



# AquaTech Pressmain

**COLD WATER PRESSURE BOOSTER SETS  
WITH VARIABLE SPEED END SUCTION PUMPS**



**VARIMATIC 'LG2AV' SERIES**

**WRAS**  
APPROVED  
PRODUCT

**AGM**  
group member

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## OVERVIEW

The Varimatic "LG2AV" range of quality assured cold water pressure booster sets, is designed to increase the pressure of the cold / hot water services within a building where the existing incoming mains or feed tank is not capable of supplying sufficient system pressure. Incorporating inverter driven variable speed pumps, which continually vary the motor speed to match the changing flow demand pattern, whilst maintaining a constant system duty pressure. This mode of operation, adjusting the pump's motor speed to the building's flow requirements, reduces the power consumption dramatically.

Our twin pump sets are arranged for operation as duty pump, with assist/standby pump (see page 4).

All pumps are assembled on a common base frame with a Microprocessor control panel and all necessary valves and fittings to ensure ease of installation, efficient and reliable operation.

## FEATURES:

- Economic variable speed pump operation
- Potable water specification, Fluid category 1, WRAS approved product
- Automatic rotation of duty pump
- All wetted pump parts - Aisi304 Stainless Steel
- Compact Design and easy installation
- High quality materials and workmanship
- Electronic low water protection interface
- Reliable Microprocessor/transducer control
- Range of models;  
Duty flow rates from 0.5 l/s - 5 l/s  
Duty pressures from 1.5 bar to 6.0 bar
- Temperature range - 15°C to 60°C
- Quiet running End Suction design

## OPERATION OF PUMPS:

Hydropneumatic intermittent operation via AquaTech Pressmain Smart Relay Microprocessor control system with individual control panel mounted variable speed inverter drives, which control pump speed to match the system demand requirements.

## DETAILS OF EQUIPMENT:

### Pumps:

End suction design using latest technology to achieve quiet running and high efficiency (EFF2). Stainless steel Aisi304 is used for all wetted components.

### Electric Motors:

These are totally enclosed, fan ventilated (TEFC) type to BS 4999 part 21 with class "F" insulation class "B" temperature rise protected to IP55.

### Inverters / Controller:

Compact, panel mounted and filtered for domestic use these inverters have infinite setpoint adjustment and are controlled via the smart relay controller which is programmed in house using all of our experience in microprocessor controlled pumpsets.

### Control Vessel:

Control Vessels are manufactured from high grade steel automatically welded. The stored water is contained within a rubber membrane so that the steel shell is never in contact with the water. This ensures that the water is not contaminated by corrosion from the steel shell resulting in long life.

### Pipework:

Standard manifolds of fabricated Copper tube to EN 1057, including isolating valves on each pump suction and discharge, with non-return valves on each pump. (Stainless Steel, Galvanised and Plastic options available; contact AquaTech Pressmain sales for details)

### Control Panel:

Automatic control by Smart Relay microcontroller;  
Accurate pressure measurement by transducer;  
Digital display for pressure and faults;  
Automatic alternation of duty pump;  
Electronic low water protection (where fitted);  
Motor controlled by Digital Frequency Inverter;  
Optional Volt-free relay operating on low water & low pressure (single pole);  
Interlocked door isolator.

The above equipment is complete with all necessary terminals, labels and interconnections, enclosed in a sheet steel, dust and damp proof housing with lockable door to IP44.

### Low Water Cut-out: (Optional)

The unit can be connected to a suitable level switch mounted in the breaktank. A warning signal on the control panel then indicates when the cut-out is in operation. The set is returned to normal working automatically after the break tank has been recharged.

### Quality System:

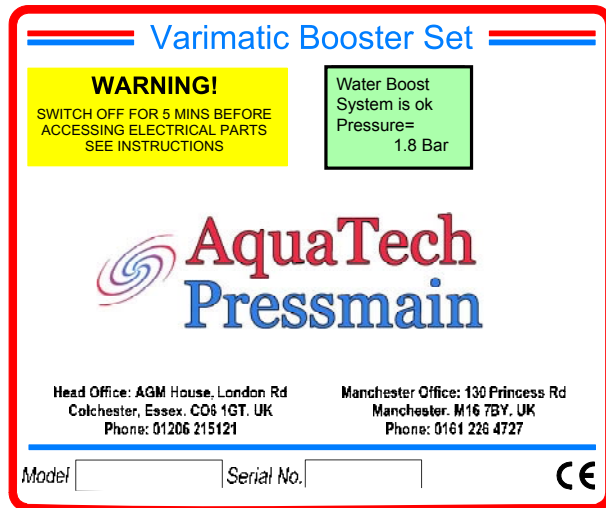
Designed and manufactured in accordance with AquaTech Pressmain quality procedures. AquaTech Pressmain is registered to ISO9001 by BSI

### WRAS Approved:

This product is WRAS approved.  
Approval Number: 0710086



## CONTROL PANEL



4 Line Digital Display indicating  
Boosted System OK  
Working Pressure  
Low Pressure Alarm  
High Pressure Alarm  
Low Pressure Lock Out Alarm  
Low Water Level Alarm  
(with optional low water level switch)

## LG2AV OPTIONAL FEATURES & ANCILLARIES

### Volt-free Fault Relay

AquaTech Pressmain can fit a Volt-free relay inside the panel to allow for connection to a warning light or alarm to warn of pumpset faults such as Low pressure etc.

### Break-tank level monitors/ switches

AquaTech Pressmain can supply a range of monitors and switches to warn of abnormal break-tank levels/ temperatures and stop the booster set in the event of the level becoming too low for proper operation.

### Pipework Material Options

AquaTech Pressmain will supply Copper pipework manifolds as standard, however we can provide Galvanised, ABS, UPVC and Stainless Steel in both 304 & 316 standards. Contact the sales office for details.

### Flexible Connections

Made from EPDM rubber suitable for potable water applications, this spherical bellows type flexible coupling joint will absorb pipe movements, isolate vibration, reduce system noise and protect plant against start up surge forces. Gaskets are not required and the joints are easily and speedily installed. System pipework mating flanges are available upon request.

### Anti Vibration Mountings

When fitted this turret type mount will isolate the pump package from the ground or floor-mounting surface. The mounting will arrest and reduce pump rotation starting inertia and associated vibration being transmitted through the ground or floor-mounting surface, which could potentially cause a noise problem.

### Acoustic Attenuator Enclosure

Although the standard package meets stringent EC noise levels this enclosure is specifically designed for noise sensitive applications. Typically an insertion loss of approximately 30dB(A) can be achieved in most applications. Enclosures are supplied complete with naturally ventilated acoustic louvres, removable panels for easy pump maintenance and glazed vision panel for viewing pump control panel fascia.

### Distribution Manifolds

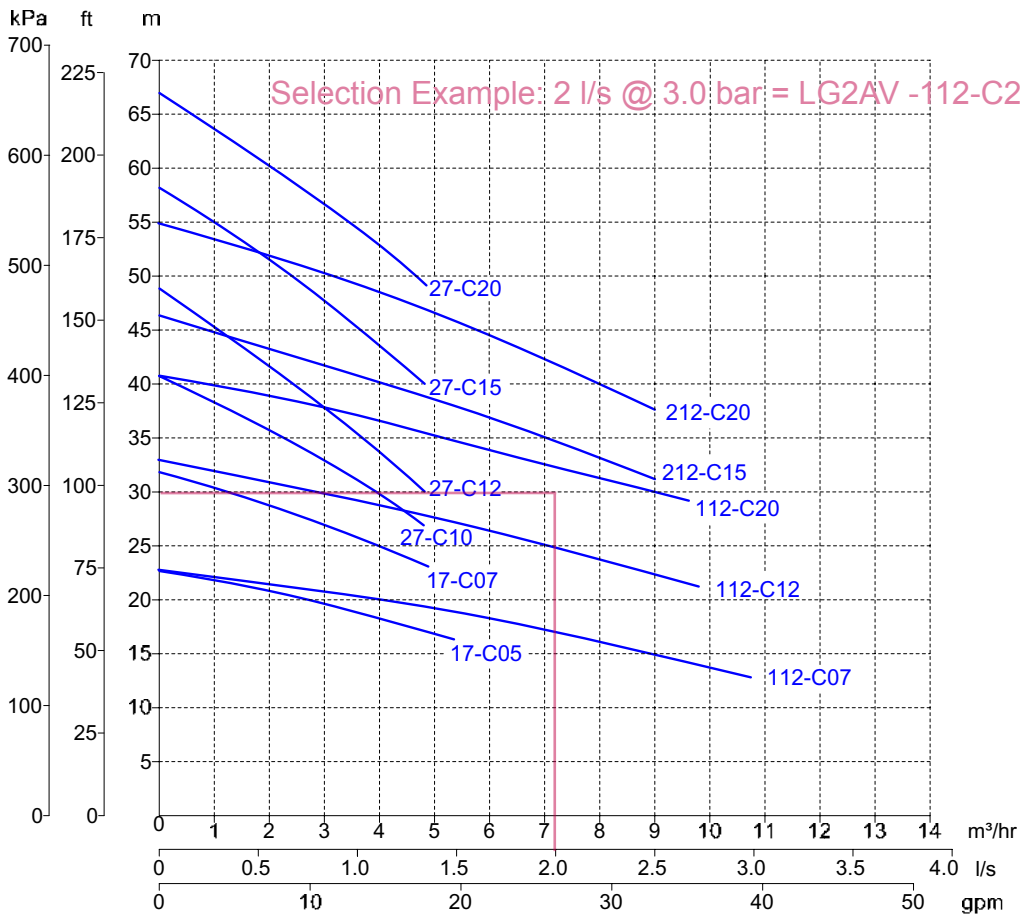
Prefabricated with our proven in-house copper extrusion method as used with the pressure booster set manifolds. Can be assembled with any number of individual stabbings and combination of isolating, non-return, double check valve & water meters to suit the building installation requirements.

### 2020+ Controller

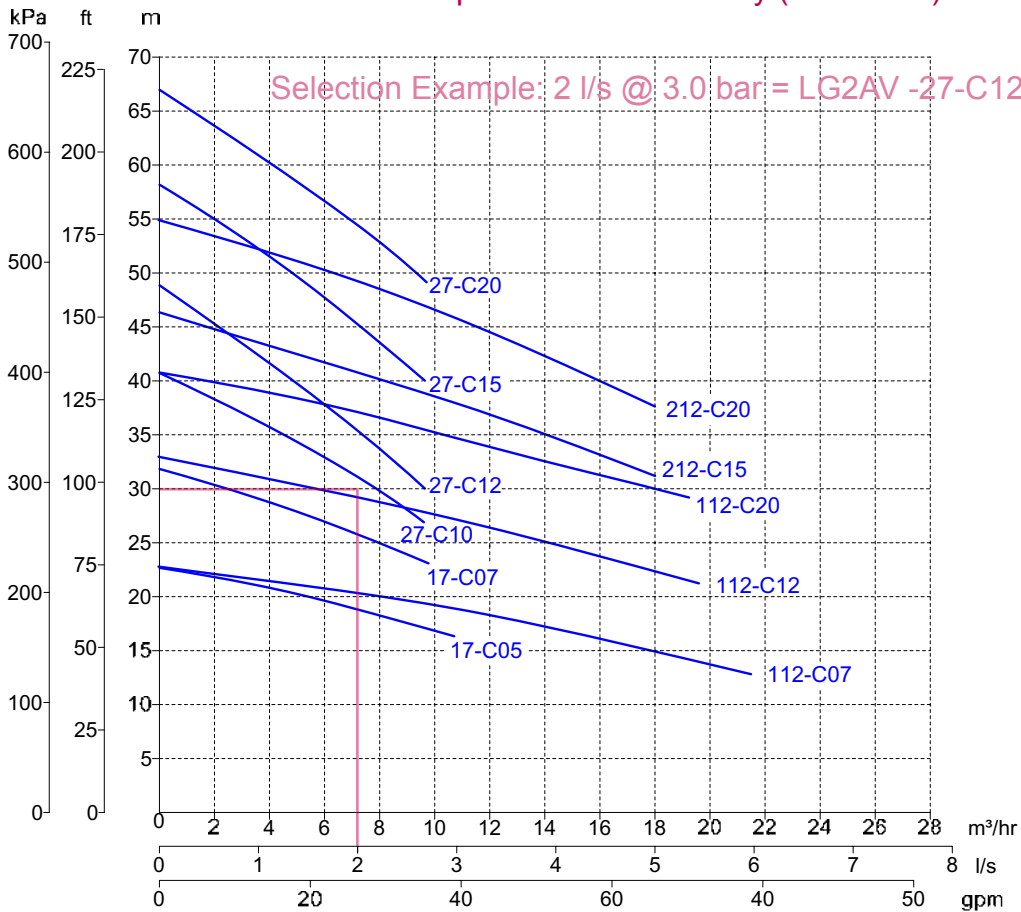
Our latest generation controller with enhanced micro software featuring, Hand/off/auto switches for each pump, RS232/485 serial communication port, data logging function, indicators for pump run, hand, off and auto, user friendly fascia mounted keypad for entering/retrieving data and system parameters, visible on a 2 line backlight display for showing current pressure and in plain English: Power On, System Status, Low or high pressure, low or high water feed tank level (where fitted), pump hours run, pump failed, transducer failed, and service reminder, as well as the RE-PRESS power restoration electronic safety system, offering the end user a controlled refill following electrical supply failure.

# PUMP PERFORMANCE CURVES

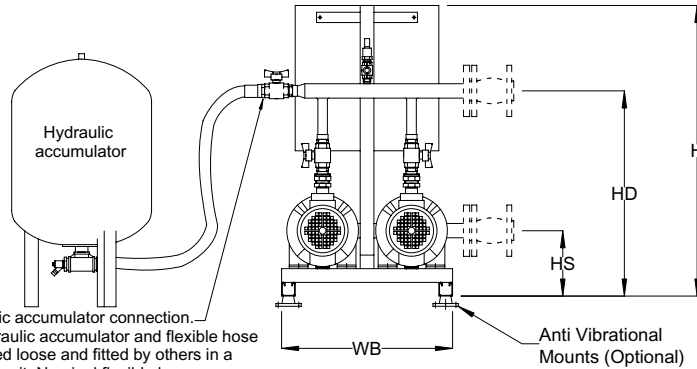
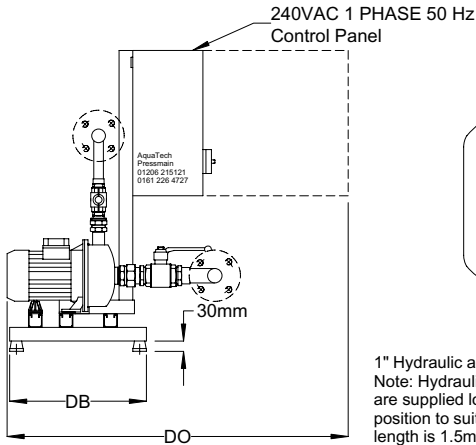
## DUTY / STANDBY 1 Pump Duty with 1 Pump Standby (100% each)



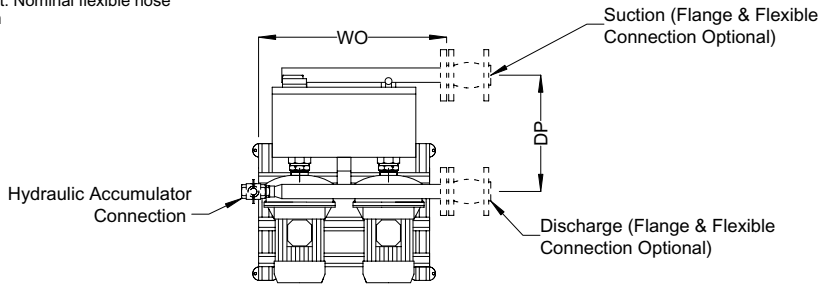
## DUTY / ASSIST 2 Pumps run to achieve duty (50% each)



# DIMENSIONS



1" Hydraulic accumulator connection.  
Note: Hydraulic accumulator and flexible hose are supplied loose and fitted by others in a position to suit. Nominal flexible hose length is 1.5m

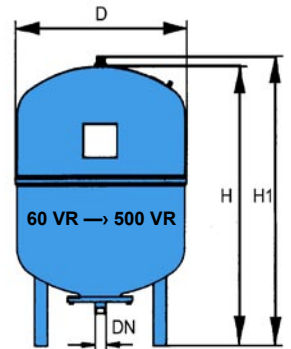


The Hydraulic Accumulator must be fitted for correct operation.  
For Hydraulic Accumulator Dimensions please see table below

Varimatic LG2AV																
Pump Model	Total Pumpset Loading Kw	Minimum Supply size 1Ph 240VAC (amps)	Wt kg	Min Vessel Size	Sound level db(A)	All Dimensions in mm unless stated otherwise										
						Base		Overall max				Pipework				
						WB	DB	WO	DO	H	HS +/-10	HD +/-10	DP +/-10	Suction	Discharge	Connection
17-C05	0.8	25	100	60	<70	500	500	600	980	875	191	575	340	40	40	Threaded
17-C07	1.0	25	100	60	<70	500	500	600	980	875	191	575	340	40	40	Threaded
27-C10	1.5	35	100	60	<70	500	500	600	980	875	191	575	380	40	40	Threaded
27-C12	1.8	45	100	60	<70	500	500	600	980	875	191	575	380	40	40	Threaded
27-C15	2.2	45	100	60	<70	500	500	600	1005	875	203	595	380	40	40	Threaded
27-C20	3.0	55	100	60	<70	500	500	600	1010	875	203	595	380	40	40	Threaded
112-C07	1.0	25	100	60	<70	500	500	600	980	875	191	575	340	50	50	Threaded
112-C12	1.8	45	100	60	<70	500	500	600	980	875	191	575	340	50	50	Threaded
112-C20	3.0	55	100	60	<70	500	500	600	1005	875	203	595	340	50	50	Threaded
212-C15	2.2	45	100	60	<70	500	500	600	1005	875	191	575	380	50	50	Threaded
212-C20	3.0	55	100	60	<70	500	500	600	1005	875	191	575	380	50	50	Threaded

## HYDRAULIC ACCUMULATORS

Type	60 VR	100 VR	200 VR	300 VR	500 VR
Nominal Content –litres	60	100	200	300	500
D mm	409	480	634	634	740
H mm	740	840	980	1280	1485
Water Connection DN BSP	1"	1"	1 ¼"	1 ¼"	1 ¼"
Weight Kg	25	32	50	55	85
Max. working Pressure-bar	10	10	10	10	10



DRAWING NOT TO SCALE - Hydraulic Accumulators are supplied free standing with flexible hose and drain-off for connection to booster set on site. A connection with isolating valve is also fitted on the discharge manifold of the booster set for this purpose.

## LEVEL SWITCHES

To fully protect the LG2AV in the event of a low water condition we recommend the use of a tank mounted level switch. When installed in the break-tank and wired to the booster set the switch provides a low level cut out signal to protect against dry running. When the feed tank has replenished, the booster will auto reset, allowing the pumps to run.



The MSL-202 level switch is a simple external mount, reed relay operated float switch which can be wired into the control panel to provide low water protection. It is WRAS approved for potable water use. Supplied with 1 metre trailing leads.



The LSM range of level switches are the perfect accompaniment to AquaTech Pressmain cold water pressure booster sets. They can be tank top or remote mounted and can work with all types of level switch including conductivity probes, The P version comes with integral probes for quick and easy installation and the 2 relay 3probe "LSM P3-B" version can also detect a high level condition.

# INSTALLATION GUIDANCE NOTES

## ELECTRICAL INSTALLATION:

1. Our standard unit is designed for a 240V single phase 50Hz electrical supply.
2. Electrical design of equipment conforms to BSEN 60204 pt.1 and IEE regulations 16th edition, it is important that all subsequent wiring and protection reflects this.

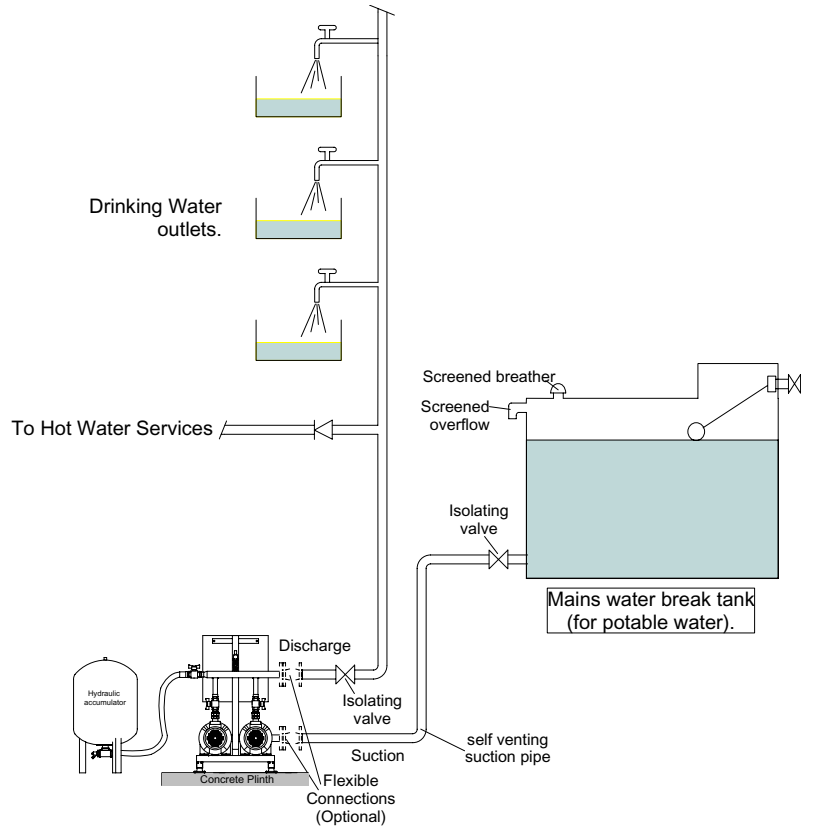
## HYDRAULIC INSTALLATION:

1. The design of the unit enables it to be located in any position in the plantroom with a minimum of inconvenience to pipework layout.
2. Installer to fit isolating valves on the break tank supply and riser to system.

NOTE: swing check valve/s must not be fitted on the discharge pipework.

## MECHANICAL INSTALLATION:

1. This unit should be mounted on a flat, slightly raised plinth and bolted down.
2. The selected pumps are designed for quiet operation and are virtually vibration free. Where lower noise operation is essential the possibility of using anti-vibration mounts and flexible pipe connections may be considered.



Typical pipework arrangement using fixed speed cold water pressure booster set feeding hot & cold water services.

CONSTRUCTION STANDARDS LG2AV PRESSURE BOOSTER SETS			
COMPONENT	MODEL SERIES	STANDARD/CLASS	REMARKS
End-Suction Pump	17,27,112,212	DIN 24255	Aisi 304 Stainless Steel Pump, WRAS Approved
Mechanical Seal	Carbon / Ceramic	DIN 24960	WRAS Approved
Motor for Pumps	TEFC	IP55, Class F Insulation	Continuous Rated
Isolating & Non Return Valves	Ball Valve	PTFE Ball Seat	WRAS Approved
Suction & Discharge Manifolds	Copper	Pipe to EN 1057 Fittings to EN 1254	For Potable Use
Control Panels	LG2AV	IP43/, 89/3366/eec:1992	CE Marked
Microprocessor	AquaTech "LG"	Smart Relay	In House Software
Hydraulic Accumulators	60-500VR	DIN 4087 BS6144:1990	Replaceable Diaphragm
Quality System	ISO 9001	BSI Registered	CERT No. FM33090
CE Marked	PED, EMC Directive, Safety of Machinery		PED Nominated Body - BSI

The information in this specification is correct at time of issue; as AquaTech Pressmain design and development programmes are continuous, we reserve the right to make any changes to this specification without prior notice.



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