Frigel
Intelligent Process Cooling

›Aquagel - GPV/GPP

Pumping systems for industrial processes

They are preassembled and factory tested groups, designed for flexibly and modulate the flow of water destined for process, both for refrigeration systems and for adiabatic cooling units.

They are digitally controlled by the remote controller (3PR), which always activates the pumping capacity required by the process in order to maintain the pressure in line with set values.

The complete set-up includes the suction and discharge valves, discharge check valves, stainless steel manifolds, the base and the electrical panel, all pre-assembled and wired for a quick and functional installation.

The exclusive modular design also allows an easy and fast expansion up to a maximum of 4 pumps.

Versions are available with inverters (GPV) and without inverters (GPP)

Two types of pumps: Standard (SP) to keep the main circuit at around 3 bar and or high head (HP) to keep the main circuit at about 5 bar.

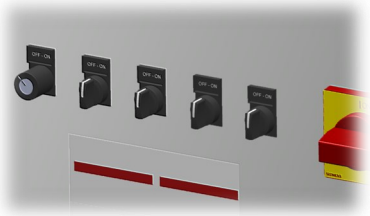
Modular process groups for up to 4 pumps

Advantages

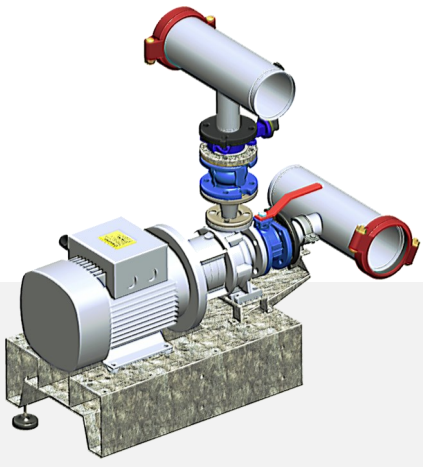
- Fully automatic operation
- Total modularity: mechanical, electrical and hydraulic
- High energy efficiency with inverter (GPV series)
- Plug & play concept for easy installation and expansion

Main features

- Full range: from 30 up to 800 m^3/h
- Modular groups up to four pumps
- High performance centrifugal electric pumps, equipped with silicon carbide mechanical seals and IE3 efficiency class electric motors
- GPV version with process pumps with variable frequency drives (inverters) for excellent performance with the lowest possible energy consumption
- Each motor has an inverter pre-wired with all the active pumps operating at the same speed
- Manual mode operation available for each inverter
- Automatic rotation of the pumps, including the standby pump, to balance operation times
- Electrical wiring complete with protection
- Electric panels in IP55 execution complete with general door-lock switch, magneto-thermal protection for pumps and connection terminal board
- Galvanized steel base; each pump has its base; the various bases can be easily connected to each other
- All the pumping groups are equipped with adjustable support feet to facilitate coupling with the GPS series tanks
- Digital temperature and pressure sensors
- Selectors for pumps manual switching on (max speed - OFF)
- Suction and discharge valves and discharge check valves
- Stainless steel manifolds



Selectors for pumps manual switching on



Accessories

- Additional pump kit: complete with electrical panel and base; the extension with an additional identical full trimmed pump can be done on both sides quickly and easily
- Insulation kit: on request for low operating temperatures

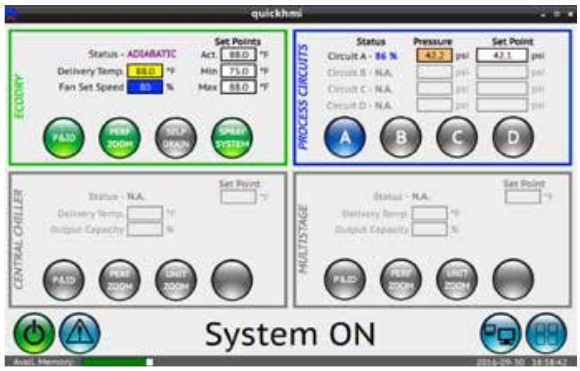
Provision for connection to the 3PR remote panel with the following functions

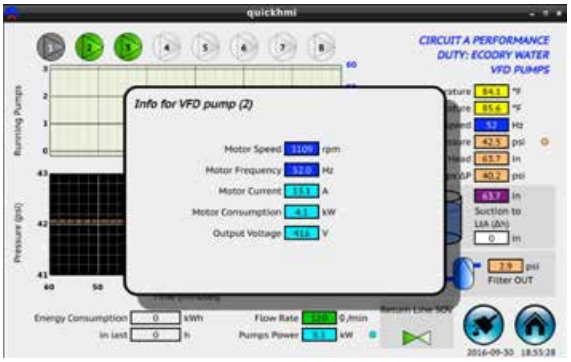
- Water pressure control for optimal pump management and any malfunctions (leaks or pipe breaks)
- Automatic control of the number of pumps in operation depending on the thermal load required
- Management of the inverter in the GPV series
- Automatic management of the equalization of the operating hours so as to allow for balanced aging

Display examples of 3PR

Main interface screen

- The upper right quadrant provides a snapshot of up to four pumping stations
- The pressures in real time are shown compared to the set points
- The conditions of the pumping units with inverter are shown in terms of percentage use
- A colored code indicates the active pumping groups



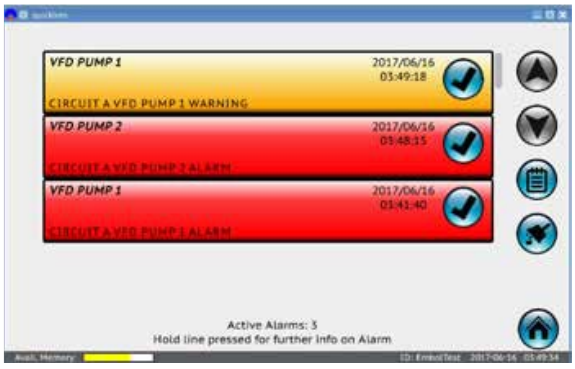


Pressing on Circuit A in the main screen

- All pump values are indicated, including pressures, ΔP, estimated flow rates and temperatures
- Included are the graphic representations of the pressures of the active pumps, as well as the conditions of each pump in the pumping group, indicated with different colors (in this case the number 2 is in operation, while the number 1 is in standby)
- A pop-up window for each pump indicates in real time all the variables, including speed, frequency and power consumption (only with inverter)

Alarm history recording screen

- All alarms are listed and dated
- Additional information for each alarm can be viewed by holding down the alarm bar
- Descriptions of the alarms are provided in all languages, together with a reference code to be consulted in the user manual



Technical data - GPV

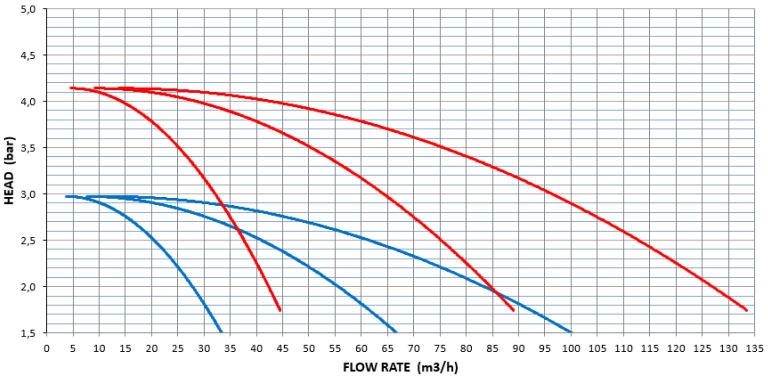
50-60Hz

MODULAR PUMPING STATION GPV													
Model			**500**			**1200**			**3000**			**4800**		
Voltaggio e frequenza di alimentazione			380-480±10%/3/50-60Hz											
SP process pump	Type		Centrifugal											
	Qty		2	3	4	2	3	4	2	3	4	2	3	4
	kW [each pump]		3	3	3	5,5	5,5	5,5	11	11	11	18,5	18,5	18,5
	HP [each pump]		4	4	4	7,5	7,5	7,5	15	15	15	25	25	25
	Motor poles number		2	2	2	2	2	2	2	2	2	2	2	2
	Motor frequency		60	60	60	60	60	60	60	60	60	50	50	50
	Total Full load @ supply Freq.	A	10,8	16,2	21,6	20,4	30,6	40,8	38	57	76	76	114	152
	Total noise pressure @ 10 meters	dB(A)	70	73	76	71	74	77	73	76	79	73	76	79
HP process pump	Type		Centrifugal											
	Qty		2	3	4	2	3	4	2	3	4	2	3	4
	kW [each pump]		5,5	5,5	5,5	11	11	11	18,5	18,5	18,5	30	30	30
	HP [each pump]		7,5	7,5	7,5	15	15	15	25	25	25	40	40	40
	Motor poles number		2	2	2	2	2	2	2	2	2	2	2	2
	Motor frequency		60	60	60	60	60	60	60	60	60	60	60	60
	Total Full load @ supply Freq.	A	20,4	30,6	40,8	38	57	76	62	93	124	112	168	224
	Total noise pressure @ 10 meters	dB(A)	71	74	77	73	76	79	73	76	79	70	73	76
Suction connections	Type		Victaulic											
	In		114,3 - 4" - DN100	114,3 - 4" - DN100	114,3 - 4" - DN100	168,3 - 6" - DN150	168,3 - 6" - DN150	168,3 - 6" - DN150	273 - 10" - DN250	273 - 10" - DN250	273 - 10" - DN250	323,9 - 12" - DN300	323,9 - 12" - DN300	323,9 - 12" - DN300
Discharge connections	Type		Victaulic											
	Out		114,3 - 4" - DN100	114,3 - 4" - DN100	114,3 - 4" - DN100	168,3 - 6" - DN150	168,3 - 6" - DN150	168,3 - 6" - DN150	273 - 10" - DN250	273 - 10" - DN250	273 - 10" - DN250	323,9 - 12" - DN300	323,9 - 12" - DN300	323,9 - 12" - DN300
Weight (SP pump)	kg		330	480	610	420	600	770	750	1.070	1.410	960	1.370	1.790
Weight (HP pump)	kg		380	550	700	530	760	1.000	790	1.150	1.500	1.180	1.700	2.240

- Available supply voltage: 400V±10%/3/50Hz; 460V±10%/3/60Hz; 380V±10%/3/60Hz
- On request: UL electrical panel for 60 Hz versions
- Pumps rated up to 35% of Glycol
- Weights without water
- Not suitable for demi-water
- Altitude limit: 2.000 m a.s.l.
- Max water working pressure: 8 bar
- Weights of units with UL electrical panel may differ from those shown in the table. Contact Frigel.

GPV - Pump curves

50-60Hz

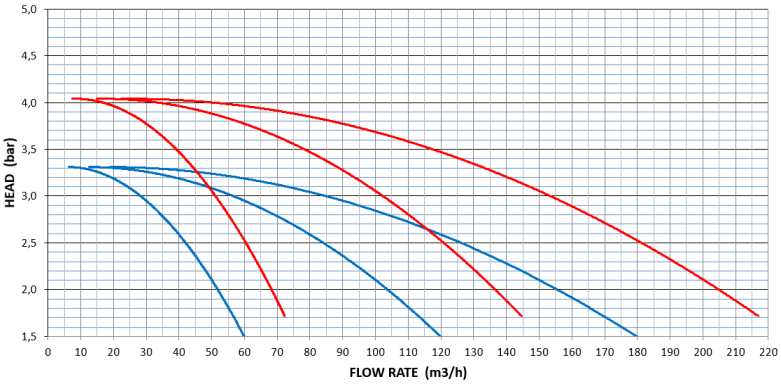


GPV 500

HP - HIGH PRESS

SP - STD PRESS

Pumps rated up to 60Hz in all the power supplies

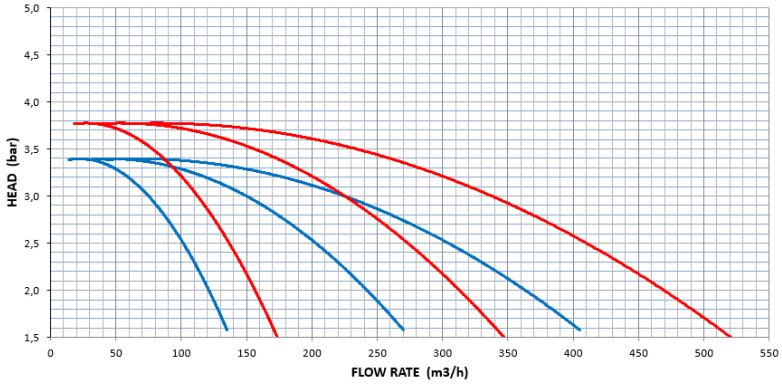


GPV 1200

HP - HIGH PRESS

SP - STD PRESS

Pumps rated up to 60Hz in all the power supplies

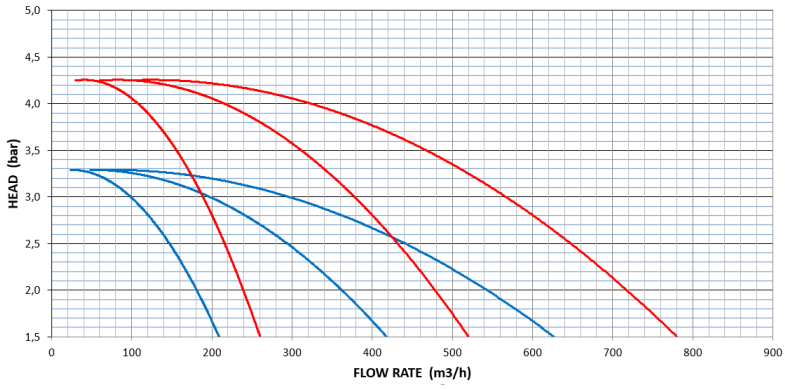


GPV 3000

HP - HIGH PRESS

SP - STD PRESS

Pumps rated up to 60Hz in all the power supplies



GPV 4800

HP - HIGH PRESS

SP - STD PRESS

GPV 4800 SP (pumps rated up to 50Hz in all the power supplies)

GPV 4800 HP (pumps rated up to 60Hz in all the power supplies)

In order to select the suitable pumping system, consider the optimal working point, suction head and pipes diameter. For further questions, please contact Frigel.

Technical data - GPP

50Hz

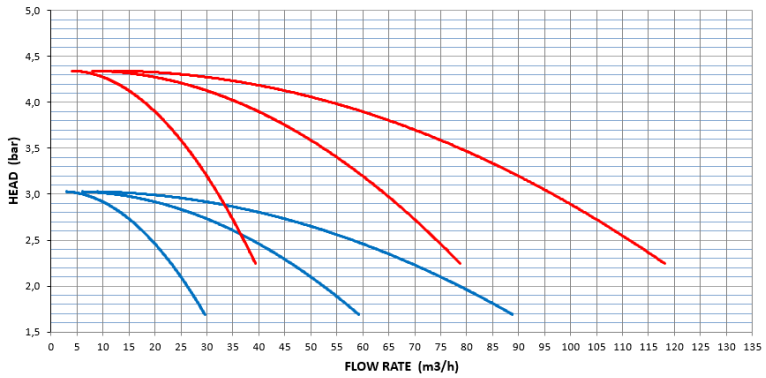
MODULAR PUMPING STATION GPP													
Model			**500**			**1200**			**3000**			**4800**		
Voltaggio e frequenza di alimentazione			400V±10%/3/50Hz											
SP process pump	Type		Centrifugal											
	Qty		2	3	4	2	3	4	2	3	4	2	3	4
	kW [each pump]		3	3	3	5,5	5,5	5,5	11	11	11	18,5	18,5	18,5
	HP [each pump]		4	4	4	7,5	7,5	7,5	15	15	15	25	25	25
	Motor poles number		2	2	2	2	2	2	2	2	2	2	2	2
	Motor frequency		50	50	50	50	50	50	50	50	50	50	50	50
	Total Full load @ supply Freq.	A	13,8	20,7	27,6	24,4	36,6	48,8	45,6	68,4	91,2	76	114	152
	Total noise pressure @ 10 meters	dB(A)	70	73	76	71	74	77	73	76	79	73	76	79
HP process pump	Type		Centrifugal											
	Qty		2	3	4	2	3	4	2	3	4	2	3	4
	kW [each pump]		5,5	5,5	5,5	11	11	11	18,5	18,5	18,5	30	30	30
	HP [each pump]		7,5	7,5	7,5	15	15	15	25	25	25	40	40	40
	Motor poles number		2	2	2	2	2	2	2	2	2	2	2	2
	Motor frequency		50	50	50	50	50	50	50	50	50	50	50	50
	Total Full load @ supply Freq.	A	24,4	36,6	48,8	45,6	68,4	91,2	76	114	152	112	168	224
	Total noise pressure @ 10 meters	dB(A)	71	74	77	73	76	79	73	76	79	70	73	76
Suction connections	Type		Victaulic											
	In		114,3 - 4" - DN100	114,3 - 4" - DN100	114,3 - 4" - DN100	168,3 - 6" - DN150	168,3 - 6" - DN150	168,3 - 6" - DN150	273 - 10" - DN250	273 - 10" - DN250	273 - 10" - DN250	323,9 - 12" - DN300	323,9 - 12" - DN300	323,9 - 12" - DN300
Discharge connections	Type		Victaulic											
	Out		114,3 - 4" - DN100	114,3 - 4" - DN100	114,3 - 4" - DN100	168,3 - 6" - DN150	168,3 - 6" - DN150	168,3 - 6" - DN150	273 - 10" - DN250	273 - 10" - DN250	273 - 10" - DN250	323,9 - 12" - DN300	323,9 - 12" - DN300	323,9 - 12" - DN300
Weight (SP pump)	kg		300	440	560	390	560	720	720	1.030	1.360	930	1.330	1.740
Weight (HP pump)	kg		350	510	650	500	720	950	760	1.110	1.450	1.150	1.660	2.190

- Available supply voltage: 400V±10%/3/50Hz; 460V±10%/3/60Hz; 380V±10%/3/60Hz
- On request: UL electrical panel for 60 Hz versions
- Pumps rated up to 35% of Glycol
- Weights without water
- Not suitable for demi-water
- Altitude limit: 2.000 m a.s.l.
- Max water working pressure: 8 bar
- Weights of units with UL electrical panel may differ from those shown in the table. Contact Frigel.

GPP - Pump curves

50Hz

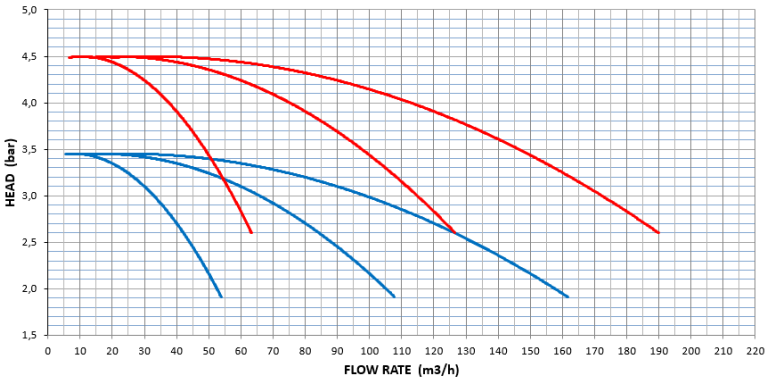
Lowers flow rate curve = 1 pump active; 1 in standby
Middle flow rate curve = 2 pumps active; 1 in standby
Highest flow rate curve = 3 pumps active; 1 in standby



GPP 500

HP - HIGH PRESS

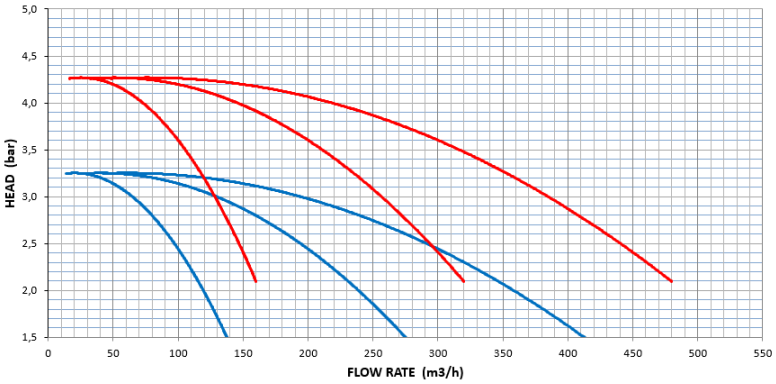
SP - STD PRESS



GPP 1200

HP - HIGH PRESS

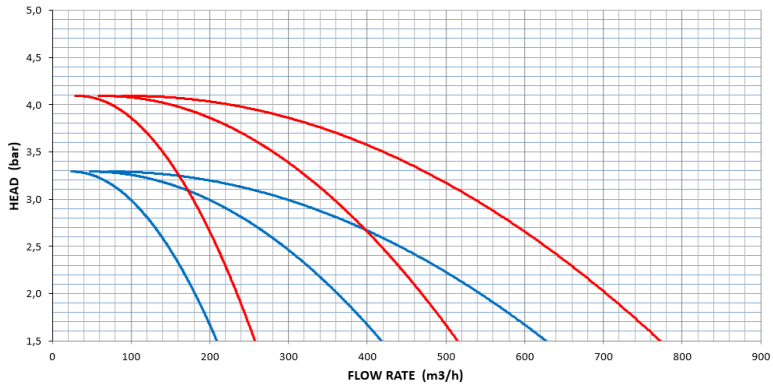
SP - STD PRESS



GPP 3000

HP - HIGH PRESS

SP - STD PRESS



GPP 4800

HP - HIGH PRESS

SP - STD PRESS

In order to select the suitable pumping system, consider the optimal working point, suction head and pipes diameter. For further questions, please contact Frigel.

Technical data - GPP

60Hz

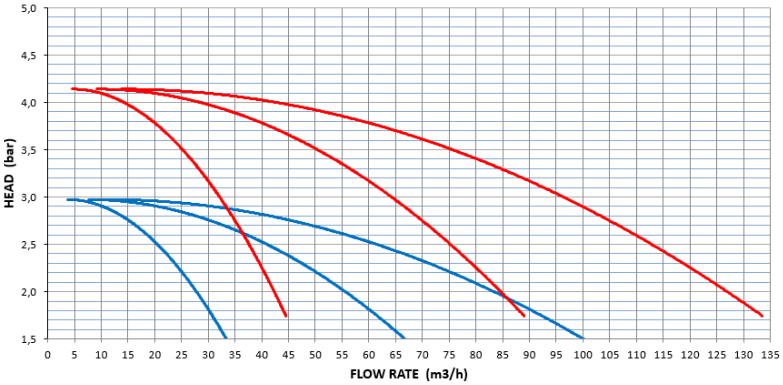
MODULAR PUMPING STATION GPP													
Model			**500**			**1200**			**3000**			**4800**		
Voltaggio e frequenza di alimentazione			460V±10%/3/60Hz											
SP process pump	Type		Centrifugal											
	Qty		2	3	4	2	3	4	2	3	4	2	3	4
	kW [each pump]		3	3	3	5,5	5,5	5,5	11	11	11	18,5	18,5	18,5
	HP [each pump]		4	4	4	7,5	7,5	7,5	15	15	15	25	25	25
	Motor poles number		2	2	2	2	2	2	2	2	2	2	2	2
	Motor frequency		60	60	60	60	60	60	60	60	60	60	60	60
	Total Full load @ supply Freq.	A	10,8	16,2	21,6	20,4	30,6	40,8	38	57	76	67	100,5	134
	Total noise pressure @ 10 meters	dB(A)	70	73	76	71	74	77	73	76	79	73	76	79
HP process pump	Type		Centrifugal											
	Qty		2	3	4	2	3	4	2	3	4	2	3	4
	kW [each pump]		5,5	5,5	5,5	11	11	11	18,5	18,5	18,5	30	30	30
	HP [each pump]		7,5	7,5	7,5	15	15	15	25	25	25	40	40	40
	Motor poles number		2	2	2	2	2	2	2	2	2	2	2	2
	Motor frequency		60	60	60	60	60	60	60	60	60	60	60	60
	Total Full load @ supply Freq.	A	20,4	30,6	40,8	38	57	76	62	93	124	112	168	224
	Total noise pressure @ 10 meters	dB(A)	71	74	77	73	76	79	73	76	79	70	73	76
Suction connections	Type		Victaulic											
	In		114,3 - 4" - DN100	114,3 - 4" - DN100	114,3 - 4" - DN100	168,3 - 6" - DN150	168,3 - 6" - DN150	168,3 - 6" - DN150	273 - 10" - DN250	273 - 10" - DN250	273 - 10" - DN250	323,9 - 12" - DN300	323,9 - 12" - DN300	323,9 - 12" - DN300
Discharge connections	Type		Victaulic											
	Out		114,3 - 4" - DN100	114,3 - 4" - DN100	114,3 - 4" - DN100	168,3 - 6" - DN150	168,3 - 6" - DN150	168,3 - 6" - DN150	273 - 10" - DN250	273 - 10" - DN250	273 - 10" - DN250	323,9 - 12" - DN300	323,9 - 12" - DN300	323,9 - 12" - DN300
Weight (SP pump)	kg		300	440	560	390	560	720	720	1.030	1.360	930	1.330	1.740
Weight (HP pump)	kg		350	510	650	500	720	950	760	1.110	1.450	1.150	1.660	2.190

- Available supply voltage: 400V±10%/3/50Hz; 460V±10%/3/60Hz; 380V±10%/3/60Hz
- On request: UL electrical panel for 60 Hz versions
- Pumps rated up to 35% of Glycol
- Weights without water
- Not suitable for demi-water
- Altitude limit: 2.000 m a.s.l.
- Max water working pressure: 8 bar
- Weights of units with UL electrical panel may differ from those shown in the table. Contact Frigel.

GPP - Pump curves

60Hz

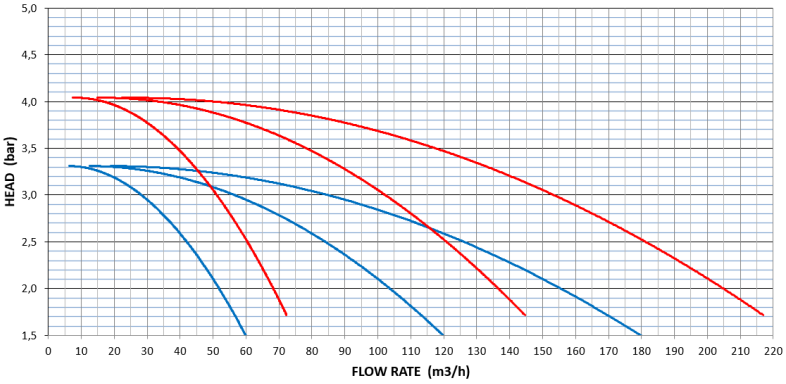
Lowers flow rate curve = 1 pump active; 1 in standby
Middle flow rate curve = 2 pumps active; 1 in standby
Highest flow rate curve = 3 pumps active; 1 in standby



GPP 500

HP - HIGH PRESS

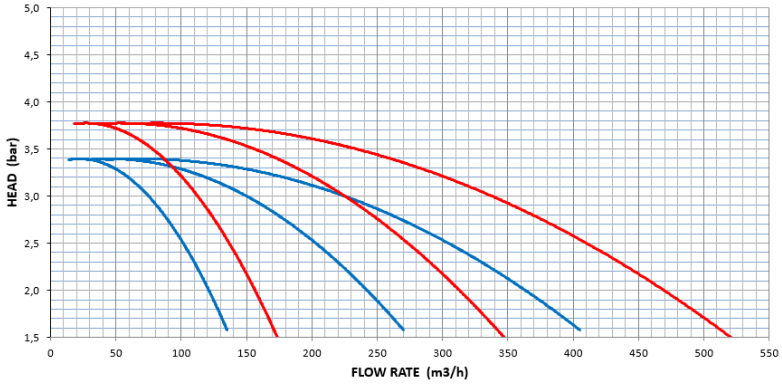
SP - STD PRESS



GPP 1200

HP - HIGH PRESS

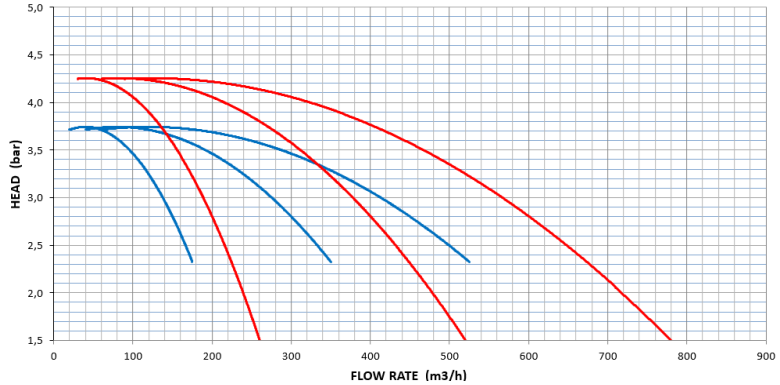
SP - STD PRESS



GPP 3000

HP - HIGH PRESS

SP - STD PRESS



GPP 4800

HP - HIGH PRESS

SP - STD PRESS

In order to select the suitable pumping system, consider the optimal working point, suction head and pipes diameter. For further questions, please contact Frigel.

Dimensional technical data - GPV

50-60Hz

Machine dimension - SP													
Model		500			1200			3000			4800		
Pumps		2	3	4	2	3	4	2	3	4	2	3	4
A	mm	1.138	1.638	2.138	1.137	1.637	2.137	1.353	1.853	2.353	1.486	1.986	2.486
B	mm	1.156	1.156	1.156	1.319	1.319	1.319	1.887	1.887	1.887	2.195	2.195	2.195
C	mm	1.558	1.558	1.558	1.559	1.559	1.559	1.680	1.680	1.680	2.048	2.048	2.048
Machine dimension - HP													
Model		500			1200			3000			4800		
Pumps		2	3	4	2	3	4	2	3	4	2	3	4
A	mm	1.138	1.638	2.138	1.135	1.635	2.135	1.363	1.863	2.363	1.486	1.986	2.486
B	mm	1.160	1.160	1.160	1.320	1.320	1.320	1.932	1.932	1.932	2.246	2.246	2.246
C	mm	1.558	1.558	1.558	1.669	1.669	1.669	2.068	2.068	2.068	2.029	2.029	2.029

Dimensional technical data - GPP

50Hz

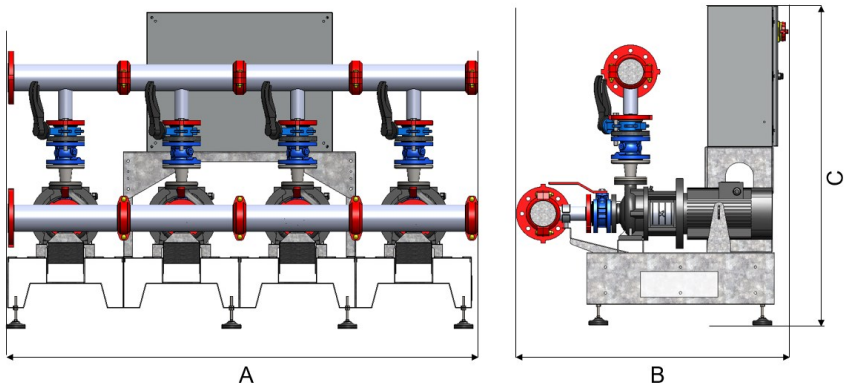
Machine dimension - SP													
Model		500			1200			3000			4800		
Pumps		2	3	4	2	3	4	2	3	4	2	3	4
A	mm	1.024	1.527	2.027	1.120	1.620	2.120	1.119	1.619	2.119	1.211	1.711	2.211
B	mm	1.209	1.209	1.209	1.329	1.329	1.329	1.320	1.320	1.320	1.626	1.626	1.626
C	mm	1.340	1.340	1.340	1.371	1.371	1.371	1.371	1.371	1.371	1.552	1.552	1.552
Machine dimension - HP													
Model		500			1200			3000			4800		
Pumps		2	3	4	2	3	4	2	3	4	2	3	4
A	mm	1.027	1.527	2.027	1.120	1.620	2.120	1.112	1.612	2.112	1.216	1.716	2.216
B	mm	1.230	1.230	1.230	1.317	1.317	1.317	1.354	1.354	1.354	1.643	1.643	1.643
C	mm	1.371	1.371	1.371	1.371	1.371	1.371	1.351	1.351	1.351	1.552	1.552	1.552

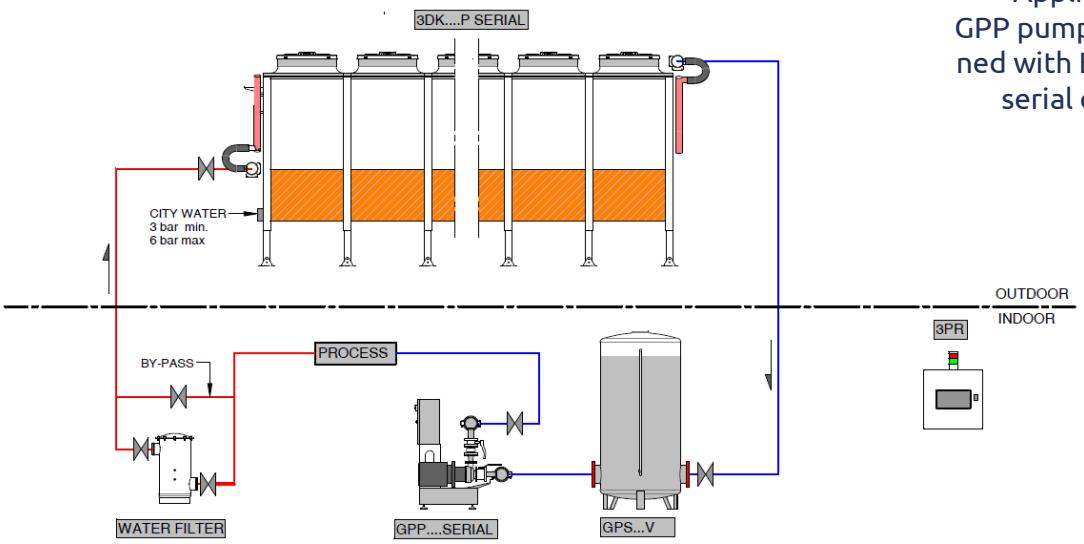
Dimensional technical data - GPP

60Hz

Machine dimension - SP													
Model		500			1200			3000			4800		
Pumps		2	3	4	2	3	4	2	3	4	2	3	4
A	mm	1.027	1.527	2.027	1.120	1.620	2.120	1.114	1.641	2.114	1.211	1.711	2.211
B	mm	1.197	1.197	1.197	1.329	1.329	1.329	1.354	1.354	1.354	1.626	1.626	1.626
C	mm	1.370	1.370	1.370	1.371	1.371	1.371	1.351	1.351	1.351	1.501	1.501	1.501
Machine dimension - HP													
Model		500			1200			3000			4800		
Pumps		2	3	4	2	3	4	2	3	4	2	3	4
A	mm	1.027	1.527	2.027	1.120	1.620	2.120	1.112	1.612	2.112	1.219	1.719	2.219
B	mm	1.229	1.229	1.229	1.318	1.318	1.318	1.390	1.390	1.390	1.644	1.644	1.644
C	mm	1.351	1.351	1.351	1.351	1.351	1.351	1.350	1.350	1.350	1.501	1.501	1.501

- Dimensions refer to units in basic configuration without added options
- Overall dimensions of units with UL electrical panel may differ from those shown in the table. Contact Frigel





Application scheme
GPP pumping station combined with Ecodry P version in serial communication

Order code

N	G	P	P	4	8	1	4	S	0	S

Pumping unit name

Pump application
P = Process pumping station
V = Process pumping station VFD

Size
05 = 500
12 = 1200
30 = 3000
48 = 4800

Assembly revision

Number of pumps
1-4

Pressure range
S = standard (3 bar)
H = high (4 bar)

Power supply as voltage/frequency combination
0 = 400V-50Hz
1 = 460V-60Hz
3 = 380V-60Hz
5 = 460V-60Hz UL std.
8 = 380/400/460V-50/60Hz

Serial
S – For 3PR control panel only