



Pressure Master

SubDrive | MonoDrive | E-Z Pac



Table of Contents

	Page		Page
General Information.....	2-3	SUBDRIVE 100	
E-Z Pac Package.....	4	6617-157 Nema 1	10-11
		6617-158 Nema 4	10-11
SUBDRIVE 2W		SUBDRIVE 150	
6617-164 Nema 3R.....	5	6617-148 Nema 1	12-13
MONODRIVE & XT		6617-155 Nema 4	12-13
6617-151 1/2, 3/4, & 1 HP Nema 1.....	6-7	SUBDRIVE 300	
6617-159 1/2, 3/4, & 1 HP Nema 4.....	6-7	6617-153 Nema 4 Outdoor.....	14-15
6617-154 1 1/2 - 2 HP Nema 1.....	6-7		
6617-160 1 1/2 - 2 HP Nema 4.....	6-7		
SUBDRIVE 75			
6617-147 Nema 1	8-9		
6617-156 Nema 4	8-9		

Easily Replaceable Fan Kits

Controller	Franklin Electric #	AY McDonald #
Subdrive 75 Nema 4	225635901	6617-161
Subdrive 100 Nema 4	225635902	6617-162
Subdrive 150 Nema 4	225635902	6617-162
Monodrive Nema 4	225635901	6617-161
Monodrive XT Nema 4	225635902	6617-162
Subdrive 2W Nema 3R	225635910	Contact Factory
Subdrive 300	225635903	Contact Factory

Pressure Sensor

Included with all constant pressure controllers.

Placement Kit	Franklin Electric #	AY McDonald #
Subdrive 75 / 100 / 150 MD & XT	223995901	6627-088
Subdrive 300	225495901	6617-431



		MonoDrive		MonoDrive XT		Subdrive 2W		Subdrive 75		Subdrive 100		Subdrive 150		Subdrive 300	
A.Y. McDonald Part #	N1	6617-151		6617-154		6617-147		6617-157		6617-148		N/A		6617-153	
	N4	6617-159		6617-160		6617-156		6617-158		6617-155					
Franklin Model #	N1	587 020 3110		587 020 4110		587 020 3380		587 020 4100		587 020 4150		N/A			
	N4	587 020 3114		587 020 4114		587 020 3384		587 020 4104		587 020 4154		587 020 6300			

Input (From Power Source)

Voltage	190-260 V Single-Phase	190-260 V Single-Phase	230 V (+10%) Single-Phase	190-260 V Single-Phase	190-260 V Single-Phase	190-260 V Single-Phase	190-260 V Single-Phase
Frequency	60/50 Hz	60/50 Hz	60/50 Hz	60/50 Hz	60/50 Hz	60/50 Hz	60/50 Hz
Max Amps (RMS)	5.7 A (1/2 HP), 8.7 A (3/4 HP), 11 A (1 HP)	13 A (1.5 HP), 16 A (2.0 HP)	<14 A (For circuit breaker sizing)	11A	19A	23A	36A
Power Factor	1 (Constant)	1 (Constant)	N/A	1 (Constant)	1 (Constant)	1 (Constant)	1 (Constant)

Output (To Motor)

Voltage	Variable / Single-Phase	Variable / Single-Phase	Variable / Single-Phase / FE Motor	Variable / Three-Phase	Variable / Three-Phase	Variable / Three-Phase	Variable / Three-Phase
Frequency	Variable (30-60 Hz)	Variable (30-60 Hz)	Variable (30-60 Hz)	Variable (30-80 Hz)	Variable (30-80 Hz)	Variable (30-80 Hz)	Variable (30-80 Hz)
Max Amps (RMS)	4.0 A (1/2 HP), 6.6 A (3/4 HP), 9.0 A (1 HP)	10 A (1.5 HP), 12 A (2.0 HP)	6.0 A (1/2 HP), 8.0 A (3/4 HP), 9.8 A (1 HP)	5.9 A	8.1 A	10.9 A	17.8 A

For Use With:

Pump Rating	1/2, 3/4 or 1 HP (Selectable)	1 1/2 or 2 HP (Selectable)	1/2, 3/4, or 1 HP (Selectable)	3/4, 1 or 1 1/2 HP (Selectable)	1, 1 1/2, or 2 HP (Selectable)	1 1/2, 2 or 3 HP (Selectable)	3 or 5 HP (Selectable)
Motor Rating	1/2, 3/4, or 1 HP 230VAC (Single-Phase)	1 1/2 or 2 HP 230VAC (Single-Phase)	1/2, 3/4, or 1 HP 230VAC (Single-Phase)	1 1/2 HP 230VAC (Three-Phase)	2 HP 230VAC (Three-Phase)	3 HP 230VAC (Three-Phase)	5 HP 230VAC (Three-Phase)
Pressure Sensor (Included)	External	External	External	External	External	External	External
Controller Weight	N1 15.00 lbs N4 24.14 lbs	17.50 lbs 28.32 lbs	15.00 lbs	15.00 lbs	17.50 lbs 28.32 lbs	17.50 lbs 28.32 lbs	N/A 35.15 lbs
Carton Size (H x W x D)	N1 16 1/2 x 12 3/8 x 9" N4 17 1/2 x 16 3/8 x 11 3/8"	16 1/2 x 12 3/8 x 9" 17 1/2 x 16 3/8 x 11 3/8"	12 1/4 x 16 1/2 x 9"	16 1/2 x 12 3/8 x 9" 17 1/2 x 16 3/8 x 11 3/8"	16 1/2 x 12 3/8 x 9" 17 1/2 x 16 3/8 x 11 3/8"	16 1/2 x 12 3/8 x 9" 17 1/2 x 16 3/8 x 11 3/8"	N/A 19 7/8 x 17 1/2 x 14 1/4"
Shipping Weight	N1 19.23 lbs N4 30.91 lbs	21.28 lbs 35.09 lbs	18.00 lbs	19.23 lbs 30.91 lbs	21.28 lbs 35.09 lbs	21.28 lbs 35.09 lbs	N/A 40.95 lbs

N1 = Nema 1 (indoor), N4 = Nema 4 (outdoor)

E-Z Pac Package

A.Y. McDonald's E-Z Pac Package is designed to make installing a constant pressure system even easier. The package includes the motor, pump, drive, and is available with the SubDrive 75, 100, and 150.

FEATURES

- Selection based on flow requirement
- System-specific performance curve
- Available in Nema 1 or Nema 4 rated enclosures



Models Available

Subdrive	7 GPM*	10 GPM*	15 GPM*	20 GPM*	25 GPM*	35 GPM	40 GPM	55 GPM	60 GPM
Nema 1	23075VCP1EZ	23075KCP1EZ	23075LCP1EZ	23075PCP1EZ	23075MCP1EZ				
	23100VCP1EZ	23100KCP1EZ	23100LCP1EZ	23100PCP1EZ	23100MCP1EZ	24100RCP1EZ			24100QCP1EZ
	23150VCP1EZ	23150KCP1EZ	23150LCP1EZ	23150PCP1EZ	23150MCP1EZ	24150RCP1EZ	24150GCP1EZ	24150SCP1EZ	24150QCP1EZ
Nema 4	23075VCP4EZ	23075KCP4EZ	23075LCP4EZ	23075PCP4EZ	23075MCP4EZ	24075RCP4EZ			
	23100VCP4EZ	23100KCP4EZ	23100LCP4EZ	23100PCP4EZ	23100MCP4EZ	24100RCP4EZ			24100QCP4EZ
	23150VCP4EZ	23150KCP4EZ	23150LCP4EZ	23150PCP4EZ	23150MCP4EZ	24150RCP4EZ	24150GCP4EZ	24150SCP4EZ	24150QCP4EZ

*Also available in brass - contact factory for model number

SUBDRIVE 2W



Designed to handle single-phase, two wire pumping systems up to 1 HP, the SubDrive2W is a constant pressure system that offers outdoor rated NEMA 3R enclosure protection.

The SubDrive2W is designed to convert a conventional 1/2 HP, 3/4 HP, and 1 HP pump system to a variable speed constant pressure system by simply replacing the pressure switch. Maximum pump output using the SubDrive2W is similar to the performance achieved using a conventional pressure switch. Therefore, the pump selection criteria are the same as if a pressure switch were used.

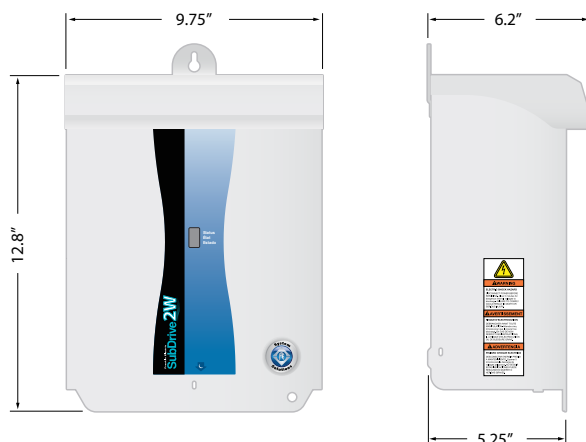
APPLICATIONS

Ideal for applications where constant pressure is desirable, such as: residential water systems, landscaping, water treatment, and geothermal applications where a two-wire motor is currently installed.

FEATURES

- Single-phase, two wire motor, constant pressure, 230 volt
- 1/2 HP, 3/4 HP, or 1 HP Performance
- Easy to install NEMA 3R rated enclosure
- Plug & play
- Built-in diagnostic protection
- UL & cUL Listed

Mounting Dimensions



Models Available

Model #	Part #
Subdrive 2W	6617-164

MONODRIVE & XT - Pressure Master MD

This constant pressure controller provides the flexibility to convert a single phase conventional pump system to a constant pressure system with a simple replacement of the three wire control box and pressure switch. The MonoDrive can retrofit any existing 1/2 - 2 HP three wire single phase water well system which means that homeowners can enjoy the benefits of constant water pressure without purchasing a new pump.



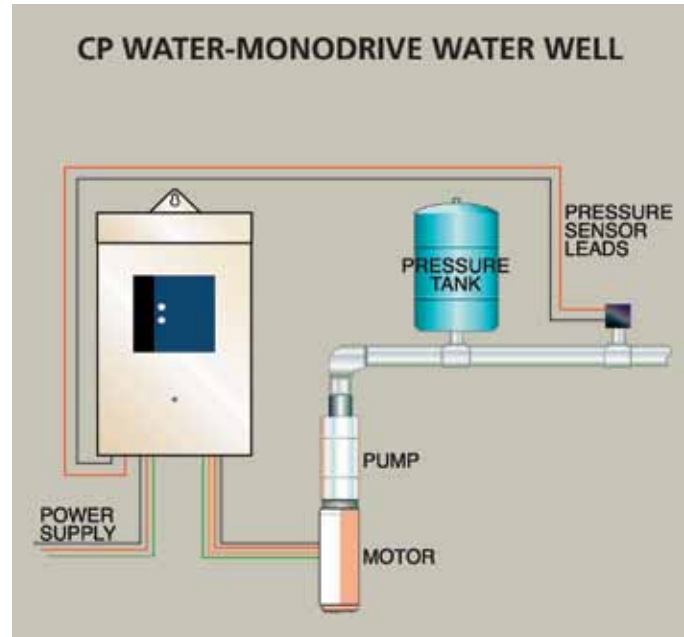
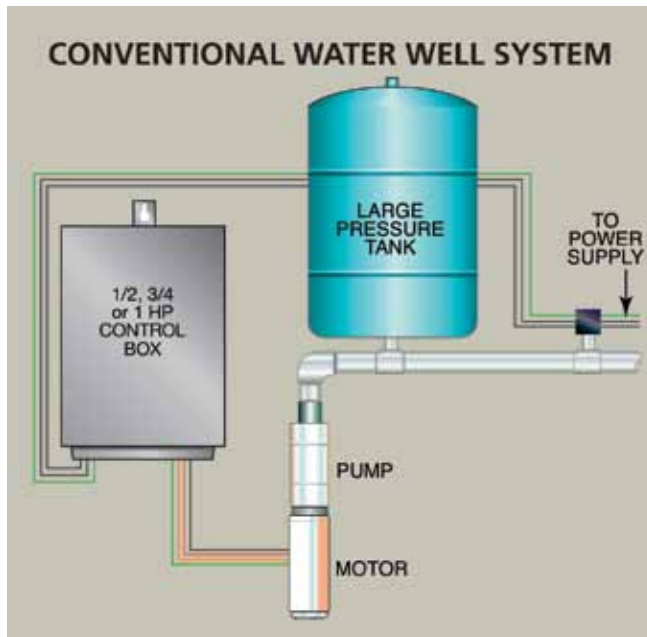
APPLICATIONS

MonoDrive and MonoDrive XT are designed for use in residential applications with a McDonald 1/2 - 2HP submersible pump already in place with a Franklin Electric single phase three wire motor. The performance is the same as standard 1/2 - 2 HP pump/motor sets. It is great for homes that have a wide range of flow demands. The MonoDrive controller is equally effective on new installations.

Models Available

Model #	Nema1	Nema4
Monodrive for 1/2, 3/4, and 1 HP	6617-151	6617-159
Monodrive XT for 1 1/2 and 2 HP	6617-154	6617-160

MONODRIVE & XT - Pressure Master MD



FEATURES

- Constant water pressure with a wide range of settings (25-80 psi)
- Works with a standard pump mounted to a single-phase, three wire Franklin Electric motor
- Easy installation – remove control box and pressure switch, install MonoDrive and pressure sensor
- Nema 1 or Nema 4 enclosure
- Smaller pressure tank or existing tank can be used
- Soft start means less stress and longer life on motor
- Smart Reset technology allows well recovery before restarting the pump
- Built in protection and diagnostics
 - Surge protection
 - Dry well conditions
 - Underload
 - Undervoltage
 - Locked pump
 - Open circuit
 - Short circuit
 - Overheated controller
 - Controllers are UL & cUL recognized for U.S.A. and Canada

SUBDRIVE 75 - Pressure Controller

This controller provides constant water pressure using state of the art electronics to drive and enhance the performance of a standard submersible pump. The pressure in a well system is monitored and regulated by the pressure sensor to continually adjust the pump motor speed to meet water supply demands. It eliminates the pressure cycling associated with a conventional well system. SubDrive can deliver dependable constant pressure to provide water well owners with a premium water system.

APPLICATIONS

SubDrive 75 constant pressure controller is designed for use in residential or light commercial applications with a McDonald 3/4 HP pump end mounted to a 1½ HP, 230 volt Franklin Electric three phase motor. Using single-phase input, this innovative variable speed controller can be used to provide constant pressure in applications with a wide range of flow demand including large homes, ground source heat pumps, and sprinkler systems.

FEATURES

- Constant water pressure with a wide range of settings (25-80 psi)
- Works with a standard pump mounted to a three-phase Franklin Electric submersible motor
- Nema 1 & Nema 4 enclosure
- Smaller pressure tank or existing tank can be used
- Three-phase performance with single phase input
- Soft start means less stress and longer life on motor
- Smart Reset technology allows well recovery before restarting the pump
- Built in protection and diagnostics
 - Surge protection
 - Dry well conditions
 - Underload
 - Undervoltage
 - Locked pump
 - Open circuit
 - Short circuit
 - Overheated controller
 - Controllers are UL & cUL recognized for U.S.A. and Canada



The SubDrive 75 is designed to be part of a system that includes three main components:



1

Subdrive 75 controller
(pressure sensor included)
Nema1 - Part No. 6617-147
Nema4 - Part No. 6617-156



2

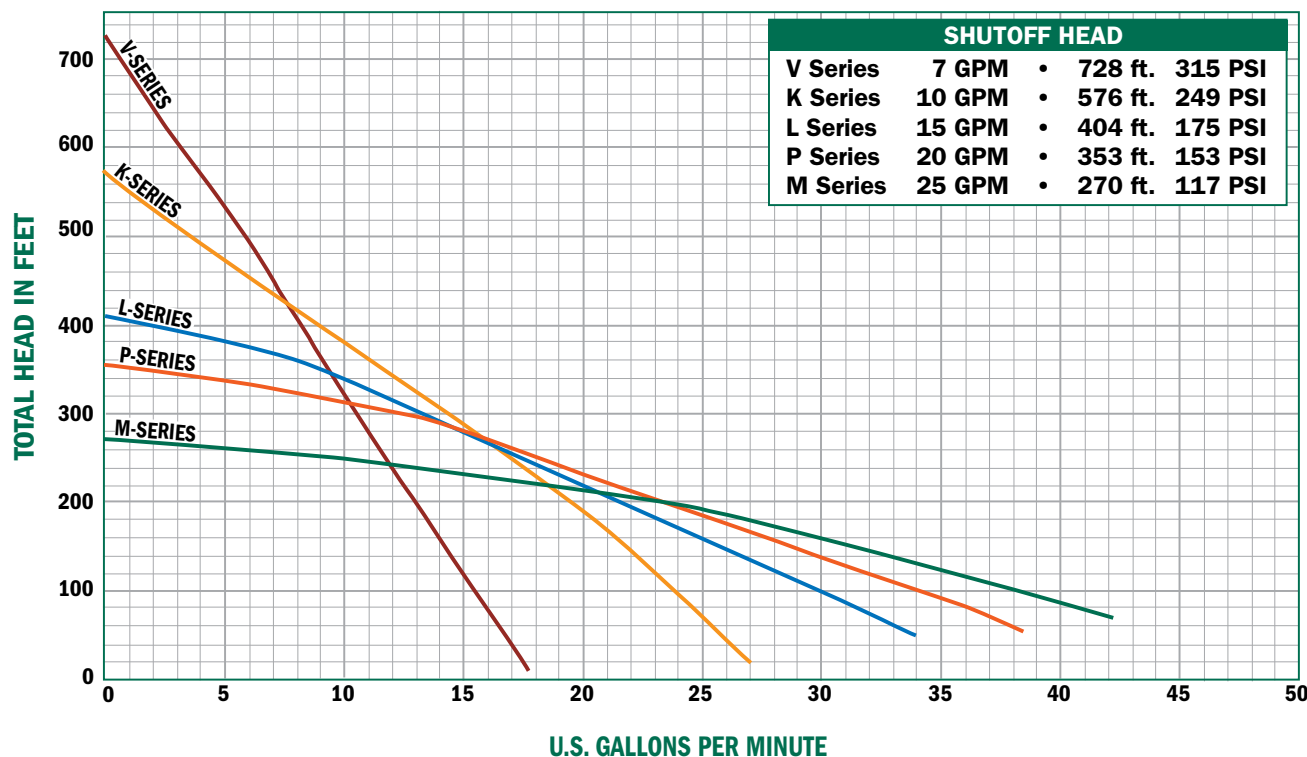
Franklin 1 1/2 HP, 230V
three phase motor
Part No. 3129-794



3

Appropriate pump end
Includes pump end 23075K
For example:
23075KCP1EZ

SUBDRIVE 75 - Pressure Controller



Models Available



No-Lead Brass - 21000 Series

E-Z PAC (N1)	E-Z PAC (N4)	DESCRIPTION
21075VCP1EZ	21075VCP4EZ	V Series, 7 GPM
21075KCP1EZ	21075KCP4EZ	K Series, 10 GPM
21075LCP1EZ	21075LCP4EZ	L Series, 15 GPM
21075PCP1EZ	21075PCP4EZ	P Series, 20 GPM
21075MCP1EZ	21075MCP4EZ	M Series, 25 GPM

N1 = (Nema 1), N4 = (Nema 4)

- 1 1/4" NPT connection on All Series



Stainless Steel - 23000 Series

E-Z PAC (N1)	E-Z PAC (N4)	DESCRIPTION
23075VCP1EZ	23075VCP4EZ	V Series, 7 GPM
23075KCP1EZ	23075KCP4EZ	K Series, 10 GPM
23075LCP1EZ	23075LCP4EZ	L Series, 15 GPM
23075PCP1EZ	23075PCP4EZ	P Series, 20 GPM
23075MCP1EZ	23075MCP4EZ	M Series, 25 GPM

N1 = (Nema 1), N4 = (Nema 4)

- 1 1/4" NPT connection on All Series

When ordering pump end only, order standard SH pump ends on V Series only.

SUBDRIVE 100 - Pressure Controller

This controller provides constant water pressure using state of the art electronics to drive and enhance the performance of a standard submersible pump. The pressure in a well system is monitored and regulated by the pressure sensor to continually adjust the pump motor speed to meet water supply demands. It eliminates the pressure cycling associated with a conventional well system. SubDrive can deliver dependable constant pressure to provide water well owners with a premium water system.

APPLICATIONS

SubDrive 100 constant pressure controller is designed for use in residential or light commercial applications with a McDonald 1 HP pump end mounted to a 2 HP, 230 volt Franklin Electric three phase motor. Using single-phase input, this innovative variable speed controller can be used to provide constant pressure in applications with a wide range of flow demand including large homes, ground source heat pumps, and sprinkler systems.



FEATURES

- Constant water pressure with a wide range of settings (25-80 psi)
- Works with a standard pump mounted to a three-phase Franklin Electric submersible motor
- Nema 1 & Nema 4 enclosure
- Smaller pressure tank or existing tank can be used
- Three-phase performance with single phase input
- Soft start means less stress and longer life on motor
- Smart Reset technology allows well recovery before restarting the pump
- Built in protection and diagnostics
 - Surge protection
 - Dry well conditions
 - Underload
 - Undervoltage
 - Locked pump
 - Open circuit
 - Short circuit
 - Overheated controller
 - Controllers are UL & cUL recognized for U.S.A. and Canada

The SubDrive 100 is designed to be part of a system that includes three main components:



1 Subdrive 100 controller
(pressure sensor included)
Nema1 - Part No. 6617-157
Nema4 - Part No. 6617-158

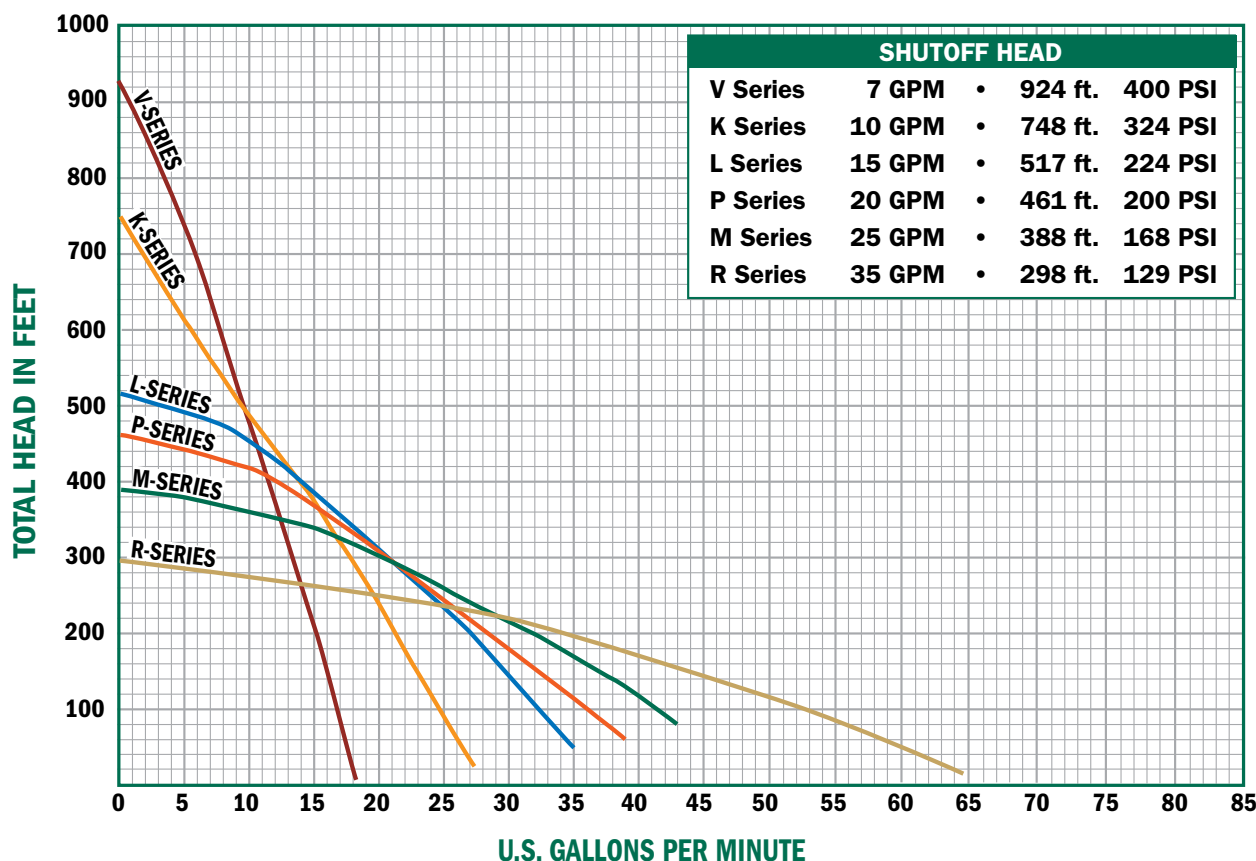


2 Franklin 2 HP, 230V
three phase motor
Part No. 3129-796



3 Appropriate pump end
Includes pump end 23100K
For example:
23100KCP1EZ

SUBDRIVE 100 - Pressure Controller



NOTE: Performance shown does not include friction loss in drop pipe
(for flow rates above 25 GPM, larger drop pipe is recommended.)

Models Available



No-Lead Brass - 21000 Series

E-Z PAC (N1)	E-Z PAC (N4)	DESCRIPTION
21100VCP1EZ	21100VCP4EZ	V Series, 7 GPM
21100KCP1EZ	21100KCP4EZ	K Series, 10 GPM
21100LCP1EZ	21100LCP4EZ	L Series, 15 GPM
21100PCP1EZ	21100PCP4EZ	P Series, 20 GPM
21100MCP1EZ	21100MCP4EZ	M Series, 25 GPM

N1 = (Nema 1), N4 = (Nema 4)

- 1 1/4" NPT connection on All Series



Stainless Steel - 23000 & 24000 Series

E-Z PAC (N1)	E-Z PAC (N4)	DESCRIPTION
23100VCP1EZ	23100VCP4EZ	V Series, 7 GPM
23100KCP1EZ	23100KCP4EZ	K Series, 10 GPM
23100LCP1EZ	23100LCP4EZ	L Series, 15 GPM
23100PCP1EZ	23100PCP4EZ	P Series, 20 GPM
23100MCP1EZ	23100MCP4EZ	M Series, 25 GPM
24100RCP1EZ	24100RCP4EZ	R Series, 35 GPM

N1 = (Nema 1), N4 = (Nema 4)

- 1 1/4" NPT connection on V, K, L, P, & M Series
- 2" NPT connection on R Series

When ordering pump end only, order standard SH pump ends on V Series only.

SUBDRIVE 150 - Pressure Controller

This controller provides constant water pressure using state of the art electronics to drive and enhance the performance of a standard submersible pump. The pressure in a well system is monitored and regulated by the pressure sensor to continually adjust the pump motor speed to meet water supply demands. It eliminates the pressure cycling associated with a conventional well system. SubDrive can deliver dependable constant pressure to provide water well owners with a premium water system.

APPLICATIONS

SubDrive 150 constant pressure controller is designed for use in residential or light commercial applications with a McDonald 1 1/2 HP pump end mounted to a 3 HP, 230 volt Franklin Electric three phase motor. Using single-phase input, this innovative variable speed controller can be used to provide constant pressure in applications with a wide range of flow demand including large homes, ground source heat pumps, and sprinkler systems.

FEATURES

- Constant water pressure with a wide range of settings (25-80 psi)
- Works with a standard pump mounted to a three-phase Franklin Electric submersible motor
- Nema 1 & Nema 4 enclosure
- Smaller pressure tank or existing tank can be used
- Three-phase performance with single phase input
- Soft start means less stress and longer life on motor
- Smart Reset technology allows well recovery before restarting the pump
- Built in protection and diagnostics
 - Surge protection
 - Dry well conditions
 - Underload
 - Undervoltage
 - Locked pump
 - Open circuit
 - Short circuit
 - Overheated controller
- Controllers are UL & cUL recognized for U.S.A. and Canada



The SubDrive 150 is designed to be part of a system that includes three main components:



1 Subdrive 150 controller
(pressure sensor included)
Nema1 - Part No. 6617-148
Nema4 - Part No. 6617-155

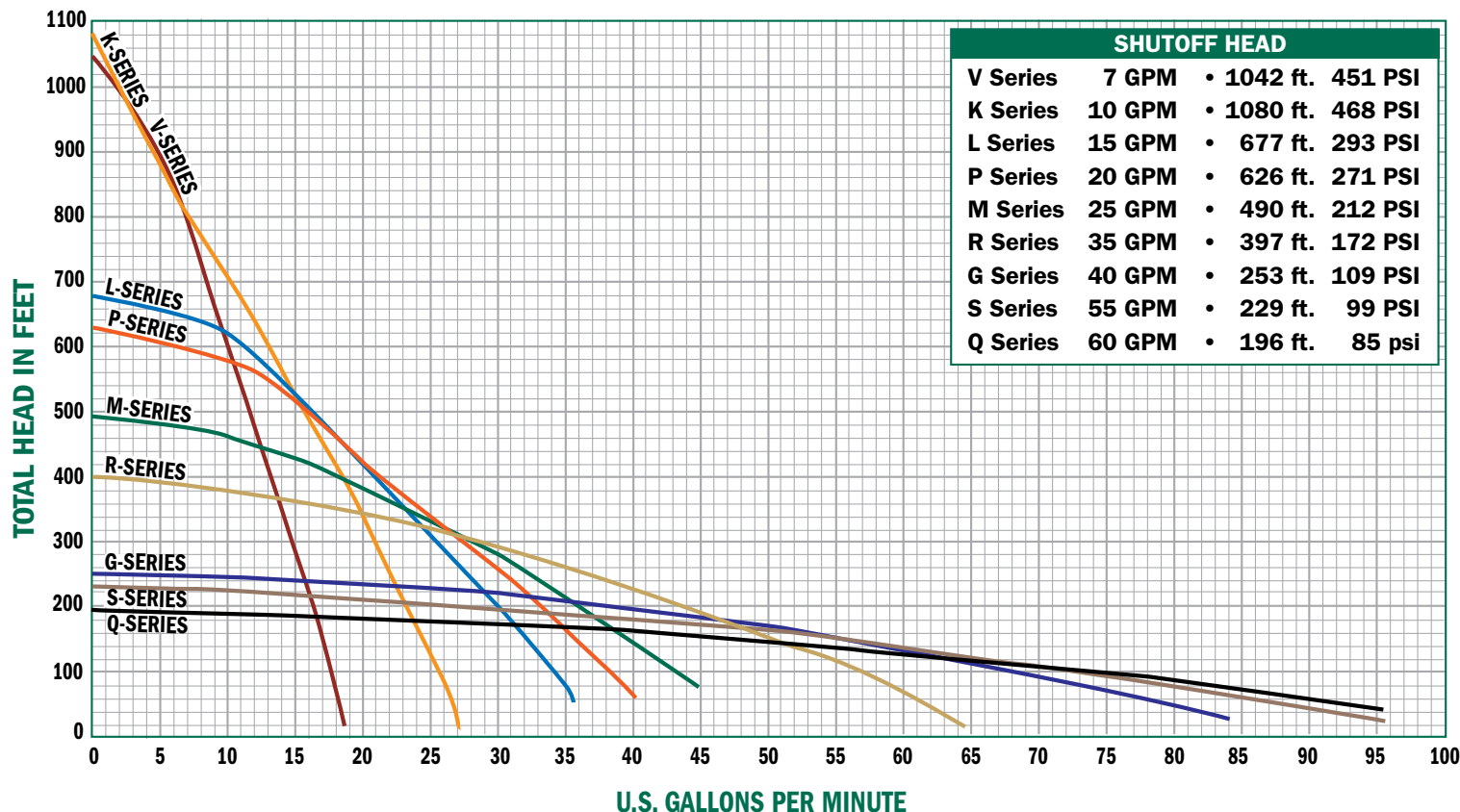


2 Franklin 3 HP, 230V
three phase motor
Part No. 3129-709



3 Appropriate pump end
Includes pump end 23150K
For example:
23150KCP1EZ

SUBDRIVE 150 - Pressure Controller



NOTE: Performance shown does not include friction loss in drop pipe
(for flow rates above 25 GPM, larger drop pipe is recommended.)

Models Available



No-Lead Brass - 21000 Series

E-Z PAC (N1)	E-Z PAC (N4)	DESCRIPTION
21150VCP1EZ	21150VCP4EZ	V Series, 7 GPM
21150KCP1EZ	21150KCP4EZ	K Series, 10 GPM
21150LCP1EZ	21150LCP4EZ	L Series, 15 GPM
21150PCP1EZ	21150PCP4EZ	P Series, 20 GPM
21150MCP1EZ	21150MCP4EZ	M Series, 25 GPM

N1 = (Nema 1), N4 = (Nema 4)

- All connections 1/4" NPT



Stainless Steel - 23000 & 24000 Series

E-Z PAC (N1)	E-Z PAC (N4)	DESCRIPTION
23150VCP1EZ	23150VCP4EZ	V Series, 7 GPM
23150KCP1EZ	23150KCP4EZ	K Series, 10 GPM
23150LCP1EZ	23150LCP4EZ	L Series, 15 GPM
23150PCP1EZ	23150PCP4EZ	P Series, 20 GPM
23150MCP1EZ	23150MCP4EZ	M Series, 25 GPM
24150RCP1EZ	24150RCP4EZ	R Series, 35 GPM
24150GCP1EZ	24150GCP4EZ	G Series, 40 GPM
24150SCP1EZ	24150SCP4EZ	S Series, 55 GPM
24150QCP1EZ	24150QCP4EZ	Q Series, 60 GPM

N1 = (Nema 1), N4 = (Nema 4)

- 1 1/4" NPT connection on V, K, L, P, & M Series
- 2" NPT connection on R, G, S, and Q Series

When ordering pump end only, order standard SH pump ends on V Series only.

SUBDRIVE 300 - Pressure Controller

This controller provides constant water pressure using state of the art electronics to drive and enhance the performance of a standard submersible pump. The pressure in a well system is monitored and regulated by the pressure sensor to continually adjust the pump motor speed to meet water supply demands. It eliminates the pressure cycling associated with a conventional well system. SubDrive can deliver dependable constant pressure to provide water well owners with a premium water system.



APPLICATIONS

SubDrive 300 constant pressure controller is designed for use with a McDonald 3 HP pump end mounted to a 5 HP, 230 volt Franklin Electric three phase motor. Using single-phase input, this innovative variable speed controller can be used to provide constant pressure in applications with a wide range of flow demand including large homes, ground source heat pumps, and sprinkler systems. Also designed to handle high capacities, SubDrive 300 is perfect for larger applications where constant pressure is essential: commercial landscaping, small livestock operations, nurseries, even some rare residential applications.

FEATURES

- Constant water pressure with a wide range of settings (25-80 psi)
- Works with a standard pump mounted to a three-phase Franklin Electric submersible motor
- Nema 4 enclosure
- Smaller pressure tank or existing tank can be used
- Three-phase performance with single phase input
- Soft start means less stress and longer life on motor
- Smart Reset technology allows well recovery before restarting the pump
- Built in protection and diagnostics
 - Surge protection
 - Dry well conditions
 - Underload
 - Undervoltage
 - Locked pump
 - Open circuit
 - Short circuit
 - Overheated controller
 - Controllers are UL & cUL recognized for U.S.A. and Canada

The SubDrive 300 is designed to be part of a system that includes three main components:



1

Subdrive 300 controller
(pressure sensor included)
Nema4 - Part No. 6617-153



2

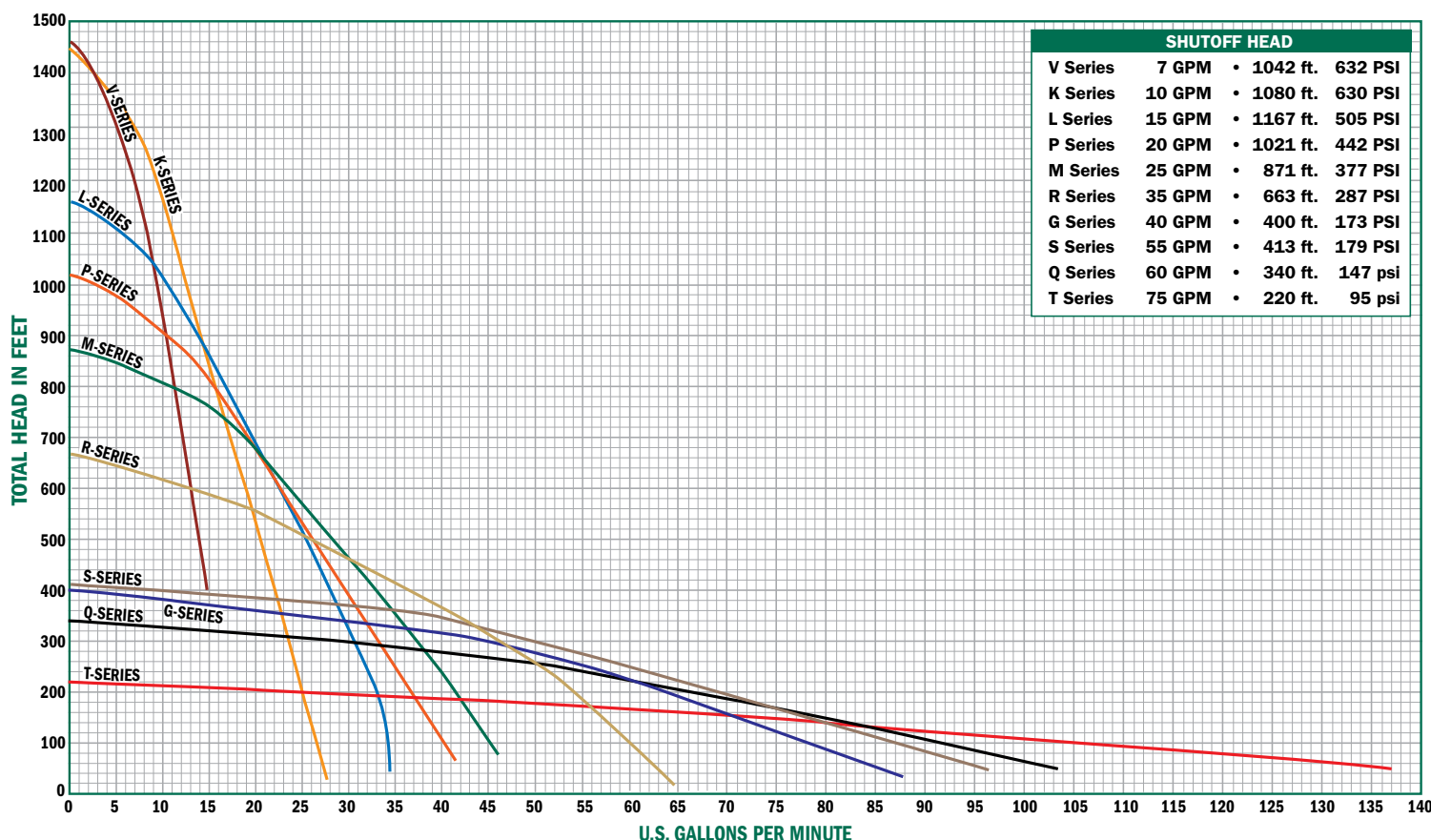
Franklin 5 HP, 230V
three phase motor
Part No. 3129-718



3

Appropriate pump end
Includes pump end 23300K
For example:
23300K3CP

SUBDRIVE 300 - Pressure Controller



NOTE: Performance shown does not include friction loss in drop pipe
(for flow rates above 25 GPM, larger drop pipe is recommended.)

Models Available



No-Lead Brass - 21000 Series

MODEL	DESCRIPTION
21200V3SHCP	V Series, 7 GPM
21300K3CP	K Series, 10 GPM
21300L3CP	L Series, 15 GPM
21300P3CP	P Series, 20 GPM
21300M3CP	M Series, 25 GPM
- 1 1/4" NPT connection on All Series	



Stainless Steel - 23000 & 24000 Series

MODEL	DESCRIPTION
23200V3SHCP	V Series, 7 GPM
23300K3CP	K Series, 10 GPM
23300L3CP	L Series, 15 GPM
23300P3CP	P Series, 20 GPM
23300M3CP	M Series, 25 GPM
24300R3CP	R Series, 35 GPM
24300G3CP	G Series, 40 GPM
24300S3CP	S Series, 55 GPM
24300Q3CP	Q Series, 60 GPM
24300T3CP	T Series, 80 GPM

- 1 1/4" NPT connection on V, K, L, P, & M Series
- 2" NPT connection on R, G, S, Q and T Series



A.Y. McDonald Mfg. Co. is a leading manufacturer of Waterworks Brass, Plumbing Valves, Pumps and Water Systems, and High Pressure Gas Valves and Meter Bars. The Company has distinguished itself with a proud tradition of quality and reliability since its founding in 1856.

The mission of A.Y. McDonald Mfg. Co., in the words of our founder, is “to make good products and sell them honestly.” We, the stockholders and employees, accomplish this by extending the McDonald family culture through excellent customer service and by focusing on our customers’ needs.



WARNING: It is unlawful in **CALIFORNIA & VERMONT** (effective 1/1/2010); **MARYLAND** (effective 1/1/2012); **LOUISIANA** (effective 1/1/2013) and the **UNITED STATES OF AMERICA** (effective 1/4/2014) to use any product in the installation or repair of any public water system or any plumbing in a facility or system that provides water for human consumption if the wetted surface area of the product has a weighted average lead content greater than 0.25%. This prohibition does not extend to service saddles used in California, Louisiana or under USA Public Law 111-380.