

Torpedo™ Sideslope Pump Systems



QED Torpedo™ electric submersible pumps are made of stainless steel and fitted with teflon seals and bearings to handle the rigors of contaminated groundwater pumping and continuous operation in landfill/remediation applications. Built to deliver optimum efficiency periods of high demand, all electric pumps provide low, long-term

operating costs and high operating reliability.

QED's Torpedo environmental submersibles meet government guidelines for environmental equipment and have been proven through extensive use in the field.

FEATURES

- **Made For 10" and Larger Wells**
Flow rates of 160 to 320 GPM (605.7 to 1211.3 LPM).
- **State-of-the-art Hydraulics**
Pump efficiency is maximized by constant improvement of the high performance hydraulic design, and precise manufacturing process.
- **Manufactured With High-grade Stainless Steel**
Rugged stainless steel construction inside and out resists corrosion and attack from aggressive liquids.
- **Wear-resistant Design**
Designed to flush abrasive particles from the pump, and made from stainless steel to resist wear caused by abrasives.
- **Built-in Check Valve**
Prevents back-flow into the well once the pump is shut down.
- **2 to 75 HP Motors**
Stainless steel construction and quality design.
- **Motor Controls and Protection**
Available controls to protect the motor against burnout and dry-running, plus the ability to monitor the system allowing the user to optimize settings.



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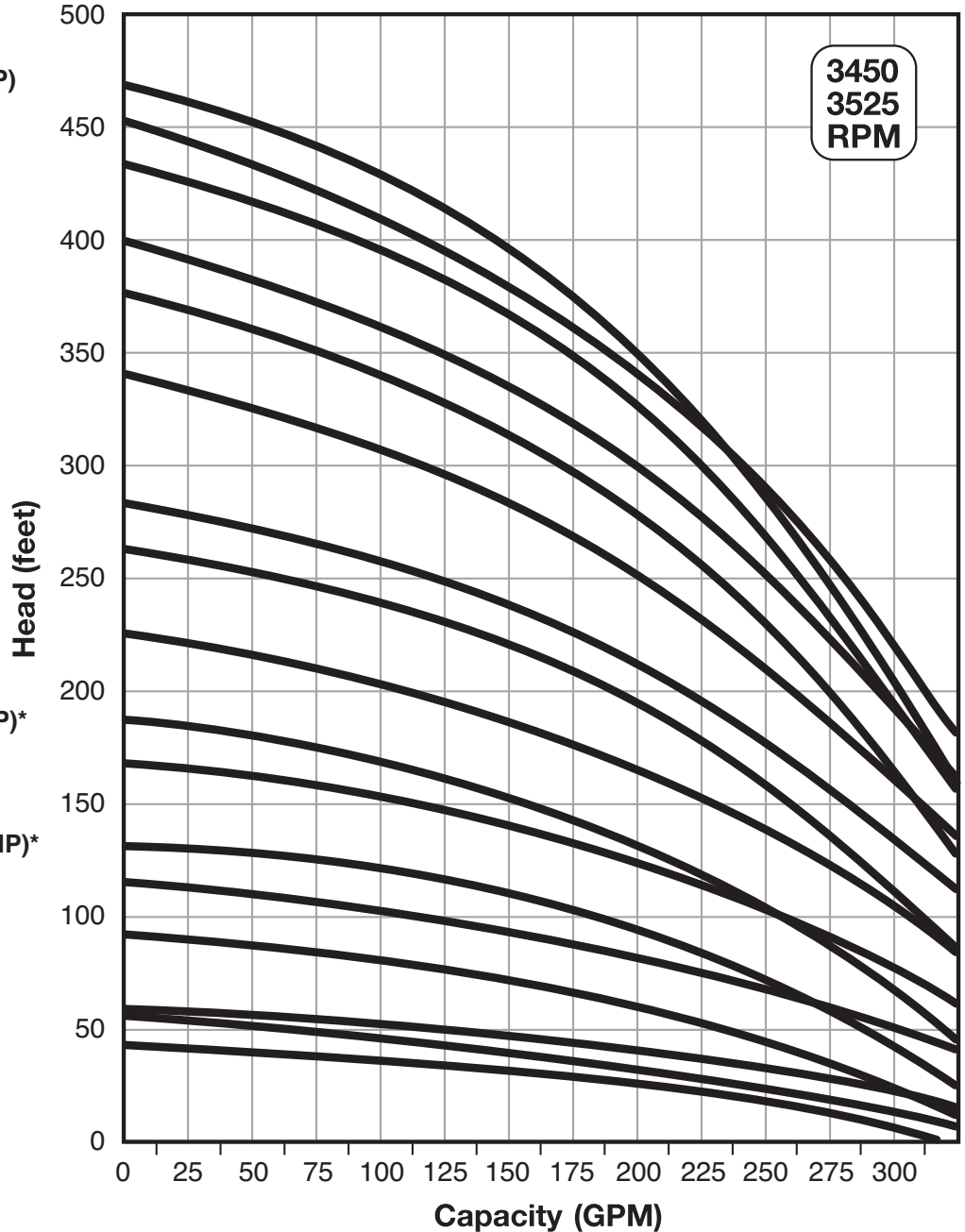
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FLOW RANGE: 160 - 320 GPM

OUTLET SIZE: 3" NPT

NOMINAL DIA. 6"

- Ref. No. 230SRP250-9BB (25 HP)
- Ref. No. 230SRP250-8 (25 HP)
- Ref. No. 230SRP250-8B (25 HP)
- Ref. No. 230SRP250-7 (25 HP)
- Ref. No. 230SRP200-7C (20 HP)
- Ref. No. 230SRP200-6 (20 HP)
- Ref. No. 230SRP200-5 (20 HP)
- Ref. No. 230SRP150-5B (15 HP)
- Ref. No. 230SRP150-4 (15 HP)
- Ref. No. 230SRP100-4BC (10 HP)*
- Ref. No. 230SRP100-3 (10 HP)
- Ref. No. 230SRP100-3BC (7 ½ HP)*
- Ref. No. 230SRP75-2 (7 ½ HP)*
- Ref. No. 230SRP50-2AB (5 HP)
- Ref. No. 230SRP50-1 (5 HP)
- Ref. No. 230SRP30-1A (3 HP)
- Ref. No. 230SRP20-1B (2 HP)



Specifications subject to change without notice.
 4" motor standard, 2-10 HP/3450 RPM.
 6" motor standard, 7.5-60 HP/3450 RPM.
 8" motor standard, 75 HP/3525 RPM.
 Alternate motor sizes available.
 Performance conforms to ISO 9906 Annex A @ 5 ft. minimum submergence.



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DIMENSIONS & WEIGHTS

Model No.	HP	Motor Size In.	Discharge Size	Dimensions					Approximate Shipping Wt. Lbs.
				A In.	B In.	C In.	D In.	E In.	
230SRP20-1B	2	4	3" NPT	37.7	15.1	14.6	3.8	8.5	49
230SRP30-1A	3	4	3" NPT	46.2	23.6	14.6	3.8	8.5	60
230SRP50-1	5	4	3" NPT	52.2	29.6	14.6	3.8	8.5	70
230SRP50-2AB	5	4	3" NPT	56.5	29.6	18.9	3.8	8.5	76
230SRP75-2	7½	4	3" NPT	51	24.2	18.9	3.8	8.5	93
230SRP75-3BB	7½	4	3" NPT	56.1	24.2	23.9	5.4	8.5	101
230SRP100-3	10	6	3" NPT	57.3	25.4	23.9	5.4	8.5	145
230SRP100-4BC	10	4	3" NPT	61.8	25.4	28.4	5.4	8.5	152
230SRP150-4	15	6	3" NPT	64.4	28	28.4	5.4	10.5	166
230SRP150-5B	15	6	3" NPT	68.8	28	32.8	5.4	10.5	170
230SRP200-5	20	6	3" NPT	71.4	30.6	32.8	5.4	10.5	172
230SRP200-6	20	6	3" NPT	75.8	30.6	37.3	5.4	10.5	191
230SRP200-7C	20	6	3" NPT	75.8	30.6	37.3	5.4	10.5	207
230SRP250-7	25	6	3" NPT	82.9	33.1	41.7	5.4	10.5	207
230SRP250-8B	25	6	3" NPT	87.3	33.1	46.2	5.4	10.5	214
230SRP250-8	25	6	3" NPT	87.3	33.1	46.2	5.4	10.5	214
230SRP300-9BB	25	6	3" NPT	91.8	33.1	50.6	5.4	10.5	233
230SRP400-9	30	6	3" NPT	94.3	35.7	50.6	5.4	10.5	233
230SRP400-10*	40	6	3" NPT	103.9	40.8	55.1	5.4	10.5	239

Weights include pump end with motor in lbs.

*Alternate motor sizes available.

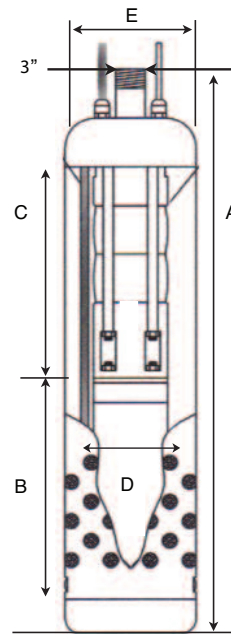
MATERIALS OF CONSTRUCTION

COMPONENT	CYLINDRICAL SHAFT (2-18 Stgs.)
Check Valve Housing	304 Stainless Steel
Check Valve	304 Stainless Steel
Diffuser Chamber	304 Stainless Steel
Split Cone Nut	304 Stainless Steel
Split Cone	304 Stainless Steel
Impeller	304 Stainless Steel
Suction Interconnector	304 Stainless Steel
Inlet Screen	304 Stainless Steel
Seal Ring Support Plate	304 Stainless Steel
Straps	304 Stainless Steel
Cable Guard	304 Stainless Steel
Priming Inducer	304 Stainless Steel
Coupling	316/329 Stainless Steel
Pump Shaft	431 Stainless Steel
Intermediate Bearings	Teflon
Impeller Seal Ring	Teflon
Check Valve Seat	Teflon/316 Stainless Steel
Top Bearing	Teflon/304 Stainless Steel
Upthrust Disc	Carbon/Graphite
Upthrust Stop Washer	304 Stainless Steel
8" Motor Adaptor Plate	304 Stainless Steel
Sleeve*	304 Stainless Steel
Sleeve Flange	304 Stainless Steel

NOTES: Specifications are subject to change without notice.

*Required for 20-22 stage models.

** 4" Coupling made of 316 Stainless Steel.



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Single Phase Motors

Table 13 Single-Phase Motor Specifications (60 Hz) 3450 rpm

TYPE	RATING					FULL LOAD		MAXIMUM (S.F. LOAD)		WINDING (1)	EFFICIENCY %		POWER FACTOR %		LOCKED ROTOR AMPS	KVA CODE
	HP	KW	VOLTS	HZ	S.F.	(2) AMPS	WATTS	(2) AMPS	WATTS	M=MAIN RES. S=START RES.	S.F.	FL.	S.F.	FL.		
6.5" 2-WIRE	1/2	0.37	115	60	1.6	10.0	670	12.0	960	1.0-1.3	62	56	73	58	64.4	R
	1/2	0.37	230	60	1.6	5.0	670	6.0	960	4.2-5.2	62	56	73	58	32.2	R
	3/4	0.55	230	60	1.5	6.8	940	8.0	1310	3.0-3.6	64	59	74	62	40.7	N
	1	0.75	230	60	1.4	8.2	1210	9.8	1600	2.2-2.7	65	62	74	63	48.7	N
	1.5	1.1	230	60	1.3	10.6	1700	13.1	2180	1.5-1.9	67	66	80	73	66.6	M
6.5" 3-WIRE	1/2	0.37	115	60	1.6	Y10.0 B10.0 R0	670	Y12.0 B12.0 R0	960	M1.0-1.3 S4.1-5.1	62	56	73	58	50.5	M
	1/2	0.37	230	60	1.6	Y5.0 B5.0 R0	670	Y6.0 B6.0 R0	960	M4.2-5.2 S16.7-20.5	62	56	73	58	23	M
	3/4	0.55	230	60	1.5	Y6.8 B6.8 R0	940	Y8.0 B8.0 R0	1310	M3.0-3.6 S10.7-13.1	64	59	74	62	34.2	M
	1	0.75	230	60	1.4	Y8.2 B8.2 R0	1210	Y9.8 B9.8 R0	1600	M2.2-2.7 S9.9-12.1	65	62	74	63	41.8	L
6.5" 3-WIRE W/CRC CB	1/2	0.37	230	60	1.6	Y3.6 B3.7 R2.0	655	Y4.3 B4.0 R2.0	890	M4.2-5.2 S16.7-20.5	67	57	90	81	23	M
	3/4	0.55	230	60	1.5	Y4.9 B5.0 R3.2	925	Y5.7 B5.2 R3.1	1220	M3.0-3.6 S10.7-13.1	69	60	92	84	34.2	M
	1	0.75	230	60	1.4	Y6.0 B5.7 R3.4	1160	Y7.1 B6.2 R3.3	1490	M2.2-2.7 S9.9-12.1	70	64	92	86	41.8	L
6.5" 3-WIRE	1	0.75	230	60	1.4	Y6.6 B6.6 R1.3	1130	Y8.0 B7.9 R1.3	1500	M2.2-2.7 S9.9-12.1	70	66	82	72	43	L
	1.5	1.1	230	60	1.3	Y10.0 B9.9 R1.3	1660	Y11.5 B11.0 R1.3	2100	M1.7-2.2 S8.0-9.7	69	67	82	74	52	J
	2	1.5	230	60	1.25	Y10.0 B9.3 R2.6	2060	Y13.2 B11.9 R2.6	2610	M1.8-2.3 S5.8-7.2	71	73	95	93	51	G
	3	2.2	230	60	1.15	Y14.0 B11.2 R6.1	2940	Y17.0 B12.6 R6.0	3350	M1.0-1.5 S3.5-4.4	77	76	97	97	83.5	H
	5	3.7	230	60	1.15	Y23.0 B15.9 R11.0	4920	Y27.5 B19.1 R10.8	5620	M.68-1.0 S1.8-2.2	76	76	100	100	121	F
6.5"	5	3.7	230	60	1.15	Y23.0 B14.3 R10.8	4910	Y27.5 B17.4 R10.5	5570	M.55-.68 S1.3-1.7	77	76	100	99	99	E
	7.5	5.5	230	60	1.15	Y36.5 B34.4 R5.5	7300	Y42.1 B40.5 R5.4	8800	M.36-.50 S.88-1.1	73	74	91	90	165	F
	10	7.5	230	60	1.15	Y44.0 B39.5 R9.3	9800	Y51.0 B47.5 R8.9	11300	M.27-.33 S.80-.99	76	77	96	96	204	E
	15	11	230	60	1.15	Y62.0 B52.0 R17.5	13900	Y75.0 B62.5 R16.9	16200	M.17-.22 S.68-.93	79	80	97	98	303	E

- (1) Main winding - yellow to black
Start winding - yellow to red
- (2) Y = Yellow lead - line amps
B = Black lead - main winding amps
R = Red lead - start or auxiliary winding amps
- (3) Control Boxes date coded 02C and older have **35 MFD** run capacitors. Current values should be Y14.0 @ FL and Y17.0 @ SF Load.
B12.2 B14.5
R4.7 R4.5
- (4) Control Boxes date coded 01M and older have **60 MFD** run capacitors and the current values on a 4" motor will be Y23.0 @ FL - Y27.5 @ SF Load.
B19.1 B23.2
R8.0 R7.8
- (5) Control Boxes date coded 01M and older have **60 MFD** run capacitors and the current values on a 6" motor will be Y23.0 @ FL - Y27.5 @ SF Load.
B18.2 B23.2
R8.0 R7.8

Performance is typical, not guaranteed, at specified voltages and specified capacitor values. Performance at voltage ratings not shown is similar, except amps vary inversely with voltage.



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Single Phase Motors

Table 14 Single-Phase Motor Fuse Sizing

TYPE	RATING			CIRCUIT BREAKERS OR FUSE AMPS			CIRCUIT BREAKERS OR FUSE AMPS		
				(MAXIMUM PER NEC)			(TYPICAL SUBMERSIBLE)		
	HP	KW	VOLTS	STANDARD FUSE	DUAL ELEMENT TIME DELAY FUSE	CIRCUIT BREAKER	STANDARD FUSE	DUAL ELEMENT TIME DELAY FUSE	CIRCUIT BREAKER
6.5" 2-WIRE	1/2	0.37	115	35	20	30	30	15	30
	1/2	0.37	230	20	10	15	15	8	15
	3/4	0.55	230	25	15	20	20	10	20
	1	0.75	230	30	20	25	25	11	25
	1.5	1.1	230	35	20	30	35	15	30
6.5" 3-WIRE	1/2	0.37	115	35	20	30	30	15	30
	1/2	0.37	230	20	10	15	15	8	15
	3/4	0.55	230	25	15	20	20	10	20
	1	0.75	230	30	20	25	25	11	25
6.5" 3-WIRE W/CRC CB	1/2	0.37	230	20	10	15	15	8	15
	3/4	0.55	230	25	15	20	20	10	20
	1	0.75	230	30	20	25	25	11	25
6.5" 3-WIRE	1	0.75	230	30	20	25	25	11	25
	1.5	1.1	230	35	20	30	30	15	30
	2	1.5	230	30	20	25	30	15	25
	3	2.2	230	45	30	40	45	20	40
	5	3.7	230	80	45	60	70	30	60
6.5"	5	3.7	230	80	45	60	70	30	60
	7.5	5.5	230	125	70	100	110	50	100
	10	7.5	230	150	80	125	150	60	125
	15	11	230	200	125	175	200	90	175



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Single Phase Motors

2 or 3-Wire Cable, 60 Hz (Service Entrance to Motor - Maximum Length In Feet)

Table 11

60 °C

MOTOR RATING			60 °C INSULATION - AWG COPPER WIRE SIZE													
VOLTS	HP	KW	14	12	10	8	6	4	3	2	1	0	00	000	0000	
115	1/2	.37	100	160	250	390	620	960	1190	1460	1780	2160	2630	3140	3770	
230	1/2	.37	400	650	1020	1610	2510	3880	4810	5880	7170	8720				
	3/4	.55	300	480	760	1200	1870	2890	3580	4370	5330	6470	7870			
	1	.75	250	400	630	990	1540	2380	2960	3610	4410	5360	6520			
	1.5	1.1	190	310	480	770	1200	1870	2320	2850	3500	4280	5240			
	2	1.5	150	250	390	620	970	1530	1910	2360	2930	3620	4480			
	3	2.2	120	190	300	470	750	1190	1490	1850	2320	2890	3610			
	5	3.7	0	0	180	280	450	710	890	1110	1390	1740	2170	2680		
	7.5	5.5	0	0	0	200	310	490	610	750	930	1140	1410	1720		
	10	7.5	0	0	0	0	250	390	490	600	750	930	1160	1430	1760	
	15	11	0	0	0	0	170	270	340	430	530	660	820	1020	1260	

Lengths in **BOLD** only meet the US National Electrical Code ampacity requirements for individual conductors 60 °C or 75 °C in free air or water, not in magnetic enclosures, conduit or direct buried.

Lengths NOT in bold meet the NEC ampacity requirements for either individual conductors or jacketed 60 °C or 75 °C cable and can be in conduit or direct buried. Flat molded and web/ribbon cable are considered jacketed cable.

If any other cable is used, the NEC and local codes should be observed.

Cable lengths in table 11 allow for a 5% voltage drop running at maximum nameplate amperes. If 3% voltage drop is desired, multiply table 11 lengths by 0.6 to get maximum cable length.

The portion of the total cable length, which is between the supply and single-phase control box with a line contactor, should not exceed 25% of total maximum allowable to ensure reliable contactor operation. Single-phase control boxes without line contactors may be connected at any point in the total cable length.

Table 11 is based on copper wire. If aluminum wire is used, it must be two sizes larger than copper wire and oxidation inhibitors must be used on connections.

EXAMPLE: If table 11 calls for #12 copper wire, #10 aluminum wire would be required.



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