

e-HME..P

SMART SERIES AND SMB BOOSTER SERIES

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e-HME..P SMART Series 3

SMB Booster Sets Series 11

e-HME..P e-HM SMART SERIES

Background and context

In every sector, from construction and industry to agriculture and building services the need for intelligent, compact and high-efficiency pumping systems is constantly growing.

That's why Lowara has developed the e-HME series: an integrated intelligent pumping system with electronically driven, permanent magnet motor (IE5 efficiency level).

The integrated control system, combined with the high performance, power and efficiency from the motor and hydraulics, guarantees impressively low operating costs. You also benefit from flexibility, precision and its ultra-compact size.

Savings

The electronics and permanent magnet motor are highly efficient and minimize power losses while transferring maximum energy to the hydraulic parts of the pump.

The refined control system with integrated microprocessor adjusts the motor speed, matching the required operating point of the pump or system requirements.

This reduces demand on electricity according to the required working conditions.

This creates economies, especially in systems where pump demand varies over time.

Flexibility

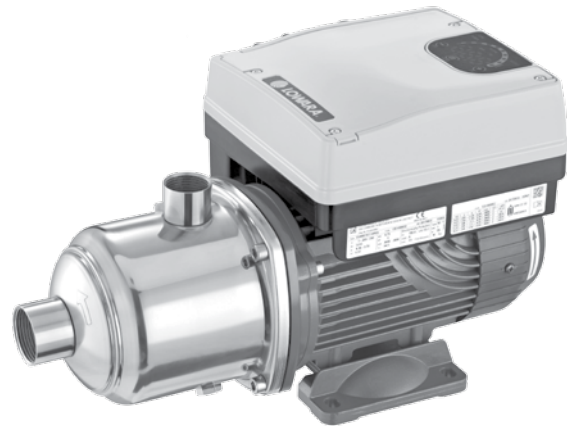
The compact size, low loss and increased control make the e-HM Smart series a good choice in applications and systems where fixed speed pumps are commonly used. The e-HM Smart series is easy to integrate in control and regulation loops thanks to the wide availability of compatible communication protocols, including analog and digital inputs.

The pump is supplied with a pressure sensor.

Ease of use and commissioning

e-HM Smart has an intuitive interface that guides the user through the installation, and a practical area to assist with connections.

The control system is integrated and no additional external electrical panel is required.



Application sectors

- Water supply systems in residential buildings
- Air conditioning
- Water treatment plants
- Industrial installations

e-SM System

- 230V +/- 10% single phase power supply, 50/60 Hz
- Power up to 1,1 kW
- Protection class IP55
- Up to 3 e-HM Smart pumps can be linked to communicate together

Pump

- Flow rate: up to 8,4 m³/h
- Head: up to 72 m
- Environment temperature: -20°C to +50°C with no performance derating
- Temperature of pumped liquid: up to +120°C for single-phase motor versions
- Maximum operating pressure 10 bar (PN 10)
- The hydraulic performances meet the tolerances specified in ISO 9906:2012

Motor

- IE5 efficiency level (IEC TS 60034-30-2:2016)
- Synchronous electric motor with permanent magnets, (TEFC), closed structure, air-cooled
- Insulation class 155 (F)
- Overload protection and locked rotor with automatic reset incorporated

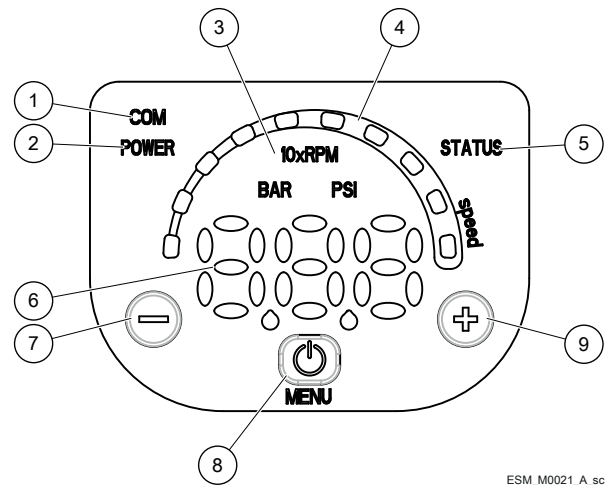
All pumps are certified for use with drinking water according to WRAS and ACS standards, and with Italian Ministry Decree no. 174.

e-HME..P e-HM SMART SERIES

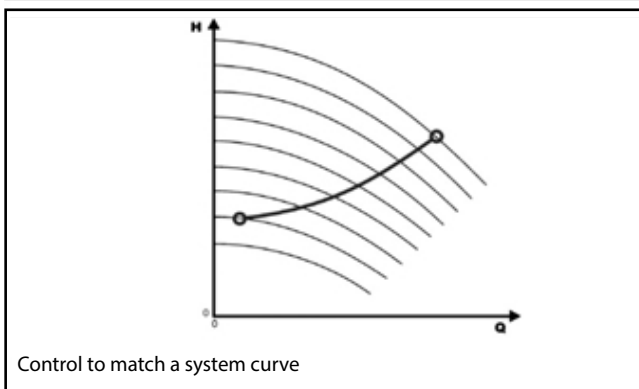
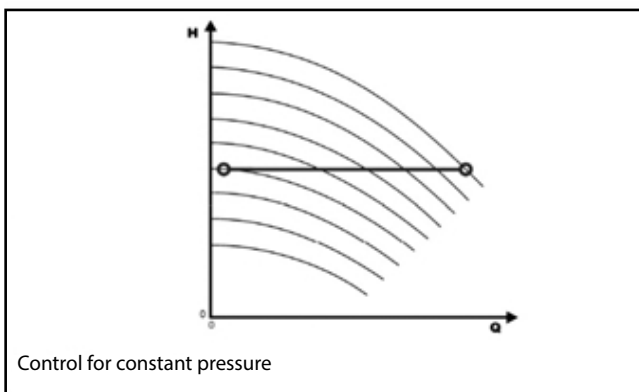
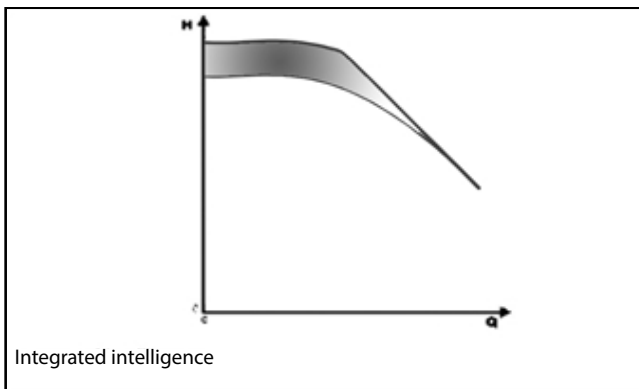
e-HM Smart series is equipped with an intelligent control that optimizes hydraulic performance while minimizing waste.

Integrated intelligence: The electronic control of the motor enables a 20% increase in performance compared to an equivalent fixed speed pump (area highlighted in figure “Integrated intelligence”).

Adjustment: This is possible both at constant pressure and according to the characteristic curve of the system, based on the customer’s preferences. Another option is according to an external signal or at a preset speed.

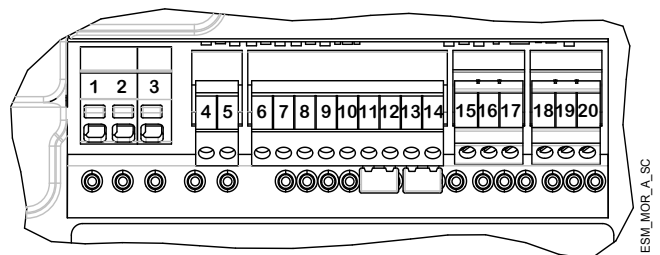


ESM_M0021_A_sc



Intuitive and simple interface: You can control the unit from just three buttons, with an easy to read display for parameters and alarms, designed for complete control of system operation.

- ① Communication LED
- ② Power on LED
- ③ Unit of measure LED
- ④ Speed LED bar
- ⑤ Status LED
- ⑥ Numeric display
- ⑦ \ominus Decrease key
- ⑧ ⏻ On/off and menu key
- ⑨ \oplus Increase key



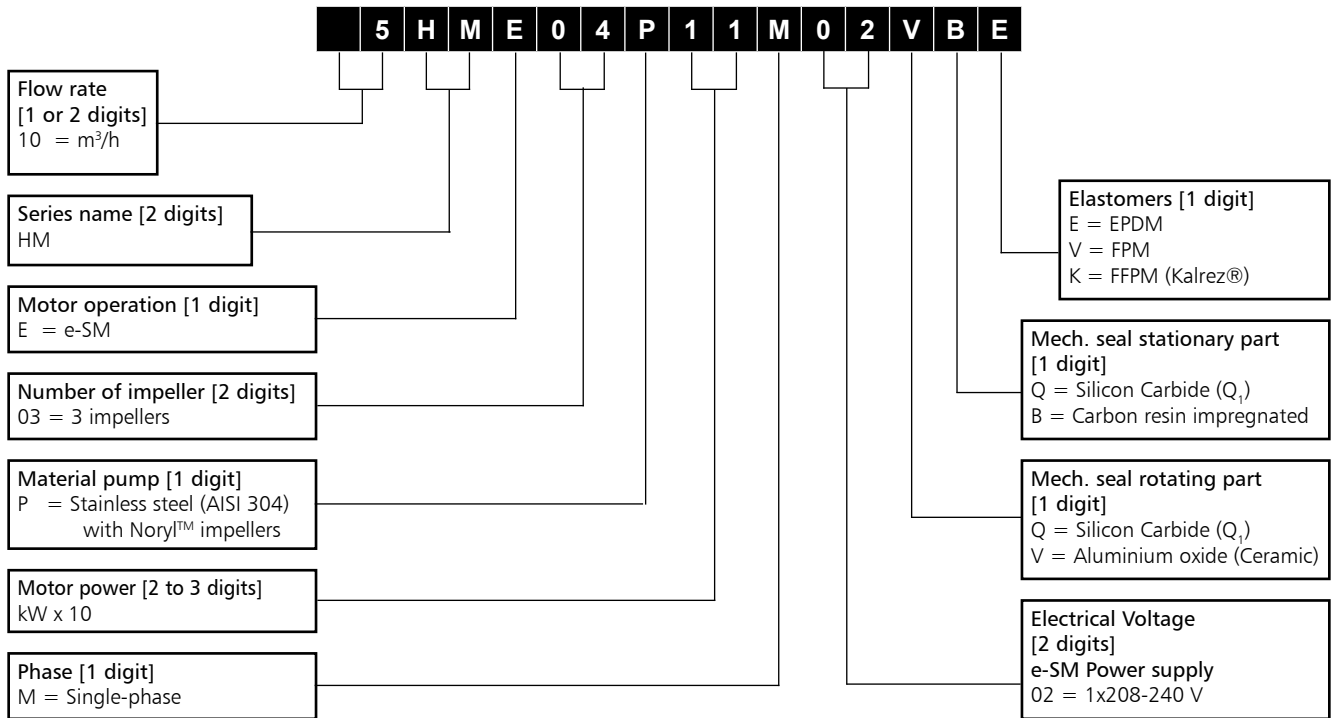
ESM_M0R_A_SC

Terminal block

e-HM Smart has the following terminals:

- 1, 2, 3 = Power supply (\oplus , L, N)
- 4, 5 = Fault signal (NO) - (Ext $V_{max} < 250 \text{ VAC}$ - $I_{max} < 2\text{A}$)
- 6 = Auxiliary voltage supply + 15 VDC
- 7, 8 = Analog 0-10V
- 9 = Power supply external sensor + 15 VDC
- 10 = External sensor 4-20 mA input
- 11, 12 = External start/stop
- 13, 14 = External lack of water
- 15, 16, 17 = Communication bus RS485, protocol Modbus and BACnet
- 18, 19, 20 = Communication bus RS485, enabled via dedicated module

e-HME..P IDENTIFICATION CODE



EXAMPLE: 3HME04P07M02VBE

3 = Flow rate 3 m³/h, **HM** = e-HM series electric pump, **E** = e-SM (SMART) coupling, **04** = number of impellers 4, **P** = Stainless steel (AISI 304) version with Noryl™ impellers, **07** = 0,75 kW rated motor power, **M** = single-phase, **02** = e-SM power supply 1x208-240, **VBE** = Aluminium/Carbon mechanical seal and EPDM elastomers.

HYDRAULIC PERFORMANCE TABLE

PUMP TYPE HME..S, HME..N Single-phase	MOTOR		e-SM SET		Q = DELIVERY							
	P _N kW	TYPE 1x230 V	* P ₁ kW	* I 208-240 V A	l/min 0 m ³ /h 0	20	40	60	80	100	120	140
3HME04P07M02	0,75	ESM80/107 HM..	0,92	4,06	71,5	67,7	50,4	34,6	21,3	5,1		
5HME04P11M02	1,1	ESM80/111 HM..	1,33	5,86	72,4	69,8	66,1	55,5	45,4	36,6	27,4	17,7

H = TOTAL HEAD IN METRES OF COLUMN OF WATER

* Maximum value in specified range: P1 = input power; I = input current.

hmep-esm-2p50-en_a_th

ELECTRICAL DATA TABLE

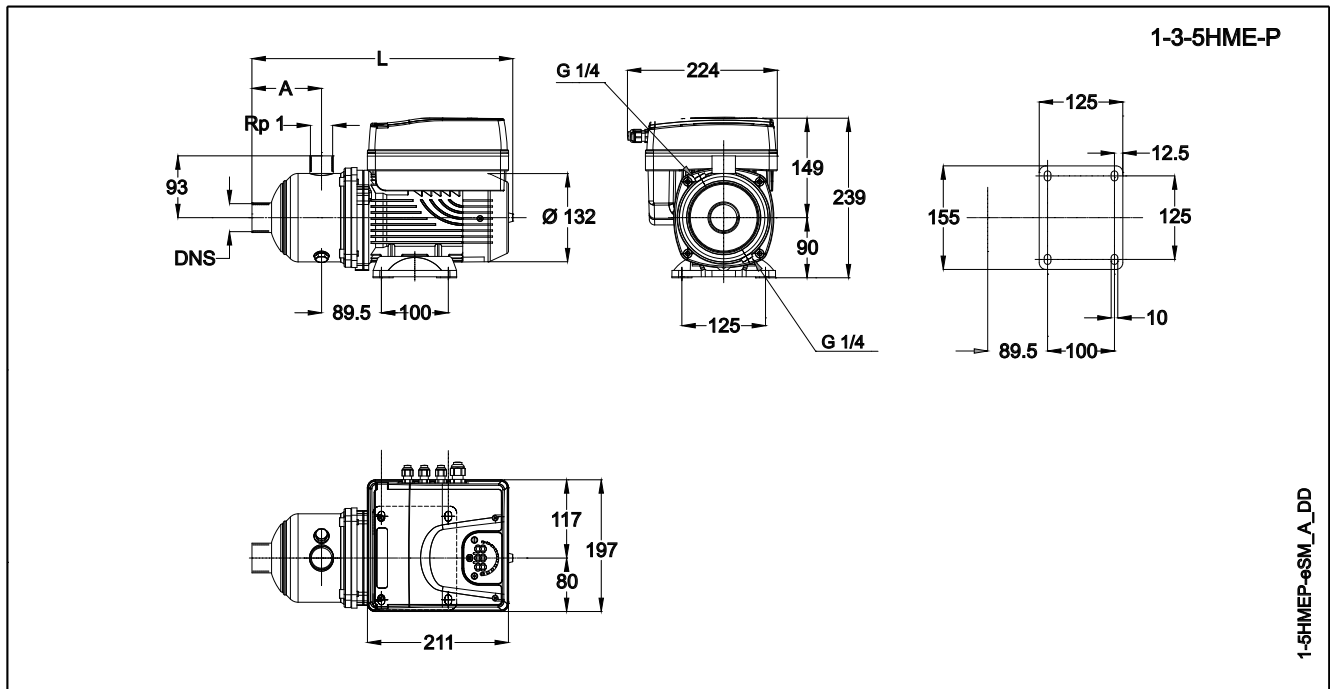
In the range 3000-3600rpm the nominal motor power is guaranteed. The motor is automatically limited to 3600rpm and below 3000rpm it operates at partial load.

P _N kW	MOTOR TYPE	IEC SIZE	Constructio n Design	SPEED (RPM) min ⁻¹	INPUT CURRENT I (A) 208-240 V	DATA RELATED TO THE VOLTAGE OF 230V						
						In A	cosφ	Tn Nm	η %			IES
									4/4	3/4	2/4	
0,75	ESM80/107 HM..	80		3000	4,43-3,84	4,00	0,98	2,39	83,3	83,3	81,5	2
				3600	4,38-3,79	3,94		1,99	84,5	83,5	80,6	
1,10	ESM80/111 HM..	80		3000	6,26-5,35	5,64	0,99	3,50	85,7	85,1	82,7	2
				3600	6,20-5,32	5,63		2,92	85,9	84,6	81,4	

* The indicated rotational speed are representing the upper and lower limits of the rated power operational speed range.

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e-HME..P DIMENSIONS AND WEIGHTS

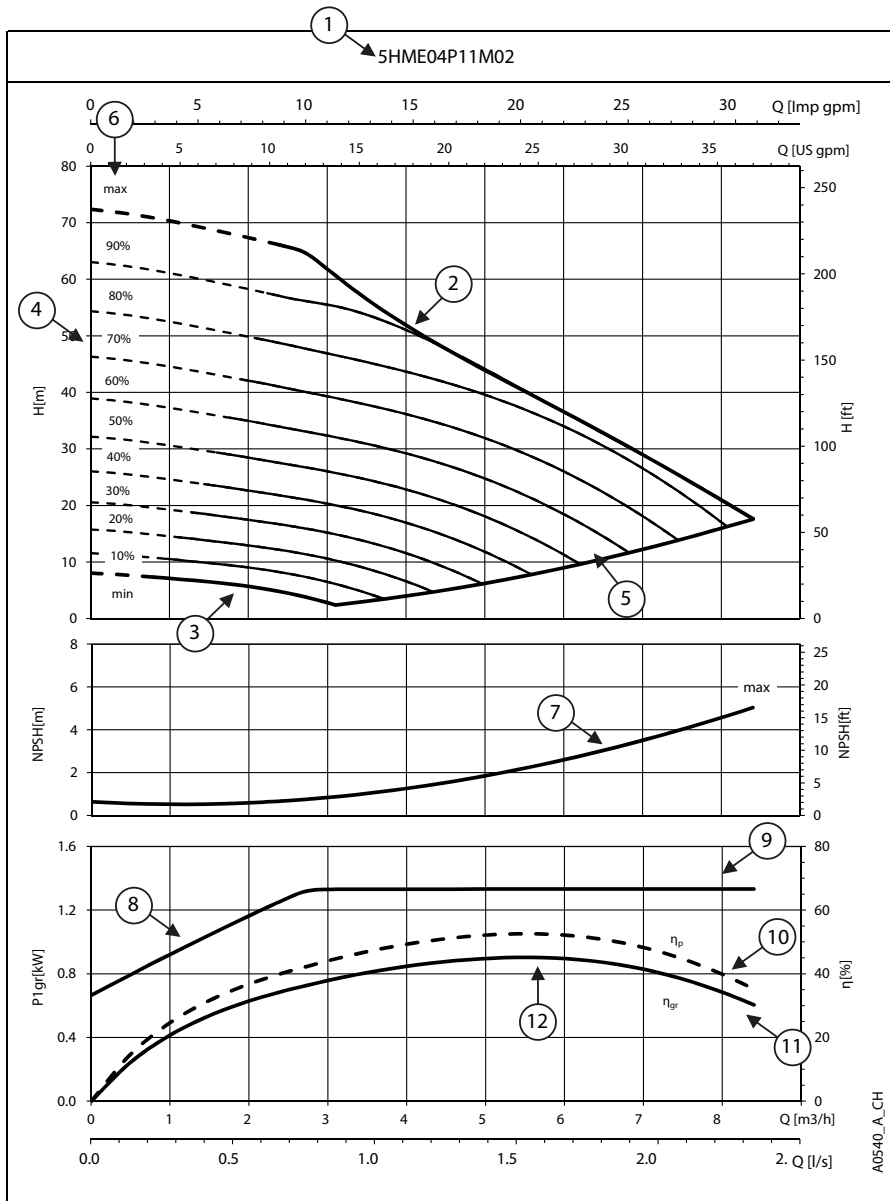


PUMP TYPE	VERSION	MOTOR		DIMENSIONS (mm)					PN	WEIGHT
		kW	SIZE	A	DNS	L	L1	L2	bar	kg
3HME04P07M02	1~	0,75	80	107	Rp 1	393	-	-	10	9
5HME04P11M02		1,10	80	109	Rp 1 1/4	395	-	-	10	11

hmep-esm-2p50-en_a_td

e-HME..P
HOW TO READ SMART PUMP SERIES CURVES

To exploit to the maximum potential of Smart Pumps it's important to properly read working curves:



① **Pump model**

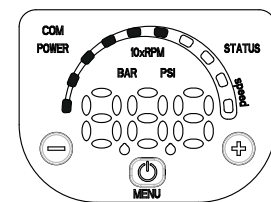
② **Maximum speed curve:** equal to 3600 rpm

③ **Minimum speed curve:** it refers to the minimum rpm level the motor can work at, it's calculated depending on the model of pump maximizing for each one the working area and allowing the highest system flexibility.

④ The **area with dotted lines** is where the pump can only operate intermittently for short periods of time.

⑤ Each **intermediate curve** between max and min speed shows the percentage of load the pump+motor+drive system is working at; it's easy to read also from the LED speed bar on the HMI keypad: at 90% there will be 9 led, at 80% there will be 8 and so on.

Example: at 60% there will be 6 lit led's



⑥ The **part load percentage** is calculated depending on maximum speed (*max*, 100%) and minimum speed (*min*, equal to 0%, which is the minimum part load step, below it the drive stays powered up but cannot work).

⑦ **NPSH**: is the net positive suction head of pump+motor+drive system working at maximum speed.

⑧ **P1_{gr}** is the power absorption in kW of pump+motor+drive system working at maximum speed.

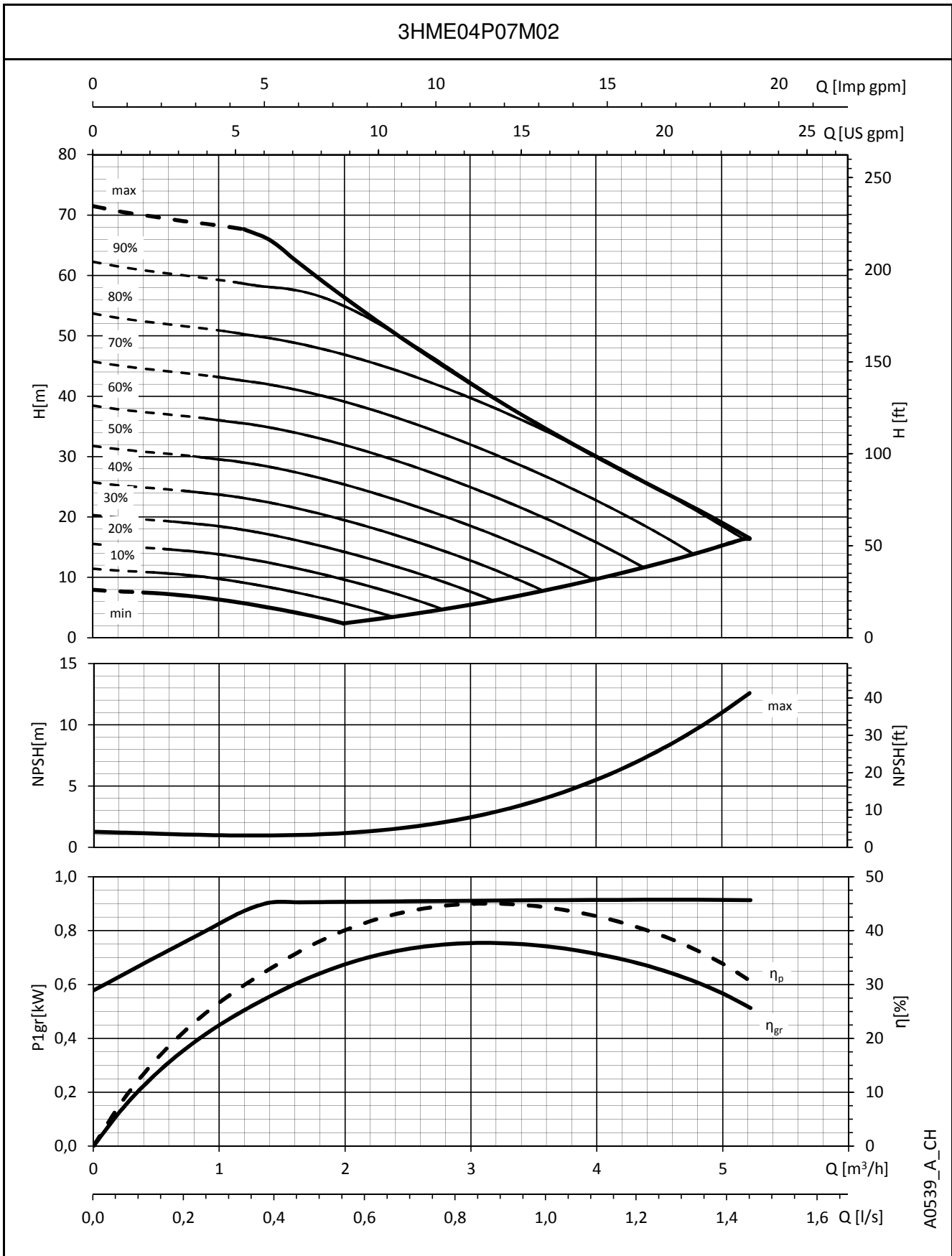
⑨ **Load control**: the Smart Pump controls and limits power consumption at high flow/low head, in this way the motor stays protected from overload and ensure a longer life of pump+motor+drive system.

⑩ **η_{gr}** is the efficiency of pump+motor+drive system working at maximum speed.

⑪ **η_p** is the efficiency of the hydraulic part, working at maximum speed.

⑫ **Working point**: it's important to make sure the pump is working at the best working point, the one at highest efficiency. It's easy to find it: it's the highest point of the hp pump efficiency curve; once you found it, you can learn also flow values from x-axis called Q and head values from y-axis called H which allow the system to work at the best working point.

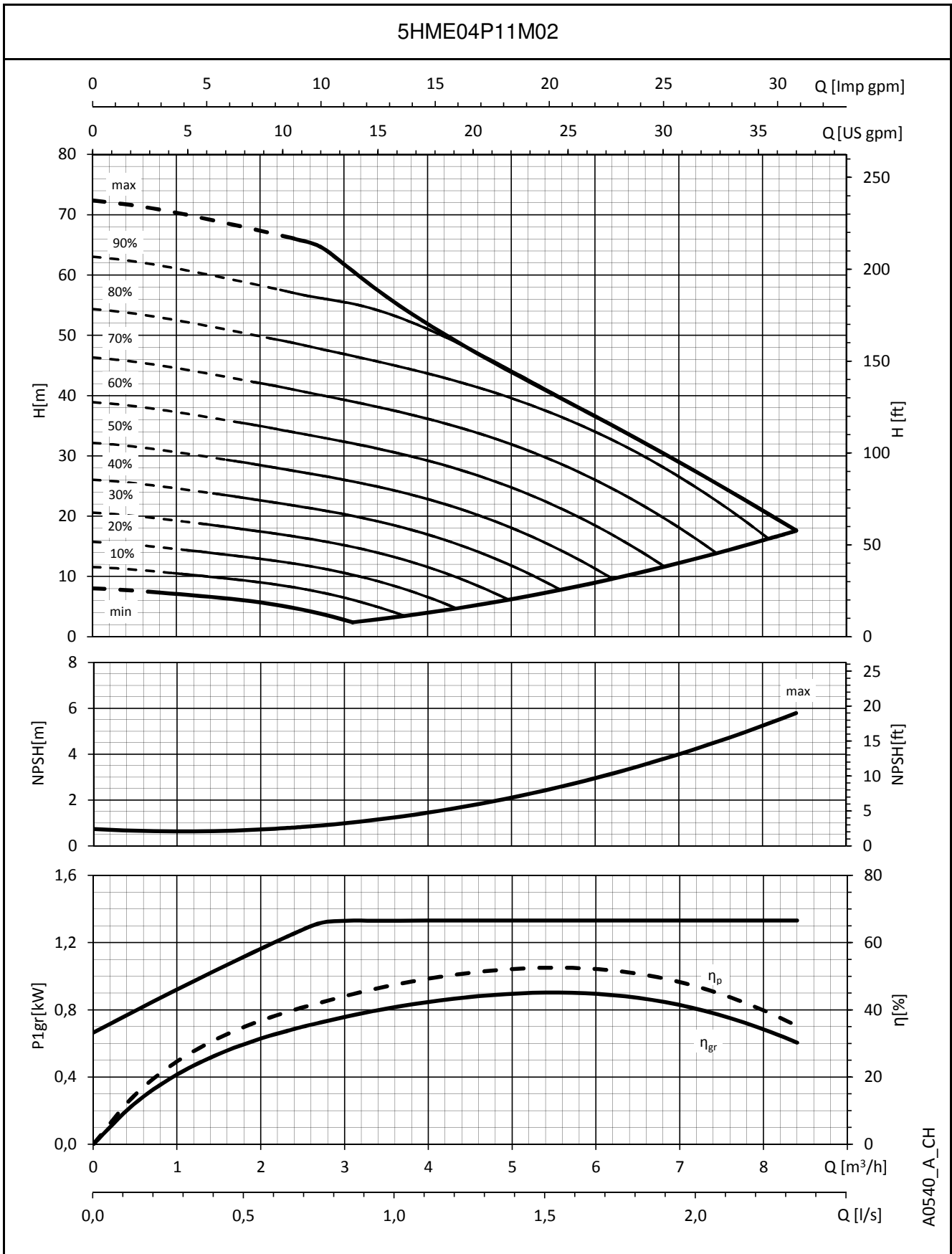
e-HME..P
OPERATING CHARACTERISTICS



A0539_A_CH

The performances are valid for liquid with density $\rho = 1 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

e-HME..P
OPERATING CHARACTERISTICS



A0540_A_CH

The performances are valid for liquid with density $\rho = 1 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

SMB BOOSTER SETS SERIES

GENERAL INTRODUCTION – PRODUCT DESCRIPTION

The variable speed SMB booster sets are designed for water transfer and pressurization in the following applications:

- Apartments, single and multi-family houses, condominiums and residential buildings
- Hotels, restaurants, spas
- Various industrial applications

SMB series booster set are variable speed pumping stations with two or three **e-HM Smart** series multistage horizontal pumps. Each pump is equipped with an e-SM frequency drive that ensures the variable speed operation on all electric pumps.

These types of systems improve the comfort of the end user, reducing noise emissions and also “water hammer”, thanks to the gradual switching off of the pumps.

The pumps are installed on a single base and connected to each other by means of suction and delivery manifolds.

The pumps are connected to the manifolds by means of on-off valves and non-return valves.

The control panel is secured to the same base by means of a bracket.

SMB series booster sets are available with a wide range of electric pumps to satisfy the different needs of every system. SMB booster sets are also available in special version to fit specific duty points and applications.

Systems for regulating the speed of the electric motors, as in SMB series booster sets, are used in the following cases:

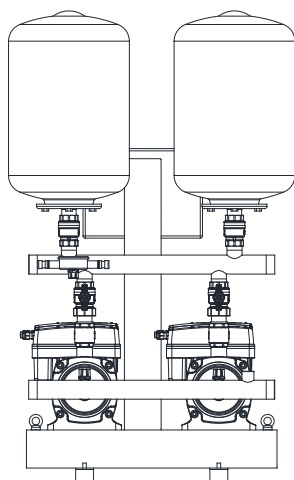
- In case of systems with a lot of users where the daily consumption varies frequently and in different periods.
- When it is necessary to obtain constant pressure.
- In the case of systems with supervision it is possible to monitor and check the performances of the booster sets.

SMB BOOSTER SETS RANGE

The standard range of SMB series variable-speed booster sets includes models with 2 and 3 electric pumps in different configurations, to adapt to the specific needs of each application.

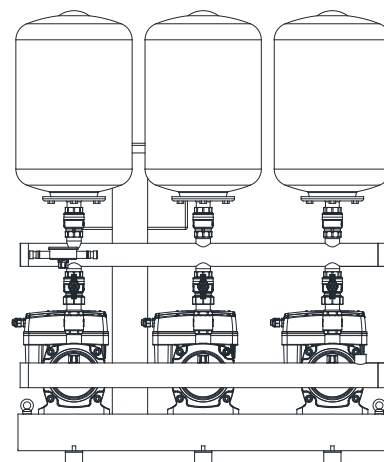
SMB20 SERIES

- Single-phase power supply, variable speed and control by pressure transducers and frequency converters e-SM drive integrated in permanent magnets motor.
- Two electric pumps e-HME series.
- **Head** up to 72 m.
- **Flow rate** up to 17 m³/h.



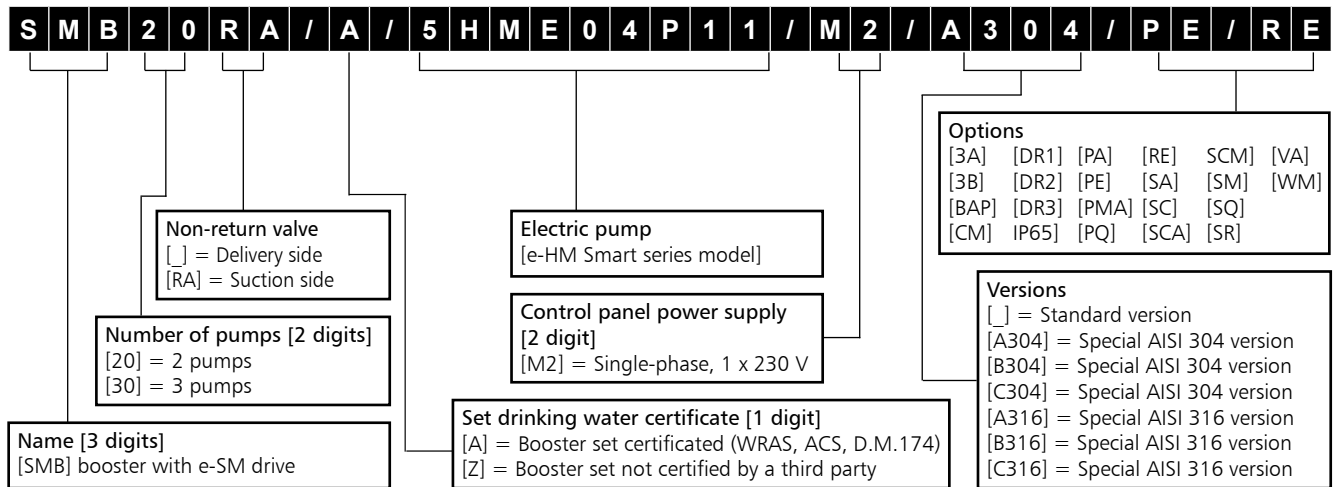
SMB30 SERIES

- Single-phase power supply, variable speed and control by pressure transducers and frequency converters e-SM drive integrated in permanent magnets motor.
- Three electric pumps e-HME series.
- **Head** up to 72 m.
- **Flow rate** up to 25 m³/h.



SMB series booster sets with e-HM Smart series pumps are certified for use with drinking water according to WRAS and ACS standards, and with Italian Ministry Decree no. 174.

SMB BOOSTER SETS SERIES IDENTIFICATION CODE



VERSIONS AVAILABLE

- A304** Main components in contact with the liquid in AISI 304 stainless steel or higher. Galvanised screws and bolts. Flanges not in contact with the liquid galvanised (Available in the Z version).
- B304** Main components in contact with the liquid in AISI 304 stainless steel or higher. Screws and bolts in AISI 304 stainless steel or higher. Flanges not in contact with the liquid in AISI 304 stainless steel (Available in the Z version).
- C304** Main components in contact with the liquid in AISI 304 stainless steel or higher. Base, brackets, supports, screws and bolts in AISI 304 stainless steel or higher. Flanges not in contact with the liquid in AISI 304 stainless steel or higher. Valves fully made of AISI 304 stainless steel or higher (body, heads, disc) (Available in the Z version).
- A316** Main components in contact with the liquid in AISI 316 stainless steel or higher. Galvanised screws and bolts. Flanges not in contact with the liquid galvanised (Available in the Z version).
- B316** Main components in contact with the liquid in AISI 316 stainless steel. Screws and bolts in AISI 316 stainless steel. Flanges not in contact with the liquid in AISI 316 stainless steel (Available in the Z version).
- C316** Main components in contact with the liquid in AISI 316 stainless steel. Base, brackets, supports, screws and bolts in AISI 316 stainless steel. Flanges not in contact with the liquid in AISI 316 stainless steel. Valves fully made of AISI 316 stainless steel (body, heads, disc) (Available in the Z version).

OPTIONS

- 3A** Set with 1A certified pumps (Factory test report issued from end of line, QH curve included).
- 3B** Set with 1B certified pumps (Test bulletin issued by Sala Audit (Audit Room); it includes QH curve, output and power).
- BAP** High pressure pressure switch on the delivery manifold.
- CM** Suction or delivery manifold larger than standard size.
- DR1** Set with 1 optical sensor for lack/presence of water, installed on the suction manifold.
- DR2** Set with 2 optical sensors for lack/presence of water (fixed to each pump).
- DR3** Set with 3 optical sensors for lack/presence of water (fixed to each pump).
- IP65** IP65 protection degree control panel.
- PA** Minimum pressure pressure switch on the suction manifold, for protection against dry running.
- PE** Control panel with emergency button.
- PMA** Minimum pressure pressure switch and vacuum pressure gauge for protection against dry running, installed on the suction manifold.
- PQ** Set for aqueduct installation (with pressure gauge/ pressure switches/transmitters oversized by one size).
- RE** Control panel with condensation resistance, controlled by a thermostat.
- SA** Without suction: without suction valves and without suction manifold.
- SC** Set without control devices such as pressure switches and transmitters; with pressure gauge.
- SCA** Without suction manifold (but with suction valves).
- SCM** Without delivery manifold (without pressure switches, transmitters and pressure gauge; with delivery valves).
- SM** Without delivery: without delivery valves and without delivery manifold.
- SQ** Booster set without control panel and bracket; with pressure transmitters and e-SM drive.
- SR** Without non-return valve.
- VA** Control panel with digital voltmeter and ammeter.
- WM** Wall mounted control panel; cables L=5m.

SMB BOOSTER SETS SERIES CONTROL PANEL

Control and protection panel for electric pumps with integrated frequency converters:

- power supply **single-phase 1x230 V** +/-10%, 50/60Hz (SMB.../M2)

IP55 protection.

Polycarbonate material with clear door for sets with two pumps.

Metal for sets with three pumps.

The IP65 degree is optional (SMB.../IP65)

Main characteristics:

- Automatic switch with thermal magnetic protection for each e-SM drive frequency converter.
- Protection against dry running.
Protection against dry running activates when the water reserve falls below the minimum level guaranteed for suction. The level can be checked using a float switch, a minimum pressure switch, an external contact, or level probes. For the latter, the probes must be connected to the adjustable sensitivity electronic module. The control panel is already preset for the installation of this module.
- Free contact for fault diagnostic status, for each frequency converter. Electrical contact normally open.

For booster sets requiring a wall mounted control panel (SMB.../WM), the panel is supplied with 5 metre cables.

Other options available:

- SMB.../PA
- SMB.../PE
- SMB.../RE
- SMB.../VA

See the option description on page 12.



Control panel for two electric pumps QESM20 series



Control panel for three electric pumps QESM30 series

SMB BOOSTER SETS SERIES MAIN COMPONENTS

- **Main on-off valves** at the suction and delivery of each electric pump, ball type.
- **Non return valve** on the delivery of each electric pump, spring type.
- **Suction manifold** with threaded ends. Threaded fitting for filling the booster set.
- **Delivery manifold** with threaded ends. It has R1" threaded fittings with corresponding caps, for connection with diaphragm expansion vessels (hydro tube).
- **Pressure gauge and transmitters** for control, installed on the delivery manifold of the set.
- **Control** panel.
- **Various fittings** for the connections.
- **Support base** for the pump set and control panel bracket.
- **Vibration dampers** sized depending on the set. In some sets, vibration dampers are provided not assembled; installation is care of the customer.

Optional components:

Sensors

The following sensors are available for electric pump equipped with e-SM drive:

- Pressure-transducer
- Level-sensor.

Versions available

Manifolds, valves, flanges, base and main components made of AISI 304 or AISI 316 stainless steel; versions: SMB.../A304, SMB.../B304, SMB.../C304, SMB.../A316, SMB.../B316, SMB.../C316 Available in the Z version.

Accessories on request:

- Devices **for protection against dry running** in one of the following versions:
 - float switch
 - level probes (electodes) kit
 - minimum pressure switch
- **Diaphragm expansion vessel kit**
Hydrotube with on-off valve, depending on the maximum head of the pump:
 - 24 lt, 8 bar hydro tube kit
 - 24 lt, 10 bar hydro tube kit
 - 24 lt, 16 bar hydro tube kit
 - 20 lt, 25 bar hydro tube kit

SPECIAL EQUIPMENT ON REQUEST (Contact the Sales and Technical Assistance Service)

- Sets with special valves.
- Sets with stainless steel expansion vessels.

For more information about available accessories, please refer to standard catalog.

SMB BOOSTER SETS SERIES MATERIAL TABLE

DENOMINATION	SMB... (STANDARD)	SMB.../A304	SMB.../A316
Manifolds	AISI 304	AISI 304	AISI 316
On-off valves	Nickel-plated brass	AISI 316	AISI 316
Non-return valves	Brass	AISI 304	AISI 316
Pressure switches	Galvanized steel/AISI 301	AISI 301	AISI 301
Pressure transmitters	AISI 304	AISI 304	AISI 304
Caps/plugs/flanges	AISI 304 / 316	AISI 304 / 316	AISI 316
Fittings	AISI 304 / 316	AISI 316	AISI 316
Bracket	Galvanized/painted steel	Galvanized/painted steel	Galvanized/painted steel
Base	Painted steel	Painted steel	Painted steel

g_smb_wad-en_a_tm

SMB BOOSTER SETS SERIES WORKING LIMITS

The input pressure of the pump, added to the pressure with the port shut off, must not exceed the maximum permitted operating pressure (PN) of the set.

Permitted liquids	Water without gases and corrosive and/or aggressive substances.			
Fluid temperature	-10°C to + 80 °C			
Ambient temperature	0°C to + 40 °C			
Maximum operating pressure	Max 10 bar			
Minimum input pressure	In line with the NPSH curve and the losses, with a margin of at least 0,5 m			
Maximum input pressure	The input pressure added to the pump pressure without flow must be lower than the maximum operating pressure of the set.			
Installation	Internal environment protected from atmospheric agents. Away from heat sources. Max altitude 1000 a.s.l. Max humidity 50%, without condensation.			
Sound emission - LpA (dB ±2)*	P (kW)	IEC	SMB20	SMB30
	0,75	80	<70	<70
	1,1	80	<70	<70

* Noise value of the electric motor only

smb-p_2p-en_a_ti

SMB20/..HME-P TABLE OF HYDRAULIC PERFORMANCE

PUMP TYPE HME..P Single-phase	MOTOR P _N kW TYPE 1x230 V		SMB20 SET * P ₁ kW * I 208-240 V A		Q = DELIVERY							
					l/min 0	40	80	120	160	200	240	280
					m ³ /h 0	2,4	4,8	7,2	9,6	12,0	14,4	16,8
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
3HME04P07	0,75	ESM80/107 HM..	2 x 0,92	8,1	71,5	67,7	50,4	34,6	21,3	5,1		
5HME04P11	1,1	ESM80/111 HM..	2 x 1,33	11,7	72,4	69,8	66,1	55,5	45,4	36,6	27,4	17,7

Table refers to hydraulic performances with two pumps running, max rpm, friction loss not included

g20_1-10hmep-esm-2p50-en_a_th

* Maximum value in specified range: P₁ = input power; I = input nominal current absorbed by set

SMB30/..HME-P TABLE OF HYDRAULIC PERFORMANCE

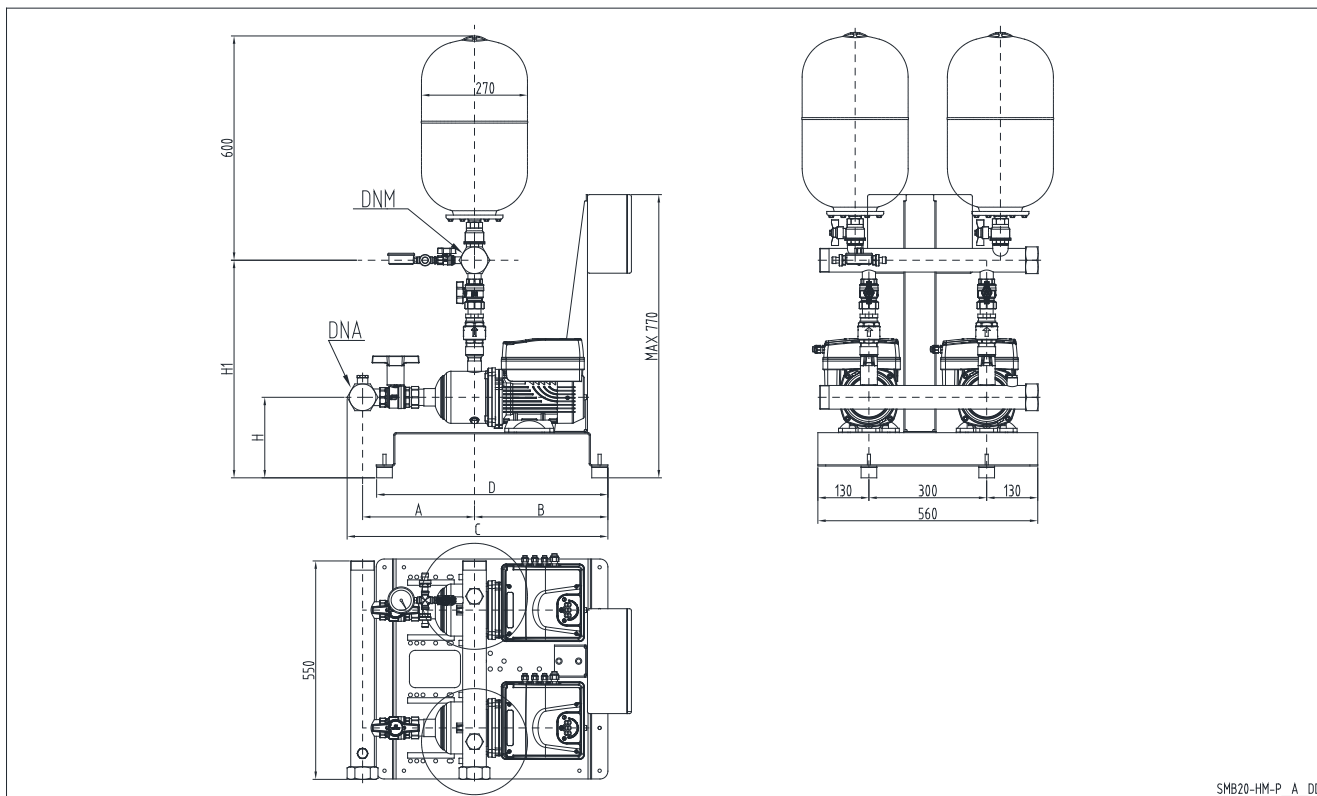
PUMP TYPE HME..P Single-phase	MOTOR P _N kW TYPE 1x230 V		SMB30 SET * P ₁ kW * I 208-240 V A		Q = DELIVERY							
					l/min 0	60	120	180	240	300	360	420
					m ³ /h 0	3,6	7,2	10,8	14,4	18,0	21,6	25,2
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
3HME04P07	0,75	ESM80/107 HM..	3 x 0,92	12,2	71,5	67,7	50,4	34,6	21,3	5,1		
5HME04P11	1,1	ESM80/111 HM..	3 x 1,33	17,6	72,4	69,8	66,1	55,5	45,4	36,6	27,4	17,7

Table refers to hydraulic performances with three pumps running, max rpm, friction loss not included

g30_1-10hmep-esm-2p50-en_a_th

* Maximum value in specified range: P₁ = input power; I = input nominal current absorbed by set

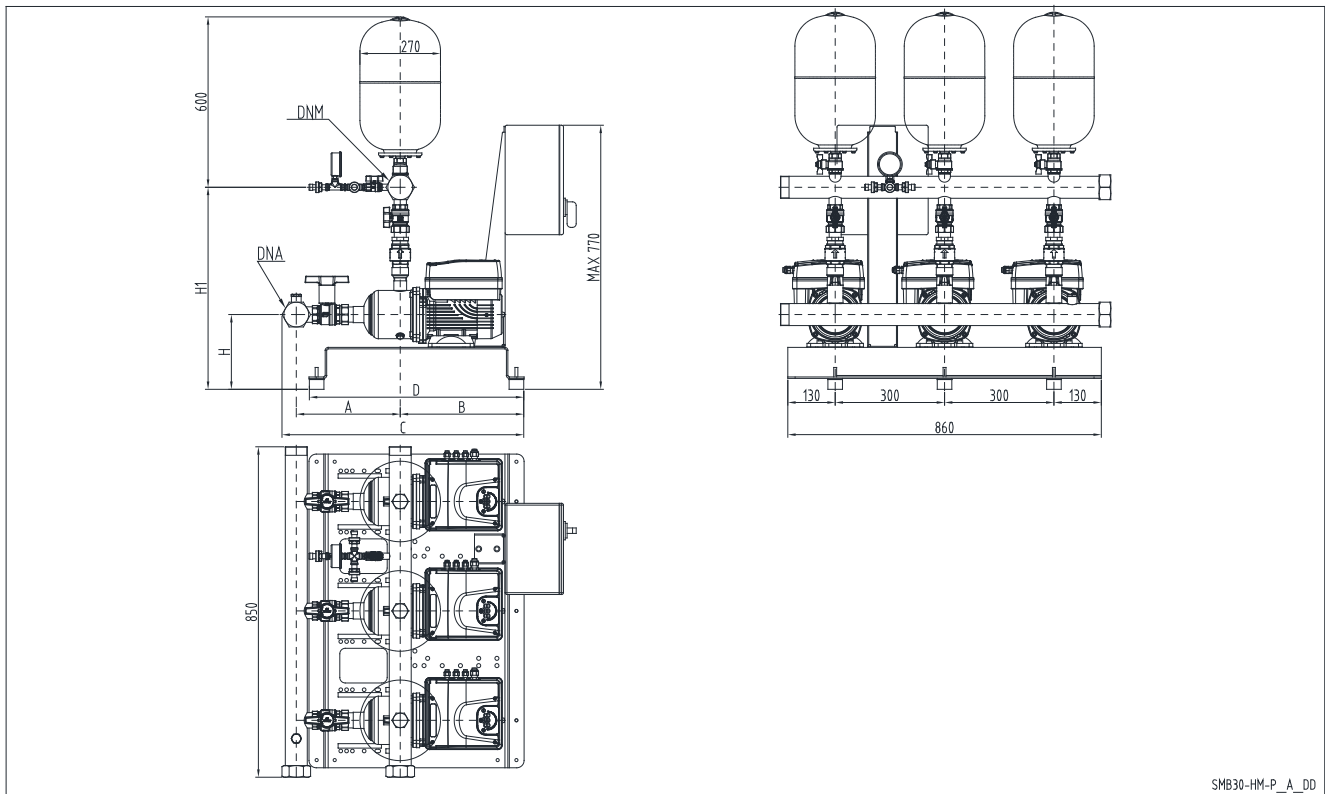
SET OF 2 PUMPS HME..P SINGLE-PHASE POWER SUPPLY (SMB20.../M2)



SMB 20	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
3HME04	R 2"	R 2"	244	288	340	614	658	590	205	490	528
5HME04	R 2"	R 2"	265	325	340	635	695	590	205	551	625

smb20_3-5hmp_a_td

SET OF 3 PUMPS HME..P SINGLE-PHASE POWER SUPPLY (SMB30.../M2)



SMB 30	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
3HME04	R 2"	R 2"	244	288	340	614	658	590	205	490	528
5HME04	R 2"	R 2"	265	325	340	635	695	590	205	551	625

smb30_3-5hmp_a_td

SMB BOOSTER SETS SERIES HOW TO READ BOOSTER SETS WITH e-SM DRIVE CURVES

To exploit to the maximum potential of SMB BOOSTER SETS it's important to properly read working curves shown in the relevant charts.

① **Booster set model**

② **Maximum speed curve**

③ **Minimum speed curve:** it refers to the minimum rpm level the motor can work at, it's calculated depending on the model of pump maximizing for each one the working area and allowing the highest system flexibility.

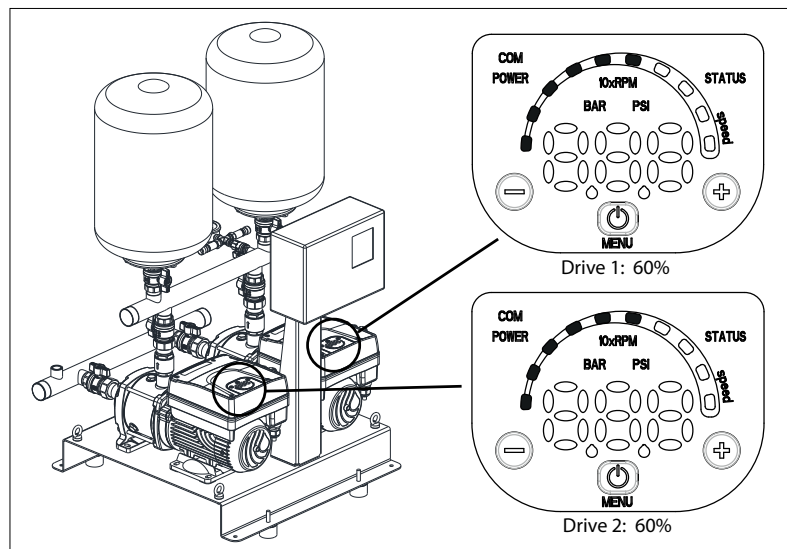
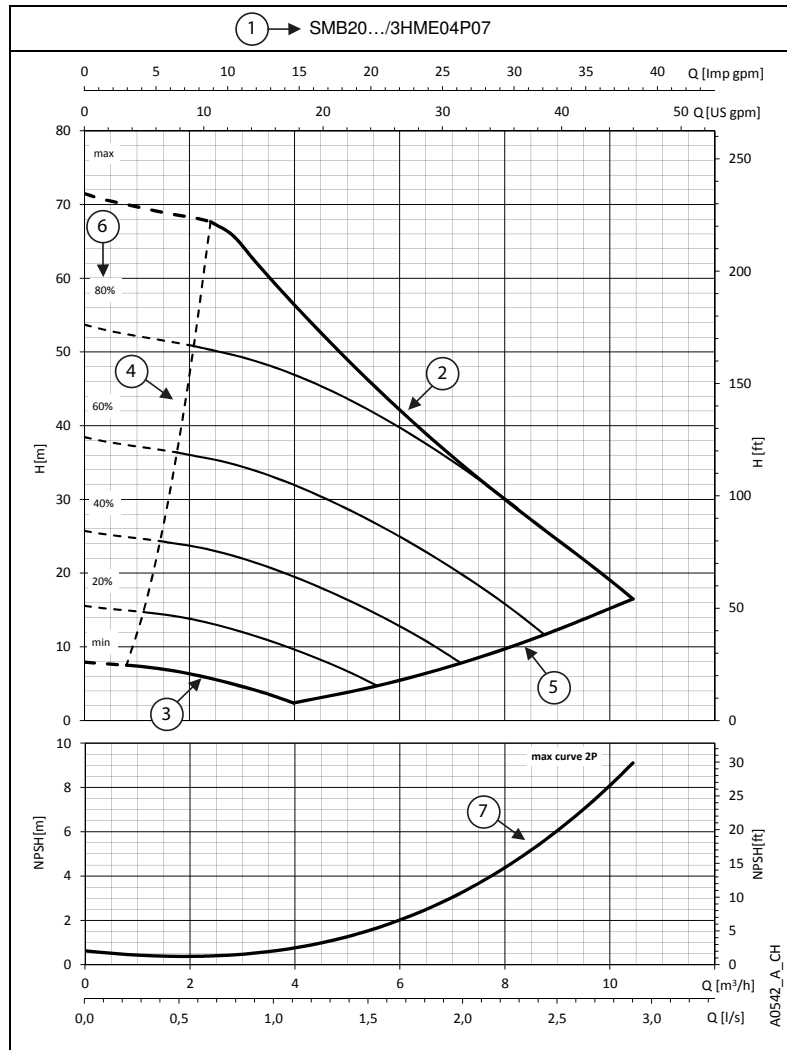
④ The **area with dotted lines** is where the pump could only operate intermittently for short periods of time.

⑤ Each **intermediate curve** between max and min speed shows the percentage of load the system is working at **synchronous** mode (all pumps work at the same speed); it's easy to read also from the LED speed bar on the HMI keypad: at 90% there will be 9 led, at 80% there will be 8 and so on. Example: at 60% there will be 6 lit led's as in figure.

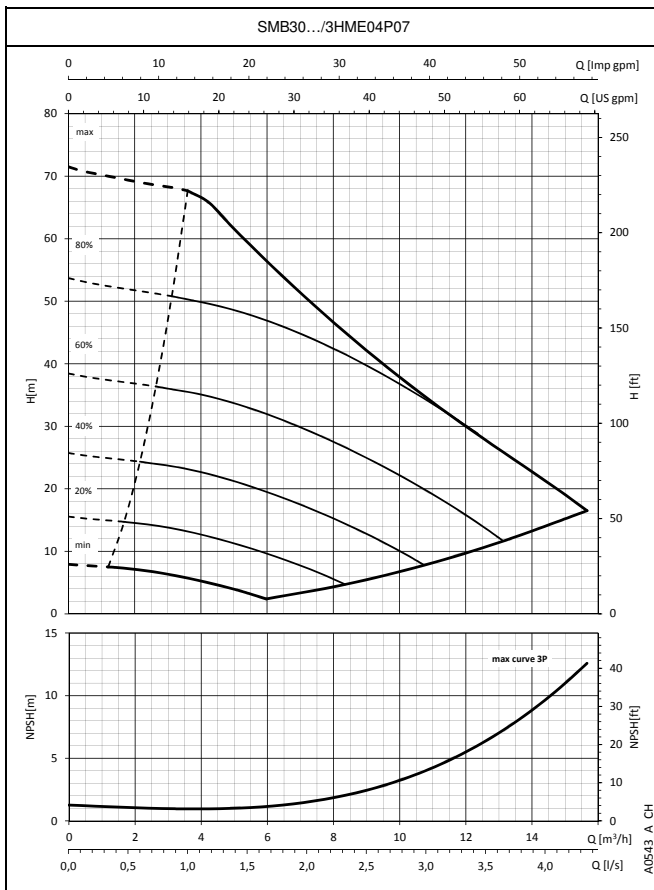
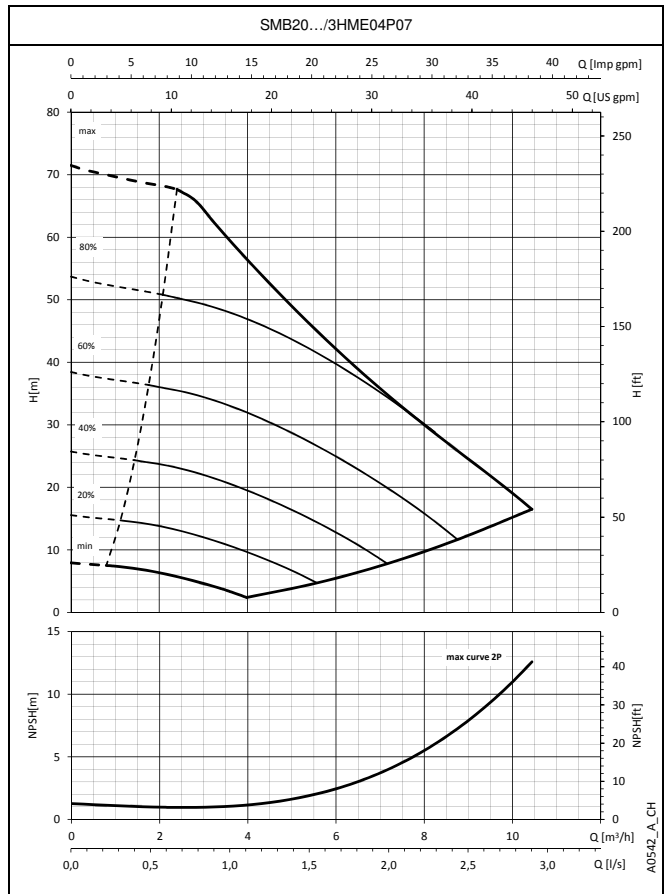
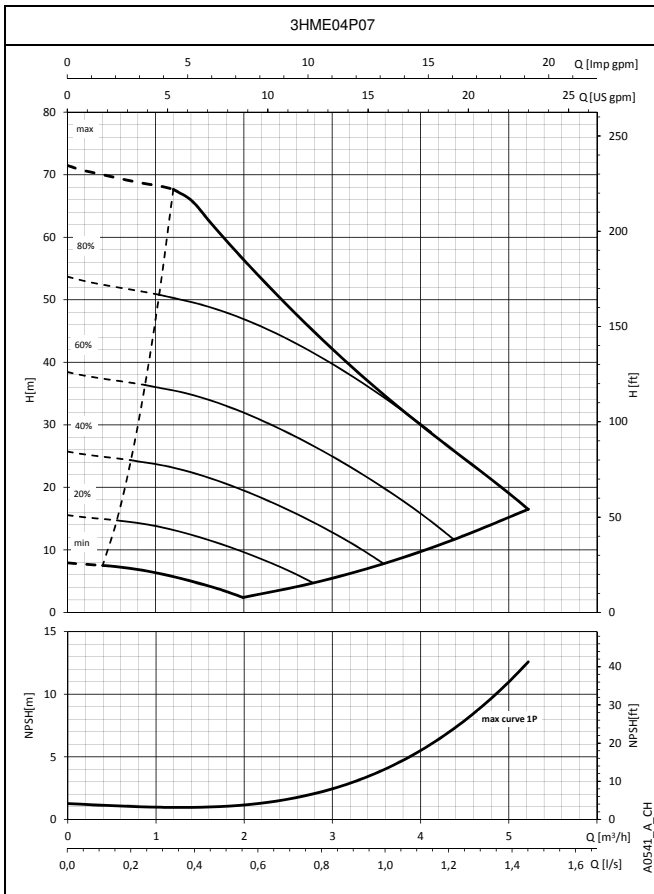
⑥ The **part load percentage** is calculated depending on maximum speed (max, 100%) and minimum speed (min, equal to 0%, which is the minimum part load step, below it the drive stays powered up but cannot work).

⑦ **NPSH:** is the net positive suction head of booster set with all pumps working at synchronous mode and at the maximum speed.

Load control: the booster set SMB series controls and limits power consumption at high flow/low head, in this way the motor stays protected from overload and ensure a longer life of pump+motor+drive system.



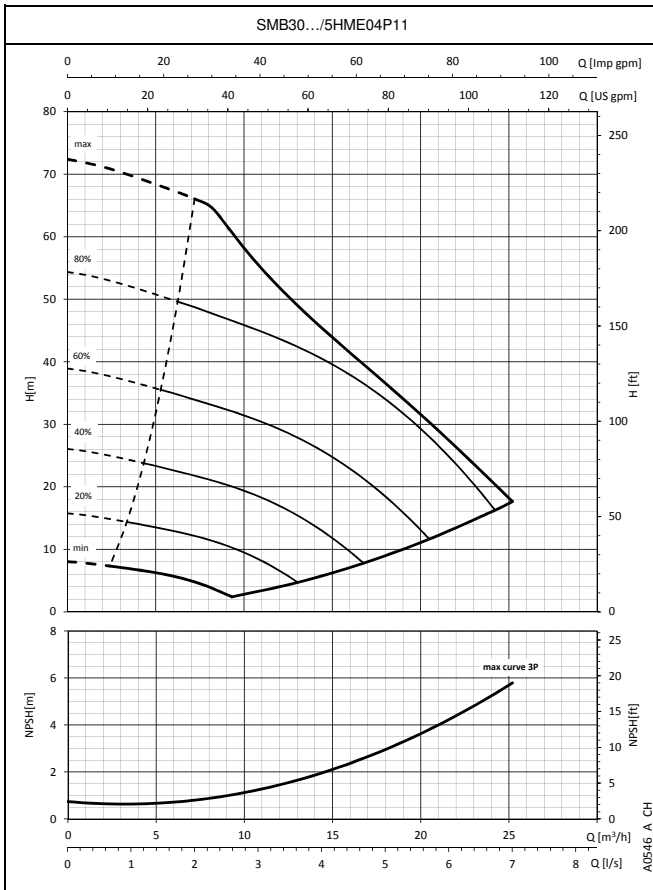
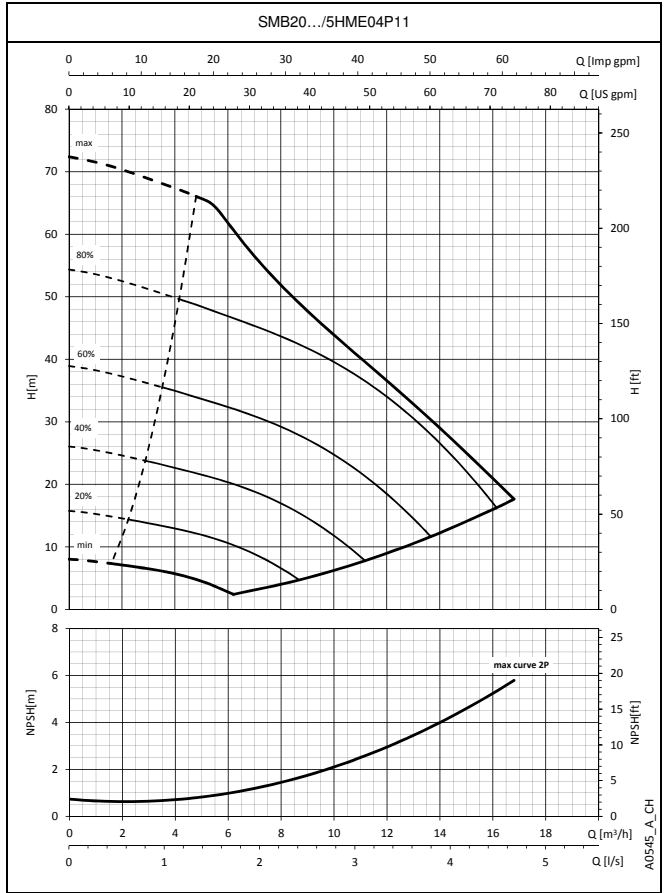
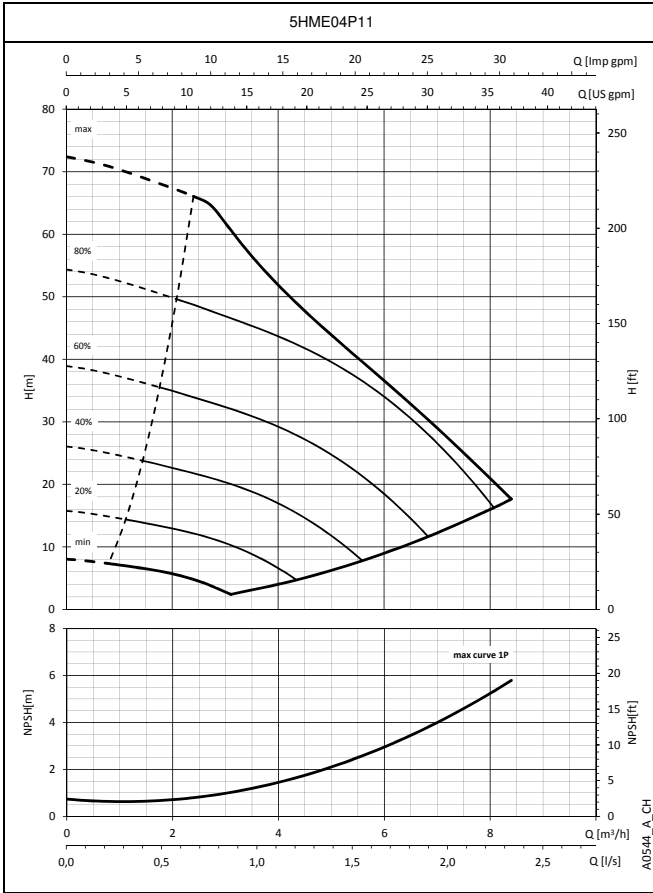
SMB.../HME BOOSTER SETS SERIES OPERATING CHARACTERISTICS



The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running. These performances are valid for liquids with density $\rho = 1 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.

The declared NPSH values are laboratory values; for practical use we recommend increasing these values by 0,5 m.

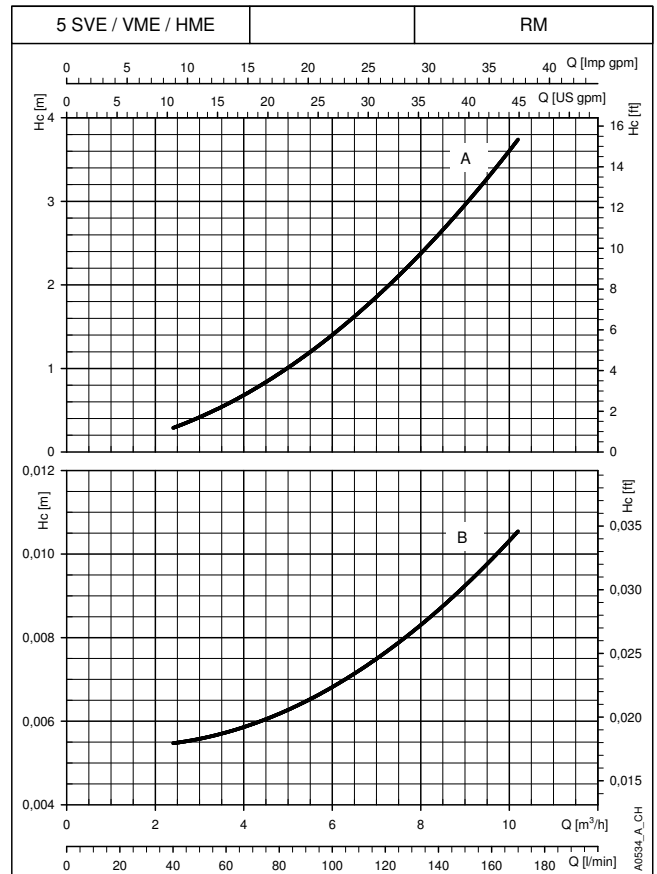
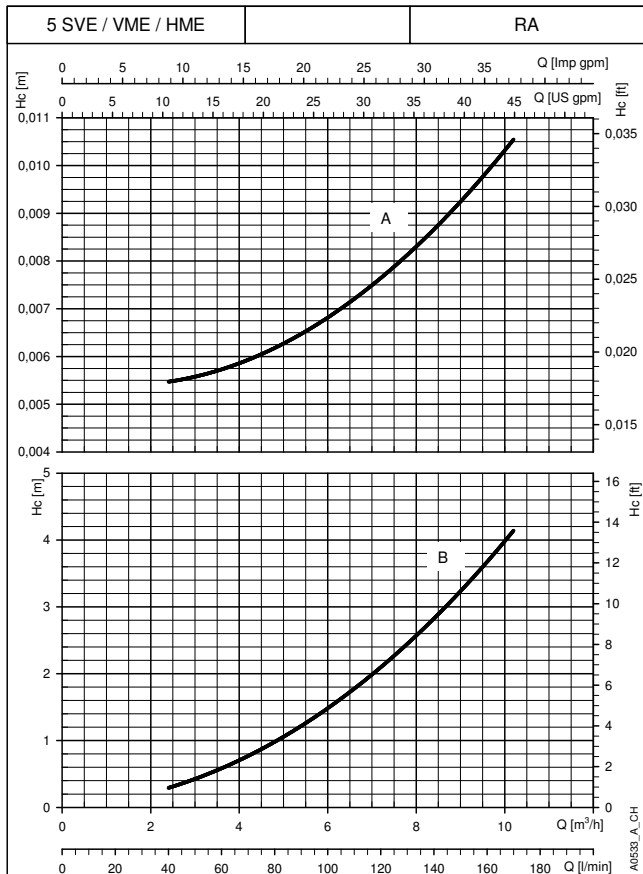
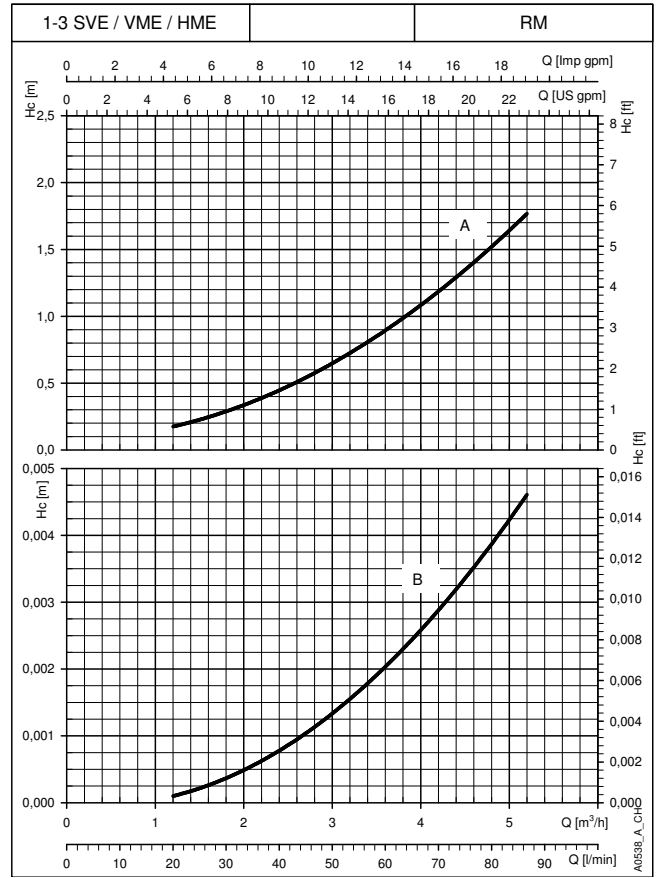
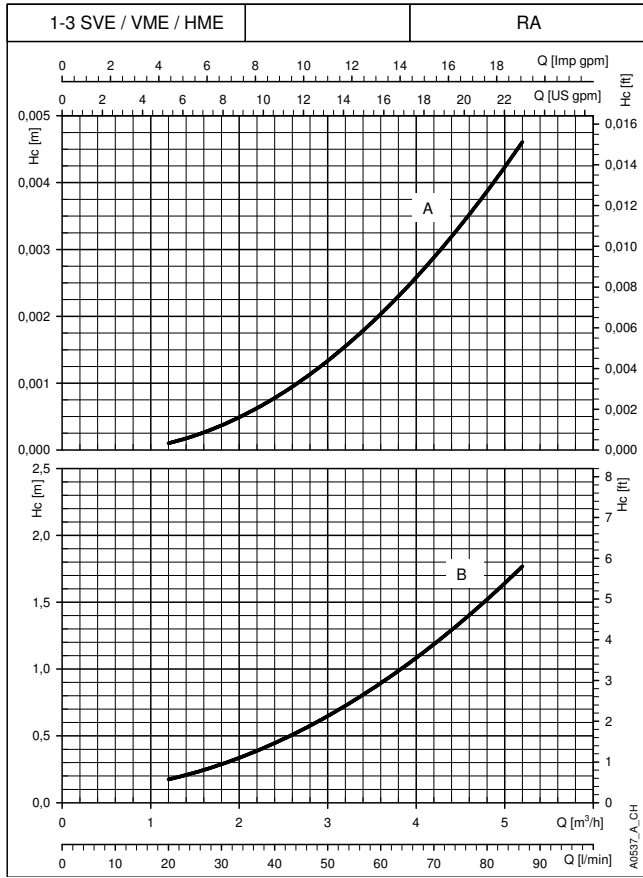
**SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS**



The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running. These performances are valid for liquids with density $\rho = 1 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$. The declared NPSH values are laboratory values; for practical use we recommend increasing these values by 0,5 m.

SMB20, SMB30 BOOSTER SETS SERIES

H_c PRESSURE DROP CURVE



The declared curves are valid for liquids with density $\rho = 1 \text{ Kg/dm}^3$ and kinematic viscosity $\nu = 1 \text{ mm}^2/\text{sec}$.
 Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
 RA: check valve on suction side. RM: check valve on delivery side.
 The pressure drops do not consider the distributed pressure drops on the manifold.

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com.



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