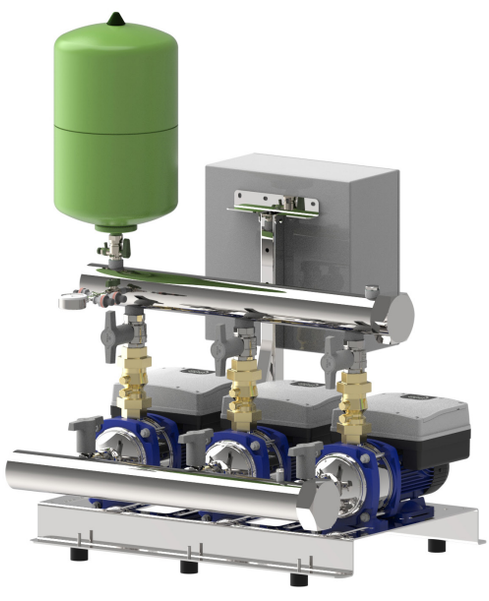
LOWARA xylem

Technical brochure
Cod. 191020581 Rev. C Ed.03/2026

50 Hz





SMB10 - SMB20 - SMB30 Series

Variable speed booster sets with e-SM drive
vertical multistage electric pumps series e-SV™ Smart
horizontal multistage electric pumps series e-HM Smart

xylem

Directive 2009/125/EC of the European Union

The **Directive 2005/32/EC** on energy-using products (**EuP**) and the subsequent **Directive 2009/125/EC** on energy-related products (**ErP**) established the ecodesign requirements for products to reduce their energy consumption and consequently their environmental impact.

These requirements apply to products placed and used in the European Economic Area (European Union plus Iceland, Liechtenstein and Norway) as a stand-alone unit or as integrated parts in other products.

The following tables show the Regulations that define the requirements applicable to Lowara products.

- Some types of **pump**, used for pumping clean water:

Regulations	From	Target
(EU) N. 547/2012 and subsequent updates	1 January 2015	**MEI** ≥ 0,4

- **Circulators** with a rated hydraulic output power of between 1 and 2500 W, designed for use in heating systems or in secondary circuits of cooling distribution systems:

Regulations	From	Target
(EC) N. 641/2009 and subsequent updates	1 August 2015	**EEI** < 0,23

- **Three-phase motors** with frequency 50 or 60 or 50/60 Hz and voltages between 50 and 1000 V (S1 and D.O.L.):

Regulations	From	Target
(EU) 2019/1781 and subsequent updates	1 July 2023	**IE2**: motors with a rated output ≥ 0,12 and < 0,749 kW **IE3**: motors with a rated output ≥ 0,75 and < 74,9 kW **IE4**: motors with a rated output ≥ 75 and < 200 kW **IE3**: motors with a rated output ≥ 201 and < 1000 kW

- **Single-phase motors** with frequency 50 or 60 or 50/60 Hz and voltages between 50 and 1000 V (S1 and D.O.L.):

Regulations	From	Target
(EU) 2019/1781 and 2021/341	1 July 2023	**IE2**: motors with a rated output ≥ 0,12 kW

- **Variable speed drives** with three-phase input and rated output power from 0,12 kW up to 1000 kW, rated for operating with motor included in the same regulations:

Regulations	From	Target
(EU) 2019/1781 and 2021/341	1 July 2021	**IE2**

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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 one, two or three **e-SV Smart** series multistage vertical pumps or **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.

SMB10: The pump is connected to a pipe fitting by a non-return valve. Control panel is available as accessory.

SMB20, SMB30: The pumps are installed on a single base and connected to each other by means of suction and delivery pipes. 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.

Materials in contact with water are either certified or approved according to KTW

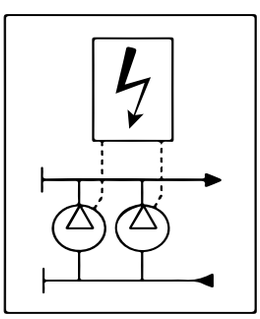
SMB series booster sets are available with a wide range of electric pumps to satisfy the different needs of every system. SMB booster sets are also available in special versions to fit specific duty points and applications. Systems for regulating the speed of the electric motors, as in SMB series booster 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 SERIES
DESCRIPTION OF OPERATION

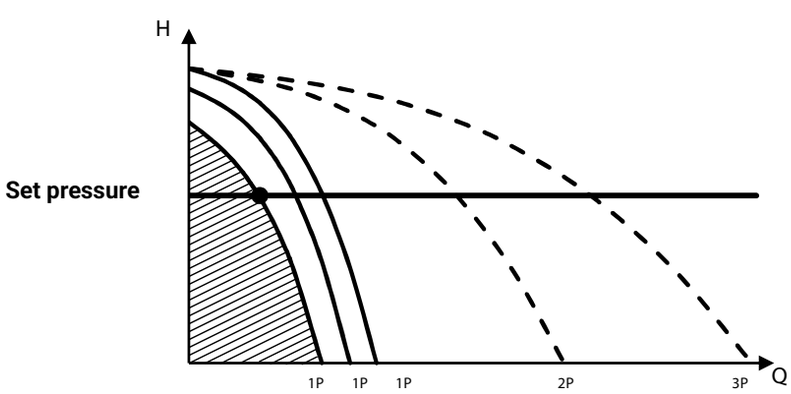
All the electric pumps are controlled by e-SM drive frequency converter and operate at variable speeds.
Start-up is automatic, depending on system requirements. Each electric pump has a pressure transmitter that provides a pressure reading, which is recorded and sent to the frequency converter.
The electric pump speed is modulated based on system requirements.
Electric pump start alternation is automatic, following a preset time (parameter available in the frequency converter).
Electric pump starts and stops are determined based on the pressures entered as set values in the menu of the frequency converter.

Example operation of a set of three electric pumps.

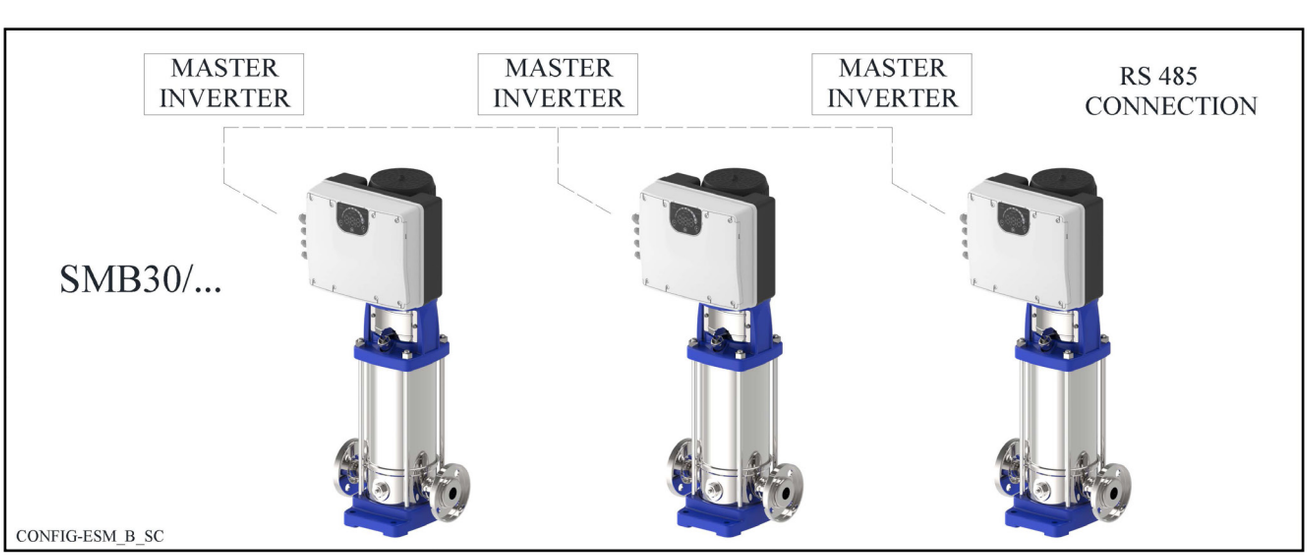


Each electric pump is controlled by a frequency converter. The starting priority is changed in accordance with the time set in the relevant parameter field on frequency converter. The speed adjustment will apply to all the electric pumps installed. When the water request decreases, the electric pumps stop in succession.
The electric pumps connected to the frequency converter keep the pressure constant by modulating the number of motor revs.
The acceleration and deceleration of the electric pump, both at start-up and switch off, is of the soft type.
This helps to reduce water hammer and ensures a quiet operation of the booster set.

Lowara SMB series booster sets guarantee constant pressure of the system as in the following example:

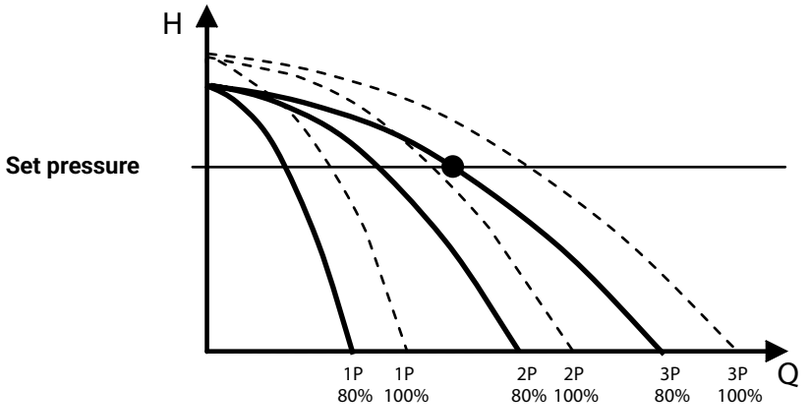


Example: multistage vertical electric pumps e-SV Smart series



SMB BOOSTER SETS SERIES
DESCRIPTION OF OPERATION

When the pressure decreases, an electric pump starts, adjusting the motor speed so that the set pressure value can be guaranteed. When the demand for water increases, the other electric pumps also start in sequence, at variable speed, to keep the pressure at a constant level.



When the demand for water decreases, the electric pumps switch off in succession. The number of revolutions of the first electric pump switched on decreases to a set minimum before switching off.

Regulating the constant pressure value

SMB series booster sets guarantee constant pressure of the system even during frequent variations in water consumption.
The system pressure value is measured by the pressure transducers connected to the delivery manifold.
The value found is compared with the set value. The comparison between the measured pressure and the set pressure is performed through the internal “controller” of frequency converter, which manages the motor speed acceleration and deceleration ramps (frequency), changing the performance of the electric pump during the time.
In case of fault of one of the frequency converters, the others will remain active and will continue to guarantee the control of the other electric pumps and the constant pressure.

Type of control

SMB series booster sets use one or more sensors as a standard device to control pressure.
For each booster set, there are as many sensors as the number of electric pumps installed. In case of fault of one of the transducer, the converter connected to the electric pump stops working.

Cyclical exchange of pumps

In the SMB series, electric pump start is alternated according to a time set for each pump, through a clock in the frequency converter menu.

Additional 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.
In SMB series booster sets, the control panel includes the electronic module to connect the lack of water’s control. The minimum pressure switch is installed as standard.

Minimum delivery pressure protection

The minimum delivery pressure function can be managed by entering the pressure value in the menu of the frequency converter, which will receive the signal through the pressure transducer at the delivery.

SMB BOOSTER SETS SERIES
INSTALLATION

The booster sets must be installed in areas protected against frost and with adequate ventilation to cool the motors. It is a good practice to connect the booster set to the suction and delivery pipes of the system inserting vibration-damping joints to limit the transmission of vibrations and resonance to the system.

a. vessels
b. antivibration thread joints
c. pipe supports



smb-cn_vibration-support_a_sc

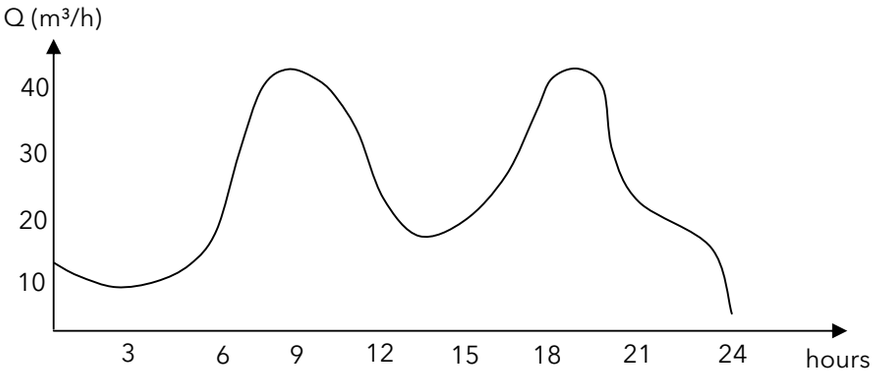
The booster set is connected to pressurized tanks.
These tanks can avoid any problems due to water hammer that is created due to the sudden stopping of the electric pumps running at a fixed speed. For this type of system, diaphragm expansion vessel (hydro tube) are installed in the delivery piping for perform a pressure dampening function.
Due to their design, variable-speed booster sets can satisfy users' demands by moderating the electric pump speed. Considering also that variable-pressure sets are very sensitive to swings of pressure in the system, the use of vessels allows the pressure to stabilize when requests are low or inexistent, and avoids the electric pumps remaining in operation at minimum speed without stopping.

SMB BOOSTER SETS SERIES
CHOICE AND SELECTION

The following conditions should be considered when choosing a booster set:

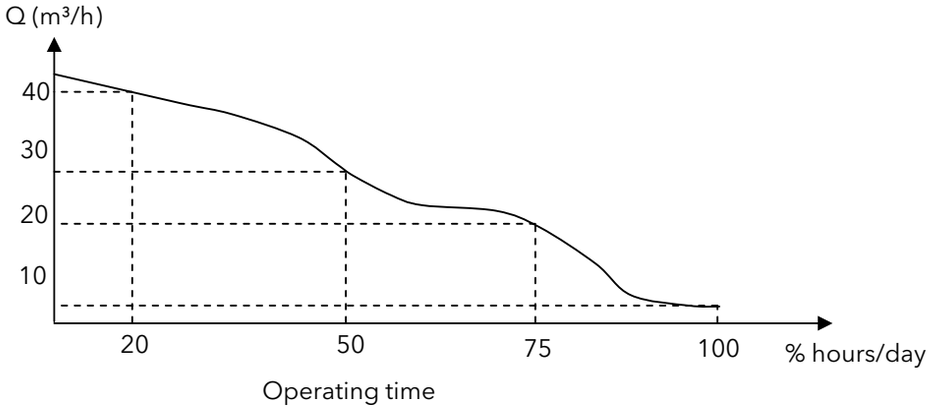
- The system's flow rate and pressure requirements should be met.
- The unit must not be oversized, avoiding unnecessary installation and running costs.

Generally water distribution systems such as those for domestic water supply or for large agglomerates such as hospitals, hotels or similar, have "variable" water consumption i.e. in a 24-hour period there may be sudden variations in consumption that are difficult to foresee. A pattern of consumption may occur in 24 hours, but the daily percentage of unit operation may also occur at various flow rates.
Generally the definition of flow rate for these types of systems is based on either the "probability calculation" which is a very complex system of calculation, or based on tables or diagrams in the national standards which provide guidelines for the sizing of the systems and therefore for calculating the maximum simultaneous flow rate.



Consumption over 24h

The operating time of the unit still calculated over 24h, gives us a view of the daily percentage of operation at the various flow rates.
This means that there may be daily peaks where the maximum flow rate requested is concentrated in a short space of time. In the example given below, it can be seen that in 100% of the time there is a consumption of 4 m³/h, while in 20% of the operating time there is a consumption of 40 m³/h.



Operating time

When selecting the booster set the consumption figure of the system must be considered, which is generally supplied by the person who designed the system. For systems where consumption varies continuously and suddenly over time it is advisable to install SMB series booster sets with variable regulation of the electric pump speed.
The calculation of the size of the booster set (its performance and the number of electric pumps) is based on the take-off point and therefore on the consumption value which takes the following factors into account:

- The value of the peak in consumption
- Efficiency
- NPSH
- Standby pumps
- Diaphragm tanks

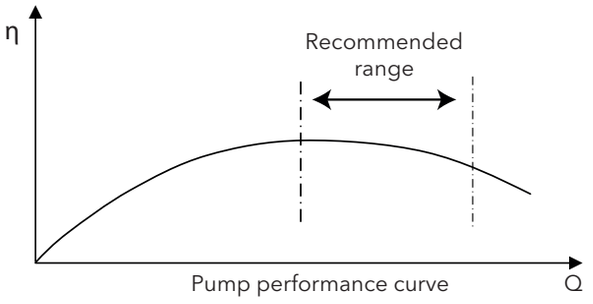
SMB BOOSTER SETS SERIES
CHOICE AND SELECTION

By adjusting their operation over time, variable-speed booster sets give the end user energy savings which can be calculated directly on the control board with a metering module fitted in the electric control panel.
This allows checking of the system yield, especially in complex systems with many users and many ranges of consumption. It is possible to install a standby electric pump if it is necessary to have some kind of additional safety in the pump station. This is typical in systems of a certain importance, such as hospitals or factories, or in the field of crop irrigation.
SMB series booster sets must also be equipped with expansion vessels (for the size of the vessels, see the specific chapter in this catalogue). A single vessel or several smaller vessels can be installed on the delivery of the booster set, always taking the total capacity into account.
Expansion vessels avoid the risk of water hammer, which is harmful for both the system and the electric pumps.

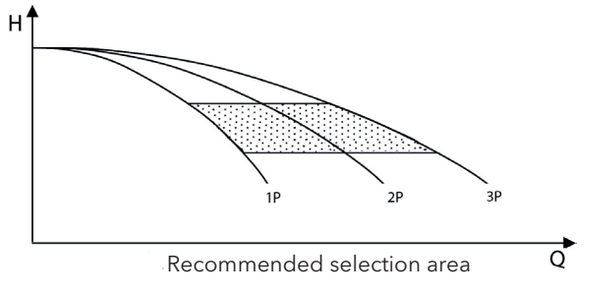
Generally for systems with highly variable or sudden variations in consumption, it is recommended to install a booster set with variable electric pump speed, such as the SMB series, to guarantee constant pressure.

What type of electric pump to choose?
Generally, the selection of electric pump is based on the maximum duty point of the system, which is usually the highest possible. The maximum request value is normally for short periods, so the electric pump must also be able to satisfy variable requests throughout its time in service. Generally the choice of the electric pump, based on the performance curve, should fall around the maximum efficiency point. The pump must ensure operation within its rated performance.

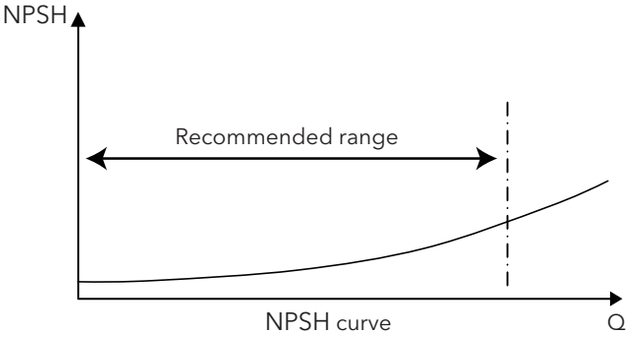
Since the unit is sized according to the maximum possible consumption, the maximum duty point of the electric pumps must be in the area on the right of the performance curve so that, if there is a fall in consumption, the efficiency remains high.



If we make a choice on the characteristic curve of the electric pump, we can see that the optimum working area where the booster works is represented by the following graph:

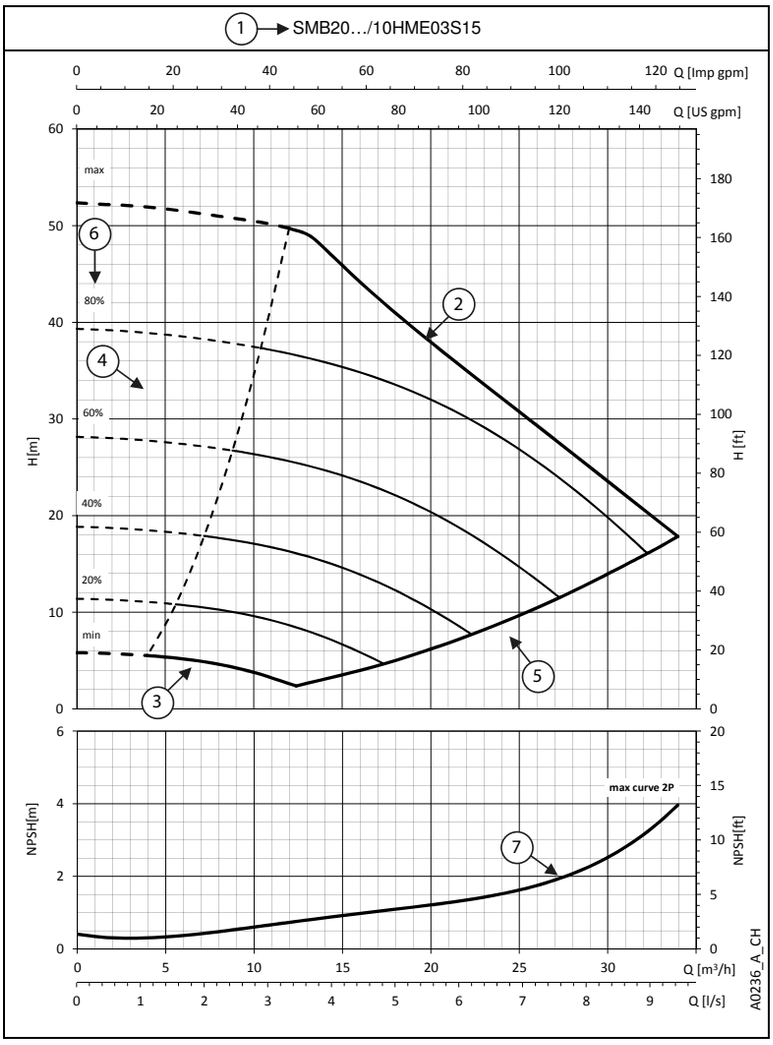


Another factor to be considered when choosing the electric pumps is its NPSH value. Never choose a electric pump where the maximum duty point is too far to the right of the NPSH curve.
This risks not having good electric pump suction, which may be aggravated by the type of installation (where negative suction is possible).
In these cases there is the risk of cavitation.
The NPSH of the electric pump must always be checked at the maximum flow rate requested.



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**

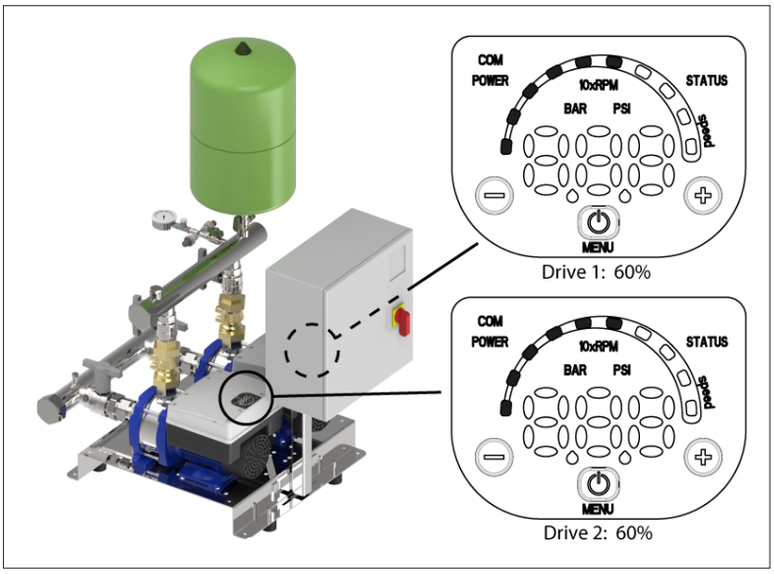
③ **Minimum speed curve**
It refers to the minimum rpm level the motor can work at, it's calculated depending on the model of pump maximizing for each one the working area and allowing the highest system flexibility.

④ **Area with dotted lines**
Where the pump could only operate intermittently for short periods of time.

⑤ **Intermediate curve**
Each one 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 leds as in figure.

⑥ **Part load percentage**
It's 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).

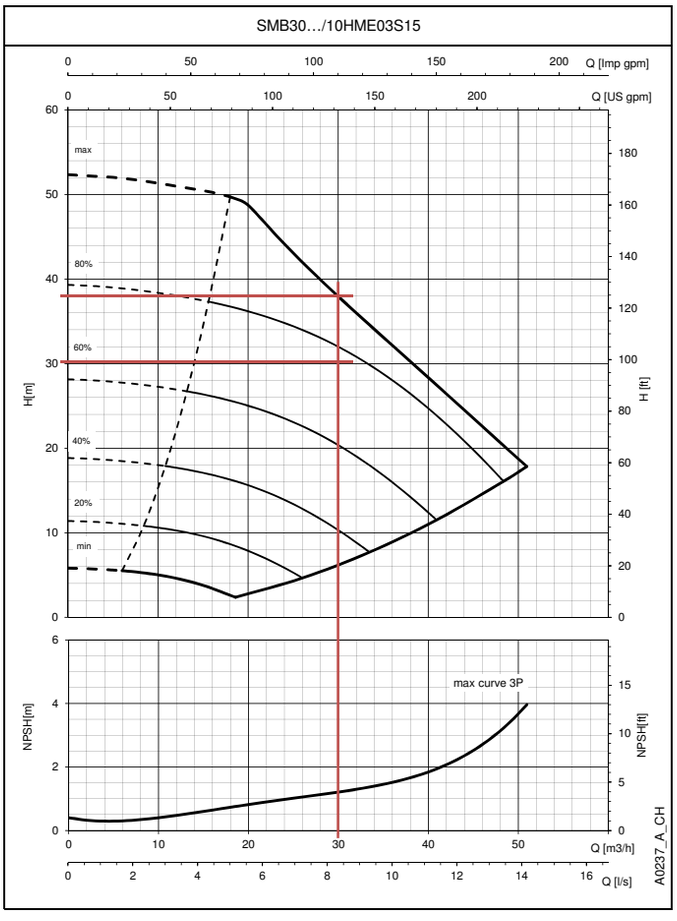
⑦ **NPSH**
It's the net positive suction head of booster set with all pumps working at synchronous mode and at the maximum speed.



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 BOOSTER SETS SERIES
SELECTING THE PUMPS

The choice of electric pump is therefore based on the characteristic curve of the electric pump depending on the flow rate and the pressure required for the system. Starting from the required flow rate, a vertical line is drawn until it meets the horizontal line of the required pressure. The point of intersection of the lines gives both the type and the number of electric pumps necessary for the system.



The example alongside refers to a required flow rate of 30 m³/h and a pressure of 30 m water column

As shown in the operating curves on page 103, the selection requires three 10HME03S15 electric pumps.

Moreover the take-off point falls in the npsh area farthest to the left and therefore in an area with a low cavitation risk.

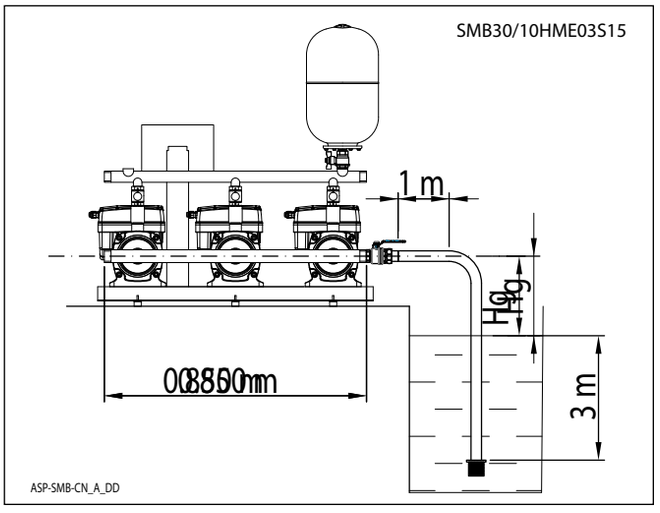
The values obtained are those for the performance of the pumps. A correct check of the net pressure value must be made due to the intrinsic load loss of the booster set and the conditions of installation. For this reason it is recommended to see the specific chapter in this catalogue.
The example considers all pumps in operation. For the selection of booster it is recommended that one pump is in stand by

NPSH

The minimum operating values that can be reached by the pump suction are limited by the appearance of cavitation. Cavitation consists in the formation of steam pockets in the liquid when the local pressure reaches a critical value. A critical value is when the local pressure is equal or just below the pressure of the liquid steam.
Steam cavitation flows with the current. When it reaches a higher pressure area, condensation of the contained steam occurs. The pockets collide, causing pressure waves that are transmitted to the walls, which are therefore subjected to stress cycles that can cause deformation and then breaks due to fatigue. This phenomena, characterized by a metallic noise due to the hammering of the walls, is called incipient cavitation. Cavitation damage can be made worse by electrochemical corrosion, and by local temperature increases due to the plastic deformation of the walls.
The materials with the highest resistance to heat and corrosion are alloyed steels, and particularly austenitic steels. The conditions that cause cavitation can be predicted by calculating the total suction height, indicated in the technical literature with the acronym NPSH (Net Positive Suction Head).
The NPSH represents the total energy (in m) of the flow measured at the suction in incipient cavitation conditions, net of the steam pressure (in m) of the fluid at the input of the pump.

SMB BOOSTER SETS SERIES
SUCTION CONDITIONS

Once the type and the number of electric pumps of the set have been identified, the suction conditions must also be assessment. Below is an example of the assessment of the suction lift installation conditions, in relation to the previously described case: in suction lift installation, it is necessary to calculate the maximum Hg height which must not be exceeded due to safety reasons, to avoid cavitation, and therefore the unpriming of the pump itself.



The relation that must assessed, and which connects this value, is the following:

NPSH available ≥ NPSH required, when the equality condition represents the limit condition.

NPSH available = Patm + Hg – ∑t – ∑a

Where:
Patm is the atmospheric pressure, equal to 10,33 m
Hg is the geodetic level difference
∑t are the pressure drops for suction components such as foot check valve, suction piping, curve, gate valve.
∑a are the pressure drops for suction set branch.

NPSH requested is a parameter obtained from the performance curve; in our case, at the flow of each pump equal to 10 m³/h, it corresponds to 1,2 m (page 103). Before calculating the NPSH available, it is necessary to calculate the pressure drops at the suction, using the tables on page 127-128, and taking into account the material, such as the type of stainless steel for the piping and cast iron for the valves.
The total sum of the pressure drops ∑t for suction components is made in the following way, considering that the diameter of the suction piping is DN80, equal to the diameter of the suction manifold of the set (page 53).

Calculation of suction drops ∑c for cast iron components
Equivalent piping length for DN80 foot check valve = 3,4 m
Equivalent piping length for DN80 gate valve = 0,2 m
Total equivalent length = 3,4 + 0,2 = 3,6 m
Pressure drops in the suction piping (cast iron) ∑c = 3,6 x 17,6 /100 = 0,63 m

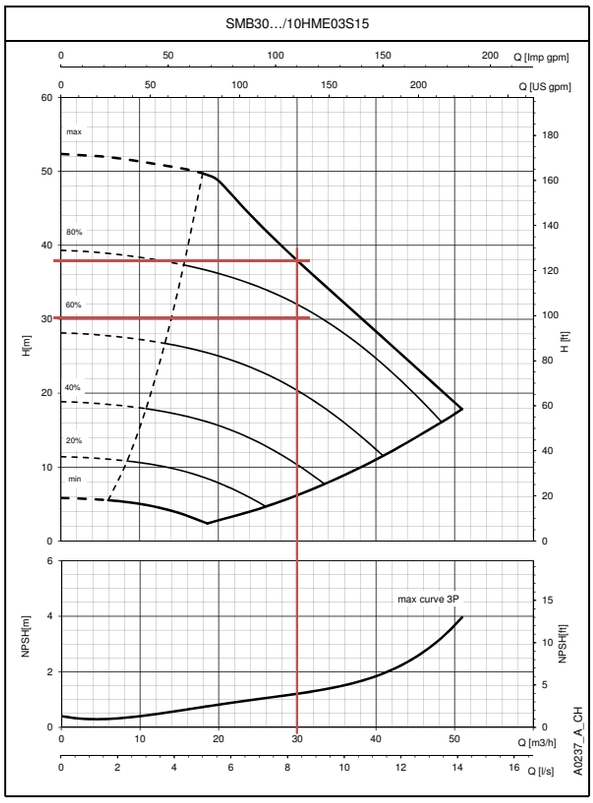
Calculation of suction drops ∑s for stainless steel components
Equivalent piping length for DN80 90° curve = 1,5 m
Total equivalent length = 1,5 m
Horizontal suction pipe length = 1 m
Vertical suction pipe length = 3 m
Pressure drops in the suction piping (stainless steel) ∑s = (1,5 + 1 + 3) x 17,6 x 0,54 / 100 = 0,52 m

Pressure drops for suction components ∑t = ∑c + ∑s = 0,63 + 0,52 = 1,15 m
The total sum of the pressure drops ∑a for suction components is made in the following way, considering that the diameter of the suction piping is DN80, equal to the diameter of the suction manifold of the set (page 53).
Hc pressure drops for suction set branch must be assessed on the B curve, CB material version (page 108, scheme A0679_A_CH); at the flow value of each pump equal to 10 m³/h, a value of Hc = 0,01 m is obtained
Calculation of suction drops ∑s for stainless steel components
Equivalent piping length for DN80 manifold T fitting = 3,2 m
Suction manifold length = 0,85 m
Pressure drops in the suction manifold (steel) ∑s = (3,2 + 0,85) x 17,6 x 0,54 / 100 = 0,38 m
Pressure drops ∑a = Hc + ∑s = 0,01 + 0,38 = 0,39 m

Remembering that NPSH available = Patm + Hg - ∑t – ∑a and that NPSH available ≥ NPSH requested we have that
Patm + Hg - ∑t - ∑a must be ≥ NPSH requested.
Substituting the values we get that 10,33 + Hg - 1,15 - 0,39 ≥ 1,2 m (NPSH requested),
Hg = 1,2 + 1,15 + 0,39 - 10,33 = - 7,59 m, it represents the limit condition for which
NPSH available = NPSH requested

Therefore, in order to guarantee the conditions for the correct operation of the system as far as cavitation risks, it will be necessary to position the pump above the water level, **so that the Hg height is below the limit value of 7,59 m**.

SMB BOOSTER SETS SERIES
NET PRESSURE CALCULATION



When selecting SMB booster sets, the performance levels of the pump must be taken into account.
Performance levels are obtained from the characteristic curves of the pumps, and do not take into account any pressure drops due to system piping and valves.
The following example helps the customer to obtain the **correct delivery manifold pressure value**:
by knowing the system operating point Q = 30 m^3/h and H = 30 mH_2O (P requested),and the installation height Hg (estimated to 3 m), in order to make the calculations easier we use the pressure drop curves for each single pump on page 103 of this catalogue.
Assuming that a booster set SMB30/10HME03S15 with non-return valves on the delivery has been selected, we proceed as follows:

P net available ≥ P requested, when the equality condition represents the limit condition.

P net available = H – (Hg + ∑t + ∑a + ∑m)

Where:
H head value of booster set
Hg is the geodetic level difference (estimated to 3 m)
∑t are the pressure drops for suction components such as foot check valve, suction piping, curve and gate valve.
∑a are the pressure drops for suction set branch
∑m are the pressure drops for delivery set branch

The total sum of the pressure drops for suction components ∑t = ∑c + ∑s = 0,63 + 0,52 = 1,15 m
The total sum of the pressure drops ∑t for suction components is made in the following way, considering that the diameter of the suction piping is DN80, equal to the diameter of the suction manifold of the set (page 53).
Hc pressure drops for suction set branch must be assessed on the B curve, CB material version (page 108, scheme A0679_A_CH); at the flow value of each pump equal to 10 m^3/h, a value of Hc = 0,01 m is obtained.

Calculation of suction drops ∑s for stainless steel components
Equivalent piping length for DN80 manifold TEE fitting = 3,2 m
Suction manifold length = 0,85
Pressure drops in the suction piping (stainless steel) ∑s = (3,2 + 0,85) x 17,6 x 0,54 / 100 = 0,38 m
The total pressure drops ∑a for suction components are:
∑a = Hc + ∑s= 0,01 + 0,38 = 0,39 m

The total sum of the pressure drops ∑m for delivery branch is made in the following way, considering that the diameter of the delivery manifold is DN80, equal to the diameter of the delivery manifold of the set (page 53).
Hc pressure drops for delivery set branch must be assessed on the A curve, CB material version (page 108, scheme A0679_A_CH); at the flow value of each pump equal to 10 m^3/h, a value of Hc = 1,7 m is obtained

Calculation of delivery drops ∑s for stainless steel components
Equivalent piping length for DN80 manifold TEE fitting = 3,2 m
Delivery manifold length = 0,85 m
Pressure drops in the delivery manifold (steel) ∑s = (3,2 + 0,85) x 17,6 x 0,54 / 100 = 0,38 m

Pressure drops in delivery manifold ∑m = Hc + ∑s = 1,7 + 0,38 = 2,08 m
If we analyze the performance of the set at the flow value of 30 m^3/h, the head value H is 38 m.
The net pressure at the delivery manifold will be P net available= H – (Hg + ∑t + ∑a + ∑m)
Substituting the values we get that P net available = 38 – (3 + 1,15 + 0,39 + 2,08) = 31,4
When comparing this value with the design value (not taking into account the dynamic energy)
we see that 31,4 m > 30 m [P net available > P Required]

The set is therefore capable of meeting system requirements.

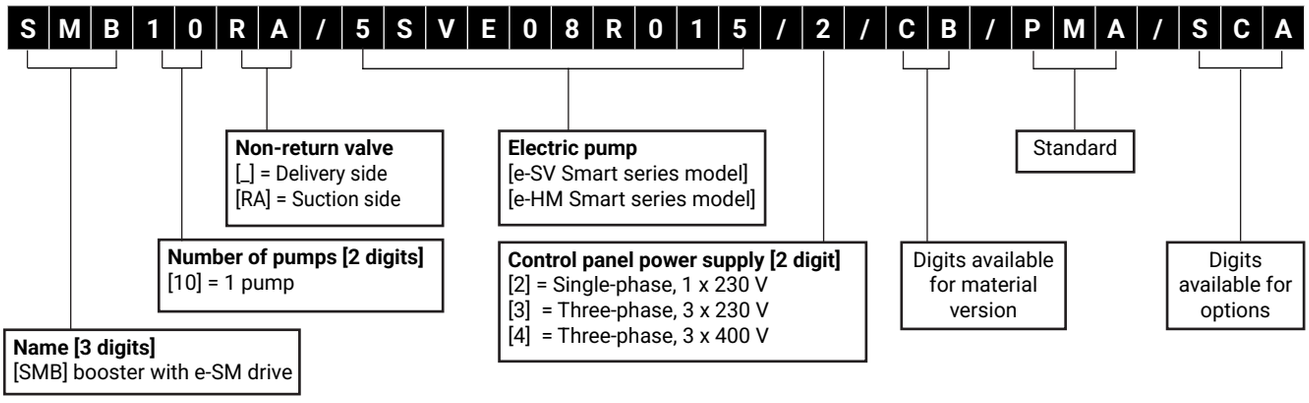
SMB10, SMB20, SMB30 SERIES

Variable speed booster sets

e-SV SMART series multistage vertical electric pumps
e-HM SMART series multistage horizontal electric pumps

High efficiency motors with integrated e-SM drive
Flow rate up to 90 m^3/h and pressure up to 16 bar

SMB10 BOOSTER SETS SERIES
IDENTIFICATION CODE



AVAILABLE MATERIAL VERSIONS

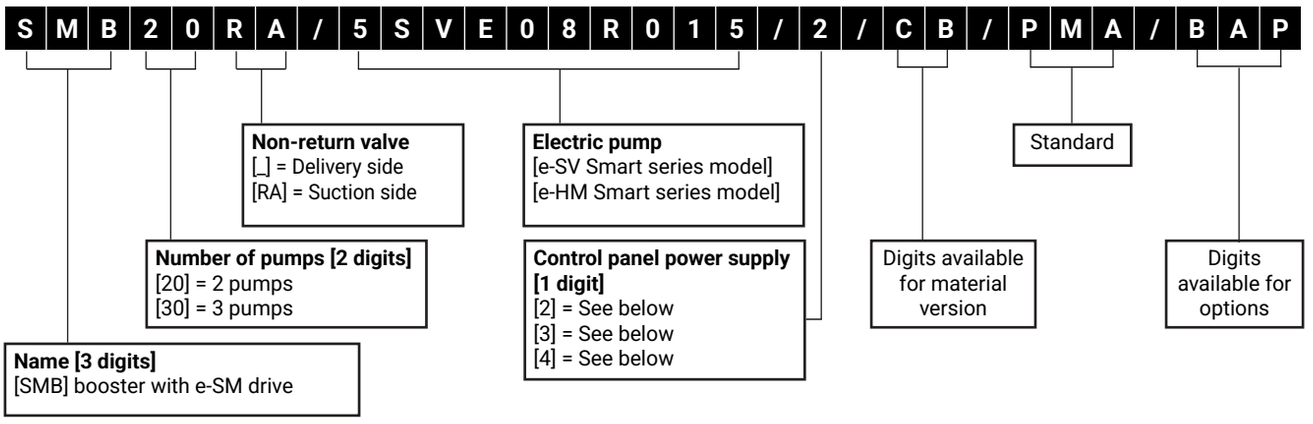
CB, CX, for detail see table on page 25.

OPTIONS

BAP High pressure switch on the delivery manifold
SCA Without suction manifold (suction valves are mounted)

Some options are not available together. Please contact the your usual Sales and Technical Assistance Service for further information.

SMB20, SMB30 BOOSTER SETS SERIES
IDENTIFICATION CODE



AVAILABLE MATERIAL VERSIONS

CB, CX, for detail see table on page 25.

OPTIONS

BAP High pressure switch on the delivery manifold
SCA Without suction manifold (suction valves are mounted)
SQ Booster set without control panel and bracket; with pressure transmitters and e-SM drive.

Some options are not available together. Please contact the your usual Sales and Technical Assistance Service for further information.

CONTROL PANEL POWER SUPPLY

/2 Up to 1,5kW: control panel 3x400 V+ neutral. e-SM motor 1x208-240 V
/3 Control panel 3x230 V, e-SM motor 3x208-240 V
/4 Control panel 3x400 V, e-SM motor 3x380-460 V

SMB BOOSTER SETS SERIES RANGE

The standard range of SMB series variable-speed booster sets includes models with 1, 2 and 3 electric pumps in different configurations, to adapt to the specific needs of each application.

Specifications:
Single-phase and three-phase power supply, variable speed and control by pressure transducers and e-SM frequency converter drives, integrated with permanent magnets motors.

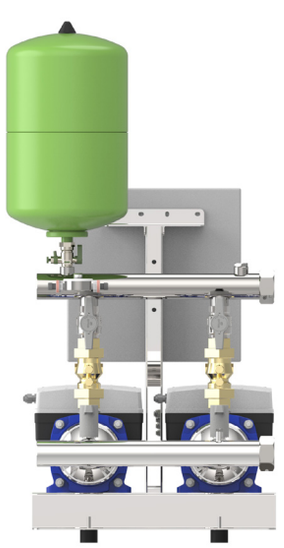
SMB10 SERIES

- One electric pump e-SVE, e-HME series
- **Head** up to 158 m
- **Flow rate** up to 30 m^3/h



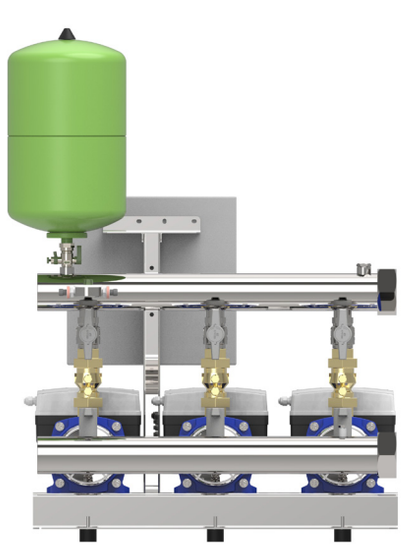
SMB20 SERIES

- Two electric pumps e-SVE, e-HME series
- **Head** up to 158 m
- **Flow rate** up to 60 m^3/h



SMB30 SERIES

- Three electric pumps e-SVE, e-HME series
- **Head** up to 158 m
- **Flow rate** up to 90 m^3/h



e-SM DRIVE
GENERAL DESCRIPTION

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-SM drive**: 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-SM drive a good choice in applications and systems where fixed speed pumps are commonly used. It 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-SM drive has an intuitive interface that guides the user through the installation, and an easily accessible area for 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
- Single-phase power supply:
  208-240 V +/- 10%, 50/60 Hz
- Three-phase power supply:
  – from 0,37kW to 1,5kW:
    208-240 / 380-460 V +/- 10%, 50/60 Hz
  – 2,2kW: 400V +/- 10%, 50/60 Hz
- Power up to 1,5kW for single-phase version
- Power up to 2,2kW for three-phase version
- Protection class IP55
- Can be linked up to 3 pumps

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

Optional components:
Sensors
The following sensors are available for electric pump equipped with e-SM drive:
- Pressure-transducer
- Level-sensor.

Regulations (EU) 2019/1781 and 2021/341 Annex I – point 4 (Product information)
The requirements shall not apply to these variable speed drives, as they are integrated to permanent magnet motors, that aren't covered by the same regulations.

PUMPS WITH e-SM DRIVE
GENERAL DESCRIPTION

e-SV Smart (e-SVE)

Pump



- **Flow rate**: up to 30 m³/h
- **Head**: up to 136 m
- Ambient temperature: from -20°C to +50°C without performance penalty
- Temperature of pumped liquid up to +120°C
- Maximum operating **pressure**:
  - 1, 3, 5, 10, 15, 22SV with oval flanges: 16 bar (PN16) at 50°C.
  - 1, 3, 5, 10, 15, 22SV with round flanges or Victaulic®, Clamp, or DIN 11851 connections: 25 bar (PN 25) a 50°C.
- Vertical multistage centrifugal pump. All metal parts in contact with the pumped liquid are made of stainless steel.
- **F**: round flanges, in-line delivery and suction ports, AISI 304.
- **R**: round flanges, delivery port above the suction port, with four adjustable positions, AISI 304.
- Further choice possibilities among the following versions:
  - **T**: oval flanges, in-line delivery and suction ports, AISI 304.
  - **N**: round flanges, in-line delivery and suction ports, AISI 316.
- Reduced axial thrusts enable the use of **standard motors** that are easily found in the market.
- Mechanical seal according to EN 12756 (ex DIN 24960) and ISO 3069 for 1, 3, 5SV and 10, 15, 22SV (≤ of 4 kW) series.
- **Balanced mechanical seal** according to EN 12756 (ex DIN 24960) and ISO 3069, which **can be replaced without removing the motor from the pump** for 10, 15 and 22SV (≥ of 5,5 kW) series.
- Seal housing chamber designed to prevent the accumulation of air in the critical area next to the mechanical seal.
- A second plug is available for 10, 15, 22SV series.
- Easy maintenance. No special tools required for assembly or disassembly.
- The hydraulic performances meet the tolerances specified in ISO 9906:2012.

e-HM Smart (e-HME)

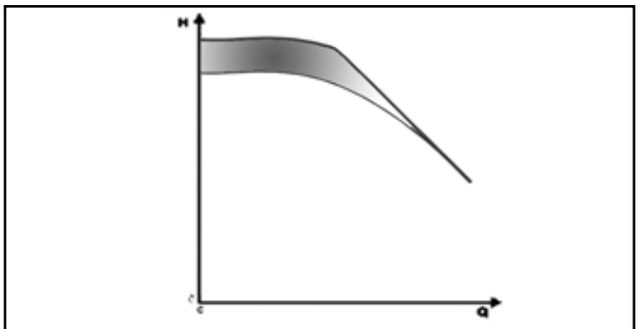
Pump



- **Flow rate**: up to 29 m³/h
- **Head**: up to 158 m
- Ambient temperature: from -20°C to +50°C without performance penalty
- Temperature of pumped liquid up to +120°C
- Maximum operating **pressure**: 16 bar (PN 16)
- Connections: Rp threaded for both suction and discharge manifold
- The hydraulic performances meet the tolerances specified in ISO 9906:2012.

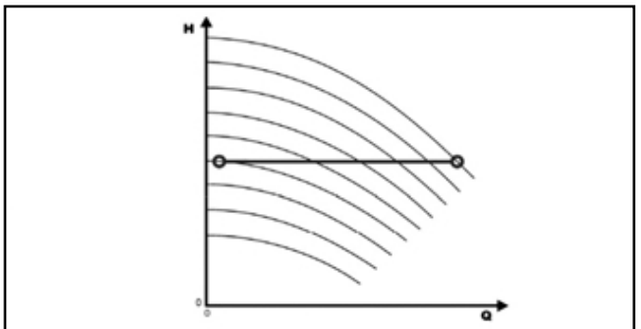
e-SM DRIVE SERIES

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”).

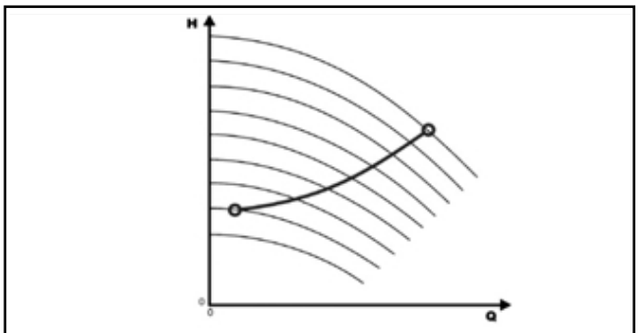


Integrated intelligence

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.



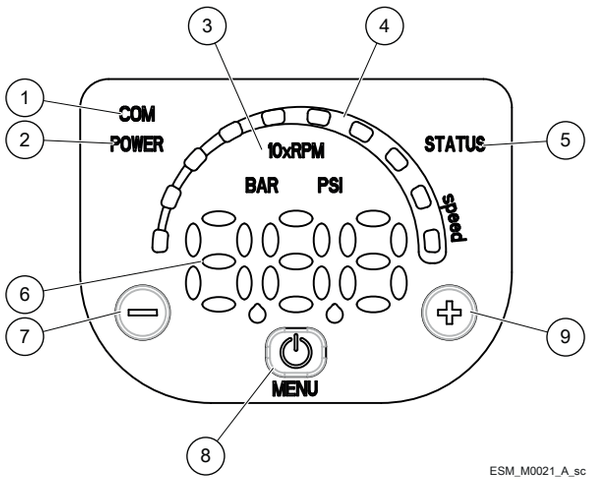
Control for constant pressure



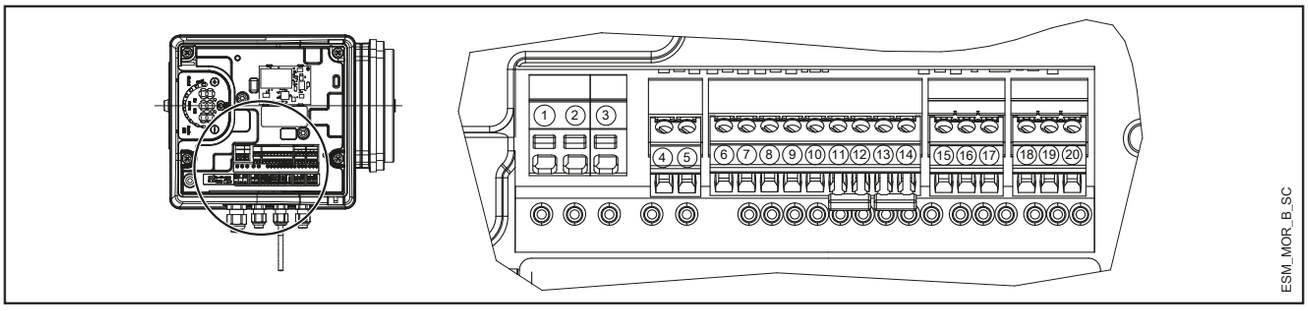
Control to match a system curve

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 ⊖ decrease key
⑧ ⏻ on/off and menu key
⑨ ⊕ increase key



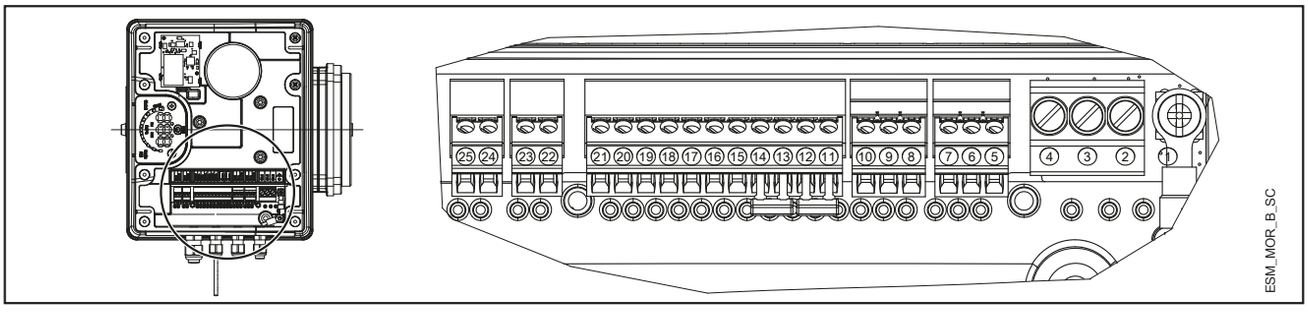
e-SM DRIVE SERIES
SINGLE-PHASE TERMINAL BOX



REF.	ITEM	DESCRIPTION
4	Fault Signal	COM - error status relay
5		NO - error status relay
6	Auxiliary Voltage Supply	Auxiliary voltage supply +15 VDC
7	Analog input 0-10V	Actuator mode 0-10 V input
8		GND for 0-10 V input
9	External Pressure sensor [also Differential]	Power supply external sensor +15 VDC
10		External sensor 4-20 mA input
11	External Start/Stop	External ON/OFF input reference
12		External ON/OFF input
13	External Lack of Water	Low water input
14		Low water reference
15	Communication bus	RS485 port 1: RS485-1N B (-)
16		RS485 port 1: RS485-1P A (+)
17		Electronic GND
18	Communication bus	RS485 port 2: RS485 port 2: RS485-2N B (-) active only with optional module
19		RS485 port 2: RS485 port 2: RS485-2P A (+) active only with optional module
20		Electronic GND

MorsM-en_a_sc

THREE-PHASE TERMINAL BOX



REF.	ITEM	DESCRIPTION
5	Communication bus	Electronic GND
6		RS485 port 1: RS485-1P A (+)
7		RS485 port 1: RS485-1N B (-)
8	Communication bus	Electronic GND
9		RS485 port 2: RS485 port 2: RS485-2P A (+) active only with optional module
10		RS485 port 2: RS485 port 2: RS485-2N B (-) active only with optional module
11	External Lack of Water	Low water reference
12		Low water input
13	External Start/Stop	External ON/OFF input reference
14		External ON/OFF input
15	External Pressure sensor	External sensor 4-20 mA input
16		Power supply external sensor +15 VDC
17	External Pressure sensor [also Differential]	External sensor 4-20 mA input
18		Power supply external sensor +15 VDC
19	Analog input 0-10V	GND for 0-10 V input
20		Actuator mode 0-10 V input
21	Auxiliary Voltage Supply	Auxiliary voltage supply +15 VDC
22	Motor running signal	Normally open contact
23		Common contact
24	Fault Signal	NO - error status relay
25		COM - error status relay

MorsT-en_a_sc

SMB20, SMB30 BOOSTER SETS SERIES CONTROL PANEL

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



- power supply **three-phase 3x400 V+N** +/-10%, 50/60Hz (SMB.../2)

- power supply **three-phase 3x400 V** +/-10%, 50/60Hz (SMB.../4)

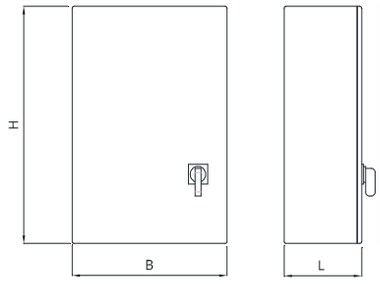
- power supply **three-phase 3x230 V** +/-10%, 50/60Hz (SMB.../3)

IP55 protection.
Cabinet of panel is made by metal and protected to IP55.

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. As standard, the control panel has inside the electronic module to connect the lack water's control.
- Free contact status, for each frequency converter. Electrical contact normally open.
- The execution of lack of water, external ON/OFF, BAP configuration (page 16 and 17) is done by an additional relais inside of the control panel. The signals are connected in the panel and not to e-SM directly.

See the option description on page 16 and 17.

In SMB10 booster set series, control panel is available as accessory.



TYPE	POWER (KW)	SUPPLY	IP	DIMENSIONS (mm)		
				B	H	L
QESM20	2 x (0,37 ÷ 1,5)	1x230	55	300	400	200
QESM30	3 x (0,37 ÷ 1,5)	1x230	55	300	400	200
QESM20	2 x (0,37 ÷ 2,2)	3x400	55	400	400	200
QESM30	3 x (0,37 ÷ 2,2)	3x400	55	400	400	200
QESM20	2 x (0,37 ÷ 1,5)	3x230	55	400	400	200
QESM30	3 x (0,37 ÷ 1,5)	3x230	55	400	400	200

qesm_cn-en_a_td

SMB10 BOOSTER SETS SERIES MAIN COMPONENTS

- **Main on-off valves** at the suction and delivery of each pump; ball type.
- **Suction manifold** with threaded ends, depending on set type (see drawings).
  As standard minimum pressure switch and pressure gauge in suction
- **Non return valve** on the delivery of each electric pump, spring type.
- **Delivery manifold** with threaded ends. It has Rp3/4" threaded fittings for connection of diaphragm expansion vessels and hydraulic connector.
- **Pressure gauge and transmitters** for control, installed on the delivery side of the set.
- **Pressure tank** 25lt PN10 or 12lt PN16 depending on the pump model, including a special isolation device that avoids water stagnation and allows servicing.
- **Various fittings** for the connections.
- **Support base and antivibration dampers** for SMB10../SVE

Optional components:

Sensors

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

- Pressure-transducer
- Level-sensor.

Versions available

As standard, available two version of materials, CB basic version and CX premium version. See table at page 25 for details.

Accessories on request:

- Devices **for protection against dry running** in one of the following versions:
  - float switch
  - level probes (electrodes) kit
- **Vibration dampers**
- **Control panel**
- **Diaphragm expansion vessel kit**
  Hydrotube with on-off valve, depending on the maximum head of the pump:
  - 25 lt, 10 bar hydro tube kit
  - 12 lt, 16 bar hydro tube kit

SMB20, SMB30 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 or fixed flanged ends, depending on set type (see drawings). Threaded fitting for water loading priming of booster. As standard, minimum pressure switch and pressure gauge in suction.
- **Delivery manifold** with threaded or fixed flanged ends, depending on set type (see drawings). It has Rp3/4" threaded fittings for connection of diaphragm expansion vessels and hydraulic connector.
- **Pressure gauge and transmitters** for control, installed on the delivery manifold of the set.
- **Pressure tank** 25lt PN10 or 12lt PN16 depending on the pump model, including a special isolation device that avoids water stagnation and allows servicing.
- **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

As standard, available two version of materials, CB basic version and CX premium version. See table at page 25 for details.

Accessories on request:

- Devices **for protection against dry running** in one of the following versions:
  - float switch
  - level probes (electrodes) kit

SPECIAL EQUIPMENT ON REQUEST

(Contact the Sales and Technical Assistance Service)

- Sets with special valves.

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

MATERIAL TABLE
SMB10 BOOSTER SETS SERIES

DENOMINATION	SMB10…/CB	SMB10…/CX
Manifolds	AISI 304	AISI 304
Flanges of manifold	AISI 304	AISI 304
On-off valves, threaded	Nickel-plated brass	AISI 316
Non-return valves, threaded	Brass	AISI 316
Pressure switches	Steel nickel plated	Steel nickel plated
Pressure transmitters	AISI 304	AISI 304
Caps/plugs	AISI 304 / 316	AISI 304 / 316
Blind Flanges	AISI 304	AISI 304
Fittings	AISI 316	AISI 316
Bracket	AISI 304	AISI 304
Base**	AISI 304	AISI 304
Antivibration dampers**	Metallic part: AISI 304	Metallic part: AISI 304
Pressure gauge	Water Connection: brass Cover: AISI 304 Fluid: Glycole	Water Connection: AISI 304 / 316 Cover: AISI 304 / 316 Fluid: Glycole
Screws, nuts, washers	AISI 304 / 316	AISI 304 / 316

Other materials on request

smb10_cn_3-22sv-en_a_tm

**** Installed in SMB10..SVE booster serie**

The SMB10 booster set series with e-SV Smart are equipped with counterflange made of AISI 304 on suction side.

SMB20, SMB30 BOOSTER SETS SERIES

DENOMINATION	SMB…/CB	SMB…/CX
Manifolds	AISI 304	AISI 304
Flanges of manifold	AISI 304	AISI 304
On-off valves, threaded	Nickel-plated brass	AISI 316
Non-return valves, threaded	Brass	AISI 316
Pressure switches	Steel nickel plated	Steel nickel plated
Pressure transmitters	AISI 304	AISI 304
Caps/plugs	AISI 304 / 316	AISI 304 / 316
Blind Flanges	AISI 304	AISI 304
Fittings	AISI 316	AISI 316
Bracket	AISI 304	AISI 304
Base	AISI 304	AISI 304
Antivibration dampers	Metallic part: AISI 304	Metallic part: AISI 304
Pressure gauge	Water Connection: brass Cover: AISI 304 Fluid: Glycole	Water Connection: AISI 304 / 316 Cover: AISI 304 / 316 Fluid: Glycole
Screws, nuts, washers	AISI 304 / 316	AISI 304 / 316

Other materials on request

smb_cn_3-22sv-en_a_tm

SMB BOOSTER SETS SERIES
SOUND EMISSION LEVELS

3600 min^{-1}			LpA (dB ±2)**	
P2 (kW)	IEC*(HME, VME)	IEC* (SVE)	SMB20	SMB30
0,37	80	90R	< 70	< 70
0,55	80	90R	< 70	< 70
0,75	80	90R	< 70	< 70
1,1	80	90R	< 70	< 70
1,5	80	90R	< 70	< 70
2,2	90	90R	< 70	< 70

* R=Reduced motor casing size with respect to shaft extension and related flange. SMB_2p-en_b_tr

** Noise value of the electric motor only.

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	5°C to +60°C, CB version
	5°C to +65°C, CX version
Ambient temperature**	0°C to + 40 °C
Maximum operating pressure*	Max 16 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	See table

* Higher PN available on request depending on pump type smb_2p_cn-en_b_ti

** SMB10 without control panel, max. 50°C

SMB BOOSTER SETS SERIES
e-SV PUMP FLANGE VERSION

PUMP		BOOSTER SET					
		SMB10		SMB20		SMB30	
		PUMP VERSION					
TYPE	kW	F	R	F	R	F	R
1SVE05	0,37	●	-	●	-	●	-
1SVE08	0,55	●	-	●	●	●	●
1SVE11	0,75	●	-	●	●	●	●
1SVE15	1,1	●	-	●	●	●	●
3SVE03	0,37	●	-	●	-	●	-
3SVE05	0,55	●	-	●	-	●	-
3SVE07	0,75	●	-	●	●	●	●
3SVE09	1,1	●	-	●	●	●	●
3SVE11	1,5	●	-	●	●	●	●
5SVE02	0,37	●	-	●	-	●	-
5SVE03	0,55	●	-	●	-	●	-
5SVE04	0,75	●	-	●	-	●	-
5SVE06	1,1	●	-	●	-	●	-
5SVE08	1,5	●	-	●	●	●	●
5SVE12	2,2	●	-	●	●	●	●
10SVE01	0,55	●	-	●	-	●	-
10SVE02	0,75	●	-	●	-	●	-
10SVE02	1,1	●	-	●	-	●	-
10SVE03	1,5	●	-	●	-	●	-
10SVE04	2,2	●	-	●	-	●	-
15SVE01	0,75	●	-	●	-	●	-
15SVE02	1,1	●	-	●	-	●	-
15SVE02	1,5	●	-	●	-	●	-
15SVE03	2,2	●	-	●	-	●	-

SMB-1_22SVE-2p50-en_cn_a_tm

SMB10/..SVE BOOSTER SETS SERIES SINGLE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	6,7	13,3	20,0	26,7	33,3	40,0	46,7
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	0,4	0,8	1,2	1,6	2,0	2,4	2,8
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1SVE05..003	0,37	ESM90R/103 SVE	1 x 0,49	2,24	44,7	45,0	45,2	44,6	41,5	35,0	28,1	20,8
1SVE08..005	0,55	ESM90R/105 SVE	1 x 0,68	3,07	71,5	72,0	72,3	71,2	62,3	52,0	41,2	29,6
1SVE11..007	0,75	ESM90R/107 SVE	1 x 0,91	4,04	98,3	99,1	99,3	97,7	85,1	70,9	56,0	40,0
1SVE15..011	1,1	ESM90R/111 SVE	1 x 1,33	5,85	134,1	135,1	135,5	133,8	123,6	103,9	83,3	61,4

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	86,7
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,2
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3SVE03..003	0,37	ESM90R/103 SVE	1 x 0,49	2,24	33,4	33,7	33,6	30,7	24,9	19,5	14,0	10,9
3SVE05..005	0,55	ESM90R/105 SVE	1 x 0,69	3,08	55,7	56,2	55,8	46,3	37,1	28,4	19,5	14,4
3SVE07..007	0,75	ESM90R/107 SVE	1 x 0,92	4,06	77,9	78,7	77,2	63,4	50,7	38,6	26,0	18,7
3SVE09..011	1,1	ESM90R/111 SVE	1 x 1,33	5,85	100,2	101,0	100,5	88,8	72,5	56,4	39,9	31,2
3SVE11..015	1,5	ESM90R/115 SVE	1 x 1,78	7,80	122,5	123,3	122,5	117,9	98,4	78,0	57,2	46,3

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	23,3	46,7	70,0	93,3	116,7	140,0	166,7
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	1,4	2,8	4,2	5,6	7,0	8,4	10,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5SVE02..003	0,37	ESM90R/103 SVE	1 x 0,49	2,24	22,4	22,2	21,8	20,0	16,5	13,3	10,2	6,5
5SVE03..005	0,55	ESM90R/105 SVE	1 x 0,68	3,07	33,5	33,3	32,7	29,8	24,5	19,8	15,2	9,5
5SVE04..007	0,75	ESM90R/107 SVE	1 x 0,91	4,05	44,7	44,4	43,5	40,5	33,4	27,1	20,8	13,3
5SVE06..011	1,1	ESM90R/111 SVE	1 x 1,33	5,86	67,1	66,6	65,3	59,5	49,0	39,6	30,4	19,1
5SVE08..015	1,5	ESM90R/115 SVE	1 x 1,78	7,81	88,8	89,3	87,6	82,6	68,3	55,3	42,6	27,9

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	283,3
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	17,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10SVE01..005	0,55	ESM90R/105 SVE	1 x 0,68	3,07	17,3	17,3	16,9	16,2	13,6	10,4	7,1	3,3
10SVE02..007	0,75	ESM90R/107 SVE	1 x 0,92	4,09	24,2	23,9	23,1	21,7	19,3	14,6	9,7	3,6
10SVE02..011	1,1	ESM90R/111 SVE	1 x 1,33	5,85	34,8	34,5	33,7	32,3	27,7	22,4	17,1	11,0
10SVE03..015	1,5	ESM90R/115 SVE	1 x 1,78	7,81	52,7	52,2	51,0	46,1	38,1	30,8	23,5	15,1

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	483,3
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	29,0
Single-phase	kW	1x230 V	kW	A								
15SVE01..007	0,75	ESM90R/107 SVE	1 x 0,92	4,10	14,2	13,9	13,3	12,3	9,8	6,4	2,8	
15SVE01..011	1,1	ESM90R/111 SVE	1 x 1,33	5,85	20,5	20,1	19,4	18,4	14,8	10,9	7,0	3,2
15SVE02..015	1,5	ESM90R/115 SVE	1 x 1,76	7,71	29,6	29,1	28,3	26,8	22,2	16,4	10,1	3,8

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	500,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	30,0
Single-phase	kW	1x230 V	kW	A								
22SVE01..007	0,75	ESM90R/107 SVE	1 x 0,89	3,95	14,4	14,4	14,1	12,5	9,5	6,3	2,9	
22SVE01..011	1,1	ESM90R/111 SVE	1 x 1,34	5,87	20,7	20,8	20,5	18,7	15,1	11,5	7,8	3,2
22SVE02..015	1,5	ESM90R/115 SVE	1 x 1,72	7,56	31,4	31,0	30,3	26,7	21,7	16,7	11,0	2,8

Table refers to hydraulic performances with one pump running, max rpm, friction loss not included

g10_1-22sve-esm-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB10/..HME BOOSTER SETS SERIES SINGLE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	6,7	13,3	20,0	26,7	33,3	40,0	46,7
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	0,4	0,8	1,2	1,6	2,0	2,4	2,8
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1HME05S03	0,37	ESM80/103 HM..	1 x 0,49	2,24	44,7	44,8	44,9	44,1	39,2	32,5	25,7	18,9
1HME08S05	0,55	ESM80/105 HM..	1 x 0,69	3,07	71,6	71,5	71,7	70,4	60,3	50,0	39,6	29,0
1HME11S07	0,75	ESM80/107 HM..	1 x 0,91	4,04	98,5	98,5	98,8	94,3	80,7	66,8	52,9	38,6
1HME15S11	1,1	ESM80/111 HM..	1 x 1,33	5,85	134,0	134,4	134,6	132,3	119,5	99,5	79,6	59,6
1HME17S15	1,5	ESM80/115 HM..	1 x 1,77	7,77	151,8	152,2	152,7	149,6	141,6	128,6	110,7	87,2

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	86,7
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,2
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3HME03S03	0,37	ESM80/103 HM..	1 x 0,49	2,24	33,3	33,9	33,4	31,5	25,6	20,1	14,6	11,8
3HME05S05	0,55	ESM80/105 HM..	1 x 0,69	3,07	55,5	56,5	55,7	47,5	38,2	29,4	20,5	16,0
3HME07S07	0,75	ESM80/107 HM..	1 x 0,91	4,06	77,6	79,1	78,1	64,9	52,0	39,8	27,5	21,3
3HME09S11	1,1	ESM80/111 HM..	1 x 1,33	5,85	99,8	101,8	100,3	93,6	76,1	59,6	43,0	34,7
3HME12S15	1,5	ESM80/115 HM..	1 x 1,78	7,80	133,1	135,9	133,6	127,3	103,6	81,5	59,2	48,1

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	23,3	46,7	70,0	93,3	116,7	140,0	170,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	1,4	2,8	4,2	5,6	7,0	8,4	10,2
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5HME02S03	0,37	ESM80/103 HM..	1 x 0,49	2,24	22,2	22,4	21,9	19,8	16,2	13,0	9,9	6,0
5HME03S05	0,55	ESM80/105 HM..	1 x 0,69	3,07	33,3	33,6	32,9	29,5	24,1	19,3	14,7	8,8
5HME04S07	0,75	ESM80/107 HM..	1 x 0,91	4,05	44,4	44,7	43,8	40,1	32,8	26,4	20,2	12,2
5HME06S11	1,1	ESM80/111 HM..	1 x 1,33	5,85	66,7	67,2	65,8	59,0	48,1	38,7	29,5	17,5
5HME08S15	1,5	ESM80/115 HM..	1 x 1,78	7,82	88,9	89,5	87,7	80,2	65,5	52,8	40,4	24,4

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	283,3
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	17,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10HME01S07	0,75	ESM80/107 HM..	1 x 0,86	3,80	17,5	17,5	17,0	16,1	14,7	12,7	10,2	6,6
10HME02S11	1,1	ESM80/111 HM..	1 x 1,33	5,85	34,8	34,9	33,8	32,3	27,2	21,9	16,6	11,1
10HME03S15	1,5	ESM80/115 HM..	1 x 1,78	7,81	52,4	51,8	50,6	46,9	39,2	32,2	25,3	17,8

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	483,3
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	29,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15HME01S11M02	1,1	ESM80/111 HM..	1 x 1,33	5,85	20,9	20,5	19,7	18,8	16,4	12,7	8,8	5,2
15HME02S15M02	1,5	ESM80/115 HM..	1 x 1,79	7,85	42,7	41,8	35,9	29,8	24,2	18,2	11,3	5,1

Table refers to hydraulic performances with one pump running, max rpm, friction loss not included

g10_1-15hmes-esm-2p50-en_a_th

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

** For technical details see technical catalogue of single electric pump

ELECTRIC PUMP SINGLE-PHASE
TABLE OF ELECTRIC MOTOR DATA

In the range 3000-3600 rpm the nominal motor power is guaranteed. Above 3600 rpm it isn't possible work and the motor is automatically limited; below 3000 rpm it works partially load.

e-SVE

P_N	MOTOR TYPE	IEC SIZE*	Construction Design	SPEED	INPUT CURRENT	DATA RELATED TO THE VOLTAGE OF 230V						IES
				(RPM)**	I (A)	In	cosφ	Tn	η %			
kW				min^{-1}	208-240 V	A		Nm	4/4	3/4	2/4	
0,37	ESM90R/103 SVE	90R	V18/B14	3000	2,28-1,99	2,08	0,95	1,18	81,3	79,1	74,3	2
				3600	2,30-2,02	2,10		0,98	80,6	77,5	72,0	
0,55	ESM90R/105 SVE	90R		3000	3,27-2,85	2,96	0,97	1,75	83,3	82,2	78,8	2
				3600	3,27-2,85	2,96		1,46	83,3	81,5	77,5	
0,75	ESM90R/107 SVE	90R		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	ESM90R/111 SVE	90R		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	
1,50	ESM90R/115 SVE	90R		3000	8,57-7,32	7,69	0,99	4,77	85,6	85,7	84,7	2
				3600	8,42-7,25	7,62		3,98	86,3	85,9	84,0	

* R = Reduced size of motor casing as compared to shaft extension and flange.

eSV_Smart-motm_en_a_te

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

VME, e-HME

P_N	MOTOR TYPE	IEC SIZE	Construction Design	SPEED	INPUT CURRENT	DATA RELATED TO THE VOLTAGE OF 230V						IES
				(RPM)*	I (A)	In	cosφ	Tn	η %			
kW				min^{-1}	208-240 V	A		Nm	4/4	3/4	2/4	
0,37	ESM80/103 HM..	80	SPECIAL	3000	2,28-1,99	2,08	0,95	1,18	81,3	79,1	74,3	2
				3600	2,30-2,02	2,10		0,98	80,6	77,5	72,0	
0,55	ESM80/105 HM..	80		3000	3,27-2,85	2,96	0,97	1,75	83,3	82,2	78,8	2
				3600	3,27-2,85	2,96		1,46	83,3	81,5	77,5	
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	
1,50	ESM80/115 HM..	80		3000	8,57-7,32	7,69	0,99	4,77	85,6	85,7	84,7	2
				3600	8,42-7,25	7,62		3,98	86,3	85,9	84,0	

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

eHM-eVM_Smart-motm_en_a_te

Note. **IES** refers to the efficiency class for frequency converter + motor systems (known as power transmission systems-PDS) with power between 0.12 kW and 1000 kW and between 100 V and 1000 V, according to the standard **EN 50598-2:2014**.

SMB20/..SVE BOOSTER SETS SERIES SINGLE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	93,3
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,6
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1SVE05..003	0,37	ESM90R/103 SVE	2 x 0,49	4,48	44,7	45,0	45,2	44,6	41,5	35,0	28,1	20,8
1SVE08..005	0,55	ESM90R/105 SVE	2 x 0,68	6,14	71,5	72,0	72,3	71,2	62,3	52,0	41,2	29,6
1SVE11..007	0,75	ESM90R/107 SVE	2 x 0,91	8,08	98,3	99,1	99,3	97,7	85,1	70,9	56,0	40,0
1SVE15..011	1,1	ESM90R/111 SVE	2 x 1,33	11,70	134,1	135,1	135,5	133,8	123,6	103,9	83,3	61,4

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	26,7	53,3	80,0	106,7	133,3	160,0	173,3
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	1,6	3,2	4,8	6,4	8,0	9,6	10,4
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3SVE03..003	0,37	ESM90R/103 SVE	2 x 0,49	4,48	33,4	33,7	33,6	30,7	24,9	19,5	14,0	10,9
3SVE05..005	0,55	ESM90R/105 SVE	2 x 0,69	6,16	55,7	56,2	55,8	46,3	37,1	28,4	19,5	14,4
3SVE07..007	0,75	ESM90R/107 SVE	2 x 0,92	8,12	77,9	78,7	77,2	63,4	50,7	38,6	26,0	18,7
3SVE09..011	1,1	ESM90R/111 SVE	2 x 1,33	11,70	100,2	101,0	100,5	88,8	72,5	56,4	39,9	31,2
3SVE11..015	1,5	ESM90R/115 SVE	2 x 1,78	15,60	122,5	123,3	122,5	117,9	98,4	78,0	57,2	46,3

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	46,7	93,3	140,0	186,7	233,3	280,0	333,3
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	2,8	5,6	8,4	11,2	14,0	16,8	20,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5SVE02..003	0,37	ESM90R/103 SVE	2 x 0,49	4,48	22,4	22,2	21,8	20,0	16,5	13,3	10,2	6,5
5SVE03..005	0,55	ESM90R/105 SVE	2 x 0,68	6,14	33,5	33,3	32,7	29,8	24,5	19,8	15,2	9,5
5SVE04..007	0,75	ESM90R/107 SVE	2 x 0,91	8,10	44,7	44,4	43,5	40,5	33,4	27,1	20,8	13,3
5SVE06..011	1,1	ESM90R/111 SVE	2 x 1,33	11,72	67,1	66,6	65,3	59,5	49,0	39,6	30,4	19,1
5SVE08..015	1,5	ESM90R/115 SVE	2 x 1,78	15,62	88,8	89,3	87,6	82,6	68,3	55,3	42,6	27,9

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	80,0	160,0	240,0	320,0	400,0	480,0	566,7
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	4,8	9,6	14,4	19,2	24,0	28,8	34,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10SVE01..005	0,55	ESM90R/105 SVE	2 x 0,68	6,14	17,3	17,3	16,9	16,2	13,6	10,4	7,1	3,3
10SVE02..007	0,75	ESM90R/107 SVE	2 x 0,92	8,18	24,2	23,9	23,1	21,7	19,3	14,6	9,7	3,6
10SVE02..011	1,1	ESM90R/111 SVE	2 x 1,33	11,70	34,8	34,5	33,7	32,3	27,7	22,4	17,1	11,0
10SVE03..015	1,5	ESM90R/115 SVE	2 x 1,78	15,62	52,7	52,2	51,0	46,1	38,1	30,8	23,5	15,1

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	140,0	280,0	420,0	560,0	700,0	840,0	966,7
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	8,4	16,8	25,2	33,6	42,0	50,4	58,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15SVE01..007	0,75	ESM90R/107 SVE	2 x 0,92	8,20	14,2	13,9	13,3	12,3	9,8	6,4	2,8	
15SVE01..011	1,1	ESM90R/111 SVE	2 x 1,33	11,70	20,5	20,1	19,4	18,4	14,8	10,9	7,0	3,2
15SVE02..015	1,5	ESM90R/115 SVE	2 x 1,76	15,42	29,6	29,1	28,3	26,8	22,2	16,4	10,1	3,8

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	140,0	280,0	420,0	560,0	700,0	840,0	1000,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	8,4	16,8	25,2	33,6	42,0	50,4	60,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
22SVE01..007	0,75	ESM90R/107 SVE	2 x 0,89	7,90	14,4	14,4	14,1	12,5	9,5	6,3	2,9	
22SVE01..011	1,1	ESM90R/111 SVE	2 x 1,34	11,74	20,7	20,8	20,5	18,7	15,1	11,5	7,8	3,2
22SVE02..015	1,5	ESM90R/115 SVE	2 x 1,72	15,12	31,4	31,0	30,3	26,7	21,7	16,7	11,0	2,8

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

g20_1-22sve-esm-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB20/..HME BOOSTER SETS SERIES SINGLE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	93,3
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,6
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1HME05S03	0,37	ESM80/103 HM..	2 x 0,49	4,48	44,7	44,8	44,9	44,1	39,2	32,5	25,7	18,9
1HME08S05	0,55	ESM80/105 HM..	2 x 0,69	6,14	71,6	71,5	71,7	70,4	60,3	50,0	39,6	29,0
1HME11S07	0,75	ESM80/107 HM..	2 x 0,91	8,08	98,5	98,5	98,8	94,3	80,7	66,8	52,9	38,6
1HME15S11	1,1	ESM80/111 HM..	2 x 1,33	11,70	134,0	134,4	134,6	132,3	119,5	99,5	79,6	59,6
1HME17S15	1,5	ESM80/115 HM..	2 x 1,77	15,54	151,8	152,2	152,7	149,6	141,6	128,6	110,7	87,2

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	26,7	53,3	80,0	106,7	133,3	160,0	173,3
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	1,6	3,2	4,8	6,4	8,0	9,6	10,4
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3HME03S03	0,37	ESM80/103 HM..	2 x 0,49	4,48	33,3	33,9	33,4	31,5	25,6	20,1	14,6	11,8
3HME05S05	0,55	ESM80/105 HM..	2 x 0,69	6,14	55,5	56,5	55,7	47,5	38,2	29,4	20,5	16,0
3HME07S07	0,75	ESM80/107 HM..	2 x 0,91	8,12	77,6	79,1	78,1	64,9	52,0	39,8	27,5	21,3
3HME09S11	1,1	ESM80/111 HM..	2 x 1,33	11,70	99,8	101,8	100,3	93,6	76,1	59,6	43,0	34,7
3HME12S15	1,5	ESM80/115 HM..	2 x 1,78	15,60	133,1	135,9	133,6	127,3	103,6	81,5	59,2	48,1

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	46,7	93,3	140,0	186,7	233,3	280,0	340,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	2,8	5,6	8,4	11,2	14,0	16,8	20,4
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5HME02S03	0,37	ESM80/103 HM..	2 x 0,49	4,48	22,2	22,4	21,9	19,8	16,2	13,0	9,9	6,0
5HME03S05	0,55	ESM80/105 HM..	2 x 0,69	6,14	33,3	33,6	32,9	29,5	24,1	19,3	14,7	8,8
5HME04S07	0,75	ESM80/107 HM..	2 x 0,91	8,10	44,4	44,7	43,8	40,1	32,8	26,4	20,2	12,2
5HME06S11	1,1	ESM80/111 HM..	2 x 1,33	11,70	66,7	67,2	65,8	59,0	48,1	38,7	29,5	17,5
5HME08S15	1,5	ESM80/115 HM..	2 x 1,78	15,64	88,9	89,5	87,7	80,2	65,5	52,8	40,4	24,4

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	80,0	160,0	240,0	320,0	400,0	480,0	566,7
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	4,8	9,6	14,4	19,2	24,0	28,8	34,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10HME01S07	0,75	ESM80/107 HM..	2 x 0,86	7,60	17,5	17,5	17,0	16,1	14,7	12,7	10,2	6,6
10HME02S11	1,1	ESM80/111 HM..	2 x 1,33	11,70	34,8	34,9	33,8	32,3	27,2	21,9	16,6	11,1
10HME03S15	1,5	ESM80/115 HM..	2 x 1,78	15,62	52,4	51,8	50,6	46,9	39,2	32,2	25,3	17,8

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	140,0	280,0	420,0	560,0	700,0	840,0	966,7
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m3/h 0	8,4	16,8	25,2	33,6	42,0	50,4	58,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15HME01S11M02	1,1	ESM80/111 HM..	2 x 1,33	11,70	20,9	20,5	19,7	18,8	16,4	12,7	8,8	5,2
15HME02S15M02	1,5	ESM80/115 HM..	2 x 1,79	15,70	42,7	41,8	35,9	29,8	24,2	18,2	11,3	5,1

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

g20_1-15hmes-esm-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB30/..SVE BOOSTER SETS SERIES SINGLE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	20,0	40,0	60,0	80,0	100,0	120,0	140,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	1,2	2,4	3,6	4,8	6,0	7,2	8,4
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1SVE05..003	0,37	ESM90R/103 SVE	3 x 0,49	6,72	44,7	45,0	45,2	44,6	41,5	35,0	28,1	20,8
1SVE08..005	0,55	ESM90R/105 SVE	3 x 0,68	9,21	71,5	72,0	72,3	71,2	62,3	52,0	41,2	29,6
1SVE11..007	0,75	ESM90R/107 SVE	3 x 0,91	12,12	98,3	99,1	99,3	97,7	85,1	70,9	56,0	40,0
1SVE15..011	1,1	ESM90R/111 SVE	3 x 1,33	17,55	134,1	135,1	135,5	133,8	123,6	103,9	83,3	61,4

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	260,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	15,6
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3SVE03..003	0,37	ESM90R/103 SVE	3 x 0,49	6,72	33,4	33,7	33,6	30,7	24,9	19,5	14,0	10,9
3SVE05..005	0,55	ESM90R/105 SVE	3 x 0,69	9,24	55,7	56,2	55,8	46,3	37,1	28,4	19,5	14,4
3SVE07..007	0,75	ESM90R/107 SVE	3 x 0,92	12,18	77,9	78,7	77,2	63,4	50,7	38,6	26,0	18,7
3SVE09..011	1,1	ESM90R/111 SVE	3 x 1,33	17,55	100,2	101,0	100,5	88,8	72,5	56,4	39,9	31,2
3SVE11..015	1,5	ESM90R/115 SVE	3 x 1,78	23,40	122,5	123,3	122,5	117,9	98,4	78,0	57,2	46,3

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	500,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	30,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5SVE02..003	0,37	ESM90R/103 SVE	3 x 0,49	6,72	22,4	22,2	21,8	20,0	16,5	13,3	10,2	6,5
5SVE03..005	0,55	ESM90R/105 SVE	3 x 0,68	9,21	33,5	33,3	32,7	29,8	24,5	19,8	15,2	9,5
5SVE04..007	0,75	ESM90R/107 SVE	3 x 0,91	12,15	44,7	44,4	43,5	40,5	33,4	27,1	20,8	13,3
5SVE06..011	1,1	ESM90R/111 SVE	3 x 1,33	17,58	67,1	66,6	65,3	59,5	49,0	39,6	30,4	19,1
5SVE08..015	1,5	ESM90R/115 SVE	3 x 1,78	23,43	88,8	89,3	87,6	82,6	68,3	55,3	42,6	27,9

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	120,0	240,0	360,0	480,0	600,0	720,0	850,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	7,2	14,4	21,6	28,8	36,0	43,2	51,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10SVE01..005	0,55	ESM90R/105 SVE	3 x 0,68	9,21	17,3	17,3	16,9	16,2	13,6	10,4	7,1	3,3
10SVE02..007	0,75	ESM90R/107 SVE	3 x 0,92	12,27	24,2	23,9	23,1	21,7	19,3	14,6	9,7	3,6
10SVE02..011	1,1	ESM90R/111 SVE	3 x 1,33	17,55	34,8	34,5	33,7	32,3	27,7	22,4	17,1	11,0
10SVE03..015	1,5	ESM90R/115 SVE	3 x 1,78	23,43	52,7	52,2	51,0	46,1	38,1	30,8	23,5	15,1

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	210,0	420,0	630,0	840,0	1050,0	1260,0	1450,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	12,6	25,2	37,8	50,4	63,0	75,6	87,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15SVE01..007	0,75	ESM90R/107 SVE	3 x 0,92	12,30	14,2	13,9	13,3	12,3	9,8	6,4	2,8	
15SVE01..011	1,1	ESM90R/111 SVE	3 x 1,33	17,55	20,5	20,1	19,4	18,4	14,8	10,9	7,0	3,2
15SVE02..015	1,5	ESM90R/115 SVE	3 x 1,76	23,13	29,6	29,1	28,3	26,8	22,2	16,4	10,1	3,8

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	210,0	420,0	630,0	840,0	1050,0	1260,0	1500,0
SVE	P_N	TYPE	* P_1	208-240 V	m^3/h 0	12,6	25,2	37,8	50,4	63,0	75,6	90,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
22SVE01..007	0,75	ESM90R/107 SVE	3 x 0,89	11,85	14,4	14,4	14,1	12,5	9,5	6,3	2,9	
22SVE01..011	1,1	ESM90R/111 SVE	3 x 1,34	17,61	20,7	20,8	20,5	18,7	15,1	11,5	7,8	3,2
22SVE02..015	1,5	ESM90R/115 SVE	3 x 1,72	22,68	31,4	31,0	30,3	26,7	21,7	16,7	11,0	2,8

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

g30_1-22sve-esm-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB30/..HME BOOSTER SETS SERIES SINGLE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	20,0	40,0	60,0	80,0	100,0	120,0	140,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	1,2	2,4	3,6	4,8	6,0	7,2	8,4
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1HME05S03	0,37	ESM80/103 HM..	3 x 0,49	6,72	44,7	44,8	44,9	44,1	39,2	32,5	25,7	18,9
1HME08S05	0,55	ESM80/105 HM..	3 x 0,69	9,21	71,6	71,5	71,7	70,4	60,3	50,0	39,6	29,0
1HME11S07	0,75	ESM80/107 HM..	3 x 0,91	12,12	98,5	98,5	98,8	94,3	80,7	66,8	52,9	38,6
1HME15S11	1,1	ESM80/111 HM..	3 x 1,33	17,55	134,0	134,4	134,6	132,3	119,5	99,5	79,6	59,6
1HME17S15	1,5	ESM80/115 HM..	3 x 1,77	23,31	151,8	152,2	152,7	149,6	141,6	128,6	110,7	87,2

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	260,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	15,6
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3HME03S03	0,37	ESM80/103 HM..	3 x 0,49	6,72	33,3	33,9	33,4	31,5	25,6	20,1	14,6	11,8
3HME05S05	0,55	ESM80/105 HM..	3 x 0,69	9,21	55,5	56,5	55,7	47,5	38,2	29,4	20,5	16,0
3HME07S07	0,75	ESM80/107 HM..	3 x 0,91	12,18	77,6	79,1	78,1	64,9	52,0	39,8	27,5	21,3
3HME09S11	1,1	ESM80/111 HM..	3 x 1,33	17,55	99,8	101,8	100,3	93,6	76,1	59,6	43,0	34,7
3HME12S15	1,5	ESM80/115 HM..	3 x 1,78	23,40	133,1	135,9	133,6	127,3	103,6	81,5	59,2	48,1

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	510,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	30,6
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5HME02S03	0,37	ESM80/103 HM..	3 x 0,49	6,72	22,2	22,4	21,9	19,8	16,2	13,0	9,9	6,0
5HME03S05	0,55	ESM80/105 HM..	3 x 0,69	9,21	33,3	33,6	32,9	29,5	24,1	19,3	14,7	8,8
5HME04S07	0,75	ESM80/107 HM..	3 x 0,91	12,15	44,4	44,7	43,8	40,1	32,8	26,4	20,2	12,2
5HME06S11	1,1	ESM80/111 HM..	3 x 1,33	17,55	66,7	67,2	65,8	59,0	48,1	38,7	29,5	17,5
5HME08S15	1,5	ESM80/115 HM..	3 x 1,78	23,46	88,9	89,5	87,7	80,2	65,5	52,8	40,4	24,4

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	120,0	240,0	360,0	480,0	600,0	720,0	850,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m^3/h 0	7,2	14,4	21,6	28,8	36,0	43,2	51,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10HME01S07	0,75	ESM80/107 HM..	3 x 0,86	11,40	17,5	17,5	17,0	16,1	14,7	12,7	10,2	6,6
10HME02S11	1,1	ESM80/111 HM..	3 x 1,33	17,55	34,8	34,9	33,8	32,3	27,2	21,9	16,6	11,1
10HME03S15	1,5	ESM80/115 HM..	3 x 1,78	23,43	52,4	51,8	50,6	46,9	39,2	32,2	25,3	17,8

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	210,0	420,0	630,0	840,0	1050,0	1260,0	1450,0
HME..S, HME..N	P_N	TYPE	* P_1	208-240 V	m3/h 0	12,6	25,2	37,8	50,4	63,0	75,6	87,0
Single-phase	kW	1x230 V	kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15HME01S11M02	1,1	ESM80/111 HM..	3 x 1,33	17,55	20,9	20,5	19,7	18,8	16,4	12,7	8,8	5,2
15HME02S15M02	1,5	ESM80/115 HM..	3 x 1,79	23,55	42,7	41,8	35,9	29,8	24,2	18,2	11,3	5,1

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

g30_1-15hmes-esm-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB10/..SVE BOOSTER SETS SERIES THREE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	6,7	13,3	20,0	26,7	33,3	40,0	46,7
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	0,4	0,8	1,2	1,6	2,0	2,4	2,8
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1SVE05..003	0,37	ESM90R/303 SVE	1 x 0,49	1,45	44,7	45,0	45,2	44,6	41,5	34,9	28,0	20,8
1SVE08..005	0,55	ESM90R/305 SVE	1 x 0,69	1,90	71,5	72,0	72,3	71,2	62,4	52,1	41,2	29,7
1SVE11..007	0,75	ESM90R/307 SVE	1 x 0,91	2,40	98,3	99,1	99,3	97,7	85,0	70,9	56,0	40,1
1SVE15..011	1,1	ESM90R/311 SVE	1 x 1,37	3,45	134,1	135,1	135,5	133,8	123,6	104,0	83,3	61,4

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	86,7
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,2
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3SVE03..003	0,37	ESM90R/303 SVE	1 x 0,49	1,47	33,4	33,8	33,6	30,7	24,9	19,5	14,0	10,9
3SVE05..005	0,55	ESM90R/305 SVE	1 x 0,7	1,92	55,7	56,2	55,8	46,3	37,1	28,4	19,4	14,4
3SVE07..007	0,75	ESM90R/307 SVE	1 x 0,93	2,43	77,9	78,7	77,2	63,3	50,6	38,6	26,0	18,7
3SVE09..011	1,1	ESM90R/311 SVE	1 x 1,37	3,45	100,2	101,0	100,5	88,8	72,5	56,4	39,9	31,2
3SVE11..015	1,5	ESM90R/315 SVE	1 x 1,82	4,42	122,5	123,3	122,5	117,9	98,4	77,9	57,2	46,4

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	23,3	46,7	70,0	93,3	116,7	140,0	166,7
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	1,4	2,8	4,2	5,6	7,0	8,4	10,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5SVE02..003	0,37	ESM90R/303 SVE	1 x 0,5	1,48	22,4	22,2	21,8	20,0	16,5	13,3	10,2	6,5
5SVE03..005	0,55	ESM90R/305 SVE	1 x 0,69	1,92	33,5	33,3	32,7	29,8	24,5	19,8	15,2	9,5
5SVE04..007	0,75	ESM90R/307 SVE	1 x 0,92	2,42	44,7	44,4	43,5	40,5	33,4	27,0	20,8	13,3
5SVE06..011	1,1	ESM90R/311 SVE	1 x 1,38	3,46	67,1	66,6	65,3	59,5	49,0	39,6	30,3	19,1
5SVE08..015	1,5	ESM90R/315 SVE	1 x 1,83	4,43	88,8	89,2	87,6	82,7	68,4	55,3	42,7	28,0
5SVE12..022	2,2	ESM90R/322 SVE	1 x 2,55	5,88	133,2	133,7	131,6	121,6	100,4	81,0	62,2	40,3

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	283,3
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	17,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10SVE01..005	0,55	ESM90R/305 SVE	1 x 0,69	1,90	17,3	17,3	16,9	16,2	13,6	10,4	7,1	3,3
10SVE02..007	0,75	ESM90R/307 SVE	1 x 0,94	2,46	24,2	23,9	23,1	21,7	19,3	14,6	9,7	3,6
10SVE02..011	1,1	ESM90R/311 SVE	1 x 1,37	3,45	34,8	34,5	33,7	32,3	27,7	22,4	17,1	11,0
10SVE03..015	1,5	ESM90R/315 SVE	1 x 1,83	4,43	52,7	52,2	51,0	46,1	38,1	30,8	23,5	15,1
10SVE04..022	2,2	ESM90R/322 SVE	1 x 2,54	5,86	70,3	69,7	68,1	65,8	57,8	47,5	37,4	25,9

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	483,3
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	29,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15SVE01..007	0,75	ESM90R/307 SVE	1 x 0,92	2,48	14,2	13,9	13,3	12,3	9,8	6,4	2,8	0,0
15SVE01..011	1,1	ESM90R/311 SVE	1 x 1,33	3,45	20,5	20,1	19,4	18,4	14,8	10,9	7,0	3,2
15SVE02..015	1,5	ESM90R/315 SVE	1 x 1,76	4,34	29,6	29,1	28,3	26,8	22,2	16,4	10,1	3,8
15SVE02..022	2,2	ESM90R/322 SVE	1 x 2,54	5,87	42,7	42,0	41,1	39,7	33,4	26,8	20,1	13,5

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	500,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	30,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
22SVE01..007	0,75	ESM90R/307 SVE	1 x 0,91	2,38	14,4	14,4	14,1	12,5	9,5	6,3	2,9	0,0
22SVE01..011	1,1	ESM90R/311 SVE	1 x 1,38	3,47	20,7	20,8	20,5	18,7	15,1	11,5	7,8	3,2
22SVE02..015	1,5	ESM90R/315 SVE	1 x 1,76	4,31	31,4	31,0	30,3	26,7	21,7	16,7	11,0	2,8
22SVE02..022	2,2	ESM90R/322 SVE	1 x 2,56	5,91	45,2	44,7	44,0	39,3	33,0	27,3	21,4	13,6

Table refers to hydraulic performances with one pump running, max rpm, friction loss not included

g10_1-22sve-esmT-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB10/..HME BOOSTER SETS SERIES THREE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	6,7	13,3	20,0	26,7	33,3	40,0	46,7
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	0,4	0,8	1,2	1,6	2,0	2,4	2,8
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1HME05S03	0,55	ESM80/305 HM..	1 x 0,49	1,46	44,7	44,8	44,9	44,1	39,2	32,5	25,7	19,0
1HME08S05	0,55	ESM80/305 HM..	1 x 0,69	1,90	71,6	71,5	71,7	70,4	60,3	50,0	39,6	29,0
1HME11S07	0,75	ESM80/307 HM..	1 x 0,91	2,41	98,5	98,5	98,8	94,3	80,7	66,8	52,9	38,6
1HME15S11	1,1	ESM80/311 HM..	1 x 1,37	3,45	134,0	134,4	134,6	132,3	119,5	99,6	79,6	59,6
1HME17S15	1,5	ESM80/315 HM..	1 x 1,81	4,39	151,8	152,2	152,7	149,6	141,6	128,6	110,7	87,1

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	86,7
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,2
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3HME03S03	0,37	ESM80/303 HM..	1 x 0,49	1,47	33,3	33,9	33,4	31,5	25,6	20,1	14,5	11,8
3HME05S05	0,55	ESM80/305 HM..	1 x 0,7	1,92	55,5	56,5	55,7	47,5	38,2	29,4	20,4	16,0
3HME07S07	0,75	ESM80/307 HM..	1 x 0,92	2,43	77,6	79,1	78,1	64,9	52,1	39,8	27,5	21,3
3HME09S11	1,1	ESM80/311 HM..	1 x 1,37	3,45	99,8	101,8	100,3	93,7	76,1	59,6	43,0	34,7
3HME12S15	1,5	ESM80/315 HM..	1 x 1,82	4,42	133,1	135,9	133,6	127,3	103,6	81,5	59,2	48,1
3HME14S22	2,2	ESM80/322 HM..	1 x 2,53	5,84	155,4	158,3	156,1	149,5	139,0	121,7	93,9	79,8

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	23,3	46,7	70,0	93,3	116,7	140,0	170,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	1,4	2,8	4,2	5,6	7,0	8,4	10,2
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5HME02S03	0,37	ESM80/303 HM..	1 x 0,5	1,48	22,2	22,4	21,9	19,8	16,2	13,0	9,9	6,0
5HME03S05	0,55	ESM80/305 HM..	1 x 0,7	1,92	33,3	33,6	32,9	29,5	24,1	19,3	14,7	8,8
5HME04S07	0,75	ESM80/307 HM..	1 x 0,92	2,42	44,4	44,7	43,8	40,1	32,8	26,4	20,2	12,2
5HME06S11	1,1	ESM80/311 HM..	1 x 1,38	3,46	66,7	67,2	65,8	59,0	48,1	38,7	29,5	17,5
5HME08S15	1,5	ESM80/315 HM..	1 x 1,83	4,44	88,9	89,5	87,7	80,2	65,5	52,8	40,5	24,4
5HME10S22	2,2	ESM80/322 HM..	1 x 2,54	5,87	111,1	111,8	109,5	105,3	95,0	77,9	61,6	40,4

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	283,3
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	17,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10HME01S07	0,75	ESM80/307 HM..	1 x 0,84	2,24	17,5	17,4	16,9	16,1	14,7	12,7	10,2	6,7
10HME02S11	1,1	ESM80/311 HM..	1 x 1,37	3,45	34,8	34,9	33,8	32,3	27,2	21,9	16,6	11,1
10HME03S15	1,5	ESM80/315 HM..	1 x 1,83	4,43	52,4	51,8	50,6	47,0	39,2	32,2	25,3	17,8
10HME04S22	2,2	ESM80/322 HM..	1 x 2,54	5,87	69,8	69,1	67,3	65,1	56,9	47,3	37,8	27,5

** PUMP	MOTOR		e-SM SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	483,3
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	29,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15HME01S11	1,1	ESM80/311 HM..	1 x 0,84	3,45	20,9	20,5	19,7	18,8	16,4	12,7	8,8	5,2
15HME02S15	1,5	ESM80/315 HM..	1 x 1,85	4,47	42,7	41,8	35,9	29,8	24,2	18,2	11,3	5,1
15HME03S22	2,2	ESM80/322 HM..	1 x 2,5	5,80	64,0	64,1	50,5	40,6	31,9	23,4	15,4	10,0

Table refers to hydraulic performances with one pump running, max rpm, friction loss not included

g10_1-15hmes-esmT-2p50-en_a_th

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

** For technical details see technical catalogue of single electric pump

ELECTRIC PUMP THREE-PHASE
TABLE OF ELECTRIC MOTOR DATA

In the range 3000-3600 rpm the nominal motor power is guaranteed. Above 3600 rpm it isn't possible work and the motor is automatically limited; below 3000 rpm it works partially load.

e-SVE

P_N kW	MOTOR TYPE	IEC SIZE*	Construction Design	SPEED (RPM)** min^{-1}	INPUT CURRENT I (A) 208-240/380-460 V	DATA RELATED TO THE VOLTAGE OF 400V In A	cosφ	Tn Nm	η % 4/4	η % 3/4	η % 2/4	IES
0,37	ESM90R/303 SVE	90R	V18/B14	3000	2,01-1,85/1,41-1,28	1,42	0,48	1,18	78,6	75,6	70,1	2
				3600	2,13-1,83/1,43-1,33	1,36		0,98	83,1	80,7	76,1	
0,55	ESM90R/305 SVE	90R		3000	2,81-2,57/1,89-1,69	1,88	0,52	1,75	81,1	79,3	75,5	2
				3600	2,90-2,52/1,90-1,73	1,80		1,46	85,4	83,8	80,6	
0,75	ESM90R/307 SVE	90R		3000	3,70-3,37/2,44-2,17	2,41	0,55	2,39	81,9	81,2	78,6	2
				3600	3,74-3,28/2,43-2,20	2,31		1,99	86,1	85,5	83,1	
1,10	ESM90R/311 SVE	90R		3000	5,12-4,73/3,41-3,01	3,35	0,57	3,50	82,8	81,3	77,7	2
				3600	5,15-4,69/3,45-3,06	3,32		2,92	83,5	81,6	77,6	
1,50	ESM90R/315 SVE	90R		3000	6,73-6,17/4,49-3,95	4,39	0,59	4,77	83,1	82,8	80,6	2
				3600	6,69-6,08/4,48-3,97	4,32		3,98	84,6	83,6	80,8	
2,20	ESM90R/322 SVE	90R		3000	- /6,03-5,32	5,81	0,62	7,00	87,6	87,4	85,9	2
				3600	- /5,93-5,24	5,74		5,84	88,9	88,2	86,3	

* R = Reduced size of motor casing as compared to shaft extension and flange.

eSV_Smart-mott_en_a_te

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

VME, e-HME

P_N kW	MOTOR TYPE	IEC SIZE	Construction Design	SPEED (RPM) * min^{-1}	INPUT CURRENT I (A) 208-240/380-460 V	DATA RELATED TO THE VOLTAGE OF 400 V In A	cosφ	Tn Nm	η % 4/4	η % 3/4	η % 2/4	IES
0,37	ESM80/303 HM..	80	SPECIAL	3000	2,01-1,85/1,41-1,28	1,42	0,48	1,18	78,6	75,6	70,1	2
				3600	2,13-1,83/1,43-1,33	1,36		0,98	83,1	80,7	76,1	
0,55	ESM80/305 HM..	80		3000	2,81-2,57/1,89-1,69	1,88	0,52	1,75	81,1	79,3	75,5	2
				3600	2,90-2,52/1,90-1,73	1,80		1,46	85,4	83,8	80,6	
0,75	ESM80/307 HM..	80		3000	3,70-3,37/2,44-2,17	2,41	0,55	2,39	81,9	81,2	78,6	2
				3600	3,74-3,28/2,43-2,20	2,31		1,99	86,1	85,5	83,1	
1,10	ESM80/311 HM..	80		3000	5,12-4,73/3,41-3,01	3,35	0,57	3,50	82,8	81,3	77,7	2
				3600	5,15-4,69/3,45-3,06	3,32		2,92	83,5	81,6	77,6	
1,50	ESM80/315 HM..	80		3000	6,73-6,17/4,49-3,95	4,39	0,59	4,77	83,1	82,8	80,6	2
				3600	6,69-6,08/4,48-3,97	4,32		3,98	84,6	83,6	80,8	
2,20	ESM80/322 HM..	80		3000	- /6,03-5,32	5,81	0,62	7,00	87,6	87,4	85,9	2
				3600	- /5,93-5,24	5,74		5,84	88,9	88,2	86,3	

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

eHM-eVM_Smart-mott-en_a_te

Note. **IES** refers to the efficiency class for frequency converter + motor systems (known as power transmission systems-PDS) with power between 0.12 kW and 1000 kW and between 100 V and 1000 V, according to the standard **EN 50598-2:2014**.

SMB20/..SVE BOOSTER SETS SERIES THREE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	93,3
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,6
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1SVE05..003	0,37	ESM90R/303 SVE	2 x 0,49	2,90	44,7	45,0	45,2	44,6	41,5	34,9	28,0	20,8
1SVE08..005	0,55	ESM90R/305 SVE	2 x 0,69	3,80	71,5	72,0	72,3	71,2	62,4	52,1	41,2	29,7
1SVE11..007	0,75	ESM90R/307 SVE	2 x 0,91	4,80	98,3	99,1	99,3	97,7	85,0	70,9	56,0	40,1
1SVE15..011	1,1	ESM90R/311 SVE	2 x 1,37	6,90	134,1	135,1	135,5	133,8	123,6	104,0	83,3	61,4

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	26,7	53,3	80,0	106,7	133,3	160,0	173,3
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	1,6	3,2	4,8	6,4	8,0	9,6	10,4
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3SVE03..003	0,37	ESM90R/303 SVE	2 x 0,49	2,94	33,4	33,8	33,6	30,7	24,9	19,5	14,0	10,9
3SVE05..005	0,55	ESM90R/305 SVE	2 x 0,7	3,84	55,7	56,2	55,8	46,3	37,1	28,4	19,4	14,4
3SVE07..007	0,75	ESM90R/307 SVE	2 x 0,93	4,86	77,9	78,7	77,2	63,3	50,6	38,6	26,0	18,7
3SVE09..011	1,1	ESM90R/311 SVE	2 x 1,37	6,90	100,2	101,0	100,5	88,8	72,5	56,4	39,9	31,2
3SVE11..015	1,5	ESM90R/315 SVE	2 x 1,82	8,84	122,5	123,3	122,5	117,9	98,4	77,9	57,2	46,4

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	46,7	93,3	140,0	186,7	233,3	280,0	333,3
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	2,8	5,6	8,4	11,2	14,0	16,8	20,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5SVE02..003	0,37	ESM90R/303 SVE	2 x 0,5	2,96	22,4	22,2	21,8	20,0	16,5	13,3	10,2	6,5
5SVE03..005	0,55	ESM90R/305 SVE	2 x 0,69	3,84	33,5	33,3	32,7	29,8	24,5	19,8	15,2	9,5
5SVE04..007	0,75	ESM90R/307 SVE	2 x 0,92	4,84	44,7	44,4	43,5	40,5	33,4	27,0	20,8	13,3
5SVE06..011	1,1	ESM90R/311 SVE	2 x 1,38	6,92	67,1	66,6	65,3	59,5	49,0	39,6	30,3	19,1
5SVE08..015	1,5	ESM90R/315 SVE	2 x 1,83	8,86	88,8	89,2	87,6	82,7	68,4	55,3	42,7	28,0
5SVE12..022	2,2	ESM90R/322 SVE	2 x 2,55	11,76	133,2	133,7	131,6	121,6	100,4	81,0	62,2	40,3

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	80,0	160,0	240,0	320,0	400,0	480,0	566,7
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	4,8	9,6	14,4	19,2	24,0	28,8	34,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10SVE01..005	0,55	ESM90R/305 SVE	2 x 0,69	3,80	17,3	17,3	16,9	16,2	13,6	10,4	7,1	3,3
10SVE02..007	0,75	ESM90R/307 SVE	2 x 0,94	4,92	24,2	23,9	23,1	21,7	19,3	14,6	9,7	3,6
10SVE02..011	1,1	ESM90R/311 SVE	2 x 1,37	6,90	34,8	34,5	33,7	32,3	27,7	22,4	17,1	11,0
10SVE03..015	1,5	ESM90R/315 SVE	2 x 1,83	8,86	52,7	52,2	51,0	46,1	38,1	30,8	23,5	15,1
10SVE04..022	2,2	ESM90R/322 SVE	2 x 2,54	11,72	70,3	69,7	68,1	65,8	57,8	47,5	37,4	25,9

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	140,0	280,0	420,0	560,0	700,0	840,0	966,7
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	8,4	16,8	25,2	33,6	42,0	50,4	58,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15SVE01..007	0,75	ESM90R/307 SVE	2 x 0,92	4,96	14,2	13,9	13,3	12,3	9,8	6,4	2,8	0,0
15SVE01..011	1,1	ESM90R/311 SVE	2 x 1,33	6,90	20,5	20,1	19,4	18,4	14,8	10,9	7,0	3,2
15SVE02..015	1,5	ESM90R/315 SVE	2 x 1,76	8,68	29,6	29,1	28,3	26,8	22,2	16,4	10,1	3,8
15SVE02..022	2,2	ESM90R/322 SVE	2 x 2,54	11,74	42,7	42,0	41,1	39,7	33,4	26,8	20,1	13,5

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	140,0	280,0	420,0	560,0	700,0	840,0	1000,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	8,4	16,8	25,2	33,6	42,0	50,4	60,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
22SVE01..007	0,75	ESM90R/307 SVE	2 x 0,91	4,76	14,4	14,4	14,1	12,5	9,5	6,3	2,9	0,0
22SVE01..011	1,1	ESM90R/311 SVE	2 x 1,38	6,94	20,7	20,8	20,5	18,7	15,1	11,5	7,8	3,2
22SVE02..015	1,5	ESM90R/315 SVE	2 x 1,76	8,62	31,4	31,0	30,3	26,7	21,7	16,7	11,0	2,8
22SVE02..022	2,2	ESM90R/322 SVE	2 x 2,56	11,82	45,2	44,7	44,0	39,3	33,0	27,3	21,4	13,6

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

g20_1-22sve-esmT-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB20/..HME BOOSTER SETS SERIES THREE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	13,3	26,7	40,0	53,3	66,7	80,0	93,3
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	0,8	1,6	2,4	3,2	4,0	4,8	5,6
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1HME05S03	0,55	ESM80/305 HM..	2 x 0,49	2,92	44,7	44,8	44,9	44,1	39,2	32,5	25,7	19,0
1HME08S05	0,55	ESM80/305 HM..	2 x 0,69	3,80	71,6	71,5	71,7	70,4	60,3	50,0	39,6	29,0
1HME11S07	0,75	ESM80/307 HM..	2 x 0,91	4,82	98,5	98,5	98,8	94,3	80,7	66,8	52,9	38,6
1HME15S11	1,1	ESM80/311 HM..	2 x 1,37	6,90	134,0	134,4	134,6	132,3	119,5	99,6	79,6	59,6
1HME17S15	1,5	ESM80/315 HM..	2 x 1,81	8,78	151,8	152,2	152,7	149,6	141,6	128,6	110,7	87,1

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	26,7	53,3	80,0	106,7	133,3	160,0	173,3
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	1,6	3,2	4,8	6,4	8,0	9,6	10,4
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3HME03S03	0,37	ESM80/303 HM..	2 x 0,49	2,94	33,3	33,9	33,4	31,5	25,6	20,1	14,5	11,8
3HME05S05	0,55	ESM80/305 HM..	2 x 0,7	3,84	55,5	56,5	55,7	47,5	38,2	29,4	20,4	16,0
3HME07S07	0,75	ESM80/307 HM..	2 x 0,92	4,86	77,6	79,1	78,1	64,9	52,1	39,8	27,5	21,3
3HME09S11	1,1	ESM80/311 HM..	2 x 1,37	6,90	99,8	101,8	100,3	93,7	76,1	59,6	43,0	34,7
3HME12S15	1,5	ESM80/315 HM..	2 x 1,82	8,84	133,1	135,9	133,6	127,3	103,6	81,5	59,2	48,1
3HME14S22	2,2	ESM80/322 HM..	2 x 2,53	11,68	155,4	158,3	156,1	149,5	139,0	121,7	93,9	79,8

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	46,7	93,3	140,0	186,7	233,3	280,0	340,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	2,8	5,6	8,4	11,2	14,0	16,8	20,4
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5HME02S03	0,37	ESM80/303 HM..	2 x 0,5	2,96	22,2	22,4	21,9	19,8	16,2	13,0	9,9	6,0
5HME03S05	0,55	ESM80/305 HM..	2 x 0,7	3,84	33,3	33,6	32,9	29,5	24,1	19,3	14,7	8,8
5HME04S07	0,75	ESM80/307 HM..	2 x 0,92	4,84	44,4	44,7	43,8	40,1	32,8	26,4	20,2	12,2
5HME06S11	1,1	ESM80/311 HM..	2 x 1,38	6,92	66,7	67,2	65,8	59,0	48,1	38,7	29,5	17,5
5HME08S15	1,5	ESM80/315 HM..	2 x 1,83	8,88	88,9	89,5	87,7	80,2	65,5	52,8	40,5	24,4
5HME10S22	2,2	ESM80/322 HM..	2 x 2,54	11,74	111,1	111,8	109,5	105,3	95,0	77,9	61,6	40,4

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	80,0	160,0	240,0	320,0	400,0	480,0	566,7
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	4,8	9,6	14,4	19,2	24,0	28,8	34,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10HME01S07	0,75	ESM80/307 HM..	2 x 0,84	4,48	17,5	17,4	16,9	16,1	14,7	12,7	10,2	6,7
10HME02S11	1,1	ESM80/311 HM..	2 x 1,37	6,90	34,8	34,9	33,8	32,3	27,2	21,9	16,6	11,1
10HME03S15	1,5	ESM80/315 HM..	2 x 1,83	8,86	52,4	51,8	50,6	47,0	39,2	32,2	25,3	17,8
10HME04S22	2,2	ESM80/322 HM..	2 x 2,54	11,74	69,8	69,1	67,3	65,1	56,9	47,3	37,8	27,5

** PUMP	MOTOR		SMB20 SET		Q = DELIVERY							
TYPE				* I	l/min 0	140,0	280,0	420,0	560,0	700,0	840,0	966,7
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	8,4	16,8	25,2	33,6	42,0	50,4	58,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15HME01S11	1,1	ESM80/311 HM..	2 x 0,84	6,90	20,9	20,5	19,7	18,8	16,4	12,7	8,8	5,2
15HME02S15	1,5	ESM80/315 HM..	2 x 1,85	8,94	42,7	41,8	35,9	29,8	24,2	18,2	11,3	5,1
15HME03S22	2,2	ESM80/322 HM..	2 x 2,5	11,60	64,0	64,1	50,5	40,6	31,9	23,4	15,4	10,0

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

g20_1-15hmes-esmT-2p50-en_a_th

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

** For technical details see technical catalogue of single electric pump

SMB30/..SVE BOOSTER SETS SERIES THREE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	20,0	40,0	60,0	80,0	100,0	120,0	140,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	1,2	2,4	3,6	4,8	6,0	7,2	8,4
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1SVE05..003	0,37	ESM90R/303 SVE	3 x 0,49	4,35	44,7	45,0	45,2	44,6	41,5	34,9	28,0	20,8
1SVE08..005	0,55	ESM90R/305 SVE	3 x 0,69	5,70	71,5	72,0	72,3	71,2	62,4	52,1	41,2	29,7
1SVE11..007	0,75	ESM90R/307 SVE	3 x 0,91	7,20	98,3	99,1	99,3	97,7	85,0	70,9	56,0	40,1
1SVE15..011	1,1	ESM90R/311 SVE	3 x 1,37	10,35	134,1	135,1	135,5	133,8	123,6	104,0	83,3	61,4

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	260,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	15,6
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3SVE03..003	0,37	ESM90R/303 SVE	3 x 0,49	4,41	33,4	33,8	33,6	30,7	24,9	19,5	14,0	10,9
3SVE05..005	0,55	ESM90R/305 SVE	3 x 0,7	5,76	55,7	56,2	55,8	46,3	37,1	28,4	19,4	14,4
3SVE07..007	0,75	ESM90R/307 SVE	3 x 0,93	7,29	77,9	78,7	77,2	63,3	50,6	38,6	26,0	18,7
3SVE09..011	1,1	ESM90R/311 SVE	3 x 1,37	10,35	100,2	101,0	100,5	88,8	72,5	56,4	39,9	31,2
3SVE11..015	1,5	ESM90R/315 SVE	3 x 1,82	13,26	122,5	123,3	122,5	117,9	98,4	77,9	57,2	46,4

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	500,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	30,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5SVE02..003	0,37	ESM90R/303 SVE	3 x 0,5	4,44	22,4	22,2	21,8	20,0	16,5	13,3	10,2	6,5
5SVE03..005	0,55	ESM90R/305 SVE	3 x 0,69	5,76	33,5	33,3	32,7	29,8	24,5	19,8	15,2	9,5
5SVE04..007	0,75	ESM90R/307 SVE	3 x 0,92	7,26	44,7	44,4	43,5	40,5	33,4	27,0	20,8	13,3
5SVE06..011	1,1	ESM90R/311 SVE	3 x 1,38	10,38	67,1	66,6	65,3	59,5	49,0	39,6	30,3	19,1
5SVE08..015	1,5	ESM90R/315 SVE	3 x 1,83	13,29	88,8	89,2	87,6	82,7	68,4	55,3	42,7	28,0
5SVE12..022	2,2	ESM90R/322 SVE	3 x 2,55	17,64	133,2	133,7	131,6	121,6	100,4	81,0	62,2	40,3

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	120,0	240,0	360,0	480,0	600,0	720,0	850,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	7,2	14,4	21,6	28,8	36,0	43,2	51,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10SVE01..005	0,55	ESM90R/305 SVE	3 x 0,69	5,70	17,3	17,3	16,9	16,2	13,6	10,4	7,1	3,3
10SVE02..007	0,75	ESM90R/307 SVE	3 x 0,94	7,38	24,2	23,9	23,1	21,7	19,3	14,6	9,7	3,6
10SVE02..011	1,1	ESM90R/311 SVE	3 x 1,37	10,35	34,8	34,5	33,7	32,3	27,7	22,4	17,1	11,0
10SVE03..015	1,5	ESM90R/315 SVE	3 x 1,83	13,29	52,7	52,2	51,0	46,1	38,1	30,8	23,5	15,1
10SVE04..022	2,2	ESM90R/322 SVE	3 x 2,54	17,58	70,3	69,7	68,1	65,8	57,8	47,5	37,4	25,9

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	210,0	420,0	630,0	840,0	1050,0	1260,0	1450,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	12,6	25,2	37,8	50,4	63,0	75,6	87,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15SVE01..007	0,75	ESM90R/307 SVE	3 x 0,92	7,44	14,2	13,9	13,3	12,3	9,8	6,4	2,8	0,0
15SVE01..011	1,1	ESM90R/311 SVE	3 x 1,33	10,35	20,5	20,1	19,4	18,4	14,8	10,9	7,0	3,2
15SVE02..015	1,5	ESM90R/315 SVE	3 x 1,76	13,02	29,6	29,1	28,3	26,8	22,2	16,4	10,1	3,8
15SVE02..022	2,2	ESM90R/322 SVE	3 x 2,54	17,61	42,7	42,0	41,1	39,7	33,4	26,8	20,1	13,5

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	210,0	420,0	630,0	840,0	1050,0	1260,0	1500,0
SVE	P_N	TYPE	* P_1	380-460 V	m3/h 0	12,6	25,2	37,8	50,4	63,0	75,6	90,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
22SVE01..007	0,75	ESM90R/307 SVE	3 x 0,91	7,14	14,4	14,4	14,1	12,5	9,5	6,3	2,9	0,0
22SVE01..011	1,1	ESM90R/311 SVE	3 x 1,38	10,41	20,7	20,8	20,5	18,7	15,1	11,5	7,8	3,2
22SVE02..015	1,5	ESM90R/315 SVE	3 x 1,76	12,93	31,4	31,0	30,3	26,7	21,7	16,7	11,0	2,8
22SVE02..022	2,2	ESM90R/322 SVE	3 x 2,56	17,73	45,2	44,7	44,0	39,3	33,0	27,3	21,4	13,6

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

g30_1-22sve-esmT-2p50-en_a_th

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

** For technical details see see technical catalogue of single electric pump

SMB30/..HME BOOSTER SETS SERIES THREE-PHASE
TABLE OF HYDRAULIC PERFORMANCE

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	20,0	40,0	60,0	80,0	100,0	120,0	140,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	1,2	2,4	3,6	4,8	6,0	7,2	8,4
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
1HME05S03	0,55	ESM80/305 HM..	3 x 0,49	4,38	44,7	44,8	44,9	44,1	39,2	32,5	25,7	19,0
1HME08S05	0,55	ESM80/305 HM..	3 x 0,69	5,70	71,6	71,5	71,7	70,4	60,3	50,0	39,6	29,0
1HME11S07	0,75	ESM80/307 HM..	3 x 0,91	7,23	98,5	98,5	98,8	94,3	80,7	66,8	52,9	38,6
1HME15S11	1,1	ESM80/311 HM..	3 x 1,37	10,35	134,0	134,4	134,6	132,3	119,5	99,6	79,6	59,6
1HME17S15	1,5	ESM80/315 HM..	3 x 1,81	13,17	151,8	152,2	152,7	149,6	141,6	128,6	110,7	87,1

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	40,0	80,0	120,0	160,0	200,0	240,0	260,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	2,4	4,8	7,2	9,6	12,0	14,4	15,6
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
3HME03S03	0,37	ESM80/303 HM..	3 x 0,49	4,41	33,3	33,9	33,4	31,5	25,6	20,1	14,5	11,8
3HME05S05	0,55	ESM80/305 HM..	3 x 0,7	5,76	55,5	56,5	55,7	47,5	38,2	29,4	20,4	16,0
3HME07S07	0,75	ESM80/307 HM..	3 x 0,92	7,29	77,6	79,1	78,1	64,9	52,1	39,8	27,5	21,3
3HME09S11	1,1	ESM80/311 HM..	3 x 1,37	10,35	99,8	101,8	100,3	93,7	76,1	59,6	43,0	34,7
3HME12S15	1,5	ESM80/315 HM..	3 x 1,82	13,26	133,1	135,9	133,6	127,3	103,6	81,5	59,2	48,1
3HME14S22	2,2	ESM80/322 HM..	3 x 2,53	17,52	155,4	158,3	156,1	149,5	139,0	121,7	93,9	79,8

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	70,0	140,0	210,0	280,0	350,0	420,0	510,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	4,2	8,4	12,6	16,8	21,0	25,2	30,6
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
5HME02S03	0,37	ESM80/303 HM..	3 x 0,5	4,44	22,2	22,4	21,9	19,8	16,2	13,0	9,9	6,0
5HME03S05	0,55	ESM80/305 HM..	3 x 0,7	5,76	33,3	33,6	32,9	29,5	24,1	19,3	14,7	8,8
5HME04S07	0,75	ESM80/307 HM..	3 x 0,92	7,26	44,4	44,7	43,8	40,1	32,8	26,4	20,2	12,2
5HME06S11	1,1	ESM80/311 HM..	3 x 1,38	10,38	66,7	67,2	65,8	59,0	48,1	38,7	29,5	17,5
5HME08S15	1,5	ESM80/315 HM..	3 x 1,83	13,32	88,9	89,5	87,7	80,2	65,5	52,8	40,5	24,4
5HME10S22	2,2	ESM80/322 HM..	3 x 2,54	17,61	111,1	111,8	109,5	105,3	95,0	77,9	61,6	40,4

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	120,0	240,0	360,0	480,0	600,0	720,0	850,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	7,2	14,4	21,6	28,8	36,0	43,2	51,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
10HME01S07	0,75	ESM80/307 HM..	3 x 0,84	6,72	17,5	17,4	16,9	16,1	14,7	12,7	10,2	6,7
10HME02S11	1,1	ESM80/311 HM..	3 x 1,37	10,35	34,8	34,9	33,8	32,3	27,2	21,9	16,6	11,1
10HME03S15	1,5	ESM80/315 HM..	3 x 1,83	13,29	52,4	51,8	50,6	47,0	39,2	32,2	25,3	17,8
10HME04S22	2,2	ESM80/322 HM..	3 x 2,54	17,61	69,8	69,1	67,3	65,1	56,9	47,3	37,8	27,5

** PUMP	MOTOR		SMB30 SET		Q = DELIVERY							
TYPE				* I	l/min 0	210,0	420,0	630,0	840,0	1050,0	1260,0	1450,0
HME..S, HME..N	PN	TYPE	* P1	380-460 V	m3/h 0	12,6	25,2	37,8	50,4	63,0	75,6	87,0
Three-phases	kW		kW	A	H = TOTAL HEAD IN METRES OF COLUMN OF WATER							
15HME01S11	1,1	ESM80/311 HM..	3 x 0,84	10,35	20,9	20,5	19,7	18,8	16,4	12,7	8,8	5,2
15HME02S15	1,5	ESM80/315 HM..	3 x 1,85	13,41	42,7	41,8	35,9	29,8	24,2	18,2	11,3	5,1
15HME03S22	2,2	ESM80/322 HM..	3 x 2,5	17,40	64,0	64,1	50,5	40,6	31,9	23,4	15,4	10,0

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

g30_1-15hmes-esmT-2p50-en_a_th

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

** For technical details see technical catalogue of single electric pump

Booster sets

SMB10 Series



MARKET SECTORS
RESIDENTIAL, COMMERCIAL, INDUSTRIAL

APPLICATIONS
Water supply and pressure boosting in:
- apartments, villas, condominiums and residential buildings
- hotels, restaurants, spas
- various industrial applications

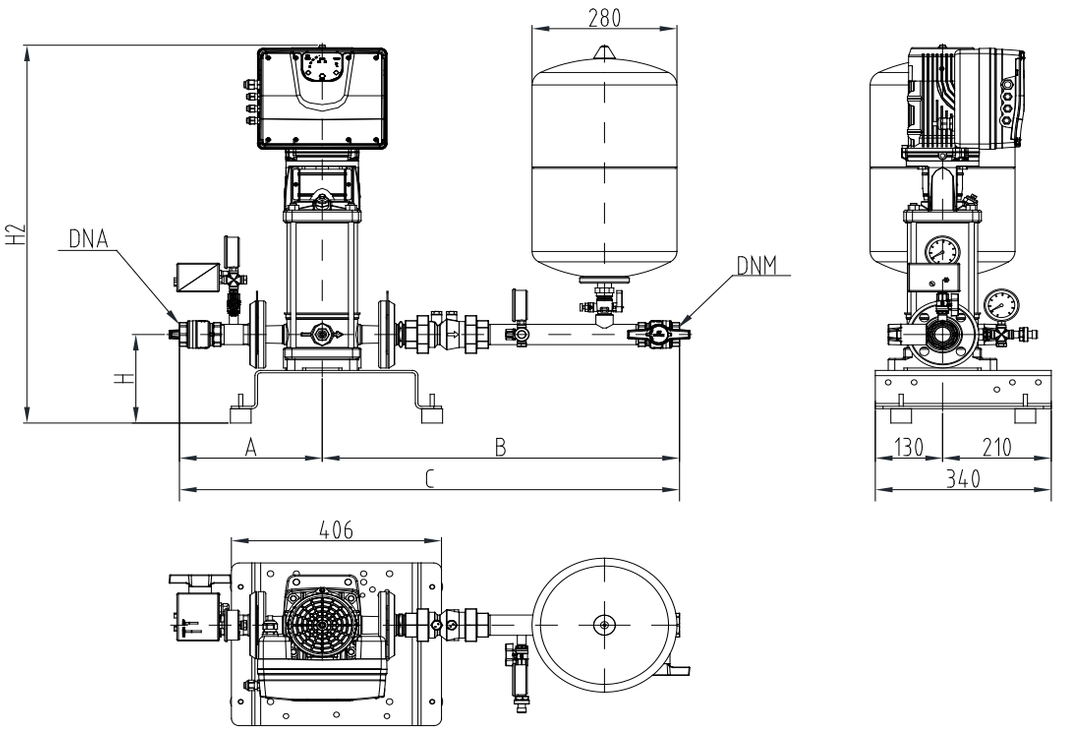
SPECIFICATIONS

- **e-SVE** vertical axis electric pump.
- **e-HME..S** horizontal axis electric pump.
- **Flow rate:** up to 30 m^3/h.
- **Head:** up to 158 m
- **Maximum operating pressure:** max 16 bar.
- **Material**
  SMB10 available CB and CX version
- **Electric panel supply voltage:**
  Standard version:
  - single-phase 1 x 230V ± 10% (SMB../2).
  - three-phase 3 x 400V ± 10% (SMB../4).
  - three-phase 3 x 230V ± 10% (SMB../3).
- **Frequency**: 50Hz.
- **Protection class IP55 for:**
  - electrical pump motor
  - e-SM drive frequency converter
- **Maximum electric pump power:** 2,2 kW.
- **Progressive motor start.**
- **Maximum pumped liquid temperature:**
  - max 60°C, CB version
  - max 65°C, CX version

SMB10 are also available as kits.

Materials in contact with water are either certified or approved according to KTW

SET OF 1 PUMP SVE..F SERIES
SMB10.../2, SMB10.../3, SMB10.../4



SMB10-CB-SV-F_B_DD

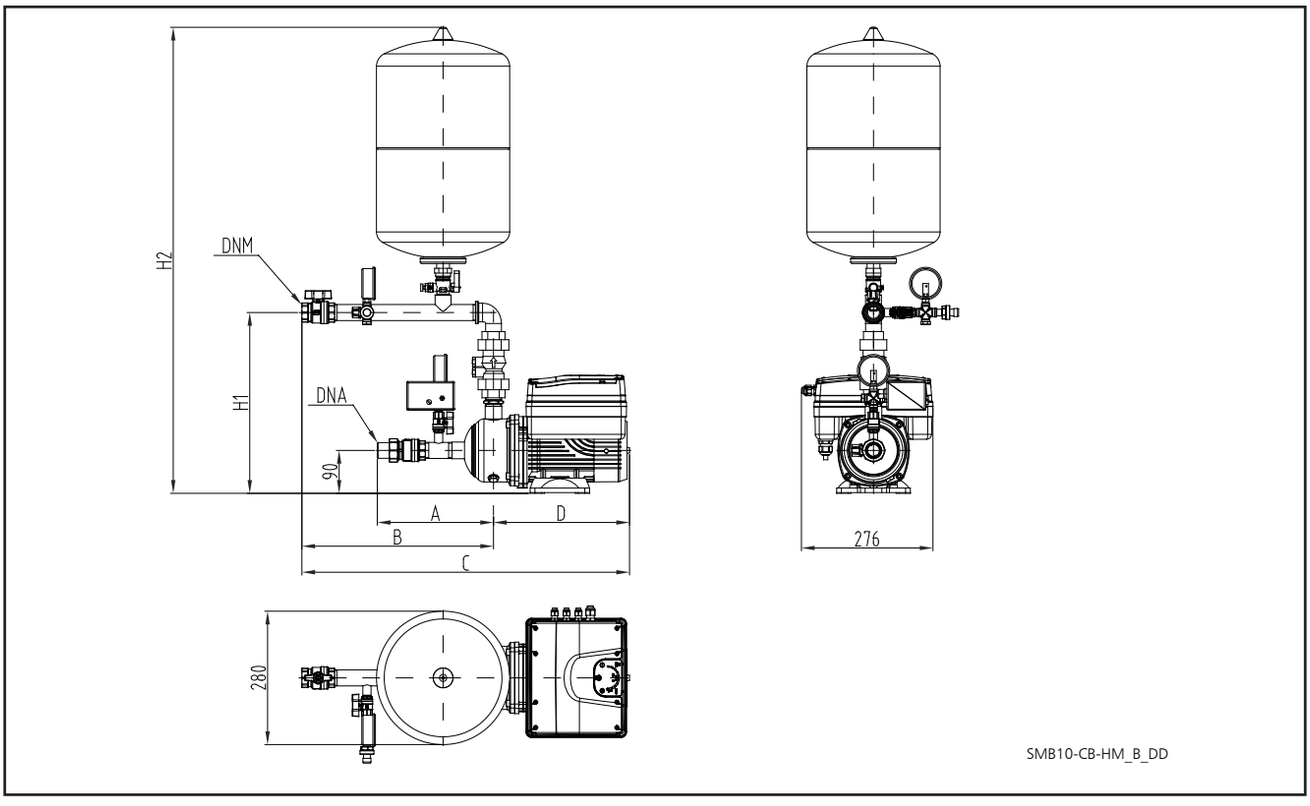
SMB 10	DNA	DNM	A		B		C		H	H2
			CB	CX	CB	CX	CB	CX		
1SVE05F003	Rp1"	Rp1"	268	284	665	634	933	918	185	690
1SVE08F005	Rp1"	Rp1"	268	284	665	634	933	918	185	750
1SVE11F007	Rp1"	Rp1"	268	284	665	634	933	918	185	810
1SVE15F011	Rp1"	Rp1"	268	284	665	634	933	918	185	890
3SVE03F003	Rp1"	Rp1"	268	284	665	634	933	918	185	650
3SVE05F005	Rp1"	Rp1"	268	284	665	634	933	918	185	690
3SVE07F007	Rp1"	Rp1"	268	284	665	634	933	918	185	730
3SVE09F011	Rp1"	Rp1"	268	284	665	634	933	918	185	770
3SVE11F015	Rp1"	Rp1"	268	284	665	634	933	918	185	810
5SVE02F003	Rp1"1/4	Rp1"1/4	276	289	691	658	967	947	185	640
5SVE03F005	Rp1"1/4	Rp1"1/4	276	289	691	658	967	947	185	665
5SVE04F007	Rp1"1/4	Rp1"1/4	276	289	691	658	967	947	185	690
5SVE06F011	Rp1"1/4	Rp1"1/4	276	289	691	658	967	947	185	740
5SVE08F015	Rp1"1/4	Rp1"1/4	276	289	691	658	967	947	185	790
5SVE12F022 *	Rp1"1/4	Rp1"1/4	276	289	691	658	967	947	185	890
10SVE01F005	Rp1"1/2	Rp1"1/2	302	316	705	667	1007	983	190	719
10SVE02F007	Rp1"1/2	Rp1"1/2	302	316	705	667	1007	983	190	719
10SVE02F011	Rp1"1/2	Rp1"1/2	302	316	705	667	1007	983	190	719
10SVE03F015	Rp1"1/2	Rp1"1/2	302	316	705	667	1007	983	190	751
10SVE04F022 *	Rp1"1/2	Rp1"1/2	302	316	705	667	1007	983	190	783
15SVE01F007	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
15SVE01F011	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
15SVE02F015	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
15SVE02F022 *	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
22SVE01F007	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
22SVE01F011	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
22SVE02F015	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771
22SVE02F022 *	Rp 2"	Rp 2"	339	349	800	740	1139	1089	200	771

Dimensions in mm. Tolerance ± 10 mm.

smb10-sv-f-dach_d_td

* valid only for /3/4 versions

SET OF 1 PUMP HME..S SERIES
SMB10.../2, SMB10.../3, SMB10.../4



SMB 10	DNA	DNM	A		B		C		D	H1		H2	
			CB	CX	CB	CX	CB	CX		CB	CX	CB	CX
1HME05	R 1"	Rp 1"	284	268	403	419	690	706	287	380	389	978	988
1HME08	R 1"	Rp 1"	328	312	403	419	699	715	296	380	389	978	988
1HME11	R 1"	Rp 1"	388	372	403	419	699	715	296	380	389	978	988
1HME15	R 1"	Rp 1"	468	452	403	419	699	715	296	380	389	978	988
1HME17	R 1"	Rp 1"	508	492	403	419	699	715	296	380	389	978	988
3HME03	R 1"	Rp 1"	244	228	403	419	690	706	287	380	389	978	988
3HME05	R 1"	Rp 1"	284	268	403	419	752	706	287	380	389	978	988
3HME07	R 1"	Rp 1"	308	292	403	419	761	715	296	380	389	978	988
3HME09	R 1"	Rp 1"	348	332	403	419	761	715	296	380	389	978	988
3HME12	R 1"	Rp 1"	408	392	403	419	761	715	296	380	389	978	988
3HME14 *	R 1"	Rp 1"	448	432	403	419	761	715	296	380	389	978	988
5HME02	R 1" 1/4	Rp 1"	284	250	425	419	752	706	287	380	389	978	988
5HME03	R 1" 1/4	Rp 1"	284	250	425	419	752	706	287	380	389	978	988
5HME04	R 1" 1/4	Rp 1"	309	275	425	419	752	706	287	380	389	978	988
5HME06	R 1" 1/4	Rp 1"	338	304	425	419	761	715	296	380	389	978	988
5HME08	R 1" 1/4	Rp 1"	388	354	425	419	761	715	296	380	389	978	988
5HME10 *	R 1" 1/4	Rp 1"	438	404	425	419	761	715	296	380	389	978	988
10HME01	R 1" 1/2	Rp 1" 1/4	320	280	429	427	766	724	297	424	441	1027	1044
10HME02	R 1" 1/2	Rp 1" 1/4	320	280	429	427	766	724	297	424	441	1027	1044
10HME03	R 1" 1/2	Rp 1" 1/4	320	280	429	427	766	724	297	424	441	1027	1044
10HME04 *	R 1" 1/2	Rp 1" 1/4	352	312	429	427	766	724	297	424	441	1027	1044
15HME01	R 2"	Rp 1" 1/2	362	317	434	419	787	732	313	446	461	1052	1067
15HME02	R 2"	Rp 1" 1/2	362	317	434	419	787	732	313	446	461	1052	1067
15HME03 *	R 2"	Rp 1" 1/2	362	317	434	419	787	732	313	446	461	1052	1067

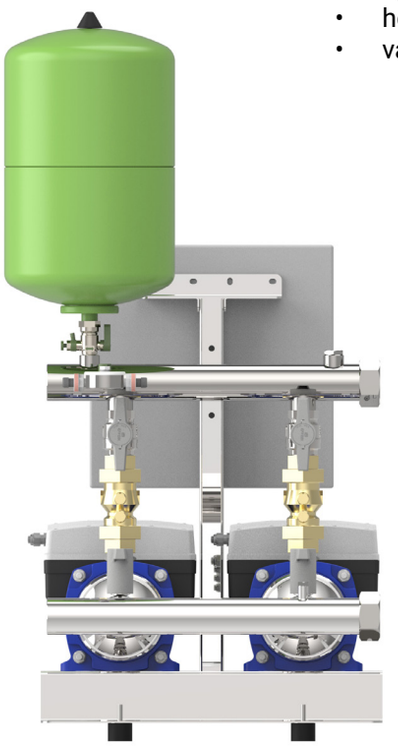
Dimensions in mm. Tolerance ± 10 mm.

smb10_hm-dach_c_td

* valid only for /3/4 versions

Booster sets

SMB20 Series



MARKET SECTORS
RESIDENTIAL, COMMERCIAL, INDUSTRIAL

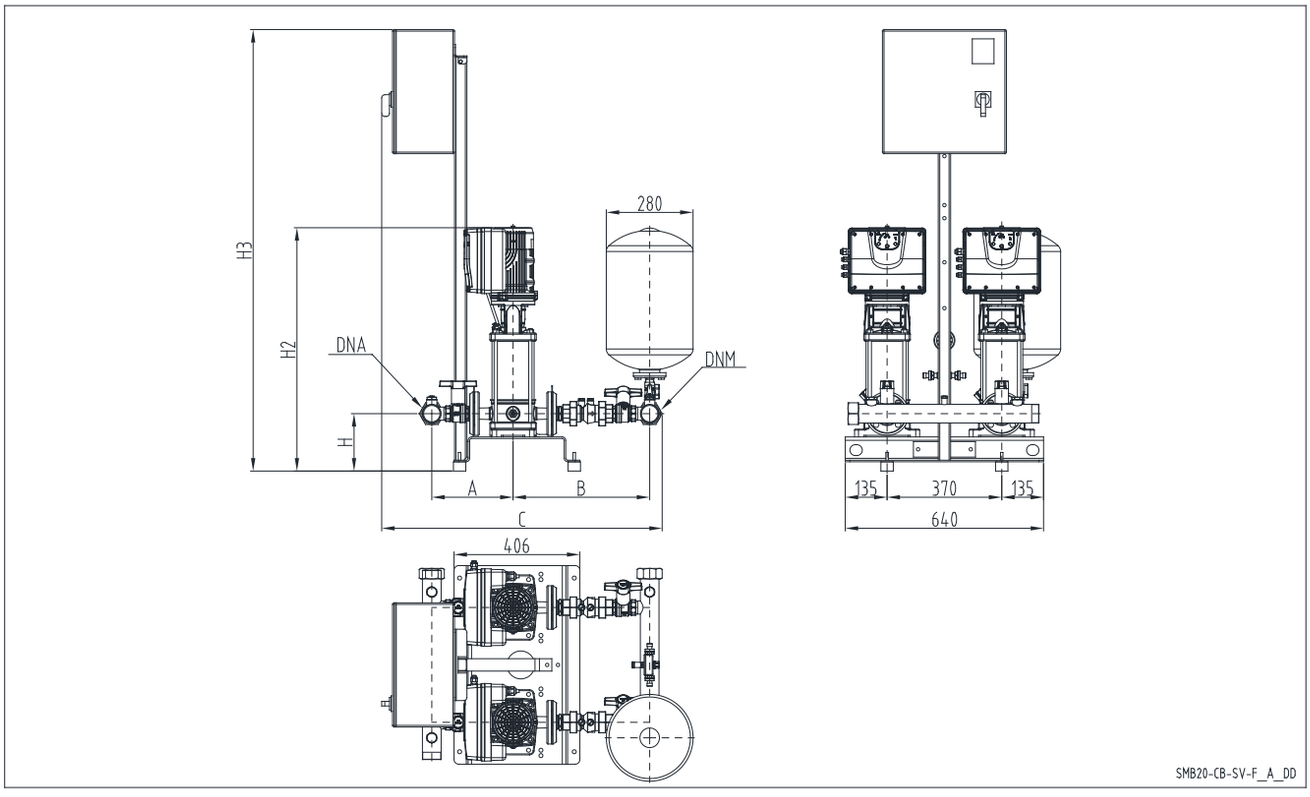
APPLICATIONS
Water supply and pressure boosting in:
- apartments, villas, condominiums and residential buildings
- hotels, restaurants, spas
- various industrial applications

SPECIFICATIONS

- **e-SVE** vertical axis electric pump.
- **e-HME..S** horizontal axis electric pump.
- **Flow rate:** up to 60 m^3/h.
- **Head:** up to 158 m
- **Maximum operating pressure:** max 16 bar.
- **Material**
  SMB20 available CB and CX version
- **Electric panel supply voltage:**
  Standard version:
  - three-phase 3 x 400V +N ± 10% (SMB../2).
  - three-phase 3 x 400V ± 10% (SMB../4).
  - three-phase 3 x 230V ± 10% (SMB../3).
- **Frequency**: 50Hz.
- **Protection class IP55 for:**
  - electrical pump motor
  - e-SM drive frequency converter
- **Maximum electric pump power:** 2 x 2,2 kW.
- **Progressive motor start.**
- **Maximum pumped liquid temperature:**
  - max 60°C, CB version
  - max 65°C, CX version

Materials in contact with water are either certified or approved according to KTW

SET OF 2 PUMPS SVE..F SERIES
SMB20.../2, SMB20.../3, SMB20.../4



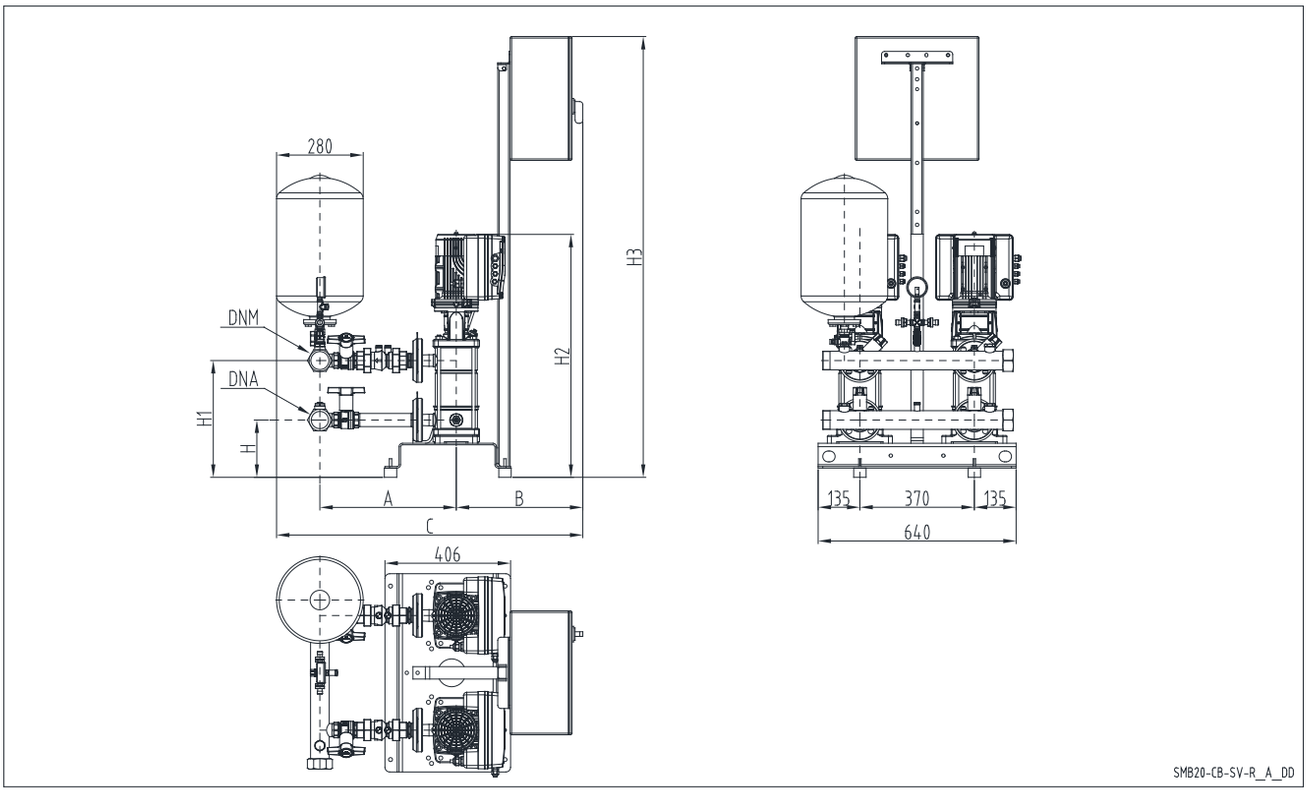
SMB 20	DNA	DNM	A		B		C		H	H2	H3
			CB	CX	CB	CX	CB	CX			
1SVE05F003	R2"	R2"	256	281	413	391	977	955	185	690	1223
1SVE08F005	R2"	R2"	256	281	413	391	977	955	185	750	1423
1SVE11F007	R2"	R2"	256	281	413	391	977	955	185	810	1423
1SVE15F011	R2"	R2"	256	281	413	391	977	955	185	890	1423
3SVE03F003	R2"	R2"	256	281	413	391	977	955	185	650	1223
3SVE05F005	R2"	R2"	256	281	413	391	977	955	185	690	1223
3SVE07F007	R2"	R2"	256	281	413	391	977	955	185	730	1223
3SVE09F011	R2"	R2"	256	281	413	391	977	955	185	770	1423
3SVE11F015	R2"	R2"	256	281	413	391	977	955	185	810	1423
5SVE02F003	R2"	R2"	262	283	441	417	1005	981	185	640	1223
5SVE03F005	R2"	R2"	262	283	441	417	1005	981	185	665	1223
5SVE04F007	R2"	R2"	262	283	441	417	1005	981	185	690	1223
5SVE06F011	R2"	R2"	262	283	441	417	1005	981	185	740	1223
5SVE08F015	R2"	R2"	262	283	441	417	1005	981	185	790	1423
5SVE12F022 *	R2"	R2"	262	283	441	417	1005	981	185	890	1673
10SVE01F005	R2"	R2"	286	306	475	445	1039	1009	190	719	1223
10SVE02F007	R2"	R2"	286	306	475	445	1039	1009	190	719	1223
10SVE02F011	R2"	R2"	286	306	475	445	1039	1009	190	719	1223
10SVE03F015	R2"	R2"	286	306	475	445	1039	1009	190	751	1423
10SVE04F022 *	R2"	R2"	286	306	475	445	1039	1009	190	783	1423
15SVE01F007	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
15SVE01F011	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
15SVE02F015	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
15SVE02F022 *	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
22SVE01F007	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
22SVE01F011	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
22SVE02F015	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423
22SVE02F022 *	R2"1/2	R2"1/2	338	361	560	510	1124	1074	200	771	1423

Dimensions in mm. Tolerance ± 10 mm.

smb20-sv-f-dach_a_td

* valid only for /3/4 versions

SET OF 2 PUMPS SVE..R SERIES
SMB20.../2, SMB20.../3, SMB20.../4



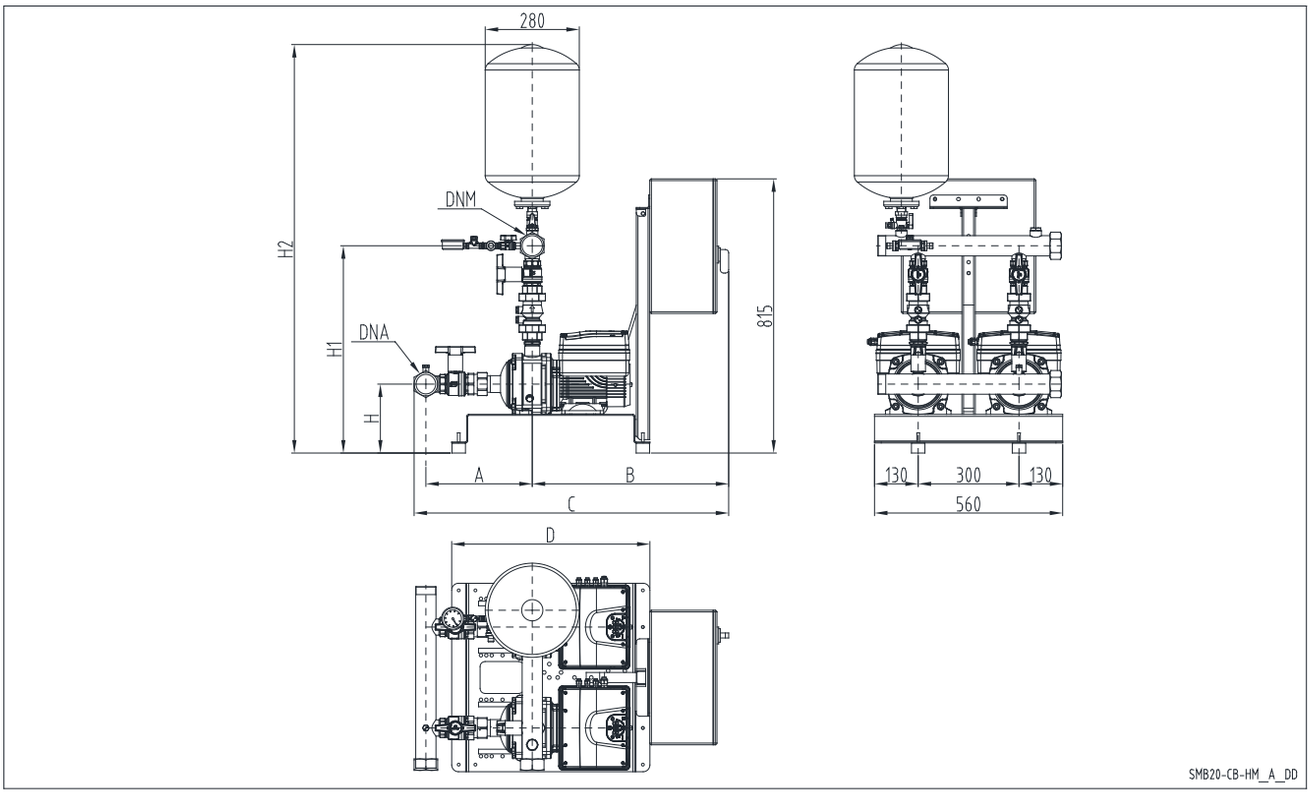
SMB 20	DNA	DNM	A		B	C		H	H1	H2	H3
			CB	CX		CB	CX				
1SVE08R005	R2"	R2"	413	391	409	962	940	185	337	750	1423
1SVE11R007	R2"	R2"	413	391	409	962	940	185	397	810	1423
1SVE15R011	R2"	R2"	413	391	409	962	940	185	477	890	1423
3SVE07R007	R2"	R2"	413	391	409	962	940	185	317	730	1223
3SVE09R011	R2"	R2"	413	391	409	962	940	185	357	770	1423
3SVE11R015	R2"	R2"	413	391	409	962	940	185	397	810	1423
5SVE08R015	R2"	R2"	441	417	409	990	966	185	377	790	1423
5SVE12R022 *	R2"	R2"	441	417	409	990	966	185	377	890	1673

Dimensions in mm. Tolerance ± 10 mm.

smb20-sv-r-dach_a_td

* valid only for /3/4 versions

SET OF 2 PUMPS HME..S SERIES
SMB20.../2, SMB20.../3, SMB20.../4



SMB 20	DNA	DNM	A		B	C		D	H	H1		H2	
			CB	CX		CB	CX			CB	CX	CB	CX
1HME05	R 2"	R 2"	296	321	584	910	935	590	205	568	602	1166	1200
1HME08	R 2"	R 2"	340	365	584	954	979	590	205	568	602	1166	1200
1HME11	R 2"	R 2"	400	425	584	1014	1039	590	205	568	602	1166	1200
1HME15	R 2"	R 2"	480	505	584	1094	1119	762	205	568	602	974	1008
1HME17	R 2"	R 2"	520	545	584	1134	1159	762	205	568	602	974	1008
3HME03	R 2"	R 2"	256	281	584	870	895	590	205	568	602	1166	1200
3HME05	R 2"	R 2"	296	321	584	910	935	590	205	568	602	1166	1200
3HME07	R 2"	R 2"	320	345	584	934	959	590	205	568	602	1166	1200
3HME09	R 2"	R 2"	360	385	584	974	999	590	205	568	602	1166	1200
3HME12	R 2"	R 2"	420	445	584	1034	1059	590	205	568	602	974	1008
3HME14 *	R 2"	R 2"	460	485	584	1074	1099	590	205	568	602	974	1008
5HME02	R 2"	R 2"	286	306	584	900	920	590	205	568	602	1166	1200
5HME03	R 2"	R 2"	286	306	584	900	920	590	205	568	602	1166	1200
5HME04	R 2"	R 2"	311	331	584	925	945	590	205	568	602	1166	1200
5HME06	R 2"	R 2"	340	360	584	954	974	590	205	568	602	1166	1200
5HME08	R 2"	R 2"	390	410	584	1004	1024	590	205	568	602	1166	1200
5HME10 *	R 2"	R 2"	440	460	584	1054	1074	590	205	568	602	974	1008
10HME01	R 2"	R 2"	317	336	584	931	950	590	205	616	653	1214	1251
10HME02	R 2"	R 2"	317	336	584	931	950	590	205	616	653	1214	1251
10HME03	R 2"	R 2"	317	336	584	931	950	590	205	616	653	1214	1251
10HME04 *	R 2"	R 2"	349	368	584	963	982	590	205	616	653	1214	1251
15HME01	R 2"1/2	R 2"1/2	384	407	600	1022	1045	590	205	640	674	1246	1280
15HME02	R 2"1/2	R 2"1/2	384	407	600	1022	1045	590	205	640	674	1246	1280
15HME03 *	R 2"1/2	R 2"1/2	384	407	600	1022	1045	590	205	640	674	1246	1280

Dimensions in mm. Tolerance ± 10 mm.

smb20_hm-dach_a_td

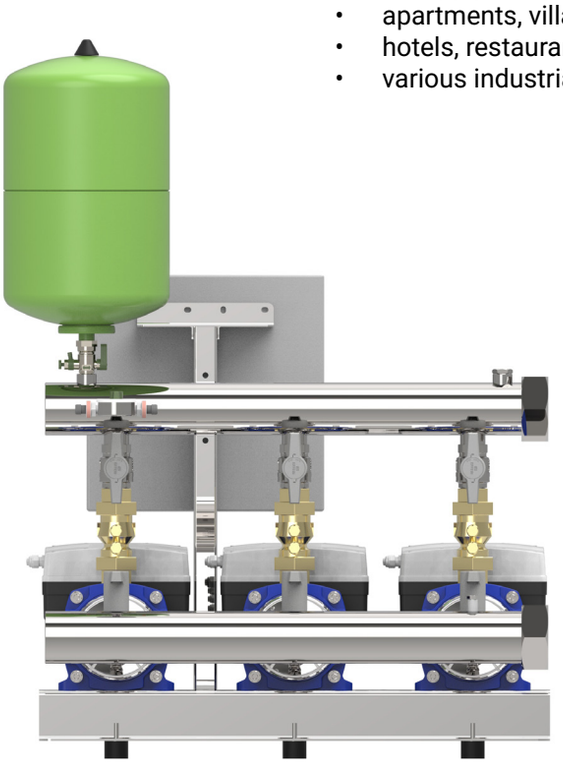
* valid only for /3/4 versions

Booster sets

SMB30 Series

MARKET SECTORS
RESIDENTIAL, COMMERCIAL, INDUSTRIAL

APPLICATIONS
Water supply and pressure boosting in:
- apartments, villas, condominiums and residential buildings
- hotels, restaurants, spas
- various industrial applications

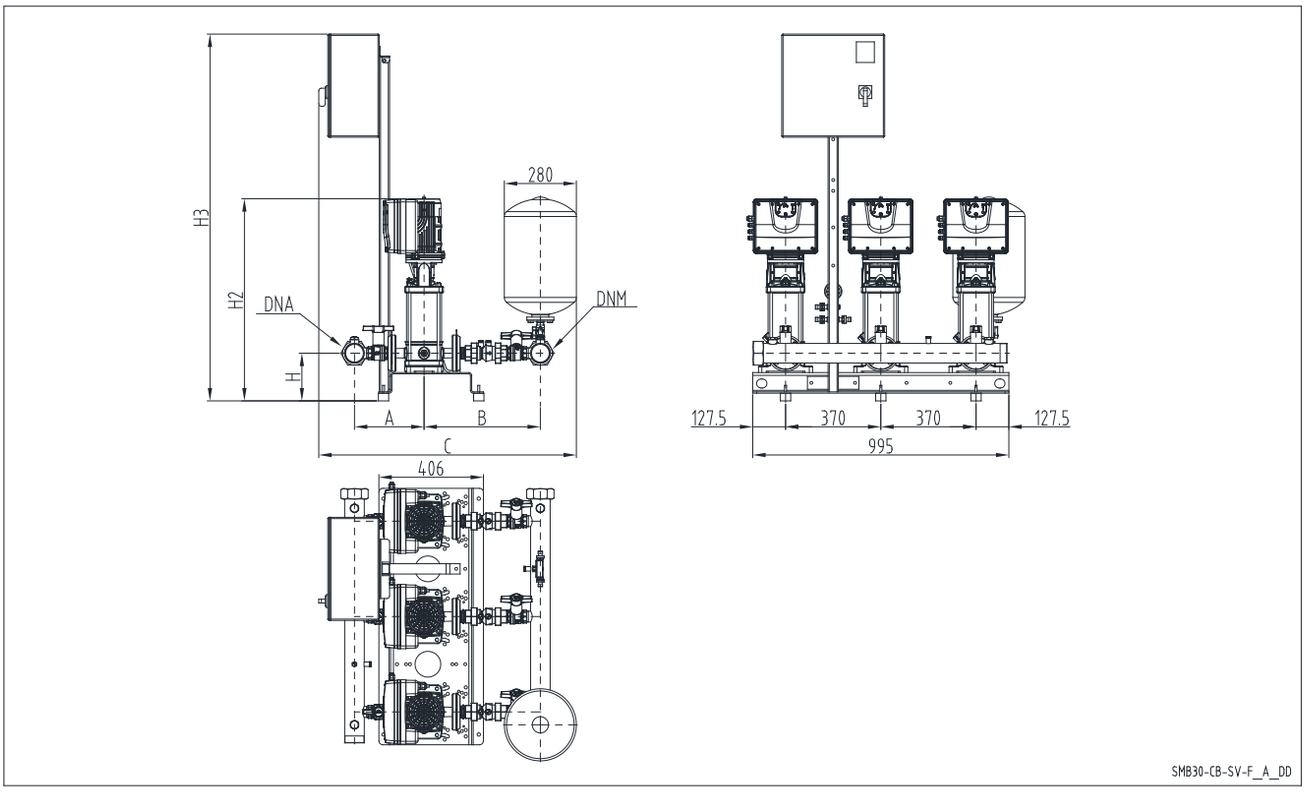


SPECIFICATIONS

- **e-SVE** vertical axis electric pump.
- **e-HME..S** horizontal axis electric pump.
- **Flow rate:** up to 90 m^3/h.
- **Head:** up to 158 m
- **Maximum operating pressure:** max 16 bar.
- **Material**
  SMB30 available CB and CX version
- **Electric panel supply voltage:**
  Standard version:
  - three-phase 3 x 400V +N ± 10% (SMB../2).
  - three-phase 3 x 400V ± 10% (SMB../4).
  - three-phase 3 x 230V ± 10% (SMB../3).
- **Frequency**: 50Hz.
- **Protection class IP55 for:**
  - electrical pump motor
  - e-SM drive frequency converter
- **Maximum electric pump power:** 3 x 2,2 kW.
- **Progressive motor start.**
- **Maximum pumped liquid temperature:**
  - max 60°C, CB version
  - max 65°C, CX version

Materials in contact with water are either certified or approved according to KTW

SET OF 3 PUMPS SVE..F SERIES
SMB30.../2, SMB30.../3, SMB30.../4



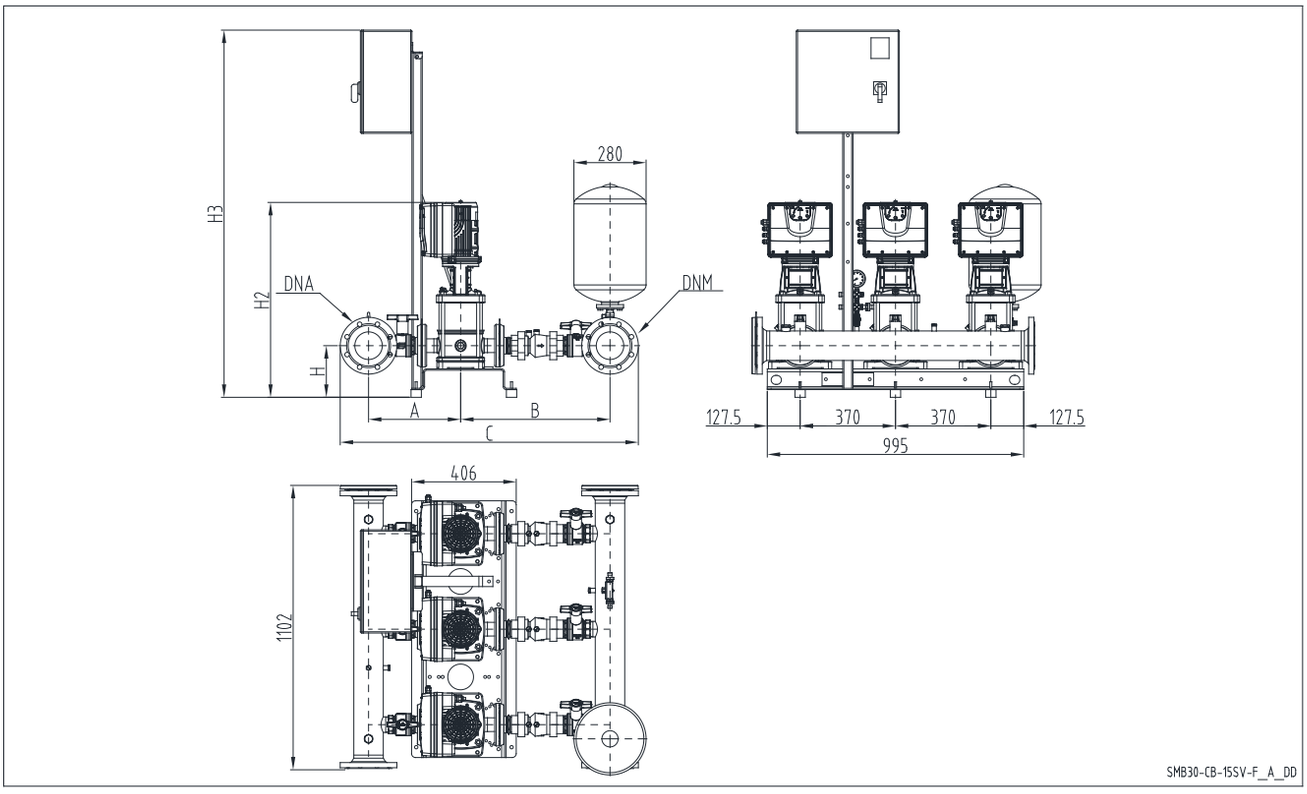
SMB 30	DNA	DNM	A		B		C		H	H2	H3
			CB	CX	CB	CX	CB	CX			
1SVE05F003	R2"	R2"	256	281	413	391	977	955	185	690	1223
1SVE08F005	R2"	R2"	256	281	413	391	977	955	185	750	1423
1SVE11F007	R2"	R2"	256	281	413	391	977	955	185	810	1423
1SVE15F011	R2"	R2"	256	281	413	391	977	955	185	890	1423
3SVE03F003	R2"	R2"	256	281	413	391	977	955	185	650	1223
3SVE05F005	R2"	R2"	256	281	413	391	977	955	185	690	1223
3SVE07F007	R2"	R2"	256	281	413	391	977	955	185	730	1223
3SVE09F011	R2"	R2"	256	281	413	391	977	955	185	770	1423
3SVE11F015	R2"	R2"	256	281	413	391	977	955	185	810	1423
5SVE02F003	R2"1/2	R2"1/2	270	291	449	425	1013	989	185	640	1223
5SVE03F005	R2"1/2	R2"1/2	270	291	449	425	1013	989	185	665	1223
5SVE04F007	R2"1/2	R2"1/2	270	291	449	425	1013	989	185	690	1223
5SVE06F011	R2"1/2	R2"1/2	270	291	449	425	1013	989	185	740	1223
5SVE08F015	R2"1/2	R2"1/2	270	291	449	425	1013	989	185	790	1423
5SVE12F022 *	R2"1/2	R2"1/2	270	291	449	425	1013	989	185	890	1673
10SVE01F005	R3"	R3"	301	321	490	460	1054	1024	190	719	1223
10SVE02F007	R3"	R3"	301	321	490	460	1054	1024	190	719	1223
10SVE02F011	R3"	R3"	301	321	490	460	1054	1024	190	719	1223
10SVE03F015	R3"	R3"	301	321	490	460	1054	1024	190	751	1423
10SVE04F022 *	R3"	R3"	301	321	490	460	1054	1024	190	783	1423

Dimensions in mm. Tolerance ± 10 mm.

smb30-sv-f-dach_a_td

* valid only for /3/4 versions

SET OF 3 PUMPS SVE..F SERIES
SMB30.../2, SMB30.../3, SMB30.../4



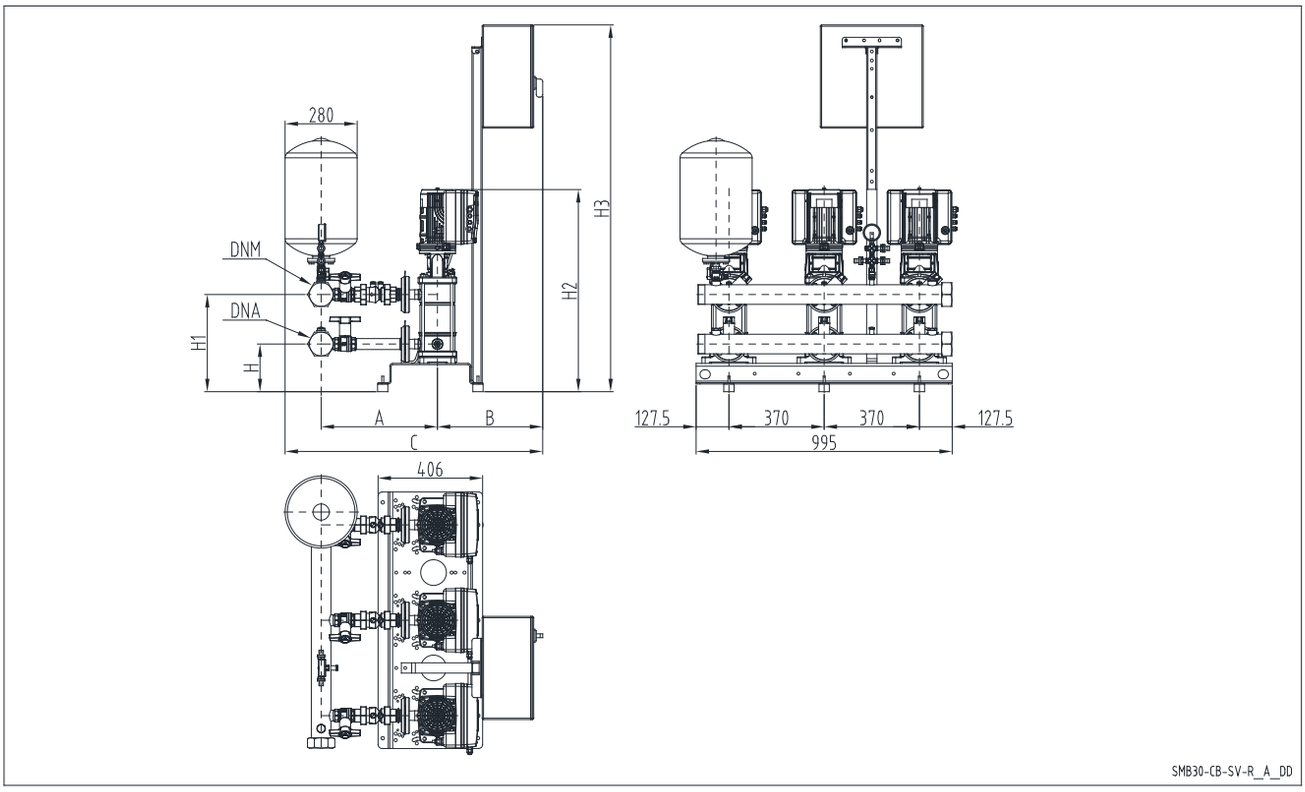
SMB 30	DNA	DNM	A		B		C		H	H2	H3
			CB	CX	CB	CX	CB	CX			
15SVE01F007	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
15SVE01F011	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
15SVE02F015	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
15SVE02F022 *	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
22SVE01F007	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
22SVE01F011	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
22SVE02F015	DN100	DN100	357	380	579	529	1186	1159	200	771	1423
22SVE02F022 *	DN100	DN100	357	380	579	529	1186	1159	200	771	1423

Dimensions in mm. Tolerance ± 10 mm.

smb30-15sv-dach_a_td

* valid only for /3/4 versions

SET OF 3 PUMPS SVE..R SERIES
SMB30.../2, SMB30.../3, SMB30.../4



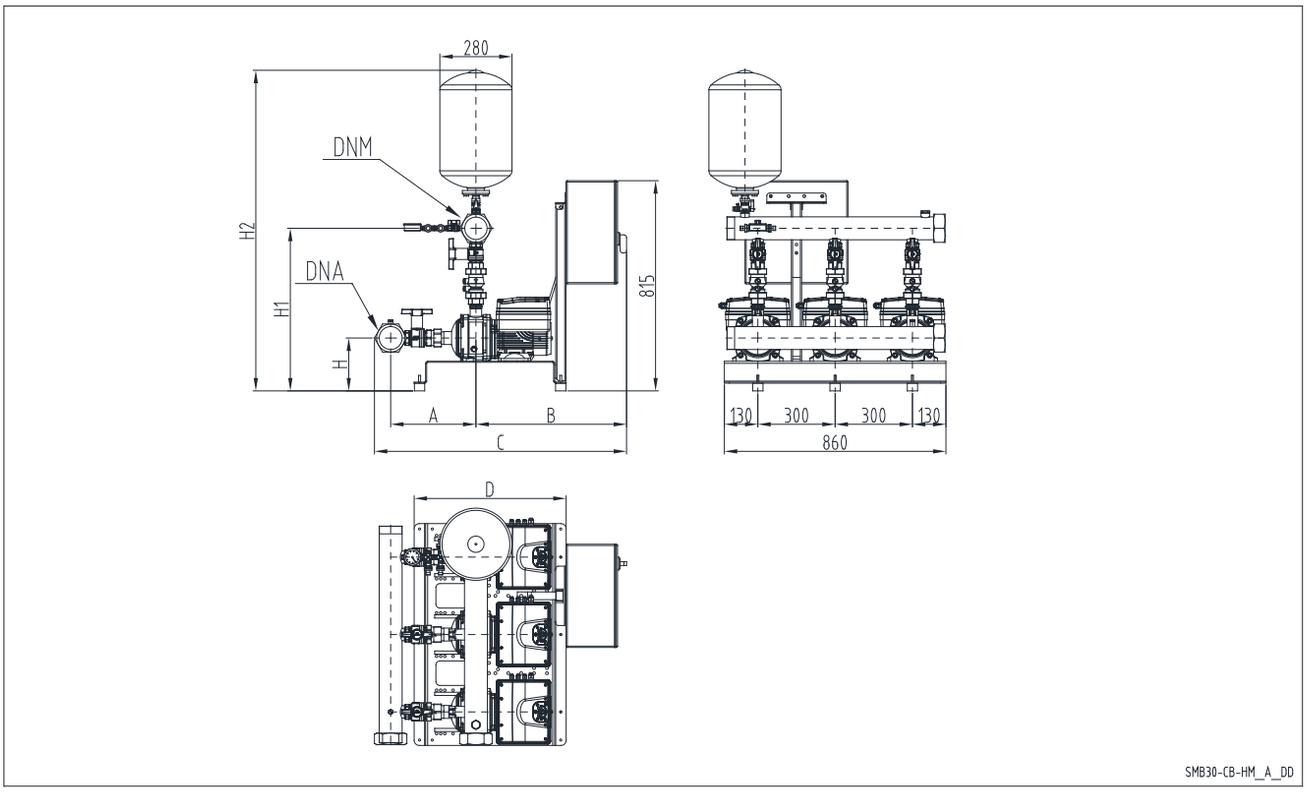
SMB 30	DNA	DNM	A		B	C		H	H1	H2	H3
			CB	CX		CB	CX				
1SVE08R005	R2"	R2"	413	391	409	962	940	185	337	750	1423
1SVE11R007	R2"	R2"	413	391	409	962	940	185	397	810	1423
1SVE15R011	R2"	R2"	413	391	409	962	940	185	477	890	1423
3SVE07R007	R2"	R2"	413	391	409	962	940	185	317	730	1223
3SVE09R011	R2"	R2"	413	391	409	962	940	185	357	770	1423
3SVE11R015	R2"	R2"	413	391	409	962	940	185	397	810	1423
5SVE08R015	R2"1/2	R2"1/2	449	425	409	998	974	185	377	790	1423
5SVE12R022 *	R2"1/2	R2"1/2	449	425	409	998	974	185	377	890	1673

Dimensions in mm. Tolerance ± 10 mm.

smb30-sv-r-dach_a_td

* valid only for /3/4 versions

SET OF 3 PUMPS HME..S SERIES
SMB30.../2, SMB30.../3, SMB30.../4



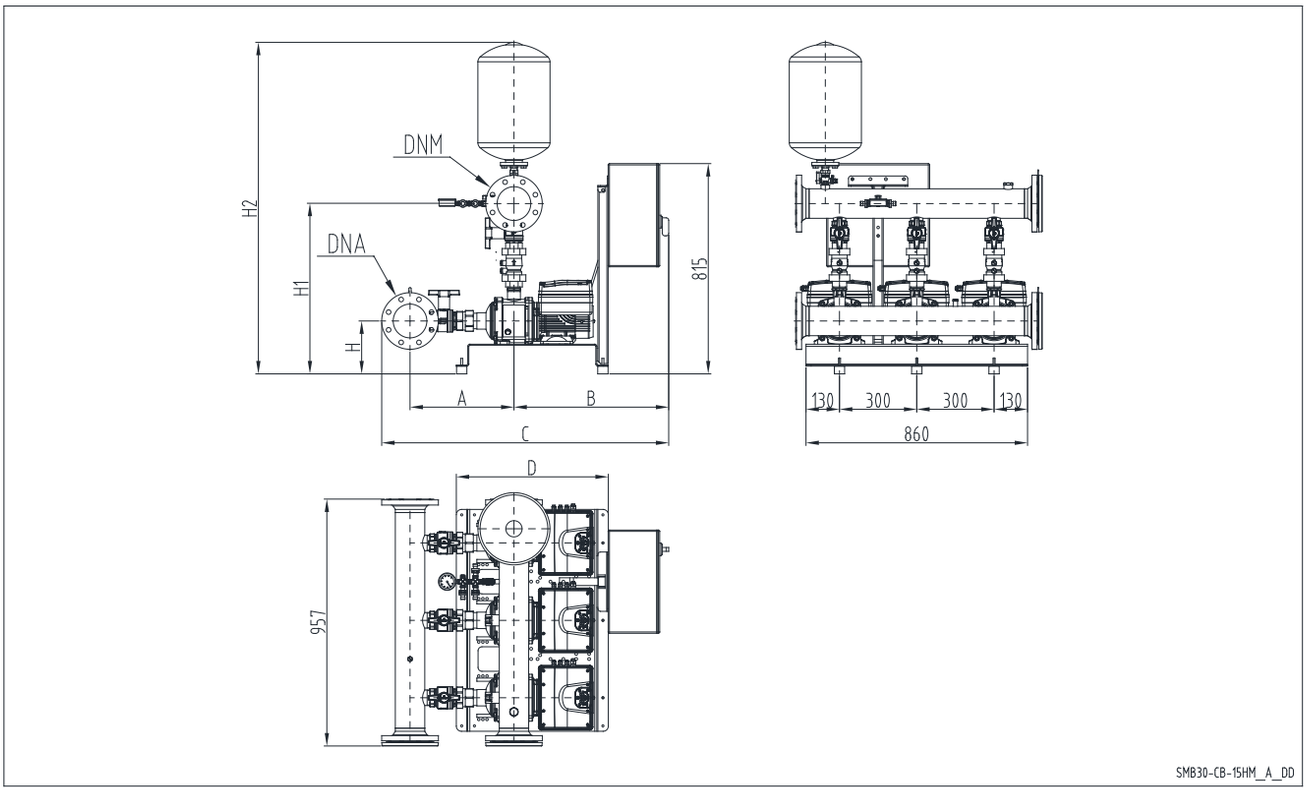
SMB 30	DNA	DNM	A		B	C		D	H	H1		H2	
			CB	CX		CB	CX			CB	CX	CB	CX
1HME05	R 2"	R 2"	296	321	584	910	935	590	205	568	602	1166	1200
1HME08	R 2"	R 2"	340	365	584	954	979	590	205	568	602	1166	1200
1HME11	R 2"	R 2"	400	425	584	1014	1039	590	205	568	602	1166	1200
1HME15	R 2"	R 2"	480	505	584	1094	1119	762	205	568	602	974	1008
1HME17	R 2"	R 2"	520	545	584	1134	1159	762	205	568	602	974	1008
3HME03	R 2"	R 2"	256	281	584	870	895	590	205	568	602	1166	1200
3HME05	R 2"	R 2"	296	321	584	910	935	590	205	568	602	1166	1200
3HME07	R 2"	R 2"	320	345	584	934	959	590	205	568	602	1166	1200
3HME09	R 2"	R 2"	360	385	584	974	999	590	205	568	602	1166	1200
3HME12	R 2"	R 2"	420	445	584	1034	1059	590	205	568	602	974	1008
3HME14 *	R 2"	R 2"	460	485	584	1074	1099	590	205	568	602	974	1008
5HME02	R 2"1/2	R 2"1/2	294	314	584	908	928	590	205	576	610	1182	1216
5HME03	R 2"1/2	R 2"1/2	294	314	584	908	928	590	205	576	610	1182	1216
5HME04	R 2"1/2	R 2"1/2	319	339	584	933	953	590	205	576	610	1182	1216
5HME06	R 2"1/2	R 2"1/2	348	368	584	962	982	590	205	576	610	1182	1216
5HME08	R 2"1/2	R 2"1/2	398	418	584	1012	1032	590	205	576	610	1182	1216
5HME10 *	R 2"1/2	R 2"1/2	448	468	584	1062	1082	590	205	576	610	990	1024
10HME01	R 3"	R 3"	332	351	584	954	973	590	205	631	668	1243	1280
10HME02	R 3"	R 3"	332	351	584	954	973	590	205	631	668	1243	1280
10HME03	R 3"	R 3"	332	351	584	954	973	590	205	631	668	1243	1280
10HME04 *	R 3"	R 3"	364	383	584	986	1005	590	205	631	668	1243	1280

Dimensions in mm. Tolerance ± 10 mm.

smb30_hm-dach_a_td

* valid only for /3/4 versions

SET OF 3 PUMPS HME..S SERIES
SMB30.../2, SMB30.../3, SMB30.../4



SMB 30	DNA	DNM	A		B	C		D	H	H1		H2	
			CB	CX		CB	CX			CB	CX	CB	CX
15HME01	DN100	DN100	403	426	600	1113	1136	590	205	659	693	1284	1318
15HME02	DN100	DN100	403	426	600	1113	1136	590	205	659	693	1284	1318
15HME03 *	DN100	DN100	403	426	600	1113	1136	590	205	659	693	1284	1318

Dimensions in mm. Tolerance ± 10 mm.

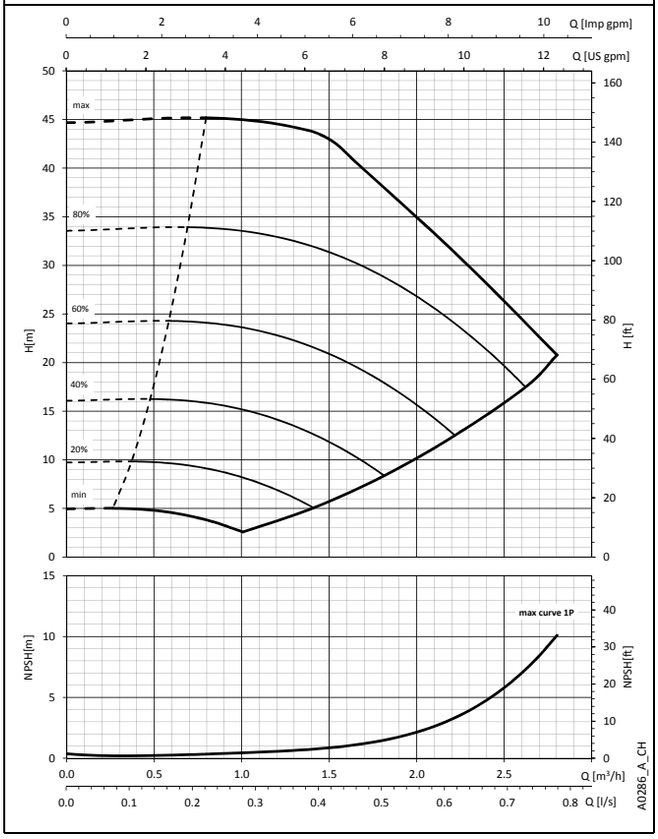
smb30_15hm-dach_a_td

* valid only for /3/4 versions

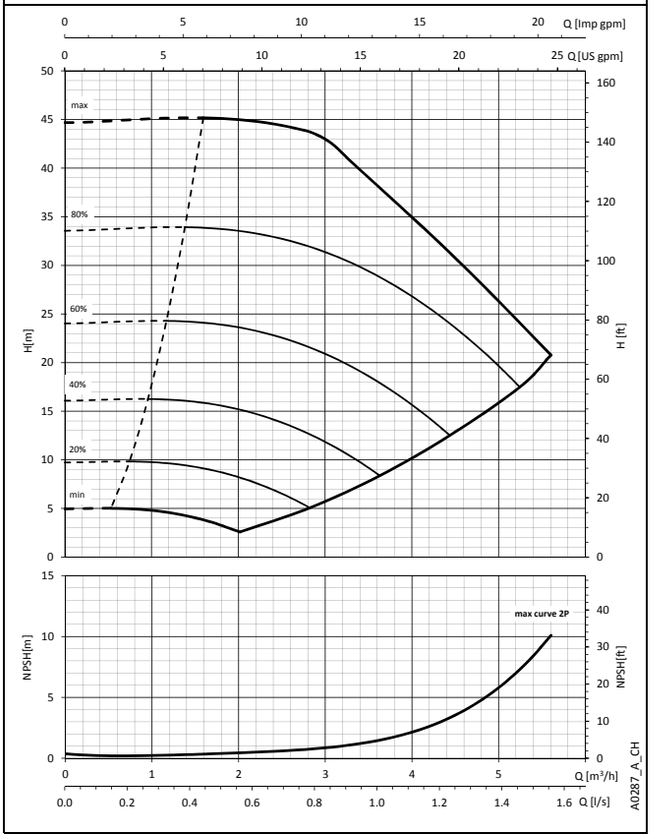
PERFORMANCE CURVES

SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

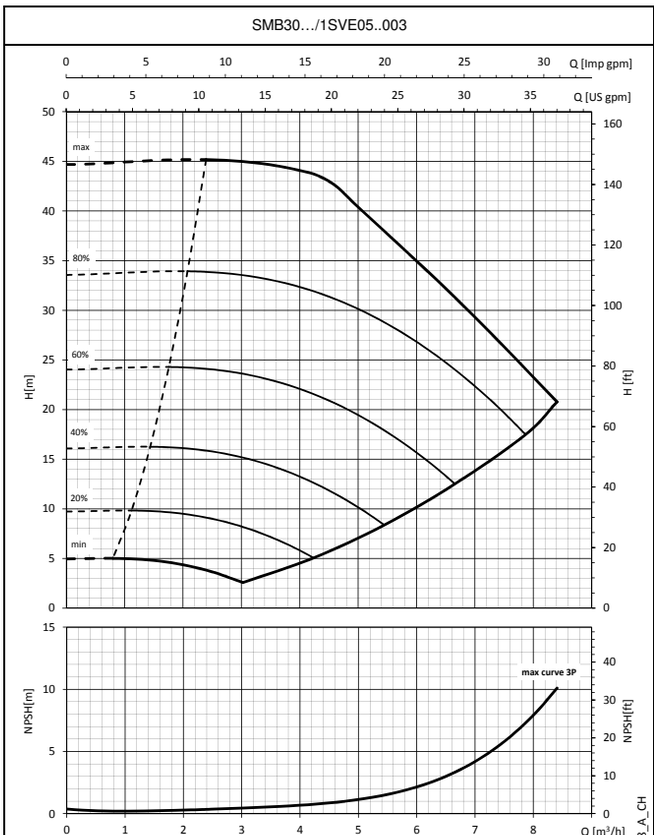
1SVE05..003



SMB20.../1SVE05..003



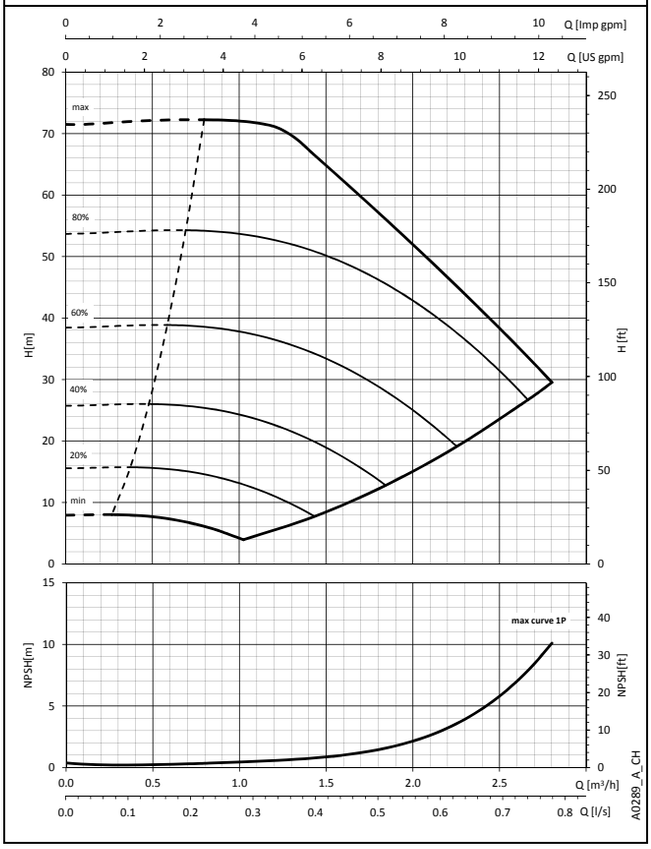
SMB30.../1SVE05..003



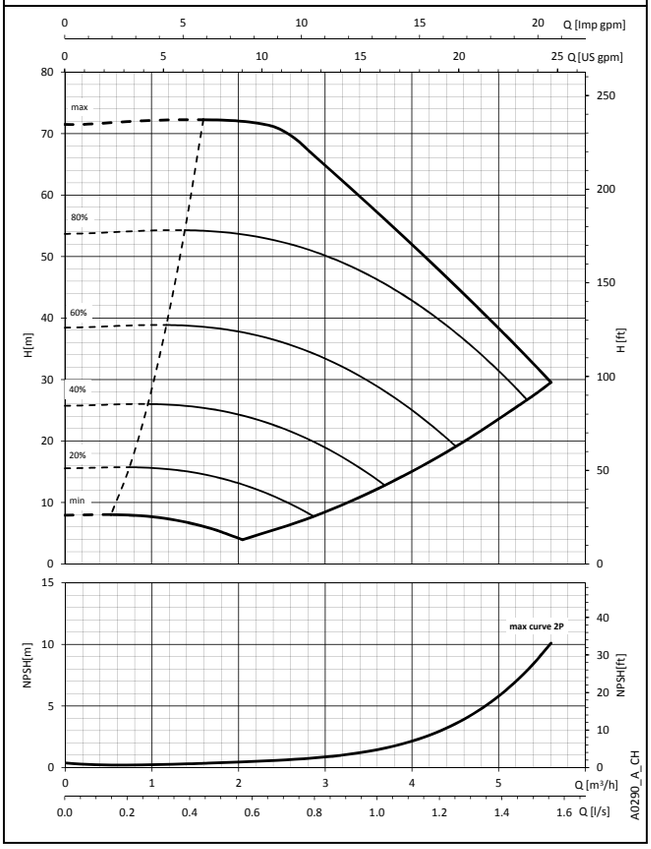
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
The declared NPSH values are laboratory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

SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

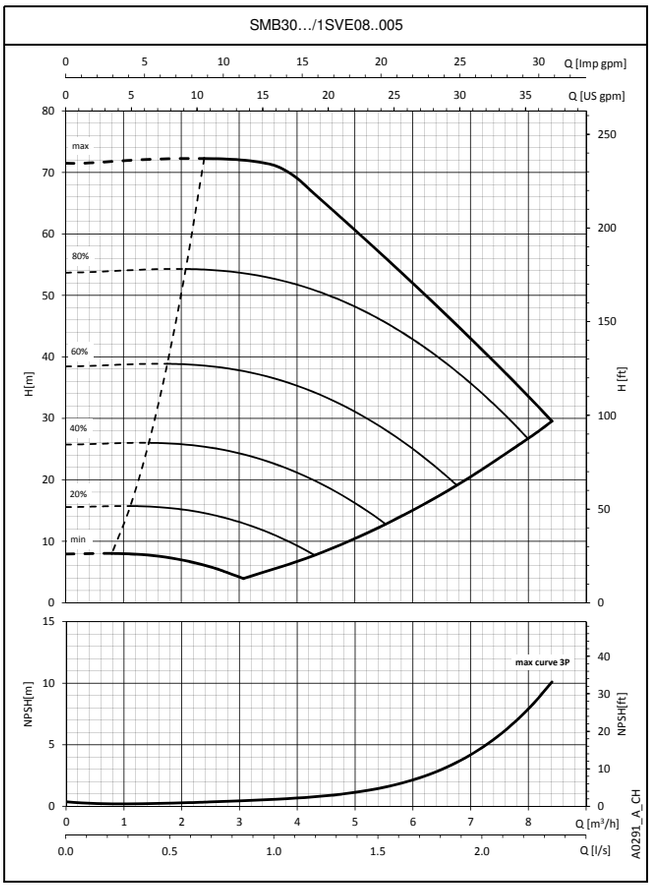
1SVE08..005



SMB20.../1SVE08..005



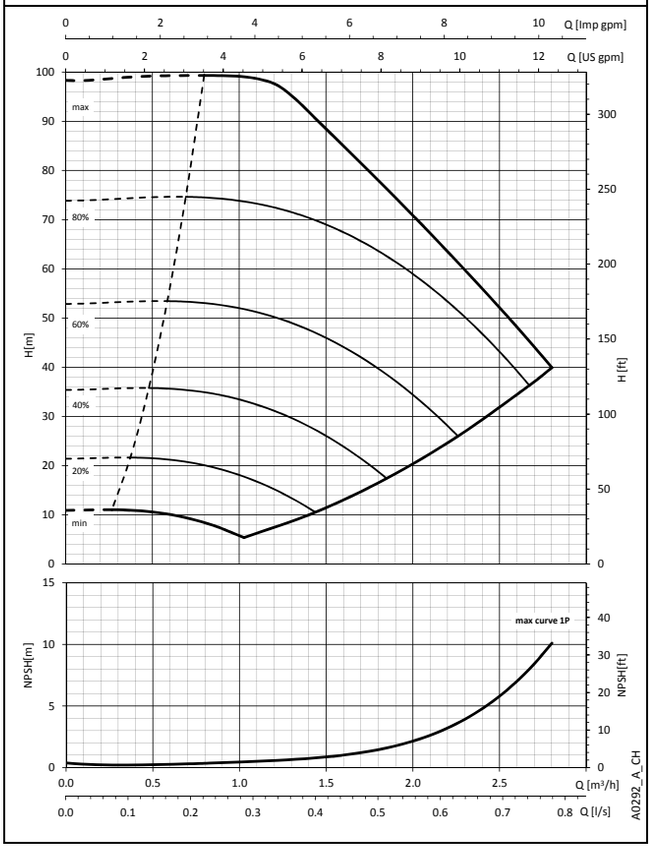
SMB30.../1SVE08..005



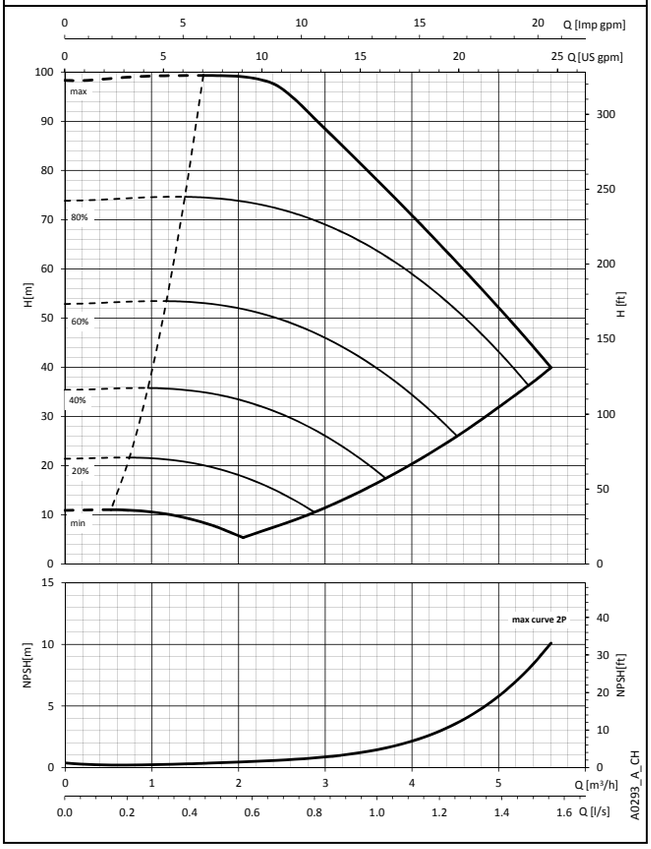
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

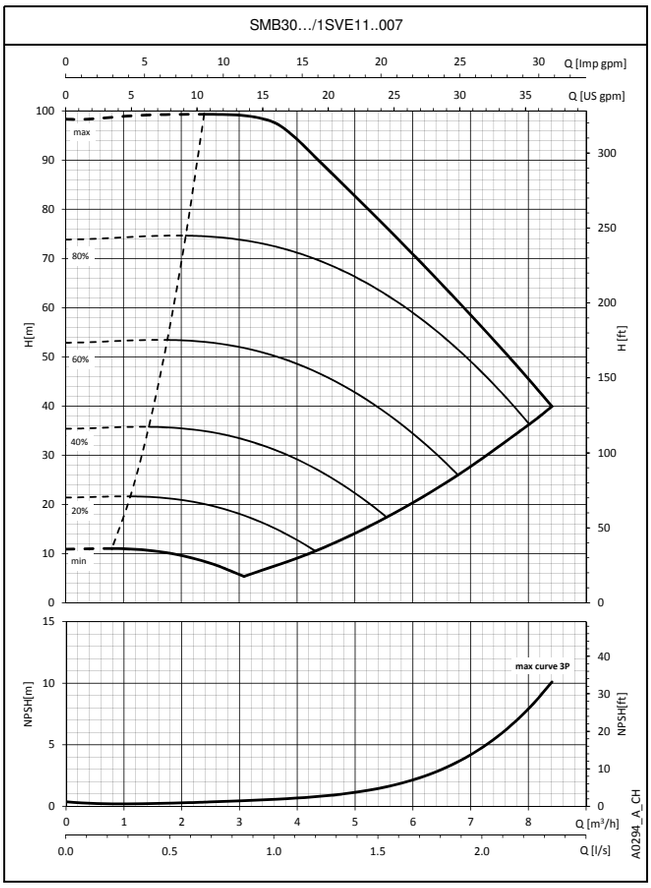
1SVE11..007



SMB20.../1SVE11..007



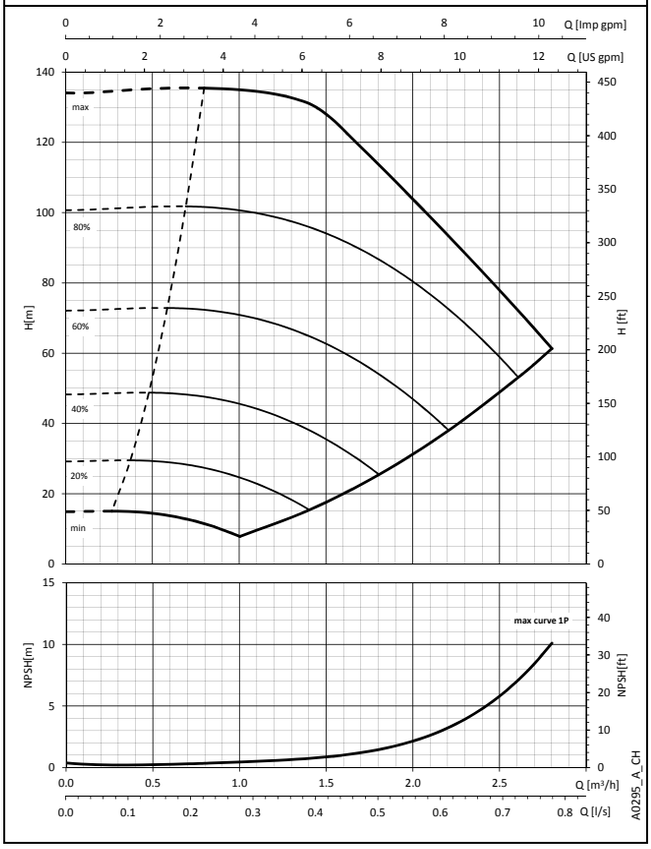
SMB30.../1SVE11..007



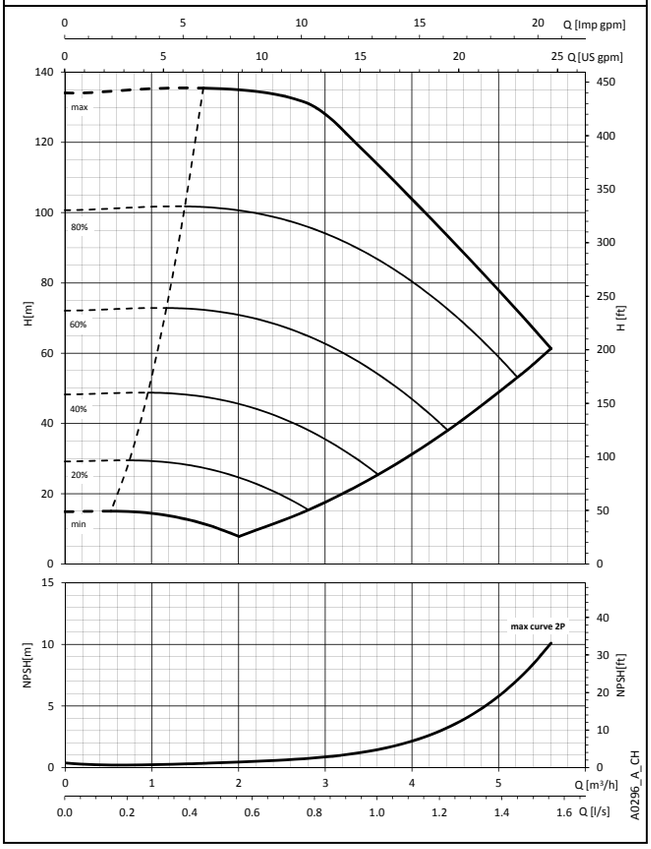
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

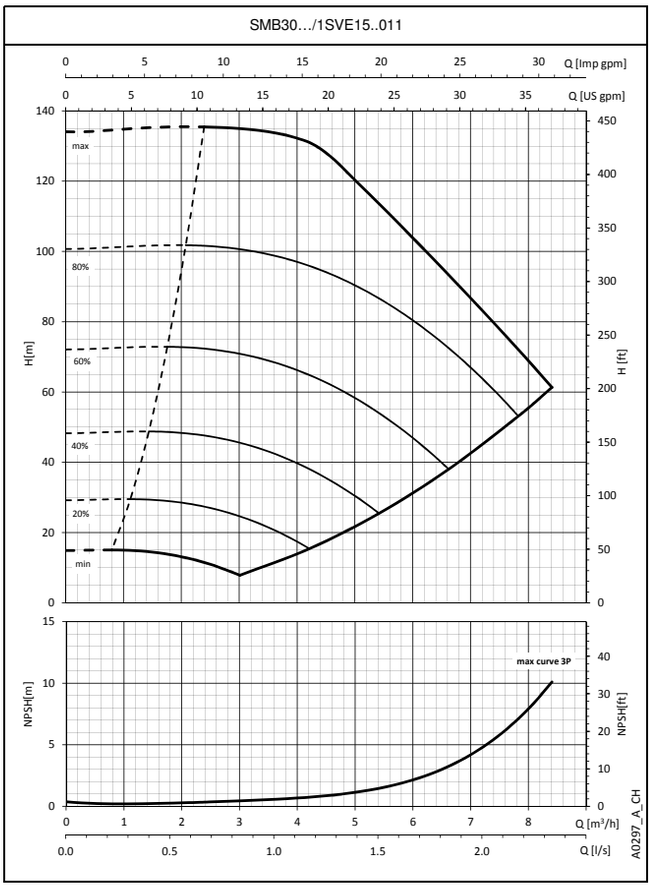
1SVE15..011



SMB20.../1SVE15..011



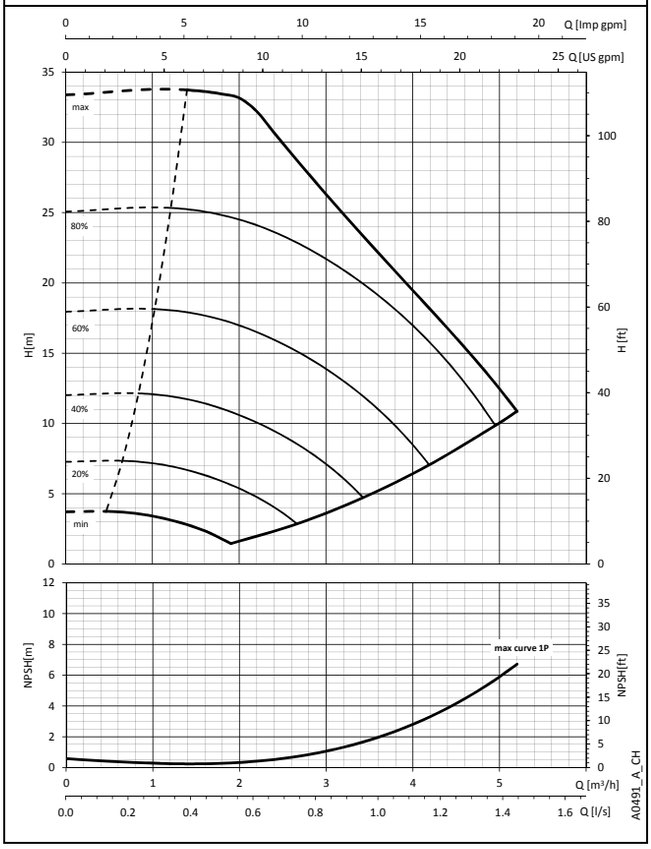
SMB30.../1SVE15..011



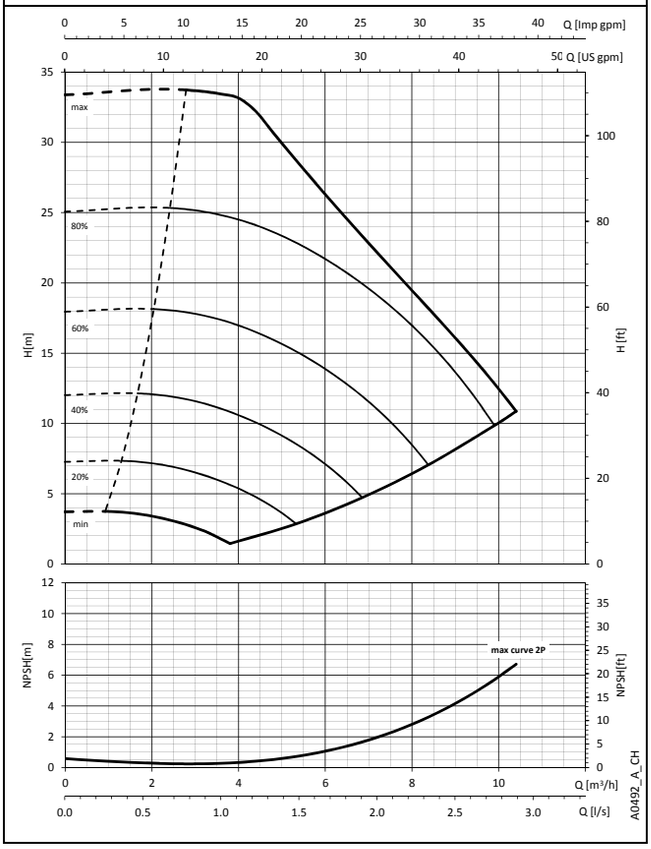
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

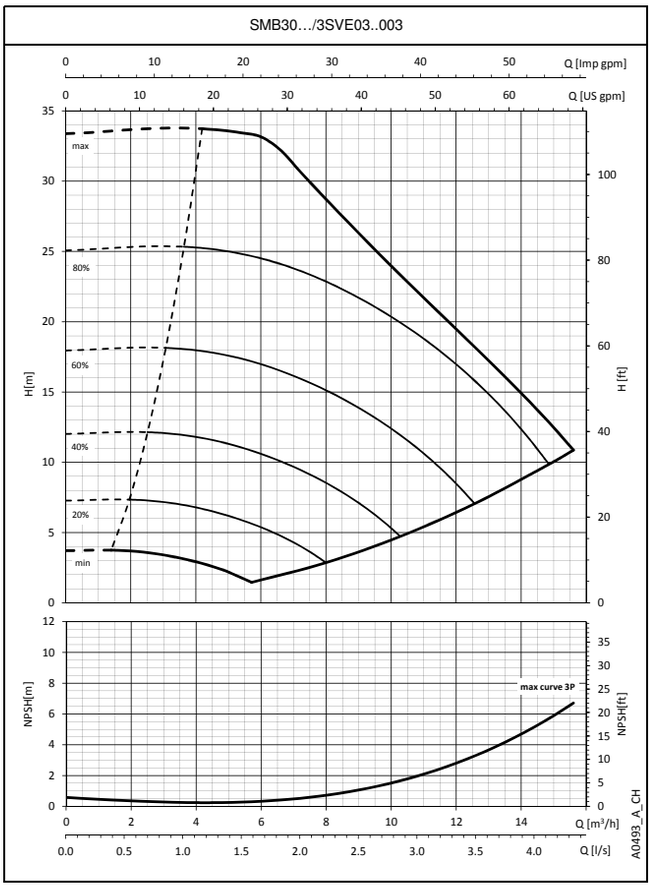
3SVE03..003



SMB20.../3SVE03..003



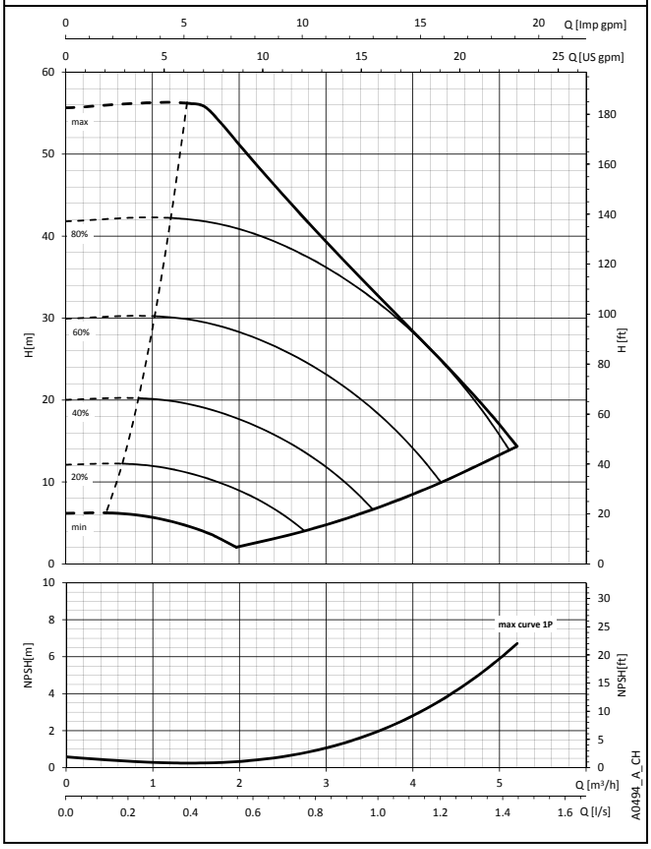
SMB30.../3SVE03..003



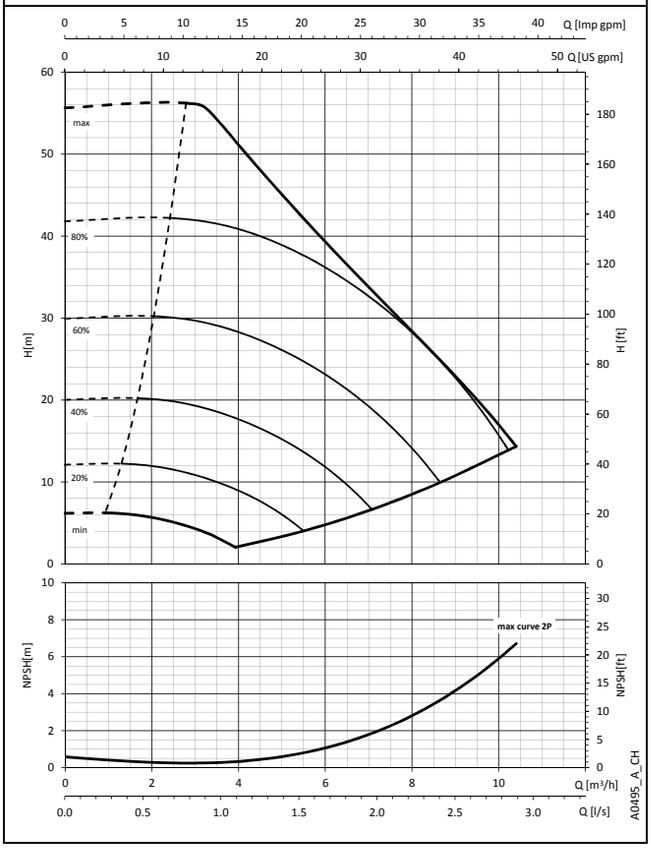
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

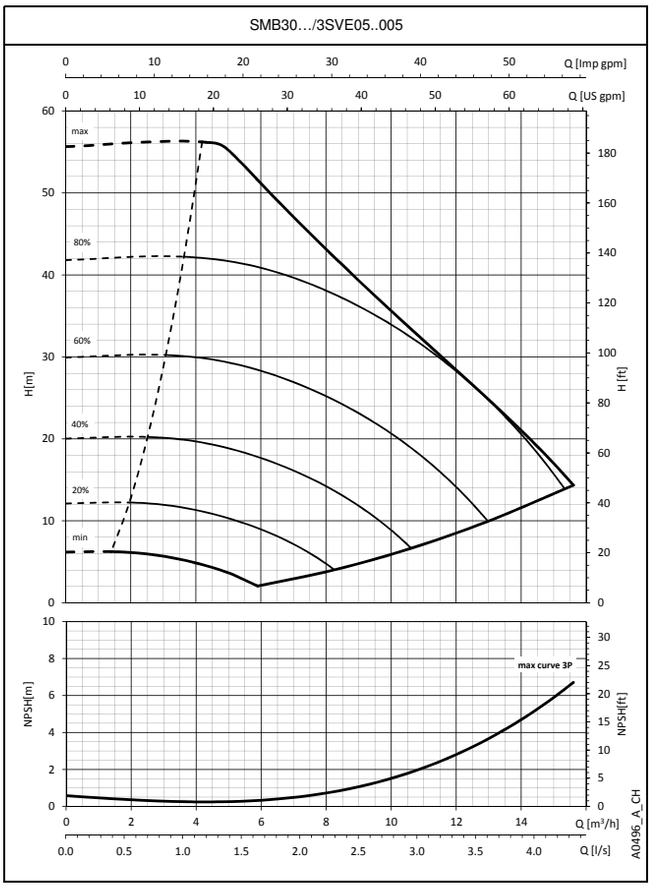
3SVE05..005



SMB20.../3SVE05..005



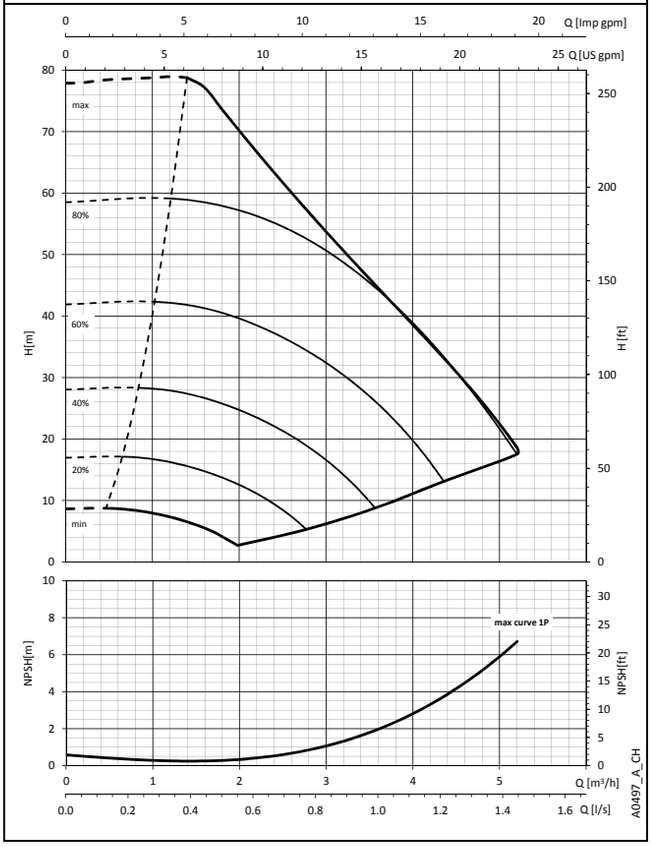
SMB30.../3SVE05..005



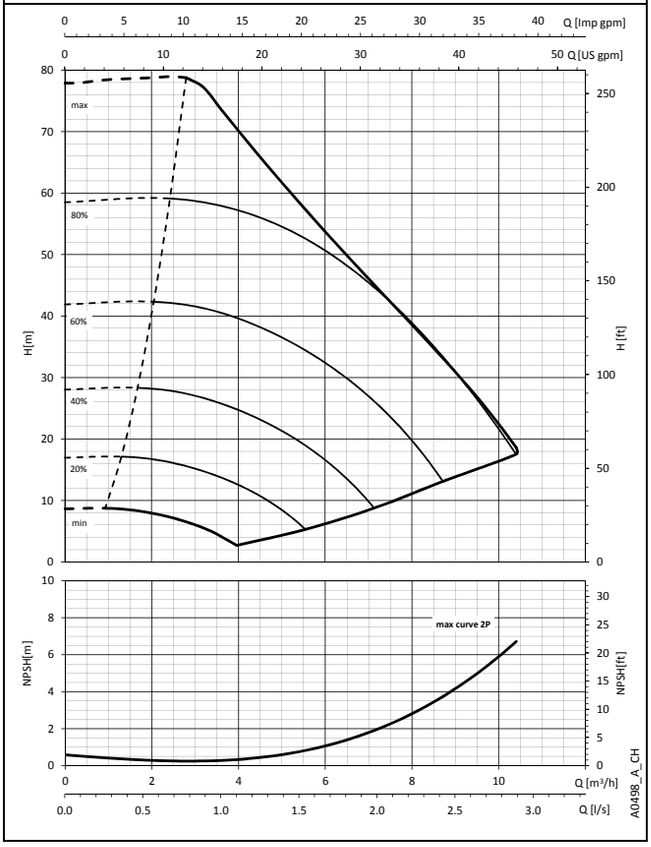
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

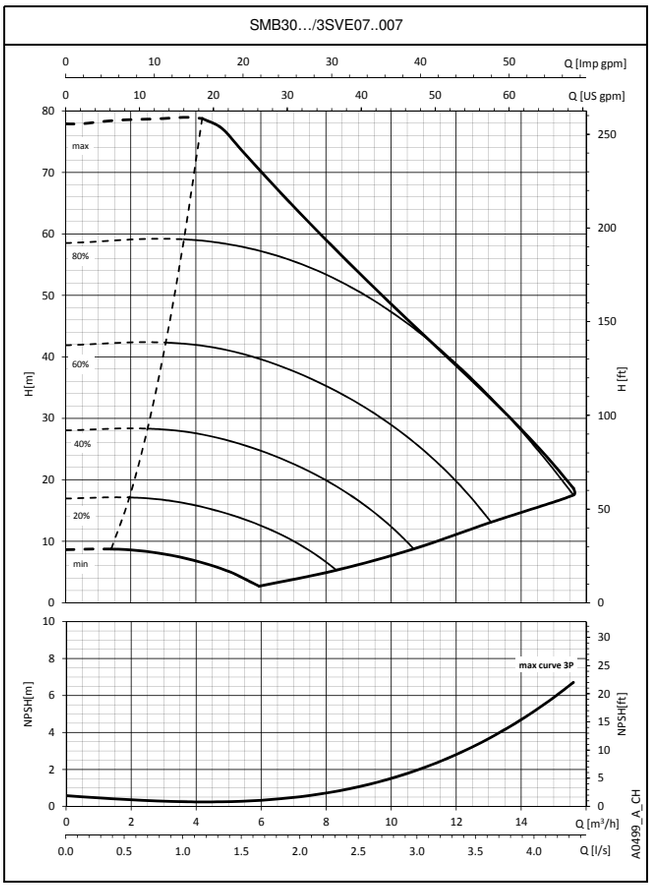
3SVE07..007



SMB20.../3SVE07..007



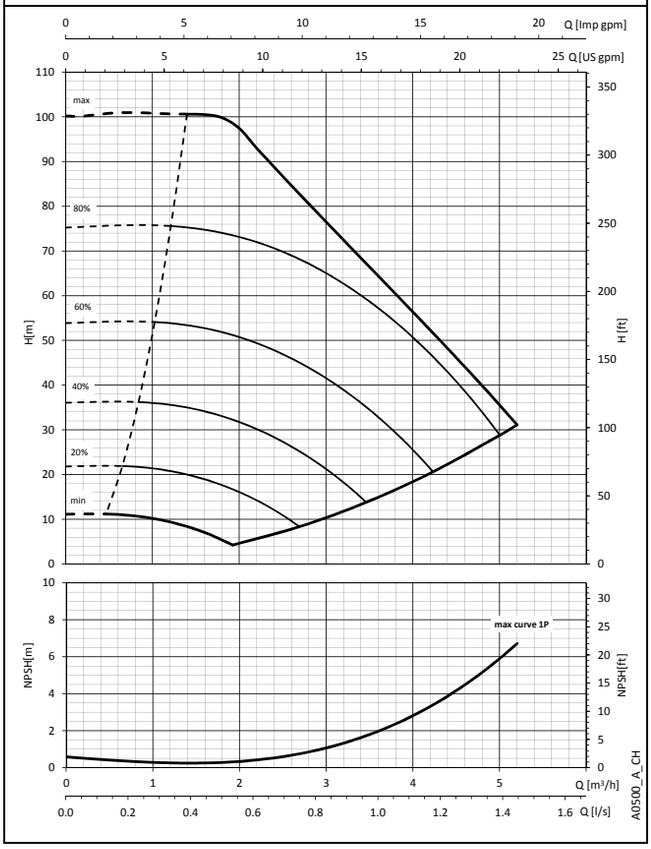
SMB30.../3SVE07..007



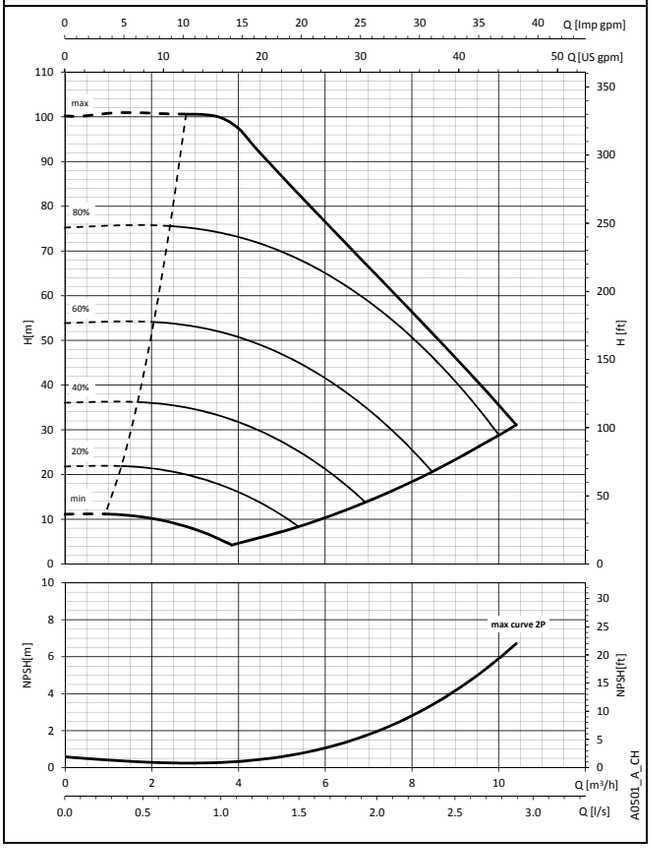
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

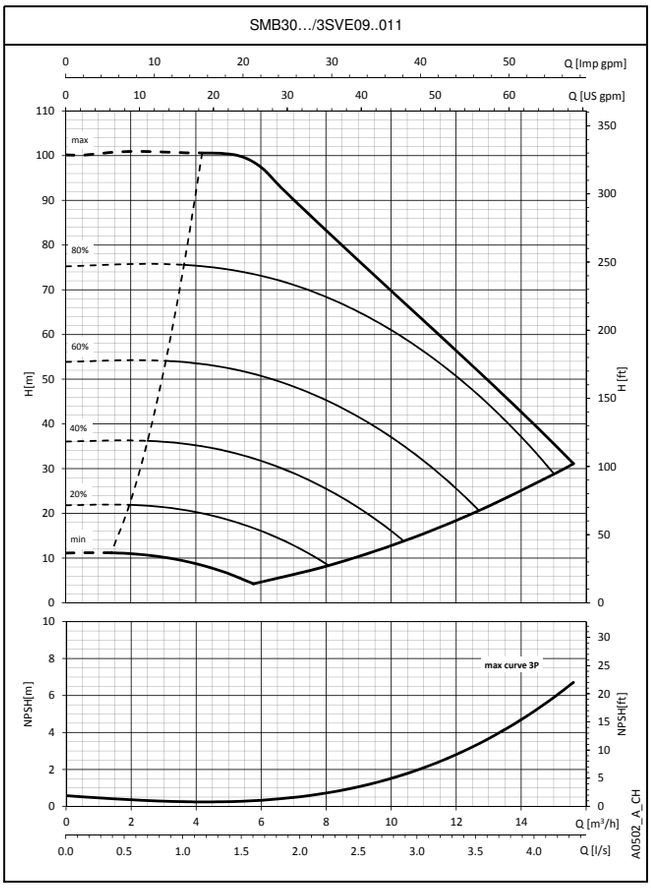
3SVE09..011



SMB20.../3SVE09..011



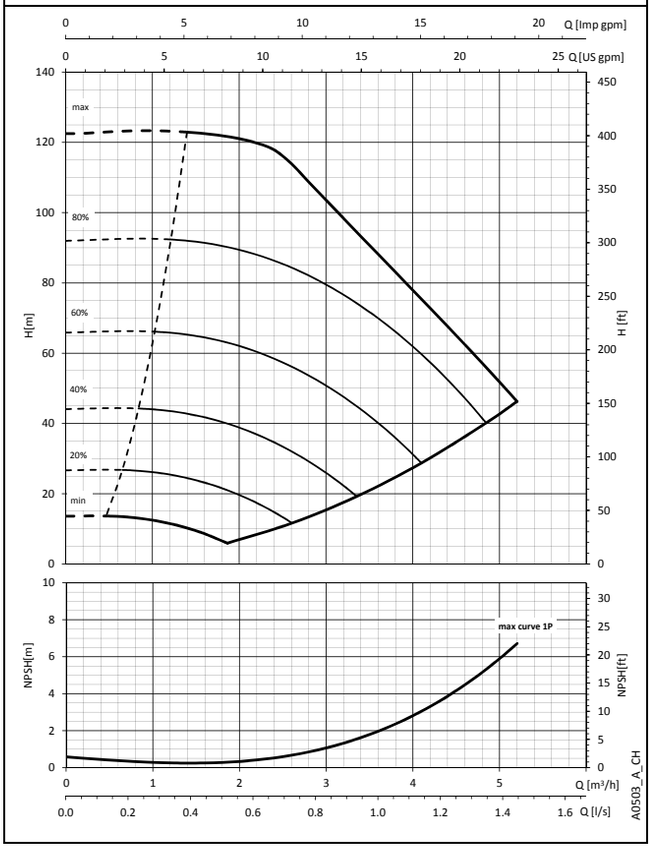
SMB30.../3SVE09..011



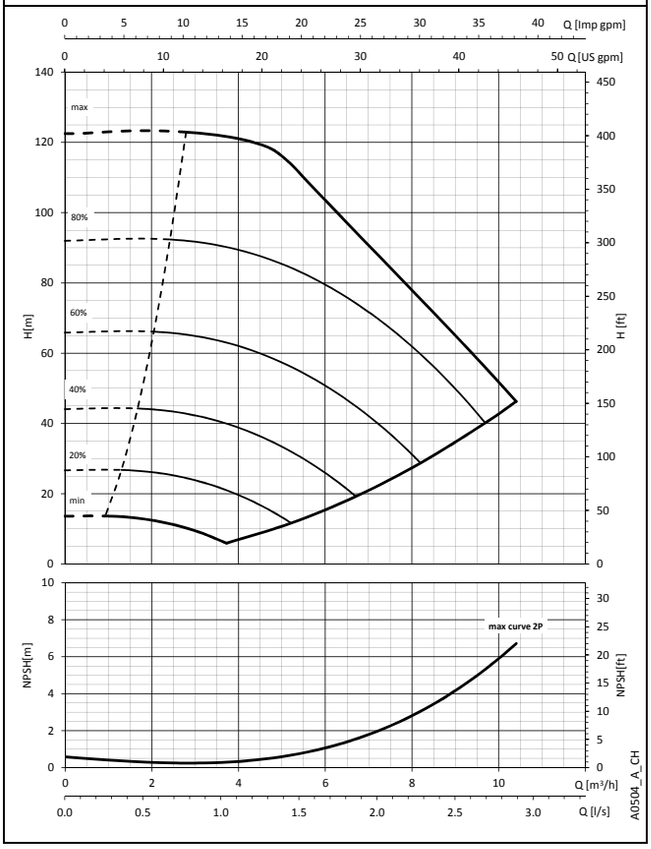
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

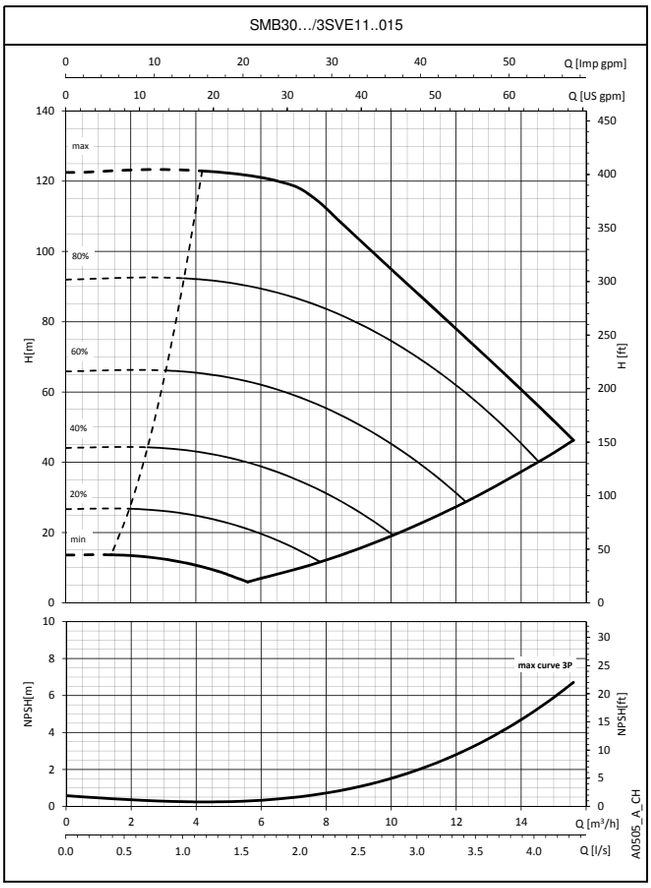
3SVE11..015



SMB20.../3SVE11..015

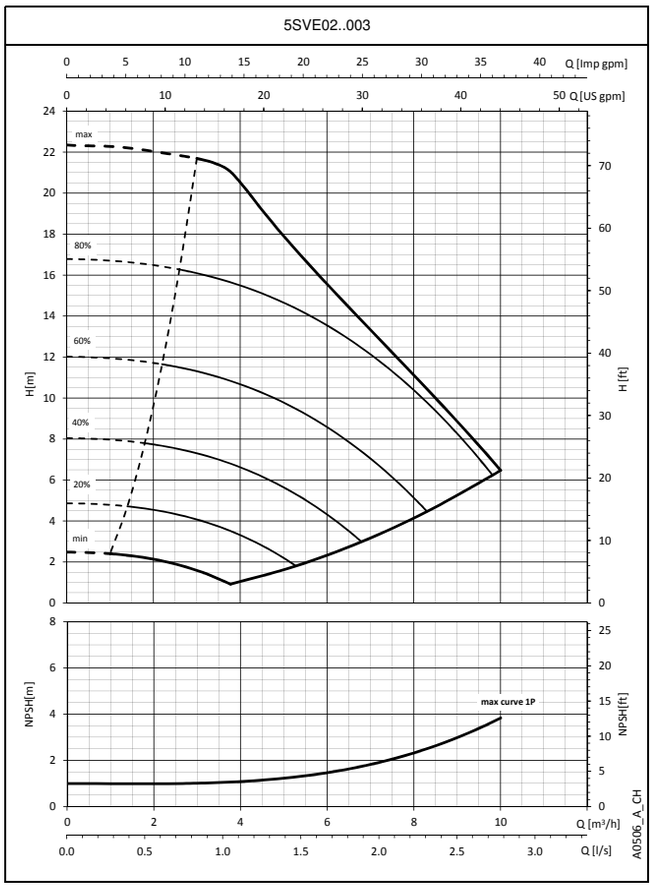


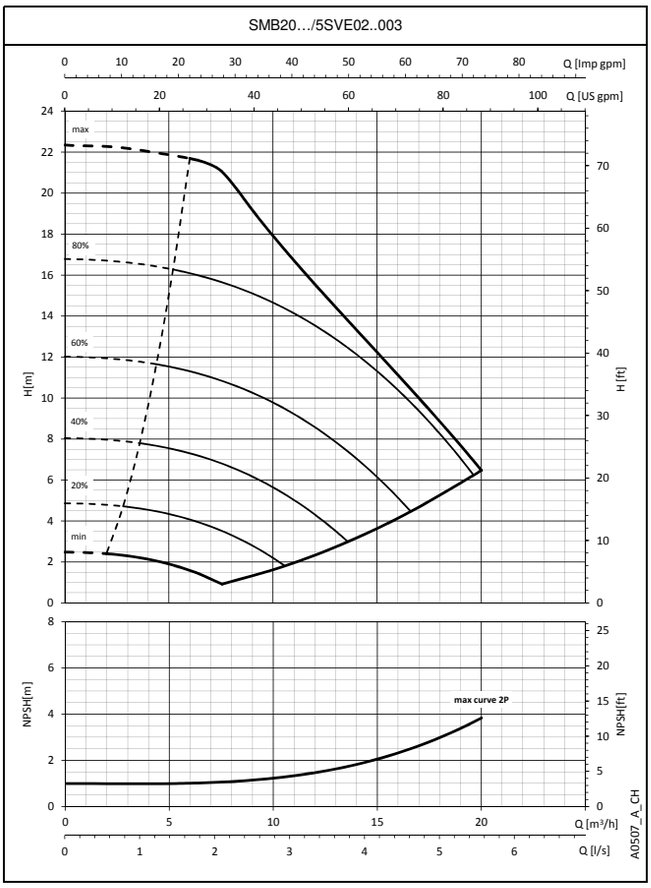
SMB30.../3SVE11..015

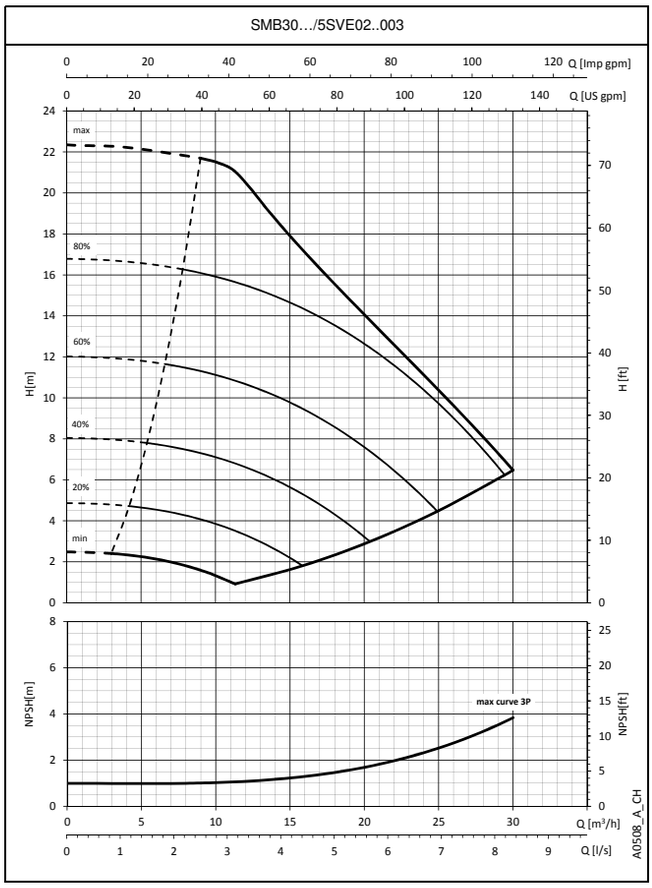


The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS



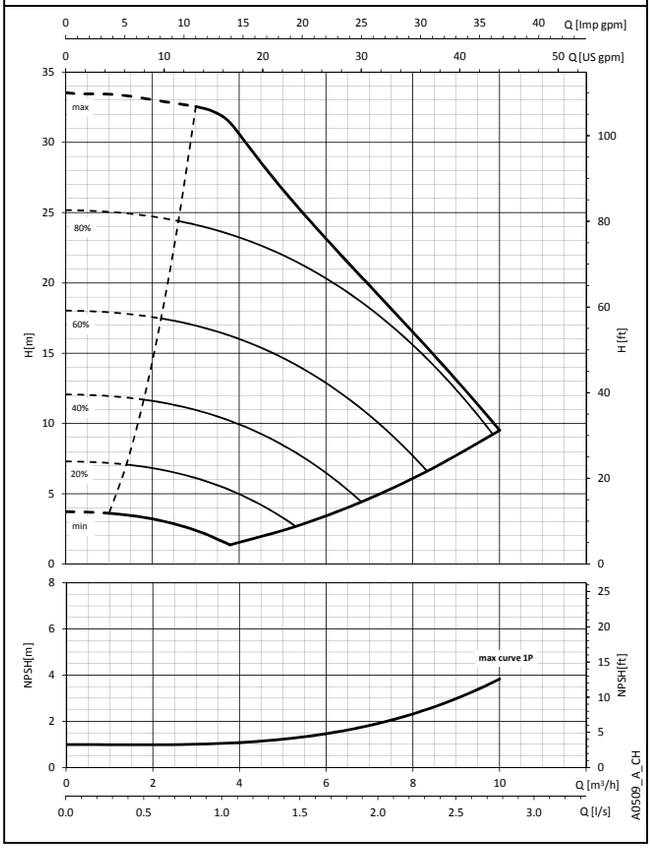




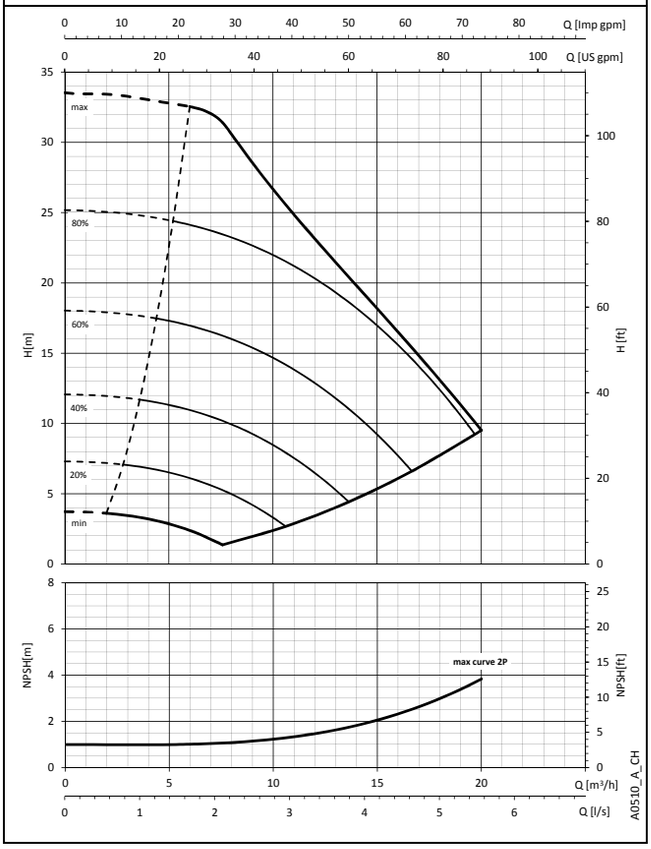
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

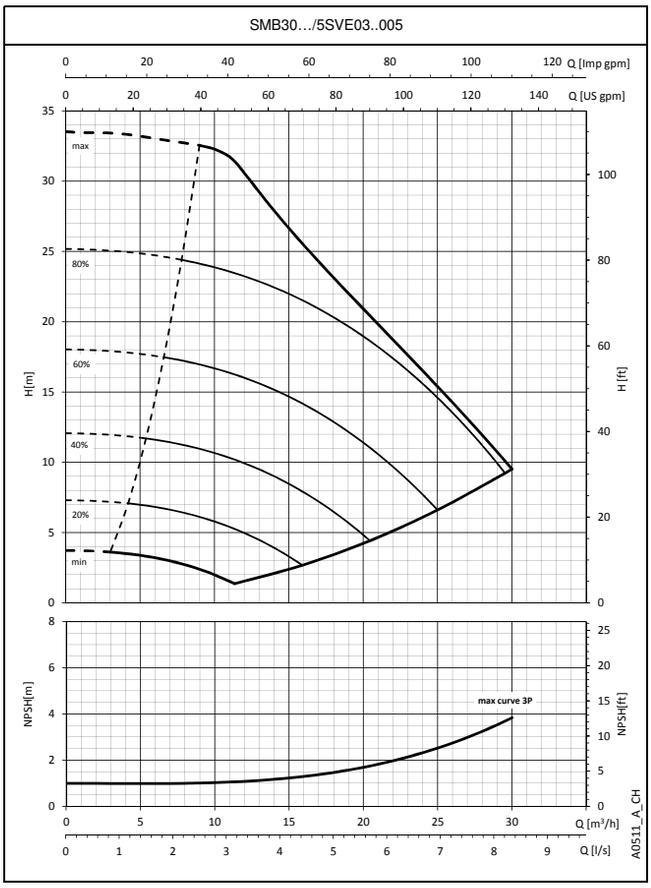
5SVE03..005



SMB20.../5SVE03..005



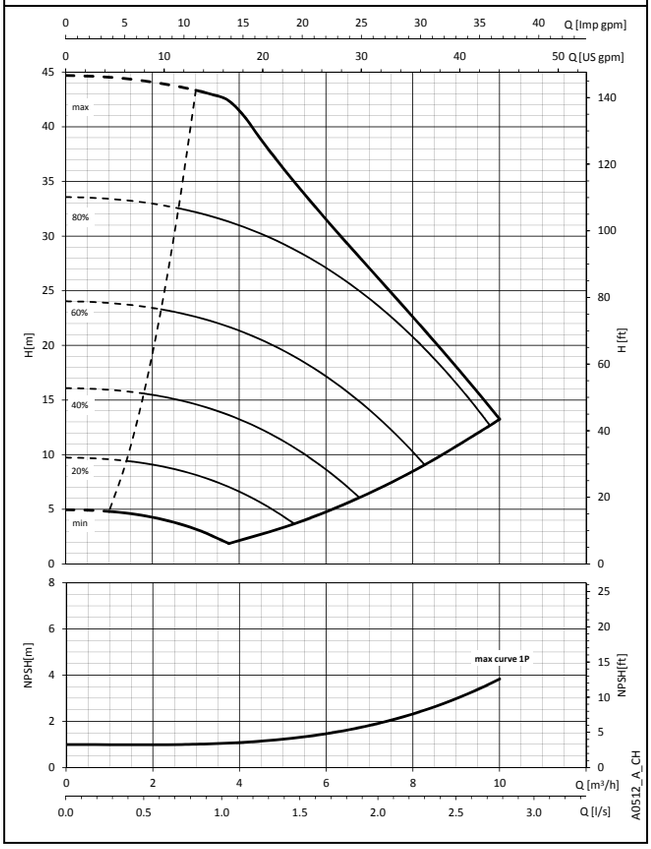
SMB30.../5SVE03..005



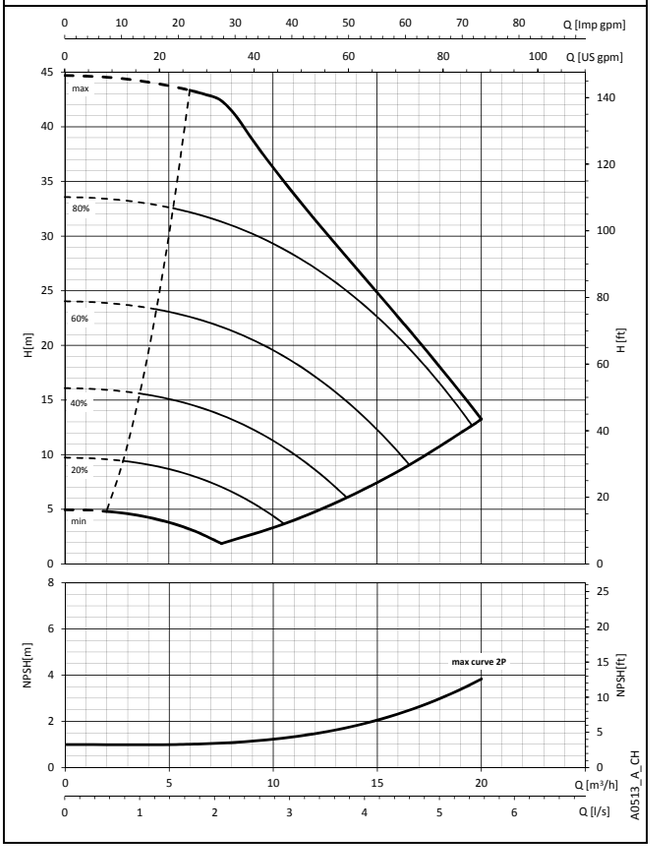
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

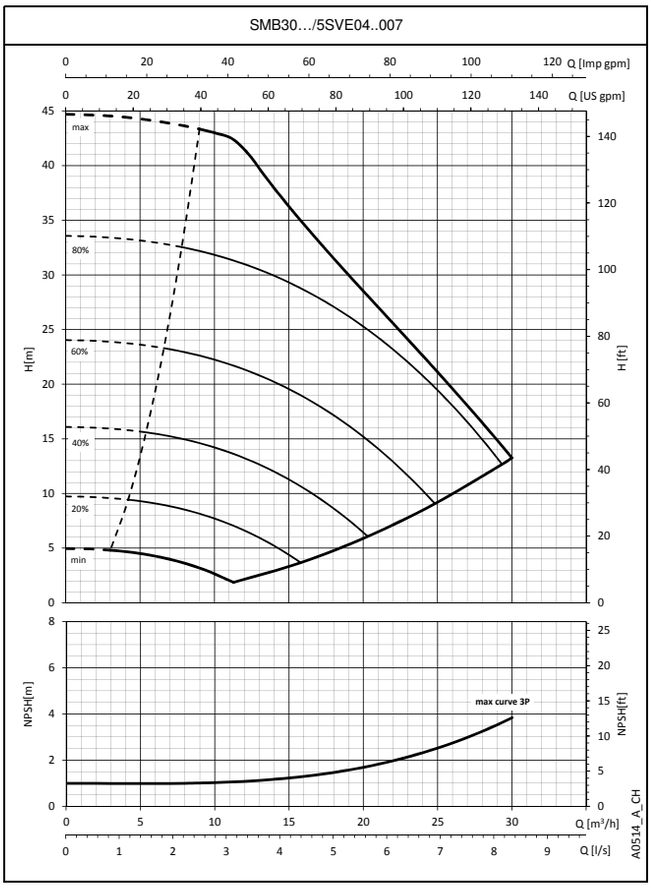
5SVE04..007



SMB20.../5SVE04..007



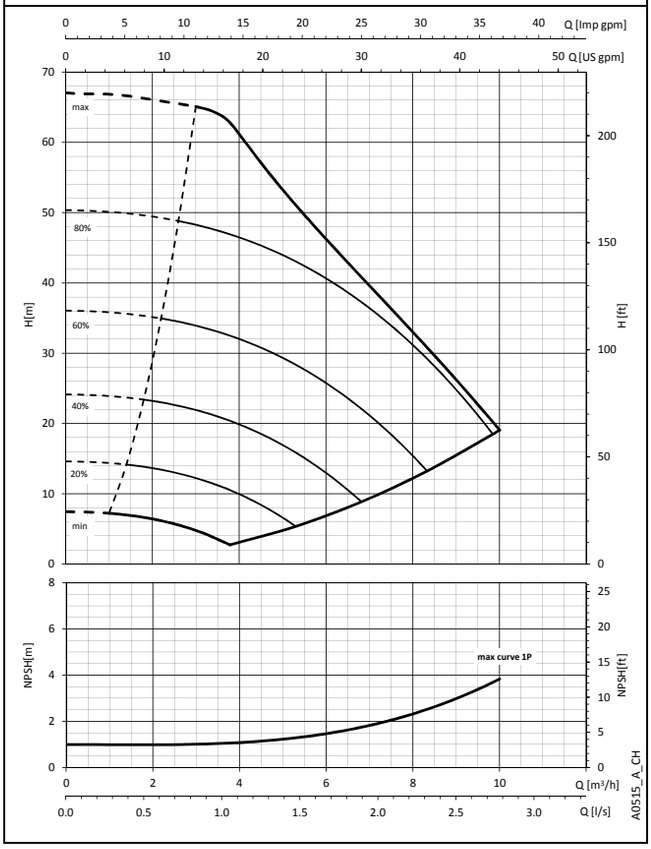
SMB30.../5SVE04..007



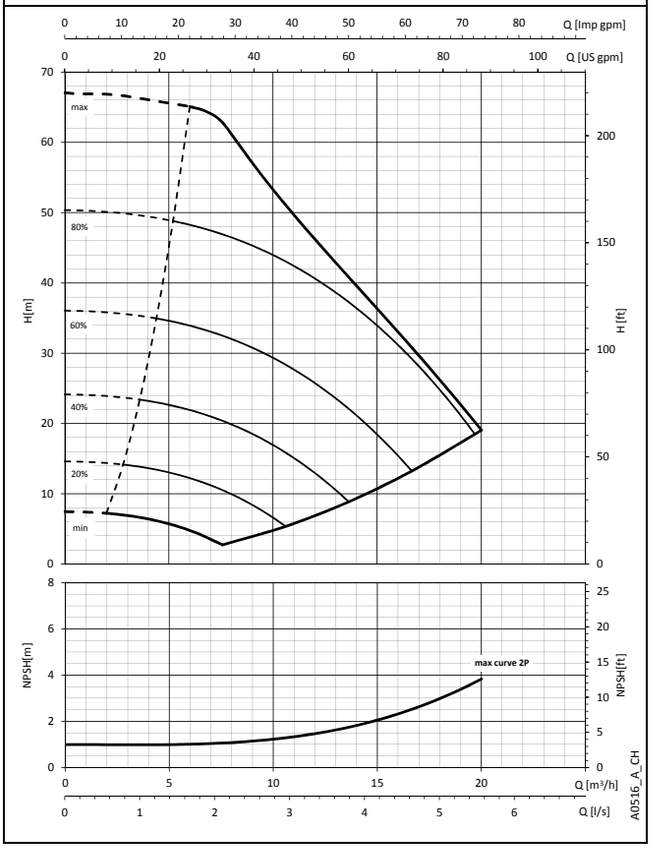
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
The declared NPSH values are laboratory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

SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

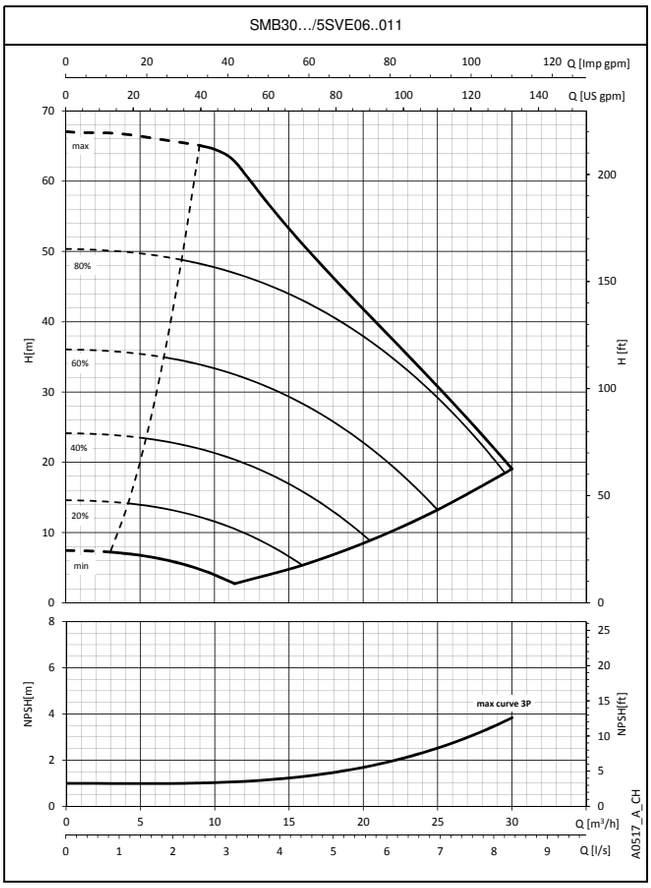
5SVE06..011



SMB20.../5SVE06..011



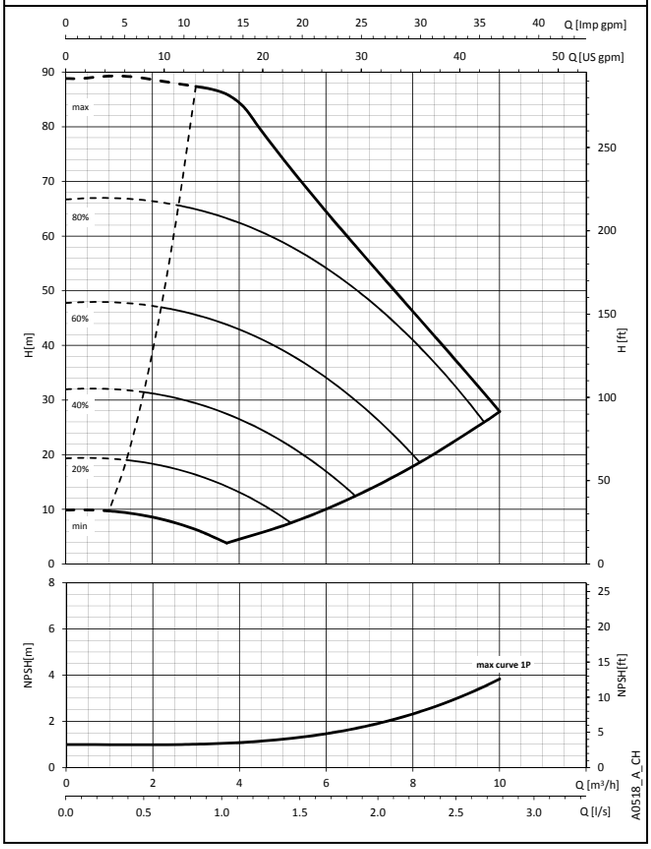
SMB30.../5SVE06..011



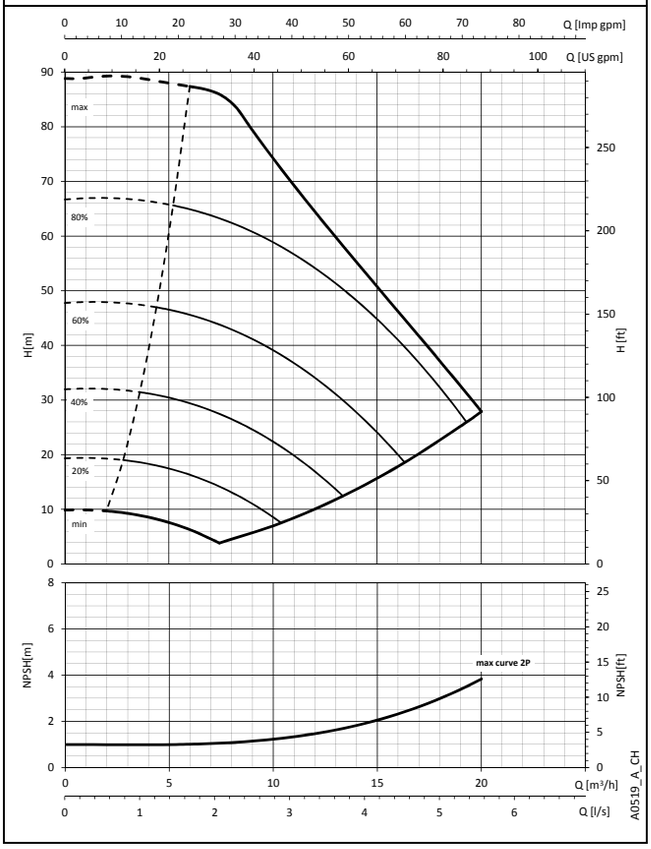
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

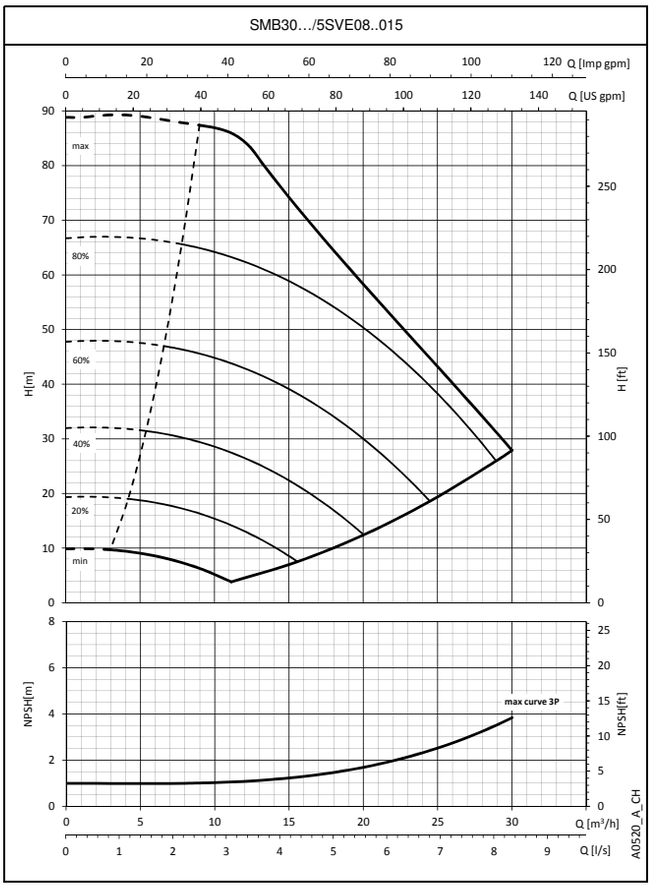
5SVE08..015



SMB20.../5SVE08..015



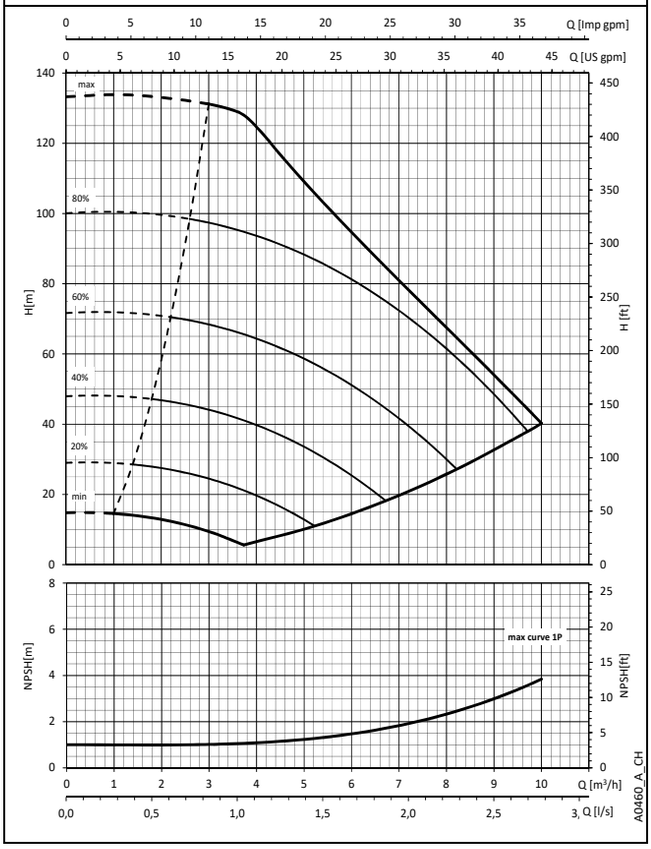
SMB30.../5SVE08..015



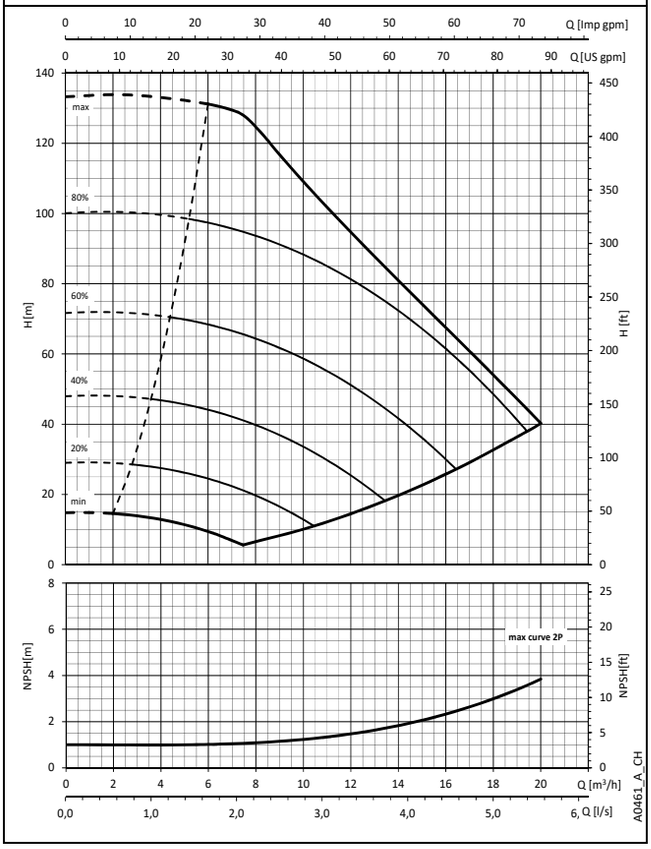
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

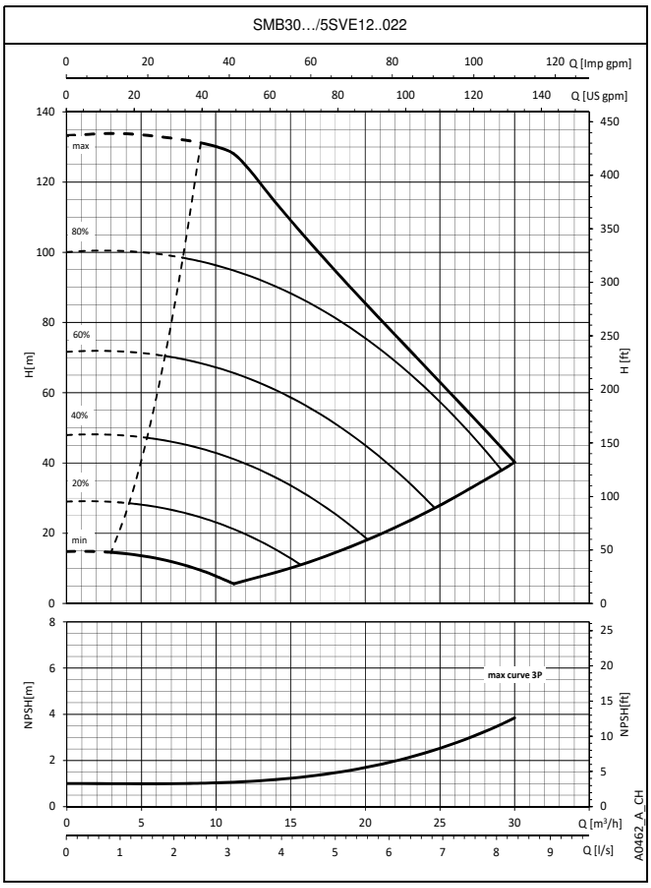
5SVE12..022



SMB20.../5SVE12..022



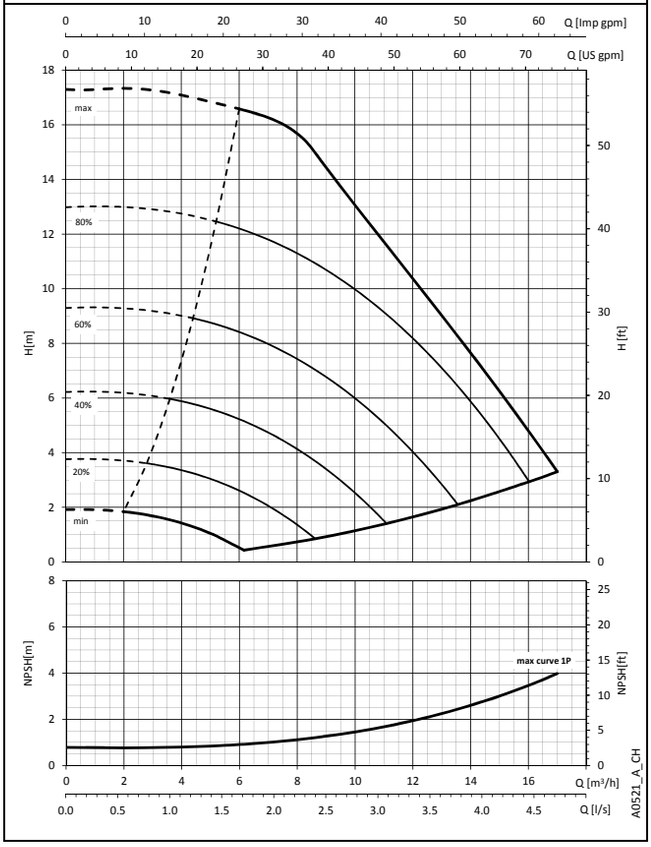
SMB30.../5SVE12..022



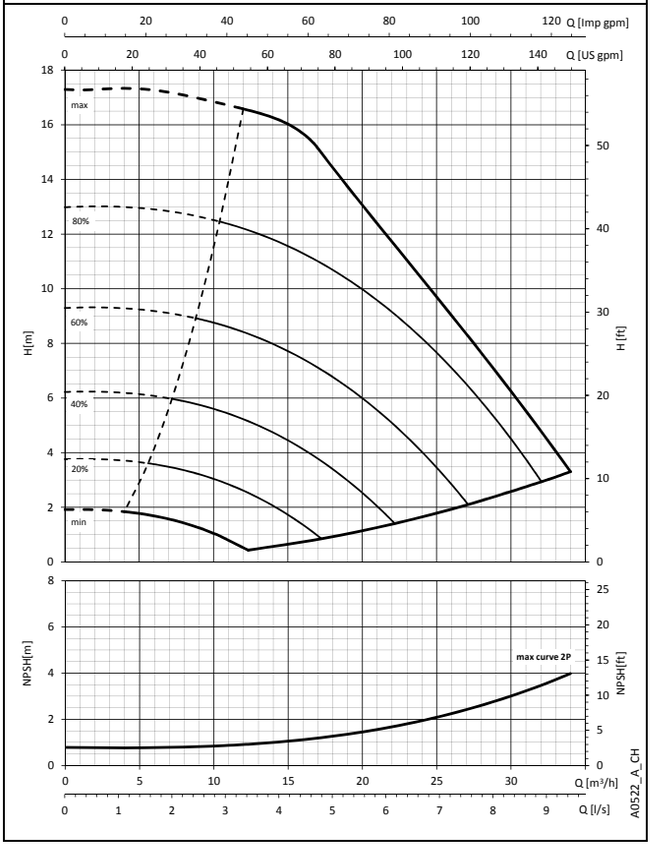
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

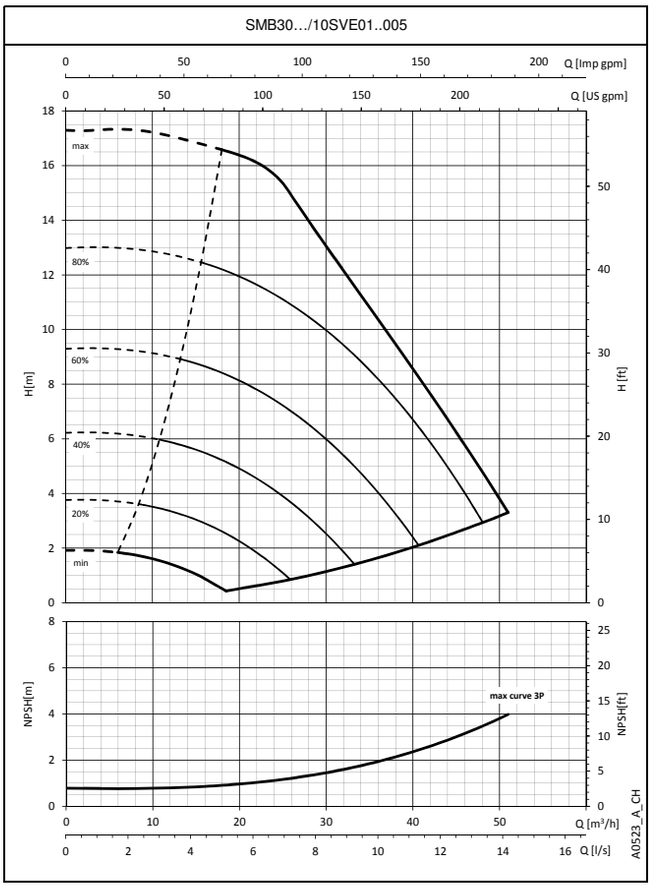
10SVE01..005



SMB20.../10SVE01..005



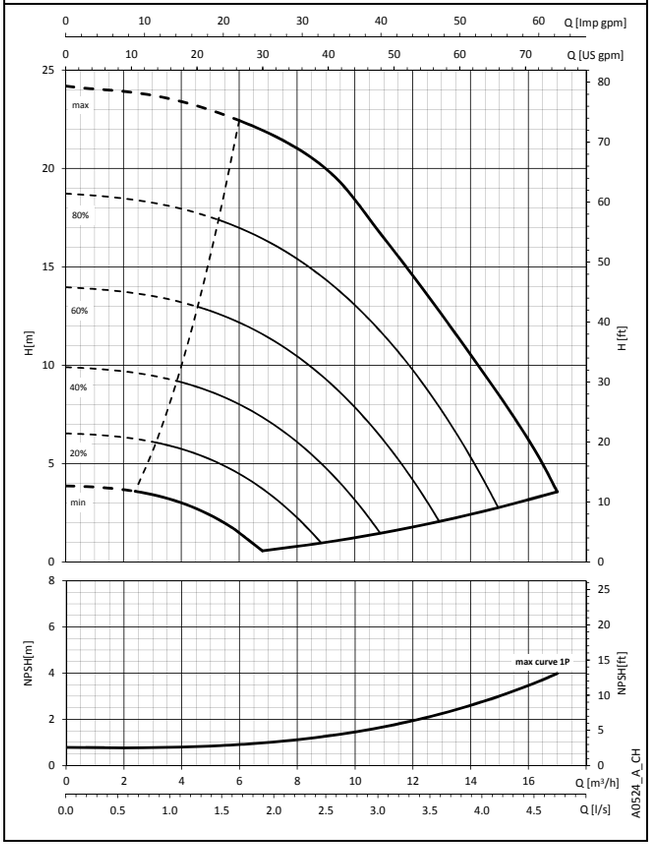
SMB30.../10SVE01..005



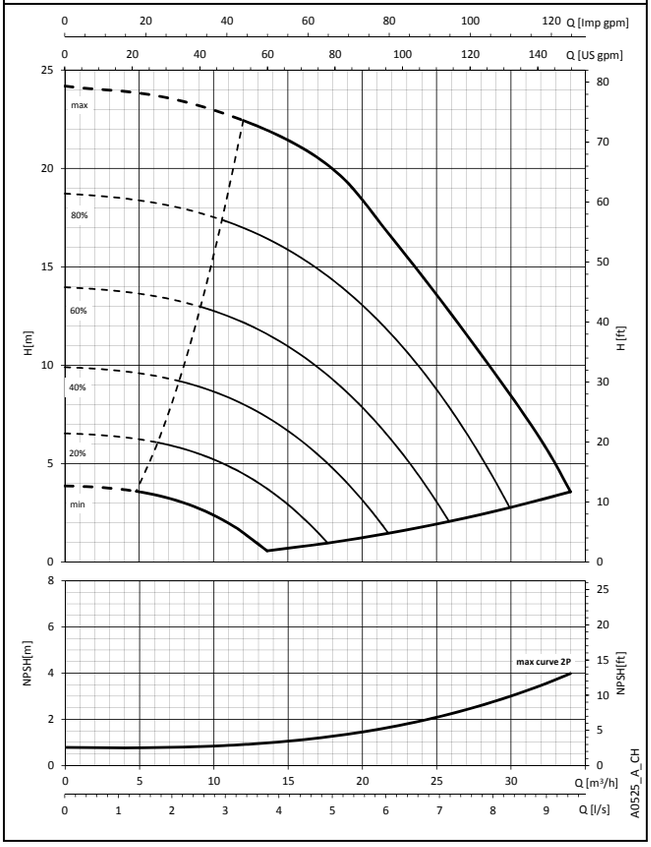
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

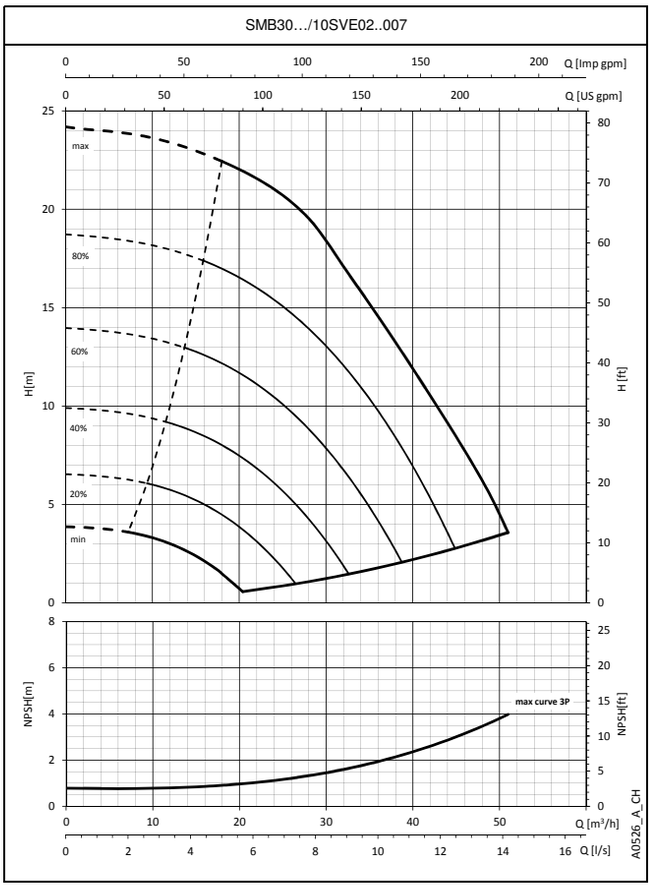
10SVE02..007



SMB20.../10SVE02..007



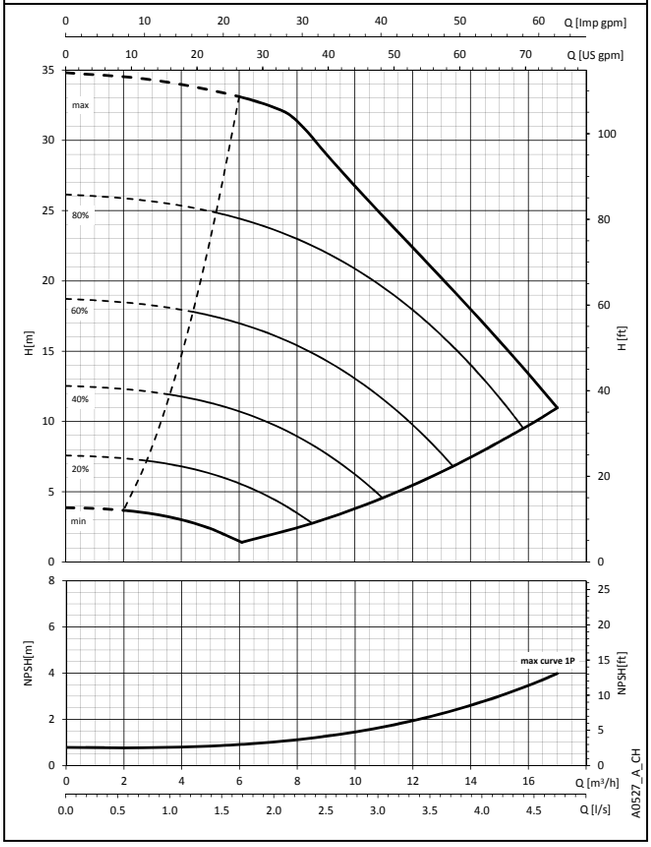
SMB30.../10SVE02..007



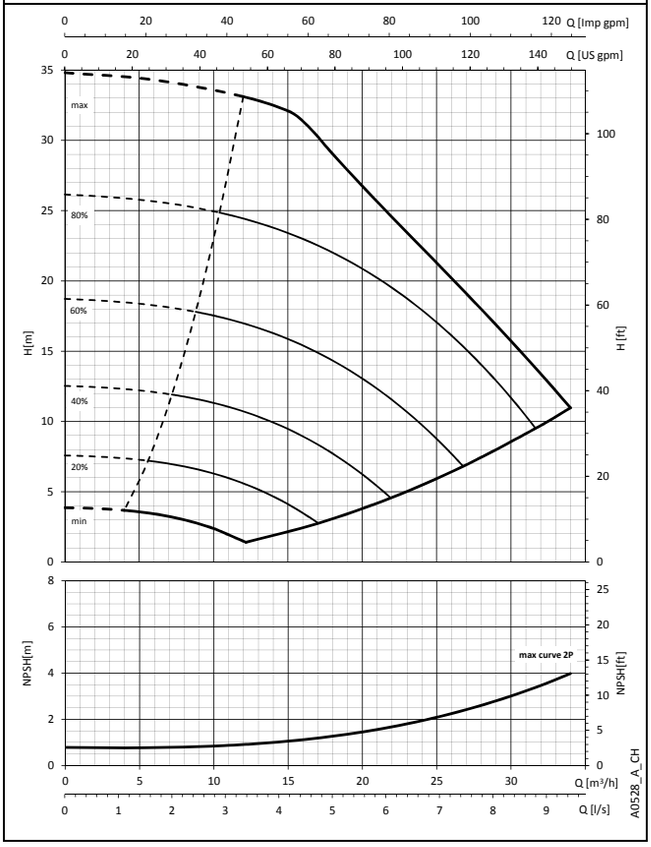
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

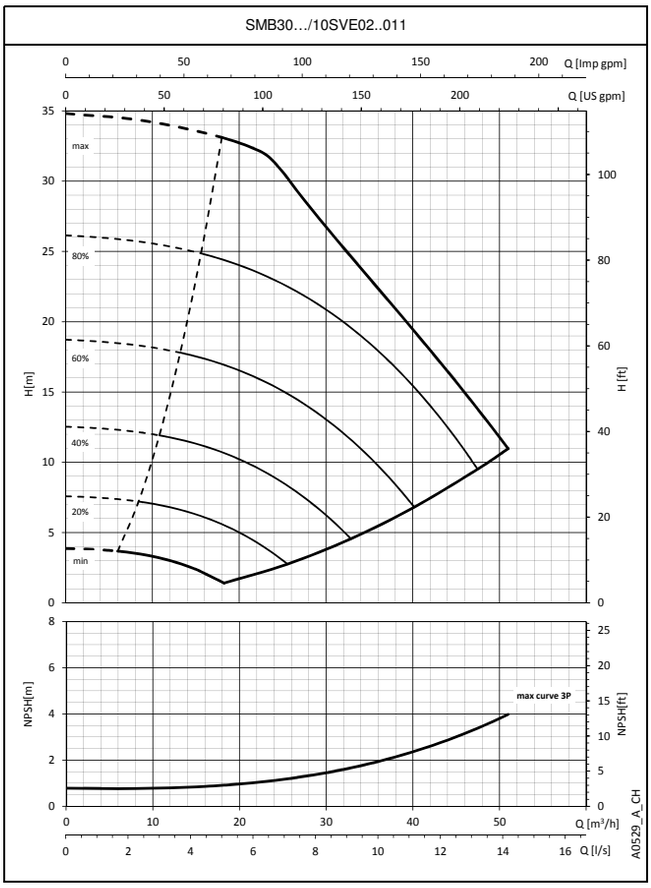
10SVE02..011



SMB20.../10SVE02..011



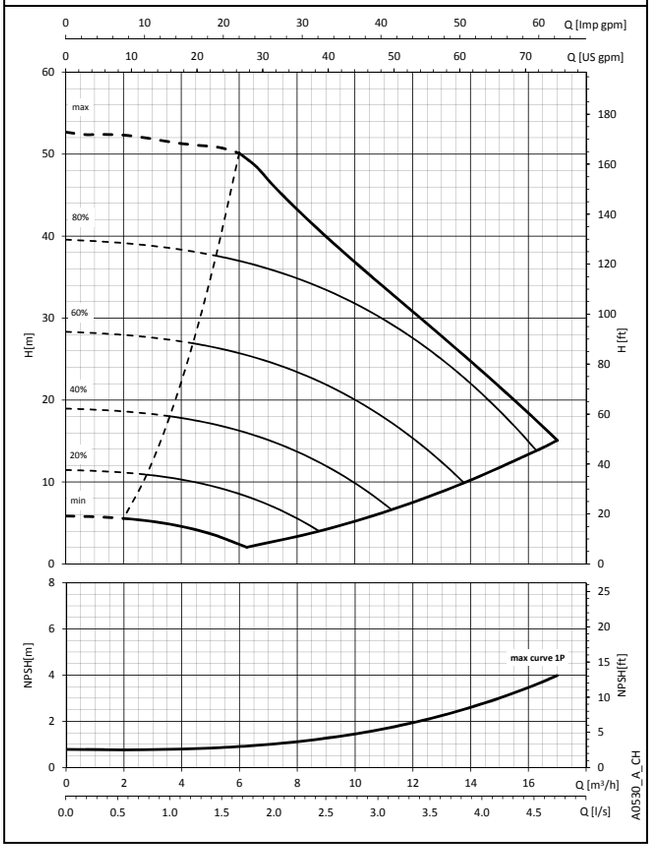
SMB30.../10SVE02..011



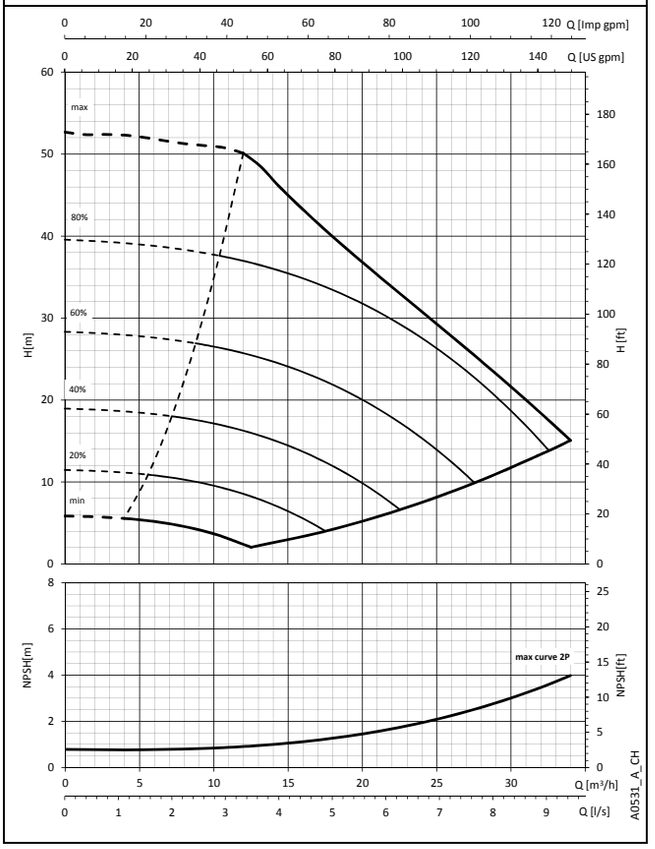
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

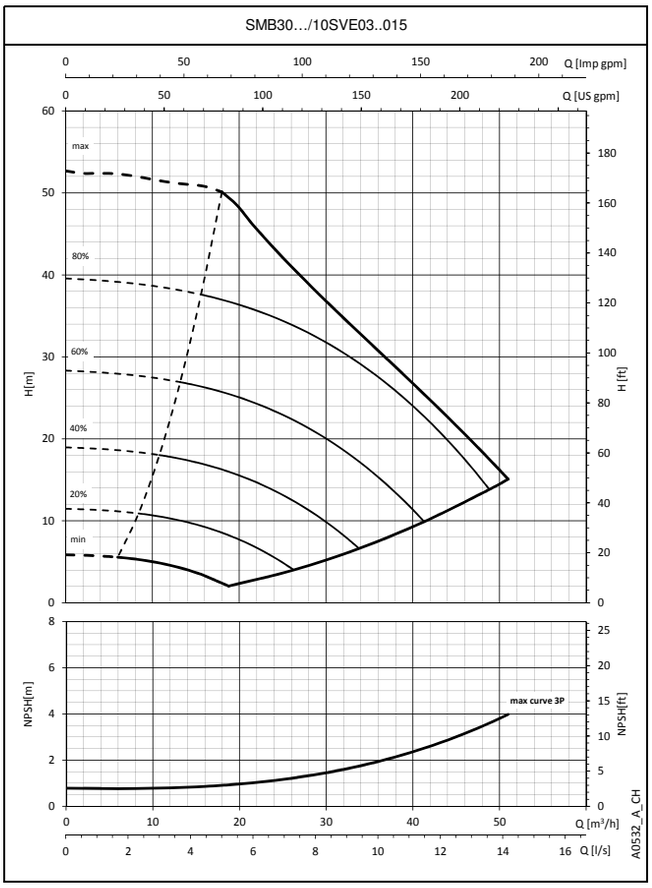
10SVE03..015



SMB20.../10SVE03..015

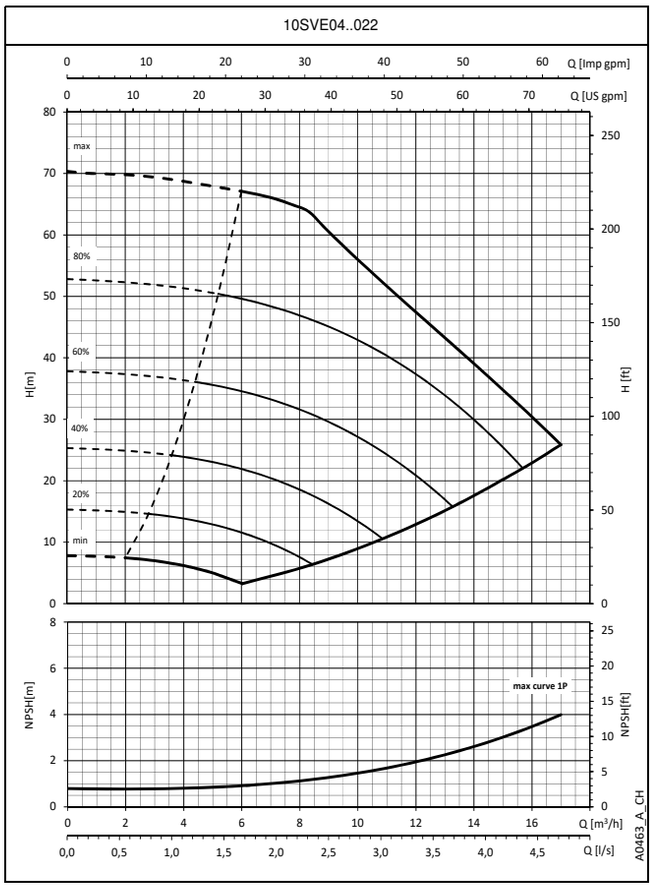


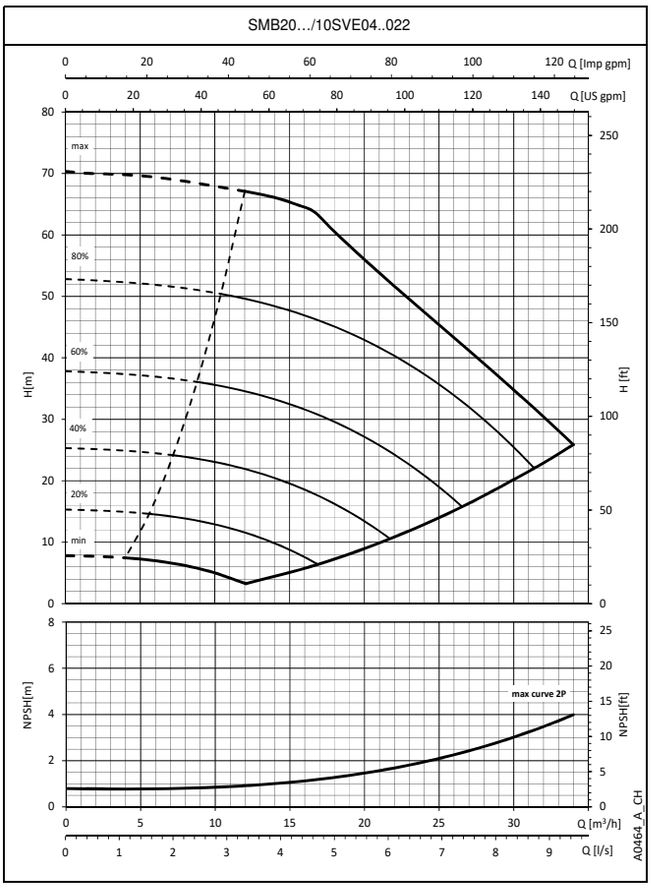
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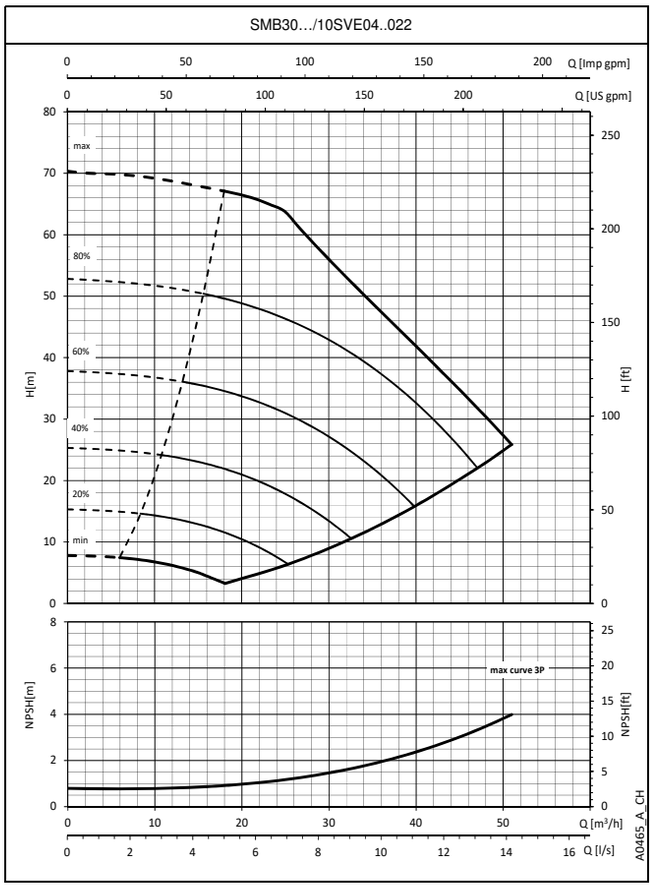


The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

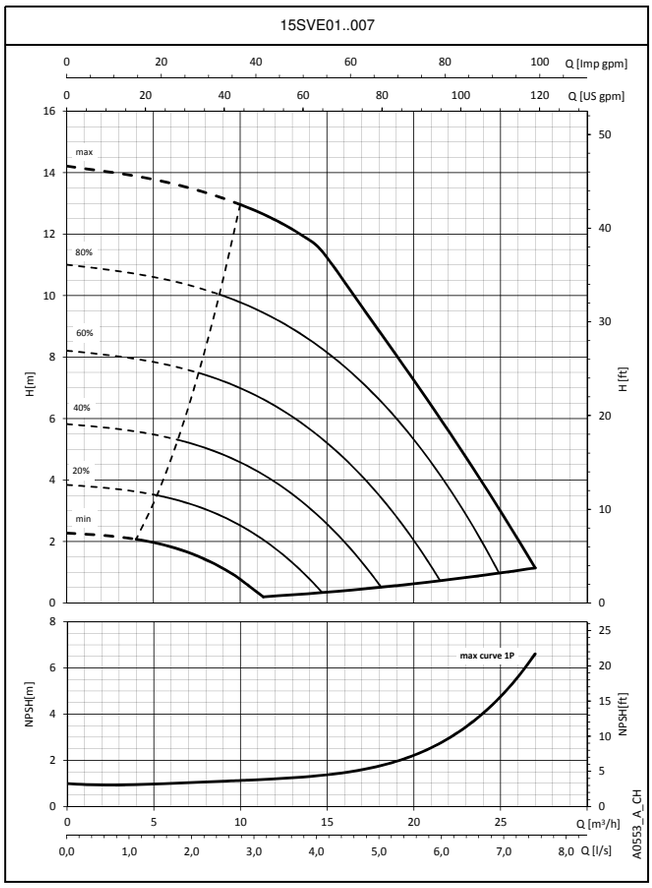


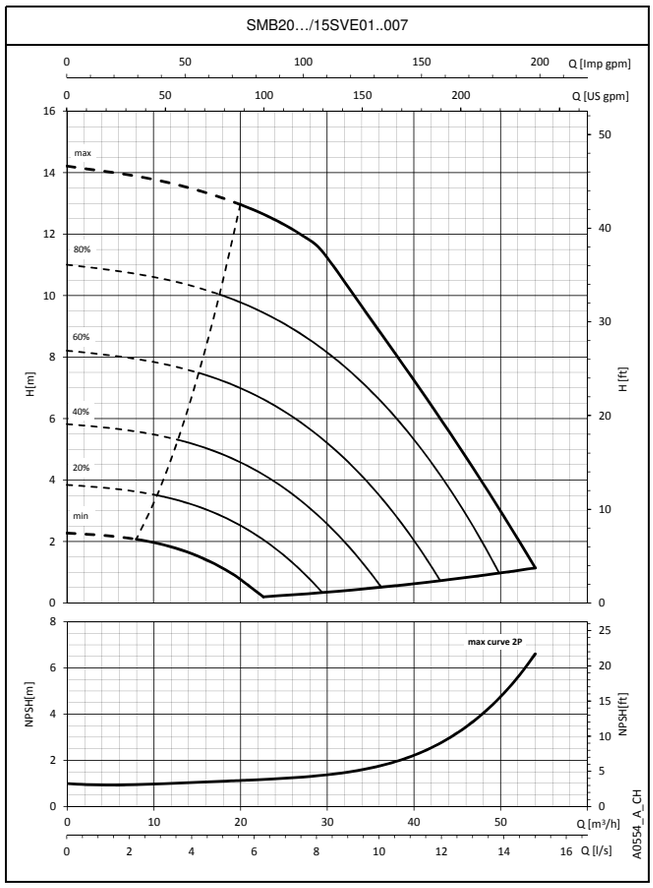


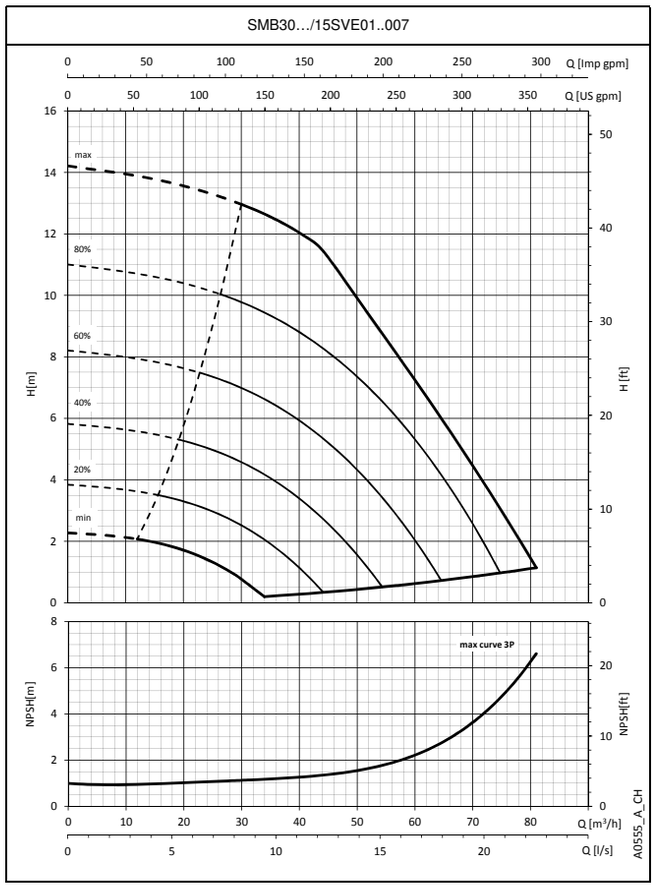


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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS



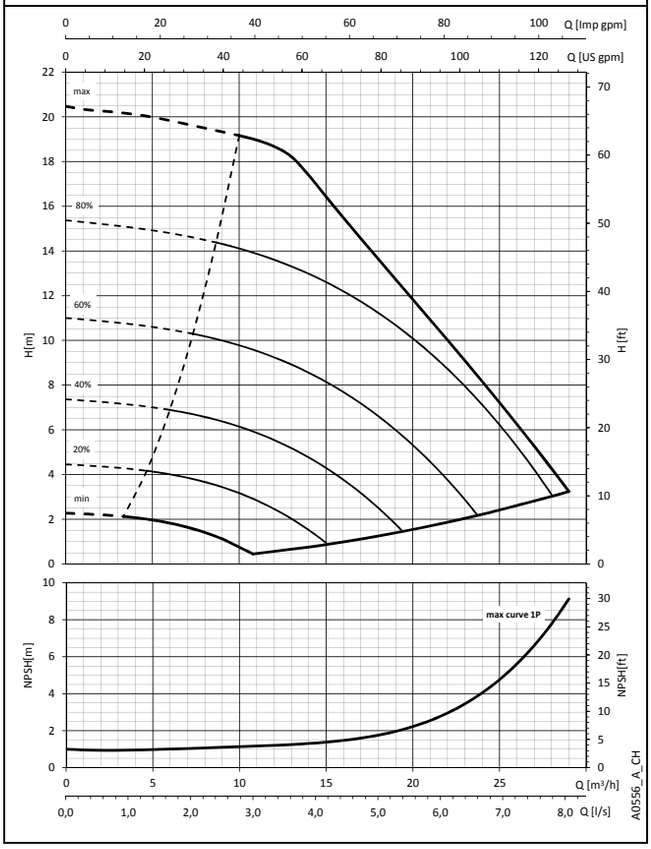




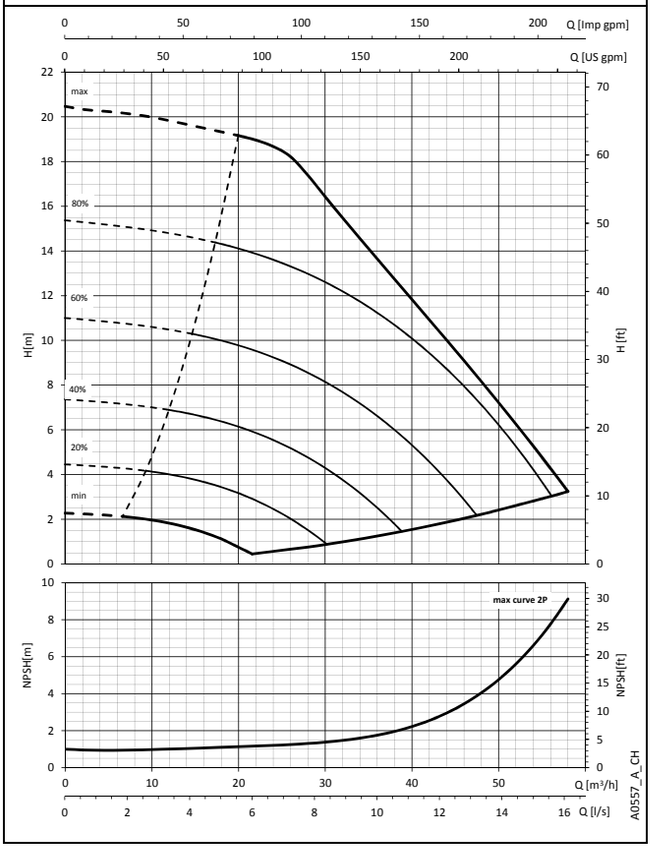
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

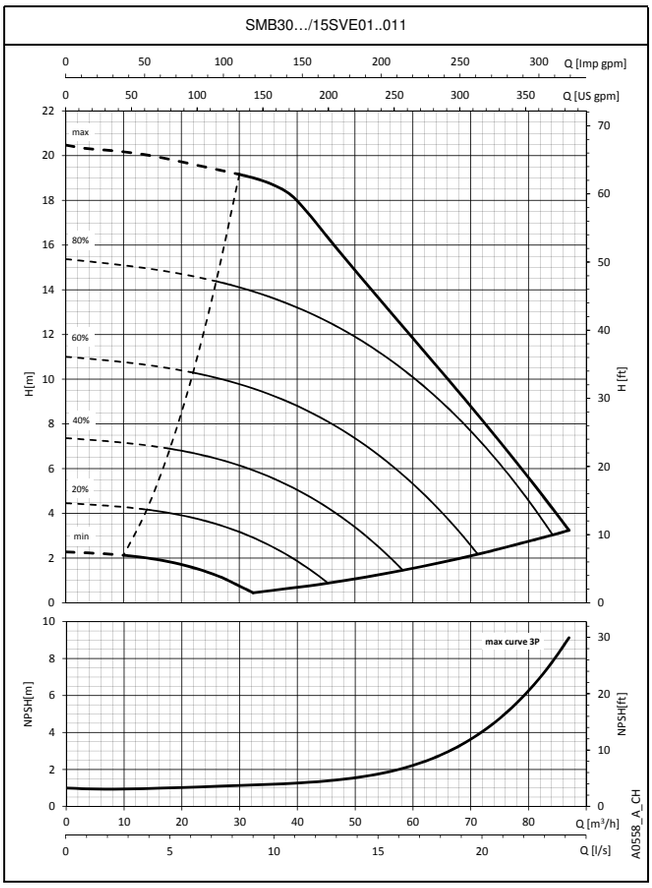
15SVE01..011



SMB20.../15SVE01..011



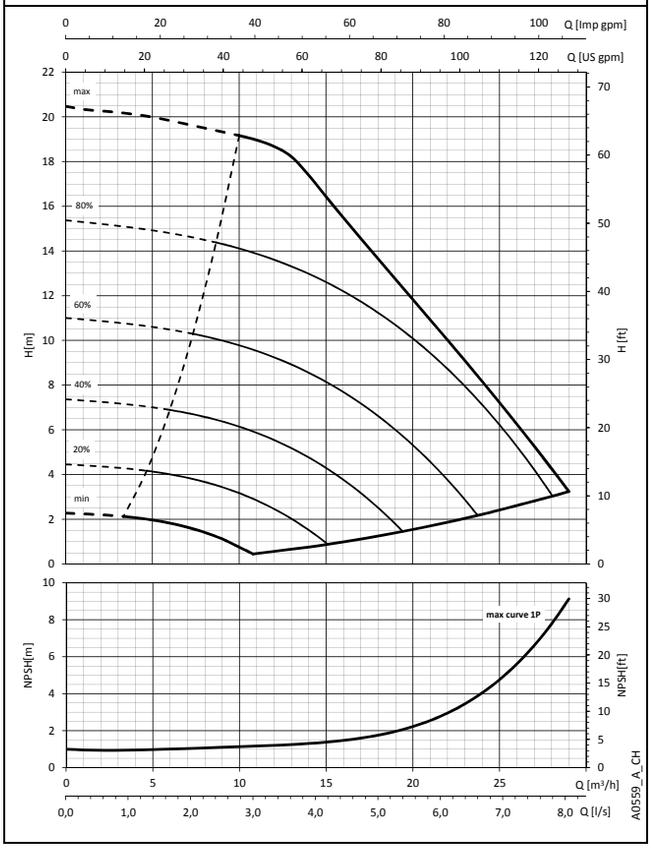
SMB30.../15SVE01..011



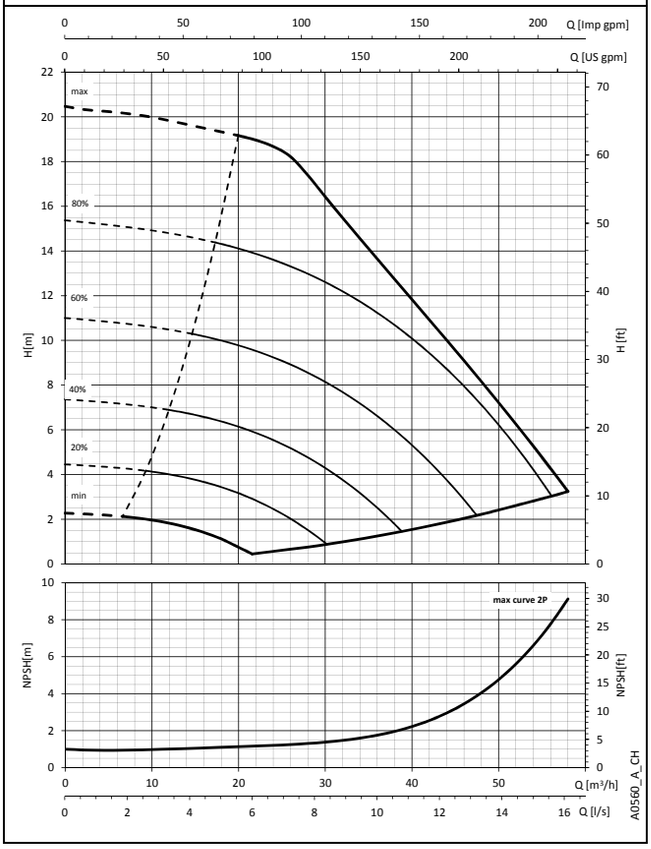
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

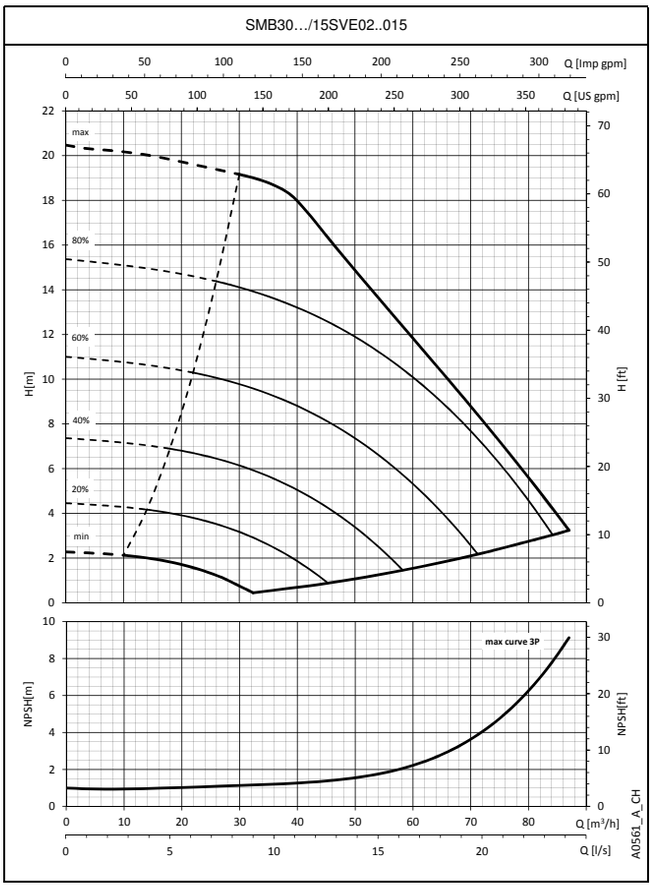
15SVE02..015



SMB20.../15SVE02..015



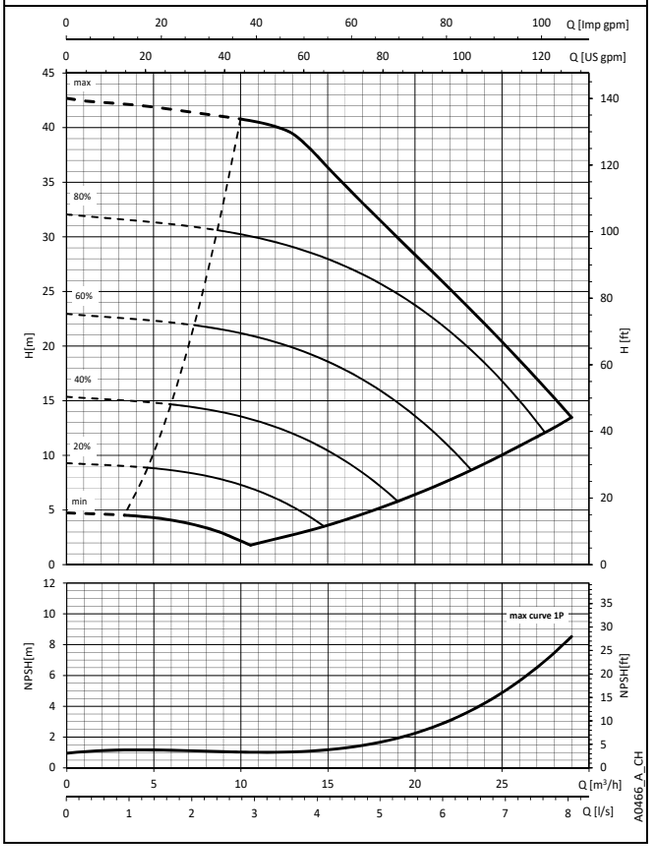
SMB30.../15SVE02..015



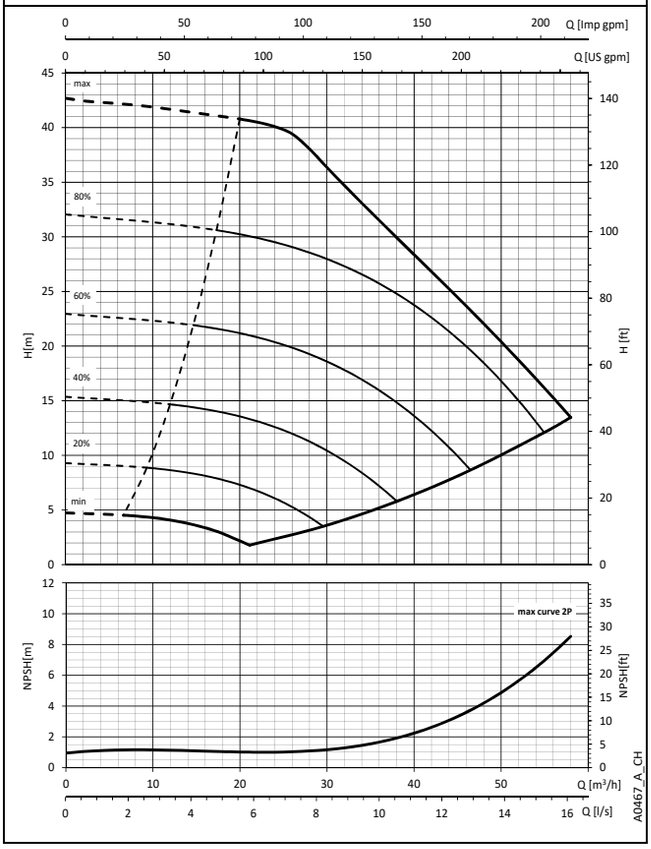
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

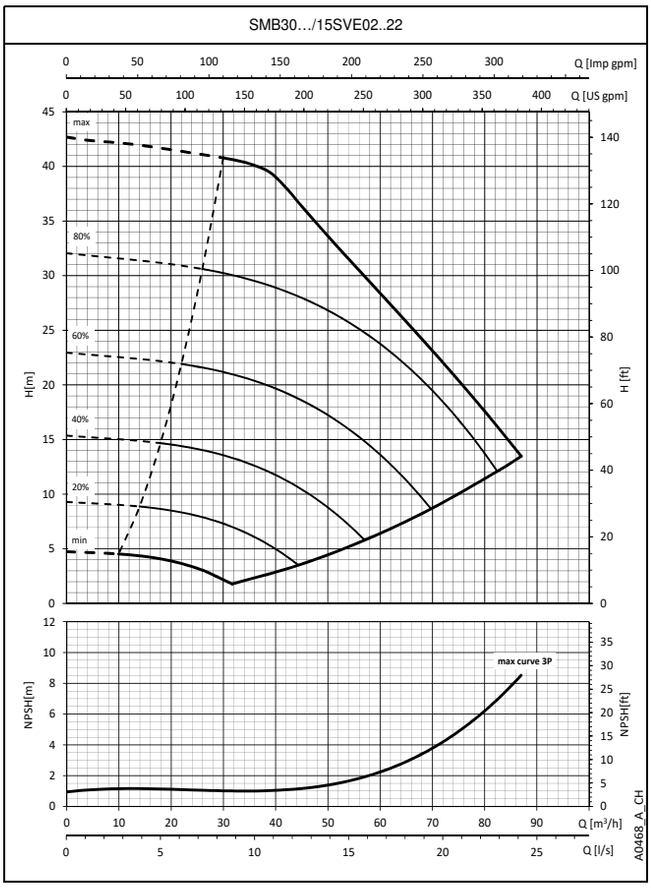
15SVE02..022



SMB20.../15SVE02..22



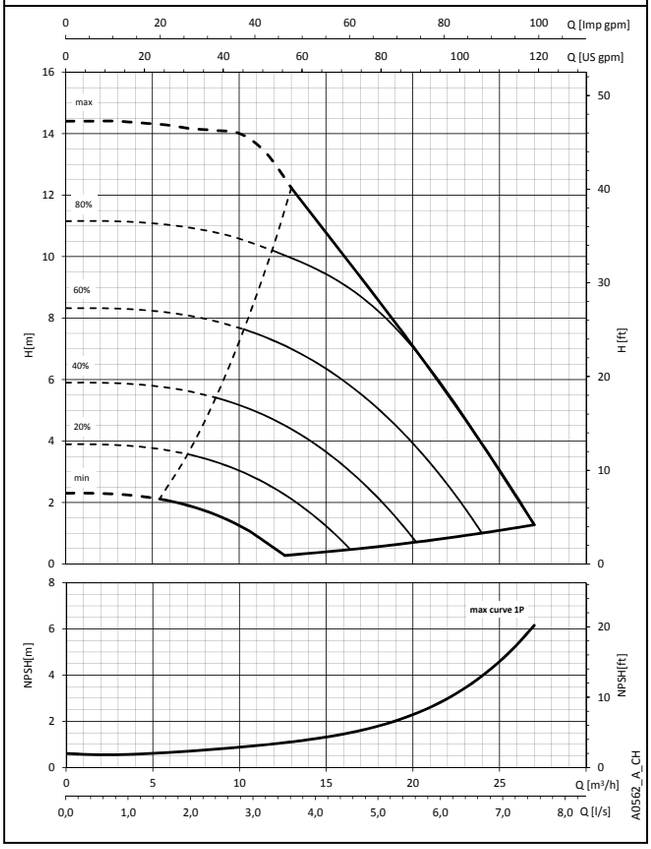
SMB30.../15SVE02..22



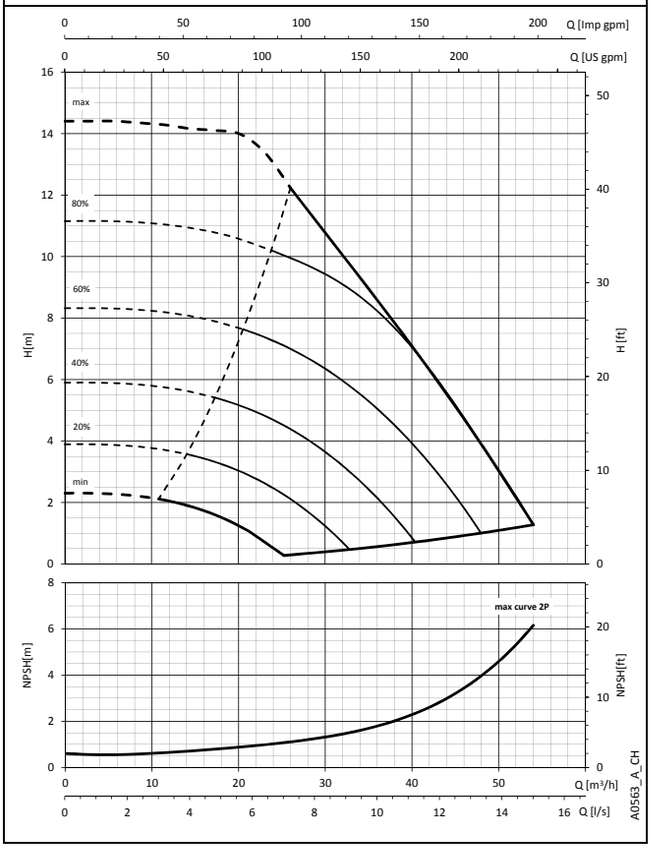
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

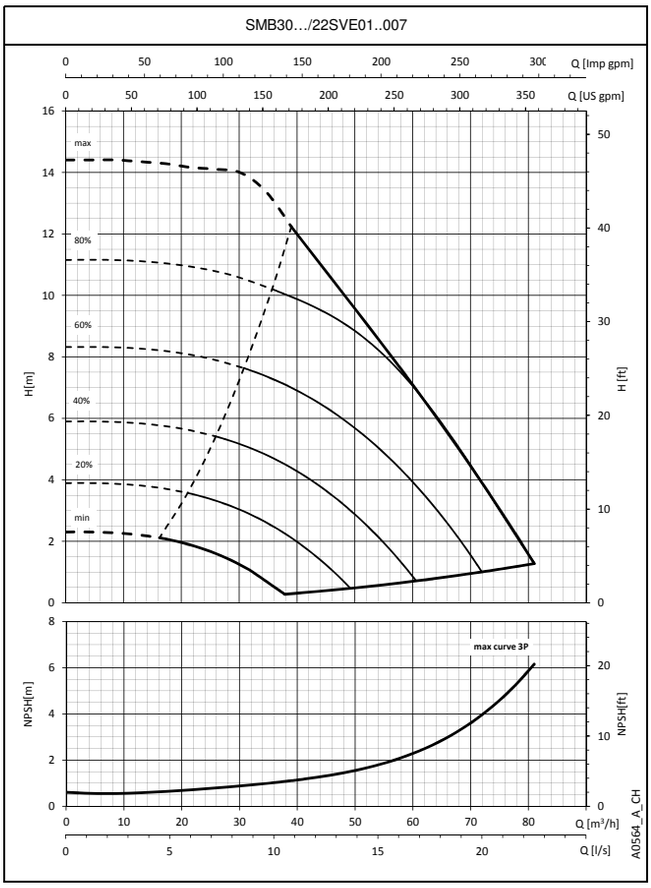
22SVE01..007



SMB20.../22SVE01..007



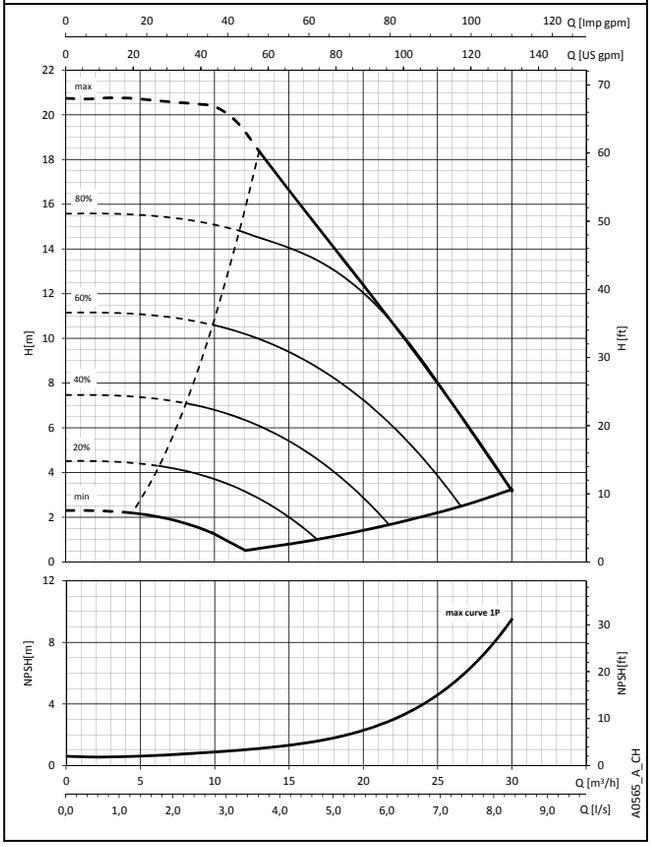
SMB30.../22SVE01..007



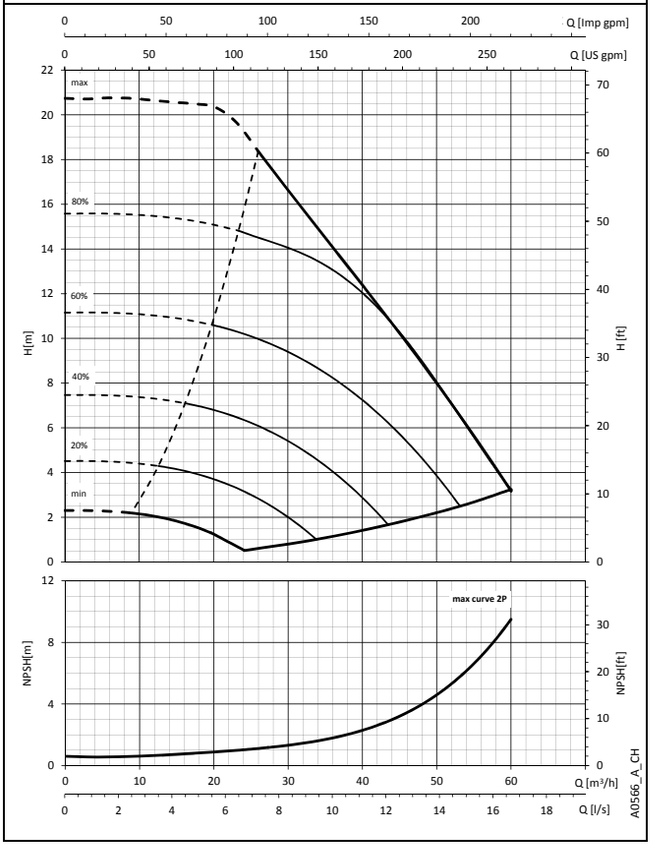
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

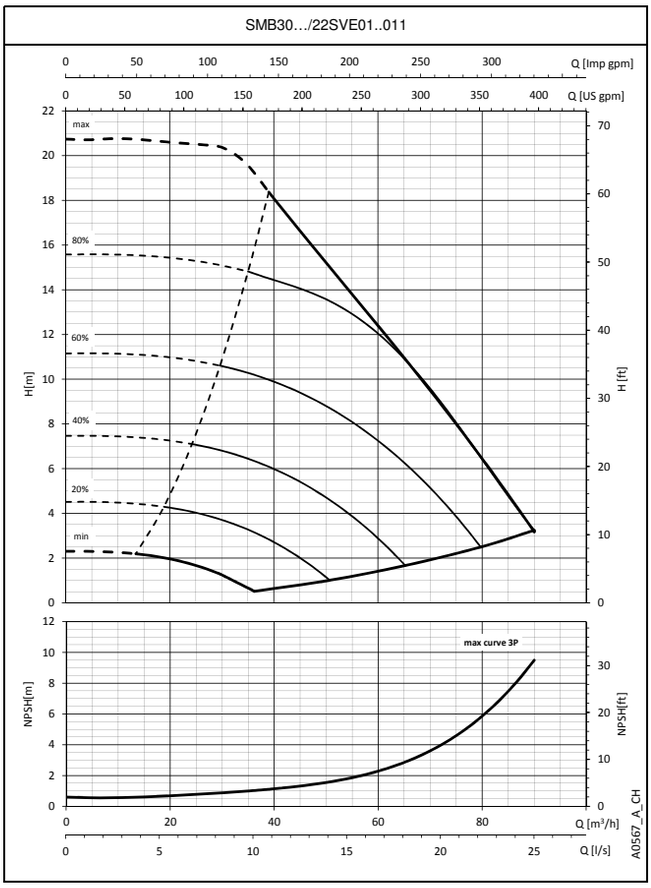
22SVE01..011



SMB20.../22SVE01..011



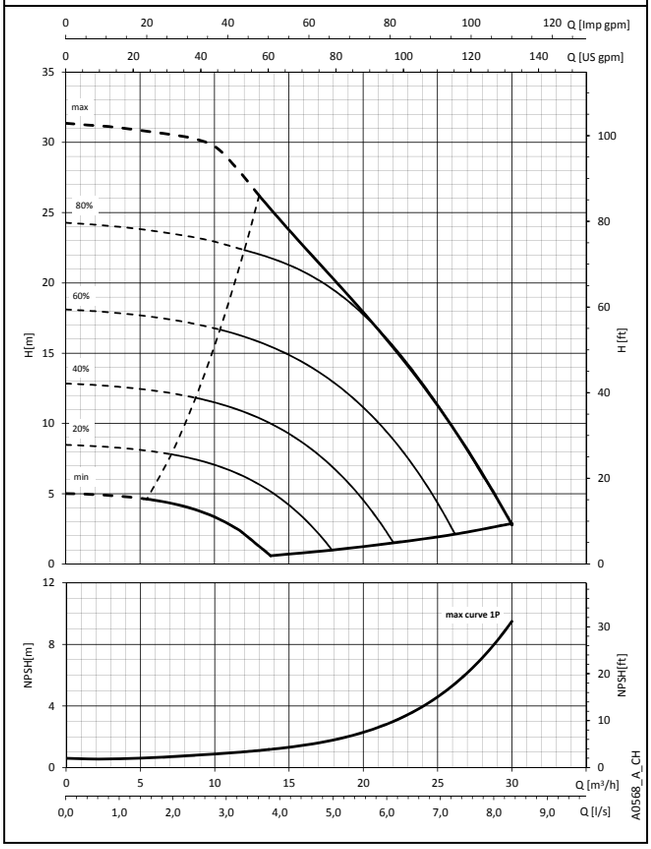
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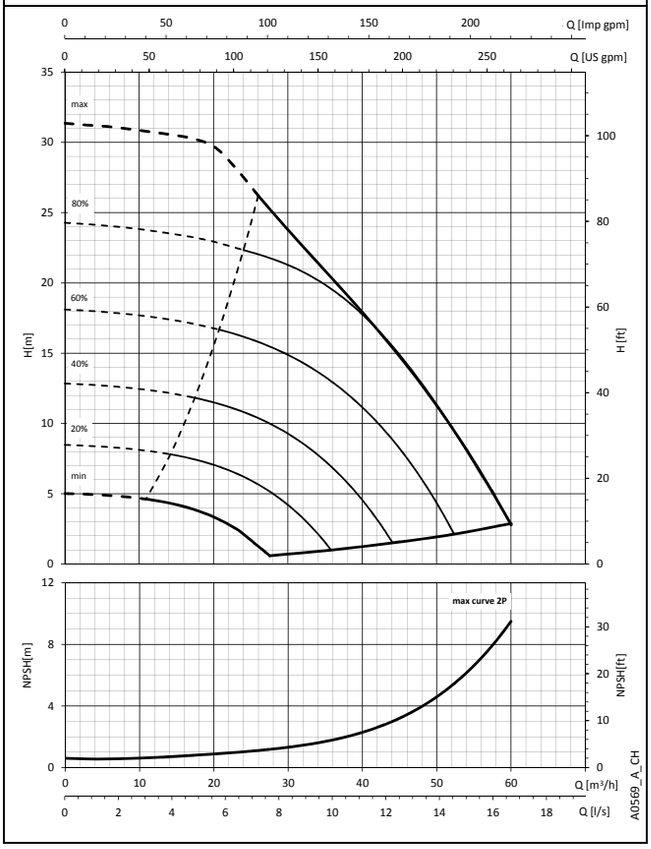
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SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

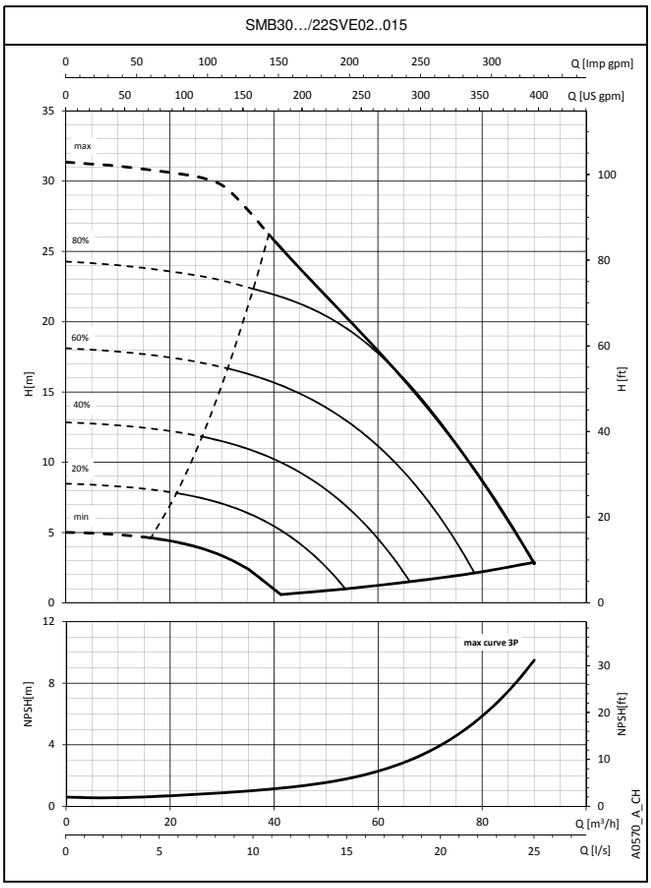
22SVE02..015



SMB20.../22SVE02..015



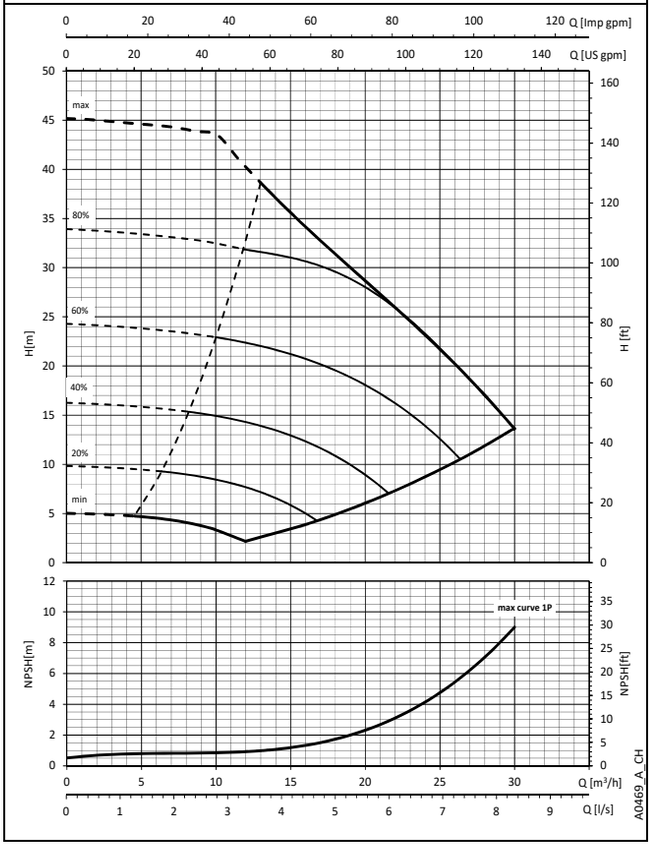
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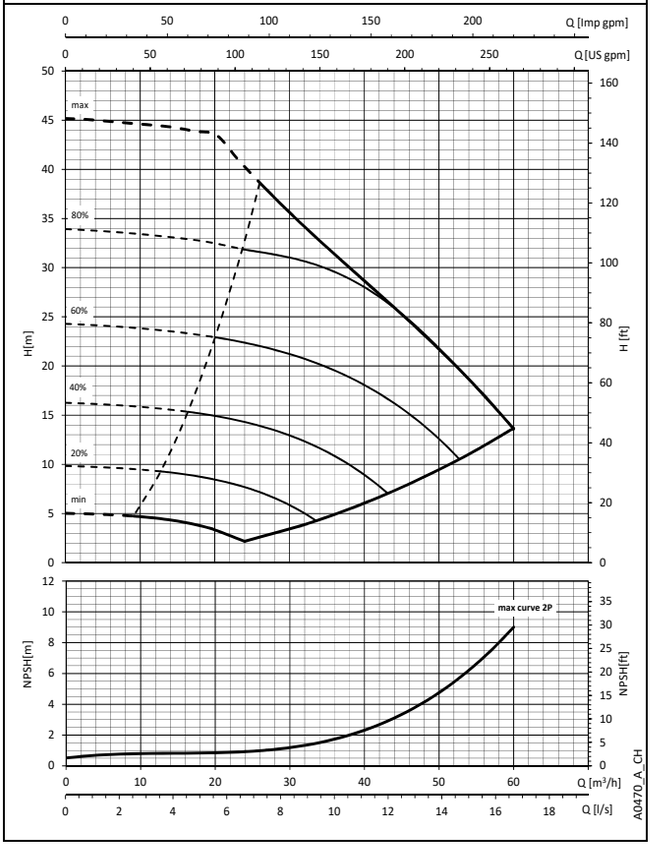
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
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The declared NPSH values are laboratory values; for practical use we recommend increasing these values by 0,5 m.

SMB.../SVE BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

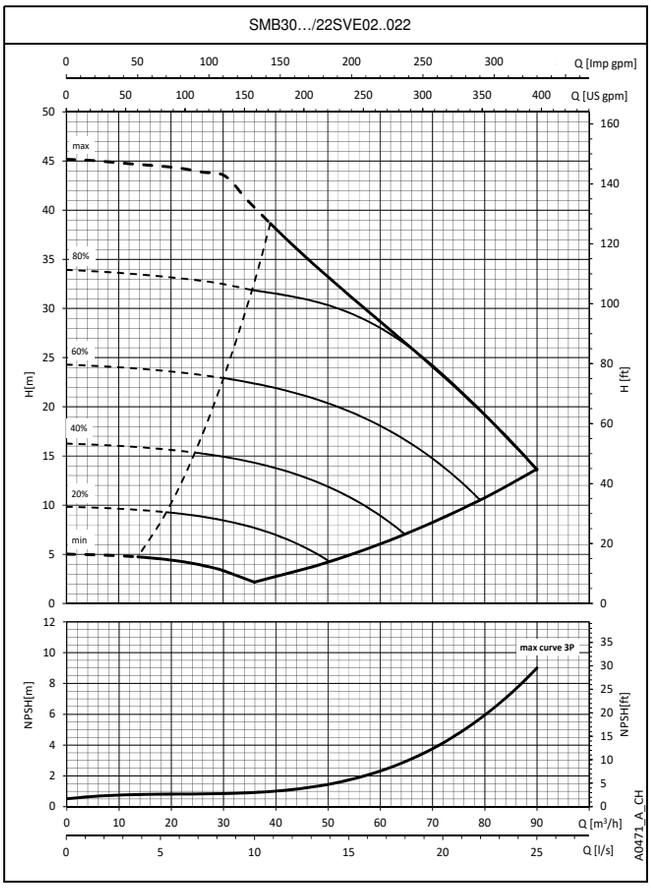
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SMB20.../22SVE02..022



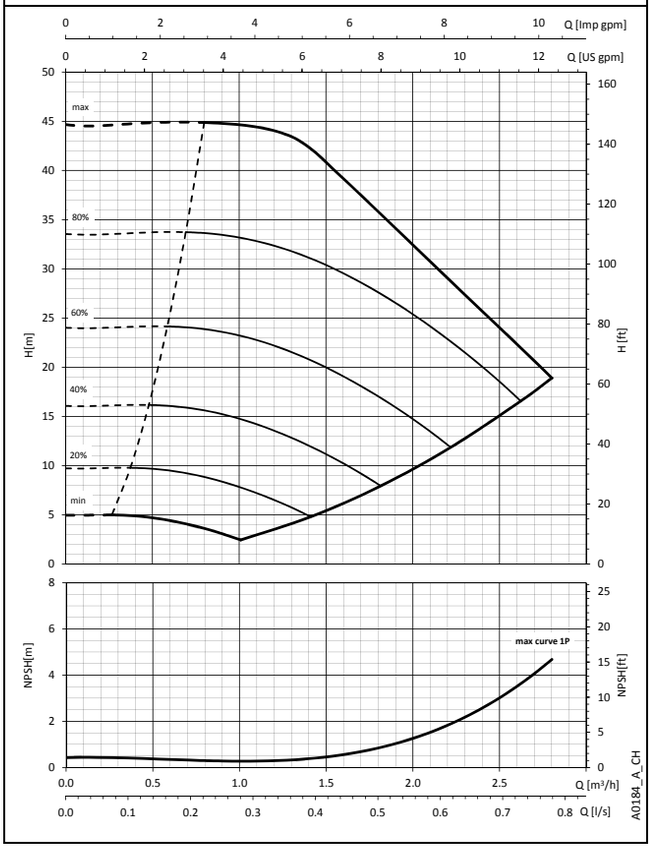
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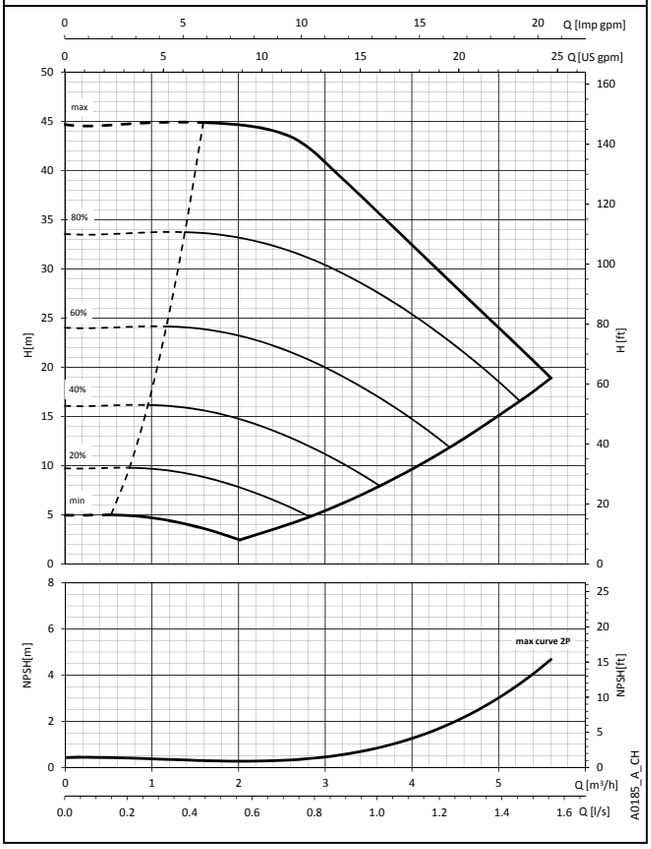
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

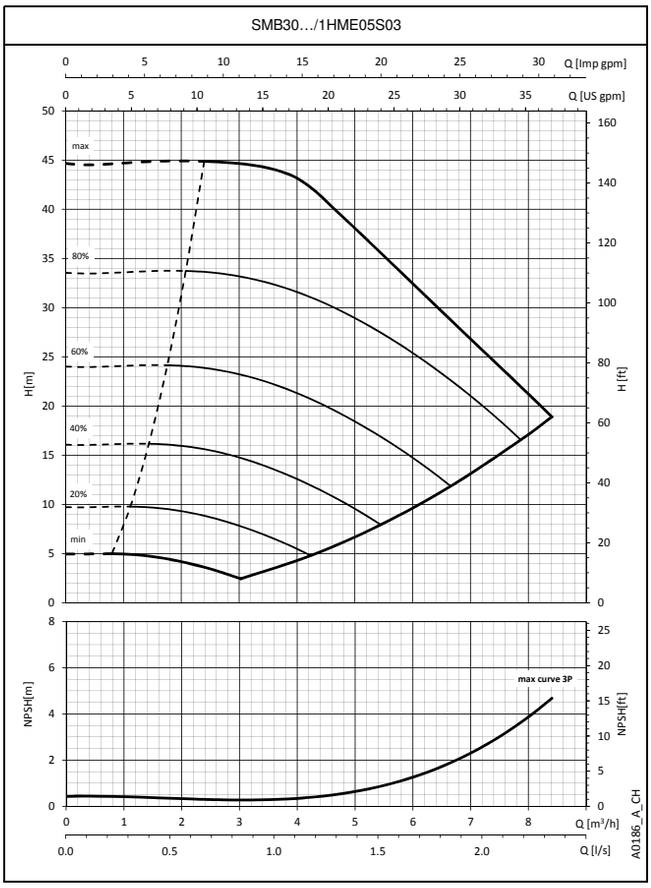
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SMB20.../1HME05S03



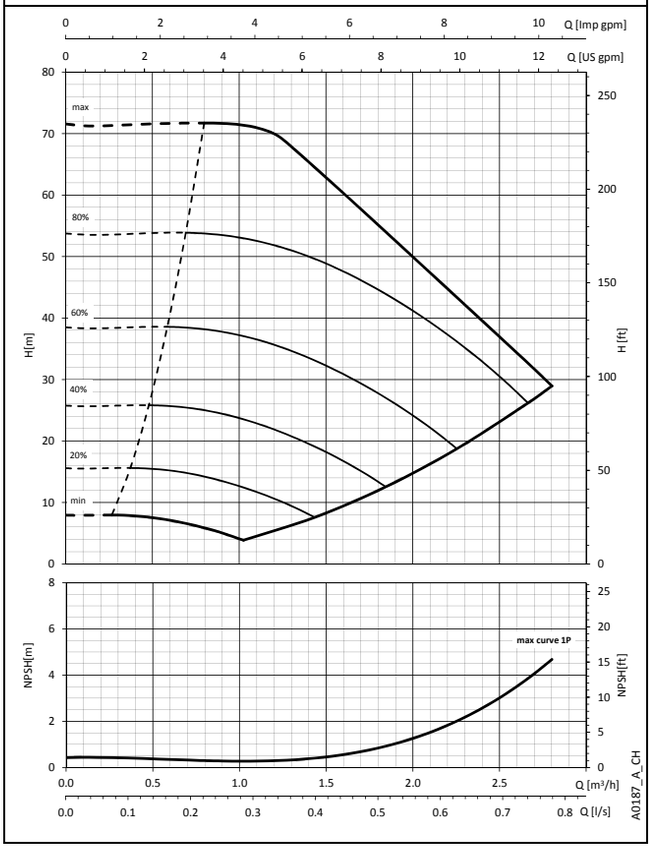
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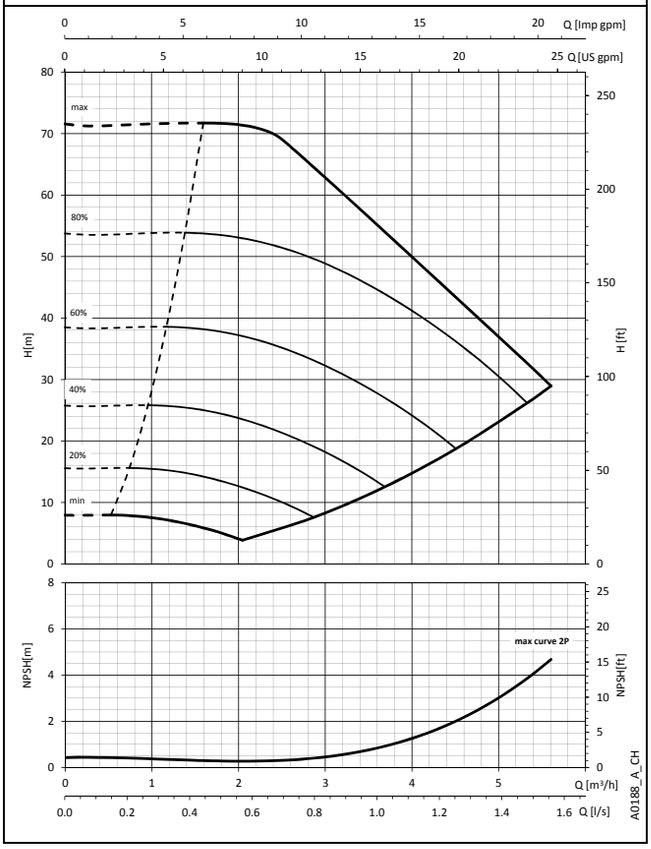
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

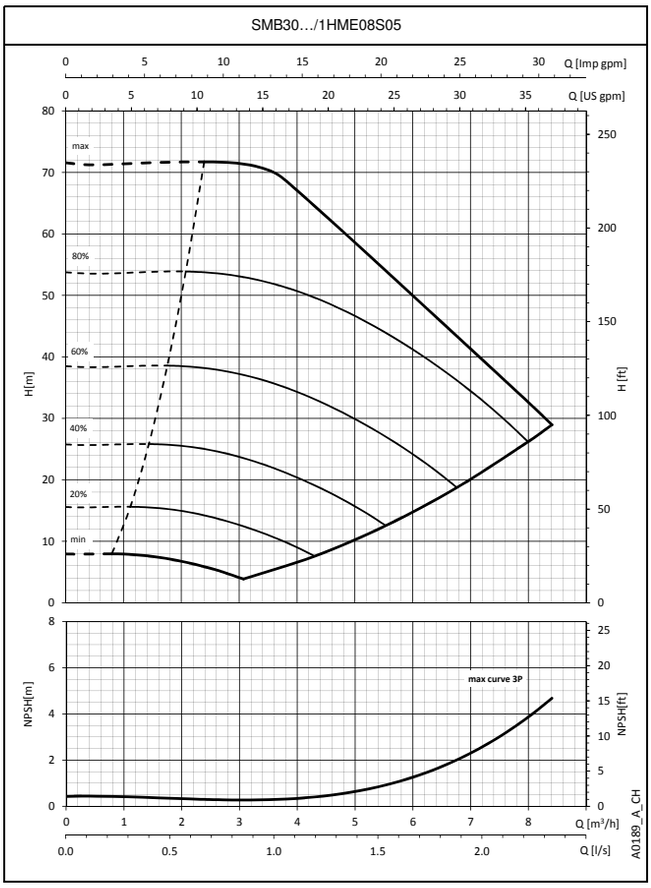
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SMB20.../1HME08S05



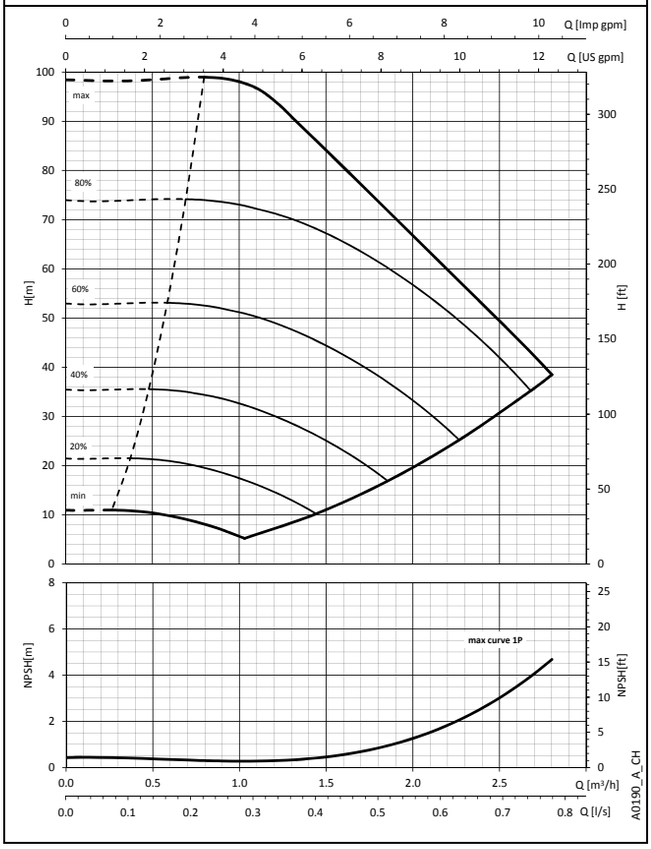
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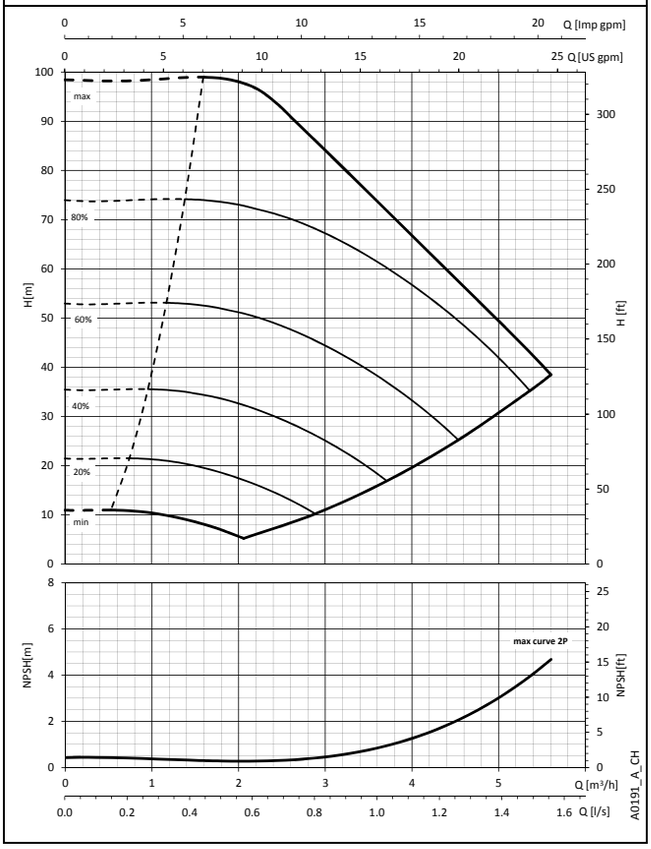
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

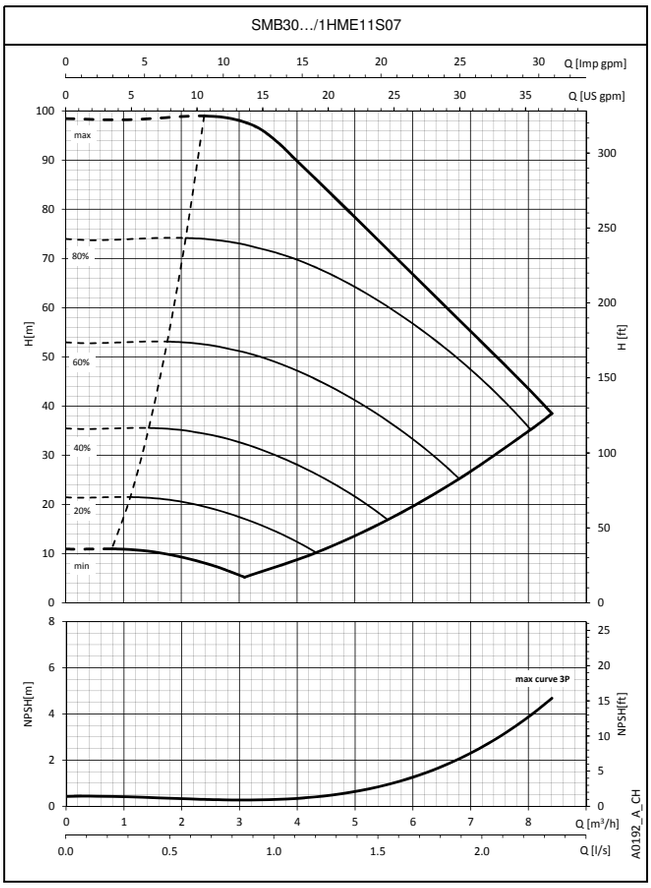
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SMB20.../1HME11S07



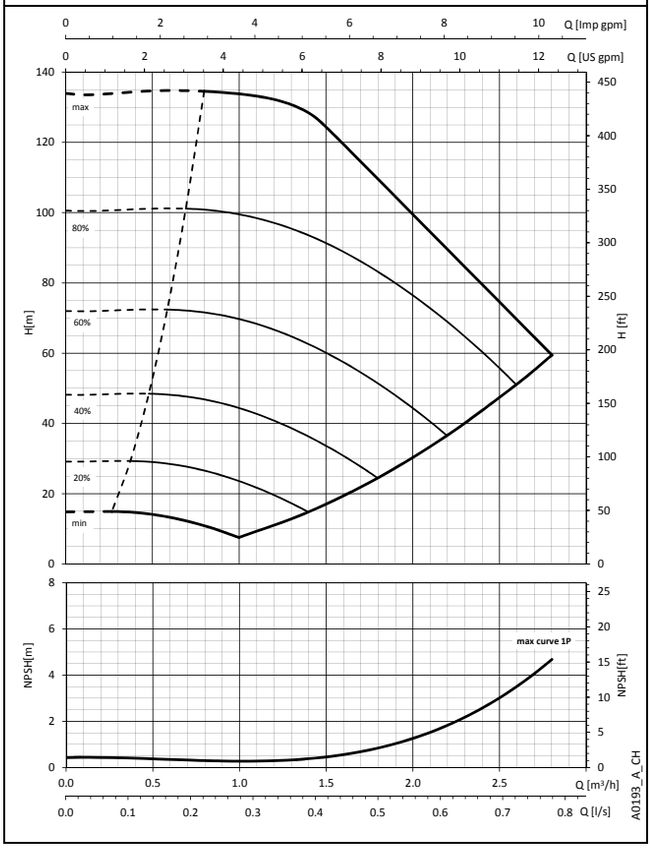
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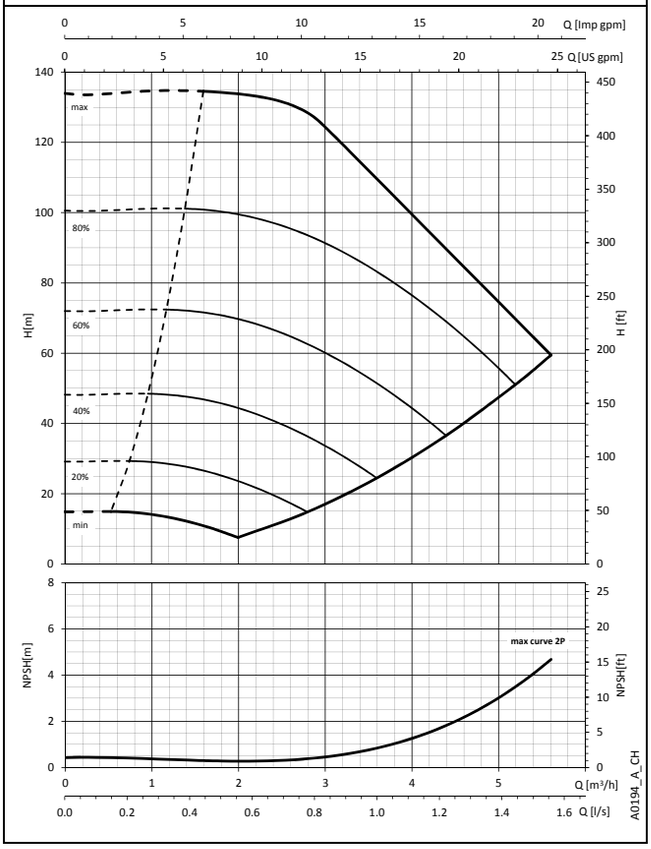
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

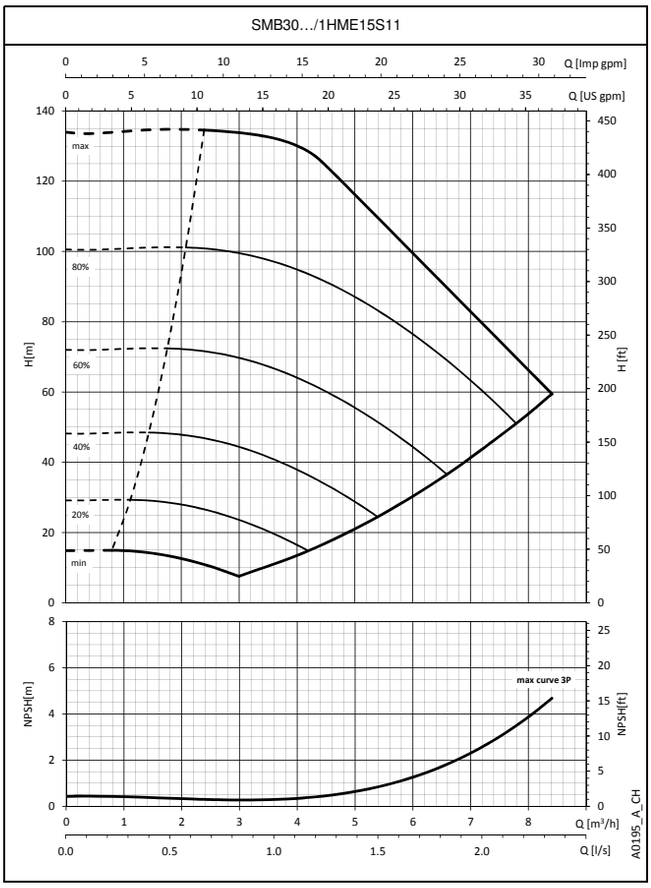
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SMB20.../1HME15S11



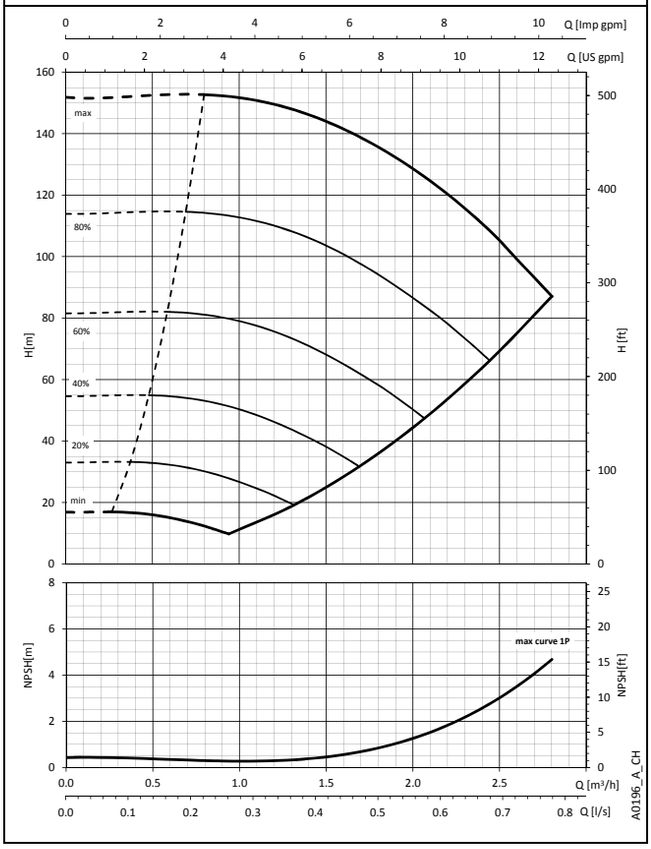
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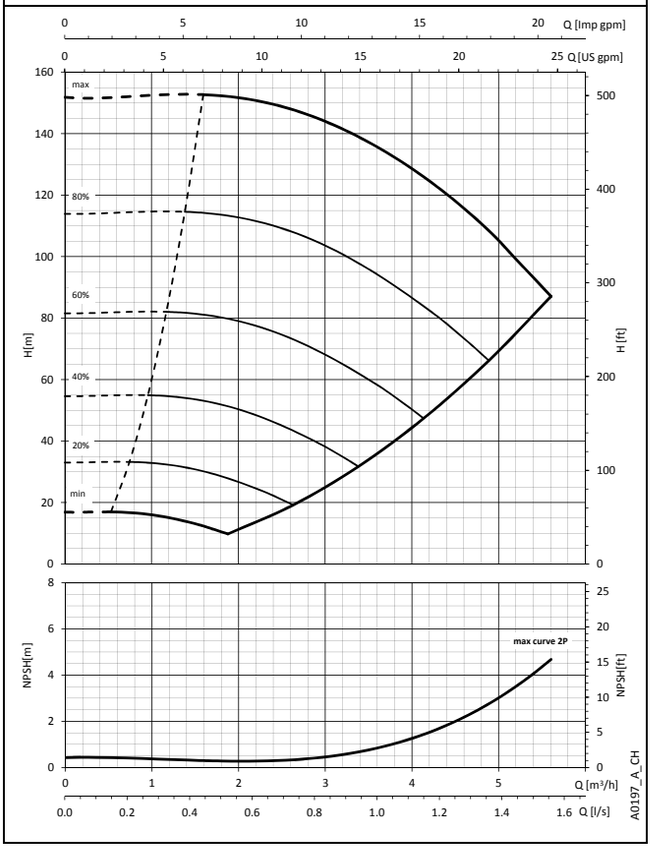
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

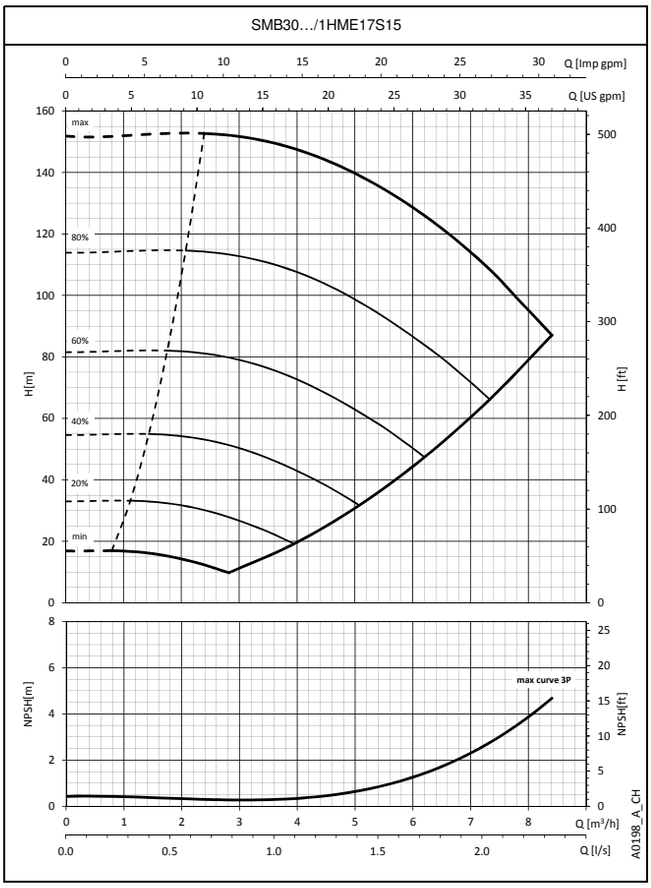
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SMB20.../1HME17S15



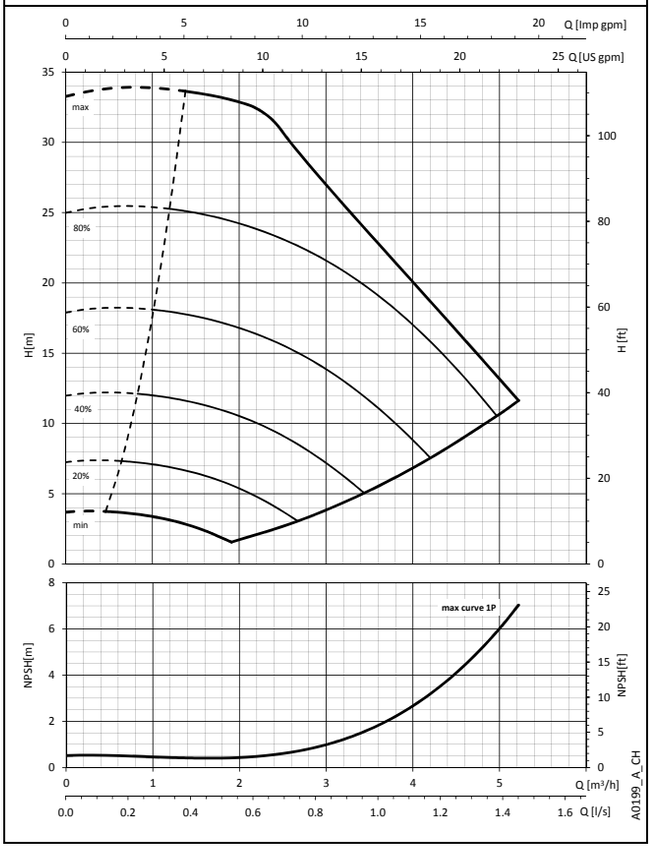
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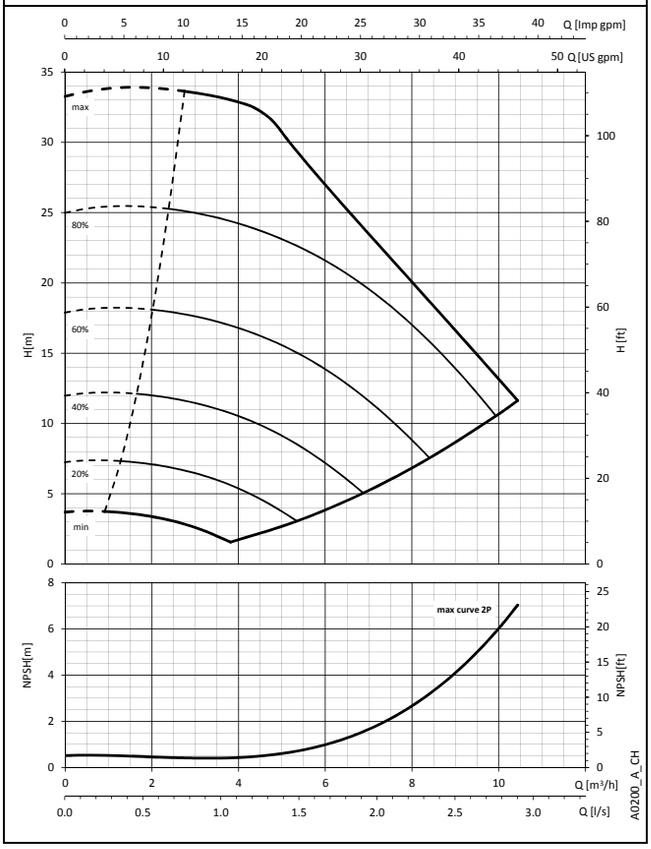
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

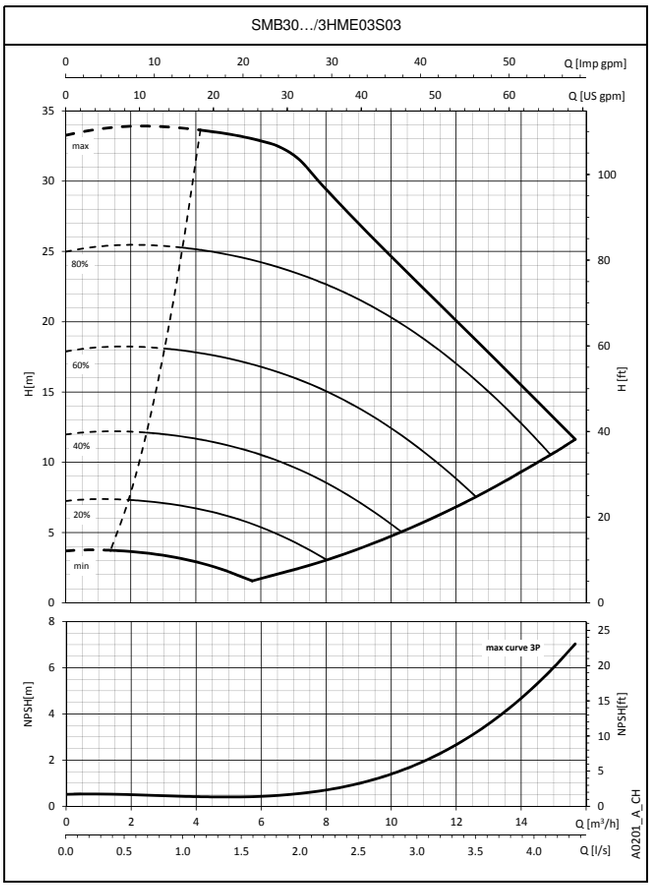
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SMB20.../3HME03S03



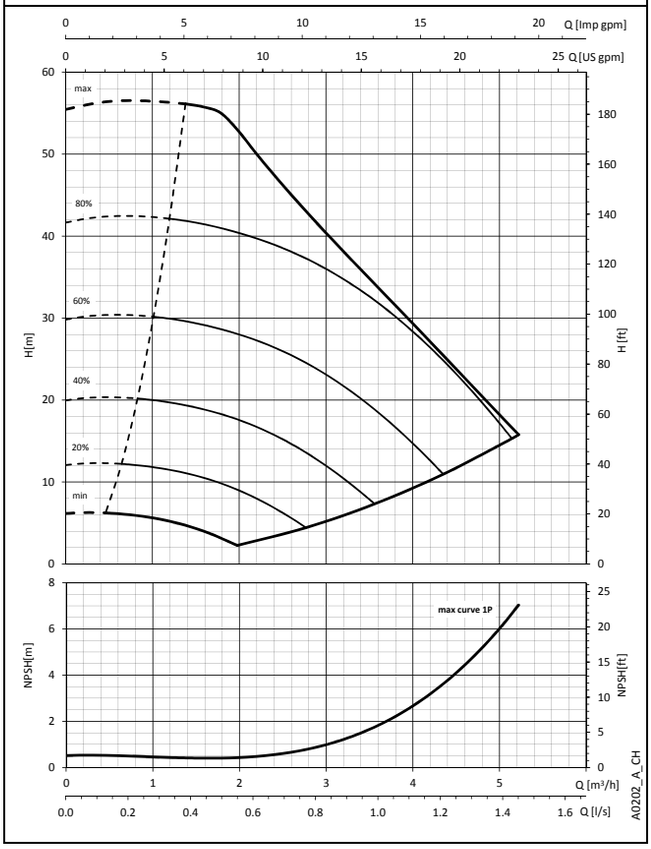
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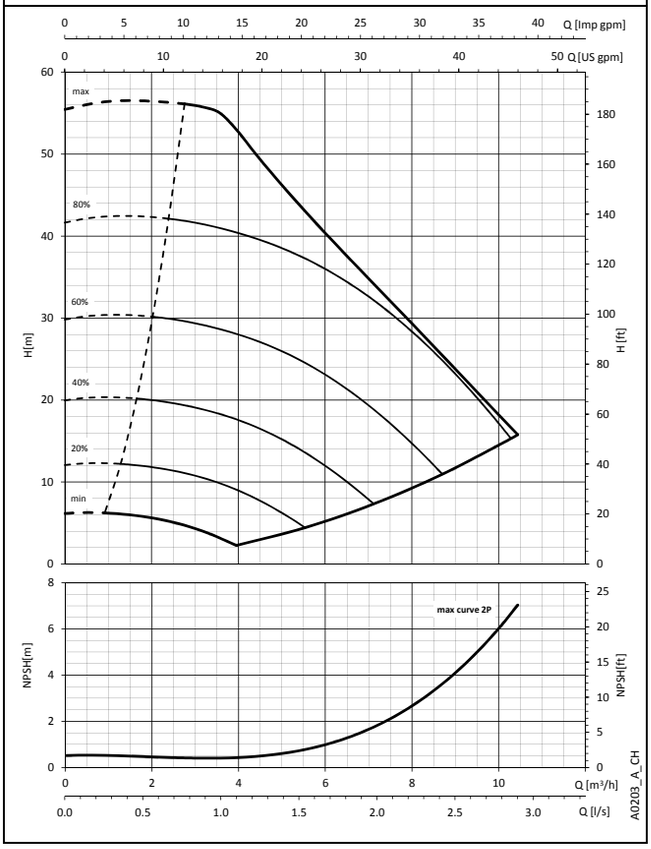
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

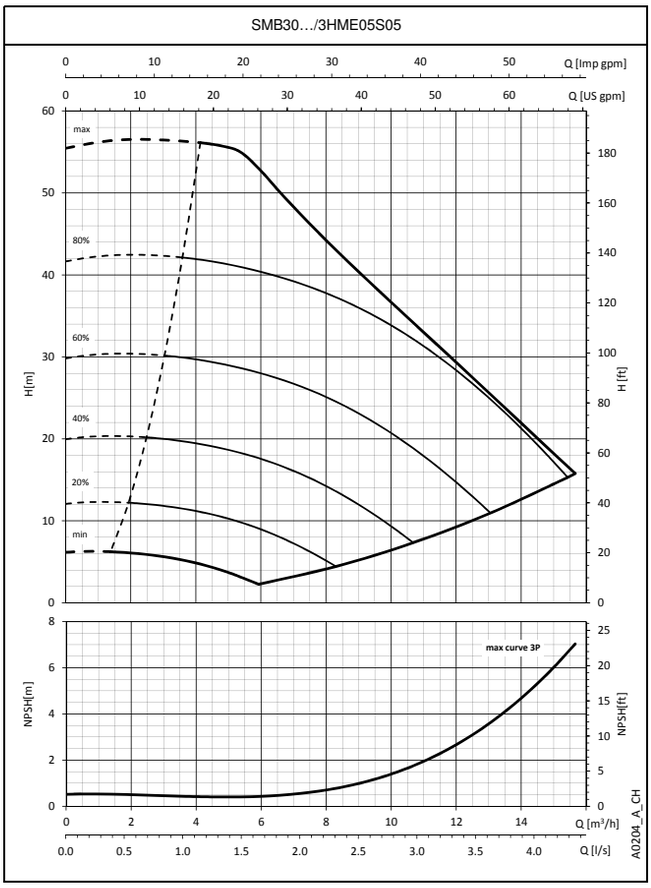
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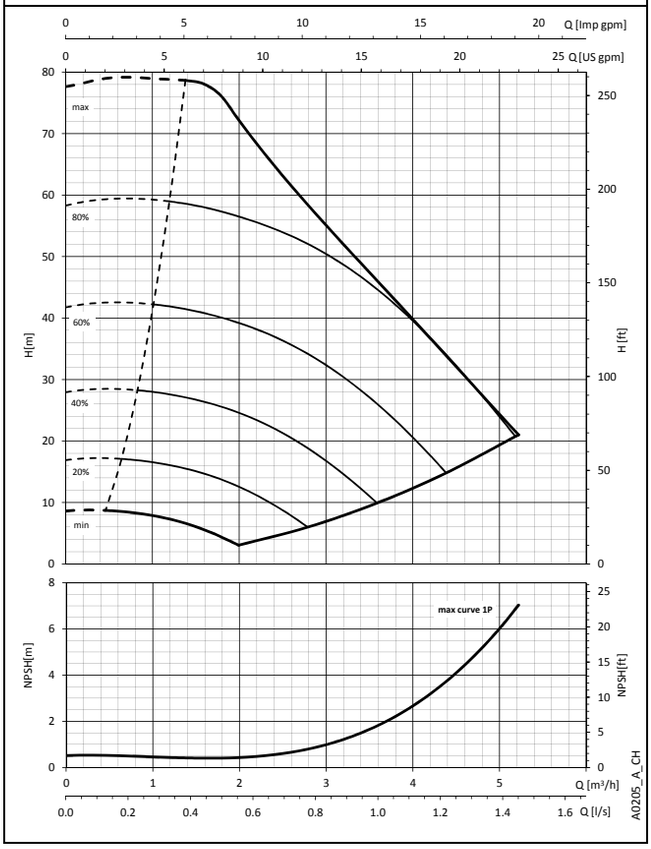
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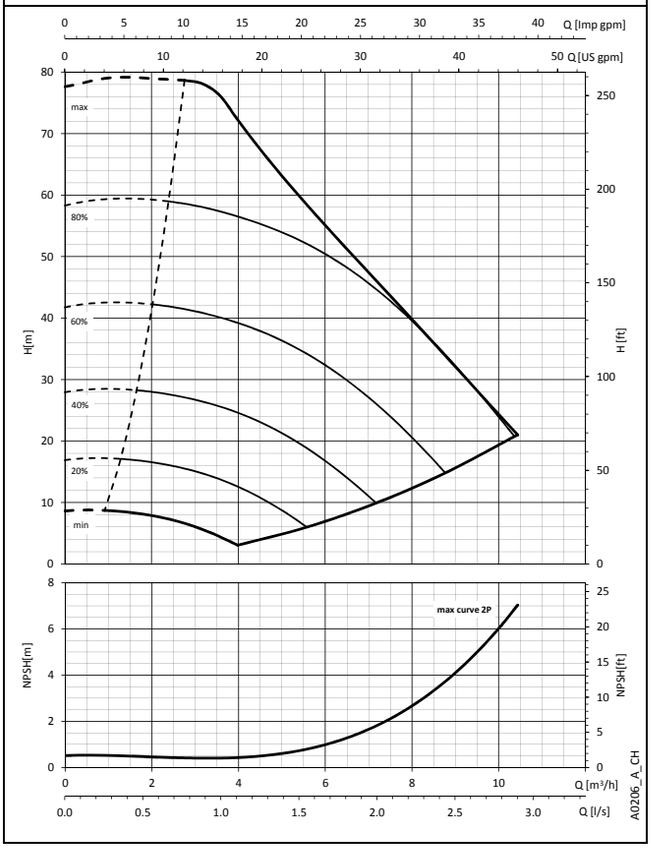
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

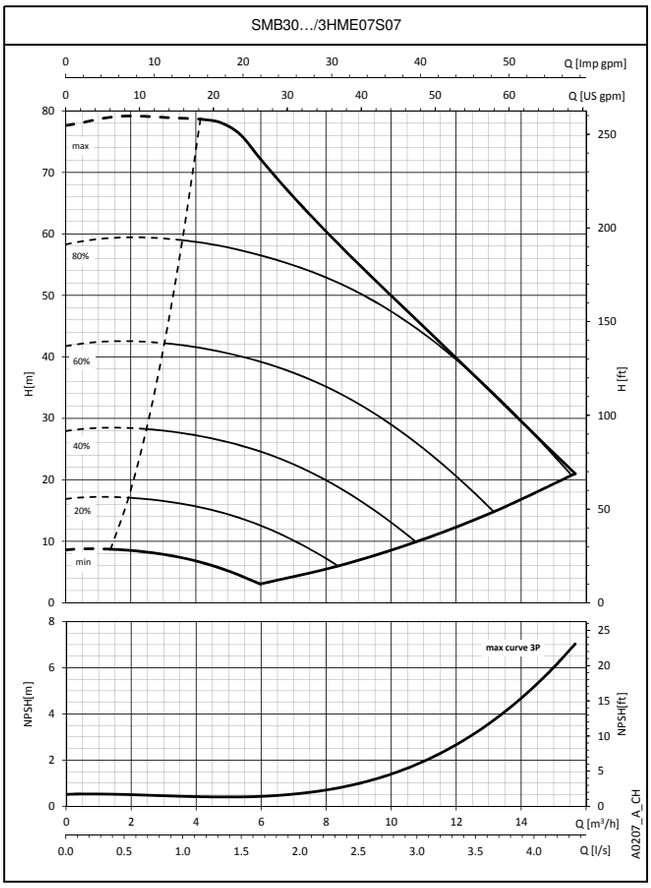
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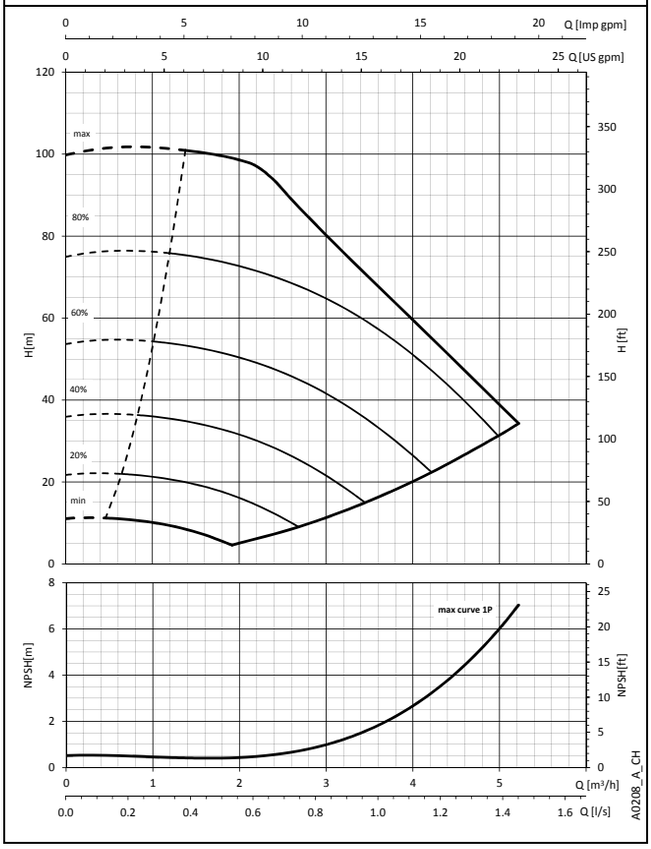
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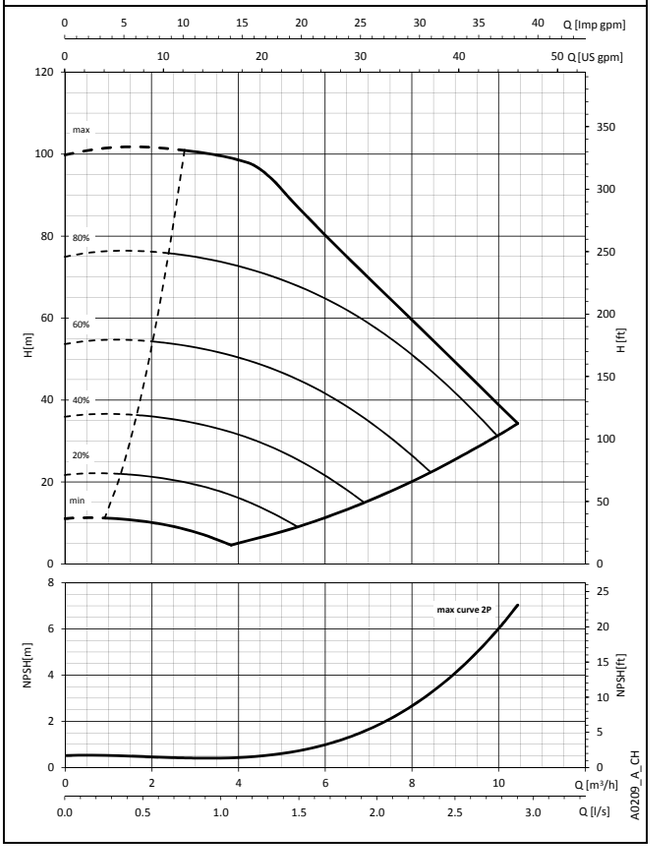
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

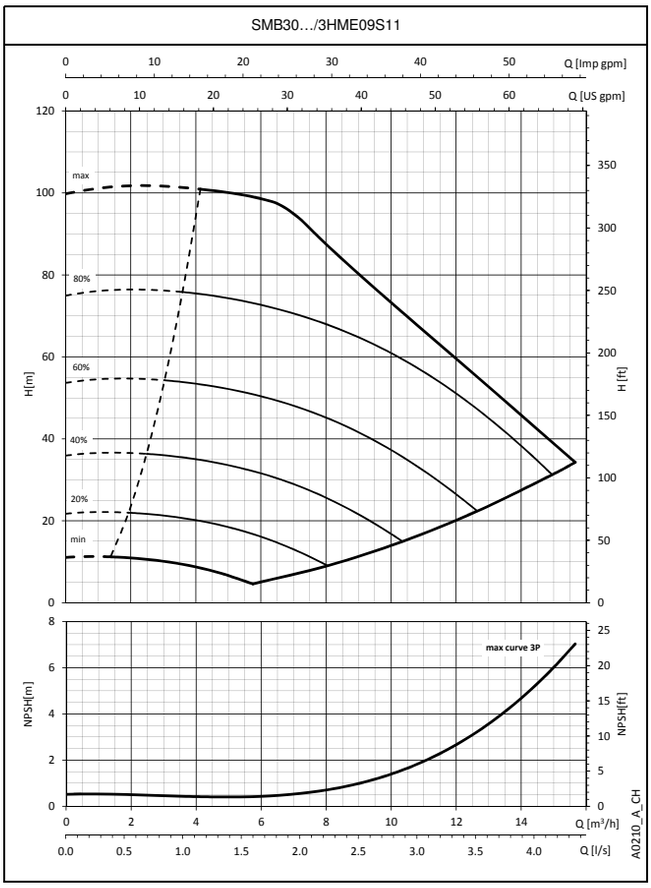
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SMB20.../3HME09S11



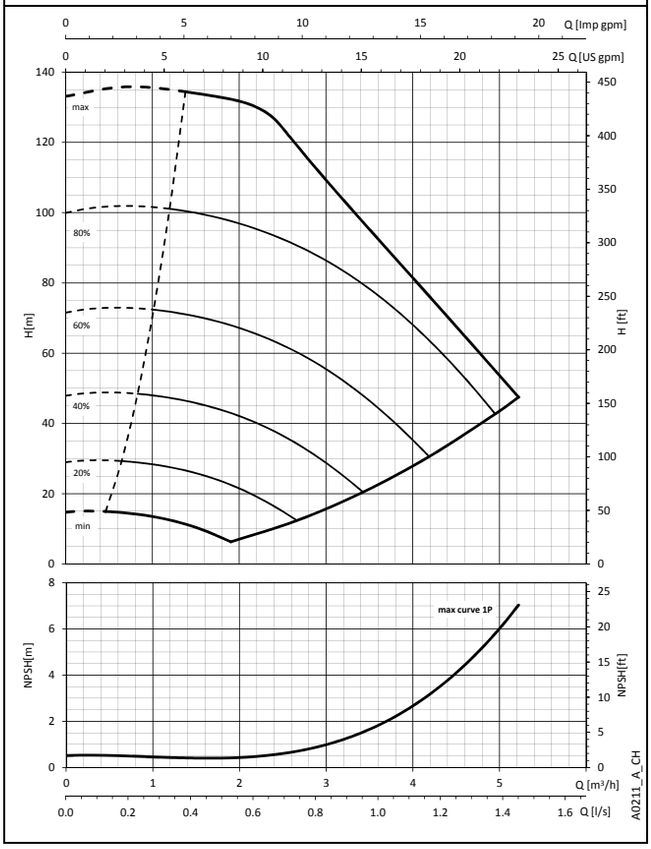
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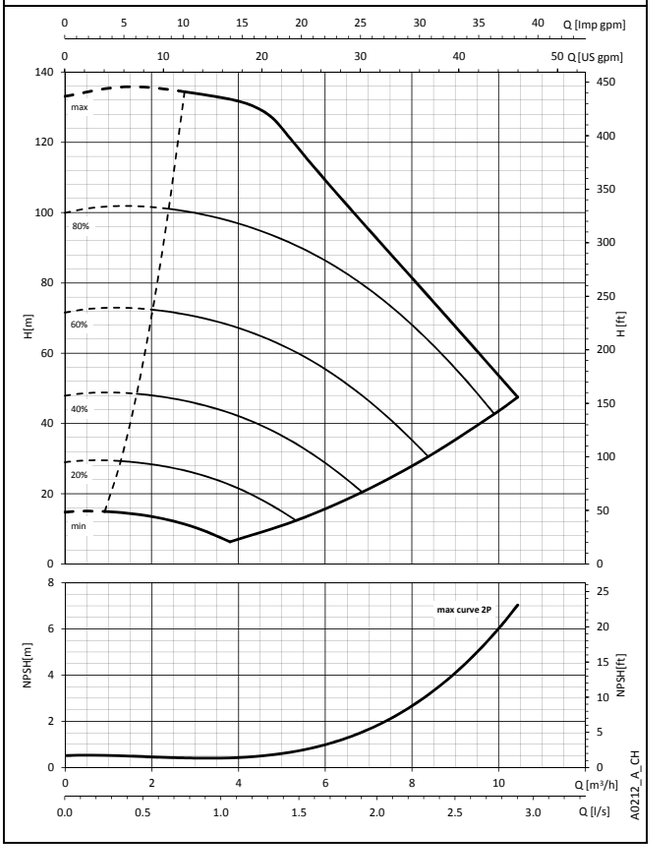
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

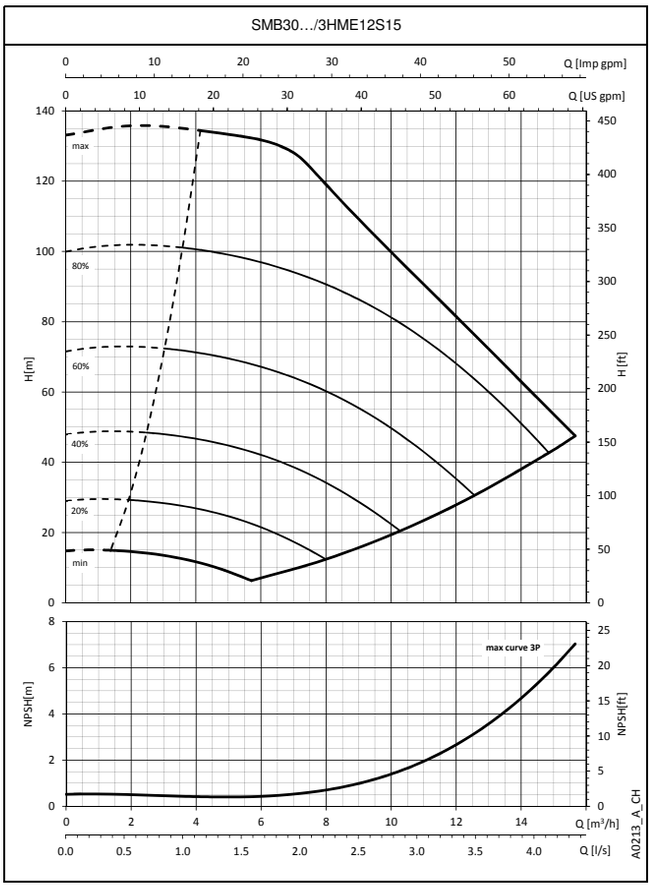
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SMB20.../3HME12S15



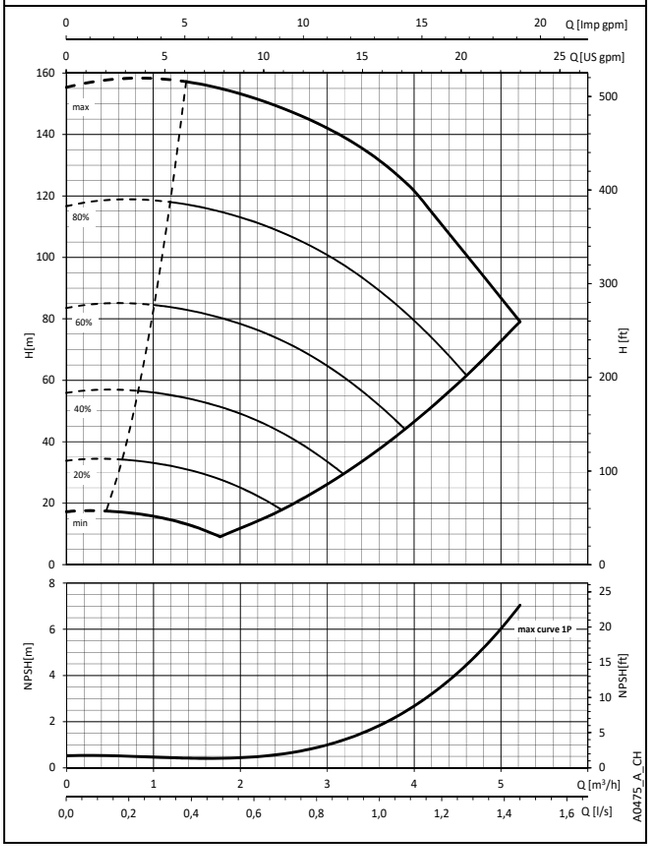
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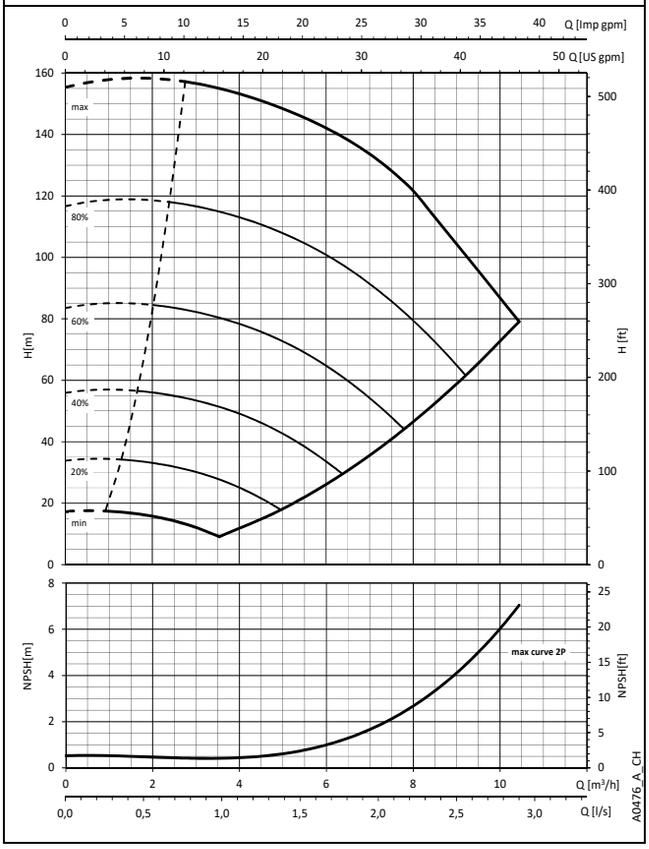
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

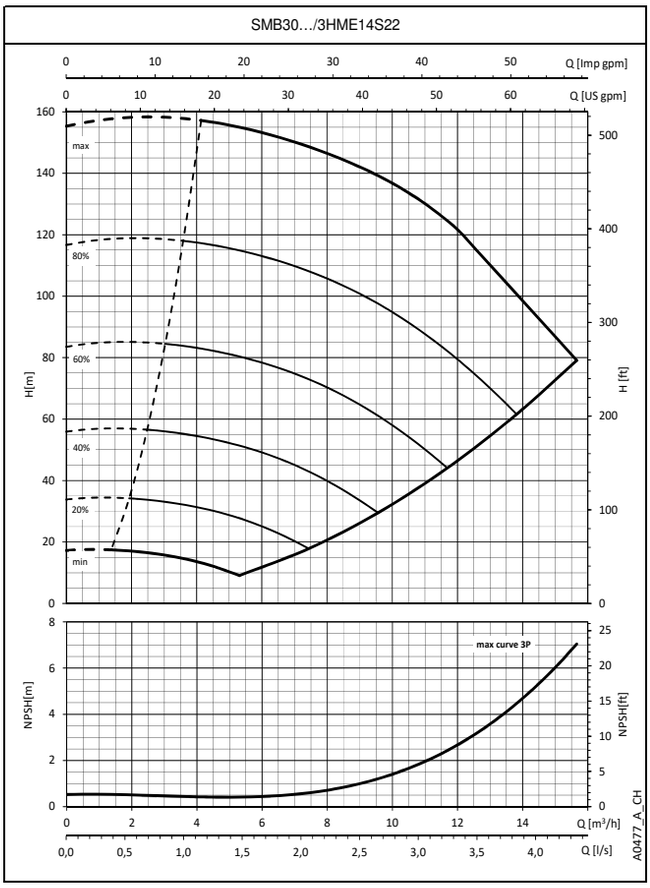
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SMB20.../3HME14S22



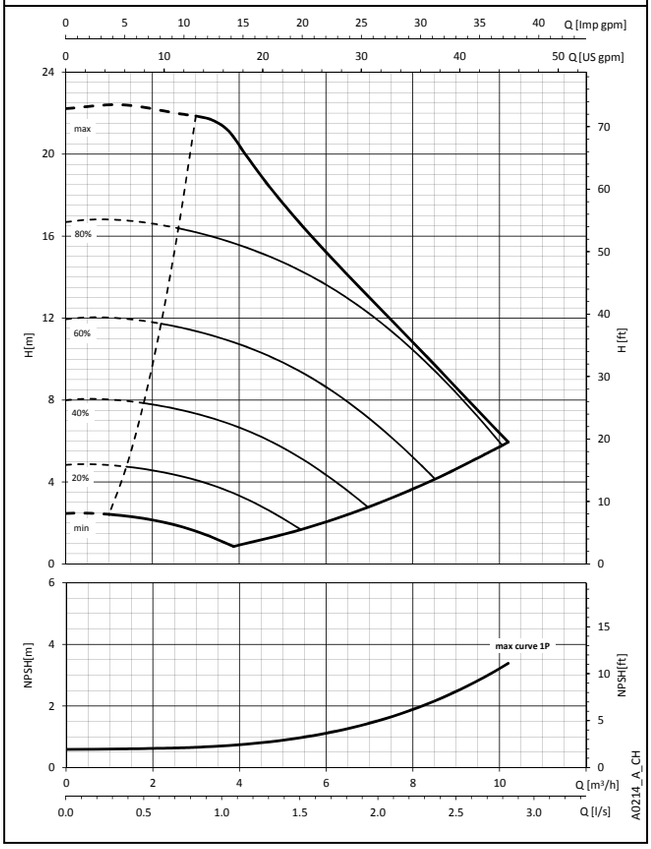
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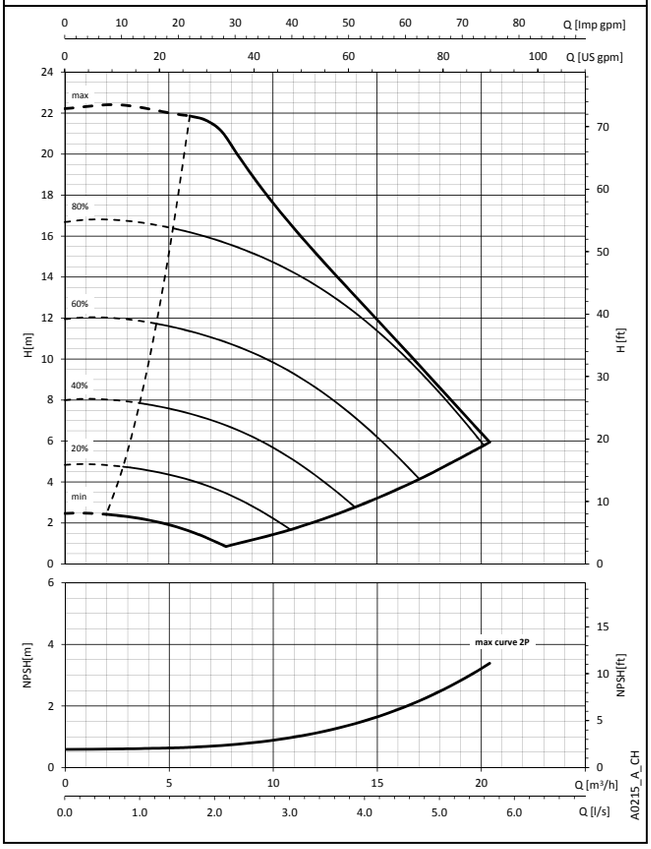
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

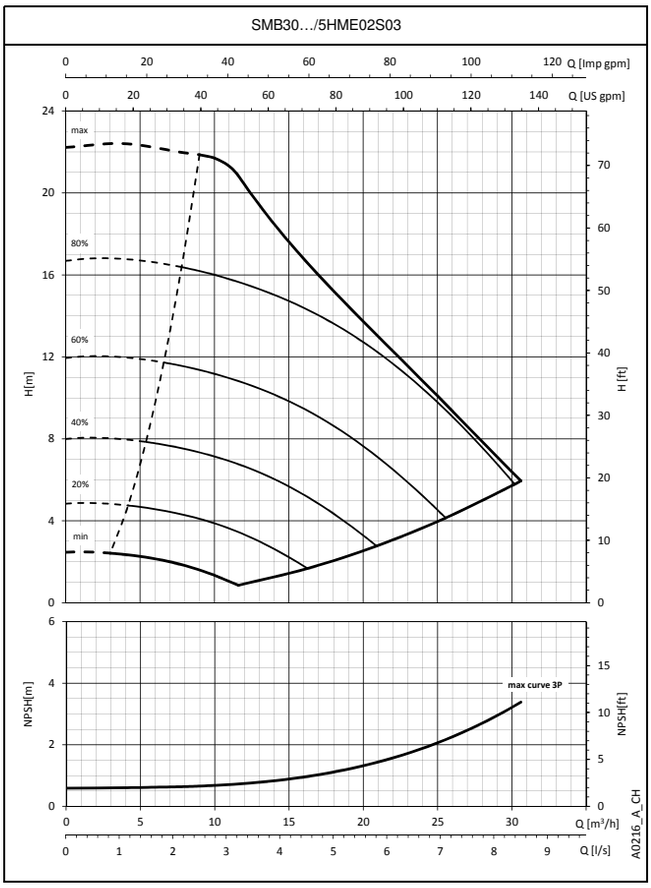
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SMB20.../5HME02S03



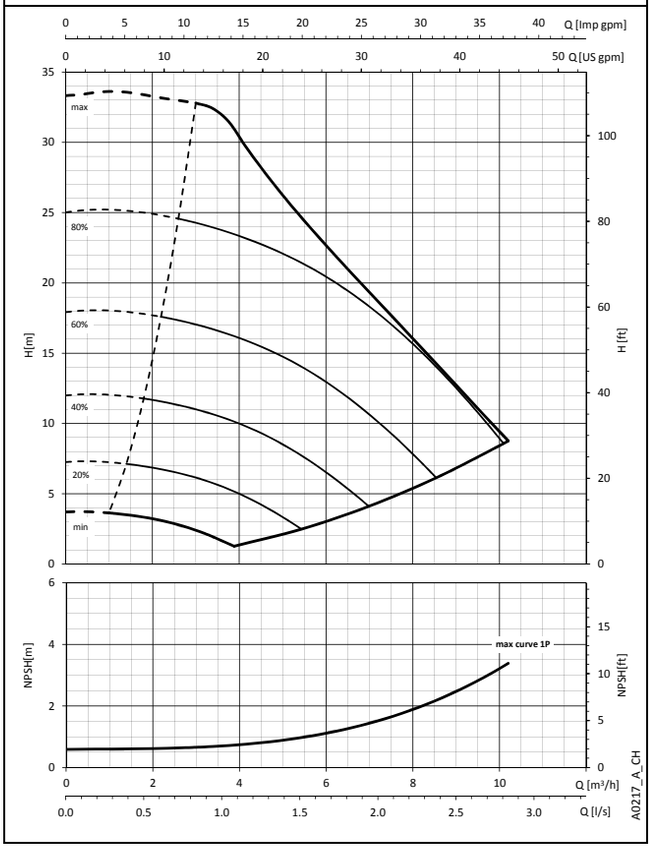
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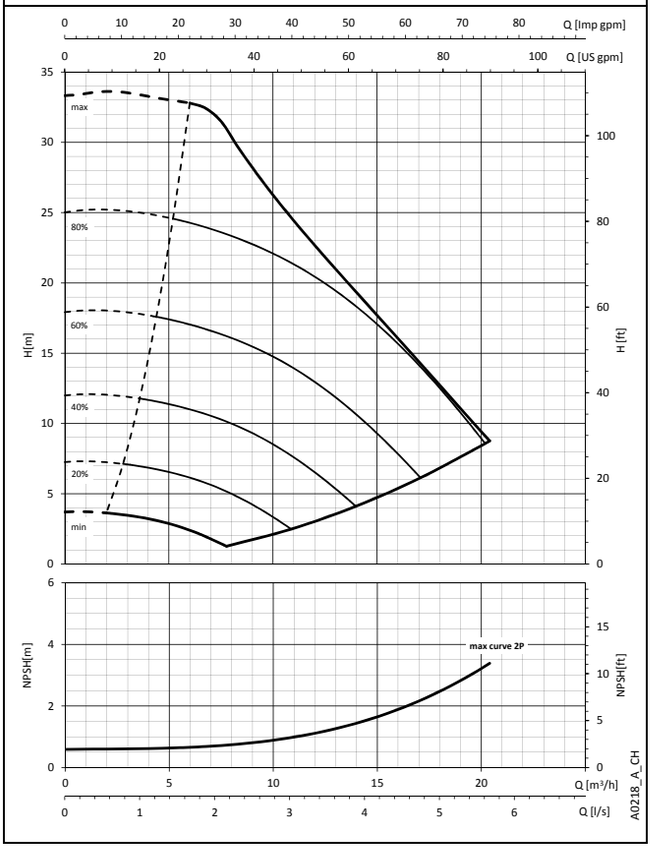
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

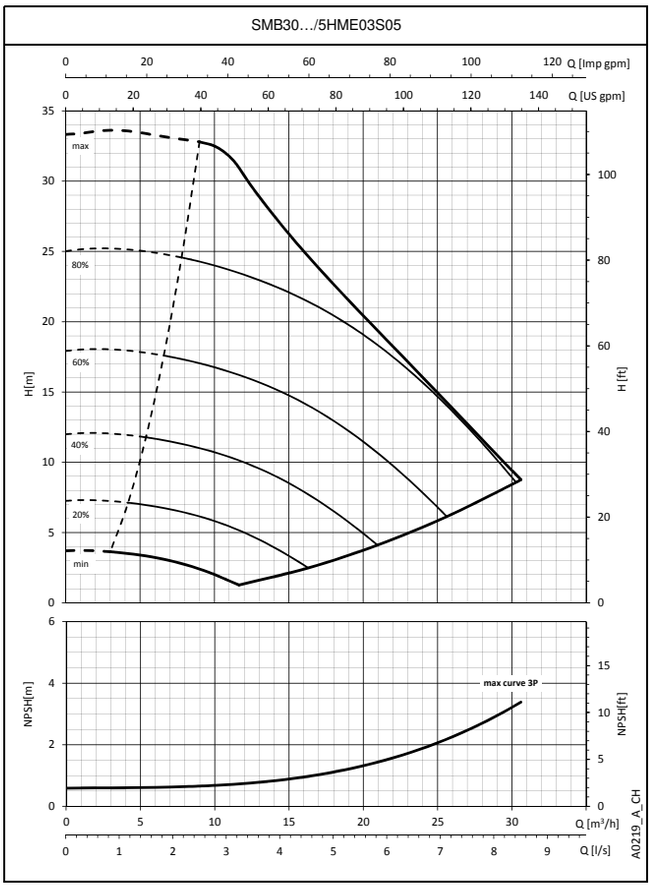
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SMB20.../5HME03S05



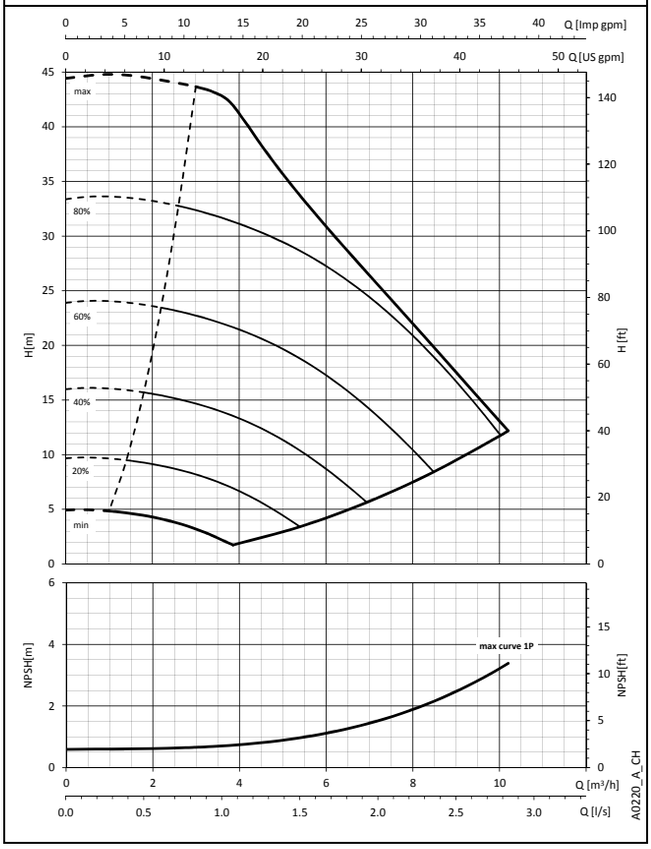
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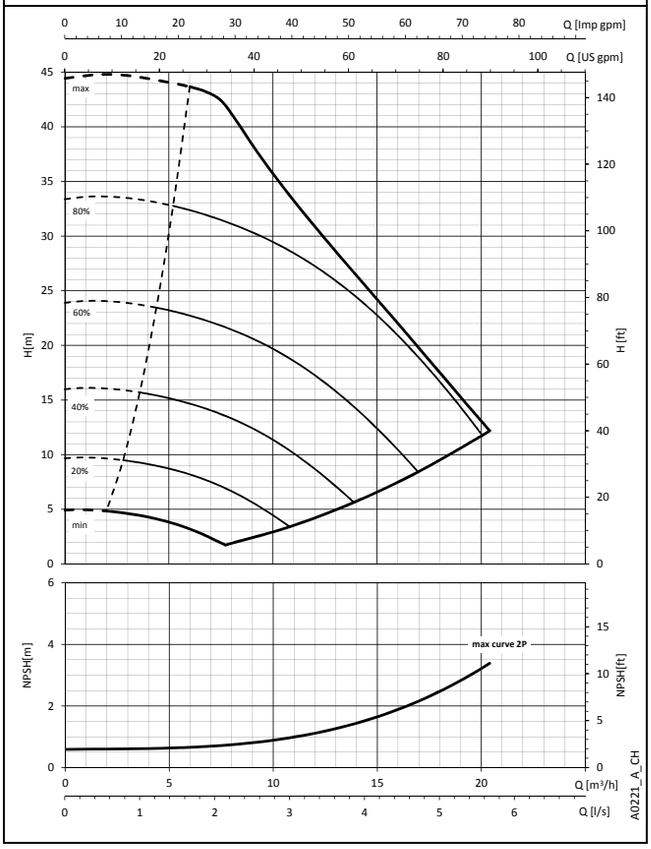
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

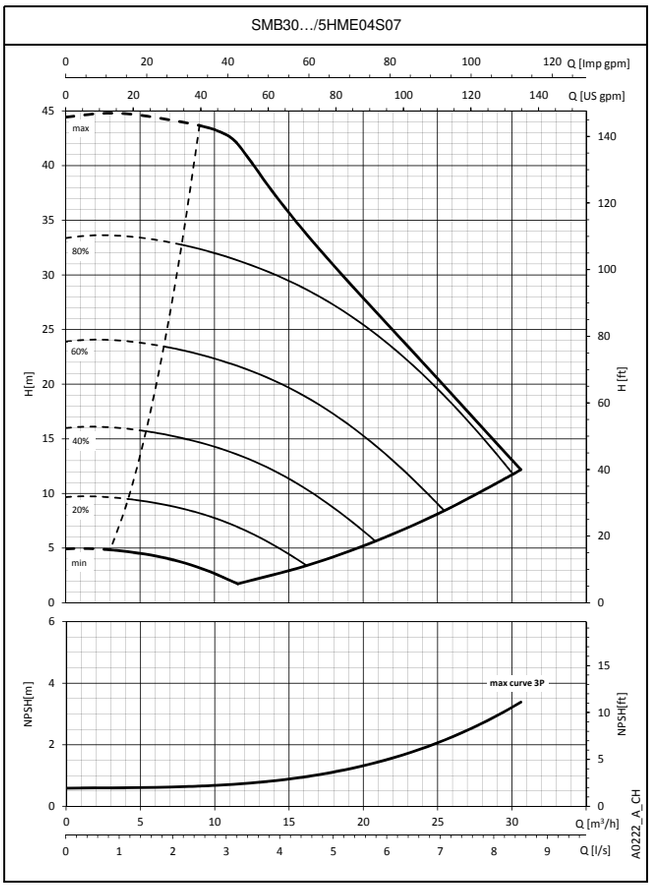
5HME04S07



SMB20.../5HME04S07



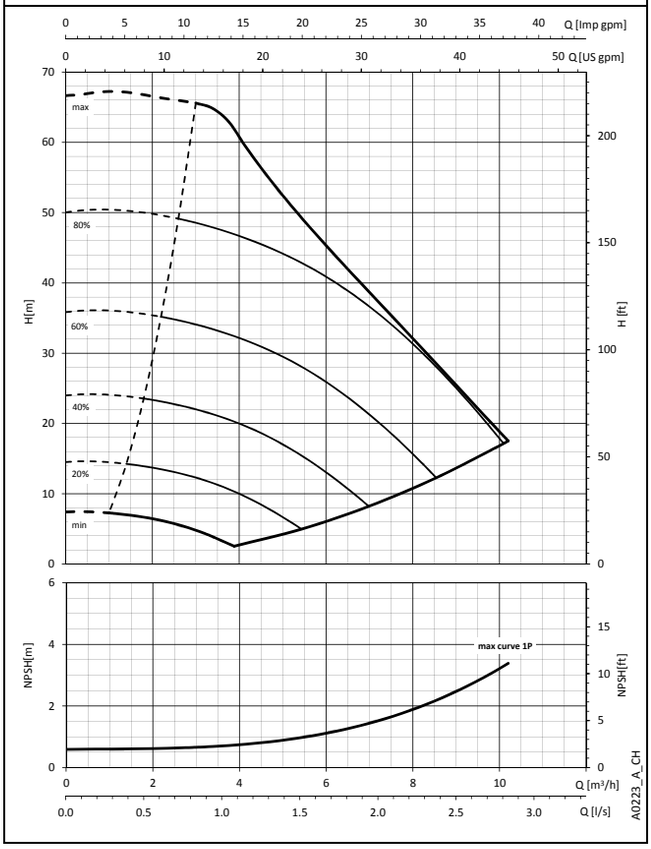
SMB30.../5HME04S07



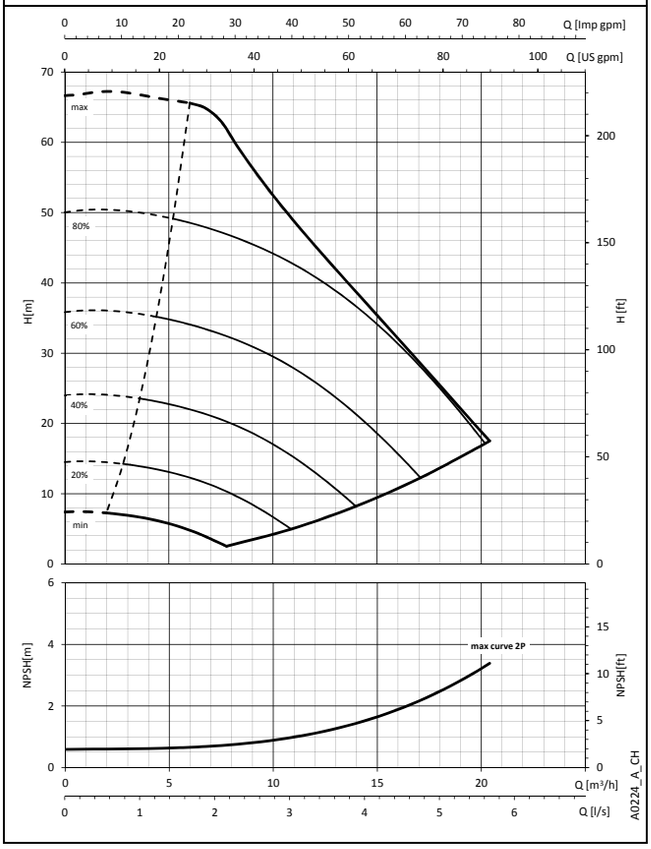
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
The declared NPSH values are laboratory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

SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

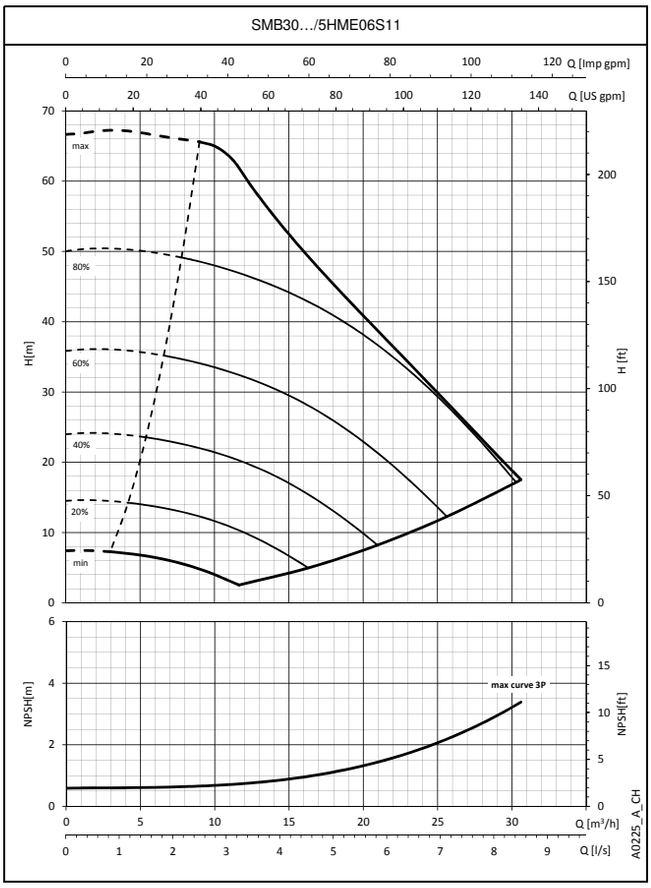
5HME06S11



SMB20.../5HME06S11



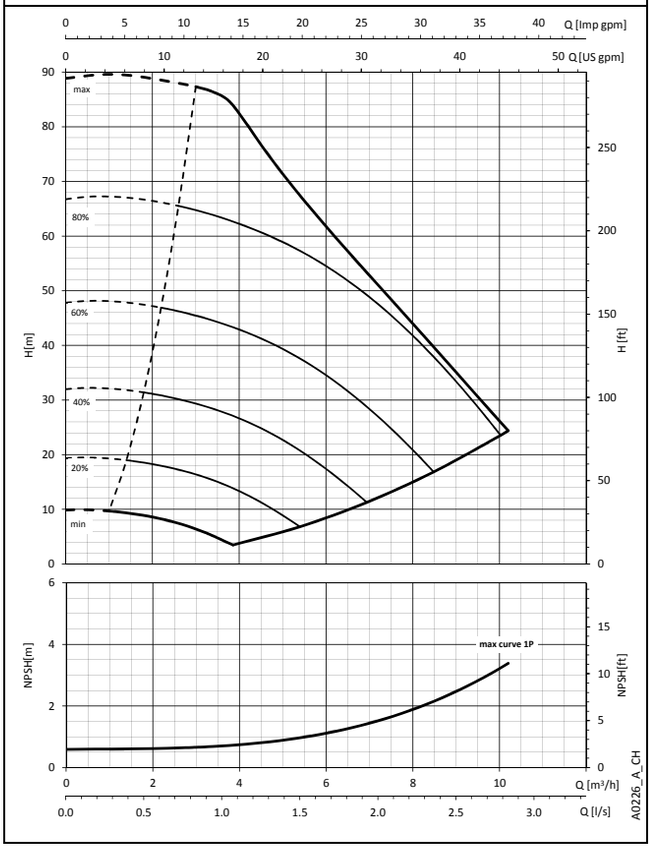
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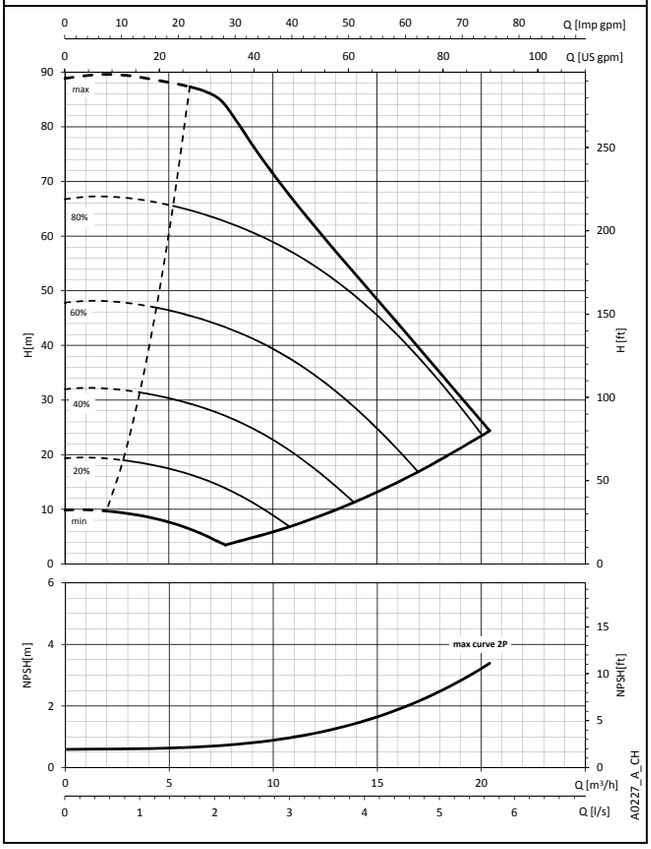
The performance curves do not take into account flow resistance in the valves and piping. The curves show the performance with one, two and three pumps running.
These performances are valid for liquids with density ρ = 1 Kg/dm^3 and kinematic viscosity ν = 1 mm^2/sec.
The declared NPSH values are laboratory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

SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

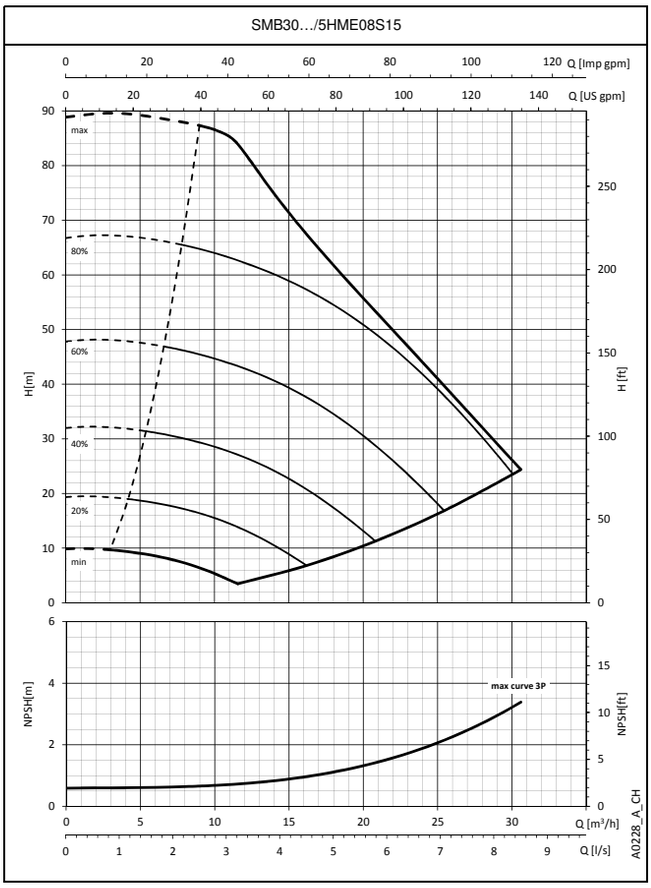
5HME08S15



SMB20.../5HME08S15



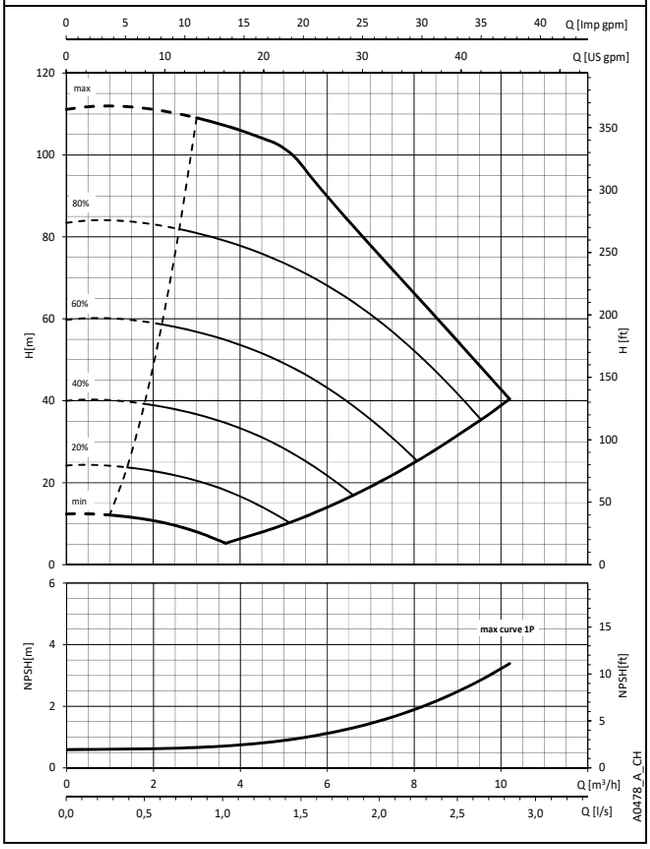
SMB30.../5HME08S15



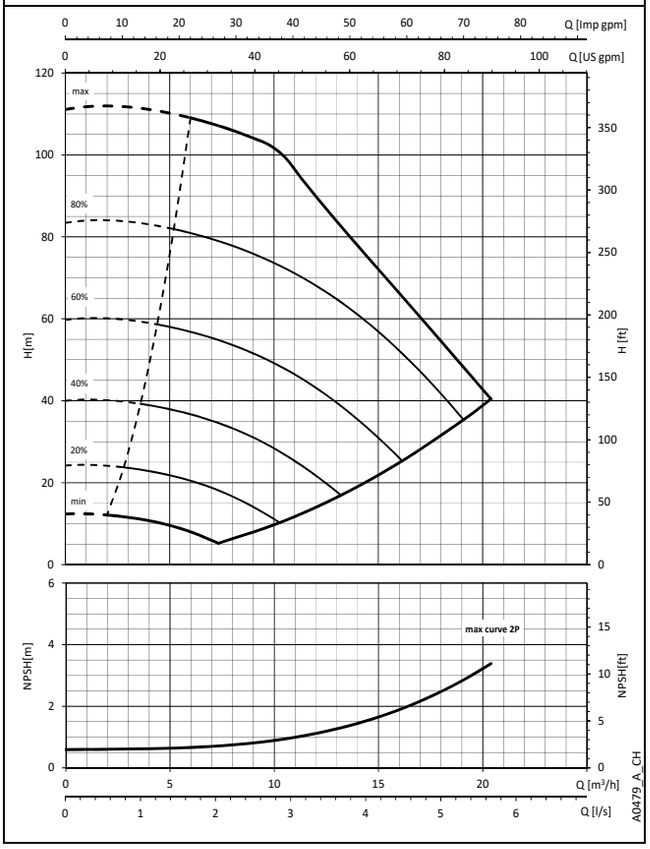
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The declared NPSH values are laboratory values; for practical use we recommend increasing these values by 0,5 m.

SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

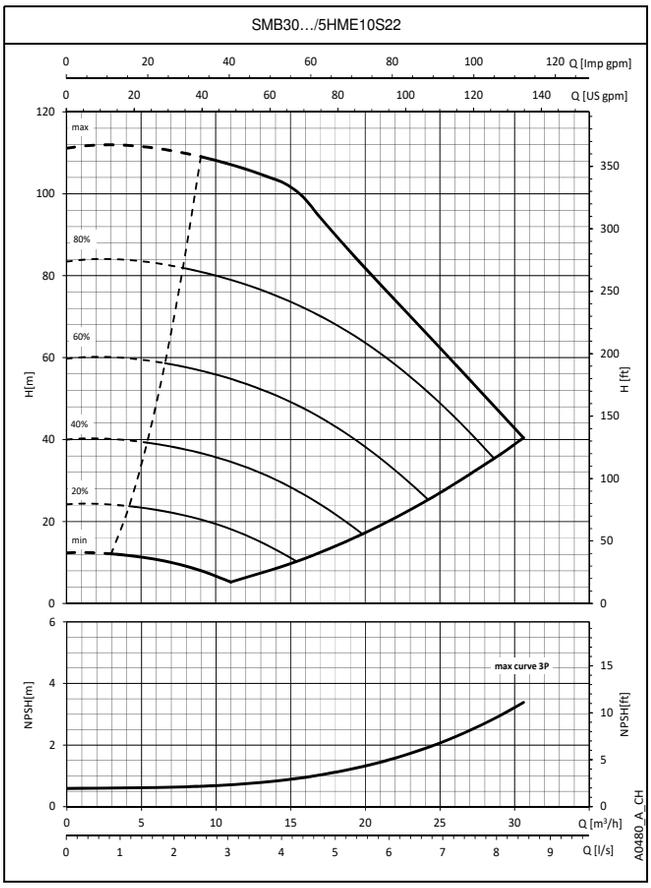
5HME10S22



SMB20.../5HME10S22



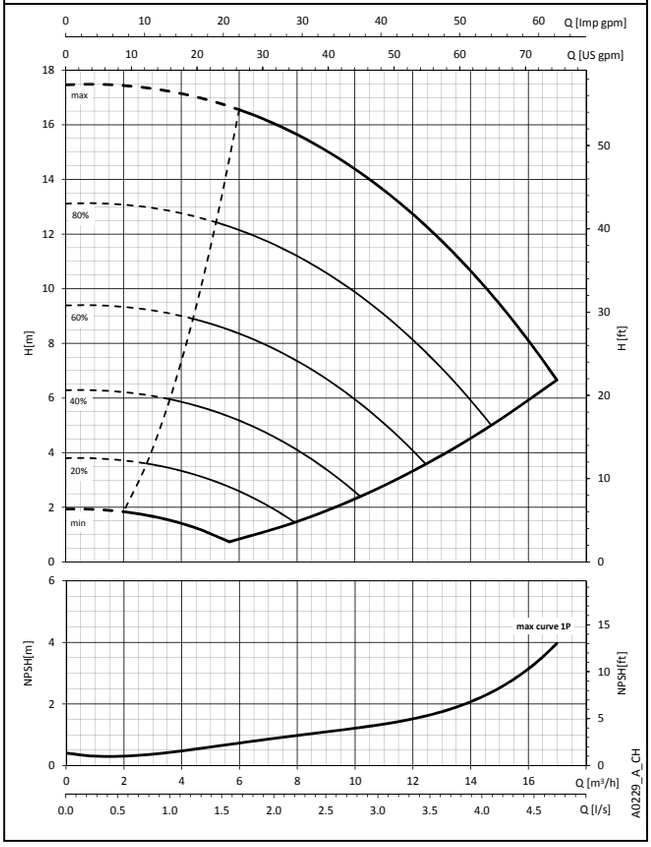
SMB30.../5HME10S22



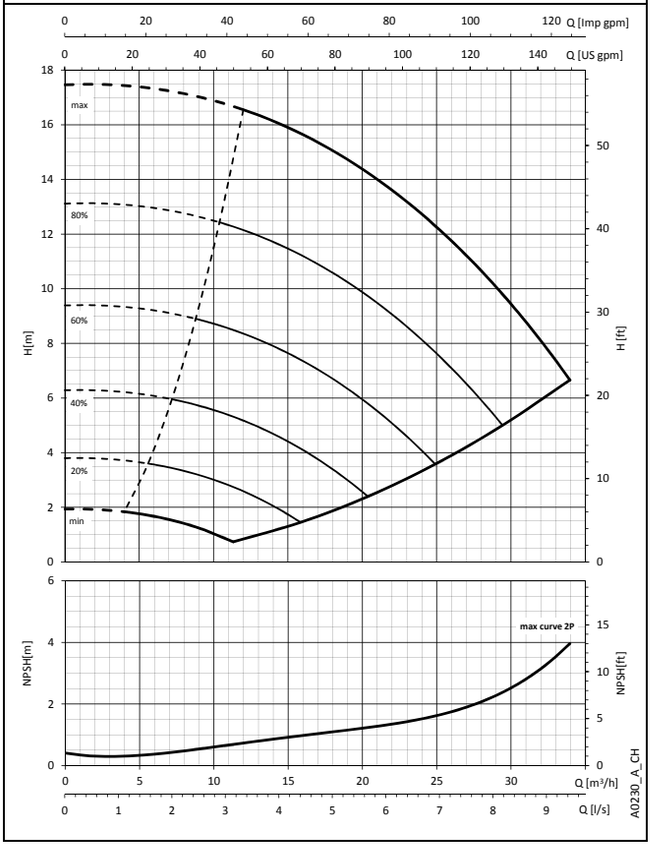
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

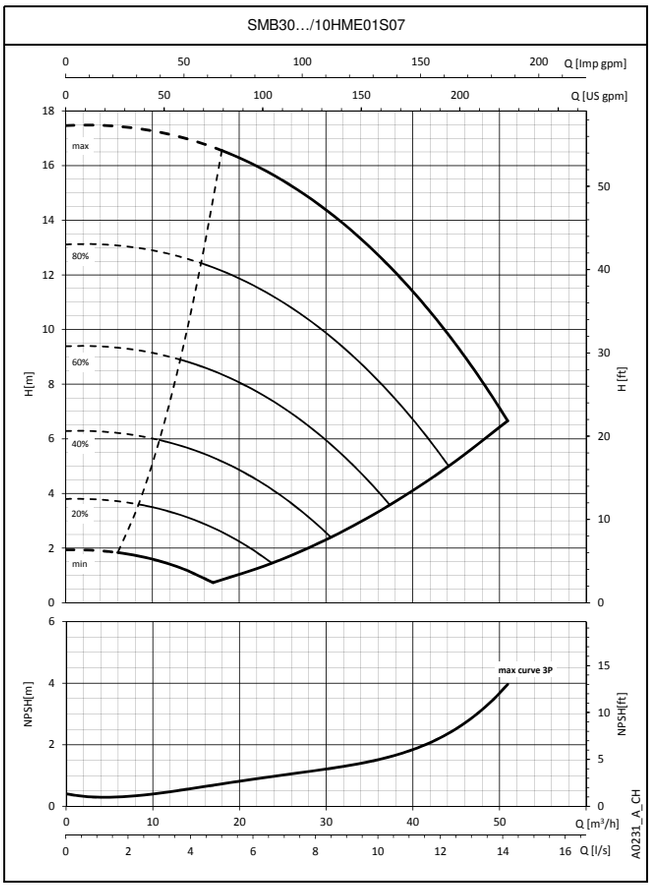
10HME01S07



SMB20.../10HME01S07



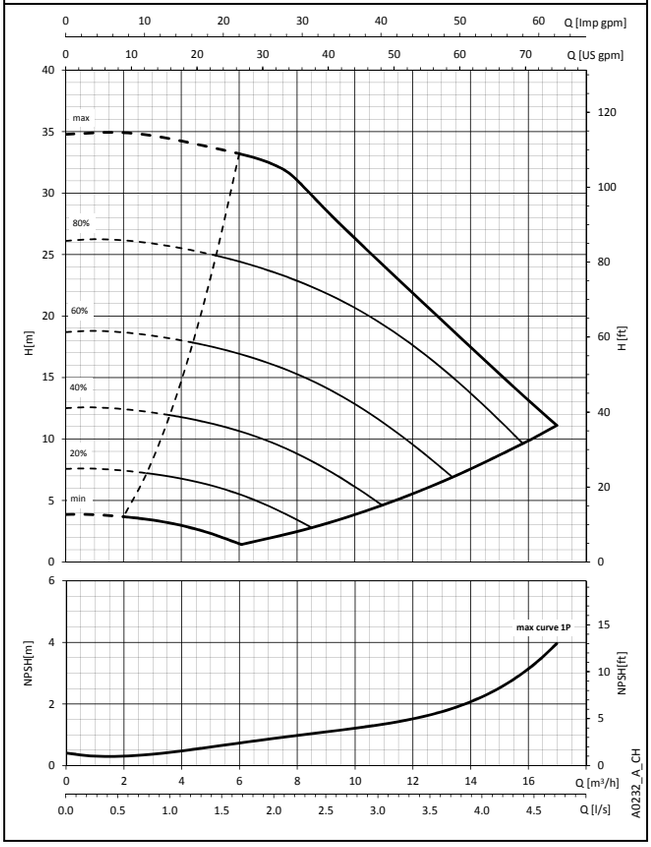
SMB30.../10HME01S07



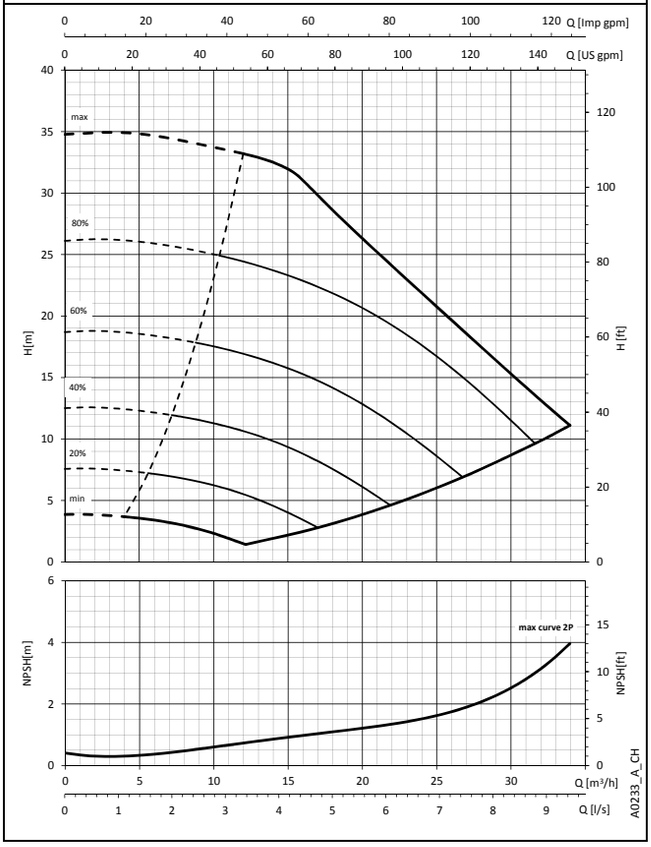
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SMB…/HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

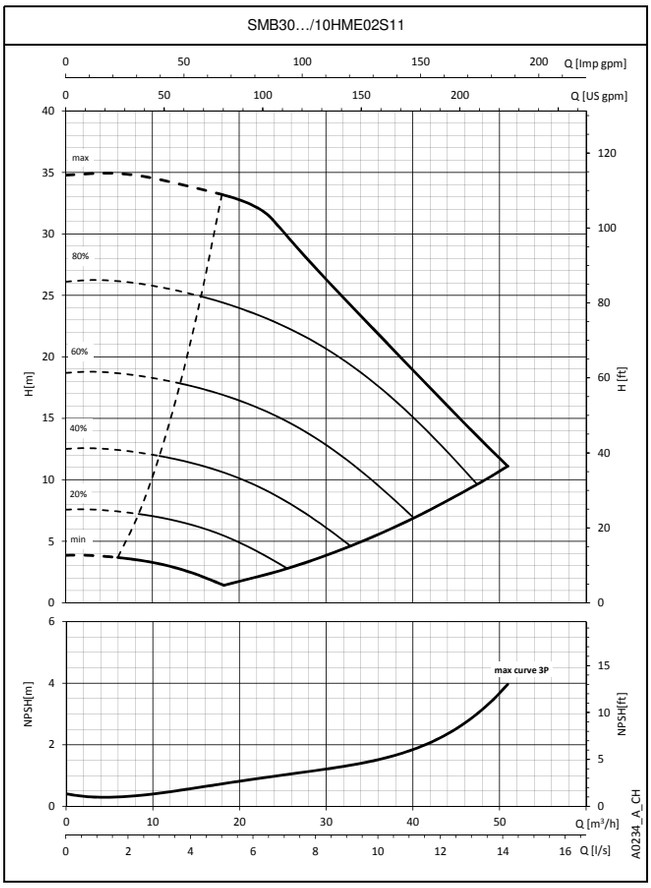
10HME02S11



SMB20…/10HME02S11



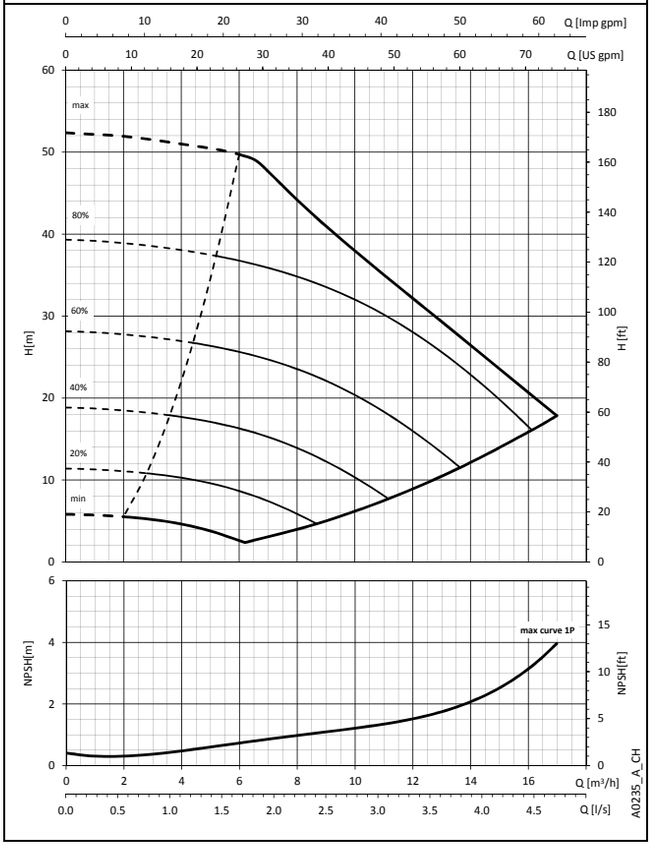
SMB30…/10HME02S11



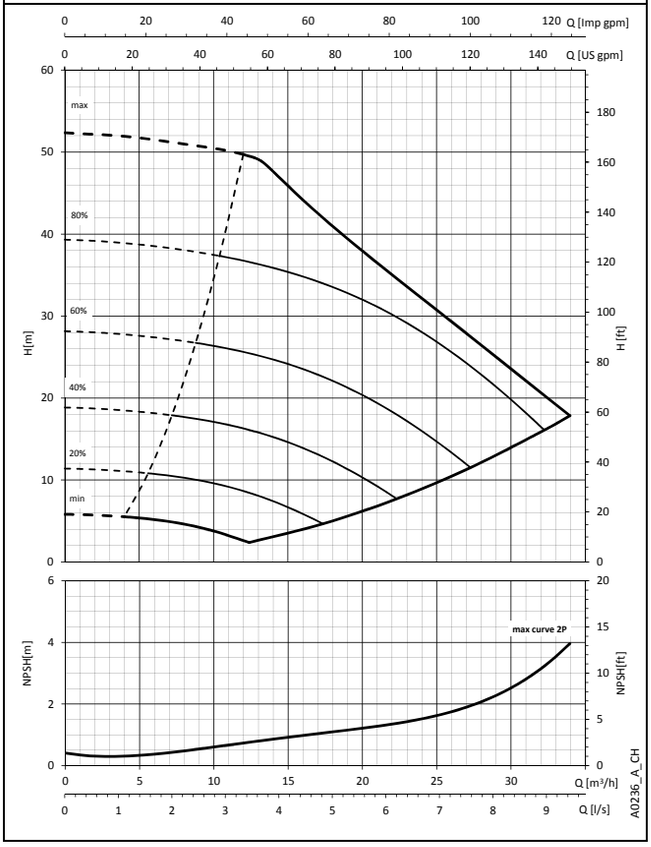
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

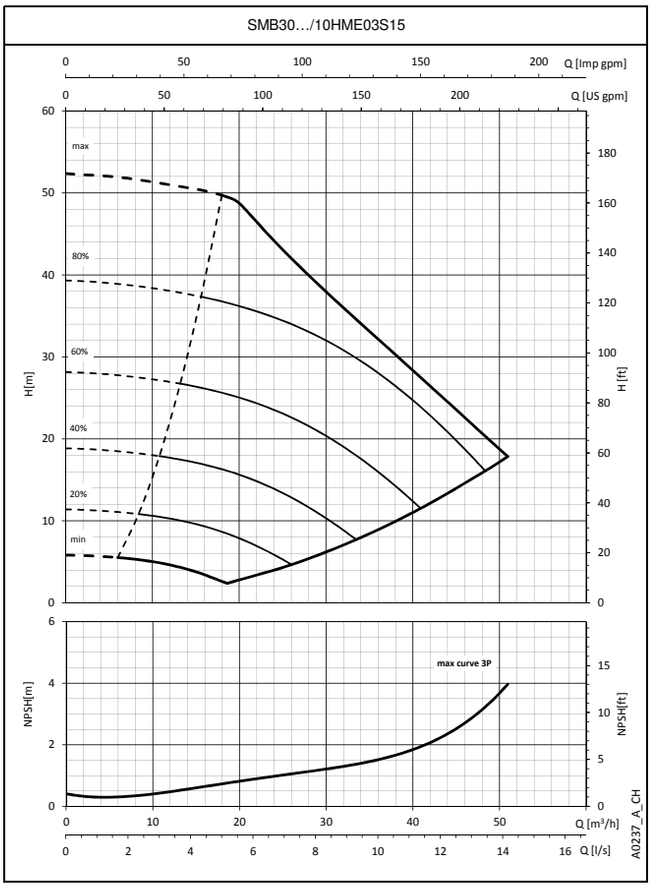
10HME03S15



SMB20.../10HME03S15



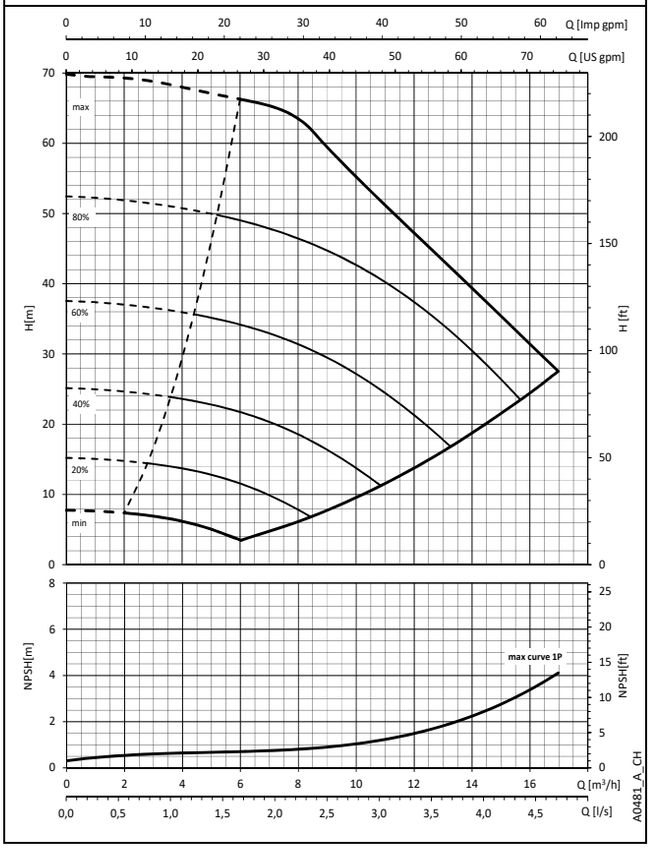
SMB30.../10HME03S15



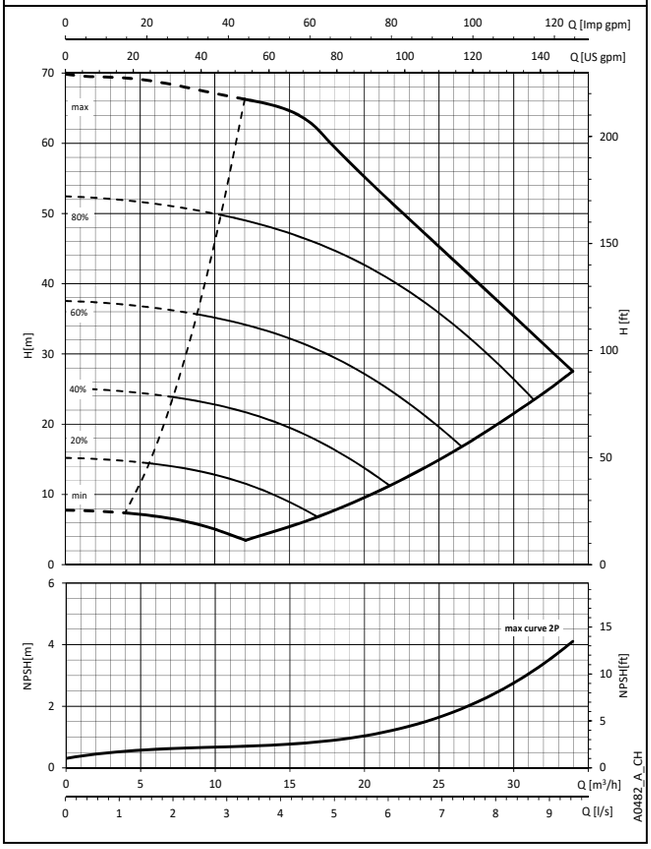
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

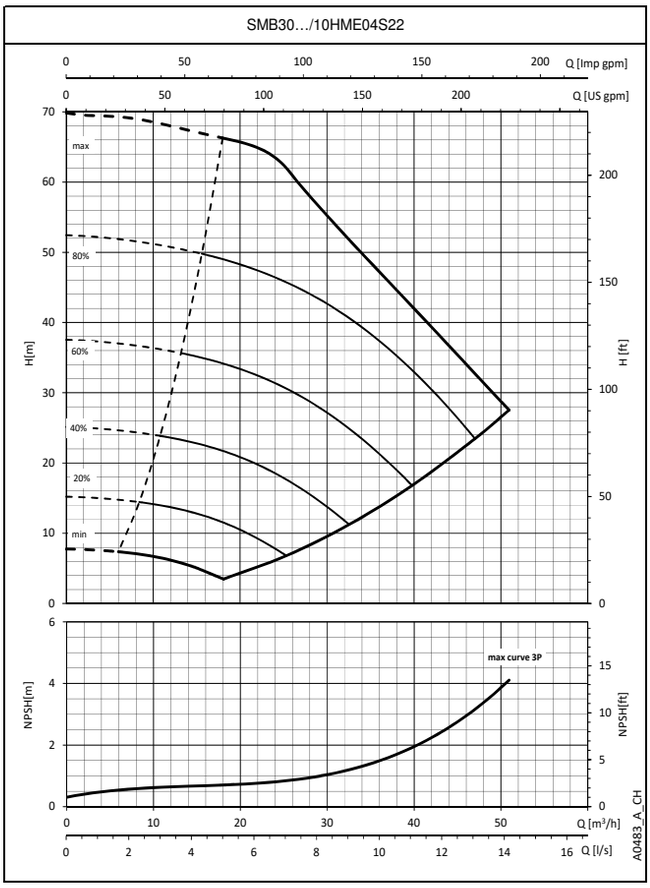
10HME04S22



SMB20.../10HME04S22



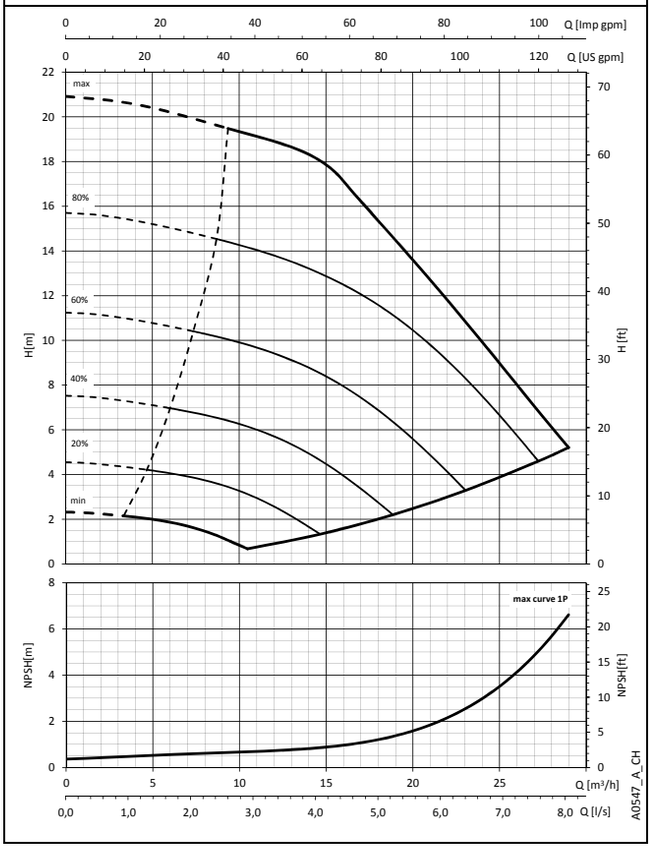
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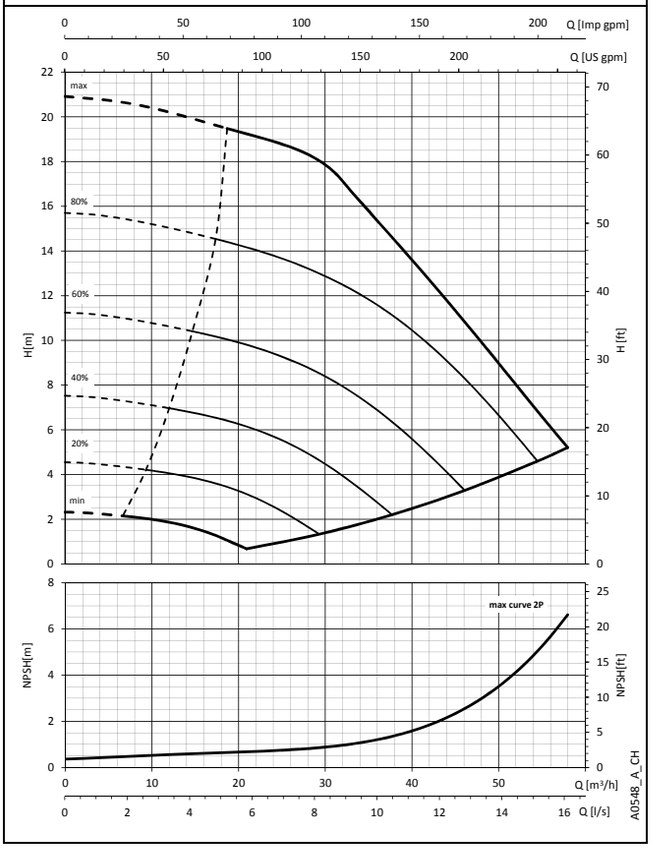
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

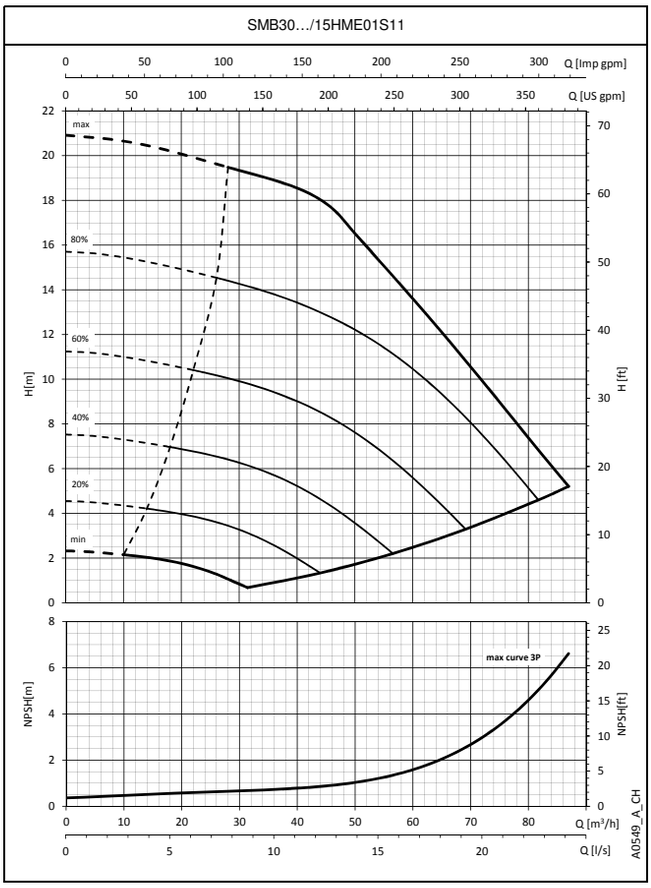
15HME01S11



SMB20.../15HME01S11



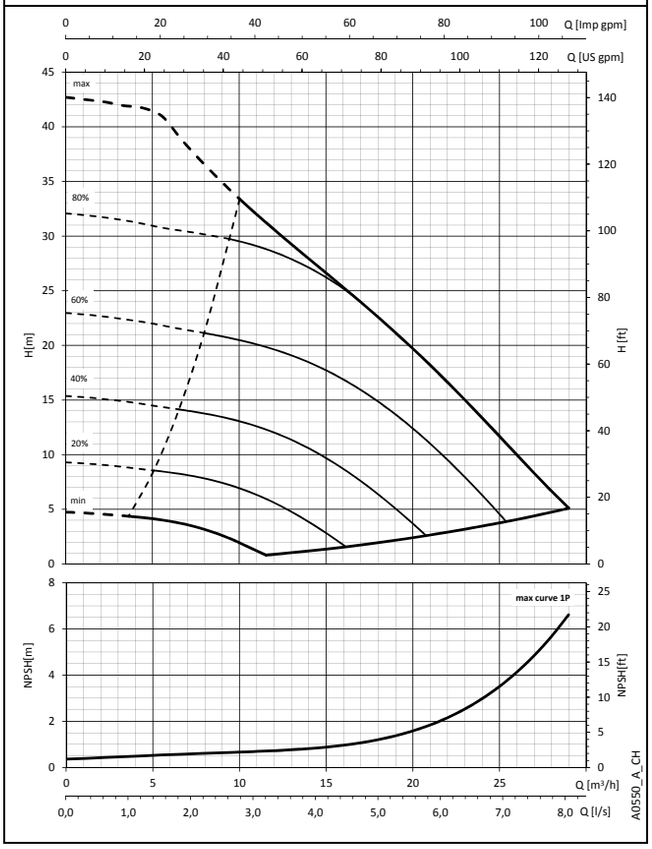
SMB30.../15HME01S11



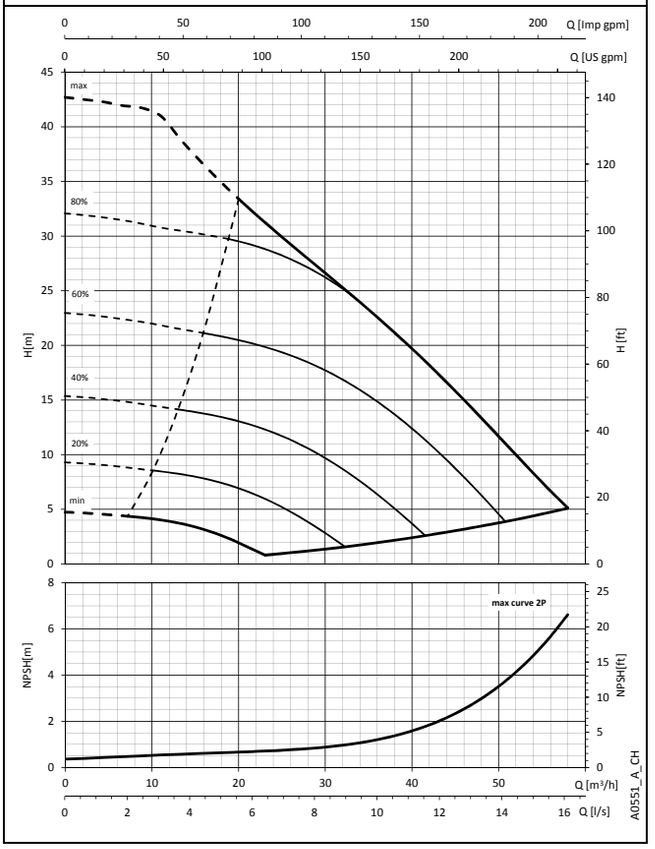
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

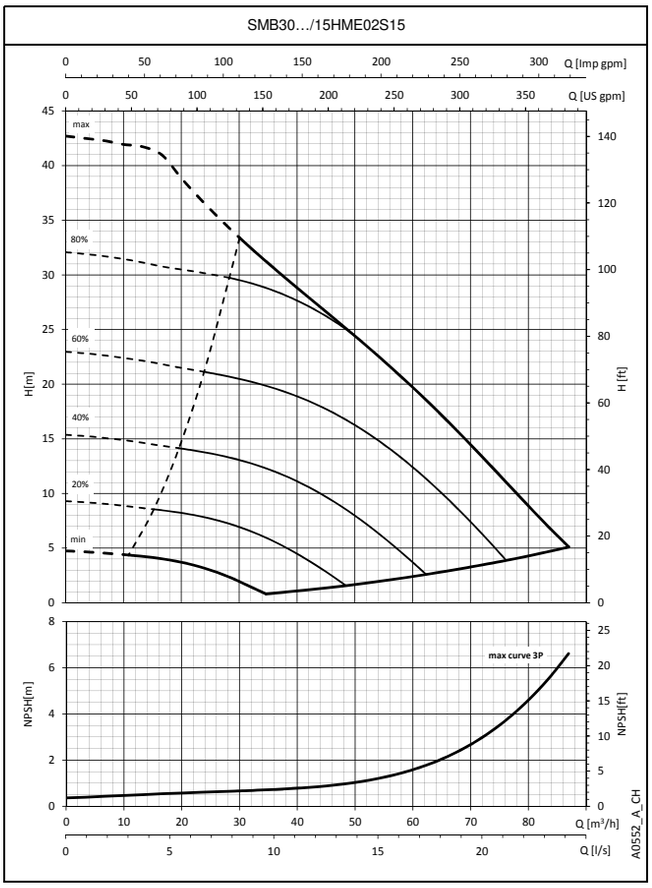
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SMB20.../15HME02S15



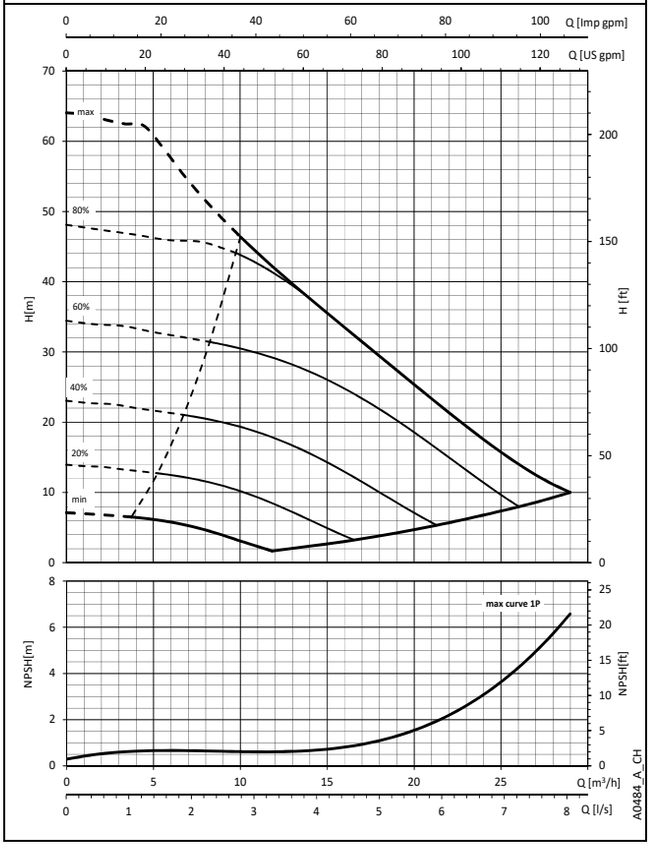
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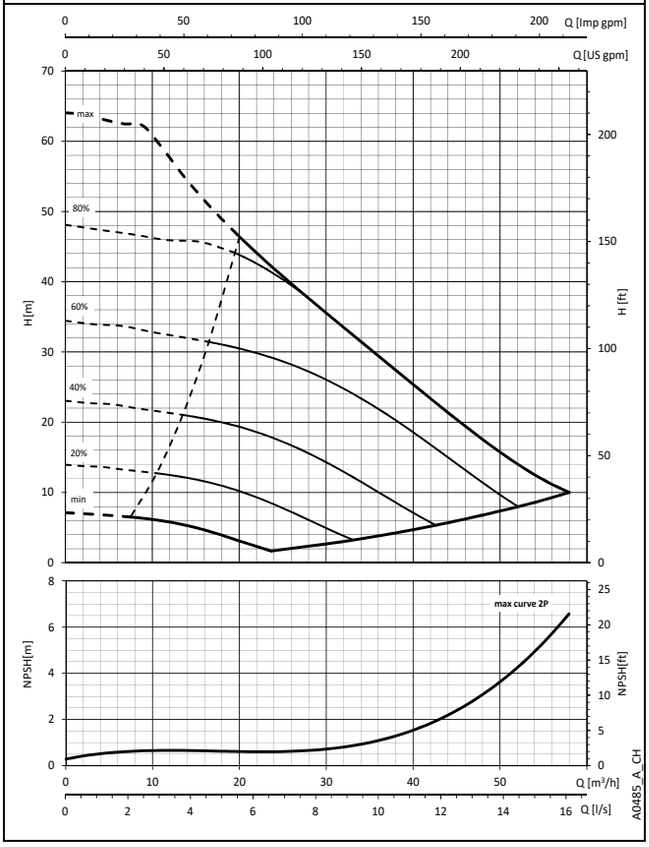
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SMB.../HME BOOSTER SETS SERIES
OPERATING CHARACTERISTICS

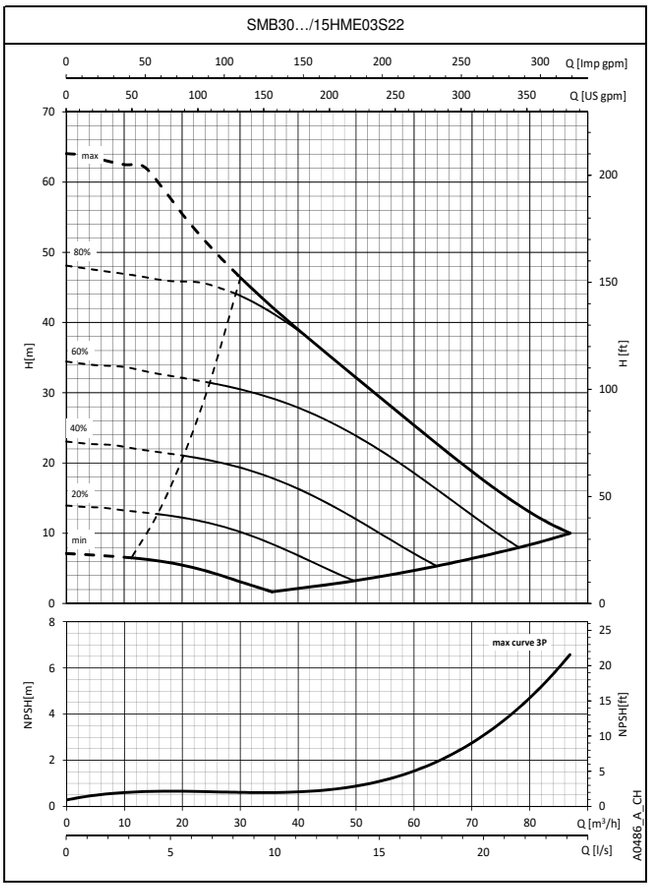
15HME03S22



SMB20.../15HME03S22



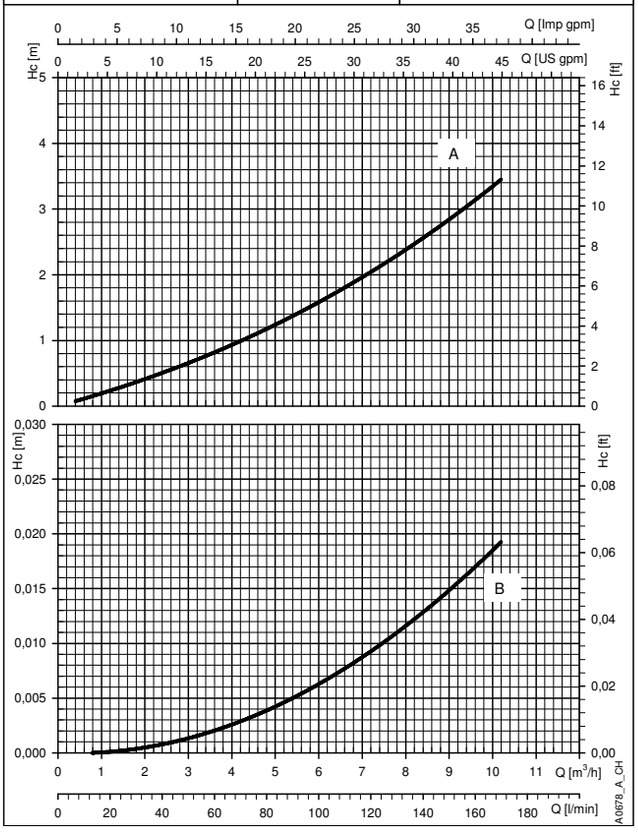
SMB30.../15HME03S22



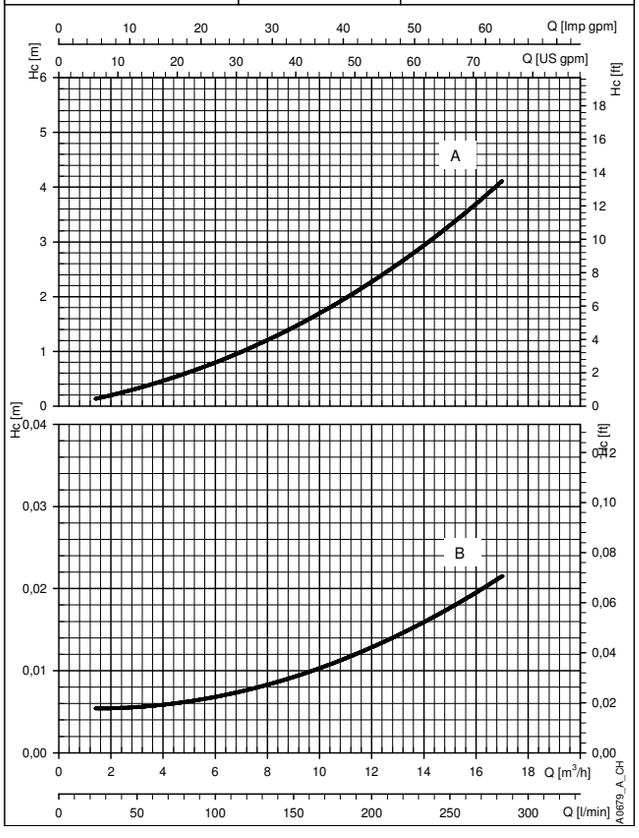
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SMB20, SMB30 BOOSTER SETS SERIES
Hc PRESSURE DROP CURVE

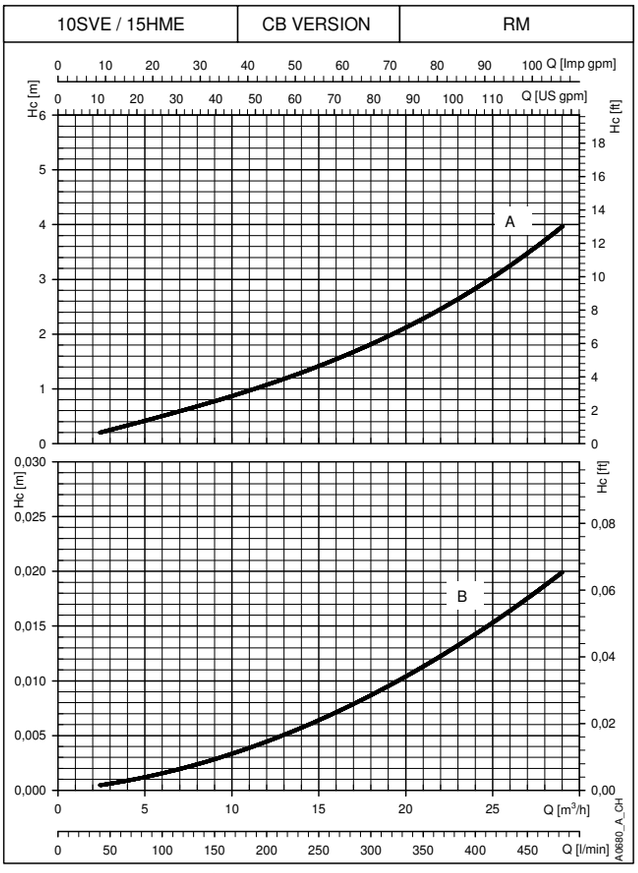
1-3SVE / 1-3-5HME	CB VERSION	RM



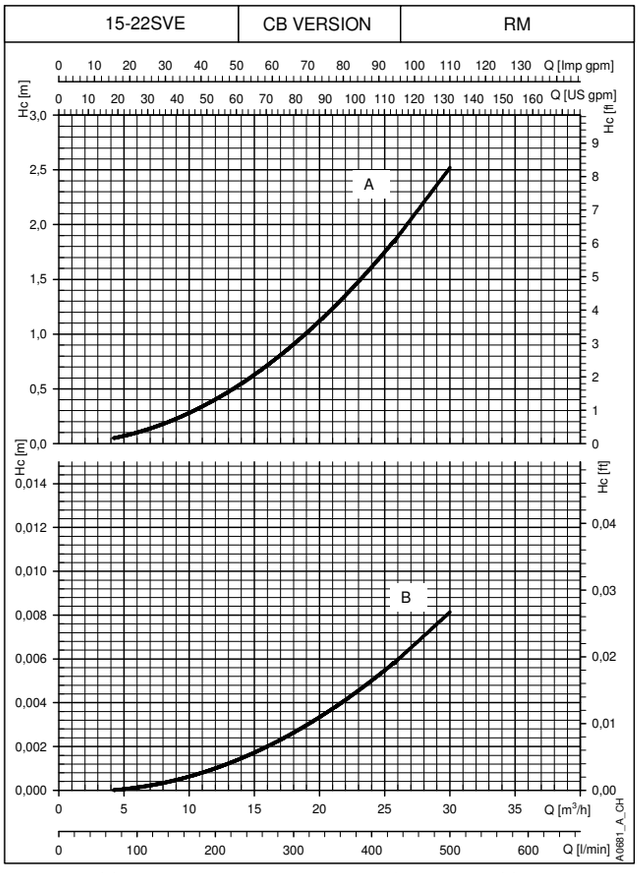
5SVE / 10HME	CB VERSION	RM



10SVE / 15HME	CB VERSION	RM



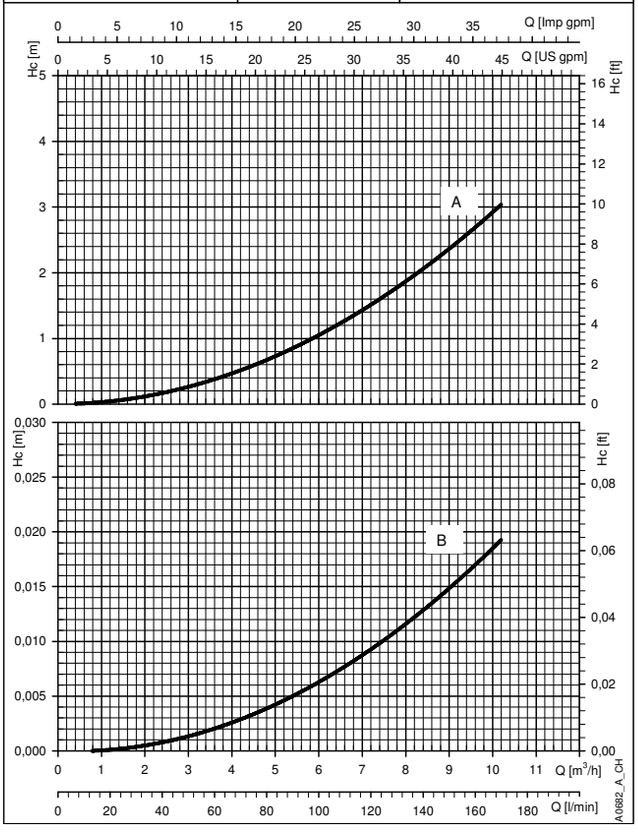
15-22SVE	CB VERSION	RM



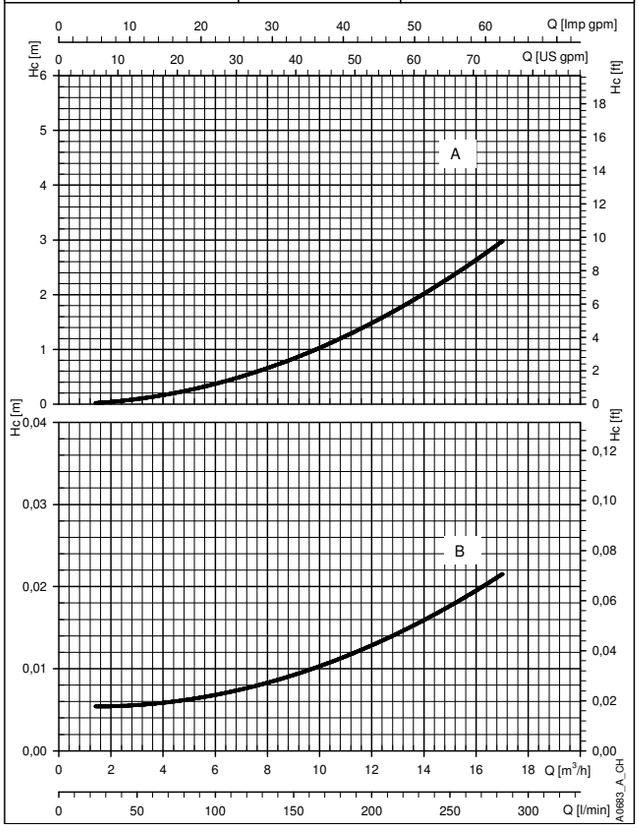
The declared curves are valid for liquids with density ρ = 1 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec. Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump. RA: check valve on suction side. RM: check valve on delivery side. The pressure drops do not consider the distributed pressure drops on the manifold.

SMB20, SMB30 BOOSTER SETS SERIES
Hc PRESSURE DROP CURVE

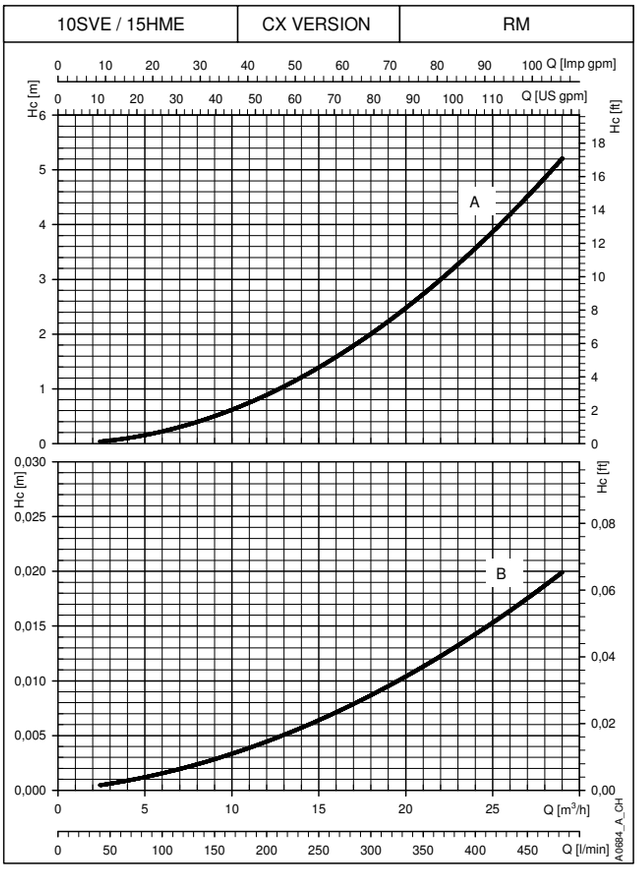
1-3SVE / 1-3-5HME	CX VERSION	RM



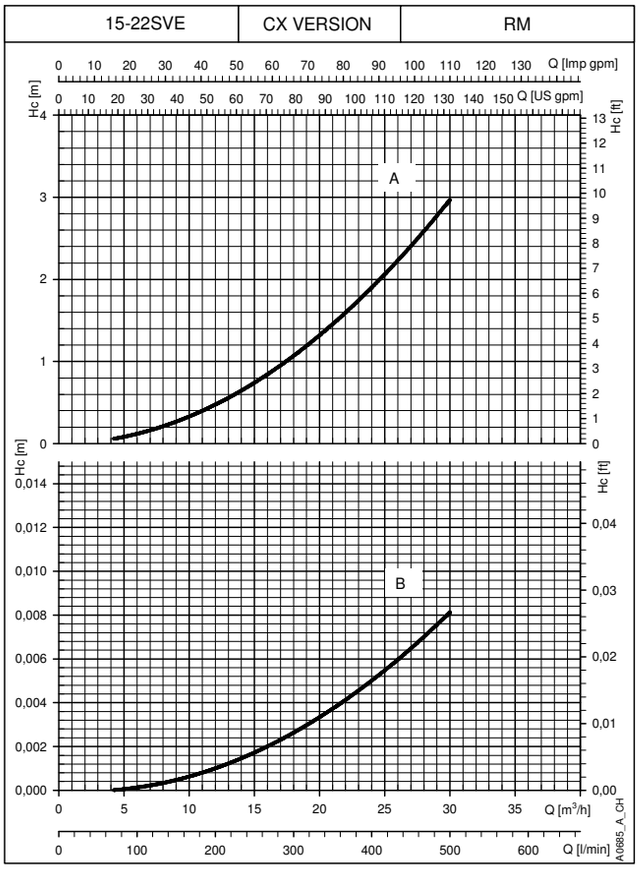
5SVE / 10HME	CX VERSION	RM



10SVE / 15HME	CX VERSION	RM



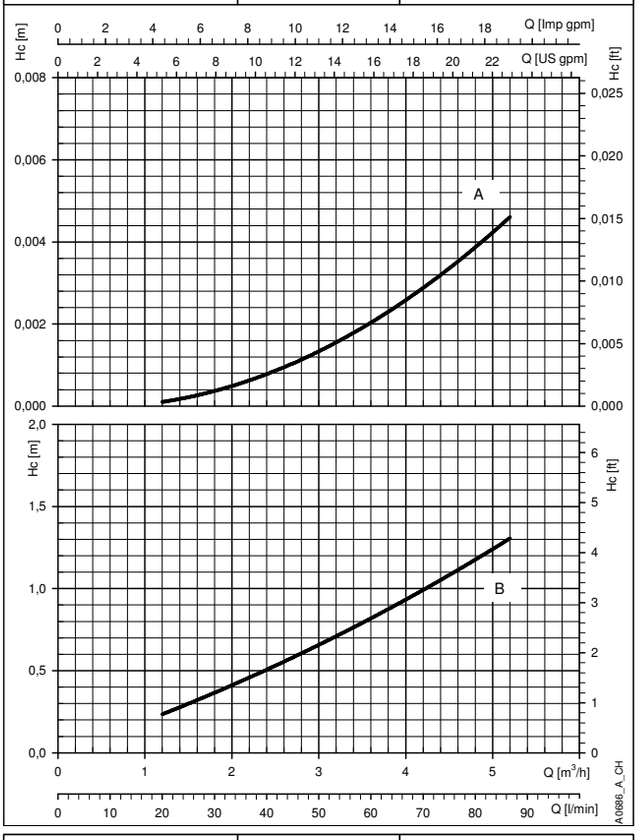
15-22SVE	CX VERSION	RM



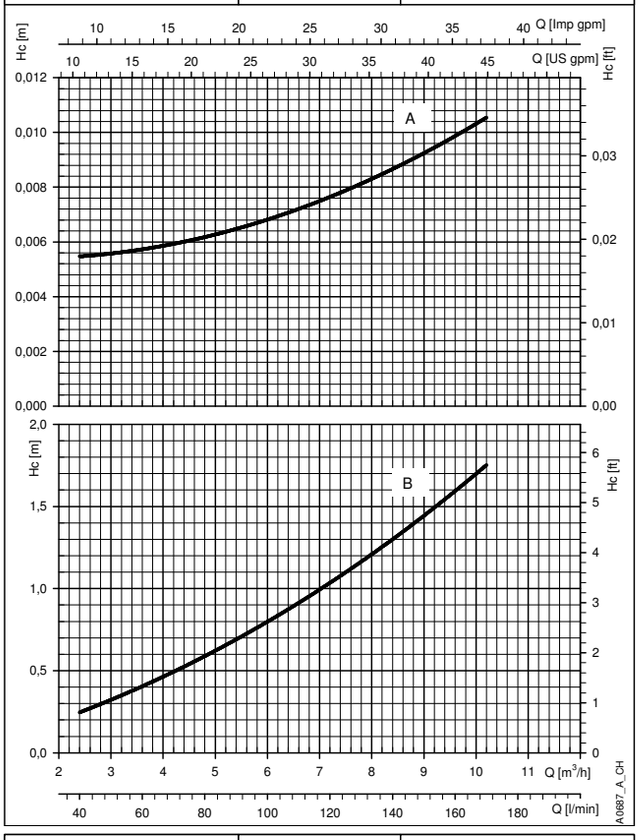
The declared curves are valid for liquids with density ρ = 1 Kg/dm³ and kinematic viscosity ν = 1 mm²/sec. Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump. RA: check valve on suction side. RM: check valve on delivery side. The pressure drops do not consider the distributed pressure drops on the manifold.

SMB20, SMB30 BOOSTER SETS SERIES
Hc PRESSURE DROP CURVE

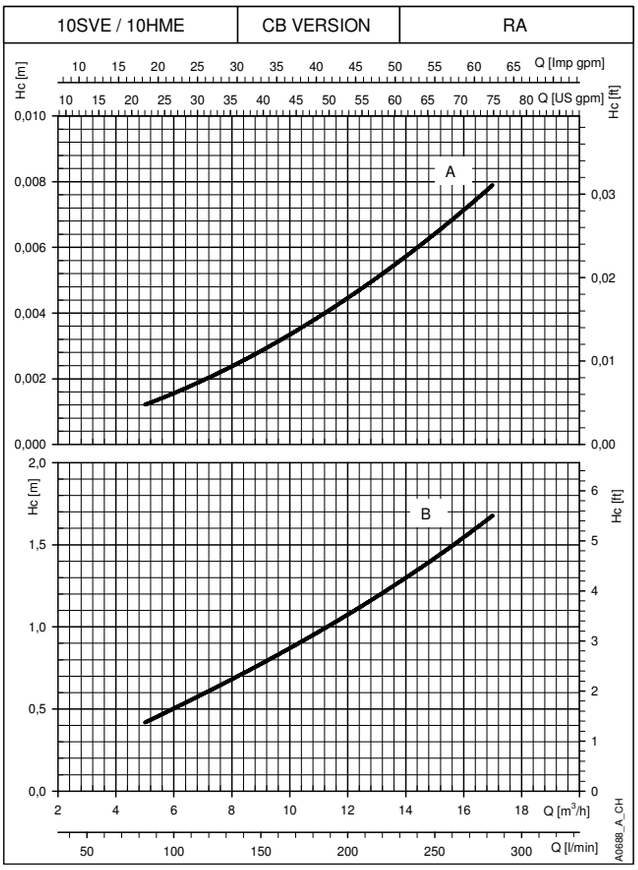
1-3SVE / 1-3HME	CB VERSION	RA



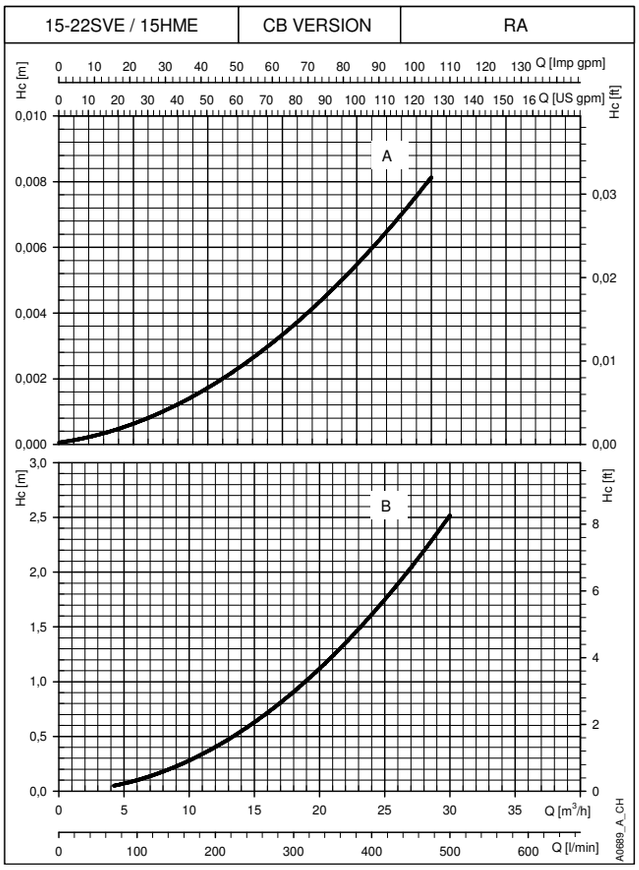
5SVE / 5HME	CB VERSION	RA



10SVE / 10HME	CB VERSION	RA

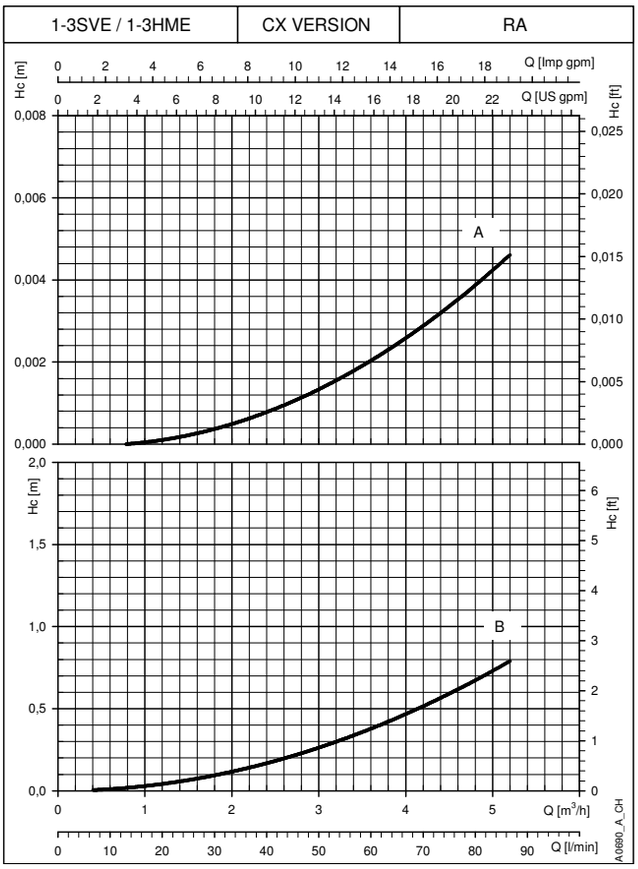


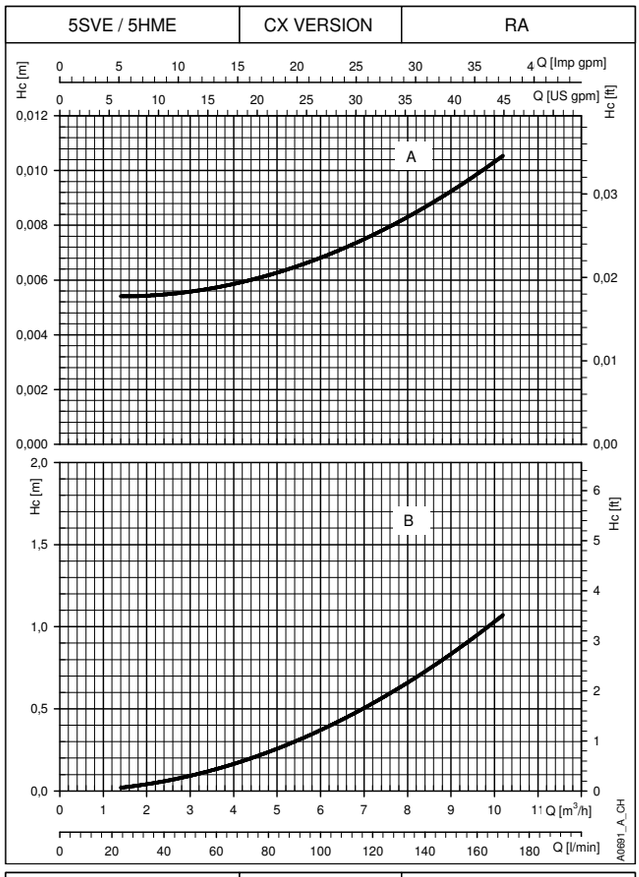
15-22SVE / 15HME	CB VERSION	RA

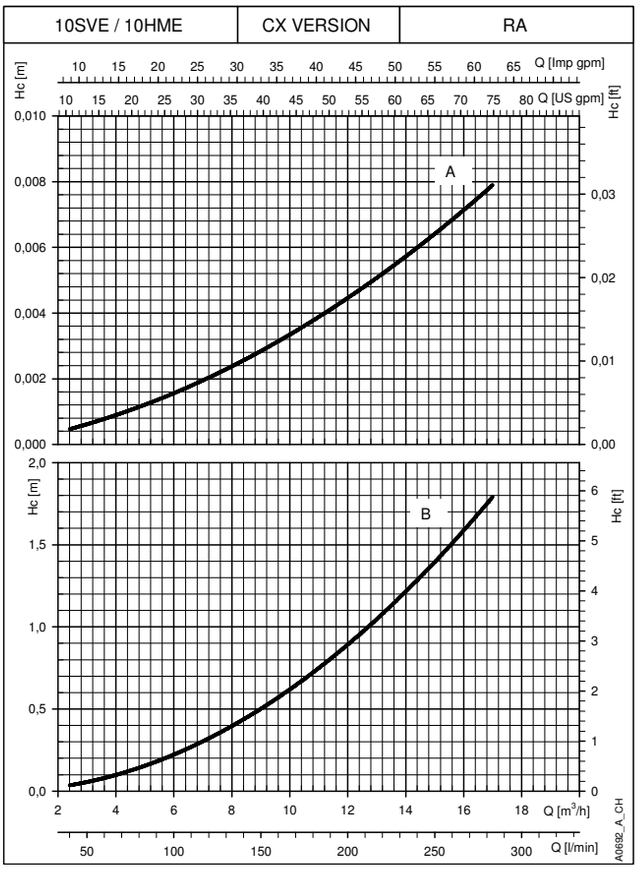


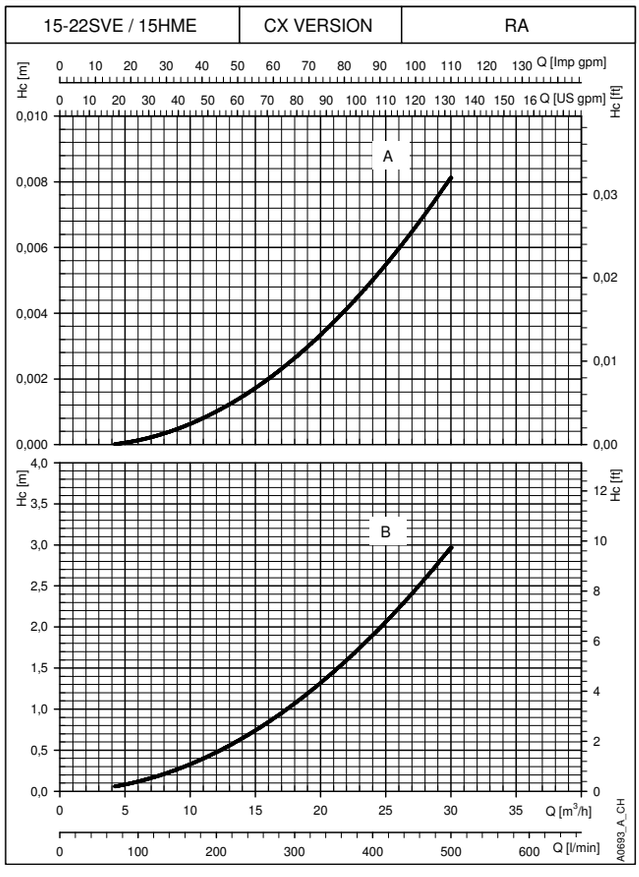
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SMB20, SMB30 BOOSTER SETS SERIES
Hc PRESSURE DROP CURVE









The declared curves are valid for liquids with density ρ = 1 Kg/dm³ and kinematic viscosity ν = 1 mm²/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.

ACCESSORIES

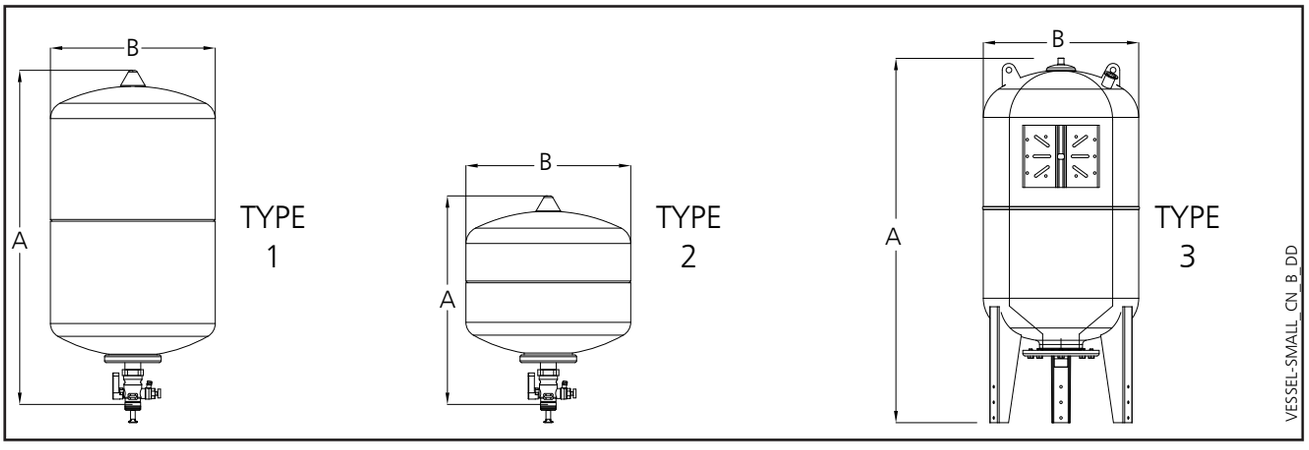
ACCESSORIES FOR BOOSTER SETS
DIAPHRAGM TANK KITS

Any large size tanks can be connected to the unused end of the delivery manifold.
For proper sizing of the tank, please refer to the technical appendix.
Kits including the following accessories **are available on request:**

- Diaphragm tank
- Instructions sheet
- Packaging

Volume	Type	PN	DIMENSIONS (mm)			Vessel material			Device material
Liters		bar	A	ø B	Connection	Bladder	Body	Connection	Connection
25	1	10	280	567	G 3/4"	BUTYL	Painted steel	AISI 304	Brass
12	2	16	280	354	G 3/4"	BUTYL	Painted steel	AISI 304	Brass
100	3	10	910	450	G 1"	BUTYL	Painted steel	AISI 304	-
100	3	16	910	450	G 1"	BUTYL	Painted steel	AISI 304	-
200	3	10	1235	550	G 1" 1/2	BUTYL	Painted steel	AISI 304	-
200	3	16	1235	550	G 1" 1/2	BUTYL	Painted steel	AISI 304	-
300	3	10	1365	630	G 1" 1/2	BUTYL	Painted steel	AISI 304	-
300	3	26	1365	630	G 1" 1/2	BUTYL	Painted steel	AISI 304	-

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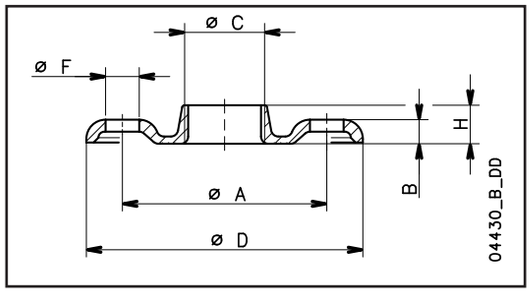
ACCESSORIES FOR BOOSTER SETS
FLANGE KIT

Manifolds up to 3” are supplied with threaded attachments and caps for sealing the unused ends.
For these manifolds, stainless steel AISI 304 or 316 flanges for connection to the system are available on request.

THREADED COUNTERFLANGES

KIT		DIMENSIONI (mm)						FORI		
TIPO	DN	MODEL	ø C	ø A	B	ø D	H	ø F	N°	PN
2"	50	A	Rp 2	125	16	165	24	18	4	25
2" ½	65	A	Rp 2 ½	145	16	185	23	18	4	16
3"	80	A	Rp 3	160	17	200	27	18	8	16
2" ½	65	B	Rp 2 ½	145	22	185	38	18	8	25
3"	80	B	Rp 3	160	24	200	40	18	8	25

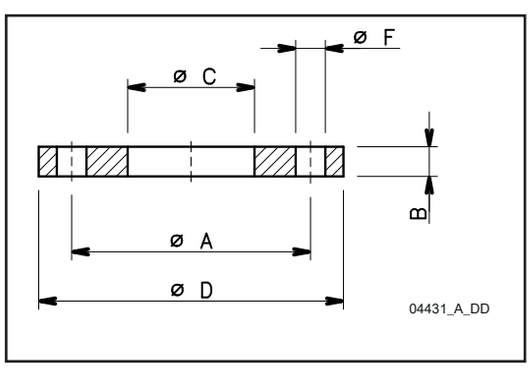
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WELD-ON COUNTERFLANGES

KIT		DIMENSIONI (mm)				FORI		
TIPO	DN	ø C	ø A	B	ø D	ø F	N°	PN
2"	50	61,5	125	20	165	18	4	16
2"1/2	65	77,5	145	20	185	18	4	16
3"	80	90,5	160	20	200	18	8	16
4"	100	116	180	22	220	18	8	16
5"	125	141,5	210	22	250	18	8	16
6"	150	170,5	240	24	285	22	8	16
8"	200	221,5	295	26	340	22	12	16
10"	250	276,5	355	29	405	26	12	16
12"	300	327,5	410	32	460	26	12	16
2"	50	61,5	125	20	165	18	4	16
2"1/2	65	77,5	145	22	185	18	8	25
3"	80	90,5	160	24	200	18	8	25
4"	100	116	190	26	235	22	8	25
5"	125	141,5	220	28	270	26	8	25
6"	150	170,5	250	30	300	26	8	25
8"	200	221,5	310	32	360	26	12	25
10"	250	276,5	370	35	425	30	12	25
12"	300	327,5	430	38	485	30	16	25

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ANTI-VIBRATION JOINT KIT

Anti-vibration joints, or compensation joints, can be used to absorb deformations, expansions, pipe noise and reduce water hammering. They can also withstand a high level of vacuum, which enables the absorption of negative expansions due to depression.

Due to its elasticity, the material can deform or expand as necessary, making installation easier, simpler and quicker, even when the piping is not aligned.

The drinking water certificates are valid for the standard booster configuration. Please check with your Sales representative the drinking water certifications applicable for boosters equipped with fitted joints.
For more information, please contact the sales network.

RUBBER EXPANSION JOINT

EPDM RUBBER (*) DN	Pmax bar (**)	L (mm)	A (mm)	B (mm)	C (mm)	D (°)
1"	10	203	22	6	22	25
1"1/4	10	203	22	6	22	25
1"1/2	10	203	22	6	22	20
2"	10	203	22	6	22	15
2"1/2	10	203	22	6	22	12
3	10	203	22	6	22	10
EPDM RUBBER (*) DN	Pmax bar (**)	L (mm)	A (mm)	B (mm)	C (mm)	D (°)
32	16	152	13	9	13	15
40	16	152	13	9	13	15
50	16	152	13	9	13	15
65	16	152	13	9	13	15
80	16	152	13	9	13	15
100	16	152	19	13	13	15
125	16	152	19	13	13	15
150	16	152	19	13	13	15
200	16	152	19	13	19	15
250	16	203	25	16	19	15
300	10	203	25	16	19	15
350	10	203	25	16	19	15
400	9	203	25	16	19	15
450	9	203	25	16	19	15
500	9	203	25	16	19	15

* Metallic part in SS316

** Maximum pressure permitted up to 80°C water

GD-316_JOINT-en_A_TD

LEGEND

A = compression **B** = extension **C** = transverse **D** = angular movement

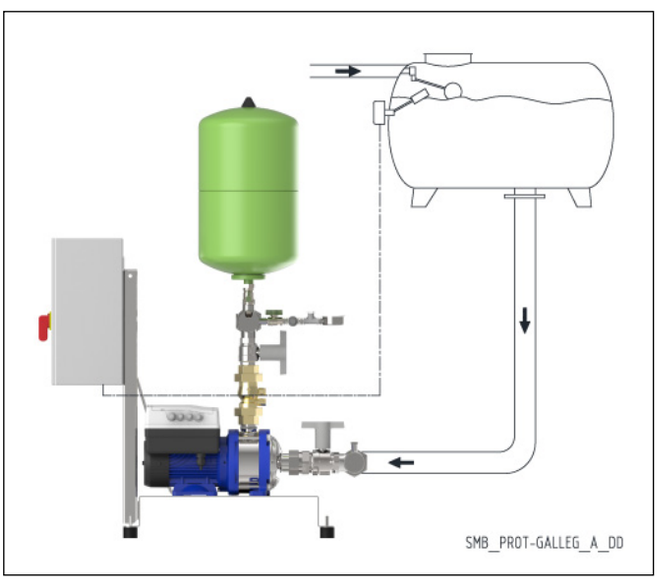
NOTE. **A** - **B** - **C** - **D** can not be cumulative

PROTECTION SYSTEMS AGAINST DRY RUNNING

To avoid damaging the pumps, protection systems must be used to prevent it from dry running.

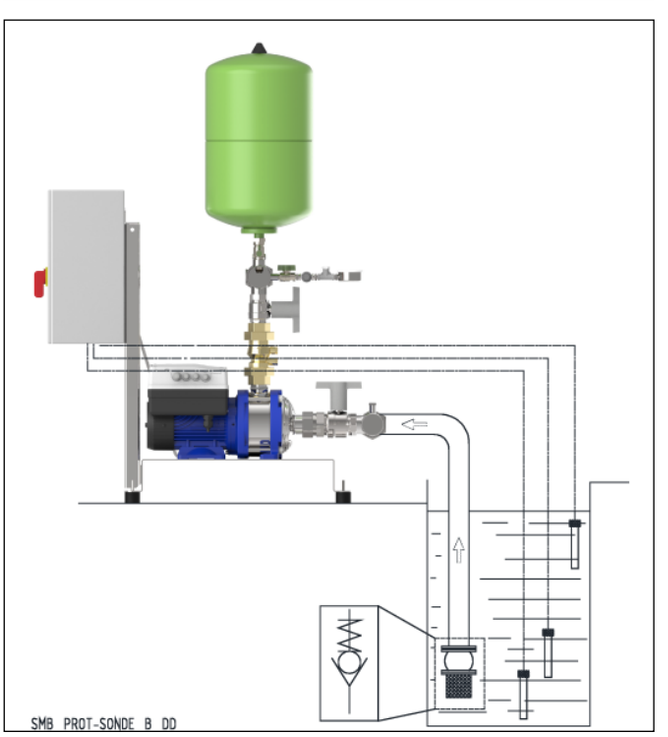
FLOAT SWITCH PROTECTION

The float switch system is used for supplies from open tanks. The float switch immersed in the tank must be connected to the control panel.
If there is no water, the float switch opens the electrical contact and the electric pumps stop.



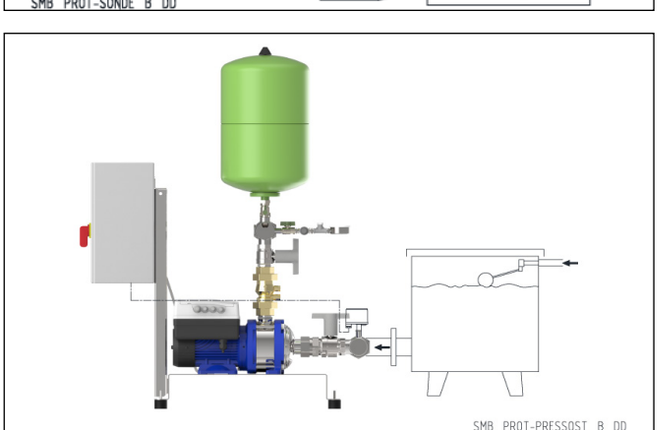
ELECTRODE PROBE PROTECTION

The system with electrode probes is used for supplies from open tanks or wells.
Three probes are directly connected to the electric module with adjustable sensitivity that can be installed in the control panel.
If there is no water, the control circuit opens the electrical contact and the electric pumps stop.



MINIMUM PRESSURE SWITCH PROTECTION

The system with minimum pressure switch is used for water supplies from pressurized networks or tanks. The pressure switch is connected to the control panel. In case of water shortage, it opens the electric contact, causing the stop of the electric pumps.



PROTECTION SENSOR AGAINST DRY RUNNING



Sensor for detecting the presence of water based on the optoelectronic principle, therefore non-invasive and with no moving parts. The sensor features an electronic contact (on/off) which stops the pump if there is no water in the seal area.
The sensor opens the electric contact if there is no water after they factory-set delay (10 seconds) elapses. The sensor is supplied as a kit complete with 2 meters of cable, an EPDM O-ring gasket and a stainless steel adapter.

General operating features

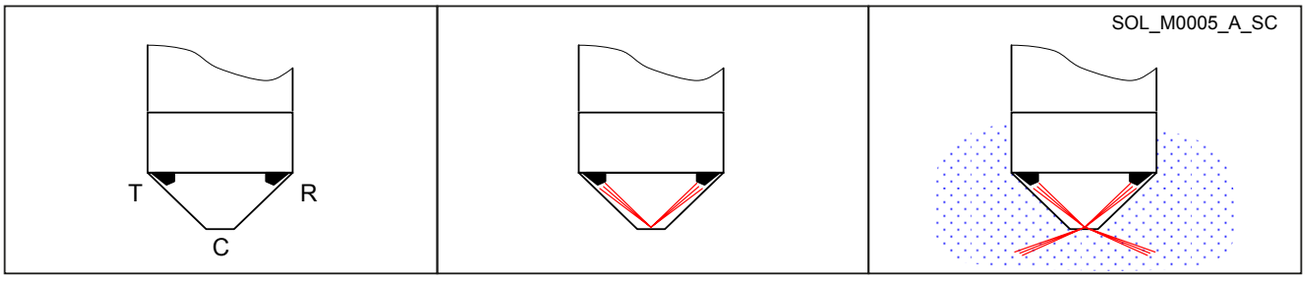
- **KIT SENSOR DRP-GP: 21÷27 Vca**: in the boosters sets the sensor is assembled on the suction manifold with a specific hydraulic fitting. (SMB20../DR1 and SMB30../DR1 booster set versions).
  21÷27 Vac, universal solid state output for external relay at 24 Vac (21÷27 Vac, 50 mA).
- **KIT SENSOR DRP-HV: 15÷25 Vcc**: the sensor can also be fitted directly on the filling cap of the e-SV pumps series. (SMB20../DR2, SMB30../DR3 booster set versions).
  15÷25 Vdc, NPN output at 25 V (10 mA) for HYDROVAR inverter and e-SM drive.
- Operation is independent of the hardness and conductivity of the water. The sensor cannot detect frozen liquids.

Operating principle

Operation is based on the change in the refractive index on the surfaces.
The optic sensor comprises a glass cap (C) containing a transmitter (T) and an infrared receiver (R).

If there is no liquid, all the infrared light emitted by the transmitter is internally reflected by the surface of the glass cap of the receiver.
The electronic contact will be open.

If liquid is present, the refractive index of the surface changes. Most of the infrared light emitted by the transmitter is dispersed in the liquid.
The receiver receives less light and the electronic contact is closed.



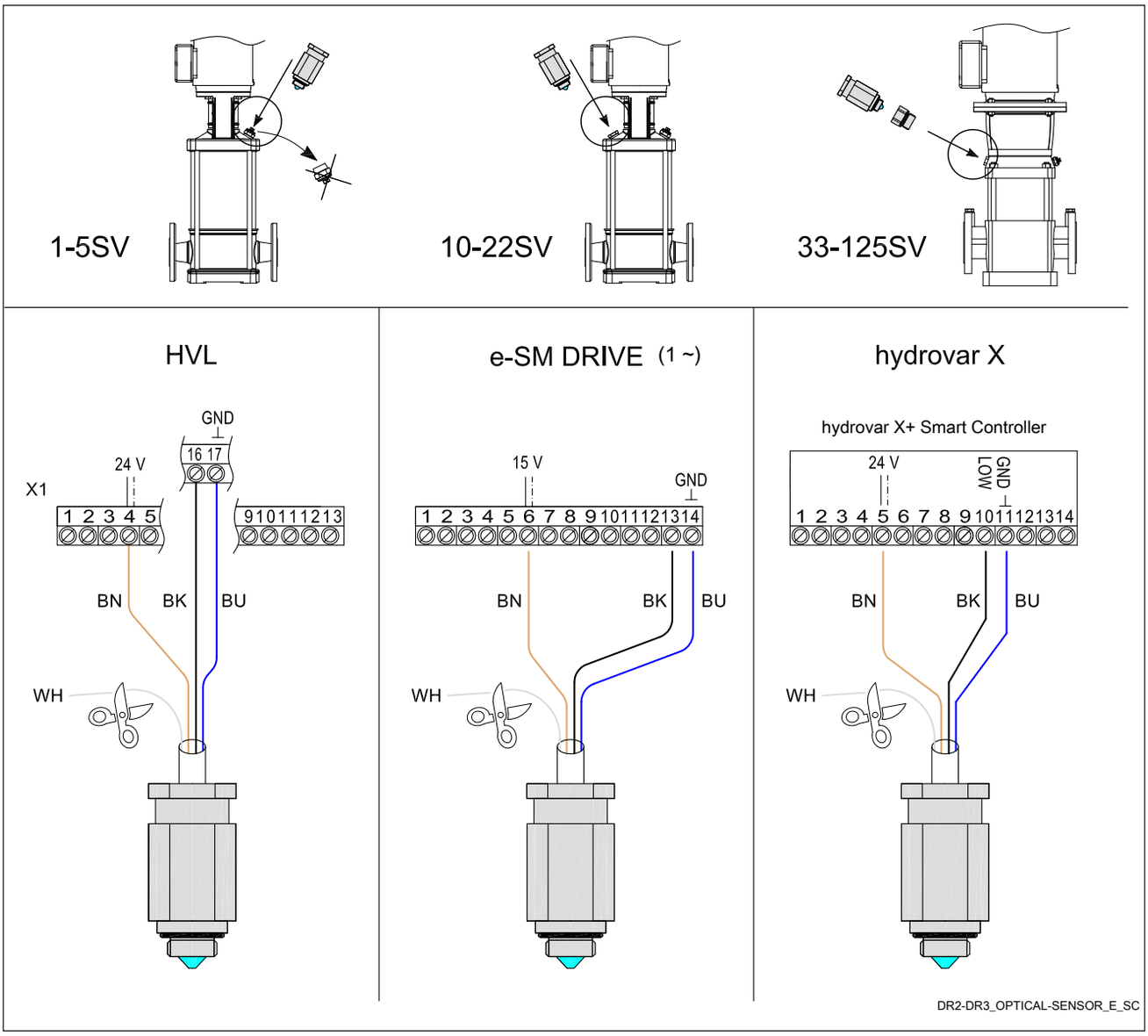
SPECIFICATIONS

- Materials:
  - Body in AISI 316L stainless steel
  - Glass optic cap
  - EPDM gasket
- Liquids: clean water, demi water. Operation is not affected by the hardness and conductivity of the liquid. To check the suitably of other liquids, contact the Lowara technical assistance service providing the characteristics of the liquid.
- Temperature of liquid: -20°C÷+120°C (cannot be used to detect frozen liquids).
- Ambient temperature: -5°C ÷+50°C
- Maximum pressure (PN): 25 bar
- Connector: 3/8 " (3/8" x 1/2" adapter plug included in the Kit)
- Dimensions: 27x 60 mm
- IP55 protection
- Electrical characteristics:
  - Input voltage — SENSOR KIT DRP-GP: 21÷27 Vac; SENSOR KIT DRP-HV: 15÷25 Vdc
  - Output — SENSOR KIT DRP-GP: universal solid state 21÷27 Vac (50 mA) for 24 Vac external relay; SENSOR KIT DRP-HV: NPN 25 V (10 mA) for HYDROVAR™ inverter and e-SM drive
  - Alarm delay — 10 seconds (factory setting)
  - FROR cable 4 x 0,34 mm^2 (PVC-CEI 20-22) 2 meters long

PROTECTION SENSOR AGAINST DRY RUNNING
WIRING DIAGRAM

The sensor can be directly mounted on the filling plug of the e-SV pumps.
For the 33, 46, 66, 92, 125SV series, the 3/8” x 1/2” adapter ring included in the Kit must also be mounted.

KIT SENSOR DRP-HV (code 109394600)
SMB10../DR1, SMB20../DR2, SMB30../DR3



OPTIMYZE™
CONDITION MONITORING TO OPTIMIZE YOUR BOTTOM LINE

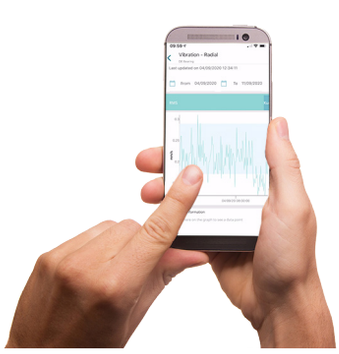
The optimyze™ modular condition monitoring solution provides health guidance and predictive maintenance advice for rotating and fixed assets such as pumps, motors, heat exchangers and steam traps. It periodically monitors system vibration and temperature and allows everyday users to access simple-to-use monitoring tools from iOS or Android mobile devices.

Using predictive analysis, optimyze identifies potential problems with your equipment before they occur, to help you manage system reliability and maintenance. Information is monitored, collected, stored and analyzed in the optimyze sensor. This allows you to understand the current health and historical trends of your assets, create maintenance reminders and generate detailed reports. As a result, you can perform preventative maintenance before issues become critical to uptime.



BENEFITS:

- Predictive maintenance to monitor the health of mechanical and electrical assets
- Asset management including asset location, size and manufacturing date
- System transparency to optimize reliability
- Optimized reporting that helps to simplify documentation, manage system maintenance and inform purchasing
- The ability to automatically share data with multiple local users
- Conveniently monitor system conditions on our simple-to-use mobile application



INDUSTRIES:

- Commercial Building Services
- Manufacturing
- Agriculture
- Water Utilities

APPLICATIONS:

- Monitoring the vibration of pumps and motors
- Monitoring the temperature of pump bearings
- Monitoring the temperature of motors to prevent overheating and winding damage
- Monitoring the performance of heat exchangers
- And more

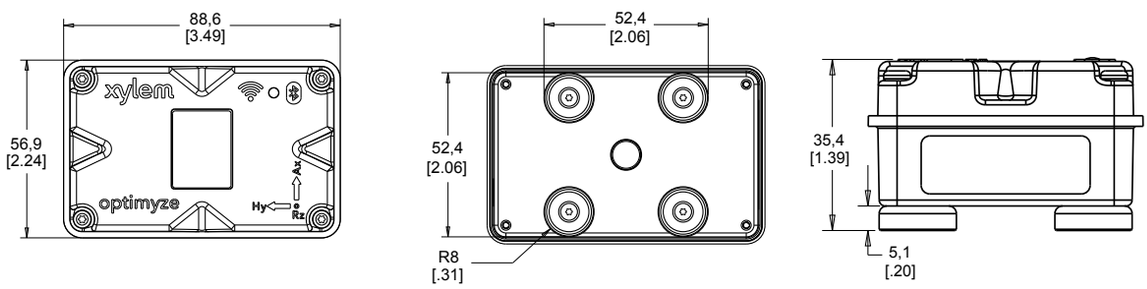
OPTIMYZE™
CONDITION MONITORING AND OPTIMIZATION SPECIFICATIONS

Surface Temperature Measurement	
Measurement range	-20°C to +135°C (-4°F to +275°F)
Measurement method	Non-contact infrared laser
Minor gradient accuracy (0°C to 25°C gradient)	+/- 1°C
Moderate gradient accuracy (25°C to 50°C gradient)	+/- 2°C
Large gradient accuracy (50°C to 100°C gradient)	+/- 4°C
Vibration Measurement	
Frequency range	5Hz to 1,100Hz
Measurement method	Independent 3-axis
Primary output (per axis)	Single value RMS
Other outputs	Kurtosis and FFT
Vibration limit (max acceleration)	16g
Threshold standard (Global)	ISO 10816-7
Threshold standard (North America)	ANSI/HI 9.6.4
Power	
Batteries (replaceable)	(2) 3.6V AA, 2400mAh, Lithium
Battery life (using default sampling rate at 25°C)	3 to 5 years
Default sampling rate	1 sample per 30 minutes
Available sampling rates (one sample per unit of time)	10 seconds to 12 hours
Wireless Communication	
Network type	Bluetooth® Low Energy 5.01
Connection range (without interference)	30 meters (100 feet)
Environmental	
Ambient operating range	-20°C to +50°C (-4°F to +122°F)
Storage temperature (5 to 95% humidity non-condensing)	-25°C to +65°C (-13°F to +149°F)
Protection rating	IP56, NEMA 4
Physical Properties	
Weight	145g (0.32 lbs.)
Status	LED
Mounting method (standard)	Magnetic (16mm potted magnets)
Mounting method (optional)	Drill and tap with plate
Certifications	
Certifications	CE, FCC, UL
Intended use (environments)	Non-hazardous, non-corrosive
Part Numbers	
optimyze (standard sensor)	P2007000
optimyze battery replacement kit	P2007030
optimyze optional flat plate mounting kit	P2007031

[1]Backwards compatible up to Bluetooth® Low Energy 4.2

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DIMENSIONS: mm [in]



TECHNICAL APPENDIX

VAPOUR PRESSURE
VAPOUR PRESSURE ps AND ρ DENSITY OF WATER TABLE

t	T	ps	ρ
°C	K	bar	kg/dm³
0	273,15	0,00611	0,9998
1	274,15	0,00657	0,9999
2	275,15	0,00706	0,9999
3	276,15	0,00758	0,9999
4	277,15	0,00813	1,0000
5	278,15	0,00872	1,0000
6	279,15	0,00935	1,0000
7	280,15	0,01001	0,9999
8	281,15	0,01072	0,9999
9	282,15	0,01147	0,9998
10	283,15	0,01227	0,9997
11	284,15	0,01312	0,9997
12	285,15	0,01401	0,9996
13	286,15	0,01497	0,9994
14	287,15	0,01597	0,9993
15	288,15	0,01704	0,9992
16	289,15	0,01817	0,9990
17	290,15	0,01936	0,9988
18	291,15	0,02062	0,9987
19	292,15	0,02196	0,9985
20	293,15	0,02337	0,9983
21	294,15	0,24850	0,9981
22	295,15	0,02642	0,9978
23	296,15	0,02808	0,9976
24	297,15	0,02982	0,9974
25	298,15	0,03166	0,9971
26	299,15	0,03360	0,9968
27	300,15	0,03564	0,9966
28	301,15	0,03778	0,9963
29	302,15	0,04004	0,9960
30	303,15	0,04241	0,9957
31	304,15	0,04491	0,9954
32	305,15	0,04753	0,9951
33	306,15	0,05029	0,9947
34	307,15	0,05318	0,9944
35	308,15	0,05622	0,9940
36	309,15	0,05940	0,9937
37	310,15	0,06274	0,9933
38	311,15	0,06624	0,9930
39	312,15	0,06991	0,9927
40	313,15	0,07375	0,9923
41	314,15	0,07777	0,9919
42	315,15	0,08198	0,9915
43	316,15	0,09639	0,9911
44	317,15	0,09100	0,9907
45	318,15	0,09582	0,9902
46	319,15	0,10086	0,9898
47	320,15	0,10612	0,9894
48	321,15	0,11162	0,9889
49	322,15	0,11736	0,9884
50	323,15	0,12335	0,9880
51	324,15	0,12961	0,9876
52	325,15	0,13613	0,9871
53	326,15	0,14293	0,9862
54	327,15	0,15002	0,9862

t	T	ps	ρ
°C	K	bar	kg/dm³
55	328,15	0,15741	0,9857
56	329,15	0,16511	0,9852
57	330,15	0,17313	0,9846
58	331,15	0,18147	0,9842
59	332,15	0,19016	0,9837
60	333,15	0,1992	0,9832
61	334,15	0,2086	0,9826
62	335,15	0,2184	0,9821
63	336,15	0,2286	0,9816
64	337,15	0,2391	0,9811
65	338,15	0,2501	0,9805
66	339,15	0,2615	0,9799
67	340,15	0,2733	0,9793
68	341,15	0,2856	0,9788
69	342,15	0,2984	0,9782
70	343,15	0,3116	0,9777
71	344,15	0,3253	0,9770
72	345,15	0,3396	0,9765
73	346,15	0,3543	0,9760
74	347,15	0,3696	0,9753
75	348,15	0,3855	0,9748
76	349,15	0,4019	0,9741
77	350,15	0,4189	0,9735
78	351,15	0,4365	0,9729
79	352,15	0,4547	0,9723
80	353,15	0,4736	0,9716
81	354,15	0,4931	0,9710
82	355,15	0,5133	0,9704
83	356,15	0,5342	0,9697
84	357,15	0,5557	0,9691
85	358,15	0,5780	0,9684
86	359,15	0,6011	0,9678
87	360,15	0,6249	0,9671
88	361,15	0,6495	0,9665
89	362,15	0,6749	0,9658
90	363,15	0,7011	0,9652
91	364,15	0,7281	0,9644
92	365,15	0,7561	0,9638
93	366,15	0,7849	0,9630
94	367,15	0,8146	0,9624
95	368,15	0,8453	0,9616
96	369,15	0,8769	0,9610
97	370,15	0,9094	0,9602
98	371,15	0,9430	0,9596
99	372,15	0,9776	0,9586
100	373,15	1,0133	0,9581
102	375,15	1,0878	0,9567
104	377,15	1,1668	0,9552
106	379,15	1,2504	0,9537
108	381,15	1,3390	0,9522
110	383,15	1,4327	0,9507
112	385,15	1,5316	0,9491
114	387,15	1,6362	0,9476
116	389,15	1,7465	0,9460
118	391,15	1,8628	0,9445

t	T	ps	ρ
°C	K	bar	kg/dm³
120	393,15	1,9854	0,9429
122	395,15	2,1145	0,9412
124	397,15	2,2504	0,9396
126	399,15	2,3933	0,9379
128	401,15	2,5435	0,9362
130	403,15	2,7013	0,9346
132	405,15	2,867	0,9328
134	407,15	3,041	0,9311
136	409,15	3,223	0,9294
138	411,15	3,414	0,9276
140	413,15	3,614	0,9258
145	418,15	4,155	0,9214
155	428,15	5,433	0,9121
160	433,15	6,181	0,9073
165	438,15	7,008	0,9024
170	433,15	7,920	0,8973
175	448,15	8,924	0,8921
180	453,15	10,027	0,8869
185	458,15	11,233	0,8815
190	463,15	12,551	0,8760
195	468,15	13,987	0,8704
200	473,15	15,550	0,8647
205	478,15	17,243	0,8588
210	483,15	19,077	0,8528
215	488,15	21,060	0,8467
220	493,15	23,198	0,8403
225	498,15	25,501	0,8339
230	503,15	27,976	0,8273
235	508,15	30,632	0,8205
240	513,15	33,478	0,8136
245	518,15	36,523	0,8065
250	523,15	39,776	0,7992
255	528,15	43,246	0,7916
260	533,15	46,943	0,7839
265	538,15	50,877	0,7759
270	543,15	55,058	0,7678
275	548,15	59,496	0,7593
280	553,15	64,202	0,7505
285	558,15	69,186	0,7415
290	563,15	74,461	0,7321
295	568,15	80,037	0,7223
300	573,15	85,927	0,7122
305	578,15	92,144	0,7017
310	583,15	98,70	0,6906
315	588,15	105,61	0,6791
320	593,15	112,89	0,6669
325	598,15	120,56	0,6541
330	603,15	128,63	0,6404
340	613,15	146,05	0,6102
350	623,15	165,35	0,5743
360	633,15	186,75	0,5275
370	643,15	210,54	0,4518
374,15	647,30	221,20	0,3154

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TANK
CHOOSING AND SIZING THE SURGE TANK

The purpose of the surge tank is to limit the number of hourly starts of the pumps, placing part of its stock of water, which is maintained under pressure by the air above it, at the disposal of the system.
The surge tank can be of the air cushion or diaphragm type.
In the air cushion version there is no clear separation between air and water.
Since part of the air tends to mix with water, it is necessary to restore it by means of air supply units or a compressor.
In the diaphragm version, neither air supply units nor compressor are needed, as contact between air and water is prevented by a flexible diaphragm inside the tank.
The following method, which is used to determine the volume of a surge tank, is valid both for horizontal and vertical surge tanks.
When calculating the volume of the surge tank, it is generally sufficient to consider the first pump only.

DIAPHRAGM TANK

If you decide to use a diaphragm tank, the volume will be lower than that of the air-cushion tank. It can be calculated with the following formula:

$$V_m = \frac{Qp}{4 \times Z} \times \frac{1}{1 - \frac{(Pmin - 2)}{Pmax}}$$

where:
Vm = Total volume of the air-cushion surge tank in m^3
Qp = Average pump flow rate in m^3/h
Pmax = Maximum pressure setting (wcm)
Pmin = Minimum pressure setting (wcm)
Z = Maximum number of starts per hour allowed by the motor
Example:
22SV10F110T electric pump
Pmax = 23 wcm
Pmin = 15 wcm
Qp = 20 m^3/h
Z =25

$$V_m = \frac{Qp}{4 \times Z} \times \frac{1}{1 - \frac{(Pmin - 2)}{Pmax}} = 0{,}46\ m^3$$

A 500-litre surge tank is therefore required.

SIZING THE DIAPHRAGM TANK IN SYSTEMS WITH SPEED VARIATION

Variable speed booster sets need **smaller tanks** compared to traditional systems. Generally speaking, a tank with a liter capacity of just 10% of the nominal capacity of a single pump, expressed in liters per minute, is needed. The **gradual starting** of the pumps controlled by the frequency converters reduces the need to limit the number of hourly starts; the main purpose of the tank is to compensate for small system losses, stabilize the pressure and make up for pressure variations caused by sudden demand.

Make the following calculation:
Set made up of three electric pumps, each with a maximum flow rate of 400 l/min, for a total capacity of 1200 l/min.
The **volume** required for the tank is 40 liters. This size can be obtained by using two 24-litre tanks mounted directly onto the set's manifold.
The calculation establishes the minimum value needed for proper operation.

TABLE OF FLOW RESISTANCE IN 100 m OF STRAIGHT CAST IRON PIPELINE (HAZEN-WILLIAMS FORMULA C=100)

FLOW RATE			NOMINAL DIAMETER in mm and inches																
m^3/h	l/min		15 1/2"	20 3/4"	25 1"	32 1 1/4"	40 1 1/2"	50 2	65 2 1/2"	80 3"	100 4"	125 5"	150 6"	175 7"	200 8"	250 10"	300 12"	350 14"	400 16"
0,6	10	v	0,94	0,53	0,34	0,21	0,13												
		hr	16	3,94	1,33	0,40	0,13												
0,9	15	v	1,42	0,80	0,51	0,31	0,20												
		hr	33,9	8,35	2,82	0,85	0,29												
1,2	20	v	1,89	1,06	0,68	0,41	0,27	0,17											
		hr	57,7	14,21	4,79	1,44	0,49	0,16											
1,5	25	v	2,36	1,33	0,85	0,52	0,33	0,21											
		hr	87,2	21,5	7,24	2,18	0,73	0,25											
1,8	30	v	2,83	1,59	1,02	0,62	0,40	0,25											
		hr	122	30,1	10,1	3,05	1,03	0,35											
2,1	35	v	3,30	1,86	1,19	0,73	0,46	0,30											
		hr	162	40,0	13,5	4,06	1,37	0,46											
2,4	40	v		2,12	1,36	0,83	0,53	0,34	0,20										
		hr		51,2	17,3	5,19	1,75	0,59	0,16										
3	50	v		2,65	1,70	1,04	0,66	0,42	0,25										
		hr		77,4	26,1	7,85	2,65	0,89	0,25										
3,6	60	v		3,18	2,04	1,24	0,80	0,51	0,30										
		hr		108	36,6	11,0	3,71	1,25	0,35										
4,2	70	v		3,72	2,38	1,45	0,93	0,59	0,35										
		hr		144	48,7	14,6	4,93	1,66	0,46										
4,8	80	v		4,25	2,72	1,66	1,06	0,68	0,40										
		hr		185	62,3	18,7	6,32	2,13	0,59										
5,4	90	v			3,06	1,87	1,19	0,76	0,45	0,30									
		hr			77,5	23,3	7,85	2,65	0,74	0,27									
6	100	v			3,40	2,07	1,33	0,85	0,50	0,33									
		hr			94,1	28,3	9,54	3,22	0,90	0,33									
7,5	125	v			4,25	2,59	1,66	1,06	0,63	0,41									
		hr			142	42,8	14,4	4,86	1,36	0,49									
9	150	v				3,11	1,99	1,27	0,75	0,50	0,32								
		hr				59,9	20,2	6,82	1,90	0,69	0,23								
10,5	175	v				3,63	2,32	1,49	0,88	0,58	0,37								
		hr				79,7	26,9	9,07	2,53	0,92	0,31								
12	200	v				4,15	2,65	1,70	1,01	0,66	0,42								
		hr				102	34,4	11,6	3,23	1,18	0,40								
15	250	v				5,18	3,32	2,12	1,26	0,83	0,53	0,34							
		hr				154	52,0	17,5	4,89	1,78	0,60	0,20							
18	300	v					3,98	2,55	1,51	1,00	0,64	0,41							
		hr					72,8	24,6	6,85	2,49	0,84	0,28							
24	400	v					5,31	3,40	2,01	1,33	0,85	0,54	0,38						
		hr					124	41,8	11,66	4,24	1,43	0,48	0,20						
30	500	v					6,63	4,25	2,51	1,66	1,06	0,68	0,47						
		hr					187	63,2	17,6	6,41	2,16	0,73	0,30						
36	600	v						5,10	3,02	1,99	1,27	0,82	0,57	0,42					
		hr						88,6	24,7	8,98	3,03	1,02	0,42	0,20					
42	700	v						5,94	3,52	2,32	1,49	0,95	0,66	0,49					
		hr						118	32,8	11,9	4,03	1,36	0,56	0,26					
48	800	v						6,79	4,02	2,65	1,70	1,09	0,75	0,55					
		hr						151	42,0	15,3	5,16	1,74	0,72	0,34					
54	900	v						7,64	4,52	2,99	1,91	1,22	0,85	0,62					
		hr						188	52,3	19,0	6,41	2,16	0,89	0,42					
60	1000	v							5,03	3,32	2,12	1,36	0,94	0,69	0,53				
		hr							63,5	23,1	7,79	2,63	1,08	0,51	0,27				
75	1250	v							6,28	4,15	2,65	1,70	1,18	0,87	0,66				
		hr							96,0	34,9	11,8	3,97	1,63	0,77	0,40				
90	1500	v							7,54	4,98	3,18	2,04	1,42	1,04	0,80				
		hr							134	48,9	16,5	5,57	2,29	1,08	0,56				
105	1750	v							8,79	5,81	3,72	2,38	1,65	1,21	0,93				
		hr							179	65,1	21,9	7,40	3,05	1,44	0,75				
120	2000	v								6,63	4,25	2,72	1,89	1,39	1,06	0,68			
		hr								83,3	28,1	9,48	3,90	1,84	0,96	0,32			
150	2500	v								8,29	5,31	3,40	2,36	1,73	1,33	0,85			
		hr								126	42,5	14,3	5,89	2,78	1,45	0,49			
180	3000	v									6,37	4,08	2,83	2,08	1,59	1,02	0,71		
		hr									59,5	20,1	8,26	3,90	2,03	0,69	0,28		
210	3500	v									7,43	4,76	3,30	2,43	1,86	1,19	0,83		
		hr									79,1	26,7	11,0	5,18	2,71	0,91	0,38		
240	4000	v									8,49	5,44	3,77	2,77	2,12	1,36	0,94		
		hr									101	34,2	14,1	6,64	3,46	1,17	0,48		
300	5000	v										6,79	4,72	3,47	2,65	1,70	1,18		
		hr										51,6	21,2	10,0	5,23	1,77	0,73		
360	6000	v										8,15	5,66	4,16	3,18	2,04	1,42		
		hr										72,3	29,8	14,1	7,33	2,47	1,02		
420	7000	v											6,61	4,85	3,72	2,38	1,65	1,21	
		hr											39,6	18,7	9,75	3,29	1,35	0,64	
480	8000	v											7,55	5,55	4,25	2,72	1,89	1,39	
		hr											50,7	23,9	12,49	4,21	1,73	0,82	
540	9000	v											8,49	6,24	4,78	3,06	2,12	1,56	1,19
		hr											63,0	29,8	15,5	5,24	2,16	1,02	0,53
600	10000	v												6,93	5,31	3,40	2,36	1,73	1,33
		hr												36,2	18,9	6,36	2,62	1,24	0,65

The hr values must be multiplied by:

0,71 for galvanized or painted steel pipes

0,54 for stainless steel or copper pipes

0,47 for PVC or PE pipes

hr = flow resistance for 100 m of straight pipeline (m)

V = water speed (m/s)

G-at-pct-en_b_th

FLOW RESISTANCE
TABLE OF FLOW RESISTANCE IN BENDS, VALVES AND GATES

The flow resistance is calculated using the equivalent pipeline length method according to the table below:

ACCESSORY TYPE	DN											
	25	32	40	50	65	80	100	125	150	200	250	300
	Equivalent pipeline length (m)											
45° bend	0,2	0,2	0,4	0,4	0,6	0,6	0,9	1,1	1,5	1,9	2,4	2,8
90° bend	0,4	0,6	0,9	1,1	1,3	1,5	2,1	2,6	3,0	3,9	4,7	5,8
90° smooth bend	0,4	0,4	0,4	0,6	0,9	1,1	1,3	1,7	1,9	2,8	3,4	3,9
Union tee or cross	1,1	1,3	1,7	2,1	2,6	3,2	4,3	5,3	6,4	7,5	10,7	12,8
Gate valve	-	-	-	0,2	0,2	0,2	0,4	0,4	0,6	0,9	1,1	1,3
Foot check valve	1,1	1,5	1,9	2,4	3,0	3,4	4,7	5,9	7,4	9,6	11,8	13,9
Non return valve	1,1	1,5	1,9	2,4	3,0	3,4	4,7	5,9	7,4	9,6	11,8	13,9

G-a-pcv-en_b_th

The table is valid for the Hazen Williams coefficient C=100 (cast iron pipework)
for galvanized steel or painted steel multiply the values by 0,71;
for stainless steel and copper multiply the values by 0,54;
for Pvc and PE multiply the values by 0,47.

When the **equivalent pipeline length** has been determined, the flow resistance is obtained from the table in the previous page.
The values given are guideline values which are bound to vary slightly according to the model, especially for gate valves and non-return valves, for which it is a good idea to check the values supplied by manufacturers.

VOLUMETRIC CAPACITY

Litres per minute l/min	Cubic metres per hour m^3/h	Cubic feet per hour ft^3/h	Cubic feet per minute ft^3/min	Imperial gallon per minute Imp. gal/min	U.S. gallon per minute US gal/min
1,0000	0,0600	2,1189	0,0353	0,2200	0,2642
16,6667	**1,0000**	35,3147	0,5886	3,6662	4,4029
0,4719	0,0283	**1,0000**	0,0167	0,1038	0,1247
28,3168	1,6990	60,0000	**1,0000**	6,2288	7,4805
4,5461	0,2728	9,6326	0,1605	**1,0000**	1,2009
3,7854	0,2271	8,0208	0,1337	0,8327	**1,0000**

PRESSURE AND HEAD

Newton per square metre N/m^2	kilo Pascal kPa	bar bar	Pound force per square inch psi	Metre of water m H_2O	Millimetre of mercury mm Hg
1,0000	0,0010	1×10^{-5}	$1,45 \times 10^{-4}$	$1,02 \times 10^{-4}$	0,0075
1 000,0000	**1,0000**	0,0100	0,1450	0,1020	7,5006
1×10^5	100,0000	**1,0000**	14,5038	10,1972	750,0638
6 894,7570	6,8948	0,0689	**1,0000**	0,7031	51,7151
9 806,6500	9,8067	0,0981	1,4223	**1,0000**	73,5561
133,3220	0,1333	0,0013	0,0193	0,0136	**1,0000**

LENGTH

Millimetre mm	Centimetre cm	Metre m	Inch in	Foot ft	Yard yd
1,0000	0,1000	0,0010	0,0394	0,0033	0,0011
10,0000	**1,0000**	0,0100	0,3937	0,0328	0,0109
1 000,0000	100,0000	**1,0000**	39,3701	3,2808	1,0936
25,4000	2,5400	0,0254	**1,0000**	0,0833	0,0278
304,8000	30,4800	0,3048	12,0000	**1,0000**	0,3333
914,4000	91,4400	0,9144	36,0000	3,0000	**1,0000**

VOLUME

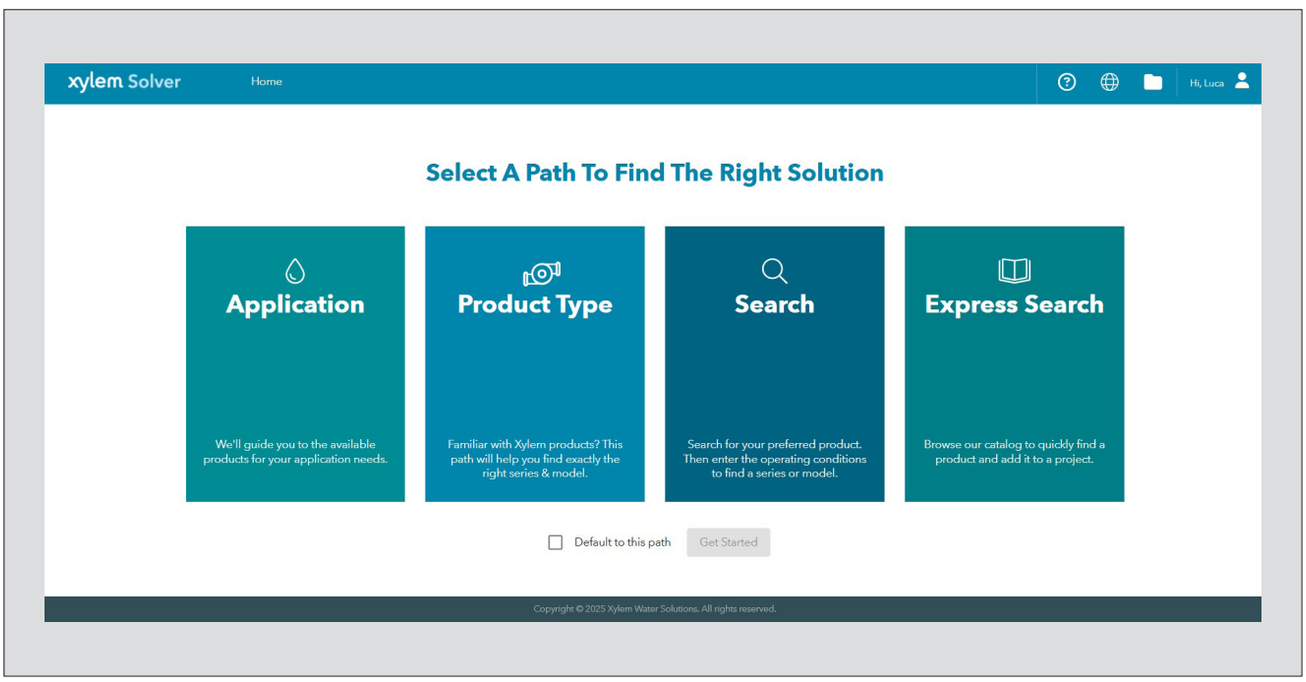
Cubic metre m^3	Litre L	Millilitre ml	Imperial gallon imp. gal.	U.S. gallon US gal.	Cubic foot ft^3
1,0000	1 000,0000	1×10^6	219,9694	264,1720	35,3147
0,0010	**1,0000**	1 000,0000	0,2200	0,2642	0,0353
1×10^{-6}	0,0010	**1,0000**	$2,2 \times 10^{-4}$	$2,642 \times 10^{-4}$	$3,53 \times 10^{-5}$
0,0045	4,5461	4 546,0870	**1,0000**	1,2009	0,1605
0,0038	3,7854	3 785,4120	0,8327	**1,0000**	0,1337
0,0283	28,3168	28 316,8466	6,2288	7,4805	**1,0000**

TEMPERATURE

Water	Kelvin K	Celsius °C	Fahrenheit °F	$°F = °C \times \frac{9}{5} + 32$ $°C = (°F - 32) \times \frac{5}{9}$
icing	273,1500	0,0000	32,0000	
boiling	373,1500	100,0000	212,0000	

G-at_pp-en_b_sc

FURTHER PRODUCT SELECTION AND DOCUMENTATION
Xylem Solver



Xylem Solver is pump solution selection software with an extensive online database of product information across the entire Xylem range of pumps and related products, with multiple search options and helpful project management facilities. The system holds up-to-date product information on thousands of products and accessories.

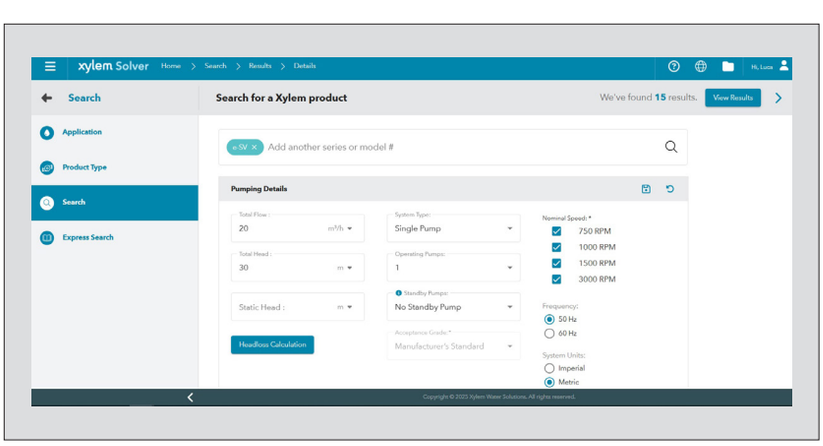
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Xylem products.

The search can be made by:

- Application
- Product type
- Duty point

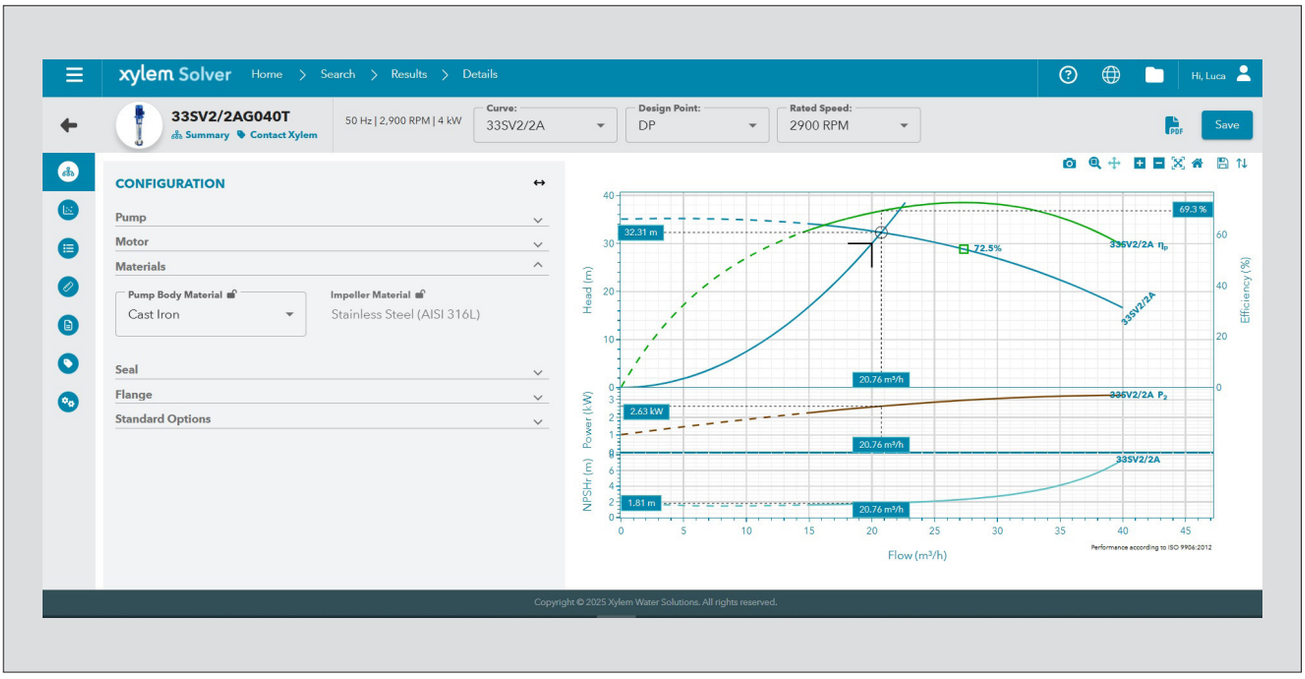
Xylem Solver gives a detailed output:

- List with search results in which you can compare up to four products
- Performance curves (flow, head, power, efficiency, NPSH)
- Motor data
- Dimensional drawings
- Options
- Data sheet printouts
- Document downloads incl dxf, stp and BIM files



Once a product series has been selected, input design criteria to select pumps that meet the design requirements.

FURTHER PRODUCT SELECTION AND DOCUMENTATION
Xylem Solver



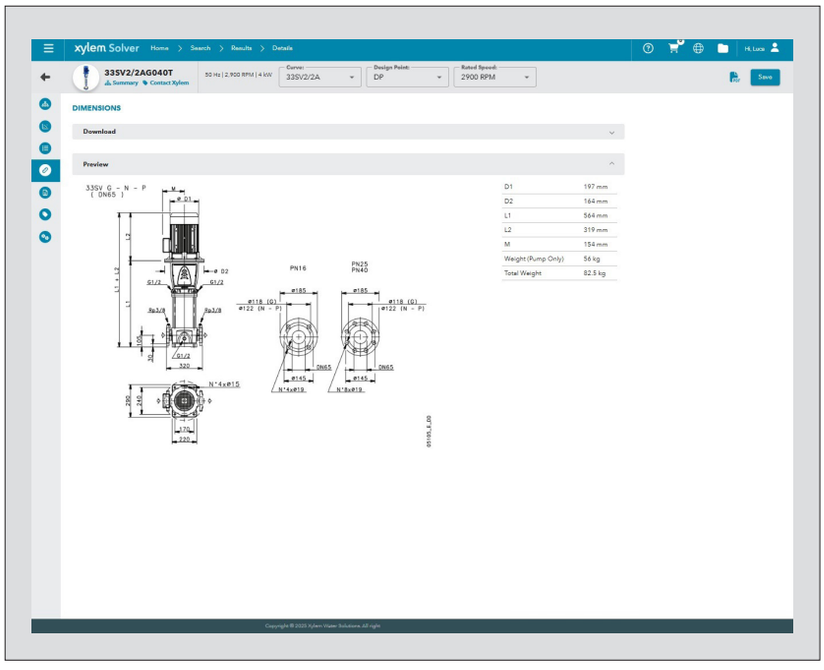
The detailed output makes it easy to select the optimal pump from the given alternatives.

The best way to work with Xylem Solver is to create a personal account. This makes it possible to:

- Set own standard units
- Create and save projects

Every registered user has a proper space, where all projects are saved.

For more information about Xylem Solver please contact our sales network or visit **https://solver.xylem.com.**



The dimensions tab shows technical drawings, dimensions, and CAD files when available.

Xylem |'zīləm|

1) the tissue in plants that brings water and nutrients upward from the roots.

2) a leading global water solutions company.

Xylem is the connective tissue and system in plants which cleanses and transports water from the root to where it is needed most to sustain life.

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Xylem Service Italia Srl
Via Dottor Vittorio Lombardi 14
36075 - Montecchio Maggiore (VI)
Italy

Tel. (+39) 0444 707111
Fax (+39) 0444 491043
www.xylem.com/it-it

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