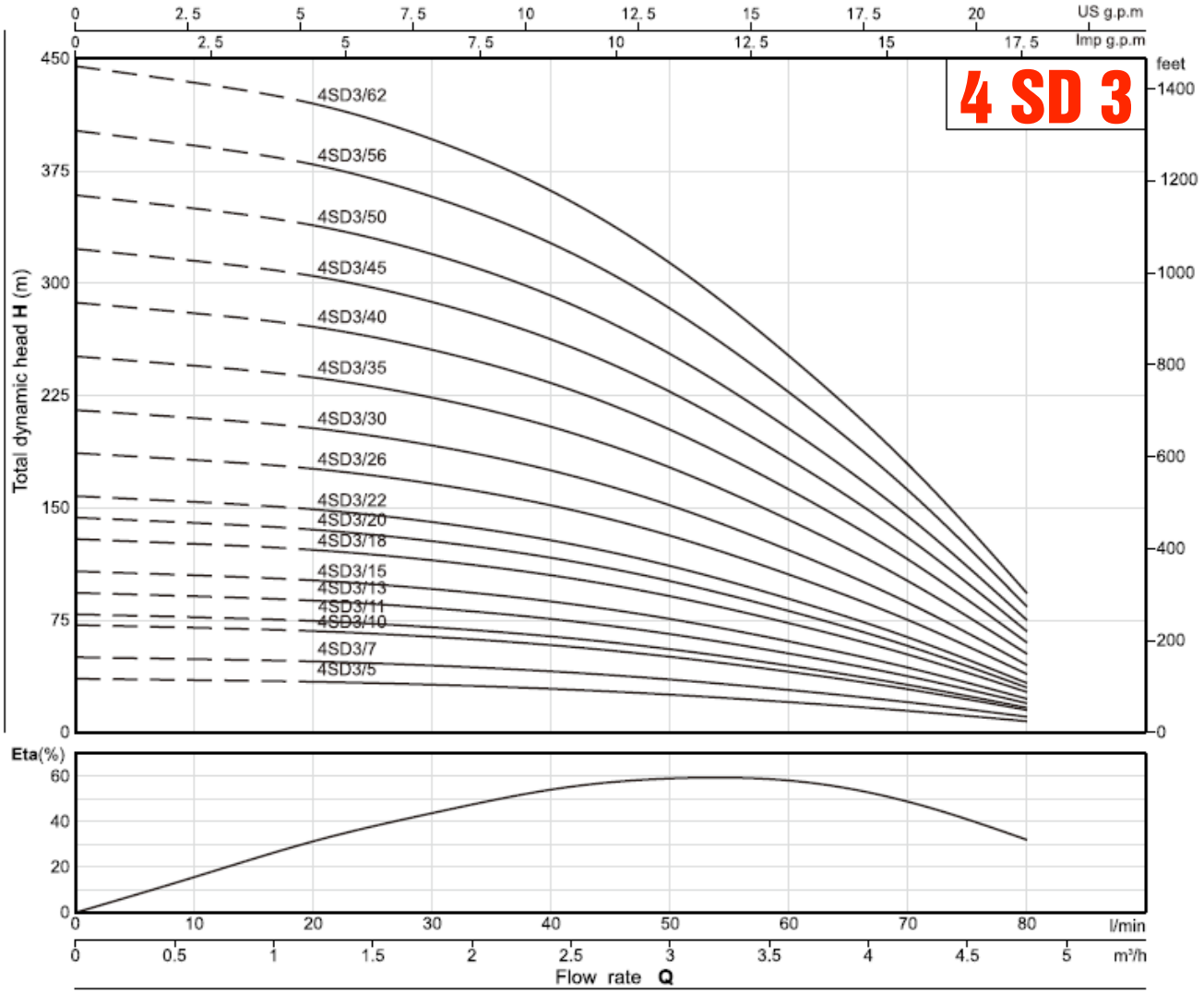
Components	Material
Pump external casing	AISI 304 SS
Delivery casing	Cast-Cu ASTM C85500
Suction lantern	Cast-Cu ASTM C85500
Diffuser	Plastic.PC
Impeller	Plastic.POM
Shaft	AISI 304 SS
Shaft coupling	AISI 304 SS
Wear ring	AISI 304 SS
Motor external casing	AISI 304 SS
Top chock	①Cast-Cu ASTM C85500 ②AISI 420 SS
	③Cast-iron ASTM NO.30
Bottom support	AISI 304 SS
Mechanical seal	Special seal for deep well(Graphite-Ceramic)
Shaft	AISI 304 SS-ASTM 5140
Bearing	NSK
Seal lubricant oil	Oil for food machinery and pharmaceutic use.





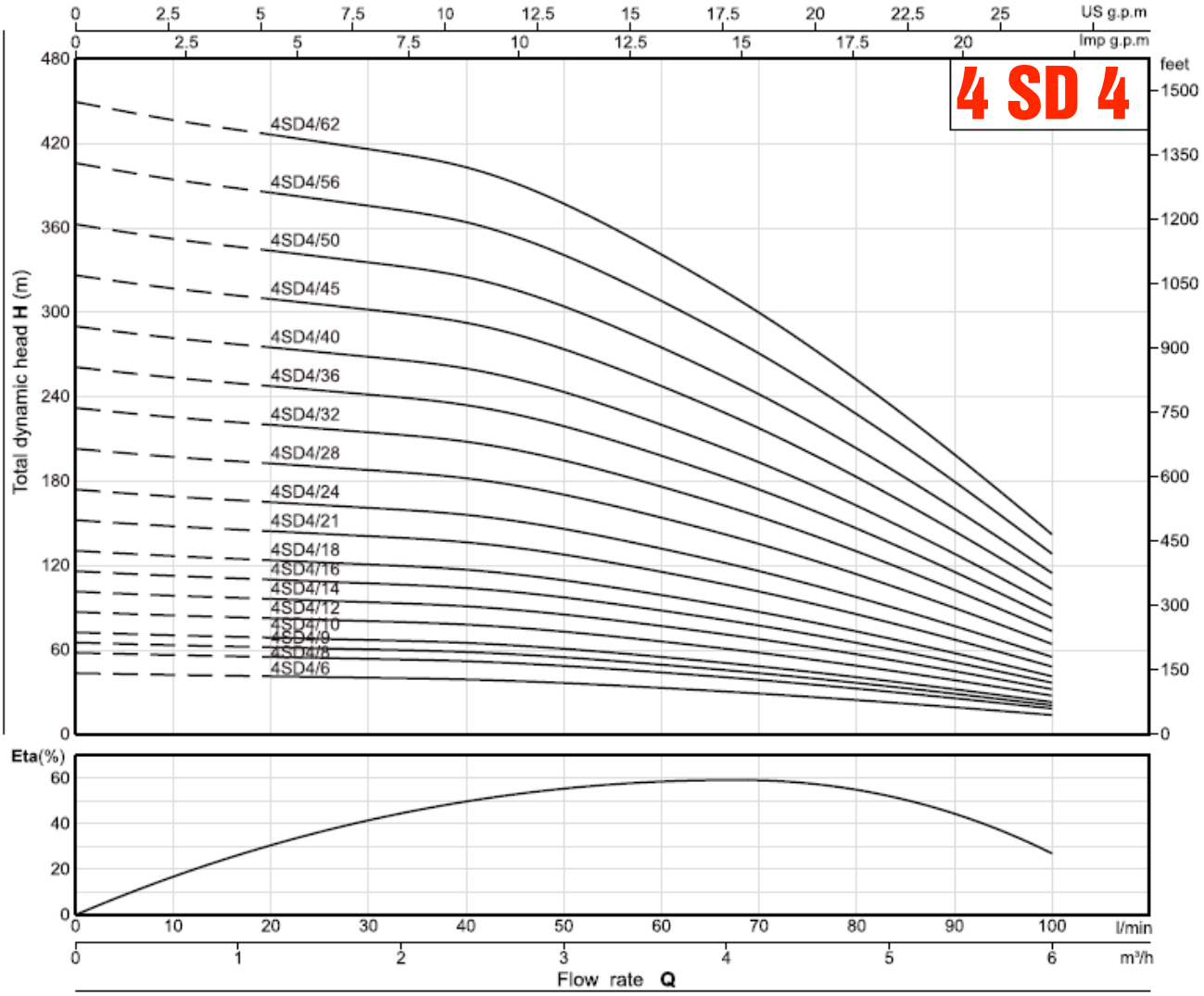
PERFORMANCE DATA 50Hz

MODEL		P2		DELIVERY n≈2850 1/min												
1~ 220 - 240V	3~ 380 - 415V	kW	HP	Q m³/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3
				Q l/min	0	5	10	15	20	25	30	35	40	45	50	55
4SDM2/9	4SD2/9	0.37	0.5	H(m)	63	63	63	62	59	56	52	47	42	35	27	17
4SDM2/12	4SD2/12	0.55	0.75		84	84	84	82	79	75	69	63	56	47	36	23
4SDM2/14	4SD2/14	0.75	1		98	98	98	96	92	87	81	73	65	54	42	27
4SDM2/16	4SD2/16	0.75	1		112	112	112	110	105	99	92	84	74	62	48	31
4SDM2/19	4SD2/19	1.1	1.5		134	134	132	130	125	118	109	100	88	74	57	36
4SDM2/22	4SD2/22	1.1	1.5		155	155	153	151	145	137	127	115	102	85	66	42
4SDM2/25	4SD2/25	1.5	2		176	176	174	171	164	155	144	131	116	97	75	48
4SDM2/28	4SD2/28	1.5	2		197	197	195	192	184	174	161	147	130	109	84	53
4SDM2/34	4SD2/34	2.2	3		239	239	237	233	223	211	196	178	157	132	102	65
4SDM2/40	4SD2/40	2.2	3		281	281	279	274	263	249	230	210	185	155	120	76
-	4SD2/46	3	4		323	323	321	315	302	286	265	241	213	178	138	88
-	4SD2/52	3	4		366	366	362	356	342	323	299	273	241	202	156	99
-	4SD2/58	4	5.5		408	408	404	397	381	360	334	304	269	225	174	111
-	4SD2/65	4	5.5		457	457	453	445	427	404	374	341	301	252	195	124



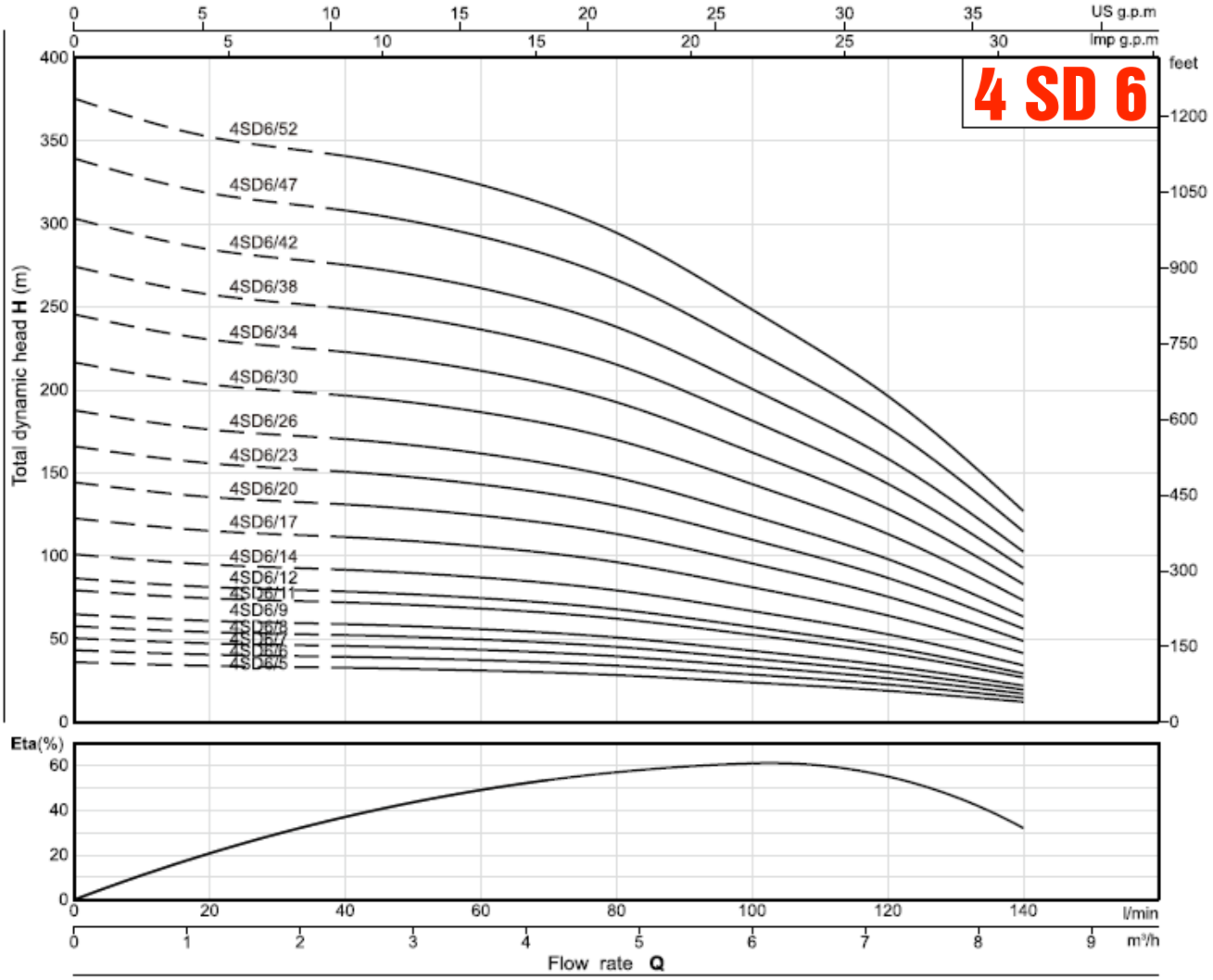
PERFORMANCE DATA 50Hz

MODEL		P2		DELIVERY									n≈2850 1/min
1~ 220 - 240V	3~ 380 - 415V	kW	HP	Q m³/h	0	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8
				Q l/min	0	10	20	30	40	50	60	70	80
4SDM3/7	4SD3/7	0.37	0.5		50	49	47	45	41	35	28	20	10
4SDM3/10	4SD3/10	0.55	0.75		72	70	68	64	58	50	40	29	15
4SDM3/11	4SD3/11	0.75	1		79	77	75	70	64	56	45	32	16
4SDM3/13	4SD3/13	0.75	1		93	91	88	83	76	66	53	38	19
4SDM3/15	4SD3/15	1.1	1.5		108	105	102	96	88	76	61	43	22
4SDM3/18	4SD3/18	1.1	1.5		129	126	122	115	105	91	73	52	27
4SDM3/20	4SD3/20	1.5	2		144	140	135	128	117	101	81	58	30
4SDM3/22	4SD3/22	1.5	2	H(m)	158	154	149	141	128	111	89	64	33
4SDM3/26	4SD3/26	2.2	3		187	182	176	166	152	131	105	75	39
4SDM3/30	4SD3/30	2.2	3		215	210	203	192	175	151	121	87	45
-	4SD3/35	3	4		251	245	237	224	204	177	142	101	52
-	4SD3/40	3	4		287	280	271	255	234	202	162	115	60
-	4SD3/45	4	5.5		323	315	305	287	263	227	182	130	67
-	4SD3/50	4	5.5		359	350	339	319	292	252	202	144	75
-	4SD3/56	5.5	7.5		402	392	379	358	327	283	227	162	84
-	4SD3/62	5.5	7.5		445	434	420	396	362	313	251	179	93



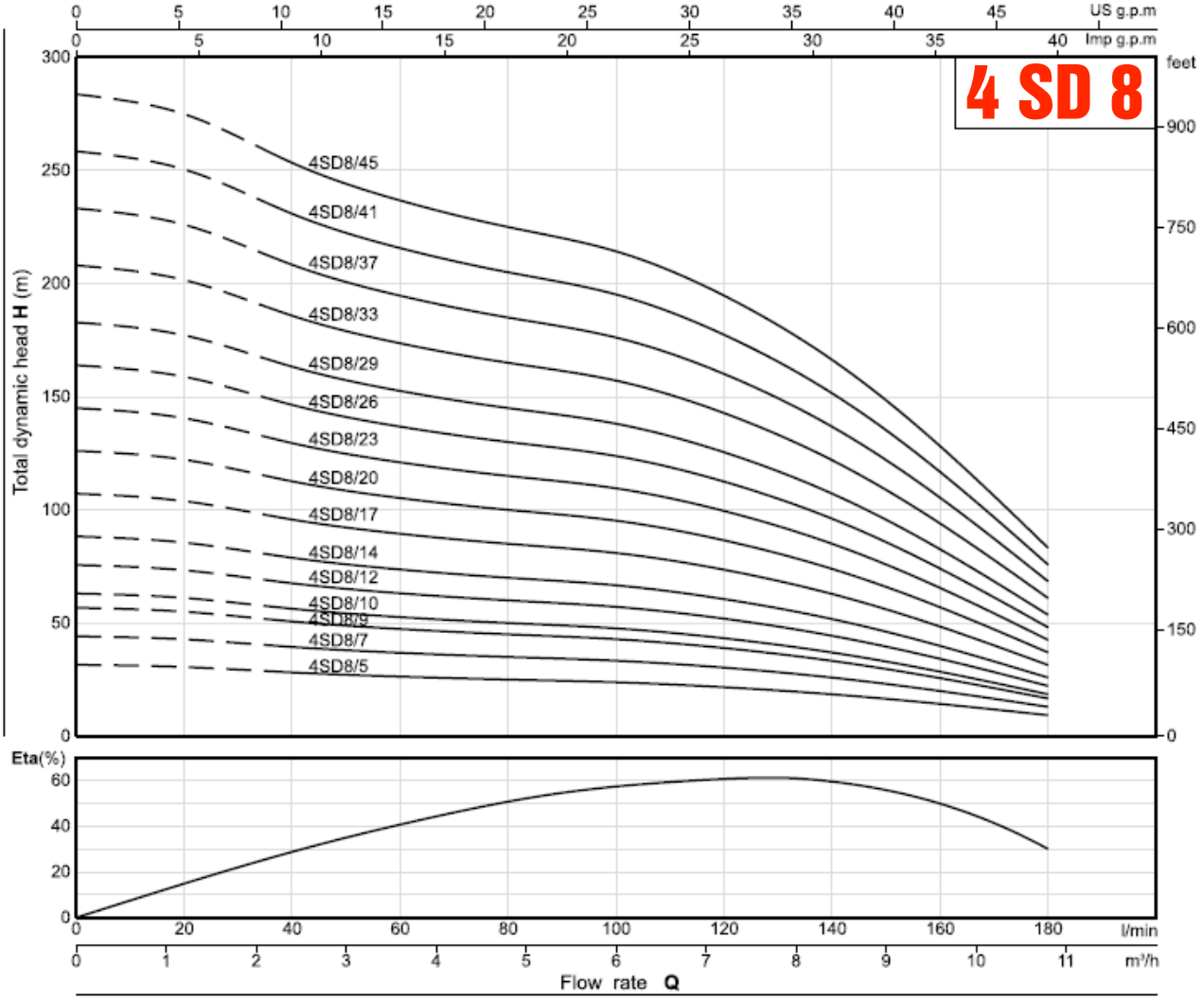
PERFORMANCE DATA 50Hz

MODEL		P_2		DELIVERY n≈2850 1/min											
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q m³/h	0	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0
				l/min	0	10	20	30	40	50	60	70	80	90	100
4SDM4/6	4SD4/6	0.37	0.5	H(m)	44	42	41	40	39	36	33	29	24	19	14
4SDM4/8	4SD4/8	0.55	0.75		58	56	55	54	52	49	44	39	33	26	18
4SDM4/9	4SD4/9	0.75	1		65	63	62	60	58	55	49	44	37	29	21
4SDM4/10	4SD4/10	0.75	1		73	70	69	67	65	61	55	48	41	32	23
4SDM4/12	4SD4/12	1.1	1.5		87	84	82	81	78	73	66	58	49	39	27
4SDM4/14	4SD4/14	1.1	1.5		102	98	96	94	91	85	77	68	57	45	32
4SDM4/16	4SD4/16	1.5	2		116	113	110	107	104	97	88	77	65	51	37
4SDM4/18	4SD4/18	1.5	2		131	127	124	121	117	109	99	87	73	58	41
4SDM4/21	4SD4/21	2.2	3		152	148	144	141	136	128	115	102	85	67	48
4SDM4/24	4SD4/24	2.2	3		174	169	165	161	156	146	132	116	98	77	55
-	4SD4/28	3	4		203	197	192	188	182	170	154	135	114	90	64
-	4SD4/32	3	4		232	225	220	215	208	195	176	155	130	103	73
-	4SD4/36	4	5.5		261	253	247	242	234	219	198	174	146	116	82
-	4SD4/40	4	5.5		290	281	275	268	260	243	220	194	163	128	92
-	4SD4/45	5.5	7.5		327	316	309	302	293	274	248	218	183	144	103
-	4SD4/50	5.5	7.5		363	352	344	335	325	304	275	242	203	160	115
-	4SD4/56	7.5	10		406	394	385	376	364	341	308	271	228	180	128
-	4SD4/62	7.5	10		450	436	426	416	403	377	341	300	252	199	142



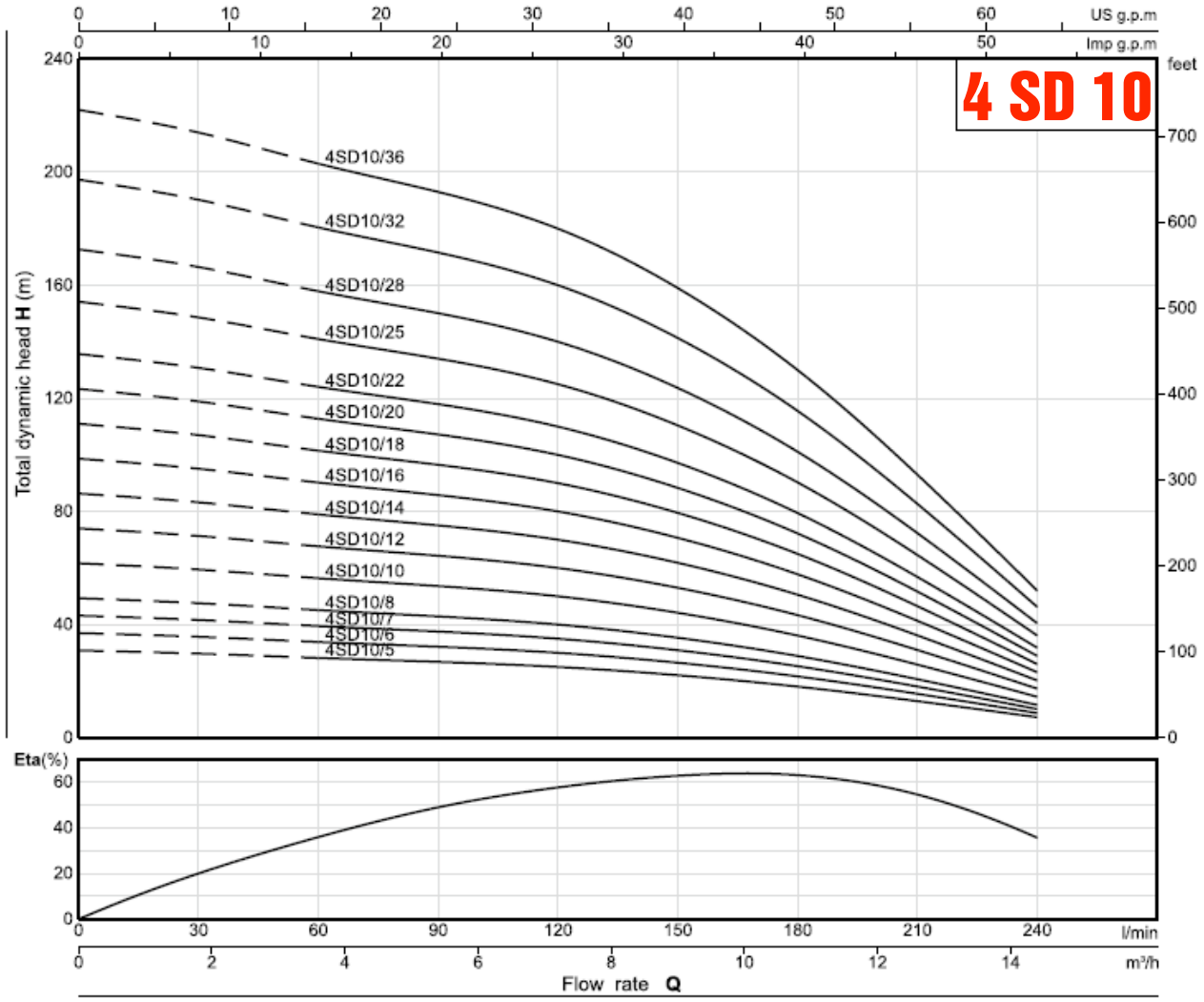
PERFORMANCE DATA 50Hz

MODEL		P2		DELIVERY n≈2850 1/min								
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q m³/h	0	1.2	2.4	3.6	4.8	6.0	7.2	8.4
				Q l/min	0	20	40	60	80	100	120	140
4SDM6/5	4SD6/5	0.37	0.5	H(m)	36	34	33	31	28	24	19	12
4SDM6/6	4SD6/6	0.55	0.75		43	41	39	37	34	29	23	15
4SDM6/7	4SD6/7	0.75	1		51	47	46	44	40	33	26	17
4SDM6/8	4SD6/8	0.75	1		58	54	52	50	45	38	30	20
4SDM6/9	4SD6/9	1.1	1.5		65	61	59	56	51	43	34	22
4SDM6/11	4SD6/11	1.1	1.5		80	74	72	69	62	52	41	27
4SDM6/12	4SD6/12	1.5	2		87	81	79	75	68	57	45	29
4SDM6/14	4SD6/14	1.5	2		101	95	92	87	79	67	53	34
4SDM6/17	4SD6/17	2.2	3		123	115	111	106	96	81	64	42
4SDM6/20	4SD6/20	2.2	3		145	135	131	125	113	95	75	49
-	4SD6/23	3	4		166	156	151	143	130	110	87	56
-	4SD6/26	3	4		188	176	171	162	147	124	98	63
-	4SD6/30	4	5.5		217	203	197	187	170	143	113	73
-	4SD6/34	4	5.5		246	230	223	212	193	162	128	83
-	4SD6/38	5.5	7.5		275	257	249	237	216	181	143	93
-	4SD6/42	5.5	7.5		304	284	275	262	238	200	158	103
-	4SD6/47	7.5	10		340	318	308	293	267	224	177	115
-	4SD6/52	7.5	10		376	352	341	324	295	248	196	127



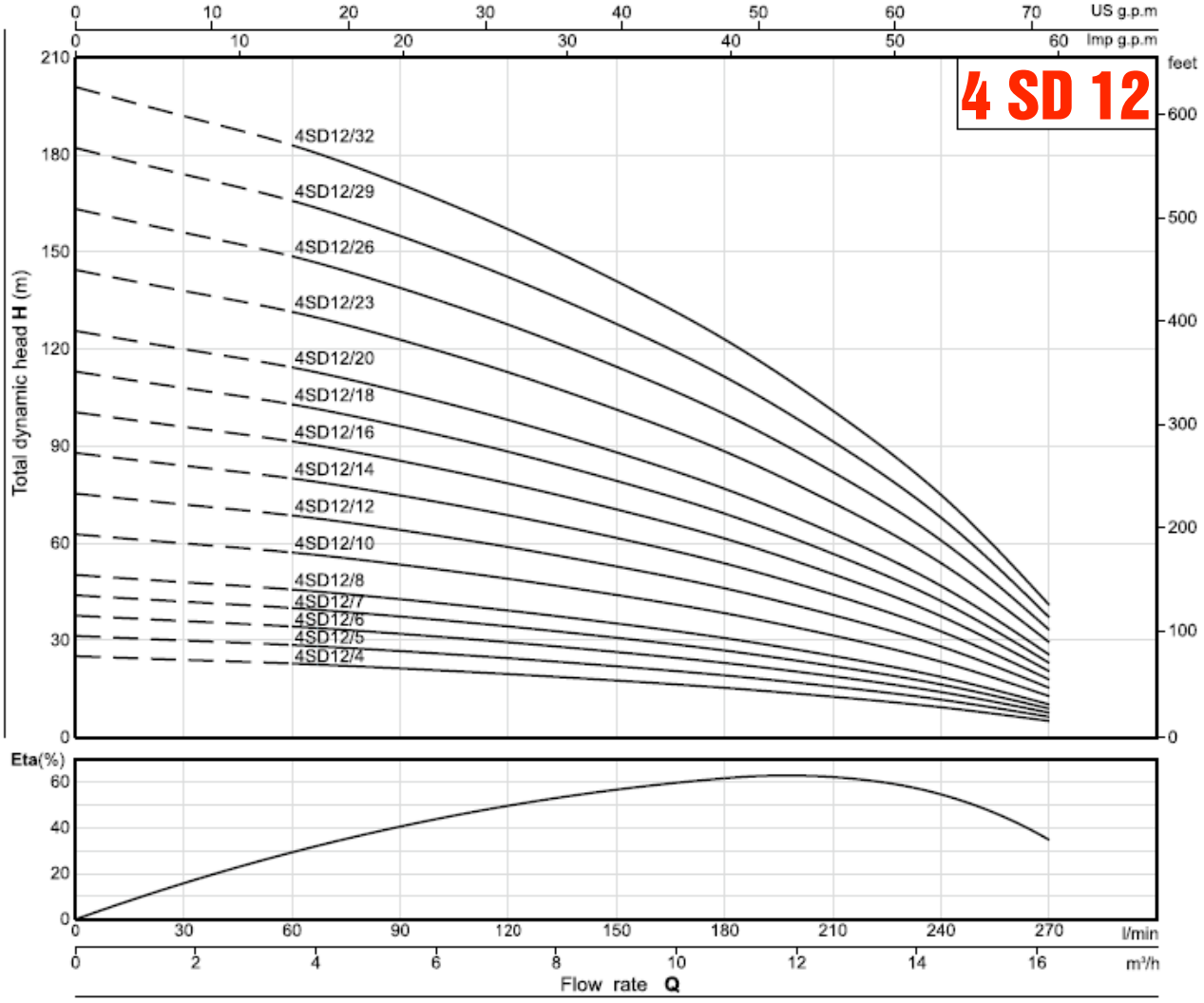
PERFORMANCE DATA 50Hz

MODEL		P_2		DELIVERY										n≈2850 1/min
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q m³/h	0	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8
				Q l/min	0	20	40	60	80	100	120	140	160	180
4SDM8/5	4SD8/5	0.55	0.75		32	31	28	26	25	24	22	18	14	9
4SDM8/6	4SD8/6	0.75	1		38	37	34	32	30	29	26	22	17	11
4SDM8/7	4SD8/7	0.75	1		44	43	39	37	35	33	30	26	20	13
4SDM8/8	4SD8/8	1.1	1.5		50	49	45	42	40	38	35	30	23	15
4SDM8/9	4SD8/9	1.1	1.5		57	55	51	47	45	43	39	33	26	17
4SDM8/10	4SD8/10	1.5	2		63	61	56	53	50	48	43	37	28	18
4SDM8/12	4SD8/12	1.5	2		76	73	67	63	60	57	52	44	34	22
4SDM8/14	4SD8/14	2.2	3		88	86	79	74	70	67	61	52	40	26
4SDM8/17	4SD8/17	2.2	3	H(m)	107	104	96	90	85	81	74	63	48	31
4SDM8/20	4SD8/20	3	4		126	122	112	105	100	95	87	74	57	37
-	4SD8/23	3	4		145	141	129	121	115	109	100	85	65	42
-	4SD8/26	4	5.5		164	159	146	137	130	124	113	96	74	48
-	4SD8/29	4	5.5		183	177	163	153	145	138	126	107	82	53
-	4SD8/33	5.5	7.5		208	202	186	174	165	157	143	122	94	61
-	4SD8/37	5.5	7.5		234	226	208	195	185	176	160	136	105	68
-	4SD8/41	7.5	10		259	251	231	216	205	195	178	151	117	76
-	4SD8/45	7.5	10		284	275	253	237	225	214	195	166	128	83



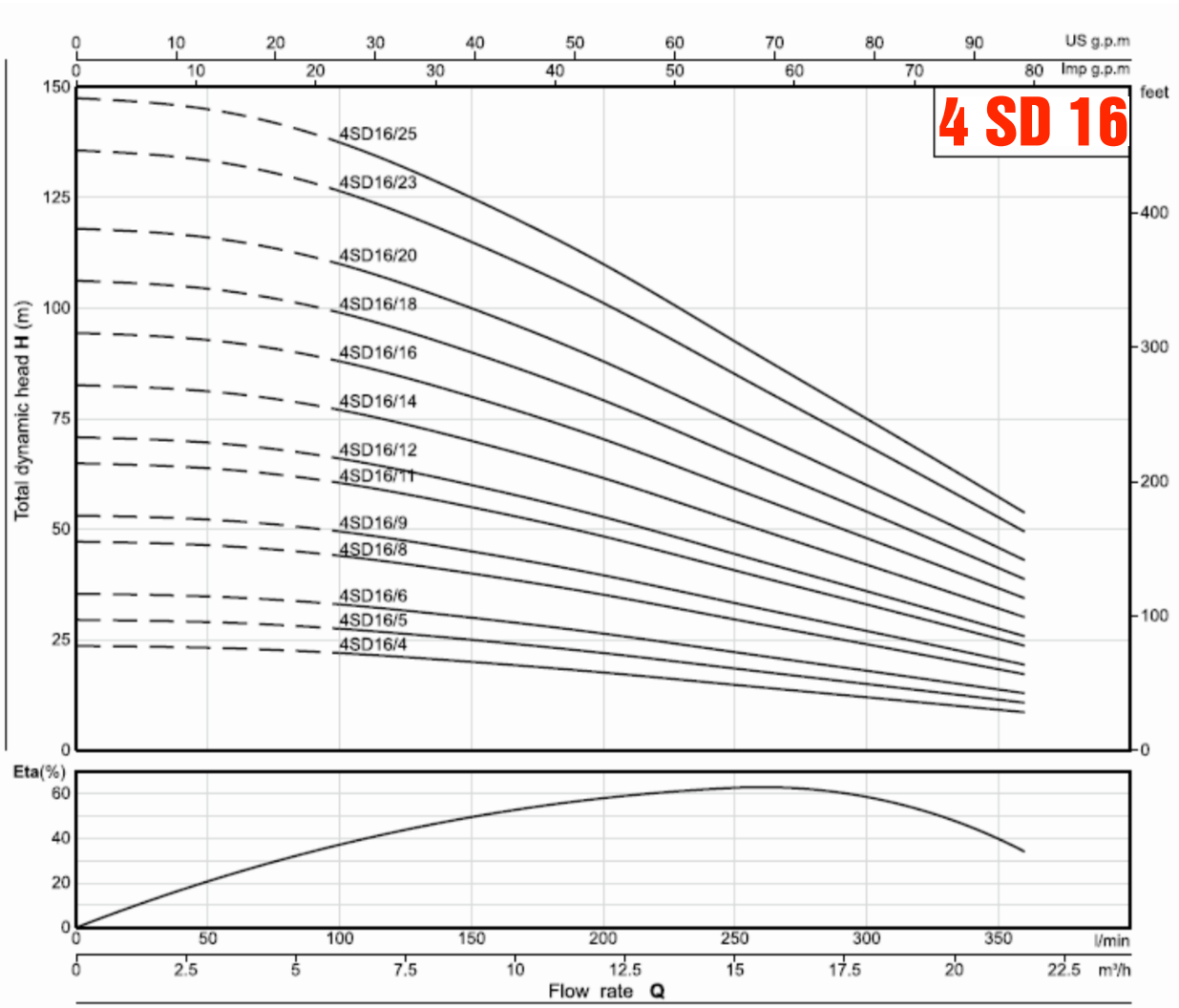
PERFORMANCE DATA 50Hz

MODEL		P_2		DELIVERY n≈2850 1/min									
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q m³/h	0	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4
				Q l/min	0	30	60	90	120	150	180	210	240
4SDM10/5	4SD10/5	0.75	1	H(m)	31	30	28	27	25	22	18	13	7
4SDM10/6	4SD10/6	1.1	1.5		37	36	34	32	30	26	22	15	9
4SDM10/7	4SD10/7	1.1	1.5		43	42	39	38	35	31	25	18	10
4SDM10/8	4SD10/8	1.5	2		49	48	45	43	40	35	29	21	12
4SDM10/10	4SD10/10	1.5	2		62	59	56	54	50	44	36	26	14
4SDM10/12	4SD10/12	2.2	3		74	71	68	64	60	53	43	31	17
4SDM10/14	4SD10/14	2.2	3		86	83	79	75	70	62	51	36	20
-	4SD10/16	3	4		99	95	90	86	80	71	58	41	23
-	4SD10/18	3	4		111	107	101	96	90	79	65	46	26
-	4SD10/20	4	5.5		123	119	113	107	100	88	72	52	29
-	4SD10/22	4	5.5		136	131	124	118	110	97	79	57	32
-	4SD10/25	5.5	7.5		154	149	141	134	125	110	90	65	36
-	4SD10/28	5.5	7.5		173	166	158	150	140	124	101	72	40
-	4SD10/32	7.5	10		197	190	180	172	160	141	116	83	46
-	4SD10/36	7.5	10		222	214	203	193	180	159	130	93	52



PERFORMANCE DATA 50Hz

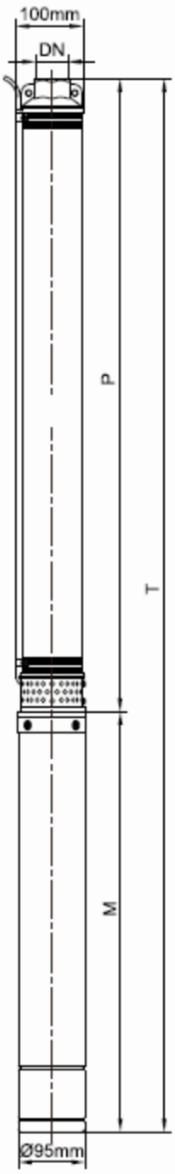
MODEL		P_2		DELIVERY										n≈2850 1/min
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q m³/h	0	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2
				Q l/min	0	30	60	90	120	150	180	210	240	270
4SDM12/4	4SD12/4	0.75	1		25	24	23	21	20	18	15	13	9	5
4SDM12/5	4SD12/5	1.1	1.5		31	30	29	27	25	22	19	16	12	6
4SDM12/6	4SD12/6	1.1	1.5		38	36	34	32	29	26	23	19	14	8
4SDM12/7	4SD12/7	1.5	2		44	42	40	37	34	31	27	22	16	9
4SDM12/8	4SD12/8	1.5	2		50	48	46	43	39	35	31	25	19	10
4SDM12/10	4SD12/10	2.2	3		63	60	57	53	49	44	38	32	23	13
4SDM12/12	4SD12/12	2.2	3		75	72	69	64	59	53	46	38	28	15
-	4SD12/14	3	4	H(m)	88	84	80	75	69	62	54	44	33	18
-	4SD12/16	3	4		101	96	92	86	79	71	62	51	38	21
-	4SD12/18	4	5.5		113	108	103	96	88	79	69	57	42	23
-	4SD12/20	4	5.5		126	120	114	107	98	88	77	63	47	26
-	4SD12/23	5.5	7.5		144	138	132	123	113	101	88	73	54	29
-	4SD12/26	5.5	7.5		163	156	149	139	128	115	100	82	61	33
-	4SD12/29	7.5	10		182	174	166	155	142	128	111	92	68	37
-	4SD12/32	7.5	10		201	192	183	171	157	141	123	101	75	41



PERFORMANCE DATA 50Hz

MODEL		P_2		DELIVERY								n≈2850 1/min
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q m³/h	0	3	6	9	12	15	18	21
				l/min	0	50	100	150	200	250	300	350
4SDM16/4	4SD16/4	1.1	1.5		24	23	22	20	18	15	12	9
4SDM16/5	4SD16/5	1. 5	2		30	29	28	25	22	19	15	11
4SDM16/6	4SD16/6	1.5	2		36	35	33	30	26	22	18	13
4SDM16/8	4SD16/8	2.2	3		47	46	44	40	35	30	24	17
4SDM16/9	4SD16/9	2.2	3		53	52	50	45	40	33	27	19
-	4SD16/11	3	4		65	64	61	55	48	41	33	24
-	4SD16/12	3	4	H(m)	71	70	66	60	53	45	36	26
-	4SD16/14	4	5.5		83	81	77	70	62	52	42	30
-	4SD16/16	4	5.5		95	93	88	80	70	60	48	35
-	4SD16/18	5.5	7.5		107	104	99	90	79	67	54	39
-	4SD16/20	5.5	7.5		118	116	110	100	88	74	60	43
-	4SD16/23	7.5	10		136	133	127	115	101	86	69	50
-	4SD16/25	7.5	10		148	145	138	125	110	93	75	54

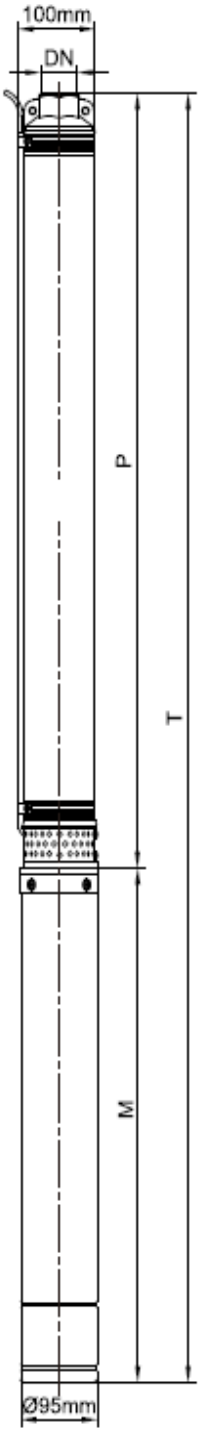
DIMENSIONS AND WEIGHTS



MODEL		DN	DIMENSIONS(mm)					WEIGHTS(kg)				
1 ~ 220 - 240V	3 ~ 380 - 415V		P	M(S)	M(T)	T(S)	T(T)	P	M(S)	M(T)	T(S)	T(T)
4SDM2/7	4SD2/7	1 ¼"	392	299	299	691	691	3.3	5.5	5.8	8.8	9.1
4SDM2/9	4SD2/9	1 ¼"	440	314	314	754	754	3.8	6.7	6.7	10.5	10.5
4SDM2/12	4SD2/12	1 ¼"	514	329	329	843	843	4.6	7.3	7.3	11.9	11.9
4SDM2/14	4SD2/14	1 ¼"	562	344	344	906	906	5.0	8.0	8.0	13.0	13.0
4SDM2/16	4SD2/16	1 ¼"	611	359	344	970	955	5.5	8.7	8.0	14.2	13.5
4SDM2/19	4SD2/19	1 ¼"	684	379	379	1063	1063	6.2	9.8	9.8	16.0	16.0
4SDM2/22	4SD2/22	1 ¼"	789	399	379	1188	1168	7.0	10.6	9.8	17.6	16.8
4SDM2/25	4SD2/25	1 ¼"	862	424	424	1286	1286	7.7	11.7	11.7	19.4	19.4
4SDM2/28	4SD2/28	1 ¼"	936	449	424	1385	1360	8.4	12.9	11.7	21.3	20.1
4SDM2/34	4SD2/34	1 ¼"	1082	502	514	1584	1596	9.7	15.7	15.7	25.4	25.4
4SDM2/40	4SD2/40	1 ¼"	1228	542	514	1770	1742	10.9	17.7	15.7	28.6	26.6
4SDM2/46	4SD2/46	1 ¼"	1406	594	554	2000	1960	12.4	19.8	17.7	32.2	30.1
-	4SD2/52	1 ¼"	1553	-	594	-	2147	13.9	-	19.8	-	33.7
-	4SD2/58	1 ¼"	1699	-	658	-	2357	15.8	-	21.4	-	37.2
-	4SD2/65	1 ¼"	1901	-	698	-	2599	17.5	-	23.7	-	41.2
4SDM3/5	4SD3/5	1 ¼"	355	299	299	654	654	2.8	5.5	5.8	8.3	8.6
4SDM3/7	4SD3/7	1 ¼"	409	314	314	723	723	3.4	6.7	6.7	10.1	10.1
4SDM3/10	4SD3/10	1 ¼"	490	329	329	814	819	4.1	7.3	7.3	11.4	11.4
4SDM3/11	4SD3/11	1 ¼"	517	344	344	861	861	4.4	8.0	8.0	12.4	12.4
4SDM3/13	4SD3/13	1 ¼"	571	359	344	930	915	4.9	8.7	8.0	13.6	12.9
4SDM3/15	4SD3/15	1 ¼"	624	379	379	1003	1003	5.4	9.8	9.8	15.2	15.2
4SDM3/18	4SD3/18	1 ¼"	737	399	379	1136	1116	6.2	10.6	9.8	16.8	16.0
4SDM3/20	4SD3/20	1 ¼"	790	424	424	1214	1214	6.7	11.7	11.7	18.4	18.4
4SDM3/22	4SD3/22	1 ¼"	844	449	424	1293	1268	7.3	12.9	11.7	20.2	19.0
4SDM3/26	4SD3/26	1 ¼"	952	502	514	1454	1466	8.3	15.7	15.7	24.0	24.0
4SDM3/30	4SD3/30	1 ¼"	1059	542	514	1601	1573	9.3	17.7	15.7	27.0	25.0
4SDM3/35	4SD3/35	1 ¼"	1194	594	554	1664	1748	10.6	19.8	17.7	30.4	28.3
-	4SD3/40	1 ¼"	1360	-	594	-	1954	11.9	-	19.8	-	31.7
-	4SD3/45	1 ¼"	1494	-	658	-	2152	13.2	-	21.4	-	34.6
-	4SD3/50	1 ¼"	1629	-	698	-	2327	14.5	-	23.7	-	38.2
-	4SD3/56	1 ¼"	1790	-	738	-	2528	16.1	-	25.5	-	41.6
-	4SD3/62	1 ¼"	1983	-	788	-	2771	17.6	-	28.0	-	45.6
4SDM4/6	4SD4/6	1 ¼"	396	314	314	710	710	3.2	6.7	6.7	9.9	9.9
4SDM4/8	4SD4/8	1 ¼"	454	329	329	783	783	3.7	7.3	7.3	11.0	11.0
4SDM4/9	4SD4/9	1 ¼"	484	344	344	828	828	4.0	8.0	8.0	12.0	12.0
4SDM4/10	4SD4/10	1 ¼"	513	359	344	872	857	4.3	8.7	8.0	13.0	12.3
4SDM4/12	4SD4/12	1 ¼"	571	379	379	950	950	4.8	9.8	9.8	14.6	14.6
4SDM4/14	4SD4/14	1 ¼"	630	399	379	1029	1009	5.3	10.6	9.8	15.9	15.1
4SDM4/16	4SD4/16	1 ¼"	688	424	424	1112	1112	5.9	11.7	11.7	17.6	17.6
4SDM4/18	4SD4/18	1 ¼"	778	449	424	1227	1202	6.4	12.9	11.7	19.3	18.1
4SDM4/21	4SD4/21	1 ¼"	866	502	514	1368	1380	7.2	15.7	15.7	22.9	22.9
4SDM4/24	4SD4/24	1 ¼"	953	542	514	1495	1467	8.1	17.7	15.7	25.8	23.8
4SDM4/28	4SD4/28	1 ¼"	1070	594	554	1664	1624	9.1	19.8	17.7	28.9	26.8
-	4SD4/32	1 ¼"	1187	-	594	-	1781	10.2	-	19.8	-	30.0
-	4SD4/36	1 ¼"	1335	-	658	-	1993	11.3	-	21.4	-	32.7
-	4SD4/40	1 ¼"	1452	-	698	-	2150	12.4	-	23.7	-	36.1
-	4SD4/45	1 ¼"	1598	-	738	-	2336	13.7	-	25.5	-	39.2
-	4SD4/50	1 ¼"	1744	-	788	-	2532	15.1	-	28.0	-	43.1
-	4SD4/56	1 ¼"	1951	-	848	-	2799	16.7	-	30.0	-	46.7
-	4SD4/62	1 ¼"	2126	-	908	-	3034	18.4	-	34.0	-	52.4

- **M(S)** is single phase motor, **M(T)** is three phase motor.
- **T(S)** is single phase motor, **T(T)** is three phase motor.

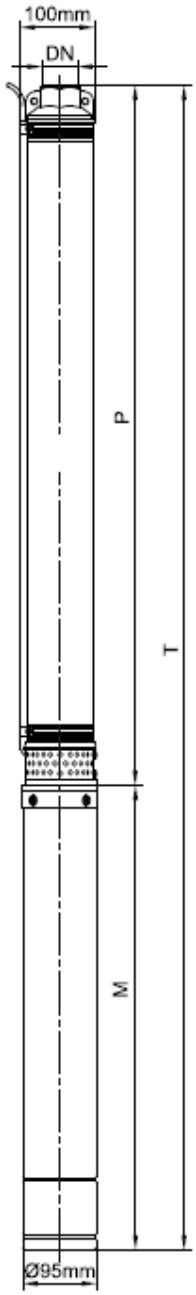
DIMENSIONS AND WEIGHTS



MODEL		DN	DIMENSIONS(mm)					WEIGHTS(kg)				
1 ~ 220 - 240V	3 ~ 380 - 415V		P	M(S)	M(T)	T(S)	T(T)	P	M(S)	M(T)	T(S)	T(T)
4SDM6/5	4SD6/5	1 ¼"	400	314	314	714	714	3.0	6.7	6.7	9.7	9.7
4SDM6/6	4SD6/6	1 ¼"	435	329	329	764	764	3.3	7.3	7.3	10.6	10.6
4SDM6/7	4SD6/7	1 ¼"	469	344	344	813	813	3.6	8.0	8.0	11.6	11.6
4SDM6/8	4SD6/8	1 ¼"	504	359	344	863	848	3.8	8.7	8.0	12.5	11.8
4SDM6/9	4SD6/9	1 ¼"	538	379	379	917	917	4.1	9.8	9.8	13.9	13.9
4SDM6/11	4SD6/11	1 ¼"	607	399	379	1006	986	4.7	10.6	9.8	15.3	14.5
4SDM6/12	4SD6/12	1 ¼"	642	424	424	1066	1066	5.0	11.7	11.7	16.7	16.7
4SDM6/14	4SD6/14	1 ¼"	742	449	424	1191	1166	5.6	12.9	11.7	18.5	17.3
4SDM6/17	4SD6/17	1 ¼"	846	502	514	1348	1360	6.4	15.7	15.7	22.1	22.1
4SDM6/20	4SD6/20	1 ¼"	949	542	514	1491	1463	7.3	17.7	15.7	25.0	23.0
4SDM6/23	4SD6/23	1 ¼"	1053	594	554	1647	1607	8.1	19.8	17.7	27.9	25.8
-	4SD6/26	1 ¼"	1156	-	594	-	1750	9.0	-	19.8	-	28.8
-	4SD6/30	1 ¼"	1326	-	658	-	1984	10.1	-	21.4	-	31.5
-	4SD6/34	1 ¼"	1464	-	698	-	2162	11.3	-	23.7	-	35.0
-	4SD6/38	1 ¼"	1602	-	738	-	2340	12.4	-	25.5	-	37.9
-	4SD6/42	1 ¼"	1740	-	788	-	2528	13.6	-	28.0	-	41.6
-	4SD6/47	1 ¼"	1944	-	848	-	2792	15.0	-	30.0	-	45.0
-	4SD6/52	1 ¼"	2116	-	908	-	3024	16.4	-	34.0	-	50.4
4SDM8/5	4SD8/5	1 ½"	418	329	329	747	747	3.0	7.3	7.3	10.3	10.3
4SDM8/6	4SD8/6	1 ½"	456	344	344	800	800	3.2	8.0	8.0	11.2	11.2
4SDM8/7	4SD8/7	1 ½"	494	359	344	853	838	3.6	8.7	8.0	12.3	11.6
4SDM8/8	4SD8/8	1 ½"	532	379	379	911	911	3.9	9.8	9.8	13.7	13.7
4SDM8/9	4SD8/9	1 ½"	570	399	379	969	949	4.2	10.6	9.8	14.8	14.0
4SDM8/10	4SD8/10	1 ½"	609	424	424	1033	1033	4.5	11.7	11.7	16.2	16.2
4SDM8/12	4SD8/12	1 ½"	717	449	424	1165	1141	5.1	12.9	11.7	18.0	16.8
4SDM8/14	4SD8/14	1 ½"	793	502	514	1295	1307	5.7	15.7	15.7	21.4	21.4
4SDM8/17	4SD8/17	1 ½"	907	542	514	1449	1421	6.6	17.7	15.7	24.3	22.3
4SDM8/20	4SD8/20	1 ½"	1021	594	554	1615	1575	7.5	19.8	17.7	27.3	25.2
-	4SD8/23	1 ½"	1136	-	594	-	1730	8.4	-	19.8	-	28.2
-	4SD8/26	1 ½"	1250	-	658	-	1908	9.2	-	21.4	-	30.6
-	4SD8/29	1 ½"	1396	-	698	-	2094	10.1	-	23.7	-	33.8
-	4SD8/33	1 ½"	1548	-	738	-	2286	11.3	-	25.5	-	36.8
-	4SD8/37	1 ½"	1701	-	788	-	2489	12.5	-	28.0	-	40.5
-	4SD8/41	1 ½"	1884	-	848	-	2732	13.7	-	30.0	-	43.7
-	4SD8/45	1 ½"	2037	-	908	-	2945	14.9	-	34.0	-	48.9

- M(S) is single phase motor, M(T) is three phase motor.
- T(S) is single phase motor, T(T) is three phase motor.

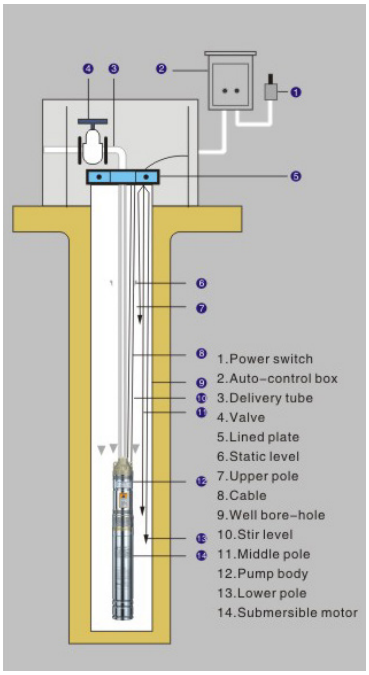
DIMENSIONS AND WEIGHTS

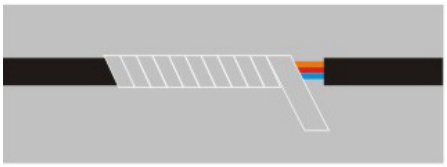


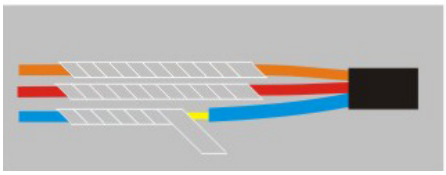
MODEL		DN	DIMENSIONS(mm)					WEIGHTS(kg)				
1 ~ 220 - 240V	3 ~ 380 - 415V		P	M(S)	M(T)	T(S)	T(T)	P	M(S)	M(T)	T(S)	T(T)
4SDM10/5	4SD10/5	2"	418	359	344	777	762	3.0	8.7	8.0	11.7	11.0
4SDM10/6	4SD10/6	2"	456	379	379	835	835	3.3	9.8	9.8	13.1	13.1
4SDM10/7	4SD10/7	2"	494	399	379	893	873	3.6	10.6	9.8	14.2	13.4
4SDM10/8	4SD10/8	2"	532	424	424	956	956	3.9	11.7	11.7	15.6	15.6
4SDM10/10	4SD10/10	2"	609	449	424	1058	1033	4.5	12.9	11.7	17.4	16.2
4SDM10/12	4SD10/12	2"	716	502	514	1218	1231	5.1	15.7	15.7	20.8	20.8
4SDM10/14	4SD10/14	2"	793	542	514	1335	1307	5.7	17.7	15.7	23.4	21.4
4SDM10/16	4SD10/16	2"	869	594	554	1463	1423	6.3	19.8	17.7	26.1	24.0
-	4SD10/18	2"	945	-	594	-	1539	6.9	-	19.8	-	26.7
-	4SD10/20	2"	1021	-	658	-	1679	7.5	-	21.4	-	28.9
-	4SD10/22	2"	1097	-	698	-	1796	8.1	-	23.7	-	31.8
-	4SD10/25	2"	1212	-	738	-	1950	9.0	-	25.5	-	34.5
-	4SD10/28	2"	1357	-	788	-	2146	9.8	-	28.0	-	37.8
-	4SD10/32	2"	1510	-	848	-	2358	11.0	-	30.0	-	41.0
-	4SD10/36	2"	1662	-	908	-	2570	12.2	-	34.0	-	46.2
4SDM12/4	4SD12/4	2"	452	359	344	811	796	3.1	8.7	8.0	11.8	11.1
4SDM12/5	4SD12/5	2"	508	379	379	887	887	3.5	9.8	9.8	13.3	13.3
4SDM12/6	4SD12/6	2"	564	399	379	963	943	3.8	10.6	9.8	14.4	13.6
4SDM12/7	4SD12/7	2"	620	424	424	1044	1044	4.2	11.7	11.7	15.9	15.9
4SDM12/8	4SD12/8	2"	676	449	424	1125	1100	4.6	12.9	11.7	17.5	16.3
4SDM12/10	4SD12/10	2"	819	502	514	1321	1334	5.4	15.7	15.7	21.1	21.1
4SDM12/12	4SD12/12	2"	931	542	514	1473	1445	6.1	17.7	15.7	23.8	21.8
4SDM12/14	4SD12/14	2"	1043	594	554	1637	1597	6.9	19.8	17.7	26.7	24.6
-	4SD12/16	2"	1155	-	594	-	1749	7.6	-	19.8	-	27.4
-	4SD12/18	2"	1298	-	658	-	1956	8.4	-	21.4	-	29.8
-	4SD12/20	2"	1410	-	698	-	2108	9.2	-	23.7	-	32.9
-	4SD12/23	2"	1578	-	738	-	2316	10.3	-	25.5	-	35.8
-	4SD12/26	2"	1745	-	788	-	2533	11.4	-	28.0	-	39.4
-	4SD12/29	2"	1944	-	848	-	2793	12.6	-	30.0	-	42.6
-	4SD12/32	2"	2143	-	908	-	3020	13.7	-	34.0	-	47.7
4SDM16/4	4SD16/4	2"	502	399	379	901	881	3.4	10.6	9.8	14.0	13.2
4SDM16/5	4SD16/5	2"	570	424	424	994	995	3.8	11.7	11.7	15.5	15.5
4SDM16/6	4SD16/6	2"	639	449	424	1088	1063	4.3	12.9	11.7	17.2	16.0
4SDM16/8	4SD16/8	2"	807	502	514	1309	1322	5.2	15.7	15.7	20.9	20.9
4SDM16/9	4SD16/9	2"	876	542	514	1418	1390	5.6	17.7	15.7	23.3	21.3
4SDM16/11	4SD16/11	2"	1013	594	554	1607	1567	6.5	19.8	17.7	26.3	24.2
-	4SD16/12	2"	1081	-	594	-	1675	7.0	-	19.8	-	26.8
-	4SD16/14	2"	1218	-	658	-	1876	7.9	-	21.4	-	29.3
-	4SD16/16	2"	1386	-	698	-	2084	8.8	-	23.7	-	32.5
-	4SD16/18	2"	1523	-	738	-	2261	9.7	-	25.5	-	35.2
-	4SD16/20	2"	1660	-	788	-	2448	10.6	-	28.0	-	38.6
-	4SD16/23	2"	1897	-	848	-	2745	11.9	-	30.0	-	41.9
-	4SD16/25	2"	2034	-	908	-	2942	12.8	-	34.0	-	46.8

- **M(S)** is single phase motor, **M(T)** is three phase motor.
- **T(S)** is single phase motor, **T(T)** is three phase motor.

INSTALLING A BOREHOLE PUMP AND MOTOR







MAXIMUM CABLE LENGTH FROM PUMP TO STARTER

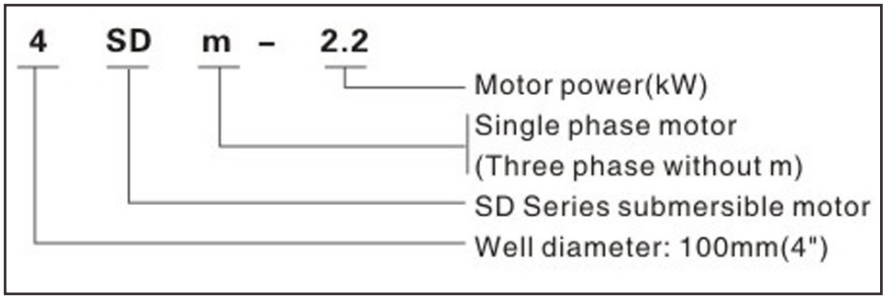
Type	kW	i_n(A)	1.5 mm²	2.5 mm²	4 mm²	6 mm²	10 mm²	16 mm²	25 mm²
220V~/50H	0.37	4.2	111	185	295				
	0.55	4.5	80	133	211	315			
	0.75	6	58	96	153	229	377		
	1.1	9	48	79	153	190	316		
	1.5	10.3	34	57	92	137	228		
	2.2	14.6		43	68	102	169		
380V~/50H	0.37	1.4	768						
	0.55	2.2	489	811					
	0.75	2.3	416	691					
	1.1	3.4	281	467	744				
	1.5	4.2	219	363	579	862			
	2.2	5.5	153	254	405	605	997		
	3	7.9	113	188	300	447	736		
	4	9.6	89	147	235	350	578	909	
	5.5	13.6	66	109	174	260	427	671	
	7.5	17.6	49	81	130	193	319	501	746

4” OIL FILLED MOTOR 20BAR SINGLE PHASE

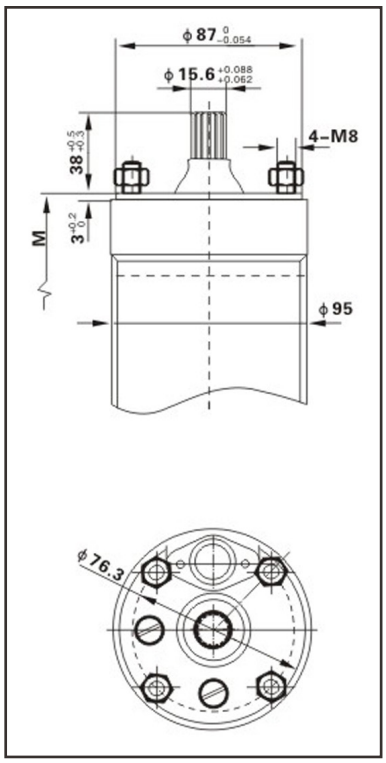
MOTOR TECHNICAL DATA

Single phase power:	0.37 to 2.2 kW
Speed:	2850rpm
Voltage:	220 ~ 240V/50Hz
Insulation class:	B
Protection grade:	IP 68
Highest temperature of liquid:	35°C
Maximum solid handling:	40g/m³
Motor casing:	stainless steel
Maximum diameter:	Φ 95 mm

With sandproof cover/pressure balance membrane/mechanical seal for high performance.
Flange and coupling according to NEMA standard.

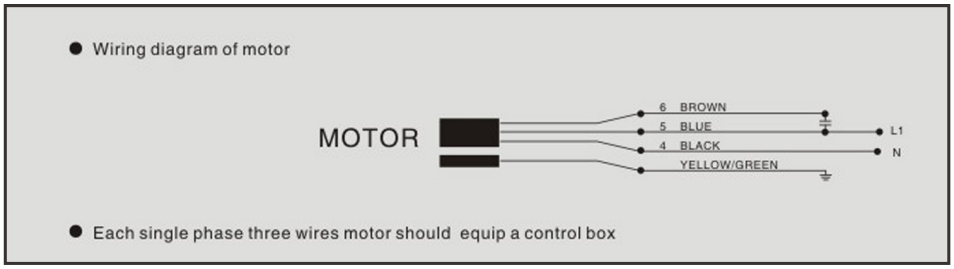


MOTOR DIMENSIONS



TYPE	MOTOR POWER		CAP	DIMENSIONS	
Single Phase 220V~/50HZ	kW	HP	μf	Length (mm)	Weight (kg)
4SDm-0.37	0.37	0.5	20	314	6.7
4SDm-0.55	0.55	0.75	25	329	7.3
4SDm-0.75	0.75	1.0	35	344	8.0
4SDm-l.l	1.1	1.5	45	399	10.6
4SDm-l.5	1.5	2.0	55	424	11.7
4SDm-2.2	2.2	3.0	60	502	15.7

MOTOR WIRING



MA ANALOGUE CONTROL BOX SINGLE PHASE

TECHNICAL DATA

This single phase control box is equipped with a capacitor and thermal over-load protector.

APPLICATION RANGE

Type of motor:	Single phase motor
Motor power:	0.37-2.2kW
Voltage:	220V ~240V
Frequency:	50Hz

PRODUCT FUNCTIONS

Provides basic protection against short circuiting and over current.

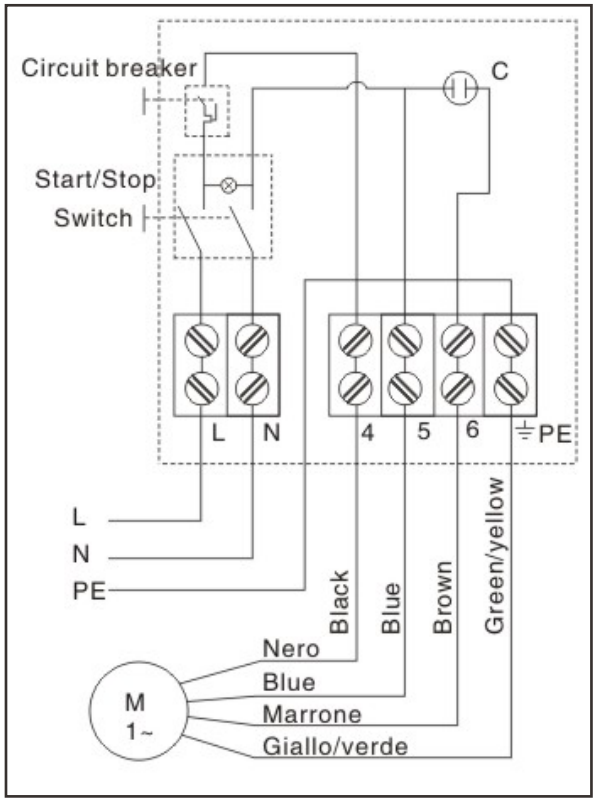
OPERATING METHOD

Manual control.

INSTALLATION ENVIRONMENT INDEX

Grade protection:	IP44
Environment temperature:	-25oC to +55oC
Environment humidity:	(20-90)%RH

POWER		RUNNING CAPACITOR	MCB
kW	HP	Microfarad (µF)	Amp
0.37	0.50	20	8
0.55	0.75	30	10
0.75	1.00	40	15
1.1	1.50	50	15
1.5	2.00	65	20
2.2	3.00	80	25



PUMP CONTROLLER

M521 DIGITAL CONTROL BOX SINGLE PHASE

PRODUCT FUNCTIONS

- Liquid level control for supply (borehole) and delivery (storage). Enabled for operation, utilising floating level switch / liquid level probe / pressure switch.
- Over / under voltage protection with adjustable parameters.
- Auto / Manual operation.
- Dynamic and interactive LCD display.
- Push Button Calibration
- Pump Accumulative Running Time Display
- Pump Last Five Fault condition Recording
- Controller enabled for operation with single phase motor fitted with internal or external capacitor from 0.18 to 2.2kw. Capacitor to be retro fitted for borehole motor use. Refer to capacitor size requirement as per table below.

APPLICATION RANGE

Type of motor:	Single phase motor
Motor power:	0.37-2.2kW
Voltage:	220V
Frequency:	50Hz

INSTALLATION ENVIRONMENT INDEX

Grade protection:	IP22
Environment temperature:	-25 ° C to + 55 ° C
Environment humidity:	(20-90)%RH

SINGLE PHASE 3" / 4" OIL FILLED BOREHOLE MOTOR CAPASITOR RATINGS	
kW	Capacitor (mF)
0.37	20
0.55	25
0.75	35
1.1	45
1.5	55
2.2	75

TECHNICAL DATA	
RATED OUTPUT POWER	0.37kW - 2.2kW
RATED INPUT VOLTAGE	AC220V/50Hz Single Phase
TRIP RESPONSE TIME OF OVER LOAD	5sec - 5min
TRIP RESPONSE TIME OF SHORT CIRCUIT	0.1sec
TRIP RESPONSE TIME OF UNDER / OVER VOLTAGE	5sec
TRIP RESPONSE TIME OF DRY RUN	6sec
RECOVERY TIME OF OVER LOAD	30min
RECOVERY TIME OF UNDER / OVER VOLTAGE	5min
RECOVERY TIME OF DRY RUN	30min
TRIP VOLTAGE OF OVER VOLTAGE	110% of rated input voltage
TRIP VOLTAGE OF UNDER VOLTAGE	80 of rated input volgage

PROTECTION FUNCTIONS

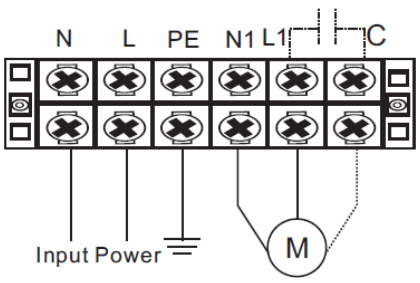
Dry run
Transient surge
Over voltage
Short circuit
Over load
Under voltage
Pump stalled

MEANING OF THE ICONS SHOWN ON THE LCD

Icon	Meaning/Description
	pump parameter configuration icon, when this icon appears, pump control box is in parameter adjusting manual;
	time displaying icon, when this icon appears, it means pump control box is displaying some parameter of time, eg: pump accumulative running time (unit: hour); counting down etc
	pump fault icon, when this icon appears, it means pump control box is displaying some fault information;
 ON LINE	network connection error icon, when this icon appears, it means there is no network connections or network connection error between pump control box and SC(slave controller) or computer;
 ON LINE	network normal connection icon, when this icon appears, it means the network connection between pump control box and SC (slave controller) or computer is normal;
V	voltage
M	minute
S	second
H	hour
%	percent
A	ampere
	pump running
	pump stops running
	low pressure or lack of pressure in the pipeline or pressure tank
	high pressure or full of pressure in the pipeline or pressure tank

INSTALLATION

ELECTRICAL CONNECTION TO THE POWER SUPPLY:



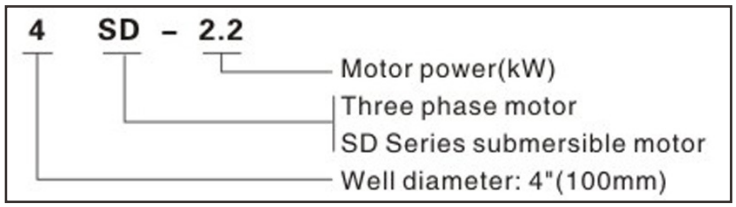
4” OIL FILLED MOTOR 20BAR THREE PHASE

MOTOR TECHNICAL DATA

Three phase power:	0.37 to 7.5kW
Speed:	2850rpm
Voltage:	380 ~ 415V/50Hz
Insulation class:	B
Protection grade:	IP 68
Highest temperature of liquid:	35oC
Maximum solid handling:	40g/m^3
Motor casing:	stainless steel
Maximum diameter:	Φ 95 mm

With sandproof cover/pressure balance membrane/mechanical seal for high performance.

Flange and coupling according to NEMA standard.



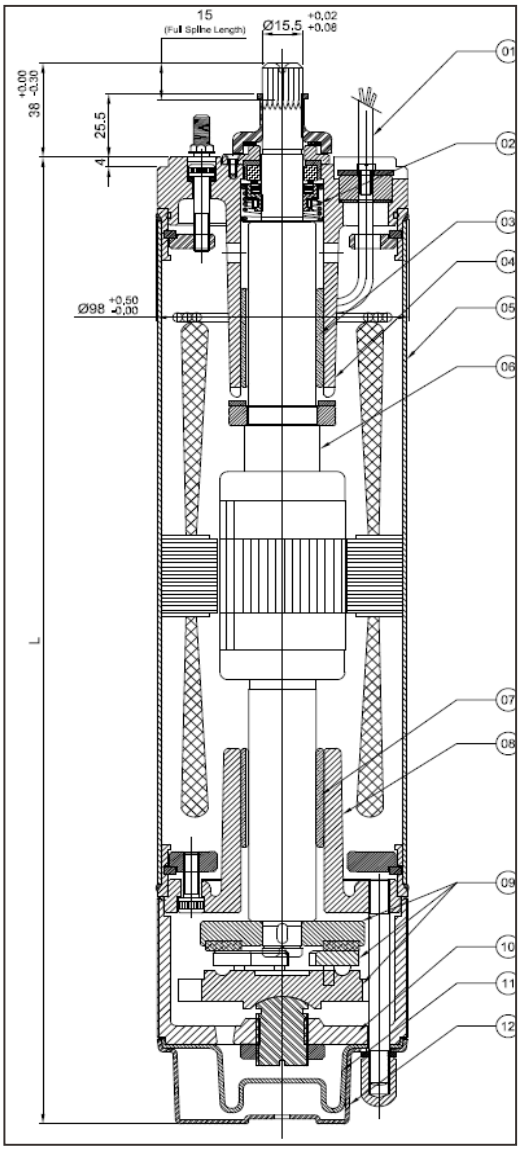
MOTOR DIMENSIONS

TYPE Three Phase 380V~/50HZ	MOTOR POWER		DIMENSIONS	
	kW	HP	Length (mm)	Weight (kg)
4SD - 0.37	0.37	0.5	314	6.7
4SD - 0.55	0.55	0.75	329	7.3
4SD - 0.75	0.75	1.0	344	8
4SD - 1.1	1.1	1.5	379	9.8
4SD - 1.5	1.5	2.0	424	11.7
4SD - 2.2	2.2	3.0	514	15.7
4SD - 3	3.0	4.0	594	19.8
4SD- 4	4.0	5.5	698	23.7
4SD - 5.5	5.5	7.5	788	28
4SD - 7.5	7.5	10.0	908	34

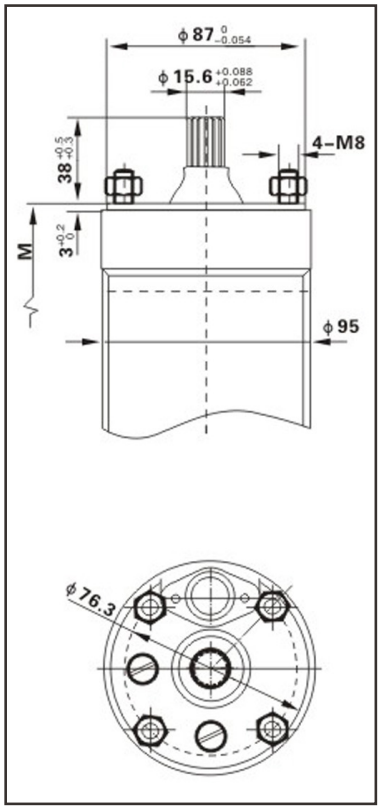
TECHNICAL DATA

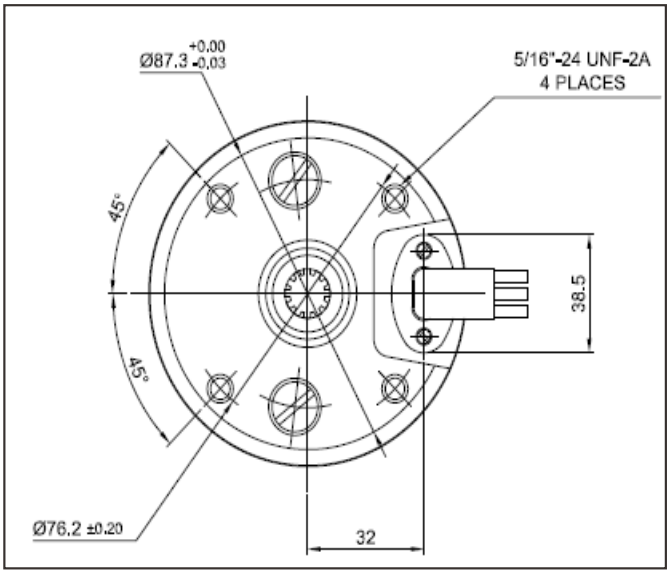
MOTOR PARTS

SERIAL NO.	PART NAME	MATERIAL
01	Cable 3 Core/ 4 Core	EPR
02	Mechanical Seal	Ceramic/Carbon
03	Bearing Bush	Carbon
04	Upper Housing	CI (FG-200)/S.S.304
05	Motor Pipe	Stainless Steel
06	Rotor shaft	S.S.420
07	Bearing Bush	Carbon
08	Lower Housing	CI (FG-200)
09	Thrust Bearing set	Carbon/S.S. 420
10	Lower Part - 2	CI (FG-200)
11	Pressure Cup	N.B.R.
12	Motor Base	S.S.304
13	All Hardware	S.S.316



DIMENSIONAL DRAWINGS



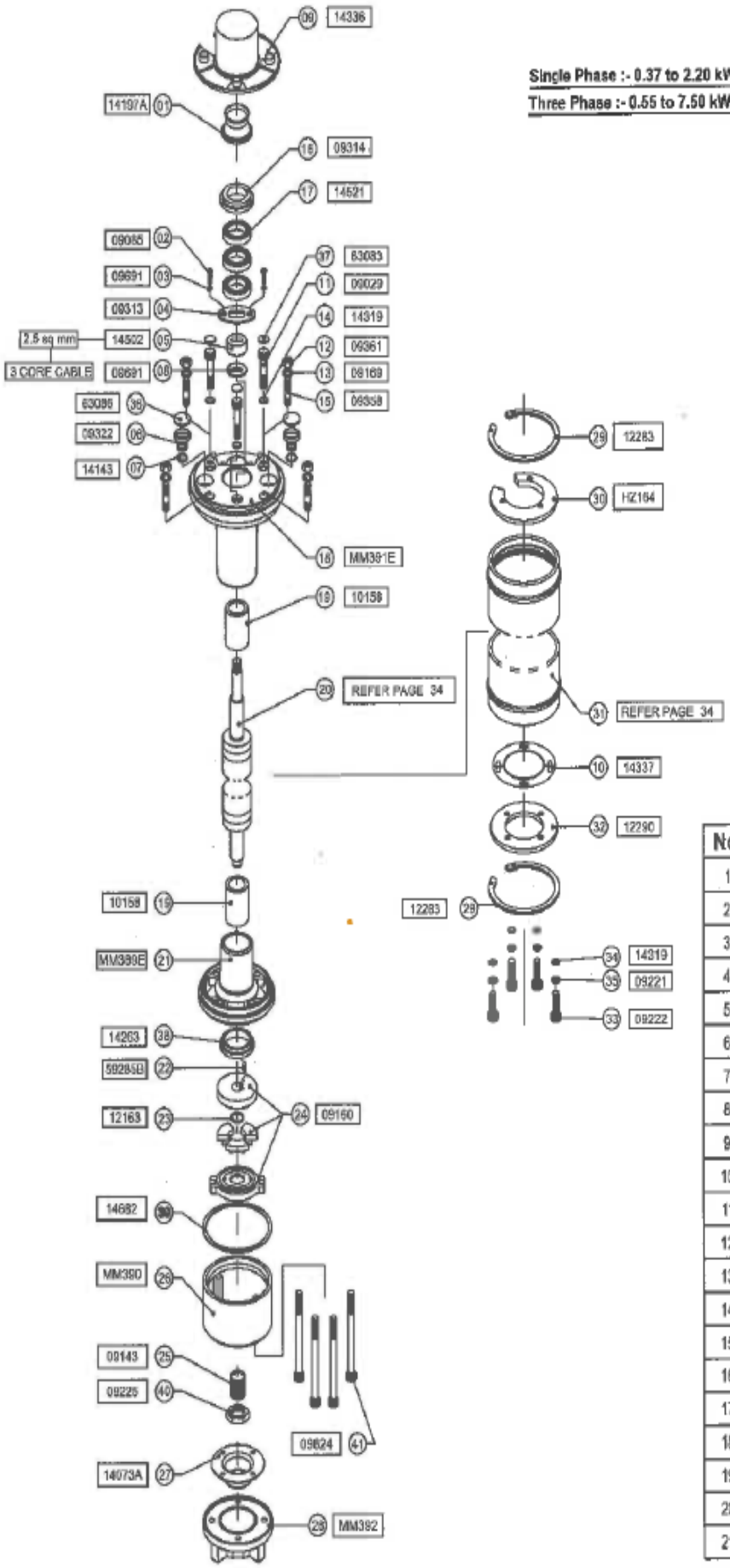


CSR PERFORMANCE DATA OF THREE PHASE MOTORS (380VOLT/50HZ)

P_N		THRUST LOAD	U_N	n_N	I_N	I_A	η (%)			COSφ			T_N	T_A
(kW)	(HP)	(N)	(V)	(min-1)	(A)	(A)	50	75	100	50	75	100	(Nm)	(Nm)
0.55	0.75	1500	380	2830	1.60	6.00	61	67	67	0.59	0.72	0.80	1.90	3.10
0.75	1	1500	380	2850	2.10	8.90	63	68	70	0.57	0.70	0.79	2.50	4.80
1.1	1.5	3000	380	2820	3.00	13.80	69	72	72	0.59	0.73	0.81	3.80	9.60
1.5	2	3000	380	2840	3.90	18.60	69	72	73	0.59	0.72	0.81	5.00	11.30
2.2	3	4000	380	2815	5.80	28.70	72	75	75	0.58	0.72	0.81	7.60	21.70
3	4	4000	380	2795	8.80	30.60	69	72	70	0.59	0.72	0.83	10.50	21.44
4	5.5	4000	380	2785	10.80	32.30	63	67	70	0.73	0.79	0.83	13.40	21.24
5.5	7.5	4000	380	2785	14.80	50.50	70	73	74	0.75	0.79	0.84	18.93	37.18
7.5	10	4000	380	2850	18.00	61.00	71	72	73	0.99	0.95	0.91	24.60	45.00

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



No.	PART'S NAME
1	SAND GUARD
2	CABLE CLIP SCREW
3	CABLE WASHER
4	CABLE CLIP
5	CABLE GROMMET
6	DRAIN PLUG
7	DRAIN PLUG "O" RING
8	CABLE WASHER
9	COUPLE CAP
10	WINDING CAP
11	ALLEN BOLT
12	HEX NUT
13	SPRING WASHER
14	ALLEN BOLT "O" RING
15	UPPER STUD
16	OIL SEAL COLLAR
17	OIL SEAL
18	UPPER HOUSING
19	BEARING BUSH
20	ROTOR SHAFT
21	LOWER HOUSING

No.	PART'S NAME
22	KEY
23	CIRCLIP (EXTERNAL)
24	THRUST BEARING PAD SET
25	ROCKER
26	LOWER HOUSING PART-2
27	PRESSURE CUP
28	MOTOR BASE
29	CIRCLIP (INTERNAL)
30	UPPER FLANGE
31	FINISH STATOR BODY
32	LOWER FLANGE
33	ALLEN BOLT
34	STUD "O" RING
35	STUD WASHER
36	DRAIN PLUG CAP
37	ALLEN BOLT CAP
38	C. T. BEARING
39	LOWER GASKET
40	ROCKER NUT
41	ALLEN BOLT

PUMP CONTROLLER

DIGITAL STARTER PROTECTOR - 3 PHASE, 380V

GENERAL DESCRIPTION

The 3 phase pump controller is an electronic control/protector for most pump motors and its operation and installation will be explained in the following pages:

1. Over current/under voltage protection is performed automatically by switching the main supply to the pump motor off.

2. In the event of a power failure or input voltage lower than 160V, the controller will switch off the power to the pump motor in 4 seconds.

3. The unit can also determine water levels in tanks or reservoirs and control the pump according to demand.

TECHNICAL FEATURES

Rated Voltage:	380V ± 15%
Output Power:	4kW (8 amp)
Operating Temperature:	-10 to +40°C
Control Distance:	1km
Humidity:	≤ 90%
Height above Sea Level:	2000m
Protection function:	Time extension feature

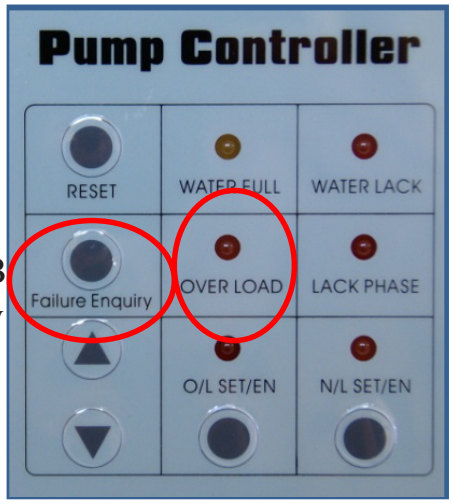
OVERLOAD (TIMES)	PROTECTION TIME (SECONDS)
1.3	50
1.5	30
2	15
3	6
5	1

OPERATION

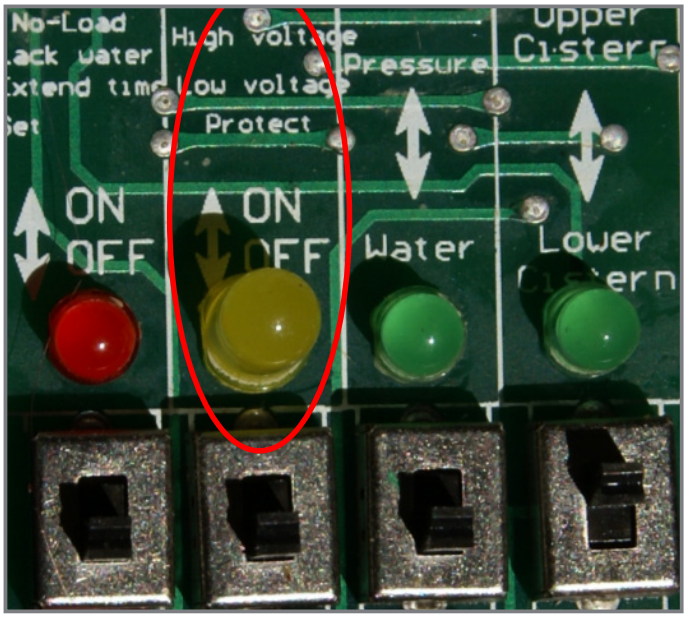
1. **Water level control:** one reservoir/ water tank can be controlled via the wiring connection at the bottom of the controller.

2. **Over load protection:** At the loss of any one phase, the phase detection CCT will signal the power contactor to drop out and switch the power supply to the pump motor off. Should for any reason the motor draw too much (high) current (see current setting) the over current protection CCT will signal the power contactor to drop out and switch of the power to the motor. This is done automatically in the time set by the installer, see Setting and Adjustments for high current and fast switch off times (anti-time overload protection). The overload LED / light will light up (blink) in the event of a power failure. Also refer to the failure enquiry feature.

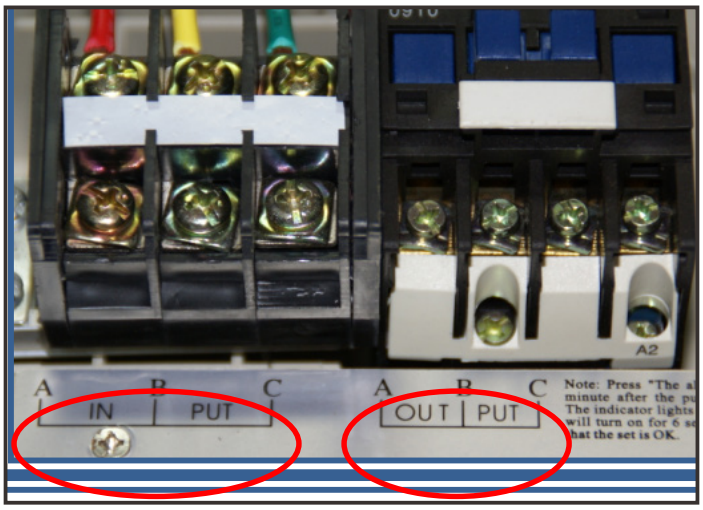
3. **Short CCT protection:** The controller will react the same as in the case of an overload, high current condition occuring and power to the pump motor will be switched off within the same time limit as set by the installer.



4. **Over/under Voltage protection**: The small LED on the PCB will blink if this function is switched on. The voltage may vary as specified - 380V ± 15%. The controller will self protect within 20 seconds when the voltage drops below 280V.



INSTALLATION



1. Fit the controller vertically to the appropriate area. Avoid dust, sun light and rain.

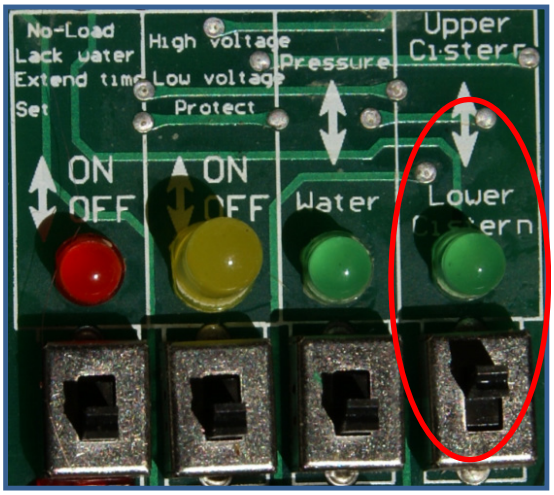
2. Connect the input power to the 3 phase input terminal market A,B and C.

3. Connect the pump motor cable wiring to the output terminals also marked A, B and C. They are to the right of the input connections.

4. Connect the water reservoir/tank probe cables to the terminals marked high, med and low at the right bottom of the PC board. Also note the small switch below the green LED, on far right-hand side just above the tank terminals. A selection can be made for the upper or lower tank.

Lower Tank/Cistern:
Max water level: Power on
Min water level: Power off

Upper Tank / Cistern:
Min water level: Power on
Max water level: Power off



5. **Lack of water:** Switch to lower cistern. Should the lower tank lack water, whilst the pump is still running, the pump motor current will be low and the controller will sense this low current or no-load situation as there is no water in the tank and will therefore switch power to the motor off within 10 seconds.

6. Should the pump be in power-on mode but it has been switched off for a no-load fault and the tanks are now full of water, the probes in the tank will signal that the tank is full and the contactor will supply power to the motor. The unit will also do a self test every 30 minutes (adjustable), provided that no-load switch is on.

7. The **water full** LED will come on as the tank probes signal that the water is at a high level.

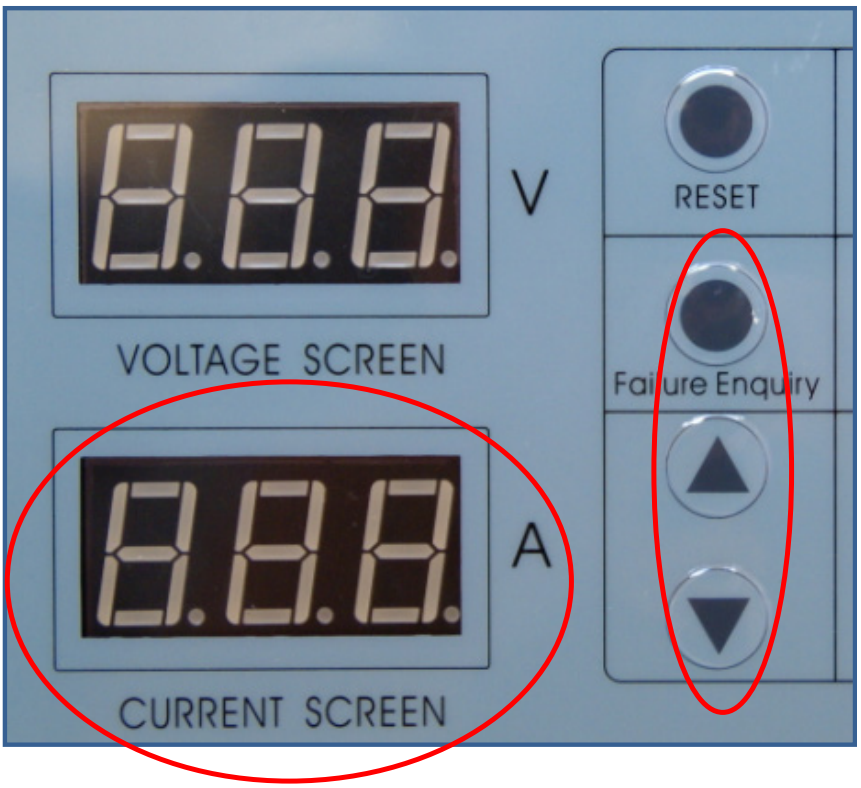
8. **Reset** on the front panel should only be used to get the pump's motor running again, in the event of the controller switching off, after the installation has gone through a fault finding test.

9. The user may also select water level or pressure control by switching to either function on the small PCB's second last switch, marked "pressure" and "water".

10. Switch to upper cistern, pump will not run. Lack of water will send a signal to switch on the power to pump motor.

SETTINGS AND ADJUSTMENTS

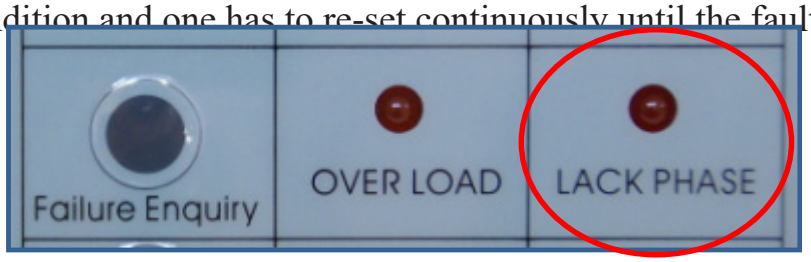
1. This unit has 10 failure data reports and by pressing the failure enquiry button on the front panel the user can select, with the arrows, any report that will be displayed on the digital current indicator A.



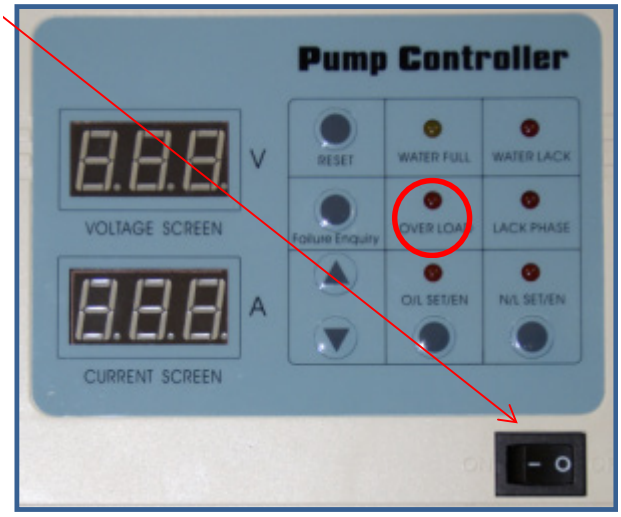
Should a failure light blink, pressing the failure enquiry button will result in the current indicator showing that particular fault condition. Overload will show overload current.

2. Should a phase loss be indicated on the front panel, the user will see the following on the current indicator when pressing the failure enquiry button:

011 - phase A loss
101 - phase B loss
110 - phase C loss
111 - this code with the light on means that the input connections are not wired properly or the pressure mode senses low pressure which causes switch off condition and one has to re-set continuously until the fault has been fixed.



3. The **on/off switch** on the front panel may also be used to stop the function of the controller or switch the pump motor back on again.

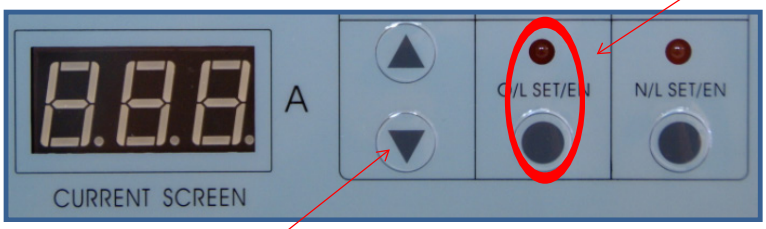


4. The **"all complete / enter" button**: after running the pump motor normally for 60 seconds the user may press the "enter" button mentioned above. This is found on the PCB above the level connectors. Note that the overload LED on the front panel will flicker for 6 seconds and the turn off.

This means that the running and overload current settings with other functions has been memorized and the controller is in the ready state.

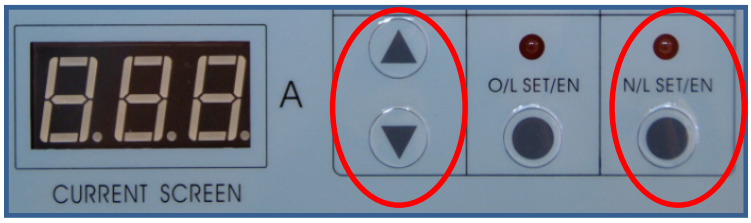
5. By selecting "lower or upper tank/cistern", "pressure or water" the installer/user user will notice that the LED corresponding to that switch will be on if the switch is in the lower position. The LED will go off in the upper position. Also note that the factory default signal to the controller is set on the "upper cistern".

6. **Over-load setting:** Switch the controller on and take note of the running current, then press the overload set/confirm (O/L SET/EN) with the LED now ON.



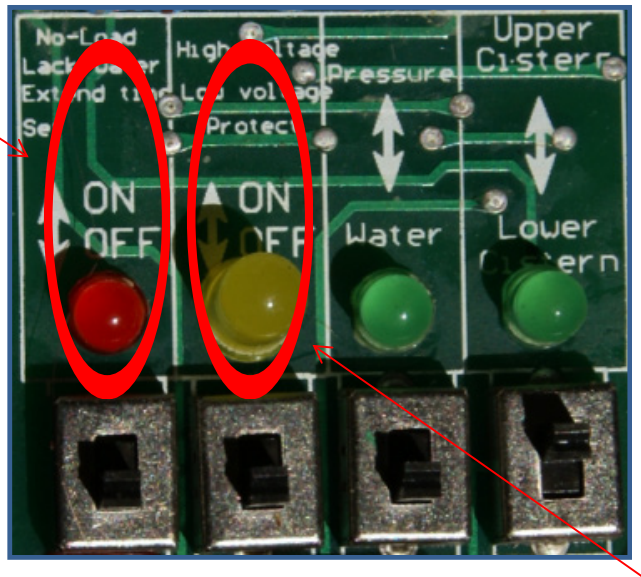
Press the up/down arrow button to select or adjust the digital indicator to the value recorded and a bit more, then press the O/L SET/EN button with the LED now off.

7. **No-load setting.** Start the pump motor and run for 60 seconds with "no load" . The current should be low. Record this value and press the set/confirm (N/L SET/EN) button on the front panel. With the LED above now "on", select and adjust with the up/down arrow buttons the current setting as displayed on the digital display.



Press the N/L SET/EN button again with the LED off. The value has been recorded and
memorized. The no-load current can be set directly as 0.85 times that of the normal operating/running current. The factory default no-load setting is 0.1 amp.

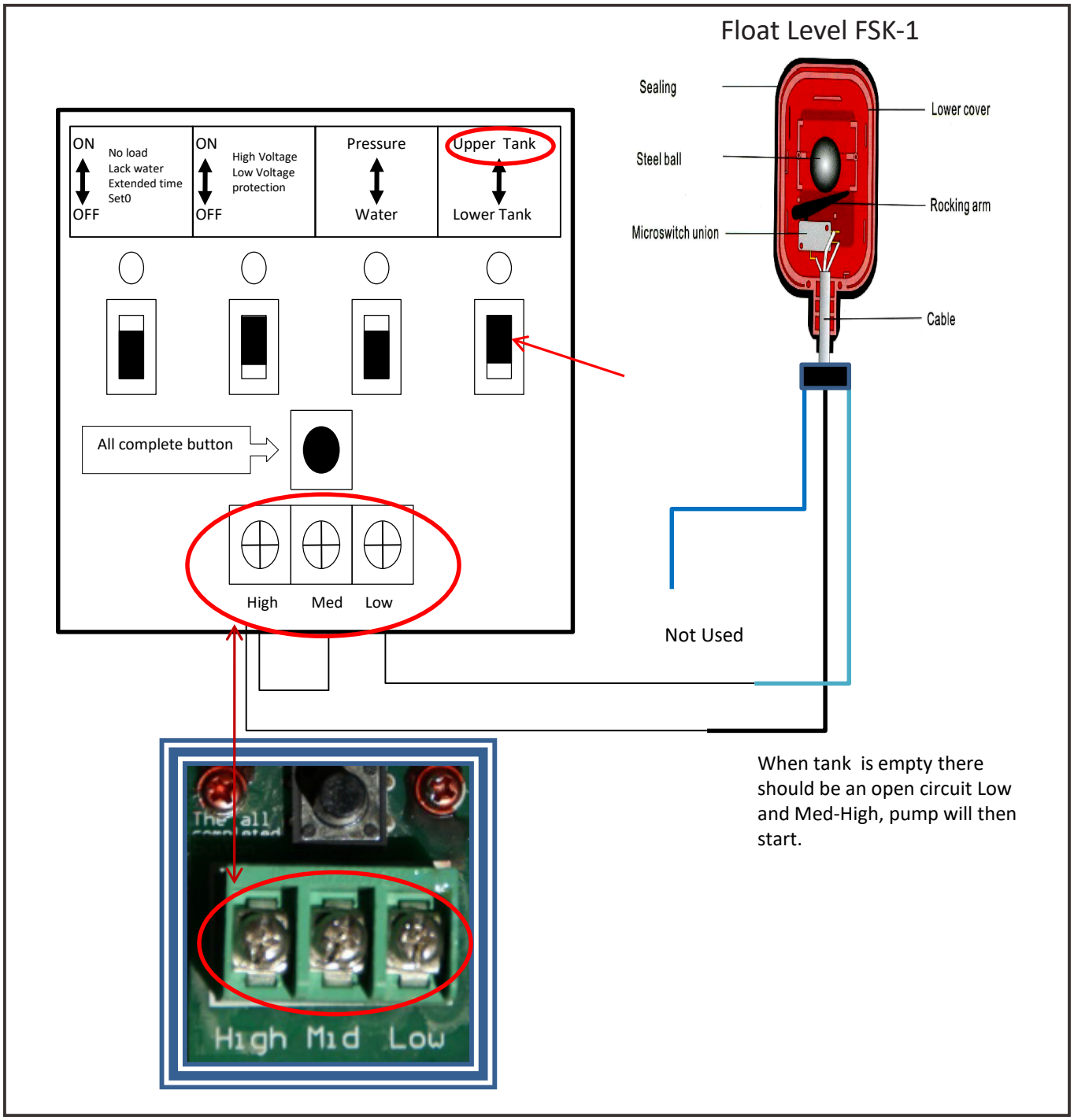
8. **No-load reset time.** After running the pump motor, switch the "no-load lack water extended set" switch to "on", located below the red LED. The current digital indicator now shows the no-load reset time in minutes. By adjusting with the "up/down" arrows, select the time required. Then switch to "off". The time has now been recorded and memorized. Suggested time is 20 minutes as the factory default time is 30 minutes.



9. **Over/Under voltage.** After running the pump motor, switch the "high/low voltage" switch to "on". This is located under the yellow LED on the board and the light will be on. This will ensure that the high/low voltage protection function/protector is ON and will protect as per the specification of 380V ± 15%.

FLOAT LEVEL CONNECTIONS

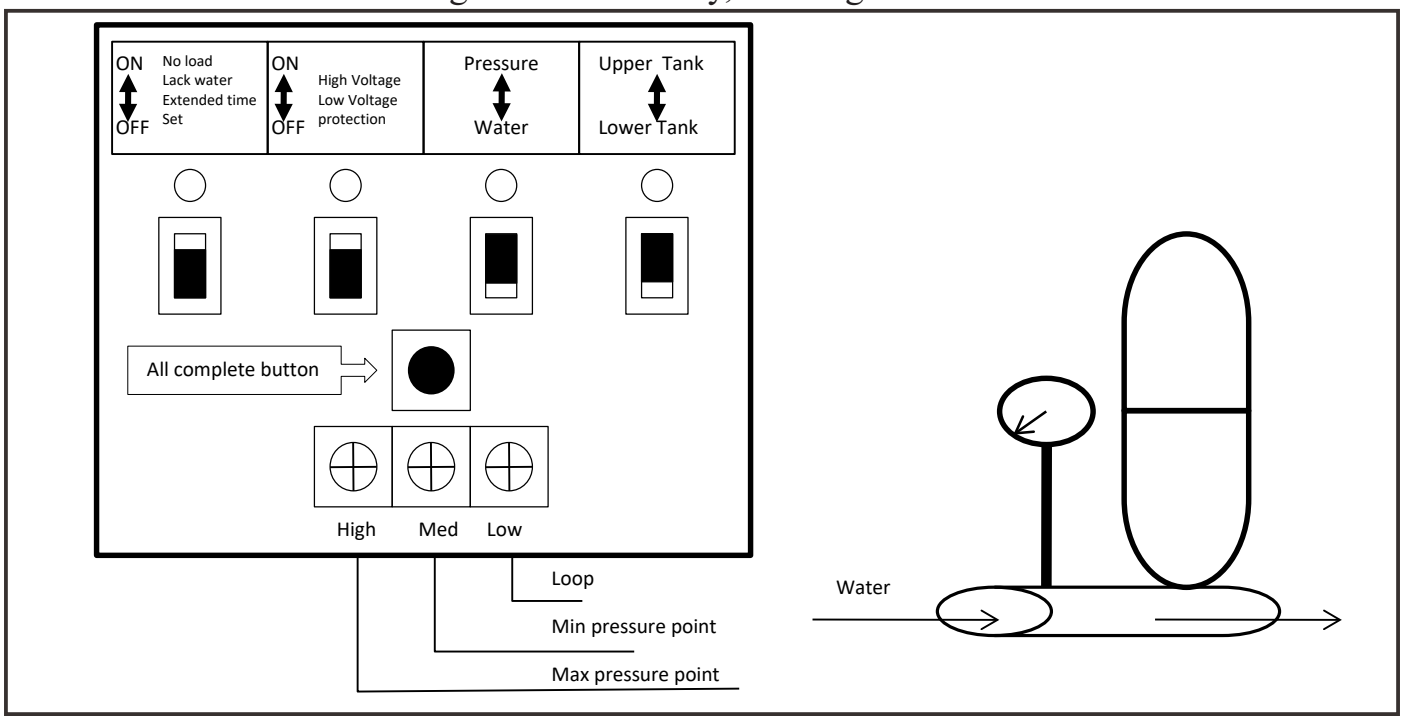
Tank Filling - upper tank connections:



FAULT FINDING

If the control unit is connected to the water pressure system and the pump motor does not switch on at the minimum pressure, check the following:

1. Ensure that the wiring is done correctly, see diagram.



2. If the wiring is correct and the system still does not operate correctly, remove the wiring and short CCT the terminals H, M and L. Start the pump motor. If the motor runs, it is an indication that the wiring to the pressure system is faulty or the probes are defective. Repeat by shorting and disconnecting to make sure the unit is fine.

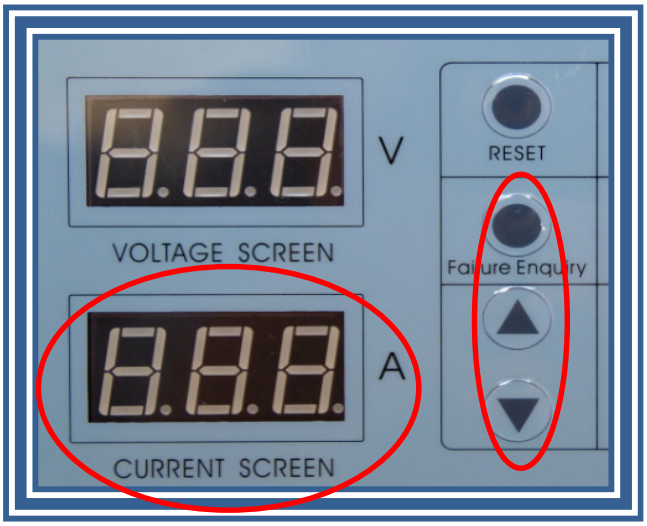
3. Should the same problem occur with the water tank system, use the same test procedure described in the previous point. This will eliminate the level probes from the control unit and probe wiring.

4. Should the "full" or "lack " LED's on the front panel flash, proceed as follows to find the problem: Always check the wiring between the control unit and the water system first. Incorrect signals are sent to the control unit and simulator test as described above for tank/ pressure systems may be used to establish if the controller unit is faulty or not.

5. Should the pump motor always be in in "overload" protection mode, check the following:
   Pump motor is not faulty or locked
   The overload protection is set correctly, always make sure that the overload current is set higher than the normal running current.

FAILURE ENQUIRY

The control unit will have the last 10 failure reports. By pressing the above mentioned button, failure reports will be indicated on the digital current screen. First reports will always be the phase conditions as describe in Settings and Adjustments.



6VP BOREHOLE RANGE (6”)

6VP BOREHOLE RANGE (6”)

PUMP FEATURES

This borehole pump’s key feature is it’s high pressure and delivery ratio.

The reduced stages ensure extended pump life and ease of operation.

OPERATING RANGE

These pumps are for domestic, agricultural, mining and industrial use.

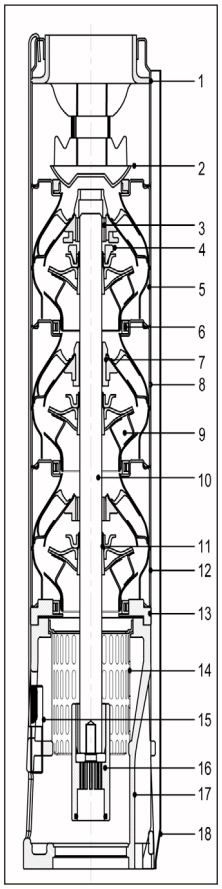
Head range:	4m - 489m
Flow rate:	70 l/m - 1300 l/m
Minimum immersion:	1m
Maximum sand content:	50g/m^3

KEY MATERIALS

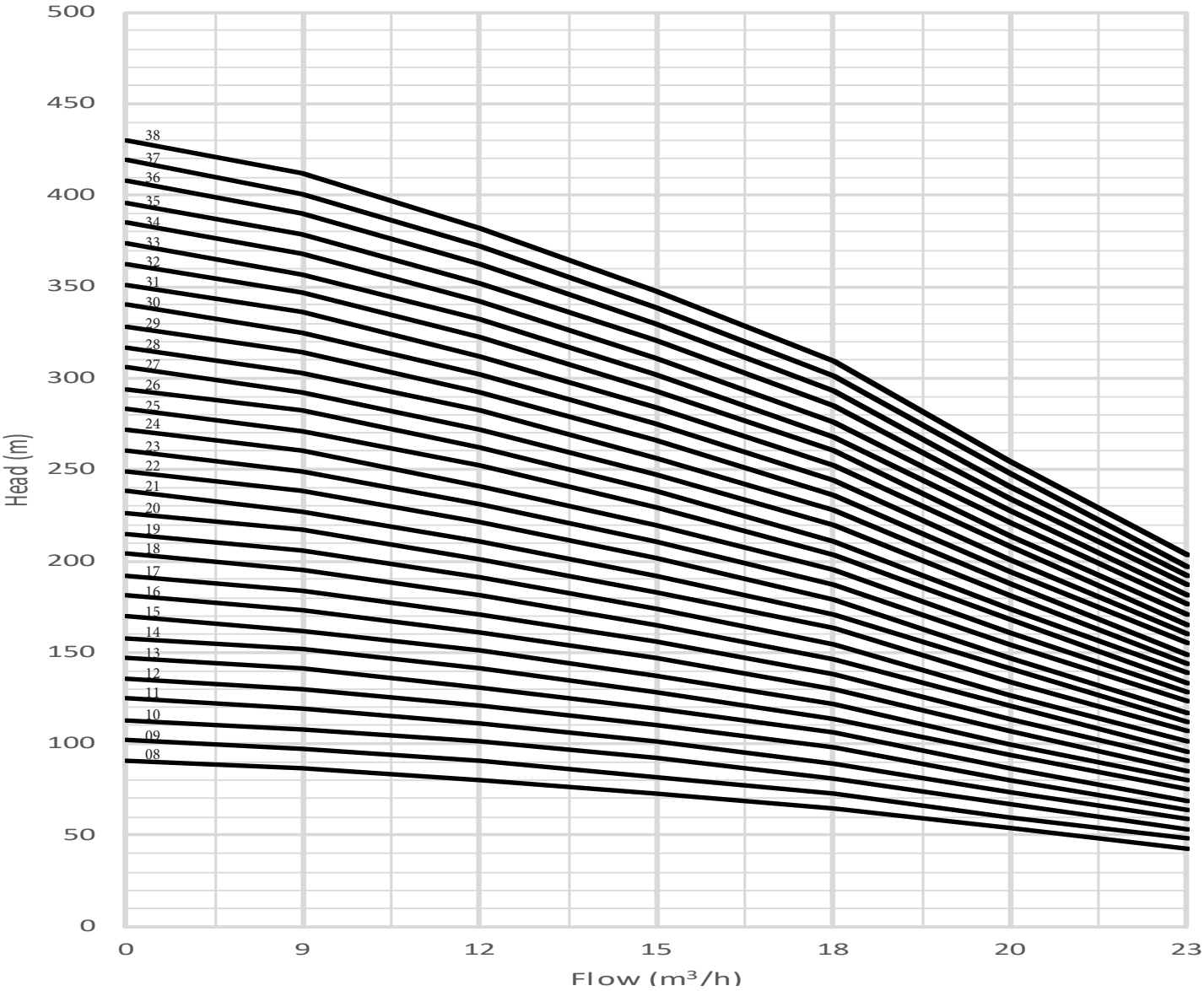
Suction, stage casing and discharge outlets:	stainless steel 304
Impellers:	stainless steel 304
Pump shaft:	SS AISI 431
Bearing bush:	anti friction rubber
Non return valve:	stainless steel 304
Cable guard and strainer:	stainless steel 304

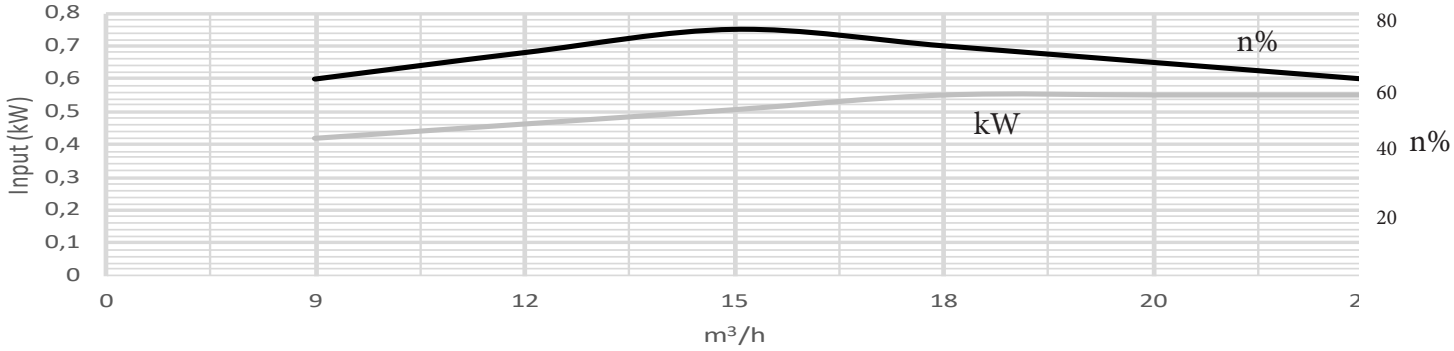
Pump motor couplings are as per NEMA standards.

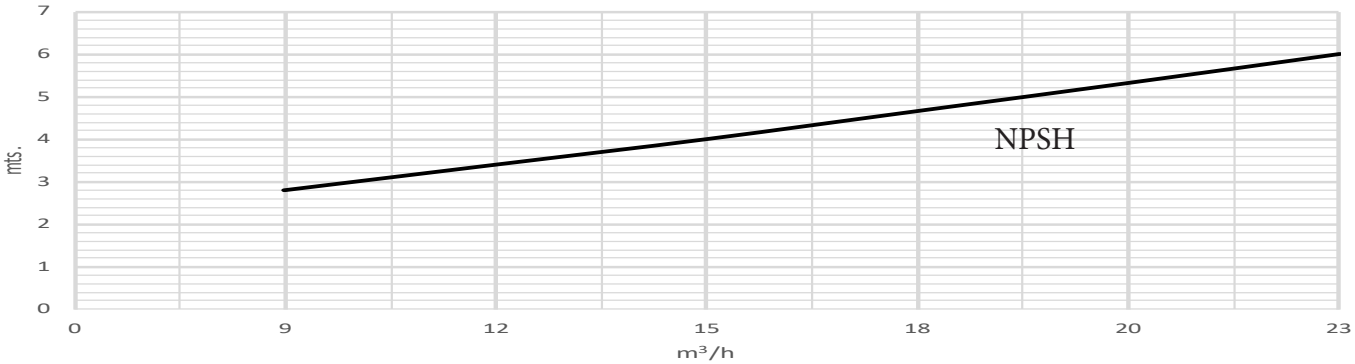
NO.	PART NAME	MATERIAL	STANDARD
1	Discharge Chamber	Stainless Steel	304
2	Valve	Stainless Steel	304
3	Top & First Bearing Bush	Stainless Steel + NBR	304
4	Spacing Washer	25CFT	
5	Intermediate Chamber Top	Stainless Steel	304
6	Neckring	NBR+PPS	
7	Bearing Bush	NBR	
8	Intermediate Chamber	Stainless Steel	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-18


Head (m)
500
450
400
350
300
250
200
150
100
50
0
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
09
08
0
9
12
15
18
20
23
Flow (m³/h)

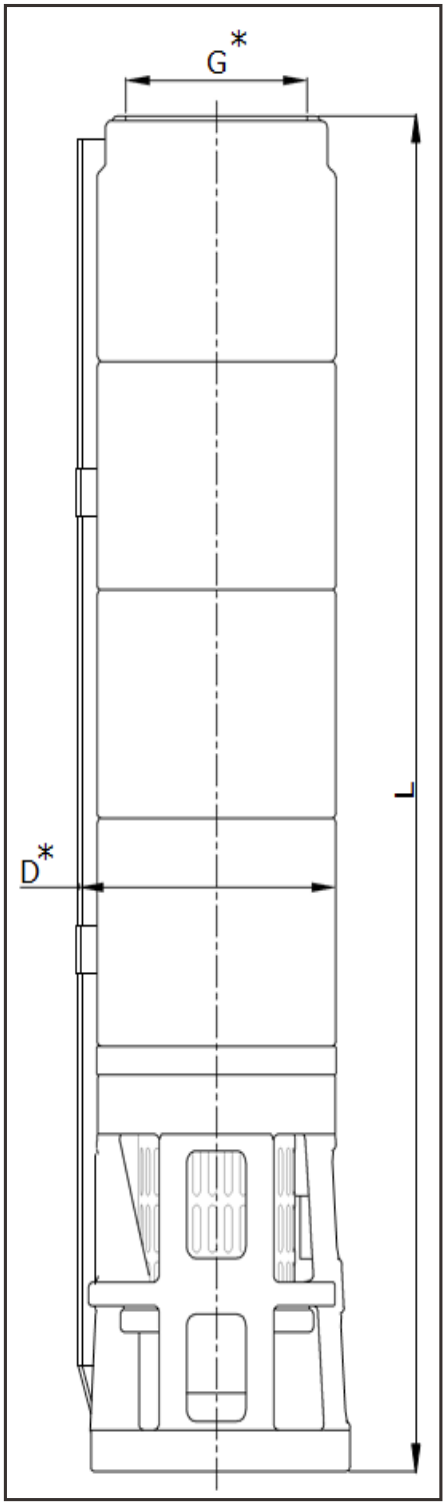

Input (kW)
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
n%
kW
80
60
40
20
n%
0
9
12
15
18
20
m³/h


mts.
7
6
5
4
3
2
1
0
NPSH
0
9
12
15
18
20
23
m³/h

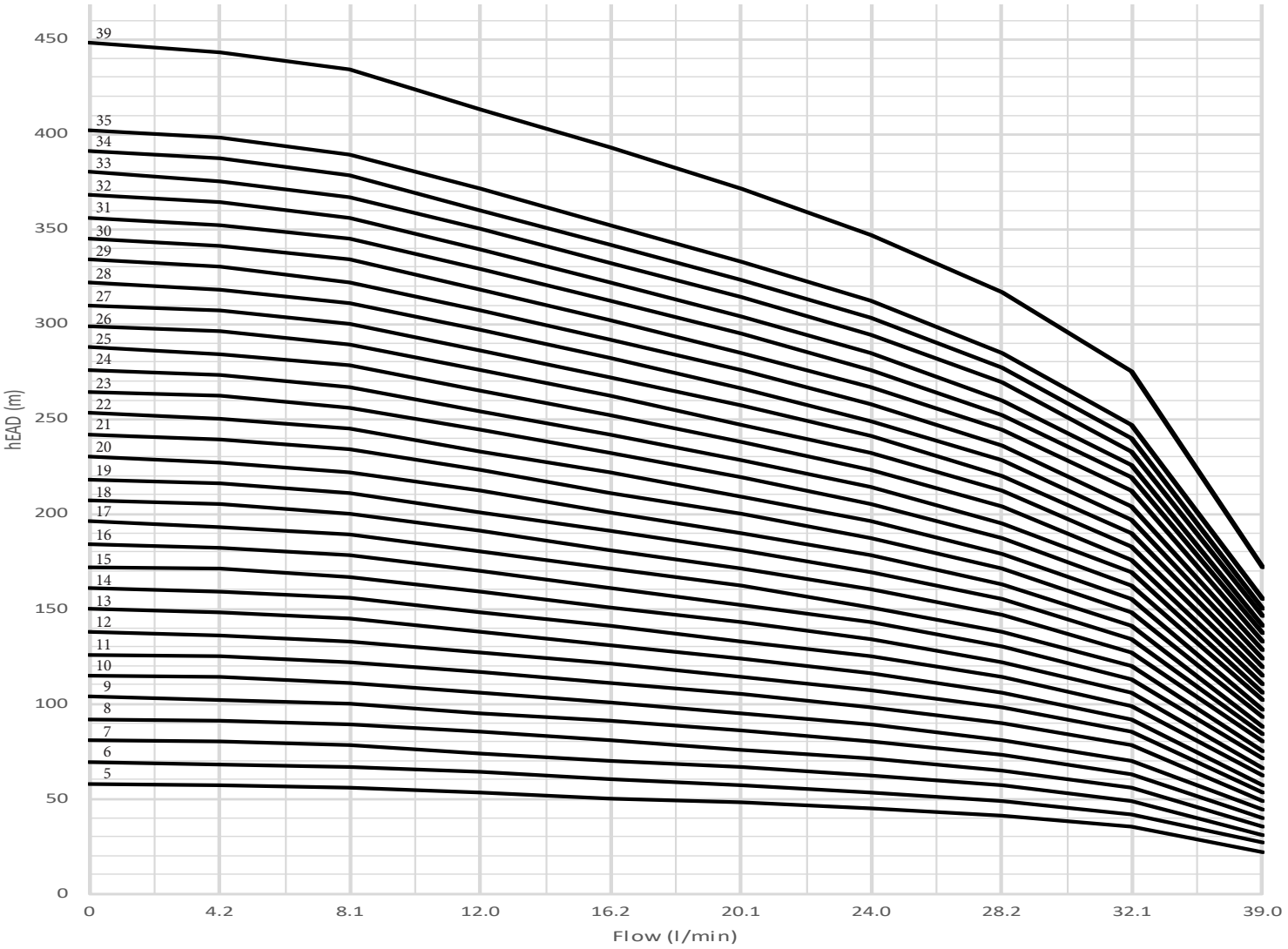
MODELNAME		RATING		DISCHARGE							
Three-Phase	Stage	kW	HP	l/min	0	150	200	250	300	333	383
				m^3/h	0	9	12	15	18	20	23
VP-18 A 08	8	5.5	7.5	Head (m)	91	87	80	73	65	54	43
VP-18 A 09	9	5.5	7.5		102	97	91	82	73	60	48
VP-18 A 10	10	5.5	7.5		113	108	101	92	81	67	53
VP-18 A 11	11	7.5	10		125	119	111	101	89	74	59
VP-18 A 12	12	7.5	10		136	130	121	110	98	80	64
VP-18 A 13	13	7.5	10		147	141	131	119	106	87	69
VP-18 A 14	14	9.3	12.30		158	152	141	128	114	94	75
VP-18 A 15	15	9.3	12.30		170	162	151	137	122	100	80
VP-18 A 16	16	9.3	12.30		181	173	161	147	130	107	85
VP-18 A 17	17	9.3	12.30		192	184	171	156	138	114	91
VP-18 A 18	18	11	15		204	195	181	165	146	121	96
VP-18 A 19	19	11	15		215	206	191	174	154	127	101
VP-18 A 20	20	11	15		226	217	201	183	163	134	107
VP-18 A 21	21	13	17.5		238	227	211	192	171	141	112
VP-18 A 22	22	13	17.5		249	238	221	202	179	147	117
VP-18 A 23	23	13	17.5		260	249	231	211	187	154	123
VP-18 A 24	24	13	17.5		272	260	241	220	195	161	128
VP-18 A 25	25	15	20		283	271	252	229	203	168	133
VP-18 A 26	26	15	20		294	282	262	238	211	174	139
VP-18 A 27	27	15	20		306	292	272	247	220	181	144
VP-18 A 28	28	18.5	25		317	303	282	256	228	188	149
VP-18 A 29	29	18.5	25		328	314	292	266	236	194	155
VP-18 A 30	30	18.5	25		340	325	302	275	244	201	160
VP-18 A 31	31	18.5	25		351	336	312	284	252	208	165
VP-18 A 32	32	18.5	25		362	347	322	293	260	214	171
VP-18 A 33	33	18.5	25		374	357	332	302	268	221	176
VP-18 A 34	34	22	30		385	368	342	311	276	228	181
VP-18 A 35	35	22	30		396	379	352	321	285	234	187
VP-18 A 36	36	22	30		408	390	362	330	293	241	192
VP-18 A 37	37	22	30		419	401	372	339	301	248	197
VP-18 A 38	38	22	30		430	412	382	348	309	255	203

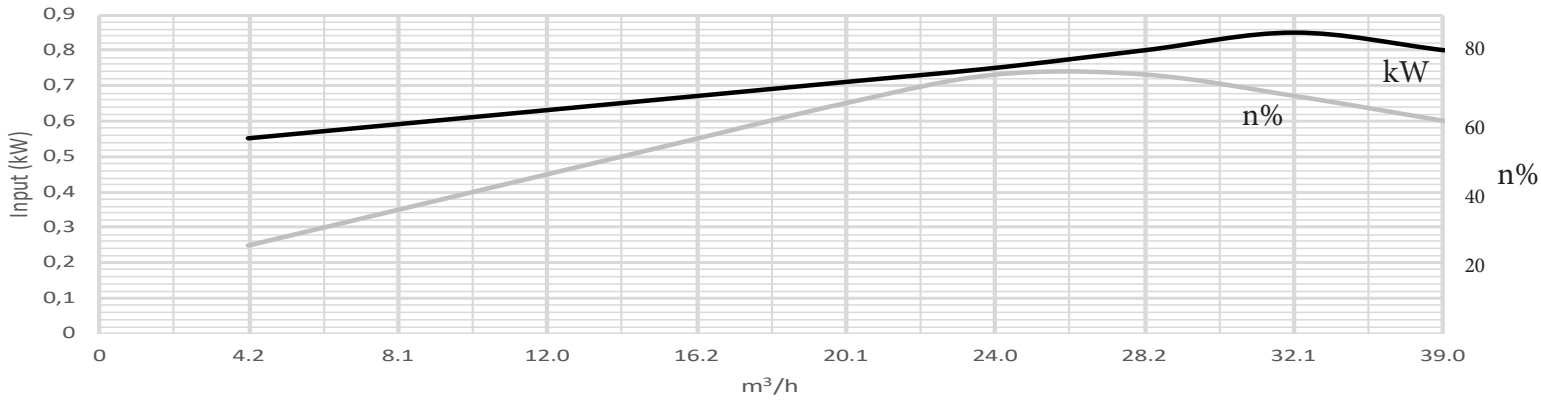
VP-18

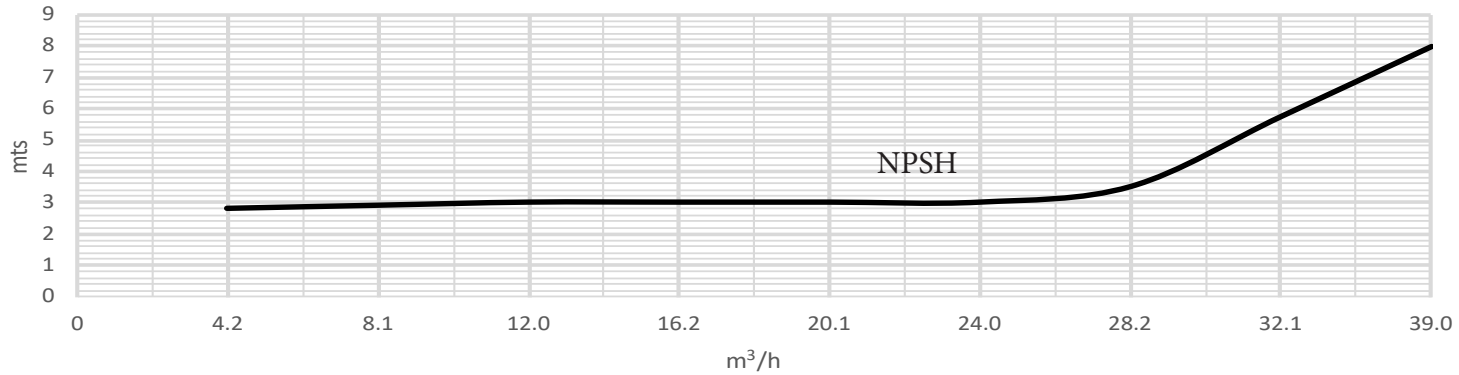
SPECIFICATIONS				
MODEL NAME	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP-18 A 08	140	755	17	19
VP-18 A 09	140	815	18	20
VP-18 A 10	140	876	19	22
VP-18 A 11	140	936	21	23
VP-18 A 12	140	997	22	24
VP-18 A 13	140	1057	23	25
VP-18 A 14	140	1118	24	27
VP-18 A 15	140	1178	26	28
VP-18 A 16	140	1239	27	29
VP-18 A 17	140	1299	28	30
VP-18 A 18	140	1360	29	32
VP-18 A 19	140	1420	31	33
VP-18 A 20	140	1481	32	34
VP-18 A 21	140	1541	33	35
VP-18 A 22	140	1602	34	37
VP-18 A 23	140	1662	36	38
VP-18 A 24	140	1723	37	39
VP-18 A 25	140	1783	38	40
VP-18 A 26	140	1844	39	42
VP-18 A 27	140	1904	41	43
VP-18 A 28	140	1965	42	44
VP-18 A 29	140	2025	43	45
VP-18 A 30	140	2086	44	47
VP-18 A 31	140	2146	46	48
VP-18 A 32	140	2207	47	49
VP-18 A 33	140	2267	48	50
VP-18 A 34	140	2328	49	52
VP-18 A 35	140	2388	51	53
VP-18 A 36	140	2449	52	54
VP-18 A 37	140	2509	53	55
VP-18 A 38	140	2570	54	57



VP-32


hEAD (m)
450
400
350
300
250
200
150
100
50
0
39
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
0
4.2
8.1
12.0
16.2
20.1
24.0
28.2
32.1
39.0
Flow (l/min)


Input (kW)
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
kW
n%
80
60
40
20
n%
0
4.2
8.1
12.0
16.2
20.1
24.0
28.2
32.1
39.0
m³/h

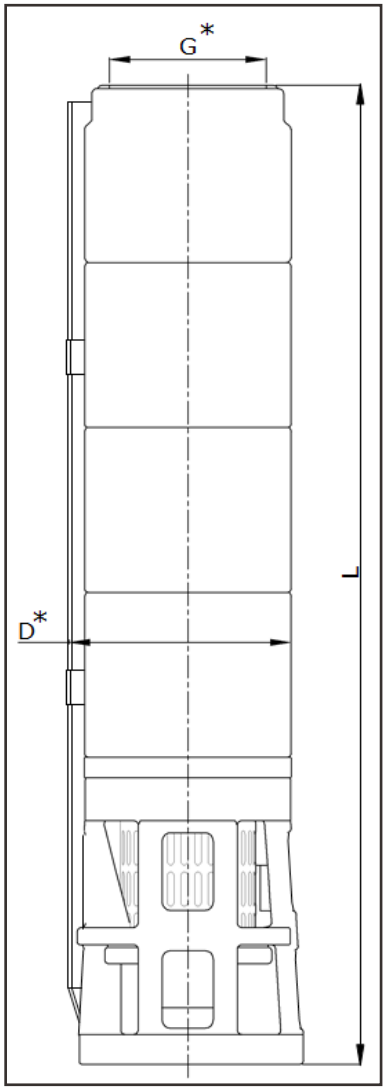

mts
9
8
7
6
5
4
3
2
1
0
NPSH
0
4.2
8.1
12.0
16.2
20.1
24.0
28.2
32.1
39.0
m³/h

VP-32

MODELNAME		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
VP32A-05	5	5.50	7.50		58	57	56	53	50	48	45	41	35	22
VP32A-06	6	5.50	7.50		69	68	67	64	60	57	53	49	42	27
VP32A-07	7	7.50	10.00		80.5	80	78	74	70	67	62	57	49	31
VP32A-08	8	7.50	10.00		92	91	89	85	81	76	71	65	56	35
VP32A-09	9	9.20	12.30		104	102	100	95	91	86	80	73	63	40
VP32A-10	10	9.20	12.30		115	114	111	106	101	95	89	81	70	44
VP32A-11	11	9.20	12.30		126	125	122	117	111	105	98	90	78	49
VP32A-12	12	11.00	15.00		138	136	133	127	121	114	107	98	85	53
VP32A-13	13	11.00	15.00		150	148	145	138	131	124	116	106	92	57
VP32A-14	14	13.00	17.50		161	159	156	148	141	133	125	114	99	62
VP32A-15	15	13.00	17.50		172	171	167	159	151	143	134	122	106	66
VP32A-16	16	15.00	20.00		184	182	178	170	161	152	143	130	113	71
VP32A-17	17	15.00	20.00		196	193	189	180	171	162	151	138	120	75
VP32A-18	18	18.50	25.00		207	205	200	191	181	171	160	147	127	80
VP32A-19	19	18.50	25.00		218	216	211	201	191	181	169	155	134	84
VP32A-20	20	18.50	25.00	Head (m)	230	227	222	212	201	190	178	163	141	88
VP32A-21	21	18.50	25.00		242	239	234	223	211	200	187	171	148	93
VP32A-22	22	22.00	30.00		253	250	245	233	222	209	196	179	155	97
VP32A-23	23	22.00	30.00		264	262	256	244	232	219	205	187	162	102
VP32A-24	24	22.00	30.00		276	273	267	254	242	228	214	195	169	106
VP32A-25	25	22.00	30.00		288	284	278	265	252	238	223	204	176	110
VP32A-26	26	22.00	30.00		299	296	289	276	262	247	232	212	183	115
VP32A-27	27	26.00	35.00		310	307	300	286	272	257	241	220	190	119
VP32A-28	28	26.00	35.00		322	318	311	297	282	266	249	228	197	124
VP32A-29	29	26.00	35.00		334	330	322	307	292	276	258	236	204	128
VP32A-30	30	26.00	35.00		345	341	334	318	302	285	267	244	212	133
VP32A-31	31	26.00	35.00		356	352	345	329	312	295	276	252	219	137
VP32A-32	32	30.00	40.00		368	364	356	339	322	304	285	260	226	141
VP32A-33	33	30.00	40.00		380	375	367	350	332	314	294	269	233	146
VP32A-34	34	30.00	40.00		391	387	378	360	342	323	303	277	240	150
VP32A-35	35	30.00	40.00		402	398	389	371	352	333	312	285	247	155
VP32A-39	39	37.00	50.00		448	443	434	413	393	371	347	317	275	172

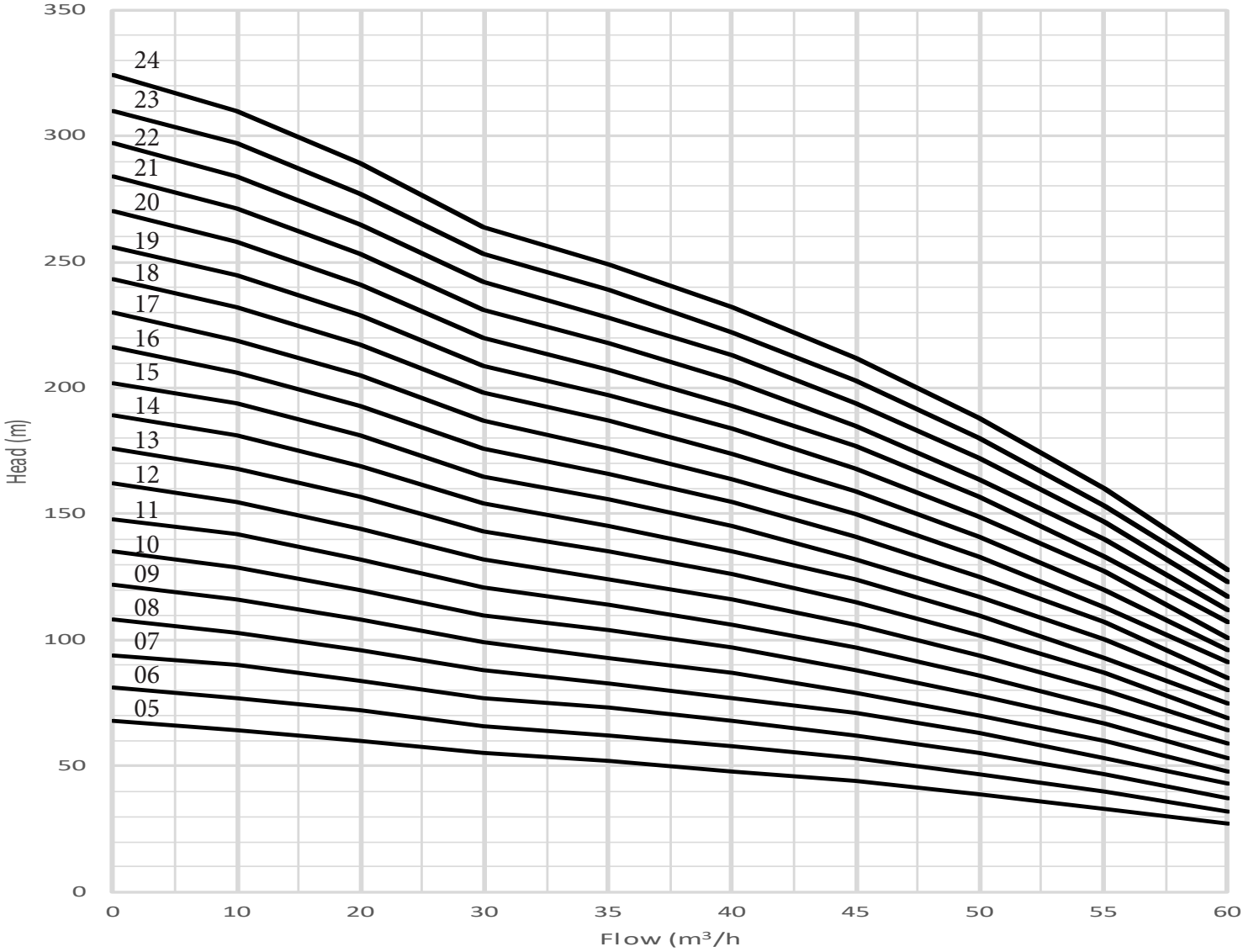
VP-32

SPECIFICATIONS				
MODEL NAME	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP32A-05	142	763	17	22
VP32A-06	142	859	19	24
VP32A-07	1042	955	21	26
VP32A-08	142	1051	23	28
VP32A-09	142	1147	25	30
VP32A-10	142	1243	27	32
VP32A-11	142	1339	29	34
VP32A-12	142	1435	31	36
VP32A-13	142	1531	33	38
VP32A-14	142	1627	35	40
VP32A-15	142	1723	37	47
VP32A-16	142	1819	39	48
VP32A-17	142	1915	41	51
VP32A-18	142	2011	43	53
VP32A-19	142	2107	45	55
VP32A-20	142	2203	47	57
VP32A-21	142	2299	49	59
VP32A-22	142	2395	51	63
VP32A-23	142	2491	53	65
VP32A-24	142	2587	55	67
VP32A-25	142	2683	57	69
VP32A-26	142	2779	59	71
VP32A-27	142	2875	61	73
VP32A-28	142	2971	63	75
VP32A-29	142	3067	65	76
VP32A-30	142	3163	67	79
VP32A-31	142	3259	69	81
VP32A-32	142	3355	71	83
VP32A-33	142	3451	73	85
VP32A-34	142	3547	75	87
VP32A-35	142	3643	77	89
VP32A-39	142	4027	85	97



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

VP-48


Head (m)
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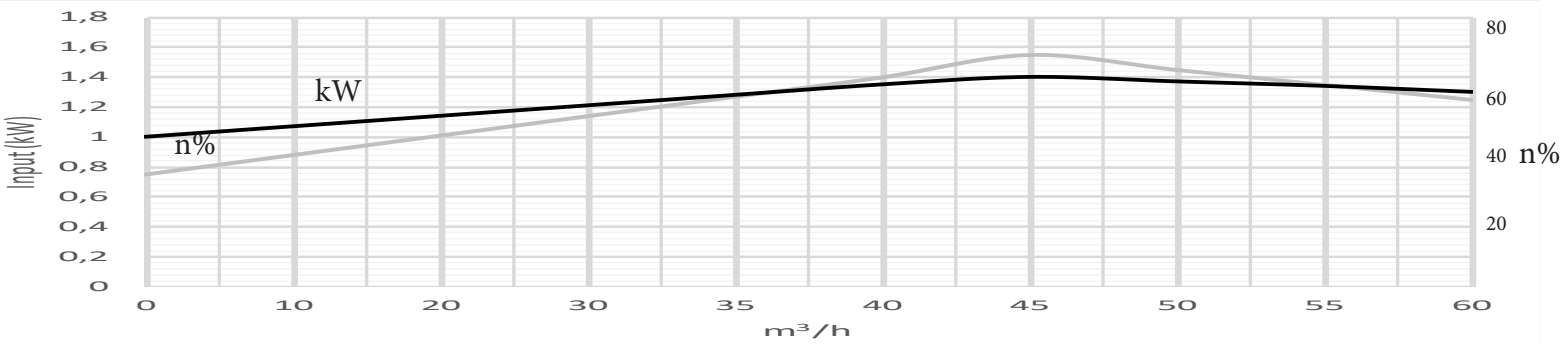
300
250
200
150
100
50
0
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
09
08
07
06
05
0
10
20
30
35
40
45
50
55
60
Flow (m³/h


Input (kW)
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1,4
1,2
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0,8
0,6
0,4
0,2
0
kW
n%
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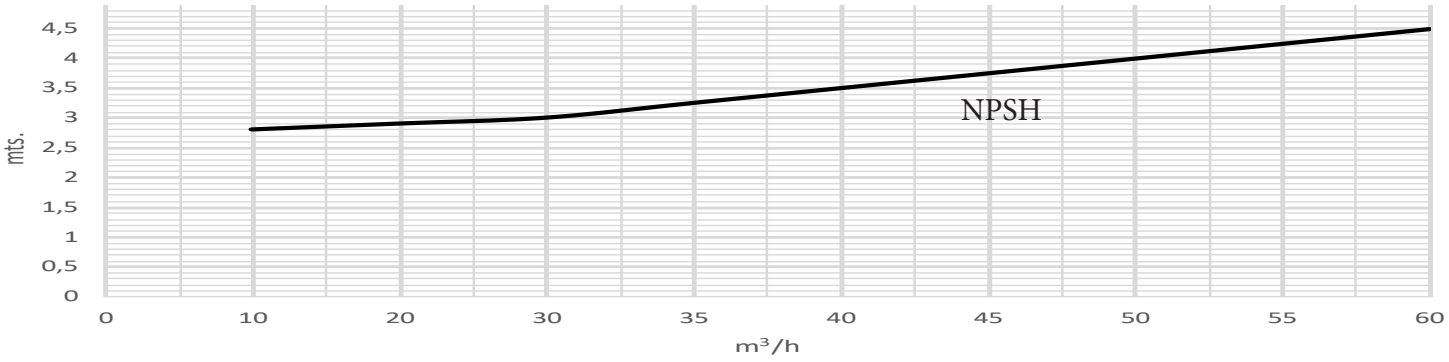
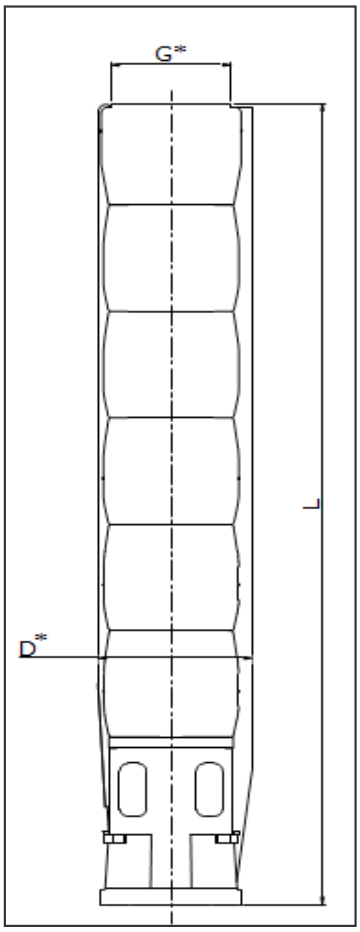
60
40
20
n%
0
10
20
30
35
40
45
50
55
60
m³/h

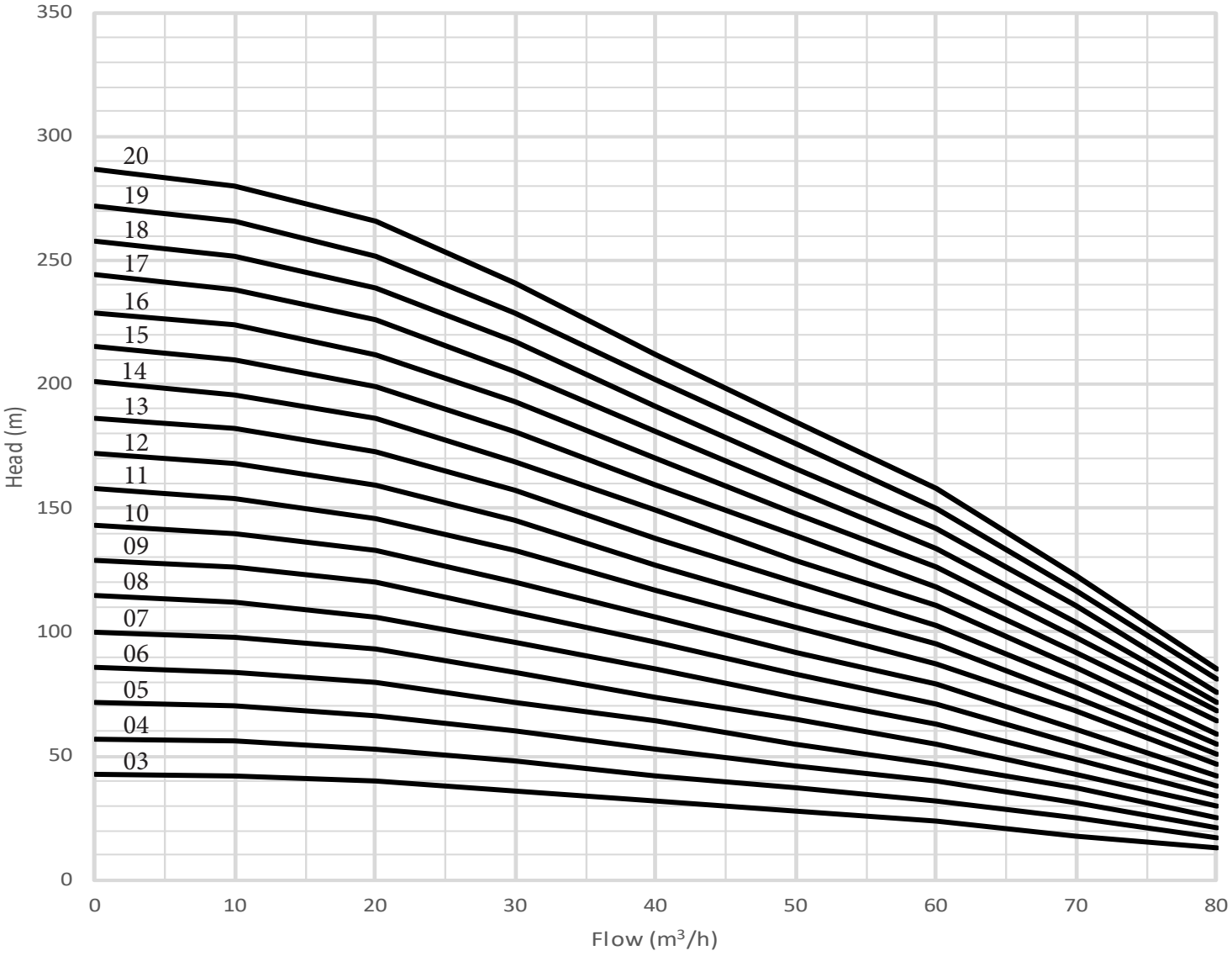

mts.
4,5
4
3,5
3
2,5
2
1,5
1
0,5
0
NPSH
0
10
20
30
35
40
45
50
55
60
m³/h

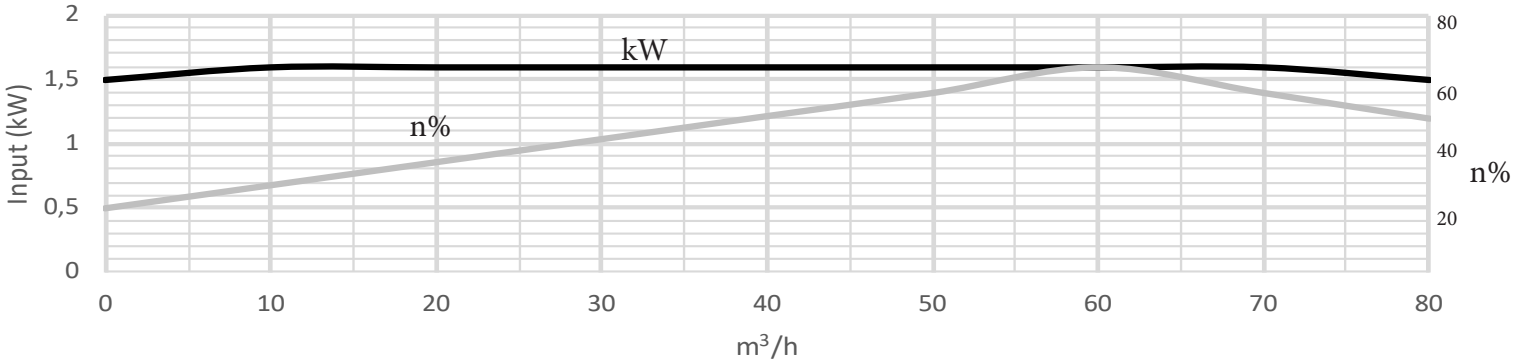
VP-48

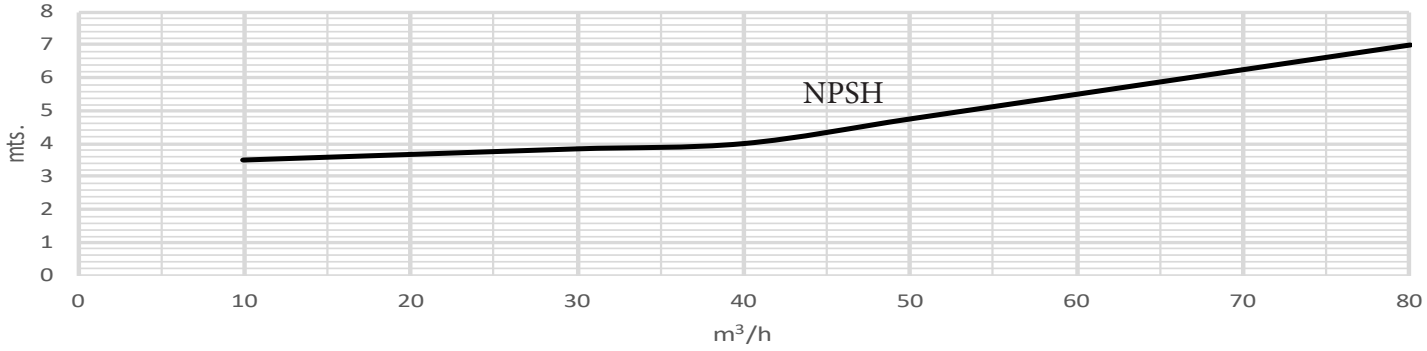
MODEL NAME		RATING		DISCHARGE									
Three-Phase	Stage	kW	HP	l/min	0	167	335	500	585	670	750	835	917	1000
				m^3/h	0	10.0	20.1	30.0	35.1	40.2	45.0	50.1	55.0	60.0
VP48A-05	5	7.50	10.00	Head (m)	68	64	60	55	52	48	44	39	33	27
VP48A-06	6	9.20	12.30		81	77	72	66	62	58	53	47	40	32
VP48A-07	7	11.00	15.00		94	90	84	77	73	68	62	55	47	37
VP48A-08	8	13.00	17.50		108	103	96	88	83	77	71	63	53	43
VP48A-09	9	15.00	17.50		122	116	108	99	93	87	79	70	60	48
VP48A-10	10	15.00	17.50		135	129	120	110	104	97	88	78	67	53
VP48A-11	11	18.50	25.00		148	142	132	121	114	106	97	86	73	59
VP48A-12	12	18.50	25.00		162	155	144	132	124	116	106	94	80	64
VP48A-13	13	22.00	30.00		176	168	157	143	135	126	115	102	87	69
VP48A-14	14	22.00	30.00		189	181	169	154	145	135	124	110	93	75
VP48A-15	15	22.00	30.00		202	194	181	165	156	145	132	117	100	80
VP48A-16	16	26.00	35.00		216	206	193	176	166	155	141	125	107	85
VP48A-17	17	26.00	35.00		230	219	205	187	176	164	150	133	113	91
VP48A-18	18	30.00	40.00		243	232	217	198	187	174	159	141	120	96
VP48A-19	19	30.00	40.00		256	245	229	209	197	184	168	149	127	101
VP48A-20	20	30.00	40.00		270	258	241	220	207	193	177	157	133	107
VP48A-21	21	37.00	50.00		284	271	253	231	218	203	185	164	140	112
VP48A-22	22	37.00	50.00		297	284	265	242	228	213	194	172	147	117
VP48A-23	23	37.00	50.00		310	297	277	253	239	222	203	180	153	123
VP48A-24	24	37.00	50.00		324	310	289	264	249	232	212	188	160	128

MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP48A-05	147	848	20	24
VP48A-06	147	961	18	23
VP48A-07	147	1074	20	25
VP48A-08	147	1187	22	28
VP48A-09	147	1300	24	29
VP48A-10	147	1413	26	34
VP48A-11	147	1526	28	36
VP48A-12	147	1639	32	42
VP48A-13	147	1752	34	44
VP48A-14	147	1865	36	46
VP48A-15	147	1987	38	48
VP48A-16	147	2091	40	50
VP48A-17	147	2204	42	52
VP48A-18	147	2317	44	54
VP48A-19	147	2430	46	56
VP48A-20	147	2543	48	58
VP48A-21	147	2656	55	60
VP48A-22	147	2769	57	62
VP48A-23	147	2882	60	65
VP48A-24	147	2995	62	67




Head (m)
350
300
250
200
150
100
50
0
20
19
18
17
16
15
14
13
12
11
10
09
08
07
06
05
04
03
0
10
20
30
40
50
60
70
80
Flow (m³/h)

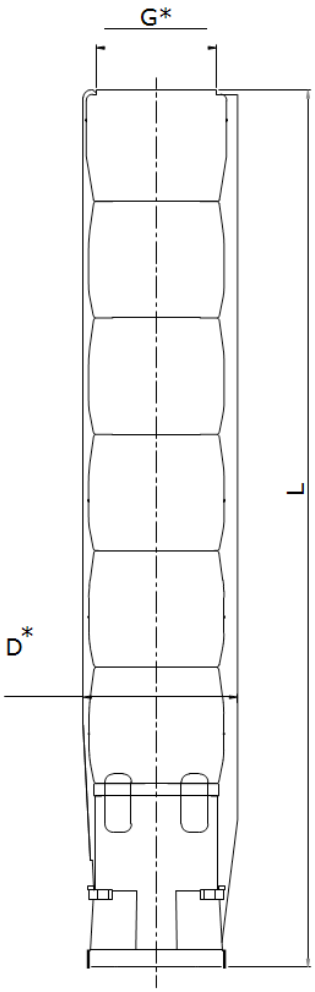

Input (kW)
2
1,5
1
0,5
0
kW
n%
80
60
40
20
n%
0
10
20
30
40
50
60
70
80
m³/h


mts.
8
7
6
5
4
3
2
1
0
NPSH
0
10
20
30
40
50
60
70
80
m³/h

VP-62

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
VP62A-03	3	5.50	7.50	Head (m)	43	42	40	36	32	28	24	18	13
VP62A-04	4	7.50	10.00		57	56	53	48	42	37	32	25	17
VP62A-05	5	9.20	12.50		72	70	66	60	53	46	40	31	21
VP62A-06	6	11.00	15.00		86	84	80	72	64	55	47	37	25
VP62A-07	7	13.00	17.50		100	98	93	84	74	65	55	43	30
VP62A-08	8	15.00	20.00		115	112	106	96	85	74	63	49	34
VP62A-09	9	18.50	25.00		129	126	120	108	96	83	71	55	38
VP62A-10	10	18.50	25.00		143	140	133	120	106	92	79	61	42
VP62A-11	11	22.00	30.00		158	154	146	133	117	102	87	68	47
VP62A-12	12	22.00	30.00		172	168	159	145	127	111	95	74	51
VP62A-13	13	26.00	35.00		186	182	173	157	138	120	103	80	55
VP62A-14	14	26.00	35.00		201	196	186	169	149	129	111	86	59
VP62A-15	15	26.00	35.00		215	210	199	181	159	139	118	92	64
VP62A-16	16	30.00	40.00		229	224	212	193	170	148	126	98	68
VP62A-17	17	30.00	40.00		244	238	226	205	181	157	134	104	72
VP62A-18	18	37.00	50.00		258	252	239	217	191	166	142	111	76
VP62A-19	19	37.00	50.00		272	266	252	229	202	176	150	117	81
VP62A-20	20	37.00	50.00		287	280	266	241	212	185	158	123	85
VP62A-21	21	37.00	50.00		301	294	279	253	223	194	166	129	89

MODEL NAME	SPECIFICATIONS			
	D (mm)	L (mm)	Pump Weight (kg)	Total Weight [incl packaging] (kg)
VP62A-03	147	622	16	14
VP62A-04	147	735	18	21
VP62A-05	147	848	20	24
VP62A-06	147	961	22	23
VP62A-07	147	1074	23	25
VP62A-08	147	1187	24	28
VP62A-09	147	1300	25	29
VP62A-10	147	1413	26	34
VP62A-11	147	1526	28	36
VP62A-12	147	1639	32	42
VP62A-13	147	1752	34	44
VP62A-14	147	1865	36	46
VP62A-15	147	1978	38	48
VP62A-16	147	2091	40	50
VP62A-17	147	2204	42	52
VP62A-18	147	2317	44	54
VP62A-19	147	2430	46	56
VP62A-20	147	2543	48	58
VP62A-21	147	2656	50	60



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

6” BOREHOLE MOTOR OIL FILLED

MOTOR RANGE

Three phase 5.5 to 30kW (7.5~ 40HP) 380V ~415V

APPLICATIONS

This motor is designed for reliable operation in wells, dams, canals, rivers and boreholes (with a minimum diameter of 6 inches).

BASIC FEATURES

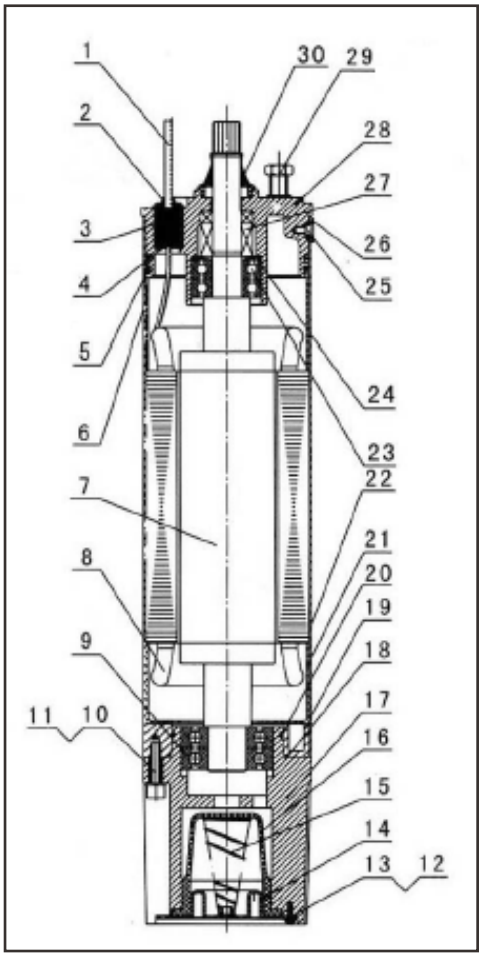
IEC34-1 standard squirrel motor - hermetically sealed
All stainless steel support and double flange design

Thrust load:	2500N
Degree of protection:	IP68
Maximum ambient temperature:	40oC
Water pH range:	6.5 - 8.0
Maximum submerged depth:	250m
Insulation:	Class F
Mounting:	Vertical/horizontal
Minimum cooling flow along the motor:	8cm/s
Maximum starts per hour:	10-30 (dependent on motor size)

Flat, waterproof lead out cable with separate earth wire.

Designed for **vertical and horizontal installation**.

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	12.3	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 380 & 525V

MOTOR TECHNICAL DATA

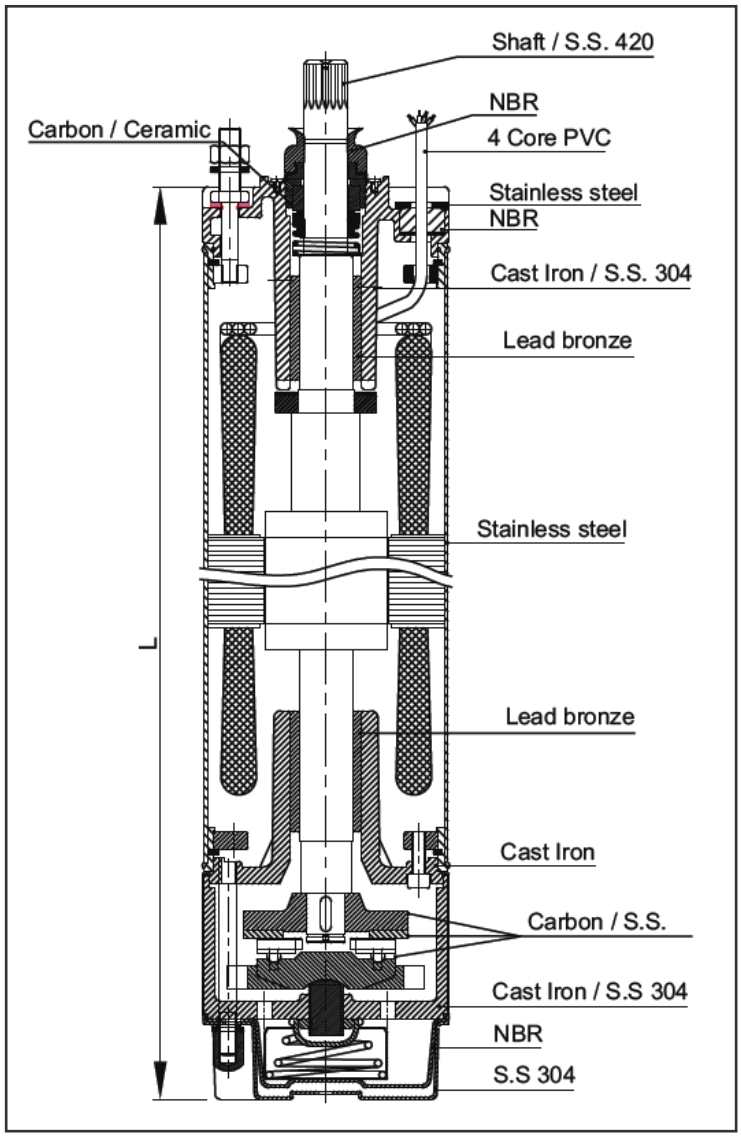
Winding wire:	Polywrapped winding
Degree of protection:	IP68
Maximum water temperature:	35 °C
Maximum starts per hour:	10 - 30 depending on kW size
Allowable voltage variation:	+6% - 10%
Motor shaft:	Stainless steel
Stator shell:	Stainless steel
Maximum immersion depth:	Unlimited
Mounting:	Vertical
Motor cable length:	3m^3 Core with separate earthcable
Cooling flow:	V=0.2 m/s
Coolant:	Clear water

Stator replaceable

MOTOR TECHNICAL DATA

Three phase 5.5kW - 37.5kW

TECHNICAL DATA



MOTOR SPECIFICATIONS

MOTOR POWER		PW L	WEIGHT (MOTOR ONLY)		WEIGHT (INCL PACKAGING)	
(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
9.2	12.3	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 OF 6" THREE PHASE SUBMERSIBLE MOTOR / 50HZ - 380V

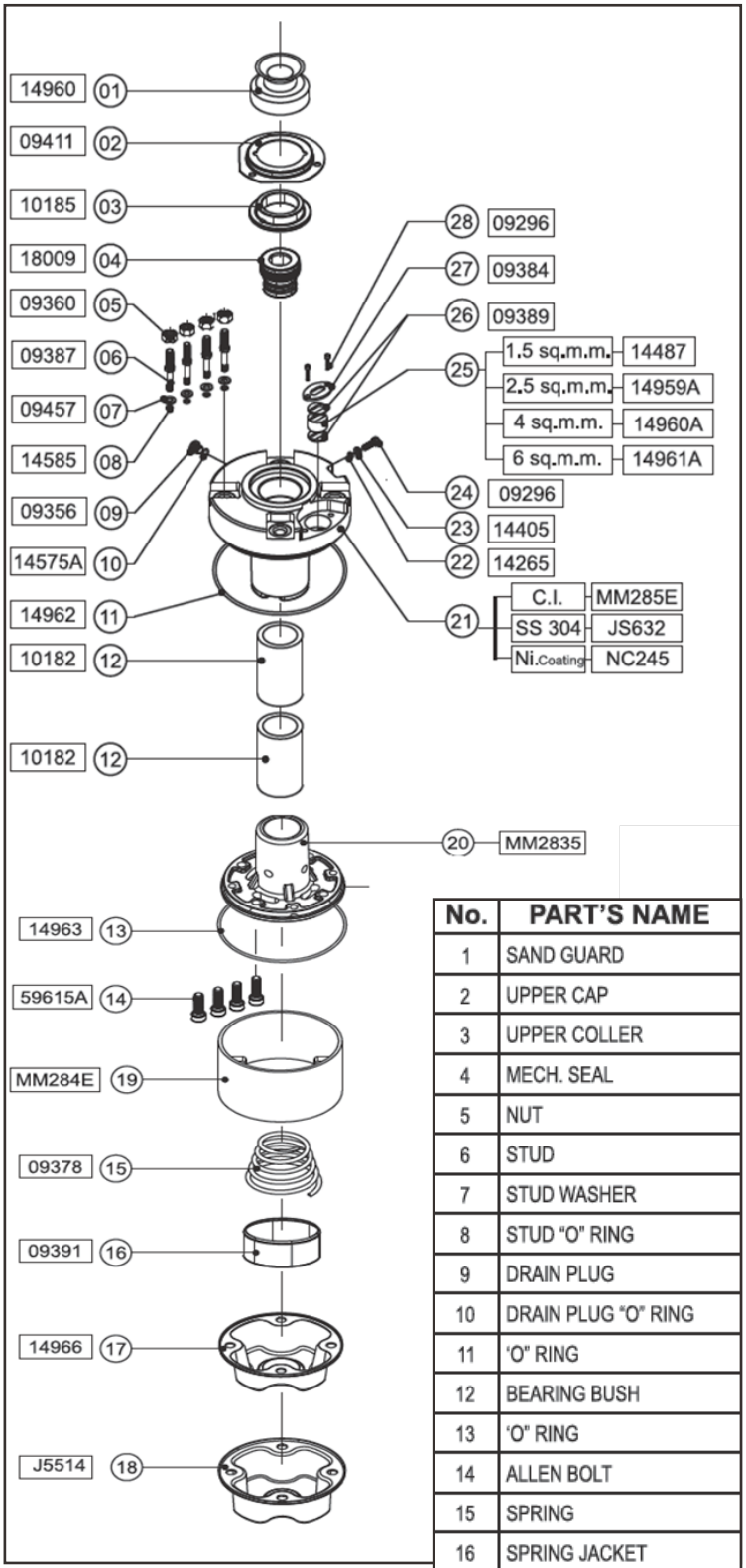
P_N		THRUST LOAD	U_N	n_N	I_N	I_A	η (%)			COSφ			T_N	T_A
(kW)	(HP)	F(N)	(V)	(min-1)	(A)	(A)	50	75	100	50	75	100	(Nm)	(Nm)
5.5	7.5	15500	380	2860	13.7	48	74	76	75	0.67	0.78	0.83	18.3	15.5
7.5	10	15500	380	2860	18.3	59	77	78	76	0.70	0.80	0.84	25	19.2
9.2	12.5	15500	380	2850	22	74	79	80	78	0.71	0.80	0.84	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	η	-	Motor Efficiency
U_N	-	Rated Voltage	cosφ	-	Power Factor
n_N	-	RPM	T_N	-	Full Load Torque
I_N	-	Full Load Current	T_A	-	Starting Torque
I_A	-	Starting Current	$F_{[N[}$	-	Axial Thrust Load

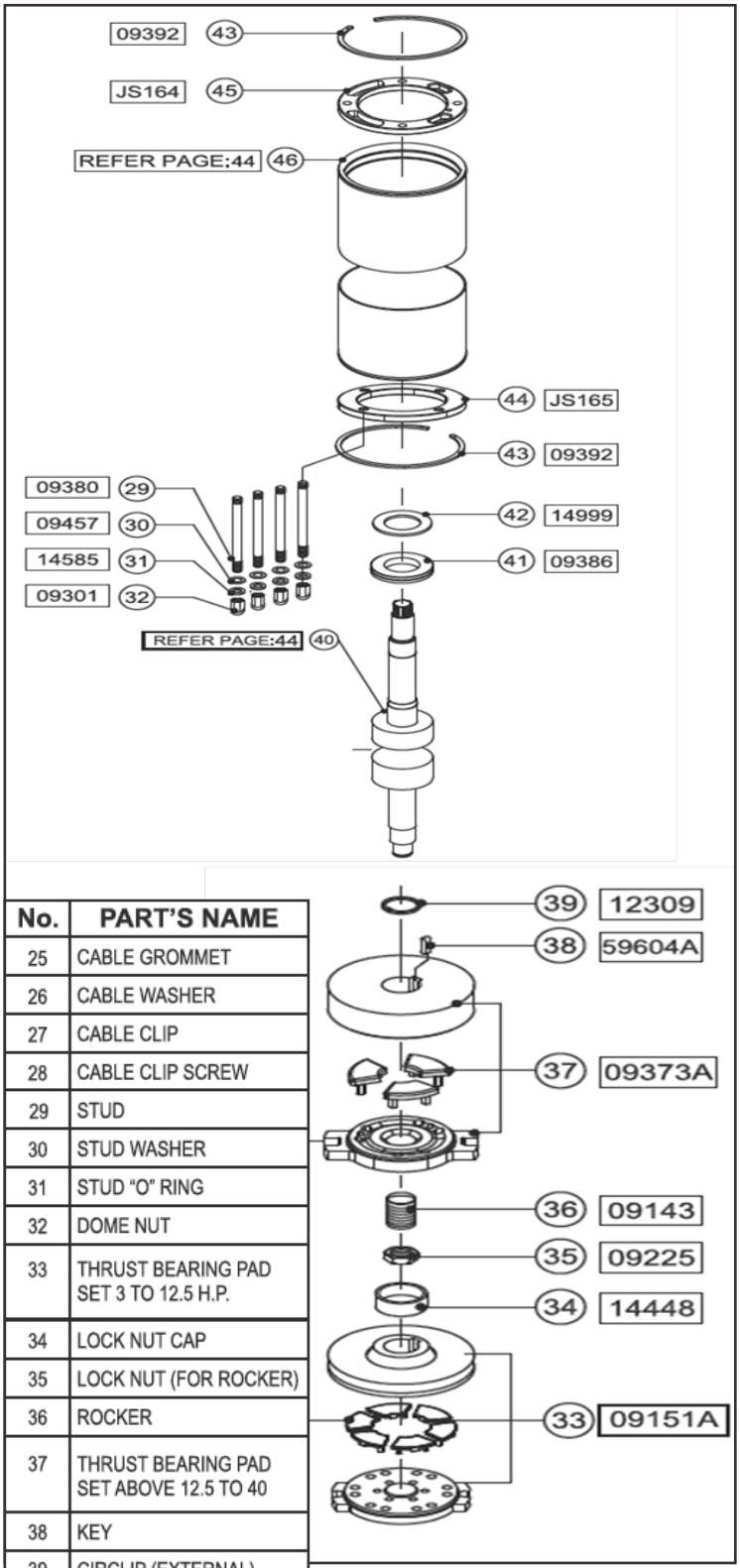
PERFORMANCE DATA OF 6" THREE PHASE SUBMERSIBLE MOTOR / 50HZ - 525V

kW	HP	AMPS			Hz	RPM			COS O			CONN.	THRUST LOAD	WIND	COOLING FLOW M/SEC	MAX WATER TEMP.	CLASS
		480	500	525		480	500	525	480	500	525						
22	30	36.4	35.6	35.6	50	2878	2878	2880	0.82	0.8	0.80	DELTA (1)	15500	PW	0.85	35	B
30	40	42.8	42	42	50	2880	2882	2885	0.85	0.85	0.84	DELTA (1)	27500	PW	0.5	35	B
37	50	54	53.2	53.2	50	2880	2882	2885	0.85	0.85	0.84	DELTA (1)	27500	PW	0.5	35	B

TECHNICAL DATA



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 CONTROLLER
DY-T03 Series

PUMP CONTROLLER
DY-T03 Series

GENERAL DESCRIPTION

This three phase control panel is rated for use from 5.5 to 30kW, 380V. It will control and protect pump motors in the following capacity:

Basic control functions include:
1. Over current and under voltage protection
2. Unit can detect liquid levels at source and in delivery tank/reservoir and react according to parameters.
3. Power will be switched off in the event of power failure or loss of phase.

TECHNICAL INFORMATION

Input Voltage	380VAC, -5% to +10%, 50Hz
Output Power	5.5-30kW
Water Probe Voltage	24 VAC
Operating Temperature	-5°C to +40°C
Dimensions	300 x 400 x 240mm
Level switching	Dual level switch capability
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 the over current protection CCT will signal the power contactor to disengage and stop power supply 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.

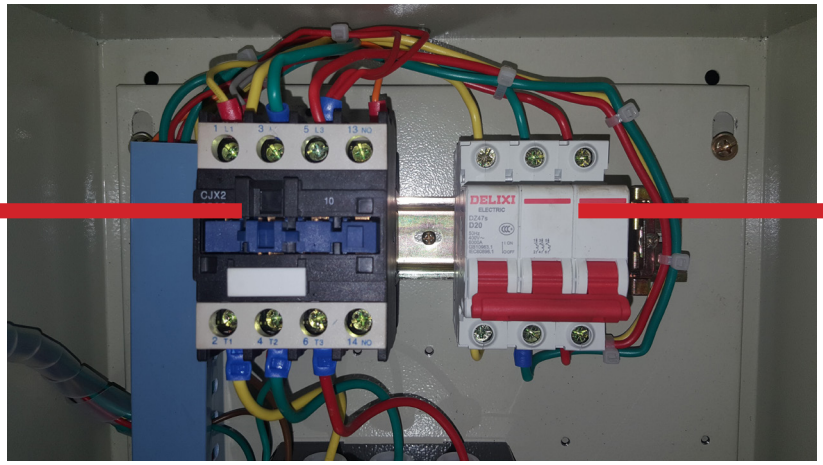
OPERATION

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.

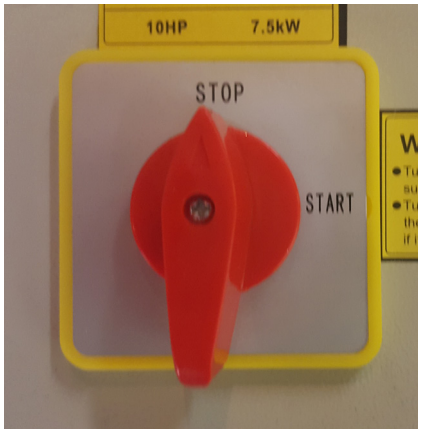
CONTACTOR

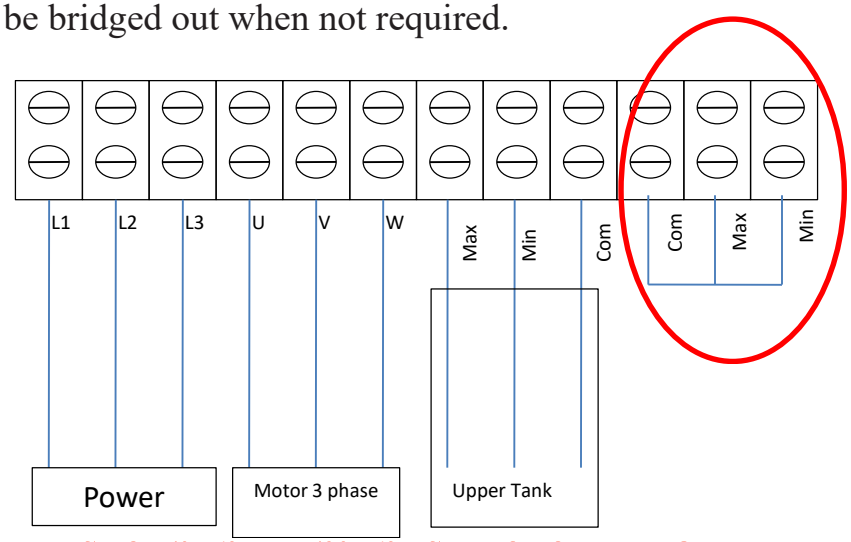


ISOLATOR

STOP / START SWITCH

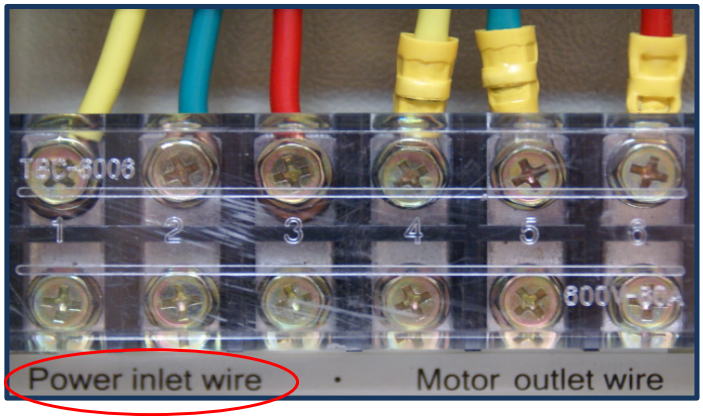
When in the off position power is cut to motor.
When in the start position, power is supply and motor protection aswell as dual level control is active. Dual level function to be bridged out when not required.





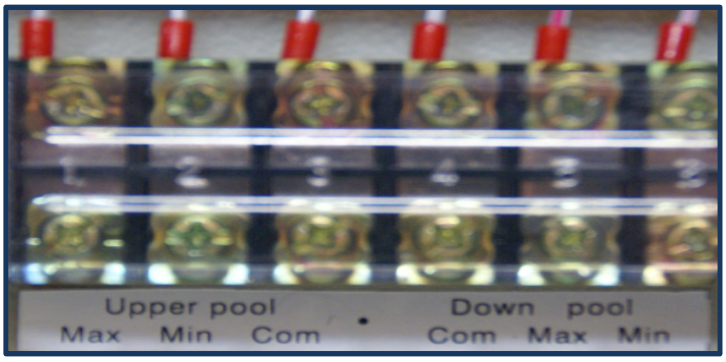
INSTALLATION

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.

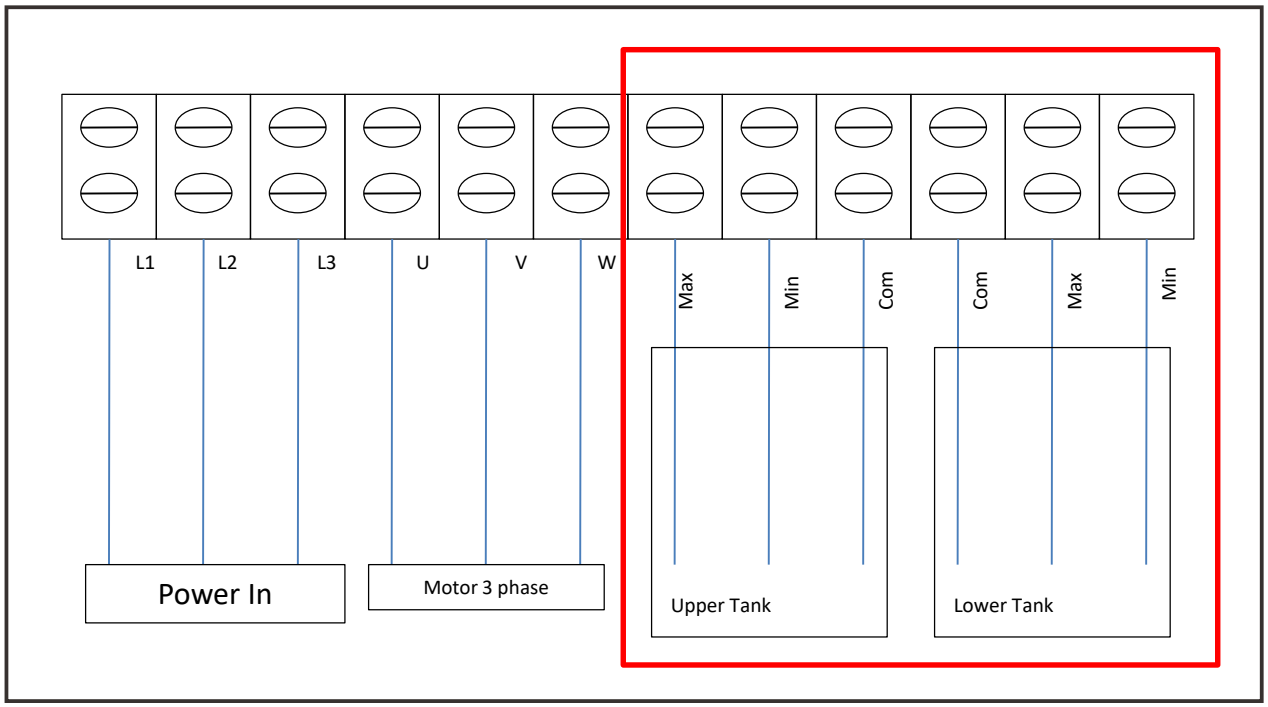


3. Connect the appropriate float level or electrode cables to the water reservoir/tank points as indicated at the bottom of the unit.

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.

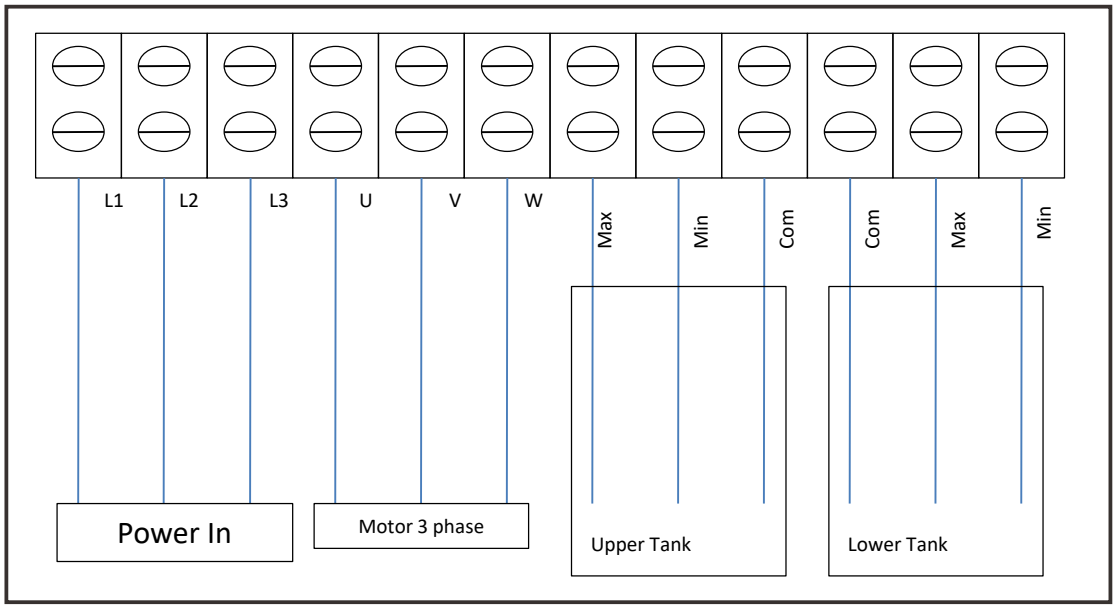


5. Note that the liquid level probes/ electrodes must be fixed to a pole or the side of the tank to the appropriate minimum and maximum positions.



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.

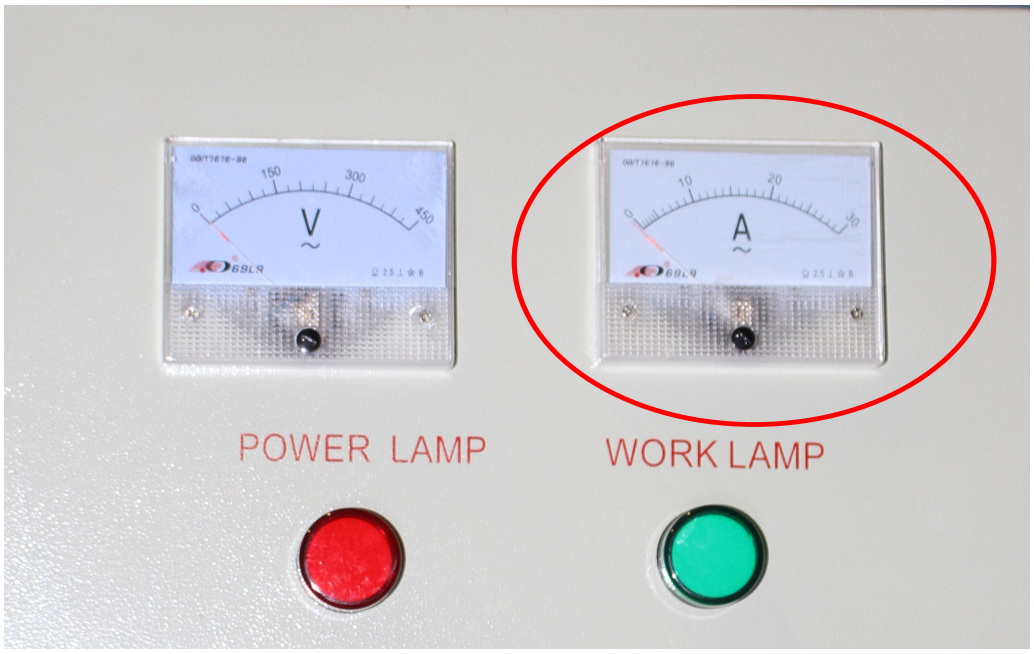
2. Adjust the "current setting screw" to the maximum on the electronic protector (BHQ-S-C) by turning it clockwise.

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

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

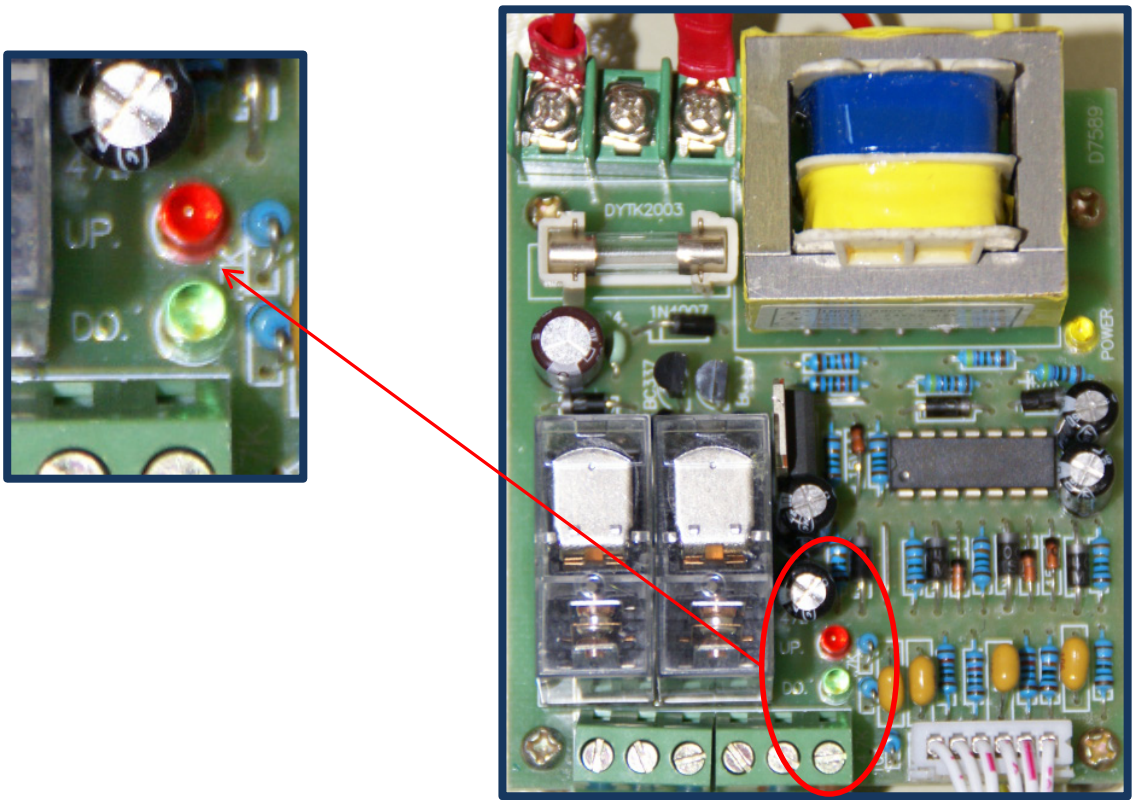
5. While the pump is running, the green LED "run" will be on. Slowly turn the "current setting screw" anti-clockwise until the red LED is on. Now turn the screw slowly clockwise so that the red LED goes off and does not flicker for at least 60 seconds. Lock your setting with the lock nut.

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.



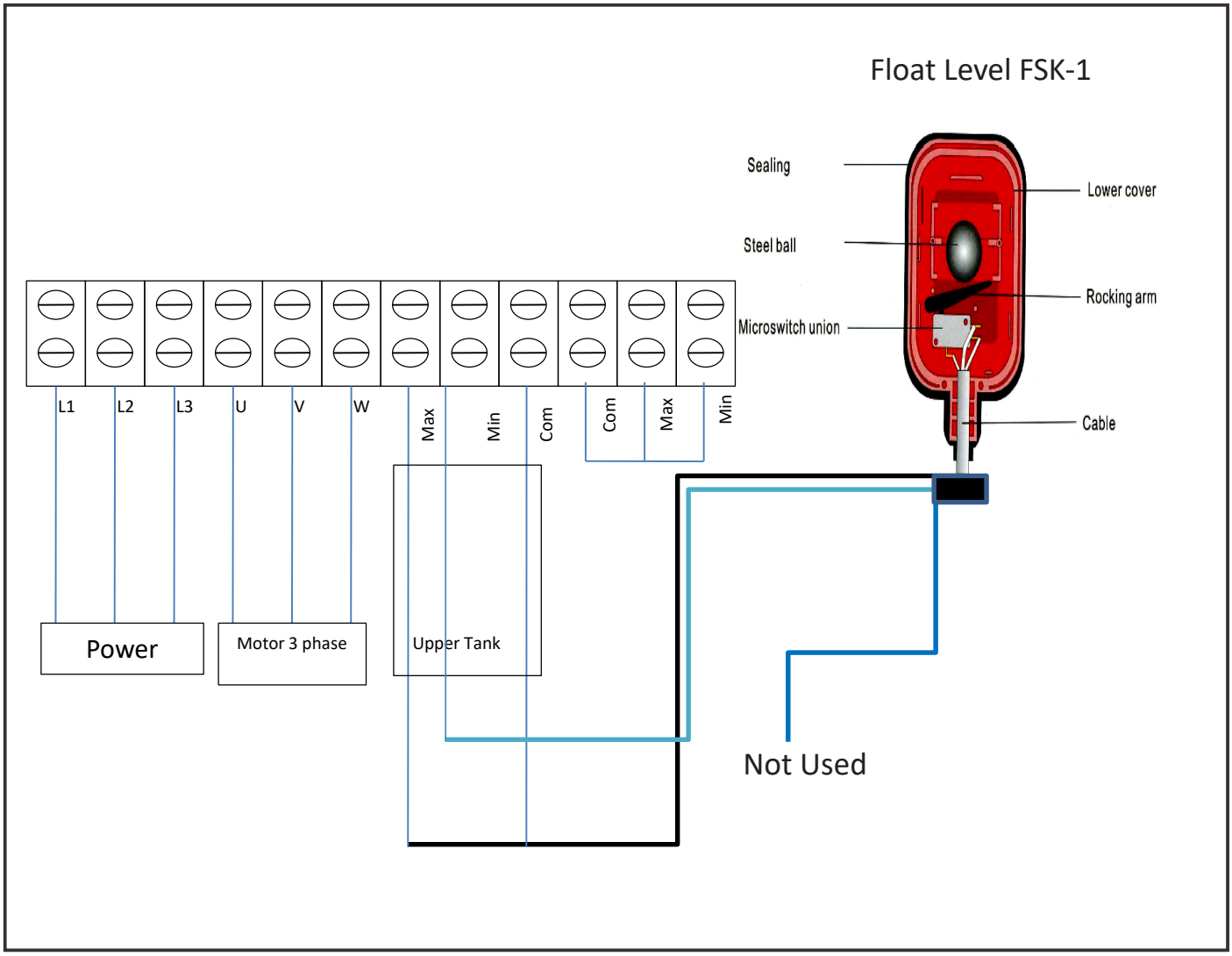
7 To test, switch the input power (at the 3 phase “outside supply”) off, and then back on again. The pump should run normally, indicating that the settings are correct.

8. Note that if the red and green LED’s on liquid level control PC Board is on, it means that both liquid monitoring functions are active and have reached level for ‘high / full’ sensing mode..



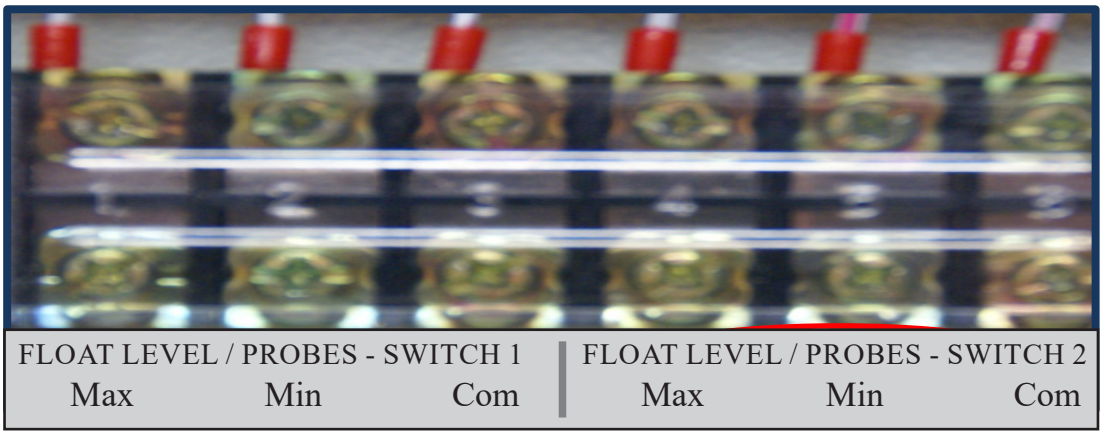
FLOAT LEVEL WIRING

Upper tank connection with float:

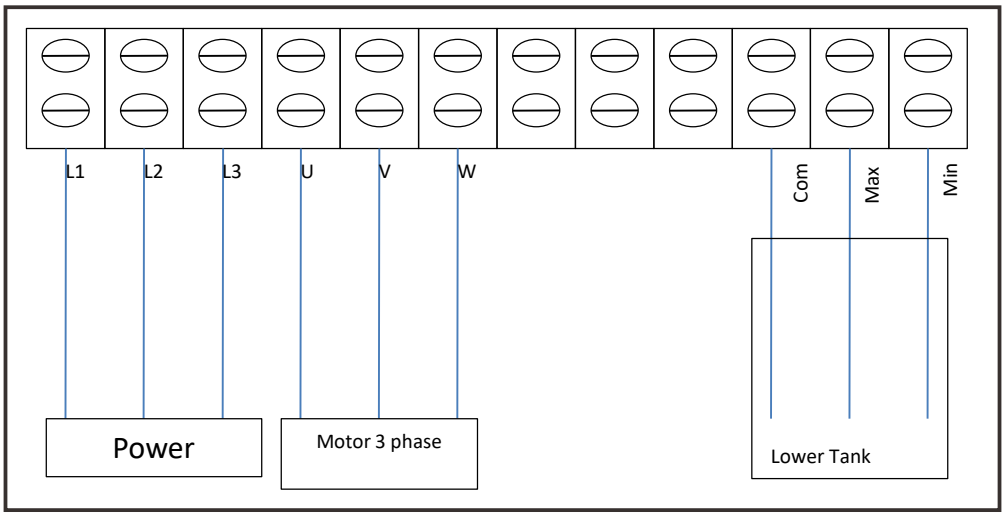


OPERATION DUAL LEVEL CONTROL

1. If the front panel is switched to “Start” then both level swithches / probes are active.



2. The “start” switch on the front panel will activate both automatic CCT’s for level switch 1 and 2 as per diagram below.



3. Should the water levels in both reservoirs stay as it is, with “switch 1” at its minimum level and “switch 2” 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. 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.
5. 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.

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