xylem
Let's Solve Water

TECHNICAL BROCHURE
BPROPAKRJ R6

REDJACKET SERIES

AQUAVAR® ProPak

30-80 HZ KITS

GOULDS
WATER TECHNOLOGY
a xylem brand

FEATURES

Simple, fast sizing and installation.

Range curves and selection charts generated from actual R&D tests.

Kits configured for 30 Hz minimum and 80 Hz maximum operation.

Kits use matched water end and motor (see component chart).

Wiring is as easy as standard three-wire control box:

- L1, L2 and Ground in from power supply
- Red, Yellow, Black and Ground out to motor

Pressure is factory preset at 60 psi with simple, fast, field adjustability for higher pressures.

Three phase output to motor reduces wire cost.

Switch Input for connecting a pressure switch or float switch.

Grounding provisions for transducer and transducer cable.

KITS INCLUDE:

- Three Phase Motor 1.5 – 5 HP, 230 V
- Aquavar SOLO^2 Controller with Transducer
- Enduro Water End (pump)

ProPak kits do not include pressure tanks, order tanks separately.

PROPAK PERFORMANCE RANGE AND COMPONENTS

MODEL	HP	Shut-Off Head (ft)	at Best Efficiency		at Maximum Runout		WE	Motor	Controller
			Flow (GPM)	TDH (ft)	Flow (GPM)	TDH (ft)			
12RP1020	2	700	12	380	16	218	12S14	M20432	3AS20
20RP1020		450	20	262	27	115	20S8		
12RP1530	3	900	12	485	16	280	12S18	M30432	3AS30
20RP1530		620	20	350	27	140	20S11		
25RP1530		552	25	287	35	173	25S10		
20RP3050	5	1040	20	540	27	200	20S19	M50432	3AS50
25RP3050		873	25	482	35	293	25S17		

Order pressure tank separately, not included in kit

AQUAVAR® SOLO^2 CONTROLLER – FEATURES

New, more versatile user interface board

- Simple wiring and menu set-up
- Turns virtually any conventional system into a premium constant pressure system
- Fade-resistant LED display indicates system pressure, speed and current
- Error log – displays last four faults and can be reset
- Dual setpoint feature for advanced system application
- Programmable output relay can be configured to control an external device such as a pump, accessories or sending status signal to a monitoring device.

PROPAK KIT DIMENSIONS AND WEIGHTS

Controller	Sh. Weight (lb)	Dimensions - All
3AS20	23	Height: 21"
3AS30	24	Width: 13"
3AS50	29	Depth: 8"

Pump	Sh. Weight (lb)	W. E. Length (in)
12S14	11	19.3
20S8	8	13.8
12S18	13	23.7
20S11	9	16.6
25S10	9	17.6
20S19	15	24.6
25S17	15	26.0

Motors	Sh. Weight (lb)	Motor Length (in)	L x W x H (in)
M20432	28	13.8	20.5 x 6.5 x 6.5
M30432	32	15.3	20.5 x 6.5 x 6.5
M50432	55	21.7	27.5 x 6.5 x 6.5

ProPak Carton Dimensions and Weights

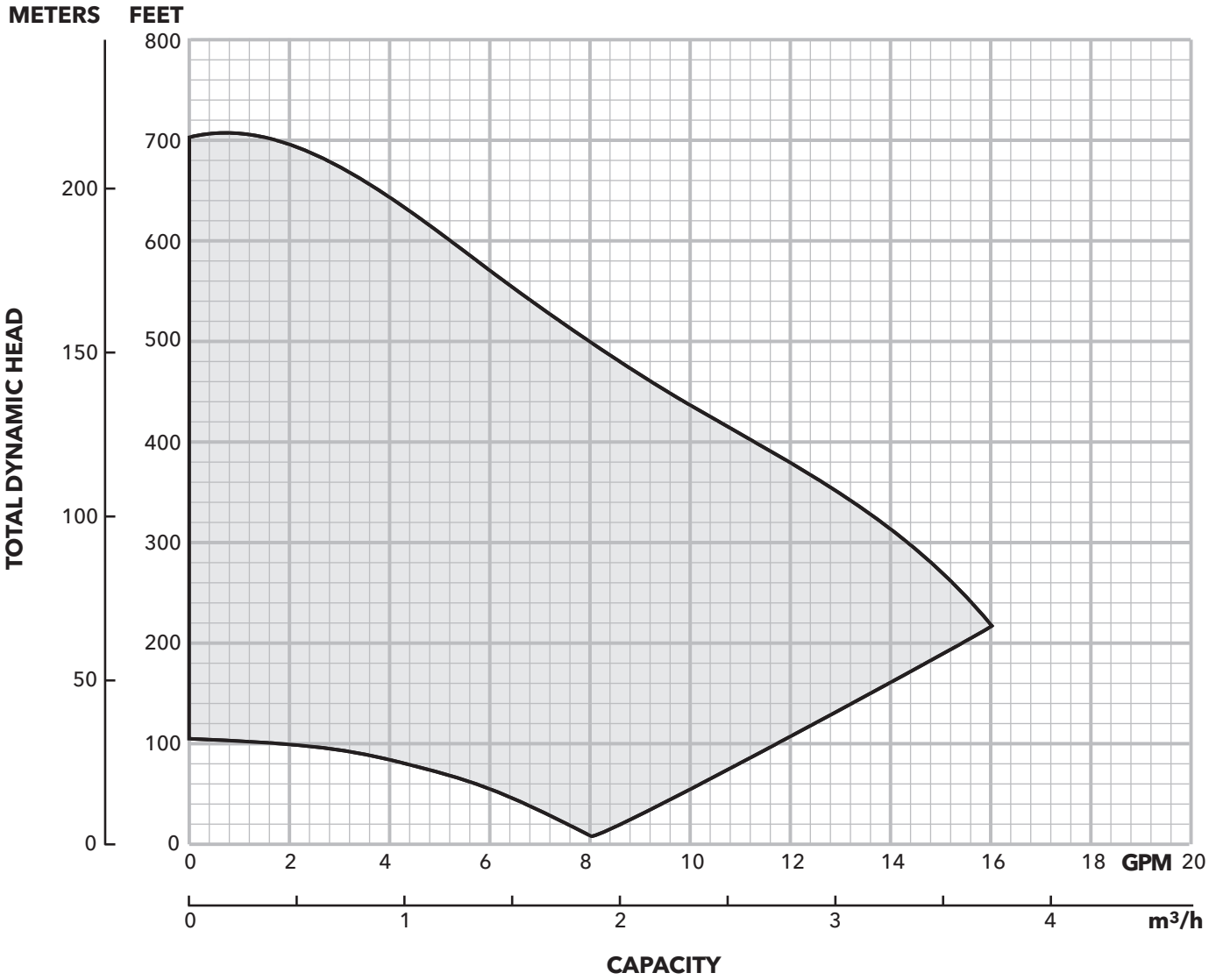
Kit No.	Sh. Weight (lb)	No. of cartons	L x W x H (in)
12RP1020	64	1	33.9 x 21.4 x 11.5
20RP1020	61	1	
12RP1530	71	1	
20RP1530	67	1	
25RP1530	67	1	
20RP3050	101	2 ①	
25RP3050	101	2 ①	

① The 5 HP units have the controller and pump in one carton and the motor is shipped separately due to weight. See 500C313 for motor weight and dimensions.

MODEL 12S14 30-80 Hz with 2 HP Motor and 3AS20

SELECTION CHART

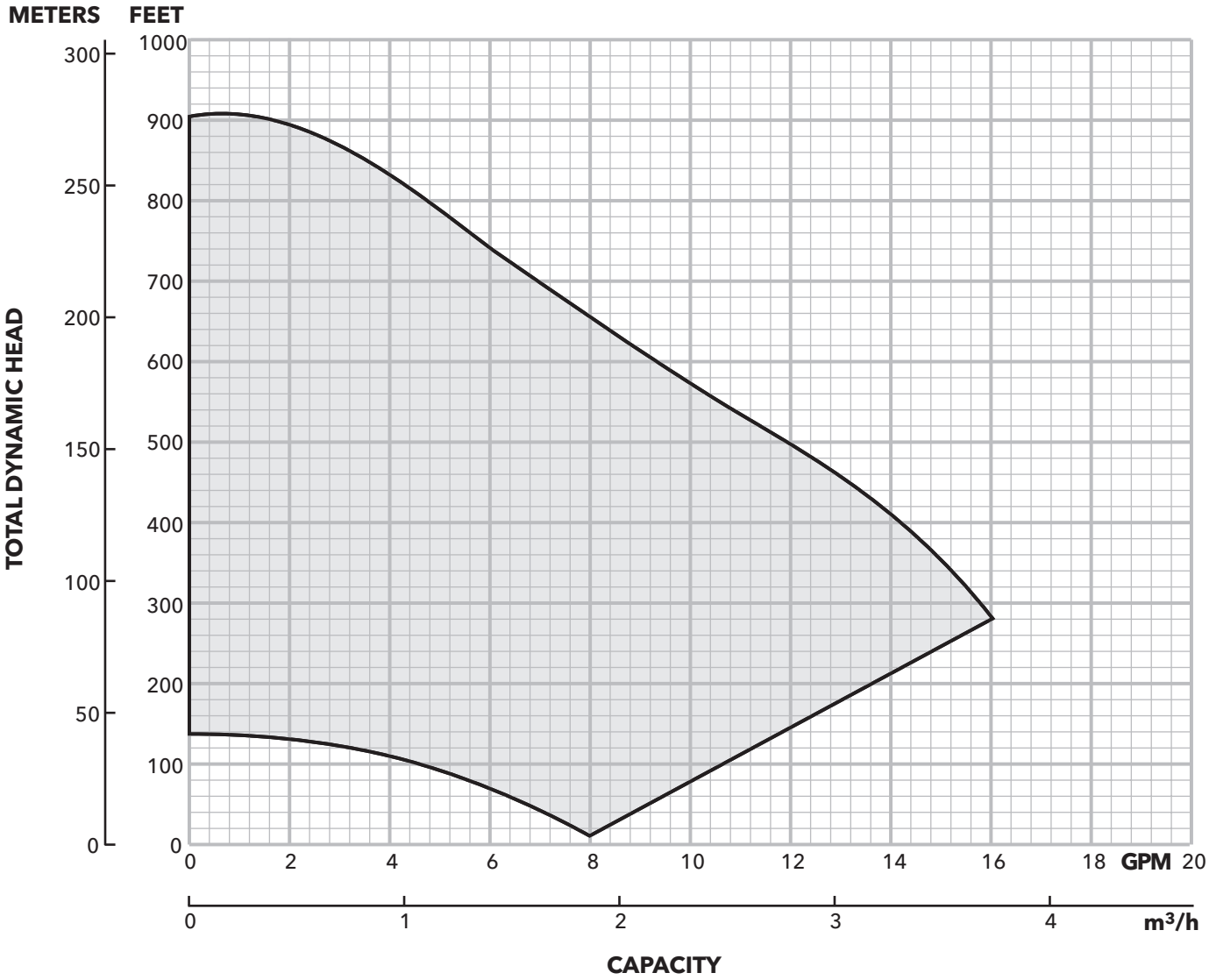
Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																				
		80	100	120	140	160	180	200	220	240	260	280	300	340	380	420	460	500	540	580	620	660
12S14	0								15.9	15.6	15.2	14.8	14.3	13.2	11.7	10.6	9.2	7.9	6.8	5.7	4.7	3.4
	50			15.9	15.4	14.8	14.2	13.6	13.0	12.4	11.8	11.2	10.7	9.5	8.4	7.3	6.1	4.7	3.2			
	60		15.8	15.3	14.7	14.1	13.5	12.9	12.3	11.7	11.1	10.6	10.0	8.9	7.8	6.6	5.3	3.9				
	70	15.8	15.2	14.6	14.0	13.4	12.8	12.2	11.6	11.1	10.5	9.9	9.4	8.2	7.1	5.9	4.5					
Shut-off PSI		269	260	252	243	234	226	217	208	200	191	182	174	156	139	122	104	87	70	53	35	18



MODEL 12S18 30-80 Hz with 3 HP Motor and 3AS30

SELECTION CHART

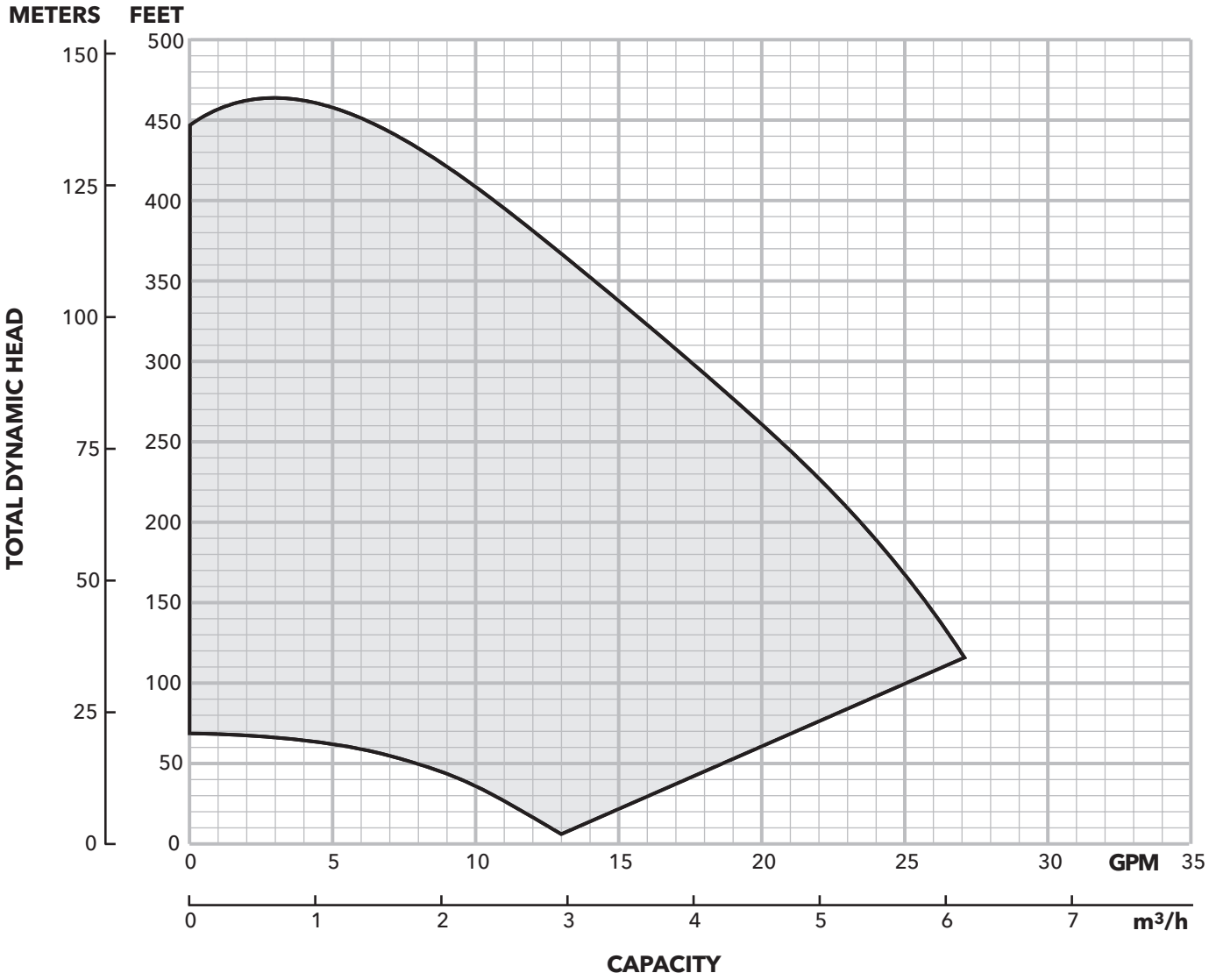
Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																						
		140	160	180	200	220	240	260	280	300	340	380	420	460	500	540	580	620	660	700	740	780	820
12S18	0								16.0	15.8	15.2	14.6	13.8	12.9	11.9	10.8	9.7	8.8	7.8	6.9	5.9	5.1	4.2
	50			15.9	15.6	15.2	14.8	14.4	13.9	13.5	12.7	11.8	10.9	10.1	9.2	8.3	7.4	6.4	5.4	4.1			
	60		15.9	15.5	15.1	14.7	14.3	13.9	13.4	13.0	12.2	11.3	10.5	9.6	8.7	7.8	6.9	5.8	4.7	3.4			
	70	15.8	15.4	15.0	14.6	14.2	13.8	13.4	13.0	12.5	11.7	10.8	10.0	9.1	8.2	7.3	6.3	5.2	3.9				
Shut-off PSI		331	322	313	305	296	287	279	270	261	244	227	209	192	175	158	140	123	106	88	71	54	36



MODEL 20S8 30-80 Hz with 2 HP Motor and 3AS20

SELECTION CHART

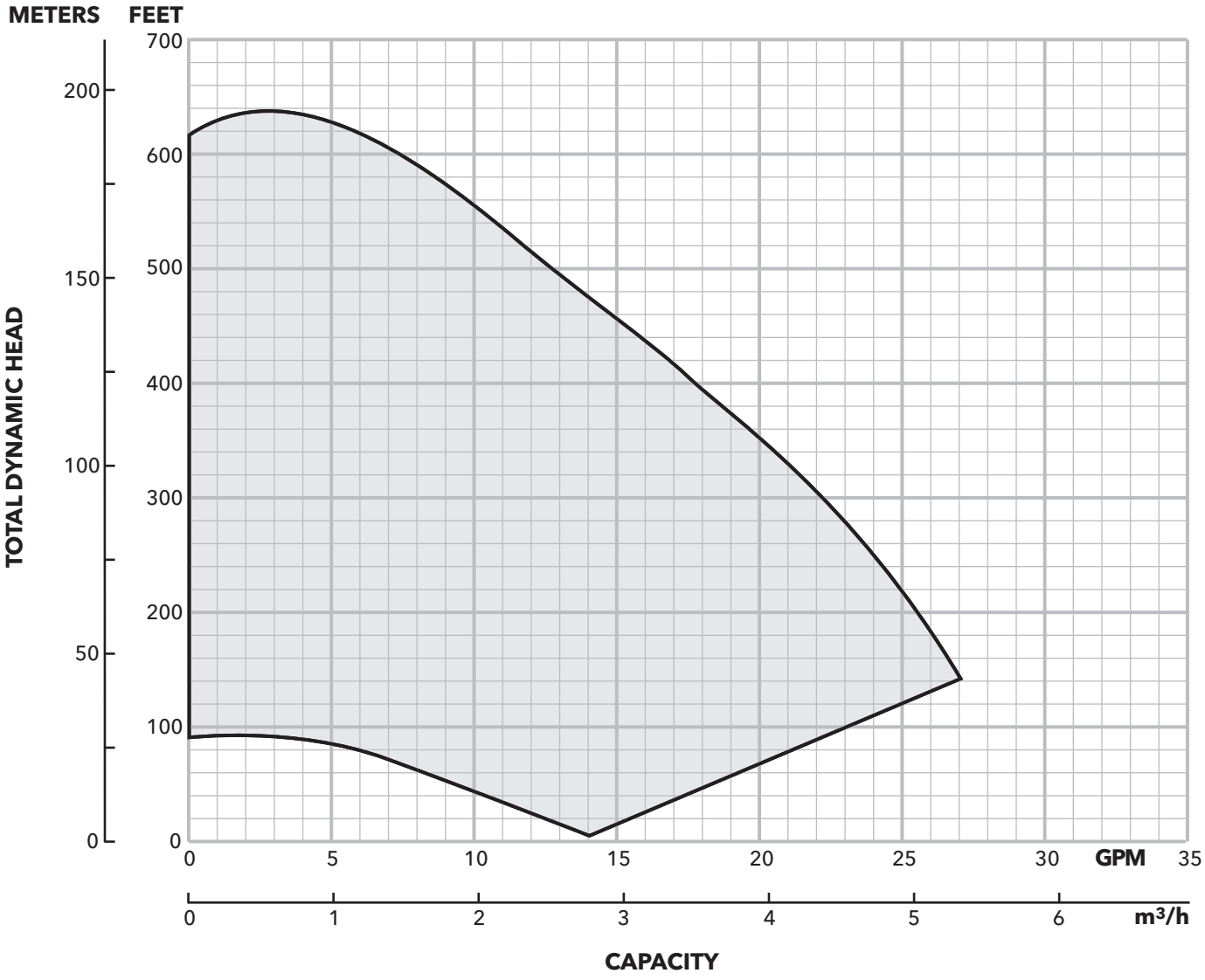
Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																
		20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	340	380
20S8	0						26.8	26.1	25.3	24.4	23.5	22.4	21.3	20.0	18.8	17.5	14.7	9.7
	50	26.6	25.5	24.4	23.3	22.2	21.1	20.1	19.1	18.0	16.9	15.7	14.4	12.8	10.9	8.5		
	60	25.3	24.2	23.1	22.0	21.0	19.9	18.9	17.9	16.7	15.5	14.1	12.5	10.5	8.1			
	70	24.0	22.9	21.8	20.8	19.8	18.7	17.7	16.6	15.3	13.9	12.2	10.2	7.7				
Shut-off PSI		186	177	168	160	151	142	134	125	116	108	99	90	82	73	64	47	30



MODEL 20S11 30-80 Hz with 3 HP Motor and 3AS30

SELECTION CHART

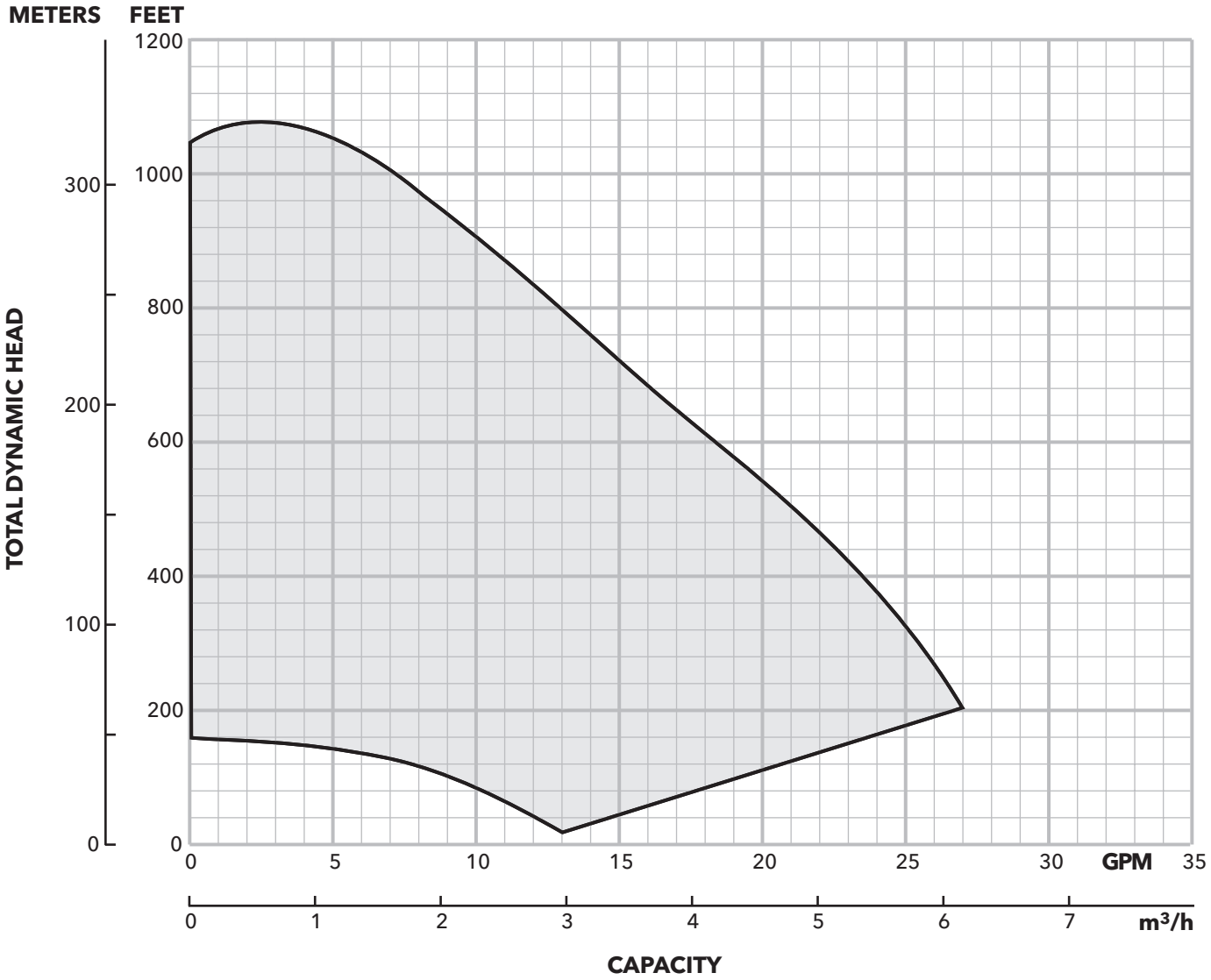
Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																					
		20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	340	380	420	460	500	540	580
20S11	0							27.0	26.5	26.1	25.5	24.9	24.3	23.7	22.9	22.2	20.5	18.6	16.9	14.8	12.7	10.8	8.6
	50			26.7	25.9	25.1	24.2	23.4	22.6	21.8	21.0	20.3	19.5	18.8	18.1	17.3	15.7	13.8	11.3	8.0			
	60		26.6	25.8	24.9	24.1	23.3	22.5	21.7	20.9	20.1	19.4	18.7	17.9	17.2	16.4	14.6	12.4	9.5				
	70	26.5	25.6	24.8	24.0	23.1	22.3	21.5	20.8	20.0	19.3	18.6	17.8	17.1	16.3	15.4	13.4	10.8	7.4				
Shut-off PSI		259	250	241	233	224	215	207	198	189	181	172	164	155	146	138	120	103	86	68	51	34	16



MODEL 20S19 30-80 Hz with 5 HP Motor and 3AS50

SELECTION CHART

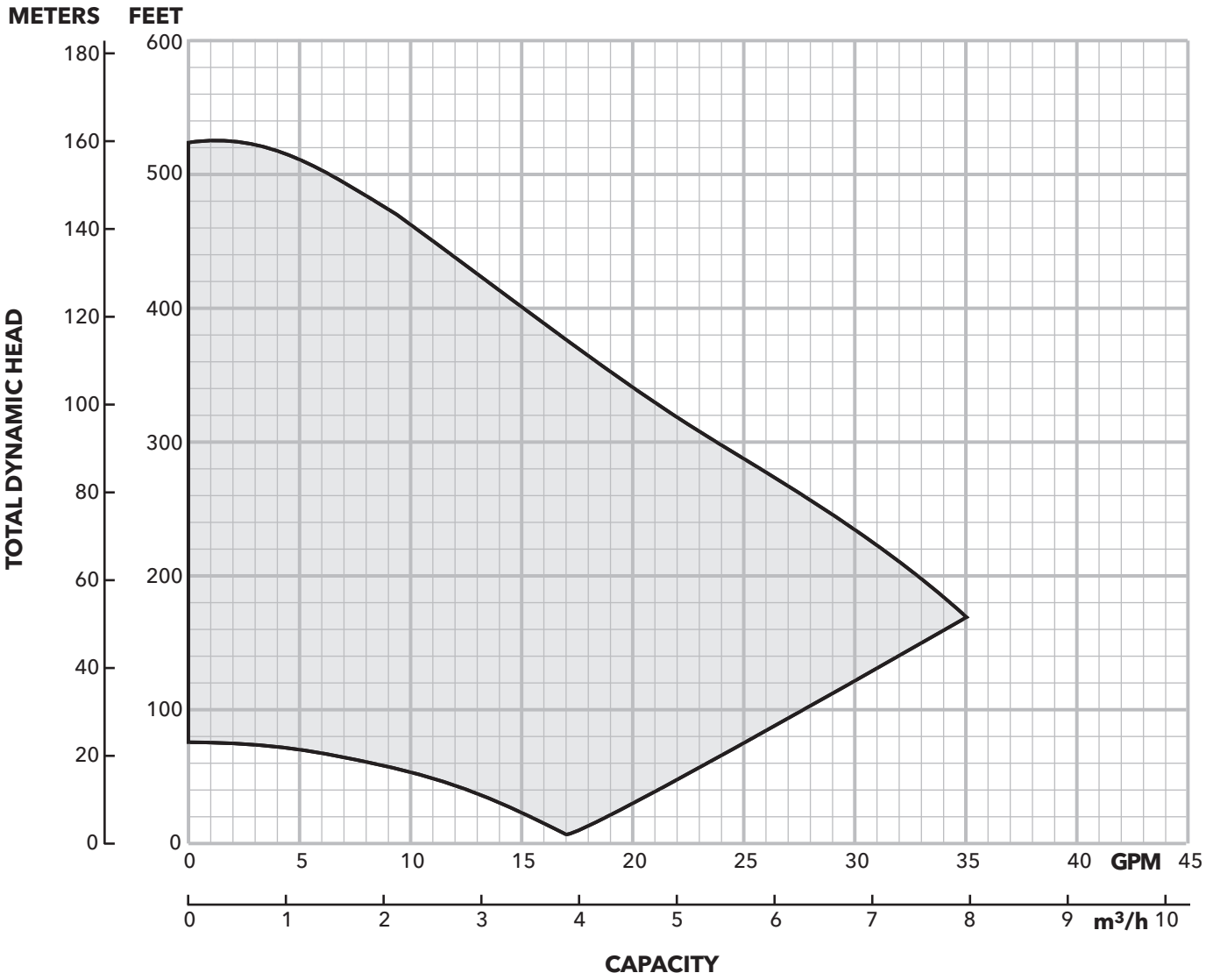
Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																												
		60	80	100	120	140	160	180	200	220	240	260	280	300	340	380	420	460	500	540	580	620	660	700	740	780	820	860	900	940
20S19	0								27.0	26.7	26.3	26.1	25.8	25.6	24.8	23.9	23.0	22.0	21.2	20.0	18.9	17.8	16.7	15.5	14.6	13.5	12.4	11.3	10.2	9.0
	50				26.7	26.3	25.9	25.4	25.0	24.5	24.0	23.6	23.1	22.6	21.7	20.7	19.8	18.9	18.0	17.1	16.1	15.2	14.1	12.9	11.6	10.2	8.5	6.6	4.3	
	60		27.0	26.6	26.2	25.8	25.4	24.9	24.4	24.0	23.5	23.0	22.6	22.1	21.1	20.2	19.3	18.4	17.5	16.5	15.6	14.6	13.4	12.2	10.8	9.2	7.4	5.3		
	70	27.0	26.6	26.2	25.7	25.3	24.8	24.4	23.9	23.4	23.0	22.5	22.0	21.5	20.6	19.7	18.8	17.9	16.9	16.0	15.0	13.9	12.7	11.4	9.9	8.2	6.2			
Shut-off PSI	426	417	409	400	391	383	374	365	357	348	339	331	322	305	288	270	253	236	218	201	184	166	149	132	114	97	80	62	45	



MODEL 25S10 30-80 Hz with 3 HP Motor and 3AS30

SELECTION CHART

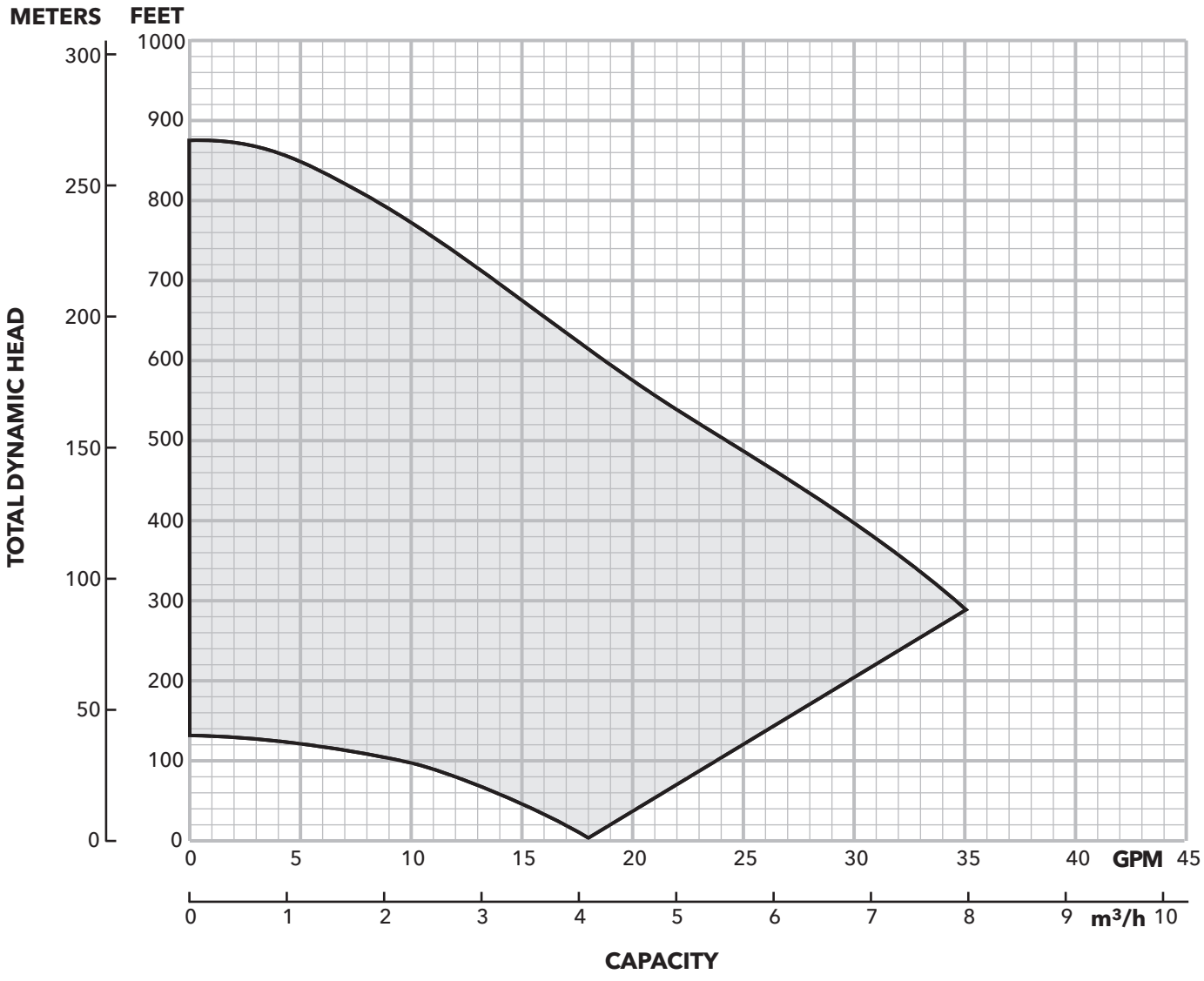
Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																		
		20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	340	380	420	460
25S10	0									34.1	32.8	31.1	29.5	27.7	25.7	23.8	20.0	16.8	13.4	10.0
	50				33.3	31.4	29.4	27.5	25.6	23.9	22.2	20.6	19.1	17.6	16.1	14.6	10.9	5.9		
	60		34.9	33.0	31.1	29.1	27.2	25.4	23.6	21.9	20.4	18.9	17.4	15.9	14.3	12.6	8.2			
	70	34.6	32.7	30.8	28.8	26.9	25.1	23.3	21.7	20.1	18.6	17.2	15.7	14.1	12.3	10.2	4.9			
Shut-off PSI		218	209	201	192	184	175	166	158	149	140	132	123	114	106	97	80	62	45	28



MODEL 25S17 30-80 Hz with 5 HP Motor and 3AS50

SELECTION CHART

Pump Model	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																				
		140	160	180	200	220	240	260	280	300	340	380	420	460	500	540	580	620	660	700	740	780
25S17	0									34.6	32.9	30.9	28.6	26.4	24.1	21.9	19.7	17.6	15.7	13.8	11.6	9.6
	50				34.3	33.2	32.0	30.8	29.7	28.5	26.2	24.1	22.1	20.2	18.4	16.5	14.6	12.5	9.9			
	60			34.1	33.0	31.8	30.7	29.5	28.3	27.2	25.0	22.9	21.0	19.1	17.3	15.4	13.4	11.0				
	70	35.0	33.9	32.8	31.6	30.5	29.3	28.2	27.0	25.9	23.8	21.8	19.9	18.1	16.2	14.3	12.1	9.5				
Shut-off PSI		318	309	300	292	283	274	266	257	248	231	214	196	179	162	144	127	110	92	75	58	41



WIRE SIZING – MAXIMUM CABLE LENGTHS IN FEET TO LIMIT VOLTAGE DROP TO 5% FOR 230 V SYSTEMS ⑤

Service Entrance to Controller

Controller Input	Motor HP	Copper Wire Size 75°C Insulation Exposed to a Maximum of 50°C (122°F) Ambient Temperature ⑥															
		14	12	10	8	6	4	2	1/0	2/0	3/0	4/0	250	300	350	400	500
230V 1 PH	½	366	583	925	1336	2107	3345	5267	8364								
	¾	279	445	706	1020	1608	2552	4019	6383	8055							
	1	226	360	571	824	1300	2064	3250	5161	6513	8201						
	1½	*	**286**	455	657	1036	1644	2589	4111	5188	6533	8236	9710				
	2	*	*	**331**	478	754	1197	1886	2995	3779	4759	5999	7073	8455	9852		
	3	*	*	**246**	355	561	890	1401	2225	2808	3536	4458	5256	6283	7321	8343	
	5	*	*	*	**218**	**343**	545	858	1363	1720	2165	2730	3219	3847	4483	5109	6348

Controller to Motor

Controller Output	Motor HP	Copper Wire Size 75°C Insulation Exposed to a Maximum of 50°C (122°F) Ambient Temperature ⑥												
		14	12	10	8	6	4	2	1/0	2/0	3/0	4/0	250	300
230V 3 PH	½	905	1442	2290	3306	5213	8276							
	¾	690	1100	1748	2523	3978	6316	9945						
	1	558	890	1413	2040	3216	5106	8041						
	1½	445	709	1126	1625	2562	4068	6406						
	2	324	516	820	1184	1866	2963	4666	7410	9351				
	3	241	384	609	880	1387	2202	3467	5506	6949	8750			
	5	*	235	373	539	849	1348	2123	3372	4255	5358	6755	7964	9520

⑤ Reduce lengths by 13% for 200 V systems. ⑥ Lengths in bold require 90°C wire. Shading indicates 40° C maximum ambient. * Wire does not meet the N.E.C. ampacity requirement.

The lengths in each of the Wire Sizing tables represent 100% of the allowable voltage drop when motor is running at full load. When sizing wire, the voltage drop of each wire segment must be included. The total must not exceed 100% of the allowable drop. Take for example a 1.5 HP motor with a distance from Service Entrance to Controller of 100' and 500' between the Controller and Motor.

- Service Entrance to Controller = 100' of 10 AWG (100/455) = 22 % (455' is from the S.E. to Controller chart)
- Controller to Motor = 500' of 12 AWG (500/709) = 71 % (709' is from the Controller to Motor chart)

Total Drop (must be ≤ 100%) 93 %

If the distance from the Controller to Motor was 600' (600/709) = 85% + 22% = 107%, we would need to use #10 wire for that segment, ex. 600/1126 = 53% + 22% (for 100' of #10) = 75% which is acceptable. It is also acceptable to use different wire sizes for the Buried and Well sections of wire.

AQUAVAR SOLO² DATA

Controller, Breaker, Generator Sizing

3 Phase Motor		Controller Model ②			Circuit Breaker ③	Generator ④ (VA)
HP	Voltage ①	3AS20	3AS30	3AS50		
¾	230				15	2900
	200					
1	230					3500
	200					
1½	230				20	4400
	200					
2	230				30	6100
	200					
3	230					8100
	200					
					40	
5	230				50	13300
	200					

Service Factor Amps 3 Phase Motors

HP	230 Volt, 3Ø	200 Volt, 3Ø
	Goulds Water Technology SFA	Goulds Water Technology SFA
¾	4.0	4.7
1	4.9	5.7
1½	6.6	7.6
2	8.0	9.3
3	10.1	12.0
5	17.5	20.2

NOTES:

① Motor Nameplate must be the same as supply voltage.

② Shaded areas indicate which controller models can be used with which motors. Lighter shading indicates combinations where controller will limit peak performance to 85% of catalog value for pump/motor.

③ Circuit Breaker or Dual Element Time Delay Fuse Size (Amps) protecting branch circuit supplying controller.

④ Minimum size of single phase 240 V generator required.

THREE PHASE, 4", MOTOR DATA

Electrical Data, 60 Hertz, 3450 RPM, 4" Motors

					Full Load		Service Factor		Locked Rotor Amps	Line - Line Resistance
GWT #	HP	KW	Volts	SF	Amps	Watts	Amps	Watts		
M07430	**0.75**	0.55	200	1.5	3.8	812	4.5	1140	32	2.6 - 3.0
M10430	**1**	0.75		1.4	4.6	1150	5.5	1500	29	3.4 - 3.9
M15430	**1.5**	1.1		1.3	6.3	1560	7.2	1950	40	1.9 - 2.5
M20430	**2**	1.5		1.25	7.5	2015	8.8	2490	51	1.4 - 2.0
M30430	**3**	2.2		1.15	10.9	2890	12.0	3290	71	0.9 - 1.3
M50430	**5**	3.7		1.15	18.3	4850	20.2	5515	113	0.4 - 0.8
M07432	**0.75**	0.55	230	1.5	3.3	850	3.9	1185	27	3.3 - 4.3
M10432	**1**	0.75		1.4	4.0	1090	4.7	1450	26.1	4.1 - 5.1
M15432	**1.5**	1.1		1.3	5.2	1490	6.1	1930	32.4	2.8 - 3.4
M20432	**2**	1.5		1.25	6.5	1990	7.6	2450	44	1.8 - 2.4
M30432	**3**	2.2		1.15	9.2	2880	10.1	3280	58.9	1.3 - 1.7
M50432	**5**	3.7		1.15	15.7	4925	17.5	5650	93	.85 - 1.25

Diaphragm Tank Sizing and Pre-Set Pressure Recommendations:

Diaphragm type (captive air) tanks are required on these systems.

Table 1: Tank Sizing Selection

Maximum Pump GPM	Total Volume	Recommended Tanks Order No.
10	2	V6P
23	4.5	V15P
41	8.2	V25P
70	13.9	V45
100	19.9	V60

Use Total Tank Volume, not drawdown volume, to select the proper tank size. The total tank volume should be approximately 20% of the pump's maximum flow. For example, when using a 10 gpm pump the system requires a minimum 2 gallon (total volume) tank.

The tank sizing recommendations are field proven to prevent objectionable pressure drops on start-up and provide smooth operation for the majority of variable speed pump systems.

Set the tank pressure, while tank is empty of water, to 20 psi below the desired system pressure setting. Ex. for a 50 psi system pressure, charge the tank to 30 psi.

xylem
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