# Torpedo<sup>™</sup> Sideslope Pump Systems



QED Torpedo<sup>TM</sup> 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

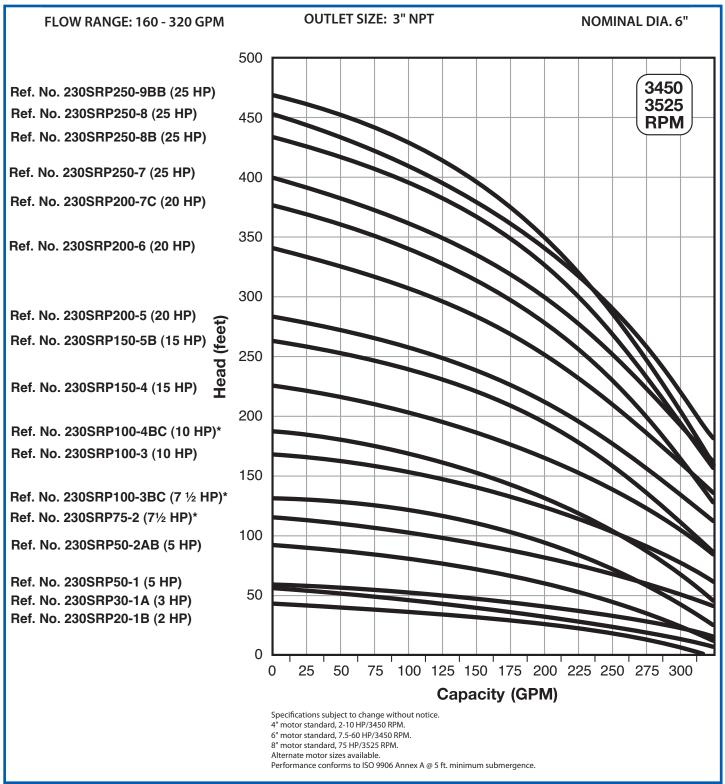
Stainless steel construction and quality design.

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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#### **DIMENSIONS & WEIGHTS**

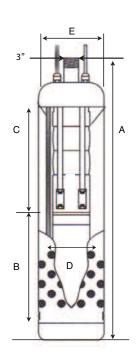
		Motor			Approximate				
		Size	Discharge	A	В	C	D	E	Shipping Wt.
Model No.	HP	ln.	Size	ln.	ln.	ln.	In.	ln.	Lbs.
230SRP20-1B	2	4	3" NPT	37.7	15.1	14.6	3.8	8.5	49
230SRP30-1A	3	4	3" NPT	46.2	23.6	14.6	3.8	8.5	60
230SRP50-1	5	4	3" NPT	52.2	29.6	14.6	3.8	8.5	70
230SRP50-2AB	5	4	3" NPT	56.5	29.6	18.9	3.8	8.5	76
230SRP75-2	71/2	4	3" NPT	51	24.2	18.9	3.8	8.5	93
230SRP75-3BB	71/2	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.

#### **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 Riing 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.





<sup>\*</sup>Alternate motor sizes available.

<sup>\*</sup>Required for 20-22 stage models. \*\* 4" Coupling made of 316 Stainless Steel.

### MODEL 230 SRP DATA SHEET - THREE PHASE

## Three Phase Motors

Table 16 Three-	Phase 60 °C Cable, 60 Hz (Service Entrance to Motor) Maximur	n Length in Feet	60 °C
MOTOR DATING	OR OR INCIDITED AND CORRESPONDED LINES	MONE CORRED IV	DE 0155

	0D D-1																11011	00000	bU	
	DR RATII		_				O °C INS	ULATION			WIRE SIZ							OPPER WI		
VOLTS	HP	KW	14	12	10	8	6	4	3	2	1	0	00	000	0000	250	300	350	400	500
200 V	1/2	0.37	710	1140	1800	2840	4420													
	3/4	0.55	510	810	1280	2030	3160													
	1	0.75	430	690	1080	1710	2670	4140	5140											
	1.5	1.1	310	500	790	1260	1960	3050	3780											
	2	1.5	240	390	610	970	1520	2360	2940	3610	4430	5420								
200 V 60 Hz	3	2.2	180	290	470	740	1160	1810	2250	2760	3390	4130								
Three-	5	3.7	110	170	280	440	690	1080	1350	1660	2040	2490	3050	3670	4440	5030				
Phase	7.5	5.5	0	0	200	310	490	770	960	1180	1450	1770	2170	2600	3150	3560				
3 - Lead	10	7.5	0	0	0	230	370	570	720	880	1090	1330	1640	1970	2390	2720	3100	3480	3800	442
	15	11	0	0	0	160	250	390	490	600	740	910	1110	1340	1630	1850	2100	2350	2570	298
	20	15	0	0	0	0	190	300	380	460	570	700	860	1050	1270	1440	1650	1850	2020	236
	25	18.5	0	0	0	0	0	240	300	370	460	570	700	840	1030	1170	1330	1500	1640	190
	30	22	0	0	0	0	0	0	250	310	380	470	580	700	850	970	1110	1250	1360	159
	1/2	0.37	930	1490	2350	3700	5760	8910				17.5		, , ,					1000	100
	3/4	0.55	670	1080	1700	2580	4190	6490	8060	9860										
	1	0.75	560	910	1430	2260	3520	5460	6780	8290										
	1.5	1.1	420	670	1060	1670	2610	4050	5030	6160	7530	9170								
			320	510	810	1280	2010	3130	3890	4770	5860	7170	8780							
230 V	2	1.5												0000	0000					
60 Hz	3	2.2	240	390	620	990	1540	2400	2980	3660	4480	5470	6690	8020	9680		7500	0.400		
Three- Phase	5	3.7	140	230	370	590	920	1430	1790	2190	2690	3290	4030	4850	5870	6650	7560	8460	9220	
- Lead	7.5	5.5	0	160	260	420	650	1020	1270	1560	1920	2340	2870	3440	4160	4710	5340	5970	6500	751
	10	7.5	0	0	190	310	490	760	950	1170	1440	1760	2160	2610	3160	3590	4100	4600	5020	584
	15	11	0	0	0	210	330	520	650	800	980	1200	1470	1780	2150	2440	2780	3110	3400	394
	20	15	0	0	0	0	250	400	500	610	760	930	1140	1380	1680	1910	2180	2450	2680	312
	25	18.5	0	0	0	0	0	320	400	500	610	750	920	1120	1360	1540	1760	1980	2160	252
	30	22	0	0	0	0	0	260	330	410	510	620	760	930	1130	1280	1470	1650	1800	211
	1/2	0.37	2690	4290	6730															
	3/4	0.55	2000	3190	5010	7860														
	1	0.75	1620	2580	4060	6390	9980													
	1.5	1.1	1230	1970	3100	4890	7630													
	2	1.5	870	1390	2180	3450	5400	8380												
	3	2.2	680	1090	1710	2690	4200	6500	8020	9830										
	5	3.7	400	640	1010	1590	2490	3870	4780	5870	7230	8830								
	7.5	5.5	270	440	690	1090	1710	2640	3260	4000	4930	6010	7290	8780						
	10	7.5	200	320	510	800	1250	1930	2380	2910	3570	4330	5230	6260	7390	8280	9340			
380 V	15	11	0	0	370	590	920	1430	1770	2170	2690	3290	4000	4840	5770	6520	7430	8250	8990	
60 Hz	20	15	0	0	0	440	700	1090	1350	1670	2060	2530	3090	3760	4500	5110	5840	6510	7120	819
Three-	25	18.5	0	0	0	360	570	880	1100	1350	1670	2050	2510	3040	3640	4130	4720	5250	5740	659
Phase 3 - Lead	30	22	0	0	0	0	470	730	910	1120	1380	1700	2080	2520	3020	3430	3920	4360	4770	549
ouu	40	30	0	0	0	0	0	530	660	820	1010	1240	1520	1840	2200	2500	2850	3170	3470	399
	50	37	0	0	0	0	0	0	540	660	820	1000	1220	1480	1770	2010	2290	2550	2780	319
	60	45	0	0	0	0	0	0	0	560	690	850	1030	1250	1500	1700	1940	2150	2350	270
			0	0	0	0	0	0	0	0		700	860	1050	1270	1440	1660	1850	2030	235
	75	55				0					570									
	100	75	0	0	0	-	0	0	0	0	0	510	630	760	910	1030	1180	1310	1430	165
	125	90	0	0	0	0	0	0	0	0	0	0	0	620	740	840	950	1060	1160	133
	150	110	0	0	0	0	0	0	0	0	0	0	0	0	620	700	790	880	960	109
	175	130	0	0	0	0	0	0	0	0	0	0	0	0	0	650	750	840	920	107
	200	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	630	700	760	88

Lengths in **BOLD** only meet the US National Electrical Code ampacity requirements for individual conductors in free air or water. Lengths NOT in bold meet NEC ampacity requirements for either individual conductors or jacketed cable.



### Three Phase Motors

#### 60 °C Table 17 Three-Phase 60 °C Cable (Continued) 60 °C INSULATION - AWG COPPER WIRE SIZE MCM COPPER WIRE SIZE 0.75 2.2 60 Hz Three 18.5 Phase 0.37 0.55 575 V 60 Hz Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω Ω

Lengths in **BOLD** only meet the US National Electrical Code ampacity requirements for individual conductors in free air or water. Lengths NOT in bold meet NEC ampacity requirements for either individual conductors or jacketed cable.

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### MODEL 230 SRP DATA SHEET - THREE PHASE

### Three Phase Motors

Table 24 Three-Phase Motor Specifications (60 Hz)

TYPE			RATING			FULL LOAD			CIMUM LOAD)	LINE TO LINE RESISTANCE	EFFICI	ENCY %	LOCKED ROTOR	KVA CODE
10000	HP	KW	VOLTS	HZ	S.F.	AMPS	WATTS	AMPS	WATTS	OHMS	S.F.	F.L.	AMPS	COD
	5	3.7	200	60	1.15	17.5	4700	20.0	5400	.7793	79	79	99	Н
8.5"	5	3.7	230	60	1.15	15	4700	17.6	5400	1.0-1.2	79	79	86	Н
U.U	5	3.7	380	60	1.15	9.1	4700	10.7	5400	2.6-3.2	79	79	52	Н
	5	3.7	460	60	1.15	7.5	4700	8.8	5400	3.9-4.8	79	79	43	Н
	5	3.7	575	60	1.15	6	4700	7.1	5400	6.3-7.7	79	79	34	Н
	7.5	5.5	200	60	1.15	25.1	7000	28.3	8000	.4353	80	80	150	Н
	7.5	5.5	230	60	1.15	21.8	7000	24.6	8000	.6478	80	80	130	Н
	7.5	5.5	380	60	1.15	13.4	7000	15	8000	1.6-2.1	80	80	79	Н
	7.5	5.5	460	60	1.15	10.9	7000	12.3	8000	2.4-2.9	80	80	65	Н
	7.5	5.5	575	60	1.15	8.7 32.7	7000	9.8	8000	3.7-4.6	80	80	52 198	H
	10	7.5	200	60	1.15	28.4	9400 9400	37	10800	.3745	79	79 79	172	H
	10	7.5	380	60	1.15	17.6	9400	19.6	10800	1.2-1.5	79 79	79	104	Н
	10	7.5	460	60	1.15	14.2	9400	16.1	10800	1.9-2.4	79	79	86	Н
	10	7.5	575	60	1.15	11.4	9400	12.9	10800	3.0-3.7	79	79	69	Н
	15	11	200	60	1.15	47.8	13700	54.4	15800	.2429	81	81	306	Н
	15	11	230	60	1.15	41.6	13700	47.4	15800	.2835	81	81	266	Н
	15	11	380	60	1.15	25.8	13700	28.9	15800	.7795	81	81	161	Н
	15	11	460	60	1.15	20.8	13700	23.7	15800	1.1-1.4	81	81	133	Н
	15	11	575	60	1.15	16.6	13700	19	15800	1.8-2.3	81	81	106	Н
	20	15	200	60	1,15	61.9	18100	69.7	20900	.1620	82	82	416	J
	20	15	230	60	1.15	53.8	18100	60.6	20900	.2226	82	82	362	J
	20	15	380	60	1.15	33	18100	37.3	20900	.5568	82	82	219	J
	20	15	460	60	1.15	26.9	18100	30.3	20900	.8-1.0	82	82	181	J
	20	15	575	60	1.15	21.5	18100	24.2	20900	1.3-1.6	82	82	145	J
	25	18.5	200	60	1.15	77.1	22500	86.3	25700	.1215	83	83	552	J
	25	18.5	230	60	1.15	67	22500	75	25700	.1519	83	83	480	J
	25	18.5	380	60	1.15	41	22500	46	25700	.4656	83	83	291	J
	25	18.5	460	60	1.15	33.5	22500	37.5	25700	.63-,77	83	83	240	J
	25	18.5	575	60	1.15	26.8	22500	30	25700	1.0-1.3	83	83	192	J
	30	22	200	60	1.15	90.9	26900	104	31100	.0911	83	83	653	J
	30	22	230	60	1.15	79	26900	90.4	31100	.1417	83	83	568	J
	30	22	380	60	1.15	48.8	26900	55.4	31100	.3543	83	83	317	J
	30	22	460	60	1.15	39.5	26900	45.2	31100	.5264	83	83	284	J
	30	22	575	60	1.15	31.6	26900	36.2	31100	.7895	83	83	227	J
	40	30	380	60	1.15	66.5	35600	74.6	42400	.2633	83	83	481	J
	40	30	460	60	1.15	54.9	35600	61.6	42400	.3442	83	83	397	J
	40	30	575	60	1.15	42.8	35600	49.6	42400	.5264	83	83	318	Н
	50	37	380	60	1.15	83.5	45100	95	52200	.2125	82	83	501	Н
	50	37	460	60	1.15	67.7	45100	77	52200	.2532	82	83	414	Н
	50	37	575	60	1.15	54.2	45100	61.6	52200	.4049	82	83	331	Н
	60	45	380	60	1.15	98.7	53500	111	61700	.1518	84	84	627	Н
	60	45	460	60	1.15	80.5	53500	91	61700	.2227	84	84	518	Н
	60	45	575	60	1.15	64.4	53500	72.8	61700	.3539	84	84	414	Н

Model numbers above are for three-lead motors. Six-lead motors with different model numbers have the same running performance, but when wye connected for starting have locked rotor amps 33% of the values shown. Six-lead individual phase resistance = table X 1.5.



### Three Phase Motors

<b>Table 25 Three-Phase</b>	Motor	Fuse	Sizing
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		24.20		CIRC	UIT BREAKERS OR FUSE	CIRCUIT BREAKERS OR FUSE AMPS				
ТҮРЕ		RATIN	G		(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 BREAKE	
	5	3.7	200	60	35	45	50	25	45	
8.5"	5	3.7	230	45	30	40	45	20	40	
0.U	5	3.7	380	30	17.5	25	30	12	25	
	5	3.7	460	25	15	20	25	10	20	
	5	3.7	575	20	12	15	20	8	15	
	7.5	5.5	200	80	45	70	80	35	70	
	7.5	5.5	230	70	40	60	70	30	60	
	7.5	5.5	380	45	25	35	40	20	35	
	7.5	5.5	460	35	20	30	35	15	30	
	7.5	5.5	575	30	17.5	25	25	11	25	
	10	7.5	200	100	60	90	100	45	90	
	10	7.5	230	90	50	80	90	40	80	
	10	7.5	380	60	35	45	50	25	45	
	10	7.5	460	45	25	40	45	20	40	
	10	7.5	575	35	20	30	35	15	30	
	15	11	200	150	90	125	150	60	125	
	15	11	230	150	80	110	125	60	110	
	15	11	380	80	50	70	80	35	70	
	15	11	460	70	40	60	60	30	60	
	15	11	575	60	30	45	50	25	45	
	20	15	200	200	110	175	175	80	175	
	20	15	230	175	100	150	175	70	150	
	20	15	380	100	60	90	100	45	90	
	20	15	460	90	50	70	80	35	70	
	20	15	575	70	40	60	70	30	60	
	25	18.5	200	250	150	200	225	100	200	
	25	18.5	230	225	125	175	200	90	175	
	25	18.5	380	125	80	110	125	50	110	
	25	18.5	460	110	60	90	100	45	90	
	25	18.5	575	90	50	70	80	35	70	
	30	22	200	300	175	250	300	125	250	
	30	22	230	250	150	225	250	100	200	
	30	22	380	150	90	125	150	60	125	
	30	22	460	125	70	110	125	50	100	
	30	22	575	100	60	90	100	40	80	
	40	30	380	200	125	175	200	90	175	
	40	30	460	175	100	150	175	70	150	
	40	30	575	150	80	110	125	60	110	
	50	37	380	250	150	225	250	110	225	
	50	37	460	225	125	175	200	90	175	
	50	37	575	175	100	150	175	70	150	
	60	45	380	300	175	250	300	125	250	
	60	45	460	250	150	225	250	100	225	
	60	45	575	200	125	175	200	80	175	

