

Super Simplex M

Pumps mechanical regulator

Electro-mechanical regulator for the extremely simple creation of pressurization units.

SuperSimplex M provides correct functionalities **for an easy price**

- A single product for the automation of pumps with head of between 1,5 and 8 bar.
- It monitors the pressure, flow and temperature of water.
- It stops the pump in the event of excessive water temperature (55°C), protecting it against high temperature.
- High water temperature protection (55°C) and automatic restart (45°C).

Advantages

- Easy and fast connection
- Pump protection water temperature
- Adjustable restart pressure
- Quiet operation
- Manometer equipped
- Check valved equipped.

Operation

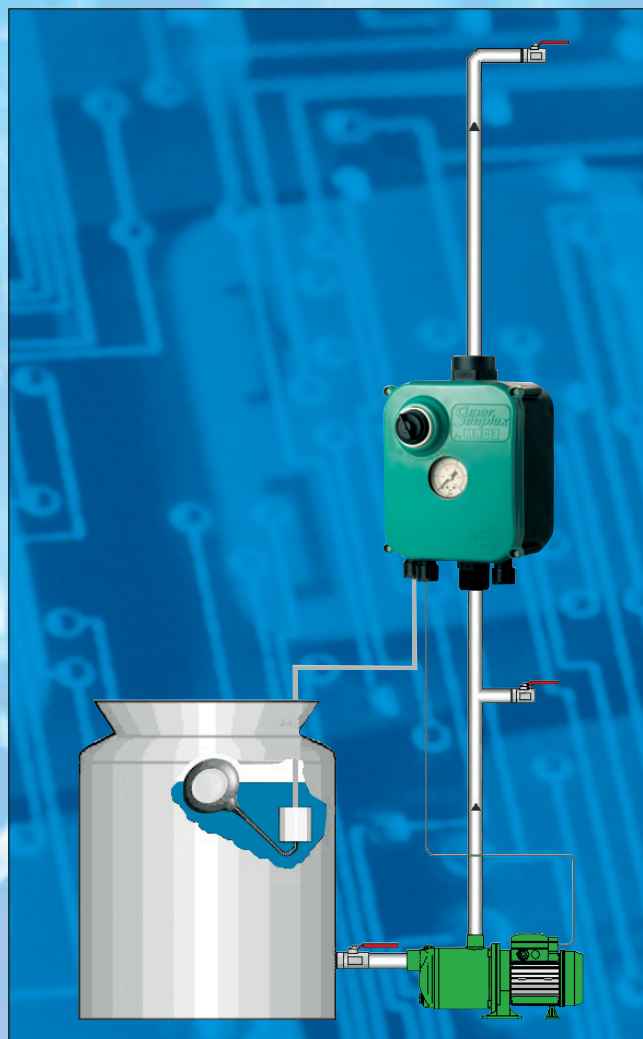
Once electrically connected for the first time SuperSimplex turns on the pump until the hydraulic system reaches the maximum pressure, then stops it.

On turning on any tap in the hydraulic system SuperSimplex detects the lowering pressure and, when this reaches the restart pressure, it immediately starts the pump.

To adjust the pump restart pressure, according to your need, turn the knob that is on the front part of SuperSimplex: tighten it to increase the restart pressure, loosen the knob to lower it.

Technical features

- Water pressurization pump control device
- Patented for electro-mechanical operation
- Immediate water supply
- Delayed pump switch-off



Type	SSM
Code	VSPXM00G00
Equipped with pressure gauge thermal protection (55°C)	
Mounting position	Any (Horizontal/Vertical)
Input Output	1" male/1" female
Pump power supply	250 V ~ 50÷60 Hz
Micro-switch electrical features	20(8)A - 250V ~
Max. pump power	2Hp a 250V~/1HP a 130V ~
Min. pump pressure	1,5 Bar
Maximum overpressure	12 Bar
Service	Continuous
Operating temperature	0÷50 °C
Protection grade	IP 54
Working pressure (s)	1,5÷8,0 Bar
Restart pressure (r)	0,4÷2,2 Bar
Minimum differential pressure (s-r)	1,5 Bar
Max flow	120 lt./min.
Body/Cover material	Glass filled PP/ABS
Dimensions mm h/w/dk/Weight	230/190/145/900 g.

In case the pump switches on/off repeatedly, due to the system leakages, it will be necessary to install, after SuperSimplex, a pressure tank of 2-8 litres capacity.

Super Simplex E

Pumps electronic regulator

The most complete electronic regulator with automatic reset for the extremely simple creation of pressurization units for residential and irrigation systems.

SuperSimplex E is able to meet the requirements of even the most demanding users.

- A single product for the automation of electro-pumps with head of between 1.5 and 8 bar
- It monitors the pressure, flow and temperature of the water
- It stops the pump in the event of faults or excessive water temperature (55 C), protecting it against dry run and high temperatures.

With SuperSimplex E inconvenient manual resetting and burnt fields when you are on holiday become a thing of the past, SuperSimplex E ensures the water supply even when you are away:

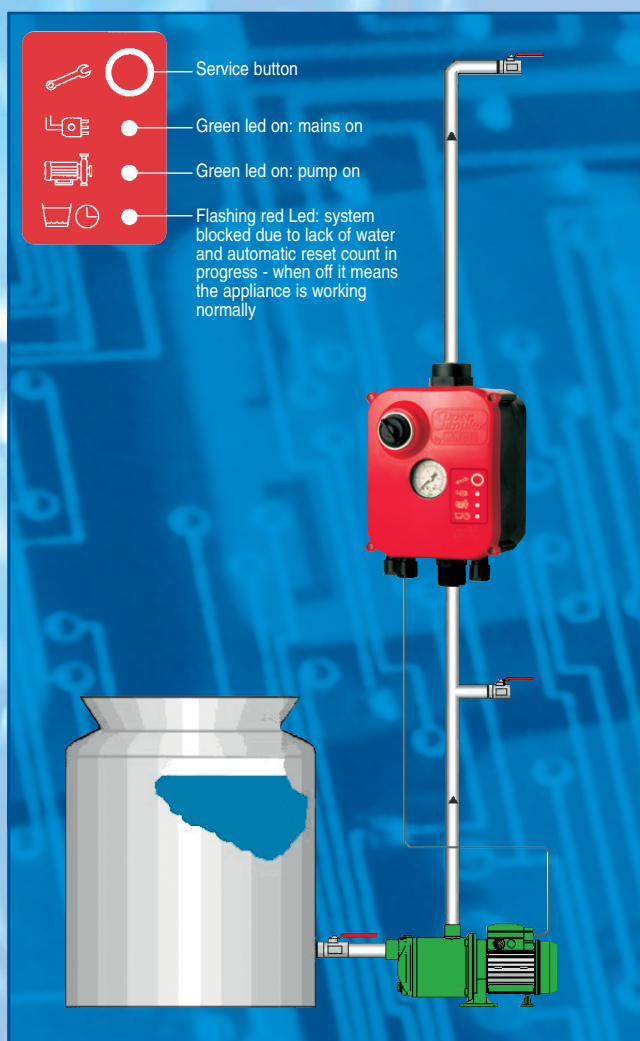
- **IT ALWAYS RESETS AUTOMATICALLY**

Advantages

- Easy and fast connection
- Pump protections:
 - dry run
 - water overtemperature
- Automatic restart
- Adjustable restart pressure
- Quiet operation
- Manometer equipped
- Check valve equipped
- Starts and stops the pump automatically when needed
- No continuous on/off running of the pump for drop leakages
- You will not need:
 - pressure switch
 - 5 way connectors

SuperSimplexE is set at the factory for the control of pumps with head of 4 - 8 bar and for re-starting at 2 bar. In such conditions no setting is needed, simply discharge the air from the system keeping the service button pressed and SuperSimplexE is ready to control the pump.

Type	SSE
Code	VSPXE00G00
Mounting position	Any (Horizontal/Vertical)
Input/Output connection	1" male/1" female
Power supply/Consumption	250 V ~ 50÷60 Hz / 10 W
Max. pump power	2Hp a 250V ~
Min. pump pressure	1,5 Bar
Maximum overpressure	12 Bar
Service	Continuous
Operating temperature	0÷50 °C
Working pressure (s)	1,5÷8,0 Bar
Restart pressure (r)	0,4÷2,2 Bar
Max flow	120 lt./min.
Dimensions mm h/w/d / Weight	250/145/155 /900 g.



In case the pump switches on/off repeatedly, due to the system leakages, it will be necessary to install, after SuperSimplex, a pressure tank of 2-8 litres capacity.

Constant pressure lift units

Variable speed regulators for low energy consumption systems

The need to reduce energy consumption levels has become a vital necessity and everyone should aim to reduce wastage. The year 2006 should be decisive in this sense, with the entry into force of the European directive on the energy certification of buildings.

In view of this MAC3 has undertaken to develop products that ensure low energy consumption in the autoclave sector in the development of the HydroController.

Everyone is interested in taking steps to reduce pollutant emissions and to limit domestic consumption rates.

Obviously the reduction in energy consumption involved added costs, but the amortization in the specific case of the HydroController is short term (approx. 1 year), which serve to increase user comfort and reduce running costs.

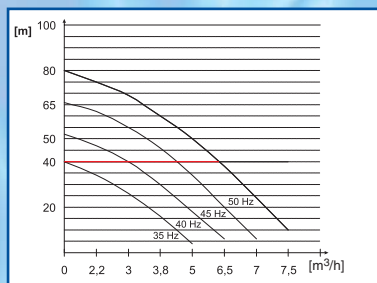
HydroController is basically a static frequency controller (inverter) which has been specifically developed for the piloting of single-phase electro-pumps or three phase asynchronous pumps using a common single phase line. In a water supply system, the demand for maximum delivery is occasional, and in fact there is often the need for variable delivery rates, so that the pump usually needs to operate at a variable delivery rate, rather than at a fixed rate (as in the case of traditional systems) so that the same will work at moderate rates for most of the time with low energy consumption. In fluid dynamic systems the ratio between the absorbed power and speed is of cubic type; so that only a few less Hz translates into a much lower Kw consumption:

Rotation speed	%	100	90	80	70	60	50
Absorbed power	%	100	70	50	37	26	20
Energy saving	%	0	30	50	63	74	80

This table shows how the reduction in the speed of an asynchronous motor by 20% translates into a 46% reduction in the absorbed power rating.

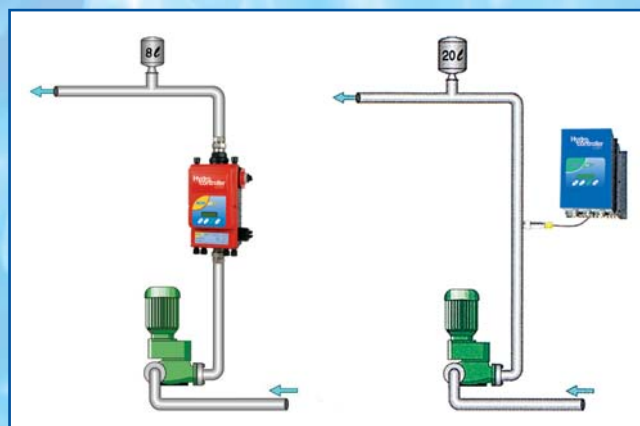
So that it is clear that during the course of the day, by specifically scaling the pumps, it is possible to ensure a considerable energy saving as compared to those systems using fixed rotation pumps.

In order to fully exploit the regulation features of the HydroControllers it is necessary to use multi-rotating centrifugal pumps, the characteristic curves of which are very pronounced so that the required pressure value (ie. 4 bar) for low delivery rates, can be obtained with a low number of revs (30/35 Hz).



A single HCW/HCA for electro-pump control

The HydroController continuously regulates the rotation speed of the electro-pump so as to ensure a constant pressure despite varying displacement rates.



A HCW/HCA for each electro-pump

Each electro-pump is controlled and regulated by a HydroController. In this configuration the system is able to control all the electro-pumps used at variable speed, by increasing or decreasing their rotation speed at the same rate, so as to maintain a constant pressure value whatever the displacement variation.

The HydroControllers regulate the rotation speed of the electro-pumps and ensure that they never reach maximum rotation speed, so that they are always made to operate on the delivery/head curves with the greatest mechanical yield, therefore ensuring a long operating life and maximum energy saving.

The electro-pump alternation is guaranteed.



HCW MM - HCA MM

Single phase feed for single phase pumps up to 1 HP

HCW MM and HCA MM have been specifically developed for the piloting of traditional single phase pumps (with starter condenser). They guarantee a constant pressure despite capacity variation and offer the users the benefit of constant water delivery (irrespective of the number of water collections) therefore ensuring efficient energy savings.

Particular attention has been given to the user interface to ensure a highly rapid and easy installation. The front panel features 4 keys and a 2-line x 16 character display for stating up and in order to view the functional and alarm parameters. The parameters are written in full on the display and there is no need to interpret them.

There are only 3 starting up parameters. The required pressure, the maximum pump pressure and the number of reset attempts in the event of no water.

In the event of an anomaly situation HydroController will protect the autoclave as it switches off, but in order to protect the supply it will undertake repeated automatic or programmed reset attempts.



Model	Description	Power	Code
HCW MT 1P HCA MT 1P	Regulator for 1 1HP pump	230 V ~ 50/60 Hz single phase	VHDR1110000 VHDA1110000
HCW MT XP HCA MT XP	Regulator of up to 3 pumps that can be placed parallel of 1HP	230 V ~ 50/60 Hz single phase	VHDR1210000 VHDA1210000
HCW MT 1XP HCA MT 1XP	Regulator of up to 4 different pressure that can be controlled by an irrigation control box (1 pump 1HP)	230 V ~ 50/60 Hz single phase	On demand

Protection	Reset
Power voltage too high or low	Automatic
Short circuit between phase and ground	No. of programmed resets
Short circuit between phase and phase	No. of programmed resets
Current over threshold over 1 min (range da 0,45 a 8,5 A - set)	No. of programmed resets
Output current above the threshold by over 1 min	Manual
Water temperature above 75 °C	Automatic
Lack of water/air in the pump	No. of programmed resets
Pressure sensor fault	Manual

HCW models for direct installation on water source
HCA model for installation on walls or electrical panels

Technical features - Code VHDR1110000 and VHDA1110000			
Single phase power	230 Vca 50/60 Hz (from 170 to 270 Vca)	HCW/HCA assembly position	Any, on piping/vertical in the air unrestrained
Absorbed power	1,3 kW max	Set pressure	1,5 ÷ 7,5 Bar ± 0,2 Bar
Max. electro-pump power	1 HP (0,75 kW) 230 Vca single phase	Max over pressure for HCW models	12 Bar
Max. phase current	Continuous 12A - 17A for 1'	Ta operation	0 ÷ +40 °C
Output frequency	5 ÷ 60 Hz (Resolution 0,01 Hz)	Protection category	IP 65
Acceleration/deceleration time	0,5 ÷ 10 sec	Input/output	1" ¼ female
Electrical safety	EN60730	Dimension HCW h/l/p	360/246/170 mm.
Electromagnetic compatibility	EN61000-6-3 EN61000-6-4	Dimension HCA h/l/p	350/260/170 mm.
Display	LCD 2 line x 16 character	HCW weight	2,5 kg
		HCA weight	5,6 kg

For the HCW models install an pressure tank of at least 8 litres to protect the product from any water hammer and from any continuous restarting of the electro-pump in the presence of minor leakage situations. For the HCA models it is essential to install an pressure tank of at least 20 l. pre-charge value = 0.6 x set pressure (value measured in the absence of any delivery hydraulic pressure).

HCW MT - HCA MT

Single phase feed for three phase pumps up to 2 HP

HCW MT and HCA MT have been specifically developed for the piloting asynchronous pumps three phase using the common line single phase. They guarantee a constant pressure despite capacity variation and offer the users the benefit of constant water delivery (irrespective of the number of water collections) therefore ensuring efficient energy savings.

Particular attention has been given to the user interface to ensure a highly rapid and easy installation. The front panel features 4 keys and a 2-line x 16 character display for stating up and in order to view the functional and alarm parameters. The parameters are written in full on the display and there is no need to interpret them.

There are only 3 starting up parameters. The required pressure, the maximum pump pressure and the number of reset attempts in the event of no water.

In the event of an anomaly situation HydroController will protect the autoclave as it switches off, but in order to protect the supply it will undertake repeated automatic or programmed reset attempts.



Modell	Description	Power	Code
HCW MT 1P HCA MT 1P	Regulator for 1 2HP pump 230V ~three phase	230 V ~ 50/60 Hz single phase	VHDR001001 VHDA001001
HCW MT XP HCA MT XP	Regulator of up to 3 pumps that can be placed parallel of 2 HP 230 V ~ three phase	230 V ~ 50/60 Hz single phase	VHDR2210000 VHDA2210000
HCW MT 1XP HCA MT 1XP	Regulator of up to 4 different pressures that can be controlled by an irrigation control box	230 V ~ 50/60 Hz single phase	a richiesta

HCW models for direct installation on water source
HCA model for installation on walls or electrical panels

Protection	Reset
Power voltage too high or low	Automatic
Short circuit between phase and ground	No. of programmed resets
Short circuit between phase and phase	No. of programmed resets
Current over threshold over 1 min (range from 0,45 to 8,5 A - set)	No. of programmed resets
Output current above the threshold by over 1 min (fixed threshold of 12A)	Manual
Water temperature above 75 °C	Automatic
Lack of water/air in the pump	No. of programmed resets
Pressure sensor fault	Manual

Technical features - Code VHDR001001 and VHDA001001			
Single phase power	230 Vca 50/60 Hz (from 170 to 270 Vca)	HCW/HCA assembly position	Any, on piping/vertical in the air unrestrained
Absorbed power	2,2 kW Max	Set pressure	1,5 ÷ 7,5 Bar ± 0,2 Bar
Max. electro-pump power	2 HP 230 Vca - three phase	Max over pressure for HCW models	12 Bar
Max. phase current	Continuous 8A - 12A for 1'	Ta operation	0 ÷ +40 °C
Output frequency	5 ÷ 60 Hz (Resolution 0,01 Hz)	Protection category	IP 65
Acceleration/deceleration time	0,5 ÷ 10 sec	Input/output	1" 1/4 female
Electrical safety	EN60730	Dimension HCW h/l/p	360/246/170 mm.
Electromagnetic compatibility	EN61000-6-3 EN61000-6-4	Dimension HCA h/l/p	350/260/170 mm.
Display	LCD 2 line x 16 character	HCW weight	2,5 kg
		HCA weight	5,6 kg

For the HCW models install an pressure tank of at least 8 litres to protect the product from any water hammer and from any continuous restarting of the electro-pump in the presence of minor leakage situations. For the HCA models it is essential to install an pressure tank of at least 20 l. pre-charge value = 0.6 x set pressure (value measured in the absence of any delivery hydraulic pressure).