









BS

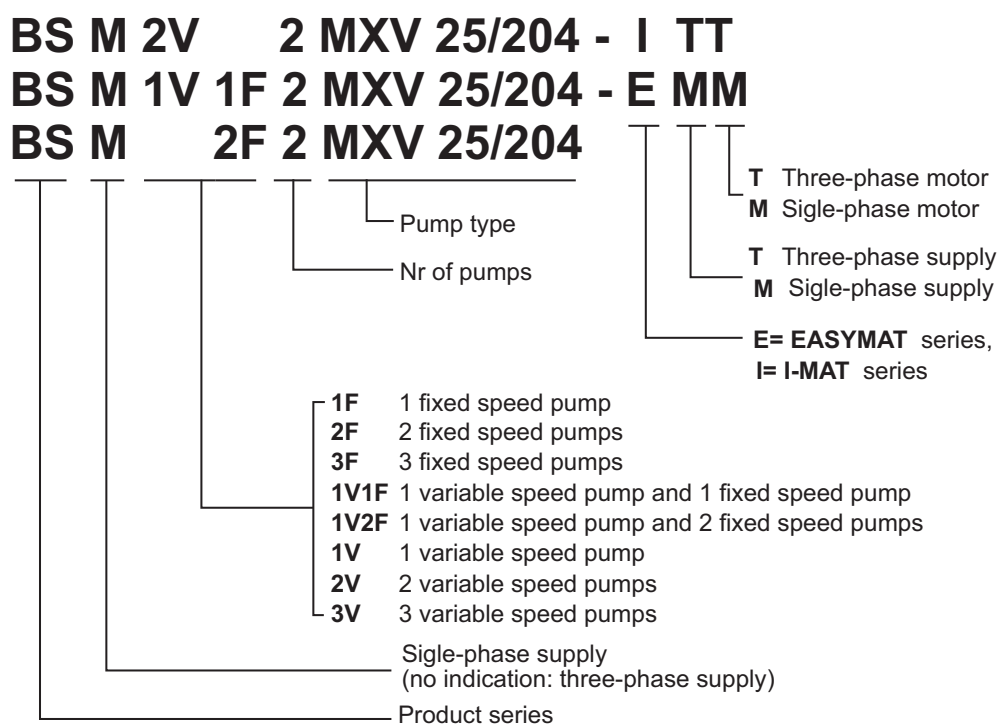
Fixed speed pump units

Variable speed pump units with frequency converter



	<p>Pressure boosting sets with NM, NMD pag. 497</p> <p>BS .F fixed speed 1/3 pumps</p> <p>BS1V.F, BS.V variable speed with (frequency converter into the control panel) 1/3 pumps</p> <p>variable speed with I-MAT 2/3 pumps</p>
	<p>Pressure boosting sets with MXH pag. 515</p> <p>BS .F fixed speed 1/3 pumps</p> <p>BS1V.F, BS.V variable speed with (frequency converter into the control panel) 1/3 pumps</p> <p>variable speed with EASYMAT 1/3 pumps</p> <p>variable speed with I-MAT 2/3 pumps</p>
	<p>Pressure boosting sets with MGP, MXP pag. 527</p> <p>BS .F fixed speed 2 pumps</p> <p>BS1V.F, BS.V variable speed with (frequency converter into the control panel) 2 pumps</p> <p>variable speed with EASYMAT 1/3 pumps</p>
	<p>Pressure boosting sets with MPSU pag. 536</p> <p>BS .F fixed speed 1/3 pumps</p> <p>BS1V.F, BS.V variable speed with (frequency converter into the control panel) 1/3 pumps</p> <p>variable speed with EASYMAT 1/3 pumps</p>
	<p>Pressure boosting sets with MXVB pag. 543</p> <p>BS .F fixed speed 1/3 pumps</p> <p>BS1V.F, BS.V variable speed with (frequency converter into the control panel) 1/3 pumps</p> <p>variable speed with EASYMAT 1/3 pumps</p> <p>variable speed with I-MAT 2/3 pumps</p>
	<p>Pressure boosting sets with MXV pag. 556</p> <p>BS .F fixed speed 1/3 pumps</p> <p>BS1V.F, BS.V variable speed with (frequency converter into the control panel) 1/3 pumps</p> <p>variable speed with I-MAT 2/3 pumps</p>
	<p>Pressure boosting sets with NG, NGL, NGX pag. 572</p> <p>BS .F fixed speed 2 pumps</p>
	<p>Pressure boosting sets with 4SDF pag. 576</p> <p>BS .V variable speed with EASYMAT 1 pump</p>

Designation

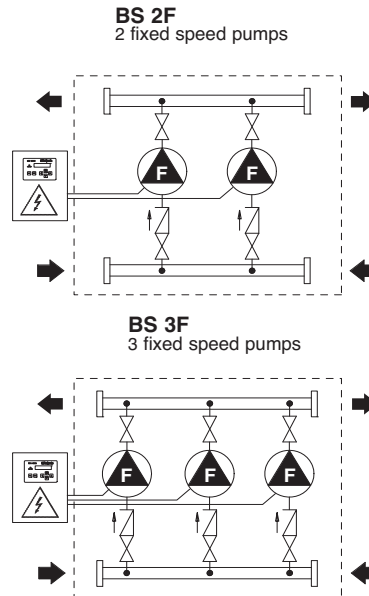


To select a Pressure Boosting Set see technical appendix at page 616.
For booster sets with 4, 5 and 6 pumps contact our Technical Sales Department.

BSF with 2 and 3 fixed speed pumps

Construction

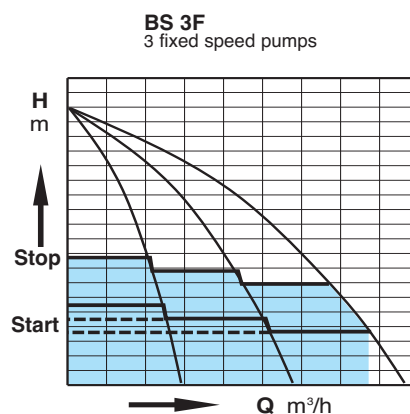
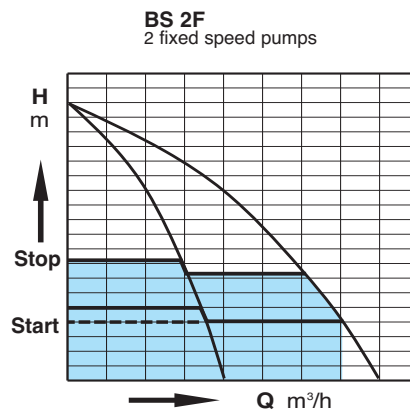
Pressure boosting sets with automatic operation, consisting in 2 and 3 pumps on a common baseplate, with suction and delivery manifolds, gate and non-return valves, pressure switches, pressure gauge, control panel and from 100 to 1000 litres diaphragm tank (on request).



Operation

The control panel, with electronic card, manages the pump operation, the changeover of pump starting sequence and it stops the system when there is no air in the tank (patented system).

Pumps starting in a cascade sequence, with a signal from the pressure switches.

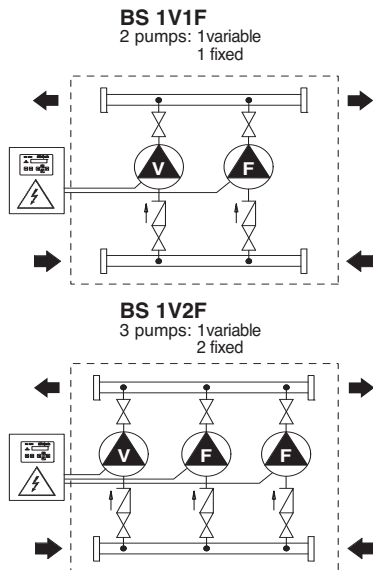


BSV.F.

1 variable speed pump (with frequency converter)
1 to 5 fixed speed pumps

Construction

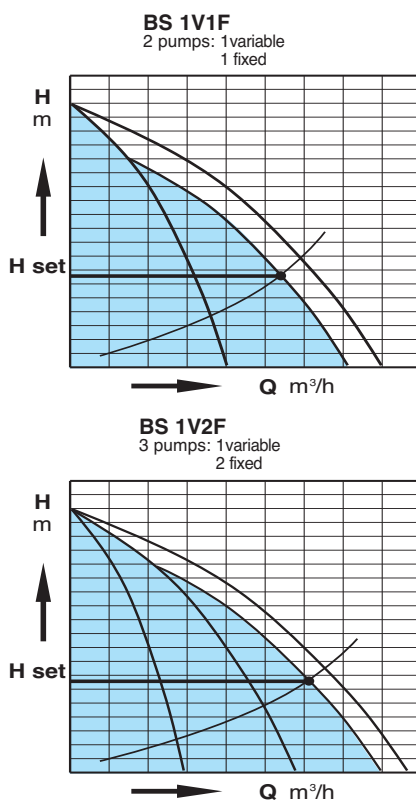
Pressure boosting sets with automatic operation, consisting of 1 variable speed pump with frequency converter and from 1 to 5 fixed speed pumps, assembled on a common baseplate, with suction and delivery manifolds, gate and non-return valves, pressure gauge, control panel and 20 litres diaphragm tank (on request).



Operation

The control panel, with electronic card, manages the pump operation, the changeover of fixed speed pumps starting sequence. Pumps starting is in a cascade sequence, with a signal from the pressure transducer.

Constant pressure is guaranteed by the variable speed pumps, while fixed speed pumps start when the request is higher than the capacity of the variable speed pump.

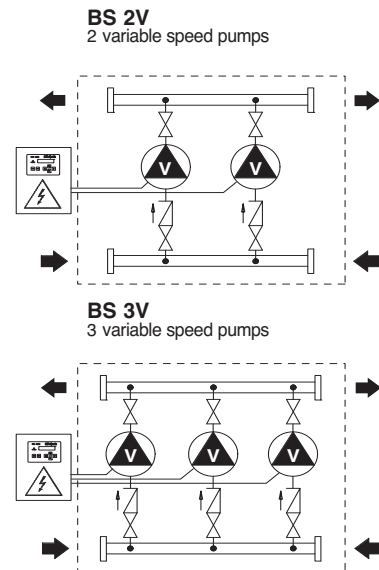


BSV

2-6 variable speed pumps (with frequency converter)

Construction

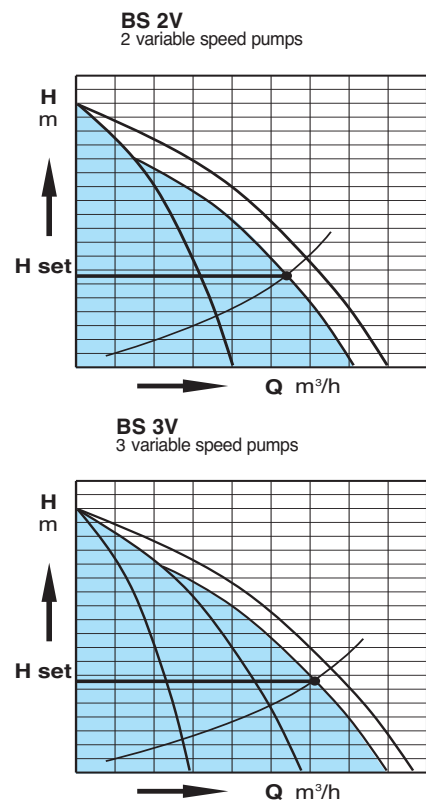
Pressure boosting sets with automatic operation, consisting of variable speed pumps (from 1 to 6) with frequency converter, assembled on a common baseplate, with suction and delivery manifolds, gate and non-return valves, pressure transducer, pressure gauge, control panel and 20 litres diaphragm tank (on request).



Operation

The control panel, with electronic card, manages the pump operation, the changeover of pumps starting sequence.

Pumps starting in a cascade sequence, with a signal from the pressure transducer.



Fixed speed pump units

New electrical control panels for fixed speed pump units.

New electrical control panels for pressurisation units, all with electronic card with microprocessors, for managing pump operation.

The microprocessor carries out continuous secure checks during all the various work phases of the pumps and incorporates all necessary functions, thus reducing electrical and electronic components inside the panel.

In particular:

- pumps starting in a cascade sequence according to water demand.
- changeover of pump starting sequence.
- delay start-up of the 2nd/3rd pump in case of breakdown of pressure switch 1 or after a power cut.
- avoid pump starting in case of water hammering.
- activate the alarm when pressure 1 fails.
- activate the alarm when air cushion in the vessel drops.
- stop the pump when air cushion is over.

Maximum clarity for all signals

The status of the unit can easily be identified on the front of the electronic card with the following signals:

- Power on.
- No water.
- Failure.
- Pump running.
- Thermal block.
- Pump automatic operation.
- Pump stop.

Maximum simplicity of control

The front of electronic card features the following signals and controls:

- AUT-STOP push-button (1 for each pump)
- MAN push-button (1 for each pump)
- RESET push-button.

Optional remote control

The RA 100 panel enables a remote warning light and acoustic signal.

Control panel for units up to 6 pumps

Using the MPS 6000 (Multi Pumps System) electronic card it is possible to control pressure units up to a maximum of 6 fixed speed pumps with a single pressure calibration.

Automatic air supply systems

The pump control panels are completed by microprocessor controlled systems for automatic air supply in the pressure vessels by means of a compressor or solenoid valve.

Operation

For booster sets made up to three pumps: according to the pressure decrease in the system, the pressure switches make the pumps to start in cascade mode and the starting changeover is made by the microprocessor.

For sets made of 4, 5, 6 pumps: Operation controlled by a microprocessor with signal from a pressure transducer. The pumps operate with only one pressure setting.



Pressure Boosting Sets



Variable speed pump units with frequency converter

New electrical control panels for variable speed pump units.

New electrical control panels for pressurisation units with variable speed pumps.

These are indispensable in all those cases where constant pressure is required and when high pressure pumps are being controlled. All the various working phases are managed and controlled by the MPS 4000 (Multi Pumps System) electronic card with microprocessor, which can operate up to 6 pumps working simultaneously.

Maximum clarity of signals

All the various calibration parameters appear as messages on the display of the MPS 4000 electronic card.

If there are any faults or defects a message appears on the display giving details of the problem.

Possibility of remote control

The pump status can be displayed and the unit can be controlled by means of a special computer program.

It is possible to obtain a remote warning light and acoustic signal on the RA 100 panel.

Constant or increased pressure

All the pumps can work with the same pressure value (set point), or, for systems with high head losses, the pressure can be increased depending on the number of pumps operating.

Silent operation

Motors working at reduced speed and check valves that close gradually mean that operation is particularly quiet.

Long life for pumps

All the mechanical components of the pumps and motors are stressed to a minimum, due to the variable speed operation.

Energy savings

The motors consume only the precise level of power necessary moment to moment, in order to supply the quantity of water required by the system.

No more high capacity vessels

The use of inverters means that high capacity pressure vessels and membrane vessels are no longer necessary. Even units with high flowrate pumps only require a small number of 20 litre membrane vessels.

Great versatility

The great versatility of the MPS 4000 electronic card enables the construction of special units with operational logics different from those of normal pressurisation units, depending on the requirements and characteristics of the systems.

Operation

Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.



Pressure Boosting Sets



Variable speed pump units with EASYMAT

EASYMAT for variable speed pump units.

Variable speed system driven by frequency converter, for the pressure control in domestic and residential plants. The system maintains constant pressure whilst controlling the pump operation against changing system demand.

Maximum clarity of signals

Easymat is equipped with a control panel for simple system programming and parameter monitoring.

The **2 scroll buttons** are used to scroll the different operating parameters that EASYMAT can show.

At the same time you can use the 2 scroll buttons to move in the set up menu and to change the different options.

The LCD custom display gives an easy overview of the system situation and of the operating parameters.

The icons on the top and below the display area explain in which way EASYMAT is working and if there are problems on the system.

The four set-up buttons allow the operator to move between and set-up the menu's and to start and stop the pump. The symbols help to make the function of each button clear.

With **these 4 buttons and the 2 scroll buttons** you can manage all the set-up and operating parameters without the use of an other control panel or computer



Operation

Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.



CONSTANT PRESSURE MODE:

The system keeps the pressure constant when the quantity of water requested by the user changes. The user can choose the operating pressure according his needs.



FIXED SPEED MODE:

The system works at a fixed speed that user can choose according his needs.

The system is connected to the delivery pipe providing for simple installation and better cooling (patented) making the unit more compact and easy to assemble.

Easymat is supplied with one pressure transducer, G 1/4 connection and 1.5 m cable length.

For protection of the pumps:

- Against dry running
- Against operations with closed connection ports
- Against overcurrent of the motor
- Against overvoltage and undervoltage of the power supply

Silent operation

Motors working at reduced speed and check valves that close gradually mean that operation is particularly quite.

Long life for pumps

All the mechanical components of the pumps and motors are stressed to a minimum, due to the variable speed operation.

Energy savings

The motors consume only the precise level of power necessary moment to moment, in order to supply the quantity of water required by the system.

No more high capacity vessels

The use of inverters means that high capacity pressure vessels and membrane vessels are no longer necessary. Even units with high flowrate pumps only require a small number of 20 litre membrane vessels.

Pressure Boosting Sets



Variable speed pump units with I-MAT

I-MAT for variable speed pump units.

Variable speed system driven by frequency converter, for the pressure control in domestic and residential plants.

The system maintains constant pressure whilst the controlling the pump operation against changing system demand.

Maximum clarity of signals

I-MAT is equipped with a control panel that allows to carry out the set-up of the system and to monitor all system parameters.

The control panel is inside a IP55 enclosure which is possible to rotate and install in remote positions.

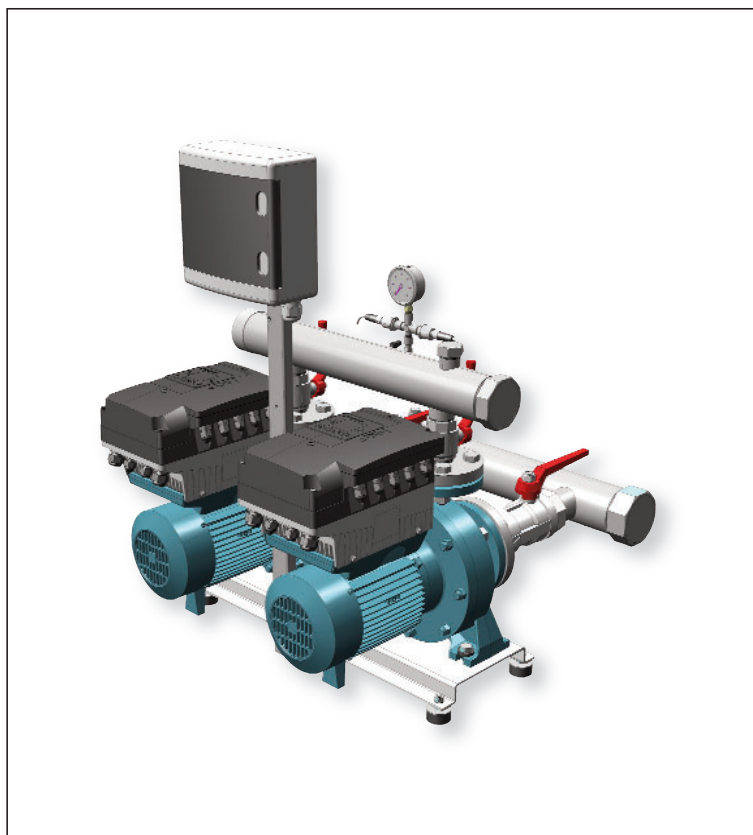
It is possible use the control panel in remote positions by means a cable with M12 connectors (standard cable).

The LCD custom display gives an easy overview of the system situation and of the operating parameters.

The icons on the top and below the display area explain in which way I-MAT is working and if there are some problems on the system.

The 2 scroll buttons are used to scroll the different operating parameters that I-MAT can show. At the same time you can use the 2 scroll buttons to move in the set up menu and to change the different options.

The 4 set-up buttons are created to enter and to move on the set-up menus and to start and to stop the pump. The symbols help to understand the function of each button. With these 4 buttons and the 2 scroll buttons you can manage all the set-up and operating parameters without the use of another control panel or computers.



Operation

Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.



Constant pressure mode

Constant pressure keeps the pressure constant at a fixed value set by the user. This value of pressure is automatically kept by the system to provide to the final user a constant pressure even with different water demand, within the maximum performance of the motor-pump system.



Proportional pressure modes

Proportional pressure reduces the pressure of the pump (and as a consequence, the operating frequency) proportionally with the water demand of the system.



Constant temperature mode

In this operating mode the system is used to keep the temperature at a constant value in a specified system point.



Constant flow mode

Constant flow mode grants that system change the speed of the pump in order to keep constant the flow which pass inside a flow meter.



Fixed speed mode

In this operating mode the system work as a fixed speed pump. The speed of the pump could be set by the user between a range of speeds, or controlled by an external signal.



Night mode

The night mode is an optional mode which allows to reduce the speed of the pump if the temperature in the system decreases below a set value, this operating mode can be used with all operating modes over described.

Silent operation

Motors working at reduced speed and check valves that close gradually mean that operation is particularly quite.

Long life for pumps

All the mechanical components of the pumps and motors are stressed to a minimum, due to the variable speed operation.

Energy savings

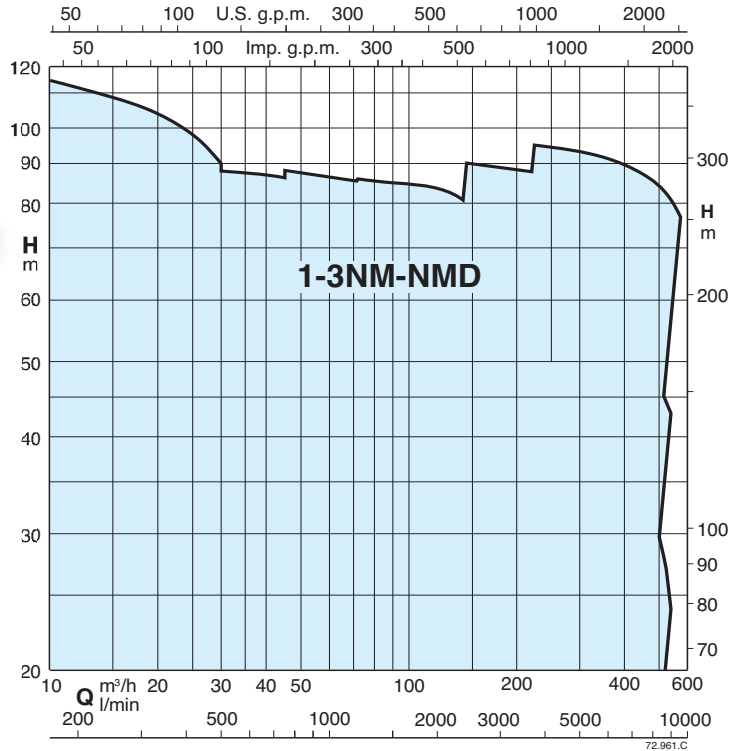
The motors consume only the precise level of power necessary moment to moment, in order to supply the quantity of water required by the system.

No more high capacity vessels

The use of inverters means that high capacity pressure vessels and membrane vessels are no longer necessary. Even units with high flowrate pumps only require a small number of 20 litre membrane vessels.



Coverage chart



Operation

BS 1-6F Pressure boosting sets with 1 to 6 fixed speed pump.
Sets with 4,5 and 6 pumps on request.
Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.

BS2-3V Pressure boosting sets with 2 to 3 variable speed pumps (with I-MAT).
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

BS1V2-5F Pressure boosting sets with 1 variable speed pump (with frequency converter into the control panel) and from 1 to 5 fixed speed pumps.
Sets with 4,5 and 6 pumps on request.
According to the water consumption, one or more pumps start, one at variable speed and the others at fixed speed, to grant the water quantity required at the set pressure.

BS1-6V Pressure boosting sets with 1 to 6 variable speed pumps (with frequency converter into the control panel).
Sets with 4,5 and 6 pumps on request.
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

Construction

- Automatic pressure boosting plant consisting of 1 to 6 centrifugal pumps complete with ball, non return valve on the suction side and ball valves on the delivery side.

Suction and delivery manifolds for boosting sets with 2,3 pumps:

- stainless steel AISI 304 up to 2NM 40.. and 3NM 32...
- steel S235JR from 2NM 50.. and 3NM 40...

Connections are located on the delivery manifold for the installation of vessels G1 connection.

Electrical control boards:

- with microprocessor for fixed speed pump units. Motor starting is D.O.L. up to 5,5 kW and Y/Δ for power rating 7,5 up to 55 kW.
- with frequency converter for variable speed pump units.

The unit includes one pressure gauge and three adjustable differential pressure switches or pressure transducer.

Applications

To supply water in civil and industrial buildings.
As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

2-pole induction motors, 50 Hz, n ≈ 2900 rpm, suitable for operation with frequency converter.

- Three-phase 230/400V ± 10% up to 3 kW;
- 400/690V ± 10% for 4 kW to 55 kW;

Insulation class F.

Protection IP 54.

Constructed in accordance with: IEC 60034.

Other voltages and frequencies on request.

Vessels on request

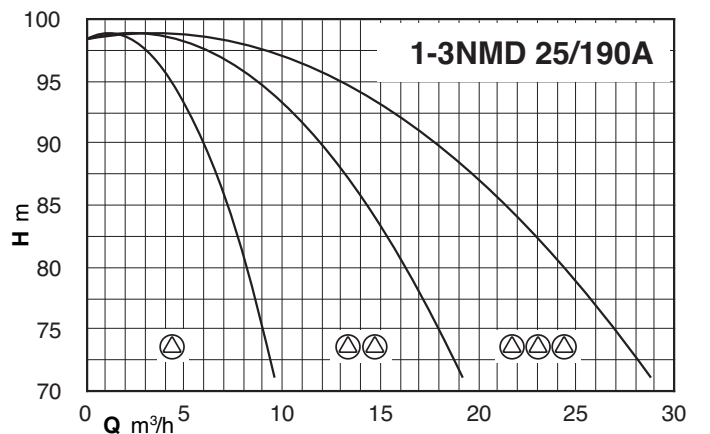
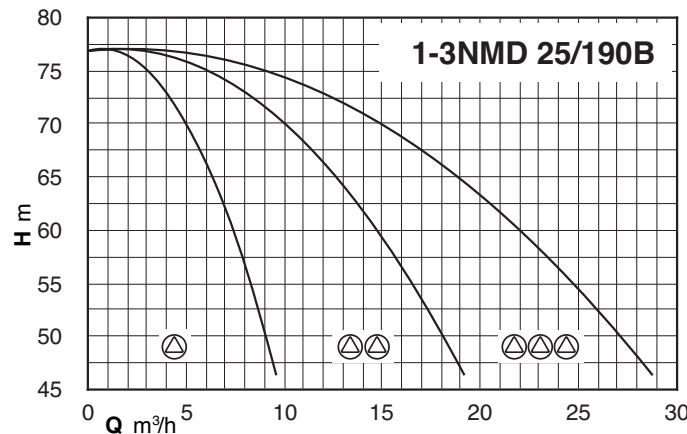
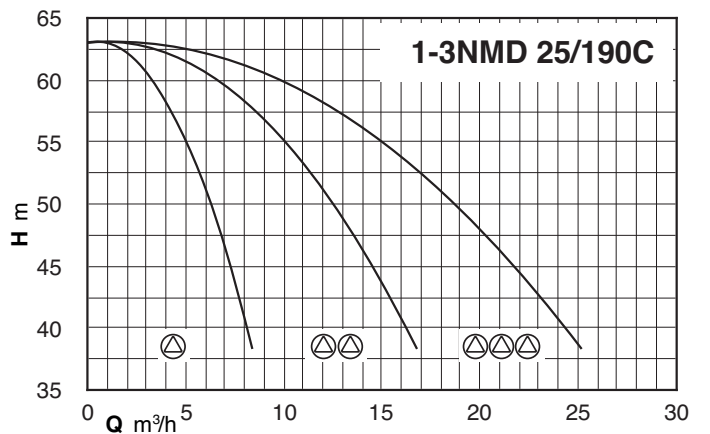
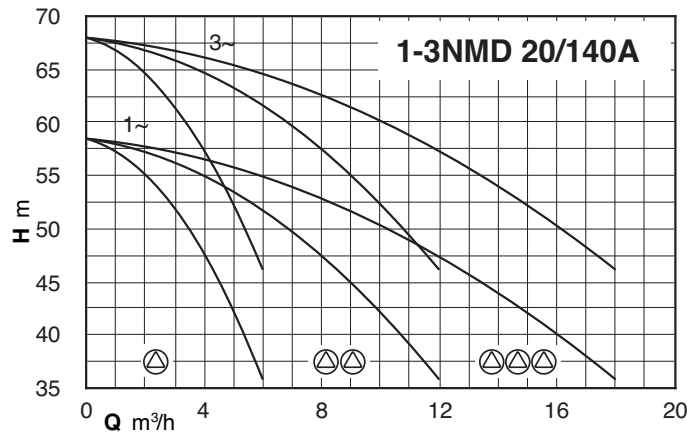
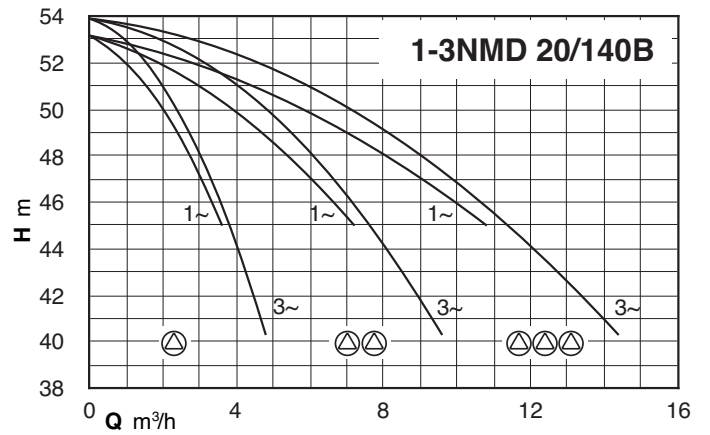
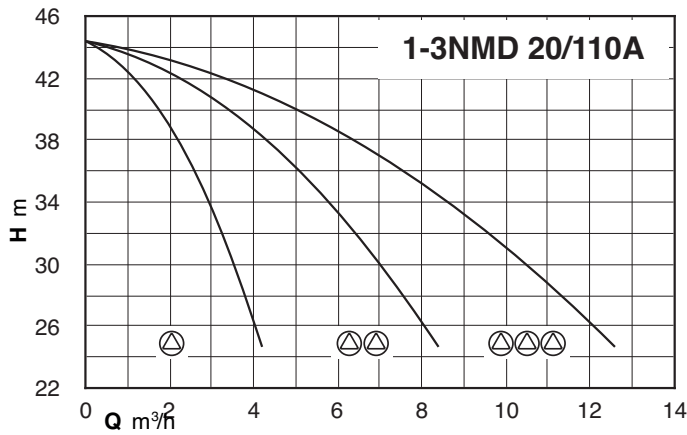
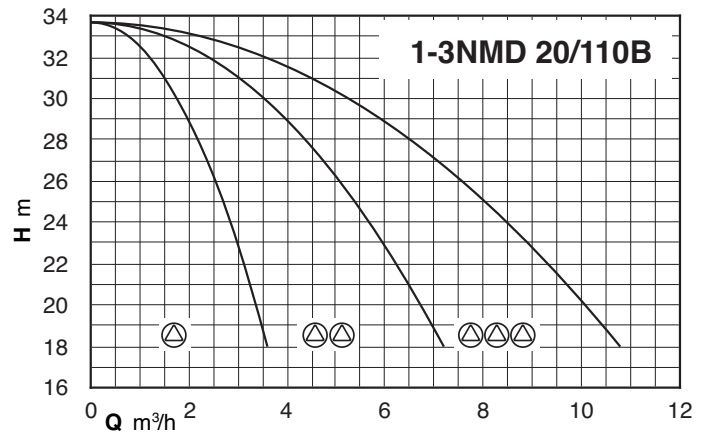
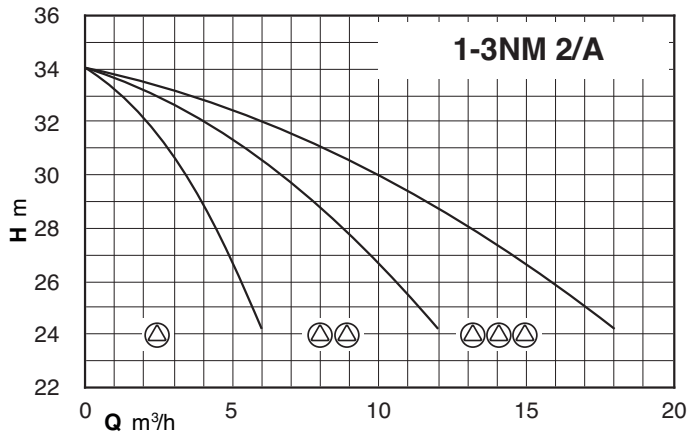
When installing the unit, connect in the delivery section to a diaphragm or galvanised tank.

The recommended sized are shown in the following page.

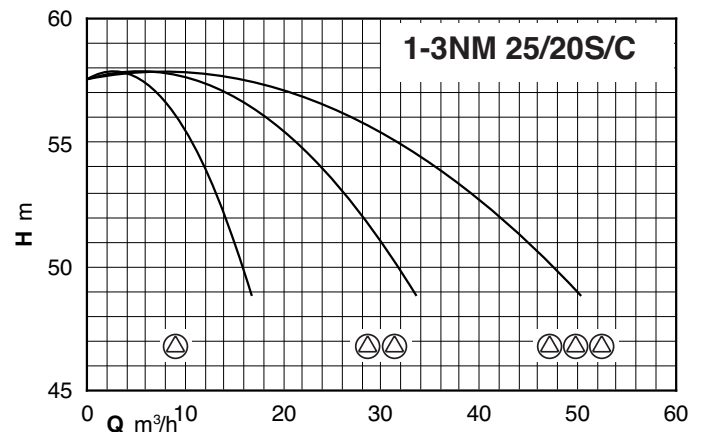
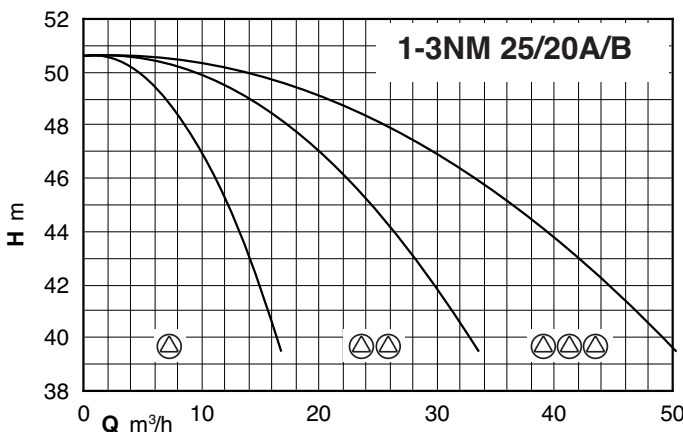
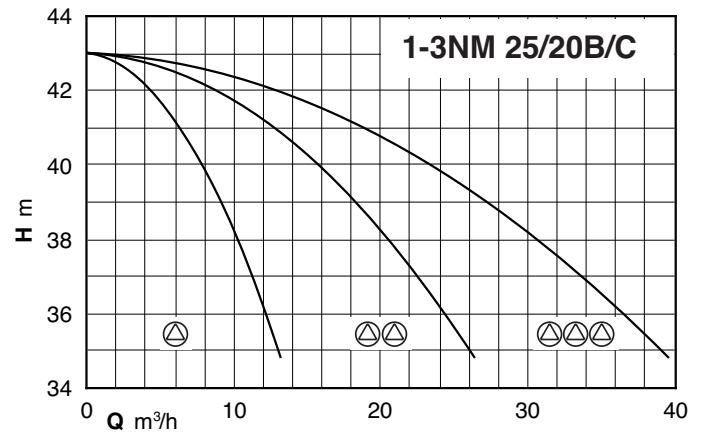
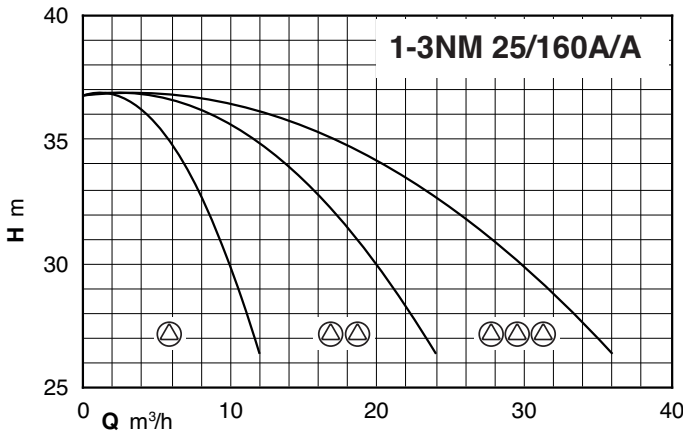
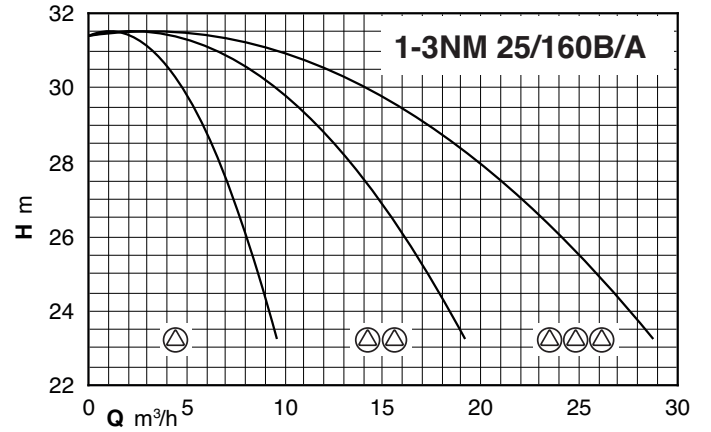
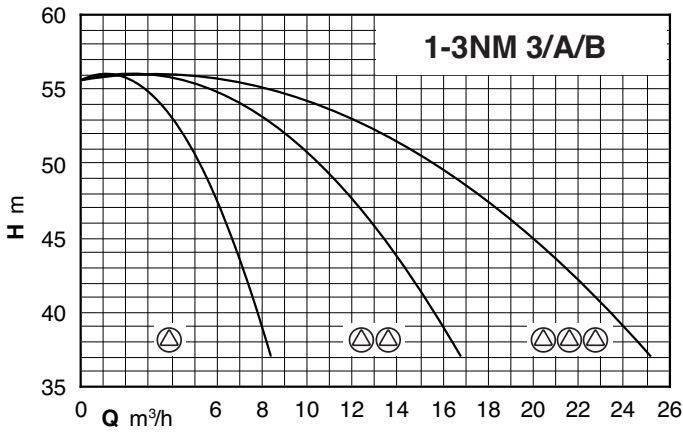
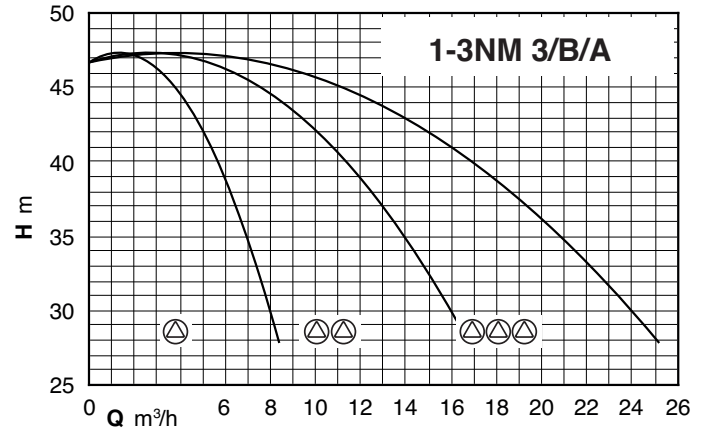
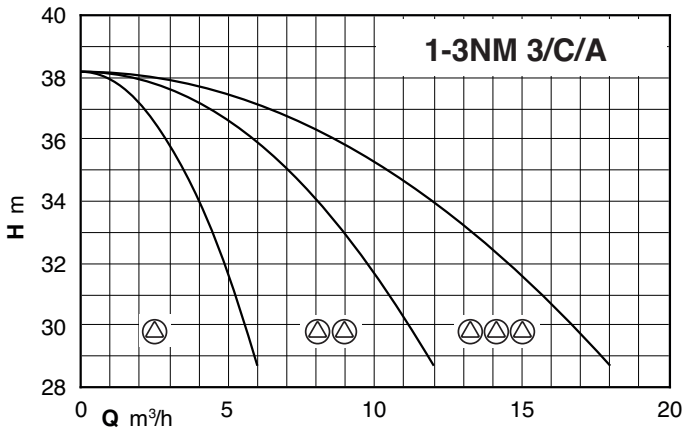
Special features on request

Pressure boosting sets with 4,5 and 6 pumps.

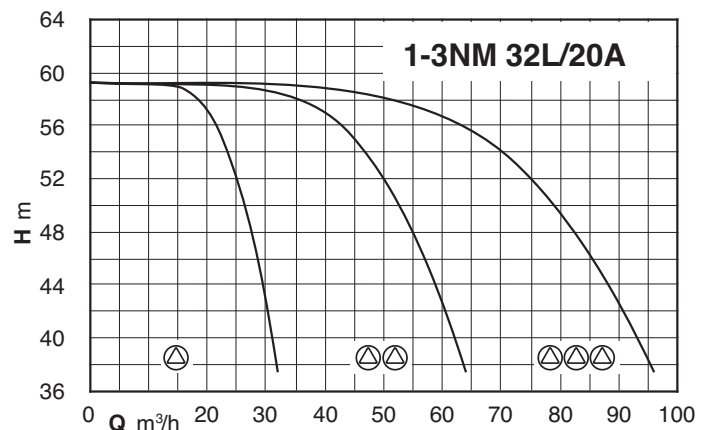
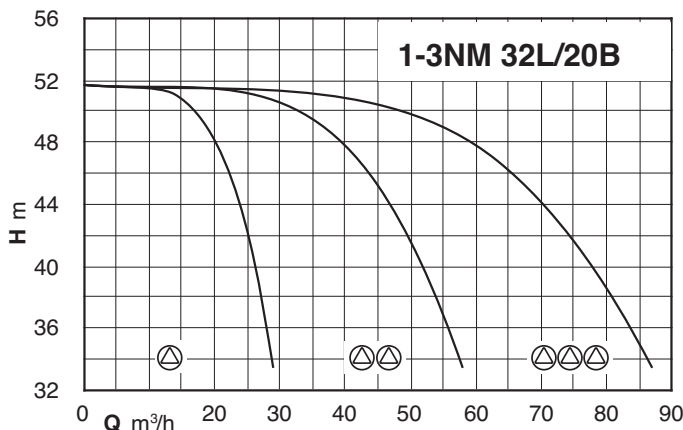
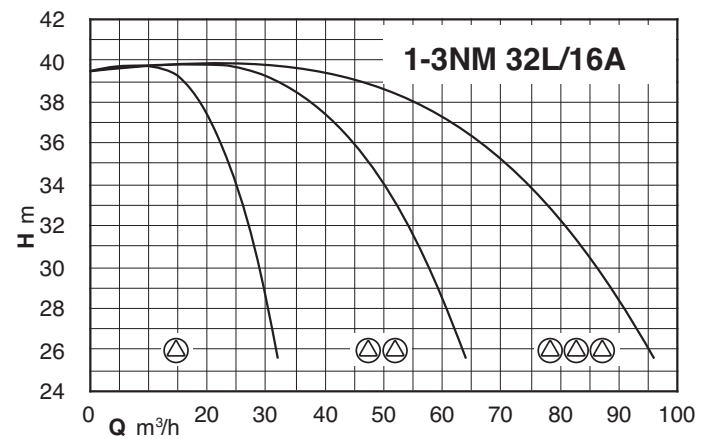
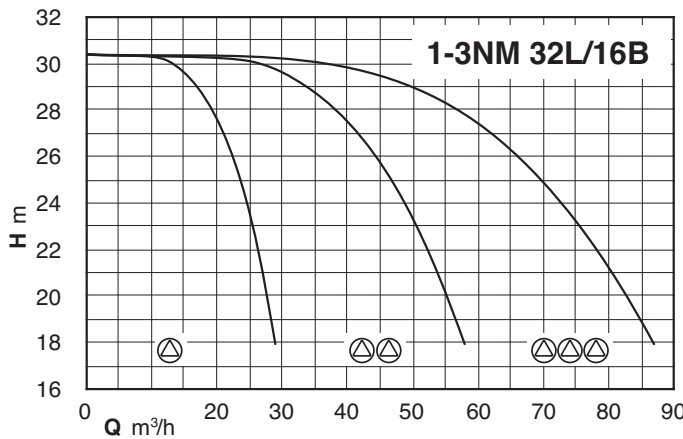
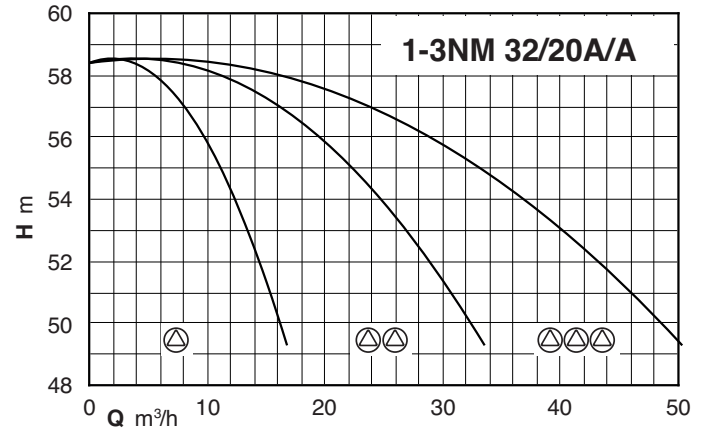
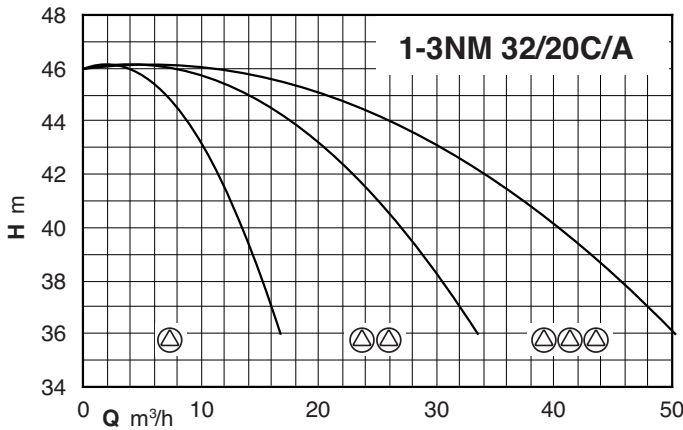
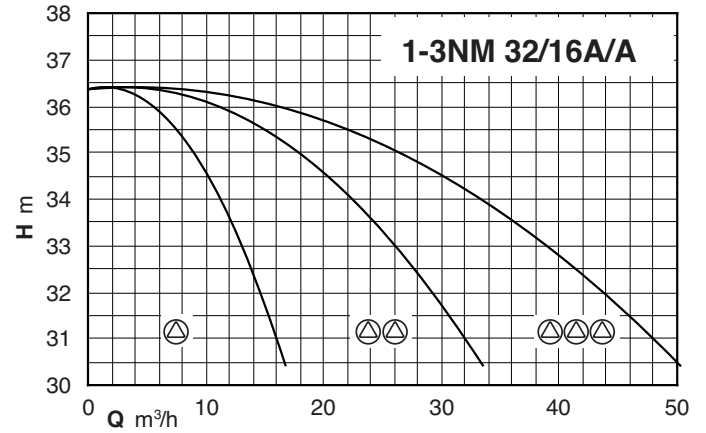
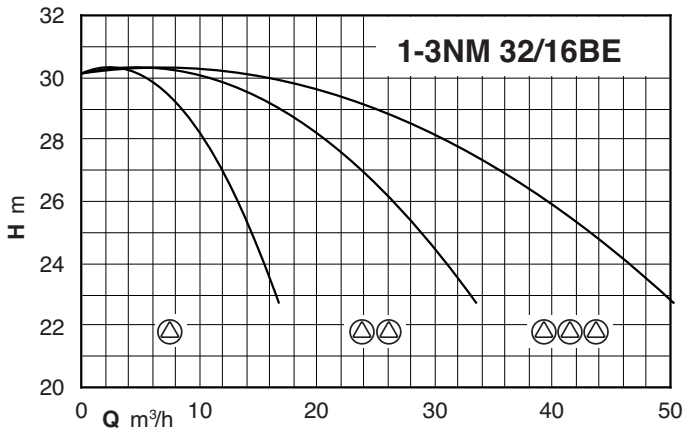
Coverage chart



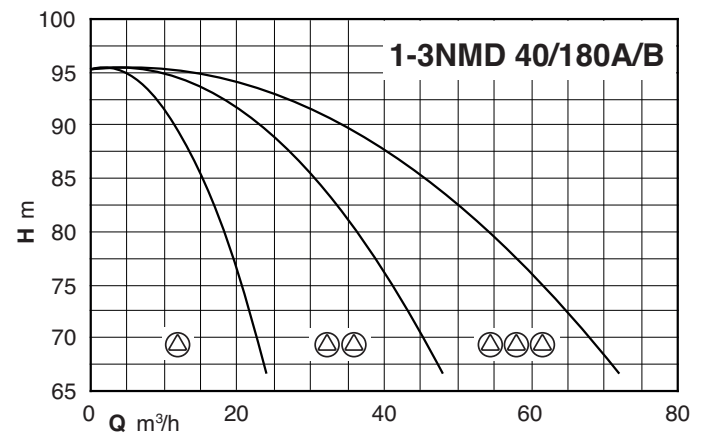
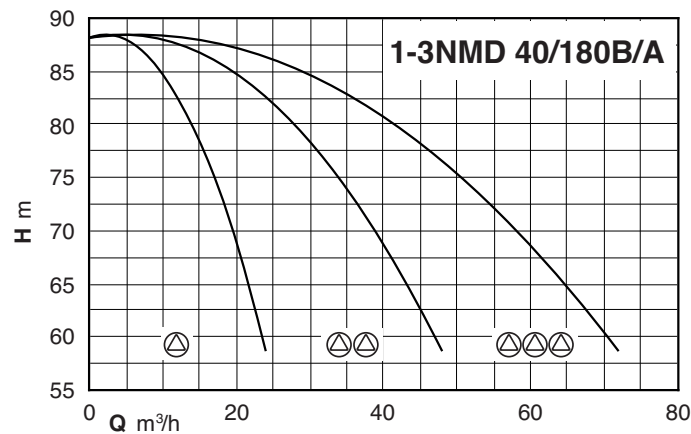
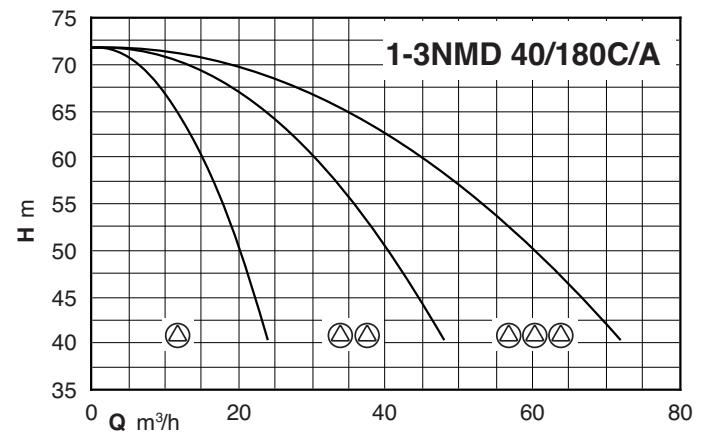
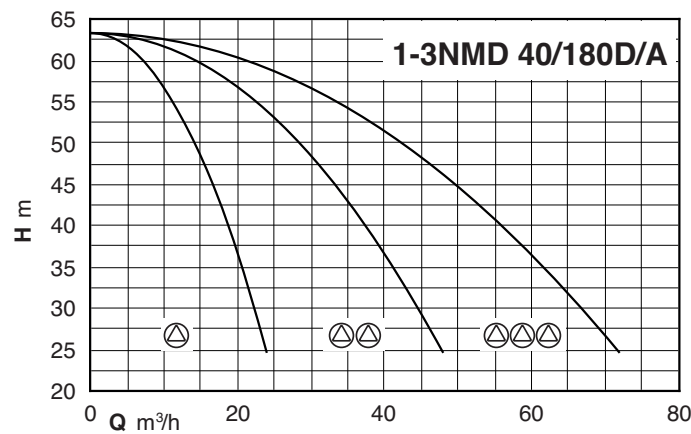
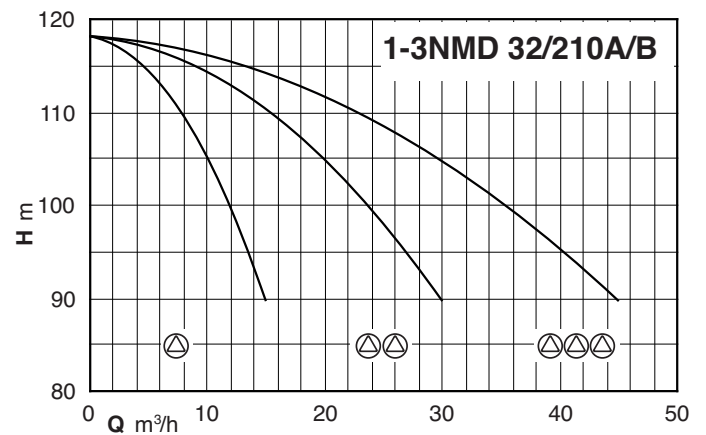
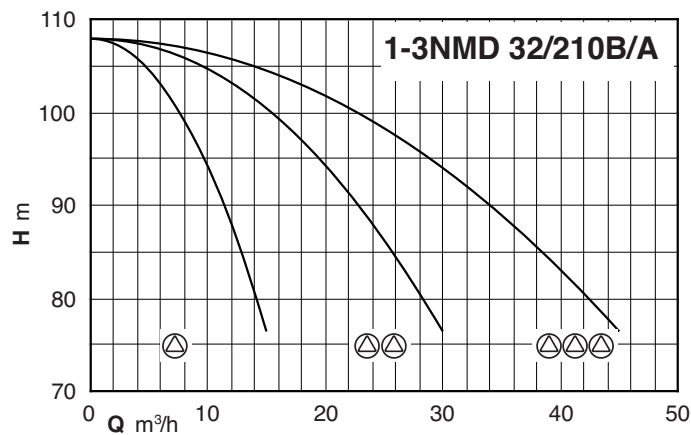
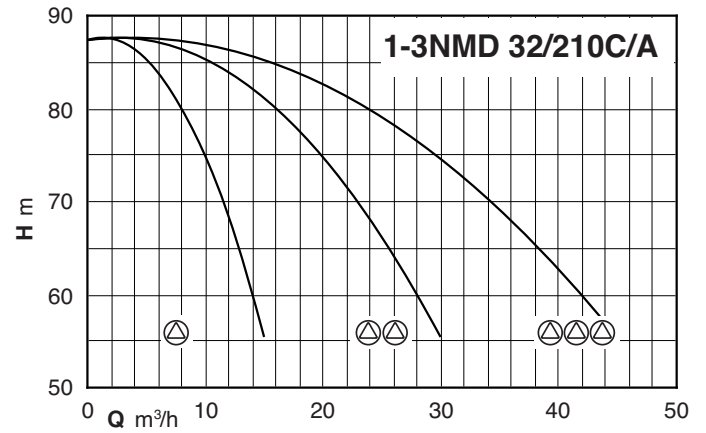
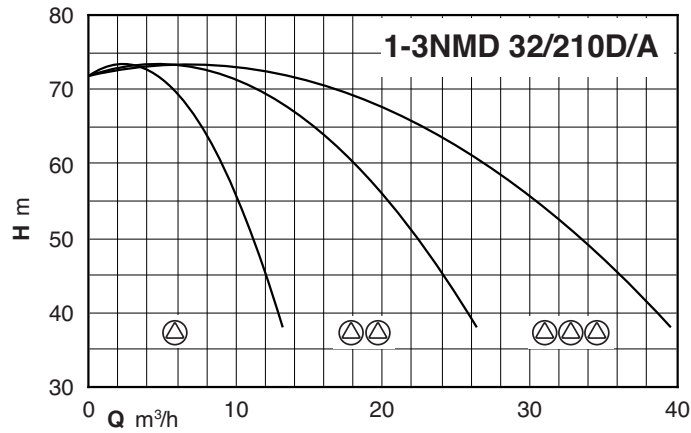
Coverage chart



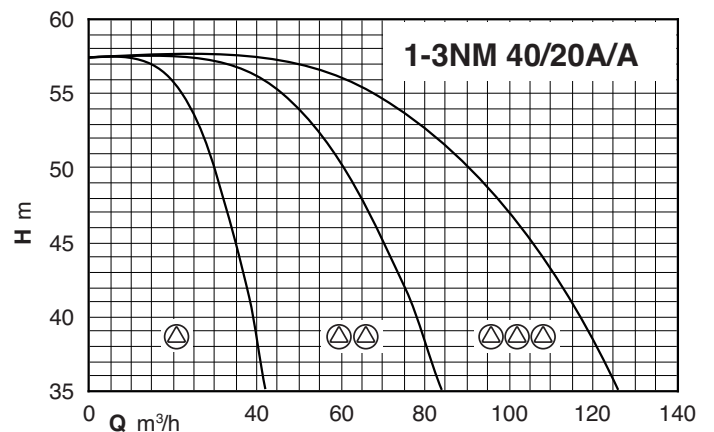
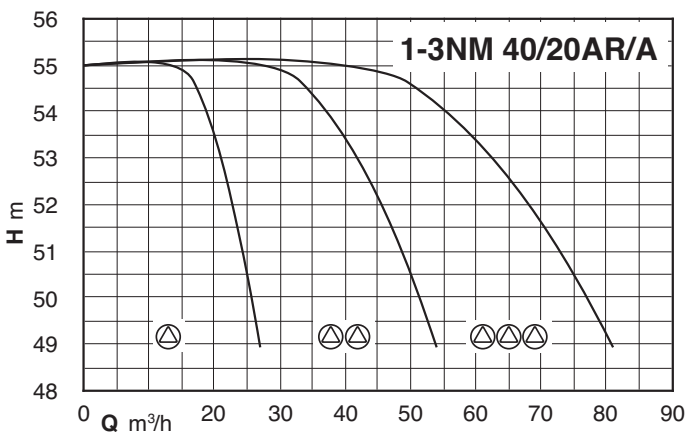
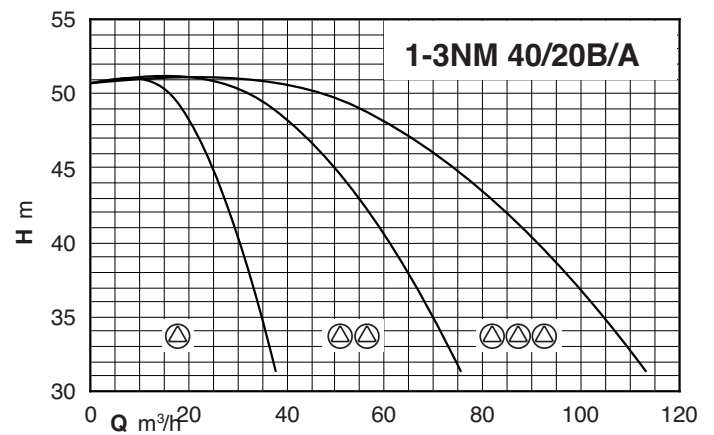
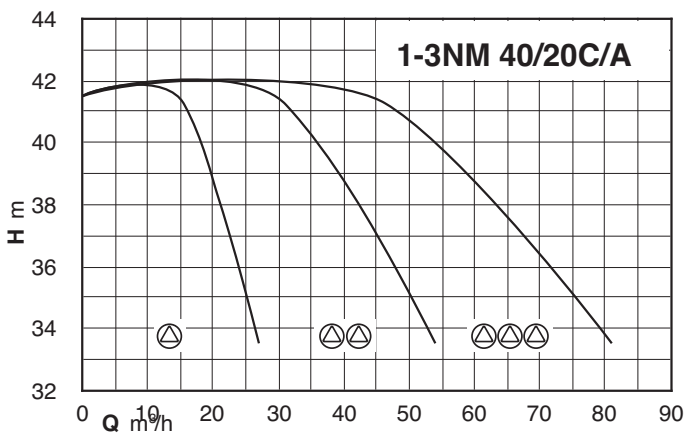
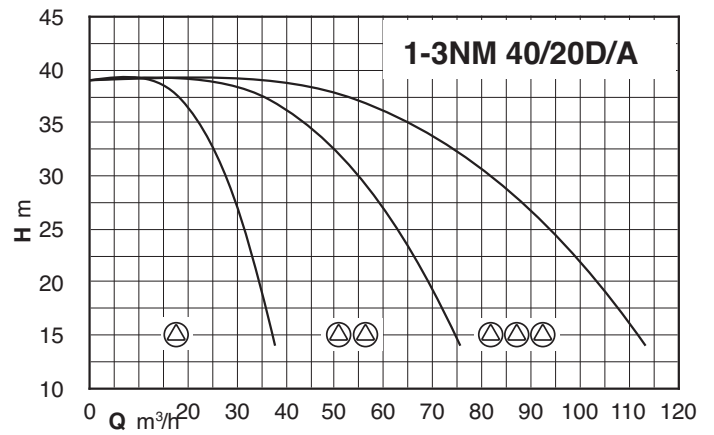
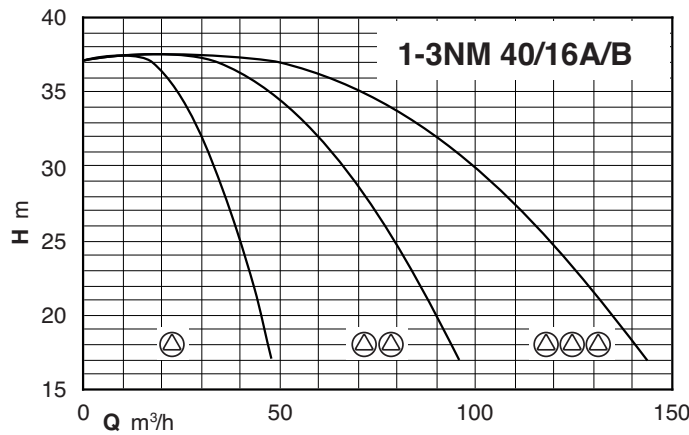
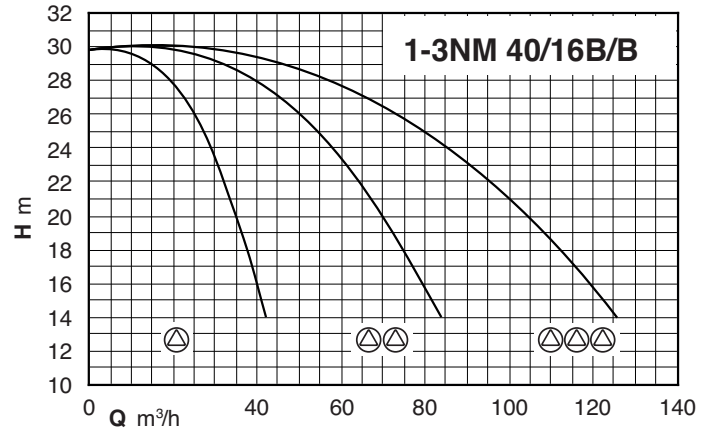
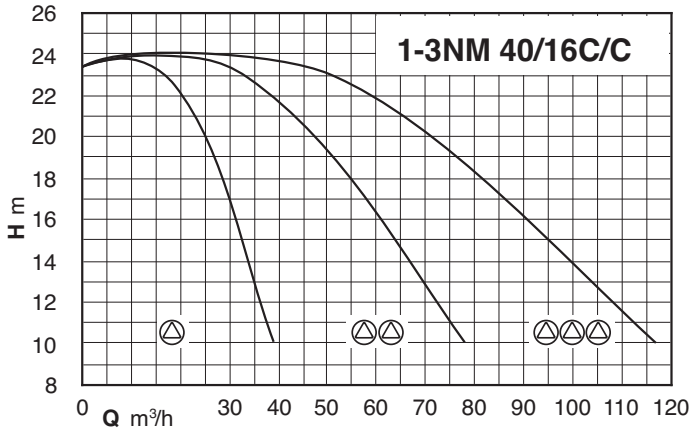
Coverage chart



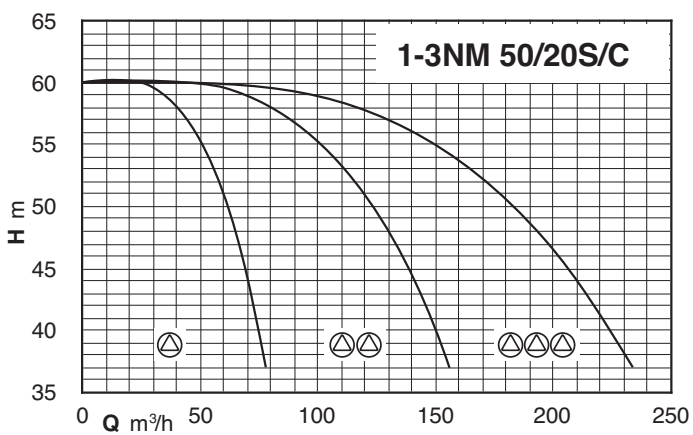
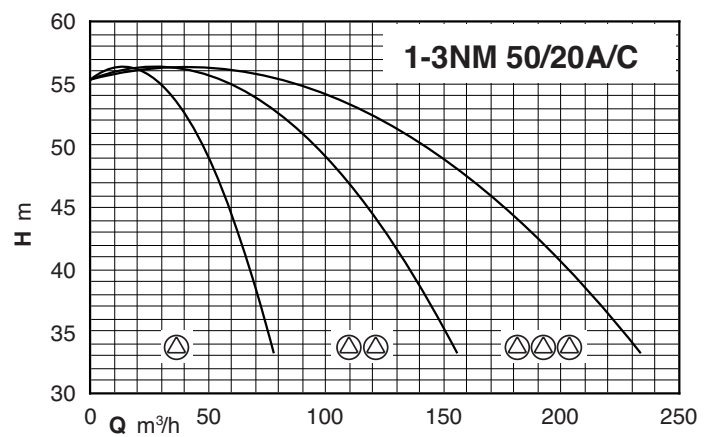
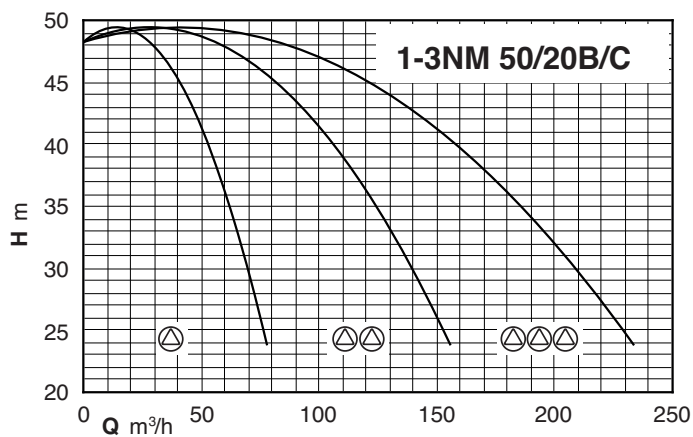
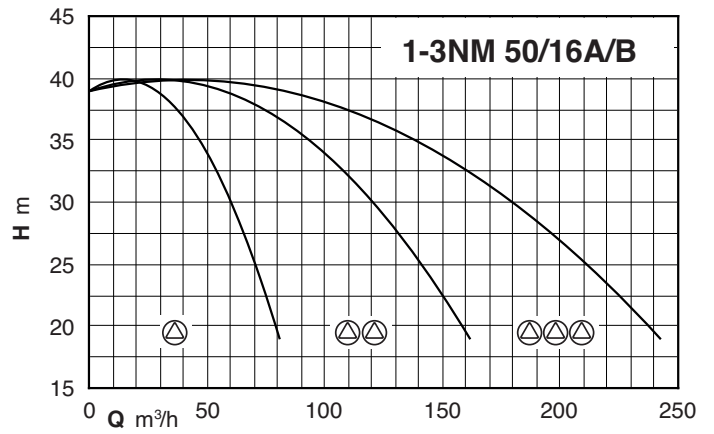
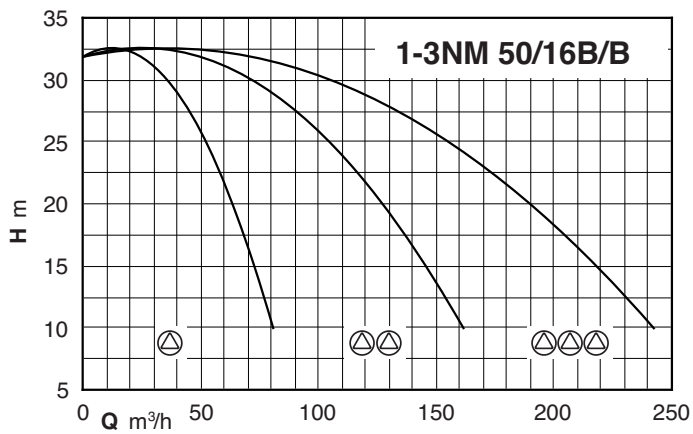
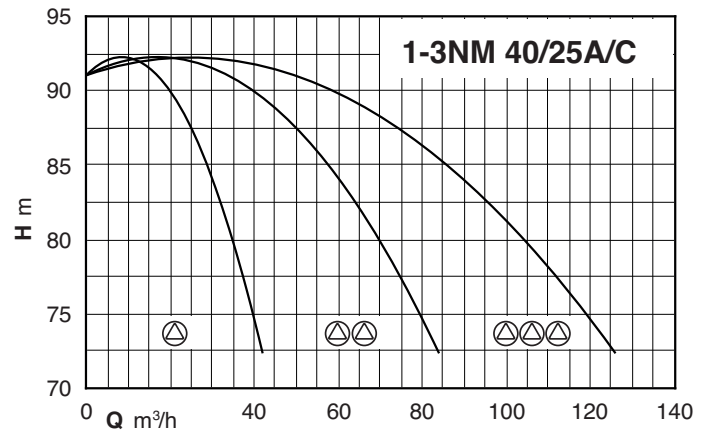
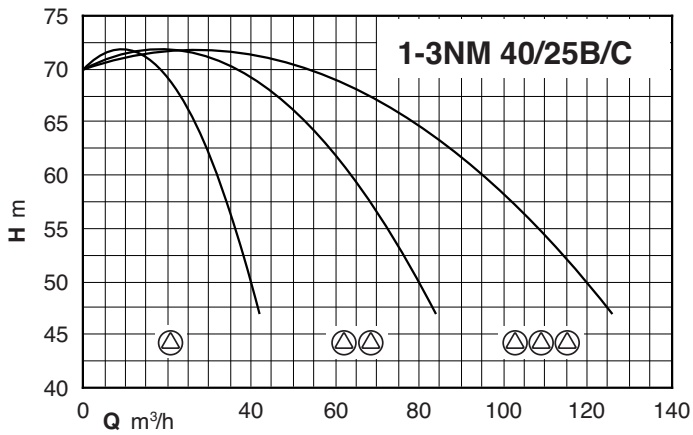
Coverage chart



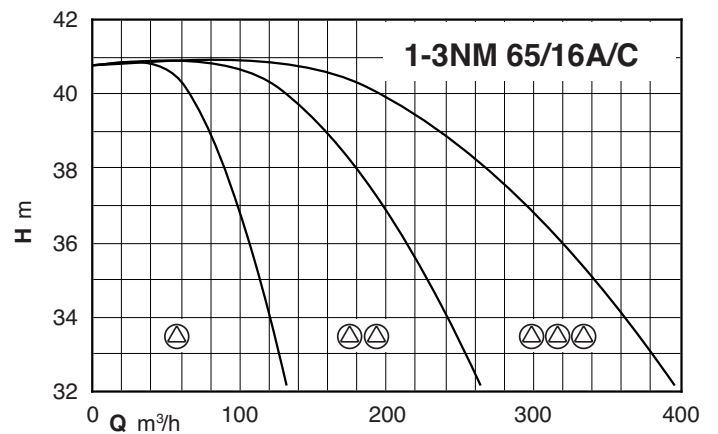
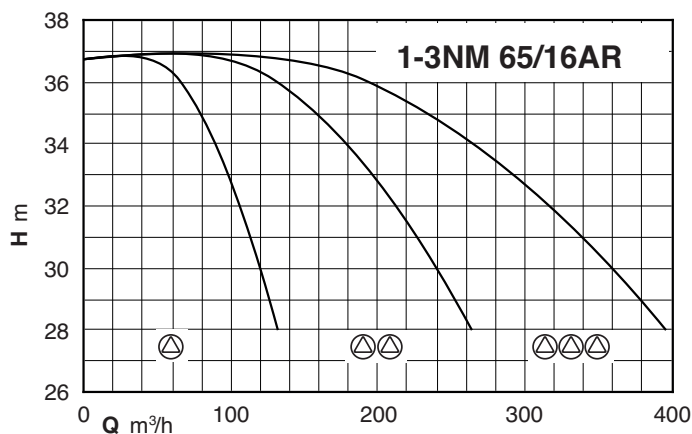
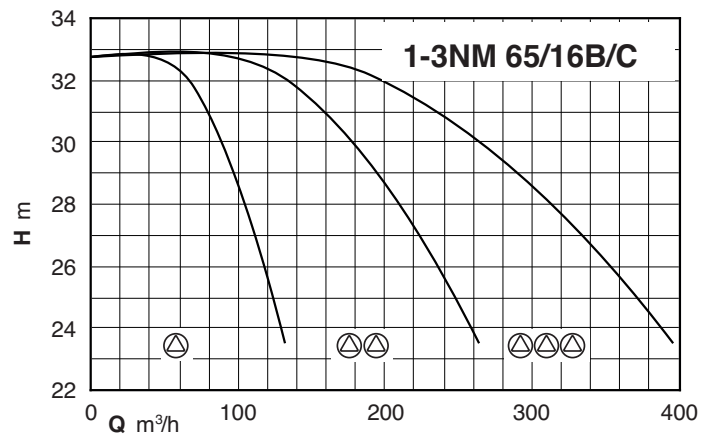
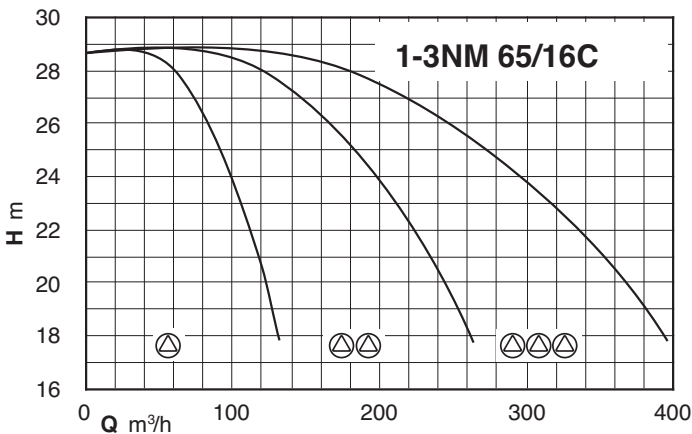
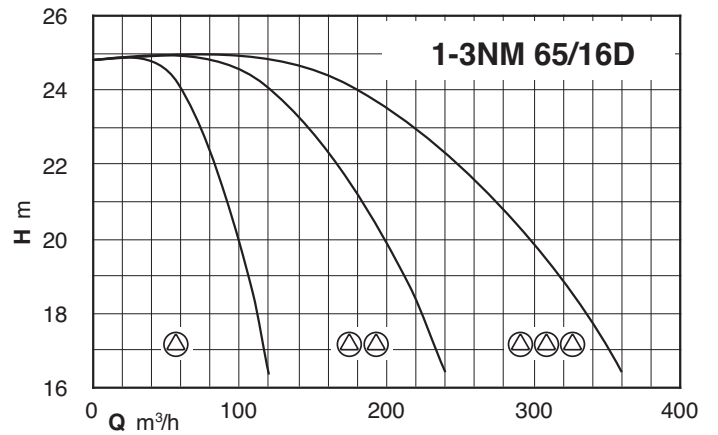
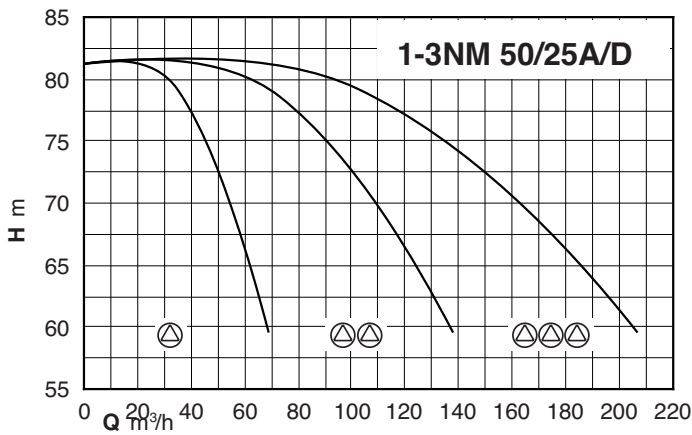
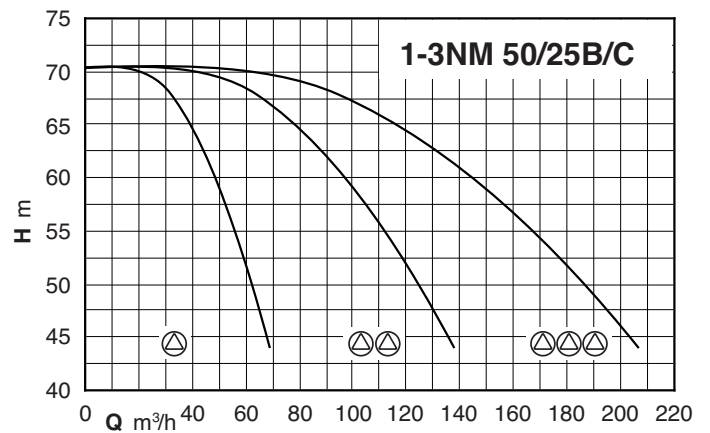
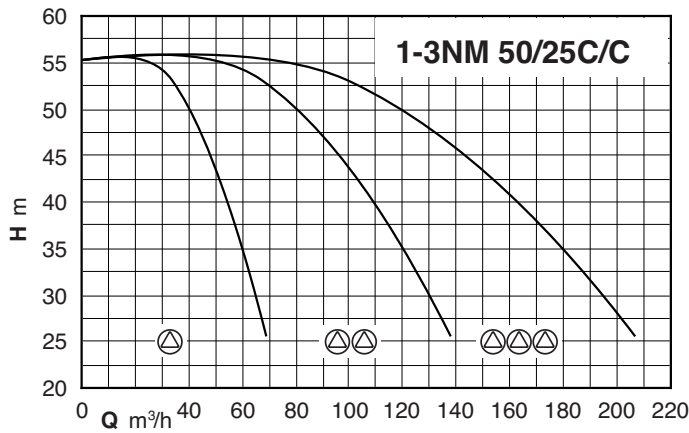
Coverage chart



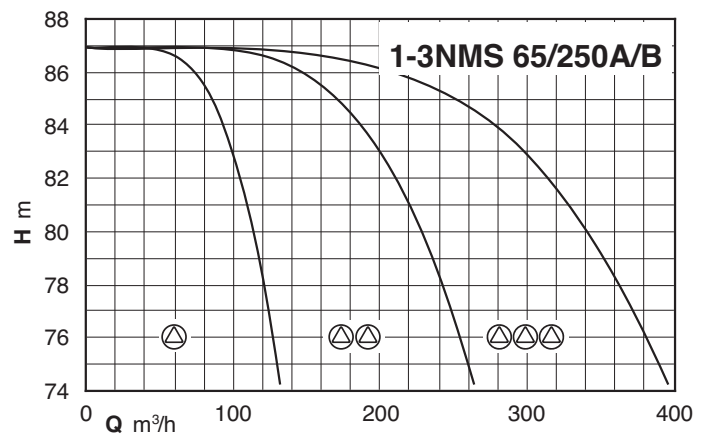
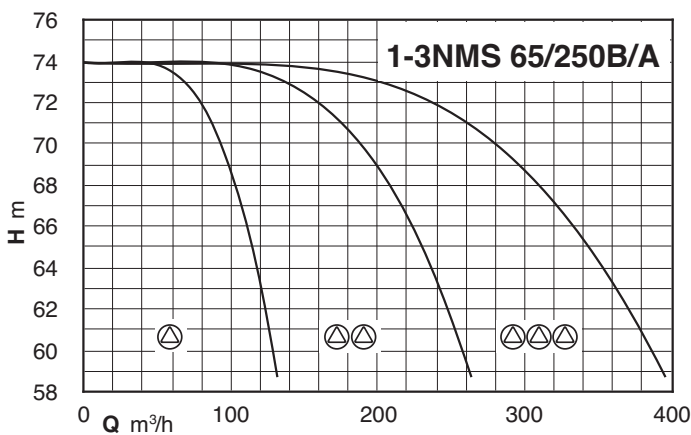
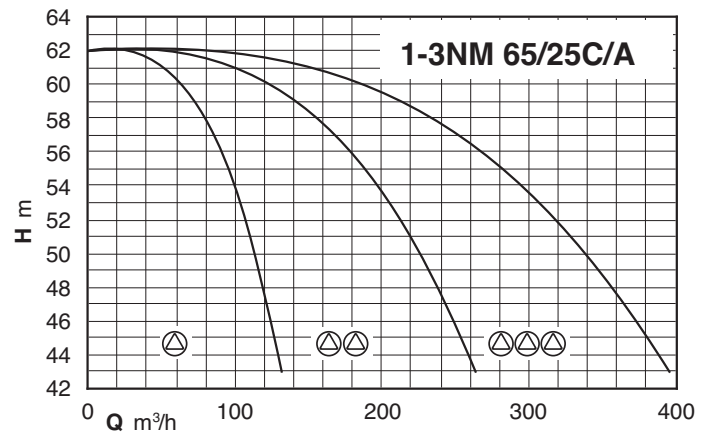
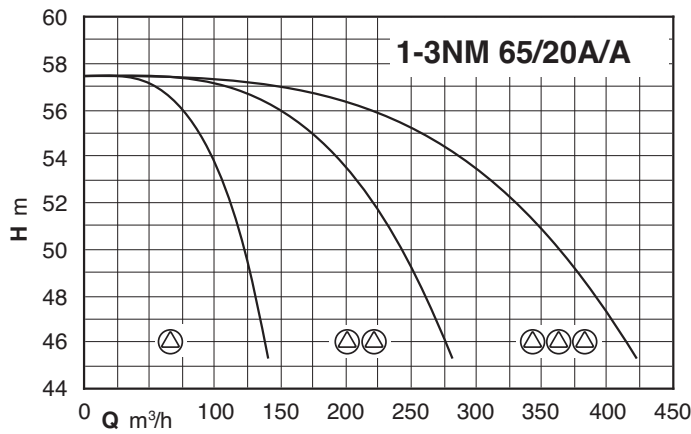
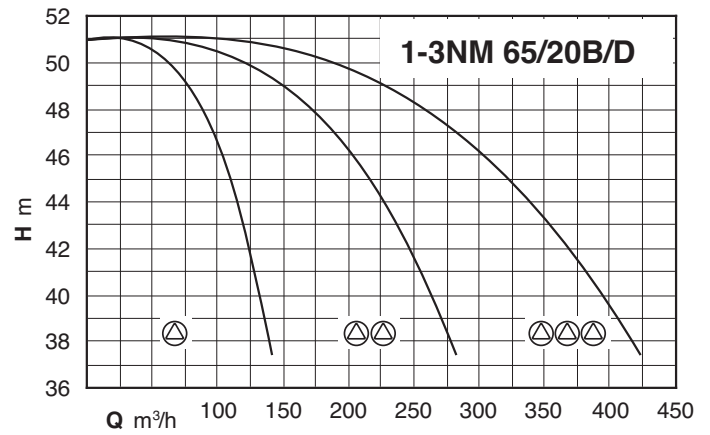
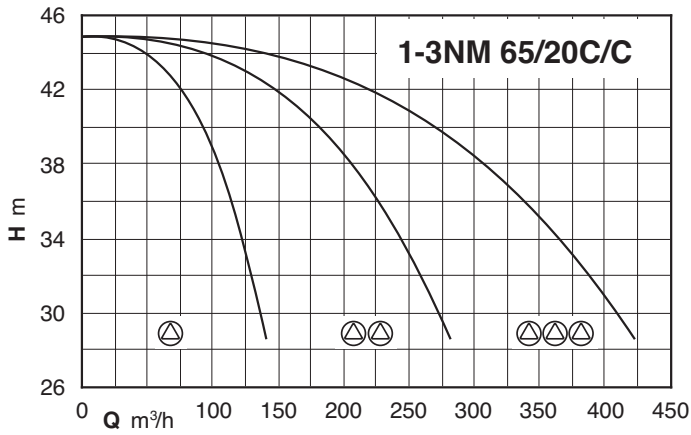
Coverage chart



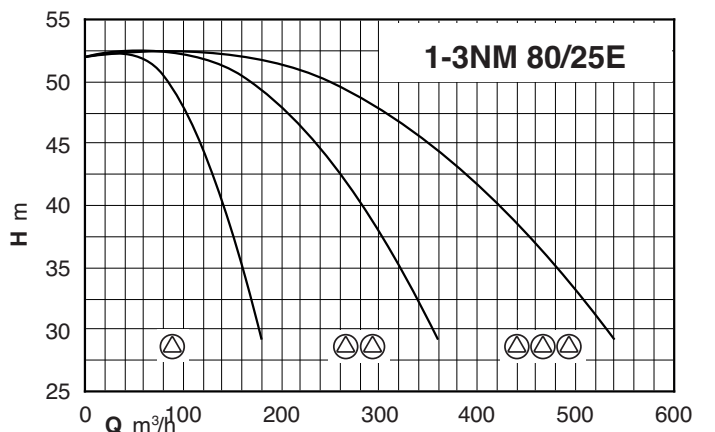
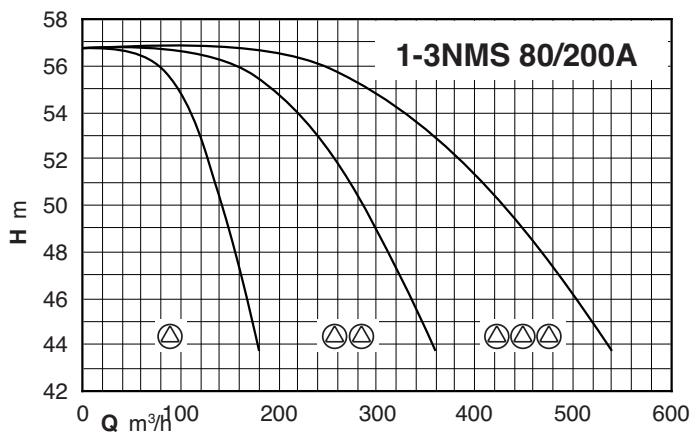
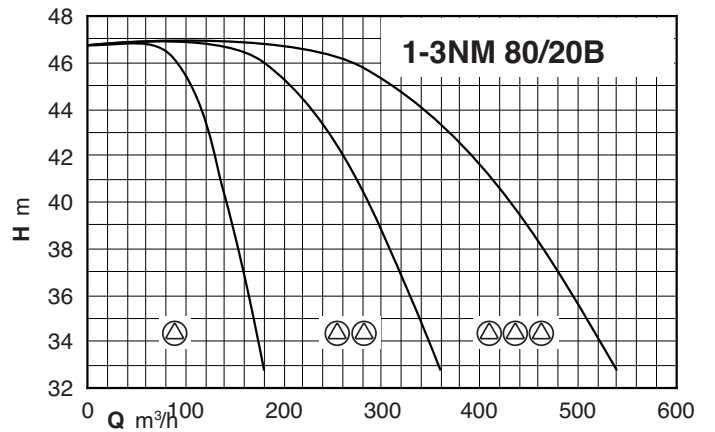
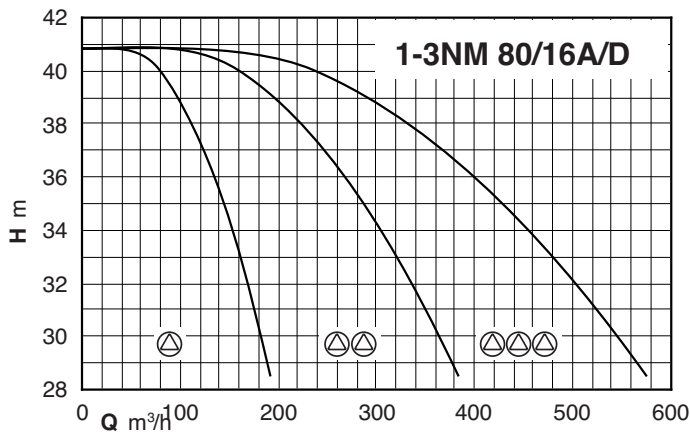
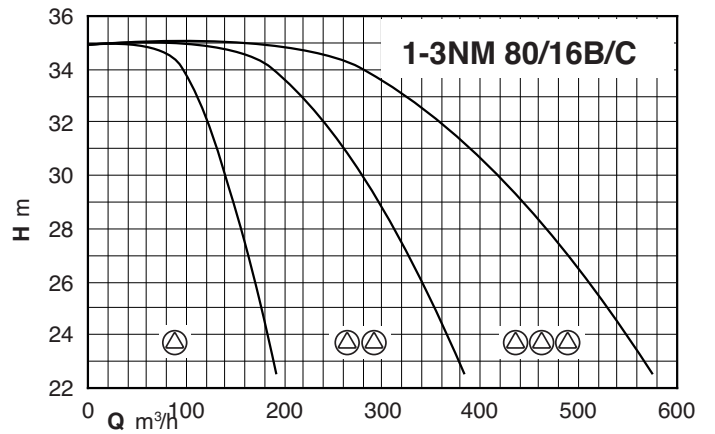
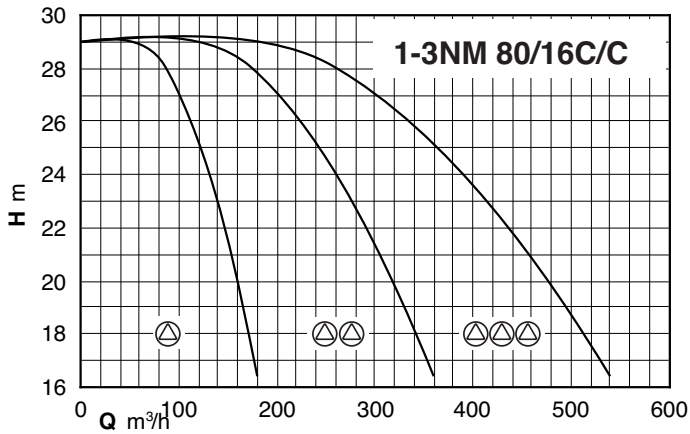
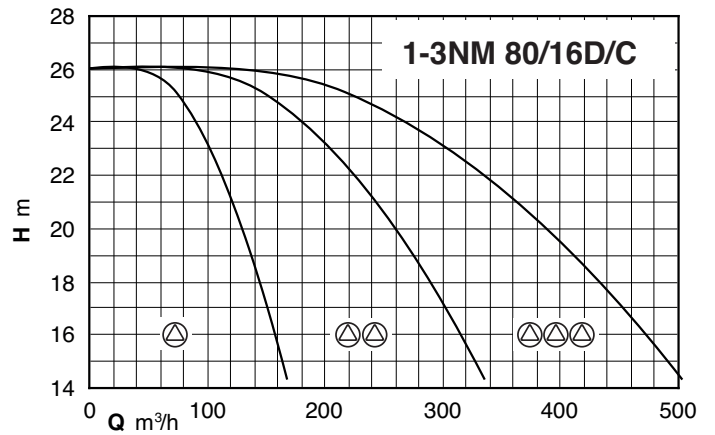
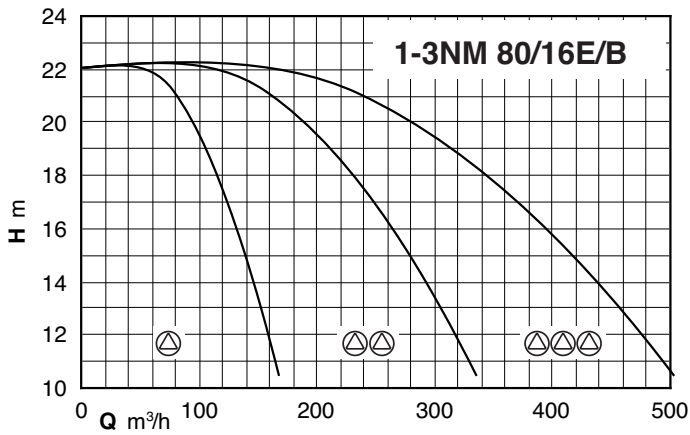
Coverage chart



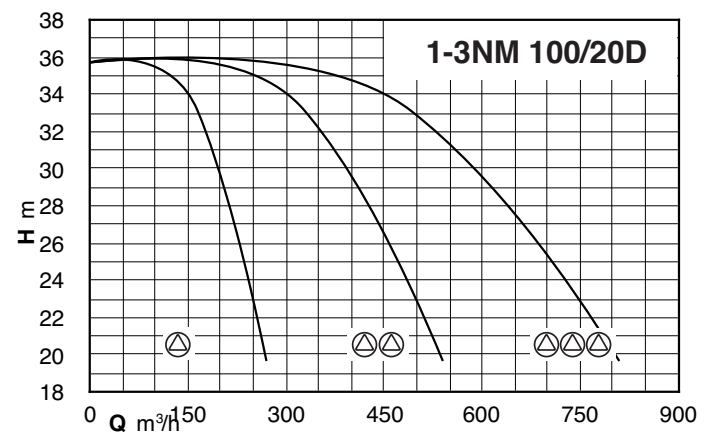
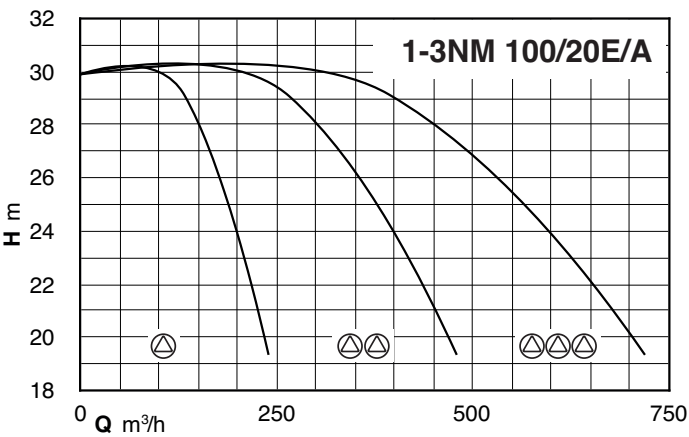
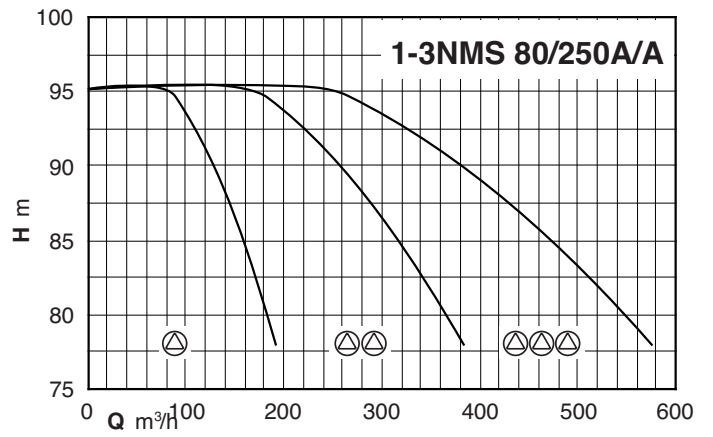
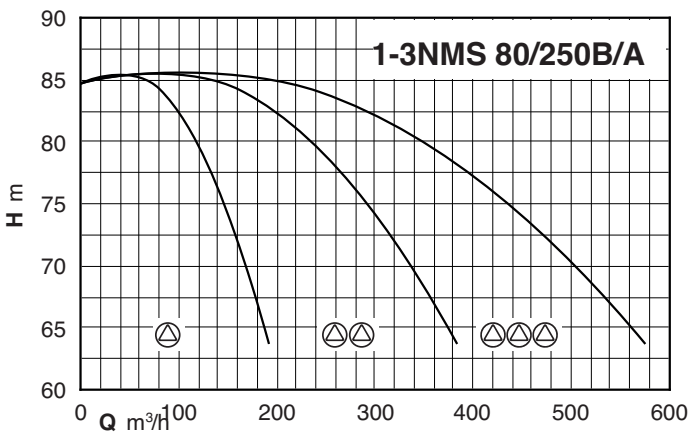
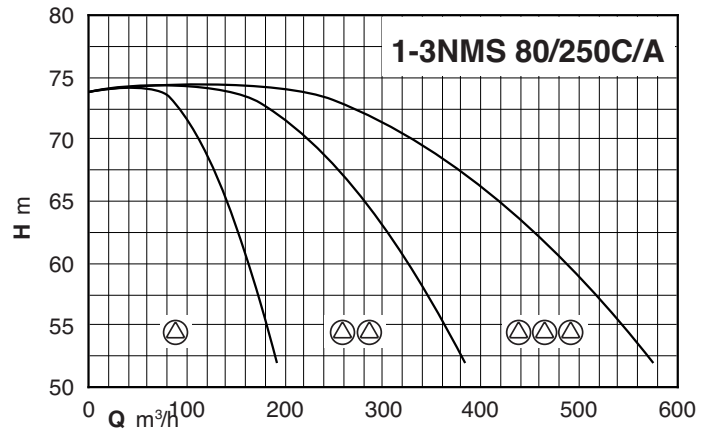
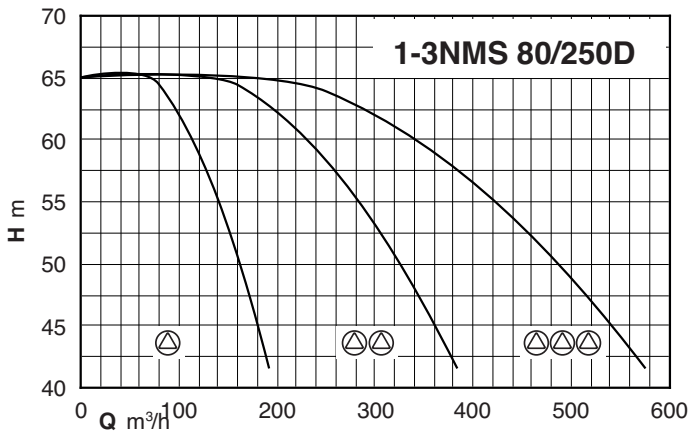
Coverage chart



Coverage chart



Coverage chart



Performance

BS1F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	Q l/min	H m		
BS1F 1NM 32/16B/A	1,5	2	2,2	2,8	281	22	500	800
BS1F 1NM 32/16A/B	2,2	3	2,7	3,4	279	28	500	1000
BS1F 1NM 32/20C/A	3	4	3,2	4,2	285	33	500	1000
BS1F 1NM 32/20A/B	4	5,5	4,5	5,5	259	46	750	1000
BS1F 1NM 32L/16B	3	4	1,9	2,7	511	19	750	1500
BS1F 1NM 32L/16A	4	5,5	2,8	3,6	562	28	1500	3000
BS1F 1NM 32L/20B	5,5	7,5	3,1	4,6	443	32	1000	1500
BS1F 1NM 32L/20A	7,5	10	3,7	5,3	557	38	1500	3000
BS1F 1NMD 32/210D/B	4	5,5	5	7	189	51	500	500
BS1F 1NMD 32/210C/A	5,5	7,5	6	8	242	61	500	800
BS1F 1NMD 32/210B/A	7,5	10	8	10	233	82	750	1000
BS1F 1NMD 32/210A/B	9,2	12,5	9,5	11	215	97	1000	1500
BS1F 1NMD 40/180D/B	4	5,5	4	5,5	314	41	500	1000
BS1F 1NMD 40/180C/A	5,5	7,5	5	6,5	351	51	750	1500
BS1F 1NMD 40/180B/A	7,5	10	6,7	8,2	356	68	1000	2000
BS1F 1NMD 40/180A/B	9,2	12,5	7,5	9	348	76	1500	2000
BS1F 1NM 40/16B/B	3	4	1,5	2,5	690	15	750	1500
BS1F 1NM 40/16A/C	4	5,5	2,4	3,4	735	24	1000	2000
BS1F 1NM 40/20B/A	5,5	7,5	3,7	4,7	566	38	1500	3000
BS1F 1NM 40/20A/A	7,5	10	4,4	5,4	645	45	2000	4000
BS1F 1NM 40/25B/C	11	15	5,6	6,6	667	57	3000	5000
BS1F 1NM 40/25A/C	15	20	7,7	8,7	686	78	4000	-
BS1F 1NM 50/16B/B	5,5	7,5	1,7	2,7	1171	17	2000	4000
BS1F 1NM 50/16A/B	7,5	10	2,5	3,5	1212	25	3000	5000
BS1F 1NM 50/20B/C	9,2	12,5	3,5	4,5	1087	36	3000	5000
BS1F 1NM 50/20A/C	11	15	4,2	5,2	1143	43	4000	-
BS1F 1NM 50/25C/C	11	15	4,1	5,1	999	42	4000	-
BS1F 1NM 50/25B/C	15	20	5,6	6,6	993	57	4000	-
BS1F 1NM 50/25A/D	18,5	25	6,6	7,6	1175	67	5000	-
BS1F 1NM 65/16B/C	11	15	2,2	3,2	2223	22	4000	-
BS1F 1NM 65/16A/R	15	20	2,6	3,6	2238	27	5000	-
BS1F 1NM 65/16A/C	15	20	3,1	4,1	2205	32	5000	-
BS1F 1NM 65/20C/C	15	20	3	4	2101	31	-	-
BS1F 1NM 65/20B/D	18,5	25	3,6	4,6	2195	37	-	-
BS1F 1NM 65/20A/A	22	30	4,2	5,2	2238	43	-	-
BS1F 1NM 65/25C/A	22	30	5	6	1783	51	-	-
BS1F 1NMS 65/250B/A	30	40	6,6	7,6	1812	67	-	-
BS1F 1NMS 65/250A/A	37	50	7,7	8,7	1800	78	-	-
BS1F 1NM 80/16B/C	15	20	2,5	3,5	3391	25	-	-
BS1F 1NM 80/16A/D	18,5	25	2	3	2105	20	-	-
BS1F 1NM 80/20B	22	30	3,3	4,3	3040	34	-	-
BS1F 1NMS 80/200A	30	40	4,3	5,3	3005	44	-	-
BS1F 1NM 80/25E	22	30	3,8	4,8	2465	39	-	-
BS1F 1NMS 80/250D	30	40	4,5	6	2988	46	-	-
BS1F 1NMS 80/250C/A	37	50	5,5	7	3091	56	-	-
BS1F 1NMS 80/250B/A	45	60	6,5	8	3150	66	-	-
BS1F 1NMS 80/250A/A	55	75	8	9	3094	82	-	-

* Maximum pumps flow at minimum setting pressure switch.

Performance

BS2F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	min	max	Q l/min	H m		
BS2F 2NMD 20/110B/A	0,45 x2	0,6 x2	2,0	3,0	1,7	2,7	120	17	24x2	100
BS2F 2NMD 20/110A/B	0,75 x2	1 x2	2,8	4,0	2,4	3,6	130	24	60	100
BS2F 2NM 2/A/B	0,75 x2	1 x2	2,0	3,0	1,7	2,7	200	17	80	200
BS2F 2NMD 20/140B/A	1,1 x2	1,5 x2	3,4	4,9	3,2	4,7	160	33	80	200
BSM2F 2NMDM 20/140AE	1,5 x2	2 x2	4,0	5,3	3,7	5,0	160	38	100	200
BS2F 2NMD 20/140A/A	1,5 x2	2 x2	5,0	6,3	4,7	6,0	180	48	100	200
BS2F 2NM 3/C/A	1,1 x2	1,5 x2	2,5	3,5	2,2	3,2	200	22	100	200
BSM2F 2NMM 3/BE	1,5 x2	2 x2	3,0	4,0	2,7	3,7	200	28	100	300
BS2F 2NM 3/B/A	1,5 x2	2 x2	3,2	4,5	2,9	4,2	270	30	100	300
BS2F 2NM 3/A/B	2,2 x2	3 x2	4,0	5,3	3,7	5,0	280	38	200	300
BS2F 2NM 25/20B/C	2,2 x2	3 x2	3,0	4,0	2,7	3,7	530	28	300	500
BS2F 2NM 25/20A/B	3 x2	4 x2	3,8	4,8	3,5	4,5	600	36	500	800
BS2F 2NM 25/20S/C	4 x2	5,5 x2	4,0	5,5	3,5	5,0	670	36	500	800
BS2F 2NMD 25/190C/B	2,2 x2	3 x2	4,3	5,8	3,8	5,3	280	39	200	300
BS2F 2NMD 25/190B/A	3 x2	4 x2	5,0	7,0	4,5	6,5	320	46	200	300
BS2F 2NMD 25/190A/B	4 x2	5,5 x2	7,5	9,0	7,0	8,5	320	71	300	500
BS2F 2NM 32/16B/A	1,5 x2	2 x2	2,2	2,8	2	2,6	580	20	500	800
BS2F 2NM 32/16A/B	2,2 x2	3 x2	2,7	3,4	2,5	3,2	483	25	500	1000
BS2F 2NM 32/20C/A	3 x2	4 x2	3,2	4,2	3	4	546	31	500	1000
BS2F 2NM 32/20A/B	4 x2	5,5 x2	4,5	5,5	4	5	254	41	750	1000
BS2F 2NM 32L/16B	3 x2	4 x2	1,9	2,7	1,6	2,4	439	16	750	1500
BS2F 2NM 32L/16A	4 x2	5,5 x2	2,8	3,6	2,5	3,3	526	25	1000	2000
BS2F 2NM 32L/20B	5,5 x2	7,5 x2	3,2	4,7	2,9	4,4	339	9	750	1000
BS2F 2NM 32L/20A	7,5 x2	10 x2	3,7	5,4	3,5	5,1	453	36	1000	1500
BS2F 2NMD 32/210D/B	4 x2	5,5 x2	5	7	4,5	6,5	408	46	500	500
BS2F 2NMD 32/210C/A	5,5 x2	7,5 x2	6	8	5,5	7,5	500	56	500	800
BS2F 2NMD 32/210B/A	7,5 x2	10 x2	8	10	7,5	9,5	498	76	750	1000
BS2F 2NMD 32/210A/B	9,2 x2	12,5 x2	9,5	11	9	10,5	484	92	1000	1500
BS2F 2NMD 40/180D/B	4 x2	5,5 x2	4	5,5	3,5	5	697	36	500	1000
BS2F 2NMD 40/180C/A	5,5 x2	7,5 x2	5	6,5	4,5	6	764	46	750	1500
BS2F 2NMD 40/180B/A	7,5 x2	10 x2	6,7	8,2	6,2	7,7	772	63	1000	2000
BS2F 2NMD 40/180A/B	9,2 x2	12,5 x2	7,5	9	7	8,5	764	71	1500	2000
BS2F 2NM 40/16B/B	3 x2	4 x2	1,5	2,5	1,2	2,2	1410	12	750	1500
BS2F 2NM 40/16A/C	4 x2	5,5 x2	2,4	3,4	2	3	1583	20	1000	2000
BS2F 2NM 40/20B/A	5,5 x2	7,5 x2	3,7	4,7	3,3	4,3	1227	34	1500	3000
BS2F 2NM 40/20A/A	7,5 x2	10 x2	4,4	5,4	3,9	4,9	1403	40	2000	4000
BS2F 2NM 40/25B/C	11 x2	15 x2	5,6	6,6	5,1	6,1	1452	52	3000	5000
BS2F 2NM 40/25A/C	15 x2	20 x2	7,7	8,7	7,3	8,3	1446	74	4000	-
BS2F 2NM 50/16B/B	5,5 x2	7,5 x2	1,7	2,7	1,2	2,2	2609	12	2000	4000
BS2F 2NM 50/16A/B	7,5 x2	10 x2	2,5	3,5	2	3	2665	20	3000	5000
BS2F 2NM 50/20B/C	9,2 x2	12,5 x2	3,5	4,5	3	4	2466	31	3000	5000
BS2F 2NM 50/20A/C	11 x2	15 x2	4,2	5,2	3,7	4,7	2549	38	4000	-
BS2F 2NM 50/25C/C	11 x2	15 x2	4,1	5,1	3,6	4,6	2236	37	4000	-
BS2F 2NM 50/25B/C	15 x2	20 x2	5,6	6,6	5,1	6,1	2236	52	4000	-
BS2F 2NM 50/25A/D	18,5 x2	25 x2	6,6	7,6	6,1	7,1	2426	62	5000	-
BS2F 2NM 65/16B/C	11 x2	15 x2	2,2	3,2	1,7	2,7	4254	17	4000	-
BS2F 2NM 65/16AR	15 x2	15 x2	2,6	3,6	2,1	3,1	4111	21	5000	-
BS2F 2NM 65/16A/C	15 x2	15 x2	3,1	4,1	2,6	3,6	4228	27	5000	--
BS2F 2NM 65/20C/C	15 x2	20 x2	3	4	2,5	3,5	4422	25	-	-
BS2F 2NM 65/20B/D	18,5 x2	25 x2	3,6	4,6	3,2	4,2	4283	33	-	-
BS2F 2NM 65/20A/A	22 x2	30 x2	4,2	5,2	3,8	4,8	4044	39	-	-
BS2F 2NM 65/25C/A	22 x2	30 x2	5	6	4,6	5,6	3608	47	-	-
BS2F 2NMS 65/250B/A	30 x2	40 x2	6,6	7,6	6,2	7,2	2970	63	-	-
BS2F 2NMS 65/250A/A	37 x2	50 x2	7,7	8,7	7,3	8,3	2994	74	-	-
BS2F 2NM 80/16B/C	15 x2	20 x2	2,2	3,2	1,7	2,7	6712	20	-	-
BS2F 2NM 80/16A/D	18,5 x2	25 x2	2,8	3,8	2,3	3,3	6593	23	-	-
BS2F 2NM 80/20B	22 x2	30 x2	3,3	4,3	3	4	5836	31	-	-
BS2F 2NMS 80/200A	30 x2	40 x2	4,3	5,3	4	5	5818	41	-	-
BS2F 2NM 80/25E	22 x2	30 x2	3,8	4,8	3,2	4,2	5691	33	-	-
BS2F 2NMS 80/250D	30 x2	40 x2	4,5	6	4	5,5	6416	41	-	-
BS2F 2NMS 80/250C/A	37 x2	50 x2	5,5	7	5	6,5	6407	51	-	-
BS2F 2NMS 80/250B/A	45 x2	60 x2	6,5	8	6	7,5	6376	61	-	-
BS2F 2NMS 80/250A/A	55 x2	75 x2	8	9	7,5	8,5	6400	76	-	-

* Maximum pumps flow at minimum setting pressure of 2nd pressure switch.

Performance

BS3F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Pres. switch 3 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	min	max	min	max	Q l/min	H m		
BS3F 3NM 40/16B/B	3 x3	4 x3	2	2,6	1,6	2,2	1,2	1,8	2115	12	750	1500
BS3F 3NM 40/16A/C	4 x3	5,5 x3	2,7	3,4	2,3	3	1,9	2,6	2393	19	1000	2000
BS3F 3NM 40/20B/A	5,5 x3	7,5 x3	3,9	4,7	3,5	4,3	3,1	3,9	1879	32	1500	3000
BS3F 3NM 40/20A/A	7,5 x3	10 x3	4,4	5,4	4	5	3,6	4,6	2120	37	2000	4000
BS3F 3NM 40/25B/C	11 x3	15 x3	5,6	6,6	5,2	6,2	4,8	5,8	2189	49	3000	5000
BS3F 3NM 40/25A/C	15 x3	20 x3	7,9	8,7	7,5	8,3	7,1	7,9	2155	72	4000	-
BS3F 3NM 50/16B/B	5,5 x3	7,5 x3	1,9	2,7	1,5	2,3	1,1	1,9	3971	11	2000	4000
BS3F 3NM 50/16A/B	7,5 x3	10 x3	2,7	3,5	2,3	3,1	1,9	2,7	4039	19	3000	5000
BS3F 3NM 50/20B/C	9,2 x3	12,5 x3	3,5	4,5	3	4	2,5	3,5	3894	25	3000	5000
BS3F 3NM 50/20A/C	11 x3	15 x3	4,2	5,2	3,7	4,7	3,2	4,2	3903	33	4000	-
BS3F 3NM 50/25C/C	11 x3	15 x3	4,1	5,1	3,6	4,6	3,1	4,1	3524	32	4000	-
BS3F 3NM 50/25B/C	15 x3	20 x3	5,6	6,6	5,1	6,1	4,6	5,6	3497	47	4000	-
BS3F 3NM 50/25A/D	18,5 x3	25 x3	6,7	7,7	6,3	7,3	5,9	6,9	3563	60	5000	-
BS3F 3NM 65/16B/C	11 x3	15 x3	2,2	3,2	1,9	2,9	1,6	2,6	6128	16	4000	-
BS3F 3NM 65/16A/R	15 x3	20 x3	2,6	3,6	2,3	3,3	2	3	5831	20	5000	-
BS3F 3NM 65/16A/C	15 x3	20 x3	3,1	4,1	2,8	3,8	2,5	3,5	6053	25	5000	-
BS3F 3NM 65/20C/C	15 x3	20 x3	3	4	2,7	3,7	2,4	3,4	6622	24	-	-
BS3F 3NM 65/20B/D	18,5 x3	25 x3	3,6	4,6	3,3	4,3	3	4	6090	31	-	-
BS3F 3NM 65/20A/A	22 x3	30 x3	4,2	5,2	3,9	4,9	3,6	4,6	5410	37	-	-
BS3F 3NM 65/25C/A	22 x3	30 x3	5	6	4,7	5,7	4,4	5,4	5290	45	-	-
BS3F 3NMS 65/250B/A	30 x3	40 x3	6,6	7,6	6,3	7,3	6	7	3590	61	-	-
BS3F 3NMS 65/250A/A	37 x3	50 x3	7,7	8,7	7,4	8,4	7,1	8,1	3651	72	-	-
BS3F 3NM 80/16B/C	15 x3	20 x3	2,2	3,2	1,9	2,9	1,6	2,6	7854	16	-	-
BS3F 3NM 80/16A/C	18,5 x3	25 x3	2,8	3,8	2,5	3,5	2,2	3,2	8027	22	-	-
BS3F 3NM 80/20B	22 x3	30 x3	3,3	4,3	3,1	4,1	2,9	3,9	8491	30	-	-
BS3F 3NMS 80/200A	30 x3	40 x3	4,3	5,3	4,1	5,1	3,9	4,9	8488	40	-	-
BS3F 3NM 80/25E	22 x3	30 x3	3,8	4,8	3,4	4,4	3	4	8818	31	-	-
BS3F 3NMS 80/250D	30 x3	40 x3	5	6	4,5	5,5	4	5	9625	41	-	-
BS3F 3NMS 80/250C/A	37 x3	50 x3	6	7	5,5	6,5	5	6	9610	51	-	-
BS3F 3NMS 80/250B/A	45 x3	60 x3	7	8	6,5	7,5	6	7	9564	61	-	-
BS3F 3NMS 80/250A/A	55 x3	75 x3	8	9	7,6	8,6	7,2	8,2	9323	73	-	-

* Maximum pumps flow at minimum setting pressure of 3rd pressure switch.

Performance

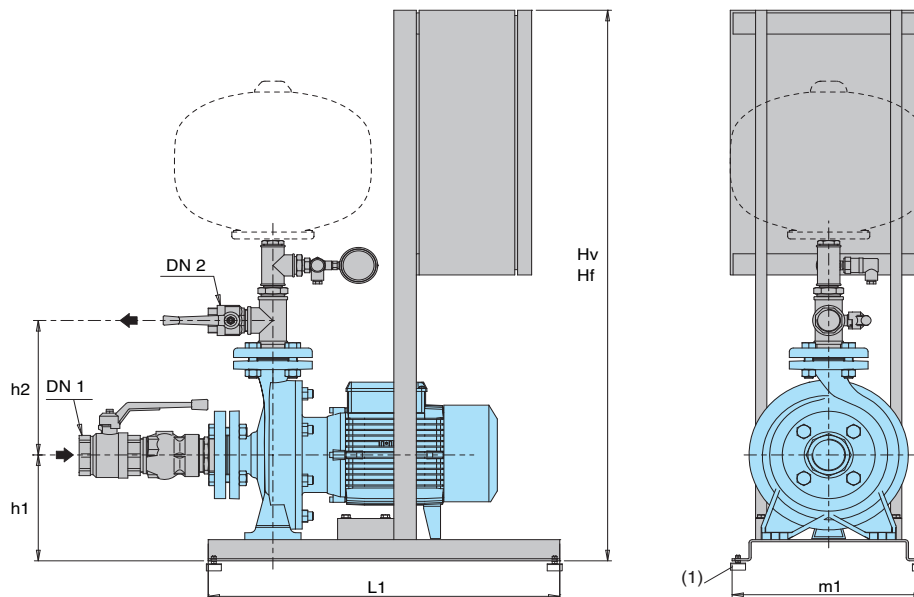
BS..

PUMPS Nos						PUMP TYPE	P ₂	
1	2	3	4	5	6		For each pump	
							kW	HP
BS2V BS1V1F						NM 2/A/B	0,75	1
						NMD 20/110B/A	0,45	0,6
						NMD 20/110A/B	0,75	1
						NMD 20/140B/A	1,1	1,5
						NMD 20/140A/A	1,5	2
						NM 3/C/A	1,1	1,5
						NM 3/B/A	1,5	2
						NM 3/A/B	2,2	3
						NM 25/20B/C	2,2	3
						NM 25/20A/B	3	4
						NM 25/20S/C	4	5,5
						NMD 25/190C/B	2,2	3
						NMD 25/190B/A	3	4
						NMD 25/190A/B	4	5,5
						NM 32/16B/A	1,5	2
						NM 32/16A/B	2,2	3
						NM 32/20C/A	3	4
						NM 32/20A/B	4	5,5
						NM 32L/16B	3	4
						NM 32L/16A	4	5,5
NM 32L/20B	5,5	7,5						
NM 32L/20A	7,5	10						
NMD 32/210D/B	4	5,5						
NMD 32/210C/A	5,5	7,5						
NMD 32/210B/A	7,5	10						
NMD 32/210A/B	9,2	12,5						
NMD 40/180D/B	4	5,5						
NMD 40/180C/A	5,5	7,5						
NMD 40/180B/A	7,5	10						
NMD 40/180A/B	9,2	12,5						
NM 40/16B/B	3	4						
NM 40/16A/C	4	5,5						
NM 40/20B/A	5,5	7,5						
NM 40/20A/A	7,5	10						
NM 40/25B/C	11	15						
NM 40/25A/C	15	20						
NM 50/16B/B	5,5	7,5						
NM 50/16A/B	7,5	10						
NM 50/20B/C	9,2	12,5						
NM 50/20A/C	11	15						
NM 50/25C/C	11	15						
NM 50/25B/C	15	20						
NM 50/25A/D	18,5	25						
NM 65/16B/C	11	15						
NM 65/16AR	15	20						
NM 65/16A/C	15	20						
NM 65/20C/C	15	20						
NM 65/20B/D	18,5	25						
NM 65/20A/A	22	30						
NM 65/25C/A	22	30						
NMS 65/250B/A	30	40						
NMS 65/250A/A	37	50						
NM 80/16B/C	15	20						
NM 80/16A/D	18,5	25						
NM 80/20B	22	30						
NMS 80/200A	30	40						
NM 80/25E	22	30						
NMS 80/250D	30	40						
NMS 80/250C/A	37	50						
NMS 80/250B/A	45	60						
NMS 80/250A /A	55	75						

BS.. ..-ITT

PUMPS Nos		PUMP TYPE	P ₂	
2	3		For each pump	
			kW	HP
BS2V -ITT	BS3V -ITT	NM 3/C/A-ITT	1,1	1,5
		NM 3/B/A-ITT	1,5	2
		NM 3/A/B-ITT	2,2	3
		NM 25/160B/A-ITT	1,1	1,5
		NM 25/160A/A-ITT	1,5	2
		NM 25/20B/C-ITT	2,2	3
		NM 25/20A/B-ITT	3	4
		NM 25/20S/C-ITT	4	5,5
		NM 32/16B/A-ITT	1,5	2
		NM 32/16A/B-ITT	2,2	3
		NM 32/20D/B-ITT	2,2	3
		NM 32/20C/A-ITT	3	4
		NM 32/20A/B-ITT	4	5,5
		NM 32L/16B-ITT	3	4
		NM 32L/16A-ITT	4	5,5
		NM 32L/20B-ITT	5,5	7,5
		NM 32L/20A-ITT	7,5	10
		NM 40/16C/C-ITT	2,2	3
		NM 40/16B/B-ITT	3	4
		NM 40/16A/C-ITT	4	5,5
		NM 40/20D/B-ITT	4	5,5
		NM 40/20C/B-ITT	4	5,5
		NM 40/20B/A-ITT	5,5	7,5
		NM 40/20A/A-ITT	5,5	7,5
		NM 40/20A/A-ITT	7,5	10
		NM 40/25C/C-ITT	9,2	12,5
		NM 40/25B/C-ITT	11	15
		NM 40/25A/C-ITT	15	20
		NM 50/16B/B-ITT	5,5	7,5
		NM 50/16A/B-ITT	7,5	10
		NM 50/20B/C-ITT	9,2	12,5
		NM 50/20A/C-ITT	11	15
		NM 50/20S/C-ITT	15	20
		NM 50/25C/C-ITT	11	15
		NM 50/25B/C-ITT	15	20
		NM 50/25A/D-ITT	18,5	25
		NM 65/16D/B-ITT	7,5	10
		NM 65/16C/C-ITT	9,2	12,5
		NM 65/16B/C-ITT	11	15
		NM 65/16AR-ITT	15	20
NM 65/16A/C-ITT	15	20		
NM 65/20C/C-ITT	15	20		
NM 65/20B/D-ITT	18,5	25		
NM 65/20A/A-ITT	22	30		
NM 65/25C/A-ITT	22	30		
NM 80/16E/B-ITT	7,5	10		
NM 80/16D/C-ITT	9,2	12,5		
NM 80/16C/C-ITT	11	15		
NM 80/16B/C-ITT	15	20		
NM 80/16A/D-ITT	18,5	25		
NM 80/20B-ITT	22	30		
NM 80/25E-ITT	22	30		
NM 100/20E/A-ITT	18,5	25		
NM 100/20D-ITT	22	30		

Dimensions and weights



TYPE	Connection		mm						weight
	DN 1	DN 2	Hv	Hf	h1	L1	m1	kg	
BS1.. 1NM 32/16B/A	G 2	G 1	1045	875	175	625	365	-	
BS1.. 1NM 32/16A/B									
BS1.. 1NM 32/20C/A	G 2	G 1	1045	875	205	625	365	-	
BS1.. 1NM 32/20A/B									
BS1.. 1NM 32L/16B	G 2	G 1	1045	875	175	625	365	-	
BS1.. 1NM 32L/16A									
BS1.. 1NM 32L/20B	G 2	G 1	1045	875	205	625	365	-	
BS1.. 1NM 32L/20A									
BS1.. 1NMD 32/210D/B					135				
BS1.. 1NMD 32/210C/A	G 2	G 1 1/4	1045	875	155	625	365	-	
BS1.. 1NMD 32/210B/A					155				
BS1.. 1NMD 32/210A/B					175				
BS1.. 1NMD 40/180D/B					135				
BS1.. 1NMD 40/180C/A	G 2	G 1 1/2	1045	875	155	625	365	-	
BS1.. 1NMD 40/180B/A					155				
BS1.. 1NMD 40/180A/B					175				
BS1.. 1NM 40/16B/B	G 2 1/2	G 1 1/2	1045	875	175	625	365	-	
BS1.. 1NM 40/16A/C									
BS1.. 1NM 40/20B/A	G 2 1/2	G 1 1/2	1145	875	205	625	365	-	
BS1.. 1NM 40/20A/A				1145					
BS1.. 1NM 40/25B/C	G 2 1/2	G 1 1/2	-	-	-	-	-	-	
BS1.. 1NM 40/25A/C									
BS1.. 1NM 50/16B/B	G 2 1/2	G 2	-	-	-	-	-	-	
BS1.. 1NM 50/16A/B									
BS1.. 1NM 50/20B/C	G 2 1/2	G 2	-	-	-	-	-	-	
BS1.. 1NM 50/20A/C									
BS1.. 1NM 50/25C/D	G 2 1/2	G 2	-	-	-	-	-	-	
BS1.. 1NM 50/25B/C									
BS1.. 1NM 50/25A/C									
BS1.. 1NM 65/16B/C	G 3	G 2 1/2	-	-	-	-	-	-	
BS1.. 1NM 65/16A/R									
BS1.. 1NM 65/16A/C									
BS1.. 1NM 65/20C/C	G 3	G 2 1/2	-	-	-	-	-	-	
BS1.. 1NM 65/20B/C									
BS1.. 1NM 65/20A/A									
BS1.. 1NM 65/25C/A	G 3	G 2 1/2	-	-	-	-	-	-	
BS1.. 1NMS 65/250B/A									
BS1.. 1NMS 65/250A/A									
BS1.. 1NM 80/16B/C	100	80	-	-	-	-	-	-	
BS1.. 1NM 80/16A/B									
BS1.. 1NM 80/20B	100	80	-	-	-	-	-	-	
BS1.. 1NMS 80/200A									
BS1.. 1NM 80/25E									
BS1.. 1NMS 80/250D									
BS1.. 1NMS 80/250C/A	100	80	-	-	-	-	-	-	
BS1.. 1NMS 80/250B/A									
BS1.. 1NMS 80/250A/A									

Dimensions not binding to be verified when ordering

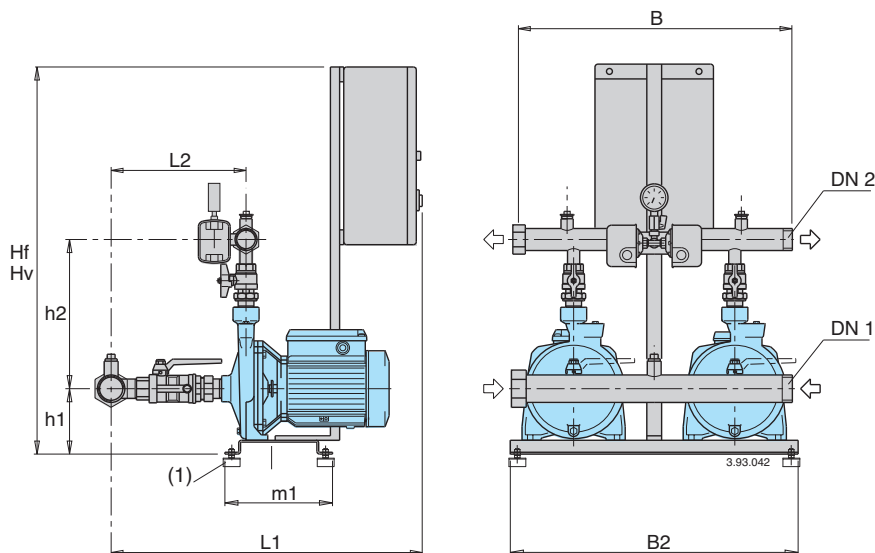
(1) Anti-vibration pads kit supplied loose as standard

Dimensions on request

Hf= Fixed speed boosting sets

Hv= Variable speed boosting sets

Dimensions and weights



TYPE	Connection		mm									weight kg		
	DN 1	DN 2	Hf	Hv	h1	h2	L1	L2	m1	B	B2			
BS.. 2NMD 20/110B/A	G 2	G 1 1/2	840		129	277	670	315	235	600	625	51		
BS.. 2NMD 20/110A/B					129	277	670	315					55	
BS.. 2NM 2/A/B	G 2	G 1 1/2	840		129	295	620	262	235	600	625	54		
BS.. 2NMD 20/140B/A					146	295	670	320					72	
BS.. 2NMD 20/140A/A	G 2	G 1 1/2	840		146	295	670	320	235	600	625	77		
BS.. 2NM 3/C/A					156	307	650	254					71	
BS.. 2NM 3/B/A	G 2	G 1 1/2	867		156	307	650	254	365	600	625	76		
BS.. 2NM 3/A/B					156	307	650	254					78	
BS.. 2NM 25/20B/C	G 2 1/2	G 2	840		160	330	725	373	235	600	625	87		
BS.. 2NM 25/20A/B					160	330	725	373					106	
BS.. 2NM 25/20S/C					160	330	725	373					114	
BS.. 2NMD 25/190C/B	G 2 1/2	G 2	840		175	330	760	407	235	600	625	108		
BS.. 2NMD 25/190B/A					175	330	760	407					123	
BS.. 2NMD 25/190A/B					175	330	760	407					132	
BS.. 2NM 32/16B/A	G 3	G 2 1/2	830	1210	266	345	304	389	476	600	625			
BS.. 2NM 32/16A/B					830	1210	266	389						
BS.. 2NM 32/20C/A	G 3	G 2 1/2	830	1210	294	365	324	389	476	600	625			
BS.. 2NM 32/20A/B					830			1210					294	389
BS.. 2NMD 32/210D/B					890			1270					245	420
BS.. 2NMD 32/210C/A	G 3	G 2 1/2	890	1370	272	380	460	440	550	700	800			
BS.. 2NMD 32/210B/A					1370			1370					272	440
BS.. 2NMD 32/210A/B					1370			1670					307	515
BS.. 2NMD 40/180D/B					890			1270					245	415
BS.. 2NMD 40/180C/A	G 3	G 2 1/2	890	1370	272	460	475	435	550	700	800			
BS.. 2NMD 40/180B/A					1370			1370					272	435
BS.. 2NMD 40/180A/B					1370			1670					307	510

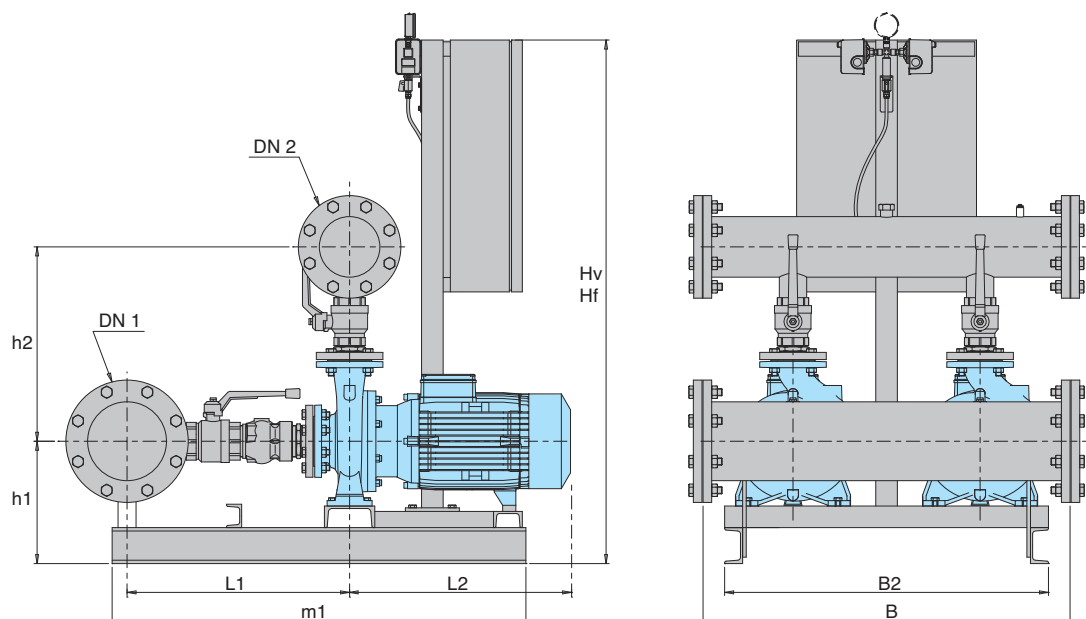
Dimensions not binding to be verified when ordering

Dimensions on request

Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

(1) Anti-vibration pads kit supplied loose as standard

Dimensions and weights



TYPE	Connection		mm									weight kg
	DN 1	DN 2	Hf	Hv	h1	h2	L1	L2	m1	B	B2	
BS.. 2NM 32L/16B	100	80	830	1210	280	387	487	330	476	820	800	-
BS.. 2NM 32L/16A			830	1210	280			370				
BS.. 2NM 32L/20B	100	80	830	1310	320	407	507	395	1040	820	900	-
BS.. 2NM 32L/20A			1310	1310	320			395				
BS.. 2NM 40/16B/B	100	80	830	1210	280	387	487	395	476	820	800	-
BS.. 2NM 40/16A/C			830	1210	280			395				
BS.. 2NM 40/20B/A	100	80	830	1310	320	407	507	425	1040	820	900	-
BS.. 2NM 40/20A/A			1310	1310	320			425				
BS.. 2NM 40/25B/C	100	80	1455	1755	340	452	507	540	1040	820	900	-
BS.. 2NM 40/25A/C			1455	1755	340			615				
BS.. 2NM 50/16B/B	125	100	975	1455	315	435	515	425	-	920	-	-
BS.. 2NM 50/16A/B			1455	1455	315			425				
BS.. 2NM 50/20B/C	125	100	1455	1755	315	455	515	540	-	920	-	-
BS.. 2NM 50/20A/C			1455	1755	315			540				
BS.. 2NM 50/25C/D	125	100	1455	1755	340	480	515	545	-	920	-	-
BS.. 2NM 50/25B/C			1455	1755	340			620				
BS.. 2NM 50/25A/D	125	100	1455	1855	340	515	515	620	-	920	-	-
BS.. 2NM 50/25C/A			1455	1855	340			620				
BS.. 2NM 65/16B/C	200	150	1455	1755	320	525	625	540	-	1020	-	-
BS.. 2NM 65/16A/R			1455	1755	320			540				
BS.. 2NM 65/16A/C	200	150	1455	1755	320	525	625	615	-	1020	-	-
BS.. 2NM 65/20C/C			1455	1755	340			615				
BS.. 2NM 65/20B/C	200	150	1455	1855	340	550	625	615	-	1200	-	-
BS.. 2NM 65/20A/A			1655	1855	340			615				
BS.. 2NM 65/25C/A	200	150	1655	1855	360	575	625	725	-	1200	-	-
BS.. 2NMS 65/250B/A			1655	1855	360			725				
BS.. 2NMS 65/250A/A	200	150	1855	1600*	360	575	625	975	-	1200	-	-
BS.. 2NM 80/16B/C			1455	1755	340			620				
BS.. 2NM 80/16A/D	250	200	1455	1855	340	615	730	620	-	1200	-	-
BS.. 2NM 80/20B			1455	1855	340			620				
BS.. 2NMS 80/200A	250	200	1655	1855	360	640	730	725	-	1200	-	-
BS.. 2NM 80/25E			1655	1855	360			725				
BS.. 2NMS 80/250D	250	200	1655	1855	360	670	730	725	-	1200	-	-
BS.. 2NMS 80/250C/A			1855	1600*	310			725				
BS.. 2NMS 80/250B/A	250	200	1400*	2100*	310	670	730	1040	-	1200	-	-
BS.. 2NMS 80/250A/A			1400*	2100*	310			1110				

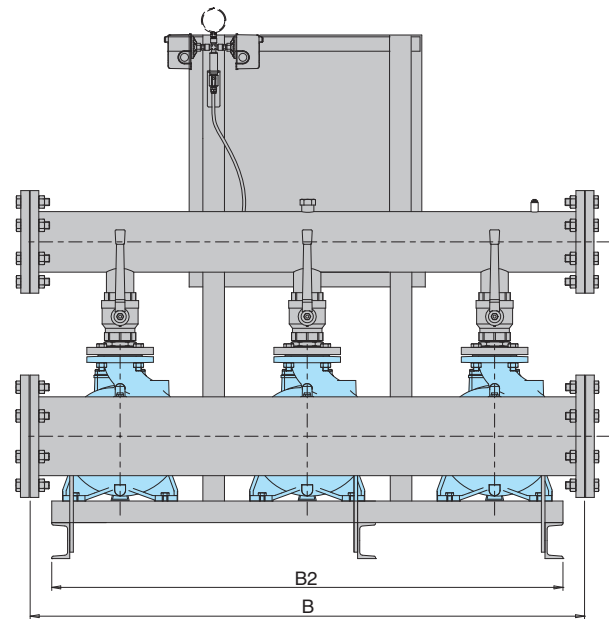
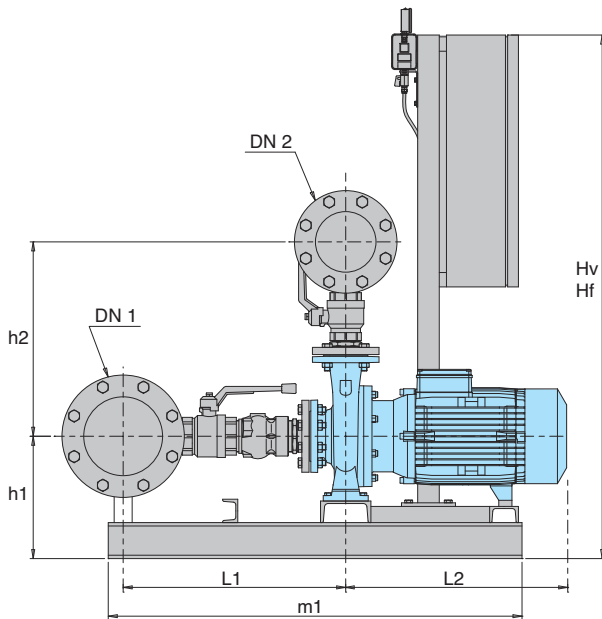
Dimensions not binding to be verified when ordering

Dimensions on request

Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

* Cabinet version

Dimensions and weights



TYPE	Connection		mm										weight kg
	DN 1	DN 2	Hf	Hv	h1	h2	L1	L2	m1	B	B2		
BS.. 3NM 40/16B/B	125	100	830	1310	292	400	500	395	1100	1340	1400	-	
BS.. 3NM 40/16A/C			830	1310	292								
BS.. 3NM 40/20B/A			830	1610	320								
BS.. 3NM 40/20A/A	125	100	1410	1610	320	420	520	425	1100	1340	1400	-	
BS.. 3NM 40/25B/B			1555	1700*	340								
BS.. 3NM 40/25A/B			1555	1700*	340								
BS.. 3NM 50/16B/B	150	125	975	1755	315	448	525	425	-	1340	-	-	
BS.. 3NM 50/16A/B			1555	1755	315								
BS.. 3NM 50/20B/C	150	125	1555	1700*	315	468	525	540	-	1340	-	-	
BS.. 3NM 50/20A/C			1555	1700*	315								
BS.. 3NM 50/25C/D			1555	1700*	340								
BS.. 3NM 50/25B/C	150	125	1555	1700*	340	493	525	620	-	1440	-	-	
BS.. 3NM 50/25A/D			1755	1700*	340								
BS.. 3NM 65/16B/C			1555	1700*	320								
BS.. 3NM 65/16A/R	250	200	1555	1700*	320	555	650	540	-	1540	-	-	
BS.. 3NM 65/16A/C			1555	1700*	320								
BS.. 3NM 65/20C/C			1555	1700*	340								
BS.. 3NM 65/20B/C	250	200	1755	1700*	340	580	650	615	-	1900	-	-	
BS.. 3NM 65/20A/A			1855	1700*	340								
BS.. 3NM 65/25C/A			1855	1700*	360								
BS.. 3NMS 65/250B/A	250	200	1855	1700*	260	605	650	725	-	1900	-	-	
BS.. 3NMS 65/250A/A			1545	-	310								
BS.. 3NM 80/16B/C			1555	1700*	340								
BS.. 3NM 80/16A/D	300	250	1755	1700*	240	645	755	620	-	1900	-	-	
BS.. 3NM 80/20B			1855	1700*	360								
BS.. 3NMS 80/200A			1855	1700*	260								
BS.. 3NM 80/25E	300	250	1855	1700*	360	700	755	725	-	1900	-	-	
BS.. 3NMS 80/250D			1855	1700*	260								
BS.. 3NMS 80/250C/A			1400*	-	310								
BS.. 3NMS 80/250B/A	300	250	1400*	-	310	700	755	975	-	1900	-	-	
BS.. 3NMS 80/250A/A			1400*	-	310								
			1400*	-	310			1110					

Dimensions not binding to be verified when ordering

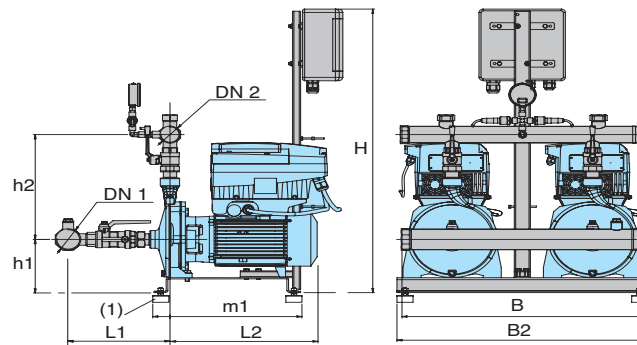
Dimensions on request

Hf= Fixed speed boosting sets

Hv= Variable speed boosting sets

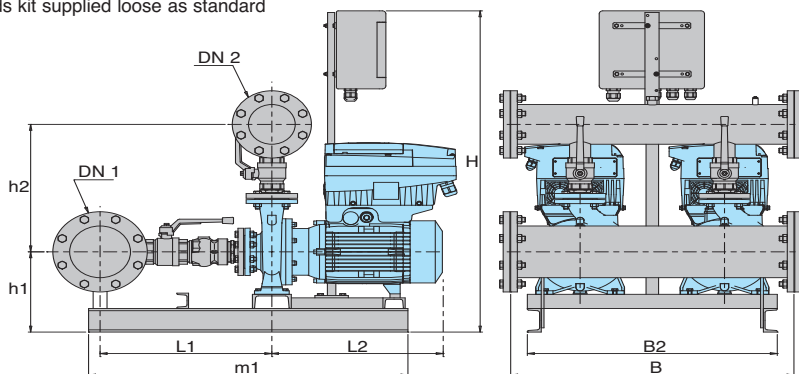
* Cabinet version

Dimensions and weights



TYPE	Motor			Connection		mm							weight kg
	kW	HP	A	DN 1	DN 2	H	h1	h2	L1	L2	m1	B	
BS2V 2NM 3/C/A-ITT	1,1 x2	1,5 x2	2,7 x2	G 2	G 1 1/2	876	156	307	254	325	365	600	625
BS2V 2NM 3/B/A-ITT	1,5 x2	2 x2	4,3 x2			876				325			
BS2V 2NM 3/A/B-ITT	2,2 x2	3 x2	5,3 x2			876				365			
BS2V 2NM 25/160B/A-ITT	1,1 x2	1,5 x2	2,7 x2	G 2	G 1 1/2	876	135	305	273	324	365	600	625
BS2V 2NM 25/160A/A-ITT	1,5 x2	2 x2	4,3 x2			876				324			
BS2V 2NM 25/20B/C-ITT	2,2 x2	3 x2	5,3 x2			876				370			
BS2V 2NM 25/20A/B-ITT	3 x2	4 x2	6,6 x2	G 2 1/2	G 2	883	169	330	373	397	365	600	625
BS2V 2NM 25/20S/C-ITT	4 x2	5,5 x2	9,6 x2			883				397			
BS2V 2NM 32/16B/A-ITT	1,5 x2	2 x2	4,3 x2	G 3	G 2 1/2	876	266	304	389	330	476	600	625
BS2V 2NM 32/16A/B-ITT	2,2 x2	3 x2	5,3 x2			876				370			
BS2V 2NM 32/20D/B-ITT	2,2 x2	3 x2	5,3 x2	G 3	G 2 1/2	876	294	324	389	370	476	600	625
BS2V 2NM 32/20C/A-ITT	3 x2	4 x2	6,6 x2			876				395			
BS2V 2NM 32/20A/B-ITT	4 x2	5,5 x2	9,6 x2			876				395			

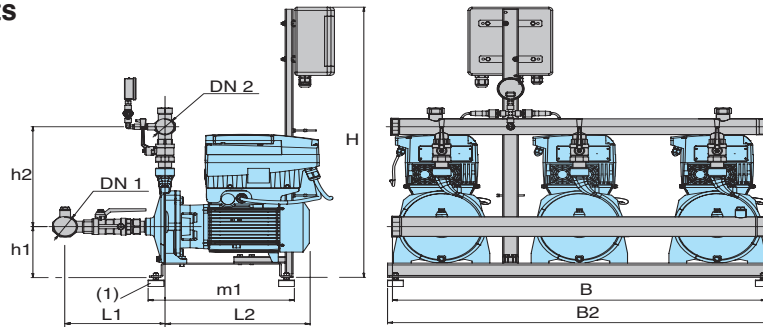
(1) Anti-vibration pads kit supplied loose as standard



TYPE	Motor			Connection		mm							weight kg
	kW	HP	A	DN 1	DN 2	H	h1	h2	L1	L2	m1	B	
BS2V 2NM 32L/16B-ITT	3 x2	4 x2	6,6 x2	100	80	897	280	387	487	330	476	820	800
BS2V 2NM 32L/16A-ITT	4 x2	5,5 x2	9,6 x2			897				370			
BS2V 2NM 32L/20B-ITT	5,5 x2	7,5 x2	10,8 x2	100	80	897	320	407	507	395	1040	820	900
BS2V 2NM 32L/20A-ITT	7,5 x2	10 x2	14,3 x2			897				395			
BS2V 2NM 40/16C/A-ITT	2,2 x2	3 x2	5,3 x2	100	80	897	280	387	487	370	476	820	800
BS2V 2NM 40/16B/B-ITT	3 x2	4 x2	6,6 x2			897				395			
BS2V 2NM 40/16A/C-ITT	4 x2	5,5 x2	9,6 x2			897				395			
BS2V 2NM 40/20D/B-ITT	4 x2	5,5 x2	9,6 x2	100	80	897	309	407	507	395	476	820	800
BS2V 2NM 40/20C/B-ITT	4 x2	5,5 x2	9,6 x2			897				476			
BS2V 2NM 40/20A/A-ITT	5,5 x2	7,5 x2	10,8 x2	100	80	897	320	407	507	425	1040	820	900
BS2V 2NM 40/20AR/A-ITT	5,5 x2	7,5 x2	10,8 x2			897				425			
BS2V 2NM 40/20A/A-ITT	7,5 x2	10 x2	14,3 x2	100	80	897	320	407	507	425	1040	820	900
BS2V 2NM 40/25C/A-ITT	9,2 x2	12,5 x2	18,5 x2			897				425			
BS2V 2NM 40/25B/C-ITT	11 x2	15 x2	21,5 x2	100	80	977	340	452	507	590	1040	820	-
BS2V 2NM 40/25A/C-ITT	15 x2	20 x2	27,3 x2			977				615			
BS2V 2NM 50/16B/B-ITT	5,5 x2	7,5 x2	10,8 x2	125	100	977	315	435	515	425	-	920	-
BS2V 2NM 50/16A/B-ITT	7,5 x2	10 x2	14,3 x2			977				425			
BS2V 2NM 50/20B/C-ITT	9,2 x2	12,5 x2	18,5 x2	125	100	977	315	480	515	540	-	920	-
BS2V 2NM 50/20A/C-ITT	11 x2	15 x2	21,5 x2			977				620			
BS2V 2NM 50/20S/C-ITT	15 x2	20 x2	27,3 x2	125	100	977	315	480	515	595	-	920	-
BS2V 2NM 50/25C/A-ITT	11 x2	15 x2	21,5 x2			977				620			
BS2V 2NM 50/25B/C-ITT	15 x2	20 x2	27,3 x2	125	100	977	340	480	515	620	-	920	-
BS2V 2NM 50/25A/C-ITT	18,5 x2	25 x2	34 x2			977				620			
BS2V 2NM 65/16D/B-ITT	7,5 x2	10 x2	14,3 x2	200	150	977	320	525	625	425	-	1020	-
BS2V 2NM 65/16C/C-ITT	9,2 x2	12,5 x2	18,5 x2			977				540			
BS2V 2NM 65/16B/C-ITT	11 x2	15 x2	21,5 x2	200	150	977	320	525	625	540	-	1020	-
BS2V 2NM 65/16A/R-ITT	15 x2	20 x2	27,3 x2			977				540			
BS2V 2NM 65/16A/C-ITT	15 x2	20 x2	27,3 x2	200	150	977	320	525	625	615	-	1020	-
BS2V 2NM 65/20C/C-ITT	15 x2	20 x2	27,3 x2			977				615			
BS2V 2NM 65/20B/D-ITT	18,5 x2	25 x2	34 x2	200	150	977	340	550	730	570	-	1200	-
BS2V 2NM 65/20A/A-ITT	22 x2	30 x2	41 x2			977				620			
BS2V 2NM 65/25C/A-ITT	22 x2	30 x2	41 x2	200	150	977	360	575	725	620	-	1200	-
BS2V 2NM 80/16E/B-ITT	7,5 x2	10 x2	14,3 x2			977				620			
BS2V 2NM 80/16D/C-ITT	9,2 x2	12,5 x2	18,5 x2	250	200	977	-	615	-	545	-	1050	-
BS2V 2NM 80/16C/C-ITT	11 x2	15 x2	21,5 x2			977				595			
BS2V 2NM 80/16B/C-ITT	15 x2	20 x2	27,3 x2	250	200	977	340	-	-	620	-	1050	-
BS2V 2NM 80/16A/D-ITT	18,5 x2	25 x2	34 x2			977				620			
BS2V 2NM 80/20B-ITT	22 x2	30 x2	41 x2	250	200	-	360	640	725	620	-	1200	-
BS2V 2NM 80/25E-ITT	22 x2	30 x2	41 x2			-				670			
BS2V 2NM 100/20E/A-ITT	18,5 x2	25 x2	34 x2	300	250	1490	410	770	1083	662	1835	1200	1200
BS2V 2NM 100/20D-ITT	22 x2	30 x2	41 x2										

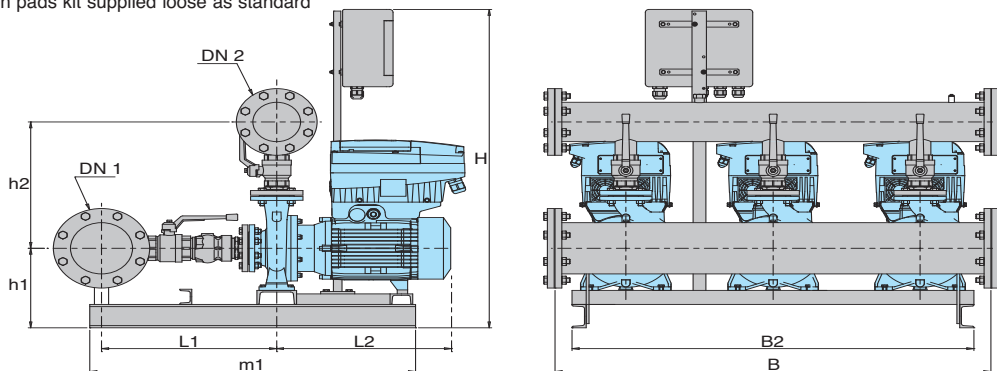
Dimensions not binding to be verified when ordering

Dimensions and weights



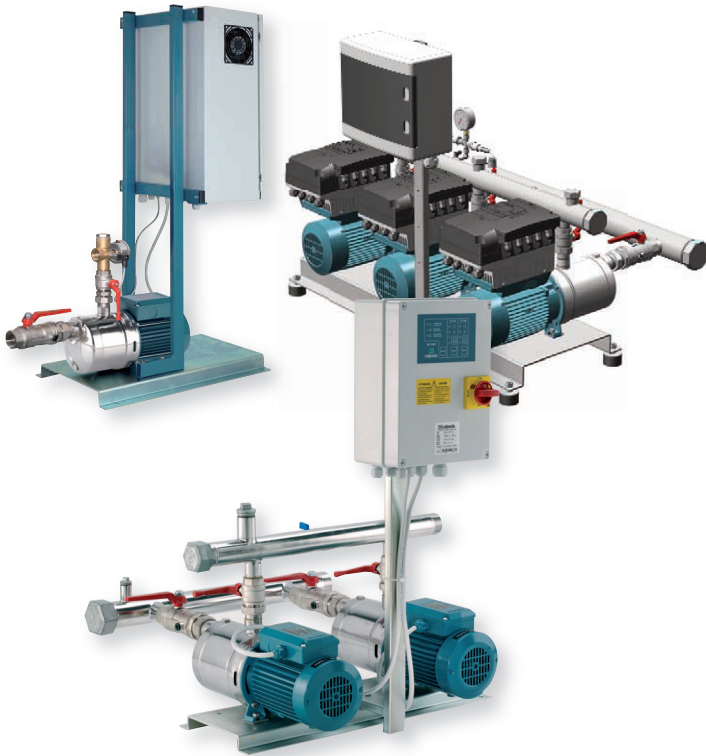
TYPE	Motor			Connection		mm							weight kg	
	kW	HP	A	DN 1	DN 2	H	h1	h2	L1	L2	m1	B		B2
BS3V 3NM 3/C/A-ITT	1,1 x3	1,5 x3	2,7 x3	G 2 1/2	G 2	876	171	316	-	325	406	950	1000	
BS3V 3NM 3/B/A-ITT	1,5 x3	2 x3	4,3 x3			876				365				
BS3V 3NM 3/A/B-ITT	2,2 x3	3 x3	5,3 x3			876				365				
BS3V 3NM 25/160B/A-ITT	1,1 x3	1,5 x3	2,7 x3	G 2	G 2	876	135	290	-	324	406	950	1000	
BS3V 3NM 25/160A/A-ITT	1,5 x3	2 x3	4,3 x3			876				365				
BS3V 3NM 25/20B/C-ITT	2,2 x3	3 x3	5,3 x3			876				370				
BS3V 3NM 25/20A/B-ITT	3 x3	4 x3	6,6 x3	G 3	G 2 1/2	883	184	316	-	397	406	950	1000	
BS3V 3NM 25/20S/C-ITT	4 x3	5,5 x3	9,6 x3			883				397				

(1) Anti-vibration pads kit supplied loose as standard

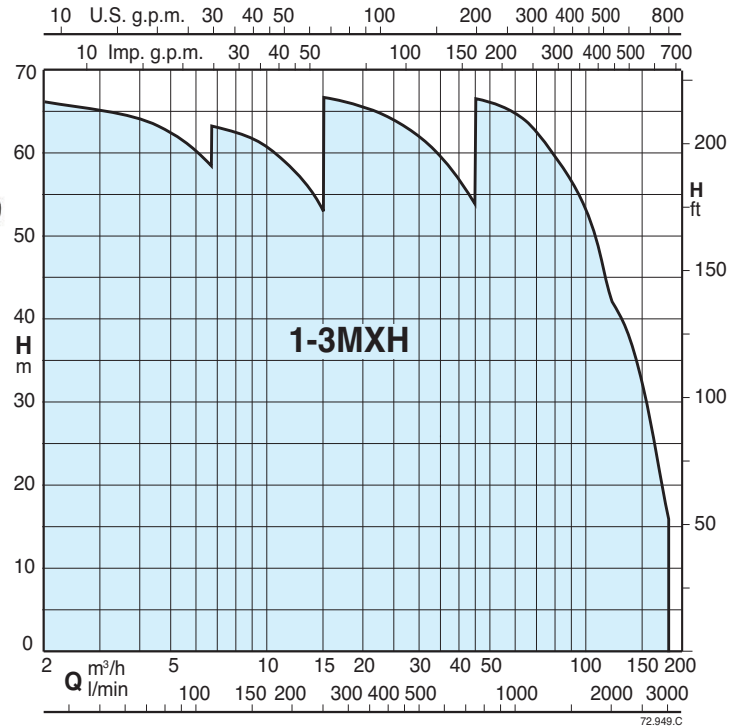


TYPE	Motor			Connection		mm							weight kg	
	kW	HP	A	DN 1	DN 2	H	h1	h2	L1	L2	m1	B		B2
BS3V 3NM 32/16B/A-ITT	1,5 x3	2 x3	4,3 x3	100	80	876	165	-	-	330	-	950	-	
BS3V 3NM 32/16A/B-ITT	2,2 x3	3 x3	5,3 x3			876	370							
BS3V 3NM 32/20D/B-ITT	2,2 x3	3 x3	5,3 x3	100	80	876	195	-	-	370	-	950	-	
BS3V 3NM 32/20C/A-ITT	3 x3	4 x3	6,6 x3			876	395							
BS3V 3NM 32/20A/B-ITT	4 x3	5,5 x3	9,6 x3	125	100	876	195	400	500	395	1100	1340	1400	
BS3V 3NM 32L/16-ITT	3 x3	4 x3	6,6 x3			876	292							
BS3V 3NM 32L/16A-ITT	4 x3	5,5 x3	9,6 x3	125	100	876	292	420	500	370	1100	1340	1400	
BS3V 3NM 32L/20B-ITT	5,5 x3	7,5 x3	10,8 x3			876	320							
BS3V 3NM 32L/20A-ITT	7,5 x3	10 x3	14,3 x3	125	100	876	320	420	520	395	1100	1340	1400	
BS3V 3NM 40/16C/B-ITT	2,2 x3	3 x3	5,3 x3			897	292							
BS3V 3NM 40/16B/C-ITT	3 x3	4 x3	6,6 x3	125	100	897	292	400	500	395	1100	1340	1400	
BS3V 3NM 40/16A/C-ITT	4 x3	5,5 x3	9,6 x3			897	292							
BS3V 3NM 40/20D/B-ITT	4 x3	5,5 x3	9,6 x3	125	100	897	320	420	520	395	1100	1340	1400	
BS3V 3NM 40/20C/B-ITT	4 x3	5,5 x3	9,6 x3			897	320							
BS3V 3NM 40/20B/A-ITT	5,5 x3	7,5 x3	10,8 x3	125	100	897	320	420	520	425	1100	1340	1400	
BS3V 3NM 40/20A/B-ITT	5,5 x3	7,5 x3	10,8 x3			897	320							
BS3V 3NM 40/20A/A-ITT	7,5 x3	10 x3	14,3 x3	150	125	897	320	448	525	425	-	1340	-	
BS3V 3NM 40/25C/C-ITT	9,2 x3	12,5 x3	18,5 x3			897	320							
BS3V 3NM 40/25B/C-ITT	11 x3	15 x3	21,5 x3	150	125	977	340	465	520	540	1100	1340	1400	
BS3V 3NM 40/25A/D-ITT	15 x3	20 x3	27,3 x3			977	340							
BS3V 3NM 50/16B/B-ITT	5,5 x3	7,5 x3	10,8 x3	150	125	977	315	448	525	425	-	1340	-	
BS3V 3NM 50/16A/B-ITT	7,5 x3	10 x3	14,3 x3			977	315							
BS3V 3NM 50/20B/C-ITT	9,2 x3	12,5 x3	18,5 x3	150	125	977	315	468	525	540	-	1340	-	
BS3V 3NM 50/20A/C-ITT	11 x3	15 x3	21,5 x3			977	315							
BS3V 3NM 50/20S/C-ITT	15 x3	20 x3	27,3 x3	150	125	977	315	493	525	620	-	1440	-	
BS3V 3NM 50/25C/C-ITT	11 x3	15 x3	21,5 x3			977	340							
BS3V 3NM 50/25B/C-ITT	15 x3	20 x3	27,3 x3	150	125	977	340	493	525	620	-	1440	-	
BS3V 3NM 50/25A/D-ITT	18,5 x3	25 x3	34 x3			977	340							
BS3V 3NM 65/16D/B-ITT	7,5 x3	10 x3	14,3 x3	250	200	977	320	555	650	425	-	1540	-	
BS3V 3NM 65/16C/C-ITT	9,2 x3	12,5 x3	18,5 x3			977	320							
BS3V 3NM 65/16B/C-ITT	11 x3	15 x3	21,5 x3	250	200	977	320	580	755	540	-	1540	-	
BS3V 3NM 65/16A/R-ITT	15 x3	20 x3	27,3 x3			977	320							
BS3V 3NM 65/16A/C-ITT	15 x3	20 x3	27,3 x3	250	200	977	320	580	755	615	-	1900	-	
BS3V 3NM 65/20C/C-ITT	15 x3	20 x3	27,3 x3			977	340							
BS3V 3NM 65/20B/D-ITT	18,5 x3	25 x3	34 x3	250	200	977	340	605	-	445	-	1900	-	
BS3V 3NM 65/20A/A-ITT	22 x3	30 x3	41 x3			977	340							
BS3V 3NM 65/25C/A-ITT	22 x3	30 x3	41 x3	250	200	977	360	605	-	725	-	1900	-	
BS3V 3NM 80/16E/B-ITT	7,5 x3	10 x3	14,3 x3			977	340							
BS3V 3NM 80/16D/C-ITT	9,2 x3	12,5 x3	18,5 x3	300	250	977	340	645	-	420	-	1900	-	
BS3V 3NM 80/16C/C-ITT	11 x3	15 x3	21,5 x3			977	340							
BS3V 3NM 80/16B/C-ITT	15 x3	20 x3	27,3 x3	300	250	977	340	670	-	545	-	1900	-	
BS3V 3NM 80/16A/D-ITT	18,5 x3	25 x3	34 x3			977	340							
BS3V 3NM 80/20B-ITT	22 x3	30 x3	41 x3	300	250	-	360	700	-	620	-	1900	-	
BS3V 3NM 80/25E-ITT	22 x3	30 x3	41 x3			-	360							
BS3V 3NM 100/20E/A-ITT	18,5 x3	25 x3	34 x3	350	300	-	-	-	-	725	-	1900	-	
BS3V 3NM 100/20D-ITT	22 x3	30 x3	41 x3			-	-							

Dimensions not binding to be verified when ordering



Coverage chart



Operation

- BS 1-6F** **Pressure boosting sets with 1 to 6 fixed speed pump. Sets with 4,5 and 6 pumps on request.**
Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.

- BS2-3V** **Pressure boosting sets with 2 to 3 variable speed pumps (with I-MAT).**
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

- BS1-3V** **Pressure boosting sets with 1 to 3 variable speed pumps (with EASYMAT).**
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

- BS1V2-5F** **Pressure boosting sets with 1 variable speed pump (with frequency converter into the control panel) and from 1 to 5 fixed speed pumps. Sets with 4,5 and 6 pumps on request.**
According to the water consumption, one or more pumps start, one at variable speed and the others at fixed speed, to grant the water quantity required at the set pressure.

- BS1-6V** **Pressure boosting sets with 1 to 6 variable speed pumps (with frequency converter into the control panel). Sets with 4,5 and 6 pumps on request.**
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

Construction

- Automatic pressure boosting plant consisting of 1 to 6 horizontal multi-stage pumps complete with ball, non return valve on the suction side and ball valves on the delivery side.
- Suction and delivery manifolds for boosting sets with 2,3 pumps:**
 - stainless steel AISI 304.
- Connections are located on the delivery manifold for the installation of vessels G1 connection.

Electrical control boards:

- with microprocessor for fixed speed pump units. Motor starting is D.O.L. up to 5,5 kW and Y/Δ for power rating 7,5 kW.
- with frequency converter for variable speed pump units.

The unit includes one pressure gauge and three adjustable differential pressure switches or pressure transducer.

Applications

To supply water in civil and industrial buildings.
As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

- 2-pole induction motors, 50 Hz, n ≈ 2900 rpm, suitable for operation with frequency converter.
- Three-phase 230/400V ± 10% up to 3 kW;
400/690V ± 10% for 4 kW to 7,5 kW;
- Single-phase 230 V ± 10%, with thermal protector.
- Insulation class F.
- Protection IP 54.
- Constructed in accordance with: IEC 60034.
- Other voltages and frequencies on request.

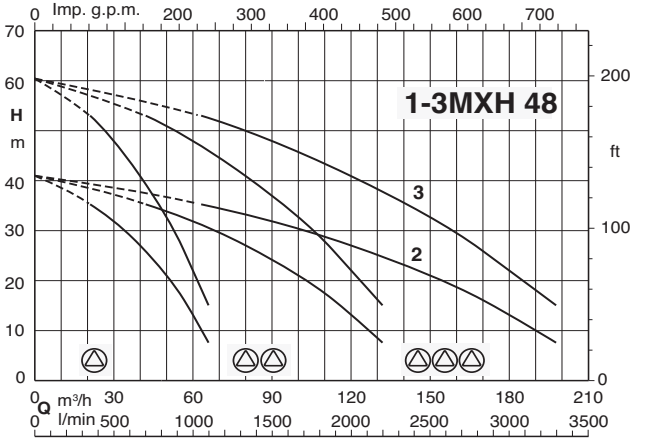
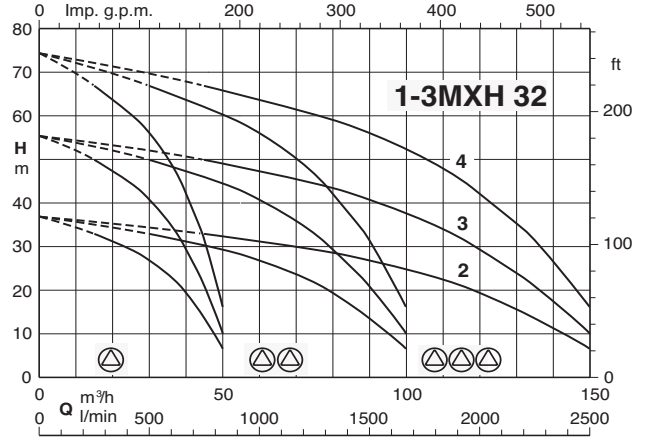
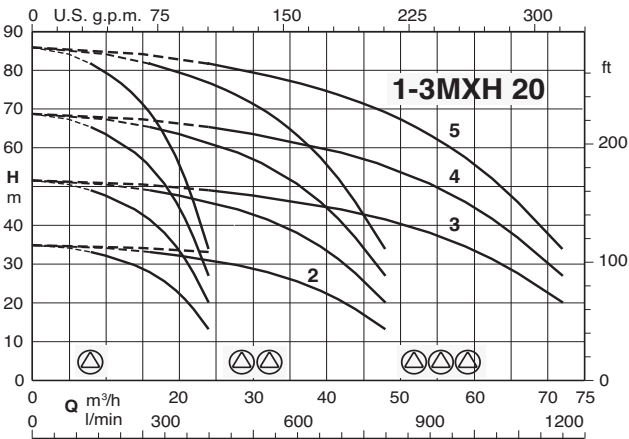
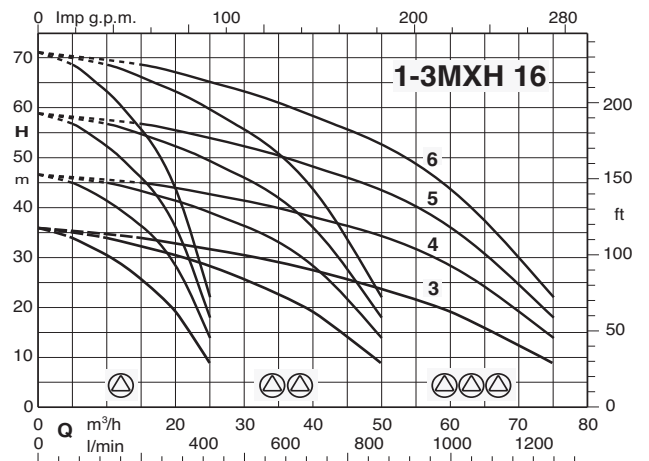
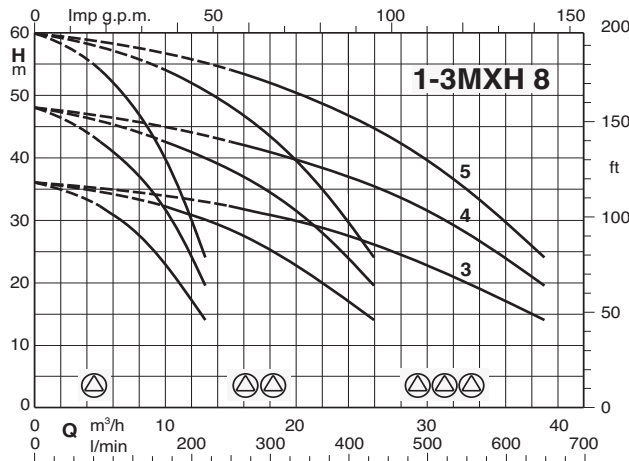
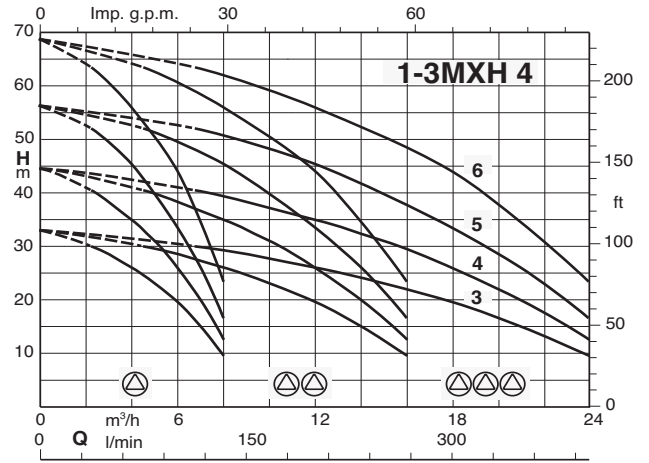
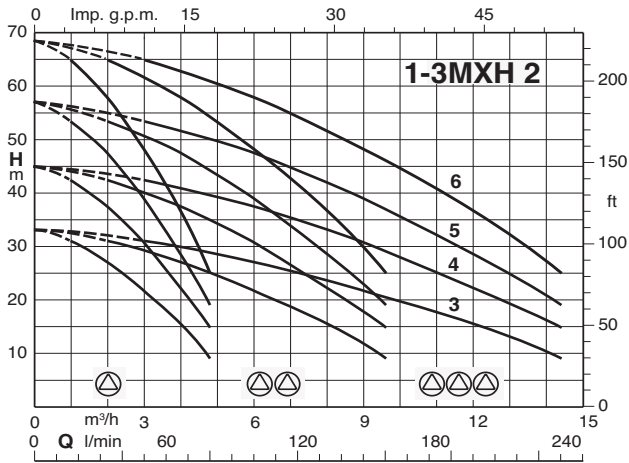
Vessels on request

When installing the unit, connect in the delivery section to a diaphragm or galvanised tank.
The recommended sized are shown in the following page.

Special features on request

Pressure boosting sets with 4,5 and 6 pumps.

Coverage chart



Performance

BS1F

BSM1F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Pres. switch 1 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	Q l/min	H m		
BS1F 1MXH 203E	BSM1F 1MXHM 203E	0,45	0,6	1,4	2,8	70	14	24	100
BS1F 1MXH 204/A	BSM1F 1MXHM 204/A	0,55	0,75	2,8	4	55	29	40	100
BS1F 1MXH 205/B	BSM1F 1MXHM 205/A	0,75	1	3,5	5	56	36	50	100
BS1F 1MXH 206/C	BSM1F 1MXHM 206	1,1	1,5	4	6	61	41	50	100
BS1F 1MXH 403/A	BSM1F 1MXHM 403/A	0,55	0,75	1,4	2,6	122	14	60	100
BS1F 1MXH 404/B	BSM1F 1MXHM 404/A	0,75	1	2,4	3,6	107	24	80	200
BS1F 1MXH 405/C	BSM1F 1MXHM 405	1,1	1,5	3,4	4,9	102	35	100	200
BS1F 1MXH 406/A	BSM1F 1MXHM 406	1,5	2	4	6	111	41	100	200
BS1F 1MXH 803/A	BSM1F 1MXHM 803	1,1	1,5	1,6	2,8	209	16	100	300
BS1F 1MXH 804/A	BSM1F 1MXHM 804	1,5	2	2,8	4	186	29	200	300
BS1F 1MXH 805/B		1,8	2,5	3,5	5	186	36	200	500
BS1F 1MXH 1603/B		1,8	2,5	1,5	3	382	15	300	500
BS1F 1MXH 1604/A		3	4	2,8	4	353	29	500	1000
BS1F 1MXH 1605/B		3,7	5	3,8	5,3	331	39	500	1000
BS1F 1MXH 1606/B		4	5,5	4,5	6,5	329	46	500	800
BS1F 1MXH 2002/A		1,8	2,5	1,5	2,8	399	15	300	500
BS1F 1MXH 2003		3	4	3	4,5	367	31	500	1000
BS1F 1MXH 2004/A		4	5,5	4,4	5,9	348	45	1000	1500
BS1F 1MXH 2005		5,5	7,5	5,5	7	343	56	1000	1500
BS1F 1MXH-F 3202/B		4	5,5	1,5	3	770	15	1000	2000
BS1F 1MXH-F 3203/A		5,5	7,5	3	4,5	682	31	1000	2000
BS1F 1MXH-F 3204/A		7,5	10	4	6	725	41	1500	3000
BS1F 1MXH-F 4802/A		5,5	7,5	1,5	3	975	15	1500	2000
BS1F 1MXH-F 4803/A		7,5	10	3	4,5	886	31	2000	3000

* Maximum pumps flow at minimum setting pressure switch.

BS2F

BSM2F

Mains: 400V 3~ Motor: 400V 3~	Alimentazione 230V 1~ Motore 230V 1~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	min	max	Q l/min	H m		
BS2F 2MXH 203E	BSM2F 2MXHM 203E	0,45 x2	0,6 x2	1,4	2,8	1	2,4	156	10	24	100
BS2F 2MXH 204/A	BSM2F 2MXHM 204/A	0,55 x2	0,75 x2	2,8	4	2,4	3,6	128	24	40	100
BS2F 2MXH 205/B	BSM2F 2MXHM 205/A	0,75 x2	1 x2	3,5	5	3	4,5	130	31	50	100
BS2F 2MXH 206/C	BSM2F 2MXHM 206	1,1 x2	1,5 x2	4	6	3,5	5,5	136	36	50	100
BS2F 2MXH 403/A	BSM2F 2MXHM 403/A	0,55 x2	0,75 x2	1,4	2,6	1	2,2	264	10	60	100
BS2F 2MXH 404/B	BSM2F 2MXHM 404/A	0,75 x2	1 x2	2,4	3,6	2	3,2	237	20	80	200
BS2F 2MXH 405/C	BSM2F 2MXHM 405	1,1 x2	1,5 x2	3,4	4,9	3	4,5	224	31	100	200
BS2F 2MXH 406/A	BSM2F 2MXHM 406	1,5 x2	2 x2	4	6	3,5	5,5	241	36	100	200
BS2F 2MXH 803/A	BSM2F 2MXHM 803	1,1 x2	1,5 x2	1,6	2,8	1,2	2,4	442	12	100	300
BS2F 2MXH 804/A	BSM2F 2MXHM 804	1,5 x2	2 x2	2,8	4	2,4	3,6	406	24	200	300
BS2F 2MXH 805/B		1,8 x2	2,5 x2	3,5	5	3	4,5	405	31	200	500
BS2F 2MXH 1603/B		1,8 x2	2,5 x2	1,5	3	1,2	2,7	805	12	300	500
BS2F 2MXH 1604/A		3 x2	4 x2	2,8	4	2,4	3,6	770	24	500	1000
BS2F 2MXH 1605/B		3,7 x2	5 x2	3,8	5,3	3,4	4,9	728	35	500	1000
BS2F 2MXH 1606/B		4 x2	5,5 x2	4,5	6,5	4	6	725	41	500	800
BS2F 2MXH 2002/A		1,8 x2	2,5 x2	1,5	2,8	1,2	2,5	797	12	300	500
BS2F 2MXH 2003		3 x2	4 x2	3	4,5	2,5	4	785	25	500	1000
BS2F 2MXH 2004/A		4 x2	5,5 x2	4,4	5,9	3,9	5,4	752	40	1000	1500
BS2F 2MXH 2005		5,5 x2	7,5 x2	5,5	7	5,1	6,6	725	52	1000	1500
BS2F 2MXH-F 3202/B		4 x2	5,5 x2	1,5	3	1,2	2,7	1615	12	1000	2000
BS2F 2MXH-F 3203/A		5,5 x2	7,5 x2	3	4,5	2,5	4	1498	25	1000	2000
BS2F 2MXH-F 3204/A		7,5 x2	10 x2	4	6	3,5	5,5	1549	36	1500	3000
BS2F 2MXH-F 4802/A		5,5 x2	7,5 x2	1,5	3	1,2	2,7	2064	12	1500	2000
BS2F 2MXH-F 4803/A		7,5 x2	10 x2	3	4,5	2,5	4	1946	25	2000	3000

* Maximum pumps flow at minimum setting pressure of 2nd pressure switch.

BS3F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Pres. switch 3 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	min	max	min	max	Q l/min	H m		
BS3F 3MXH 203E	0,45 x3	0,6 x3	1,4	2,8	1	2,4	0,6	2	253	6	24	100
BS3F 3MXH 204/A	0,55 x3	0,75 x3	2,8	4	2,4	3,6	2	3,2	215	20	40	100
BS3F 3MXH 205/B	0,75 x3	1 x3	3,5	5	3	4,5	2,5	4	217	25	50	100
BS3F 3MXH 206/C	1,1 x3	1,5 x3	4	6	3,5	5,5	3	5	223	31	50	100
BS3F 3MXH 403/A	0,55 x3	0,75 x3	1,4	2,6	1	2,2	0,6	1,8	413	6	60	100
BS3F 3MXH 404/B	0,75 x3	1 x3	2,4	3,6	2	3,2	1,6	2,8	382	16	80	200
BS3F 3MXH 405/C	1,1 x3	1,5 x3	3,4	4,9	3	4,5	2,6	4,1	361	27	100	200
BS3F 3MXH 406/A	1,5 x3	2 x3	4	6	3,5	5,5	3	5	383	31	100	200
BS3F 3MXH 803/A	1,1 x3	1,5 x3	1,8	2,8	1,4	2,4	1	2	676	10	100	300
BS3F 3MXH 804/A	1,5 x3	2 x3	2,8	4	2,4	3,6	2	3,2	645	20	200	300
BS3F 3MXH 805/B	1,8 x3	2,5 x3	3,5	5	3	4,5	2,5	4	643	25	200	500
BS3F 3MXH 1603/B	1,8 x3	2,5 x3	1,5	3	1,2	2,7	0,9	2,4	1247	9	300	500
BS3F 3MXH 1604/A	3 x3	4 x3	2,8	4	2,4	3,6	2	3,2	1217	20	500	1000
BS3F 3MXH 1605/B	3,7 x3	5 x3	3,8	5,3	3,4	4,9	3	4,5	1165	31	500	1000
BS3F 3MXH 1606/B	4 x3	5,5 x3	4,5	6,5	4	6	3,5	5,5	1166	36	500	800
BS3F 3MXH 2003	3 x3	4 x3	3	4,5	2,5	4	2	3,5	1201	20	500	1000
BS3F 3MXH 2004/A	4 x3	5,5 x3	4,4	5,9	3,9	5,4	3,4	4,9	1181	35	1000	1500
BS3F 3MXH 2005	5,5 x3	7,5 x3	5,5	7	5,1	6,6	4,7	6,2	1134	47	1000	1500
BS3F 3MXH-F 3202/B	4 x3	5,5 x3	1,5	3	1,2	2,7	0,9	2,4	2486	9	1000	2000
BS3F 3MXH-F 3203/A	5,5 x3	7,5 x3	3	4,5	2,5	4	2	3,5	2389	20	1000	2000
BS3F 3MXH-F 3204/A	7,5 x3	10 x3	4	6	3,5	5,5	3	5	2429	31	1500	3000
BS3F 3MXH-F 4802/A	5,5 x3	7,5 x3	1,5	3	1,2	2,7	0,9	2,4	3237	9	1500	2000
BS3F 3MXH-F 4803/A	7,5 x3	10 x3	3	4,5	2,5	4	2	3,5	3140	20	2000	3000

* Maximum pumps flow at minimum setting pressure of 3rd pressure switch.

Performance

BS..

PUMPS Nos						PUMP TYPE	P ₂ For each pump	
1	2	3	4	5	6		kW	HP
BS1V	BS2V BS1V1F BSM1V1F* BSM2V**	BS3V BS1V2F	BS4V BS1V3F	BS5V BS1V4F	BS6V BS1V5F	MXH 203E	0,45	0,6
						MXH 204/A	0,55	0,75
						MXH 205/B	0,75	1
						MXH 206/C	1,1	1,5
						MXH 403/A	0,55	0,75
						MXH 404/B	0,75	1
						MXH 405/C	1,1	1,5
						MXH 406/A	1,5	2
						MXH 803/A	1,1	1,5
						MXH 804/A	1,5	2
						MXH 805/B	1,8	2,5
						MXH 1603/B	1,8	2,5
						MXH 1604/A	3	4
						MXH 1605/B	3,7	5
						MXH 1606/B	4	5,5
						MXH 2002/A	1,8	2,5
						MXH 2003	3	4
						MXH 2004/A	4	5,5
						MXH 2005	5,5	7,5
						MXH-F 3202/B	4	5,5
MXH-F 3203/A	5,5	7,5						
MXH-F 3204/A	7,5	10						
MXH-F 4802/A	5,5	7,5						
MXH-F 4803/A	7,5	10						

BS.. ..-ITT

PUMPS Nos		PUMP TYPE	P ₂ For each pump	
2	3		kW	HP
BS2V -ITT	BS3V -ITT	MXH 204/A-ITT	0,55	0,75
		MXH 205/B-ITT	0,75	1
		MXH 206/C-ITT	1,1	1,5
		MXH 403/A-ITT	0,55	0,75
		MXH 404/B-ITT	0,75	1
		MXH 405/C-ITT	1,1	1,5
		MXH 406/A-ITT	1,5	2
		MXH 803/A-ITT	1,1	1,5
		MXH 804/A-ITT	1,5	2
		MXH 805/B-ITT	1,8	2,5
		MXH 1603/B-ITT	1,8	2,5
		MXH 1604/A-ITT	3	4
		MXH 1605/B-ITT	3,7	5
		MXH 1606/B-ITT	4	5,5
		MXH 2001/A-ITT	1,1	1,5
		MXH 2002/A-ITT	1,8	2,5
		MXH 2003-ITT	3	4
		MXH 2004/A-ITT	4	5,5
		MXH 2005-ITT	5,5	7,5
		MXH-F 3201/B-ITT	2,2	3
MXH-F 3202/B-ITT	4	5,5		
MXH-F 3203/A-ITT	5,5	7,5		
MXH-F 3204/A-ITT	7,5	10		
MXH-F 4801/A-ITT	3	4		
MXH-F 4802/A-ITT	5,5	7,5		
MXH-F 4803/A-ITT	7,5	10		

(*) SYSTEMS WITH:

- 1 variable speed pump three-phase motor
- 1 fixed speed pump single-phase motor
- Power supply to control panel 230 V single-phase

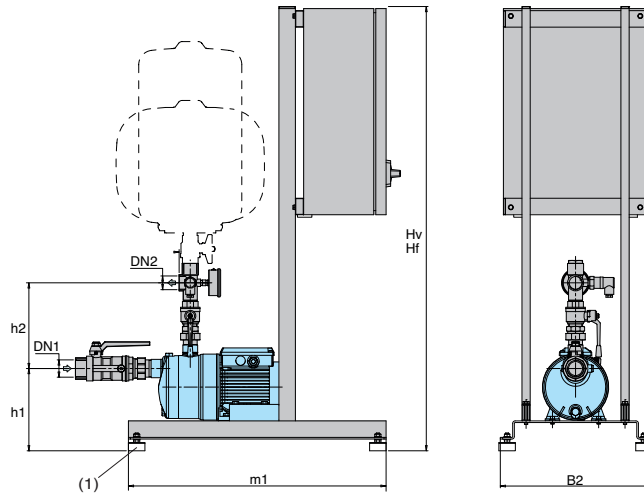
(**) Three-phase motor 230 V.

- Power supply to control panel: - 230 V three-phase
- 230 V single-phase
- Frequency converter output is always 230 V three-phase.

BS.. ..-EMT, EMM

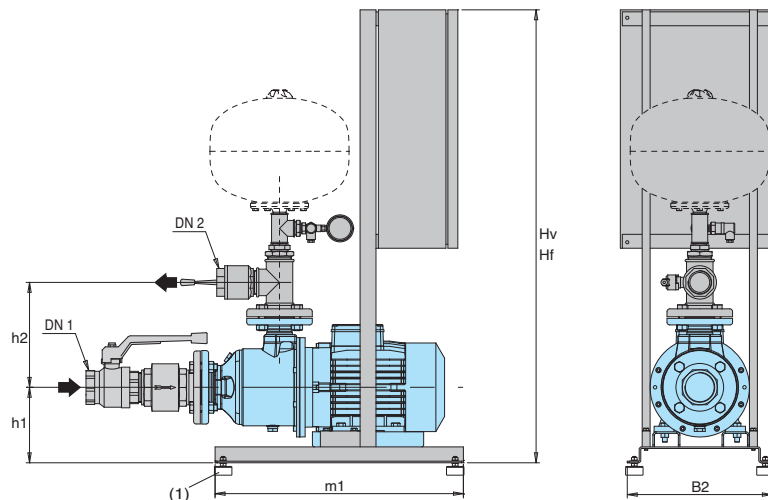
PUMPS Nos			PUMP TYPE	P ₂ For each pump	
1	2	3		kW	HP
BSM1V -EMT -EMM	BSM2V -EMT	BSM3V -EMT	MXH 203E-EMT	0,45	0,6
			MXH 204/A-EMT	0,55	0,75
			MXH 205/B-EMT	0,75	1
			MXH 206/C-EMT	1,1	1,5
			MXH 403/A-EMT	0,55	0,75
			MXH 404/B-EMT	0,75	1
			MXH 405/C-EMT	1,1	1,5
			MXH 406/A-EMT	1,5	2
			MXH 803/A-EMT	1,1	1,5
			MXH 804/A-EMT	1,5	2
			MXH 805/B-EMT	1,8	2,5
			MXH 1602/A-EMT	1,5	2
			MXH 1603/B-EMT	1,8	2,5

Dimensions and weights



TYPE	Connection		mm						weight kg
	DN 1	DN 2	Hv	Hf	h1	h2	m1	B2	
BS1.. 1MXH 203E									-
BS1.. 1MXH 204/A	G 1 1/4	G 1	1045	875	170	145	625	365	
BS1.. 1MXH 205/B									
BS1.. 1MXH 206/C									
BS1.. 1MXH 403/A									
BS1.. 1MXH 404/B	G 1 1/4	G 1	1045	875	170	145	625	365	
BS1.. 1MXH 405/C									
BS1.. 1MXH 406/A									
BS1.. 1MXH 803/A									
BS1.. 1MXH 804/A	G 1 1/2	G 1	1045	875	170	145	625	365	
BS1.. 1MXH 805/B									
BS1.. 1MXH 1603/B									
BS1.. 1MXH 1604/A	G 1 1/2	G 1 1/2	1045	875	175	195	625	365	
BS1.. 1MXH 1605/B									
BS1.. 1MXH 1606/B									

Dimensions not binding to be verified when ordering (1) Anti-vibration pads kit supplied loose as standard

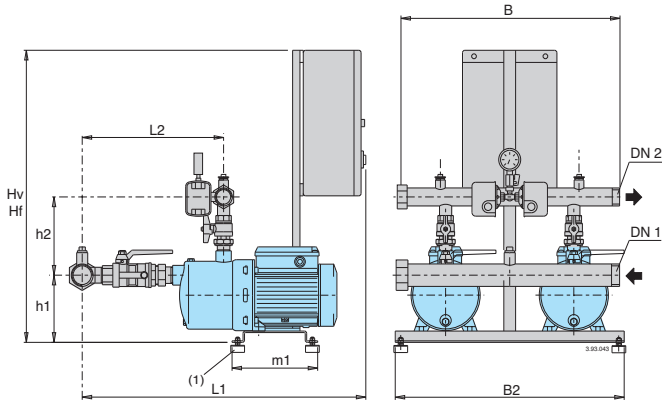


TYPE	Connection		mm						weight kg
	DN 1	DN 2	Hv	Hf	h1	h2	m1	B2	
BS1.. 1MXH 2002/A									
BS1.. 1MXH 2003	G 2	G 1 1/2	1045	875	195	197	625	365	
BS1.. 1MXH 2004/A									
BS1.. 1MXH 2005			1145	1145					
BS1.. 1MXH-F 3202/B									
BS1.. 1MXH-F 3203/A	65	50	1045	875	195	265	625	365	
BS1.. 1MXH-F 3204/A									
BS1.. 1MXH-F 4802/A	80	65	1145	1145	195	275	625	365	
BS1.. 1MXH-F 4803/A									

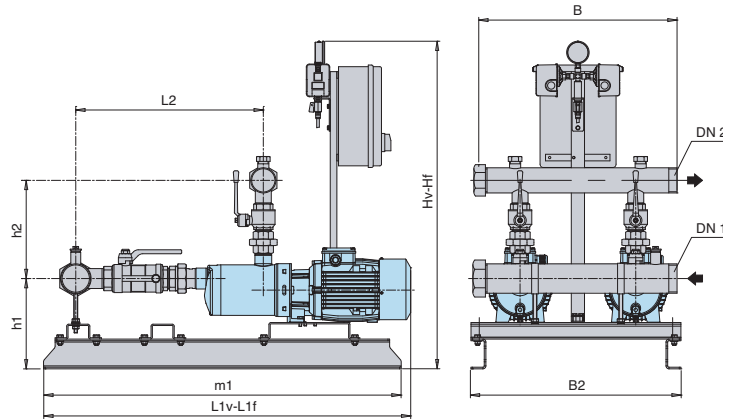
Dimensions not binding to be verified when ordering (1) Anti-vibration pads kit supplied loose as standard

Dimensions and weights

BS.. 2MXH 2,4,8



BS.. 2MXH 16

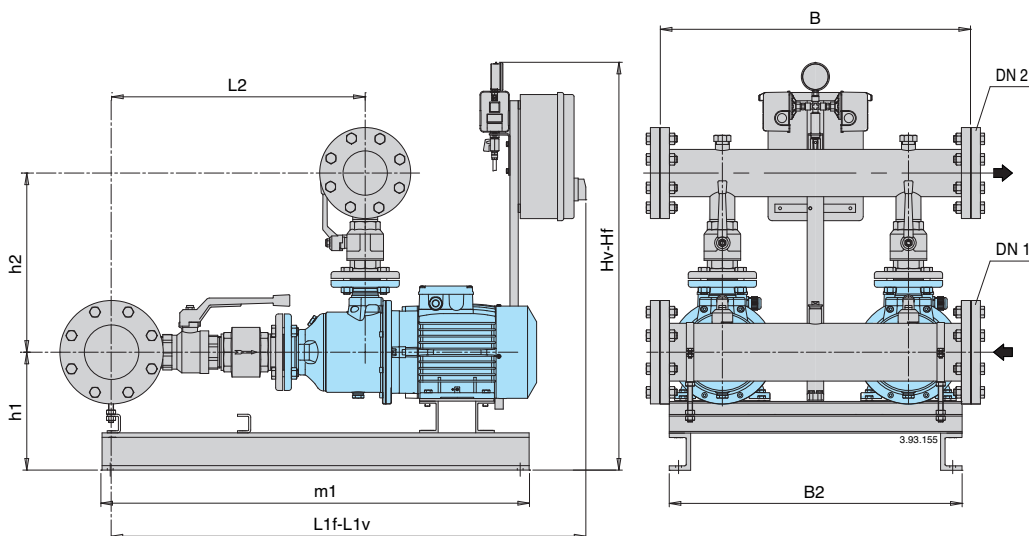


TYPE	Connection		mm									weight	
	DN 1	DN 2	Hf	Hv	h1	h2	L1f	L1v	L2	m1	B2	B	kg
BS.. 2MXH 203E	G 2	G 1 1/2	840	-	162	202	773	-	335				42
BS.. 2MXH 204/A	G 2	G 1 1/2	840	-	162	202	796	-	358				47
BS.. 2MXH 205/B	G 2	G 1 1/2	840	-	162	202	820	-	382				50
BS.. 2MXH 206/C	G 2	G 1 1/2	840	-	162	202	845	-	406				54
BS.. 2MXH 403/A	G 2	G 1 1/2	840	-	162	202	773	-	335				46
BS.. 2MXH 404/B	G 2	G 1 1/2	840	-	162	202	796	-	358				49
BS.. 2MXH 405/C	G 2	G 1 1/2	840	-	162	202	820	-	382	235	625	600	53
BS.. 2MXH 406/A	G 2	G 1 1/2	840	-	162	202	845	-	406				57
BS.. 2MXH 803/A	G 2 1/2	G 2	840	-	162	208	866	-	428				61
BS.. 2MXH 804/A	G 2 1/2	G 2	840	-	162	208	896	-	458				66
BS.. 2MXH 805/B	G 2 1/2	G 2	840	-	162	208	926	-	488				68
BS.. 2MXH 1603/B	G 3	G 2 1/2	1040	980	258	281	1050	1115	490				-
BS.. 2MXH 1604/A	G 3	G 2 1/2	1040	980	273	281	1085	1150	530	1090	625	600	-
BS.. 2MXH 1605/B	G 3	G 2 1/2	1040	980	273	281	1120	1185	565				-
BS.. 2MXH 1606/B	G 3	G 2 1/2	1040	980	273	281	1178	1245	605				-
BS.. 2MXH 2002/A	G 3	G 2 1/2	1040	980	220	351	1155	1220	484				-
BS.. 2MXH 2003	G 3	G 2 1/2	1040	980	230	351	1155	1220	503	1090	625	600	-
BS.. 2MXH 2004/A	G 3	G 2 1/2	1040	980	230	351	1180	1245	537				-
BS.. 2MXH 2005	G 3	G 2 1/2	1040	980	252	351	1230	1295	572				-

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard

Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

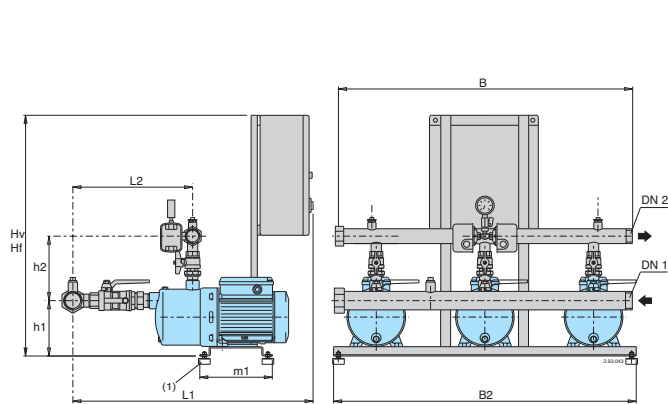


TYPE	Connection		mm									weight	
	DN 1	DN 2	Hf	Hv	h1	h2	L1f	L1v	L2	m1	B2	B	kg
BS.. 2MXH-F 3202/B	100	80	1510	-	298	402	1265	-	558	1175			214
BS.. 2MXH-F 3203	100	80	1510	-	298	402	1270	-	604	1150			243
BS.. 2MXH-F 3204/A	100	80	1510	-	298	402	1320	-	650	1175	750	750	260
BS.. 2MXH-F 4802/A	125	100	1510	-	298	465	1380	-	654	1175			268
BS.. 2MXH-F 4803/A	125	100	1510	-	298	465	1420	-	716	1220			286

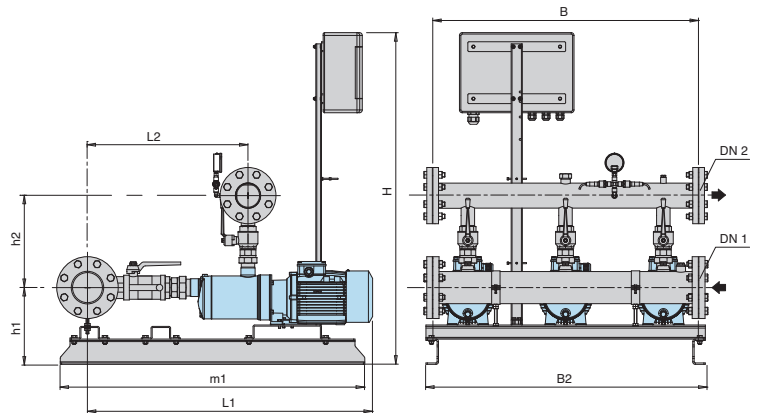
Dimensions not binding to be verified when ordering

Dimensions and weights

BS.. 3MXH 2,4,8



BS.. 3MXH 16



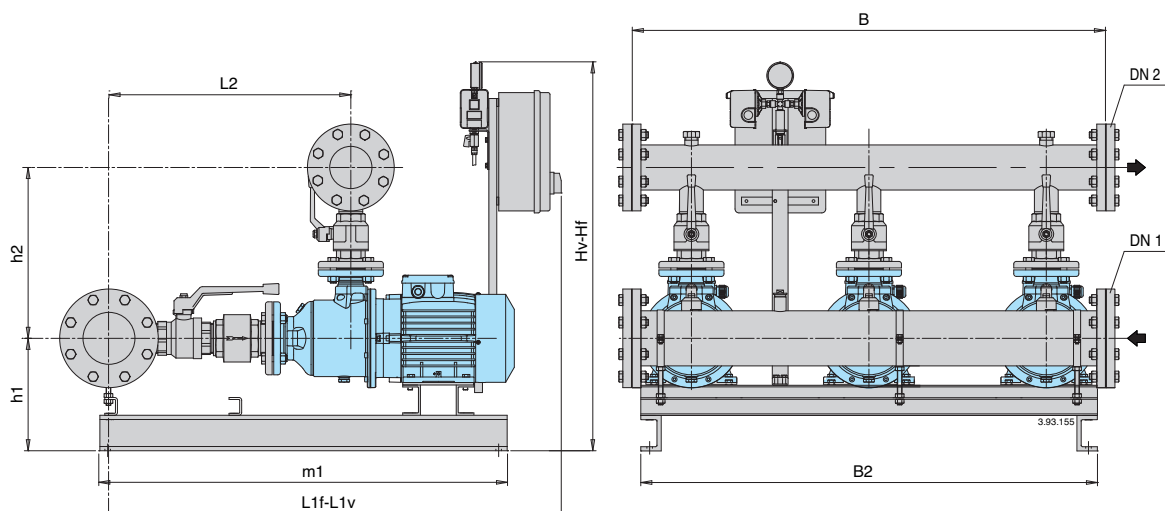
TYPE	Connection		mm										weight kg
	DN 1	DN 2	Hf	Hv	h1	h2	L1f	L1v	L2	m1	B2	B	
BS.. 3MXH 203E	G 2 1/2	G 2	840	-	162	202	773	-	335	305	1000	950	-
BS.. 3MXH 204/A	G 2 1/2	G 2	840	-	162	202	796	-	358				-
BS.. 3MXH 205/B	G 2 1/2	G 2	840	-	162	202	820	-	382				-
BS.. 3MXH 206/C	G 2 1/2	G 2	840	-	162	202	845	-	406				-
BS.. 3MXH 403/A	G 2 1/2	G 2	840	-	162	202	773	-	335				-
BS.. 3MXH 404/B	G 2 1/2	G 2	840	-	162	202	796	-	358				-
BS.. 3MXH 405/C	G 2 1/2	G 2	840	-	162	202	820	-	382				-
BS.. 3MXH 406/A	G 2 1/2	G 2	840	-	162	202	845	-	406				-
BS.. 3MXH 803/A	G 3	G 2 1/2	840	-	162	208	866	-	428				-
BS.. 3MXH 804/A	G 3	G 2 1/2	840	-	162	208	896	-	458				-
BS.. 3MXH 805/B	G 3	G 2 1/2	840	-	162	208	926	-	488	-			
BS.. 3MXH 1603/B	DN 100	DN 80	1060	1550	258	327	1096	1100	500	1090	1000	950	-
BS.. 3MXH 1604/A	DN 100	DN 80	1060	1550	273	327	1131	1135	538				-
BS.. 3MXH 1605/B	DN 100	DN 80	1060	1550	273	327	1167	1171	575				-
BS.. 3MXH 1606/B	DN 100	DN 80	1060	1550	273	327	1227	1231	613				-
BS.. 3MXH 2002/A	DN 100	DN 80	1060	1550	290	398	1166	1170	499	1090	1000	950	-
BS.. 3MXH 2003	DN 100	DN 80	1060	1550	290	398	1166	1170	518				-
BS.. 3MXH 2004/A	DN 100	DN 80	1060	1550	290	398	1226	1230	553				-
BS.. 3MXH 2005	DN 100	DN 80	1060	1550	252	398	1241	1245	587				-

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard

Hf= Fixed speed boosting sets

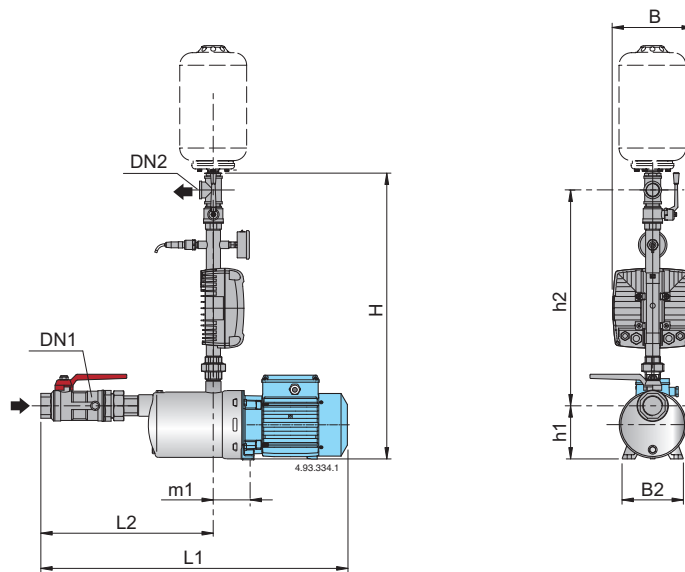
Hv= Variable speed boosting sets



TYPE	Connection		mm										weight kg
	DN 1	DN 2	Hf	Hv	h1	h2	L1f	L1v	L2	m1	B2	B	
BS.. 3MXH-F 3202/B	125	100	1510	-	318	415	1265	-	565	1175	1150	1200	-
BS.. 3MXH-F 3203/A	125	100	1510	-	318	415	1270	-	617	1060			-
BS.. 3MXH-F 3204/A	125	100	1510	-	318	415	1320	-	660	1175			-
BS.. 3MXH-F 4802/A	150	125	1510	-	318	465	1380	-	665	1175			-
BS.. 3MXH-F 4803/A	150	125	1510	-	318	465	1420	-	725	1220	-		

Dimensions not binding to be verified when ordering

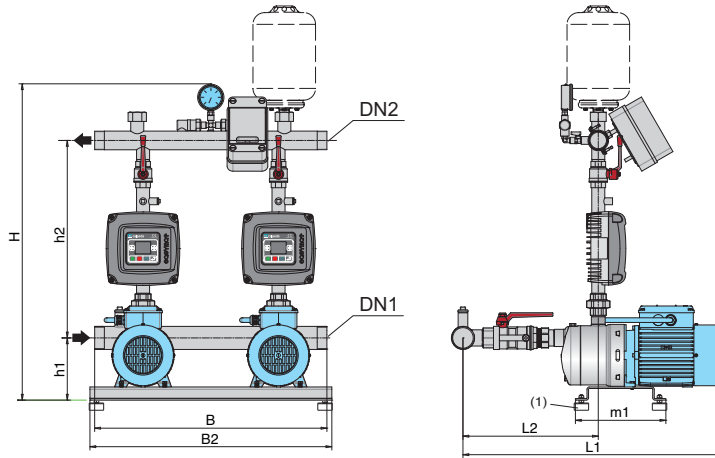
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	Mains: 1~ 230V Motor: 1~ 230V	A	P2		Connection		mm							
					kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM1V 1MXH 203E-EMT	3,2	2,4	BSM1V 1MXHM 203E-EMM	3	0,45	0,6	G 1 1/4	G 1	708	127	516	511	274	88	165	146
BSM1V 1MXH 204/A-EMT	4	2,8	BSM1V 1MXHM 204/A-EMM	4,2	0,55	0,75						561	298			
BSM1V 1MXH 205/B-EMT	5	3,5	BSM1V 1MXHM 205/A-EMM	5,4	0,75	1						585	322			
BSM1V 1MXH 206/C-EMT	6,3	4,7	BSM1V 1MXHM 206-EMM	7,4	1,1	1,5						609	346			
BSM1V 1MXH 403/A-EMT	4	2,8	BSM1V 1MXHM 403/A-EMM	4,2	0,55	0,75	G 1 1/4	G 1	708	127	516	537	274	88	165	146
BSM1V 1MXH 404/B-EMT	5	3,5	BSM1V 1MXHM 404/A-EMM	5,4	0,75	1						561	298			
BSM1V 1MXH 405/C-EMT	6,7	4,7	BSM1V 1MXHM 405-EMM	7,4	1,1	1,5						585	322			
BSM1V 1MXH 406/A-EMT	8	6,2			1,5	2						680	346			
BSM1V 1MXH 803/A-EMT	7,1	5	BSM1V 1MXHM 803-EMM	7,4	1,1	1,5	G 1 1/2	G 1	708	127	516	657	323	88	165	146
BSM1V 1MXH 804/A-EMT	8,6	6,2			1,5	2						687	353			
BSM1V 1MXH 805/B-EMT	10,7	7,5			1,8	2,5						717	383			
BSM1V 1MXH 1602/A-EMT	9,1	6,2			1,5	2	G 2	G 1 1/2	750	117	560	752	404	101	165	146
BSM1V 1MXH 1603/B-EMT	10,7	7,5			1,8	2,5						752	404			

Dimensions not binding to be verified when ordering

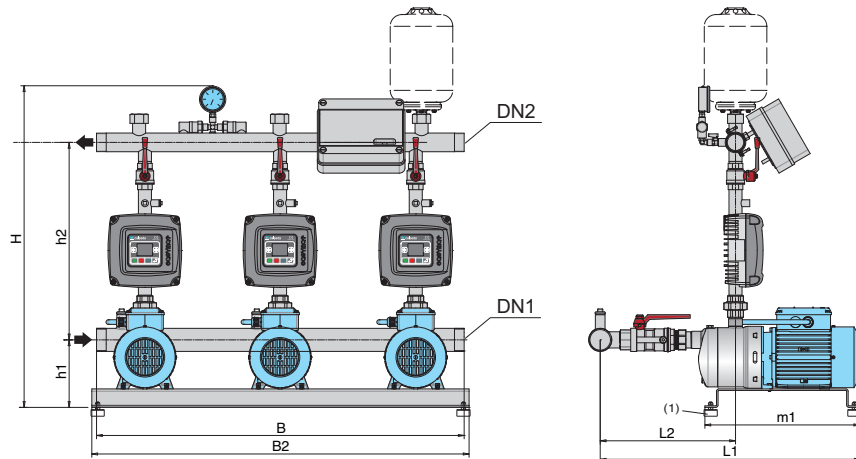
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P2		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM2V 2MXH 203E-EMT	2x3,2	2x2,4	2x0,45	2x0,6	G 2	G 1 1/2	848	161	506	563	326	240	600	625
BSM2V 2MXH 204/A-EMT	2x4	2x2,8	2x0,55	2x0,75						613	350			
BSM2V 2MXH 205/B-EMT	2x5	2x3,5	2x0,75	2x1						637	374			
BSM2V 2MXH 206/C-EMT	2x6,3	2x4,7	2x1,1	2x1,5	G 2	G 1 1/2	848	161	506	661	398	240	600	625
BSM2V 2MXH 403/A-EMT	2x4	2x2,8	2x0,55	2x0,75						589	326			
BSM2V 2MXH 404/B-EMT	2x5	2x3,5	2x0,75	2x1						613	350			
BSM2V 2MXH 405/C-EMT	2x6,7	2x4,7	2x1,1	2x1,5	G 2 1/2	G 2	854	161	512	637	374	240	600	625
BSM2V 2MXH 406/A-EMT	2x8	2x6,2	2x1,5	2x2						732	398			
BSM2V 2MXH 803/A-EMT	2x7,1	2x5	2x1,1	2x1,5						727	393			
BSM2V 2MXH 804/A-EMT	2x8,6	2x6,2	2x1,5	2x2	G 2 1/2	G 2	854	161	512	757	423	240	600	625
BSM2V 2MXH 805/B-EMT	2x10,7	2x7,5	2x1,8	2x2,5						787	453			
BSM2V 2MXH 1602/A-EMT	2x9,1	2x6,2	2x1,5	2x2						829	481			
BSM2V 2MXH 1603/B-EMT	2x10,7	2x7,5	2x1,8	2x2,5	G 3	G 2 1/2	882	151	551	829	481	240	600	625

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard



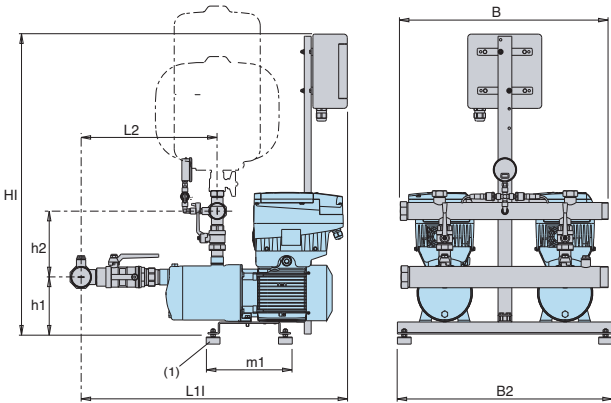
Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P2		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM3V 3MXH 203E-EMT	3x3,2	3x2,4	3x0,45	3x0,6	G 2	G 1 1/2	848	161	506	563	326	240	600	625
BSM3V 3MXH 204/A-EMT	3x4	3x2,8	3x0,55	3x0,75						613	350			
BSM3V 3MXH 205/B-EMT	3x5	3x3,5	3x0,75	3x1						637	374			
BSM3V 3MXH 206/C-EMT	3x6,3	3x4,7	3x1,1	3x1,5	G 2	G 1 1/2	848	161	506	661	398	240	600	625
BSM3V 3MXH 403/A-EMT	3x4	3x2,8	3x0,55	3x0,75						589	326			
BSM3V 3MXH 404/B-EMT	3x5	3x3,5	3x0,75	3x1						613	350			
BSM3V 3MXH 405/C-EMT	3x6,7	3x4,7	3x1,1	3x1,5	G 2 1/2	G 2	854	161	512	637	374	240	600	625
BSM3V 3MXH 406/A-EMT	3x8	3x6,2	3x1,5	3x2						732	398			
BSM3V 3MXH 803/A-EMT	3x7,1	3x5	3x1,1	3x1,5						727	393			
BSM3V 3MXH 804/A-EMT	3x8,6	3x6,2	3x1,5	3x2	G 2 1/2	G 2	854	161	512	757	423	240	600	625
BSM3V 3MXH 805/B-EMT	3x10,7	3x7,5	3x1,8	3x2,5						787	453			
BSM3V 3MXH 1602/A-EMT	3x9,1	3x6,2	3x1,5	3x2						829	481			
BSM3V 3MXH 1603/B-EMT	3x10,7	3x7,5	3x1,8	3x2,5	G 3	G 2 1/2	882	151	551	829	481	240	600	625

Dimensions not binding to be verified when ordering

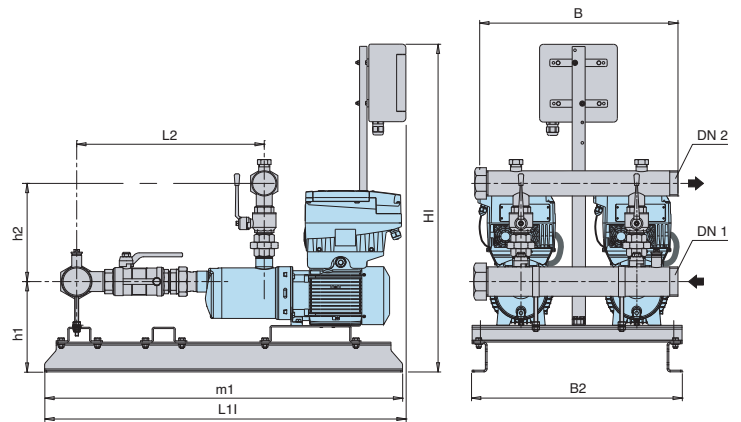
(1) Anti-vibration pads kit supplied loose as standard

Dimensions and weights

BS.. 2MXH 2,4,8



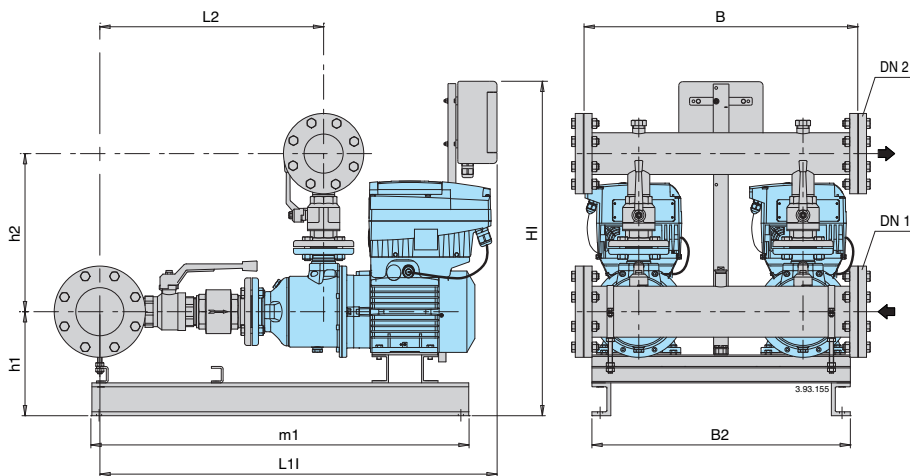
BS.. 2MXH 16



TYPE	Motor			Connection		mm							weight kg	
	kW	HP	A	DN 1	DN 2	HI	h1	h2	L11	L2	m1	B2		B
BS2V 2MXH 204/A-ITT	0,55 x2	0,75 x2	1,6 x2	G 2	G 1 1/2	848	162	187	725	347	235	625	600	47
BS2V 2MXH 205/B-ITT	0,75 x2	1 x2	2 x2	G 2	G 1 1/2	848	162	187	749	371				50
BS2V 2MXH 206/C-ITT	1,1 x2	1,5 x2	2,7 x2	G 2	G 1 1/2	848	162	187	773	395				54
BS2V 2MXH 403/A-ITT	0,55 x2	0,75 x2	1,6 x2	G 2	G 1 1/2	848	162	187	701	323				46
BS2V 2MXH 404/B-ITT	0,75 x2	1 x2	2 x2	G 2	G 1 1/2	848	162	187	725	347				49
BS2V 2MXH 405/C-ITT	1,1 x2	1,5 x2	2,7 x2	G 2	G 1 1/2	848	162	187	749	371				53
BS2V 2MXH 406/A-ITT	1,5 x2	2 x2	3,6 x2	G 2	G 1 1/2	848	162	187	773	395				57
BS2V 2MXH 803/A-ITT	1,1 x2	1,5 x2	2,7 x2	G 2 1/2	G 2	848	162	193	764	386				61
BS2V 2MXH 804/A-ITT	1,5 x2	2 x2	3,6 x2	G 2 1/2	G 2	848	162	193	794	416				66
BS2V 2MXH 805/B-ITT	1,8 x2	2,5 x2	4,3 x2	G 2 1/2	G 2	848	162	193	830	446				68
BS2V 2MXH 1603/B-ITT	1,8 x2	2,5 x2	4,3 x2	G 3	G 2 1/2	980	258	281	1065	490	87			
BS2V 2MXH 1604/A-ITT	3 x2	4 x2	6,6 x2	G 3	G 2 1/2	980	273	281	1100	530	114			
BS2V 2MXH 1605/B-ITT	3,7 x2	5 x2	9,6 x2	G 3	G 2 1/2	980	273	281	1133	565	122			
BS2V 2MXH 1606/B-ITT	4 x2	5,5 x2	9,6 x2	G 3	G 2 1/2	980	273	281	1192	605	124			
BS2V 2MXH 2001/A-ITT	1,1 x2	1,5 x2	2,7 x2	G 3	G 2 1/2	980	220	351	1170	484	1090	625	600	87
BS2V 2MXH 2002/A-ITT	1,8 x2	2,5 x2	5,3 x2	G 3	G 2 1/2	980	220	351	1170	484				87
BS2V 2MXH 2003-ITT	3 x2	4 x2	6,6 x2	G 3	G 2 1/2	980	230	351	1170	503				114
BS2V 2MXH 2004/A-ITT	4 x2	5,5 x2	9,6 x2	G 3	G 2 1/2	980	230	351	1195	537				122
BS2V 2MXH 2005-ITT	5,5 x2	7,5 x2	10,9 x2	G 3	G 2 1/2	980	252	351	1245	572				124

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard



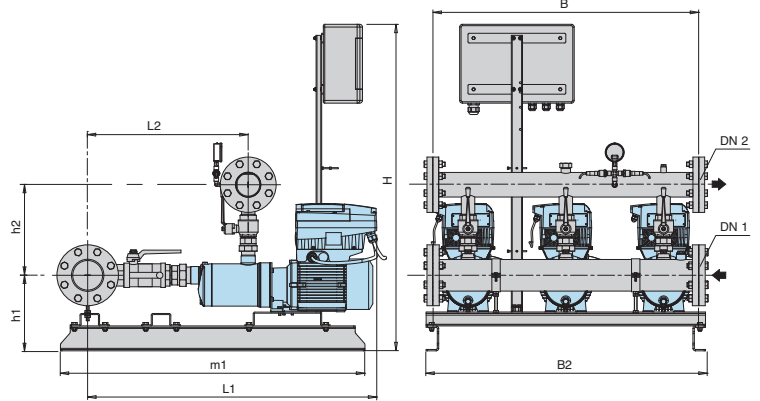
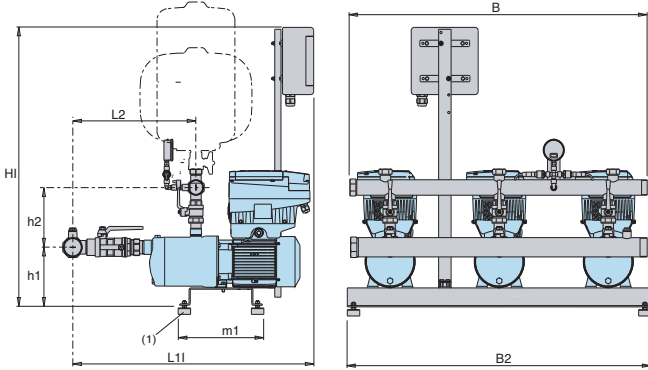
TYPE	Motor			Connection		mm							weight kg	
	kW	HP	A	DN 1	DN 2	HI	h1	h2	L11	L2	m1	B2		B
BS2V 2MXH-F 3201/B-ITT	2,2 x2	3 x2	5,3 x2	100	80	1100	266	402	1164	558	990	750	750	214
BS2V 2MXH-F 3202/B-ITT	4 x2	5,5 x2	9,6 x2	100	80	1180	298	402	1180	558	1010			243
BS2V 2MXH-F 3203/A-ITT	5,5 x2	7,5 x2	10,9 x2	100	80	1180	298	402	1274	604	1050			260
BS2V 2MXH-F 3204/A-ITT	7,5 x2	10 x2	14,3 x2	100	80	1180	298	402	1320	650	1110			268
BS2V 2MXH-F 4801/A-ITT	3 x2	4 x2	6,6 x2	125	100	1198	298	468	1250	654	1010			286
BS2V 2MXH-F 4802/A-ITT	5,5 x2	7,5 x2	10,9 x2	125	100	1198	298	468	1306	654	1065			286
BS2V 2MXH-F 4803/A-ITT	7,5 x2	10 x2	14,3 x2	125	100	1198	298	468	1367	716	1110			

Dimensions not binding to be verified when ordering

Dimensions and weights

BS.. 3MXH 2,4,8

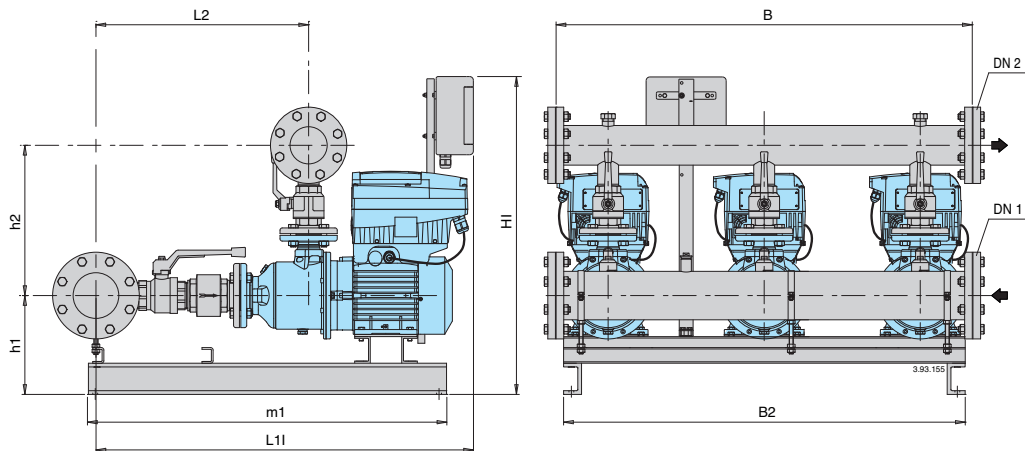
BS.. 3MXH 16



TYPE	Motor			Connection		mm									weight kg
	kW	HP	A	DN 1	DN 2	HI	h1	h2	L11	L2	m1	B2	B		
BS3V 3MXH 204/A-ITT	0,55 x3	0,75 x3	1,6 x3	G 2 1/2	G 2	913	227	193	857	356					
BS3V 3MXH 205/B-ITT	0,75 x3	1 x3	2 x3	G 2 1/2	G 2	913	227	193	881	380					
BS3V 3MXH 206/C-ITT	1,1 x3	1,5 x3	2,7 x3	G 2 1/2	G 2	913	227	193	905	404					
BS3V 3MXH 403/A-ITT	0,55 x3	0,75 x3	1,6 x3	G 2 1/2	G 2	913	227	193	833	332					
BS3V 3MXH 404/B-ITT	0,75 x3	1 x3	2 x3	G 2 1/2	G 2	913	227	193	857	356					
BS3V 3MXH 405/C-ITT	1,1 x3	1,5 x3	2,7 x3	G 2 1/2	G 2	913	227	193	881	390					
BS3V 3MXH 406/A-ITT	1,5 x3	2 x3	3,6 x3	G 2 1/2	G 2	913	227	193	905	404					
BS3V 3MXH 803/A-ITT	1,1 x3	1,5 x3	2,7 x3	G 3	G 2 1/2	913	227	193	905	404					
BS3V 3MXH 804/A-ITT	1,5 x3	2 x3	3,6 x3	G 3	G 2 1/2	913	227	193	933	432					
BS3V 3MXH 805/B-ITT	1,8 x3	2,5 x3	4,3 x3	G 3	G 2 1/2	913	227	193	950	449					
BS3V 3MXH 1603/B-ITT	1,8 x3	2,5 x3	4,3 x3	DN 100	DN 80	980	258	321	1100	500					
BS3V 3MXH 1604/A-ITT	3 x3	4 x3	6,6 x3	DN 100	DN 80	980	273	321	1135	538					
BS3V 3MXH 1605/B-ITT	3,7 x3	5 x3	9,6 x3	DN 100	DN 80	980	273	321	1171	575					
BS3V 3MXH 1606/B-ITT	4 x3	5,5 x3	9,6 x3	DN 100	DN 80	980	273	321	1231	613					
BS3V 3MXH 2001/A-ITT	1,1 x3	1,5 x3	2,7 x3	DN 100	DN 80	980	290	391	1170	499					
BS3V 3MXH 2002/A-ITT	1,8 x3	2,5 x3	5,3 x3	DN 100	DN 80	980	290	391	1170	499					
BS3V 3MXH 2003-ITT	3 x3	4 x3	6,6 x3	DN 100	DN 80	980	290	391	1170	518					
BS3V 3MXH 2004/A-ITT	4 x3	5,5 x3	9,6 x3	DN 100	DN 80	980	290	391	1230	553					
BS3V 3MXH 2005-ITT	5,5 x3	7,5 x3	10,9 x3	DN 100	DN 80	980	252	391	1245	587					

Dimensions not binding to be verified when ordering

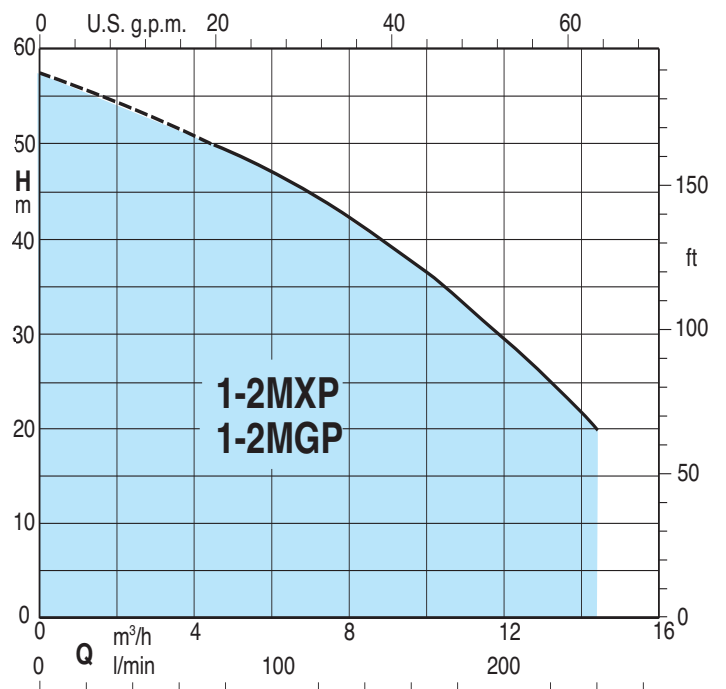
(1) Anti-vibration pads kit supplied loose as standard



TYPE	Motor			Connection		mm									weight kg
	kW	HP	A	DN 1	DN 2	HI	h1	h2	L11	L2	m1	B2	B		
BS3V 3MXH-F 3201/B-ITT	2,2 x3	3 x3	5,3 x3	125	100	1246	286	415	1164	571	1010				
BS3V 3MXH-F 3202/B-ITT	4 x3	5,5 x3	9,6 x3	125	100	1246	318	415	1180	571	1065				
BS3V 3MXH-F 3203/A-ITT	5,5 x3	7,5 x3	10,9 x3	125	100	1246	318	415	1096	617	1060				
BS3V 3MXH-F 3204/A-ITT	7,5 x3	10 x3	14,3 x3	125	100	1246	318	415	1320	663	1110				
BS3V 3MXH-F 4801/A-ITT	3 x3	4 x3	6,6 x3	150	125	1246	316	480	1272	668	1010				
BS3V 3MXH-F 4802/A-ITT	5,5 x3	7,5 x3	10,9 x3	150	125	1246	316	480	1320	668	1065				
BS3V 3MXH-F 4803/A-ITT	7,5 x3	10 x3	14,3 x3	150	125	1246	316	480	1381	750	1110				

Dimensions not binding to be verified when ordering

Coverage chart



Operation

BS 2F **Pressure boosting sets with 2 fixed speed pump.**
Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.

BS1-3V **Pressure boosting sets with 1 to 3 variable speed pumps (with EASYMAT).**
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

BS1V1F **Pressure boosting sets with 1 variable speed pump (with frequency converter into the control panel) and from 1 fixed speed pump**
According to the water consumption, one or more pumps start, one at variable speed and the others at fixed speed, to grant the water quantity required at the set pressure.

BS2V **Pressure boosting sets with two variable speed pumps (with frequency converter into the control panel).**
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

Construction

- Automatic pressure boosting plant consisting of 1 to 3 horizontal multi-stage pumps complete with ball, non return valve on the suction side and ball valves on the delivery side.

Suction and delivery manifolds for boosting sets with 2,3 pumps:

- stainless steel AISI 304.
Connections are located on the delivery manifold for the installation of vessels G1 connection.

Electrical control boards:

- with microprocessor for fixed speed pump units. Motor starting is D.O.L.
- with frequency converter for variable speed pump units.

The unit includes one pressure gauge and three adjustable differential pressure switches or pressure transducer.

Applications

To supply water in civil and industrial buildings.
As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

2-pole induction motors, 50 Hz, $n \approx 2900$ rpm, suitable for operation with frequency converter.

- Three-phase 230/400V $\pm 10\%$ up to 3 kW;
400/690V $\pm 10\%$ for 4 kW to 7,5 kW;

- Single-phase 230 V $\pm 10\%$, with thermal protector.

Insulation class F.

Protection IP 54.

Constructed in accordance with: IEC 60034.

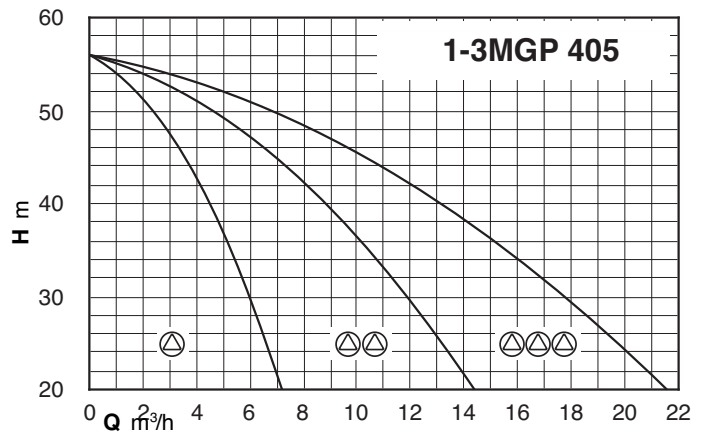
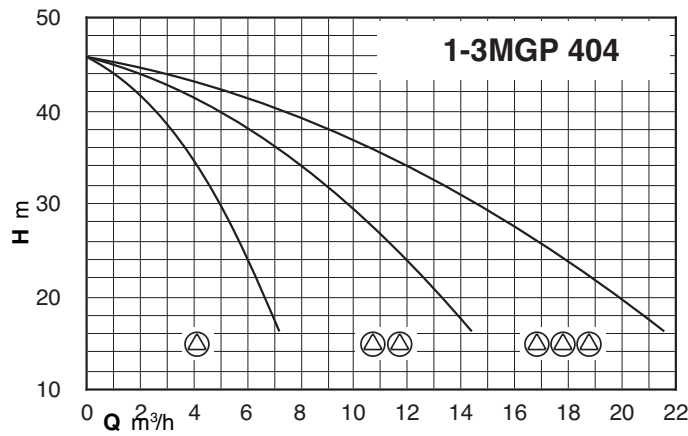
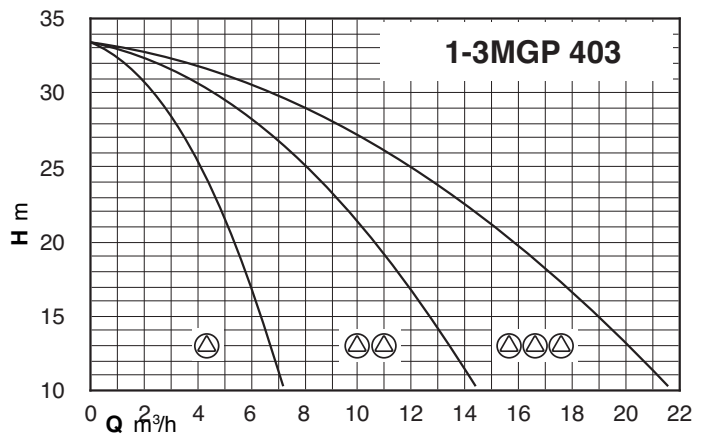
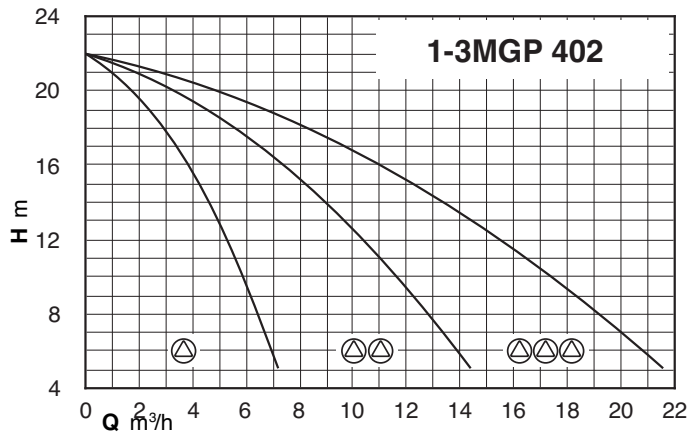
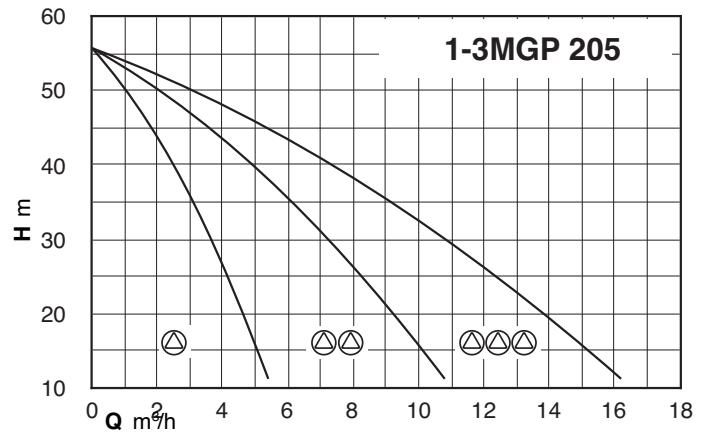
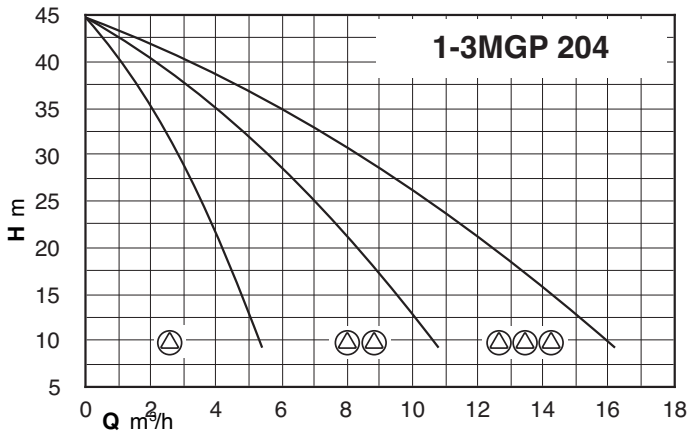
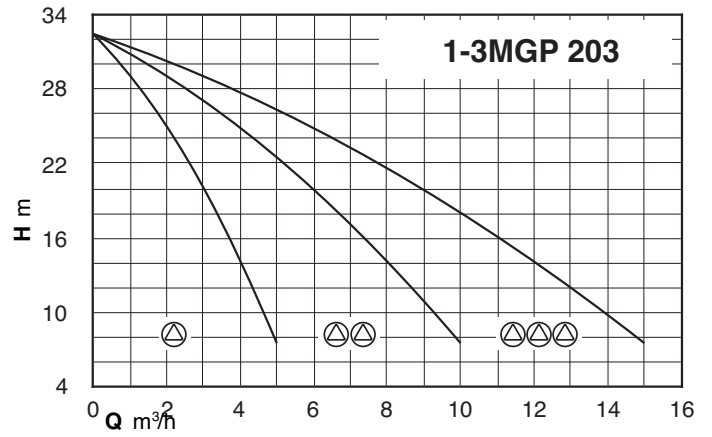
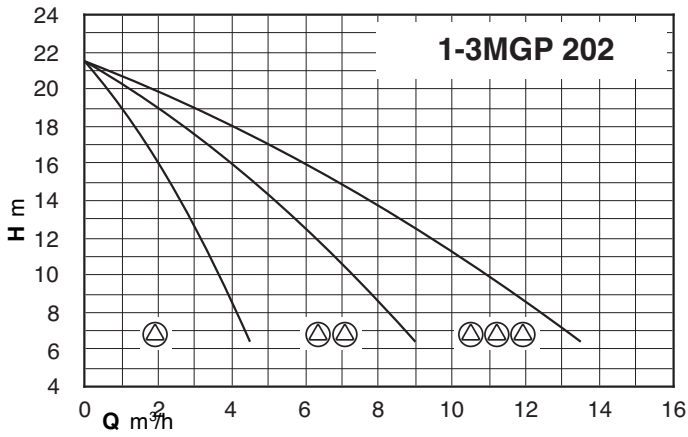
Other voltages and frequencies on request.

Vessels on request

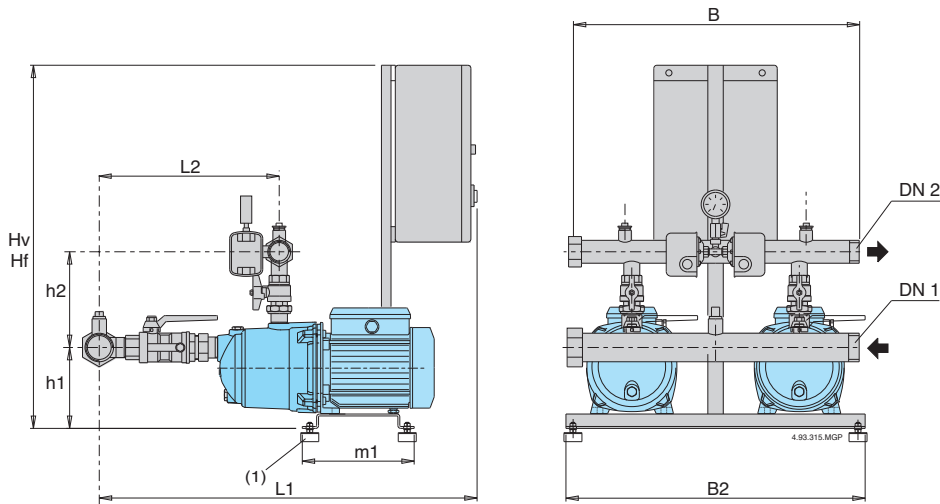
When installing the unit, connect in the delivery section to a diaphragm or galvanised tank.

The recommended sized are shown in the following page.

Coverage chart



Characteristic, dimensions and weights



(1) Anti-vibration pads kit supplied loose as standard

Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

BS2F BSM2F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Q max* l/min	Pres. switch setting		Connection		mm								Weight kg	Vessel	
		kW	HP		bar	bar	DN1	DN2	H	h1	h2	L1	L2	m1	B2	B		Mem. litre	Vessel litre
BS2F 2MGP 203	BSM2F 2MGPM 203	0,45+0,45	0,6+0,6	155	1,4÷2,6	1,0÷2,2	G 2	G 1 1/2	840	151	206	793	355	235	625	600	41	24x2	100
BS2F 2MGP 204	BSM2F 2MGPM 204	0,55+0,55	0,75+0,75	160	2,0÷3,2	1,5÷2,7	G 2	G 1 1/2	840	151	206	793	355				46	24x2	100
BS2F 2MGP 205/A	BSM2F 2MGPM 205	0,75+0,75	1+1	160	3,0÷4,5	2,5÷4,0	G 2	G 1 1/2	840	151	206	793	355				52	24x2	100
BS2F 2MGP 403	BSM2F 2MGPM 403	0,55+0,55	0,75+0,75	230	1,2÷2,4	0,9÷2,1	G 2	G 1 1/2	840	151	206	793	355				46	24x2	100
BS2F 2MGP 404/A	BSM2F 2MGPM 404	0,75+0,75	1+1	220	2,4÷3,6	2,0÷3,2	G 2	G 1 1/2	840	151	206	793	355				48	80	200
BS2F 2MGP 405	BSM2F 2MGPM 405	1,1+1,1	1,5+1,5	220	3,0÷4,5	2,5÷4,0	G 2	G 1 1/2	840	151	206	793	355				54	80	200

* Maximum pumps flow at minimum set pressure of 2nd pressure switch.

BS1V1F BSM1V1F

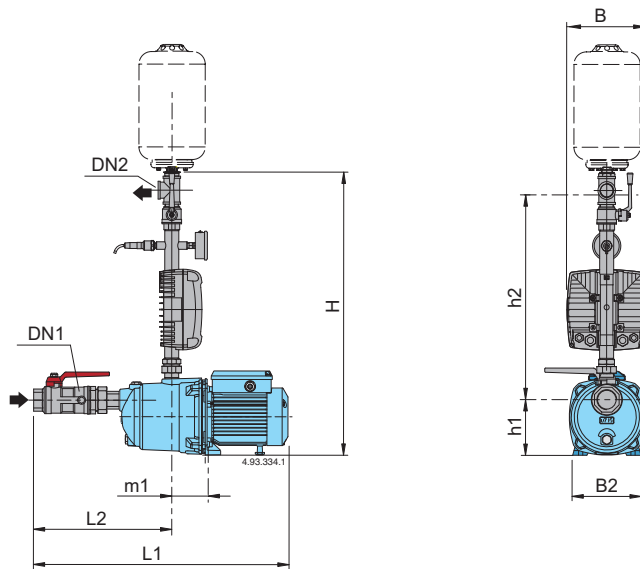
Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 3~ and 230V 1~	Motor		Connection		mm								Weight kg	Vessel	
		kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B2	B		Membrane litre	Vessel litre
BS1V1F 2MGP 203	BSM1V1F 2MGP 203	0,45+0,45	0,6+0,6	G 2	G 1 1/2	1100	151	206	793	355	235	625	600	41	24x2	
BS1V1F 2MGP 204	BSM1V1F 2MGP 204	0,55+0,55	0,75+0,75	G 2	G 1 1/2	1100	151	206	793	355				46	24x2	
BS1V1F 2MGP 205/A	BSM1V1F 2MGP 205	0,75+0,75	1+1	G 2	G 1 1/2	1100	151	206	793	355				52	24x2	
BS1V1F 2MGP 403	BSM1V1F 2MGP 403	0,55+0,55	0,75+0,75	G 2	G 1 1/2	1100	151	206	793	355				46	24x2	
BS1V1F 2MGP 404/A	BSM1V1F 2MGP 404	0,75+0,75	1+1	G 2	G 1 1/2	1100	151	206	793	355				48	24x2	
BS1V1F 2MGP 405	BSM1V1F 2MGP 405	1,1+1,1	1,5+1,5	G 2	G 1 1/2	1100	151	206	793	355				54	24x2	

BS2V BSM2V

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 3~	Motor		Connection		mm								Weight kg	Vessel	
		kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B2	B		Membrane litre	Vessel litre
BS2V 2MGP 203	BSM2V 2MGP 203	0,45+0,45	0,6+0,6	G 2	G 1 1/2	1100	151	206	793	355	235	625	600	41	24x2	
BS2V 2MGP 204	BSM2V 2MGP 204	0,55+0,55	0,75+0,75	G 2	G 1 1/2	1100	151	206	793	355				46	24x2	
BS2V 2MGP 205/A	BSM2V 2MGP 205	0,75+0,75	1+1	G 2	G 1 1/2	1100	151	206	793	355				52	24x2	
BS2V 2MGP 403	BSM2V 2MGP 403	0,55+0,55	0,75+0,75	G 2	G 1 1/2	1100	151	206	793	355				46	24x2	
BS2V 2MGP 404/A	BSM2V 2MGP 404	0,75+0,75	1+1	G 2	G 1 1/2	1100	151	206	793	355				48	24x2	
BS2V 2MGP 405	BSM2V 2MGP 405	1,1+1,1	1,5+1,5	G 2	G 1 1/2	1100	151	206	793	355				54	24x2	

Dimensions not binding to be verified when ordering

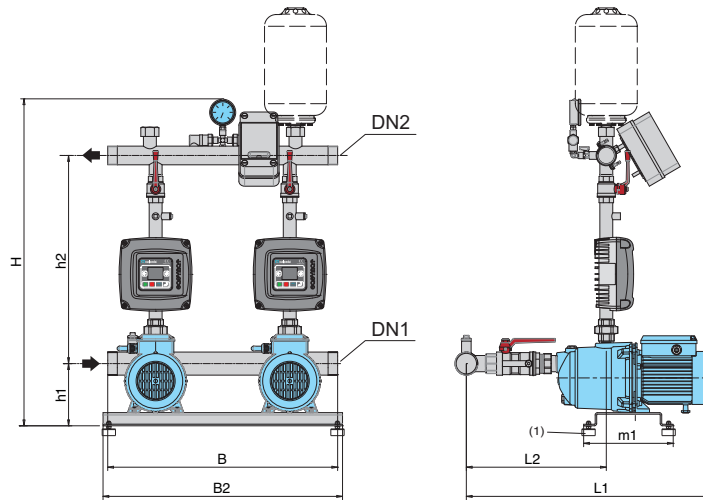
Characteristic, dimensions and weights



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	Mains: 1~ 230V Motor: 1~ 230V	A	P ₂		Connection		mm							
					kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM1V 1MGP 202-EMT	2,1	1,7	BSM1V 1MGPM 202-EMM	2,3	0,33	0,45	G 1	G 1	691	116	535	516	269	95	200	146
BSM1V 1MGP 203-EMT	3,2	2,4	BSM1V 1MGPM 203-EMM	3	0,45	0,6						516				
BSM1V 1MGP 204-EMT	4	2,8	BSM1V 1MGPM 204-EMM	3,3	0,55	0,75						516				
BSM1V 1MGP 205/A-EMT	5	3,5	BSM1V 1MGPM 205-EMM	5,4	0,75	1	G 1	G 1	691	116	535	545	269	95	200	146
BSM1V 1MGP 402-EMT	3,2	2,4	BSM1V 1MGPM 402-EMM	3	0,45	0,6						516				
BSM1V 1MGP 403-EMT	4,3	3	BSM1V 1MGPM 403-EMM	3,5	0,55	0,75						516				
BSM1V 1MGP 404/A-EMT	5	3,5	BSM1V 1MGPM 404-EMM	5,4	0,75	1						545				
BSM1V 1MGP 405-EMT	6,4	4,5	BSM1V 1MGPM 405-EMM	7	1,1	1,5						575				

Dimensions not binding to be verified when ordering

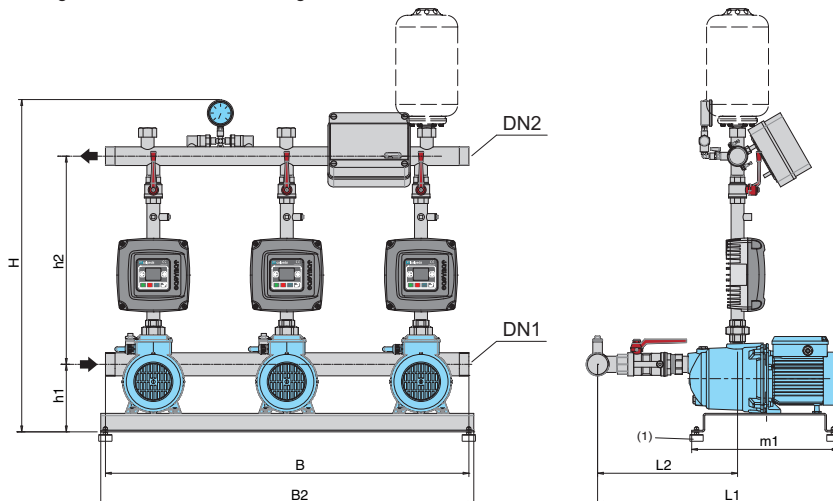
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P ₂		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM2V 2MGP 202-EMT	2 x 2,1	2 x 1,7	2 x 0,33	2 x 0,45	G 2	G 1 1/2	783	151	480	566	319	240	600	625
BSM2V 2MGP 203-EMT	2 x 3,2	2 x 2,4	2 x 0,45	2 x 0,6						566				
BSM2V 2MGP 204-EMT	2 x 4	2 x 2,8	2 x 0,55	2 x 0,75						566				
BSM2V 2MGP 205/A-EMT	2 x 5	2 x 3,5	2 x 0,75	2 x 1						595				
BSM2V 2MGP 402-EMT	2 x 3,2	2 x 2,4	2 x 0,45	2 x 0,6	G 2	G 1 1/2	783	151	480	566	319	240	600	625
BSM2V 2MGP 403-EMT	2 x 4,3	2 x 3	2 x 0,55	2 x 0,75						566				
BSM2V 2MGP 404/A-EMT	2 x 5	2 x 3,5	2 x 0,75	2 x 1						595				
BSM2V 2MGP 405-EMT	2 x 6,4	2 x 4,5	2 x 1,1	2 x 1,5						625				

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard

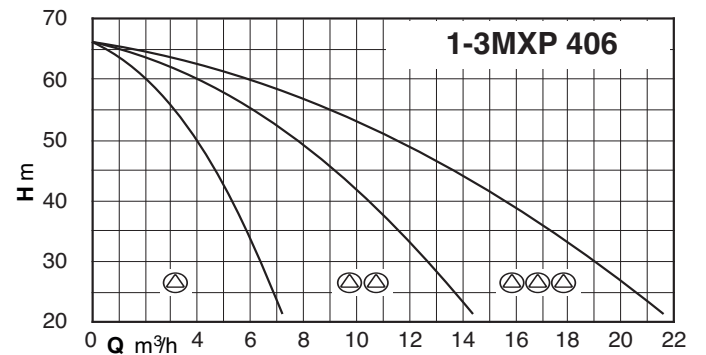
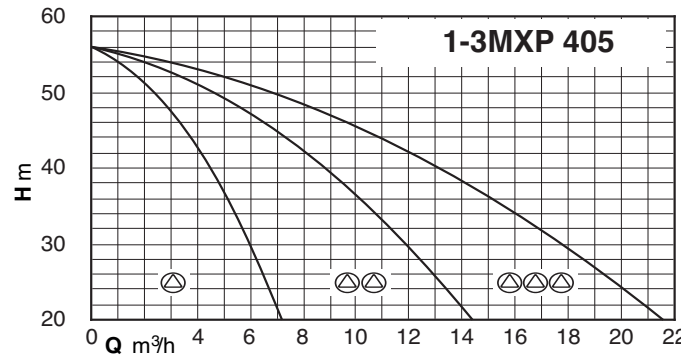
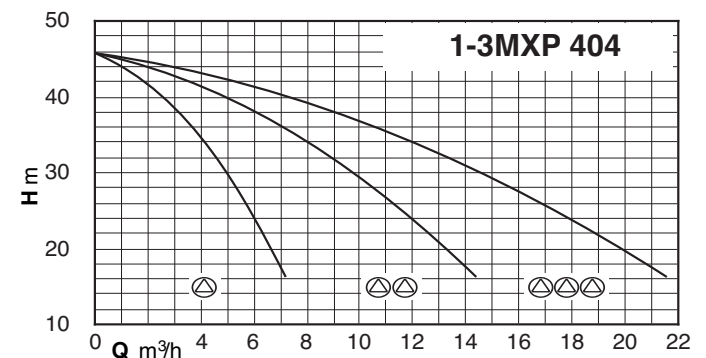
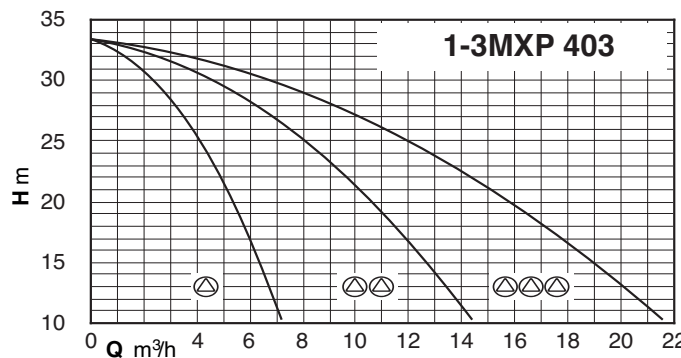
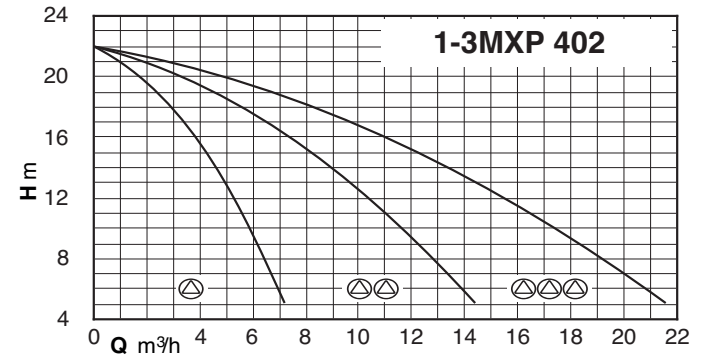
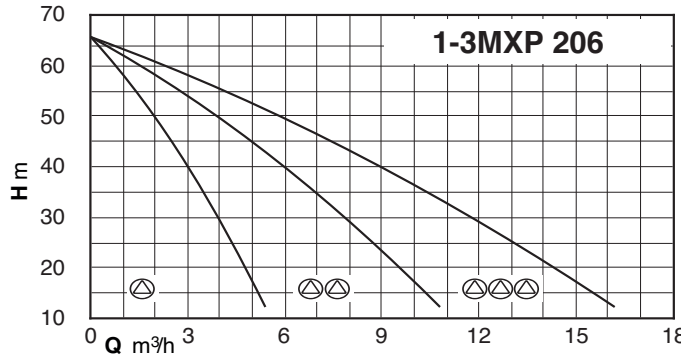
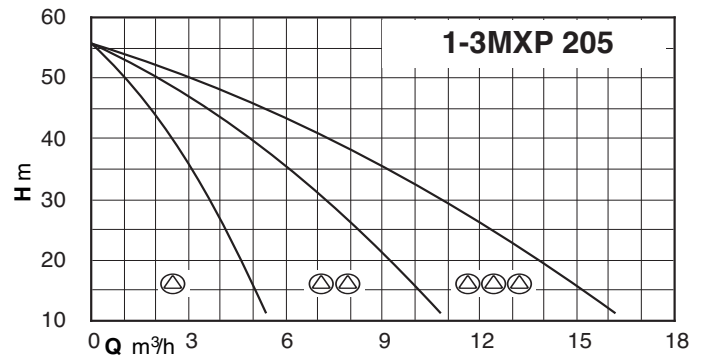
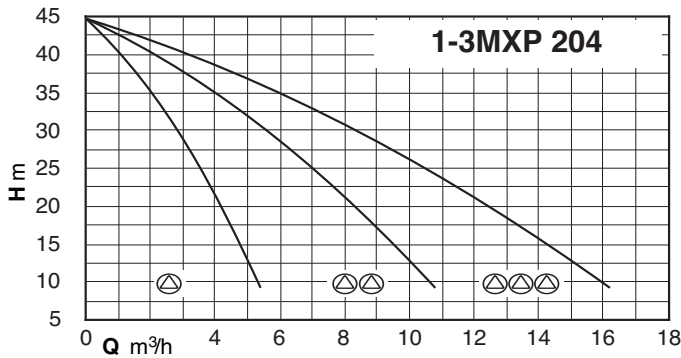
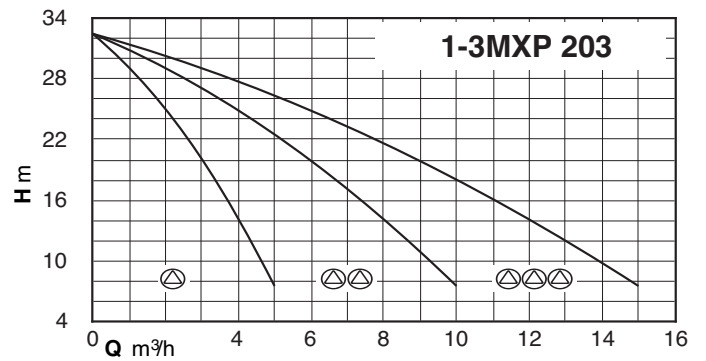
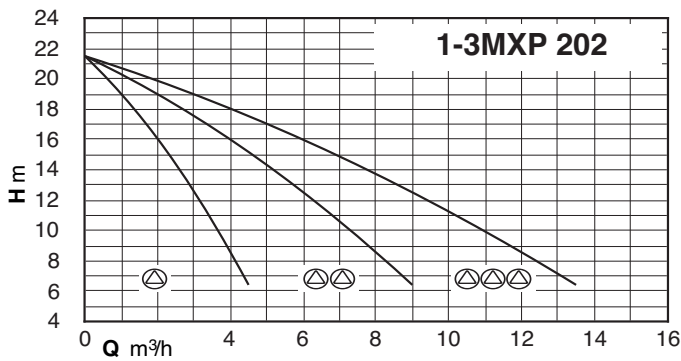


Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P ₂		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM3V 3MGP 202-EMT	3 x 2,1	3 x 1,7	3 x 0,33	3 x 0,45	G 2 1/2	G 2	805	167	486	573	326	305	950	1000
BSM3V 3MGP 203-EMT	3 x 3,2	3 x 2,4	3 x 0,45	3 x 0,6						573				
BSM3V 3MGP 204-EMT	3 x 4	3 x 2,8	3 x 0,55	3 x 0,75						573				
BSM3V 3MGP 205/A-EMT	3 x 5	3 x 3,5	3 x 0,75	3 x 1						602				
BSM3V 3MGP 402-EMT	3 x 3,2	3 x 2,4	3 x 0,45	3 x 0,6	G 2 1/2	G 2	805	167	486	573	326	305	950	1000
BSM3V 3MGP 403-EMT	3 x 4,3	3 x 3	3 x 0,55	3 x 0,75						573				
BSM3V 3MGP 404/A-EMT	3 x 5	3 x 3,5	3 x 0,75	3 x 1						602				
BSM3V 3MGP 405-EMT	3 x 6,4	3 x 4,5	3 x 1,1	3 x 1,5						632				

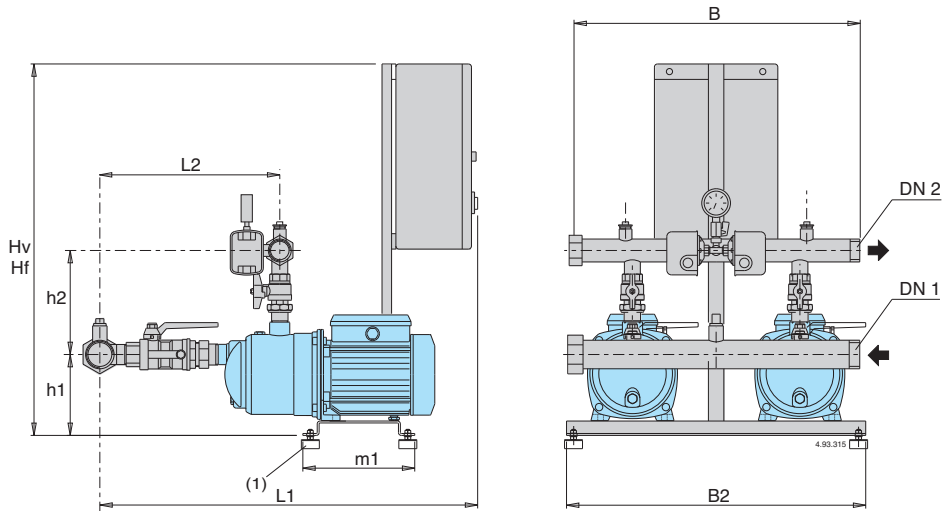
Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard

Coverage chart



Characteristic, dimensions and weights



(1) Anti-vibration pads kit supplied loose as standard

Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

BS2F BSM2F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Q _{max} * l/min	Pres. switch setting		Connection		mm								kg	Vessel	
		kW	HP		bar	bar	DN1	DN2	Hf	h1	h2	L1	L2	m1	B2	B		Mem. litre	Vessel litre
BS2F 2MXP 203	BSM2F 2MXPM 203	0,45+0,45	0,6+0,6	155	1,4±2,6	1,0±2,2	G 2	G 1/2	857	151	191	729	319				41	24x2	100
BS2F 2MXP 204/A	BSM2F 2MXPM 204/A	0,55+0,55	0,75+0,75	160	2,0±3,2	1,5±2,7	G 2	G 1/2	857	151	191	729	319				46	24x2	100
BS2F 2MXP 205/A	BSM2F 2MXPM 205	0,75+0,75	1+1	160	3,0±4,5	2,5±4,0	G 2	G 1/2	857	151	191	729	319				48	24x2	100
BS2F 2MXP 206	BSM2F 2MXPM 206	0,75+0,75	1+1	160	3,7±5,3	3,4±5	G 2	G 1/2	857	187	198	779	369	240	625	600		24x2	100
BS2F 2MXP 403/A	BSM2F 2MXPM 403/A	0,55+0,55	0,75+0,75	230	1,5±2,7	1,2±2,4	G 2	G 1/2	857	151	191	729	319				46	24x2	100
BS2F 2MXP 404/B	BSM2F 2MXPM 404/A	0,75+0,75	1+1	220	2,4±3,6	2,0±3,2	G 2	G 1/2	857	151	191	729	319				48	80	200
BS2F 2MXP 405	BSM2F 2MXPM 405	1,1+1,1	1,5+1,5	220	3,0±4,5	3,5±4,0	G 2	G 1/2	857	151	191	729	319				54	80	200
BS2F 2MXP 406	BSM2F 2MXPM 406	1,5+1,5	2+2	220	3,8±5,4	3,5±5,1	G 2	G 1/2	857	187	198	779	369				80	200	

* Maximum pumps flow at minimum set pressure of 2nd pressure switch.

BS1V1F BSM1V1F

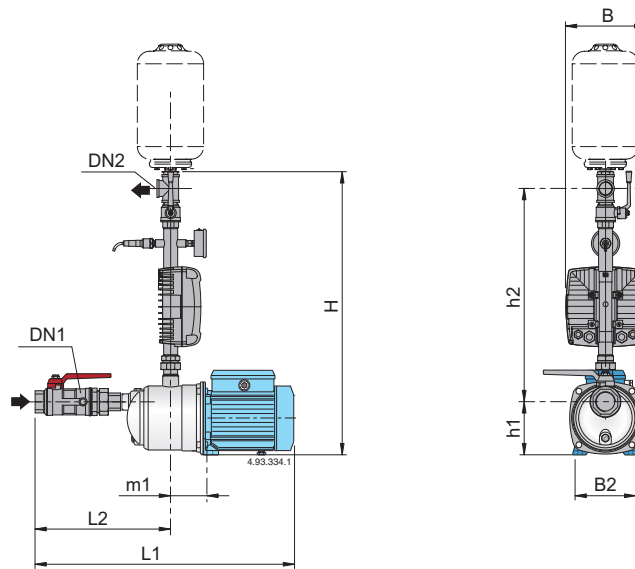
Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 3~ and 230V 1~	Motor		Connection		mm								Weight kg	Vessel Membrane litre		
		kW	HP	DN1	DN2	Hf	h1	h2	L1	L2	m1	B2	B				
BS1V1F 2MXP 203	BSM1V1F 2MXP 203	0,45+0,45	0,6+0,6	G 2	G 1/2	1349	257	206	814	319						41	24x2
BS1V1F 2MXP 204/A	BSM1V1F 2MXP 204/A	0,55+0,55	0,75+0,75	G 2	G 1/2	1349	257	206	814	319						46	24x2
BS1V1F 2MXP 205/A	BSM1V1F 2MXP 205	0,75+0,75	1+1	G 2	G 1/2	1349	257	206	814	319						48	24x2
BS1V1F 2MXP 206	BSM1V1F 2MXP 206	0,75+0,75	1+1	G 2	G 1/2	1349	293	213	864	369							24x2
BS1V1F 2MXP 403/A	BSM1V1F 2MXP 403/A	0,55+0,55	0,75+0,75	G 2	G 1/2	1349	257	206	814	319	476	625	600			46	24x2
BS1V1F 2MXP 404/B	BSM1V1F 2MXP 404/A	0,75+0,75	1+1	G 2	G 1/2	1349	257	206	814	319						48	80
BS1V1F 2MXP 405	BSM1V1F 2MXP 405	1,1+1,1	1,5+1,5	G 2	G 1/2	1349	257	206	814	319						54	80
BS1V1F 2MXP 406	BSM1V1F 2MXP 406	1,5+1,5	2+2	G 2	G 1/2	1349	293	213	864	369						80	

BS2V BSM2V

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 3~	Motor		Connection		mm								Weight kg	Vessel Membrane litre		
		kW	HP	DN1	DN2	Hf	h1	h2	L1	L2	m1	B2	B				
BS2V 2MXP 203	BSM2V 2MXP 203	0,45+0,45	0,6+0,6	G 2	G 1/2	1349	257	206	814	319						41	24x2
BS2V 2MXP 204/A	BSM2V 2MXP 204/A	0,55+0,55	0,75+0,75	G 2	G 1/2	1349	257	206	814	319						46	24x2
BS2V 2MXP 205/A	BSM2V 2MXP 205	0,75+0,75	1+1	G 2	G 1/2	1349	257	206	814	319						48	24x2
BS2V 2MXP 206	BSM2V 2MXP 206	0,75+0,75	1+1	G 2	G 1/2	1349	293	213	864	369							24x2
BS2V 2MXP 403/A	BSM2V 2MXP 403/A	0,55+0,55	0,75+0,75	G 2	G 1/2	1349	257	206	814	319	476	625	600			46	24x2
BS2V 2MXP 404/B	BSM2V 2MXP 404/A	0,75+0,75	1+1	G 2	G 1/2	1349	257	206	814	319						48	80
BS2V 2MXP 405	BSM2V 2MXP 405	1,1+1,1	1,5+1,5	G 2	G 1/2	1349	257	206	814	319						54	80
BS2V 2MXP 406	BSM2V 2MXP 406	1,5+1,5	2+2	G 2	G 1/2	1349	293	213	814	369						80	

Dimensions not binding to be verified when ordering

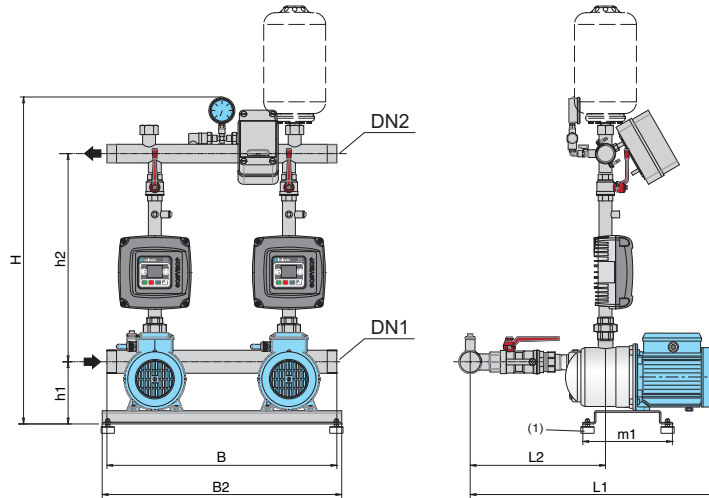
Characteristic, dimensions and weights



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	Mains: 1~ 230V Motor: 1~ 230V	A	P ₂		Connection		mm							
					kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM1V 1MXP 202-EMT	2,1	1,7	BSM1V 1MXPM 202-EMM	2,3	0,33	0,45	G 1	G 1	701	116	545	516	269	95	200	146
BSM1V 1MXP 203-EMT	3,2	2,4	BSM1V 1MXPM 203-EMM	3	0,45	0,6						516				
BSM1V 1MXP 204/A-EMT	4	2,8	BSM1V 1MXPM 204/A-EMM	3,3	0,55	0,75						545				
BSM1V 1MXP 205/A-EMT	5	3,5	BSM1V 1MXPM 205-EMM	5,4	0,75	1						545				
BSM1V 1MXP 206-EMT	5	3,5	BSM1V 1MXPM 206-EMM	5,4	0,75	1	G 1 1/4	G 1	744	152	552	646	324	113	214	185
BSM1V 1MXP 402-EMT	3,2	2,4	BSM1V 1MXPM 402-EMM	3	0,45	0,6	G 1	G 1	701	116	545	516	269	95	200	146
BSM1V 1MXP 403/A-EMT	4,3	3	BSM1V 1MXPM 403/A-EMM	3,5	0,55	0,75						516				
BSM1V 1MXP 404/B-EMT	5	3,5	BSM1V 1MXPM 404/A-EMM	5,4	0,75	1						545				
BSM1V 1MXP 405-EMT	6,4	4,5	BSM1V 1MXPM 405-EMM	7	1,1	1,5						575				
BSM1V 1MXP 406-EMT	10,8	7,5	BSM1V 1MXPM 406-EMM	9,2	1,5	2	G 1 1/4	G 1	744	152	552	673	324	113	214	185

Dimensions not binding to be verified when ordering

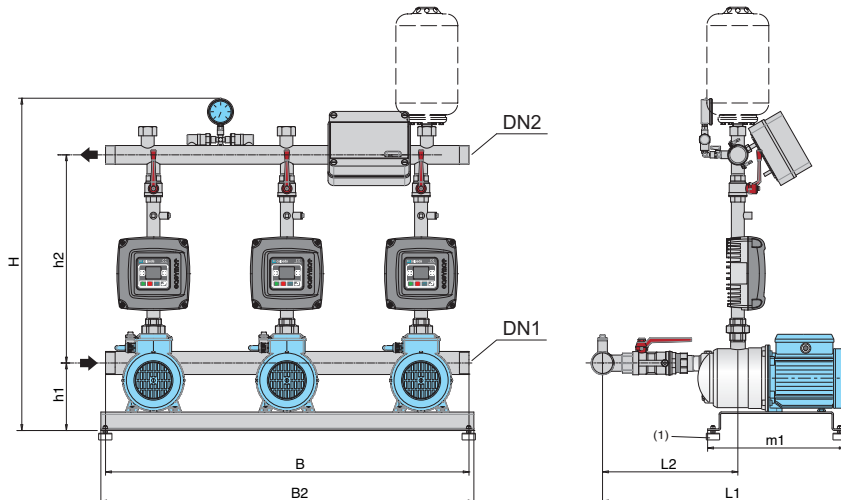
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P ₂		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM2V 2MXP 202-EMT	2 x 2,1	2 x 1,7	2 x 0,33	2 x 0,45	G 2	G 1 1/2	793	151	490	566	319	240	600	625
BSM2V 2MXP 203-EMT	2 x 3,2	2 x 2,4	2 x 0,45	2 x 0,6						566				
BSM2V 2MXP 204/A-EMT	2 x 4	2 x 2,8	2 x 0,55	2 x 0,75	G 2	G 1 1/2	793	151	490	595	319	240	600	625
BSM2V 2MXP 205/A-EMT	2 x 5	2 x 3,5	2 x 0,75	2 x 1						595				
BSM2V 2MXP 206-EMT	2 x 5	2 x 3,5	2 x 0,75	2 x 1	G 2	G 1 1/2	836	187	497	691	369	240	600	625
BSM2V 2MXP 402-EMT	2 x 3,2	2 x 2,4	2 x 0,45	2 x 0,6						566				
BSM2V 2MXP 403/A-EMT	2 x 4,3	2 x 3	2 x 0,55	2 x 0,75	G 2	G 1 1/2	793	151	490	595	319	240	600	625
BSM2V 2MXP 404/B-EMT	2 x 5	2 x 3,5	2 x 0,75	2 x 1						595				
BSM2V 2MXP 405-EMT	2 x 6,4	2 x 4,5	2 x 1,1	2 x 1,5	G 2	G 1 1/2	836	187	497	625	369	240	600	625
BSM2V 2MXP 406-EMT	2 x 10,8	2 x 7,5	2 x 1,5	2 x 2						718				

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard



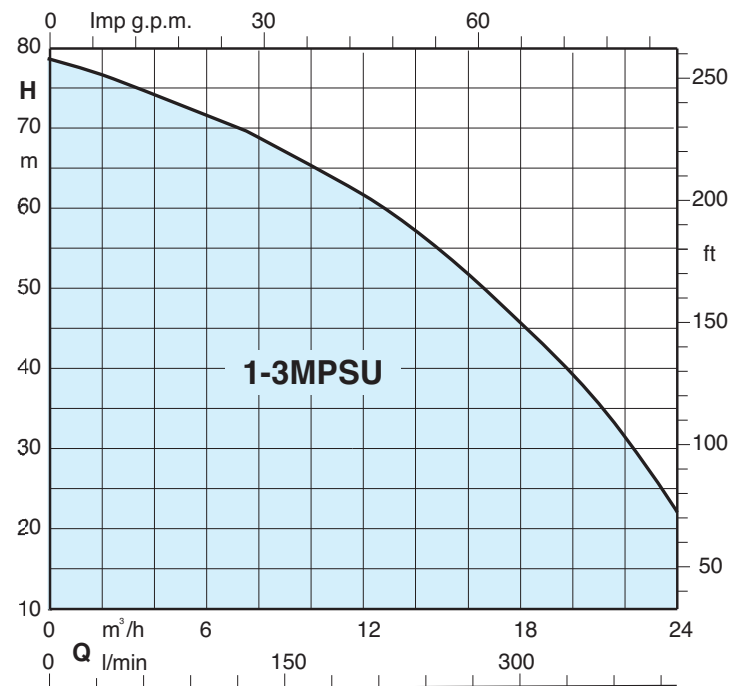
Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P ₂		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM3V 3MXP 202-EMT	3 x 2,1	3 x 1,7	3 x 0,33	3 x 0,45	G 2 1/2	G 2	815	167	496	573	326	305	950	1000
BSM3V 3MXP 203-EMT	3 x 3,2	3 x 2,4	3 x 0,45	3 x 0,6						573				
BSM3V 3MXP 204/A-EMT	3 x 4	3 x 2,8	3 x 0,55	3 x 0,75	G 2 1/2	G 2	815	167	496	602	326	305	950	1000
BSM3V 3MXP 205/A-EMT	3 x 5	3 x 3,5	3 x 0,75	3 x 1						602				
BSM3V 3MXP 206-EMT	3 x 5	3 x 3,5	3 x 0,75	3 x 1	G 2 1/2	G 2	858	203	503	699	377	305	950	1000
BSM3V 3MXP 402-EMT	3 x 3,2	3 x 2,4	3 x 0,45	3 x 0,6						573				
BSM3V 3MXP 403/A-EMT	3 x 4,3	3 x 3	3 x 0,55	3 x 0,75	G 2 1/2	G 2	815	167	496	602	326	305	950	1000
BSM3V 3MXP 404/B-EMT	3 x 5	3 x 3,5	3 x 0,75	3 x 1						602				
BSM3V 3MXP 405-EMT	3 x 6,4	3 x 4,5	3 x 1,1	3 x 1,5	G 2 1/2	G 2	858	203	503	632	377	305	950	1000
BSM3V 3MXP 406-EMT	3 x 10,8	3 x 7,5	3 x 1,5	3 x 2						726				

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard



Coverage chart



Operation

BS 1-6F Pressure boosting sets with 1 to 6 fixed speed pump. Sets with 4,5 and 6 pumps on request.

Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.

BS1-3V Pressure boosting sets with 1 to 3 variable speed pumps (with EASYMAT).

Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

BS1V2-5F Pressure boosting sets with 1 variable speed pump (with frequency converter into the control panel) and from 1 to 5 fixed speed pumps

Sets with 4,5 and 6 pumps on request.

According to the water consumption, one or more pumps start, one at variable speed and the others at fixed speed, to grant the water quantity required at the set pressure.

BS1-6V Pressure boosting sets with 1 to 6 variable speed pumps (with frequency converter into the control panel).

Sets with 4,5 and 6 pumps on request.

Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

Construction

- Automatic pressure boosting plant consisting of 1 to 6 vertical multi-stage close coupled pumps complete with ball, non return valve on the suction side and ball valves on the delivery side.

Suction and delivery manifolds for boosting sets with 2,3 pumps:

- stainless steel AISI 304.

Connections are located on the delivery manifold for the installation of vessels G1 connection.

Electrical control boards:

- with microprocessor for fixed speed pump units.

- with frequency converter for variable speed pump units.

The unit includes one pressure gauge and three adjustable differential pressure switches or pressure transducer.

Applications

To supply water in civil and industrial buildings.

As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

2-pole induction motors, 50 Hz, $n \approx 2900$ rpm, suitable for operation with frequency converter.

- Three-phase 230V - 400V $\pm 10\%$;

- Single-phase 230 V $\pm 10\%$.

Insulation class F.

Protection IP 68.

Constructed in accordance with: IEC 60034.

Other voltages and frequencies on request.

Vessels on request

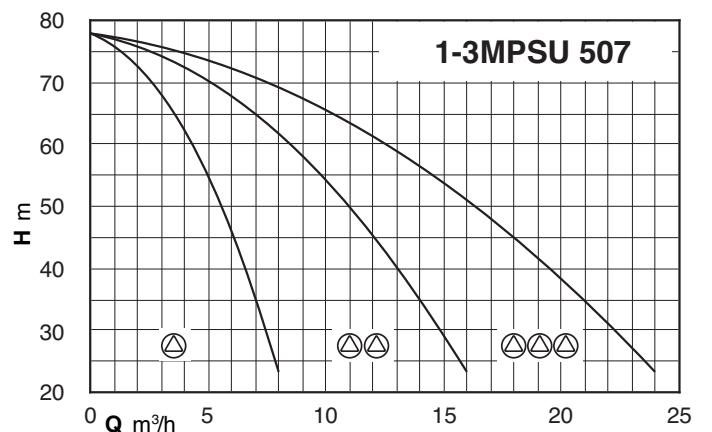
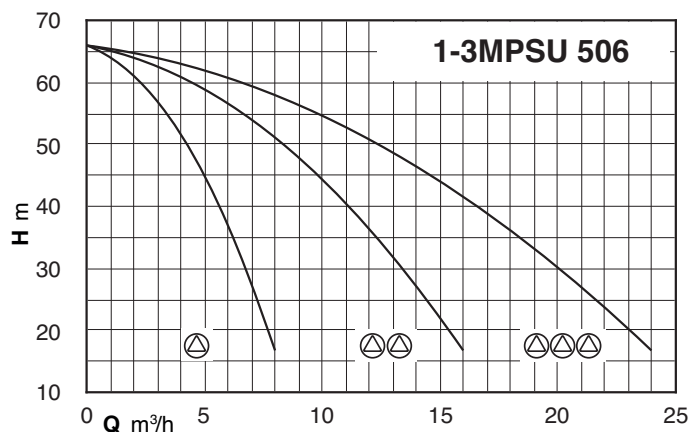
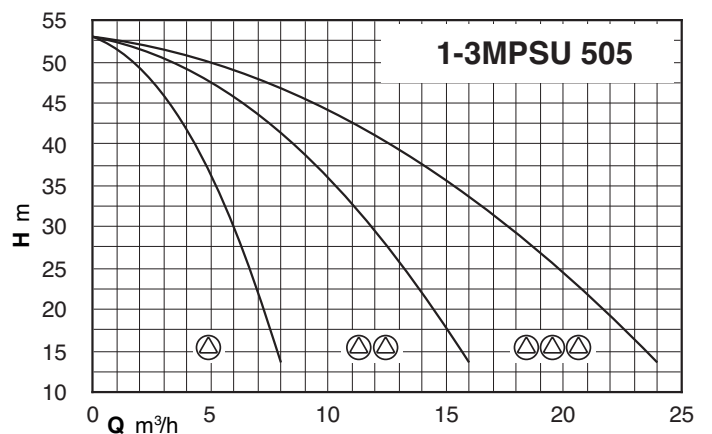
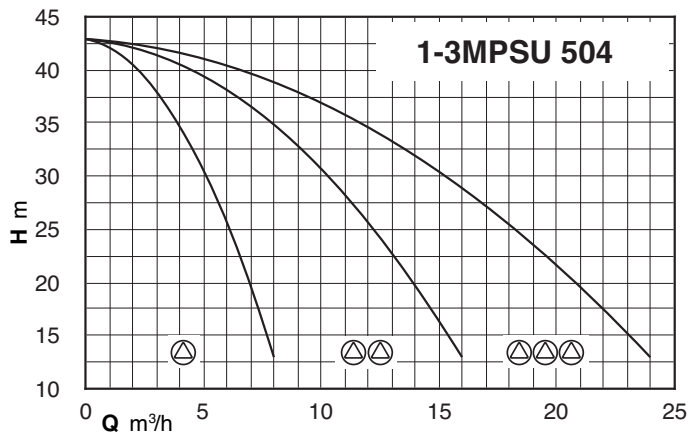
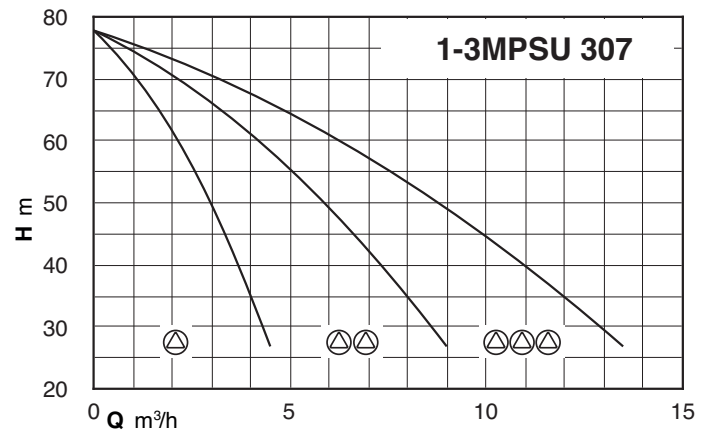
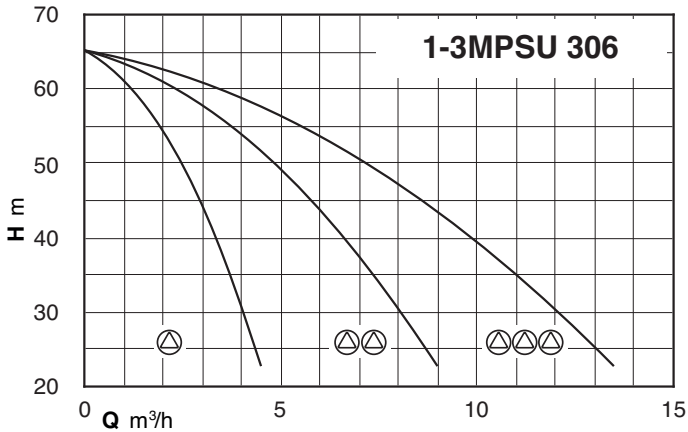
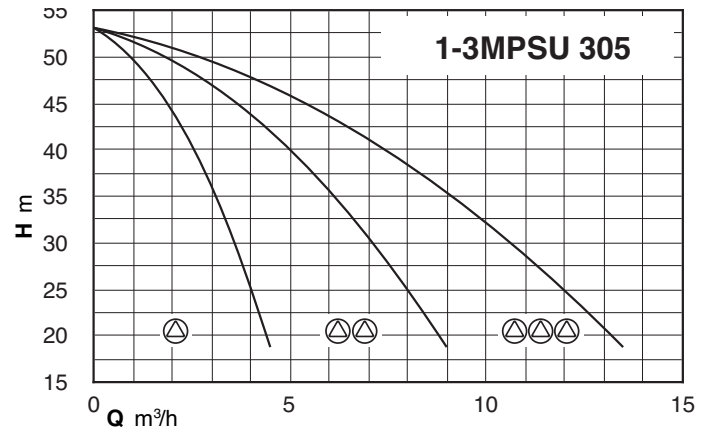
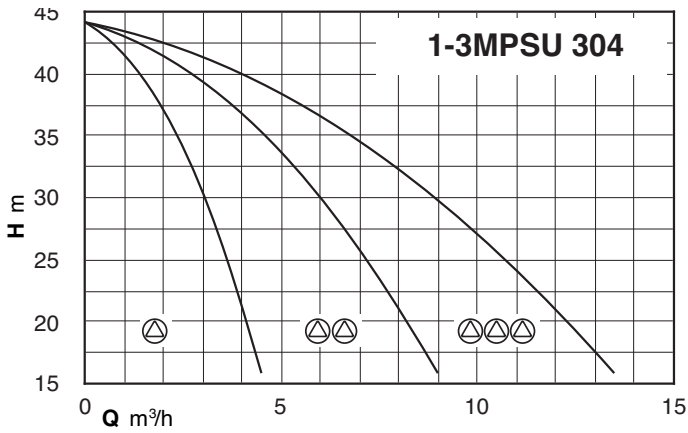
When installing the unit, connect in the delivery section to a diaphragm or galvanised tank.

The recommended sized are shown in the following page.

Special features on request

Pressure boosting sets with 4,5 and 6 pumps.

Coverage chart



Performance

BS1F

BSM1F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Pres. switch 1 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	Q l/min	H m		
BS1F 1MPSU 304	BSM1F 1MPSUM 304	0,55	0,75	2,3	3,8	63	23	40	100
BS1F 1MPSU 305	BSM1F 1MPSUM 305	0,75	1	3	4,5	58	31	40	100
BS1F 1MPSU 306	BSM1F 1MPSUM 306	0,9	1,2	3,8	5,8	56	39	50	100
BS1F 1MPSU 307	BSM1F 1MPSUM 307	0,9	1,2	4,7	6,4	52	48	50	100
BS1F 1MPSU 504	BSM1F 1MPSUM 504	0,9	1,2	2,1	3,6	115	21	60	100
BS1F 1MPSU 505	BSM1F 1MPSUM 505	1,1	1,5	3	4,5	104	31	80	200
BS1F 1MPSU 506	BSM1F 1MPSUM 506	1,1	1,5	4,3	6	85	44	150	200
BS1F 1MPSU 507	BSM1F 1MPSUM 507	1,5	2	5,3	7,1	84	54	150	200

* Maximum pumps flow at minimum setting pressure switch.

BS2F

BSM2F

Mains: 400V 3~ Motor: 400V 3~	Alimentazione 230V 1~ Motore 230V 1~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	min	max	Q l/min	H m		
BS2F 2MPSU 304	BSM2F 2MPSUM 304	0,55 x2	0,75 x2	2,3	3,8	1,8	3,3	143	18	40	100
BS2F 2MPSU 305	BSM2F 2MPSUM 305	0,75 x2	1 x2	3	4,5	2,5	4	133	25	40	100
BS2F 2MPSU 306	BSM2F 2MPSUM 306	0,9 x2	1,2 x2	3,8	5,8	3,5	5,5	121	36	50	100
BS2F 2MPSU 307	BSM2F 2MPSUM 307	0,9 x2	1,2 x2	4,7	6,4	4,4	6,1	110	45	50	100
BS2F 2MPSU 504	BSM2F 2MPSUM 504	0,9 x2	1,2 x2	2,1	3,6	1,7	3,2	251	17	60	100
BS2F 2MPSU 505	BSM2F 2MPSUM 505	1,1 x2	1,5 x2	3	4,5	2,5	4	233	25	80	200
BS2F 2MPSU 506	BSM2F 2MPSUM 506	1,1 x2	1,5 x2	4,3	6	4,1	5,7	180	41	150	200
BS2F 2MPSU 507	BSM2F 2MPSUM 507	1,5 x2	2 x2	5,3	7,1	5	6,8	178	51	150	200

* Maximum pumps flow at minimum setting pressure of 2nd pressure switch.

BS3F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Pres. switch 3 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	min	max	min	max	Q l/min	H m		
BS3F 3MPSU 304	0,55 x3	0,75 x3	2,3	3,8	1,8	3,3	1,3	2,8	235	13	40	100
BS3F 3MPSU 305	0,75 x3	1 x3	3	4,5	2,5	4	2	3,5	220	20	40	100
BS3F 3MPSU 306	0,9 x3	1,2 x3	3,8	5,8	3,5	5,5	3,2	5,2	194	33	40	100
BS3F 3MPSU 307	0,9 x3	1,2 x3	4,7	6,4	4,4	6,1	4,2	5,8	175	42	50	100
BS3F 3MPSU 504	0,9 x3	1,2 x3	2,1	3,6	1,7	3,2	1,2	2,7	403	12	60	100
BS3F 3MPSU 505	1,1 x3	1,5 x3	3	4,5	2,5	4	2	3,5	379	20	80	200
BS3F 3MPSU 506	1,1 x3	1,5 x3	4,3	6	4,1	5,7	3,5	5,4	284	39	150	200
BS3F 3MPSU 507	1,5 x3	2 x3	5,3	7,1	5	6,8	4,8	6,5	279	48	150	200

* Maximum pumps flow at minimum setting pressure of 3rd pressure switch.

BS..

PUMPS Nos						PUMP TYPE	P ₂ For each pump	
1	2	3	4	5	6		kW	HP
BS1V	BS2V	BS3V	BS4V	BS5V	BS6V	MPSU 304	0,55	0,75
	BS1V1F	BS1V2F	BS1V3F	BS1V4F	BS1V5F	MPSU 305	0,75	1
	BMS1V1F*					MPSU 306	0,9	1,2
	BMS2V**					MPSU 307	0,9	1,2
						MPSU 504	0,9	1,2
						MPSU 505	1,1	1,5
						MPSU 506	1,1	1,5
						MPSU 507	1,5	2

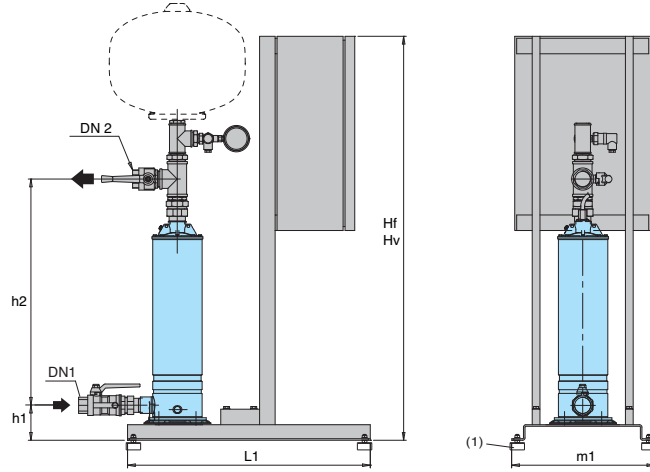
(*) SYSTEMS WITH:
1 variable speed pump three-phase motor
1 fixed speed pump single-phase motor
Power supply to control panel 230 V single-phase

BS.. ..-EMT, EMM

PUMPS Nos			PUMP TYPE	P ₂ For each pump	
1	2	3		kW	HP
BS1V -EMT -EMM	BS2V -EMT	BS3V -EMT	MPSU 304-EMT	0,55	0,75
			MPSU 305-EMT	0,75	1
			MPSU 306-EMT	0,9	1,2
			MPSU 307-EMT	0,9	1,2
			MPSU 504-EMT	0,9	1,2
			MPSU 505-EMT	1,1	1,5
			MPSU 506-EMT	1,1	1,5
			MPSU 507-EMT	1,5	2

(**) Three-phase motor 230 V.
Power supply to control panel: - 230 V three-phase
- 230 V single-phase
Frequency converter output is always 230 V three-phase.

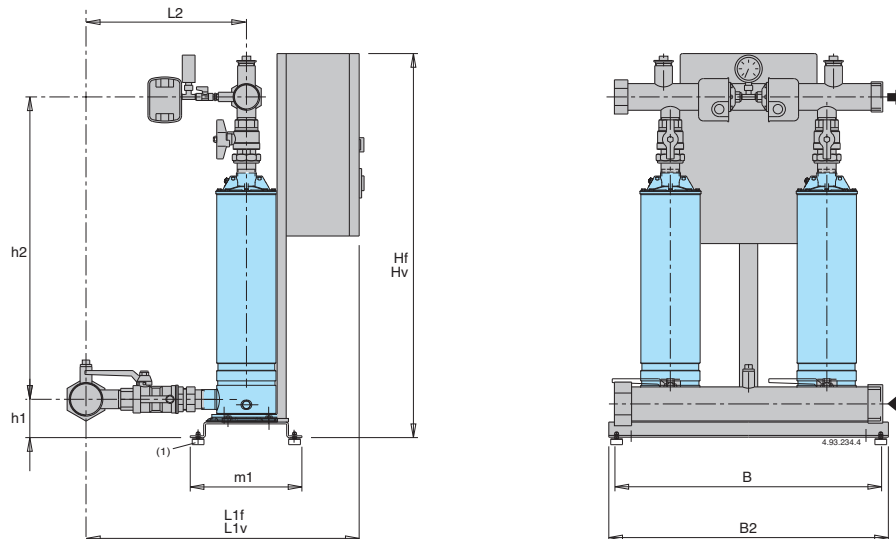
Dimensions and weights



TYPE	TYPE	Connection		mm							weight kg
		DN 1	DN 2	Hf	Hv	h1	h2	L1	m1		
BS1. 1MPSU 304	BSM1. 1MPSUM 304	G 1 1/4	G 1 1/4	875	1045	94	619	625	365		
BS1. 1MPSU 305	BSM1. 1MPSUM 305						668				
BS1. 1MPSU 306	BSM1. 1MPSUM 306						692				
BS1. 1MPSU 307	BSM1. 1MPSUM 307						716				
BS1. 1MPSU 504	BSM1. 1MPSUM 504						644				
BS1. 1MPSU 505	BSM1. 1MPSUM 505						668				
BS1. 1MPSU 506	BSM1. 1MPSUM 506						737				
BS1. 1MPSU 507	BSM1. 1MPSUM 507						786				

Dimensions not binding to be verified when ordering
Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

(1) Anti-vibration pads kit supplied loose as standard

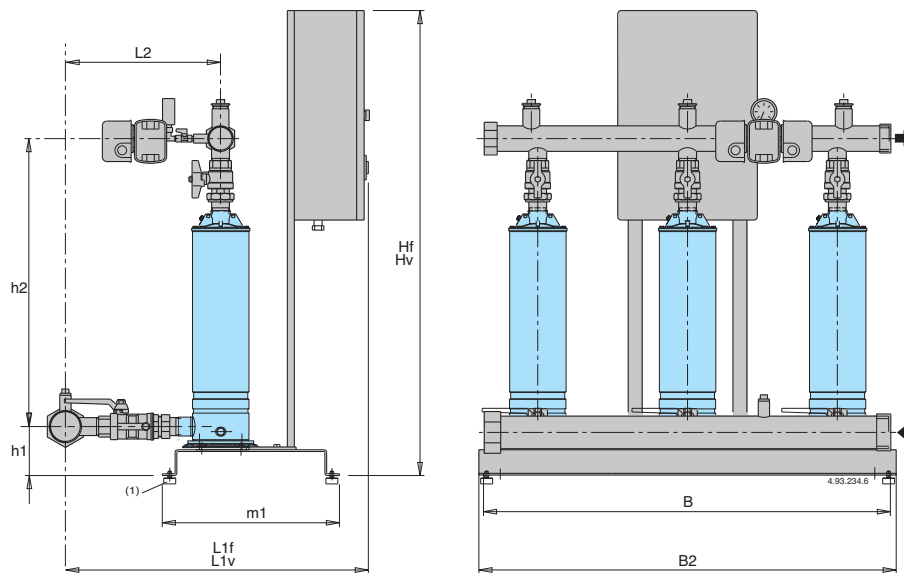


TYPE	TYPE	Connection		mm										weight kg
		DN 1	DN 2	Hf	Hv	h1	h2	L1f	L1v	L2	m1	B	B2	
BS.. 2MPSU 304	BSM.. 2MPSUM 304	G 2	G 2	865	1135	84	629	690	740	320	240	600	625	50 - 50
BS.. 2MPSU 305	BSM.. 2MPSUM 305						698							52 - 52
BS.. 2MPSU 306	BSM.. 2MPSUM 306						722							54 - 55
BS.. 2MPSU 307	BSM.. 2MPSUM 307						746							56 - 58
BS.. 2MPSU 504	BSM.. 2MPSUM 504						674							52 - 52
BS.. 2MPSU 505	BSM.. 2MPSUM 505						698							54 - 54
BS.. 2MPSU 506	BSM.. 2MPSUM 506						767							56 - 57
BS.. 2MPSU 507	BSM.. 2MPSUM 507						816							58 - 60

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard

Dimensions and weights



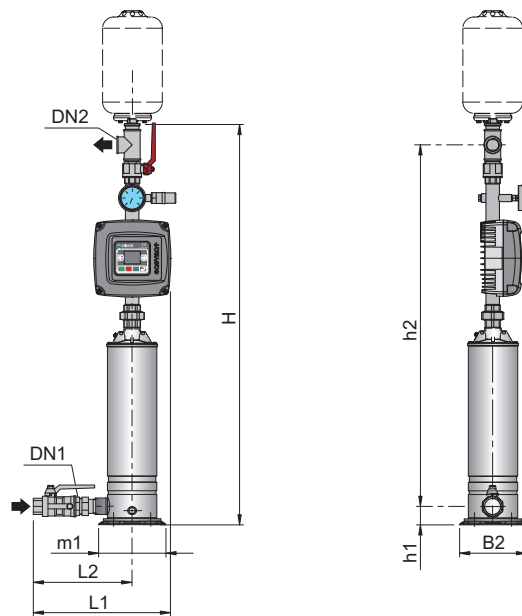
TYPE	Connection		mm										weight kg
	DN 1	DN 2	Hf	Hv	h1	h2	L1f	L1v	L2	m1	B	B2	
BS.. 3MPSU 304						636							
BS.. 3MPSU 305						705							
BS.. 3MPSU 306						729							
BS.. 3MPSU 307						753							
BS.. 3MPSU 504	G 2 1/2	G 2	1090	1260	105	681	735	805	329	406	950	1000	
BS.. 3MPSU 505						705							
BS.. 3MPSU 506						774							
BS.. 3MPSU 507						823							

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard

Hf= Fixed speed boosting sets
Hv= Variable speed boosting sets

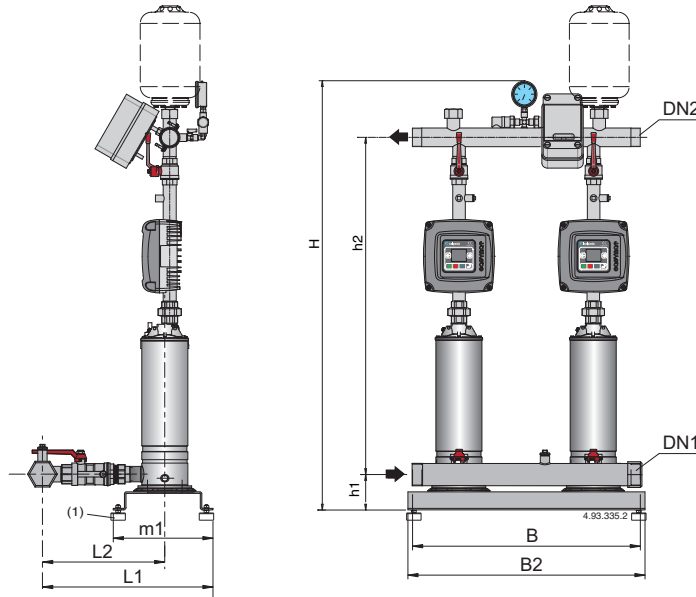
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains		Mains: 1~ 230V Motor: 1~ 230V	A	P2		Connection		mm							
	A	A			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B2	
BSM1V 1MPSU 304-EMT	3,9	2,8	BSM1V 1MPSUM 304-EMM	4,1	0,55	0,75	G 1 1/4	1 1/4	1055	50	952	376	286	180	205	
BSM1V 1MPSU 305-EMT	4,7	3,3	BSM1V 1MPSUM 305-EMM	5	0,75	1			1124		1021					
BSM1V 1MPSU 306-EMT	5,4	3,8	BSM1V 1MPSUM 306-EMM	6	0,9	1,2			1148		1045					
BSM1V 1MPSU 307-EMT	6,4	4,5	BSM1V 1MPSUM 307-EMM	6,6	0,9	1,2			1172		1069					
BSM1V 1MPSU 504-EMT	6,4	3,8	BSM1V 1MPSUM 504-EMM	6	0,9	1,2	G 1 1/4	G 1 1/4	1100	50	997	376	286	180	205	
BSM1V 1MPSU 505-EMT	6,4	4,5	BSM1V 1MPSUM 505-EMM	7	1,1	1,5			1124		1021					
BSM1V 1MPSU 506-EMT	6,9	4,8			1,1	1,5			1193		1090					
BSM1V 1MPSU 507-EMT	9,7	6,8			1,5	2			1142		1139					

Dimensions not binding to be verified when ordering

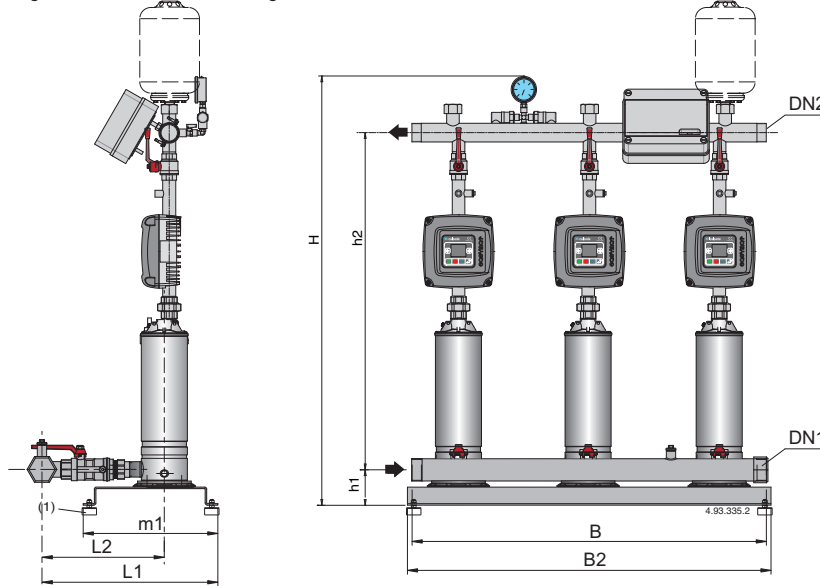
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains . motor		P2		Connection		mm							
	A	A	kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM2V 2MPSU 304-EMT	2 x 3,9	2 x 2,8	2 x 0,55	2 x 0,75	G 2	G 2	1130	84	932	420	320	240	600	625
BSM2V 2MPSU 305-EMT	2 x 4,7	2 x 3,3	2 x 0,75	2 x 1			1199		1001					
BSM2V 2MPSU 306-EMT	2 x 5,4	2 x 3,8	2 x 0,9	2 x 1,2			1223		1025					
BSM2V 2MPSU 307-EMT	2 x 6,4	2 x 4,5	2 x 0,9	2 x 1,2			1247		1049					
BSM2V 2MPSU 504-EMT	2 x 6,4	2 x 3,8	2 x 0,9	2 x 1,2	G 2	G 2	1175	84	977	420	320	240	600	625
BSM2V 2MPSU 505-EMT	2 x 6,4	2 x 4,5	2 x 1,1	2 x 1,5			1199		1001					
BSM2V 2MPSU 506-EMT	2 x 6,9	2 x 4,8	2 x 1,1	2 x 1,5			1268		1070					
BSM2V 2MPSU 507-EMT	2 x 9,7	2 x 6,8	2 x 1,5	2 x 2			1317		1119					

Dimensions not binding to be verified when ordering

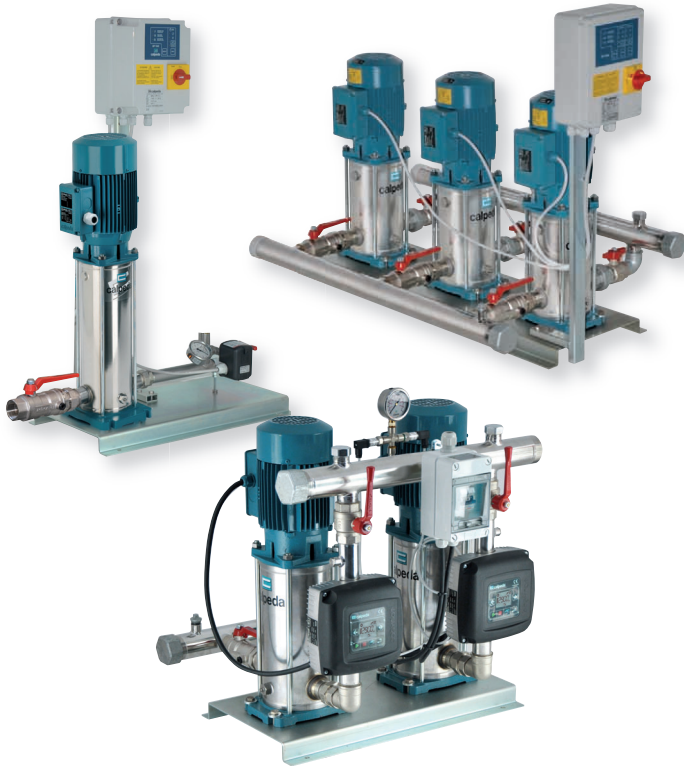
(1) Anti-vibration pads kit supplied loose as standard



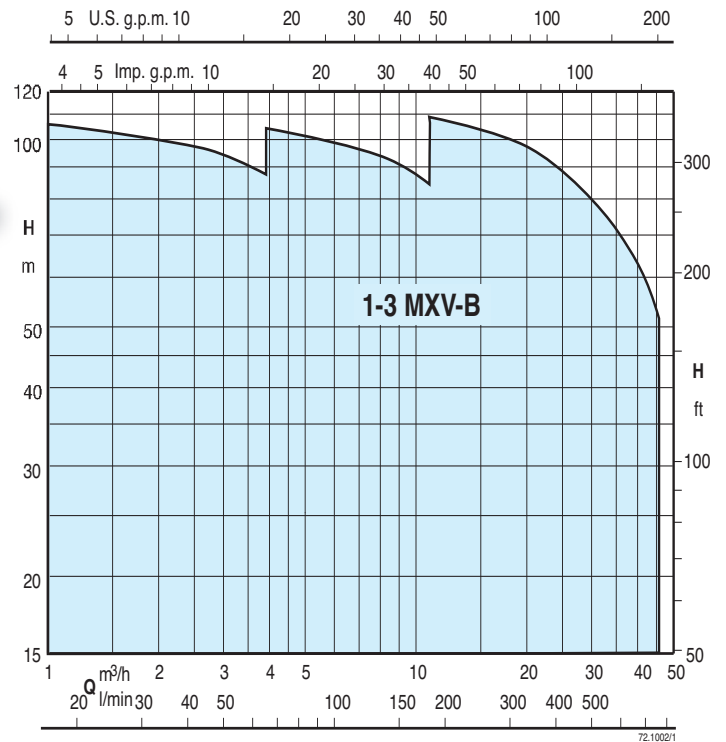
Mains: 1~ 230V Motor: 3~ 230V	mains . motor		P2		Connection		mm							
	A	A	kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM3V 3MPSU 304-EMT	3 x 3,9	3 x 2,8	3 x 0,55	3 x 0,75	G 2 1/2	G 2	1151	105	953	566	329	406	950	1000
BSM3V 3MPSU 305-EMT	3 x 4,7	3 x 3,3	3 x 0,75	3 x 1			1120		1022					
BSM3V 3MPSU 306-EMT	3 x 5,4	3 x 3,8	3 x 0,9	3 x 1,2			1244		1046					
BSM3V 3MPSU 307-EMT	3 x 6,4	3 x 4,5	3 x 0,9	3 x 1,2			1268		1070					
BSM3V 3MPSU 504-EMT	3 x 6,4	3 x 3,8	3 x 0,9	3 x 1,2	G 2 1/2	G 2	1196	105	998	566	329	406	950	1000
BSM3V 3MPSU 505-EMT	3 x 6,4	3 x 4,5	3 x 1,1	3 x 1,5			1220		1022					
BSM3V 3MPSU 506-EMT	3 x 6,9	3 x 4,8	3 x 1,1	3 x 1,5			1286		1091					
BSM3V 3MPSU 507-EMT	3 x 9,7	3 x 6,8	3 x 1,5	3 x 2			1338		1140					

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard



Coverage chart



Operation

BS 1-6F Pressure boosting sets with 1 to 6 fixed speed pump.
Sets with 4,5 and 6 pumps on request.
Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.

BS2-3V Pressure boosting sets with 2 to 3 variable speed pumps (with I-MAT).
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

BS1-3V Pressure boosting sets with 1 to 3 variable speed pumps (with EASYMAT).
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

BS1V2-5F Pressure boosting sets with 1 variable speed pump (with frequency converter into the control panel) and from 1 to 5 fixed speed pumps.
Sets with 4,5 and 6 pumps on request.
According to the water consumption, one or more pumps start, one at variable speed and the others at fixed speed, to grant the water quantity required at the set pressure.

BS1-6V Pressure boosting sets with 1 to 6 variable speed pumps (with frequency converter into the control panel).
Sets with 4,5 and 6 pumps on request.
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

Construction

- Automatic pressure boosting plant consisting of 1 to 6 vertical multi-stage pumps complete with ball, non return valve on the suction side and ball valves on the delivery side.

Suction and delivery manifolds for boosting sets with 2,3 pumps:

- stainless steel AISI 304.
Connections are located on the delivery manifold for the installation of vessels G1 connection.

Electrical control boards:

- with microprocessor for fixed speed pump units. Motor starting is D.O.L.
- with frequency converter for variable speed pump units.

The unit includes one pressure gauge and three adjustable differential pressure switches or pressure transducer.

Applications

To supply water in civil and industrial buildings.
As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

2-pole induction motors, 50 Hz, $n \approx 2900$ rpm, suitable for operation with frequency converter.
- Three-phase 230/400V $\pm 10\%$.
- Single-phase 230 V $\pm 10\%$, with thermal protector.
Insulation class F.
Protection IP 54.
Constructed in accordance with: IEC 60034.
Other voltages and frequencies on request.

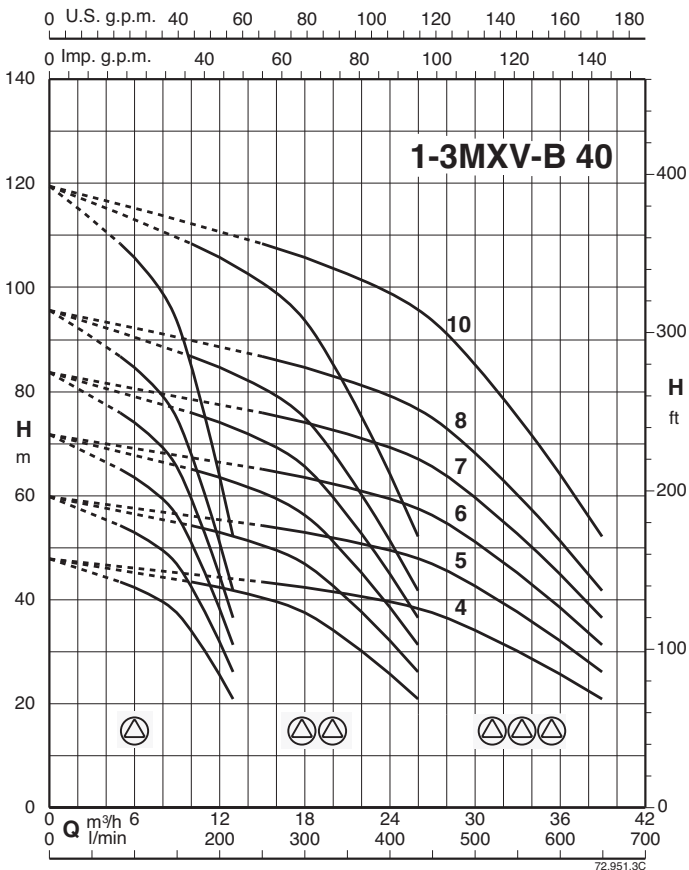
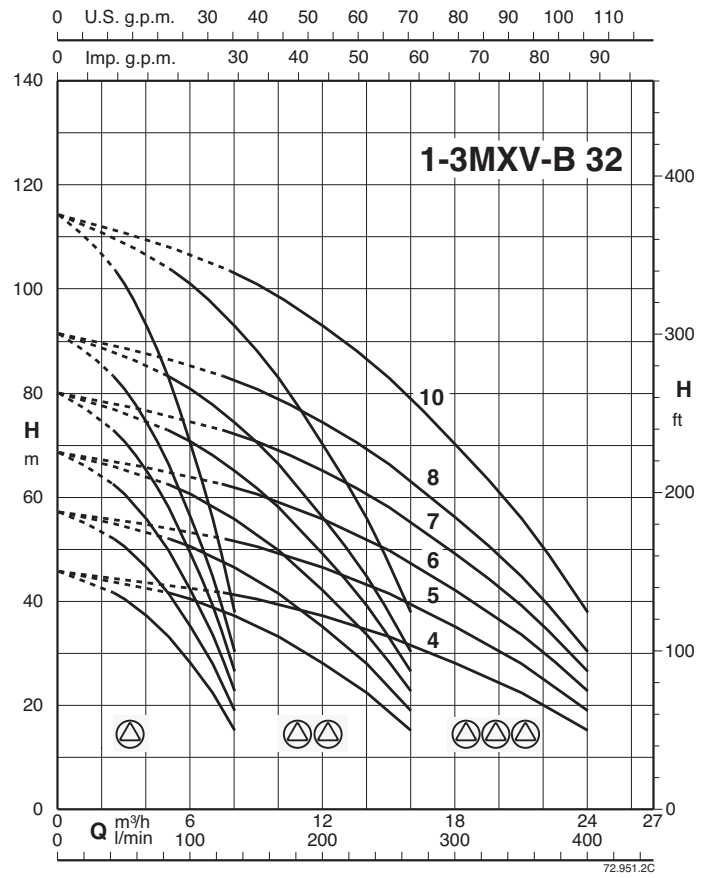
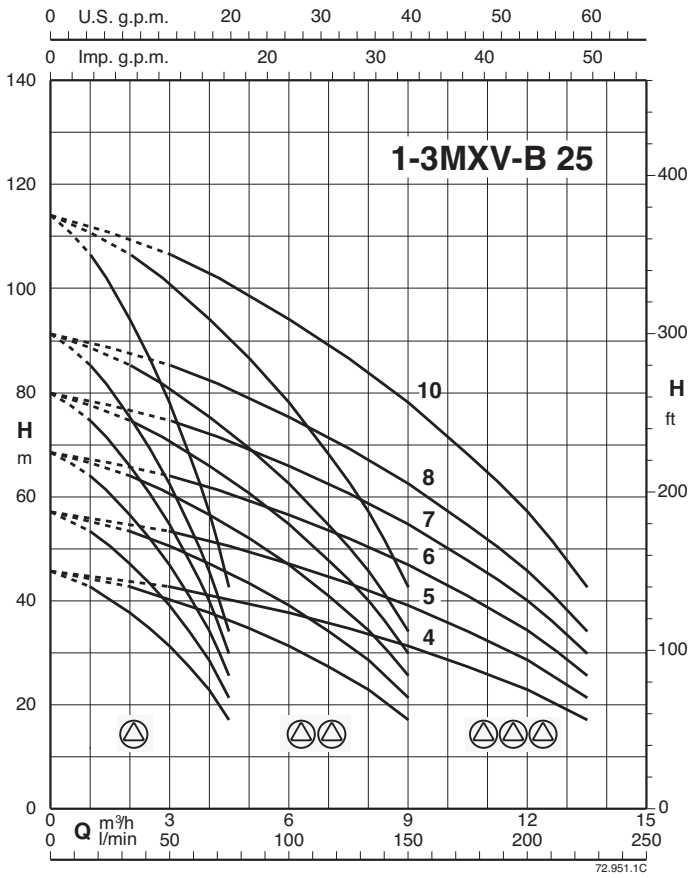
Vessels on request

When installing the unit, connect in the delivery section to a diaphragm or galvanised tank.
The recommended sized are shown in the following page.

Special features on request

Pressure boosting sets with 4,5 and 6 pumps.

Coverage chart



Performance

BS1F

BSM1F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Pres. switch 1 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	Q l/min	H m		
BS1F 1MXV-B 25-204	BSM1F 1MXV-BM 25-204	0,75	1	2,5	4	62	25	40	100
BS1F 1MXV-B 25-205	BSM1F 1MXV-BM 25-205	0,75	1	3,5	5	56	36	50	100
BS1F 1MXV-B 25-206	BSM1F 1MXV-BM 25-206	1,1	1,5	4	6	59	41	50	100
BS1F 1MXV-B 25-207	BSM1F 1MXV-BM 25-207	1,1	1,5	5	7	55	51	50	100
BS1F 1MXV-B 25-208	BSM1F 1MXV-BM 25-208	1,5	2	6	8	51	61	60	100
BS1F 1MXV-B 25-210	BSM1F 1MXV-BM 25-210	1,5	2	6,5	9,5	60	66	60	100
BS1F 1MXV-B 32-404	BSM1F 1MXV-BM 32-404	1,1	1,5	2,3	3,8	114	23	80	100
BS1F 1MXV-B 32-405	BSM1F 1MXV-BM 32-405	1,1	1,5	3,4	4,9	103	35	100	100
BS1F 1MXV-B 32-406	BSM1F 1MXV-BM 32-406	1,5	2	4	6	105	41	100	100
BS1F 1MXV-B 32-407	BSM1F 1MXV-BM 32-407	1,5	2	5	7	99	51	100	300
BS1F 1MXV-B 32-408/A		2,2	3	6	8	93	61	150	300
BS1F 1MXV-B 32-410/A		2,2	3	6,5	9,5	108	66	150	300
BS1F 1MXV-B 40-804	BSM1F 1MXV-BM 40-804	1,5	2	2,5	4	214	25	200	300
BS1F 1MXV-B 40-805/A		2,2	3	3,5	5	211	36	300	500
BS1F 1MXV-B 40-806/A		2,2	3	4	6	211	41	300	500
BS1F 1MXV-B 40-807/A		3	4	5	7	208	51	300	500
BS1F 1MXV-B 40-808/A		3	4	6	8	199	61	300	500
BS1F 1MXV-B 40-810/A		3,7	5	7,5	10,5	199	76	500	800

* Maximum pumps flow at minimum setting pressure switch.

BS2F

BSM2F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	min	max	Q l/min	H m		
BS2F 2MXV-B 25-204	BSM2F 2MXV-BM 25-204	0,75 x2	1 x2	2,5	4	2,2	3,7	135	22	40	100
BS2F 2MXV-B 25-205	BSM2F 2MXV-BM 25-205	0,75 x2	1 x2	3,5	5	3	4,5	128	31	50	100
BS2F 2MXV-B 25-206	BSM2F 2MXV-BM 25-206	1,1 x2	1,5 x2	4	6	3,5	5,5	130	36	50	100
BS2F 2MXV-B 25-207	BSM2F 2MXV-BM 25-207	1,1 x2	1,5 x2	5	7	4,5	6,5	122	46	50	100
BS2F 2MXV-B 25-208	BSM2F 2MXV-BM 25-208	1,5 x2	2 x2	6	8	5,5	7,5	113	56	60	100
BS2F 2MXV-B 25-210	BSM2F 2MXV-BM 25-210	1,5 x2	2 x2	6,5	9,5	6	9	128	61	60	100
BS2F 2MXV-B 32-404	BSM2F 2MXV-BM 32-404	1,1 x2	1,5 x2	2,3	3,8	1,8	3,3	253	18	80	100
BS2F 2MXV-B 32-405	BSM2F 2MXV-BM 32-405	1,1 x2	1,5 x2	3,4	4,9	3	4,5	226	31	100	100
BS2F 2MXV-B 32-406	BSM2F 2MXV-BM 32-406	1,5 x2	2 x2	4	6	3,5	5,5	232	36	100	100
BS2F 2MXV-B 32-407	BSM2F 2MXV-BM 32-407	1,5 x2	2 x2	5	7	4,5	6,5	218	46	100	300
BS2F 2MXV-B 32-408/A		2,2 x2	3 x2	6	8	5,5	7,5	205	56	150	300
BS2F 2MXV-B 32-410/A		2,2 x2	3 x2	6,5	9,5	6	9	229	61	150	300
BS2F 2MXV-B 40-804	BSM2F 2MXV-BM 40-804	1,5 x2	2 x2	2,5	4	2,2	3,7	435	22	200	300
BS2F 2MXV-B 40-805/A		2,2 x2	3 x2	3,5	5	3	4,5	438	31	300	500
BS2F 2MXV-B 40-806/A		2,2 x2	3 x2	4	6	3,5	5,5	435	36	300	500
BS2F 2MXV-B 40-807/A		3 x2	4 x2	5	7	4,5	6,5	434	46	300	500
BS2F 2MXV-B 40-808/A		3 x2	4 x2	6	8	5,5	7,5	418	56	300	500
BS2F 2MXV-B 40-810/A		3,7 x2	5 x2	8	10	7,5	9,5	399	76	500	800

* Maximum pumps flow at minimum setting pressure of 2nd pressure switch.

Performance

BS3F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Pres. switch 3 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	min	max	min	max	Q l/min	H m		
BS3F 3MXV-B 25-204	0,75 x3	1 x3	2,5	4	2,2	3,7	1,9	3,4	216	19	40	100
BS3F 3MXV-B 25-205	0,75 x3	1 x3	3,5	5	3,2	4,7	2,9	4,4	197	30	50	100
BS3F 3MXV-B 25-206	1,1 x3	1,5 x3	4,5	6	4,2	5,7	3,9	5,4	180	40	50	100
BS3F 3MXV-B 25-207	1,1 x3	1,5 x3	5,5	7	5,2	6,7	4,9	6,4	168	50	50	100
BS3F 3MXV-B 25-208	1,5 x3	2 x3	6,5	8	6,2	7,7	5,9	7,4	157	60	60	100
BS3F 3MXV-B 25-210	1,5 x3	2 x3	6,5	9,5	6	9	5,5	8,5	203	56	60	100
BS3F 3MXV-B 32-404	1,1 x3	1,5 x3	2,3	3,8	2	3,5	1,7	3,2	385	17	80	100
BS3F 3MXV-B 32-405	1,1 x3	1,5 x3	3,4	4,9	3,1	4,6	2,8	4,3	353	29	100	100
BS3F 3MXV-B 32-406	1,5 x3	2 x3	4,4	5,9	4,1	5,6	3,8	5,3	329	39	100	100
BS3F 3MXV-B 32-407	1,5 x3	2 x3	5,5	7	5,2	6,7	4,9	6,4	304	50	100	300
BS3F 3MXV-B 32-408/A	2,2 x3	3 x3	6,5	8	6,2	7,7	5,9	7,4	285	60	150	300
BS3F 3MXV-B 32-410/A	2,2 x3	3 x3	6	9	5,5	8,5	5	8	373	51	150	300
BS3F 3MXV-B 40-804	1,5 x3	2 x3	2,5	4	2,2	3,7	1,9	3,4	643	19	200	300
BS3F 3MXV-B 40-805/A	2,2 x3	3 x3	3,5	5	3,2	4,7	2,9	4,4	658	30	300	500
BS3F 3MXV-B 40-806/A	2,2 x3	3 x3	4,5	6	4,2	5,7	3,9	5,4	640	40	300	500
BS2F 3MXV-B 40-807/A	3 x3	4 x3	5,5	7	5,2	6,7	4,9	6,4	632	50	300	500
BS2F 3MXV-B 40-808/A	3 x3	4 x3	6,5	8	6,2	7,7	5,9	7,4	604	60	300	500
BS2F 3MXV-B 40-810/A	3,7 x3	5 x3	8	10	7,5	9,5	7	9	624	71	500	800

* Maximum pumps flow at minimum setting pressure of 3rd pressure switch.

Performance

BS..

PUMPS Nos						PUMP TYPE	P ₂ For each pump	
1	2	3	4	5	6		kW	HP
BS1V	BS2V BS1V1F BSM1V1F* BSM2V**	BS3V BS1V2F	BS4V BS1V3F	BS5V BS1V4F	BS6V BS1V5F	MXV-B 25-204	0,75	1
						MXV-B 25-205	0,75	1
						MXV-B 25-206	1,1	1,5
						MXV-B 25-207	1,1	1,5
						MXV-B 25-208	1,5	2
						MXV-B 25-210	1,5	2
						MXV-B 32-404	1,1	1,5
						MXV-B 32-405	1,1	1,5
						MXV-B 32-406	1,5	2
						MXV-B 32-407	1,5	2
						MXV-B 32-408/A	2,2	3
						MXV-B 32-410/A	2,2	3
						MXV-B 40-804	1,5	2
						MXV-B 40-805/A	2,2	3
						MXV-B 40-806/A	2,2	3
						MXV-B 40-807/A	3	4
						MXV-B 40-808/A	3	4
MXV-B 40-810/A	3,7	5						

BS.. ..-ITT

PUMPS Nos		PUMP TYPE	P ₂ For each pump	
2	3		kW	HP
BS2V -ITT	BS3V -ITT	MXV-B 25-203-ITT	0,75	1
		MXV-B 25-204-ITT	0,75	1
		MXV-B 25-205-ITT	0,75	1
		MXV-B 25-206/A-ITT	1,1	1,5
		MXV-B 25-207/A-ITT	1,1	1,5
		MXV-B 25-208/A-ITT	1,5	2
		MXV-B 25-210/A-ITT	1,5	2
		MXV-B 32-403-ITT	0,75	1
		MXV-B 32-404/A-ITT	1,1	1,5
		MXV-B 32-405/A-ITT	1,1	1,5
		MXV-B 32-406/A-ITT	1,5	2
		MXV-B 32-407/A-ITT	1,5	2
		MXV-B 32-408/B-ITT	2,2	3
		MXV-B 32-410/B-ITT	2,2	3
		MXV-B 40-803/A-ITT	1,1	1,5
		MXV-B 40-804/A-ITT	1,5	2
		MXV-B 40-805/B-ITT	2,2	3
MXV-B 40-806/B-ITT	2,2	3		
MXV-B 40-807/A-ITT	3	4		
MXV-B 40-808/A-ITT	3	4		
MXV-B 40-810/B-ITT	3,7	5		

(*) SYSTEMS WITH:

- 1 variable speed pump three-phase motor
- 1 fixed speed pump single-phase motor
- Power supply to control panel 230 V single-phase

(**) Three-phase motor 230 V.

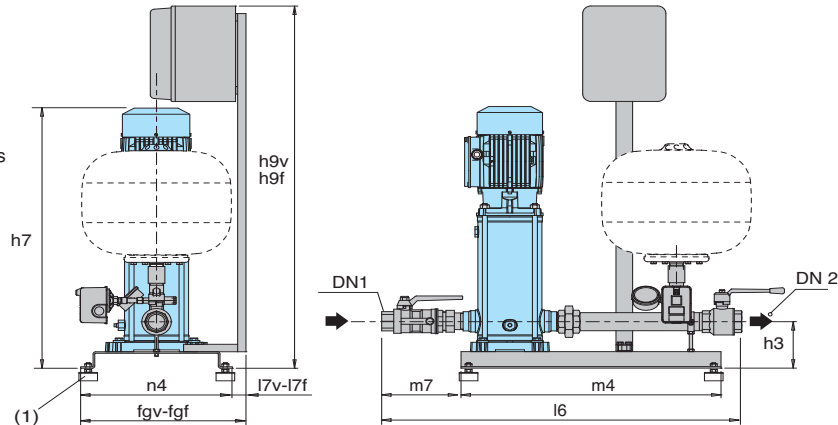
- Power supply to control panel: - 230 V three-phase
- 230 V single-phase
- Frequency converter output is always 230 V three-phase.

BS.. ..-EMT, EMM

PUMPS Nos			PUMP TYPE	P ₂ For each pump	
1	2	3		kW	HP
BS1V -EMT -EMM	BS2V -EMT	BS3V -EMT	MXV-B 25-204-EMT	0,75	1
			MXV-B 25-205-EMT	0,75	1
			MXV-B 25-206/A-EMT	1,1	1,5
			MXV-B 25-207/A-EMT	1,1	1,5
			MXV-B 25-208/A-EMT	1,5	2
			MXV-B 25-210/A-EMT	1,5	2
			MXV-B 32-404/A-EMT	1,1	1,5
			MXV-B 32-405/A-EMT	1,1	1,5
			MXV-B 32-406/A-EMT	1,5	2
			MXV-B 32-407/A-EMT	1,5	2
			MXV-B 32-408/B-EMT	2,2	3
			MXV-B 32-410/B-EMT	2,2	3
			MXV-B 40-804/A-EMT	1,5	2
			MXV-B 40-805/B-EMT	2,2	3
MXV-B 40-806/B-EMT	2,2	3			

Dimensions and weights

h9f-I6f-I7f= Fixed speed boosting sets
h9v-I6v-I7v= Variable speed boosting sets
h9i-I6i-I7i= I-MAT boosting sets

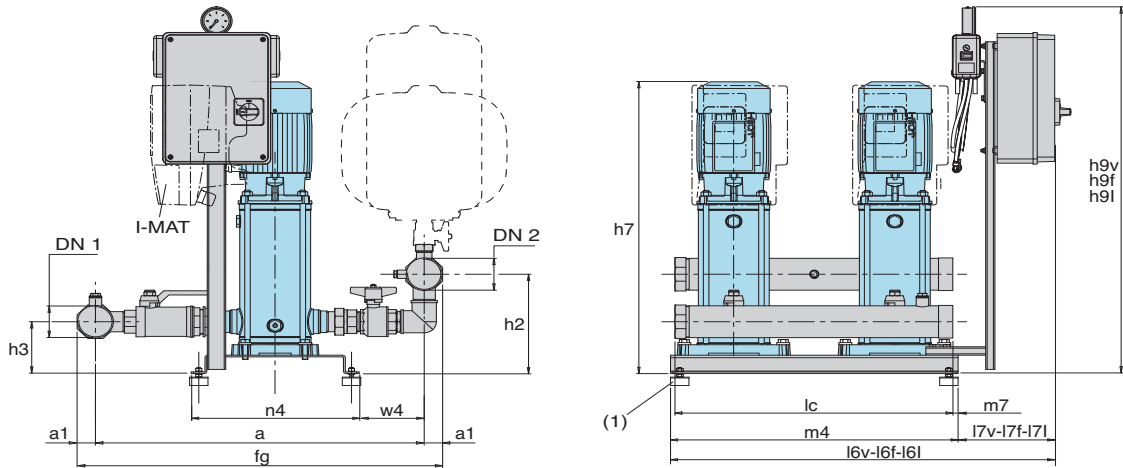


TYPE	TYPE	Connection		mm													
		DN 1	DN 2	h9f	h9v	h7	h3	m4	m7	I6	n4	fgf	fgv	I7f	I7v		
BS1. 1MXV-B 25-204	BSM1. 1MXV-BM 25-204					609											
BS1. 1MXV-B 25-205	BSM1. 1MXV-BM 25-205					632											
BS1. 1MXV-B 25-206	BSM1. 1MXV-BM 25-206					656											
BS1. 1MXV-B 25-207	BSM1. 1MXV-BM 25-207	G 1	G 1	1065	1345	680	120	625	140	*	365	*	410	*		45	
BS1. 1MXV-B 25-208	BSM1. 1MXV-BM 25-208					704											
BS1. 1MXV-B 25-210	BSM1. 1MXV-BM 25-210					752											
BS1. 1MXV-B 32-404	BSM1. 1MXV-BM 32-404					609											
BS1. 1MXV-B 32-405	BSM1. 1MXV-BM 32-405					632											
BS1. 1MXV-B 32-406	BSM1. 1MXV-BM 32-406	G 1 1/4	G 1 1/4	1065	1345	656	120	625	175	*	365	*	410	*		45	
BS1. 1MXV-B 32-407	BSM1. 1MXV-BM 32-407					680											
BS1. 1MXV-B 32-408/A						744											
BS1. 1MXV-B 32-410/A						792											
BS1. 1MXV-B 40-804	BSM1. 1MXV-BM 40-804					637											
BS1. 1MXV-B 40-805/A						707											
BS1. 1MXV-B 40-806/A		G 1 1/2	G 1 1/2	1065	1345	737	125	625	213	*	365	*	410	*		45	
BS1. 1MXV-B 40-807/A						790											
BS1. 1MXV-B 40-808/A						820											
BS1. 1MXV-B 40-810/A						997											

Dimensions not binding to be verified when ordering

* Dimensions on request

(1) Anti-vibration pads kit supplied loose as standard



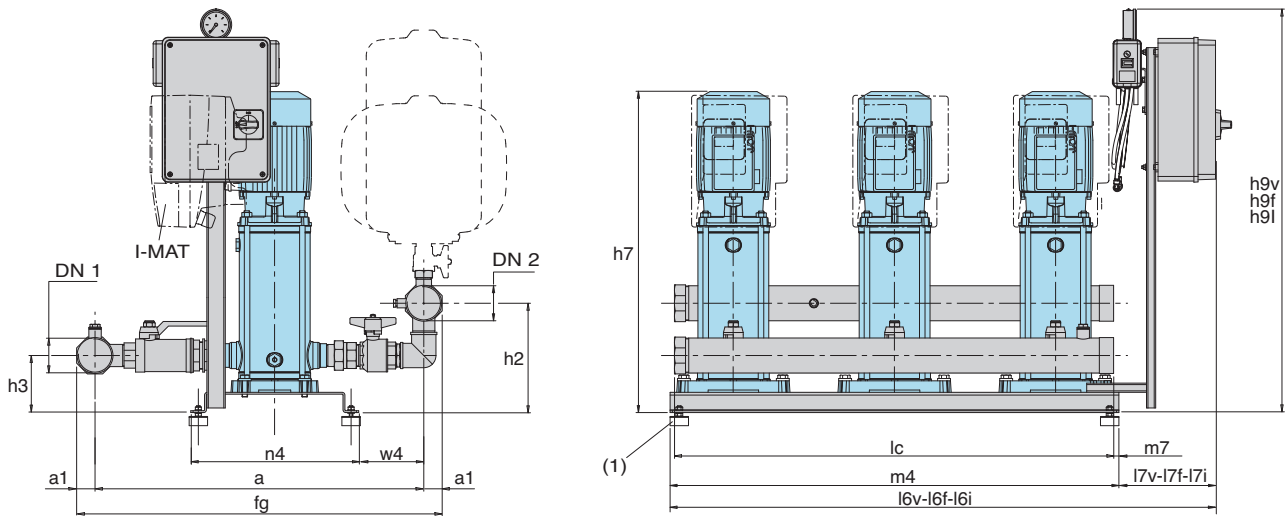
TYPE	TYPE	Connection		mm																				
		DN 1	DN 2	h9f	h9v	h9i	h7	h3	h2	fg	a	a1	n4	w4	lc	m4	m7	I6f	I6v	I6i	I7f	I7v	I7i	
BS.. 2MXV-B 25-204 (-ITT)	BSM.. 2MXV-BM 25-204						671																	
BS.. 2MXV-B 25-205 (-ITT)	BSM.. 2MXV-BM 25-205						695																	
BS.. 2MXV-B 25-206 (-ITT)	BSM.. 2MXV-BM 25-206						719																	
BS.. 2MXV-B 25-207 (-ITT)	BSM.. 2MXV-BM 25-207	G 1 1/2	G 1 1/2	965	1145	853	743	119	195	663	610	26,5	365	123	600	625	12,5	840	*	*	215	*	*	
BS.. 2MXV-B 25-208 (-ITT)	BSM.. 2MXV-BM 25-208						777																	
BS.. 2MXV-B 25-210 (-ITT)	BSM.. 2MXV-BM 25-210						825																	
BS.. 2MXV-B 32-404 (-ITT)	BSM.. 2MXV-BM 32-404						671																	
BS.. 2MXV-B 32-405 (-ITT)	BSM.. 2MXV-BM 32-405						695																	
BS.. 2MXV-B 32-406 (-ITT)	BSM.. 2MXV-BM 32-406	G 2	G 2	965	1145	853	729	119	212	687	623	32	365	105	600	625	12,5	840	*	*	215	*	*	
BS.. 2MXV-B 32-407 (-ITT)	BSM.. 2MXV-BM 32-407						753																	
BS.. 2MXV-B 32-408/A (-ITT)							817																	
BS.. 2MXV-B 32-410/A (-ITT)							865																	
BS.. 2MXV-B 40-804 (-ITT)	BSM.. 2MXV-BM 40-804						710																	
BS.. 2MXV-B 40-805/A (-ITT)							780																	
BS.. 2MXV-B 40-806/A (-ITT)		G 2 1/2	G 2 1/2	965	1145	853	810	124	238	795	715	40	365	143	600	625	12,5	840	*	*	215	*	*	
BS.. 2MXV-B 40-807/A (-ITT)							866																	
BS.. 2MXV-B 40-808/A (-ITT)							896																	
BS.. 2MXV-B 40-810/A (-ITT)							956																	

Dimensions not binding to be verified when ordering

* Dimensions on request

(1) Anti-vibration pads kit supplied loose as standard

Dimensions and weights



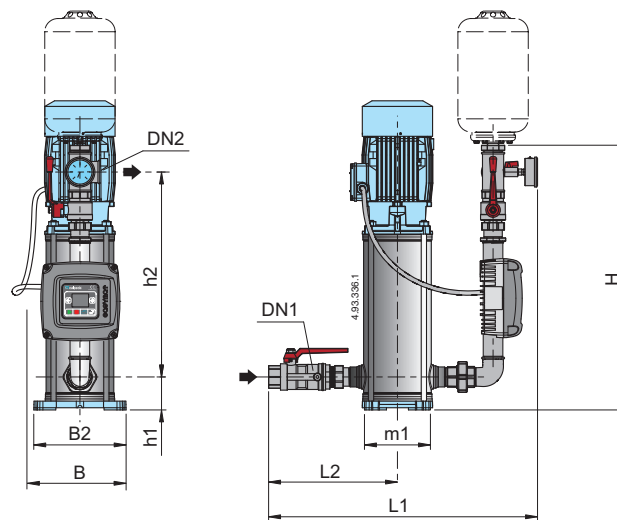
TYPE	Connection		mm																				
	DN 1	DN 2	h9f	h9v	h9i	h7	h3	h2	fg	a	a1	n4	w4	lc	m4	m7	l6f	l6v	l6i	l7f	l7v	l7i	
BS.. 3MXV-B 25-204 (-ITT)						686																	
BS.. 3MXV-B 25-205 (-ITT)						710																	
BS.. 3MXV-B 25-206 (-ITT)						734																	
BS.. 3MXV-B 25-207 (-ITT)	G 2	G 2	965	1145	853	758	134	216	681	617	32	406	102	950	1000	25	840	*	*	215	*	*	
BS.. 3MXV-B 25-208 (-ITT)						792																	
BS.. 3MXV-B 25-210 (-ITT)						840																	
BS.. 3MXV-B 32-404 (-ITT)						686																	
BS.. 3MXV-B 32-405 (-ITT)						710																	
BS.. 3MXV-B 32-406 (-ITT)	G 2 1/2	G 2 1/2	965	1145	853	744	134	234	711	631	40	406	84	950	1000	25	840	*	*	215	*	*	
BS.. 3MXV-B 32-407 (-ITT)						768																	
BS.. 3MXV-B 32-408/A (-ITT)						832																	
BS.. 3MXV-B 32-410/A (-ITT)						880																	
BS.. 3MXV-B 40-804 (-ITT)						725																	
BS.. 3MXV-B 40-805/A (-ITT)						795																	
BS.. 3MXV-B 40-806/A (-ITT)	G 3	G 3	965	1145	853	825	139	259	817	720	48,5	406	121	950	1000	25	840	*	*	215	*	*	
BS.. 3MXV-B 40-807/A (-ITT)						881																	
BS.. 3MXV-B 40-808/A (-ITT)						911																	
BS.. 3MXV-B 40-810/A (-ITT)						971																	

Dimensions not binding to be verified when ordering

* Dimensions on request

(1) Anti-vibration pads kit supplied loose as standard

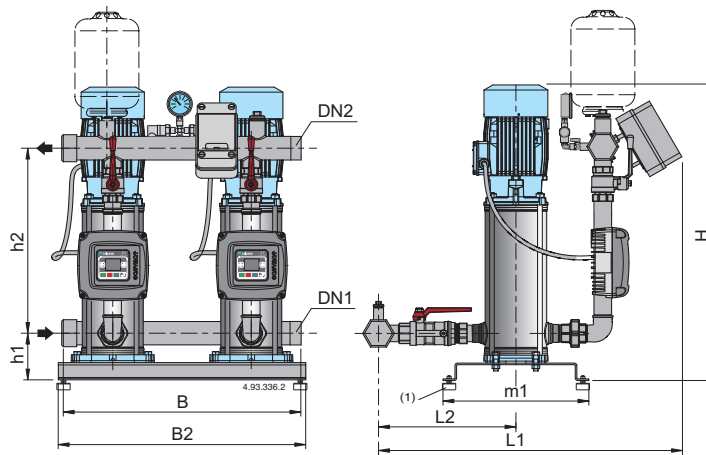
Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains motor		Mains: 1~ 230V Motor: 1~ 230V	A	P2		Connection		mm								
	A	A			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2	
BSM1V 1MXV-B 25-204-EMT	5,4	3,3	BSM1V 1MXV-BM 25-204-EMM	5,8	0,75	1	G 1	G 1	577	75	437	588	262	150	218	210	
BSM1V 1MXV-B 25-205-EMT	5,4	3,3	BSM1V 1MXV-BM 25-205-EMM	5,8	0,75	1											
BSM1V 1MXV-B 25-206/A-EMT	7,1	4,7	BSM1V 1MXV-BM 25-206-EMM	7,4	1,1	1,5											
BSM1V 1MXV-B 25-207/A-EMT	7,1	4,7	BSM1V 1MXV-BM 25-207-EMM	7,4	1,1	1,5											
BSM1V 1MXV-B 25-208/A-EMT	10,8	7,5			1,5	2											
BSM1V 1MXV-B 25-210/A-EMT	10,8	7,5			1,5	2											
BSM1V 1MXV-B 32-404/A-EMT	7,1	4,7	BSM1V 1MXV-BM 32-404-EMM	7,4	1,1	1,5	G 1 1/4	G 1 1/4	600	75	458	633	288	150	218	210	
BSM1V 1MXV-B 32-405/A-EMT	7,1	4,7	BSM1V 1MXV-BM 32-405-EMM	7,4	1,1	1,5											
BSM1V 1MXV-B 32-406/A-EMT	10,8	7,5			1,5	2											
BSM1V 1MXV-B 32-407/A-EMT	10,8	7,5			1,5	2											
BSM1V 1MXV-B 32-408/B-EMT	13,2	9,15			2,2	3											
BSM1V 1MXV-B 32-410/B-EMT	13,2	9,15			2,2	3											
BSM1V 1MXV-B 40-804/A-EMT	10,8	7,5			1,5	2	G 1 1/2	G 1 1/2	623	80	470	675	318	190	246	246	
BSM1V 1MXV-B 40-805/B-EMT	13,2	9,15			2,2	3											
BSM1V 1MXV-B 40-806/B-EMT	13,2	9,15			2,2	3											

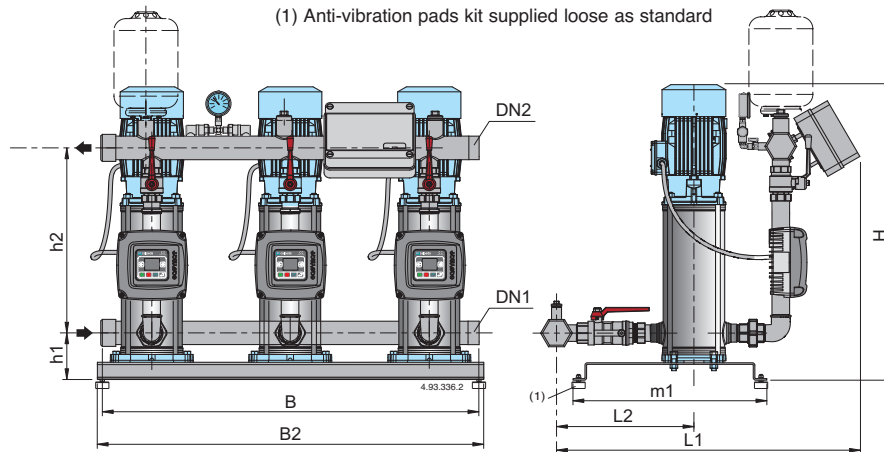
Dimensions not binding to be verified when ordering

Characteristic and dimensions



Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P2		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM2V 2MXV-B 25-204-EMT	2 x 5,4	2 x 3,3	2 x 0,75	2 x 1	G 1 1/2	G 1 1/2	727	119	461	501	315	365	600	625
BSM2V 2MXV-B 25-205-EMT	2 x 5,4	2 x 3,3	2 x 0,75	2 x 1										
BSM2V 2MXV-B 25-206/A-EMT	2 x 7,1	2 x 4,7	2 x 1,1	2 x 1,5										
BSM2V 2MXV-B 25-207/A-EMT	2 x 7,1	2 x 4,7	2 x 1,1	2 x 1,5										
BSM2V 2MXV-B 25-208/A-EMT	2 x 10,8	2 x 7,5	2 x 1,5	2 x 2										
BSM2V 2MXV-B 25-210/A-EMT	2 x 10,8	2 x 7,5	2 x 1,5	2 x 2										
BSM2V 2MXV-B 32-404/A-EMT	2 x 7,1	2 x 4,7	2 x 1,1	2 x 1,5	G 2	G 2	743	119	477	544	340	365	600	625
BSM2V 2MXV-B 32-405/A-EMT	2 x 7,1	2 x 4,7	2 x 1,1	2 x 1,5										
BSM2V 2MXV-B 32-406/A-EMT	2 x 10,8	2 x 7,5	2 x 1,5	2 x 2										
BSM2V 2MXV-B 32-407/A-EMT	2 x 10,8	2 x 7,5	2 x 1,5	2 x 2										
BSM2V 2MXV-B 32-408/B-EMT	2 x 13,2	2 x 9,15	2 x 2,2	2 x 3										
BSM2V 2MXV-B 32-410/B-EMT	2 x 13,2	2 x 9,15	2 x 2,2	2 x 3										
BSM2V 2MXV-B 40-804/A-EMT	2 x 10,8	2 x 7,5	2 x 1,5	2 x 2	G 2 1/2	G 2 1/2	765	124	495	598	388	365	600	625
BSM2V 2MXV-B 40-805/B-EMT	2 x 13,2	2 x 9,15	2 x 2,2	2 x 3										
BSM2V 2MXV-B 40-806/B-EMT	2 x 13,2	2 x 9,15	2 x 2,2	2 x 3										

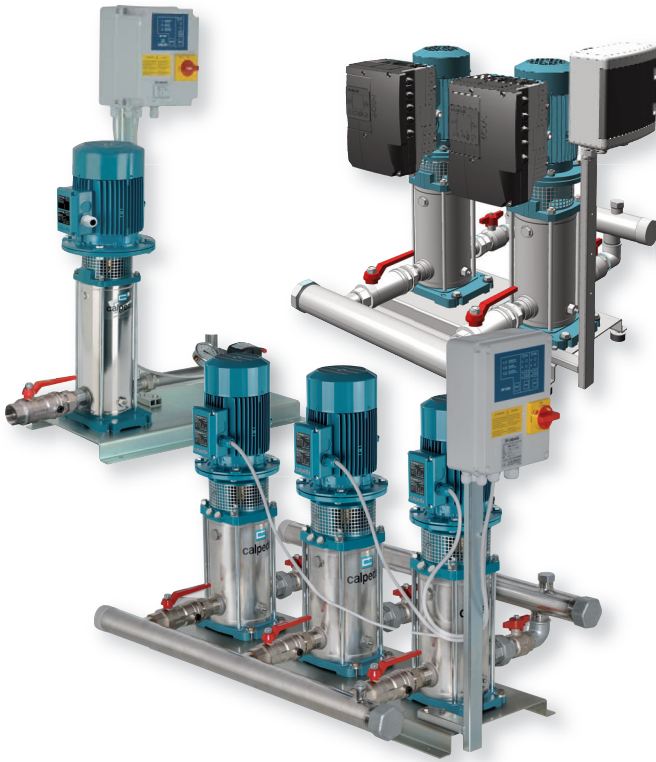
(1) Anti-vibration pads kit supplied loose as standard



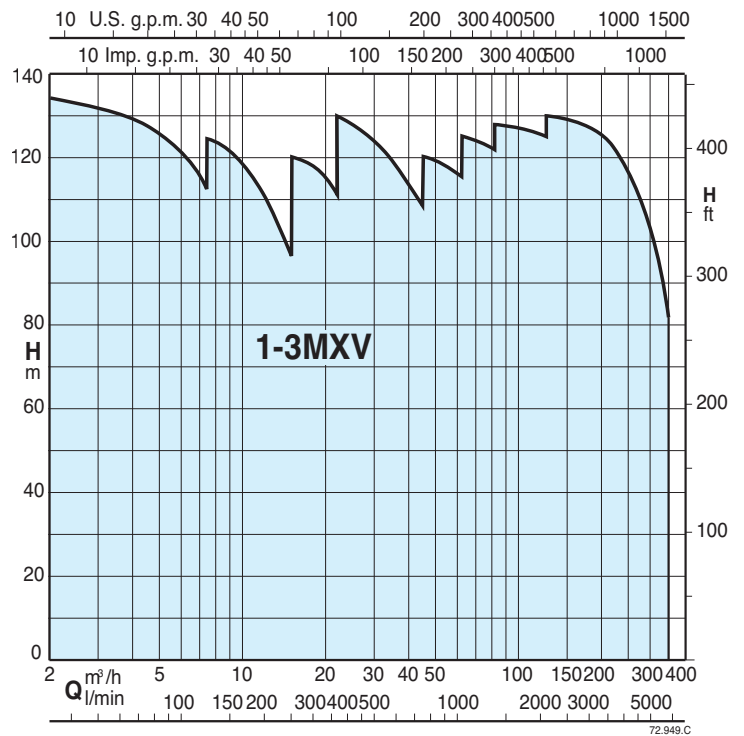
Mains: 1~ 230V Motor: 3~ 230V	mains A	motor A	P2		Connection		mm							
			kW	HP	DN1	DN2	H	h1	h2	L1	L2	m1	B	B2
BSM3V 3MXV-B 25-204-EMT	3 x 5,4	3 x 3,3	3 x 0,75	3 x 1	G 1 1/2	G 1 1/2	727	119	461	501	315	365	600	625
BSM3V 3MXV-B 25-205-EMT	3 x 5,4	3 x 3,3	3 x 0,75	3 x 1										
BSM3V 3MXV-B 25-206/A-EMT	3 x 7,1	3 x 4,7	3 x 1,1	3 x 1,5										
BSM3V 3MXV-B 25-207/A-EMT	3 x 7,1	3 x 4,7	3 x 1,1	3 x 1,5										
BSM3V 3MXV-B 25-208/A-EMT	3 x 10,8	3 x 7,5	3 x 1,5	3 x 2										
BSM3V 3MXV-B 25-210/A-EMT	3 x 10,8	3 x 7,5	3 x 1,5	3 x 2										
BSM3V 3MXV-B 32-404/A-EMT	3 x 7,1	3 x 4,7	3 x 1,1	3 x 1,5	G 2	G 2	743	119	477	544	340	365	600	625
BSM3V 3MXV-B 32-405/A-EMT	3 x 7,1	3 x 4,7	3 x 1,1	3 x 1,5										
BSM3V 3MXV-B 32-406/A-EMT	3 x 10,8	3 x 7,5	3 x 1,5	3 x 2										
BSM3V 3MXV-B 32-407/A-EMT	3 x 10,8	3 x 7,5	3 x 1,5	3 x 2										
BSM3V 3MXV-B 32-408/B-EMT	3 x 13,2	3 x 9,15	3 x 2,2	3 x 3										
BSM3V 3MXV-B 32-410/B-EMT	3 x 13,2	3 x 9,15	3 x 2,2	3 x 3										
BSM3V 3MXV-B 40-804/A-EMT	3 x 10,8	3 x 7,5	3 x 1,5	3 x 2	G 2 1/2	G 2 1/2	765	124	495	598	388	365	600	625
BSM3V 3MXV-B 40-805/B-EMT	3 x 13,2	3 x 9,15	3 x 2,2	3 x 3										
BSM3V 3MXV-B 40-806/B-EMT	3 x 13,2	3 x 9,15	3 x 2,2	3 x 3										

Dimensions not binding to be verified when ordering

(1) Anti-vibration pads kit supplied loose as standard



Coverage chart



Operation

- BS 1-6F** **Pressure boosting sets with 1 to 6 fixed speed pump.**
Sets with 4,5 and 6 pumps on request.
Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.
- BS2-3V** **Pressure boosting sets with 2 to 3 variable speed pumps (with I-MAT).**
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.
- BS1V2-5F** **Pressure boosting sets with 1 variable speed pump (with frequency converter into the control panel) and from 1 to 5 fixed speed pumps**
Sets with 4,5 and 6 pumps on request.
According to the water consumption, one or more pumps start, one at variable speed and the others at fixed speed, to grant the water quantity required at the set pressure.
- BS1-6V** **Pressure boosting sets with 1 to 6 variable speed pumps (with frequency converter into the control panel).**
Sets with 4,5 and 6 pumps on request.
Depending on water consumption, one or more pumps are activated, all at variable speed, in order to guarantee the quantity of water required at the set pressure.

Construction

- Automatic pressure boosting plant consisting of 1 to 6 vertical multi-stage pumps complete with ball, non return valve on the suction side and ball valves on the delivery side.

Suction and delivery manifolds for boosting sets with 2,3 pumps:

- stainless steel AISI 304.
Connections are located on the delivery manifold for the installation of vessels G1 connection.

Electrical control boards:

- with microprocessor for fixed speed pump units. Motor starting is D.O.L. up to 5,5 kW and Y/Δ for power rating 7,5 up to 37 kW.
- with frequency converter for variable speed pump units.

The unit includes one pressure gauge and three adjustable differential pressure switches or pressure transducer.

Applications

To supply water in civil and industrial buildings.
As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

2-pole induction motors, 50 Hz, $n \approx 2900$ rpm, suitable for operation with frequency converter.
- Three-phase 230/400V $\pm 10\%$ up to 3 kW;
400/690V $\pm 10\%$ for 4 kW to 37 kW;
- Single-phase 230 V $\pm 10\%$, (on request).
Insulation class F.
Protection IP 55.
Constructed in accordance with: IEC 60034.
Other voltages and frequencies on request.

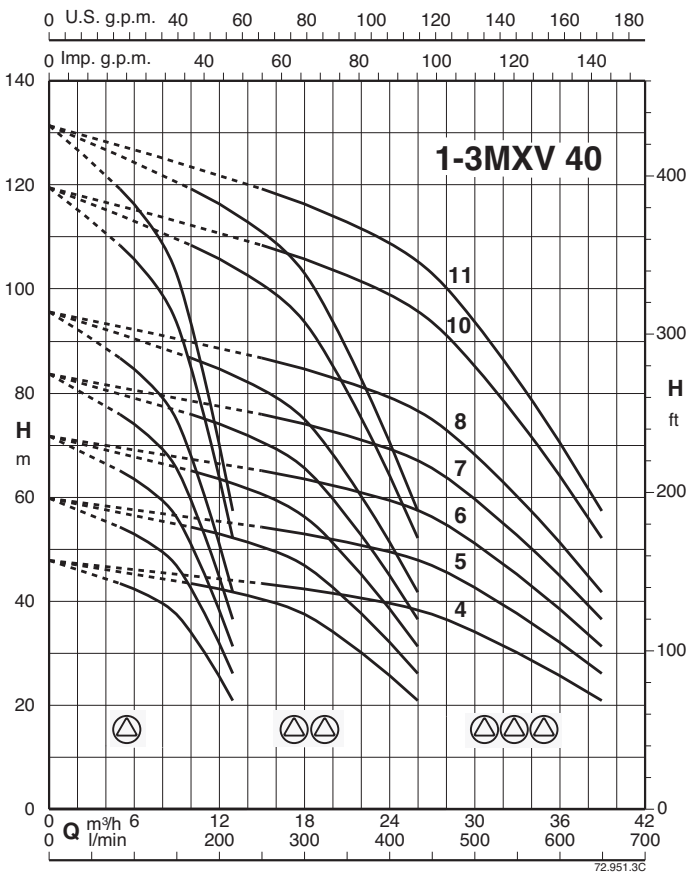
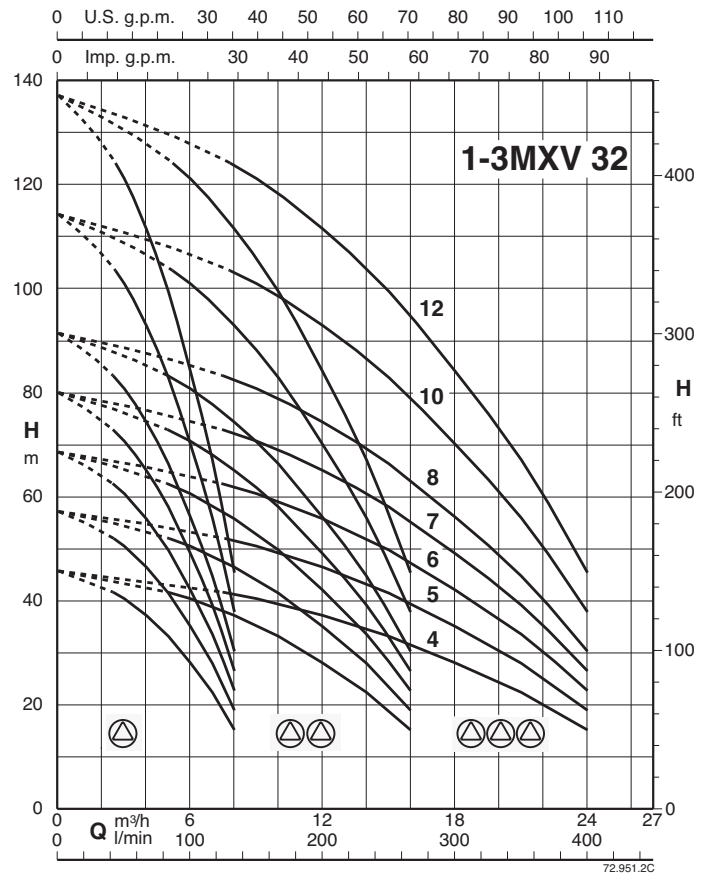
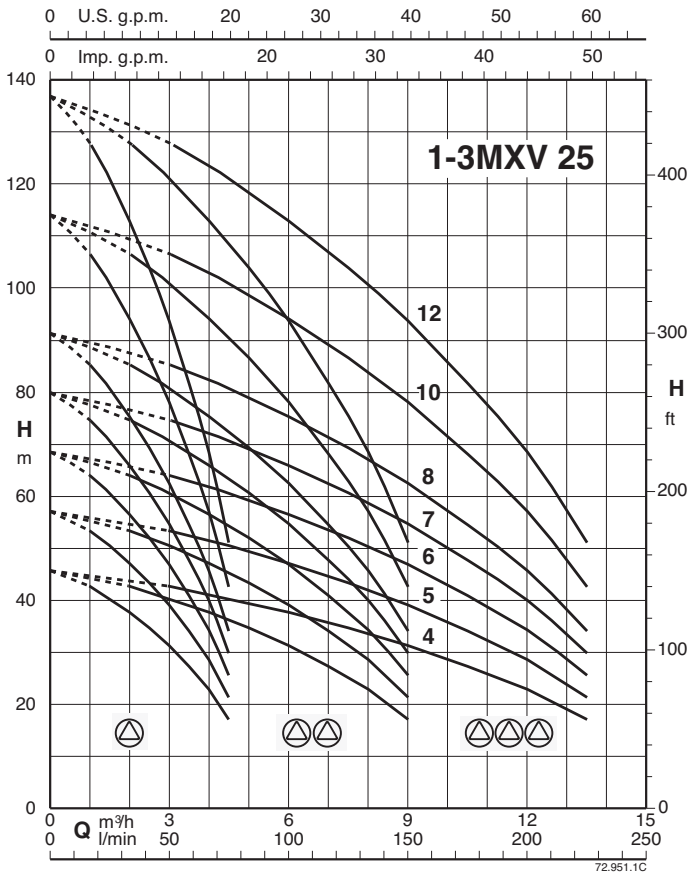
Vessels on request

When installing the unit, connect in the delivery section to a diaphragm or galvanised tank.
The recommended sized are shown in the following page.

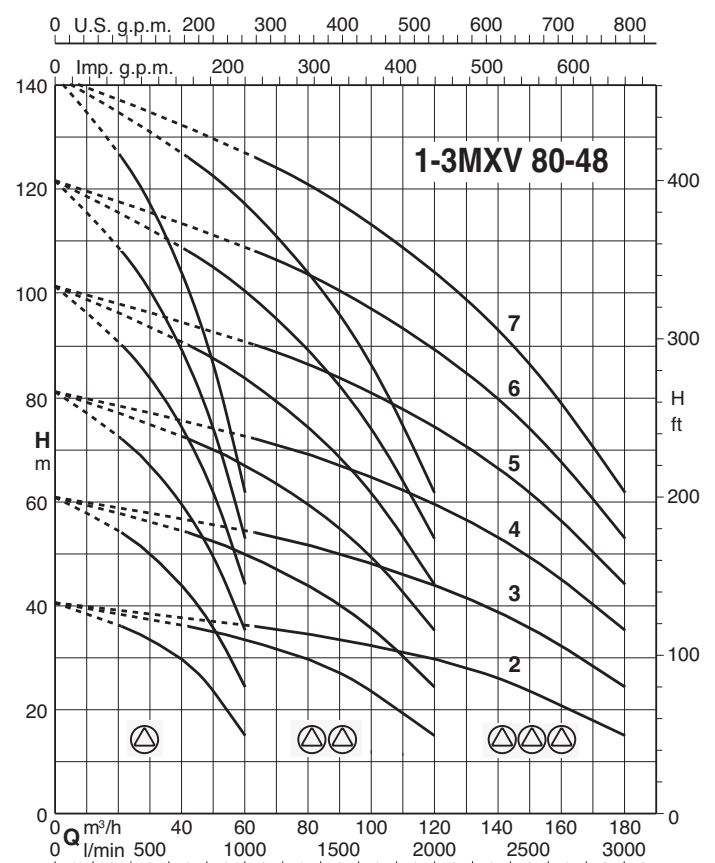
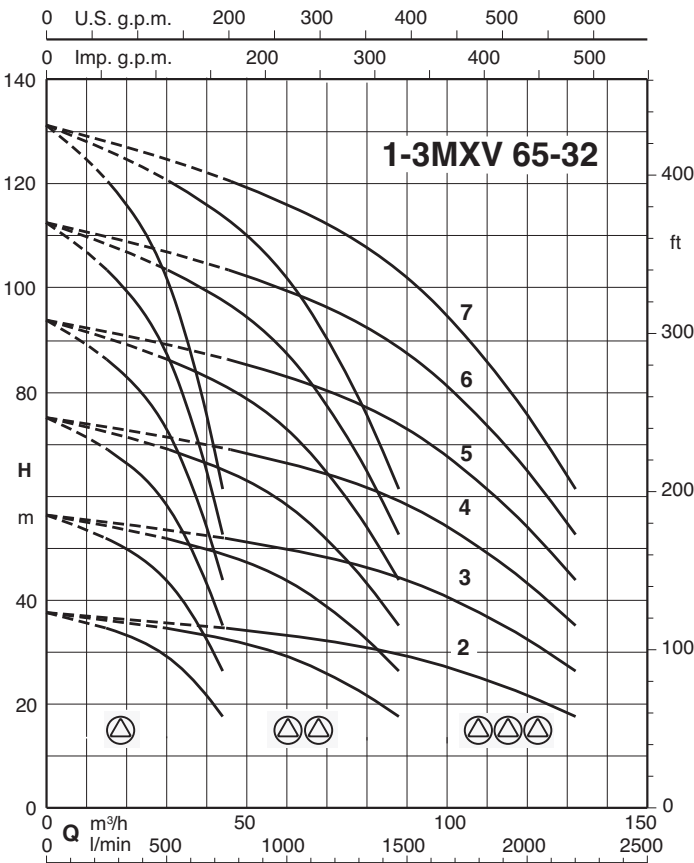
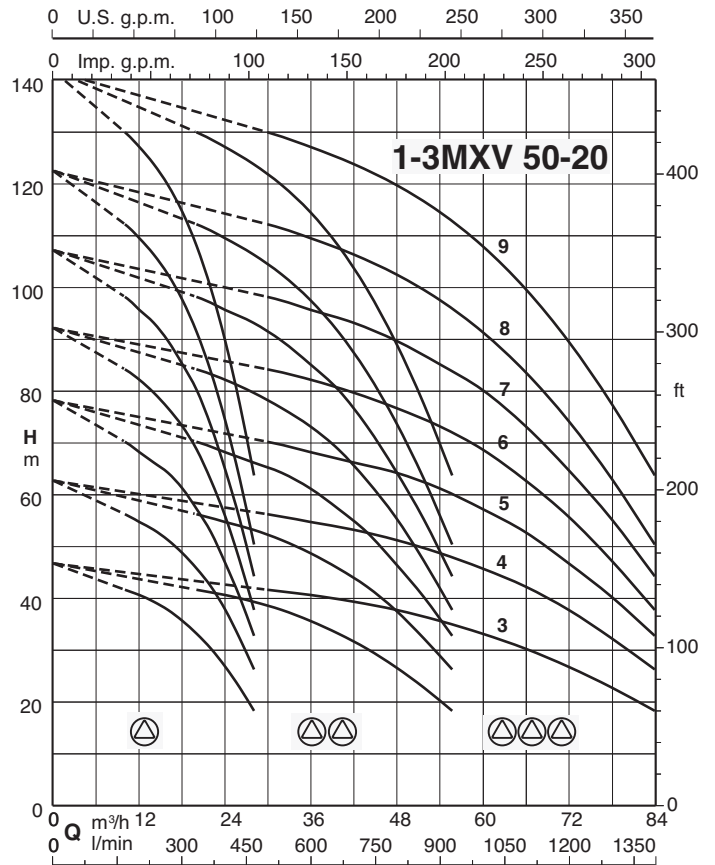
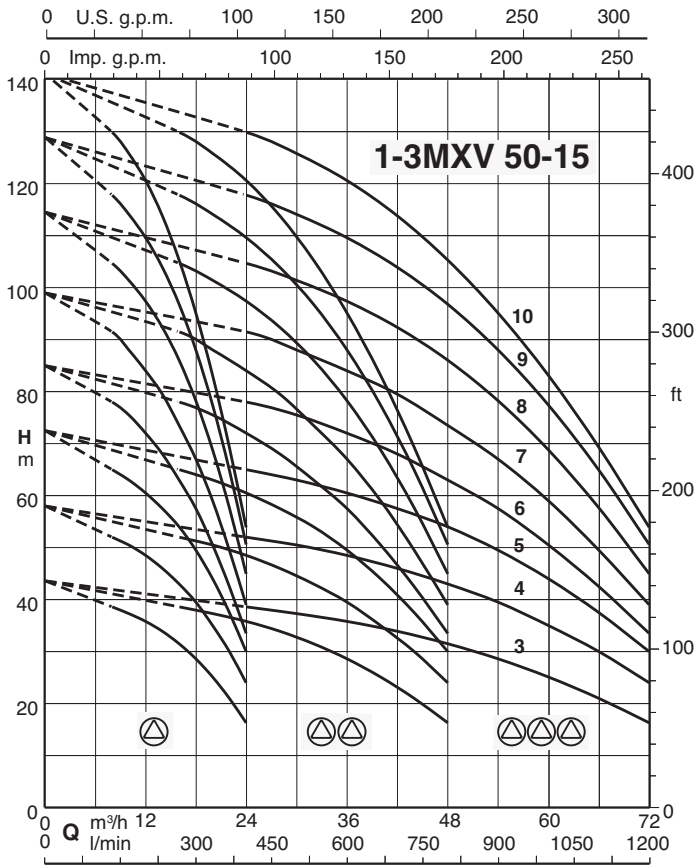
Special features on request

Pressure boosting sets with 4,5 and 6 pumps.

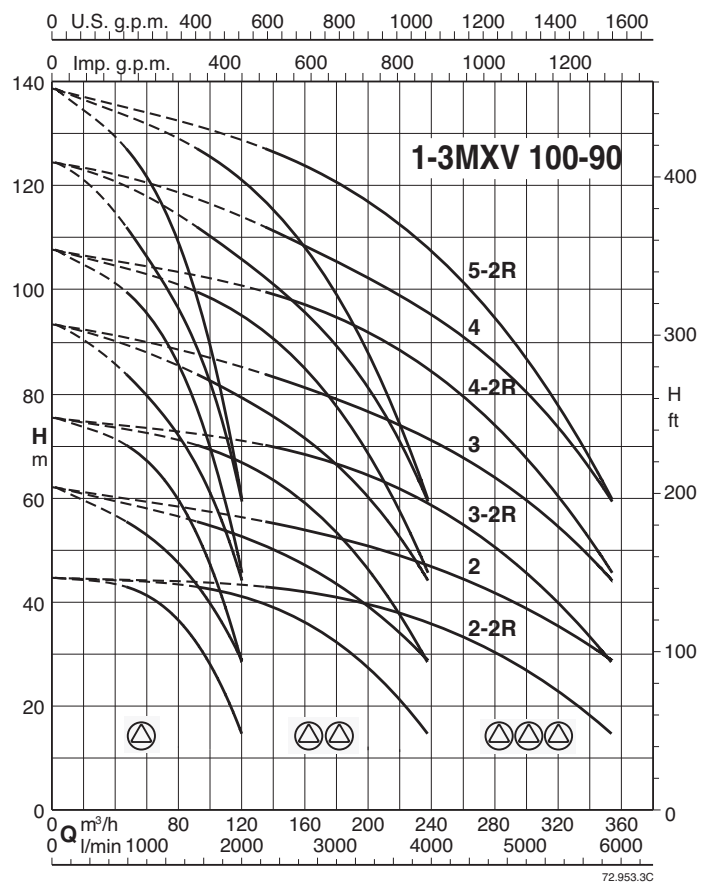
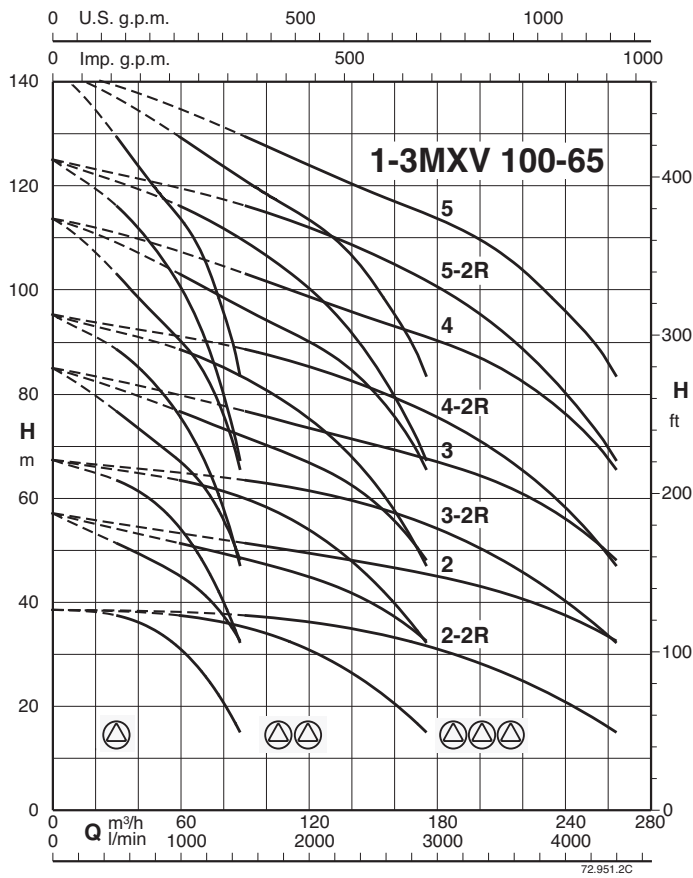
Coverage chart



Coverage chart



Coverage chart



Performance

BS1F

BSM1F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Pres. switch 1 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	Q l/min	H m		
BS1F 1MXV 25-204/C	BSM1F 1MXV 25-204M/C	0,75	1	2,5	4	62	25	40	100
BS1F 1MXV 25-205/C	BSM1F 1MXV 25-205M/C	0,75	1	3,5	5	56	36	50	100
BS1F 1MXV 25-206/D	BSM1F 1MXV 25-206M/C	1,1	1,5	4	6	59	41	50	100
BS1F 1MXV 25-207/D	BSM1F 1MXV 25-207M/C	1,1	1,5	5	7	55	51	60	100
BS1F 1MXV 25-208/D	BSM1F 1MXV 25-208M/C	1,5	2	6	8	51	61	100	100
BS1F 1MXV 25-210/D		1,5	2	6,5	8,5	60	66	100	200
BS1F 1MXV 25-212/D		2,2	3	8	10	59	82	200	200
BS1F 1MXV 32-404/D	BSM1F 1MXV 32-404M/C	1,1	1,5	2,3	3,8	114	23	100	100
BS1F 1MXV 32-405/D	BSM1F 1MXV 32-405M/C	1,1	1,5	3,4	4,9	103	35	100	200
BS1F 1MXV 32-406/D	BSM1F 1MXV 32-406M/C	1,5	2	4	6	105	41	100	200
BS1F 1MXV 32-407/D	BSM1F 1MXV 32-407M/C	1,5	2	5	7	99	51	100	200
BS1F 1MXV 32-408/D		2,2	3	6	8	93	61	200	300
BS1F 1MXV 32-410/D		2,2	3	7	9	101	71	300	500
BS1F 1MXV 32-412/C		3	4	8,5	10,5	100	87	300	500
BS1F 1MXV 40-804/D	BSM1F 1MXV 40-804M/C	1,5	2	2,5	4	214	25	200	300
BS1F 1MXV 40-805/D		2,2	3	3,5	5	211	36	300	500
BS1F 1MXV 40-806/D		2,2	3	4	6	211	41	300	500
BS1F 1MXV 40-807/C		3	4	5	7	208	51	500	800
BS1F 1MXV 40-808/C		3	4	6	8	199	61	500	800
BS1F 1MXV 40-810/D		4	5,5	8	10	188	82	1000	1000
BS1F 1MXV 40-811/D		4	5,5	9	11	183	92	1000	1000
BS1F 1MXV 50-1503		2,2	3	2,7	3,5	319	28	500	1000
BS1F 1MXV 50-1504		3	4	3,2	4,7	364	33	500	1000
BS1F 1MXV 50-1505		4	5,5	4,3	5,9	352	43	500	1000
BS1F 1MXV 50-1506		5,5	7,5	5,3	7,1	326	54	500	1000
BS1F 1MXV 50-1507		5,5	7,5	6,4	8,3	315	65	750	1000
BS1F 1MXV 50-1508		7,5	10	7,5	9,6	319	76	750	1000
BS1F 1MXV 50-1509		7,5	10	9,3	10,8	280	94	1000	1500
BS1F 1MXV 50-1510		7,5	10	10,4	11,9	264	106	1000	1500
BS1F 1MXV 50-2003		3	4	3,0	3,8	371	30	750	1000
BS1F 1MXV 50-2004		4	5,5	3,5	5,1	427	36	750	1000
BS1F 1MXV 50-2005		5,5	7,5	4,7	6,4	414	47	750	1000
BS1F 1MXV 50-2006		7,5	10	5,8	7,7	403	59	750	1000
BS1F 1MXV 50-2007		7,5	10	6,9	8,9	396	70	1000	1500
BS1F 1MXV 50-2008		9,2	12,5	8,7	10,2	347	89	1000	2000
BS1F 1MXV 50-2009		9,2	12,5	10,4	11,9	348	106	1500	2000
BS1F 1MXV 65-3202/D		4	5,5	2	3	704	20	1000	2000
BS1F 1MXV 65-3203/C		5,5	7,5	3,3	4,8	670	34	1500	3000
BS1F 1MXV 65-3204/C		7,5	10	4,5	6,5	662	46	1500	3000
BS1F 1MXV 65-3205/D		11	15	6	8	627	61	2000	4000
BS1F 1MXV 65-3206/D		11	15	6,5	9,5	682	66	3000	4000
BS1F 1MXV 65-3207/D		15	20	7,5	10,5	683	76	4000	5000
BS1F 1MXV 80-4802/C		5,5	7,5	2	3,2	917	20	1500	3000
BS1F 1MXV 80-4803/C		7,5	10	3,5	5	840	36	2000	3000
BS1F 1MXV 80-4804/D		11	15	4,5	6,5	894	46	3000	4000
BS1F 1MXV 80-4805/D		15	20	6	8	848	61	4000	5000
BS1F 1MXV 80-4806/D		15	20	6,5	9,5	911	66	5000	-
BS1F 1MXV 80-4807/E		18,5	25	8	11	882	82	5000	-

* Maximum pumps flow at minimum setting pressure switch.

Performance

BS2F

BSM2F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
		kW	HP	min	max	min	max	Q l/min	H m		
BS2F 2MXV 25-204/C	BSM2F 2MXV 25-204M/C	0,75 x2	1 x2	2,5	4	2,2	3,7	135	22	40	100
BS2F 2MXV 25-205/C	BSM2F 2MXV 25-205M/C	0,75 x2	1 x2	3,5	5	3	4,5	128	31	50	100
BS2F 2MXV 25-206/D	BSM2F 2MXV 25-206M/C	1,1 x2	1,5 x2	4	6	3,5	5,5	130	36	50	100
BS2F 2MXV 25-207/D	BSM2F 2MXV 25-207M/C	1,1 x2	1,5 x2	5	7	4,5	6,5	122	46	60	100
BS2F 2MXV 25-208/D	BSM2F 2MXV 25-208M/C	1,5 x2	2 x2	6	8	5,5	7,5	113	56	100	100
BS2F 2MXV 25-210/D		1,5 x2	2 x2	6,5	8,5	6	8	128	61	100	200
BS2F 2MXV 25-212/D		2,2 x2	3 x2	8	10	7,5	9,5	125	76	200	200
BS2F 2MXV 32-404/D	BSM2F 2MXV 32-404M/C	1,1 x2	1,5 x2	2,3	3,8	1,8	3,3	253	18	100	100
BS2F 2MXV 32-405/D	BSM2F 2MXV 32-405M/C	1,1 x2	1,5 x2	3,4	4,9	3	4,5	226	31	100	200
BS2F 2MXV 32-406/D	BSM2F 2MXV 32-406M/C	1,5 x2	2 x2	4	6	3,5	5,5	232	36	100	200
BS2F 2MXV 32-407/D	BSM2F 2MXV 32-407M/C	1,5 x2	2 x2	5	7	4,5	6,5	218	46	100	200
BS2F 2MXV 32-408/D		2,2 x2	3 x2	6	8	5,5	7,5	205	56	200	300
BS2F 2MXV 32-410/D		2,2 x2	3 x2	7	9	6,5	8,5	216	66	300	500
BS2F 2MXV 32-412/C		3 x2	4 x2	8,5	10,5	8	10	213	82	300	500
BS2F 2MXV 40-804/D	BSM2F 2MXV 40-804M/C	1,5 x2	2 x2	2,5	4	2,2	3,7	435	22	200	300
BS2F 2MXV 40-805/D		2,2 x2	3 x2	3,5	5	3	4,5	438	31	300	500
BS2F 2MXV 40-806/D		2,2 x2	3 x2	4	6	3,5	5,5	435	36	300	500
BS2F 2MXV 40-807/C		3 x2	4 x2	5	7	4,5	6,5	434	46	500	800
BS2F 2MXV 40-808/C		3 x2	4 x2	6	8	5,5	7,5	418	56	500	800
BS2F 2MXV 40-810/D		4 x2	5,5 x2	8	10	7,5	9,5	399	76	1000	1000
BS2F 2MXV 40-811/D		4 x2	5,5 x2	9	11	8,5	10,5	390	87	1000	1000
BS2F 2MXV 50-1503		2,2 x2	3 x2	2,7	3,5	2,4	3,2	704	25	500	1000
BS2F 2MXV 50-1504		3 x2	4 x2	3,2	4,7	2,9	4,4	759	30	500	1000
BS2F 2MXV 50-1505		4 x2	5,5 x2	4,3	5,9	4,0	5,6	735	41	500	1000
BS2F 2MXV 50-1506		5,5 x2	7,5 x2	5,3	7,1	5,0	6,8	680	51	500	1000
BS2F 2MXV 50-1507		5,5 x2	7,5 x2	6,4	8,3	6,1	8,0	655	62	750	1000
BS2F 2MXV 50-1508		7,5 x2	10 x2	7,5	9,6	7,2	9,3	661	73	750	1000
BS2F 2MXV 50-1509		7,5 x2	10 x2	9,3	10,8	9,0	10,5	589	91	1000	1500
BS2F 2MXV 50-1510		7,5 x2	10 x2	10,4	11,9	10,1	11,6	555	103	1000	1500
BS2F 2MXV 50-2003		3 x2	4 x2	3,0	3,8	2,7	3,5	815	27	750	1000
BS2F 2MXV 50-2004		4 x2	5,5 x2	3,5	5,1	3,3	4,8	887	33	750	1000
BS2F 2MXV 50-2005		5,5 x2	7,5 x2	4,7	6,4	4,4	6,1	859	45	750	1000
BS2F 2MXV 50-2006		7,5 x2	10 x2	5,8	7,7	5,5	7,4	837	56	750	1000
BS2F 2MXV 50-2007		7,5 x2	10 x2	6,9	8,9	6,6	8,6	819	68	100	1500
BS2F 2MXV 50-2008		9,2 x2	12,5 x2	8,7	10,2	8,4	9,9	729	86	1000	2000
BS2F 2MXV 50-2009		9,2 x2	12,5 x2	10,4	11,9	10,1	11,6	729	103	1500	2000
BS2F 2MXV 65-3202/D		4 x2	5,5 x2	2	3	1,7	2,7	1464	17	1000	2000
BS2F 2MXV 65-3203/C		5,5 x2	7,5 x2	3,3	4,8	2,8	4,3	1439	29	1500	3000
BS2F 2MXV 65-3204/C		7,5 x2	10 x2	4,5	6,5	4	6	1411	41	1500	3000
BS2F 2MXV 65-3205/D		11 x2	15 x2	6	8	5,5	7,5	1344	56	2000	4000
BS2F 2MXV 65-3206/D		11 x2	15 x2	6,5	9,5	6	9	1417	61	3000	4000
BS2F 2MXV 65-3207/D		15 x2	20 x2	7,5	10,5	7	10	1411	71	4000	5000
BS2F 2MXV 80-4802/C		5,5 x2	7,5 x2	2	3,2	1,6	2,8	1979	16	1500	3000
BS2F 2MXV 80-4803/C		7,5 x2	10 x2	3,5	5	3	4,5	1852	31	2000	3000
BS2F 2MXV 80-4804/D		11 x2	15 x2	4,5	6,5	4	6	1905	41	3000	4000
BS2F 2MXV 80-4805/D		15 x2	20 x2	6	8	5,5	7,5	1809	56	4000	5000
BS2F 2MXV 80-4806/D		15 x2	20 x2	6,5	9,5	6	9	1901	61	5000	-
BS2F 2MXV 80-4807/E		18,5 x2	25 x2	8	11	7,5	10,5	1838	76	5000	-
BS2F 2MXV 100-6502-2R		7,5 x2	10 x2	2,2	2,8	1,9	2,5	2754	19	3000	-
BS2F 2MXV 100-6502		11 x2	15 x2	3,8	4,4	3,5	4,1	2783	36	-	-
BS2F 2MXV 100-6503-2R		15 x2	20 x2	4,3	4,9	4	4,6	3257	41	-	-
BS2F 2MXV 100-6503/A		18,5 x2	25 x2	5,8	6,7	5,3	6,2	2765	54	-	-
BS2F 2MXV 100-6504-2R/A		18,5 x2	25 x2	7,2	8,4	6,6	7,8	2343	67	-	-
BS2F 2MXV 100-6504		22 x2	30 x2	7,7	8,9	7,1	8,3	2786	72	-	-
BS2F 2MXV 100-6505-2R		30 x2	40 x2	8,3	9,8	7,5	9	2771	76	-	-
BS2F 2MXV 100-6505		30 x2	40 x2	9,8	11,3	9	10,5	2782	92	-	-
BS2F 2MXV 100-9002-2R		11 x2	15 x2	2,9	3,9	2,4	3,4	3677	24	-	-
BS2F 2MXV 100-9002		15 x2	20 x2	3,7	5,2	3	4,5	3862	31	-	-
BS2F 2MXV 100-9003-2R/A		18,5 x2	25 x2	4,6	6,1	4,1	5,6	3635	42	-	-
BS2F 2MXV 100-9003		22 x2	30 x2	6,2	7,7	5,4	6,9	3620	55	-	-
BS2F 2MXV 100-9004-2R		30 x2	40 x2	7,4	8,9	6,6	8,1	3474	67	-	-
BS2F 2MXV 100-9004		30 x2	40 x2	8,5	10	7,8	9,3	3441	80	-	-
BS2F 2MXV 100-9005-2R		37 x2	50 x2	9,5	11	8,8	10,3	3350	90	-	-

* Maximum pumps flow at minimum setting pressure of 2nd pressure switch.

Performance

BS3F

Mains: 400V 3~ Motor: 400V 3~	Motor		Pres. switch 1 bar		Pres. switch 2 bar		Pres. switch 3 bar		Maximum capacity *		Vessel Membrane litre	Vessel litre
	kW	HP	min	max	min	max	min	max	Q l/min	H m		
BS3F 3MXV 25-204/C	0,75 x3	1 x3	2,5	4	2,2	3,7	1,9	3,4	216	19	40	100
BS3F 3MXV 25-205/C	0,75 x3	1 x3	3,5	5	3	4,5	2,5	4	212	25	50	100
BS3F 3MXV 25-206/D	1,1 x3	1,5 x3	4	6	3,5	5,5	3	5	211	31	50	100
BS3F 3MXV 25-207/D	1,1 x3	1,5 x3	5	7	4,5	6,5	4	6	199	41	60	100
BS3F 3MXV 25-208/D	1,5 x3	2 x3	6	8	5,5	7,5	5	7	186	51	100	100
BS3F 3MXV 25-210/D	1,5 x3	2 x3	6,5	8,5	6	8	5,5	7,5	203	56	100	200
BS3F 3MXV 25-212/D	2,2 x3	3 x3	8	10	7,5	9,5	7	9	196	71	200	200
BS3F 3MXV 32-404/D	1,1 x3	1,5 x3	2,3	3,8	1,8	3,3	1,3	2,8	406	13	100	100
BS3F 3MXV 32-405/D	1,1 x3	1,5 x3	3,4	4,9	3	4,5	2,6	4,1	365	27	100	200
BS3F 3MXV 32-406/D	1,5 x3	2 x3	4	6	3,5	5,5	3	5	372	31	100	200
BS3F 3MXV 32-407/D	1,5 x3	2 x3	5	7	4,5	6,5	4	6	353	41	100	200
BS3F 3MXV 32-408/D	2,2 x3	3 x3	6	8	5,5	7,5	5	7	332	51	200	300
BS3F 3MXV 32-410/D	2,2 x3	3 x3	7	9	6,5	8,5	6	8	343	61	300	500
BS3F 3MXV 32-412/C	3 x3	4 x3	8,5	10,5	8	10	7,5	9,5	335	76	300	500
BS3F 3MXV 40-804/D	1,5 x3	2 x3	2,5	4	2,2	3,7	1,9	3,4	643	19	200	300
BS3F 3MXV 40-805/D	2,2 x3	3 x3	3,5	5	3	4,5	2,5	4	648	25	300	500
BS3F 3MXV 40-806/D	2,2 x3	3 x3	4	6	3,5	5,5	3	5	649	31	300	500
BS3F 3MXV 40-807/C	3 x3	4 x3	5	7	4,5	6,5	4	6	658	41	500	800
BS3F 3MXV 40-808/C	3 x3	4 x3	6	8	5,5	7,5	5	7	647	51	500	800
BS3F 3MXV 40-810/D	4 x3	5,5 x3	8	10	7,5	9,5	7	9	624	71	1000	1000
BS3F 3MXV 40-811/D	4 x3	5,5 x3	9	11	8,5	10,5	8	10	613	82	1000	1000
BS3F 3MXV 50-1503	2,2 x3	3 x3	2,7	3,5	2,4	3,2	2,1	2,9	1131	22	500	1000
BS3F 3MXV 50-1504	3 x3	4 x3	3,2	4,7	2,9	4,4	2,6	4,1	1178	27	500	1000
BS3F 3MXV 50-1505	4 x3	5,5 x3	4,3	5,9	4,0	5,6	3,7	5,3	1139	38	500	1000
BS3F 3MXV 50-1506	5,5 x3	7,5 x3	5,3	7,1	5,0	6,8	4,8	6,5	1059	49	500	1000
BS3F 3MXV 50-1507	5,5 x3	7,5 x3	6,4	8,3	6,1	8,0	5,8	7,7	1019	60	750	1000
BS3F 3MXV 50-1508	7,5 x3	10 x3	7,5	9,6	7,2	9,3	6,9	9,0	1024	71	750	1000
BS3F 3MXV 50-1509	7,5 x3	10 x3	9,3	10,8	9,0	10,5	8,7	10,2	926	88	1000	1500
BS3F 3MXV 50-1510	7,5 x3	10 x3	10,4	11,9	10,1	11,6	9,8	11,3	870	99	1000	1500
BS3F 3MXV 50-2003	3 x3	4 x3	3,0	3,8	2,7	3,5	2,4	3,2	1307	24	750	1000
BS3F 3MXV 50-2004	4 x3	5,5 x3	3,5	5,1	3,3	4,8	3,0	4,5	1367	31	750	1000
BS3F 3MXV 50-2005	5,5 x3	7,5 x3	4,7	6,4	4,4	6,1	4,1	5,8	1328	42	750	1000
BS3F 3MXV 50-2006	7,5 x3	10 x3	5,8	7,7	5,5	7,4	5,2	7,1	1294	53	750	1000
BS3F 3MXV 50-2007	7,5 x3	10 x3	6,9	8,9	6,6	8,6	6,4	8,3	1265	65	1000	1500
BS3F 3MXV 50-2008	9,2 x3	12,5 x3	8,7	10,2	8,4	9,9	8,1	9,6	1142	83	1000	2000
BS3F 3MXV 50-2009	9,2 x3	12,5 x3	10,4	11,9	10,1	11,6	9,8	11,3	1140	99	1500	2000
BS3F 3MXV 65-3202/D	4 x3	5,5 x3	2	3	1,7	2,7	1,4	2,4	2200	14	1000	2000
BS3F 3MXV 65-3203/C	5,5 x3	7,5 x3	3,3	4,8	2,8	4,3	2,3	3,8	2208	23	1500	3000
BS3F 3MXV 65-3204/C	7,5 x3	10 x3	4,5	6,5	4	6	3,5	5,5	2194	36	1500	3000
BS3F 3MXV 65-3205/D	11 x3	15 x3	6	8	5,5	7,5	5	7	2117	51	2000	4000
BS3F 3MXV 65-3206/D	11 x3	15 x3	6,5	9,5	6	9	5,5	8,5	2178	56	3000	4000
BS3F 3MXV 65-3207/D	15 x3	20 x3	7,5	10,5	7	10	6,5	9,5	2168	66	4000	5000
BS3F 3MXV 80-4802/C	5,5 x3	7,5 x3	2	3,2	1,6	2,8	1,2	2,4	3091	12	1500	3000
BS3F 3MXV 80-4803/C	7,5 x3	10 x3	3,5	5	3	4,5	2,5	4	2971	25	2000	3000
BS3F 3MXV 80-4804/D	11 x3	15 x3	4,5	6,5	4	6	3,5	5,5	2987	36	3000	4000
BS3F 3MXV 80-4805/D	15 x3	20 x3	6	8	5,5	7,5	5	7	2854	51	4000	5000
BS3F 3MXV 80-4806/D	15 x3	20 x3	6,5	9,5	6	9	5,5	8,5	2950	56	5000	-
BS3F 3MXV 80-4807/E	18,5 x3	25 x3	8	11	7,5	10,5	7	10	2855	71	5000	-
BS3F 3MXV 100-6502-2R	7,5 x3	10 x3	2,2	2,8	1,9	2,5	1,6	2,2	4312	19	-	-
BS3F 3MXV 100-6502	11 x3	15 x3	3,8	4,4	3,5	4,1	3,2	3,8	4334	36	-	-
BS3F 3MXV 100-6503-2R	15 x3	20 x3	4,3	4,9	4	4,6	3,7	4,3	4584	41	-	-
BS3F 3MXV 100-6503/A	18,5 x3	25 x3	5,8	6,7	5,3	6,2	4,9	5,8	4293	54	-	-
BS3F 3MXV 100-6504-2R/A	18,5 x3	25 x3	7,2	8,4	6,6	7,8	6	7,2	3881	67	-	-
BS3F 3MXV 100-6504	22 x3	30 x3	7,7	8,9	7,1	8,3	6,5	7,7	4319	72	-	-
BS3F 3MXV 100-6505-2R	30 x3	40 x3	8,3	9,8	7,5	9	6,8	8,3	4309	76	-	-
BS3F 3MXV 100-6505	30 x3	40 x3	9,8	11,3	9	10,5	8,3	9,8	4315	92	-	-
BS3F 3MXV 100-9002-2R	11 x3	15 x3	2,9	3,9	2,4	3,4	1,9	2,9	5831	24	-	-
BS3F 3MXV 100-9002	15 x3	20 x3	3,7	5,2	3	4,5	2,3	3,8	6046	31	-	-
BS3F 3MXV 100-9003-2R/A	18,5 x3	25 x3	4,6	6,1	4,1	5,6	3,4	4,9	5791	42	-	-
BS3F 3MXV 100-9003	22 x3	30 x3	6,2	7,7	5,4	6,9	4,7	6,2	5800	55	-	-
BS3F 3MXV 100-9004-2R	30 x3	40 x3	7,4	8,9	6,6	8,1	5,9	7,4	5571	67	-	-
BS3F 3MXV 100-9004	30 x3	40 x3	8,5	10	7,8	9,3	7,1	8,6	5542	80	-	-
BS3F 3MXV 100-9005-2R	37 x3	50 x3	9,5	11	8,8	10,3	8,1	9,6	5364	90	-	-

* Maximum pumps flow at minimum setting pressure of 3rd pressure switch.

Performance

BS..

PUMPS Nos						PUMP TYPE	P ₂ For each pump	
1	2	3	4	5	6		kW	HP
BS1V	BS2V BS1V1F BSM1V1F* BSM2V**	BS3V BS1V2F	BS4V BS1V3F	BS5V BS1V4F	BS6V BS1V5F	MXV 25-204/C	0,75	1
						MXV 25-205/C	0,75	1
						MXV 25-206/D	1,1	1,5
						MXV 25-207/D	1,1	1,5
						MXV 25-208/D	1,5	2
						MXV 25-210/D	1,5	2
						MXV 25-212/D	2,2	3
						MXV 32-404/D	1,1	1,5
						MXV 32-405/D	1,1	1,5
						MXV 32-406/D	1,5	2
						MXV 32-407/D	1,5	2
						MXV 32-408/D	2,2	3
						MXV 32-410/D	2,2	3
						MXV 32-412/C	3	4
						MXV 40-804/D	1,5	2
						MXV 40-805/D	2,2	3
						MXV 40-806/D	2,2	3
						MXV 40-807/C	3	4
						MXV 40-808/C	3	4
						MXV 40-810/D	4	5,5
						MXV 40-811/D	4	5,5
						MXV 50-1503	2,2	3
						MXV 50-1504	3	4
						MXV 50-1505	4	5,5
						MXV 50-1506	5,5	7,5
						MXV 50-1507	5,5	7,5
						MXV 50-1508	7,5	10
						MXV 50-1509	7,5	10
						MXV 50-1510	7,5	10
						MXV 50-2003	3	4
						MXV 50-2004	4	5,5
						MXV 50-2005	5,5	7,5
						MXV 50-2006	7,5	10
						MXV 50-2007	7,5	10
						MXV 50-2008	9,2	12,5
						MXV 50-2009	9,2	12,5
						MXV 65-3202/D	4	5,5
						MXV 65-3203/C	5,5	7,5
						MXV 65-3204/C	7,5	10
						MXV 65-3205/D	11	15
						MXV 65-3206/D	11	15
						MXV 65-3207/D	15	20
						MXV 80-4802/C	5,5	7,5
						MXV 80-4803/C	7,5	10
						MXV 80-4804/D	11	15
						MXV 80-4805/D	15	20
						MXV 80-4806/D	15	20
						MXV 80-4807/E	18,5	25
						MXV 100-6502-2R	7,5	10
						MXV 100-6502	11	15
MXV 100-6503-2R	15	20						
MXV 100-6503/A	18,5	25						
MXV 100-6504-2R/A	18,5	25						
MXV 100-6504	22	30						
MXV 100-6505-2R	30	40						
MXV 100-6505	30	40						
MXV 100-9002-2R	11	15						
MXV 100-9002	15	20						
MXV 100-9003-2R/A	18,5	25						
MXV 100-9003	22	30						
MXV 100-9004-2R	30	40						
MXV 100-9004	30	40						
MXV 100-9005-2R	37	50						

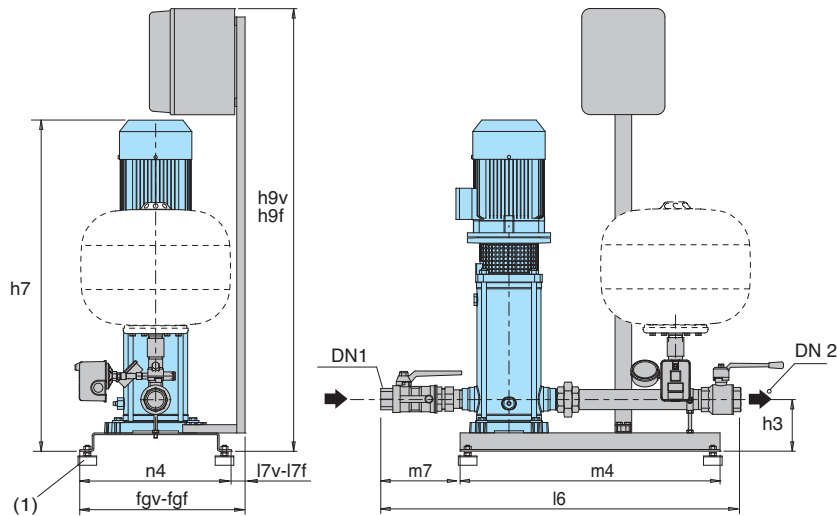
BS.. ..-ITT

PUMPS Nos		PUMP TYPE	P ₂ For each pump	
2	3		kW	HP
BS2V -ITT	BS3V -ITT	MXV 25-204/C-ITT	0,75	1
		MXV 25-205/C-ITT	0,75	1
		MXV 25-206/D-ITT	1,1	1,5
		MXV 25-207/D-ITT	1,1	1,5
		MXV 25-208/D-ITT	1,5	2
		MXV 25-210/D-ITT	1,5	2
		MXV 25-212/D-ITT	2,2	3
		MXV 32-404/D-ITT	1,1	1,5
		MXV 32-405/D-ITT	1,1	1,5
		MXV 32-406/D-ITT	1,5	2
		MXV 32-407/D-ITT	1,5	2
		MXV 32-408/D-ITT	2,2	3
		MXV 32-410/D-ITT	2,2	3
		MXV 32-412/C-ITT	3	4
		MXV 40-804/D-ITT	1,5	2
		MXV 40-805/D-ITT	2,2	3
		MXV 40-806/D-ITT	2,2	3
		MXV 40-807/C-ITT	3	4
		MXV 40-808/C-ITT	3	4
		MXV 40-810/D-ITT	4	5,5
		MXV 40-811/D-ITT	4	5,5
		MXV 50-1503-ITT	2,2	3
		MXV 50-1504-ITT	3	4
		MXV 50-1505-ITT	4	5,5
		MXV 50-1506-ITT	5,5	7,5
		MXV 50-1507-ITT	5,5	7,5
		MXV 50-1508-ITT	7,5	10
		MXV 50-1509-ITT	7,5	10
		MXV 50-1510-ITT	7,5	10
		MXV 50-2003-ITT	3	4
		MXV 50-2004-ITT	4	5,5
		MXV 50-2005-ITT	5,5	7,5
		MXV 50-2006-ITT	7,5	10
		MXV 50-2007-ITT	7,5	10
		MXV 50-2008-ITT	9,2	12,5
		MXV 50-2009-ITT	9,2	12,5
		MXV 65-3202/D-ITT	4	5,5
		MXV 65-3203/C-ITT	5,5	7,5
		MXV 65-3204/C-ITT	7,5	10
		MXV 65-3205/D-ITT	11	15
		MXV 65-3206/D-ITT	11	15
		MXV 65-3207/D-ITT	15	20
		MXV 80-4801/D-ITT	4	5,5
		MXV 80-4802/C-ITT	5,5	7,5
		MXV 80-4803/C-ITT	7,5	10
		MXV 80-4804/D-ITT	11	15
		MXV 80-4805/D-ITT	15	20
		MXV 80-4806/D-ITT	15	20
		MXV 80-4807/E-ITT	18,5	25
		MXV 100-6501-ITT	5,5	7,5
MXV 100-6502-2R-ITT	7,5	10		
MXV 100-6502-ITT	11	15		
MXV 100-6503-2R-ITT	15	20		
MXV 100-6503/A-ITT	18,5	25		
MXV 100-6504-2R/A-ITT	18,5	25		
MXV 100-6504-ITT	22	30		
MXV 100-9001-1R-ITT	5,5	7,5		
MXV 100-9001-ITT	7,5	10		
MXV 100-9002-2R-ITT	11	15		
MXV 100-9002-ITT	15	20		
MXV 100-9003-2R/A-ITT	18,5	25		
MXV 100-9003-ITT	22	30		

(*) SYSTEMS WITH:
1 variable speed pump three-phase motor
1 fixed speed pump single-phase motor
Power supply to control panel 230 V
single-phase

(**) Three-phase motor 230 V.
Power supply to control panel:
- 230 V three-phase
- 230 V single-phase
Frequency converter output is always
230 V three-phase.

Dimensions and weights



TYPE	TYPE	Connection		mm											
		DN 1	DN 2	h9f	h9v	h7	h3	m4	m7	l6	n4	fgf	fgv	l7f	l7v
BS1. 1MXV 25-204/C	BSM1. 1MXV 25-204M	G 1	G 1	1065	1345	671	120	625	140	*	365	*	410	*	45
BS1. 1MXV 25-205/C	BSM1. 1MXV 25-205M					695									
BS1. 1MXV 25-206/D	BSM1. 1MXV 25-206M					719									
BS1. 1MXV 25-207/D	BSM1. 1MXV 25-207M					743									
BS1. 1MXV 25-208/D	BSM1. 1MXV 25-208M					777									
BS1. 1MXV 25-210/D						825									
BS1. 1MXV 25-212/C						913									
BS1. 1MXV 32-404/D	BSM1. 1MXV 32-404M	G 1 1/4	G 1 1/4	1065	1345	671	120	625	175	*	365	*	410	*	45
BS1. 1MXV 32-405/D	BSM1. 1MXV 32-405M					695									
BS1. 1MXV 32-406/D	BSM1. 1MXV 32-406M					729									
BS1. 1MXV 32-407/C	BSM1. 1MXV 32-407M					753									
BS1. 1MXV 32-408/C						817									
BS1. 1MXV 32-410/D						865									
BS1. 1MXV 32-412/D						939									
BS1. 1MXV 40-804/D	BSM1. 1MXV 40-804M	G 1 1/2	G 1 1/2	1065	1345	710	125	625	213	*	365	*	410	*	45
BS1. 1MXV 40-805/D						780									
BS1. 1MXV 40-806/D						810									
BS1. 1MXV 40-807/D						866									
BS1. 1MXV 40-808/D						896									
BS1. 1MXV 40-810/D						956									
BS1. 1MXV 40-811/D						986									

Dimensions not binding to be verified when ordering

* Dimensions on request

(1) Anti-vibration pads kit supplied loose as standard

h9f-l7f= Fixed speed boosting sets
h9v-l7v= Variable speed boosting sets

Dimensions and weights

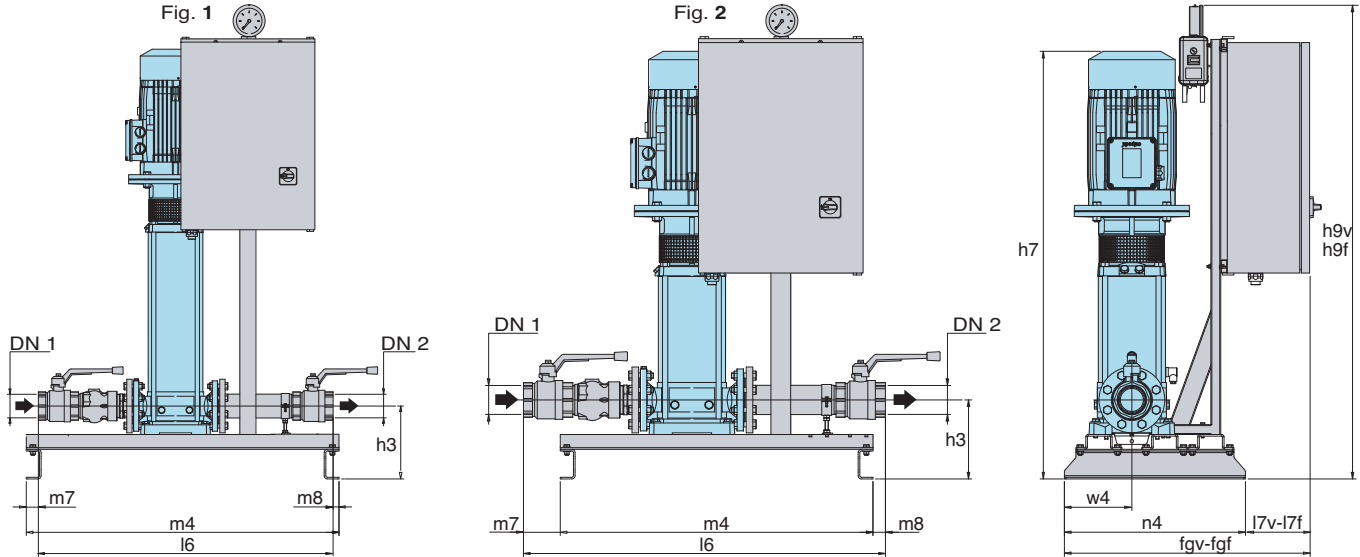


Fig.	TYPE	Connection		mm															
		DN 1	DN 2	h9v	h9f	h7	h3	m4	m7	m8	l6	n4	w4	fgv	fgf	l7v	l7f		
1	BS1. 1MXV 50-1503	G 2	G 2	1335	1155	916								681	550	131	0		
	BS1. 1MXV 50-1504			1335	1155	980									681	550	131	0	
	BS1. 1MXV 50-1505			1344	1155	1028										745	550	195	0
	BS1. 1MXV 50-1506			1344	1155	1167										745	550	195	0
	BS1. 1MXV 50-1507			1344	1155	1215	225	950	27	4	919	550	205			745	550	195	0
	BS1. 1MXV 50-1508			1344	1420	1263										745	695	195	145
	BS1. 1MXV 50-1509			1344	1420	1311										745	695	195	145
	BS1. 1MXV 50-1510			1344	1420	1359										745	695	195	145
1	BS1. 1MXV 50-2003	G 2	G 2	1335	1155	932								681	550	131	0		
	BS1. 1MXV 50-2004			1344	1155	967									745	550	195	0	
	BS1. 1MXV 50-2005			1344	1155	1119										745	550	195	0
	BS1. 1MXV 50-2006			1344	1420	1167	225	950	27	4	919	550	205			745	695	195	145
	BS1. 1MXV 50-2007			1344	1420	1215										745	695	195	145
	BS1. 1MXV 50-2008			1344	1420	1367										745	695	195	145
	BS1. 1MXV 50-2009			1344	1420	1415										745	695	195	145
	BS1. 1MXV 65-3202/D			G 2 1/2	G 2 1/2	1344	1155	853									745	550	195
BS1. 1MXV 65-3203/C	1344	1155	947												745	550	195	0	
BS1. 1MXV 65-3204/C	1344	1420	993			240	950	68	27	1042	550	205			745	695	195	145	
BS1. 1MXV 65-3205/D	1344	1420	1189												745	695	195	145	
BS1. 1MXV 65-3206/D	1344	1420	1235												745	695	195	145	
BS1. 1MXV 65-3207/D	1344	1420	1306												745	695	195	145	
2	BS1. 1MXV 80-4802/C	G 3	G 3	1344	1155	940								745	550	195	0		
	BS1. 1MXV 80-4803/C			1344	1420	1001									745	695	195	145	
	BS1. 1MXV 80-4804/D			1344	1420	1212	240	950	112	38	1100	550	205			745	695	195	145
	BS1. 1MXV 80-4805/D			1344	1420	1299										745	695	195	145
	BS1. 1MXV 80-4806/D			1344	1420	1360										745	695	195	145
	BS1. 1MXV 80-4807/E			1548	1420	1498										685	695	135	145

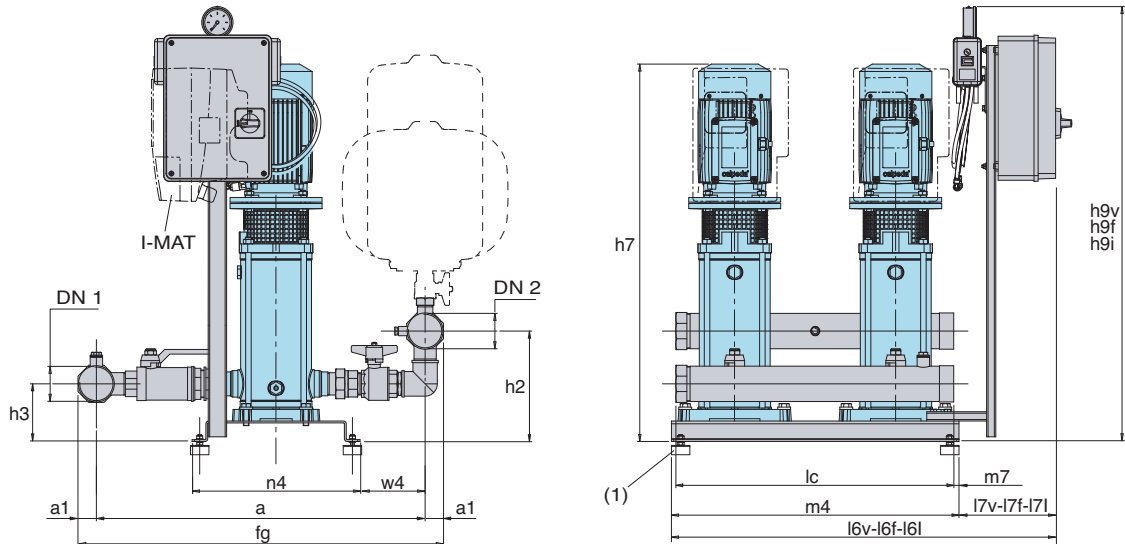
Dimensions not binding to be verified when ordering

* Dimensions on request

h9f-fgf-l7f= Fixed speed boosting sets

h9v-fgv-l7v= Variable speed boosting sets

Dimensions and weights

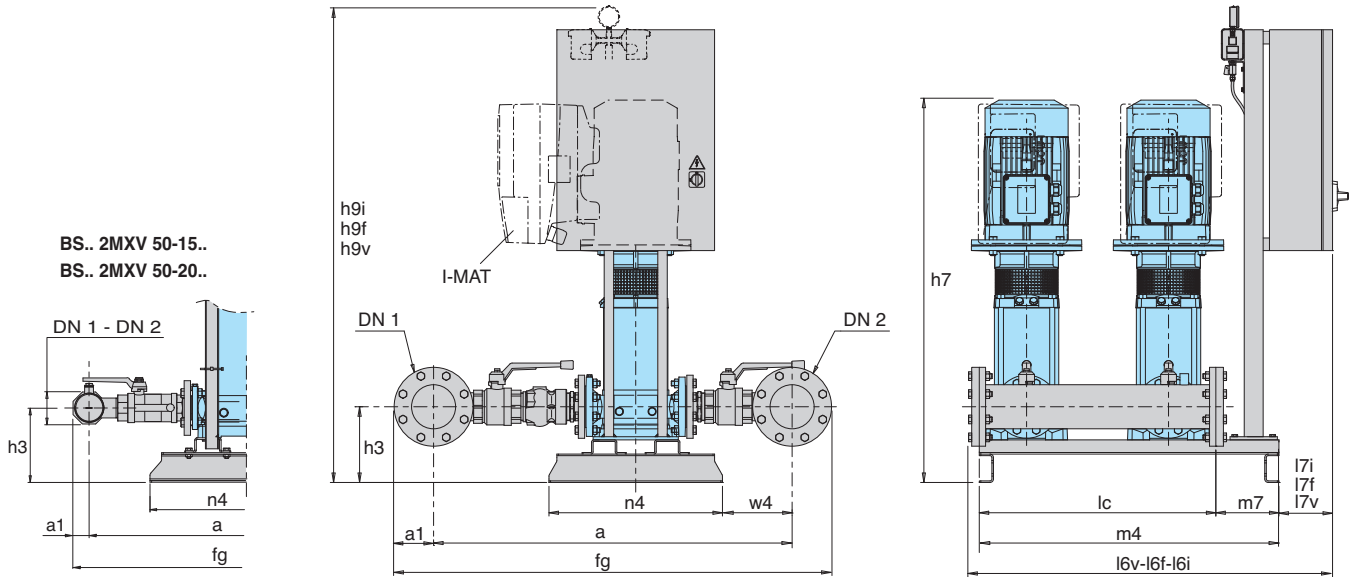


TYPE	TYPE	Connection		mm																			
		DN 1	DN 2	h9f	h9v	h9i	h7	h3	h2	fg	a	a1	n4	w4	lc	m4	m7	l6f	l6v	l6i	l7f	l7v	l7i
BS.. 2MXV 25-204/C (-ITT)	BS.. 2MXV 25-204M	G 1 1/2	G 1 1/2	965	1145	853	671	119	195	663	610	26,5	365	123	600	625	12,5	840	*	*	215	*	*
BS.. 2MXV 25-205/C (-ITT)	BS.. 2MXV 25-205M						695																
BS.. 2MXV 25-206/D (-ITT)	BS.. 2MXV 25-206M						719																
BS.. 2MXV 25-207/D (-ITT)	BS.. 2MXV 25-207M						743																
BS.. 2MXV 25-208/D (-ITT)	BS.. 2MXV 25-208M						777																
BS.. 2MXV 25-210/D (-ITT)	BS.. 2MXV 25-210M						825																
BS.. 2MXV 25-212/C (-ITT)	BS.. 2MXV 25-212M	913																					
BS.. 2MXV 32-404/D (-ITT)	BS.. 2MXV 32-404M	G 2	G 2	965	1145	853	671	119	212	687	623	32	365	105	600	625	12,5	840	*	*	215	*	*
BS.. 2MXV 32-405/D (-ITT)	BS.. 2MXV 32-405M						695																
BS.. 2MXV 32-406/D (-ITT)	BS.. 2MXV 32-406M						729																
BS.. 2MXV 32-407/C (-ITT)	BS.. 2MXV 32-407M						753																
BS.. 2MXV 32-408/C (-ITT)							817																
BS.. 2MXV 32-410/D (-ITT)							865																
BS.. 2MXV 32-412/D (-ITT)		939																					
BS.. 2MXV 40-804/D (-ITT)	BS.. 2MXV 40-804M	G 2 1/2	G 2 1/2	965	1145	853	710	124	238	795	715	40	365	143	600	625	12,5	840	*	*	215	*	*
BS.. 2MXV 40-805/D (-ITT)							780																
BS.. 2MXV 40-806/D (-ITT)							810																
BS.. 2MXV 40-807/E (-ITT)							866																
BS.. 2MXV 40-808/D (-ITT)							896																
BS.. 2MXV 40-810/D (-ITT)							956																
BS.. 2MXV 40-811/D (-ITT)		986																					

Dimensions not binding to be verified when ordering * Dimensions on request (1) Anti-vibration pads kit supplied loose as standard

h9f-l6f-l7f= Fixed speed boosting sets
h9v-l6v-l7v= Variable speed boosting sets
h9i-l6i-l7i= I-MAT boosting sets

Dimensions and weights

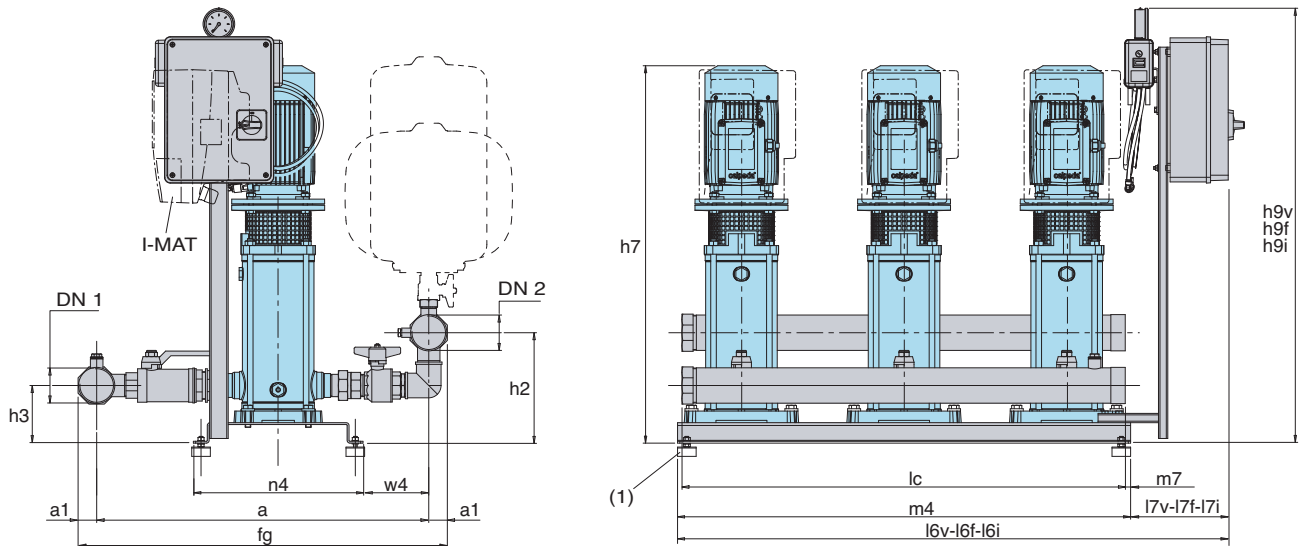


TYPE	Connection		mm																				
	DN1	DN2	h9f	h9v	h9i	h7	h3	fg	a	a1	n4	w4	lc	m4	m7	l6f	l6v	l6i	l7f	l7v	l7i		
BS.. 2MXV 50-1503 (ITT)	G 3	G 3	1015	1344	975	916										1080	1220	1110	130	270	160		
BS.. 2MXV 50-1504 (ITT)			1015	1344	975	980											1080	1220	1110	130	270	160	
BS.. 2MXV 50-1505 (ITT)			1015	1344	975	1028											1080	1220	1110	130	270	160	
BS.. 2MXV 50-1506 (ITT)			1015	1344	975	1167	225	913	816	48	550	82	700	950	225	1080	1220	1110	130	270	160		
BS.. 2MXV 50-1507 (ITT)			1015	1344	1175	1215											1080	1220	1110	130	270	160	
BS.. 2MXV 50-1508 (ITT)			1420	1344	1175	1263											1170	1220	1110	220	270	160	
BS.. 2MXV 50-1509 (ITT)			1420	1344	1175	1311											1170	1220	1110	220	270	160	
BS.. 2MXV 50-1510 (ITT)			1420	1344	1175	1359											1170	1220	1110	220	270	160	
BS.. 2MXV 50-2003 (ITT)			G 3	G 3	1015	1344	975	932										1080	1220	1110	130	270	160
BS.. 2MXV 50-2004 (ITT)					1015	1344	975	967											1080	1220	1110	130	270
BS.. 2MXV 50-2005 (ITT)	1015	1344			975	1119	225	913	816	48	550	82	700	950	225	1080	1220	1110	130	270	160		
BS.. 2MXV 50-2006 (ITT)	1420	1344			975	1167											1170	1220	1110	220	270	160	
BS.. 2MXV 50-2007 (ITT)	1420	1344			1175	1215											1170	1220	1110	220	270	160	
BS.. 2MXV 50-2008 (ITT)	1420	1648			1175	1367											1170	1170	1110	220	220	160	
BS.. 2MXV 50-2009 (ITT)	1420	1648			1175	1415											1170	1170	1110	220	220	160	
BS.. 2MXV 65-3202/D (ITT)	100	100			1015	1344	975	853									1080	1220	1110	130	270	160	
BS.. 2MXV 65-3203/C (ITT)					1015	1344	975	947										1080	1220	1110	130	270	160
BS.. 2MXV 65-3204/C (ITT)					1420	1344	975	993	240	1310	985	110	550	231	750	950	200	1170	1220	1120	220	270	170
BS.. 2MXV 65-3205/D (ITT)			1420	1648	1175	1189										1170	1170	1120	220	220	170		
BS.. 2MXV 65-3206/D (ITT)			1420	1648	1175	1235										1170	1170	1120	220	220	170		
BS.. 2MXV 65-3207/D (ITT)			1420	1648	1175	1306										1170	1170	1120	220	220	170		
BS.. 2MXV 80-4802/C (ITT)	125	125	1015	1344	975	940									1080	1220	1110	130	270	160			
BS.. 2MXV 80-4803/C (ITT)			1420	1344	975	1001										1170	1220	1110	220	270	160		
BS.. 2MXV 80-4804/D (ITT)			1420	1648	1175	1212	240	1441	1140	125	550	279	750	950	200	1170	1170	1120	220	220	170		
BS.. 2MXV 80-4805/D (ITT)			1420	1648	1175	1299										1170	1170	1120	220	220	170		
BS.. 2MXV 80-4806/D (ITT)			1420	1648	1175	1360										1170	1170	1120	220	220	170		
BS.. 2MXV 80-4807/E (ITT)			1420	*	1175	1498										1170	*	1120	220	*	170		
BS.. 2MXV 100-6501-ITT	150	150																					
BS.. 2MXV 100-6502-2R (ITT)																							
BS.. 2MXV 100-6502 (ITT)																							
BS.. 2MXV 100-6503-2R (ITT)																							
BS.. 2MXV 100-6503/A (ITT)			*	*	*	*	*	*	*	*	142,5	*	*	950	*	*	*	*	*	*	*	*	*
BS.. 2MXV 100-6504-2R/A (ITT)																							
BS.. 2MXV 100-6504 (ITT)																							
BS.. 2MXV 100-6505-2R																							
BS.. 2MXV 100-6505																							
BS.. 2MXV 100-9001-1R-ITT			200	200				1306															
BS.. 2MXV 100-9001-ITT						1306																	
BS.. 2MXV 100-9002-2R (ITT)						1538																	
BS.. 2MXV 100-9002 (ITT)						1563																	
BS.. 2MXV 100-9003-2R/A (ITT)	*	*			*	1709	370	1883	1543	170	1050	260	950	1300	360	*	*	*	*	*	*	*	
BS.. 2MXV 100-9003 (ITT)						1709																	
BS.. 2MXV 100-9004-2R						1879																	
BS.. 2MXV 100-9004						1879																	
BS.. 2MXV 100-9005-2R						1972																	

Dimensions not binding to be verified when ordering * Dimensions on request

h9f-l6f-l7f= Fixed speed boosting sets
h9v-l6v-l7v= Variable speed boosting sets
h9i-l6i-l7i= I-MAT boosting sets

Dimensions and weights

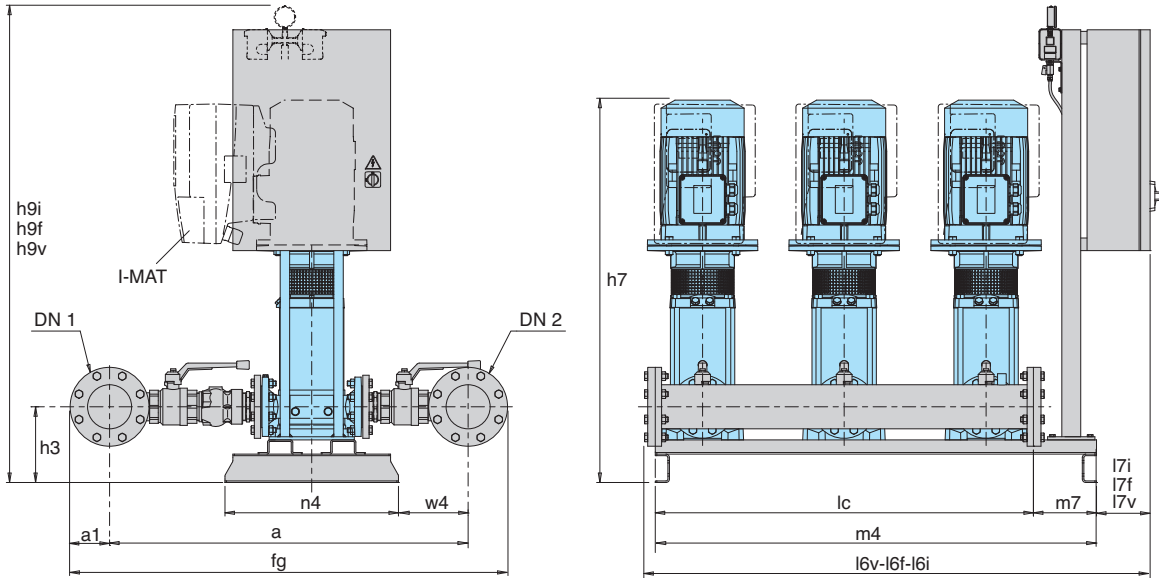


TYPE	Connection		mm																				
	DN 1	DN 2	h9f	h9v	h9i	h7	h3	h2	fg	a	a1	n4	w4	lc	m4	m7	l6f	l6v	l6i	l7f	l7v	l7i	
BS.. 3MXV 25-204/C (-ITT)						686																	
BS.. 3MXV 25-205/C (-ITT)						710																	
BS.. 3MXV 25-206/D (-ITT)						734																	
BS.. 3MXV 25-207/D (-ITT)	G 2	G 2	965	1145	853	758	134	216	681	617	32	406	102	950	1000	25	840	*	*	215	*	*	
BS.. 3MXV 25-208/D (-ITT)						792																	
BS.. 3MXV 25-210/D (-ITT)						840																	
BS.. 3MXV 25-212/C (-ITT)						928																	
BS.. 3MXV 32-404/D (-ITT)						686																	
BS.. 3MXV 32-405/D (-ITT)						710																	
BS.. 3MXV 32-406/D (-ITT)						744																	
BS.. 3MXV 32-407/C (-ITT)	G 2 1/2	G 2 1/2	965	1145	853	768	134	234	711	631	40	406	84	950	1000	25	840	*	*	215	*	*	
BS.. 3MXV 32-408/C (-ITT)						832																	
BS.. 3MXV 32-410/D (-ITT)						880																	
BS.. 3MXV 32-412/D (-ITT)						954																	
BS.. 3MXV 40-804/D (-ITT)						725																	
BS.. 3MXV 40-805/D (-ITT)						795																	
BS.. 3MXV 40-806/D (-ITT)						825																	
BS.. 3MXV 40-807/E (-ITT)	G 3	G 3	965	1145	853	881	139	259	817	720	48,5	406	121	950	1000	25	840	*	*	215	*	*	
BS.. 3MXV 40-808/D (-ITT)						911																	
BS.. 3MXV 40-810/D (-ITT)						971																	
BS.. 3MXV 40-811/D (-ITT)						1001																	

Dimensions not binding to be verified when ordering * Dimensions on request (1) Anti-vibration pads kit supplied loose as standard

h9f-l6f-l7f= Fixed speed boosting sets
h9v-l6v-l7v= Variable speed boosting sets
h9i-l6i-l7i= I-MAT boosting sets

Dimensions and weights



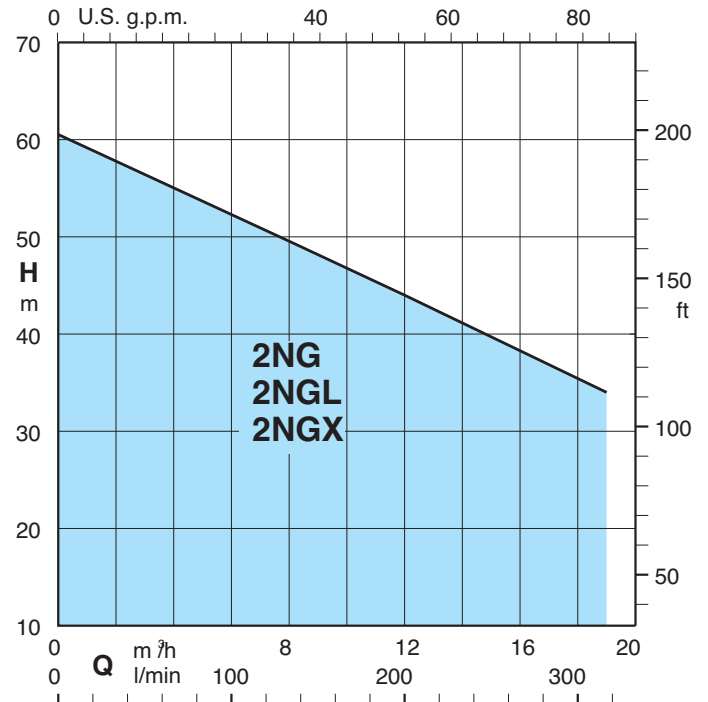
TYPE	Connection		mm																					
	DN1	DN2	h9f	h9v	h9i	h7	h3	fg	a	a1	n4	w4	lc	m4	m7	l6f	l6v	l6i	l7f	l7v	l7i			
BS.. 3MXV 50-1503 (ITT)	100	100														1572	1652	1577	140	220	145			
BS.. 3MXV 50-1504 (ITT)																	1572	1652	1577	140	220	145		
BS.. 3MXV 50-1505 (ITT)																	1572	1652	1577	140	220	145		
BS.. 3MXV 50-1506 (ITT)									*		1100	880	110	*	*	1200	1400	200	1572	1652	1577	140	220	145
BS.. 3MXV 50-1507 (ITT)					*	*	*	*	*															
BS.. 3MXV 50-1508 (ITT)																		1652	1652	1577	220	220	145	
BS.. 3MXV 50-1509 (ITT)																		1652	1652	1577	220	220	145	
BS.. 3MXV 50-1510 (ITT)																		1652	1652	1577	220	220	145	
BS.. 3MXV 50-2003 (ITT)	100	100														1572	1652	1577	140	220	145			
BS.. 3MXV 50-2004 (ITT)																	1572	1652	1577	140	220	145		
BS.. 3MXV 50-2005 (ITT)									*		1100	880	110	*	*	1200	1400	200	1572	1652	1577	140	220	145
BS.. 3MXV 50-2006 (ITT)					*	*	*	*	*									1572	1652	1577	140	220	145	
BS.. 3MXV 50-2007 (ITT)																		1572	1652	1577	140	220	145	
BS.. 3MXV 50-2008 (ITT)																		1652	QA	1577	220	QA	145	
BS.. 3MXV 50-2009 (ITT)																		1652	QA	1577	220	QA	145	
BS.. 3MXV 65-3202/D (ITT)			125	125	1500	1593	1020	903										1574	1654	1579	140	220	145	
BS.. 3MXV 65-3203/C (ITT)	1500	1593			1020	997											1574	1654	1579	140	220	145		
BS.. 3MXV 65-3204/C (ITT)	1500	1593			1020	1043											1574	1654	1579	140	220	145		
BS.. 3MXV 65-3205/D (ITT)	1713	QA			1220	1239	291	1406	1156	125	550	284	1200	1400	200		1654	QA	1579	220	QA	145		
BS.. 3MXV 65-3206/D (ITT)	1713	QA			1220	1285											1654	QA	1579	220	QA	145		
BS.. 3MXV 65-3207/D (ITT)	1713	QA			1388	1356											1654	QA	1704	220	QA	270		
BS.. 3MXV 80-4802/C (ITT)	150	150			1500	1593	1020	990										1577	1657	1582	140	220	145	
BS.. 3MXV 80-4803/C (ITT)					1500	1593	1020	1051											1577	1657	1582	140	220	145
BS.. 3MXV 80-4804/D (ITT)			1713	QA	1220	1262	291	1525	1240	142,5	550	313	1200	1400	200		1657	QA	1582	220	QA	145		
BS.. 3MXV 80-4805/D (ITT)			1713	QA	1388	1349											1657	QA	1707	220	QA	270		
BS.. 3MXV 80-4806/D (ITT)			1713	QA	1388	1410											1657	QA	1707	220	QA	270		
BS.. 3MXV 80-4807/E (ITT)			1713	QA	1388	1548											*	QA	1707	*	QA	270		
BS.. 3MXV 100-6501-ITT			200	200																				
BS.. 3MXV 100-6502-2R (ITT)								1414																
BS.. 3MXV 100-6502 (ITT)						1554																		
BS.. 3MXV 100-6503-2R (ITT)						1671																		
BS.. 3MXV 100-6503/A (ITT)	*	*			*	1725	386	1658	1318	170	900	65	1500	1650	175		*	*	*	*	*	*	*	
BS.. 3MXV 100-6504-2R/A (ITT)						1817																		
BS.. 3MXV 100-6504 (ITT)						1817																		
BS.. 3MXV 100-6505-2R						1988																		
BS.. 3MXV 100-6505						1988																		
BS.. 3MXV 100-9001-1R-ITT	200	200																						
BS.. 2MXV 100-9001-ITT																								
BS.. 3MXV 100-9002-2R (ITT)																								
BS.. 3MXV 100-9002 (ITT)																								
BS.. 3MXV 100-9003-2R/A (ITT)			*	*	*	*	*	*	*	*	170	*	*	1500	*	*	*	*	*	*	*	*	*	
BS.. 3MXV 100-9003 (ITT)																								
BS.. 3MXV 100-9004-2R																								
BS.. 3MXV 100-9004																								
BS.. 3MXV 100-9005-2R																								

Dimensions not binding to be verified when ordering * Dimensions on request
QA Cabinet version

h9f-l6f-l7f= Fixed speed boosting sets
h9v-l6v-l7v= Variable speed boosting sets
h9i-l6i-l7i= I-MAT boosting sets



Coverage chart



Construction

Automatic pressure boosting plant consisting of two pumps complete with ball, non return valve on the suction side and ball valves on the discharge side.

Suction and delivery manifolds are in AISI 304 stainless steel.

Connections are located on the delivery manifold for the installation of two 20/24 litres vessels.

Electrical control boards:

- with microprocessor for fixed speed pump units.

The unit includes one pressure gauge and two adjustable differential pressure switches.

Operation

BS 2F Fixed speed pump

Depending on the reduction of the pressure in the system, the pressure switches determine the starting up of the pumps in sequence and the microprocessor alternates the starts.

Applications

For drawing water out a well.

As pressure boosting pump to increase water pressure when needed (follow local rules).

Motors

2-pole induction motors, 50 Hz, $n \approx 2900$ rpm.

- Three-phase 230/400V $\pm 10\%$, suitable for operation with frequency converter;

- Single-phase 230 V $\pm 10\%$, with thermal protector.

Insulation class F.

Protection IP 54.

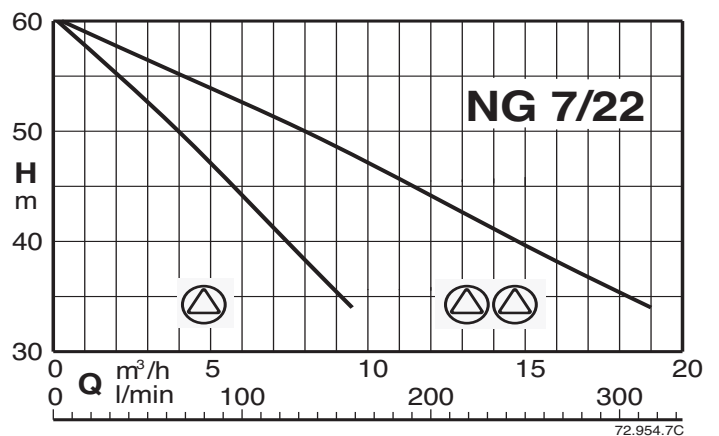
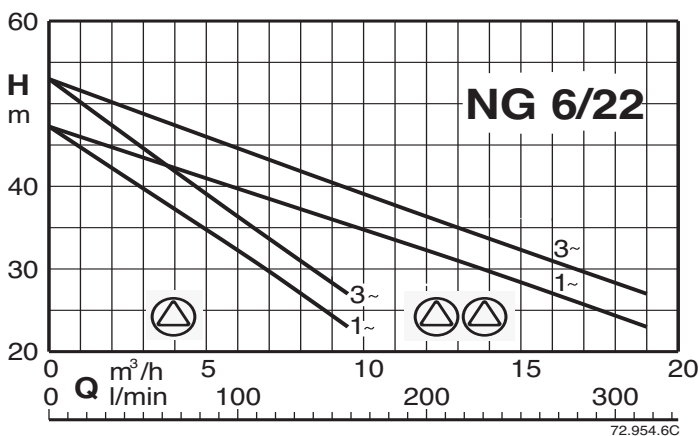
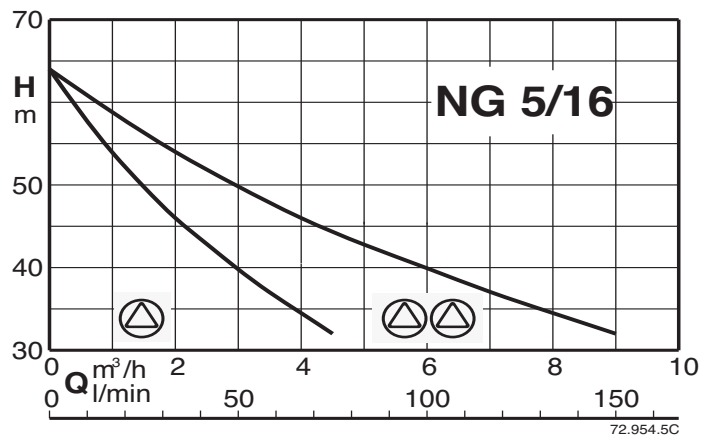
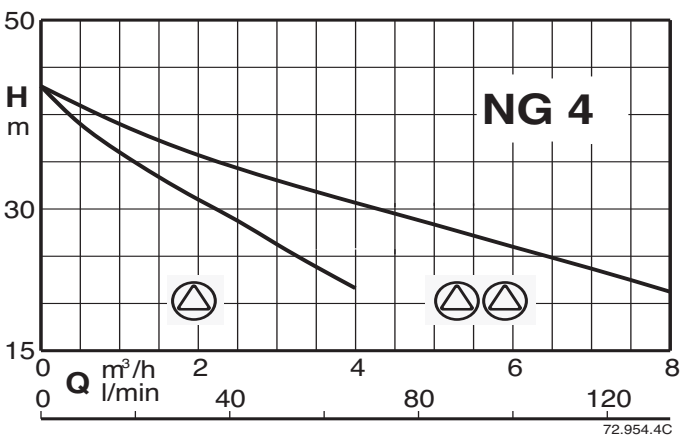
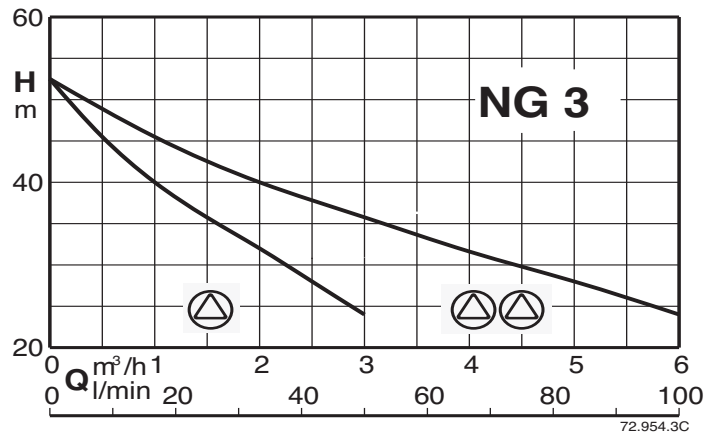
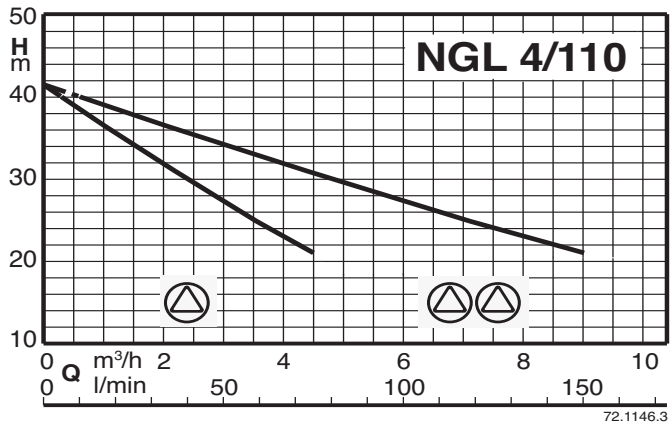
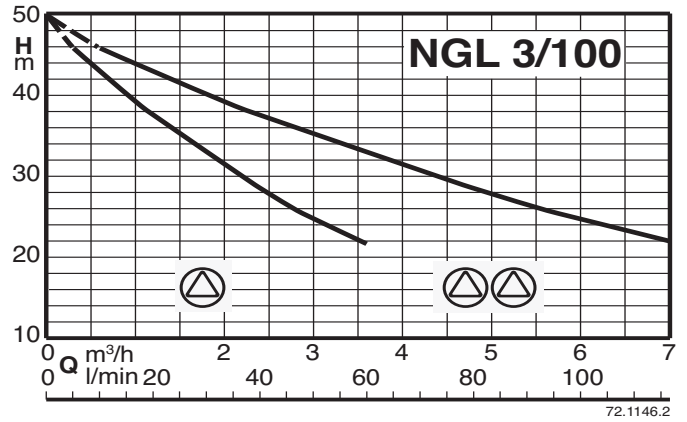
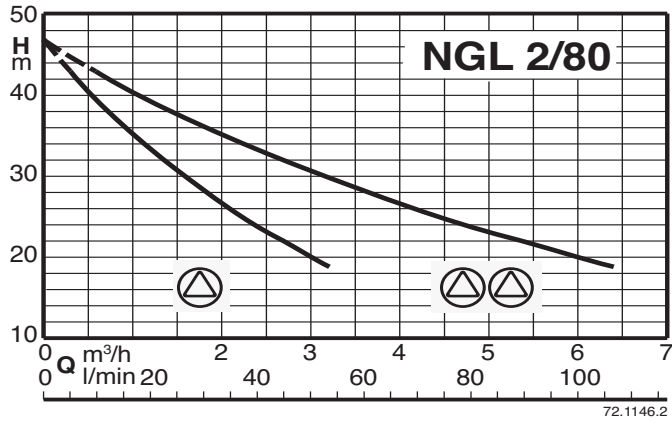
Constructed in accordance with: IEC 60034.

Other voltages and frequencies on request.

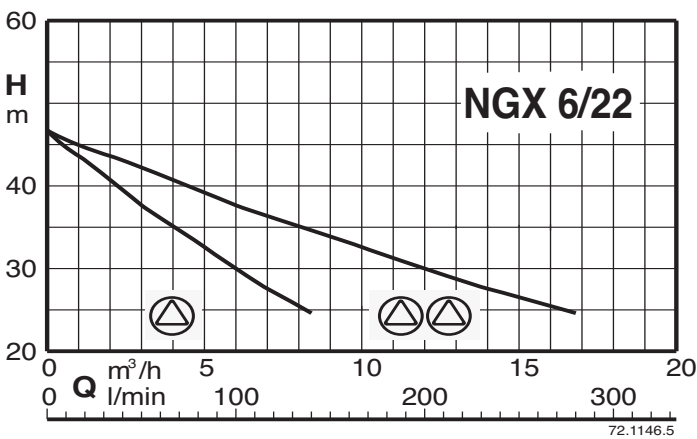
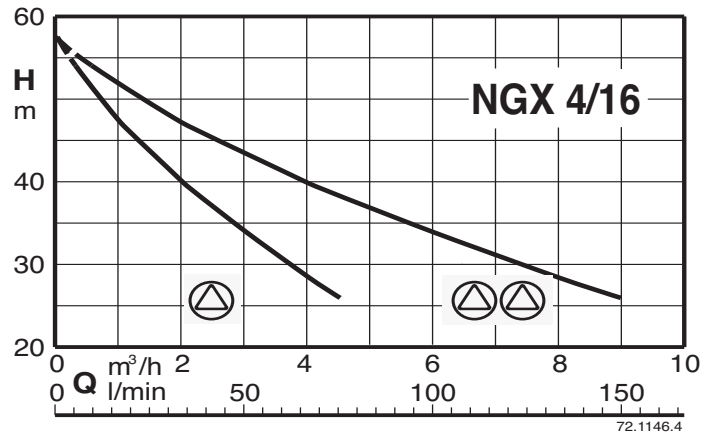
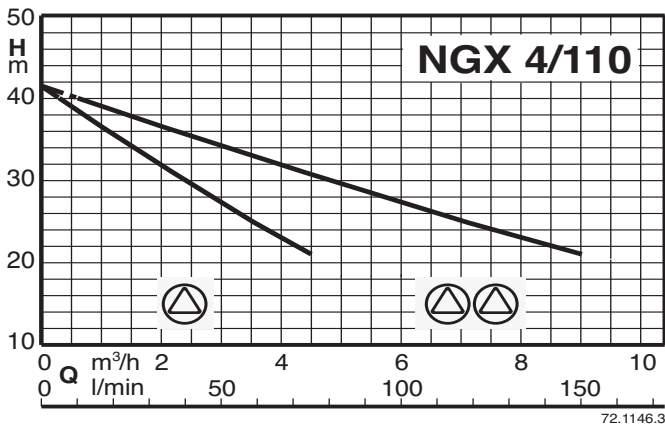
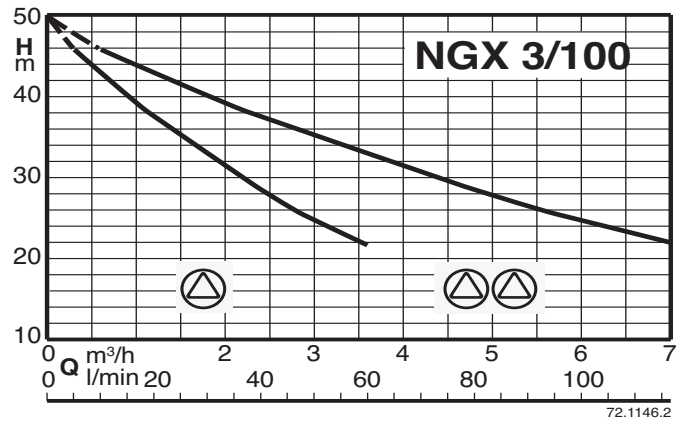
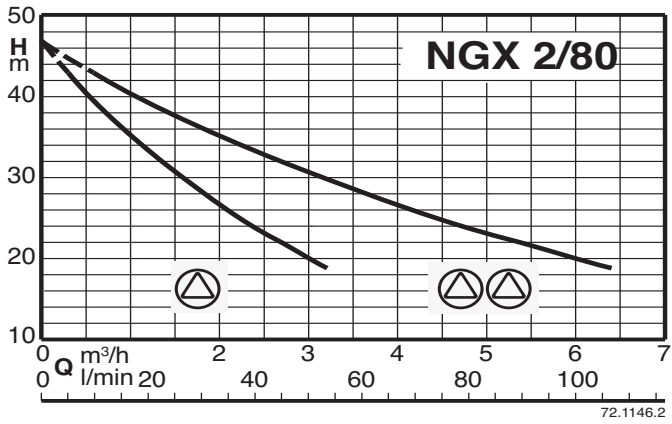
Vessels (on request)

Capacity 20/24 litres, membrane type, air precharged.

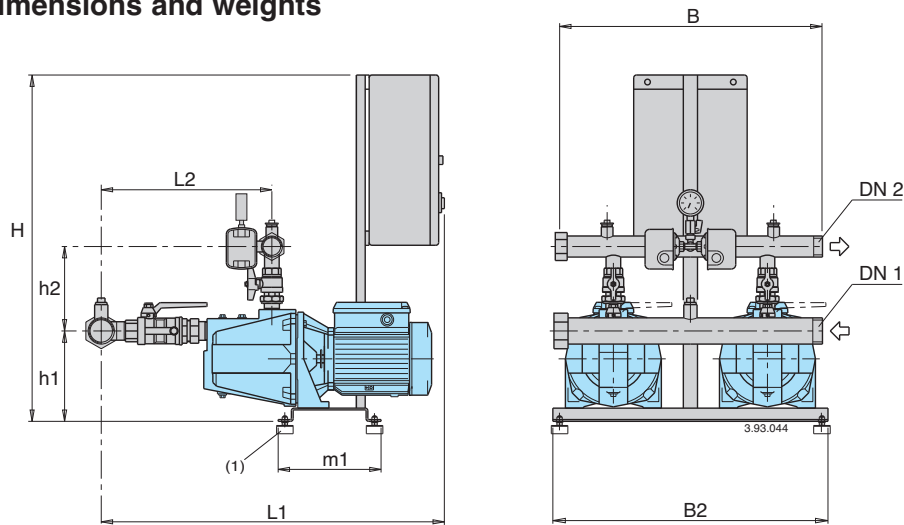
Coverage chart



Coverage chart



Characteristic, dimensions and weights



BS2F BSM2F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Q max* l/min	Pres. switch setting		Connection		mm								Weight kg	Vessel			
		kW	HP		bar	bar	DN1	DN2	H	h1	h2	L1	L2	m1	B2	B		Mem. litre	Vessel litre		
BS2F 2NGL 2/80	BSM2F 2NGLM 2/80	0,55+0,55	0,75+0,75	100	2,4÷3,6	2,0÷3,2	G 2	G 1 1/2	840	151	206	793	355					42	24x2	100	
BS2F 2NGL 3/100	BSM2F 2NGLM 3/100	0,65+0,65	0,9+0,9	110	2,8÷4,0	2,4÷3,6	G 2	G 1 1/2	840	151	206	793	355			235	625	600	46	24x2	100
BS2F 2NGL 4/110	BSM2F 2NGLM 4/110	0,75+0,75	1+1	150	2,4÷3,6	2,0÷3,2	G 2	G 1 1/2	840	151	206	793	355						49	24x2	100

* Maximum pumps flow at minimum set pressure of 2nd pressure switch.

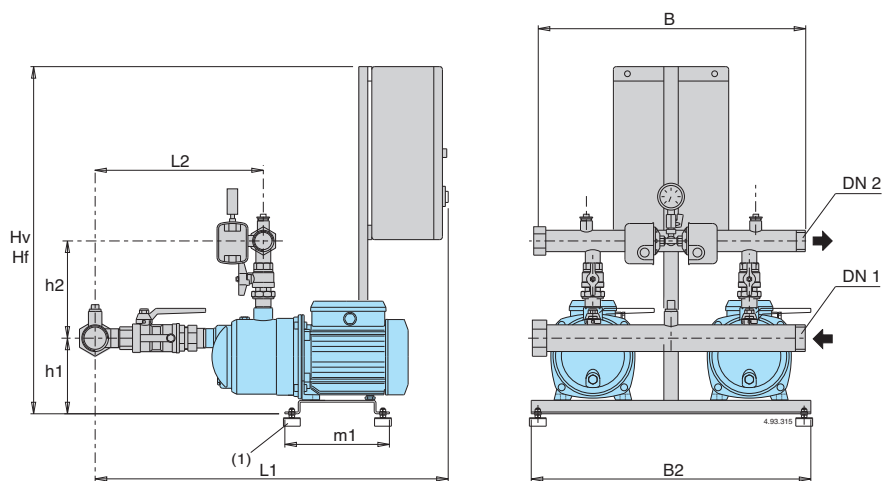
Dimensions not binding to be verified when ordering

BS2F BSM2F

Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Q max* l/min	Pres. switch setting		Connection		mm								Weight kg	Vessel			
		kW	HP		bar	bar	DN1	DN2	H	h1	h2	L1	L2	m1	B2	B		Mem. litre	Vessel litre		
BS2F 2NG 3/A	BSM2F 2NGM 3/A	0,55+0,55	0,75+0,75	95	3,0÷4,2	2,5÷3,7	G 2	G 1 1/2	840	184	188	775	345						61	24x2	100
BS2F 2NG 4/B	BSM2F 2NGM 4/A	0,75+0,75	1+1	130	2,4÷3,6	2,0÷3,2	G 2	G 1 1/2	840	184	188	775	345						62	24x2	100
BS2F 2NG 5/16/A	BSM2F 2NGM 5/16E	1,1+1,1	1,5+1,5	140	3,8÷5,3	3,4÷4,9	G 2 1/2	G 1 1/2	840	200	202	935	470			235	625	600	86	24x2	100
	BSM2F 2NGM 6/22E	1,5+1,5	2+2	290	3,0÷4,2	2,5÷3,7	G 2 1/2	G 1 1/2	840	200	202	935	470						89	100	200
BS2F 2NG 6/22/A		1,5+1,5	2+2	290	3,2÷4,5	2,8÷4,0	G 2 1/2	G 1 1/2	840	200	202	935	470						90	100	200
BS2F 2NG 7/22/B		2,2+2,2	3+3	300	3,8÷5,3	3,4÷4,9	G 2 1/2	G 1 1/2	840	200	202	935	470						92	200	300

* Maximum pumps flow at minimum set pressure of 2nd pressure switch.

Dimensions not binding to be verified when ordering



BS2F BSM2F

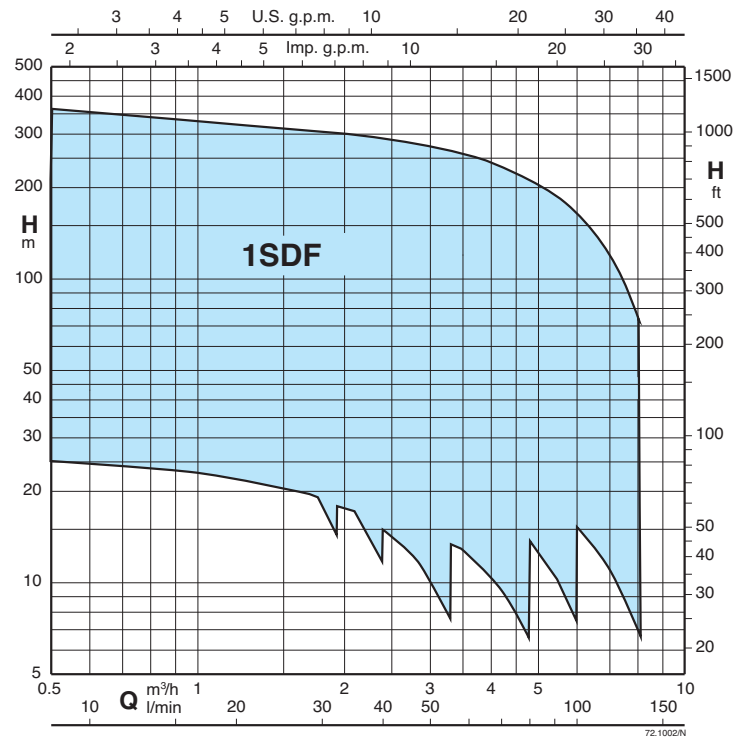
Mains: 400V 3~ Motor: 400V 3~	Mains: 230V 1~ Motor: 230V 1~	Motor		Q max* l/min	Pres. switch setting		Connection		mm								Weight kg	Vessel			
		kW	HP		bar	bar	DN1	DN2	H	h1	h2	L1	L2	m1	B2	B		Mem. litre	Vessel litre		
BS2F 2NGX 2/80	BSM2F 2NGXM 2/80	0,55+0,55	0,75+0,75	100	2,4÷3,6	2,0÷3,2	G 2	G 1 1/2	840	151	206	793	355						42	24x2	100
BS2F 2NGX 3/100	BSM2F 2NGXM 3/100	0,65+0,65	0,9+0,9	110	2,8÷4,0	2,4÷3,6	G 2	G 1 1/2	840	151	206	793	355						46	24x2	100
BS2F 2NGX 4/110	BSM2F 2NGXM 4/110	0,75+0,75	1+1	150	2,4÷3,6	2,0÷3,2	G 2	G 1 1/2	840	151	206	793	355			235	625	600	49	24x2	100
BS2F 2NGX 4/16	BSM2F 2NGXM 4/16	1,1+1,1	1,5+1,5	130	3,4÷4,9	3,0÷4,5	G 2	G 1 1/2	840	187	212	836	380						61	24x2	100
BS2F 2NGX 6/22/A	BSM2F 2NGXM 6/22	1,5+1,5	2+2	280	3,0÷4,2	2,5÷3,7	G 2	G 1 1/2	840	187	212	836	380						65	100	200

* Maximum pumps flow at minimum set pressure of 2nd pressure switch.

Dimensions not binding to be verified when ordering



Coverage chart



Operation

BS1V Pressure boosting sets with 1 variable speed pump (with EASYMAT).

Depending on water consumption, one pump is activated, at variable speed, in order to guarantee the quantity of water required at the set pressure.



CONSTANT PRESSURE MODE:

the system keeps the pressure constant when the quantity of water requested by the user changes.



FIXED SPEED MODE:

the system works at a fixed speed that user can choose according to his need.

Execution

Constant pressure boosting sets with **EASYMAT** frequency converter made of 1 pump, ball valve, non return valve and pressure gauge on delivery side.

Suitable for installation of pressure vessel on delivery side.

Applications

For drawing water out of a well

As pressure boosting pump for central water systems with low pressure (follow local specifications if increasing network pressure)

Motors

2-pole induction motors, 50Hz, $n \approx 2900$ rpm, suitable for operation with frequency converter

- Three-phase 230V +/-10%

Class F insulation

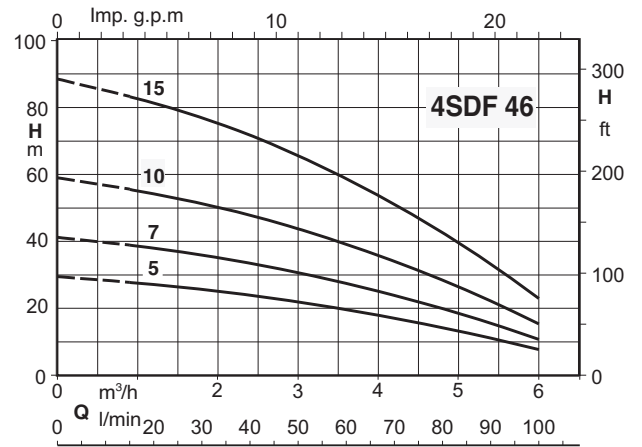
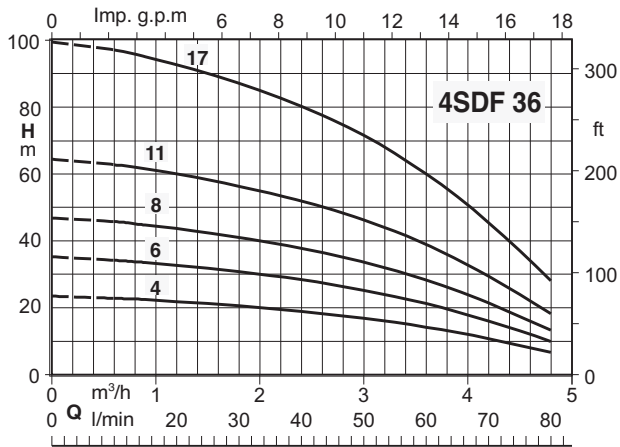
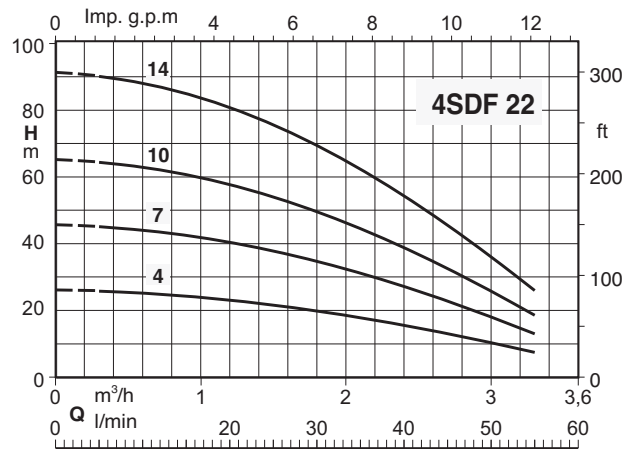
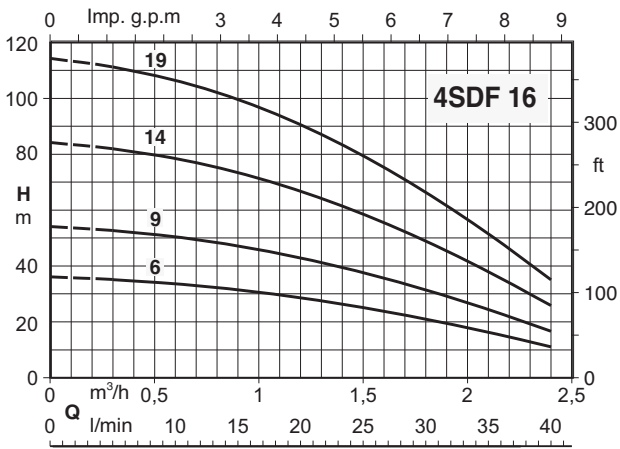
IP 68 protection

Execution according IEC 60034

Other voltages on demand

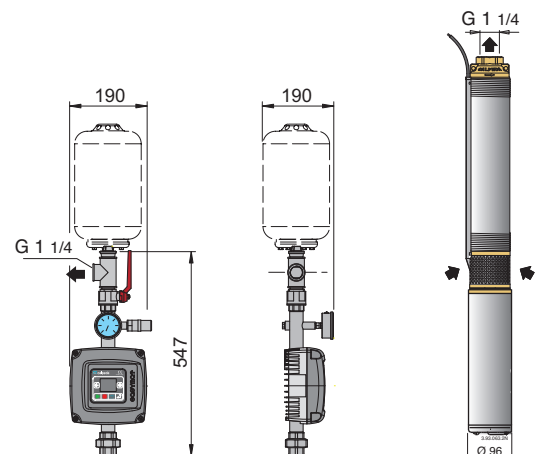
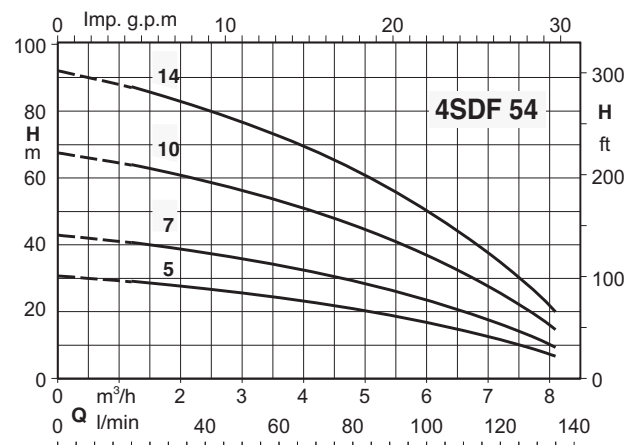
Pressure vessels (on demand)

Coverage chart



Characteristic and dimensions

	Mains: 1~ 230V Motor: 3~ 230V		P ₂	
	mains A	motor A	kW	HP
BSM1V 1-4SDF 16/6E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 16/9E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 16/14E-EMT	3.7	2.8	0.55	0.75
BSM1V 1-4SDF 16/19E-EMT	4.8	3.5	0.75	1
BSM1V 1-4SDF 22/4E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 22/7E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 22/10E-EMT	3.7	2.8	0.55	0.75
BSM1V 1-4SDF 22/14E-EMT	4.8	3.5	0.75	1
BSM1V 1-4SDF 36/4E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 36/6E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 36/8E-EMT	3.7	2.8	0.55	0.75
BSM1V 1-4SDF 36/11E-EMT	4.8	3.5	0.75	1
BSM1V 1-4SDF 36/17E-EMT	6.8	4.9	1.1	1.5
BSM1V 1-4SDF 46/5E-EMT	2.5	1.9	0.37	0.5
BSM1V 1-4SDF 46/7E-EMT	3.7	2.8	0.55	0.75
BSM1V 1-4SDF 46/10E-EMT	4.8	3.5	0.75	1
BSM1V 1-4SDF 46/15E-EMT	6.8	4.9	1.1	1.5
BSM1V 1-4SDF 54/5E-EMT	3.7	2.8	0.55	0.75
BSM1V 1-4SDF 54/7E-EMT	4.8	3.5	0.75	1
BSM1V 1-4SDF 54/10E-EMT	6.8	4.9	1.1	1.5
BSM1V 1-4SDF 54/14E-EMT	9.5	6.8	1.5	2



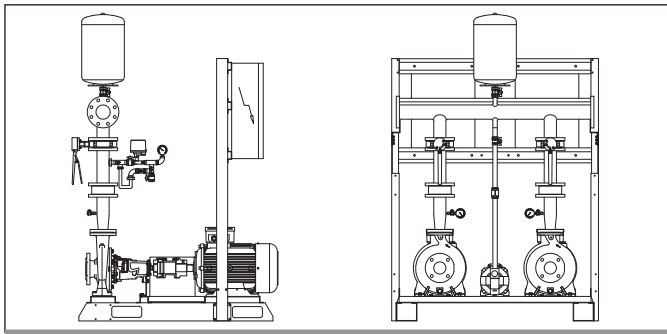
EJ, DJ, EDJ

UNI-EN 12845 fire-fighting systems



EJ, DJ, EDJ

UNI-EN 12845 fire-fighting systems

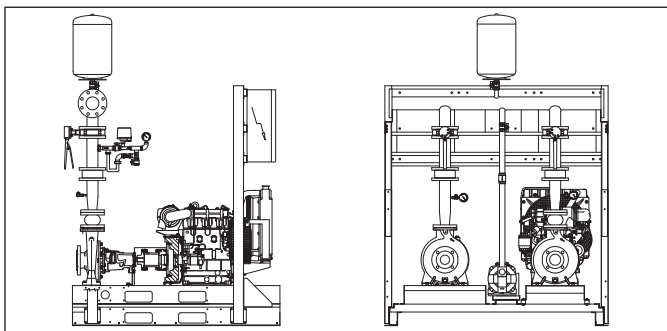


EJ 11

UNI-EN 12845 units with 1 N series electric main pump

EJ 21

UNI-EN 12845 units with 2 N series electric main pumps



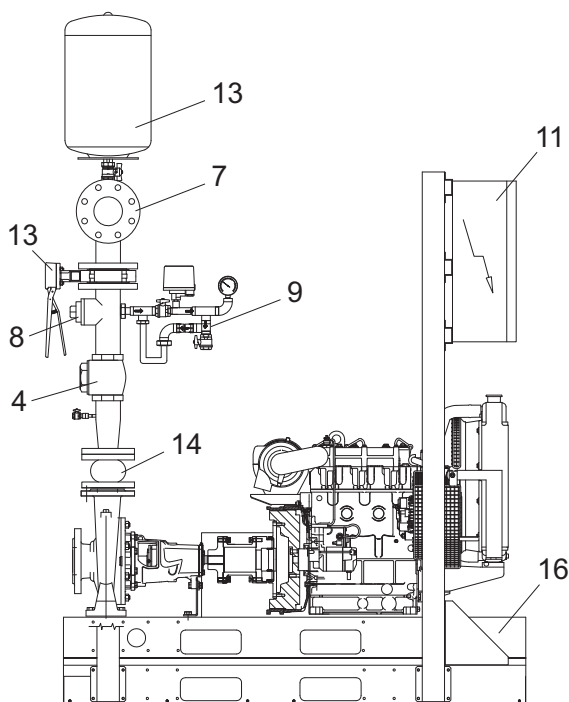
DJ 11

UNI-EN 12845 units with 1 N series main pump (diesel motor)

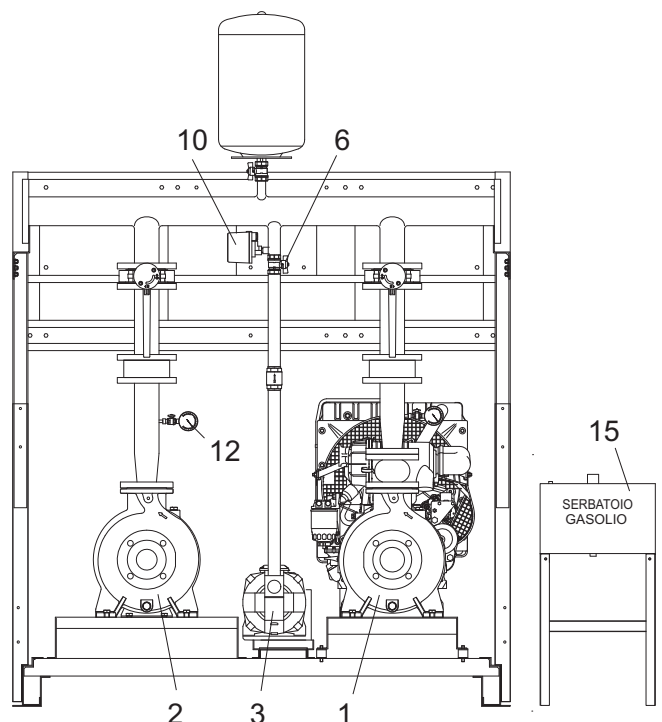
EDJ 21

UNI-EN 12845 units with 2 N series main pumps (electric and diesel motors)

Construction



- 1) Main pump (with diesel motor)
- 2) Main pump (with electric motor)
- 3) Jockey pump
- 4) Non-return valve
- 5) Lockable valve
- 6) Ball valve
- 7) Delivery manifold
- 8) Sprinkler connection for protection of pump room
- 9) Starting system for main pump composed by two pressure switches, one 0-16 bar glycerine filled pressure gauge, ball valve, by-pass circuit.
- 10) Start-Stop system for jockey pump composed by one pressure switch and one 0-16 bar glycerine filled pressure gauge.



- 11) Electric control panel (one for each pump)
- 12) Pressure switch for "pump running" signal, re cycling water connection and 0-16 bar glycerine filled pressure gauge.
- 13) 20-lt PN 16 membrane pressure tank
- 14) Compensating joint for vibration damping
- 15) Diesel tank on a separate pedestal (6 hour autonomy)
- 16) Painted steel skid

All the butterfly valves or ball valve are locked in the normal position by means of a lock and key.

On request: anti-vibration couplings in both the suction and delivery sections.

Construction

Units constructed in accordance with UNI-EN 12845 standards for automatic fire-fighting systems (with sprinkler) and according to UNI 10779 for fire-fighting systems with fire hydrants.

The units may be composed of 1 or 2 main pumps.

Units are fitted with a jockey pump, with which the system pressure level can be maintained without having to start the main pumps.

When two pumps are installed, each one shall be capable of providing the specified flows and pressures independently.

When three pumps are installed, each pump shall be capable of providing at least 50% of the specified flow at the specified pressure.

Application

For feeding water to automatic fire-fighting systems and units with hydrants.

Operation

The pumps start operating after a fall in the pressure level in the fire-extinguishing system.

The first pump to be triggered is the jockey pump.

If this pump cannot restore the pressure level, the main pump starts.

When there is more than one main pump, the pumps start in cascade sequence, with the starting pressure switches set at different pressure levels.

The pressure switches of the main pumps are used only for starting, as the pumps must be stopped manually for UNI-EN 12845 units or automatically with a timer for UNI 10779 sets.

The recirculation diaphragm allows for operation of the main pumps also when the delivery port is closed (with no consumption of water in the system), avoiding overheating of the water inside the pump body.

Pumps

Main pumps

The N series centrifugal pumps are coupled with the electric or diesel motor through a bearing coupling. This solution allows to operate on the hydraulic part without moving the motor.

Jockey pump

Jockey pump can be a self-priming jet pump, a centrifugal pump with two impellers.

The maximum pressure developed by the jockey pump is always greater than the pressure of the main pumps.

Motors

Two-pole induction type, 50 Hz, n = 2,900 rpm

Three-phase 230/400V ± 10% up to 3 kW

400/690V ± 10% 4 kW and higher.

Insulation class F

Protection IP 55.

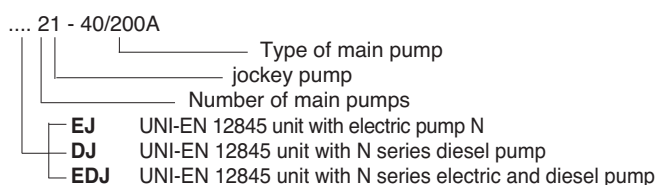
Construction in accordance with: IEC 60034

Other voltage and frequency ratings available on request

Diesel motors (for standardised N-series pumps)

These are direct-injection pumps fitted with electric control box, fuel tank, starter batteries and silencer.

Designation of units



Hydraulic components

Each main pump is fitted with:

- Butterfly valve in the suction section (on request only for installation with positive suction head).
- Pressure gauge in the delivery section.
- Recirculation diaphragm.
- Non return valve of the accessible swing-type or dual disc non-return valve, depending on the models.
- Butterfly valve in the delivery section.
- Manual test circuit with pressure switches, pressure gauge, non-return valve and ball valve.

The jockey pump is fitted with:

- Ball valve in the suction section.
- Non-return valve and ball valve in the delivery section.
- Circuit with pressure switch, pressure gauge, non-return valve and ball valve.

Other components:

- Delivery manifold.
- Coupling for connection of a priming tank (to be used only for the pumps installed with positive suction head).
- The suction manifold is never supplied as such execution is forbidden by the standards.
- 20-lt cylindrical tank on the delivery manifold.
- Arrangement for sprinkler connection to the pump compartment
- Pressure switch for pump working signal

On request:

- Manifold for flow meter.
- Adjusted-flange, diaphragm type, flow meter.
- Eccentric conical reducers on suction side.
- Interception valves on suction side (for installations under positive suction head).

Electric boxes

Electric main-pump box (electric motor)

Each main pump has its own electric control board housed in a metal cabinet with IP55 protection. The box contains the devices required for operation and control of the pump.

Motor starting is direct for power ratings up to 18.5 kW.

For motors with a rating equal to or higher than 22 kW pump starting is of the Y/Δ type with fuses, contactors and timer.

- Timer for pumps stop after 20 minutes (UNI 10779)

The following devices are located on the internal door panel:

- Line-sectioning handle - Voltmeter and ammeter on display
- "Manual-0-Automatic" selector with extractible key only in "automatic" position - Start/Stop pushbuttons - Pilot lights to indicate: no-volt, pump running, pump stops, low-pressure.

Electric main-pump box (diesel motor)

This cabinet contains the electronic control devices for the control of the diesel motor and the battery chargers for feeding the starter accumulators.

The following devices are located on the front of the box:

- Line-sectioning handle.
- Front panel of the electronic unit.
- Manual-0-Automatic selector with extractible key only an "automatic" position.

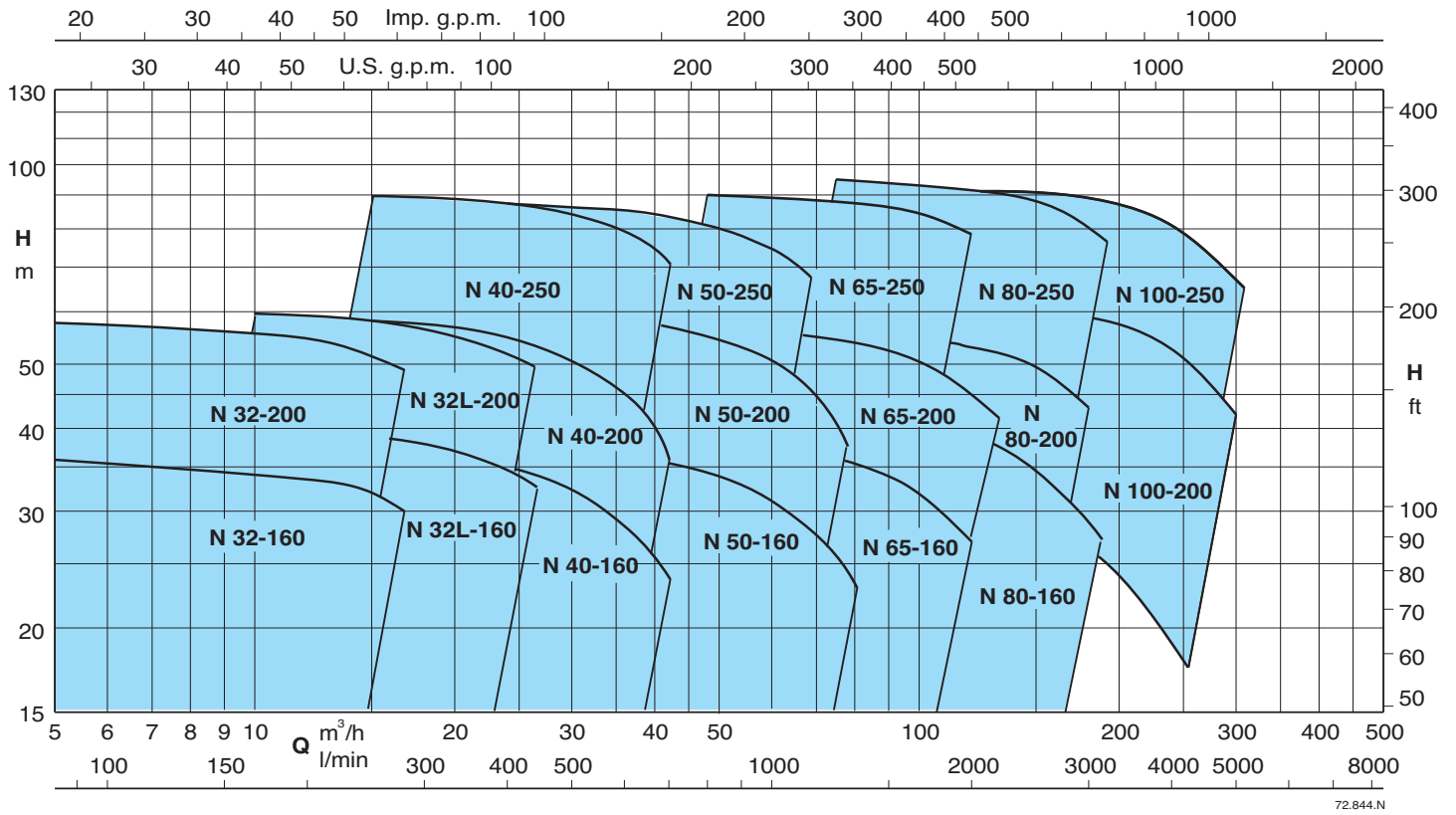
Electric jockey-pump box

When installed, the jockey pump is fitted with its own electric panel, with thermoplastic housing with IP 55 protection.

Control box (on request).

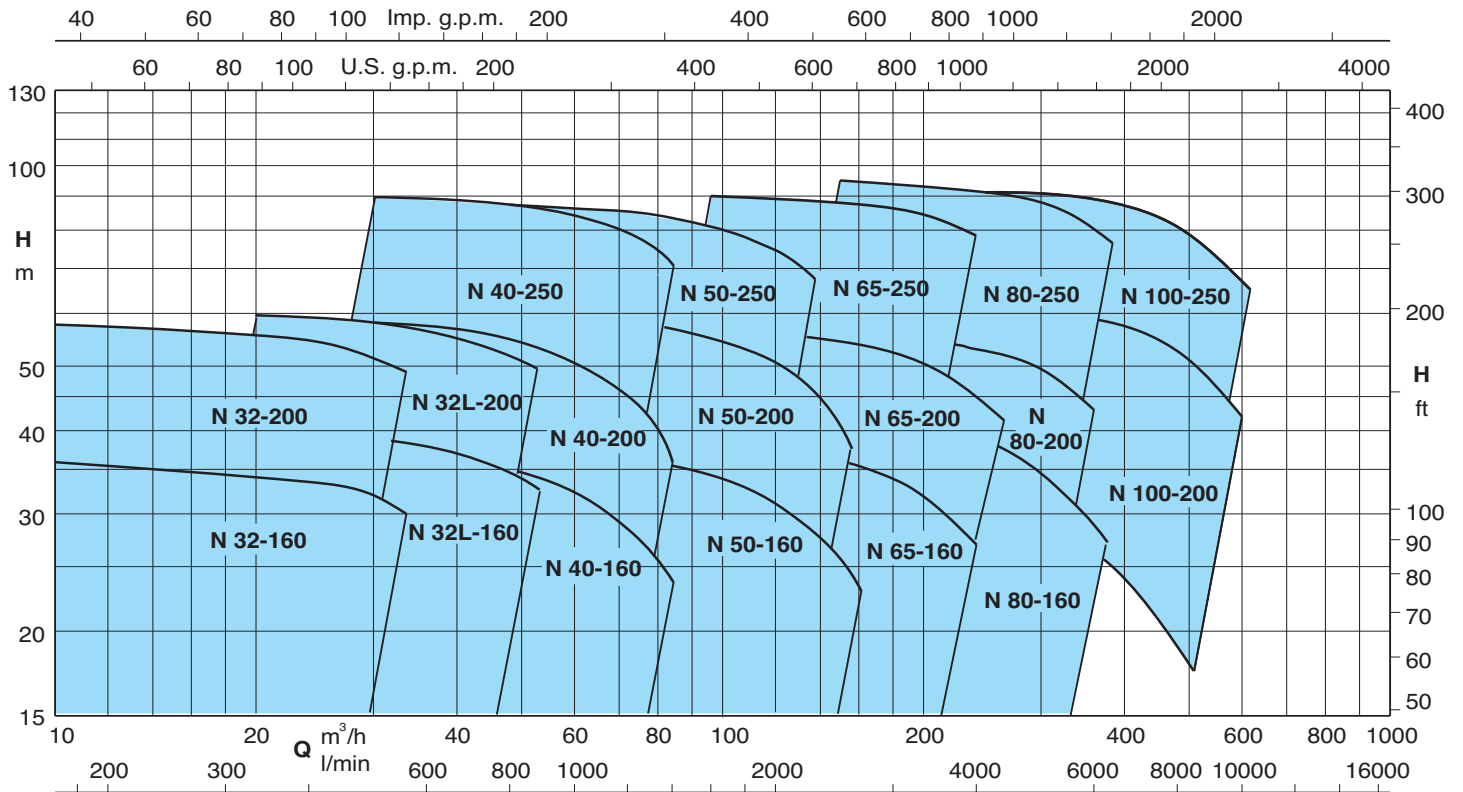
To be installed in a place to be looked after, to signal any possible failure of the unit state. It must be connected to V.220 and it gives an acoustic and visual signal for 24 hours.

With 1 electric main pump in operation



72.844.N

With 2 electric main pumps in operation

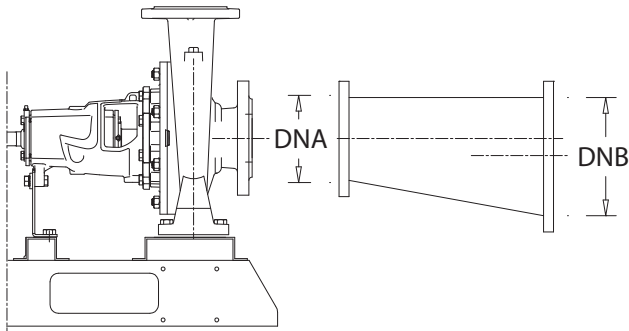


72.844.N

When two pumps are installed, each one shall be capable of providing the specified flows and pressures independently.
 When three pumps are installed, each pump shall be capable of providing at least 50% of the specified flow at the specified pressure.

Accessories

ECCENTRICS REDUCTIONS



Flanged reductions eccentric to be installed in the suction of main pumps, are complete of 1/4" out point, ball interception valve and vacuum gauge (or gauge on request). To choose it take the diameter inlet of the main pumps DNA (limit of standard) and then consult the following tables in order to define the enlargement of the eccentric cone DNB (depending on the type of installation: suction lift or positive head).

Clarification: the previous tables suggest only indications concerning the maximum permissible speed in suction of main pumps, that choice may not be enough because the standard EN 12845 requires also that the suction piping, including all valves and fittings, shall be designed in such a way as to ensure that the available NPSH at the pump inlet exceeds the required NPSH by at least 1 mt at the maximum pump flow as shown in table 14 of the EN 12845 norm.

TYPE	DNA	DNB
RE50-65	DN50	DN65
RE50-80	DN50	DN80
RE50-100	DN50	DN100
RE50-125	DN50	DN125
RE65-80	DN65	DN80
RE65-100	DN65	DN100
RE65-125	DN65	DN125
RE65-150	DN65	DN150
RE65-200	DN65	DN200
RE80-100	DN80	DN100
RE80-125	DN80	DN125
RE80-150	DN80	DN150
RE80-200	DN80	DN200
RE80-250	DN80	DN250
RE100-150	DN100	DN150
RE100-200	DN100	DN200
RE100-250	DN100	DN250
RE125-200	DN125	DN200
RE125-250	DN125	DN250
RE125-300	DN125	DN300
RE150-250	DN150	DN250
RE150-300	DN150	DN300
RE150-350	DN150	DN350
RE150-400	DN150	DN400
RE200-300	DN200	DN300
RE200-350	DN200	DN350
RE200-400	DN200	DN400

Quick selection table for eccentric reductions

To maintain inside the suction pipe of the main pump flow velocities indicated in the standard EN 12845, depending on the maximum flow rate required by the plant, you have to enlarge the suction port of the main pump to the minimum diameter indicated in the following table:

		POSITIVE HEAD INSTALLATION					Water Speed ($V \leq 1,8$ m/s)				
Q (l/m)		0+358	359+542	543+848	849+1324	1325+1907	1908+3390	3391+5297	5298+7626	7627+10381	10382+13558
Ø min		DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400

		SUCTION LIFT INSTALLATION				Water Speed ($V \leq 1,5$ m/s)				
Q (l/m)		0+452	453+706	707+1103	1104+1589	1590+2824	2825+4413	4414+6355	6356+8650	8651+11299
Ø min		DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400

ELASTIC VIBRATION COMPENSATORS



TYPE	DN
CE-50	DN50 PN16
CE-65	DN65 PN16
CE-80	DN80 PN16
CE-100	DN100 PN16
CE-125	DN125 PN16
CE-150	DN150 PN16
CE-200	DN200 PN16
CE-250	DN250 PN16
CE-300	DN300 PN16
CE-350	DN350 PN16
CE-400	DN400 PN16

In presence of diesel motorpump is recommended to install on suction an elastic anti-vibration compensator to dampen the vibrations (in the delivery of the pump is already present). By inserting a compensator between two manifolds you can connect each two fire fighting modules.

EJ, DJ, EDJ

UNI-EN 12845 fire-fighting systems



Accessories

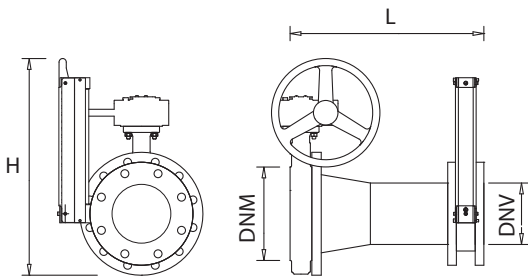
INTERCEPTION BUTTERFLY VALVES “LUG” TYPE



TIPO	DN
LUG-50	DN50
LUG-65	DN65
LUG-80	DN80
LUG-100	DN100
LUG-125	DN125
LUG-150	DN150
LUG-200	DN200
LUG-250	DN250
LUG-300	DN300
LUG-350	DN350
LUG-400	DN400

Interception butterfly valve LUG type, with threaded ears, complete with operating lever up to DN100 and hand-wheel for larger diameters

KIT FLOWMETER



TYPE	Flowmeter	Full scale (m³/h)	Connections		L (mm)	H (mm)
			DNM	DNV		
KM-65-40	T40	55	DN65	DN40	412	452
KM-65-50	T50	90	DN65	DN50	465	452
KM-80-65	T65	140	DN80	DN65	540	460
KM-100-80	T80	200	DN100	DN80	635	470
KM-125-100	T100	280	DN125	DN100	770	485
KM-150-125	T125	480	DN150	DN125	910	550
KM-200-150	T150	600	DN200	DN150	1045	600
KM-250-200	T200	1000	DN250	DN200	1335	670
KM-300-250	T250	1600	DN300	DN250	1630	730

Kit of connection between the fire fighting delivery manifold and the flow meter, composed by: interception valve, steel galvanized socket with adequate length and flowmeter. In the case of flanged composition is also supplied with the counter-flange to be inserted after the flowmeter, with two black rubber gaskets and bolts for fixing the flowmeter. Please note that is necessary the insertion after the flowmeter of another interception valve for adjusting the water flow.

SELF-POWERED REMOTE ACOUSTIC/LUMINOUS ALARMS

These equipments permit monitoring and remote signaling of fire alarms related to the fire fighting booster set, in according to the EN12845 standard.

RA 12845



- Tipo RA 12845 (no. 4 alarm input “Level A” and no. 12 alarm inputs “level B”)
- Features: Electronic control panel for alarm signalling
 - Input voltage 1 ~ 50/60Hz 230V±10%
 - Transformer 230 V/24 V for auxiliary circuit
 - Nr.4 very low voltage input from free NC contact for alarm fire “level A” (at the opening of the NC contact the red flashing light and the buzzer activate)
 - Nr.12 very low voltage input from free NC contact for alarm breakdown “level B” (when opening the NC contact the yellow flashing light and the buzzer activate)
 - Nr.1 very low voltage input from free NO contact for alarm breakdown “Level B” (when closing the NO contact the yellow flashing light and the buzzer activate)
 - Green light for power on
 - Red light for “alarm”
 - Red light for “beacon excluded”
 - Pushbutton “test” for temporary activation of the beacon
 - Pushbutton “reset” for manual restoration of the alarm
 - Pushbutton “beacon activation” for the activation of the acoustic alarm
 - Pushbutton “beacon exclusion” for the exclusion of the acoustic alarm
 - Internal selector for selecting the alarm restoration mode (automatic-manual)
 - Internal selector for activation of the timer for automatic switch-off of the beacon
 - Trimmer for automatic switch-off time delay selection (from 25” to 120”)
 - Alarm beacon 90dB 12Vcc
 - Sealed internal battery for back-up 12Vcc 1,2Ah
 - Auxiliary protection fuse
 - Battery protection fuse
 - General alarm output with exchangeable contact (max 5A 250V AC1)
 - Red flashing light 12Vcc; Yellow flashing light 12Vcc
 - Box in thermoplastic material
 - Output with cable holder
 - Protection IP55; Ambient temperature: -5/+40 °C

QM, QT

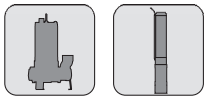
Control panels



TYPE	Supply		No. pumps				Application		
	1 ~	3 ~	1	2	3	4	Bore-hole	Submersible	Surface
QM	✓		✓				✓	✓	
M COMP	✓		✓				✓	✓	
PFC-M	✓		✓				✓		
QML/A 1 D	✓		✓					✓	✓
T COMP		✓	✓				✓		
PFC-T		✓	✓				✓		
QTL/A 1 D		✓	✓				✓	✓	✓
QTL 1 D FTE		✓	✓				✓		✓
QTL/A 1 ST FT		✓	✓				✓		✓
QTL/A 1 ST FT-RH		✓	✓					✓	
QTL 1 ST FTE		✓	✓				✓		✓
QTL 1 SS E		✓	✓				✓		✓
QTL 1 IS FTE		✓	✓				✓		
QML/A 2 D	✓			✓				✓	✓
QTL/A 2 D		✓		✓					✓
QTL/A 2 ST FT		✓		✓					✓
QTL/A 2 ST FT-RH		✓		✓				✓	
QML/A 3 D	✓				✓				✓
QTL/A 3 D		✓			✓			✓	✓
QTL/A 3 ST FT		✓			✓				✓
QTL/A 3 ST FT-RH		✓			✓			✓	
QML 1 VFT	✓		✓				✓		✓
QTL 1 VFT		✓	✓				✓		✓
QML 2 VFT	✓			✓					✓
QTL 2 VFT		✓		✓					✓
QML 1.1 VFT	✓			✓					✓
QTL 1.1 VFT				✓					✓
QML 3 VFT	✓				✓				✓
QTL 3 VFT		✓			✓				✓
QTL 1.2 VFT		✓			✓				✓
QTL 4 VFT		✓				✓			✓
QTL 1.3 VFT		✓				✓			✓

Power kW	Rotation speed		Starting				Typology		page
	Fixed Speed	Variable speed	D.O.L.	Y/Δ	Soft start	Impedance stator	Electromechanical	Electronic	
0,3 ÷ 1,5	✓		✓				✓		578
0,37 ÷ 2,2	✓		✓				✓		579
0,37 ÷ 2,2	✓		✓					✓	579
0,25 ÷ 1,5	✓		✓					✓	580
0,37 ÷ 7,5	✓		✓				✓		580
0,37 ÷ 5,5	✓		✓					✓	581
0,25 ÷ 11	✓		✓					✓	581
4 ÷ 30	✓		✓				✓		582
5,5 ÷ 45	✓			✓				✓	582
4 ÷ 92	✓			✓				✓	583
5,5 ÷ 110	✓			✓			✓		584
7,5 ÷ 132	✓				✓			✓	584
5,5 ÷ 110	✓					✓	✓		585
0,25 ÷ 1,5	✓		✓					✓	586
0,37 ÷ 5,5	✓		✓					✓	586
5,5 ÷ 45	✓			✓				✓	587
4 ÷ 92	✓			✓				✓	587
0,25 ÷ 1,5	✓		✓					✓	588
0,37 ÷ 5,5	✓		✓					✓	588
5,5 ÷ 45	✓			✓				✓	589
4 ÷ 92	✓			✓				✓	589
0,37 ÷ 3,7		✓	✓					✓	590
0,37 ÷ 75		✓	✓					✓	590
0,37 ÷ 3,7		✓						✓	591
0,37 ÷ 75		✓						✓	591
0,37 ÷ 3,7		✓						✓	592
0,37 ÷ 75		✓						✓	592
0,37 ÷ 3,7		✓						✓	593
0,37 ÷ 75		✓						✓	593
0,37 ÷ 75		✓						✓	594
0,37 ÷ 75		✓						✓	594
0,37 ÷ 75		✓						✓	595

QM Control panel for 1 pump with single-phase motor, direct starting



Code	Type	Capacitor		Motor 230V - 1~	Dimensions HxBxP mm
		450Vc	kW		
44017940000	QM 6,3	6,3 µF	0,3		200x75x76
44017950000	QM 20	20 µF	0,55 - 0,75		200x75x76
44017960000	QM 25	25 µF	0,9 - 1,1		200x75x76
44017990000	QM 30	30 µF	0,9 - 1,1		200x75x76

Construction

Control panel with ON-OFF switch and capacitor, for 1 pump with single-phase motor without built-in capacitor.

Technical data

- Mains single-phase 230V ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

Components

- Thermoplastic case.
- ON-OFF switch with lamp
- Capacitor
- Terminal board
- Cable glands

QM Control panel for 1 pump with single-phase motor, direct starting



Code	Type	Protector	Capacitor		Motor 230V - 1~	Dimensions HxBxP mm
		max A	450Vc	kW		
44017950004	QM 4-16	4	16 µF	0,37		200x75x76
44017950007	QM 5-20	5	20 µF	0,55		200x75x76
44017960004	QM 5-25	5	25 µF	0,55		200x75x76
	QM 6-20	6	20 µF	0,75		200x75x76
44017960009	QM 7-25	7	25 µF	0,9		200x75x76
44017990001	QM 7-30	7	30 µF	0,75		200x75x76
44017960007	QM 8-25	8	25 µF	1,1		200x75x76
44017990004	QM 8-30	8	30 µF	1,1		200x75x76
44018000001	QM 10-40	10	40 µF	1,1		200x75x76
44018000000	QM 12-35	12	35 µF	1,5		200x75x76

Construction

Control panel with ON-OFF switch, circuit breaker and capacitor, for 1 submersible pump with single-phase motor without built-in capacitor.

Technical data

- Mains single-phase 230V ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

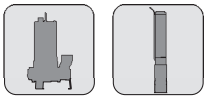
Components

- Thermoplastic case.
- ON-OFF switch with lamp
- Thermal device
- Capacitor
- Terminal board
- Cable glands

M COMP Control panel for 1 pump with single-phase motor, direct starting



LVBT



Code	Type	Protector	Capacitor	Motor 230V - 1~	Dimensions HxBxP mm
		max A	450Vc	kW	
4402000000	M COMP 4-16	4,5	16 µF	0,37	220x210x110
44020001000	M COMP 4-20	4,5	20 µF	0,55	220x210x110
44020010000	M COMP 5-20	5	20 µF	0,55	220x210x110
44020011000	M COMP 5-25	5	25 µF	0,55	220x210x110
44020021000	M COMP 6-20	6	20 µF	0,75	220x210x110
44020023000	M COMP 6-35	6	35 µF	0,75	220x210x110
44020031000	M COMP 7-25	7	25 µF	0,9	220x210x110
44020032000	M COMP 7-30	7	30 µF	0,9	220x210x110
44020040000	M COMP 8-25	8	25 µF	1,1	220x210x110
44020041000	M COMP 8-30	8	30 µF	1,1	220x210x110
44020052000	M COMP 10-35	10	35 µF	1,1	220x210x110
44020053000	M COMP 10-40	10	40 µF	1,1	220x210x110
44020060000	M COMP 12-35	12	35 µF	1,5	220x210x110
44020062000	M COMP 12-50	12	50 µF	1,5	220x210x110
44020063000	M COMP 12-60	12	60 µF	1,5	220x210x110
44020081000	M COMP 16-70	16	70 µF	2,2	220x210x110

Construction

Control panel with ON-OFF switch and capacitor for 1 pump with single-phase motor.

Suitable for use with LVBT board for level control.

Protection is provided by means of a main bi-polar switch with a phase-protected against overload by means of a thermal element.

Technical data

- Mains single-phase 230V ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.
- Control through pressure switch (pressure booster set).
- Control through float switch (for filling a tank).

Components

- Thermoplastic case.
- ON-OFF switch with pilot lamp with thermal protector.
- Capacitor.
- Terminal board.
- Terminals for LVBT board for level control.
- In/Out cable glands.

On request:

- LVBT card for level control.

PFC-M Control panel for 1 pump with single-phase motor, PF control



Type	Setting	Capacitor	Motor 230V - 1~	Dimensions HxBxP mm
	A	450Vc	kW	
PFC-M 18-16	1 - 18	16 µF	0,37	220x210x110
PFC-M 18-20	1 - 18	20 µF	0,55	220x210x110
PFC-M 18-25	1 - 18	25 µF	0,55	220x210x110
PFC-M 18-30	1 - 18	30 µF	0,75	220x210x110
PFC-M 18-35	1 - 18	35 µF	0,75	220x210x110
PFC-M 18-40	1 - 18	40 µF	1,1	220x210x110
PFC-M 18-50	1 - 18	50 µF	1,5	220x210x110
PFC-M 18-60	1 - 18	60 µF	1,5	220x210x110
PFC-M 18-70	1 - 18	70 µF	2,2	220x210x110

Construction

Control panel for controlling one pump with single-phase motor. Electronic control of the operation and dry-running protection through the power factor (PF) control.

The installation of level probes into the well is not required.

It stops the pump in case of lack of air cushion in the pressure vessel (patented system).

Displayed operating data and alarms available in four languages.

Technical data

- Mains single-phase 230V ±10% 50/60 Hz.
- Max output current: 18 A.
- Ambient temperature from -5 °C to +40 °C.
- Relative humidity: from 20% to 90% without condensation
- Protection IP 55.
- Control through pressure switch (pressure booster set).
- Control through float switch (for filling a tank).
- Alarm output signal.
- Constructed in accordance with: IEC/EN 60439-1.

Setting

- Min – Max voltage range.
- Motor rated current.
- Power factor (PF) value for dry-running protection.
- Up to four programmable restarts in case of no water condition.

Alarms (with pump stop)

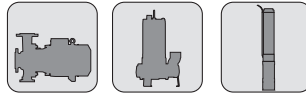
- Mains failure.
- Undervoltage and overvoltage.
- Motor overload.
- No water.
- No air cushion in the pressure vessel.

Components

- Thermoplastic case.
- Capacitor.
- Terminal board.
- Display : 2x16 characters.
- 6 button key board.
- In/Out Cable glands.

On request: - RA 100 control panel for remote alarm.

QML/A 1 D Control panel for 1 pump with single-phase motor, direct starting



Code	Type	Motor 230V - 1~	Setting	Dimensions
		kW	A	HxBxP mm
14054460000	QML/A 1 D 12A-FA	0,25 - 1,5	1 - 12	250x205x105
24054460000	QML/A 1 D 12A-FA 20	0,25 - 1,5	1 - 12	250x205x105
24054460001	QML/A 1 D 12A-FA 25	0,25 - 1,5	1 - 12	250x205x105
14055740000	QML/A 1 D 3 FT	2,2 - 3	13 - 18	400x300x160

Construction

Control panel for 1 pump with single-phase motor, direct starting for pressure booster sets and submersible drainage pumps.

Arranged for the capacitor internal connection (for pumps without built-in capacitor).

For pressure booster sets:

- with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.
- dry-running protection with float switch or level control probes.

For submersible drainage pumps:

- automatic operating test of the pump every set hours of inactivity (with pump in the automatic operating mode).

- Pump control with signals coming from:

- **2 float switches:** one for starting-up and stopping pump, one for the alarm maximum level (optional).
- **3 float switches:** one for starting-up pump, one for stopping the pump and one for the alarm maximum level (optional).

Pump operation controlled by an electronic board type MPS 3000 with microprocessor which allows different modes of operation of the pump.

Technical data

- Mains single-phase 230V $\pm 10\%$ 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

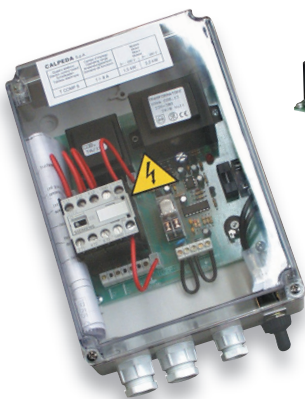
Components

- Thermoplastic case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pressure switch connection.
- Terminals for float switch connection against dry-running.
- Cable glands.
- Remote alarm control panel or volt free contact module.

ON REQUEST:

- RA 100 - RA 100A control panel for remote alarm.
- Volt free contact control panel Q-MSP 9M.

T COMP Control panel for 1 pump with three-phase motor



LVBT



Code	Type	Protector	Motor 230V - 3~	Motor 400V - 3~	Dimensions
		A	kW	kW	HxBxP mm
14013130000	T COMP 8	1 ÷ 8	0,37 ÷ 1,5	0,5 ÷ 2,2	170x145x85
14013480000	T COMP 10	7 ÷ 10	---	3 ÷ 3,7	230x180x155
14024250000	T COMP 12	9 ÷ 12	2,2	4	230x180x155
14013560000	T COMP 16	11 ÷ 16	3	5,5	230x180x155
14013490000	T COMP 20	14 ÷ 20	3,7 - 4	7,5	230x180x155

Construction

Control panel and protection for 1 pump with three-phase motor.

Arranged for the LVBT level control internal connection against dry running (T COMP8 model has the level control as a standard).

Control pumps with pressure switch and float-type switch.

Technical data

- Mains 230V or 400V $\pm 10\%$ 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Thermoplastic case.
- ON-OFF control switch
- Fuse holder - Contactor - Thermal relay
- Fuses for change of voltage: 230 V or 400 V - Transformer
- Terminals for pressure switch or float switch connection
- Terminals for LVBT board (for T COMP 10,12,16,20 models)
- Green LED indicator: voltage ON
- Red LED indicator: thermic block
- Cable glands

ON REQUEST:

- LVBT board for level control (for T COMP 10,12,16,20 models)

PFC-T Control panel for 1 pump with three-phase motor, PF control



Code	Type	Motor 400V - 3~ kW	Setting A	Dimensions HxBxP mm
14058390000	PFC-T 16/A	0,37 - 5,5	1 - 16	250x205x105

Construction

Control panel for controlling 1 pump with three-phase motor. Electronic control of the operation and dry-running protection through the power factor (PF) control.

The installation of level probes into the well is not required. It stops the pump in case of lack of air cushion in the pressure vessel. Displayed operating data and alarms, available in four languages.

Technical data

- Mains three-phase 400V - 3 ~ ±10% 50/60 Hz
- Output current: 16 A
- Ambient temperature from -5 °C to +40 °C.
- Relative humidity: from 20% to 90% without condensation
- Protection IP 55.
- Control through pressure switch (pressure booster set)
- Control through float switch (for filling a tank)
- Alarm output signal
- Constructed in accordance with: IEC/EN 60439-1.

Setting

- Min – Max voltage range
- Motor rated current
- Power factor (PF) value for dry-running protection
- Up to four programmable restarts in case of no water condition

Alarms (with pump stop)

- Phase failure - Wrong phase sequence
- Undervoltage and overvoltage
- Motor overload
- No water
- No air cushion in the pressure vessel

Components

- Thermoplastic case.
- Terminal board.
- Display : 2x16 characters. - 6 button key board.
- In/Out Cable glands.

On request: - RA 100 control panel for remote alarm.

QTL/A 1 D Control panel for 1 pump with three-phase motor, direct starting



Code	Type	Motor 400V - 3~ kW	Setting A	Dimensions HxBxP mm
14054470000	QTL/A 1 D 12A-FA	0,25 - 5,5	1 - 12	250x205x105
14054480000	QTL/A 1 D 7,5 FT	7,5	13 - 18	400x300x160
14054490000	QTL/A 1 D 9,2 FT	9,2	17 - 23	400x300x160
14054500000	QTL/A 1 D 11 FT	11	20 - 25	400x300x160

Construction

Control panel for 1 pump with three-phase motor, direct starting for pressure booster sets and submersible drainage pumps.

For pressure booster sets:
- with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.
- dry-running protection with float switch or level control probes.

For submersible drainage pumps:
- automatic operating test of the pump every set hours of inactivity (with pump in the automatic operating mode).
- Pump control with signals coming from:
- **2 float switches:** one for starting-up and stopping pump, one for the alarm maximum level (optional).
- **3 float switches:** one for starting-up pump, one for stopping the pump and one for the alarm maximum level (optional).

Pump operation controlled by an electronic board type MPS 3000 with microprocessor which allows different modes of operation of the pump.

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

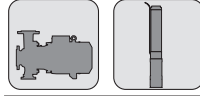
Components

- Thermoplastic case (metallic for 7,5-9,2-11kW).
- Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Starting contactor and thermal relay (for 7,5-9,2-11kW).
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pressure switch connection.
- Terminals for float switch connection against dry-running.
- Terminals for remote signals
- Cable glands.

ON REQUEST:

- RA 100 - RA 100A control panel for remote alarm.
- Volt free contact control panel Q-MSP 9M.

QTL 1 D FTE Control panel for 1 pump with three-phase motor, direct starting



Code	Type	Motor 400V - 3~	Setting	Dimensions
		kW	A	HxBxP mm
14029820000	QTL 1 D 4 FTE	4	6,3 - 10	400x300x160
14058920000	QTL 1 D 5,5 FTE	5,5	9 - 12	400x300x160
14058930000	QTL 1 D 7,5 FTE	7,5	13 - 18	400x300x160
14050250000	QTL 1 D 9,2 FTE	9,2	17 - 23	400x300x160
14037630000	QTL 1 D 11 FTE	11	20 - 25	400x300x160
14058940000	QTL 1 D 15 FTE	15	24 - 32	500x350x200
14029220000	QTL 1 D 18,5 FTE	18,5	32 - 38	500x350x200
14058950000	QTL 1 D 22 FTE	22	35 - 50	500x350x200
14058960000	QTL 1 D 30 FTE	30	46 - 65	500x350x200

Construction

Electromechanical control panel for 1 pump with three-phase motor, direct starting.

Operating signals by E 1000 led card.

Dry-running protection with float switch.

Construction with SRLE level control for probes connection against dry-running on request .

Components

- Metal case. - Door lock master switch.
- Power circuit fuses. - Fuses for auxiliary circuit.
- Starting contactor. - Thermal relay
- Transformer. - E 1000 led card.
- Terminals for connection pump operating signal.
- Terminals for float switch connection against dry-running.
- Cable glands.

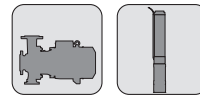
Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

ON REQUEST:

- RLE level control for probes against dry running
- RLE level control for pump operating probes.
- Voltmeter. - Ammeter.

QTL/A 1 ST FT Control panel for 1 pump with three-phase motor, Y/Δ starting



Code	Type	Motor Power	400V - 3~ Current	Dimensions
		kW	A	HxBxP mm
14054510000	QTL/A 1 ST 5,5 FT	5,5	11 - 15	600x400x200
14054520000	QTL/A 1 ST 7,5 FT	7,5	12 - 17	600x400x200
14054530000	QTL/A 1 ST 11 FT	9,2 - 11	16 - 24	600x400x200
14054540000	QTL/A 1 ST 15 FT	15	23 - 31	600x400x200
14054550000	QTL/A 1 ST 18,5 FT	18,5	30 - 39	600x400x200
14054560000	QTL/A 1 ST 22 FT	22	35 - 43	700x500x200
14054570000	QTL/A 1 ST 30B FT	30	42 - 55	700x500x200
14054580000	QTL/A 1 ST 30A FT	30	55 - 65	700x500x200
14054590000	QTL/A 1 ST 37 FT	37	61 - 84	800x600x250
14054600000	QTL/A 1 ST 45 FT	45	80 - 105	800x600x250

Construction

Control panel for 1 pump with three-phase motor, Y/Δ starting for pressure booster sets, with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.

Pump operation controlled by an electronic card type MPS 3000 with microprocessor with different pump operating modes.

Dry-running protection with float switch or level control probes.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Starting contactors. - Thermal relay. - Transformer.
- Electronic board MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for motor connection.
- Terminals for connection pressure switch of pump operating.
- Terminals for float switch connection against dry-running.
- Terminals for remote signals
- Cable glands.

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

ON REQUEST:

- RA 100 - RA 100A control panel for remote alarm.
- Voltmeter. - Ammeter.

QTL/A 1 ST FT-RH Control panel for 1 **submersible drainage** pump with three-phase motor, Y/Δ starting



Code	Type	Motor Power kW	400V - 3~	Dimensions HxBxP mm
			Current A	
14054610000	QTL/A 1 ST 4 FT-RH	4	7 - 11	600x400x200
14054620000	QTL/A 1 ST 5,5 FT-RH	5,5	11 - 15	600x400x200
14054630000	QTL/A 1 ST 7,5 FT-RH	7,5	12 - 17	600x400x200
14054640000	QTL/A 1 ST 11 FT-RH	9,2 - 11	16 - 24	600x400x200
14054650000	QTL/A 1 ST 15 FT-RH	15	23 - 31	600x400x200
14054660000	QTL/A 1 ST 18,5 FT-RH	18,5	30 - 39	600x400x200
14054670000	QTL/A 1 ST 22 FT-RH	22	35 - 43	700x500x250
14054680000	QTL/A 1 ST 30B FT-RH	30	42 - 55	700x500x250
14054690000	QTL/A 1 ST 30A FT-RH	30	55 - 65	700x500x250
14054700000	QTL/A 1 ST 37 FT-RH	37	61 - 84	800x600x250
14054710000	QTL/A 1 ST 45 FT-RH	45	80 - 105	800x600x250
14054720000	QTL/A 1 ST 55 FT-RH	55	100 - 125	800x600x250
14054730000	QTL/A 1 ST 75 FT-RH	75	120 - 150	900x600x300
14054740000	QTL/A 1 ST 92 FT-RH	92	155 - 255	1100x700x250

Construction

Control panel with protection for 1 submersible drainage pump with three-phase motor, Y/Δ starting.

Operation managed by the MPS 3000 electronic circuit board that has the following functions:

- automatic operating test of the pump every set hours of inactivity (with pump in the automatic operating mode).
- Pump control with signals coming from:
 - **2 float switches:** for starting-up and stopping pump, for the alarm (maximum level is optional).
 - **3 float switches:** for starting-up pump, for stopping the pump and for the alarm (maximum level is optional).

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

Components

- Metal case.
- Line selector switch with door-locking device.
- Power line fuses.
- Auxiliary circuit fuses. - Contactors.
- Y/Δ timer. - Thermal relay. - Level regulator.
- MPS 3000 type circuit board with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Connection terminals for float switches or level probes.
- Connection terminals for water seepages probe.
- Cable glands.

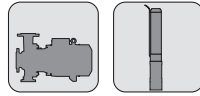
ON REQUEST:

- Volt free contact control panel Q-MSP 9M.
- RA 100 - RA 100A control panel for remote alarm.
- Voltmeter. - Ammeter.

Control panels



QTL 1 ST FTE Control panel for 1 pump with three-phase motor, Y/Δ starting



Code	Type	Motor Power kW	400V - 3~	Dimensions HxBxP mm
			Current A	
14058970000	QTL 1 ST 5,5 FTE	5,5	11 - 15	500x350x200
14058980000	QTL 1 ST 7,5 FTE	7,5	12 - 17	500x350x200
14029200000	QTL 1 ST 11 FTE	9,2 - 11	16 - 24	500x350x200
14058990000	QTL 1 ST 15 FTE	15	23 - 31	500x350x200
14029440000	QTL 1 ST 18,5 FTE	18,5	30 - 39	500x350x200
14031710000	QTL 1 ST 22 FTE	22	35 - 43	600x400x200
14059000000	QTL 1 ST 30B FTE	30	42 - 55	600x400x200
14048380000	QTL 1 ST 30A FTE	30	55 - 65	600x400x200
14048520000	QTL 1 ST 37 FTE	37	61 - 84	700x500x200
14047050000	QTL 1 ST 45 FTE	45	80 - 105	700x500x200
14059010000	QTL 1 ST 55 FTE	55	100 - 125	700x500x200
14059020000	QTL 1 ST 75 FTE	75	120 - 160	800x600x250
14059030000	QTL 1 ST 92 FTE	92	140 - 198	800x600x250
14059040000	QTL 1 ST 110 FTE	110	180 - 250	800x600x250

Construction

Electromechanical control panel for 1 pump with three-phase motor, Y/Δ starting.

Operating signals by E 1000 led board.

Dry-running protection with float switch.

Construction with SRLE level control for probes connection against dry-running on request .

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).

- Ambient temperature from -5 °C to +40 °C.

- Protection IP 55.

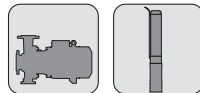
Components

- Metal case. - Door lock master switch. - Fuses for power line.
- Fuses for auxiliary circuit. - Starting contactors. - Thermal relay.
- Y/Δ timer. - Transformer. - E 1000 led board.
- Terminals for motor connection.
- Terminals for connection of pump operating signal.
- Terminals for float switch connection against dry-running.
- Cable glands.

ON REQUEST:

- RLE level control for probes against dry running.
- RLE level control for pump operating probes.
- Voltmeter. - Ammeter.

QTL 1 SS E Control panel for 1 pump with three-phase motor, start/stop with soft starter



Code	Type	Motor 400V - 3~	Max current output max A	Dimensions HxBxP mm
		kW		
14059050000	QTL 1 SS 7,5 E	7,5	17	700x500x250
14053880000	QTL 1 SS 15 E	9,2 - 11 - 15	30	700x500x250
14028440000	QTL 1 SS 22 E	18,5 - 22	45	700x500x250
14059060000	QTL 1 SS 30 E	26 - 30	60	900x600x300
14045900000	QTL 1 SS 37 E	37	75	900x600x300
14059070000	QTL 1 SS 45 E	45	85	900x600x300
14059080000	QTL 1 SS 55 E	55	110	900x600x300
14059090000	QTL 1 SS 63 E	63	125	1100x700x300
14059100000	QTL 1 SS 75 E	75	142	1100x700x300
14059110000	QTL 1 SS 90 E	90	190	1200x800x400
14059120000	QTL 1 SS 132 E	110 - 132	245	1200x800x400

Construction

Control panel for 1 pump with three-phase motor, start/stop with soft starter.

Operating signals on E 1000 led board.

Application: control of submersible motor with great cable length and surface motors.

Dry-running protection with float switch.

Construction with SRLE level control for probes connection against dry-running on request .

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).

- Ambient temperature from -5 °C to +40 °C.

- Protection IP 55.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Soft starter - Transformer.
- By pass contactors (built into the soft starter) - E 1000 led board.
- Terminals for float switch or level probes connection for pump operating.
- Terminals for float switch or level probes connection against dry-running.
- Cable glands.

ON REQUEST:

- RLE level control for connection level probes of pump operating.
- RLE level control for probes against dry running.
- Voltmeter. - Ammeter.

QTL 1 IS FTE Control panel for 1 pump with three-phase motor, with Stator Impedance starter



Code	Type	Motor Power kW	400V - 3~ Current A	Dimensions HxBxP mm
14059130000	QTL 1 IS 5,5 FTE-2RL	5,5	11 - 15	
14059140000	QTL 1 IS 7,5 FTE-2RL	7,5	12 - 17	
14059150000	QTL 1 IS 11 FTE-2RL	9,2 - 11	16 - 24	
14052700000	QTL 1 IS 15 FTE-2RL	15	23 - 31	
14059160000	QTL 1 IS 18,5 FTE-2RL	18,5	30 - 39	
14059170000	QTL 1 IS 22 FTE-2RL	22	35 - 43	
14059180000	QTL 1 IS 30 FTE-2RL	30	42- 65	
14059190000	QTL 1 IS 37 FTE-2RL	37	61 - 84	
14059200000	QTL 1 IS 45 FTE-2RL	45	80 - 105	
14059210000	QTL 1 IS 55 FTE-2RL	55	100 - 125	
14059220000	QTL 1 IS 75 FTE-2RL	75	120 - 160	
14059230000	QTL 1 IS 92 FTE-2RL	92	140 - 198	
14059240000	QTL 1 IS 110 FTE-2RL	110	180 - 250	

Construction

Electromechanical control panel for 1 submersible pump with three-phase motor, with Stator Impedance starter.

Operating signals on led board type E 1000.

Application : submersible motors control with great cable length.

Construction with SRLE level control for probes connection against dry-running .

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).

- Ambient temperature from -5 °C to +40 °C.

- Protection IP 55.

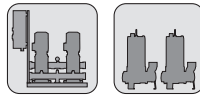
Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Stator Impedance - By pass contactors
- Transformer. - E 1000 led board.
- RLE level control for connection level probes of pump control.
- RLE level control for probes against dry running.
- Terminals for connection level probes or float switch for operating pump.
- Terminals for level probes or float switch connection against dry-running.
- Cable glands.

ON REQUEST:

- Voltmeter. - Ammeter.

QML/A 2 D Control panel for 2 pumps with single-phase motor, direct starting



Code	Type	Motor 230V - 1~	Protector	Dimensions
		kW	max A	HxBxP mm
14054750000	QML/A 2 D 12A-FA	0,25 - 1,5	1 - 12	310x235x125
24054750000	QML/A 2 D 12A-FA 20	0,25 - 1,5	1 - 12	310x235x125
24054750001	QML/A 2 D 12A-FA 25	0,25 - 1,5	1 - 12	310x235x125
24054750002	QML/A 2 D 12A-FA 30-85	0,25 - 1,5	1 - 12	395x315x135
24054750003	QML/A 2 D 12A-FA 35-85	0,25 - 1,5	1 - 12	395x315x135
14055750000	QML/A 2 D 3 FT	2,2 - 3	13 - 18	500x350x160

Control panel for 2 pumps with single-phase motor, direct starting for pressure booster sets and submersible drainage pumps.

Arranged for the capacitor internal connection (for pumps without built-in capacitor).

For pressure booster sets:

- with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.
- dry-running protection with float switch or level control probes.

For submersible drainage pumps:

- pump changing at every pump start.
- working pumps changing after 30 minutes of uninterrupted operation.
- automatic operating test of each individual pump every set hours of inactivity (with pumps in the automatic functioning mode).
- Pump control with signals coming from:

- **3 float switches:** for starting-up and stopping pump 1, for starting-up and stopping pump 2, for the alarms (maximum level is optional).
- **4 float switches:** for starting-up pump 1, for starting up pump 2, for stopping the pumps and for the alarms (maximum level is optional).

Pump operation controlled by an electronic board type MPS 3000 with microprocessor which allows different modes of operation of the pump.

Technical data

- Mains single-phase 230V $\pm 10\%$ 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

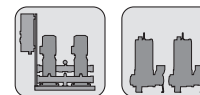
Components

- Thermoplastic case.
- Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Starting relay.
- Two capacitor (on request)
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pressure switch connection.
- Terminals for float switch or float switch connection against dry-running.
- Terminals for remote signals
- Cable glands.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.

QTL/A 2 D Control panel for 2 pumps with three-phase motor, direct starting



Code	Type	Motor 400V - 3~	Setting	Dimensions
		kW	max A	HxBxP mm
14054760000	QTL/A 2 D 12A-FA	0,25 - 5,5	1 - 12	310x235x125

Construction

Control panel for 2 pumps with three-phase motor, direct starting for pressure booster sets and submersible drainage pumps.

For pressure booster sets:

- with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.
- dry-running protection with float switch or level control probes.

For submersible drainage pumps:

- pump changing at every pump start.
- working pumps changing after 30 minutes of uninterrupted operation.
- automatic operating test of each individual pump every set hours of inactivity (with pumps in the automatic functioning mode).
- Pump control with signals coming from:

- **3 float switches:** for starting-up and stopping pump 1, for starting-up and stopping pump 2, for the alarms (maximum level is optional).
- **4 float switches:** for starting-up pump 1, for starting up pump 2, for stopping the pumps and for the alarms (maximum level is optional).

Pump operation controlled by an electronic board type MPS 3000 with microprocessor which allows different modes of operation of the pump.

Technical data

- Mains 400V 3 ~ $\pm 10\%$ 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

Components

- Thermoplastic case.
- Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pressure switch connection.
- Terminals for float switch or flow switch connection against dry-running.
- Terminals for remote signals
- Cable glands.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.

Control panels



QTL/A 2 ST FT Control panel for 2 pumps with three-phase motor, Y/Δ starting



Code	Type	Motor Power kW	400V - 3~	Dimensions HxBxP mm
			Current A	
14054770000	QTL/A 2 ST 5,5 FT	5,5	11 - 15	700x500x200
14054780000	QTL/A 2 ST 7,5 FT	7,5	12 - 17	700x500x200
14054790000	QTL/A 2 ST 11 FT	9,2 - 11	16 - 24	700x500x200
14054800000	QTL/A 2 ST 15 FT	15	23 - 31	700x500x200
14054810000	QTL/A 2 ST 18,5 FT	18,5	30 - 39	700x500x200
14054820000	QTL/A 2 ST 22 FT	22	35 - 43	900x600x250
14054830000	QTL/A 2 ST 30B FT	30	42 - 55	900x600x250
14054840000	QTL/A 2 ST 30A FT	30	55 - 65	900x600x250
14054850000	QTL/A 2 ST 37 FT	37	61 - 84	1100x700x250
14054860000	QTL/A 2 ST 45 FT	45	80 - 105	1100x700x250

Construction

Control panel for 2 pumps with three-phase motor, Y/Δ starting, for pressure booster sets, with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel. Pump operation cascade mode controlled by an electronic board type MPS 3000 with microprocessor which allows different operation modes: Dry-running protection with float switch or level control probes.

Technical data

- Mains 400V ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Starting contactors. - Thermal relay. - Y/Δ timers. - Transformer.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pressure switch connection.
- Terminals for float switch or float switch connection against dry-running.
- Terminals for remote signals - Cable glands.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.
- Voltmeter. - Ammeter.

QTL/A 2 ST FT-RH Electric control panel for 2 drainage pumps with three-phase motor, Y/Δ starting



Code	Type	Motor Power kW	400V - 3~	Dimensions HxBxP mm
			Current A	
14054870000	QTL/A 2 ST 4 FT-RH	4	7 - 11	700x500x200
14054880000	QTL/A 2 ST 5,5 FT-RH	5,5	11 - 15	700x500x200
14054890000	QTL/A 2 ST 7,5 FT-RH	7,5	12 - 17	700x500x200
14054900000	QTL/A 2 ST 11 FT-RH	9,2 - 11	16 - 24	700x500x200
14054910000	QTL/A 2 ST 15 FT-RH	15	23 - 31	700x500x200
14054920000	QTL/A 2 ST 18,5 FT-RH	18,5	30 - 39	700x500x200
14054930000	QTL/A 2 ST 22 FT-RH	22	35 - 43	900x600x250
14054940000	QTL/A 2 ST 30B FT-RH	30	42 - 55	900x600x250
14054950000	QTL/A 2 ST 30A FT-RH	30	55 - 65	900x600x250
14054960000	QTL/A 2 ST 37 FT-RH	37	61 - 84	1100x700x250
14054970000	QTL/A 2 ST 45 FT-RH	45	80 - 105	1100x700x250
14054980000	QTL/A 2 ST 55 FT-RH	55	100 - 125	1200x800x300
14054990000	QTL/A 2 ST 75 FT-RH	75	120 - 150	1200x800x300
14055000000	QTL/A 2 ST 92 FT-RH	92	155 - 255	1400x800x400

Construction

Control panel with protection for 2 submersible drainage pumps with three-phase motor, Y/Δ starting. Operation managed by the MPS 3000 electronic circuit board that has the following functions:

- pump changing at every pump start.
- working pumps changing after 30 minutes of uninterrupted operation.
- automatic operating test of each individual pump every set hours of inactivity (with pumps in the automatic functioning mode).
- Pump control with signals coming from:
 - **3 float switches:** for starting-up and stopping pump 1, for starting-up and stopping pump 2, for the alarms (maximum level is optional).
 - **4 float switches:** for starting-up pump 1, for starting up pump 2, for stopping the pumps and for the alarms (maximum level is optional).

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

Components

- Metal case. - Door lock master switch.
- Power line fuses. - Auxiliary circuit fuses. - Contactors.
- Y/Δ timers. - Level regulator.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for float switches.
- Connection terminals for thermal protectors.
- Connection terminals for water seepages probe.
- Connection terminals for the RA 100, RA 100A type remote alarm control panel or volt free contact module.
- Cable glands.

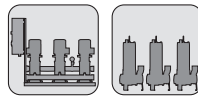
ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.
- Voltmeter. - Ammeter.

Control panels



QML/A 3 D Control panel for 3 pumps with single-phase motor, direct starting



Code	Type	Motor 230V - 1~ kW	Setting max A	Dimensions HxBxP mm
14055010000	QML/A 3 D 12A-FA	0,25 - 1,5	1 - 12	395x315x135

Construction

Control panel for 3 pumps with single-phase motor, direct starting for pressure booster sets, with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel. Pump operation cascade mode controlled by an electronic board type MPS 3000 with microprocessor which allows different operation modes. Dry-running protection with float switch or level control probes.

Technical data

- Mains single-phase 230V $\pm 10\%$ 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

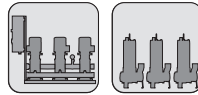
Components

- Thermoplastic case.
- Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Starting relay. - Circuit breaker.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pressure switch connection.
- Terminals for float switch or float switch connection against dry-running.
- Terminals for remote signals
- Cable glands.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.

QTL/A 3 D Control panel for 3 pumps with three-phase motor, direct starting



Code	Type	Motor 400V - 3~ kW	Setting max A	Dimensions HxBxP mm
14055020000	QTL/A 3 D 12A-FA	0,37 - 5,5	1 - 12	395x315x135

Construction

Control panel for 3 pumps with three-phase motor, direct starting, for pressure booster sets and submersible drainage pumps.

For pressure booster sets:

- with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.
- dry-running protection with float switch or level control probes.

For submersible drainage pumps:

- changes pumps at every pump start.
- changes working pumps after 30 minutes of uninterrupted operation.
- automatic functioning test of each individual pump every set hours of inactivity (with pumps in the automatic functioning mode).
- Pump control with signals coming from:
 - **4 float switches:** for starting-up and stopping pump, for the alarm (maximum level is optional).
 - **5 float switches:** for starting-up pump, for stopping the pumps and for the alarm (maximum level is optional).

Pump operation controlled by an electronic board type MPS 3000 with microprocessor which allows different modes of operation of the pump.

Technical data

- Mains 400V 3 ~ $\pm 10\%$ 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

Components

- Thermoplastic case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- Starting contactors. - Thermal relay.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.- Terminals for pressure switch connection.
- Terminals for float switch or flow switch connection against dry-running.
- Terminals for remote signals - Cable glands.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.

QTL/A 3 ST FT Control panel for 3 pumps with three-phase motor, Y/Δ starting



Code	Type	Motor Power kW	400V - 3~	Dimensions HxBxP mm
			Current A	
14055030000	QTL/A 3 ST 5,5 FT	5,5	11 - 15	700x500x200
14055040000	QTL/A 3 ST 7,5 FT	7,5	12 - 17	700x500x200
14055050000	QTL/A 3 ST 11 FT	9,2 - 11	16 - 24	800x600x250
14055060000	QTL/A 3 ST 15 FT	15	23 - 31	800x600x250
14055070000	QTL/A 3 ST 18,5 FT	18,5	30 - 39	1000x600x250
14055080000	QTL/A 3 ST 22 FT	22	35 - 43	1100x700x250
14055090000	QTL/A 3 ST 30B FT	30	42 - 55	1200x800x300
14055100000	QTL/A 3 ST 30A FT	30	55 - 65	1200x800x300
14055110000	QTL/A 3 ST 37 FT	37	61 - 84	1400x800x400
14055120000	QTL/A 3 ST 45 FT	45	80 - 105	1400x800x400

Construction

Control panel for 3 pumps with three-phase motor, Y/Δ starting, for pressure booster sets, with working time-measuring system that stops the pump in case of lack of air cushion in the pressure vessel.

Pump operation cascade mode controlled by an electronic board type MPS 3000 with microprocessor which allows different operation modes: standard, emergency and timed.

Dry-running protection with float switch or level control probes.

Components

- Metal case. - Door lock master switch. - Fuses for power line.
- Fuses for auxiliary circuit. - Starting contactors.
- Thermal relay. - Y/Δ timers. - Transformer.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Terminals for pumps connection.
- Terminals for pressure switch connection.
- Terminals for float switch or flow switch connection against dry-running.
- Terminals for remote signals - Cable glands.

Technical data

- Mains 400V ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 55.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.
- Voltmeter. - Ammeter.

QTL/A 3 ST FT-RH Electric control panel for 3 drainage pumps with three-phase motor, Y/Δ starting



Code	Type	Motor Power kW	400V - 3~	Dimensions HxBxP mm
			Current A	
14055130000	QTL/A 3 ST 4 FT-RH	4	7 - 11	700x500x200
14055140000	QTL/A 3 ST 5,5 FT-RH	5,5	11 - 15	700x500x200
14055150000	QTL/A 3 ST 7,5 FT-RH	7,5	12 - 17	700x500x200
14055160000	QTL/A 3 ST 11 FT-RH	9,2 - 11	16 - 24	800x600x250
14055170000	QTL/A 3 ST 15 FT-RH	15	23 - 31	800x600x250
14055180000	QTL/A 3 ST 18,5 FT-RH	18,5	30 - 39	1000x600x250
14055190000	QTL/A 3 ST 22 FT-RH	22	35 - 43	1100x700x250
14055200000	QTL/A 3 ST 30B FT-RH	30	42 - 55	1200x800x300
14055210000	QTL/A 3 ST 30A FT-RH	30	55 - 65	1200x800x300
14055220000	QTL/A 3 ST 37 FT-RH	37	61 - 84	1400x800x400
14055230000	QTL/A 3 ST 45 FT-RH	45	80 - 105	1400x800x400
14055240000	QTL/A 3 ST 55 FT-RH	55	100 - 125	1600x800x400
14055250000	QTL/A 3 ST 75 FT-RH	75	120 - 150	1600x1000x400
14055260000	QTL/A 3 ST 92 FT-RH	92	155 - 255	1600x1000x400

Construction

Control panel with protection for 3 submersible drainage pumps with three-phase motor, Y/Δ starting.

Operation managed by the MPS 3000 electronic circuit board that incorporates the following functions:

- changes pumps at every pump start.
- changes working pumps after 30 minutes of uninterrupted operation.
- automatic functioning test of each individual pump every set hours of inactivity (with pumps in the automatic functioning mode).
- Pump control with signals coming from:
 - **4 float switches:** for starting-up and stopping pump, for the alarm (maximum level is optional).
 - **5 float switches:** for starting-up pump, for stopping the pumps and for the alarm (maximum level is optional).

Technical data

- Mains 400V 3 ~ ±10% 50/60 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C. - Protection IP 55.

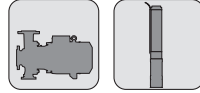
Components

- Metal case.
- Line selector switch with door-locking device.
- Power line fuses. - Auxiliary circuit fuses.
- Contactors. - Y/Δ timers.
- Electronic board type MPS 3000 with microprocessor.
- Terminals for pressure trasducer / level probes.
- Connection terminals for thermal protector.
- Connection terminals for the RA 100 - RA 100A type.
- Connection terminals for float switches.
- Connection terminals for water seepages probe.
- Cable glands.

ON REQUEST:

- Volt free contact control panel Q-MSP 13M.
- RA 100 - RA 100A control panel for remote alarm.
- Voltmeter. - Ammeter.

QML 1 VFT Control panel for 1 pump with variable speed three-phase motor.



Code	Type	Motor 230V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14059250000	QML 1 VFT 0,4	0,37 - 0,45	2,4	500x350x200
14059260000	QML 1 VFT 0,75	0,55 - 0,75	4,2	500x350x200
14059270000	QML 1 VFT 1,5	1,1 - 1,5	7,5	500x350x200
14050260000	QML 1 VFT 2,2	2,2	10	500x350x200

Construction

Single-phase mains supply control panel with frequency converter for 1 pump with three-phase 230V variable speed motor, for constant pressure booster sets. Arranged for SRL 3 level control application for probes connection against dry-running. Pump operation controlled by an electronic board type MPS 4000 with microprocessor.

Technical data

- Mains single-phase 230V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

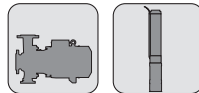
Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter. - MPS 4000 electronic card.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling.
- Terminals board. - Terminals for remote signals
- Pressure transducer - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 9M.
- RA 100 control panel for remote alarm.

QTL 1 VFT Control panel for 1 pump with variable speed three-phase motor



Code	Type	Motor 400V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14046510000	QTL 1 VFT 0,4	0,4	1,5	500x350x200
14046520000	QTL 1 VFT 0,75	0,55 - 0,75	2,3	500x350x200
14046530000	QTL 1 VFT 1,5	1,1 - 1,5	4,1	500x350x200
14046540000	QTL 1 VFT 2,2	2,2	5,5	500x350x200
14046550000	QTL 1 VFT 4	3 - 4	9,5	500x350x200
14046560000	QTL 1 VFT 5,5	5,5	14,3	600x400x250
14046570000	QTL 1 VFT 7,5	7,5	17	600x400x250
14046580000	QTL 1 VFT 11	9,2 - 11	27,7	700x500x250
14046590000	QTL 1 VFT 15	15	33	700x500x250
14046600000	QTL 1 VFT 18,5	18,5	46,3	800x600x250
14046610000	QTL 1 VFT 22	22	61,5	800x600x250
14046620000	QTL 1 VFT 30	30	74,5	900x600x250
14046630000	QTL 1 VFT 37	37	88	1100x700x300
14046640000	QTL 1 VFT 45	45	106	1200x800x300
14046650000	QTL 1 VFT 55	55	145	1200x800x300
14046660000	QTL 1 VFT 75	75	173	1200x800x300

Construction

Control panel with frequency converter for 1 pump with three-phase variable speed motor, for constant pressure booster sets. Arranged for SRL 3 level control application for probes connection against dry-running. Pump operation controlled by an electronic board type MPS 4000 with microprocessor.

Technical data

- Mains 400V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter. - MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling.
- Terminals board. - Terminals for remote signals
- Pressure transducer - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 9M.
- RA 100 control panel for remote alarm.

QML 2 VFT Control panel for 2 pumps with variable speed three-phase motor



Code	Type	Motor 230V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14059280000	QML 2 VFT 0,45	0,37 - 0,45	2,4x2	600x400x250
14048320000	QML 2 VFT 0,75	0,55 - 0,75	4,2x2	600x400x250
14047020000	QML 2 VFT 1,5	1,1 - 1,5	7,5x2	600x400x250
14059290000	QML 2 VFT 2,2	2,2	10x2	600x400x250

Construction

Single-phase mains supply control panel with frequency converter for 2 pumps with three-phase 230V variable speed motor, for constant pressure booster sets.

Arranged for SRL 3 level control application for probes connection against dry-running.

Pump operation controlled by an electronic board type MPS 4000 with microprocessor alternating the starting order at each start.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit. - EMC filter.
- Frequency converter (1 for each pump).
- MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling.
- Terminals board. - Terminals for remote signals
- Pressure transducer - Cable glands.

Technical data

- Mains single-phase 230V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 9M..
- RA 100 control panel for remote alarm.

QTL 2 VFT Control panel for 2 pumps with variable speed three-phase motor



Code	Type	Motor 400V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14046670000	QTL 2 VFT 0,45	0,37 - 0,45	1,5x2	600x400x250
14046680000	QTL 2 VFT 0,75	0,55 - 0,75	2,3x2	600x400x250
14046690000	QTL 2 VFT 1,5	1,1 - 1,5	4,1x2	600x400x250
14046700000	QTL 2 VFT 2,2	2,2	5,5x2	600x400x250
14046710000	QTL 2 VFT 4	3 - 4	9,5x2	600x400x250
14046720000	QTL 2 VFT 5,5	5,5	14,3x2	700x500x250
14046730000	QTL 2 VFT 7,5	7,5	17x2	700x500x250
14046740000	QTL 2 VFT 11	9,2 - 11	27,7x2	900x600x250
14046750000	QTL 2 VFT 15	15	33x2	900x600x250
14046760000	QTL 2 VFT 18,5	18,5	46,3x2	1200x800x300
14046770000	QTL 2 VFT 22	22	61,5x2	1200x800x300
14046780000	QTL 2 VFT 30	30	74,5x2	1200x800x300
14046790000	QTL 2 VFT 37	37	88x2	1600x1000x400
14046800000	QTL 2 VFT 45	45	106x2	2100x1400x500
14046810000	QTL 2 VFT 55	55	145x2	2100x1400x500
14046820000	QTL 2 VFT 75	75	173x2	2100x1400x500

Construction

Control panel with frequency converter for 2 pump with three-phase variable speed motor, for constant pressure booster sets.

Arranged for SRL 3 level control application for probes connection against dry-running.

Pump operation controlled by an electronic board type MPS 4000 with microprocessor.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter.
- MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

Technical data

- Mains 400V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 9M.
- RA 100 control panel for remote alarm.

QML 1.1 VFT Control panel for 1 variable speed pump and 1 fixed speed pump



Code	Type	Motor 230V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14058910000	QML 1.1 VFT 0,45 - D 0,45	0,37 - 0,45	2,4	600x400x250
14047430000	QML 1.1 VFT 0,75 - D 0,75	0,55 - 0,75	4,2	600x400x250
14058510000	QML 1.1 VFT 1,5 - D 1,5	1,1 - 1,5	7,5	600x400x250
14050290000	QML 1.1 VFT 2,2 - D 2,2	2,2	10	600x400x250

Construction

Single-phase mains supply control panel with frequency converter for 2 pumps, one with three-phase 230V variable speed motor and one with fixed speed single-phase motor, for constant pressure booster sets. Arranged for SRL 3 level control application for probes connection against dry-running. Pump operation controlled by an electronic board type MPS 4000 with microprocessor.

Technical data

- Mains single-phase 230V ±10% 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter.
- Starting contactors of the second pump. - Transformer.
- MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 9M.
- RA 100 control panel for remote alarm.

QTL 1.1 VFT Control panel for 1 variable speed pump and 1 fixed speed pump



Code	Type	Motor 400V - 3~ kW	Max current output (Variable) max A	(Fixed) max A	Dimensions HxBxP mm
14059300000	QTL 1.1 VFT 0,45 - D 0,45	0,37 - 0,45	1,5	1 - 1,6	600x400x250
14047460000	QTL 1.1 VFT 0,75 - D 0,75	0,55 - 0,75	2,3	1,6 - 2,5	600x400x250
14047230000	QTL 1.1 VFT 1,5 - D 1,5	1,1 - 1,5	4,1	2,5 - 4	600x400x250
14047130000	QTL 1.1 VFT 2,2 - D 2,2	2,2	5,5	4 - 6,5	600x400x250
14059840000	QTL 1.1 VFT 4 - D 3	3	9,5	4 - 6,5	600x400x250
14047160000	QTL 1.1 VFT 4 - D 4	4	9,5	6,3 - 10	600x400x250
14047120000	QTL 1.1 VFT 5,5 - D 5,5	5,5	14,3	9 - 14	700x500x250
14047030000	QTL 1.1 VFT 7,5 - ST 7,5	7,5	17	11 - 17	800x600x250
14048390000	QTL 1.1 VFT 11 - ST 11	9,2 - 11	27,7	16 - 24	800x600x250
14048210000	QTL 1.1 VFT 15 - ST 15	15	33	22 - 31	800x600x250
14048340000	QTL 1.1 VFT 18,5 - ST 18,5	18,5	46,3	30 - 39	900x600x250
14055630000	QTL 1.1 VFT 22 - ST 22	22	61,5	35 - 43	900x600x250
14059310000	QTL 1.1 VFT 30 - ST 30B	30	74,5	42 - 55	1000x800x250
14059320000	QTL 1.1 VFT 30 - ST 30A	30	74,5	55 - 65	1000x800x250
14059330000	QTL 1.1 VFT 37 - ST 37	37	88	61 - 84	1200x800x300
14059340000	QTL 1.1 VFT 45 - ST 45	45	106	80 - 105	1200x800x300
14059350000	QTL 1.1 VFT 55 - ST 55	55	145	100 - 125	1200x800x300
14059360000	QTL 1.1 VFT 75 - ST 75	75	173	120 - 160	1200x800x300

Construction

Control panel with frequency converter for 2 pumps with three-phase motor, one with variable speed and one with fixed speed motor, for constant pressure booster sets. Arranged for SRL 3 level control application for probes connection against dry-running. Pump operation controlled by an electronic board type MPS 4000 with microprocessor.

Technical data

- Mains 400V ±10% 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Metal case. - Door lock master switch. - Fuses for power line.
- Fuses for auxiliary circuit. - EMC filter. - Frequency converter.
- Starting contactors of the second pump. - Timer (Y/Δ) from 7,5 kW.
- Transformer. - MPS 4000 electronic card.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 9M.
- RA 100 control panel for remote alarm.

QML 3 VFT Control panel for 3 **variable speeds** pump with three-phase motor



Code	Type	Motor 230V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14059370000	QML 3 VFT 0,45	0,37 - 0,45	2,4x3	700x500x250
14059380000	QML 3 VFT 0,75	0,55 - 0,75	4,2x3	700x500x250
14059390000	QML 3 VFT 1,5	1,1 - 1,5	7,5x3	700x500x250
14056970000	QML 3 VFT 2,2	2,2	10x3	800x600x250

Construction

Single-phase mains supply control panel with frequency converter for 3 pumps with three-phase 230V variable speed motor, for constant pressure booster sets.

Arranged for SRL 3 level control application for probes connection against dry-running.

Pump operation controlled by an electronic board type MPS 4000 with microprocessor alternating the starting order at each start.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter (1 for each pump).
- MPS 4000 electronic card.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling.
- Terminals board. - Terminals for remote signals
- Pressure transducer - Cable glands.

Technical data

- Mains single-phase 230V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 13M.
- RA 100 control panel for remote alarm.

QTL 3 VFT Control panel for 3 pumps with **variable speed** three-phase motor



Code	Type	Motor 400V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14059400000	QTL 3 VFT 0,45	0,37 - 0,45	1,5x3	700x500x250
14048840000	QTL 3 VFT 0,75	0,55 - 0,75	2,3x3	700x500x250
14046930000	QTL 3 VFT 1,5	1,1 - 1,5	4,1x3	700x500x250
14047140000	QTL 3 VFT 2,2	2,2	5,5x3	800x600x250
14047040000	QTL 3 VFT 4	3 - 4	9,5x3	800x600x250
14048250000	QTL 3 VFT 5,5	5,5	14,3x3	800x600x250
14049760000	QTL 3 VFT 7,5	7,5	17x3	800x600x250
14047280000	QTL 3 VFT 11	9,2 - 11	27,7x3	1700x800x300
14050350000	QTL 3 VFT 15	15	33x3	1700x800x300
14054370000	QTL 3 VFT 18,5	18,5	46,3x3	1700x1000x400
14047150000	QTL 3 VFT 22	22	61,5x3	1700x1000x400
14047270000	QTL 3 VFT 30	30	74,5x3	1700x1000x400
14052180000	QTL 3 VFT 37	37	88x3	1200x600x300n3
14059410000	QTL 3 VFT 45	45	106x3	1400x800x400n3
14059420000	QTL 3 VFT 55	55	145x3	A richiesta
14059430000	QTL 3 VFT 75	75	173x3	A richiesta

Construction

Control panel with frequency converter for 3 pumps with variable speed three-phase motor, for constant pressure booster sets.

Arranged for SRL 3 level control application for probes connection against dry-running.

Pump operation controlled by an electronic board type MPS 4000 with microprocessor alternating the starting order at each start.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter (1 for each pump).
- MPS 4000 electronic card.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

Technical data

- Mains 400V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 13M.
- RA 100 control panel for remote alarm.

Control panels



QTL 1.2 VFT Control panel for 1 variable speed pump and 2 fixed speed pumps



Code	Type	Motor 400V - 3~ kW	Max current output		Dimensions HxBxP mm
			(Variable) max A	(Fixed) max A	
14059440000	QTL 1.2 VFT 0,45 - D 0,45	0,37 - 0,45	1,5	1 - 1,6	600x400x200
14059450000	QTL 1.2 VFT 0,75 - D 0,75	0,55 - 0,75	2,3	1,6 - 2,5	600x400x200
14047640000	QTL 1.2 VFT 1,5 - D 1,5	1,1 - 1,5	4,1	2,5 - 4	600x400x200
14048510000	QTL 1.2 VFT 2,2 - D 2,2	2,2	5,5	4 - 6,5	600x400x200
14059460000	QTL 1.2 VFT 4 - D 3	3	9,5	4 - 6,5	600x400x200
14048260000	QTL 1.2 VFT 4 - D 4	4	9,5	6,3 - 10	600x400x200
14047200000	QTL 1.2 VFT 5,5 - D 5,5	5,5	14,3	9 - 14	700x500x200
14051640000	QTL 1.2 VFT 7,5 - ST 7,5	7,5	17	11 - 17	800x600x250
14047300000	QTL 1.2 VFT 11 - ST 11	9,2 - 11	27,7	16 - 24	800x600x250
14059470000	QTL 1.2 VFT 15 - ST 15	15	33	22 - 31	800x600x250
14059480000	QTL 1.2 VFT 18,5 - ST 18,5	18,5	46,3	30 - 39	1200x800x250
14048660000	QTL 1.2 VFT 22 - ST 22	22	61,5	35 - 43	1000x800x250
14059490000	QTL 1.2 VFT 30 - ST 30B	30	74,5	42 - 55	1000x800x250
14059500000	QTL 1.2 VFT 30 - ST 30A	30	74,5	55 - 65	1000x800x250
14059510000	QTL 1.2 VFT 37 - ST 37	37	88	61 - 84	1200x800x300
14059520000	QTL 1.2 VFT 45 - ST 45	45	106	80 - 105	
14059530000	QTL 1.2 VFT 55 - ST 55	55	145	100 - 125	
14059540000	QTL 1.2 VFT 75 - ST 75	75	173	120 - 160	

Construction

Control panel with frequency converter for 3 pumps with three-phase motor: one with variable speed motor (with frequency converter) and 2 with fixed speed motor, for constant pressure booster sets. Arranged for SRL 3 level control application for probes connection against dry-running. Pump operation controlled by an electronic board type MPS 4000 with microprocessor alternating the starting order at each start.

Technical data

- Mains 400V ±10% 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Metal case. - Door lock master switch. - Fuses for power line.
- Fuses for auxiliary circuit. - EMC filter. - Frequency converter.
- Starting contactors of the second and third pump.
- Timer (Y/Δ) from 7,5 kW. - Transformer.
- MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 13M.
- RA 100 control panel for remote alarm.

QTL 4 VFT Control panel for 4 pumps with variable speed three-phase motor



Code	Type	Motor 400V - 3~ kW	Max current output max A	Dimensions HxBxP mm
14059560000	QTL 4 VFT 0,75	0,55 - 0,75	2,3x4	800x600x250
14059570000	QTL 4 VFT 1,5	1,1 - 1,5	4,1x4	800x600x250
14049710000	QTL 4 VFT 2,2	2,2	5,5x4	900x600x250
14047840000	QTL 4 VFT 4	3 - 4	9,5x4	900x600x250
14059580000	QTL 4 VFT 5,5	5,5	14,3x4	1200x800x300
14059590000	QTL 4 VFT 7,5	7,5	17x4	1200x800x300
14059600000	QTL 4 VFT 11	9,2 - 11	27,7x4	1400x800x400
14059610000	QTL 4 VFT 15	15	33x4	1400x800x400
14059620000	QTL 4 VFT 18,5	18,5	46,3x4	2000x1800x400
14053940000	QTL 4 VFT 22	22	61,5x4	2000x1800x400
14059630000	QTL 4 VFT 30	30	74,5x4	2000x1800x400
14059640000	QTL 4 VFT 37	37	88x4	2000x1800x400
14059650000	QTL 4 VFT 45	45	106x4	2000x1800x400
14059660000	QTL 4 VFT 55	55	145x4	2000x1800x400
14059670000	QTL 4 VFT 75	75	173x4	2000x1800x400

Construction

Control panel with frequency converter for 4 pumps with variable speed three-phase motor, for constant pressure booster sets. Arranged for SRL 3 level control application for probes connection against dry-running. Pump operation controlled by an electronic board type MPS 4000 with microprocessor alternating the starting order at each start.

Technical data

- Mains 400V ±10% 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Metal case. - Door lock master switch.
- Fuses for power line. - Fuses for auxiliary circuit.
- EMC filter. - Frequency converter (1 for each pump).
- MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 13M.
- RA 100 control panel for remote alarm.

Control panels



QTL 1.3 VFT Control panel for 1 variable speed pump and 3 fixed speed pumps



Code	Type	Motor 400V - 3~ kW	Max current output		Dimensions <i>HxBxP mm</i>
			(Variable) max A	(Fixed) max A	
14059680000	QTL 1.3 VFT 0,45 - D 0,45	0,37 - 0,45	1,5	1 - 1,6	700x500x250
14057180000	QTL 1.3 VFT 0,75 - D 0,75	0,55 - 0,75	2,3	1,6 - 2,5	700x500x250
14059690000	QTL 1.3 VFT 1,5 - D 1,5	1,1 - 1,5	4,1	2,5 - 4	700x500x250
14059700000	QTL 1.3 VFT 2,2 - D 2,2	2,2	5,5	4 - 6,5	700x500x250
14059710000	QTL 1.3 VFT 4 - D 3	3	9,5	4 - 6,5	700x500x250
14059720000	QTL 1.3 VFT 4 - D 4	4	9,5	6,3 - 10	700x500x250
14059730000	QTL 1.3 VFT 5,5 - D 5,5	5,5	14,3	9 - 14	700x500x250
14059740000	QTL 1.3 VFT 7,5 - ST 7,5	7,5	17	11 - 17	1100x700x250
14046890000	QTL 1.3 VFT 11 - ST 11	9,2 - 11	27,7	16 - 24	1100x700x250
14059750000	QTL 1.3 VFT 15 - ST 15	15	33	22 - 31	1100x700x250
14059760000	QTL 1.3 VFT 18,5 - ST 18,5	18,5	46,3	30 - 39	1200x800x300
14059770000	QTL 1.3 VFT 22 - ST 22	22	61,5	35 - 43	1200x800x300
14059780000	QTL 1.3 VFT 30 - ST 30B	30	74,5	42 - 55	1200x800x300
14059790000	QTL 1.3 VFT 30 - ST 30A	30	74,5	55 - 65	1200x800x300
14059800000	QTL 1.3 VFT 37 - ST 37	37	88	61 - 84	1600x800x400
14059810000	QTL 1.3 VFT 45 - ST 45	45	106	80 - 105	1700x800x400
14059820000	QTL 1.3 VFT 55 - ST 55	55	145	100 - 125	
14059830000	QTL 1.3 VFT 75 - ST 75	75	173	120 - 160	

Construction

Control panel with frequency converter for 4 pumps with three-phase motor: one with variable speed motor (with frequency converter) and 3 with fixed speed motor, for constant pressure booster sets.

Arranged for SRL 3 level control application for probes connection against dry-running.

Pump operation controlled by an electronic board type MPS 4000 with microprocessor alternating the starting order at each start.

Technical data

- Mains 400V $\pm 10\%$ 50 Hz (other voltages on request).
- Ambient temperature from -5 °C to +40 °C.
- Protection IP 44.

Components

- Metal case. - Door lock master switch. - Fuses for power line.
- Fuses for auxiliary circuit. - EMC filter. - Frequency converter.
- Starting contactors of the second, third and fourth pump.
- Timer (Y/ Δ) from 7,5 kW. - Transformer. - MPS 4000 electronic board.
- Interface for MPS 4000 electronic board.
- Ventilator for electric panel cooling. - Pressure transducer
- Terminals board. - Terminals for remote signals - Cable glands.

ON REQUEST:

- SRL 3 level control for probes against dry running
- Volt free contact module MSP 1M, control panel Q-MSP 13M.
- RA 100 control panel for remote alarm.

ELECTRONIC PROTECTION DEVICE FOR PUMP



Construction

Electronic device for pumps protection, the device stops the pump in case of dry running and motor overcurrent.

Electrical connection

- To pump motor cable (Schuko plug built-in)
- To electric line socket (Schuko plug built-in)

Applications

For protection of the pump:

- The device protect the pump:**
- against dry running;
 - against overcurrent.

Operating conditions

Maximum ambient temperature max 55 °C.

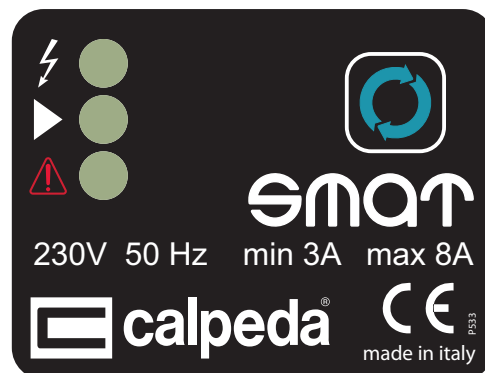
Single-phase mains voltage: 230 V ±10%.

Frequency: 50 - 60 Hz.

Protection IP 65.

Pump motor current Minimum 3 A - Maximum 8 A.

Control Panel



Operation



Green Led on = Device energised



Yellow Led on = Pump running



Blinking red Led = Water shortage
Red Led on = Power surge

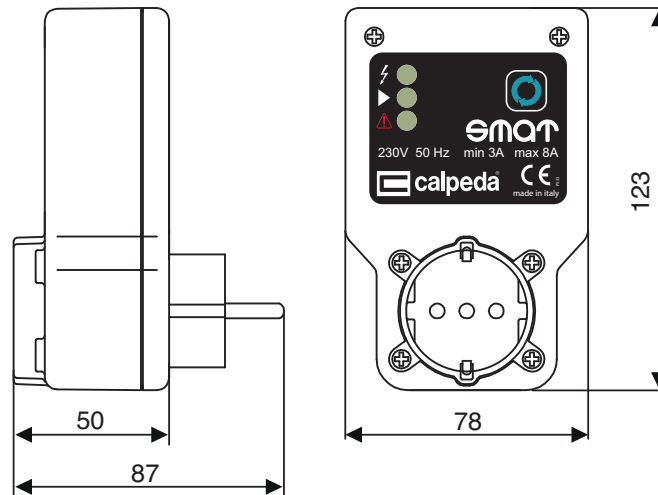


RESTART button =

- Acquisition motor data
- Reset after fault

ELECTRONIC PROTECTION DEVICE FOR PUMP

Dimensions and weights



Example of installation

In order to operate, the electrical power supply of the pump must be connected to the mains.

For this reason the power supply plug of the pump must be inserted in the socket of the device which is in turn connected to the power point (see Figure).

In case of a water shortage on suction, the device will stop the pump and protect it against dry running.

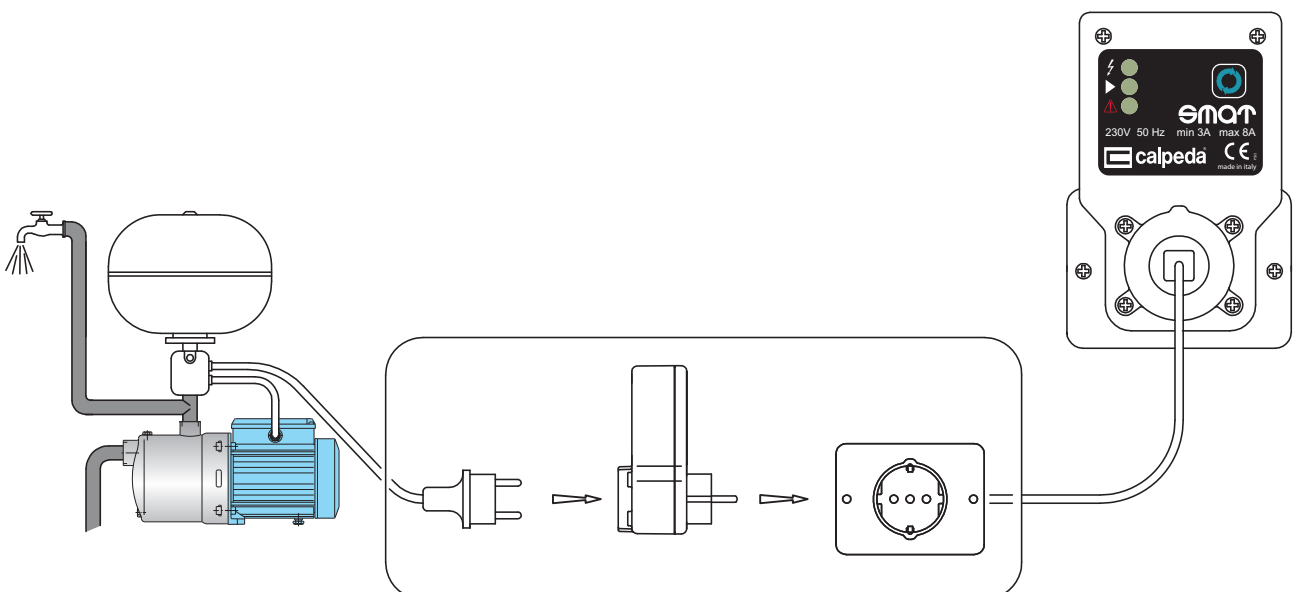
This malfunctioning is indicated with the red "Failure" Led lit up.

In case of the current absorption exceeding 8 amperes, the device will stop the pump motor and protect it against over-current.

This malfunctioning is indicated with the red "Failure" Led lit up.

To restore normal operation to the device and the system simply press the red "Restart" button.

In case of a blackout, it will automatically rearm again several seconds after the electricity returns.



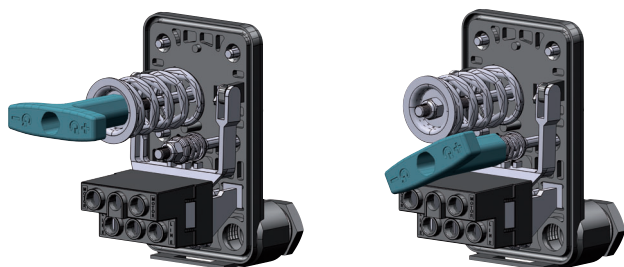
PRESSURE SWITCHES FOR WATER SYSTEM APPLICATIONS



Construction

- Pressure switches for use with water in autoclave systems
- The switch ensures automatically the starting and stopping of the electric pump according to the set pressure values
- Electric contacts: normally closed and made of brass alloy with Ag-Ni surfacing
- Terminals with M4 screws and 8x8 mm pressure dice
- NBR rubber membrane with textile insert (food grade for PMAT 5M-10, PMAT 5M/T-16, PMAT 5.5M/T-16)
- 1/4" F hydraulic connection made of galvanized steel
- Standard protection degree IP 44
- Liquid temperature up to 55 °C
- Max ambient temperature: 55°C
- Tear resistant cable clamps

Adjustment key included



Technical data

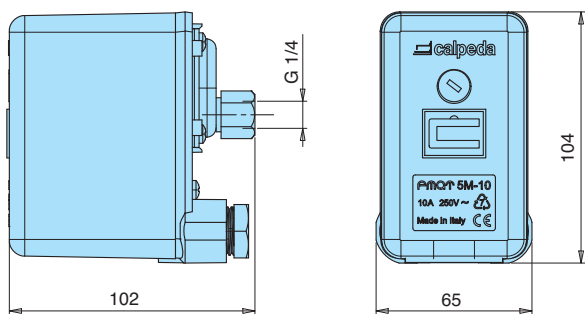
2-pins	max A	Pressure range bar	Differential		Factory setting bar
			min bar	max bar	
PMAT 5M-10	10	1 - 5	0,6	2,3	1,4 - 2,8

Maximum rated voltage 250V

2-pins	max A	Pressure range bar	Differential		Factory setting bar
			min bar	max bar	
PMAT 5M/T-16	16	1 - 5	0,6	2,3	1,4 - 2,8
PMAT 5,5M/T-16	16	1,5 - 5,5	0,8	2,2	1,8 - 3
PMAT 12M/T-16	16	3 - 12	1,5	5	5 - 7

Maximum rated voltage 500V

Dimensions



Connection diagram

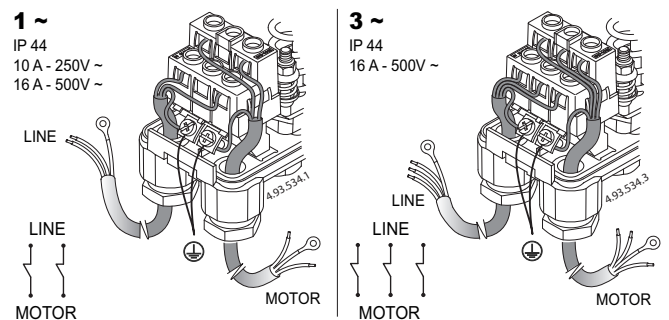
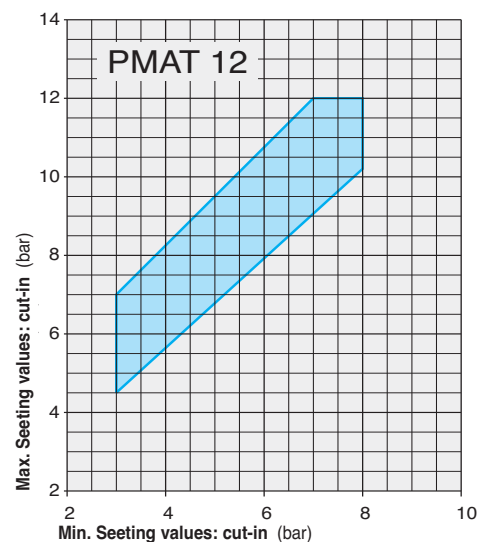
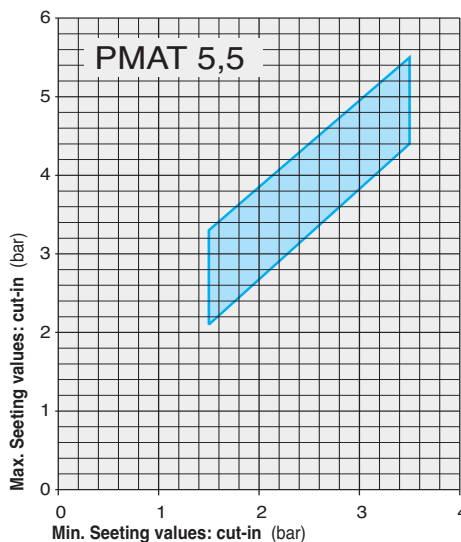
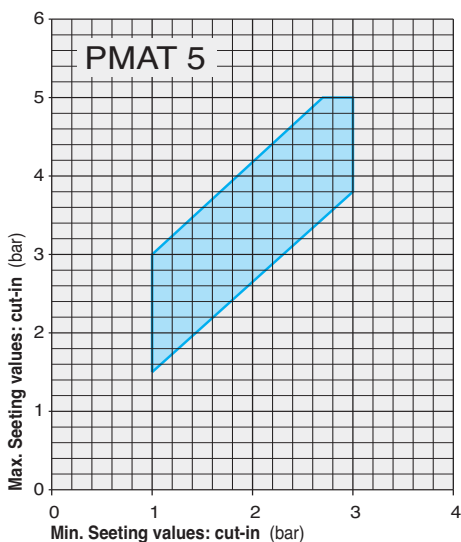


Diagram setting



AUTOMATIC AIR FEEDER



ARIAMAT

type

AR 300E

AR 1000E

AR 2000E

Complete with connections and 1 m polyethylene pipe

Materials

Component	Material
Upper elbow	Brass
Air valve	Brass
Feeder body	Polycarbonate
Ball valve	Rubber
Conical fittings	Polyethylene
Pipe	Polyethylene

Construction

The automatic air feeder ARIAMAT controls the air cushion in the pressure vessel by replacing the air dissolved in the water at every pump start. This device limits the number of pump starts and stops, allows a better use of the water reserve and improves the overall performance of the automatic pressure system.

Operation

ARIAMAT operation is explained in pictures 1-2-3-4.

At the end of every cycle, ARIAMAT AR 300E, AR 1000E and AR 2000E let in the vessel 300, 1000 and 2000 cm³ of air respectively.

For a good operation of ARIAMAT it is necessary to have enough suction pressure in the pipe whilst the pumps are running.

If the pumps work under positive suction head and water falls to the suction inlet, there will not be enough suction pressure in the suction pipe to allow a correct operation of ARIAMAT; in this case, it is necessary to create an artificial loss in the suction pipe, by closing gradually the gate valve when the pump is running until the water level in the ARIAMAT starts dropping.

When a sufficient suction pressure to grant a safe ARIAMAT operation cannot be achieved, it is recommended to feed the vessel with a compressed air system and level probes.

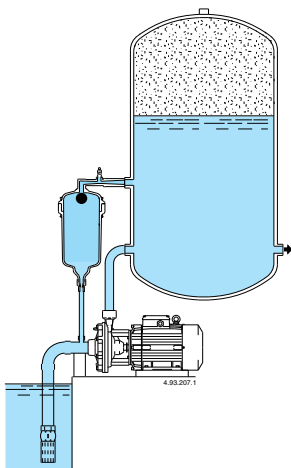
Description of the supply

The ARIAMAT is normally fitted on our automatic water systems.

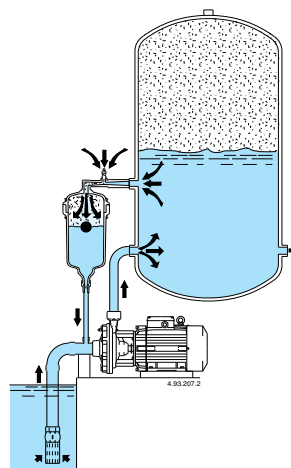
The supply of ARIAMAT, as a spare part to be installed by the customer, includes:

- n° 1 ARIAMAT assembled with upper elbow and air valve;
- m 1 Polyethylene tube with ring nut and fitting for connection to the pump suction side.

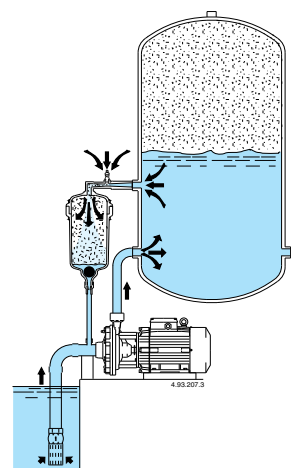
Pressure in m	Pressure vessel capacity in litres											
	100	200	300	400	500	750	1000	1500	2000	3000	4000	5000
14/28	AR 300E						AR 1000E					AR 2000E
20/30	AR 300E				AR 1000E							AR 2000E
30/40	AR 300E			AR 1000E						AR 2000E		
35/55	AR 300E			AR 1000E						AR 2000E		
55/70	AR 300E		AR 1000E						AR 2000E			
75/95	AR 300E	AR 1000E				The use of an air compressor is recommended.						



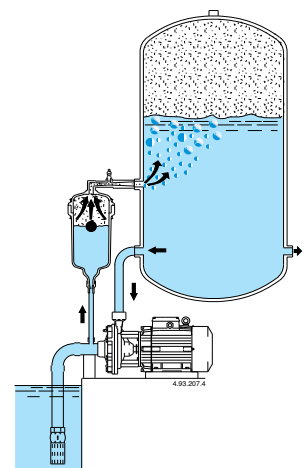
1) When the pump is stopped, ARIAMAT is full of water.



2) When starting, the pumps creates a suction pressure which also takes the water from ARIAMAT, allowing some more water to come from the vessel. The water through the ARIAMAT venturi sucks air from the upper valve.



3) The water level in the ARIAMAT drops until the ball valve moves to the bottom of the ARIAMAT closing the hole of the pipe connected to the pump. ARIAMAT is now full of water.



4) When stopping, there is a back-flow of water from the vessel through the pump, to the ARIAMAT. Air is pushed inside the vessel.

ACCESSORIES



VALVES



check valve

VNR 1
VNR 1 1/4
VNR 1 1/2
VNR 2

foot valve

VDF 1
VDF 1 1/4
VDF 1 1/2
VDF 2

PRESSURE GAUGES



axial connection type

MA 0-6
MA 0-6 ABS

radial connection type

MR 0-10
MR 0-12
MR 0-16

CONNECTOR



type	connection
------	------------

RA5 H 92	G 1
RA5 H 105	G 1

LEVEL PROBES



type

SL	2 electrodes
SLA	Assembled level probes
Cable	2x0,75 mm ²
	(cable length on request)

example: SLA 30
Assembled level probes
30 m cable length

SPHERICAL VESSEL

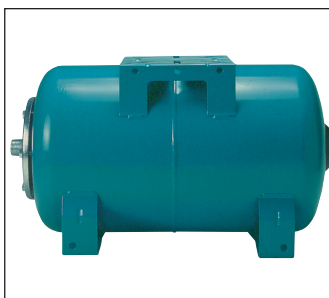


type	connect.	capacity
------	----------	----------

SS 24	G 1	24 l
-------	-----	------

BUTYL rubber diaphragm.

CYLINDRICAL VESSEL



vessel with base and feet

type	connect.	capacity
------	----------	----------

SC 20 BP	G 1	20 l
----------	-----	------

BUTYL rubber diaphragm.

INOX CYLINDRICAL VESSEL



vertical cylindrical vessel

type	connect.	capacity
------	----------	----------

SCX 20	G 1	20 l
--------	-----	------

BUTYL rubber diaphragm.

INOX CYLINDRICAL VESSEL



vessel with base and feet

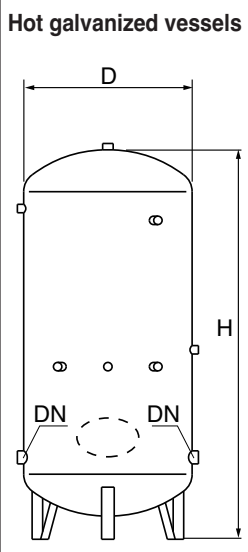
type	connect.	capacity
------	----------	----------

SCX 20 BP	G 1	20 l
-----------	-----	------

BUTYL rubber diaphragm.

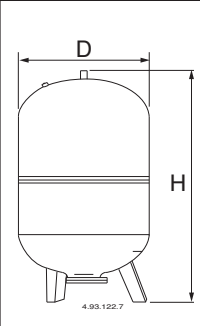
ACCESSORIES

CE 97/23 PED APPROVED PRESSURE VESSELS (Air tanks)

Hot galvanized vessels 	TYPE	Dimensions D x H mm	DN	weight kg
	100- 5	400 x 1020	G 1	32
200- 5	450 x 1440	G 1	48	
300- 8	550 x 1500	G 1 1/2	65	
500- 8	650 x 1820	G 2	105	
500- 12	600 x 2000	G 2	120	
800- 8	800 x 1900	G 2	145	
1000- 8	800 x 2150	G 2 1/2	160	
1000- 12 ▲	800 x 2300	G 2 1/2	203	
1500- 5	950 x 2500	G 2	190	
1500- 8 ▲	950 x 2500	G 2	255	
2000- 8 ▲	1100 x 2570	G 2 1/2	330	
2000- 12 ▲	1000 x 2780	G 2 1/2	387	
3000- 8 ▲	1250 x 2930	G 3	470	
3000- 12 ▲	1200 x 2930	G 3	596	
4000- 8 ▲	1450 x 3090	G 3	620	
4000- 12 ▲	1450 x 3090	G 3	880	
5000- 8 ▲	1450 x 3590	G 4	715	
5000- 12 ▲	1450 x 3590	G 4	1020	

The vessels are suitable for water up to 50 °C
They are all approved at manufacturer's premises and are supplied complete with safety valve, tested pressure gauge and fittings.

CE 97/23 PED APPROVED MEMBRANE VESSELS (Membrane vessels)

	TYPE	Pressure bar	Dimensions D x H mm	DN	weight kg
	SM 60 V	10	382 x 845	G 1	-
SM 80 V	10	450 x 850	G 1	-	
SM 100 V	10	450 x 950	G 1	-	
SM 200 V	10	550 x 1255	G 1 1/2	-	
SM 300 V	10	630 x 1405	G 1 1/2	-	
SM 500 V	10	780 x 1550	G 1 1/2	-	
SM 750 V	10	780 x 1940	G 1 1/2	-	
SM 1000 V	10	980 x 1970	G 2	-	

EPDM diaphragm
Temperature -10 ÷ +100 °C
With safety valve and pressure gauge 0÷16 bar

ACCESSORIES

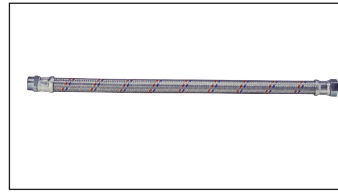
FLOAT SWITCH



tipo

INTGALL
(cable 2,5 m)

FLEXIBLE HOSE



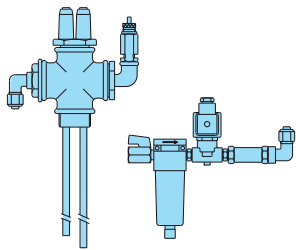
type

d x length

FP 1-630 G 1 x 630

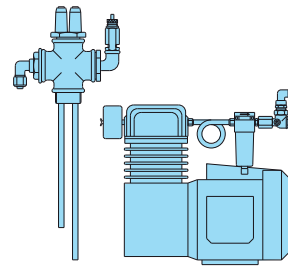
FP 1-680 G 1 x 680

SYSTEM FOR AIR INTAKE



Kit of level probes
with solenoid valve

SYSTEM FOR AIR INTAKE



Kit of level probes
with compressor

Technical appendix



How to select a centrifugal pump

The selection of a centrifugal pump should be made according to the actual characteristics and conditions of the plant.

The required data for a correct selection are the following:

Flow Q

Quantity of fluid delivered by the pump in the unit of time, generally expressed in m³/h.

Total manometric head Hmt

It is considered as the sum between the geometric head existing between the fluid levels and the head loss due to frictions from the fluid passage in the pipework, into the pump and relevant hydraulic accessories.

The expression is the following:

$$Hmt = Hg + \Delta pc \text{ mt fluid column}$$

Hg = geometric head inlet (Hga) + geometric head outlet (Hgp)

Δpc = sum of head loss of the plant calculated from the following data:

- Diameter, length and material of the suction and delivery piping (see table no. 1 page 620).
- Number and type of elbows in the piping and hydraulic accessories such as foot valves, gate valves, non-return valves and strainers etc. (see table no. 2 page 620).
- Type, temperature, viscosity and density of the fluid (if different from that of water)

Pay attention to the manometric suction lift **Hga + Δpc asp**, which should be compared with the suction capability of the pump.

This suction capability or **NPSHr** is defined as net positive suction head and its value is obtained from a curve in accordance with the flow.

For this purpose, once the pump has been selected according to the required flow and head, where possible at the middle of the curve, check the following simplified formula:

$$10 \text{ mt} \pm Hga - \Delta pc \text{ asp} > NPSH \text{ required} + 0.5 \text{ mt}$$

Hga is the difference in height between the free surface of the water, and its value is negative if the pump is installed above the free water surface.

Δpc asp is the sum of the remaining distributed (piping) and concentrate (valves, bends, etc.) suction head loss

If the final result is negative, it is often possible to adjust flow via a gate valve on the delivery side, in order to restore correct pump operating conditions, without cavitation.

For fluid temperatures higher than the average of about 20°C, the pumps loose their suction capability.

Such changes, referred to pumps with suction capability of 7 meter at normal temperature, are shown on table no. 3 page 621.

CHARACTERISTIC DATA OF THE PUMPS

Once the flow (Q) and total manometric head of the installation (Hmt) are established, the pump absorbed power **N** should be calculated through the following formula:

$$N = \frac{Q \times H \times \gamma}{367 \times \eta_p} \text{ in kW}$$

where:

Q = Flow in m³/h

H = Head in mt

γ = Fluid density (water = 1 kg/dm³)

η_p = Pump efficiency (Ex. Pump efficiency 68% ⇒ η_p = 0.68)

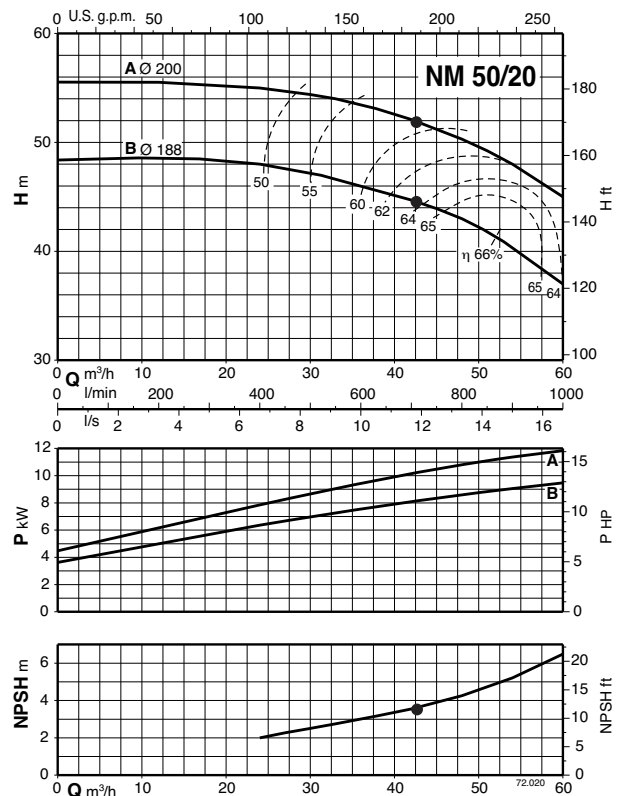
The pumps are normally connected to electric motors, which operate at 2900 rpm with 2-pole motors at 50Hz, or at 1450 rpm with 4-pole motors at 50Hz. However, they can run at any other speed within the limits of design.

Therefore, when changing the number of revolutions, the pump performance will change according to the following rules:

The flow in proportion to the number of revolutions: $Q_2 = Q_1 \times \frac{n_2}{n_1}$

The head, in proportion to the square of the number of revolutions: $H_2 = H_1 \times \left(\frac{n_2}{n_1}\right)^2$

The absorbed power, in proportion to the cube of the number of revolutions: $N_2 = N_1 \times \left(\frac{n_2}{n_1}\right)^3$



How to select a centrifugal pump

Calculation example for the selection of a centrifugal pump

Case A Installation data

- Q (Flow) = 42 m³/h
- H_{ga} (geometric head inlet) = 3,5 m
- H_{gp} (geometric head outlet) = 39 m
- 5 m DN 100 mm diameter suction pipe complete with 1 elbow and 1 foot valve
- 70 m DN 80 mm diameter delivery pipe with 1 non-return valve, 1 gate valve and 3 sweep elbows

H_g = H_{gp} + H_{ga} = 39 + 3,5 = 42,5 m Geometric head of the installation

Δpc = total head loss

Suction side:

5 m Ø100 piping	pc = 0,12 m
1 Elbows	pc = 0,045 m
1 Foot valve	pc = 0,46 m

Delivery side:

70 m Ø 80 pipe	pc = 5,25 m
1 Non-return valve	pc = 0,5 m
1 Gate valve	pc = 0,05 m
3 Elbows	pc = 0,09 m

Total Δpc = 6,5 m.

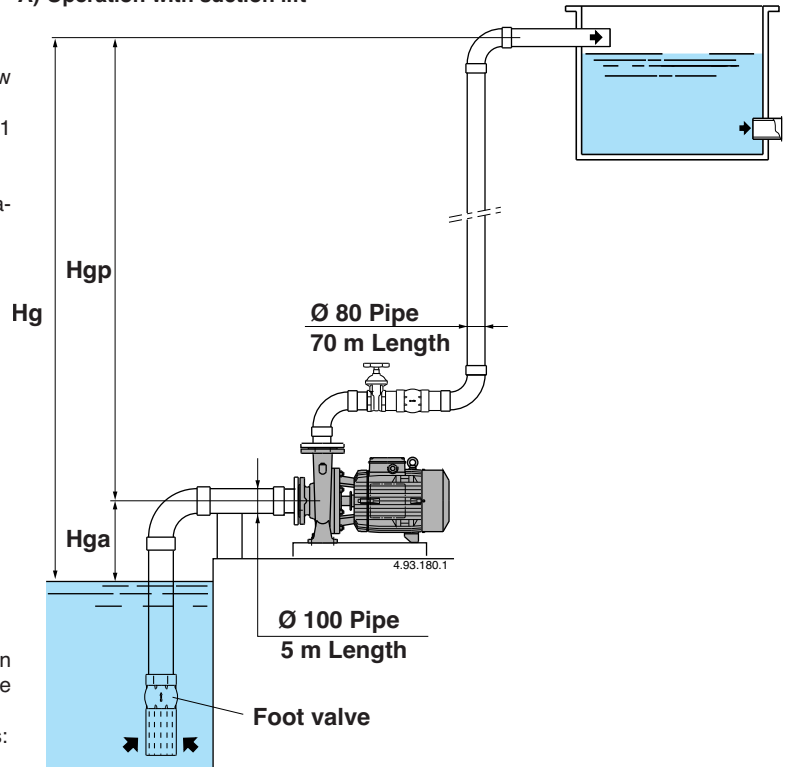
Considering that the calculation has been made for new pipes, an increase of 15/20% is to be applied for ageing etc. Therefore the total head loss Δp amounts to about 8 m.

Therefore, the total manometric head which the pump must achieve is:

$$H_{mt} = H_g + \Delta p = H_{gp} + H_{ga} + \Delta pc = 39 + 3,5 + 8 = 50,5 \text{ m total.}$$

The pump type NM 50/20AE can be chosen (see pump diagram)

A) Operation with suction lift



Case B Installation data

- Q (Flow) = 42 m³/h
- H_{ga} (geometric head inlet) = 3,5 m
- H_{gp} (geometric head outlet) = 39 m
- 5 m DN 100 mm diameter suction pipe complete with 1 gate valve and 1 foot valve
- 70 m DN 80 mm diameter delivery pipe with 1 non-return valve, 1 gate valve and 3 sweep elbows

H_g = H_{gp} - H_{ga} = 39 - 3,5 = 35,5 m Geometric head of the installation

Δpc = total head loss

Suction side:

5 m Ø 100 piping	pc = 0,12 m
1 Non-return valve	pc = 0,5 m
1 Gate valve	pc = 0,05 m

Delivery side:

70 m Ø 80 pipe	pc = 5,25 m
1 Non-return valve	pc = 0,5 m
1 Gate valve	pc = 0,05 m
3 Elbows	pc = 0,09 m

Total Δpc = 6,5 m

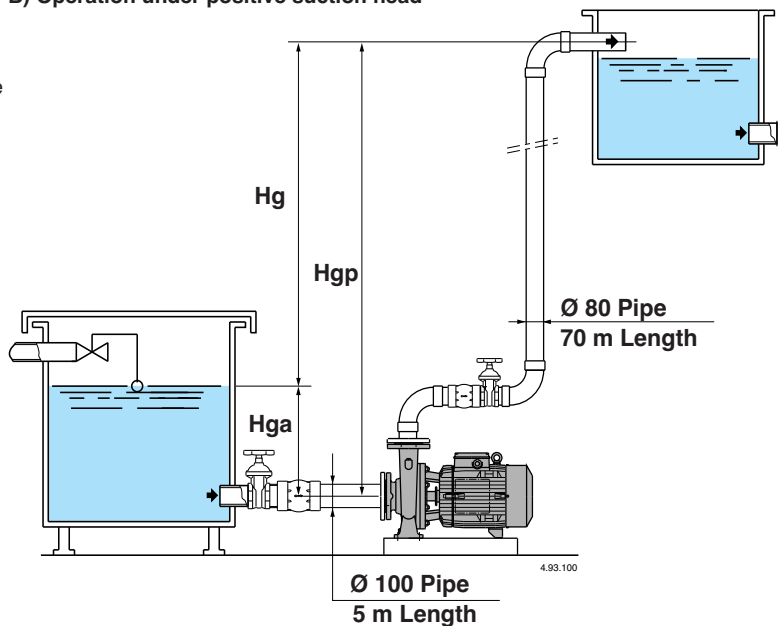
Considering that the calculation has been made for new pipes, an increase of 15/20% is to be applied for ageing etc. Therefore the total head loss Δpc amount to about 8 m.

Therefore, the total manometric head which the pump must achieve is:

$$H_{mt} = H_g + \Delta p = H_{gp} - H_{ga} + \Delta pc = 39 - 3,5 + 8 = 43,5 \text{ m total.}$$

The pump type NM 50/20BE can be chosen (see pump diagram)

B) Operation under positive suction head



ACCESSORIES FOR WATER SUPPLY

Foot valve with strainer - Sealing member installed on the lower end of the suction pipe. It prevents the water coming out from the piping and pump at every plant stop. It must be always immersed in the fluid at an installation depth which allows a perfect operation without cavitation.

It is a good rule to also install a float switch to automatically stop the pump when the water goes below a fixed level.

Non-return valve - It must be installed on the pump delivery port to avoid reflux in case of a sudden stop of the plant. It is recommended using a type fitted with an inner return spring and with ogive shutter, as this will help to diminish water hammering.

Gate valve - The installation of a gate valve is very important. In addition to allowing the pump to be disassembled without emptying the plant, it is used to start the plant and to adjust the flow.

PIPING

The piping must be selected in-line with the water velocity which is recommended to be 1.5 meter per second on the suction side and 3 meter per second on the delivery side. The calculation of the suction piping must be carefully checked so as to avoid the maximum head loss and allow the pumps maximum suction capability. The piping must be perfectly tight and have no counterslopes towards the pump port, so to avoid the development or entrapment of air bubbles or pockets.

All the piping must be secured to rests, so that they will not weigh on the pump ports.

Problems at the pump

Faults	Possible causes
Jammed pump	This may happen after periods of inactivity due to inner oxidation. To release smaller sized monobloc electropumps use a screwdriver at the notch on the back part of the shaft. For the larger sizes, turn on the shaft or the flexible coupling
Pumps which do not prime	Pump and/or suction pipe with air entrapped. Uncomplete priming or totally unprimed. Possible air entering from taps, drain or fill plugs, joints or stuffing box Foot valve not fully immersed in the fluid or obstructed by deposits. Suction lift too high compared with the capability of the pump. Wrong direction of rotation Wrong number of revolutions
Insufficient flow	Piping and accessories of too small a diameter which cause too high head loss. Jammed impeller with presence of debris in the vanes. Corroded or broken impeller Impeller wear rings and/or pump casing worn by abrasion. Gas presence in the water, or too high fluid viscosity in case of fluids different from water.
Noise and vibrations in the pump	Unbalanced rotary part or worn ball bearings. Pump and piping not properly secured. Too low flow rate for the selected pump Operation with cavitation
Overloaded motor	Pump characteristics higher than those of the plant Fixed and rotary parts in contact tending to seize owing to a lack of lubrication Too high rotation speed Wrong mains supply Poor unit allignement Fluid with too higher density than the design

Choosing a pressure-boosting set

Required quantity of water

The public water-supply system is normally capable of supplying water at an adequate pressure and capacity level to the various outlets connected to it. In those cases where a water-supply system is non-existent or insufficient for correct operation of the various facilities, a pressure-boosting system has to be installed to ensure an acceptable level of pressure and capacity also at the outlets in the most unfavourable positions. The size of the water-supply unit is determined according to the quantity of water and pressure required.

Residential buildings

The main data needed for calculation of the quantity of water required is given in the following list:

- the number of outlets
- consumption per each type of outlet (Tab.1)
- the contemporaneity factor (Fc)

Table 1: Maximum consumption at points of demand

Outlet	Qu. delivered (l/min)
Sink	10
Wash-basin	10
Bath/whirlpool tub	18
Shower	12
WC - flush-tank type	7
WC - fast-feed type	90
Bidet	6
Washing machine	12
Kitchen sink	12
Dishwasher	8
Outlet w/ 1/2" tap	20
Outlet w/ 3/4" tap	25

The maximum theoretical requirement is given by the sum of the quantities of water delivered to the various outlets of an apartment multiplied by the number of apartments. In practice, it is generally found that only some of the outlets are used simultaneously.

The contemporaneity factor (Fc) allows for definition of the real maximum delivery that may be required by the outlets.

The following formulae are used to calculate the Fc factor. The value "Ut" is the total number of outlets (the number of outlets in an apartment multiplied by the number of apartments).

$$\text{Apartments with 1 toilet - flush-type tank: } F_c = \frac{1}{\sqrt{0,85 \times U_t}}$$

$$\text{Apartments with 1 toilet - fast-feed type: } F_c = \frac{1}{\sqrt{0,7 \times U_t}}$$

$$\text{Apartments with 2 toilets - flush-type tank: } F_c = \frac{1}{\sqrt{1,1 \times U_t}}$$

$$\text{Apartments with 2 toilets - fast-feed type: } F_c = \frac{1}{\sqrt{0,83 \times U_t}}$$

Diagram **A** gives the values of actual delivery, which depend on the number of apartments connected to the water-supply system. Seven outlets are hypothesized for one-bathroom apartments and ten outlets for two-bathroom apartments.

Non-residential buildings

For calculation of quantities of water required, the following types of building are considered:

- offices
- shopping centres
- hospitals
- hotels

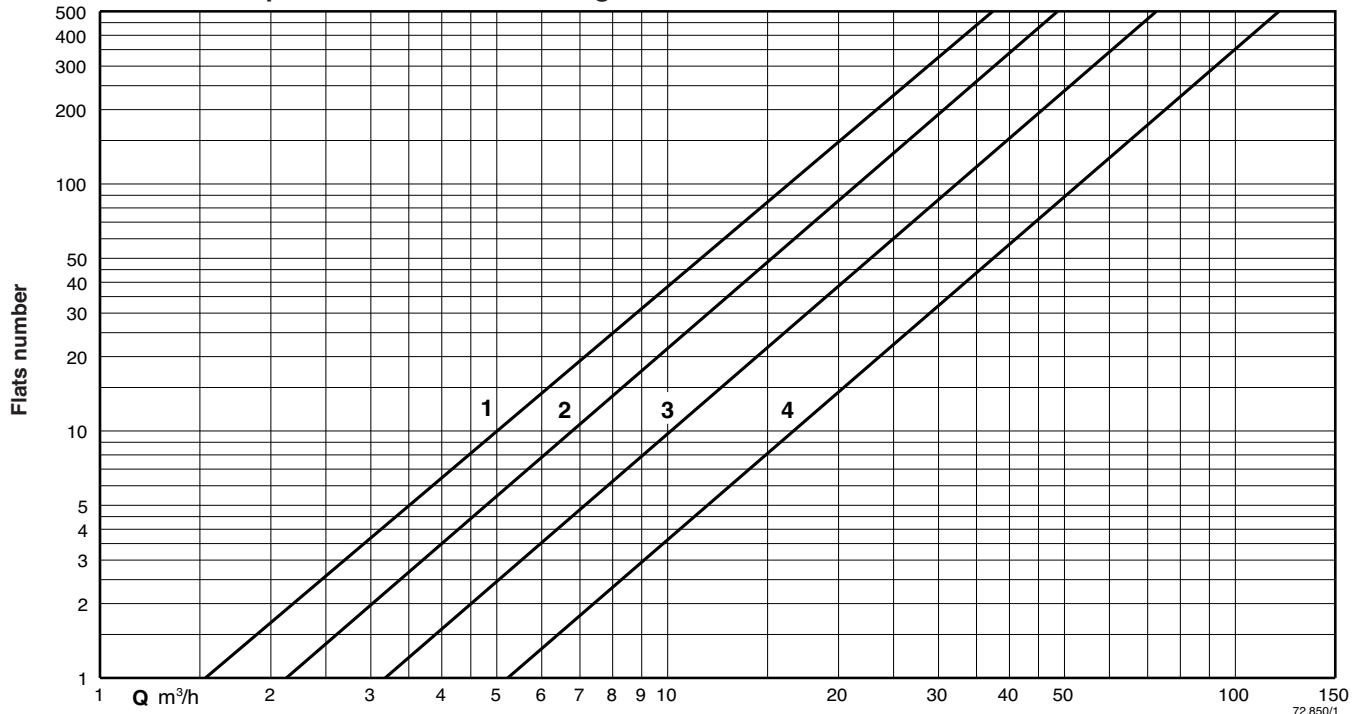
These buildings require quantities of water greater than those needed in residential buildings.

Diagram **B** shows the values of actual delivery for the main types of building. The values are based on hypothetical numbers of persons present in these buildings.

These values offer a guideline and may vary in accordance with particular requirements of projects.

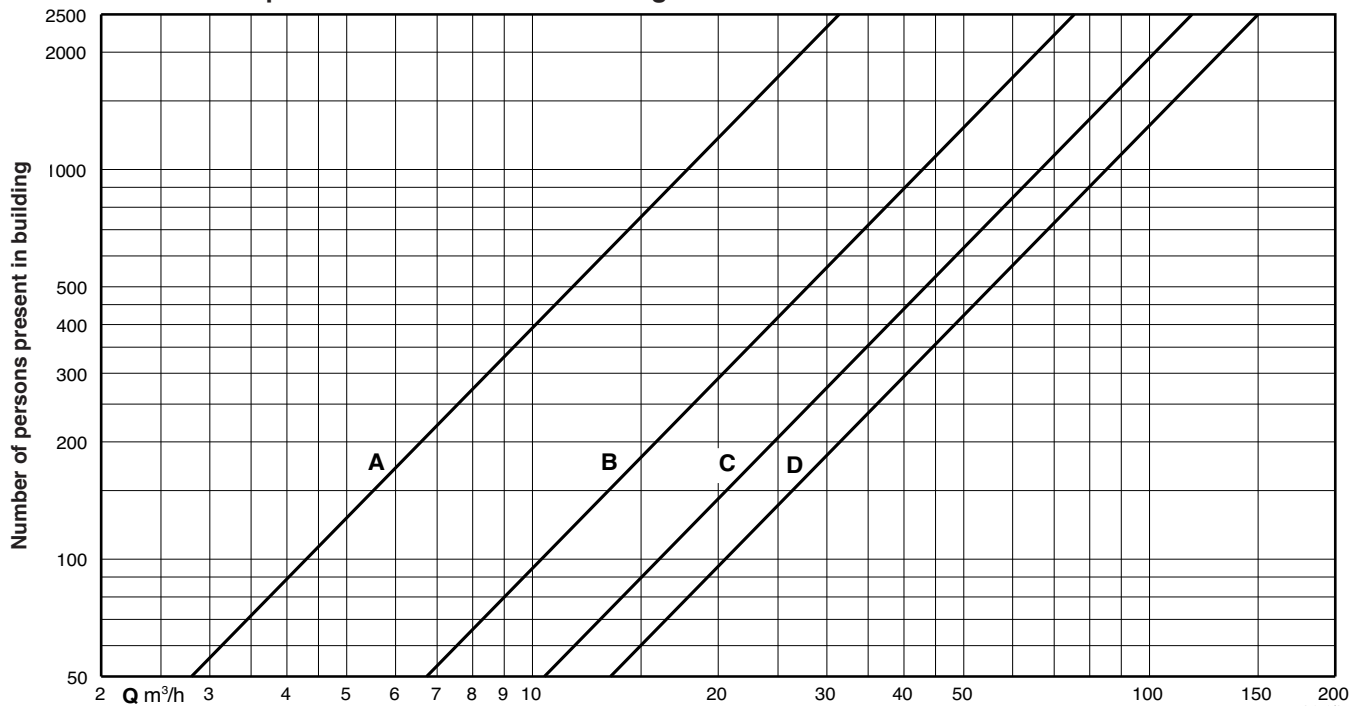
Choosing a pressure-boosting set

A Consumption in residential buildings



- 1 Apartments with one toilet, flush-tank type
- 2 Apartments with two toilets, flush-tank type
- 3 Apartments with one toilet, fast-feed type
- 4 Apartments with two toilets, fast-feed type

B Consumption in non-residential buildings



- A Offices
- B Shopping centres
- C Hospitals
- D Hotels

Choosing a pressure-boosting set

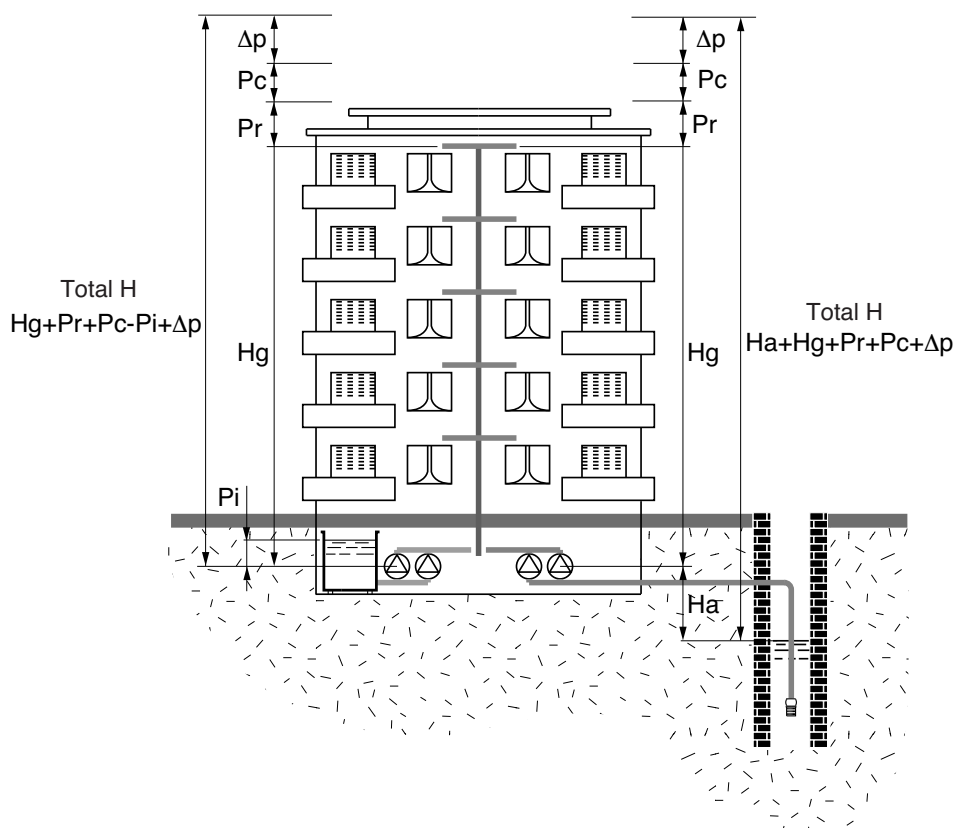
Delivery head

The outlet pressure required for proper operation of electrical appliances must not be lower than 1.5 bar and not greater than 4-5 bar.

When the pressure level is insufficient and to such a degree that it impedes operation of domestic appliances, a pressure-boosting system must be installed to ensure adequate pressure also at the more unfavourably—located points of demand.

The values to consider for calculation of the pressure level are the following:

- **H_g** the geodetic head between the pressure-boosting unit and the highest outlet.
- **H_a** the suction lift.
- **P_i** the initial pressure (or positive suction head).
- **P_r** the minimum residual pressure at the highest outlet (normally 1.5 bar).
- **P_c** the system head loss.
- **Δp** the difference in pressure between starting and stopping pumps.



When the pumps draw water from a well, the dynamic height difference (H_a), when pumps are operating, should not exceed 4 m.

A greater suction head or erroneous sizing of the suction pipe may cause improper operation of the pumps - e.g. cavitation and priming loss.

The pumps are installed with a positive suction head when they are connected to a raised tank or a pressurized primary collection tank.

The pumps therefore have an initial pressure at the suction port which can vary from 0.1 bar (suction with a collection tank) to 2-3 bar (with suction from a pressurized primary collection tank).

When choosing a pressure-boosting system, the positive value of the initial pressure (P_i) must be considered as a value to be subtracted from the height (H_g).

The system head loss (P_c) are given by the sum of the losses of the pipes (including the suction pipe) added to the losses due to gate valves, non-return valves, water purifiers, counters, filters, elbows etc.

Head loss in the tubes, caused by the friction of the water against the inner surface of the pipelines, may be quantified as 0.5 m per floor in the case of new systems and 1 m per floor in the case of old systems.

To avoid pressure levels greater than 4-5 bar arriving at outlets on the lower floors of apartment blocks and other buildings with a height greater than 30 m (about 10 floors), pressure reducers must be installed at the offtake point of the lower floors or otherwise two pressure-boosting units can be installed: one for the lower floors and one for the upper floors.

How to select a Pressure Boosting Sets



Surge tanks

The purpose of surge tanks is to retain a quantity of water, under pressure, thus avoiding continuous pump starts, as water is demanded. The selection of the vessel must be made in-line with the pump flow and pressure and number of starts allowed by the motor. For water pressure units with more than one pump, the selection of the vessel should refer to the data for one pump only.

The surge vessel may be of the following type:

- a) Air cushion vessels
- b) Membrane vessels

Air cushion vessels

In this type of vessels the air and water are in contact with each other. This will therefore result in a decrease of air as it dissolves into the water.

The installation will therefore require an automatic air feed ("Ariamat" air feeder, compressor or auto valve connected to existing compressed air network).

Air cushion vessels are normally manufactured from hot galvanized sheet steel, with rated pressures from 6 to 12 bar and capacity from 100 to 5000 ltrs, complete with safety valves, pressure gauge and level indicator.

Membrane vessels

These vessels are fitted with an inner membrane separating the water and air. When installed, they must be pre-charged at a pressure in-line with the pressure switch settings.

Calculation to size an air cushion vessel.

$$V_t = \frac{1.25 \times Q_m \times (P_1 + 10)}{4 \times Z \times (P_1 - P_2)}$$

where:

- V_t** = Total volume of air cushion vessel in m³
- Q_m** = Average pump flow in m³
- P₁** = Maximum set pressure of pressure switch
- P₂** = Minimum set pressure of pressure switch
- Z** = Maximum number of starts/hour allowed by the motor (see table).

Q_m flow is the average between the flow at starting pressure (Q min) and the flow at stop pressure (Q max):

$$Q_m = \frac{Q_{min} + Q_{max}}{2} \quad (m^3/h)$$

Example: Pump MXV 40-807

- P₁ = 70 m
- P₂ = 50 m
- Q_m = 9,45 m³/h
- Z = 23 starts/hour

$$V_t = \frac{1.25 \times 9.45 \times (70 + 10)}{4 \times 23 \times (70 - 50)} = 0,514 \text{ m}^3$$

From the calculation, it would result in the selection of a 500 litre vessel.

Calculation to size a membrane vessel

$$V_t = \frac{Q_m}{4 \times Z} \times \frac{1}{1 - \frac{(P_2 - 2)}{P_1}}$$

where:

- V_t** = Total volume of air cushion vessel in m³
- Q_m** = Average pump flow in m³
- P₁** = Maximum set pressure of pressure switch
- P₂** = Minimum set pressure of pressure switch
- Z** = Maximum number of starts/hour allowed by the motor (see table)

Example: Pump MXV 40-807

- P₁ = 70 m
- P₂ = 50 m
- Q_m = 9,45 m³/h
- Z = 23 starts/hour

$$V_t = \frac{9.45}{4 \times 23} \times \frac{1}{1 - \frac{(50 - 2)}{70}} = 0,327 \text{ m}^3$$

From the calculation it will result in the selection of a 300 litre membrane vessel.

CE 97/23 PED APPROVED PRESSURE VESSELS (Air tanks)

Hot galvanized vessels	TYPE	Dimensions D x H mm	DN	Weight kg
		100- 5	400 x 1020	G 1
	200- 5	450 x 1440	G 1	48
	300- 8	550 x 1500	G 1 1/2	65
	500- 8	650 x 1820	G 2	105
	500- 12	600 x 2000	G 2	120
	800- 8	800 x 1900	G 2	145
	1000- 8	800 x 2150	G 2 1/2	160
	1000- 12 ▲	800 x 2300	G 2 1/2	203
	1500- 5	950 x 2500	G 2	190
	1500- 8 ▲	950 x 2500	G 2	255
	2000- 8 ▲	1100 x 2570	G 2 1/2	330
	2000- 12 ▲	1000 x 2780	G 2 1/2	387
	3000- 8 ▲	1250 x 2930	G 3	470
	3000- 12 ▲	1200 x 2930	G 3	596
	4000- 8 ▲	1450 x 3090	G 3	620
	4000- 12 ▲	1450 x 3090	G 3	880
	5000- 8 ▲	1450 x 3590	G 4	715
	5000- 12 ▲	1450 x 3590	G 4	1020

The vessels are suitable for water up to 50 °C

They are all approved at manufacturer's premises and are supplied complete with safety valve, tested pressure gauge and fittings.

CE 97/23 PED APPROVED MEMBRANE VESSELS

	TYPE	Pressure bar	Dimensions D x H mm	DN	weight kg
	SM 60 V	10	382 x 845	G 1	-
SM 80 V	10	450 x 850	G 1	-	
SM 100 V	10	450 x 950	G 1	-	
SM 200 V	10	550 x 1255	G 1 1/2	-	
SM 300 V	10	630 x 1405	G 1 1/2	-	
SM 500 V	10	780 x 1550	G 1 1/2	-	
SM 750 V	10	780 x 1940	G 1 1/2	-	
SM 1000 V	10	980 x 1970	G 2	-	

EPDM diaphragm
Temperature -10 ÷ +100 °C
With safety valve and pressure gauge 0÷16 bar

How to select a centrifugal pump



Number of starts/hour allowed for CALPEDA motors

Rated motor power output	kW	0,25	0,37	0,55	0,75	1,1	1,5	2,2	3	4	5,5	7,5	9,2	11	15	18,5	22	30	37	45
Max. number of starts/hour	Z	59	51	44	38	35	30	25	23	20	18	16	15	14	12	11	10	9	9	8

The number of starts/hour mentioned in the table is approximate.
The maximum admissible starts/hour depends on the pump model and are mentioned in the original operating manual.

Table no. 1 Head loss in m for steel pipes

Pipe		Q m³/h	1	3	6	9	12	18	24	30	36	42	48	60	90	120	180	240	300	360	420	500	600
G	Ø mm	Q l/min	16	50	100	150	200	300	400	500	600	700	800	1000	1500	2000	3000	4000	5000	6000	7000	8333	10000
G 1/2	DN 15	29,9 1,6																					
G 3/4	DN 20	7,4 0,9	56,3 2,7																				
G 1	DN 25	2,5 0,6	19,0 1,7	68,6 3,4																			
G 1 1/4	DN 32	0,7 0,3	5,7 1,0	20,6 2,1	43,6 3,1	74,4 4,1																	
G 1 1/2	DN 40	0,3 0,2	1,9 0,7	6,9 1,3	14,7 2,0	25,1 2,7	53,1 4,0	90,5 5,3															
G 2	DN 50		0,6 0,4	2,3 0,8	5,0 1,3	8,5 1,7	17,9 2,5	30,5 3,4	46,2 4,2	64,7 5,1	86,1 5,9												
G 2 1/2	DN 65		0,2 0,3	0,7 0,5	1,4 0,8	2,4 1,0	5,0 1,5	8,5 2,0	12,9 2,5	18,0 3,0	24,0 3,5	30,7 4,0	46,4 5,0										
	DN 80				0,5 0,5	0,9 0,7	1,8 1,3	3,1 1,7	4,7 2,0	6,6 2,3	8,7 2,7	11,2 3,3	16,9 5,0	35,8 6,6	60,9 8,6								
	DN 100						0,6 0,6	1,0 0,8	1,6 1,1	2,2 1,3	2,9 1,5	3,8 1,7	5,7 2,1	12,1 3,2	20,6 4,2	43,6 6,4	74,2 8,5						
	DN 125									0,7 0,8	1,0 1,0	1,3 1,1	1,9 1,4	4,1 2,0	6,9 2,7	14,7 4,1	25,0 5,4	37,8 6,8	53,0 8,1	70,5 9,5			
	DN 150											0,5 0,8	0,8 1,1	1,7 1,4	2,9 2,0	6,0 1,9	10,3 2,8	15,6 4,7	21,8 5,7	29,0 6,6	40,1 7,9	56,2 9,4	
	DN 200													0,2 0,5	0,4 0,8	0,7 1,1	1,5 1,6	2,5 2,1	3,8 2,7	5,4 3,7	7,1 4,4	9,9 5,3	13,8 8,4
	DN 250														0,2 0,7	0,5 1,0	0,9 1,4	1,3 1,7	1,8 2,0	2,4 2,4	3,3 2,8	4,7 3,4	
	DN 300															0,2 0,7	0,4 0,9	0,5 1,2	0,7 1,4	1,0 1,7	1,4 2,0	1,9 2,4	

Table no. 1.1 Head loss in m for Polyethylene PE 100 - PFA 16 pipes

Pipe		Q m³/h	1	3	6	9	12	18	24	30	36	42	48	60	90	120	180	240	300	360	420	500	600
Ø est. mm	Ø int. mm	Q l/min	16	50	100	150	200	300	400	500	600	700	800	1000	1500	2000	3000	4000	5000	6000	7000	8333	10000
32	26	1,4 0,5	10,4 1,6	37,5 3,1	79,4 4,7																		
40	32,6	0,5 0,33	3,4 1,00	12,4 2,00	26,4 3,00	44,9 3,99																	
50	40,8	0,2 0,2	1,2 0,6	4,2 1,3	8,8 1,9	15,1 2,5	31,9 3,8	54,4 5,1															
63	51,4		0,4 0,4	1,4 0,8	2,9 1,2	4,9 1,6	10,4 2,4	17,7 3,2	26,7 4,0	37,4 4,8	49,8 5,6	63,7 6,4											
75	61,4		0,2 0,3	0,6 0,6	1,2 0,8	2,1 1,1	4,4 1,7	7,4 2,3	11,2 2,8	15,7 3,4	20,9 3,9	26,8 4,5	40,5 5,6										
90	73,6			0,2 0,4	0,5 0,6	0,9 0,8	1,8 1,2	3,1 1,6	4,6 2,0	6,5 2,4	8,7 2,7	11,1 3,1	16,8 3,9	35,5 5,9	60,5 7,8								
110	90			0,1 0,3	0,2 0,4	0,3 0,5	0,7 0,8	1,2 1,0	1,7 1,3	2,4 1,6	3,3 1,8	4,2 2,1	6,3 2,6	13,3 3,9	22,7 5,2	48,1 7,9							
125	102,2				0,1 0,3	0,2 0,4	0,4 0,6	0,6 0,8	0,9 1,0	1,3 1,2	1,7 1,4	2,2 1,6	3,4 2,0	7,2 3,0	12,2 4,1	25,9 6,1	44,1 8,1						
140	114,6					0,1 0,2	0,1 0,3	0,2 0,5	0,4 0,6	0,8 1,0	1,0 1,1	1,3 1,3	1,9 1,6	4,1 2,4	7,0 3,2	14,8 4,8	25,3 6,5	38,2 8,1	53,5 9,7				
160	130,8						0,1 0,2	0,1 0,5	0,2 0,6	0,3 0,7	0,4 0,7	0,5 0,9	0,7 1,0	1,0 1,2	2,2 1,9	3,7 2,5	7,8 5,0	13,3 6,2	20,1 7,4	28,1 8,7	37,4 8,7		
180	147,2							0,1 0,3	0,1 0,4	0,2 0,5	0,2 0,6	0,3 0,7	0,4 0,8	0,6 1,0	1,2 1,5	2,1 1,3	4,4 2,9	7,5 4,9	11,3 5,9	15,8 6,9	21,0 6,9	29,1 8,2	40,7 9,8
200	163,6								0,1 0,32	0,1 0,40	0,1 0,48	0,2 0,55	0,2 0,63	0,3 0,79	0,7 1,19	1,2 1,59	2,6 2,38	4,5 3,17	6,7 3,96	9,5 4,76	12,6 5,55	17,4 6,61	24,4 7,93
225	184									0,1 0,3	0,1 0,4	0,1 0,4	0,1 0,5	0,2 0,6	0,4 1,3	0,7 1,9	1,5 2,5	3,8 3,1	5,3 4,4	7,1 5,2	9,8 6,3	13,7 8,2	19,4 13,7
250	204,6											0,1 0,4	0,1 0,4	0,1 0,5	0,2 0,8	0,4 1,0	0,9 1,5	1,5 2,0	2,3 2,5	3,2 3,0	4,2 3,5	5,8 4,2	8,2 5,1
280	229,2													0,1 0,4	0,1 0,6	0,2 0,8	0,5 1,2	0,9 1,6	1,3 2,0	1,8 2,4	2,4 2,8	3,4 3,4	4,7 4,0
315	257,8														0,1 0,5	0,1 0,6	0,3 1,0	0,5 1,3	0,7 1,6	1,0 1,9	1,4 2,2	1,9 2,7	2,7 3,2
355	290,6															0,1 0,5	0,2 0,8	0,3 1,0	0,4 1,3	0,6 1,5	0,8 1,8	1,1 2,1	1,5 2,5
400	327,4																0,1 0,6	0,2 0,8	0,2 1,0	0,3 1,2	0,4 1,4	0,6 1,6	0,8 2,0
450	368,2																	0,1 0,5	0,1 0,6	0,1 0,8	0,2 0,9	0,2 1,1	0,3 1,3
500	409,2																		0,1 0,5	0,1 0,6	0,1 0,8	0,2 0,9	0,3 1,3

Q Flow. HL Head loss, m per 100 m. v = Flow velocity: max 1,5 m/s for suction and 3 m/s for delivery.

Table no. 2 Head loss in cm for bends, gate valves, foot valves and check valves

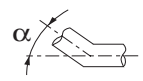
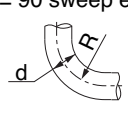



Water flow velocity m/sec.	Elbows 					$\alpha = 90$ sweep elbow 					Gate valves 	Foot valves 	Check valves 
	$\alpha = 30$	$\alpha = 40$	$\alpha = 60$	$\alpha = 80$	$\alpha = 90$	$\frac{d}{R} = 0,4$	$\frac{d}{R} = 0,6$	$\frac{d}{R} = 0,8$	$\frac{d}{R} = 1$	$\frac{d}{R} = 1,5$			
	0,4	0,43	0,52	0,71	1,0	1,2	0,11	0,13	0,16	0,23			
0,5	0,67	0,81	1,1	1,6	1,9	0,18	0,21	0,26	0,37	0,67	0,37	33	32
0,6	0,97	1,2	1,6	2,3	2,8	0,25	0,29	0,36	0,52	0,97	0,52	34	32
0,7	1,35	1,65	2,2	3,2	3,9	0,34	0,40	0,48	0,70	1,35	0,70	35	32
0,8	1,7	2,1	2,8	4,0	4,8	0,45	0,53	0,64	0,93	1,7	0,95	36	33
0,9	2,2	2,7	3,6	5,2	6,2	0,57	0,67	0,82	1,18	2,2	1,20	37	34
1,0	2,7	3,3	4,5	6,4	7,6	0,7	0,82	1,0	1,45	2,7	1,45	38	35
1,5	6,0	7,3	10	14	17	1,6	1,9	2,3	3,3	6	3,3	47	40
2,0	11	14	18	26	31	2,8	3,3	4,0	5,8	11	5,8	61	48
2,5	17	21	28	40	48	4,4	5,2	6,3	9,1	17	9,1	78	58
3,0	25	30	41	60	70	6,3	7,4	9	13	25	13	100	71
3,5	33	40	55	78	93	8,5	10	12	18	33	18	123	85
4,0	43	52	70	100	120	11	13	16	23	42	23	150	100
4,5	55	67	90	130	160	14	21	26	37	55	37	190	120
5,0	67	82	110	160	190	18	29	36	52	67	52	220	140

Table no. 3 Diagram of manometric suction head with water up to 100 °C

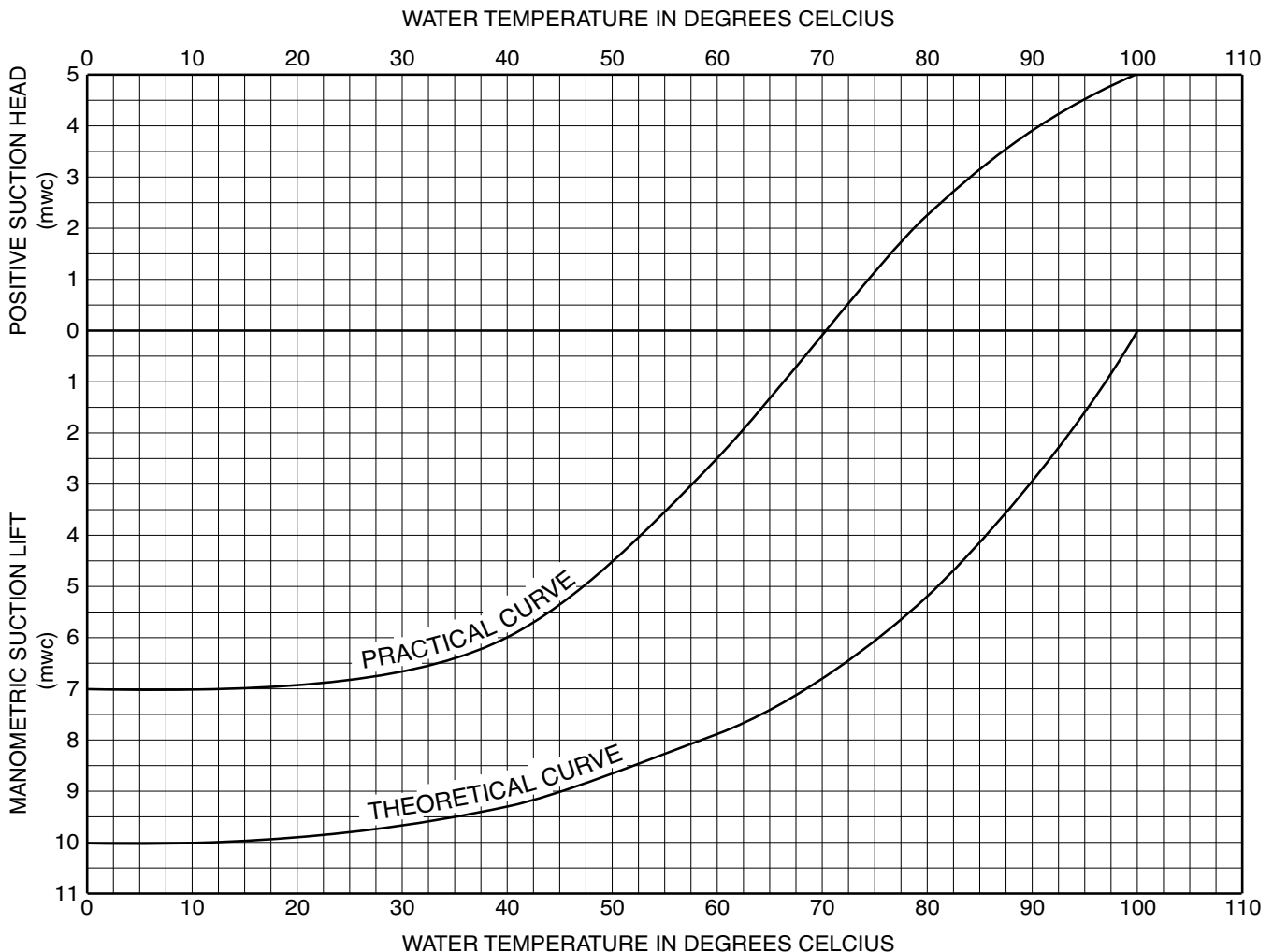


Diagram referred to pumps with manometric suction head of 7 mwc. at 20 °C

Electric pumps powered by frequency converter

The use of a frequency converter to power an electric pump, offers the possibility of operating in different working points according to the needs of the system, and hydraulic or mechanical performance desired. However, this possibility is detrimental to the quality voltage and consequently also to the current circulating in the motor. Figure 1 shows the current sinusoid at the output of the converter, which has some “noise”, i.e. sinusoids with high frequency but moderate amplitude.

The stray capacitances with high frequency have a low impedance, allowing the circulation of current harmonics in the motor casing and bearings, thus compromising their correct functioning. The most common methods to reduce this phenomenon are:

- ground shield of the power cable;
- use of a dv/dt filter or sinusoidal filter at the output of converter;
- adoption of an isolated bearing.

The dv/dt filters consist of inductors and capacitors with cut off frequency higher than switching frequency of the converter. Filters reduce the voltage rise time making the current more sinusoidal. Figure 2 shows that current sinusoid contains less harmonics than the current without dv/dt filter.

The IEC 60034-17 technical specification prescribes the rise time value (dv/dt) that the supply voltage must have according to the peak values it assumes, so that the current can not damage the bearings (figure 3).

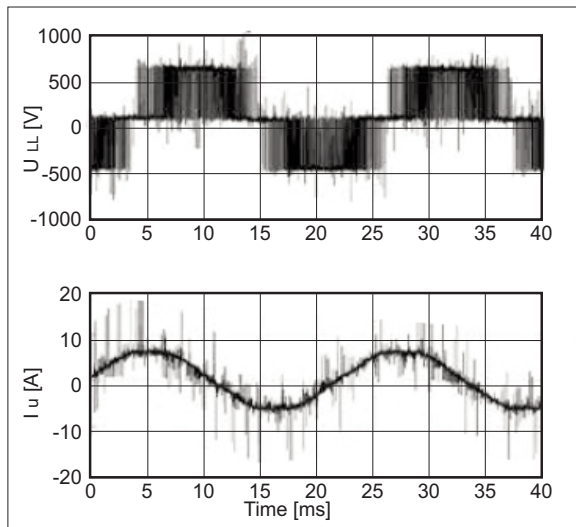


Figure 1: Voltage and current trends without dv/dt filter

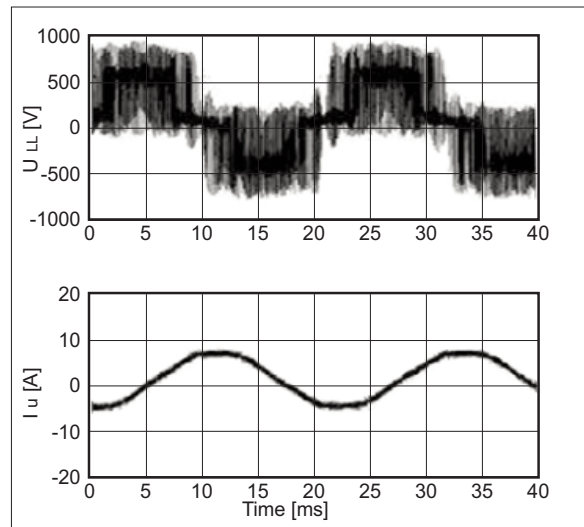


Figure 2: Voltage and current trends with dv/dt filter

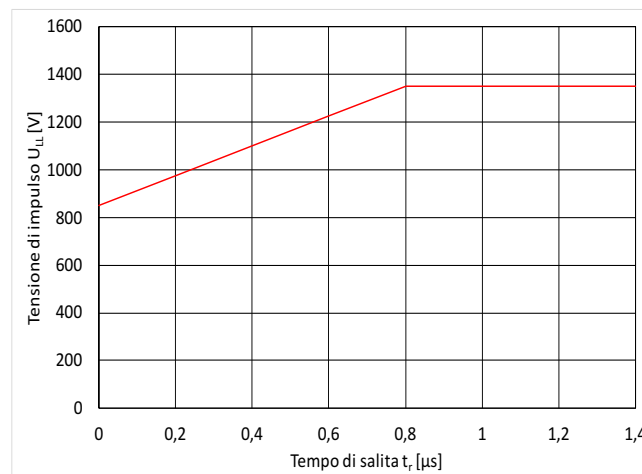


Figure 3: Limiting curve of admissible impulse voltage U_{LL} at the motor terminals as a function of the rise time t_r

EFFICIENCY OF ELECTRIC MOTORS

Directive of the European Parliament COMMISSION REGULATION (EC) No 640/2009

Having regard to Directive 2005/32/EC of the European Parliament establishing a framework for the setting of ecodesign requirements for energy-related products, it specifies the time and the efficiency levels that motors sold in the European market will have to comply.



This Regulation shall apply to:

electric single speed motor, three-phase 50 Hz or 50/60 Hz, squirrel cage induction motor that:

- has 2 to 6 poles,
- has a rated voltage of U_N up to 1 000 V,
- has a rated output P_N between 0,75 kW and 375 kW,
- is rated on the basis of continuous duty operation.

This Regulation shall not apply to:

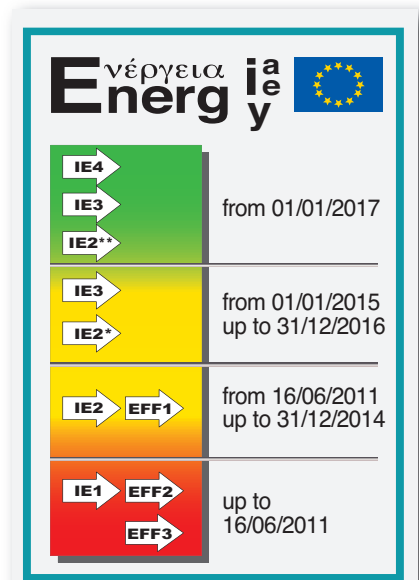
- a) motors designed to operate wholly immersed in a liquid;
- b) motors completely integrated into a product (for example gear, pump, fan or compressor) of which the energy performance cannot be tested independently from the product;
- c) motors specifically designed to operate:
 - at altitudes exceeding 4000 metres above sea-level;
 - where ambient air temperatures exceed 60 °C;
 - in maximum operating temperature above 400 °C;
 - where ambient air temperatures are less than -30 °C for any motor or less than 0 °C for a motor with air cooling;
 - where the water coolant temperature at the inlet to a product is less than 0 °C or exceeding 32 °C;
 - in potentially explosive atmospheres as defined in Directive 94/9/EC of the European Parliament and of the Council.
- d) brake motors.

Each ecodesign requirement shall apply in accordance with the following timetable:

- 1) **from 16 June 2011:**
motors shall not be less efficient than the IE2 efficiency level;
- 2) **from 1 January 2015:**
motors with a rated output of 7,5-375 kW shall not be less efficient than the IE3 efficiency level or meet the IE2 efficiency level, and be equipped with a variable speed drive.
- 3) **from 1 January 2017:**
all motors with a rated output of 0,75-375 kW shall not be less efficient than the IE3 efficiency level or meet the IE2 efficiency, and be equipped with a variable speed drive.

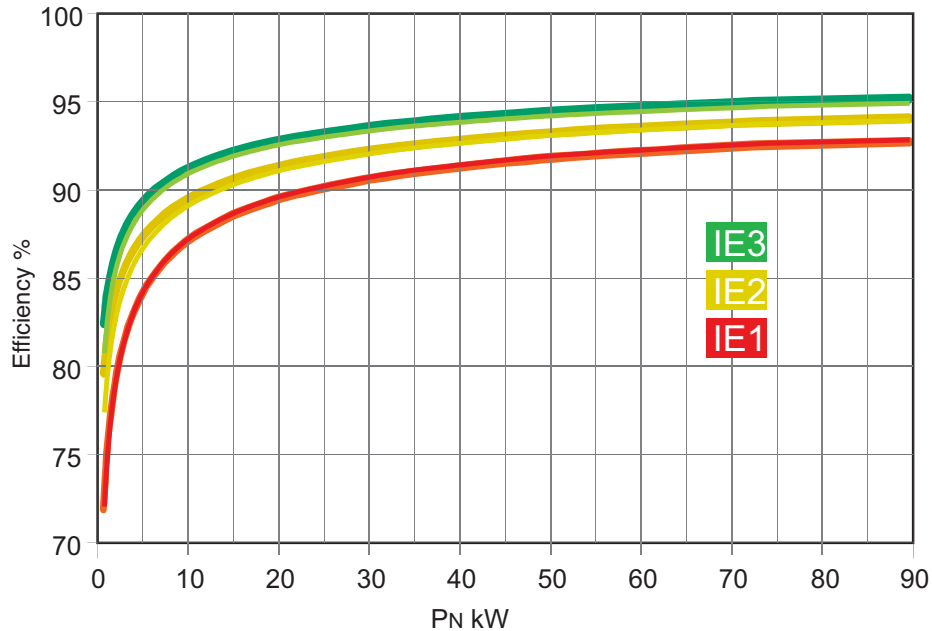
* IE2 up to 7,5 kW from 7,5 up to 375 kW shall be equipped with a variable speed drive

** IE2 from 0,75 up to 375 kW shall be equipped with a variable speed drive



EFFICIENCY OF ELECTRIC MOTORS

Summary table of the levels of efficiency as expected in IEC 60034-30



2-pole

Rated power output kW	Efficiency %		
	IE1	IE2	IE3
0.75	72.1	77.4	80.7
1.1	75.0	79.6	82.7
1.5	77.2	81.3	84.2
1.8	78.4	82.2	85.0
2.2	79.7	83.2	85.9
3	81.5	84.6	87.1
4	83.1	85.8	88.1
4.4	83.6	86.2	88.4
5.5	84.7	87.0	89.2
7.5	86.0	88.1	90.1
9.2	86.9	88.8	90.7
11	87.6	89.4	91.2
15	88.7	90.3	91.9
18.5	89.3	90.9	92.4
22	89.9	91.3	92.7
30	90.7	92.0	93.3
37	91.2	92.5	93.7
45	91.7	92.9	94.0
55	92.1	93.2	94.3
75	92.7	93.8	94.7
90	93.0	94.1	95.0

4-pole

Rated power output kW	Efficiency %		
	IE1	IE2	IE3
0.75	72.1	79.6	82.5
1.1	75.0	81.4	84.1
1.5	77.2	82.8	85.3
2.2	79.7	84.3	86.7
3	81.5	85.5	87.7
4	83.1	86.6	88.6
5.5	84.7	87.7	89.6
7.5	86.0	88.7	90.4
9.2	86.9	89.3	91.0
11	87.6	89.8	91.4
15	88.7	90.6	92.1
18.5	89.3	91.2	92.6
22	89.9	91.6	93.0
30	90.7	92.3	93.6
37	91.2	92.7	93.9
45	91.7	93.1	94.2
55	92.1	93.5	94.6
75	92.7	94.0	95.0
90	93.0	94.2	95.2

EFFICIENCY OF WATER PUMPS

Directive of the European Parliament COMMISSION REGULATION (EC) No 547/2012

With the Eco-design Directive of Energy Using Products (**ErP Directive – Energy-related Products**) the European Union wants to improve the design of equipment that “consume” significant energy (e.g. televisions, refrigerators, washing machines, boilers, pumps, motors etc.) to improve eco-design providing environmental sustainability, reducing negative environmental impact as the consequence of production, use and disposal of products.

The objective of the Directive is to force manufacturers and importers to produce and distribute products with high energy efficiency, and reduced carbon output. The criteria for eco-design will be an integral part of the declaration of conformity (**CE**), which is a necessary requirement/mark for products being sold in the EU.



This Regulation shall apply to:

The Regulation 547/2012/EC defines the eco-design requirements for marketing centrifugal water pumps in the European market, even if they are integrated in other products (OEM). The Regulation provides the introduction and the calculation of a minimum efficiency index (MEI). The pumps involved in the Regulation are:

- End suction own bearing water pumps (ESOB) designed for pressures up to 16 bar, a maximum shaft power of 150 kW, a maximum head of 90 m at nominal speed of 1450 rpm and a maximum head of 140 m at nominal speed of 2900 rpm;
- End suction close coupled water pumps (ESCC) designed for pressures up to 16 bar, a maximum shaft power of 150 kW, a maximum head of 90 m at nominal speed of 1450 rpm and a maximum head of 140 m at nominal speed of 2900 rpm;
- End suction close coupled in-line water pumps (ESCCi) designed for pressures up to 16 bar, a maximum shaft power of 150 kW, a maximum head of 90 m at nominal speed of 1450 rpm and a maximum head of 140 m at nominal speed of 2900 rpm;
- Vertical multistage water pumps (MS-V) designed for pressures up to 25 bar, with a nominal speed of 2900 rpm and a maximum flow of 100 m³/h (27,78·10⁻³ m³/s);
- Submersible multistage water pumps (MSS) with a nominal outer diameter of 4" (10,16 cm) or 6" (15,24 cm) designed to operate in a borehole at nominal speed of 2 900 rpm, at operating temperatures within a range of 0 °C and 90 °C;

This Regulation shall not apply to:

- a) Water pumps designed specifically for pumping clean water at temperatures below – 10 °C or above 120 °C.
- b) Water pumps designed only for fire-fighting applications.
- c) Displacement water pumps.
- d) Self-priming water pumps.

This regulation shall apply in accordance with the following timetable:

- 1) From 1 January 2013, water pumps shall have: at the best efficiency point (BEP), at part load (PL), at over load (OL) a minimum efficiency index MEI ≥ 0,10.
- 2) From 1 January 2015, water pumps shall have: at the best efficiency point (BEP), at part load (PL), at over load (OL) a minimum efficiency index MEI ≥ 0,40.

The information on benchmark efficiency is available on the web site www.europump.org/efficiencycharts

The MEI value of Calpeda pumps is available on the web site www.calpeda.com

Regulation (EU) No 547/2012

- The benchmark for most efficient water pumps is MEI ≥ 0,70.
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

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