



Variable Speed Booster Set for Water Supply and Industry



Variable speed drive technology offers a cost-effective method to match driver speed to load demands and represents a state-of-the-art opportunity to reduce operating costs and improve overall productivity.

REGALINE SYSTEM Variable Speed Booster Set consists of two to four vertical multistage centrifugal pumps coupled in parallel and mounted on a common base frame provided with all the necessary fittings and a control panel.

The pumps used in the booster sets are individually tested at the factory – checking all operating parameters in accordance with ISO 9906 Grade 1 and 2 procedures and regulations.

The entire system is tested once it has been assembled – checking all possible parameters including start/stop, control panel operation, alarm settings, etc. Prior to delivery, the booster set is workshop-tested and set according to the customer's requirements and ready for operation.

The booster sets are sized and assembled in an easily transportable form complete with accessories and inlet and discharge manifolds. The installation contractor is only required to make connections for the suction and discharge manifolds and the electrical connections to the control panel.

FEATURES AND ADVANTAGES

- Constant pressure independent of the flow required.
- Reduction of noise.
- Substantial energy saving.
- Practically free maintenance.
- No water hammering.
- Reduction of diaphragm tank volume – a small 20-50 litres diaphragm tank is recommended to accommodate a very small demand without having to start the pump.
- Reduction in frequency of start/stop.
- Increase the booster set performance.
- Simple and easy control and monitoring system.
- Automatic changeover between pumps in operation to ensure all pumps age at the same rate.
- Longer pump life.
- Greater flexibility in selection of pump.
- Performance control panel and 26 monitoring functions available.
- Bus communication possible.
- Dry running protection.
- Motors are TEFC squirrel cage induction type which are easily available.



PUMPS

- Two to four pumps may be selected according to specific requirements.
- Pumps are arranged in parallel operation.
- All hydraulic parts in contact with the fluid are made of SS304 stainless steel. SS316 may be supplied upon request.
- Suction and discharge head in stainless steel construction. Cast iron type may also be supplied.
- Quiet operation.
- Quality silicon carbide or tungsten carbide mechanical seal.

PUMPS

- Standard IEC vertical flanged motor.
- Class F IP55 insulation.

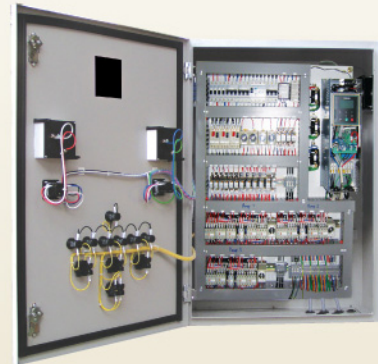


CONTROL PANEL

The control panel incorporates a frequency converter which can switch the system ON/OFF or regulate the operation of up to four parallel pumps by constant pressure regulation.

The control panel has all the parameters necessary for ensuring the best comfort and optimum operation. Some of the functions available include constant pressure, pipe loss compensation, timer programme, alternative set points, pump priority and bus communication.

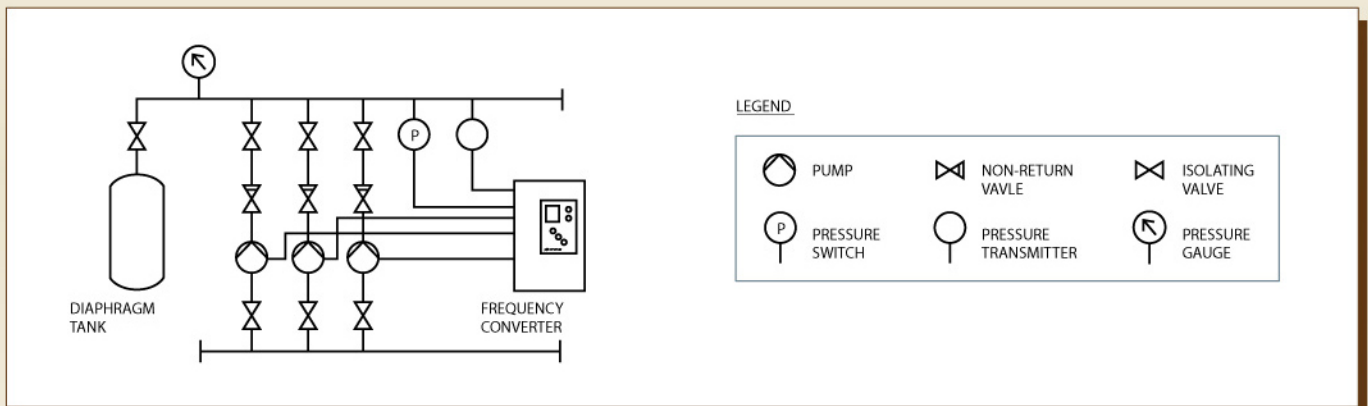
The frequency converter is fully imported and wired up locally using components from renowned manufacturers such as Siemens, Legrand, Telemecanique, etc. Lightning surge protection can also be provided upon request.



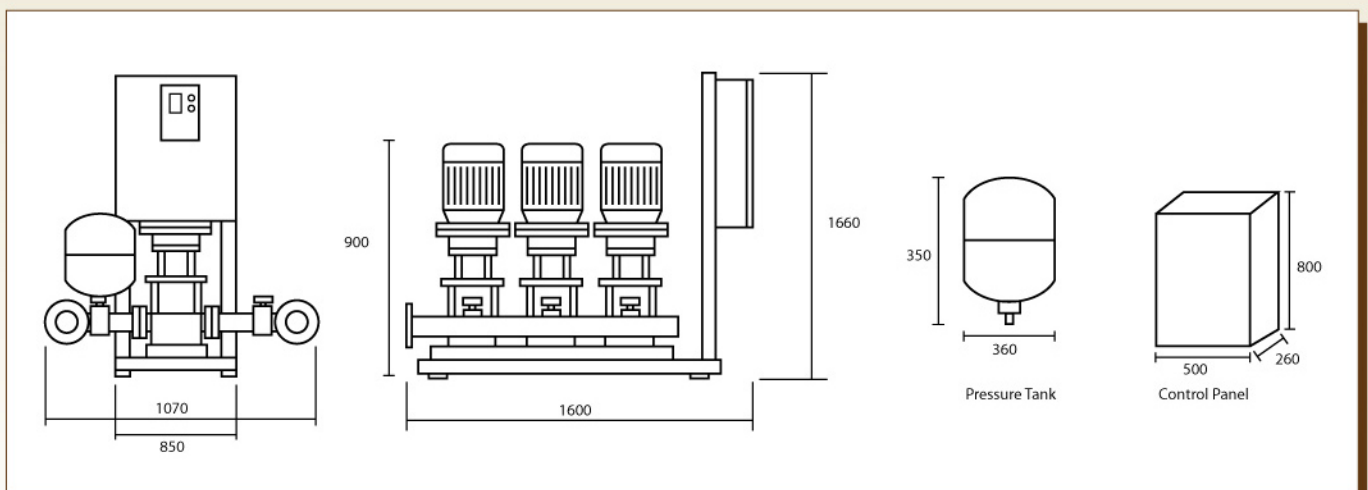
APPLICATIONS

- Water supply in civil, industrial, commercial and domestic sectors
- Water boosting for high rise buildings
- Fire fighting system
- Sprinkler and irrigation system

SCHEMATIC DRAWING



DIMENSION DRAWING (Dimensions in mm)



Sample dimension drawing for three pumps system, dimensions to change for other different models. Dimensions above are approximate and subject to final adjustment.

NEW FEATURES OF DRIVER

- The multipump feature enables a single drive to control processes up to four pumps.
- Easy to use keypad where nine values can be monitored simultaneously.
- Energy saving, longer life span and silent operation.
- Availability of Ethernet and USB-to-RS485 interface.



MONITORING VALUES (Control keypad : menu M3)

Commonly used parameters used for pump system controlled with variable speed drive:

Code	Parameter	Unit	ID	Description
P3.1.1.1	Motor nominal voltage	V	110	Find this value U_n on the rating plate of the motor. This parameter sets the voltage at the field weakening point to $100\% * U_n$ Motor. Note also used connection (Delta/Star).
P3.1.1.2	Motor nominal frequency	Hz	111	Find this value f_n on the rating plate of the motor.
P3.1.1.3	Motor nominal speed	rpm	112	Find this value n_n on the rating plate of the motor.
P3.1.1.4	Motor nominal current	A	113	Find this value I_n on the rating plate of the motor.
P3.1.1.5	Motor Cos Phi		120	Find this value on the rating plate of the motor.
P3.1.1.6	Motor nominal power	kW	116	Find this value I_n on the rating plate of the motor.
P3.1.1.7	Motor current limit	A	107	Maximum motor current from AC drive.
P3.3.1	Minimum frequency	Hz	101	Minimum allowed frequency reference.
P3.3.2	Maximum frequency	Hz	102	Minimum allowed frequency reference.
P3.4.2	Acceleration time 1	s	103	Defines the time required for the output frequency to increase from zero frequency to maximum frequency.
P3.4.3	Deceleration time 1	s	104	Defines the time required for the output frequency to decrease from maximum frequency to zero frequency.
P3.5.1.26	Motor 2 interlock		427	FALSE = Not active TRUE = Active
P3.5.1.27	Motor 3 interlock		428	FALSE = Not active TRUE = Active
P3.5.1.28	Motor 4 interlock		429	FALSE = Not active TRUE = Active
P3.5.1.29	Motor 5 interlock		430	FALSE = Not active TRUE = Active
P3.12.1.4	Process unit selection		1036	Select unit for actual value.
P3.12.2.1	Keypad setpoint 1	Varies	167	
P3.14.1	Number of motors		1001	Total number of motors (pumps/fans) used in multi-pump system.
P3.14.4	Autochange		1027	Disable/enable rotation of starting order and priority of motors. 0 = Disabled 1 = Enabled
P3.14.5	Autochange interval	h	1029	After the expiry of the time defined with this parameter, the autochange function takes place if the capacity used lies below the level defined with parameters P3.14.6 and P3.14.7.
P3.14.6	Autochange: Frequency limit	Hz	1031	These parameters define the level below which the capacity used must remain so that the autochange can take place.
P3.14.7	Autochange: Motor limit		1030	These parameters define the level below which the capacity used must remain so that the autochange can take place.
P3.14.8	Bandwidth	%	1097	Percentage of the setpoint. E.g.: Setpoint = 5 bar, Band-width = 10%: As long as the feedback value stays within 4.5...5.5 bar motor disconnection or removal will not take place.
P3.14.9	Bandwidth delay	s	1098	With feedback outside the bandwidth, this time must pass before pumps are added or removed.

For enquiries, please contact :