ITT

Commercial Water

Goulds Pumps

G&L Series
Commercial Products





GOULDS PUMPS

Goulds Pumps is a brand of ITT
Residential and Commercial Water.

www.goulds.com

Engineered for life

Proven Performance Through The Power Of Experience.

Goulds Pumps combines over 155 years of pump experience with the most modern design and manufacturing systems—deep drawn metal fabrication, laser cutting, laser welding, precision casting, and worldwide design systems—plus a total commitment to quality based on full performance testing of every pump we make.

Whether you need stainless steel, bronze, or cast iron, multi-stage verticals or horizontals, end suction centrifugals or submersibles, there's a Goulds Pumps G&L Series Product design that's proven itself through years of dependable service. For booster service, liquid transfer, spray systems, water circulation, dewatering, light chemical and industrial applications, there's a G&L Series pump that's done long time duty. Horizontal and vertical multi-stage capacities from 5 gpm to 350 gpm. Submersible capacities from 5 gpm to 500 gpm. And end suction centrifugal capacities from 4 gpm to 5000 gpm. Goulds Pumps—a brand offering the power of experience to more than 100 nations of the world. In addition to the standard pump designs shown here, we offer specialized O.E.M. pumps designed to meet the specifications of your particular needs.

TABLE OF CONTENTS

End Suction, Stainless Steel:
NPE 3
NPO 3
SSH 3
ICS/ICS-F 4
3657/3757 4
LB 4

End Suction, Cast Iron:
3642/3742 4
MCC 5
3656LH/3756LH 5
3656/3756 S-Group 5
3656/3756 M&L-Group 6

Self Priming, Clear Liquids:
Prime Line SP 7
GT – Irrigator 8
2AUW, 3AUW 8

High Pressure, Stainless Steel:
DPS 9
SSV 9
LC 10
HMS 10

High Pressure, Cast Iron:
GB 10
HSC 10

Variable Speed Control:
Aquavar and Aquavar CPC 11
AquaBoost 11

Vertically Immersed:
NPV 12
SHV 12
VB 12

Multi-Stage:
MPVN 13
SMVT 14

Controls:
Aquavar 15
Aquavar CPC 16
AquaBoost 17
AquaBoost II 18

Packaged Pump Systems:
AquaForce 19

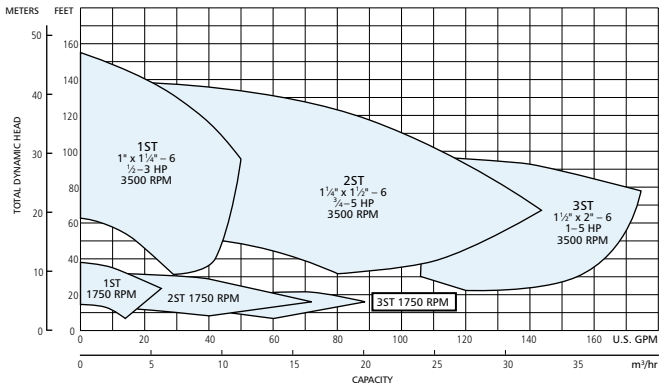
A full range of end suction centrifugal pumps.

- Cast iron, bronze, investment cast 316 stainless steel and 304 stainless steel pump-end materials of construction.
- 1 x 1¼-5 through 8 x 10-13 sizes.
- Close coupled, frame mounted or engine drive configuration.
- Capacities to 4500 USGPM (1000 m³/hr.).
- Heads to 500 ft. TDH (110 m).
- Working pressure to 250 PSI.
- Temperatures to 250° F. (120° C.).
- ANSI Flanged and NPT Connections.
- Motors 1 & 3 phase. 50 or 60 hertz ODP, TEFC or explosion proof enclosures 3500 & 1750 RPM.
- Standard John Crane mechanical seals with high temperature and chemical duty options.

NPE

316L Stainless Steel Enclosed Impeller

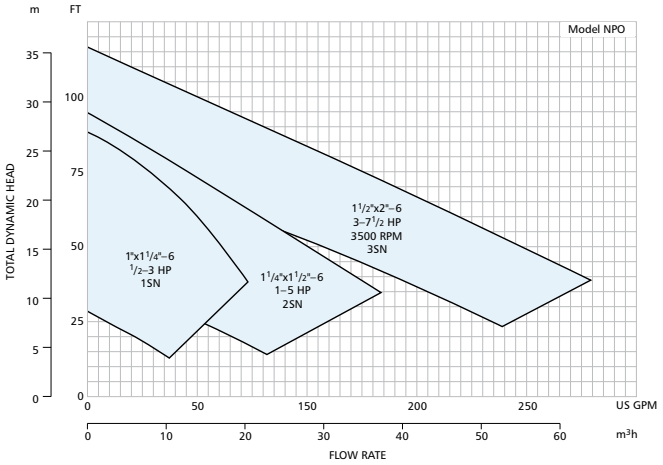




NPO

316L Stainless Steel Open Impeller

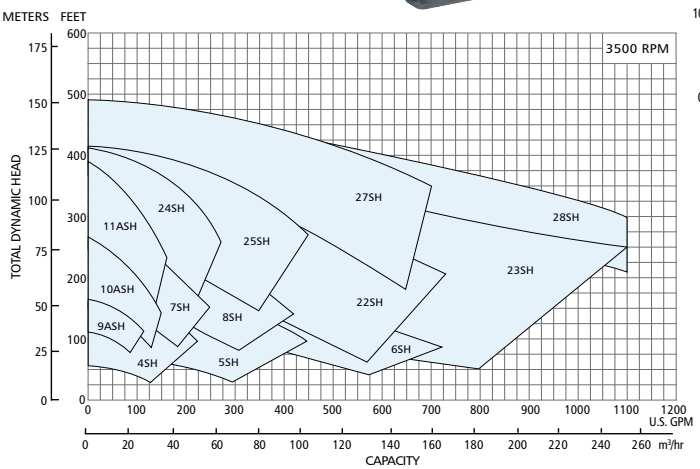




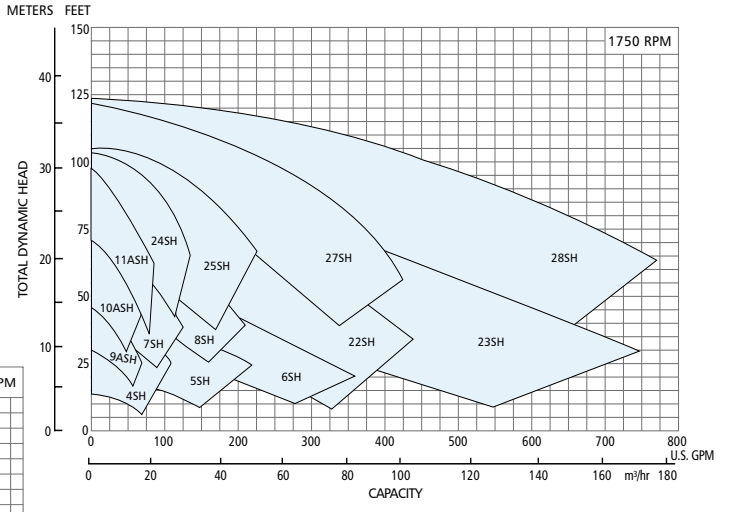
SSH

316L Stainless Steel Enclosed Impeller





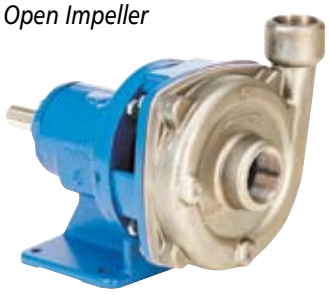
3500 RPM



1750 RPM

ICS/ICS-F

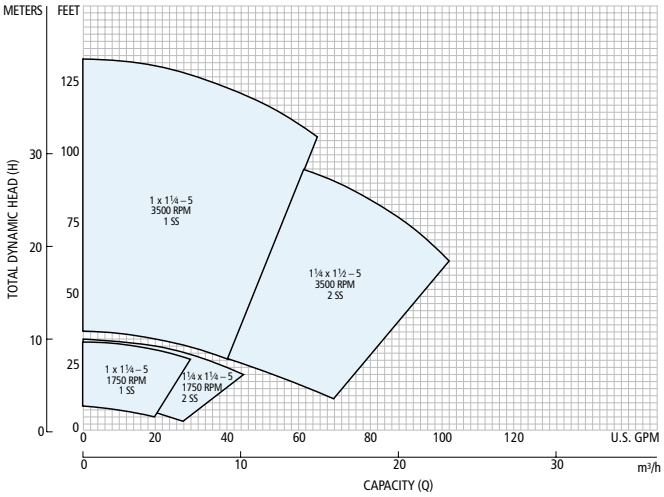
Investment Cast 316 Stainless Steel
Open Impeller



ICS-F



ICS



3657/3757

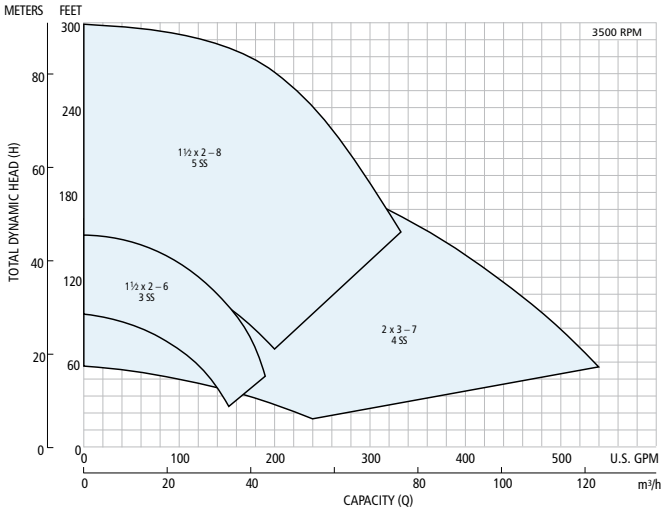
Investment Cast 316 Stainless Steel
Enclosed Impeller



3757



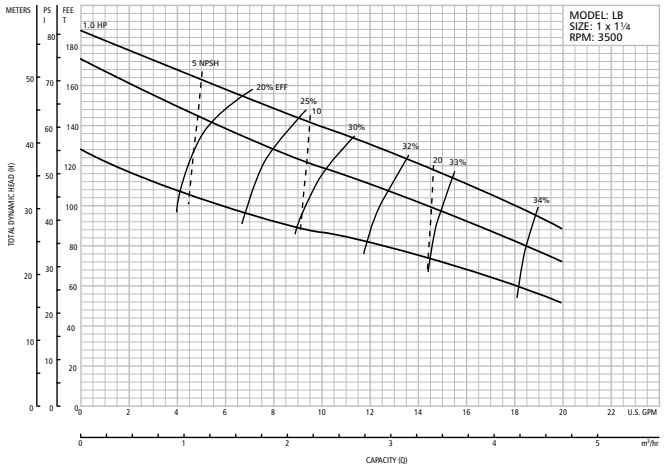
3657



LB

304 Stainless Steel Enclosed Impeller

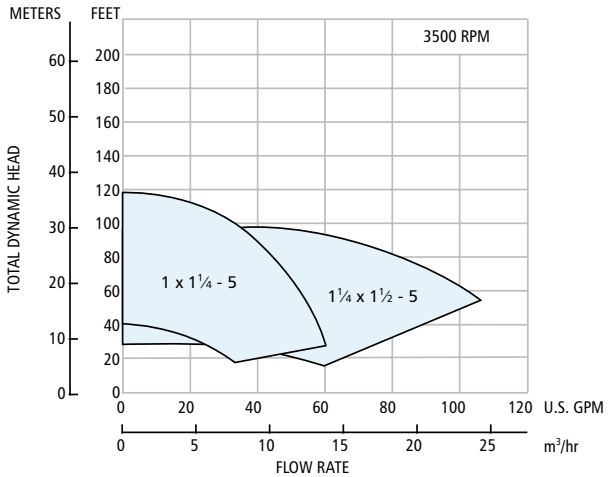




3642/3742 *Cast Iron*

Enclosed Impeller, Iron, Bronze or Bronze Fitted, Cast Iron Pump

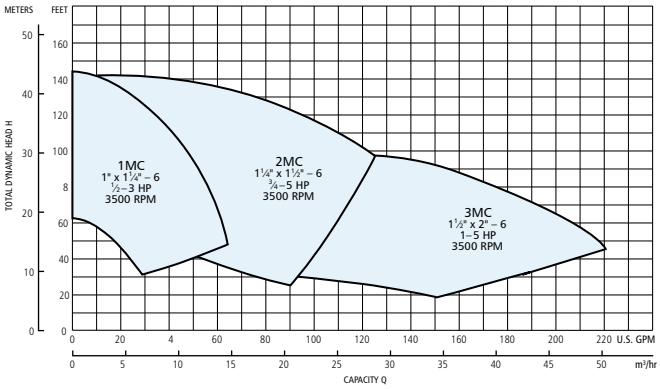




MCC

Enclosed Impeller
Iron Casing
Stainless-Fitted

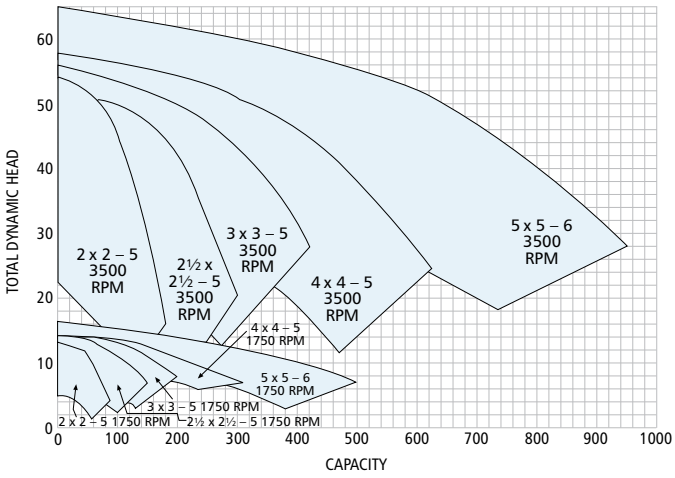




3656LH/3756LH

Enclosed Impeller Low Head, Bronze Fitted





3656/3756 S-Group

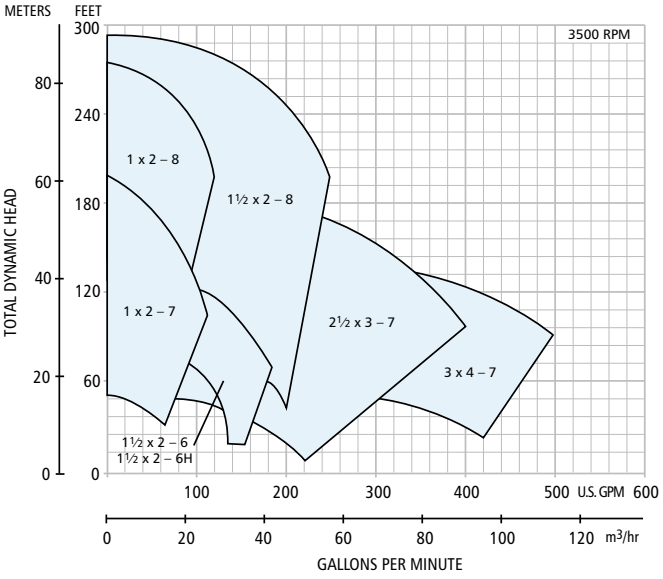
Enclosed Impeller Iron, Bronze or Bronze Fitted
Mechanical Seal or Packing

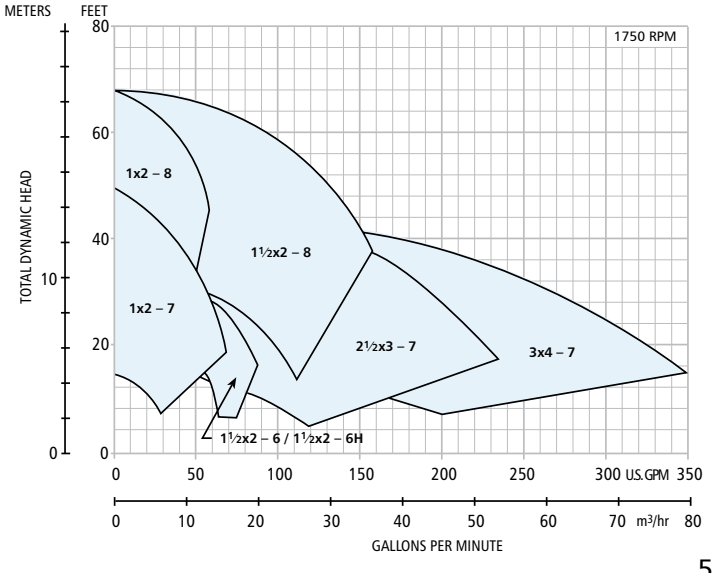


3656



3756





3656/3756 M & L-Group

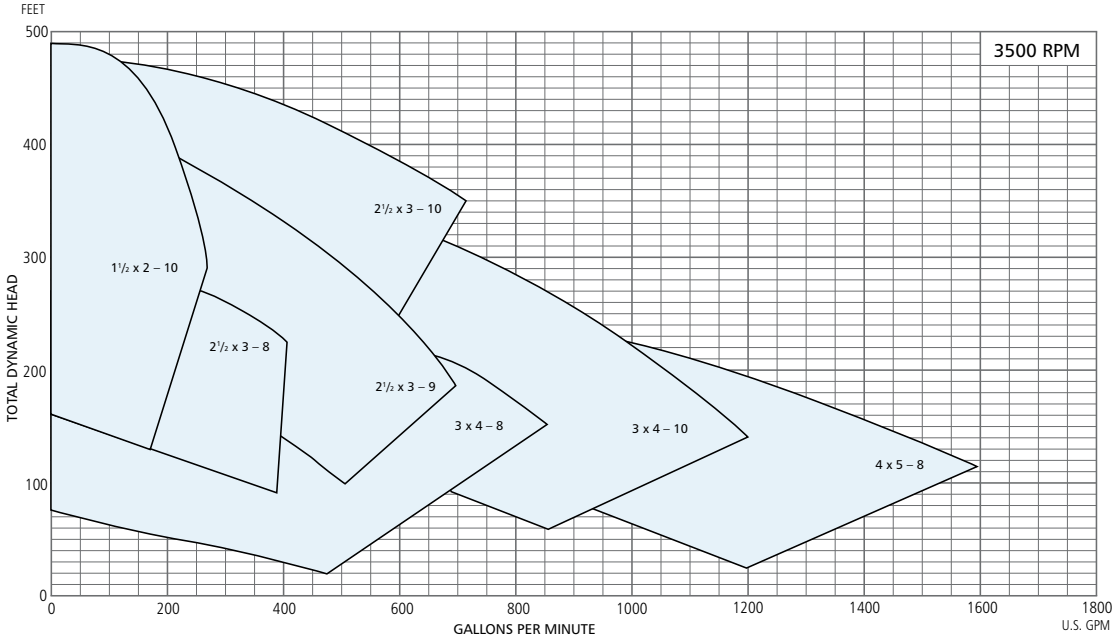
Enclosed Impeller Cast Iron or Bronze Fitted Mechanical Seal or Packing

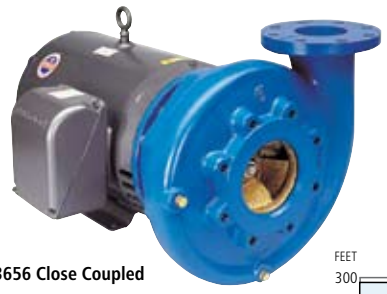


3756 SAE

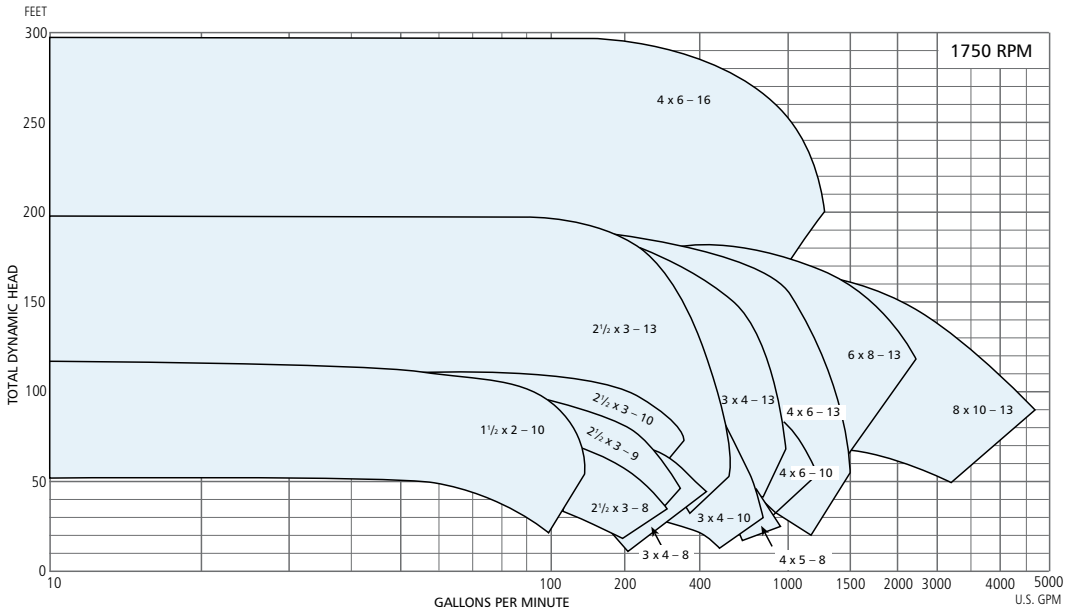


3756





3656 Close Coupled



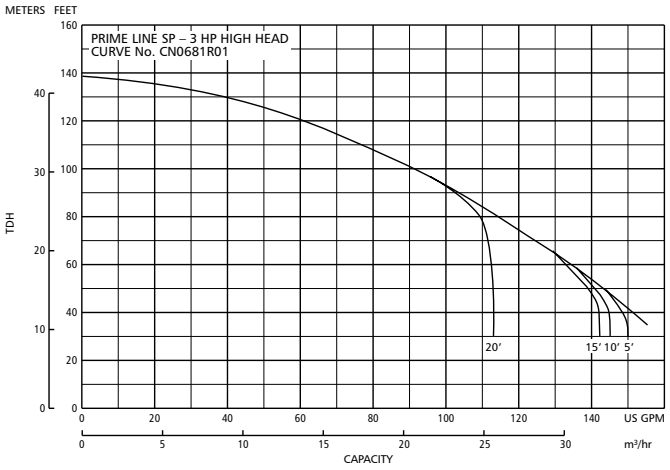
General information on Self-Priming pumps.

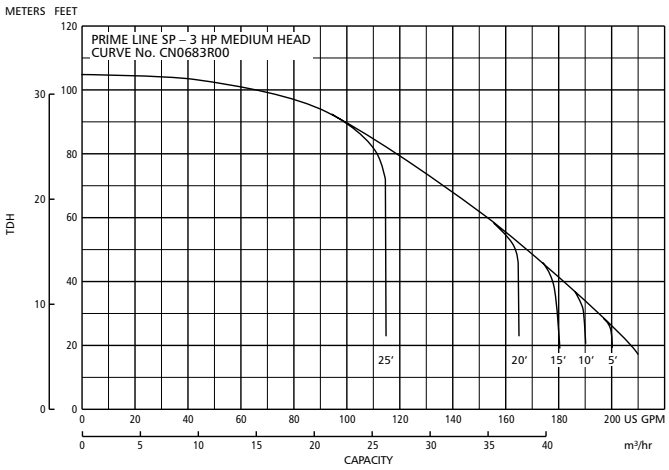
- General water handling in applications where the liquid level is below the pump.
- Models are available with electric motor, gas engine or bearing frame depending on installation requirements.
- Ideal for irrigation, emergency cellar draining and farm water supply.

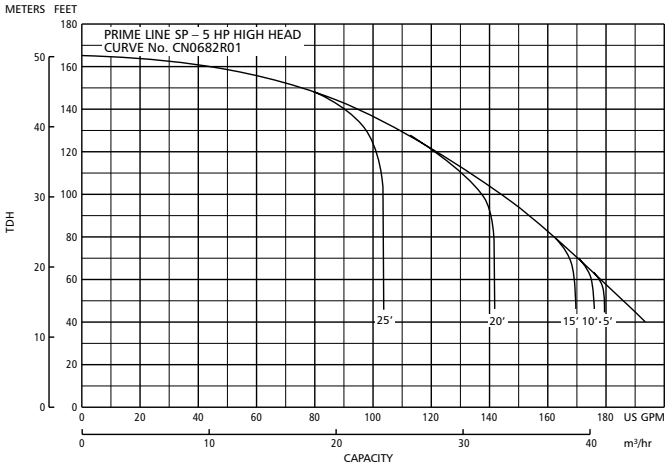
Prime Line SP®

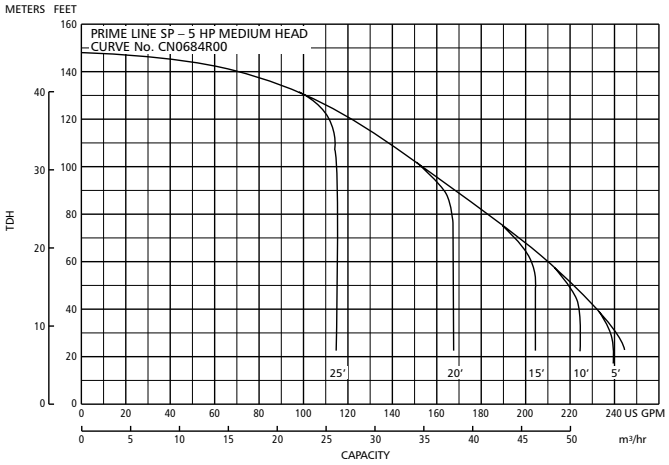
Enclosed Impeller, Bronze Fitted







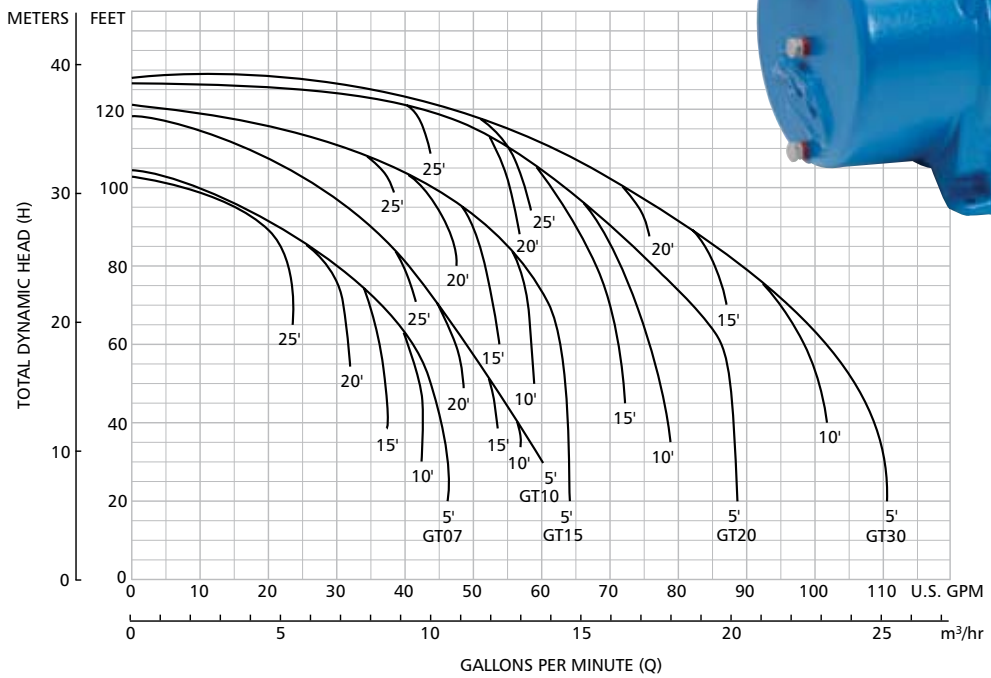




GT – Irrigator®

Enclosed Impeller Irrigation Duty



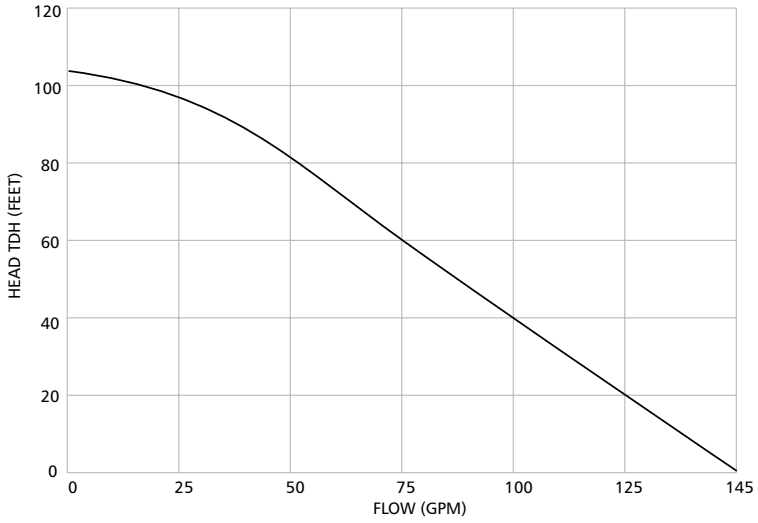


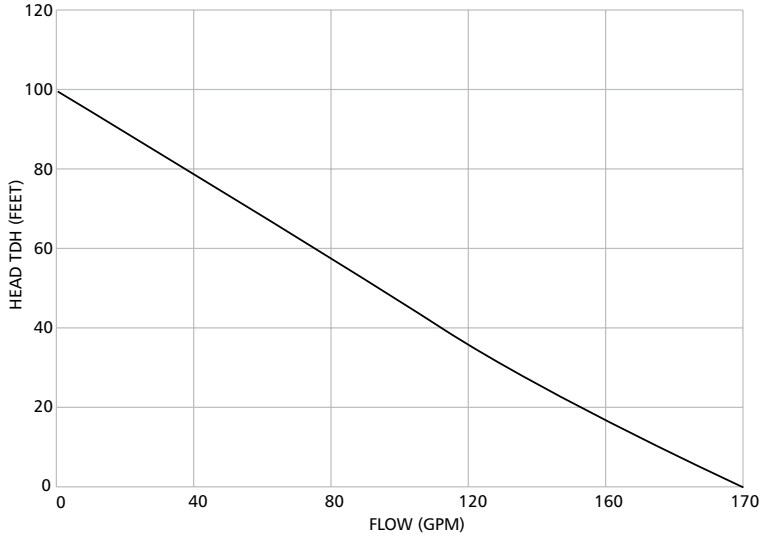
2AUW, 3AUW

Portable Contractor Pumps



2AUW







3AUW

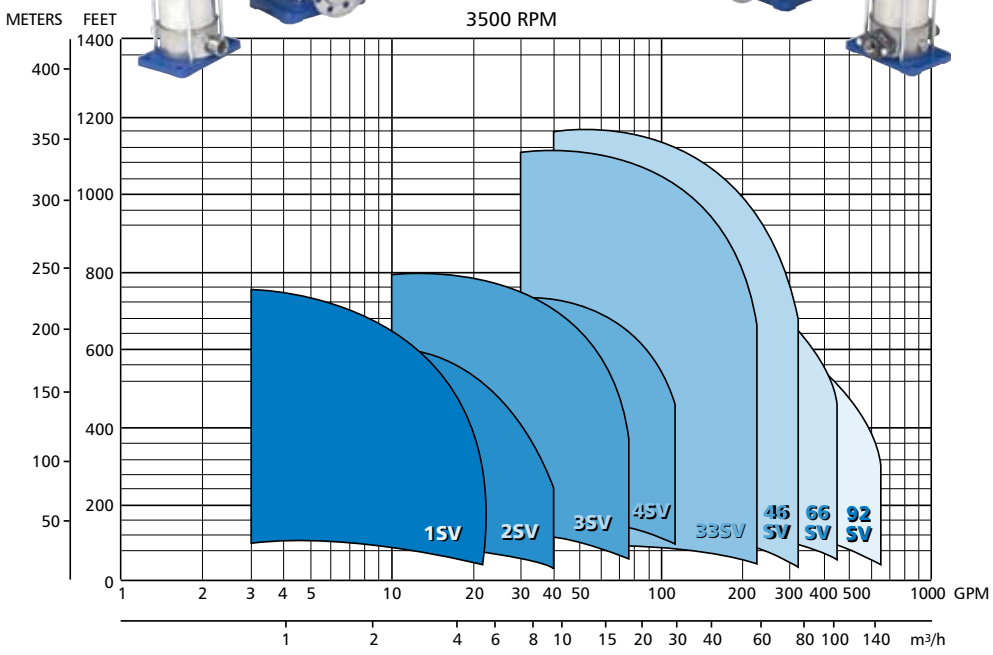
General information on high pressure multi-stage pumps.

- Stainless steel and cast iron pumps for pressure boosting in water supply, building trade, boiler feed, wash, filtration and general OEM applications.
- Stainless models are ideal for reverse osmosis and pure water systems.
- Flows to 650 GPM and heads to 1100 feet.
- Excellent companions to the Aquavar® for constant pressure systems.

SSV

304 and 316L Stainless Steel

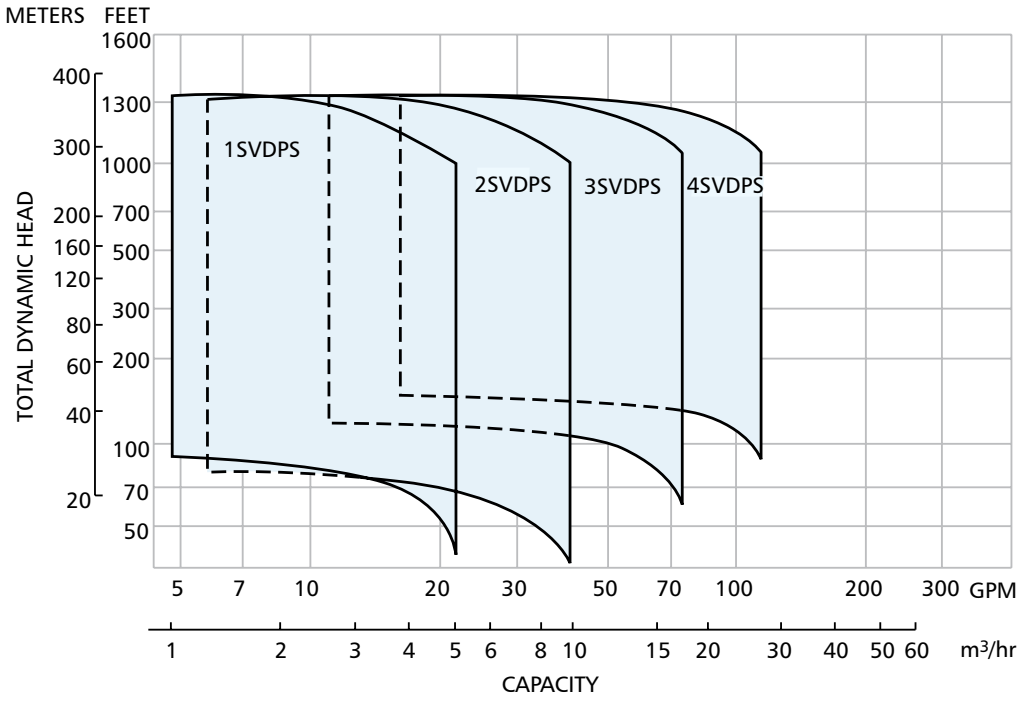




DPS

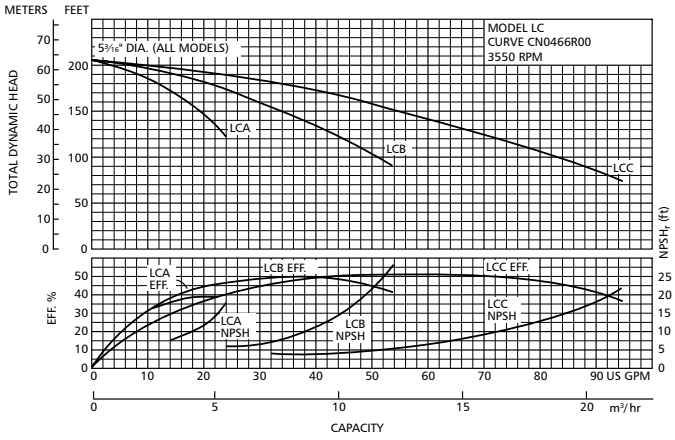
316L Stainless Steel





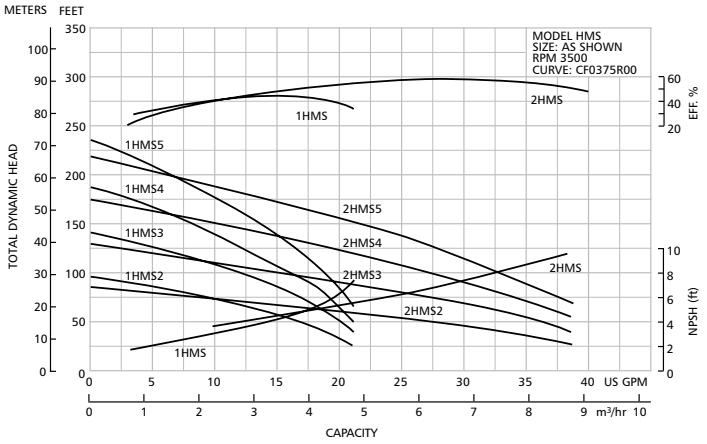
LC
304 Stainless Steel





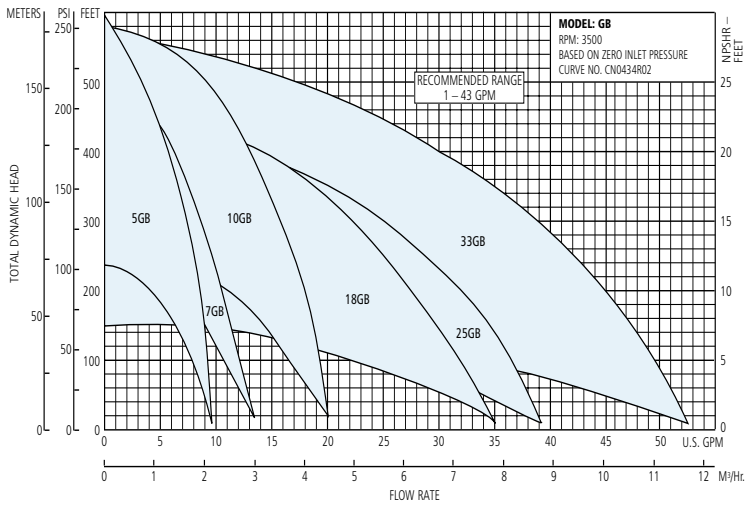
HMS
316L Stainless Steel





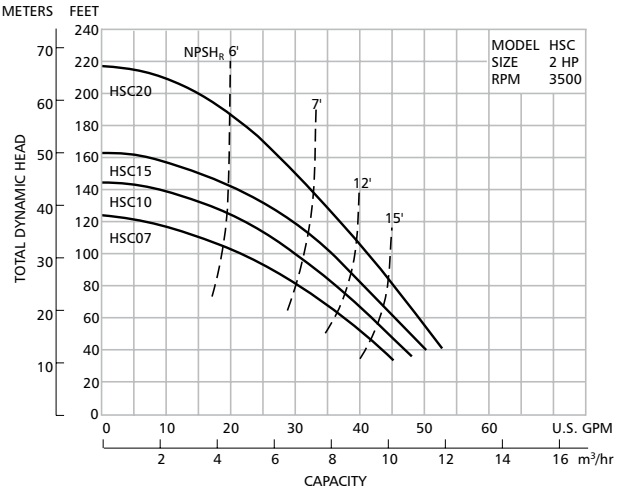
GB
Cast Iron or 304 Stainless Steel





HSC
Cast Iron





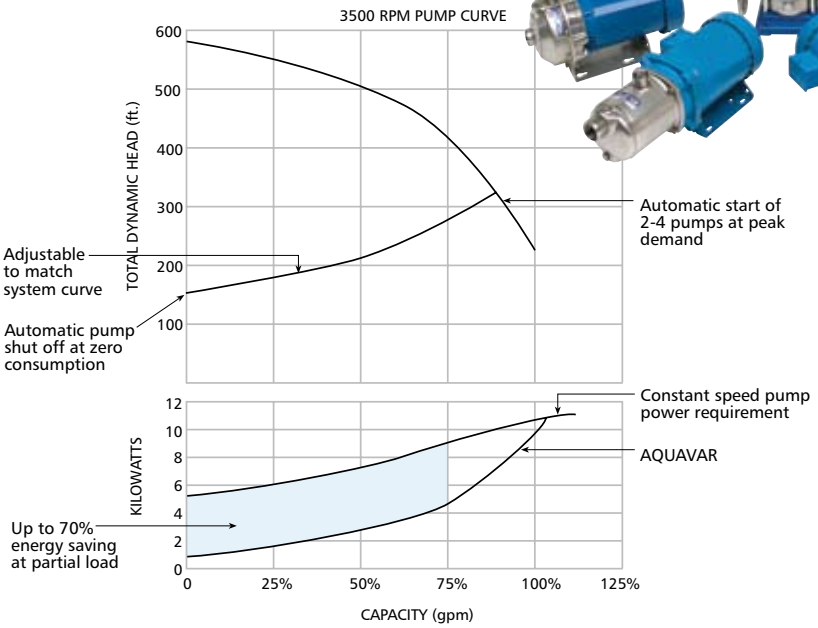
General information on Variable Speed Control systems.

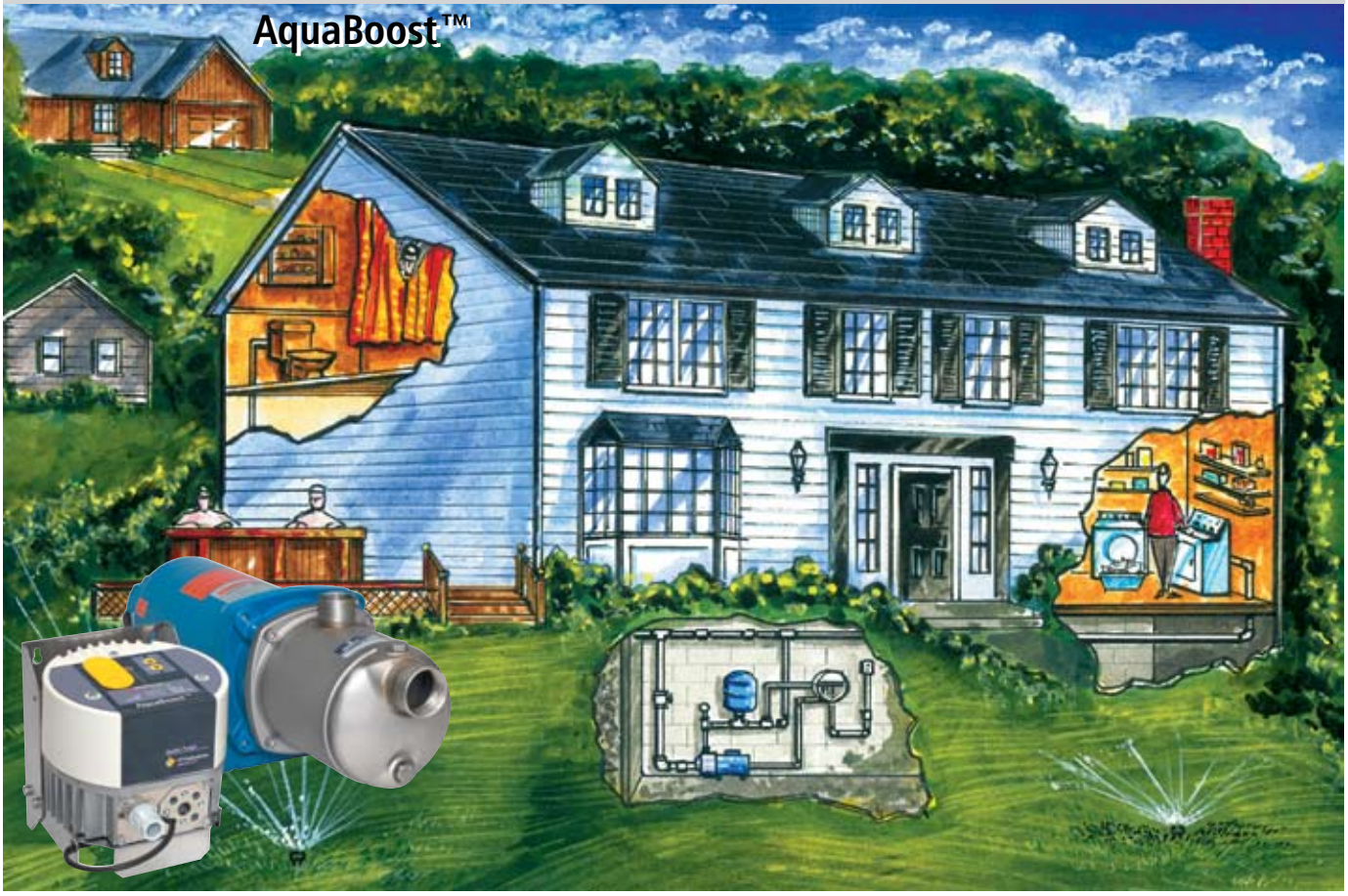
- Aquavar pump control for constant pressure, constant flow, or system curve performance.
  - Versions from 1 hp to 550 hp.
  - Pump or wall mounted.
  - Any three phase centrifugal pump motor (230/460 V).
  - Eliminate large pressure tanks, separate control panels, by-pass lines, automatic valves, etc.
  - Up to four pumps can be linked for automatic alternation.
- AquaBoost constant pressure system provides constant water pressure for homes and commercial properties.
  - Automatically changes pump speed based on water demand.
  - Complete with all needed components for installation.
  - 1 to 3 HP available.

Aquavar® and Aquavar® CPC

Centrifugal Pump Controller, PLC and Variable Frequency Drive







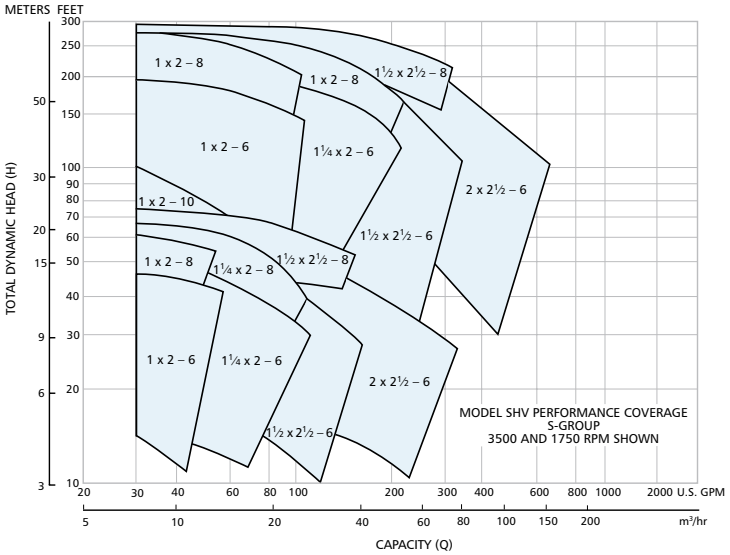
General information on Vertical Immersed pumps.

- 304 and 316 stainless steal pumps for machine tool, wash system and tank mount applications.
- Pump head is immersed in pumped liquid. May be set at various depths depending on tank.
- Single stage and high pressure multistage versions are available.

SHV

Vertically Immersed End-Suction Pump

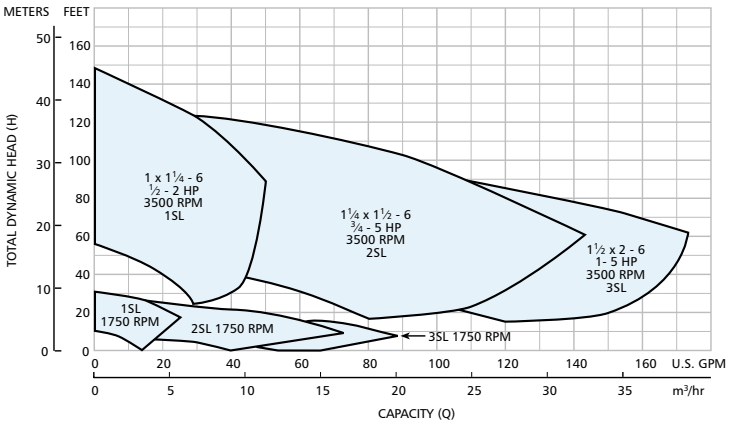




NPV

Vertically Immersed End-Suction Pump

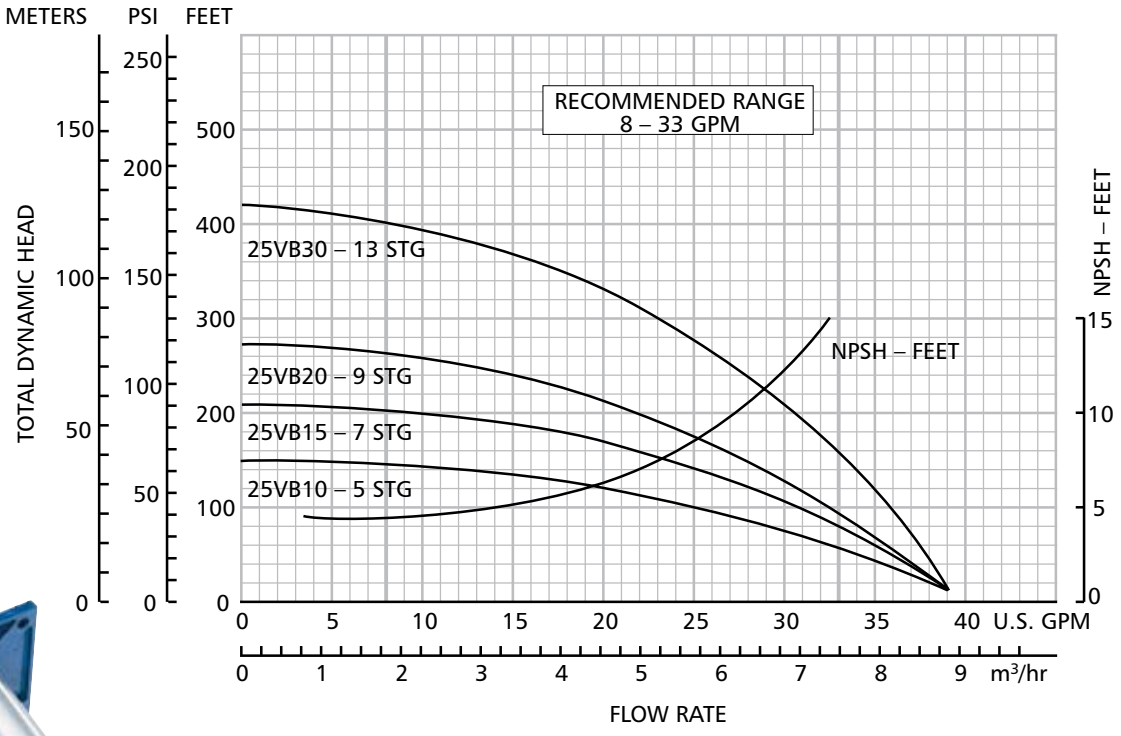




VB

Multi-Stage Pump



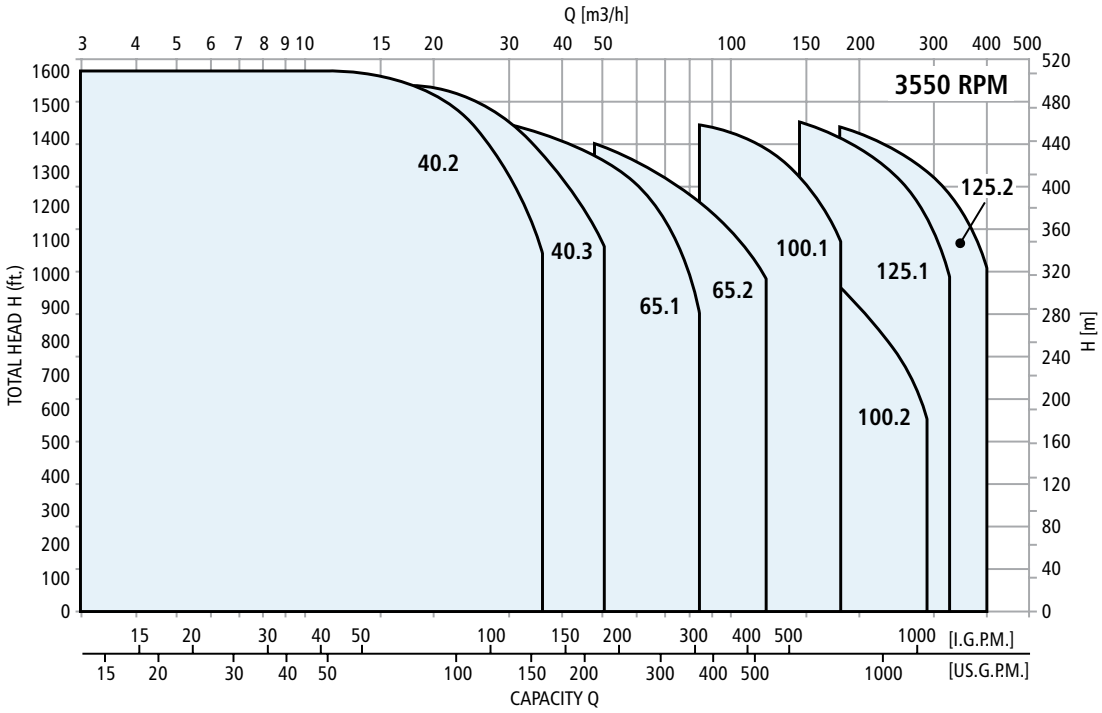


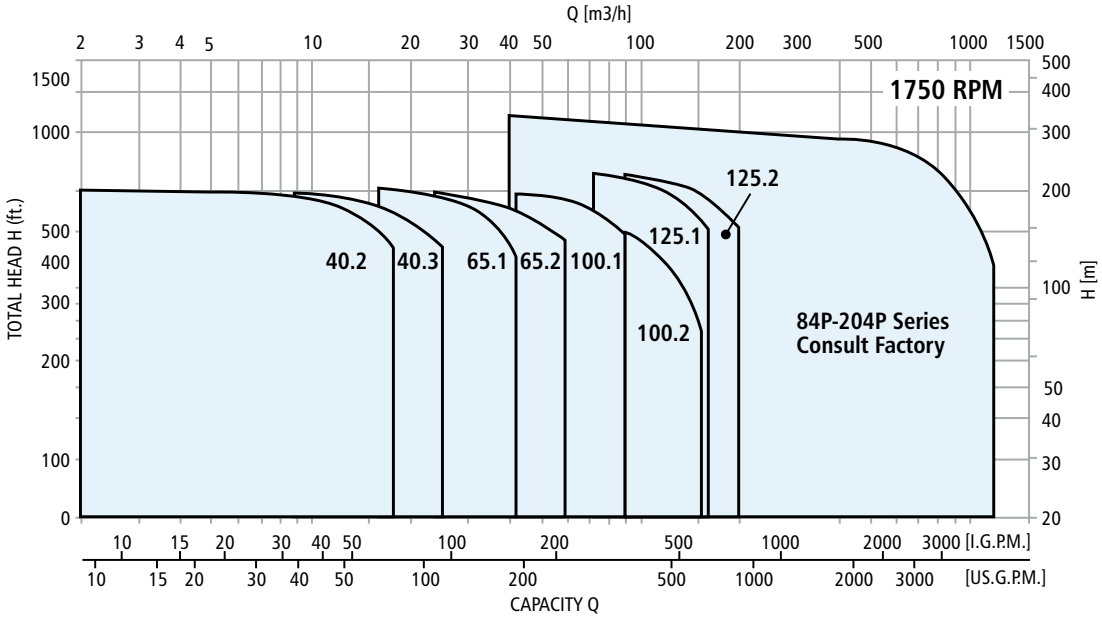
MPVN

Vertical High Pressure Multi-Stage Pump

- Rugged vertical segmented ring construction.
- Available in all iron, bronze fitted, stainless fitted or all stainless for fluid compatibility.
- Convenient seal replacement without stack disassembly.
- Recommended for a wide variety of industrial, commercial, municipal and building trades pressure boosting applications.





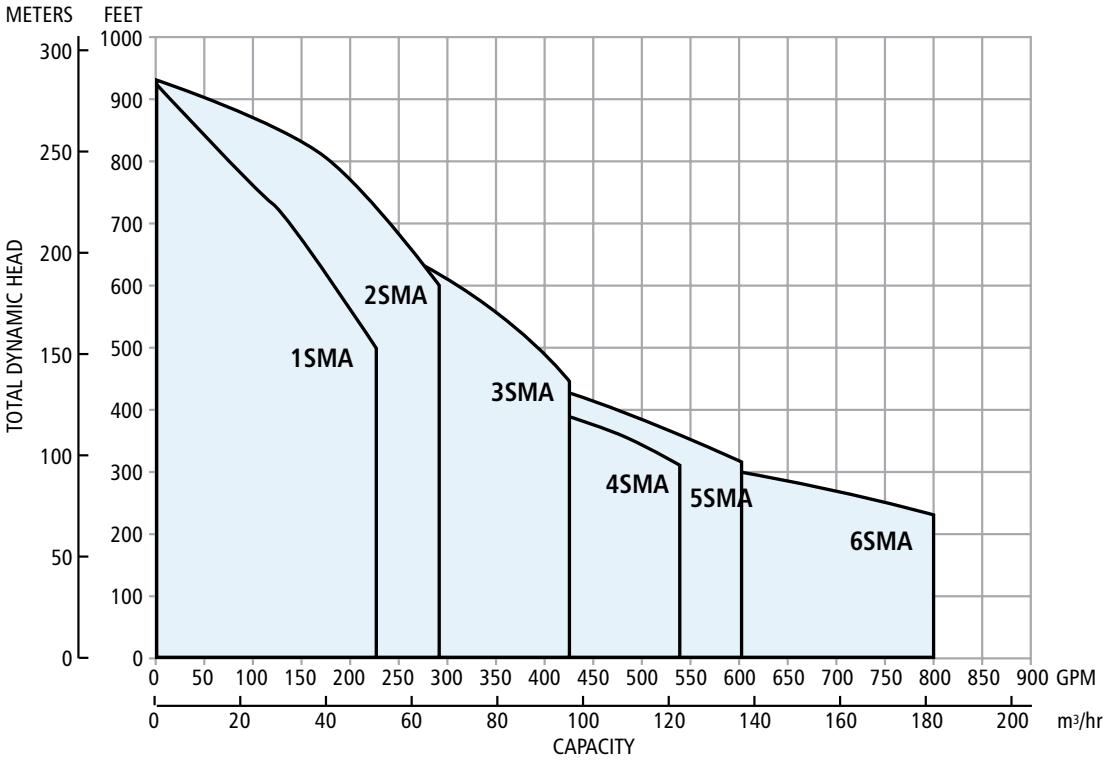


- High efficiency, High pressure design.
- Rugged cast iron/bronze construction.
- Available in brozne-fitted or all stainless steel construction.
- Ideal for municipal and building trades water pressure boosting.
- Boiler feed version available.
- Turbine internals with in-line design.

SMVT

Surface Mounted Vertical Turbine



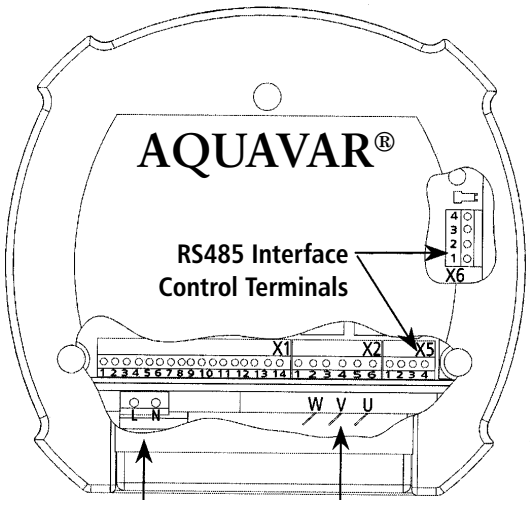


Aquavar®

Pump Mounted
Variable Speed



Up to 15 HP Pump Mounted Version



Power Supply
1x230 VAC
$L=L_1$, $N=L_2$

Motor Connection
3 Phase Out
U, V, W



20 to 30 HP Pump Mounted Version

Available Configurations

Horsepower Range	Electrical Requirement
2 and 3	1 phase, 230 V
5, 7.5, 10, 15, 20, 25 and 30	3 phase,460 V

Technical Data

Single Phase Version: 2 and 3 HP

Motor Rating: 3 phase, TEFC, 208 – 230 volt, 0 – 60 HZ, Class F insulation,NEMA design A or B

Power Supply: single phase input, 220 – 240 volt, ±10%, 40 – 70 HZ

Three Phase Version: 5 HP to 30 HP

Motor requirements: 3 phase, TEFC, 460 volt, ±10%, 0 – 60 HZ, Class F insulation, NEMA design A or B

Power Supply: 3 phase, 380 – 460 volt, ±10%, 40 – 70 HZ

Pressure Transducer: 316 SS, 17-4 PH stainless steel, ¼" NPT connection, shielded two wire cable, operating temperature –13º F to 250º F, supply voltage 7- 35 Vdc, 4 – 20mA output. Accuracy is .5% of full scale, proof pressure is 4 x full scale.

Display: Two line, 16 characters per line, LCD display. Easy to read pump language, pump on, system pressure, fault codes and system conditions are displayed.

Motor Speed: variable between 0 – 70 HZ , or maximum RPM at 60 HZ depending on speed rating of standard AC induction motor.

Ambient Temperatures (operating): 32 – 104º F (0 – 40º C),

Humidity: 50% relative at 104º F (non-condensing)
90% relative at 68º F (non-condensing)

Inverter design: IGBT, output frequency is a sinus valuated Pulse Width Modulated (PWM)

Enclosure: NEMA 4, IP 55. Avoid excessive dust, corrosives or salts.

Approvals: UL, cUL, CE

Protection: Over/Under voltage, motor overload, short circuit, ground fault, motor overheat (with thermistor), programmable no/low flow shut-down, low suction pressure, pump run-out.

Control: Analog input control (4 – 20mA) two point control based on pressure, flow or differential pressure.

Terminals: Dry relay contacts are available for pump run, pump error, low pressure switch, remote ON/OFF control, analog output 0 – 10 Vdc (system pressure) and full opened slave pump starter.

Multi-Pumps: RS485 communication SIO (local only) up to four pumps.

Alternate Input: Up to two transducers may be used with each controller. These may be pressure, flow, differential pressure, temperature or other 4 – 20mA signals.

Aquavar Variable Speed Pump Controller

The G&L Series AQUAVAR Pump controller is a combination of a variable frequency motor drive (VFD) and a programmable logic controller (PLC) in one compact package, which can be either mounted on the fan cover of the TEFC pump motor, or on a wall or panel near the pump. Each AQUAVAR controller is pre-programmed with patented pump specific software. Wall mounted units enable the AQUAVAR controllers to be used with either surface or submersible pumps. AQUAVAR controllers are specifically designed to work with all configurations of centrifugal pumps, so they will match pump output to a wide range of varying system conditions while protecting the pump, the motor and the pumping system.

Aquavar® CPC

Wall Mounted Version



Introduction

The G&L Series **Aquavar® CPC** (Centrifugal Pump Controller) from Goulds Pumps incorporates the latest state-of-the-art Aquavar technology. The Aquavar CPC is a variable frequency drive and pump specific PLC in one compact unit, that will vary the speed of the motor to maintain a consistent pressure, flow, temperature or level. Here are just a few of the features and benefits of this innovative product:

- Start-up "wizards" expedite the programming process, for specific applications.
- Removable control panel/display.
- Fully backlit display with large text makes the control pad easy to read.
- Transducer assembly (0-300 psi) included for constant pressure.
- Helps protect the pump from cavitation, dead head and blocked suction.
- Helps protect the motor from short circuit, phase loss, overload, undervoltage, overvoltage.
- Input choke reduces harmonics and provides 3-5% impedence line reactor. Built in!
- EMC/RFI filters reduces drive noise emissions and interference.
- Fieldbus compatible, standard Modbus® Protocol (SCADA).
- Capable of controlling up to 3 fixed speed pumps, with one drive.
- Multipump control for up to 4 pumps, without additional PLC's or control panels.
- Auto lead/lag and switching control built in.

Ratings and Enclosures

- NEMA 1 (indoor use) standard other enclosures are available upon request.
- 1 – 150 HP (frame R1 – R6) wall mounted.
  200 – 550 HP (frame R7 and R8) floor mounted.
- Ambient temperature 5º F – 104º F. Higher temperatures can be achieved using optional enclosure upgrades and derating factor for up to 122º F.
- At altitudes from 0 to 3300 feet rated current is available, for every 328 feet above 3300 feet the current must be derated 1%. Maximum 6600 feet (consult factory above 6600 feet).
- Relative humidity lower than 95% without condensation.
- UL 508C compliant. UL, cUL, CE approved.



Electrical Characteristics

Input Power

- 3 phase 380 V to 480 V +10%/-15%
- Frequency 48 to 63 Hz
- 1 phase 208 V to 240 V +10%/-15%
- .98 power factor
- 3 phase 208 V to 240 V +10%/-15%

Output Power

- 3 phase from 0 to V_{supply} (All motors must be 3 phase.)
- 0 to 60 Hz frequency

AquaBoost™

Variable Speed Constant Pressure Systems





Product Overview

The AquaBoost pump controller and complete booster package kits provide an economical answer for municipal water district customers with low water pressure. Both domestic and light commercial applications can benefit. As water use increases, the AquaBoost changes pump speed to keep line pressure constant. Large supply tanks are eliminated and up to 50% of the energy required by a full speed pump is saved.

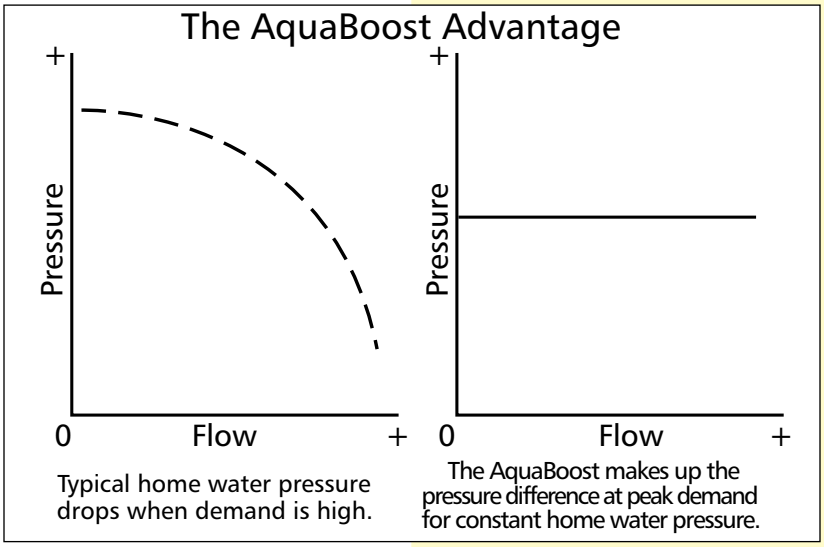
The AquaBoost is available with a range of flow rates to handle homes with up to four baths, irrigation systems, filtration and fire suppression systems. The AquaBoost is available as either a separate controller or as part of a complete pump package with everything you need to plumb it to a domestic water line.

Components

1AB1HM1E2D0 — 4.8 Amp AquaBoost controller, wall mount set, HMS stainless steel pump, transducer, V6P tank, pressure gauge, discharge tee. Controller is pre-wired and pre-programmed. Flows to 20 GPM.

1AB2HM1E2D0 — 4.8 Amp AquaBoost controller, wall mount set, HMS stainless steel pump, transducer, V6P tank, pressure gauge, discharge tee. Controller is pre-wired and pre-programmed. Flows to 37 GPM.

1AB1 — 4.8 Amp AquaBoost controller, wall mount set, transducer, pre-wired, pre-programmed. (Pump and tank not included.)



AquaBoost Controller Features

- Input Power* — 200-230V ±15%, single phase (controller only)
- Output Power — Up to 230V three phase (based on input voltage). Motor rated for 208-230V, ±10%.
- Maximum Output Current — 4.2 amps – 1AB2; 6.9 amps – 2AB2
- Input Controls — Up and down buttons to turn unit on and off and set pressure.
- Signal Lights — Power on, pump running, inverter stopped, pump stopped, standby, faults/errors.
- Electrical Efficiency — Over 95%
- Protection Against — Short circuit, under voltage, overload, motor temperature, dead heading, run out, suction loss, sensor fault, bound pump, over voltage, static discharge. **Note:** Suction loss/run out is set for minimum 10 psi at discharge!
- Ambient Temperature — 34º F to 104º F
- Maximum Humidity — 95% at 104º F, non-condensing
- Air Pollution — Avoid mounting in areas with excessive dust, acids, corrosives and salts.
- Approvals — cULus CE
- Controller Enclosure — NEMA 3R, IP 43 (Rain-tight)
- Mounting — Wall mount with mounting hardware.
- Cooling — Convection with heat sink.
- Transducer — 0.5 - 4.5 VDC with 5 VDC power supply, 100 psi range, 80-inch 3-core cable.
- Input Wire — 5 feet of 14 gauge cable. Cable is pre-wired to controller and junction box.
- Output Wire — 10 feet of 14 gauge cable. Cable is pre-wired to controller and pump motor (when provided).

*Low input voltage may affect motor operation.

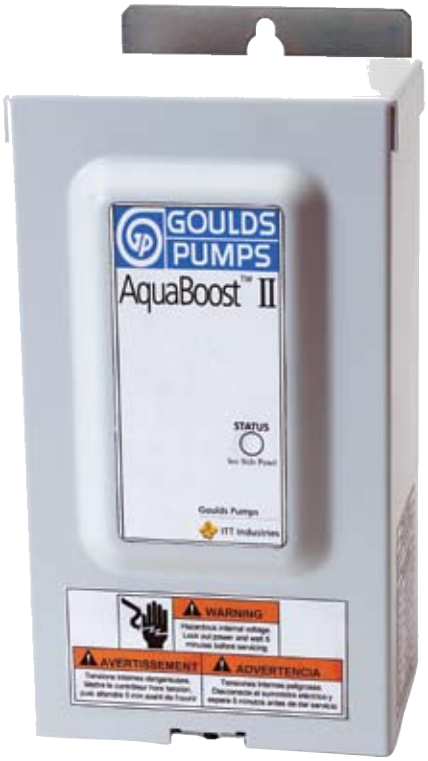
Pressure Range

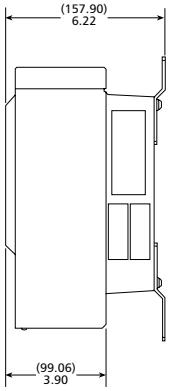
Nominal Range — Field adjustable from 20 - 85 psi, total system pressure.

⚠ WARNING **DO NOT SET REQUIRED SYSTEM PRESSURE ABOVE 85 PSI. SEVERE DAMAGE TO PLUMBING COULD RESULT.**

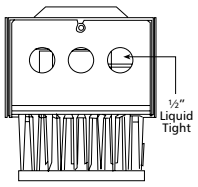
AquaBoost™ II

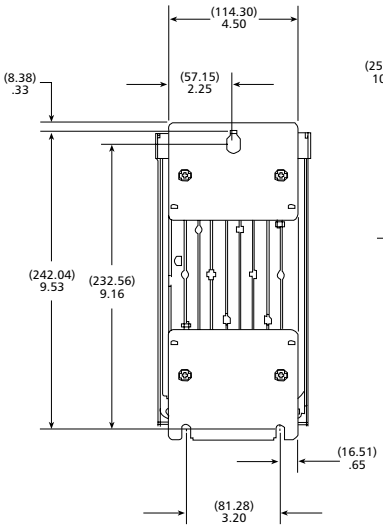
Variable Speed Constant Pressure Systems

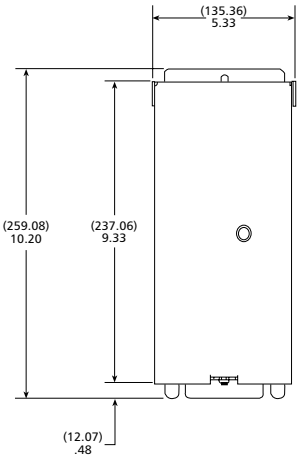




1AB2







Features and Specifications

- All systems are UL rated.
- Maximum footprint, on most sizes, allow systems to fit through standard doorways.
- 200 – 230 Volt single phase 1 – 10 HP, 200 – 230 Volt three phase 1 – 20 HP, 460 Volt 1 – 30 HP.
- Each system is fabricated with G & L stainless steel or cast iron centrifugal pumps with a variety of electrical and mechanical options to choose from.
- Standard "off the shelf" motors by Baldor or USEM Motors.
- Significant reduction in energy consumption over fixed speed systems.
- System protection from overvoltage, under-voltage, blocked suction, cavitation, NPSHa, phase loss, short circuit, transducer failure, and motor overload.
- Liquid temperatures up to 212º F.
- Ambient temperatures up to 104º F.
- Maximum operating pressures up to 360 psi.
- Pump run-out protection.
- Dry running protection.
- Programmable lead/ lag alternation.
- Programmable system curve/ friction loss compensation.
- Programmable system pressure starting.
- Fault detection and alarms relay.
- Motor run relay.
- Programmable soft start.
- Stainless steel or optional carbon steel piping.
- Isolation valves.
- Optional suction / low pressure switch.
- Optional pressure relief valves and temperature relief valves.
- Optional lightning protection.
- Optional flexible discharge hose.

AquaForce™

Engineered Pump Stations







ITT

Commercial Water

Distributor Information

GOULDS PUMPS

Goulds Pumps, G&L, Aquavar, AquaBoost, AquaForce, CentriGuard, GT Irri-Gator, Prime Line, CentriPro and the ITT Engineered Blocks Symbol are registered trademarks and tradenames of ITT Corporation.

Modbus Protocol is a registered trademark of Modicon Inc.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

BRGLCAR2 June, 2006

© 2006 ITT Corporation

Engineered for life