



Bell & Gossett
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TECHNICAL BROCHURE
D-218A

POWERSAV™

VARIABLE SPEED PUMPING SYSTEMS **PRODUCT DATA BULLETIN**

MiniSpeed Series **Variable Speed MiniBooster System**

- Compact Pressure Booster
- Factory Tested System
- Saves Energy Costs, Lower Life Cycle Costs

The Bell & Gossett MiniSpeed is a pump package designed to utilize the MiniBooster and Technologic® 502 controller technology together for low cost variable speed pressure booster applications. The MiniSpeed is specifically designed as a compact, easy to install and maintain package for applications where sufficient main pressure is not available or elevation is a problem. Available in both one (simplex) and two (duplex) pump configurations. With this variable speed system you are truly able to manage pump performance to match a wide range of system conditions while allowing the most energy savings.

STANDARD FEATURES

- 1 or 2 Pump Configuration
- 20-110 GPM (Simplex) and 220 GPM (Duplex)
- Entire (Pump) Package UL Listed
- High System Cut Out
- No Flow Shut Down (with storage tank, 3.2 Gallon Tank Included)
- Serial Communication Compliant
- Packaged Mounted System Pressure sensor
- Manual & Automatic Pump Alternation (Duplex)

OPTIONAL FEATURES

- Auto/Manual Bypass



TYPICAL INSTALLATIONS

- Light Commercial
- Apartment Buildings
- Condominiums
- Office Parks
- Restaurants



Packaged Systems Group

Specification:

Furnish and install a Bell & Gossett MiniSpeed Booster model _____. The package shall be capable of providing a minimum pressure of ____ psig when supplied with a minimum suction pressure of ____ psig. The booster system shall be capable of a total flow of ____ (20 – 110 gpm for simplex) and (20-220 gpm for duplex) at a boost of ____ (20 – 55 psig.) Unit shall be provided to utilize ____ (230, 460)/3/60 input power.

MiniSpeed Booster shall be factory assembled, wired and tested as a packaged pressure boosting system. Unit shall be a skid-mounted package consisting of a Bell & Gossett 3530 close-coupled stainless steel pump with open drip-proof motor, non-corrosive piping and valves and UL listed, NEMA 1 Technologic 502 controller and Danfoss FC102 drive with package mounted system pressure sensor. Stainless steel check valve shall be mounted in pump suction piping for simplex model and bronze check valves in the discharge piping of the duplex model. Duplex models shall be provided with Type "L" copper headers. Base shall be formed steel. Package shall be rated for a maximum working pressure of 135 psig and a maximum operating temperature of 225°F.

Pump Logic Controller

The Technologic pump logic controller assembly shall be listed by and bear the label of Underwriter's Laboratory, Inc. (UL) and Canadian Underwriter's Laboratory (CUL). The controller shall be specifically designed for variable speed pumping applications.

The controller shall function to a proven program that safeguards against damaging hydraulic conditions including:

- Pump flow surges
- Hunting
- End of curve (flow sensor required)
- System over pressure

The pump logic controller shall be capable of receiving up to four analog inputs from zone sensor / transmitters indicated on the plans. It will then select the analog signal that has deviated the greatest amount from its setpoint. This selected signal will be used as the command feedback input for a hydraulic stabilization function to minimize hunting. Each input signal shall be capable of maintaining a different set point value. Controller shall be capable of controlling up to four pumps in parallel.

The pump logic controller shall have a configurable analog input for a flow sensor. This input shall serve as the criteria for the end of curve protection algorithm.

The hydraulic stabilization program shall utilize a proportional-integral-derivative control function (PID). The PID values shall be user adjustable over an infinite range.

The pump logic controller shall be self prompting. All messages shall be displayed in plain English. The operator interface shall have the following features:

- Multi-fault memory and recall last 10 faults and related operational data.
- Red fault light, Yellow warning light, and Green power on light.
- Soft-touch membrane keypad switches.

The display shall have four lines, with 20 characters on three lines and eight large characters on one line. Actual pump information shall be displayed indicating pump status.

Controller shall be capable of performing the following pressure booster functions:

- Low suction pressure cut-out to protect the pumps against operating with insufficient suction pressure.
- High system pressure cut-out to protect the piping system against high pressure conditions.
- No Flow Shut down to turn the pumps off automatically when system demand is low enough to be supplied by the hydropneumatic tank. No Flow Shutdown shall not require any external flow meters, flow switches, nor pressure switches to determine when a No Flow condition exists.

The following hardwire communication features shall be provided to the BAS:

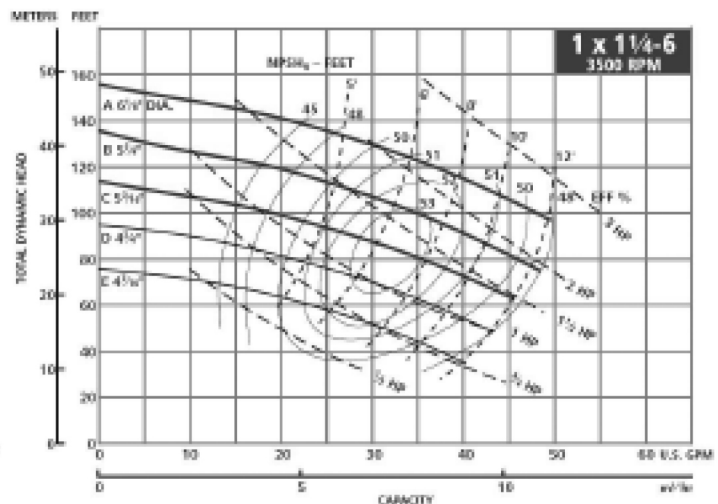
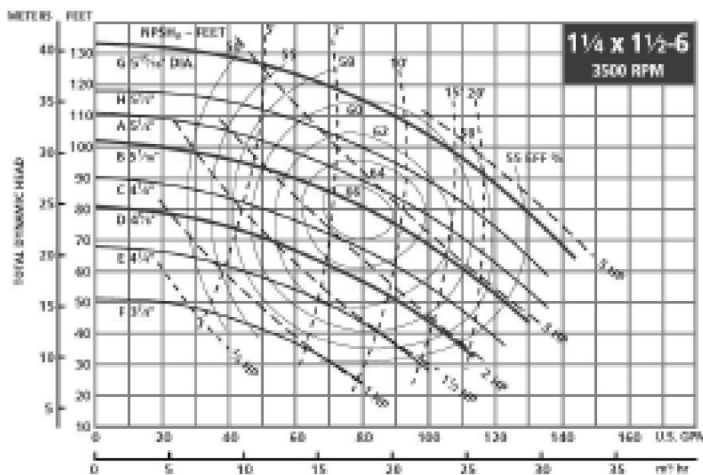
- Remote system start / stop non-powered digital input
- Failure of any system component. Output closes to indicate alarm condition.
- One 4-20 mA output with selectable output of:
 - Frequency
 - Process Variable
 - Output Current
 - Output Power

The following communication features shall be provided to the Building Automation System via an RS-485 port utilizing Johnson Controls Metasys N2, Modbus RTU, or Siemens P1 protocol:

- Individual Analog inputs
- Individual zone setpoints
- Individual Pump/AFD on/off status
- System Percent speed
- System Start/ Stop command
- System Operation mode
- Individual Kw signals
- System flow, when optional flow sensor is provided

The pump logic controller shall be a Bell & Gossett Technologic 502 or approved equal housed in a NEMA 1 or NEMA 12 Enclosure.

SERIES 3530 PUMP PERFORMANCE CURVES



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Let's Solve Water

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