



Bulldog Sitework LLC

609 HWY 466
Lady Lake, FL 32159
(352) 267 4664
www.BulldogSitework.com

Lake May Reserve Improvements

ITB# 22-944

Submittal #006

Well - Allens Well Drilling

BULLDOG SITEWORK LLC

Project Lake May - 22-944

Date reviewed 3/14/2023

Reviewed by Sizemore

Notes:

APPROVED

Office of Parks and Trails

3/31/2023 



4" SUPER STAINLESS SUBMERSIBLE MOTORS

1/3 - 1.5 HP, 2 WIRE: 1/3 - 3 HP 3 WIRE, SINGLE- & THREE-PHASE

APPLICATIONS

These motors are built for dependable operation in 4" diameter or larger water wells. Continuous rating in 86 °F (30 °C) water.

For further information, refer to Franklin Electric's "Submersible Motors: Application, Installation, Maintenance Manual."

FEATURES

- Corrosion-Resistant All Stainless Steel Exterior Construction
- Stainless Steel Splined Shaft
- Hermetically-Sealed Windings
- Anti-Track Self-Healing Resin System
- Water Lubrication
- Filter Check Valve
- Kingsbury-Type Thrust Bearing
- Pressure Equalizing Diaphragm
- Built-In Lightning Arrestors (all single-phase; 200 and 230 Volt three-phase)
- Removable "Water-Bloc" lead installed In North American 60 Hz water well motors. Consult factory for additional leads.
- UL 778 Recognized (North American Voltages)
- CSA Certified
- ANSI/NSF 61 Certified
- NEMA Mounting Dimensions
- Rotation: single-phase - CCW; three-phase electrically reversible

SPECIAL FEATURES

- No flow inducer sleeve required in water up to 86 °F (30 °C) for motors through 2 hp.
- Two-wire motors are split-phase designs with integral starting components and on-winding thermal overload protection, and do not require a control box. They feature Franklin's patented 2-wire BIAC starting switch which provides reverse impact torque to aid starting in adverse environments.
- Three-wire 60 Hz motors 1/3 - 1 hp use Franklin's exclusive 3-wire QD (Quick-Disconnect) Control Box with the patented QD Relay. This relay provides the ultimate in operational life.



WARNING: Serious or fatal electrical shock or fire hazard may result from failure to follow the instructions for proper installation and use which accompany this equipment. Do not use motor in swimming areas.

4" SUPER STAINLESS SUBMERSIBLE MOTORS

AVAILABILITY

Single-Phase

2-Wire, Split-Phase, 60 Hz, 3450 RPM

HP	KW	Volts	"L" Dim Inches	Shipping Weight	
				LBS	KG
1/3	0.25	115 OR 230	8.77	16	7.2
1/2	0.37	115 OR 230	9.51	18	8.1
3/4	0.55	230	10.64	21	9.5
1	0.75	230	11.51	24	10.9
1.5	1.1	230	14.91	31	14.1

2-Wire, Split-Phase, 50 Hz, 2875 RPM

HP	KW	Volts	"L" Dim Inches	Shipping Weight	
				LBS	KG
1/2	0.37	220	9.51	18	8.1
3/4	0.55	220	10.64	21	9.5
1	0.75	220	11.51	24	10.9
1.5	1.1	220	14.91	31	14.1

3-Wire, Capacitor Start, 60 Hz, 3450 RPM ①

HP	KW	Volts	"L" Dim Inches	Shipping Weight	
				LBS	KG
1/3	0.25	115 OR 230	8.77	17	7.7
1/2	0.37	115 OR 230	9.51	19	8.6
3/4	0.55	230	10.64	21	9.5
1	0.75	230	11.51	24	10.9
1.5	1.1	230	13.38	28	12.7
2	1.5	230	14.16	33	15.0
3	2.2	230	18.00	39	18

3-Wire, Capacitor Start, 50 Hz, 2875 RPM ①

HP	KW	Volts	"L" Dim Inches	Shipping Weight	
				LBS	KG
1/3	0.25	220	8.77	17	7.7
1/2	0.37	220	9.51	19	8.6
3/4	0.55	220	10.64	21	9.5
1	0.75	220	11.51	24	10.9
1.5	1.1	220	13.38	28	12.7
2	1.5	220	14.16	33	15.0
3	2.2	220	18.00	39	18

Three-Phase

200, 230, 380, 460, 575, Volt-60 Hz; 220, 280 Volt-50 Hz

Consult factory for dimensional and weight data.

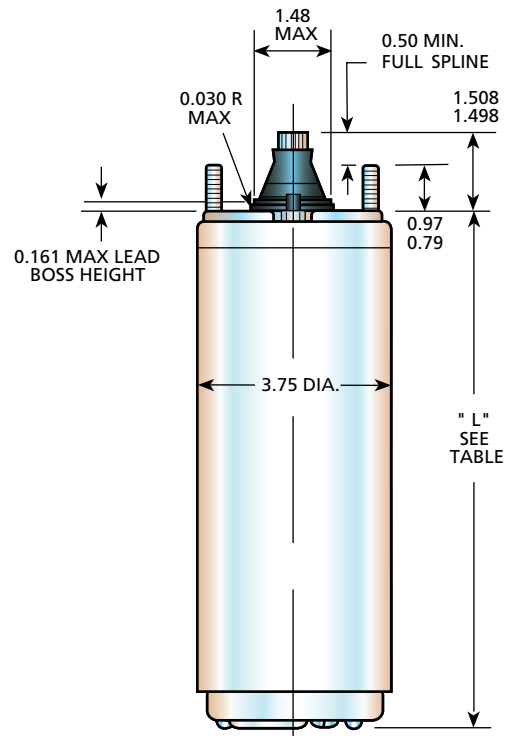
CONSTRUCTION MATERIALS

Component	Standard Water Well
1 Casting	304 SS Over Iron
2 Stator Shell	301 SS
3 Shaft Extension	17-4 SS
4 Fasteners	305 SS or 302 SS
5 Seal Cover	Acetal
6 Seal	Nitrile Rubber Lip
7 Diaphragm	Nitrile Rubber
8 Diaphragm Cover	301 SS
9 Slinger	Nitrile Rubber
10 Lead Wire (or Cable)	XLPE ②
11 Lead Potting	Expoxy
12 Lead Jam Nut	303 SS

① Franklin Electric control box required.

② Removable type installed in North American 60 Hz rated water well motors. Consult factory for additional leads

Specifications subject to change without notice. Contact Franklin Electric if current material types are required for bid specifications.





e-GS

35GS, 45GS, 65GS & 85GS

35-85 GPM 1-10HP, 60 HZ, SUBMERSIBLE PUMPS



FEATURES

Powered for Continuous Operation: All ratings are within the working limits of the motor as recommended by the motor manufacturer. Pump can be operated continuously without damage to the motor.

Field Serviceable: Units have left hand threads and are field serviceable with common tools and readily available repair parts.

Sand Handling Design: Our face clearance, floating impeller stack has proven itself for over 50 years as a superior sand handling, durable pump design.

FDA Compliant Non-Metallic Parts: Impellers, diffusers and bearing spiders are constructed of glass filled engineered composites. They are corrosion resistant and non-toxic.

Discharge Head/Check Valve: Cast 303 stainless steel for strength and durability. Two cast-in safety line loops for installer convenience. The built-in check valve is constructed of stainless steel and FDA compliant BUNA rubber for abrasion resistance and quiet operation.

Motor Adapter: Cast 303 stainless steel for rigid, accurate alignment of pump and motor. Easy access to motor mounting nuts using standard open end wrench.

Stainless Steel Casing: Polished stainless steel is strong and corrosion resistant.

Hex Shaft Design: Six sided shafts for positive impeller drive.

Engineered Polymer Bearings: The proprietary, engineered polymer bearing material is strong and resistant to abrasion and wear. The enclosed upper bearing is mounted in a durable glass filled engineered composite bearing spider for excellent abrasion resistance.

WATER END DATA

Series	Model	Required HP	Stages	Water End	
				Length (in)	Weight (lbs)
35GS	35GS10	1	6	14.2	8
	35GS15	1.5	8	16.6	9
	35GS20	2	10	19.1	10
	35GS30	3	14	24.0	13
	35GS50	5	23	36.4	20
	35GS75	7.5	36	53.0	28
	35GS100	10	46	65.2	34
45GS	45GS15	1.5	5	12.9	8
	45GS20	2	7	15.4	9
	45GS30	3	10	19.0	10
	45GS50	5	17	27.7	15
	45GS75	7.5	25	38.9	21
	45GS100	10	34	50.6	27
65GS	65GS15	1.5	6	19.1	10
	65GS20	2	7	21.2	11
	65GS30	3	10	27.4	12
	65GS50	5	16	41.2	18
	65GS75	7.5	26	62.3	35
	65GS100	10	33	76.8	42
85GS	85GS30	3	8	29.4	13
	85GS50	5	14	42.8	18
	85GS75	7.5	21	63.8	35
	85GS100	10	27	79.9	41

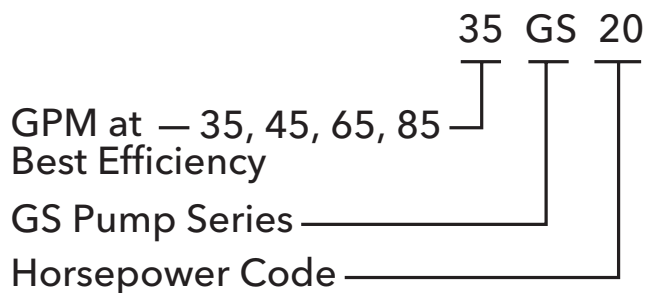
SPECIFICATIONS

Model	Flow Range GPM	Horse-Power Range	Best Efficiency GPM	Discharge Connection	Minimum Well Size	Rotation
35GS	10-50	1.0 - 10	35	2"	4"	CCW
45GS	20 - 65	1.5 - 10	45	2"	4"	CCW
65GS	30 - 80	1.5 - 10	65	2"	4"	CCW
85GS	40 - 120	3.0 - 10	85	2"	4"	CCW

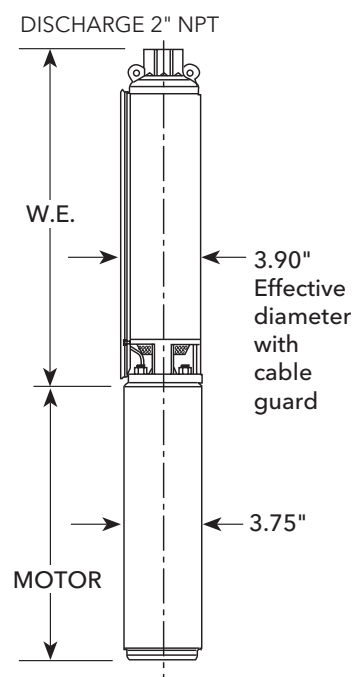
"GS" SERIES MATERIALS OF CONSTRUCTION

Part Name	Material
Discharge Head	AISI 303 SS
Check Valve Poppet	AISI 303 SS
Check Valve Seal	BUNA, FDA Compliant
Check Valve Seat	AISI 304 SS
Check Valve Retaining Ring	AISI 302 SS
Bearing Spider - Upper	Glass filled engineered composite
Bearing	Proprietary Engineered Polymer
Klipring	AISI 301 SS
Diffuser	Glass filled engineered composite
Impeller	Glass filled engineered composite
Bowl	AISI 304 SS
Intermediate Sleeve*	AISI 304 SS, Powder Metal
Intermediate Shaft Coupling*	AISI 304 SS, Powder Metal
Intermediate Bearing Spider*	Glass filled engineered composite
Intermediate Bearing Spider*	AISI 303 SS
Shim	AISI 304 SS
Screws - Cable Guard	AISI 304 SS
Motor Adapter	AISI 303 SS
Casing	AISI 304 SS
Shaft	17-4 PH Stainless Steel
Coupling	AISI 304 SS, Powder Metal
Cable Guard	AISI 304 SS
Suction Screen	AISI 304 SS

NOMENCLATURE - SOLD AS WATER ENDS ONLY



10 = 1	50 = 5
15 = 1½	75 = 7½
20 = 2	100 = 10
30 = 3	



CENTRIPRO 4" SINGLE-PHASE MOTORS

Order No.	Type	HP	Volts	Length in. (mm)	Weight lb. (kg.)
M10422	2-wire PSC	1	230	13.3 (337)	24.5 (11.1)
M15422		1.5		14.9 (378)	28.9 (13.1)
M10412	3-wire	1	230	11.7 (297)	23.1 (10.5)
M15412		1.5		13.6 (345)	27.4 (12.4)
M20412		2		15.1 (383)	31.0 (14.1)
M30412		3		18.3 (466)	40.0 (18.1)
M50412		5		27.7 (703)	70.0 (31.8)

CENTRIPRO 4" THREE-PHASE MOTORS

Order No.	HP	Volts	Length in. (mm)	Weight lb. (kg.)
M10430	1	200	11.7 (297)	22 (10.4)
M15430	1.5		11.7 (297)	22 (10.4)
M20430	2		13.8 (351)	28 (12.7)
M30430	3		15.3 (389)	32 (14.5)
M50430	5		21.7 (550)	55 (24.9)
M75430	7.5		27.7 (703)	70 (31.8)
M10432	1	230	11.7 (297)	23 (10.4)
M15432	1.5		11.7 (297)	23 (10.4)
M20432	2		13.8 (351)	28 (12.7)
M30432	3		15.3 (389)	32 (14.5)
M50432	5		21.7 (550)	55 (24.9)
M75432	7.5		27.7 (703)	70 (31.8)
M10434	1	460	11.7 (297)	23 (10.4)
M15434	1.5		11.7 (297)	23 (10.4)
M20434	2		13.8 (351)	28 (12.7)
M30434	3		15.3 (389)	32 (14.5)
M50434	5		21.7 (550)	55 (24.9)
M75434	7.5		27.7 (703)	70 (31.8)
M100434	10		-	-
M15437	1.5	575	11.7 (297)	23 (10.4)
M20437	2		15.3 (389)	32 (14.5)
M30437	3		15.3 (389)	32 (14.5)
M50437	5		27.7 (703)	70 (31.8)
M75437	7.5		27.7 (703)	70 (31.8)

NEMA MOTOR

- Corrosion resistant stainless steel construction.
- Built-in surge arrestor is provided on single phase motors through 5 HP.
- Stainless steel splined shaft.
- Hermetically sealed windings.
- Replaceable motor lead assembly.
- NEMA mounting dimensions.
- Control box is required with 3 wire single phase units.
- Three phase units require a magnetic starter with three leg Class 10 overload protection.

AGENCY LISTINGS



CentriPro Motor - tested to UL778 and CAN 22.2 by CSA International (Canadian Standards Association)



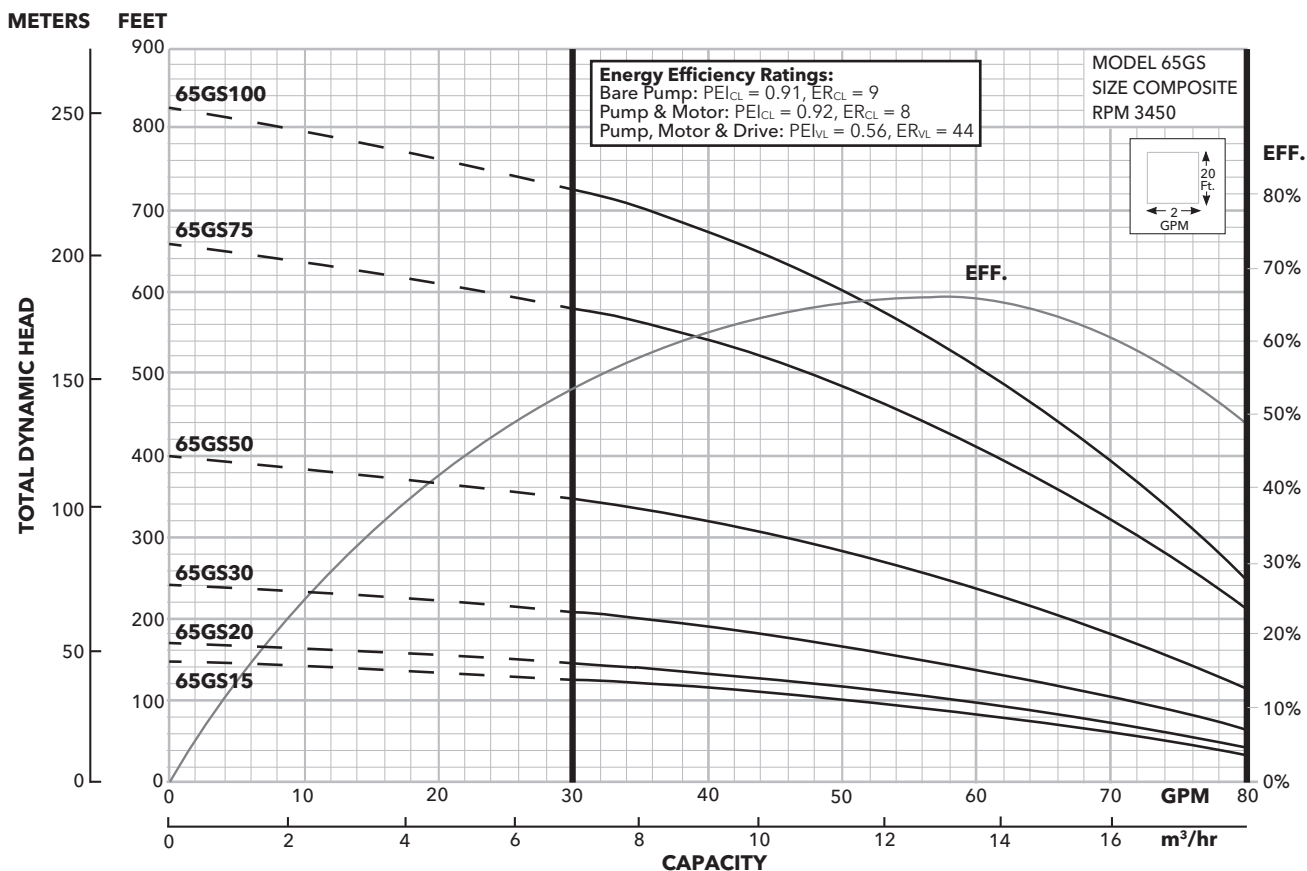
CentriPro Motor - Certified to NSF/ANSI 61, Annex G, Drinking Water System Components 4P49



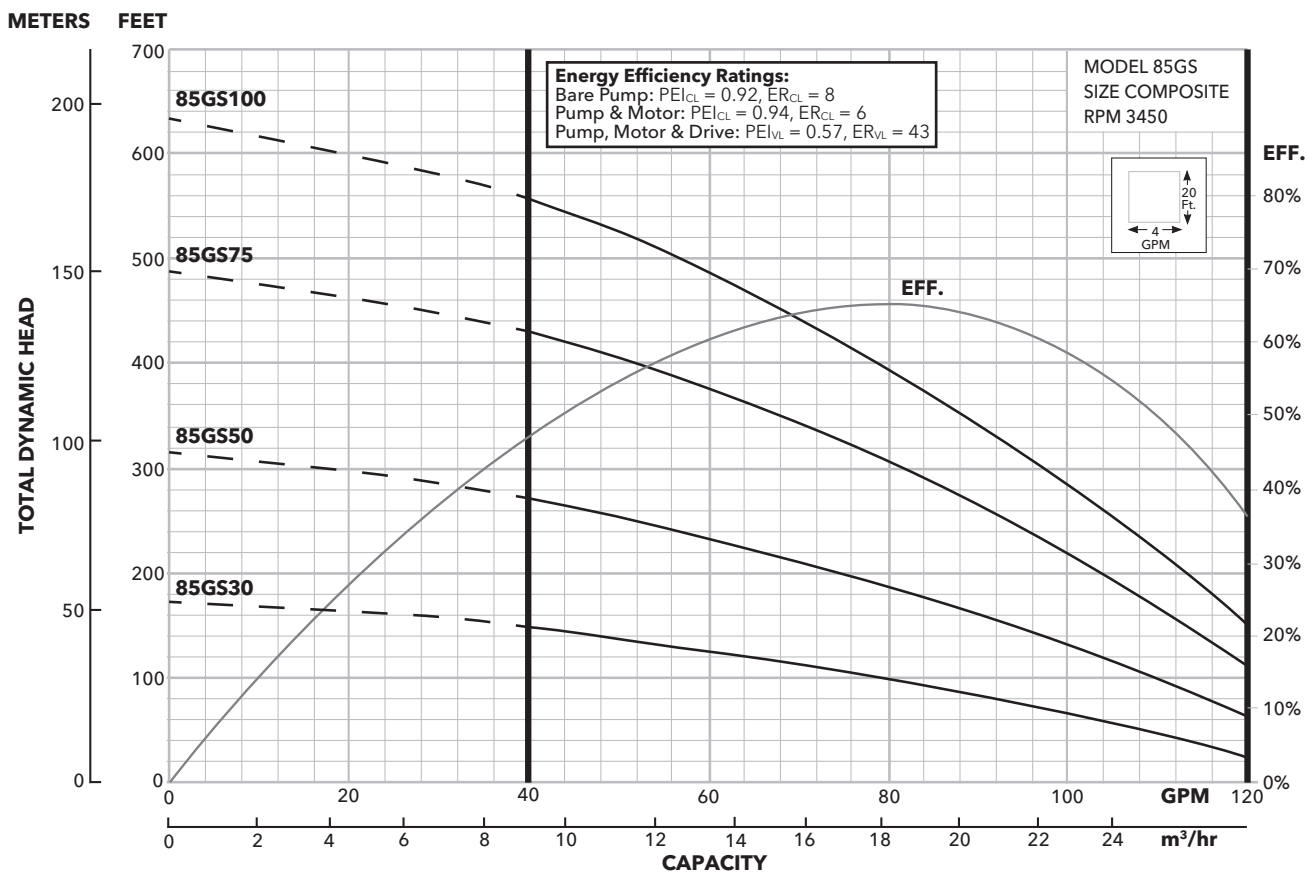
NSF/ANSI 372 - Drinking Water System Components - Lead Content

CLASS 6853 01 - Low Lead Content Certification Program - - Plumbing Products

Model 65GS



Model 85GS



MODEL 35GS

SELECTION CHART

Horsepower Range 1 - 3, Recommended Range 10 - 50 GPM, 60 Hz, 3450 RPM

Pump Model	HP	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	320	340	360	380	400	420	440	460	480	520	560	600		
35GS10	1	0		49	46	42	38	33	26	15																					
		20	44	40	36	31	23	11																							
		30	40	36	30	22																									
		40	35	29	20																										
		50	28	18																											
		60	16																												
Shut-off PSI			69	60	52	43	34	26	17	8																					
35GS15	1½	0			48	46	43	40	37	33	29	23	14																		
		20	47	45	43	39	36	32	28	21	10																				
		30	45	42	39	35	32	27	19																						
		40	42	38	35	31	26	18																							
		50	38	34	30	25	16																								
		60	34	29	24	15																									
Shut-off PSI			97	88	79	71	62	53	45	36	27	19	10																		
35GS20	2	0			50	48	46	44	42	39	37	34	30	26	20	12															
		20	49	47	45	43	41	38	36	33	29	24	17																		
		30	47	45	43	40	38	35	32	28	23	16																			
		40	44	42	40	38	35	32	27	22	15																				
		50	42	40	37	34	31	27	21	14																					
		60	39	37	34	30	26	20	12																						
Shut-off PSI			123	114	105	97	88	79	71	62	53	45	36	27	19	10															
35GS30	3	0				50	48	47	45	44	42	41	39	38	36	34	31	28	25	21	16	10									
		20		49	48	46	45	43	42	40	39	37	35	33	30	27	24	19	14												
		30	49	47	46	45	43	42	40	39	37	35	33	30	27	23	18	13													
		40	47	46	44	43	41	40	38	37	35	32	30	26	22	18	12														
		50	46	44	43	41	40	38	36	34	32	29	26	22	17	11															
		60	44	42	41	39	38	36	34	31	29	25	21	16	10																
Shut-off PSI			176	168	159	150	142	133	124	116	107	98	90	81	72	64	55	46	38	29	20	12									

Horsepower Range 5-10, Recommended Range 10 - 50 GPM, 60 Hz, 3450 RPM

Pump Model	HP	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																												
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350		
35GS50	5	0				50	48	46	43	41	38	35	31	26	19	11															
		20		50	48	46	44	41	38	35	31	26	20	12																	
		30		49	47	45	42	40	37	33	29	24	16																		
		40	50	48	46	44	41	38	35	31	27	20	12																		
		50	49	47	45	43	40	37	34	29	24	17																			
			48	46	44	41	39	35	32	27	21	13																			
Shut-off PSI			280	259	237	215	194	172	150	129	107	85	64	42																	
35GS75	7½	0					50	48	47	46	44	43	41	39	37	35	33	30	27	24	19	14									
		20				50	49	47	46	44	43	41	39	37	35	33	31	28	24	20	14										
		30				50	49	48	47	45	44	42	40	38	37	34	32	29	26	22	17	12									
		40				50	49	47	46	44	43	41	39	38	36	33	31	28	24	20	15										
		50				50	49	48	47	45	44	42	40	39	37	35	32	30	26	22	18	12									
						50	49	47	46	45	43	41	40	38	36	34	31	28	25	20	15										
Shut-off PSI			453	431	410	388	366	345	323	301	280	258	236	215	193	171	150	128	106	85	63	42									
35GS100	10	0							49	48	47	46	45	44	42	41	40	38	37	35	33	31	29	26	24	20	16	11			
		20							49	48	47	46	45	44	42	41	40	38	37	35	33	31	29	27	24	20	16	12			
		30							49	48	47	45	44	43	42	40	39	38	36	34	32	30	28	25	22	19	14				
		40							49	48	47	46	45	44	43	41	40	38	37	35	34	32	29	27	24	21	17	12			
		50							49	48	47	46	44	43	42	41	39	38	36	34	33	31	28	26	23	19	15	10			
									49	48	47	46	45	44	43	41	40	39	37	35	34	32	30	27	24	21	17	13			
Shut-off PSI			583	561	540	518	496	475	453	431	410	388	366	345	323	302	280	258	237	215	193	172	150	128	107	85	63	42			

MODEL 45GS

SELECTION CHART

Horsepower Range 1½ - 5, Recommended Range 20 - 65 GPM, 60 Hz, 3450 RPM

Pump Model	HP	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	320	340	360	380	400	440	480	520	560	600	640		
45GS15	1½	0	64	61	57	52	46	37	23																					
		20	55	50	44	34																								
		30	49	43	32																									
		40	41	30																										
		50	27																											
		60																												
Shut-off PSI			61	52	44	35	26	18	9																					
45GS20	2	0		62	60	57	53	49	45	40	32																			
		20	59	56	52	48	43	38	28																					
		30	55	51	47	43	36	26																						
		40	51	47	42	35	25																							
		50	46	41	34	22																								
		60	40	37	29																									
Shut-off PSI			88	80	71	63	54	45	37	28	19																			
45GS30	3	0		65	62	60	59	56	53	50	47	45	41	37	30	21														
		20	62	60	58	55	52	49	47	44	40	35	28																	
		30	60	58	55	52	49	46	43	39	34	26																		
		40	57	54	51	49	46	42	38	33	25																			
		50	54	51	48	45	42	38	32	23																				
		60	51	48	45	41	37	31	22																					
Shut-off PSI			130	121	113	104	95	87	78	69	61	52	43	35	26	17														
45GS50	5	0				65	63	62	61	60	59	58	56	55	53	51	50	48	46	44	42	39	32	22						
		20		64	63	61	60	59	58	57	56	54	53	51	49	47	46	43	41	38	35	31	20							
		30	64	62	61	60	59	58	57	55	54	52	51	49	47	45	43	41	38	34	30	25								
		40	62	61	60	59	58	57	55	54	52	50	49	47	45	43	40	37	33	29	24									
		50	61	60	59	58	56	55	53	52	50	48	47	45	42	40	37	33	28	23										
		60	60	59	58	56	55	53	52	50	48	46	44	42	39	36	32	28	22											
Shut-off PSI			228	220	211	202	194	185	176	168	159	150	142	133	124	116	107	98	90	81	72	64	46	29						

Horsepower Range 7½ - 10, Recommended Range 20-65 GPM, 3450 RPM

Pump Model	HP	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																								
			40	80	120	160	200	240	280	320	360	400	440	480	520	560	600	640	680	720	760	800	840	880	920	960	1000
45GS75	7½	0					63	62	60	58	56	53	51	48	46	43	39	34	28	21							
		20				63	61	60	57	55	53	50	48	45	42	38	33	27	19								
		30			64	62	60	58	56	54	51	49	46	43	40	35	30	23									
		40		65	63	61	59	57	55	52	50	47	45	41	37	32	26										
		50		64	62	60	58	56	54	51	49	46	43	39	35	29	21										
		60	65	63	61	59	57	55	52	50	47	44	41	37	31	25											
Shut-off PSI			332	315	298	280	263	246	228	211	194	177	159	142	125	107	90	73	55	38							
45GS100	10	0				65	64	63	61	60	58	57	55	54	53	51	50	48	46	44	42	39	36	32	28	23	
		20			65	64	63	61	60	58	57	55	54	52	51	49	48	46	44	42	39	36	32	27	22		
		30		65	64	63	62	60	59	57	56	54	53	52	50	49	47	45	43	40	37	33	29	24			
		40		65	64	62	61	60	58	56	55	54	52	51	49	48	46	44	41	38	35	31	26	21			
		50	65	64	63	62	60	59	57	56	54	53	51	50	48	47	45	42	40	36	33	28	23				
		60	65	64	62	61	59	58	56	55	53	52	50	49	47	45	43	41	38	34	30	26	20				
Shut-off PSI			456	439	422	404	387	370	353	335	318	301	283	266	249	231	214	197	179	162	145	127	110	93	75	58	

MODEL 65GS

SELECTION CHART

Horsepower Range 1½ - 5, Recommended Range 30 - 80 GPM, 60 Hz, 3450 RPM

Pump Model	HP	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	320	340	360	380	400	440	480		
65GS15	1½	0		78	70	61	51	36																		
		20	68	58	47	30																				
		30	57	45																						
		40	42																							
		50																								
		60																								
Shut-off PSI			55	46	38	29	20	12																		
65GS20	2	0		81	74	67	59	48	35																	
		20	72	64	56	45	30																			
		30	63	54	43																					
		40	53	41																						
		50	39																							
		60																								
Shut-off PSI			65	56	48	39	30	22	13																	
65GS30	3	0			81	76	71	66	59	53	45	35														
		20	80	75	69	64	57	51	42	32																
		30	74	69	63	56	49	41	30																	
		40	68	62	55	48	39																			
		50	61	54	47	38																				
		60	53	46	36																					
Shut-off PSI			96	87	79	70	61	53	44	35	27	18														
65GS50	5	0						80	77	73	70	67	63	59	55	50	45	39	32							
		20					79	76	72	69	66	62	58	54	49	44	37	30								
		30				78	75	72	69	65	61	57	53	48	43	36										
		40		78	75	71	68	64	61	57	52	47	42	35												
		50	77	74	71	67	64	60	56	52	47	41	34													
		60	74	70	67	63	59	55	51	46	40	33														
Shut-off PSI			164	155	147	138	129	121	112	103	95	86	77	69	60	51	43	34	26							

Horsepower Range 7½ - 10, Recommended Range 30 - 80 GPM, 60 Hz, 3450 RPM

Pump Model	HP	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																						
			40	80	120	160	200	240	280	320	360	400	440	480	520	560	600	640	680	720	760	800	840	880	
65GS75	7½	0						78	74	70	66	61	56	50	44	35									
		20					80	77	73	69	65	60	55	50	42	33									
		30					79	75	71	67	62	57	52	46	38										
		40				80	77	73	69	64	60	54	49	41	32										
		50				78	75	70	66	62	57	51	45	36											
		60		79	76	72	68	64	59	54	48	40	30												
Shut-off PSI			268	251	233	216	199	181	164	147	129	112	95	77	60	43									
65GS100	10	0						80	78	75	72	69	66	62	58	54	50	45	39	31					
		20						80	78	75	72	69	65	62	58	54	49	44	37	30					
		30						79	76	73	70	67	63	59	55	51	46	40	33						
		40					80	77	74	71	68	65	61	57	53	48	43	36							
		50					78	76	73	69	66	63	59	55	50	45	39	32							
		60					79	77	74	71	68	64	60	57	52	48	42	35							
Shut-off PSI			339	322	305	288	270	253	236	218	201	184	166	149	132	114	97	80	62	45					

MODEL 85GS

SELECTION CHART

Horsepower Range 3 - 10, Recommended Range 40 - 120 GPM, 60 Hz, 3450 RPM

Pump Model	HP	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	320	340	360	380	400	440	480	520	
85GS30	3	0		112	103	92	79	64	48																	
		20	100	88	74	59	42																			
		30	86	72	57	39																				
		40	70	54																						
		50	52																							
		60																								
Shut-off PSI			66	58	49	40	32																			
85GS50	5	0				114	109	103	97	90	83	74	66	57	47											
		20	119	113	107	101	95	88	80	72	63	54	43													
		30	112	106	101	94	87	79	70	62	52	41														
		40	105	100	93	85	77	69	60	51	40															
		50	99	92	84	76	68	59	49																	
		60	91	83	75	66	58	48																		
Shut-off PSI			128	119	111	102	93	85	76	67	59	50	41	33	24											
85GS75	7½	0					119	115	111	108	104	100	95	91	86	81	76	71	65	59	52					
		20				118	114	110	106	102	98	94	89	84	80	74	69	63	57	50	41					
		30			117	113	110	106	102	98	93	88	84	79	74	68	62	56	48	40						
		40	120	116	113	109	105	101	97	92	88	83	78	73	67	61	55	47								
		50	116	112	109	105	101	96	92	87	82	77	72	66	60	54	46									
		60	112	108	104	100	95	91	86	81	76	71	66	59	53	45										
Shut-off PSI			203	194	185	177	168	159	151	142	133	125	116	107	99	90	81	73	64	55	47	38				
85GS100	10	0							119	116	114	111	108	104	101	97	94	90	87	83	79	71	62	52		
		20					118	116	113	110	107	103	100	96	93	89	85	82	78	74	70	61	50			
		30				120	118	115	112	109	106	103	99	96	92	89	85	81	77	73	69	65	55	42		
		40			120	117	115	112	109	106	102	99	95	92	88	84	81	77	73	68	64	59	48			
		50		120	117	114	111	108	105	102	98	95	91	87	84	80	76	72	68	63	58	53	40			
		60	119	117	114	111	108	105	101	98	94	91	87	83	79	75	71	67	63	58	52	46				
Shut-off PSI			265	257	248	239	231	222	213	205	196	188	179	170	162	153	144	136	127	118	110	101	84	66	49	

NOTES

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com



Xylem Inc.
2881 East Bayard Street Ext., Suite A
Seneca Falls, NY 13148
Phone: (866) 325-4210
Fax: (888) 322-5877
www.xylem.com/goulds

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Submittal Data

Challenger Outdoor Series

Water System Tanks

Job Name: _____ Schedule #: _____

Location: _____ Model #: _____

Engineer: _____ Representative: _____

Contractor: _____

Description

Challenger Outdoor series tanks are diaphragm type, pre-charged hydro-pneumatic tanks designed for outdoor applications for residential and commercial water well, pressure booster, and irrigation systems. FR tanks feature our best paint finish for maximum outdoor performance.



Materials of Construction

Shell: Drawn steel w/ epoxy finish

Diaphragm: Butyl rubber w/ copolymer polypropylene lower water chamber

Connection: Stainless steel FPT

Ratings

Max. Working Pressure: 125 PSI

Max. Working Temp: 140 F

Pre-Charge (adjustable): 38 PSI



Tank Specifications

Model	Diameter (inches)	Height (inches)	System Connection (inches)	Volume (gallons)	Drawdown (gallons)			Weight (lbs)
					20/40	30/50	40/60	
PC 44 FR	16	22	1	14	5.6	4.8	4.1	28
PC 66 FR	16	29	1	20	8.1	6.8	5.9	36
PC 88 FR	16	34.5	1	16	10.5	8.9	7.7	41
PC 111 FR	21	27.75	1 ¼	32	12.9	10.9	9.4	54
PC 122 FR	16	42.75	1	33.4	13.3	11.3	9.7	49
PC 144 FR	21	36.25	1 ¼	44	17.7	15.0	13.0	67
PC 211 FR	21	48	1 ¼	62	25.0	21.1	18.3	82
PC 244 FR	21	62	1 ¼	81	32.6	27.6	23.9	99
PC 266 FR	26	44.5	1 ¼	85	34.3	29.0	25.1	121
PC 366 FR	26	59.75	1 ¼	119	48.0	40.6	35.1	153





Model CSV1A

Pump Control Valve

Installation Instructions

PREPARATION and INSTALLATION

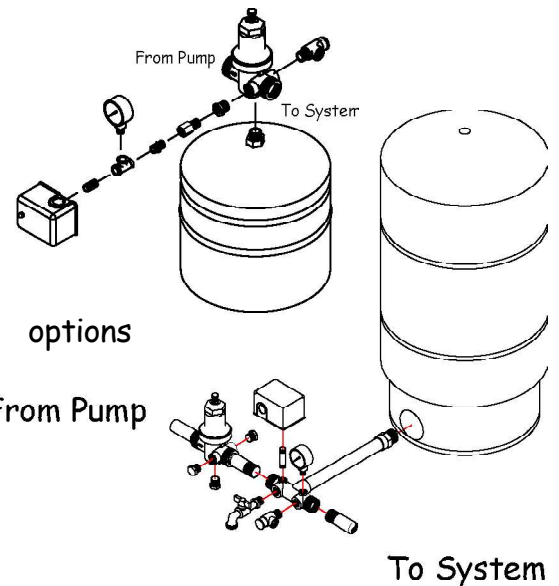
- 1) It is important that the well has been pumped until clean before any valve installations. You do not want to fill the valve with debris/drilling mud/sand/pvc shavings, etc. (Note: Multiple pump systems need a CSV for each pump). Turn off power to pump and drain system. This product creates back pressure, that is how it works. Back pressure is determined by the pump you are using. Be sure your piping between the pump and the Cycle Stop Valve is rated for that pressure.
- 2) The CSV1A must be installed prior to any tee offs. It can be installed in any position as long as the flow arrow is pointing away from the pump. Correct order of installation should be: Pump - CSV1A - All other outlets including the tank/switch. The only valve allowed between the pump and the Cycle Stop Valve is a check valve. (Always keep in mind this is a pump control valve. All water pumped/demanded must first go through our valve for it to be able to control the pump). Direction of flow is indicated by the arrow → on the valve itself for proper positioning.
- 3) The diaphragm style pressure tank should be installed downstream of the of the CSV1A. (NOTE: All side and bottom ports on the CSV1A are downstream ports.) There are two options: The tank can be installed/plumbed into the 3/4" port on the bottom of the CSV1A valve with the pressure switch/gauge/presure relief valve installed on the two 1/2" side ports....or the tank can be tee'd off of the main line via a standard tank Cross or tank tee. Pressure switch and other controls can either be installed on the tank tee or tank cross. (Note: Do not install pressure switch directly on main line away from pressure tank. Pre-charge pressure in the tank should be 2-5 psi lower than pressure switch start point.)
- 4) Install using teflon tape on all threads. Seven to ten wraps of teflon tape is usually sufficient. All connections should be water tight.

SETTING THE VALVE

- 1) Be sure the adjustment stem is loosened counter clockwise almost all of the way out. (You might have to loosen the lock nut if it is tight)
- 2) Turn on enough water to dump your pressure tank and cause your pump to come on.
- 3) Once the pump has come on, adjust your demand to 2-3 gpm (This reduced demand is important. You do not want to set the valve with more gpm going through it than this). With the adjustment stem loosened all of the way out, the valve is going to try to hold a low pressure of 15-25 psi or so. Wait a few moments after each adjustment for the valve to react and the pressure to level off. Each full round on the adjustment stem is approximately 13 PSI adjustment.
- 4) The CSV1A is adjusted by turning the adjustment stem clockwise to increase downstream pressure and counter clockwise to decrease downstream pressure. Adjust the CSV1A until the pressure steadies at your desired working pressure. Tighten the lock nut. The valve is set.

The CSV1A works with your pump sytem using pressure. The CSV1A has to be set within your existing system pressure parameters to work correctly. The pressure tank pressure needs to be 2-5 psi lower than your pressure switch cut in pressure. The pressure switch cut off pressure needs to be higher than the CSV1A working pressure. How much higher depends on your pressure tank size. See chart below for your specific tank/pressure switch recommendations/examples.

Pressure Tank Total Capacity	Air Pressure in Tank	Pressure Switch Cut in and Cut out	CSV1A set working pressure
86 Gallon Capacity	38	40/60	58 psi
62 Gallon Capacity	38	40/60	57 psi
44 Gallon Capacity	38	40/60	56 psi
34 Gallon Capacity	38	40/60	55 psi
20 Gallon Capacity	38	40/60	53 psi
10 Gallon Capacity	38	40/60	52 psi
4.4 Gallon Capacity	38	40/60	50 psi





CSV1A Troubleshooting

Symptom

Cause

Remedy

Pump is Cycling off and on

Diaphragm is worn out

This is usually due to differential pressure being higher than 125 PSI. Use a second valve to reduce differential pressure to original valve. Replace diaphragm in original valve.

Pressure switch or valve not set correctly

Cut off pressure must be higher than valve pressure. Reset pressure switch or valve.

Waterlogged pressure tank

Replace tank

Bad or torn diaphragm

Replace pilot diaphragm

Low pressure

Valve is not set correctly

Reset valve

Demand is more than pump can provide at desired pressure

Reduce demand so it is within pump capabilities to maintain desired pressure.

Chattering valve

Too much air pressure in tank

Reduce air pressure in tank to 5-10 PSI below cut in pressure.

Pump rapid cycles at start up and then begins to function correctly

Pressure switch is located on the main line or closer to the main line than the pressure tank.

Move pressure switch to small line at the base of the tank on a line no larger than 1 1/4" in diameter

CSV setting is too close to cut off pressure

Set pressure switch cut off pressure at least 10 PSI higher than CSV setting

Air pressure in tank too high

Reduce air pressure in tank to 5-10 PSI below cut in pressure

Multiple check valves in system working against each other

Remove all but the check valve or foot valve on the pump itself



FEATURES

Powered for Continuous Operation: All ratings are within the working limits of the motor as recommended by the motor manufacturer. Pump can be operated continuously without damage to the motor.

Field Serviceable: Units have left hand threads and are field serviceable with common tools and readily available repair parts.

Sand Handling Design: Our face clearance, floating impeller stack has proven itself for over 50 years as a superior sand handling, durable pump design.

FDA Compliant Non-Metallic Parts: Impellers, diffusers and bearing spiders are constructed of glass filled engineered composites. They are corrosion resistant and non-toxic.

Discharge Head/Check Valve: Cast 303 stainless steel for strength and durability. Two cast-in safety line loops for installer convenience. The built-in check valve is constructed of stainless steel and FDA compliant BUNA rubber for abrasion resistance and quiet operation.

Motor Adapter: Cast 303 stainless steel for rigid, accurate alignment of pump and motor. Easy access to motor mounting nuts using standard open end wrench.

Stainless Steel Casing: Polished stainless steel is strong and corrosion resistant.

Hex Shaft Design: Six sided shafts for positive impeller drive.

Engineered Polymer Bearings: The proprietary, engineered polymer bearing material is strong and resistant to abrasion and wear. The enclosed upper bearing is mounted in a durable Noryl® bearing spider for excellent abrasion resistance.

e-GS

35GS, 45GS, 65GS & 85GS

35-85 GPM 1-10HP, 60 HZ, SUBMERSIBLE PUMPS

WATER END DATA

Series	Model	Required HP	Stages	Water End	
				Length (in)	Weight (lbs)
35GS	35GS10	1	6	14.2	8
	35GS15	1.5	8	16.6	9
	35GS20	2	10	19.1	10
	35GS30	3	14	24.0	13
	35GS50	5	23	36.4	20
	35GS75	7.5	36	53.0	28
	35GS100	10	46	65.2	34
45GS	45GS15	1.5	5	12.9	8
	45GS20	2	7	15.4	9
	45GS30	3	10	19.0	10
	45GS50	5	17	27.7	15
	45GS75	7.5	25	38.9	21
	45GS100	10	34	50.6	27
65GS	65GS15	1.5	6	19.1	10
	65GS20	2	7	21.2	11
	65GS30	3	10	27.4	12
	65GS50	5	16	41.2	18
	65GS75	7.5	26	62.3	35
	65GS100	10	33	76.8	42
85GS	85GS30	3	8	29.4	13
	85GS50	5	14	42.8	18
	85GS75	7.5	21	63.8	35
	85GS100	10	27	79.9	41

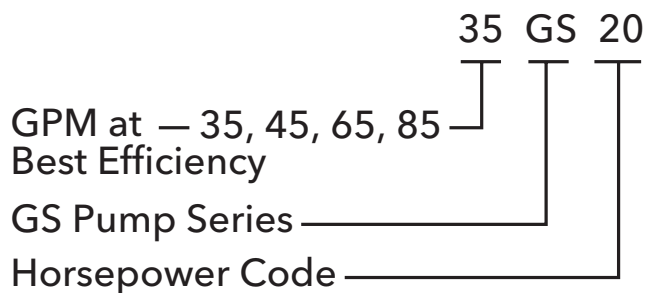
SPECIFICATIONS

Model	Flow Range GPM	Horse-Power Range	Best Efficiency GPM	Discharge Connection	Minimum Well Size	Rotation
35GS	10-50	1.0 - 10	35	2"	4"	CCW
45GS	20 - 65	1.5 - 10	45	2"	4"	CCW
65GS	30 - 80	1.5 - 10	65	2"	4"	CCW
85GS	40 - 120	3.0 - 10	85	2"	4"	CCW

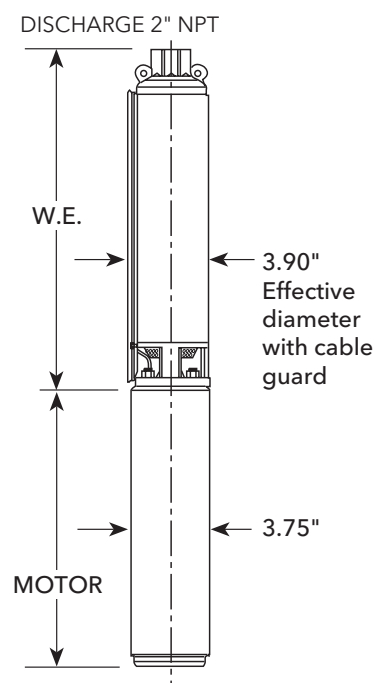
"GS" SERIES MATERIALS OF CONSTRUCTION

Part Name	Material
Discharge Head	AISI 303 SS
Check Valve Poppet	AISI 303 SS
Check Valve Seal	BUNA, FDA Compliant
Check Valve Seat	AISI 304 SS
Check Valve Retaining Ring	AISI 302 SS
Bearing Spider - Upper	Noryl
Bearing	Proprietary Engineered Polymer
Klipring	AISI 301 SS
Diffuser	Noryl
Impeller	Noryl
Bowl	AISI 304 SS
Intermediate Sleeve*	AISI 304 SS, Powder Metal
Intermediate Shaft Coupling*	AISI 304 SS, Powder Metal
Intermediate Bearing Spider*	Noryl
Intermediate Bearing Spider*	AISI 303 SS
Shim	AISI 304 SS
Screws - Cable Guard	AISI 304 SS
Motor Adapter	AISI 303 SS
Casing	AISI 304 SS
Shaft	17-4 PH Stainless Steel
Coupling	AISI 304 SS, Powder Metal
Cable Guard	AISI 304 SS
Suction Screen	AISI 304 SS

NOMENCLATURE - SOLD AS WATER ENDS ONLY



10 = 1	50 = 5
15 = 1½	75 = 7½
20 = 2	100 = 10
30 = 3	



CENTRIPRO 4" SINGLE-PHASE MOTORS

Order No.	Type	HP	Volts	Length in. (mm)	Weight lb. (kg.)
M10422	2-wire PSC	1	230	13.3 (337)	24.5 (11.1)
M15422		1.5		14.9 (378)	28.9 (13.1)
M10412	3-wire	1	230	11.7 (297)	23.1 (10.5)
M15412		1.5		13.6 (345)	27.4 (12.4)
M20412		2		15.1 (383)	31.0 (14.1)
M30412		3		18.3 (466)	40.0 (18.1)
M50412		5		27.7 (703)	70.0 (31.8)

CENTRIPRO 4" THREE-PHASE MOTORS

Order No.	HP	Volts	Length in. (mm)	Weight lb. (kg.)
M10430	1	200	11.7 (297)	22 (10.4)
M15430	1.5		11.7 (297)	22 (10.4)
M20430	2		13.8 (351)	28 (12.7)
M30430	3		15.3 (389)	32 (14.5)
M50430	5		21.7 (550)	55 (24.9)
M75430	7.5		27.7 (703)	70 (31.8)
M10432	1	230	11.7 (297)	23 (10.4)
M15432	1.5		11.7 (297)	23 (10.4)
M20432	2		13.8 (351)	28 (12.7)
M30432	3		15.3 (389)	32 (14.5)
M50432	5		21.7 (550)	55 (24.9)
M75432	7.5		27.7 (703)	70 (31.8)
M10434	1	460	11.7 (297)	23 (10.4)
M15434	1.5		11.7 (297)	23 (10.4)
M20434	2		13.8 (351)	28 (12.7)
M30434	3		15.3 (389)	32 (14.5)
M50434	5		21.7 (550)	55 (24.9)
M75434	7.5		27.7 (703)	70 (31.8)
M100434	10		-	-
M15437	1.5	575	11.7 (297)	23 (10.4)
M20437	2		15.3 (389)	32 (14.5)
M30437	3		15.3 (389)	32 (14.5)
M50437	5		27.7 (703)	70 (31.8)
M75437	7.5		27.7 (703)	70 (31.8)

NEMA MOTOR

- Corrosion resistant stainless steel construction.
- Built-in surge arrestor is provided on single phase motors through 5 HP.
- Stainless steel splined shaft.
- Hermetically sealed windings.
- Replaceable motor lead assembly.
- NEMA mounting dimensions.
- Control box is required with 3 wire single phase units.
- Three phase units require a magnetic starter with three leg Class 10 overload protection.

AGENCY LISTINGS



CentriPro Motor - tested to UL778 and CAN 22.2 by CSA International (Canadian Standards Association)

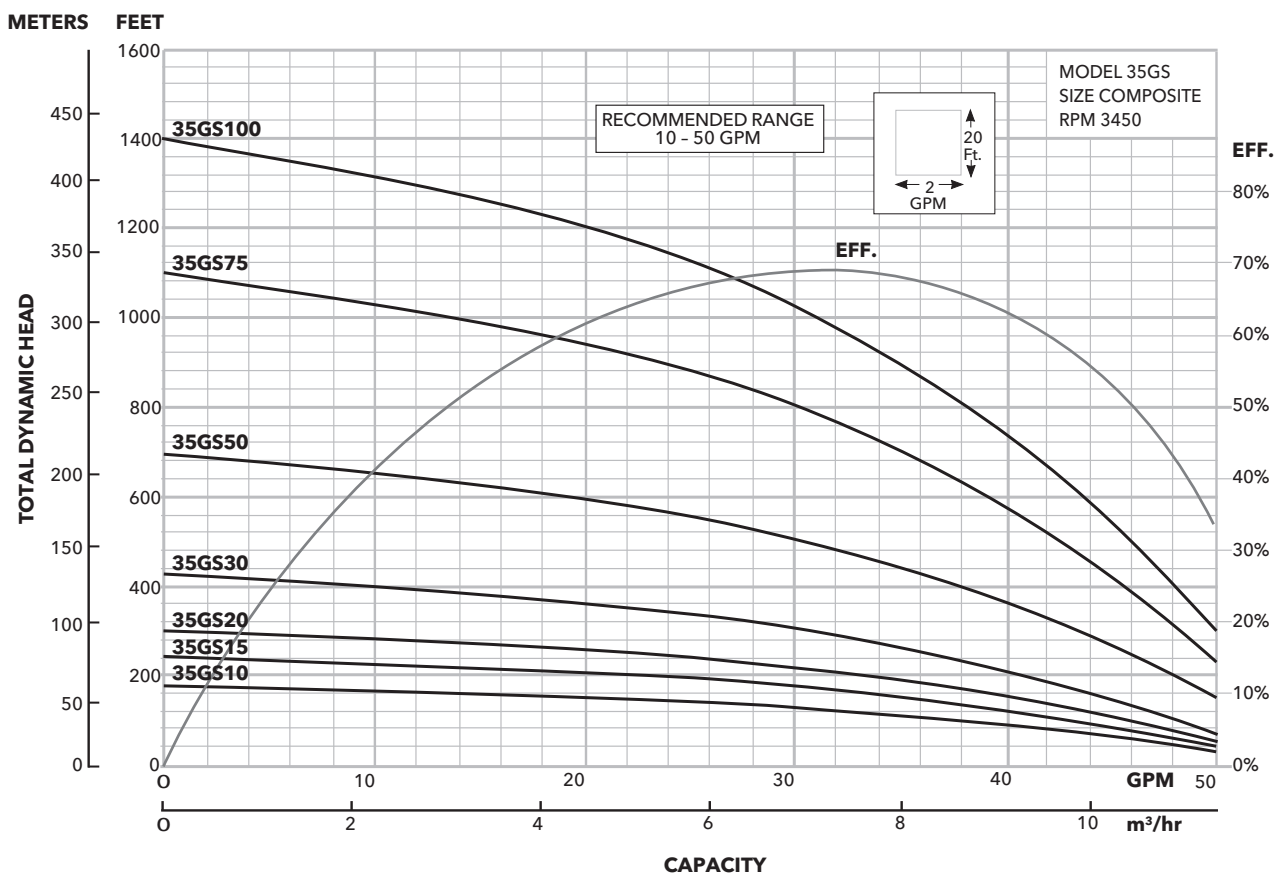


CentriPro Motor - Certified to NSF/ANSI 61, Annex G, Drinking Water System Components 4P49

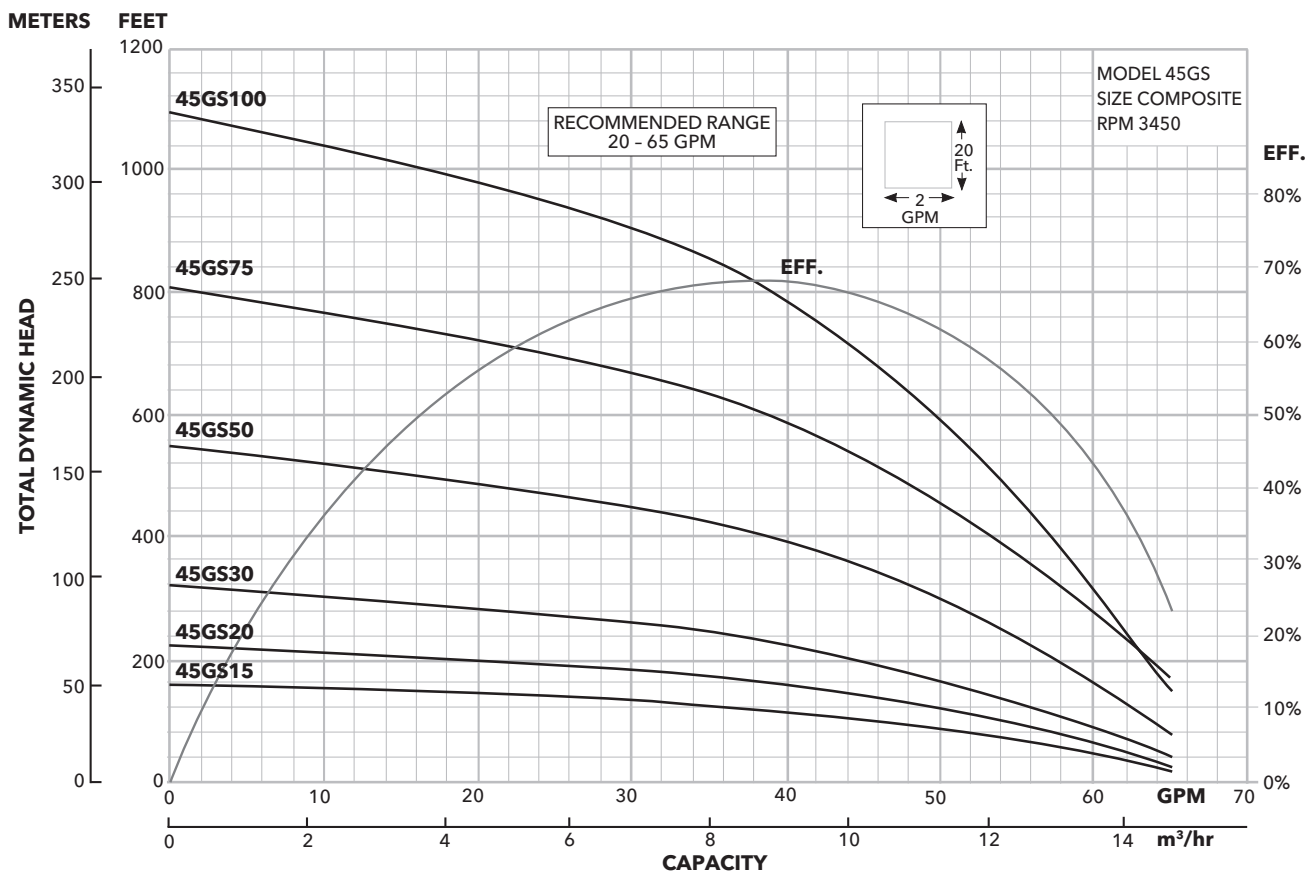


NSF/ANSI 372 - Drinking Water System Components - Lead Content
CLASS 6853 01 - Low Lead Content Certification Program - - Plumbing Products

Model 35GS



Model 45GS



MODEL 35GS

SELECTION CHART

Horsepower Range 1 - 3, Recommended Range 10 - 50 GPM, 60 Hz, 3450 RPM

Pump Model	HP	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	320	340	360	380	400	420	440	460	480	520	560	600		
35GS10	1	0		49	46	42	38	33	26	15																					
		20	44	40	36	31	23	11																							
		30	40	36	30	22																									
		40	35	29	20																										
		50	28	18																											
		60	16																												
Shut-off PSI			69	60	52	43	34	26	17	8																					
35GS15	1½	0			48	46	43	40	37	33	29	23	14																		
		20	47	45	43	39	36	32	28	21	10																				
		30	45	42	39	35	32	27	19																						
		40	42	38	35	31	26	18																							
		50	38	34	30	25	16																								
		60	34	29	24	15																									
Shut-off PSI			97	88	79	71	62	53	45	36	27	19	10																		
35GS20	2	0			50	48	46	44	42	39	37	34	30	26	20	12															
		20	49	47	45	43	41	38	36	33	29	24	17																		
		30	47	45	43	40	38	35	32	28	23	16																			
		40	44	42	40	38	35	32	27	22	15																				
		50	42	40	37	34	31	27	21	14																					
		60	39	37	34	30	26	20	12																						
Shut-off PSI			123	114	105	97	88	79	71	62	53	45	36	27	19	10															
35GS30	3	0				50	48	47	45	44	42	41	39	38	36	34	31	28	25	21	16	10									
		20		49	48	46	45	43	42	40	39	37	35	33	30	27	24	19	14												
		30	49	47	46	45	43	42	40	39	37	35	33	30	27	23	18	13													
		40	47	46	44	43	41	40	38	37	35	32	30	26	22	18	12														
		50	46	44	43	41	40	38	36	34	32	29	26	22	17	11															
		60	44	42	41	39	38	36	34	31	29	25	21	16	10																
Shut-off PSI			176	168	159	150	142	133	124	116	107	98	90	81	72	64	55	46	38	29	20	12									

Horsepower Range 5-10, Recommended Range 10 - 50 GPM, 60 Hz, 3450 RPM

Pump Model	HP	PSI	Depth to Water in Feet/Ratings in GPM (Gallons per Minute)																											
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	
35GS50	5	0			50	48	46	43	41	38	35	31	26	19	11															
		20		50	48	46	44	41	38	35	31	26	20	12																
		30		49	47	45	42	40	37	33	29	24	16																	
		40	50	48	46	44	41	38	35	31	27	20	12																	
		50	49	47	45	43	40	37	34	29	24	17																		
			48	46	44	41	39	35	32	27	21	13																		
Shut-off PSI			280	259	237	215	194	172	150	129	107	85	64	42																
35GS75	7½	0				50	48	47	46	44	43	41	39	37	35	33	30	27	24	19	14									
		20			50	49	47	46	44	43	41	39	37	35	33	31	28	24	20	14										
		30			50	49	48	47	45	44	42	40	38	37	34	32	29	26	22	17	12									
		40			50	49	47	46	44	43	41	39	38	36	33	31	28	24	20	15										
		50		50	49	48	47	45	44	42	40	39	37	35	32	30	26	22	18	12										
				50	49	47	46	45	43	41	40	38	36	34	31	28	25	20	15											
Shut-off PSI			453	431	410	388	366	345	323	301	280	258	236	215	193	171	150	128	106	85	63	42								
35GS100	10	0						49	48	47	46	45	44	42	41	40	38	37	35	33	31	29	26	24	20	16	11			
		20						49	48	47	46	45	44	42	41	40	38	37	35	33	31	29	27	24	20	16	12			
		30						49	48	47	45	44	43	42	40	39	38	36	34	32	30	28	25	22	19	14				
		40					49	48	47	46	45	44	43	41	40	38	37	35	34	32	29	27	24	21	17	12				
		50					49	48	47	46	44	43	42	41	39	38	36	34	33	31	28	26	23	19	15	10				
							49	48	47	46	45	44	43	41	40	39	37	35	34	32	30	27	24	21	17	13				
Shut-off PSI			583	561	540	518	496	475	453	431	410	388	366	345	323	302	280	258	237	215	193	172	150	128	107	85	63	42		

NOTES

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- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

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Xylem Inc.
2881 East Bayard Street Ext., Suite A
Seneca Falls, NY 13148
Phone: (866) 325-4210
Fax: (888) 322-5877
www.gouldswatertechnology.com

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