
**RÉPARATION** **VENTE** **LOCATION**

## de pompes et systèmes de pompage

## Nos différentes gammes selon vos besoins :

Pompe à engrenage interne

Pompe centrifuge

Pompe à engrenages externes

Pompe à membranes
(pneumatique ou électrique)

Pompe péristaltique

Pompe doseuse

Pompe multicellulaire

Motopompe de chantier

Pompe à piston excentré

Pompe de relevage

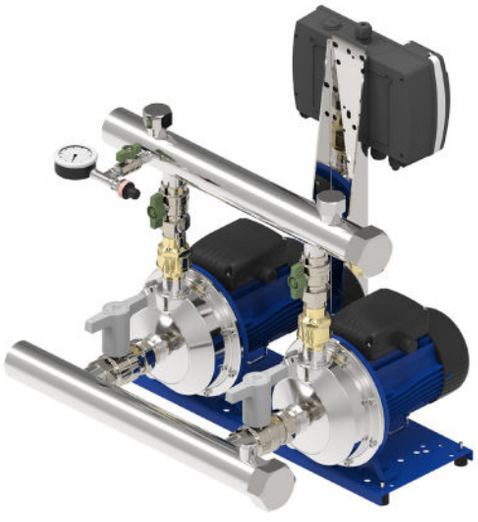
Agitateur

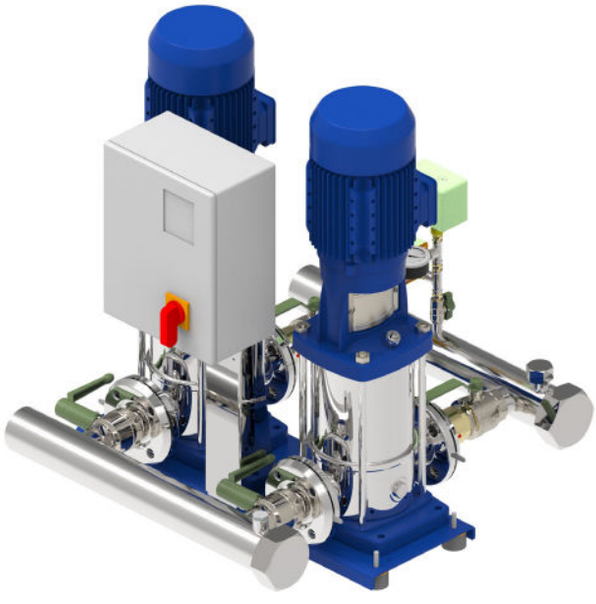
Pompe de forage

**www.tech-pompes.fr** **03 86 66 57 57**

xylem
Let's Solve Water

**50 Hz**





# GXS and GMD Booster sets series

BOOSTER SETS FOR RESIDENTIAL MARKET
HORIZONTAL MULTI-STAGE ELECTRIC PUMP e-HM SERIES
HORIZONTAL CENTRIFUGE ELECTRIC PUMP CEA SERIES
HORIZONTAL CENTRIFUGE ELECTRIC PUMP BG SERIES
VERTICAL MULTI-STAGE ELECTRIC PUMP e-SV SERIES
CLOSE-COUPLED THREADED VERTICAL MULTI-STAGE ELECTRIC PUMP VM SERIES

**ErP 2009/125/EC**

TECH-POMPES
Les pompes du process et de l'assainissement

**TECH-POMPES – ZA Prunelliers – 1 Rue des Prunelliers – 89100 Saint Martin du Tertre - FRANCE**
**Tél : + 33 (03) 86 66 57 47 – Fax : + 33 (03) 86 66 63 06**
**Site Internet : www.tech-pompes.fr . Contact : contact@tech-pompes.com**
**RCS SENS 480 876 929 – Siret 480 876 929 00039 – Code TVA FR 45 480 876929**

LOWARA
a xylem brand

Cod. 191020471 Rev. B Ed.06/2023

LOWARA
a xylem brand

# 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 table shows the Regulations that define the requirements for Lowara products:

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

| Regulations | From | Target |
|---|---|---|
| (EU) N. 547/2012 | 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, (EU) N. 622/2012 and (EU) 2019/1781 | 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 2021/341 | 1 July 2023 | **IE2**: motors with a rated output ≥ 0,12 and < 0,75 kW<br>**IE3**: motors with a rated output ≥ 0,75 and < 75 kW<br>**IE4**: motors with a rated output ≥ 75 and < 201 kW<br>**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 |

• **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** |

LOWARA
a xylem brand

## CONTENTS

## BOOSTER SETS GXS AND GMD SERIES
## GENERAL INTRODUCTION – PRODUCT DESCRIPTION

**GXS** and **GMD** booster sets are designed to transfer and increase the pressure of water, in the following applications:

- Public buildings
- Apartment
- Single house
- Condominiums
- Garden irrigation

The booster sets of the series described above are pumping stations assembled with two **e-HM** series horizontal multistage pumps, **CEA** or **BG** series horizontal centrifugal pumps, **e-SV** series vertical multistage pumps, **VM** series close-coupled vertical multistage pumps.

The **GXS** and **GMD** booster sets series are pumping station with single-phase or three-phase power supply depending on the type of set, with two fixed speed automatic pumps. The boosters sets have two pumps with automatic operating and fixed speed. The pumps are connected to one another by suction and delivery pipes, and fixed onto a single base. The pumps are connected to the manifolds by means of stop valves and check valves. An electric protection and control panel is installed using a bracket on the base of the set.
There are available a different type of customized applications.

**GXS and GMD series booster sets with e-HM, e-SV and VM series pumps are certified for use with drinking water according to WRAS and ACS standards, and with Italian Ministry Decree no. 174.**

## BOOSTER SETS GXS AND GMD SERIES
## CHOICE AND SELECTION

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

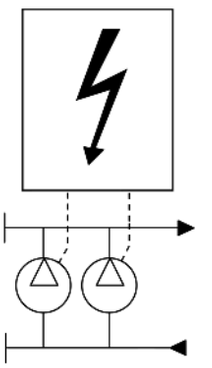
- The system's requirements should be met regarding flow rate and pressure.
- The booster set must not be oversized, avoiding unnecessary installation and running costs.

Generally speaking, the water consumption in water distribution systems, such as circuits for villas, detached houses and the like, is defined as "variable" though it is fairly concentrated during the day in what are known as peak consumption periods. Given the type of residential use, these concentrations of water demand mainly occur in the morning and in the evening.
The definition of the flow for these system types is generally based on practical tables giving the value of daily consumption depending on the type of user (number of occupants, number of services, etc..).
The size of the pressure booster set and, in practice, the performance levels of the pumps and the number of pumps is based on the take-off point and, therefore, on the consumption value which takes the following factors into account:

- The consumption peak
- Yield
- NPSH
- Diaphragm tanks

# BOOSTER SETS GXS AND GMD SERIES
# DESCRIPTION OF OPERATION

## GXS BOOSTER SERIES

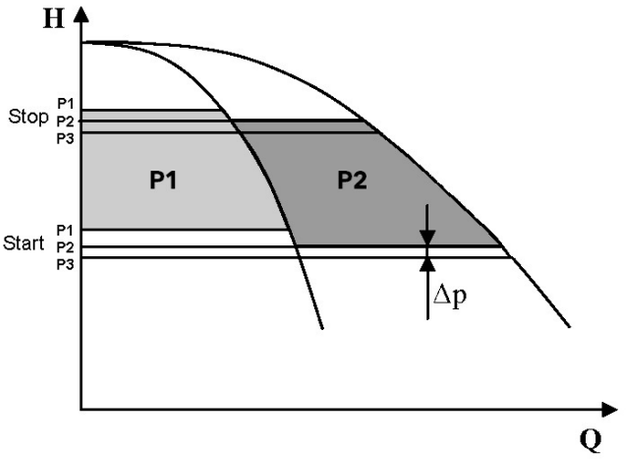


The starting and stopping of the pumps are determined by the pressure values set and measured by the transducer control. The pressure values are set by the controller.
In the case of sets with jockey pump, this will start first and stop last, in accordance with the set pressure values.

## GMD BOOSTER SERIES

The starting and stopping of the pumps are determinated by the pressure values set on the pressure switches. Each pressure switch is connected to a single pump with a cyclic pump changeover. The differential pressure is the difference between starting pressure and switch-off pressure. It is set at the same value for both pumps.

- On demand, the pressure decreases in the system until it reaches the pressure to starts the first pump (P1start).
- If the water consumption increases, the pressure decreased and the second pump starts (P2start).
- When the water consumption decreases, the pressure in the system increases and the first pump stops at the P2 setting (P2stop).
- If the water consumption decrease yet, the second pump stops (P1stop).
- With the function "timer", the last pump functioning, will remain turned on, until will reach the maximum pressure.
- Before starting, check that the maximum pressure of the pumps must be compatible with the maximum pressure of the system.
- The below picture shows the operating mode with the pumps' curves:



# BOOSTER SETS GXS AND GMD SERIES
# DESCRIPTION OF OPERATION

## BOOSTER SERIES GXS

On fixed speed booster sets **GXS** series, the control and protection panel with electronic board, manages the operations of the pumps, the cyclic changeover, and, in case of lack of water on suction side, stops the set. The pumps run in cascade through the transmitter signal.

**Cyclical exchange of pumps**
In the **GXS** e **GMD** series, the cyclical exchange of pumps is controlled by electrical panel.

**Maximum delivery pressure protection**
The maximum 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.

**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.

**Tank**
Frequent demand or small system losses determine pressure variations that may be compensated for by using a tank. Correct selection of a diaphragm tank reduces the number of pump starts and, if it is installed near the booster set, helps reduce the effect of water hammer.

The booster sets are ready for installation with diaphragm tanks mounted directly on the delivery manifold, and additional tanks can be connected to the unused end of the manifold.

## BOOSTER SERIES GMD

On fixed speed booster sets **GMD** series, the control and protection panel with electronic board, manages the operations of the pumps, the cyclic changeover, and, in case of lack of water on suction side, stops the set. The pumps run in cascade through the two pressure switches signals.

**Cyclical exchange of pumps**
In the **GXS** e **GMD** series, the cyclical exchange of pumps is controlled by electrical panel.

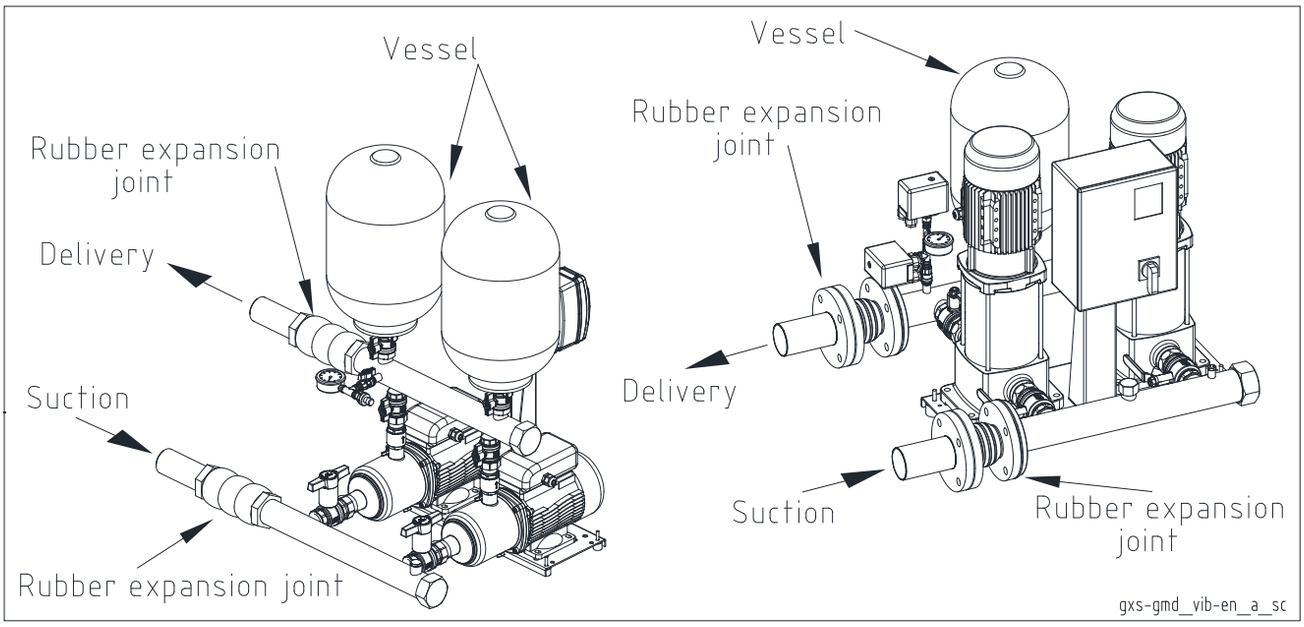
**Maximum delivery pressure protection**
The maximum delivery pressure function can be managed by pressure switch (option /BAP)

**Tank**
Frequent demand or small system losses determine pressure variations that may be compensated for by using a tank. Correct selection of a diaphragm tank reduces the number of pump starts and, if it is installed near the booster set, helps reduce the effect of water hammer.

The booster sets are ready for installation with diaphragm tanks mounted directly on the delivery manifold, and additional tanks can be connected to the unused end of the manifold.

## BOOSTER SETS GXS AND GMD 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.

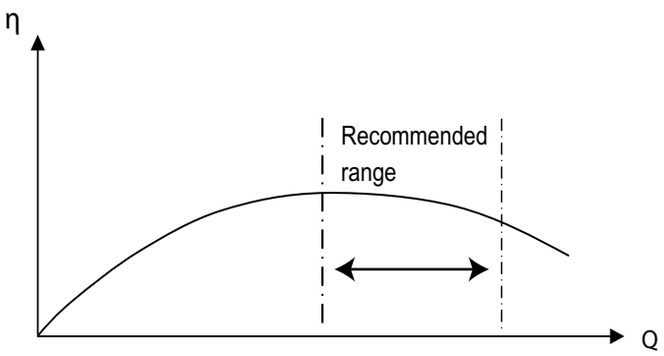



The booster sets must be connected to pressurized tanks with an adequate capacity for the system to be made. These tanks can avoid any problems due to water hammer that is created due to the sudden stopping of the electric pumps running. For this type of system, it is possible to install in the delivery piping diaphragm expansion vessels (hydro tube) that perform a pressure dampening function.
For the sizing of the expansion vessels, see the specific chapter in this catalogue.

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 that the electric pumps start too many times.
It is good practice to check the value of the maximum electric pump pressure to match the set with a vessel suitable for the pressure value

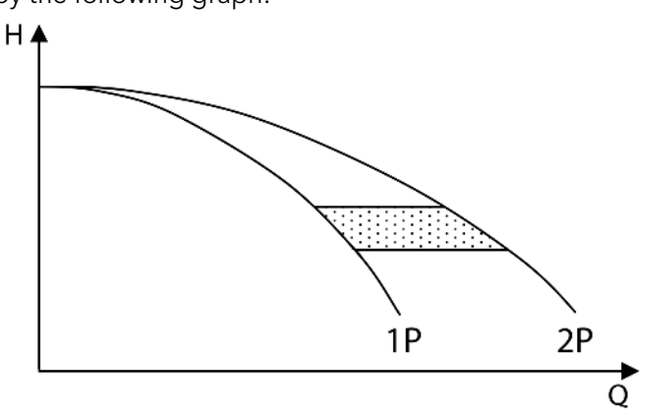
## BOOSTER SETS GXS AND GMD SERIES
## SELECTING THE PUMPS

What type of pump to choose?
Generally, the choice of pump is based on the take-off point of the system, which is usually the highest possible. As maximum demand normally lasts a short time, the pump must also be able to satisfy variable requests throughout its time in service.
In this case, if variability is elevated, variable speed booster sets are preferred.
Generally the choice of the pump, based on the performance curve, should fall around the maximum efficiency point. The pump must ensure operation within its rated performance.
Since the booster set is sized according to the maximum possible consumption, the take-off point of the 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.

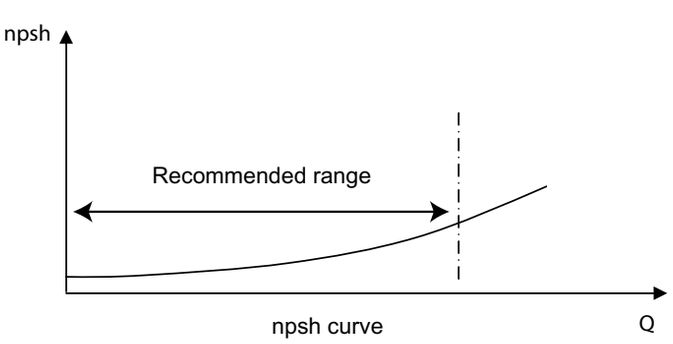


Pump performance curve

If we make a choice on the characteristic curve of the pump, we can see that the area where it is best to select the pump is represented by the following graph:

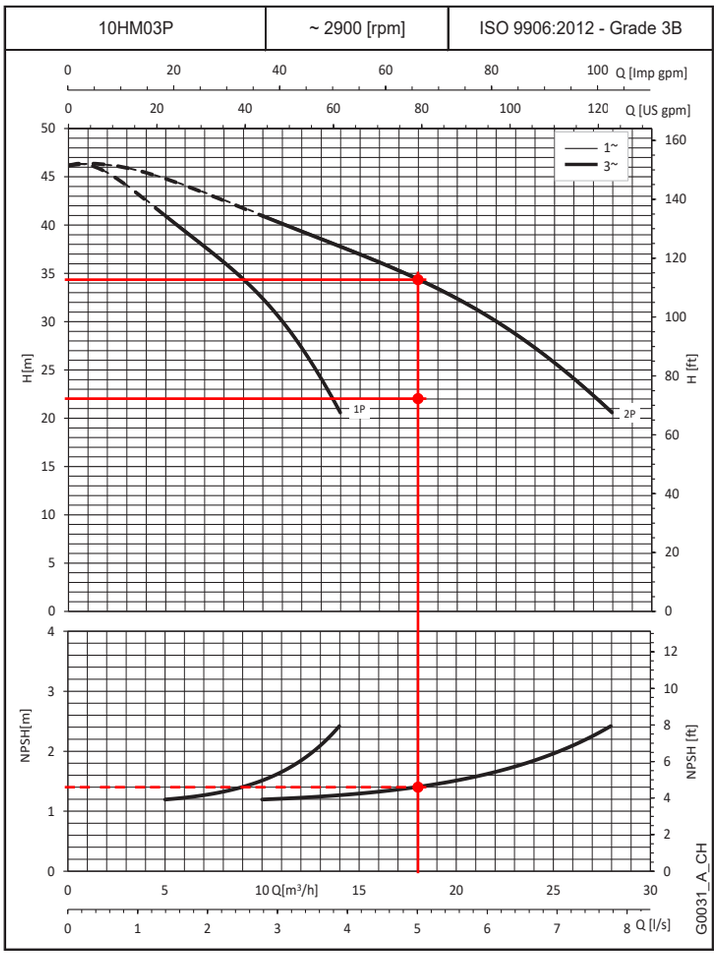



Another factor to be considered when choosing the pumps is its NPSH value. Never choose a pump where the take-off point is too far to the right of the NPSH curve.
This risks not having good pump suction, which may be aggravated by the type of installation (where negative suction is possible).
In these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



# BOOSTER SETS GXS AND GMD SERIES
# SELECTING THE PUMPS

The choice of pump is therefore based on the characteristic curve of the 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 pumps necessary for the system.




The example alongside refers to a required flow rate of 18 m³/h and a pressure of 22 water column.

As may be seen from the specific selection page 71, the system requires two pumps of the type 10HM03 as indicated top left in the table.

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.

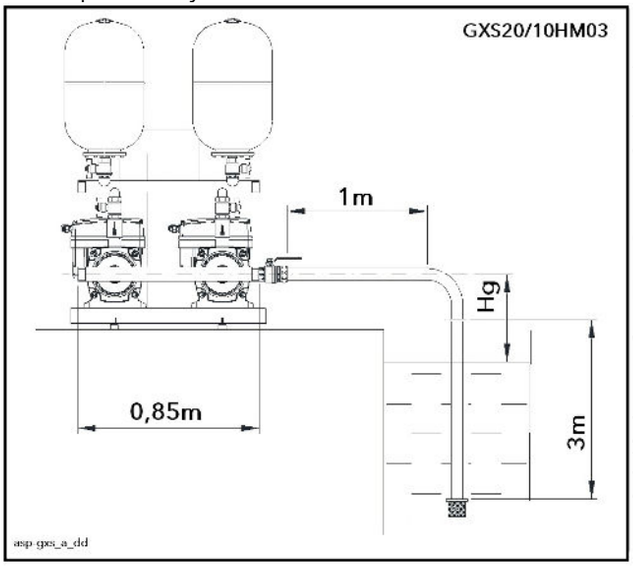
## NPSH

The minimum operating values that can be reached at the pump suction end are limited by the onset of cavitation.
Cavitation is the formation of vapour-filled cavities within liquids where the pressure is locally reduced to a critical value, or where the local pressure is equal to, or just below the vapour pressure of the liquid.
The vapour-filled cavities flow with the current and when they reach a higher pressure area the vapour contained in the cavities condenses. The cavities collide, generating pressure waves that are transmitted to the walls.
These, being subjected to stress cycles, gradually become deformed and yield due to fatigue.
This phenomenon, characterized by a metallic noise produced by the hammering on the pipe walls, is called incipient cavitation.
The damage caused by cavitation may be magnified by electrochemical corrosion and a local rise in temperature due to the plastic deformation of the walls. The materials that offer the highest resistance to heat and corrosion are alloy steels, especially austenitic steel.
The conditions that trigger cavitation may be assessed by calculating the total net suction head, referred to in technical literature with the acronym NPSH (Net Positive Suction Head).
The NPSH represents the total energy (expressed in m.) of the liquid measured at suction under conditions of incipient cavitation, excluding the vapour pressure (expressed in m.) that the liquid has at the pump inlet.

LOWARA
a xylem brand

## BOOSTER SETS GXS AND GMD 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 9 $m^3$/h, it corresponds to 1,45 m (page 71). Before calculating the l'NPSH available, it is necessary to calculate the pressure drops at the suction, using the tables on page 117-118, 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 DN65, equal to the diameter of the suction manifold of the set (page 46).

Calculation of suction drops ∑c for cast iron components
Equivalent piping length for DN65 foot check valve = 3 m
Equivalent piping length for DN65 gate valve = 0,2 m
Total equivalent length = 3 + 0,2 = 3,2 m
Pressure drops in the suction piping (cast iron) ∑c = 3,2 x 6,85 /100 = 0,219 m

Calculation of suction drops ∑s for stainless steel components
Equivalent piping length for DN65 90° curve = 1,3 m
Total equivalent length = 1,3 m
Horizontal suction pipe length = 4 m
Vertical suction pipe length = 1 m
Pressure drops in the suction piping (stainless steel) ∑s = (1,3 + 4 + 1) x 6,85 x 0,54 / 100 = 0,23 m

Pressure drops for suction components ∑t = ∑c + ∑s = 0,219 + 0,23 = 0,45 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 DN65, equal to the diameter of the suction manifold of the set (page 46).
Hc pressure drops for suction set branch must be assessed on the B curve (page 98, schema B0367_A_CH); at the flow value of each pump equal to 9 $m^3$/h, a value of Hc = 1,25 m is obtained.

Calculation of suction drops ∑s for stainless steel components
Equivalent piping length for DN65 manifold T fitting = 2,6 m
Suction manifold length = 0,85 m
Pressure drops in the suction manifold (steel) ∑s = (2,6 + 0,85) x 6,85 x 0,54 / 100 = 0,0127 m
Pressure drops ∑a = Hc + ∑s = 1,25 + 0,127 = 1,377 m

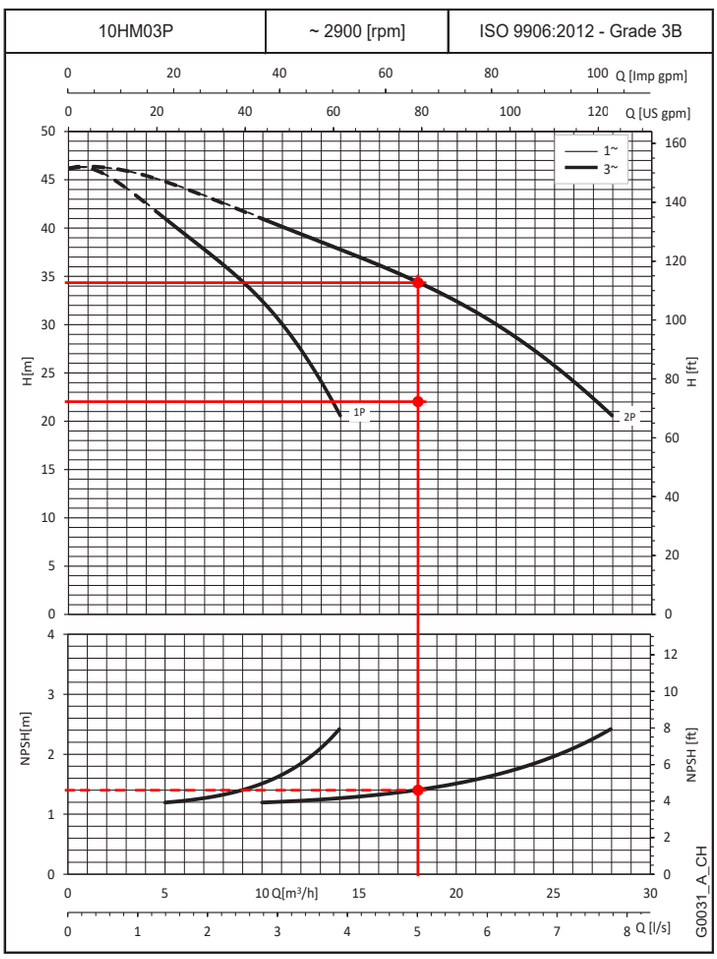
Remembering that NPSH available = Patm + Hg - ∑t – ∑a and that NPSH available ≥ NPSH requested we have that Patm + Hg - ∑t - ∑a must be ≥ NPSH requested.

Substituting the values we get that 10,33 + Hg - 0,45 - 1,377 ≥ 1,45 m (NPSH requested),
Hg = 1,45 + 0,45 + 1,377 - 10,33 = - 9,8 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 9,8 m**.

# BOOSTER SETS GXS AND GMD SERIES
# NET PRESSURE CALCULATION

When selecting 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:




Knowing the system operating point Q = 18 m3/h and H = 22 mH2O (P requested),and the installation height Hg (estimated to 5 m), in order to make the calculations easier we use the pressure drop curves for each single pump on page 125 of this catalogue. Assuming that a booster set GMD20/10HM03 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 ∑t for suction components is made in the following way, considering that the diameter of the suction piping is DN65, equal to the diameter of the suction manifold of the set (page 46).

Calculation of suction drops ∑c for cast iron components
Equivalent piping length for DN65 foot check valve = 3 m
Equivalent piping length for DN65 gate valve = 0,2 m
Total equivalent length = 3 + 0,2 = 3,2 m
Pressure drops in the suction piping (cast iron) ∑c = 3,2 x 6,85 /100 = 0,219 m

Calculation of suction drops ∑s for stainless steel components:
Equivalent piping length for DN65 90° curve = 1,3 m
Total equivalent length = 1,3 m
Horizontal suction pipe length = 4 m
Vertical suction pipe length = 1 m
Pressure drops in the suction piping (stainless steel) ∑s = (1,3 + 4 + 1) x 6,85 x 0,54 / 100 = 0,23 m

The total sum of the pressure drops for suction components ∑t = ∑c + ∑s = 0,219 + 0,23 = 0,45 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 DN65, equal to the diameter of the suction manifold of the set (page 46).
Hc pressure drops for suction set branch must be assessed on the B curve (page 98, schema B0367_A_CH); at the flow value of each pump equal to 9 m3/h, a value of Hc = 1,25 m is obtained.

# BOOSTER SETS GXS AND GMD SERIES
# NET PRESSURE CALCULATION

Calculation of suction drops ∑s for stainless steel components
Equivalent piping length for DN65 manifold TEE fitting = 2,6 m
Suction manifold length = 0,85
Pressure drops in the suction piping (stainless steel) ∑s = (2,6 + 0,85) x 6,85 x 0,54 / 100 = 0,127 m
The total pressure drops ∑a for suction components are:
∑a = Hc + ∑s= 1,25 + 0,127 = 1,377 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 DN65, equal to the diameter of the delivery manifold of the set (page 46). Hc pressure drops for delivery set branch must be assessed on the A curve (page 98, schema B0367_A_CH); at the flow value of each pump equal to 9 m3/h, a value of Hc = 0,0028 m is obtained.

Calculation of delivery drops ∑s for stainless steel components
Equivalent piping length for DN65 manifold TEE fitting = 2,6 m
Delivery manifold length = 0,85 m
Pressure drops in the delivery manifold (steel) = (2,6 + 0,85) x 6,85 x 0,54 / 100 = 0,127 m

Pressure drops in delivery manifold ∑m = Hc + ∑s = 0,0028 + 0,127 = 0,1298 m
If we analyse the performance of the set at the flow value of 18 m3/h, the head value H is 33,5 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 = 33,5 – (5 + 0,45 + 1,377 + 0,1298) = 26,545 m
When comparing this value with the design value (not taking into account the dynamic energy), we see that 26,545 m > 22 m [P net available > P Required]

**The set is therefore capable of meeting system requirements.**

# BOOSTER SETS GXS AND GMD SERIES
# CHARACTERISTICS OF e-HM ELECTRIC PUMPS

## PUMP DESIGN

The e-HM is a non-self-priming, end-suction horizontal multistage, high pressure centrifugal pump, with axial threaded inlet and radial threaded outlet. The pumps are close-coupled design and are equipped with non-standard Lowara motors. The e-HM is equipped with mechanical seal.

The e-HM are highly modular pumps that are fitted with an innovative hydraulic design that secures high efficiency performances and an increased Mean Time Between Failure.

The e-HM are available in two different configurations:
- "Compact" design for sizes 1HM, 3HM and 5HM up to 6 stages
- "Sleeve" design for sizes 1HM, 3HM and 5HM from 7 stages and above; any model of 10HM, 15HM and 22HM.

The "Compact" design is made of one single piece fabricated stainless steel pump body directly connected to the motor flange. The "Compact" has only one O-ring for the sealing of the casing that clearly reduces the leakages possibilities.

The "Sleeve" design is made of an external stainless steel TIG welded sleeve and of separate suction casing kept together with the mean of an aluminum casted pump bracket and of stainless steel tie rods screwed in the motor flange.
The e-HM is available in 3 different materials combination:
- HM..P: stainless steel pump body (EN 1.4301/AISI 304) with technopolymer impeller for sizes 1HM, 3HM, 5HM and 10HM up to 6 stages.
- HM..S: full stainless steel (EN 1.4301/AISI 304)
- HM..N: full stainless steel (EN 1.4401/AISI 316)

## SPECIFICATIONS

### PUMP

- Flow rate: up to 29 $m^3/h$.
- Head: up to 159 m.
- Ambient temperature:
  - for single-phase version: from -15°C to +45°C.
  - for three-phase version: from -15°C to +50°C.
- Minimum temperature of the pumped liquid: from -10°C to -30°C according to gasket material.
- Maximum temperature of the pumped liquid:
  - for single-phase version: +90°C.
  - for three-phase version: up to +120°C depending on the model and the mechanical seal.
- Maximum operating pressure:
  - for pumps with technopolymer impeller: 10 bar (PN 10).
  - for pumps with stainless steel impeller: up to 16 bar (PN 16) depending on the model and the mechanical seal.
- Connections: Rp threaded for both suction and discharge manifold.
- Hydraulic performances compliant with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A).

### MOTOR

The e-HM are equipped with surface motors designed and manufactured in accordance with EN standards. The e-HM series can be equipped as well with variable speed drivers.
- Electric short-circuit squirrel-cage motor (TEFC), enclosed construction, air-cooled.
- 2-pole.
- IP 55 protection grade as motor only (EN 60034-5), IP X5 as electric pump (EN 60335-1).
- Insulation class 155 (F).
- Performances according to EN 60034-1.
- Standard voltage:
  - Single-phase: 220-240 V, 50 Hz.
  - Three-phase:
    220-240/380-415 V, 50 Hz for powers up to 3 kW.
    380/415/660-690 V, 50 Hz for powers above 3 kW.
- Efficiency class:
  - **IE2** for all single phase motors and for three-phase motors from 0,12 to 0,749 kW,
  - **IE3** for three-phase motors from 0,75 to 5,5 kW.

**The e-HM pumps are certified for drinking water use (WRAS and ACS).**

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMPS e-HM
# HYDRAULIC PERFORMANCE RANGE AT 50 Hz

| PUMP TYPE HM..P | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 40 | 56 | 72 | 88 | 104 | 120 | 140 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 2,4 | 3,4 | 4,3 | 5,3 | 6,2 | 7,2 | 8,4 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 3HM02 | 1 ~ | 2 x 0,49 | 2 x 0,55 | SM71HM../1055 | 24,1 | 22,1 | 21,1 | 19,7 | 17,9 | 15,9 | 13,7 | 10,7 |
| 3HM03 | | 2 x 0,63 | 2 x 0,55 | SM71HM../1055 | 35,7 | 32,5 | 30,8 | 28,6 | 25,9 | 22,9 | 19,6 | 15,1 |
| 3HM04 | | 2 x 0,76 | 2 x 0,55 | SM71HM../1055 | 47,0 | 42,4 | 39,9 | 36,8 | 33,1 | 29,1 | 24,7 | 18,7 |
| 3HM05 | | 2 x 0,96 | 2 x 0,75 | SM80HM../1075 | 59,7 | 54,5 | 51,7 | 48,0 | 43,6 | 38,5 | 33,0 | 25,5 |
| 3HM06 | | 2 x 1,16 | 2 x 1,1 | SM80HM../1115 | 72,2 | 66,2 | 62,9 | 58,6 | 53,3 | 47,3 | 40,7 | 31,6 |
| 3HM02 | 3 ~ | 2 x 0,43 | 2 x 0,3 | SM63HM../303 | 23,2 | 20,9 | 19,6 | 18,1 | 16,2 | 14,2 | 12,0 | 9,0 |
| 3HM03 | | 2 x 0,57 | 2 x 0,4 | SM63HM../304 | 34,9 | 31,3 | 29,3 | 26,9 | 24,2 | 21,1 | 17,8 | 13,4 |
| 3HM04 | | 2 x 0,72 | 2 x 0,5 | SM63HM../305 | 45,8 | 40,6 | 37,8 | 34,5 | 30,7 | 26,7 | 22,3 | 16,3 |
| 3HM05 | | 2 x 0,92 | 2 x 0,75 | SM80HM../307 E3 | 60,2 | 55,1 | 52,3 | 48,7 | 44,2 | 39,2 | 33,7 | 26,2 |
| 3HM06 | | 2 x 1,10 | 2 x 1,1 | SM80HM../311 E3 | 72,7 | 66,8 | 63,6 | 59,3 | 54,1 | 48,1 | 41,5 | 32,5 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

2p_3hm-p-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE HM..S | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 40 | 58 | 76 | 94 | 112 | 130 | 146,7 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 2,4 | 3,5 | 4,6 | 5,6 | 6,7 | 7,8 | 8,8 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 3HM10 | 1 ~ | 2 x 1,13 | 2 x 1,1 | SM80HM../1115 | 75,5 | 74,1 | 71,2 | 66,8 | 61,0 | 53,5 | 44,1 | 33,3 |
| 3HM11 | | 2 x 1,21 | 2 x 1,1 | SM80HM../1115 | 82,8 | 81,2 | 77,8 | 73,0 | 66,5 | 58,3 | 47,8 | 35,9 |
| 3HM12 | | 2 x 1,30 | 2 x 1,1 | SM80HM../1115 | 90,2 | 88,2 | 84,4 | 79,1 | 72,0 | 62,9 | 51,4 | 38,5 |
| 3HM13 | | 2 x 1,38 | 2 x 1,1 | SM80HM../1115 | 97,4 | 95,1 | 91,0 | 85,1 | 77,3 | 67,3 | 54,9 | 40,9 |
| 3HM14 | | 2 x 1,47 | 2 x 1,1 | SM80HM../1115 | 104,7 | 101,9 | 97,4 | 90,9 | 82,4 | 71,7 | 58,2 | 43,0 |
| 3HM16 | | 2 x 1,71 | 2 x 1,5 | PLM90HM../1155 | 120,8 | 118,8 | 114,1 | 107,2 | 97,9 | 85,9 | 70,8 | 53,5 |
| 3HM17 | | 2 x 1,80 | 2 x 1,5 | PLM90HM../1155 | 128,2 | 125,9 | 120,8 | 113,4 | 103,5 | 90,7 | 74,6 | 56,2 |
| 3HM19 | | 2 x 1,98 | 2 x 1,5 | PLM90HM../1155 | 143 | 140 | 134 | 126 | 114 | 100,0 | 81,9 | 61,4 |
| 3HM10 | 3 ~ | 2 x 1,04 | 2 x 1,1 | SM80HM../311 E3 | 75,9 | 74,8 | 71,9 | 67,7 | 62,0 | 54,8 | 45,5 | 34,4 |
| 3HM11 | | 2 x 1,13 | 2 x 1,1 | SM80HM../311 E3 | 83,3 | 82,0 | 78,7 | 74,0 | 67,8 | 59,8 | 49,5 | 37,3 |
| 3HM12 | | 2 x 1,23 | 2 x 1,1 | SM80HM../311 E3 | 90,7 | 89,1 | 85,5 | 80,3 | 73,4 | 64,6 | 53,4 | 40,1 |
| 3HM13 | | 2 x 1,32 | 2 x 1,1 | SM80HM../311 E3 | 98,1 | 96,1 | 92,2 | 86,5 | 79,0 | 69,5 | 57,3 | 42,8 |
| 3HM14 | | 2 x 1,42 | 2 x 1,5 | SM80HM../315 E3 | 106,1 | 104,5 | 100,4 | 94,4 | 86,5 | 76,3 | 63,3 | 47,8 |
| 3HM16 | | 2 x 1,61 | 2 x 1,5 | SM80HM../315 E3 | 121,0 | 118,7 | 113,9 | 107,0 | 97,8 | 86,1 | 71,1 | 53,4 |
| 3HM17 | | 2 x 1,70 | 2 x 1,5 | SM80HM../315 E3 | 128,3 | 125,8 | 120,7 | 113,2 | 103,4 | 90,9 | 75,0 | 56,1 |
| 3HM19 | | 2 x 1,93 | 2 x 2,2 | PLM90HM../322 E3 | 144,2 | 142,2 | 136,8 | 128,7 | 118,0 | 104,3 | 86,7 | 65,6 |
| 3HM21 | | 2 x 2,11 | 2 x 2,2 | PLM90HM../322 E3 | 159,1 | 156,6 | 150,5 | 141,5 | 129,6 | 114,3 | 94,7 | 71,5 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

2p_3hm-s-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMPS e-HM
# HYDRAULIC PERFORMANCE RANGE AT 50 Hz

| PUMP TYPE HM..P | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 80 | 106 | 132 | 158 | 184 | 210 | 240 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 4,8 | 6,4 | 7,9 | 9,5 | 11,0 | 12,6 | 14,4 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 5HM02 | 1 ~ | 2 x 0,59 | 2 x 0,55 | SM71HM../1055 | 24,3 | 20,9 | 19,6 | 18,2 | 16,5 | 14,4 | 11,8 | 8,1 |
| 5HM03 | | 2 x 0,78 | 2 x 0,55 | SM71HM../1055 | 36,0 | 30,3 | 28,2 | 25,9 | 23,3 | 20,1 | 16,1 | 10,6 |
| 5HM04 | | 2 x 1,03 | 2 x 0,75 | SM80HM../1075 | 48,6 | 41,5 | 38,9 | 36,0 | 32,6 | 28,4 | 23,1 | 15,7 |
| 5HM05 | | 2 x 1,29 | 2 x 1,1 | SM80HM../1115 | 61,0 | 52,5 | 49,2 | 45,7 | 41,5 | 36,3 | 29,8 | 20,5 |
| 5HM06 | | 2 x 1,50 | 2 x 1,1 | SM80HM../1115 | 72,9 | 62,2 | 58,1 | 53,7 | 48,6 | 42,3 | 34,4 | 23,3 |
| 5HM02 | 3 ~ | 2 x 0,53 | 2 x 0,4 | SM63HM../304 | 23,9 | 20,1 | 18,7 | 17,2 | 15,4 | 13,3 | 10,6 | 6,9 |
| 5HM03 | | 2 x 0,73 | 2 x 0,5 | SM63HM../305 | 35,2 | 28,8 | 26,5 | 24,2 | 21,5 | 18,2 | 14,2 | 8,6 |
| 5HM04 | | 2 x 1,01 | 2 x 1,1 | SM80HM../311 E3 | 49,3 | 42,9 | 40,4 | 37,7 | 34,5 | 30,4 | 25,2 | 17,8 |
| 5HM05 | | 2 x 1,23 | 2 x 1,1 | SM80HM../311 E3 | 61,4 | 53,1 | 49,9 | 46,4 | 42,3 | 37,2 | 30,6 | 21,3 |
| 5HM06 | | 2 x 1,47 | 2 x 1,5 | SM80HM../315 E3 | 73,8 | 64,0 | 60,2 | 56,1 | 51,2 | 45,0 | 37,3 | 26,1 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_5hm-p-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE HM..S | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | #RIF! | 114 | 148 | 182 | 216 | 250 | 284 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 4,8 | 6,8 | 8,9 | 10,9 | 13,0 | 15,0 | 17,0 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 5HM09 | 1 ~ | 2 x 1,50 | 2 x 1,1 | SM80HM../1115 | 67,5 | 64,6 | 61,3 | 57,4 | 52,4 | 45,8 | 37,3 | 27,2 |
| 5HM10 | | 2 x 1,71 | 2 x 1,5 | PLM90HM../1155 | 75,6 | 73,3 | 70,0 | 66,0 | 60,7 | 53,6 | 44,4 | 33,1 |
| 5HM11 | | 2 x 1,85 | 2 x 1,5 | PLM90HM../1155 | 83,0 | 80,3 | 76,6 | 72,1 | 66,2 | 58,4 | 48,1 | 35,7 |
| 5HM12 | | 2 x 1,99 | 2 x 1,5 | PLM90HM../1155 | 90,4 | 87,2 | 83,1 | 78,1 | 71,6 | 63,0 | 51,8 | 38,3 |
| 5HM09 | 3 ~ | 2 x 1,48 | 2 x 1,5 | SM80HM../315 E3 | 68,1 | 65,9 | 63,0 | 59,2 | 54,4 | 48,2 | 40,1 | 30,0 |
| 5HM10 | | 2 x 1,63 | 2 x 1,5 | SM80HM../315 E3 | 75,5 | 72,9 | 69,6 | 65,4 | 60,0 | 52,9 | 43,9 | 32,7 |
| 5HM11 | | 2 x 1,77 | 2 x 1,5 | SM80HM../315 E3 | 83,0 | 79,9 | 76,1 | 71,4 | 65,4 | 57,6 | 47,7 | 35,4 |
| 5HM12 | | 2 x 1,97 | 2 x 2,2 | PLM90HM../322 E3 | 91,0 | 88,3 | 84,4 | 79,5 | 73,1 | 64,7 | 54,0 | 40,6 |
| 5HM13 | | 2 x 2,12 | 2 x 2,2 | PLM90HM../322 E3 | 98,4 | 95,3 | 91,1 | 85,7 | 78,8 | 69,7 | 58,0 | 43,5 |
| 5HM14 | | 2 x 2,27 | 2 x 2,2 | PLM90HM../322 E3 | 106 | 102 | 97,8 | 91,9 | 84,3 | 74,5 | 61,9 | 46,2 |
| 5HM15 | | 2 x 2,41 | 2 x 2,2 | PLM90HM../322 E3 | 113 | 109 | 104 | 97,9 | 89,8 | 79,2 | 65,7 | 48,9 |
| 5HM17 | | 2 x 2,76 | 2 x 3 | PLM90HM../330 E3 | 129 | 125 | 119 | 112 | 103 | 91,2 | 75,9 | 56,9 |
| 5HM19 | | 2 x 3,06 | 2 x 3 | PLM90HM../330 E3 | 144 | 139 | 132 | 124 | 114 | 101 | 83,7 | 62,5 |
| 5HM21 | | 2 x 3,35 | 2 x 3 | PLM90HM../330 E3 | 159 | 153 | 146 | 137 | 125 | 110 | 91,3 | 67,8 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_5hm-s-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMPS e-HM
# HYDRAULIC PERFORMANCE RANGE AT 50 Hz

| PUMP TYPE HM..P | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | l/min 0 | 166,7 | 216 | 266 | 316 | 366 | 416 | 466 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 10,0 | 13,0 | 16,0 | 19,0 | 22,0 | 25,0 | 28,0 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 10HM02 | 1 ~ | 2 x 1,28 | 2 x 1,1 | SM80HM../1115 | 31,0 | 27,5 | 25,9 | 24,2 | 22,3 | 19,9 | 17,1 | 13,6 |
| 10HM03 | | 2 x 1,82 | 2 x 1,5 | PLM90HM../1155 | 46,2 | 41,0 | 38,7 | 36,3 | 33,5 | 30,2 | 25,9 | 20,7 |
| 10HM02 | 3 ~ | 2 x 1,23 | 2 x 1,1 | SM80HM../311 E3 | 31,1 | 27,8 | 26,3 | 24,6 | 22,7 | 20,4 | 17,5 | 14,1 |
| 10HM03 | | 2 x 1,75 | 2 x 1,5 | SM80HM../315 E3 | 46,2 | 40,9 | 38,6 | 36,2 | 33,4 | 30,1 | 25,8 | 20,6 |
| 10HM04 | | 2 x 2,34 | 2 x 2,2 | PLM90HM../322 E3 | 61,2 | 55,7 | 52,7 | 49,6 | 46,2 | 42,0 | 36,7 | 30,3 |
| 10HM05 | | 2 x 2,93 | 2 x 3 | PLM90HM../330 E3 | 76,6 | 69,8 | 66,2 | 62,3 | 58,0 | 52,8 | 46,2 | 38,2 |
| 10HM06 | | 2 x 3,47 | 2 x 3 | PLM90HM../330 E3 | 91,7 | 83,0 | 78,5 | 73,8 | 68,5 | 62,2 | 54,3 | 44,6 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_10hm-p-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE HM..S | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | l/min 0 | 166,7 | 216 | 266 | 316 | 366 | 416 | 466 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 10,0 | 13,0 | 16 | 19,0 | 22 | 25,0 | 28 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 10HM08 | 3 ~ | 2 x 3,34 | 2 x 3 | PLM90HM../330 E3 | 97 | 89 | 85,9 | 81,1 | 74,9 | 67,3 | 58,1 | 47,5 |
| 10HM09 | | 2 x 3,75 | 2 x 4 | PLM100HM../340 E3 | 109 | 102 | 98,3 | 93,1 | 86,3 | 77,9 | 67,7 | 55,7 |
| 10HM10 | | 2 x 4,13 | 2 x 4 | PLM100HM../340 E3 | 121 | 113 | 108,6 | 102,8 | 95,2 | 85,7 | 74,4 | 61,1 |
| 10HM11 | | 2 x 4,51 | 2 x 4 | PLM100HM../340 E3 | 133 | 124 | 119 | 112 | 104 | 93,5 | 81,0 | 66,4 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_10hm-s-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE HM..S | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | l/min 0 | 266 | 356 | 446 | 536 | 626 | 716 | 800 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 16 | 21,4 | 26,8 | 32,2 | 37,6 | 43,0 | 48 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 15HM02 | 3 ~ | 2 x 1,63 | 2 x 1,5 | SM80HM../315 E3 | 28,8 | 26,3 | 25,2 | 23,8 | 21,8 | 19,2 | 15,7 | 11,7 |
| 15HM03 | | 2 x 2,56 | 2 x 2,2 | PLM90HM../322 E3 | 43,6 | 39,6 | 37,9 | 35,8 | 33,1 | 29,7 | 25,4 | 20,6 |
| 15HM04 | | 2 x 3,40 | 2 x 3 | PLM90HM../330 E3 | 58,1 | 52,8 | 50,6 | 47,7 | 44,2 | 39,6 | 33,8 | 27,4 |
| 15HM05 | | 2 x 4,21 | 2 x 4 | PLM100HM../340 E3 | 72,9 | 66,7 | 63,9 | 60,5 | 56,1 | 50,5 | 43,3 | 35,3 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_15hm-s-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE HM..S | VERSION | ELECRTIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | l/min 0 | #RIF! | 466 | 566 | 666 | 766 | 866 | 966 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 22 | 28 | 34 | 40 | 46 | 52 | 58 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 22HM02 | 3 ~ | 2 x 2,36 | 2 x 2,2 | PLM90HM../322 E3 | 30,2 | 28,0 | 26,7 | 25,0 | 22,7 | 19,5 | 15,4 | 10,4 |
| 22HM03 | | 2 x 3,38 | 2 x 3 | PLM90HM../330 E3 | 45,6 | 41,9 | 40,2 | 38,0 | 35,1 | 31,3 | 26,4 | 20,4 |
| 22HM04 | | 2 x 4,44 | 2 x 4 | PLM100HM../340 E3 | 61,0 | 56,3 | 54,0 | 51,1 | 47,3 | 42,3 | 35,8 | 27,9 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_22hm-s-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-HM ELECTRICAL DATA TABLE

| PUMP TYPE HM..P | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 | PN | TYPE | 1x(220-240)Vac |
| | | kW | kW | | A |
| 3HM02 | 1 ~ | 2 X 0,49 | 2 X 0,55 | SM71HM../1055 | 4,4 |
| 3HM03 | | 2 X 0,63 | 2 X 0,55 | SM71HM../1055 | 5,4 |
| 3HM04 | | 2 X 0,76 | 2 X 0,55 | SM71HM../1055 | 6,6 |
| 3HM05 | | 2 X 0,96 | 2 X 0,75 | SM80HM../1075 | 8,4 |
| 3HM06 | | 2 X 1,16 | 2 X 1,1 | SM80HM../1115 | 10,2 |
| | | | | | GMD |
| | | | | | 3x(380-415)Vac |
| | | | | | A |
| 3HM02 | 3 ~ | 2 X 0,43 | 2 X 0,3 | SM63HM../303 | 2,2 |
| 3HM03 | | 2 X 0,57 | 2 X 0,4 | SM63HM../304 | 2,7 |
| 3HM04 | | 2 X 0,72 | 2 X 0,5 | SM63HM../305 | 3,1 |
| 3HM05 | | 2 X 0,92 | 2 X 0,75 | SM80HM../307 E3 | 3,4 |
| 3HM06 | | 2 X 1,1 | 2 X 1,1 | SM80HM../311 E3 | 4,3 |
| PUMP TYPE HM..S | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
| | | | MOTOR | | GXS |
| | | * P1 | PN | TYPE | 1x(220-240)Vac |
| | | kW | kW | | A |
| 3HM10 | 1 ~ | 2 X 1,126 | 2 X 1,1 | SM80HM../1115 | 9,9 |
| 3HM11 | | 2 X 1,211 | 2 X 1,1 | SM80HM../1115 | 10,6 |
| 3HM12 | | 2 X 1,297 | 2 X 1,1 | SM80HM../1115 | 11,4 |
| 3HM13 | | 2 X 1,384 | 2 X 1,1 | SM80HM../1115 | 12,2 |
| 3HM14 | | 2 X 1,47 | 2 X 1,1 | SM80HM../1115 | 13,1 |
| 3HM16 | | 2 X 1,713 | 2 X 1,5 | PLM90HM../1155 | 15,5 |
| 3HM17 | | 2 X 1,801 | 2 X 1,5 | PLM90HM../1155 | 16,3 |
| 3HM19 | | 2 X 1,978 | 2 X 1,5 | PLM90HM../1155 | 17,9 |
| | | | | | GMD |
| | | | | | 3x(380-415)Vac |
| | | | | | A |
| 3HM10 | 3 ~ | 2 X 1,04 | 2 X 1,1 | SM80HM../311 E3 | 4,2 |
| 3HM11 | | 2 X 1,13 | 2 X 1,1 | SM80HM../311 E3 | 4,4 |
| 3HM12 | | 2 X 1,23 | 2 X 1,1 | SM80HM../311 E3 | 4,6 |
| 3HM13 | | 2 X 1,32 | 2 X 1,1 | SM80HM../311 E3 | 4,8 |
| 3HM14 | | 2 X 1,42 | 2 X 1,5 | SM80HM../315 E3 | 5,6 |
| 3HM16 | | 2 X 1,61 | 2 X 1,5 | SM80HM../315 E3 | 6,0 |
| 3HM17 | | 2 X 1,70 | 2 X 1,5 | SM80HM../315 E3 | 6,3 |
| 3HM19 | | 2 X 1,93 | 2 X 2,2 | PLM90HM../322 E3 | 7,8 |
| 3HM21 | | 2 X 2,11 | 2 X 2,2 | PLM90HM../322 E3 | 8,3 |

The current shown is the nominal current of set

2p_catemea_3hm-p-s-2p50-en_b_te

* Maximum value in specific range: P1 = input power

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-HM ELECTRICAL DATA TABLE

| PUMP TYPE HM..P | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 | PN | TYPE | 1x(220-240)Vac |
| | | kW | kW | | A |
| 5HM02 | 1 ~ | 2 X 0,59 | 2 X 0,55 | SM71HM../1055 | 5,1 |
| 5HM03 | | 2 X 0,78 | 2 X 0,55 | SM71HM../1055 | 6,7 |
| 5HM04 | | 2 X 1,03 | 2 X 0,75 | SM80HM../1075 | 9,2 |
| 5HM05 | | 2 X 1,29 | 2 X 1,1 | SM80HM../1115 | 11,3 |
| 5HM06 | | 2 X 1,50 | 2 X 1,1 | SM80HM../1115 | 13,3 |
| | | | | | GMD |
| | | | | | 3x(400-415)Vac |
| | | | | | A |
| 5HM02 | 3 ~ | 2 X 0,53 | 2 X 0,4 | SM63HM../304 | 2,7 |
| 5HM03 | | 2 X 0,73 | 2 X 0,5 | SM63HM../305 | 3,1 |
| 5HM04 | | 2 X 1,01 | 2 X 1,1 | SM80HM../311 E3 | 4,2 |
| 5HM05 | | 2 X 1,23 | 2 X 1,1 | SM80HM../311 E3 | 4,6 |
| 5HM06 | | 2 X 1,47 | 2 X 1,5 | SM80HM../315 E3 | 5,7 |
| PUMP TYPE HM..S | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
| | | | MOTOR | | GXS |
| | | * P1 | PN | TYPE | 1x(220-240)Vac |
| | | kW | kW | | A |
| 5HM09 | 1 ~ | 2 X 1,50 | 2 X 1,1 | SM80HM../1115 | 13,4 |
| 5HM10 | | 2 X 1,71 | 2 X 1,5 | PLM90HM../1155 | 15,5 |
| 5HM11 | | 2 X 1,85 | 2 X 1,5 | PLM90HM../1155 | 16,7 |
| 5HM12 | | 2 X 1,99 | 2 X 1,5 | PLM90HM../1155 | 18,0 |
| | | | | | GMD |
| | | | | | 3x(400-415)Vac |
| | | | | | A |
| 5HM09 | 3 ~ | 2 X 1,48 | 2 X 1,5 | SM80HM../315 E3 | 5,7 |
| 5HM10 | | 2 X 1,63 | 2 X 1,5 | SM80HM../315 E3 | 6,1 |
| 5HM11 | | 2 X 1,77 | 2 X 1,5 | SM80HM../315 E3 | 6,4 |
| 5HM12 | | 2 X 1,97 | 2 X 2,2 | PLM90HM../322 E3 | 7,9 |
| 5HM13 | | 2 X 2,12 | 2 X 2,2 | PLM90HM../322 E3 | 8,2 |
| 5HM14 | | 2 X 2,27 | 2 X 2,2 | PLM90HM../322 E3 | 8,6 |
| 5HM15 | | 2 X 2,41 | 2 X 2,2 | PLM90HM../322 E3 | 8,9 |
| 5HM17 | | 2 X 2,76 | 2 X 3 | PLM90HM../330 E3 | 11,3 |
| 5HM19 | | 2 X 3,06 | 2 X 3 | PLM90HM../330 E3 | 11,9 |
| 5HM21 | | 2 X 3,35 | 2 X 3 | PLM90HM../330 E3 | 12,6 |

The current shown is the nominal current of set

2p_catemea_5hm-p-s-2p50-en_b_te

* Maximum value in specific range: P1 = input power

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-HM ELECTRICAL DATA TABLE

| PUMP TYPE HM..P | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 | PN | TYPE | 1x(220-240)Vac |
| | | kW | kW | | A |
| 10HM02 | 1 ~ | 2 X 1,28 | 2 X 1,1 | SM80HM../1115 | 11,3 |
| 10HM03 | | 2 X 1,82 | 2 X 1,5 | PLM90HM../1155 | 16,5 |
| | | | | | GMD |
| | | | | | 3x(380-415)Vac |
| | | | | | A |
| 10HM02 | 3 ~ | 2 X 1,23 | 2 X 1,1 | SM80HM../311 E3 | 4,6 |
| 10HM03 | | 2 X 1,75 | 2 X 1,5 | SM80HM../315 E3 | 6,3 |
| 10HM04 | | 2 X 2,34 | 2 X 2,2 | PLM90HM../322 E3 | 8,8 |
| 10HM05 | | 2 X 2,93 | 2 X 3 | PLM90HM../330 E3 | 11,7 |
| 10HM06 | | 2 X 3,47 | 2 X 3 | PLM90HM../330 E3 | 12,9 |
| PUMP TYPE HM..S | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
| | | | MOTOR | | GMD |
| | | * P1 | PN | TYPE | 3x(380-415)Vac |
| | | kW | kW | | A |
| 10HM08 | 3 ~ | 2 X 3,34 | 2 X 3 | PLM90HM../330 E3 | 12,6 |
| 10HM09 | | 2 X 3,75 | 2 X 4 | PLM100HM../340 E3 | 13,5 |
| 10HM10 | | 2 X 4,13 | 2 X 4 | PLM100HM../340 E3 | 14,4 |
| 10HM11 | | 2 X 4,51 | 2 X 4 | PLM100HM../340 E3 | 15,4 |

The current shown is the nominal current of set

2p_catemea_10hm-p-s-2p50-en_b_te

* Maximum value in specific range: P1 = input power

| PUMP TYPE HM..S | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GMD |
| | | * P1 | PN | TYPE | 3x(380-415)Vac |
| | | kW | kW | | A |
| 15HM02 | 3 ~ | 2 X 1,63 | 2 X 1,5 | SM80HM../315 E3 | 6,1 |
| 15HM03 | | 2 X 2,56 | 2 X 2,2 | PLM90HM../322 E3 | 9,3 |
| 15HM04 | | 2 X 3,40 | 2 X 3 | PLM90HM../330 E3 | 12,8 |
| 15HM05 | | 2 X 4,21 | 2 X 4 | PLM100HM../340 E3 | 14,6 |

The current shown is the nominal current of set

2p_catemea_15hm-s-2p50-en_b_te

* Maximum value in specific range: P1 = input power

| PUMP TYPE HM..S | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GMD |
| | | * P1 | PN | TYPE | 3x(380-415)Vac |
| | | kW | kW | | A |
| 22HM02 | 3 ~ | 2 X 2,37 | 2 X 2,2 | PLM90HM../322 E3 | 8,8 |
| 22HM03 | | 2 X 3,38 | 2 X 3 | PLM90HM../330 E3 | 12,7 |
| 22HM04 | | 2 X 4,44 | 2 X 4 | PLM100HM../340 E3 | 15,1 |

The current shown is the nominal current of set

2p_catemea_22hm-s-2p50-en_b_te

* Maximum value in specific range: P1 = input power

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-HM SINGLE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | MOTOR TYPE | IEC SIZE | Construction Design | INPUT CURRENT In (A) 220-240 V | CAPACITOR µF | CAPACITOR V | DATA FOR 230 V 50 Hz VOLTAGE $min^{-1}$ | Is / In | η % | cosφ | Tn Nm | Ts/Tn | Tm/Tn | OPERATING CONDITIONS * Altitude asl m | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,55 | SM71HM../1055 E2 | 71 | SPECIAL | 3,33-3,19 | 16 | 450 | 2810 | 4,16 | 74,1 | 0,99 | 1,87 | 0,69 | 2,13 | ≤1000 | -15/45 | No |
| 0,75 | SM80HM../1075 E2 | 80 | | 4,38-4,27 | 25 | 450 | 2865 | 5,11 | 77,4 | 0,97 | 2,50 | 0,40 | 2,26 | | | |
| 1,1 | SM80HM../1115 E2 | 80 | | 6,26-5,93 | 30 | 450 | 2860 | 4,78 | 79,6 | 0,98 | 3,67 | 0,50 | 2,14 | | | |
| 1,5 | PLM90HM../1155 E2 | 90 | | 8,41-7,87 | 50 | 450 | 2890 | 6,71 | 81,3 | 0,97 | 4,95 | 0,59 | 2,78 | | | |

** Operating conditions related only to the motor. For the electric pump refer to the IOM.

1-22hm-motm_2p50-en_c_te

# THREE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | Manufacturer: Xylem Service Italia Srl, Reg. No. 07520560967, Montecchio Maggiore Vicenza - Italia. Model | IEC SIZE | Construction Design | N. of Poles | $f_N$ Hz | Data for 400 V / 50 Hz Voltage cosφ | Is / $I_N$ | $T_N$ Nm | $Ts/T_N$ | Tm/Tn |
|---|---|---|---|---|---|---|---|---|---|---|
| 0,30 | SM63HM../303 | 63 | SPECIAL | 2 | 50 | 0,63 | 4,20 | 1,04 | 4,18 | 4,12 |
| 0,40 | SM63HM../304 | 63 | | | | 0,64 | 4,35 | 1,37 | 4,14 | 4,10 |
| 0,50 | SM63HM../305 | 63 | | | | 0,69 | 4,72 | 1,75 | 4,08 | 4,00 |
| 0,55 | SM71HM../305 | 71 | | | | 0,71 | 6,25 | 1,84 | 3,96 | 3,97 |
| 0,75 | SM80HM../307 E3 | 80 | | | | 0,78 | 7,38 | 2,48 | 3,57 | 3,75 |
| 1,1 | SM80HM../311 E3 | 80 | | | | 0,79 | 8,31 | 3,63 | 3,95 | 3,95 |
| 1,5 | SM80HM../315 E3 | 80 | | | | 0,80 | 8,80 | 4,96 | 4,31 | 4,10 |
| 2,2 | PLM90HM../322 E3 | 90 | | | | 0,80 | 8,77 | 7,28 | 3,72 | 3,70 |
| 3 | PLM90HM../330 E3 | 90 | | | | 0,79 | 7,81 | 9,93 | 4,26 | 3,94 |
| 4 | PLM100HM../340 E3 | 100 | | | | 0,85 | 9,13 | 13,2 | 3,82 | 4,32 |
| 5,5 | PLM112HM../355 E3 | 112 | | | | 0,85 | 10,5 | 18,1 | 4,74 | 5,11 |

| $P_N$ kW | Voltage $U_N$ V: Δ 220 V | Δ 230 V | Δ 240 V | Y 380 V | Y 400 V | Y 415 V | Δ 380 V | Δ 400 V | Δ 415 V | Y 660 V | Y 690 V | $n_N$ $min^{-1}$ | Operating conditions ** Altitude Above Sea Level (m) | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$ (A) | | | | | | | | | | | | | | |
| 0,30 | 1,66 | 1,82 | 1,96 | 0,96 | 1,05 | 1,13 | - | - | - | - | - | 2715 ÷ 2775 | ≤ 1000 | -15 / 50 | No |
| 0,40 | 2,03 | 2,18 | 2,32 | 1,17 | 1,26 | 1,34 | - | - | - | - | - | 2745 ÷ 2800 | | | |
| 0,50 | 2,42 | 2,51 | 2,65 | 1,40 | 1,45 | 1,53 | - | - | - | - | - | 2690 ÷ 2765 | | | |
| 0,55 | 2,46 | 2,49 | 2,56 | 1,42 | 1,44 | 1,48 | - | - | - | - | - | 2835 ÷ 2865 | | | |
| 0,75 | 2,96 | 2,94 | 2,96 | 1,71 | 1,70 | 1,71 | 1,70 | 1,69 | 1,70 | 0,98 | 0,98 | 2875 ÷ 2895 | | | |
| 1,1 | 4,19 | 4,14 | 4,16 | 2,42 | 2,39 | 2,40 | 2,41 | 2,38 | 2,38 | 1,39 | 1,37 | 2870 ÷ 2900 | | | |
| 1,5 | 5,56 | 5,49 | 5,51 | 3,21 | 3,17 | 3,18 | 3,21 | 3,18 | 3,19 | 1,85 | 1,84 | 2870 ÷ 2895 | | | |
| 2,2 | 7,97 | 7,90 | 7,98 | 4,60 | 4,56 | 4,61 | 4,57 | 4,54 | 4,57 | 2,64 | 2,62 | 2880 ÷ 2900 | | | |
| 3 | 11,0 | 11,0 | 11,2 | 6,35 | 6,33 | 6,44 | 6,29 | 6,27 | 6,34 | 3,63 | 3,62 | 2865 ÷ 2895 | | | |
| 4 | 13,6 | 13,4 | 13,4 | 7,87 | 7,75 | 7,74 | 7,80 | 7,62 | 7,61 | 4,50 | 4,40 | 2885 ÷ 2910 | | | |
| 5,5 | 18,1 | 17,9 | 18,1 | 10,4 | 10,4 | 10,4 | 10,6 | 10,5 | 10,7 | 6,10 | 6,05 | 2880 ÷ 2910 | | | |

| $P_N$ kW | Efficiency $\eta_N$ % — Δ 220 V Y 380 V: 4/4 | 3/4 | 2/4 | Δ 230 V Y 400 V: 4/4 | 3/4 | 2/4 | Δ 240 V Y 415 V: 4/4 | 3/4 | 2/4 | Δ 380 V Y 660 V: 4/4 | 3/4 | 2/4 | Δ 400 V Y 690 V: 4/4 | 3/4 | 2/4 | Δ 415 V: 4/4 | 3/4 | 2/4 | IE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,30 | 67,1 | 69,6 | 65,0 | 67,1 | 66,5 | 60,2 | 67,1 | 63,3 | 55,7 | - | - | - | - | - | - | - | - | - | 2 |
| 0,40 | 70,4 | 73,2 | 68,9 | 70,4 | 70,3 | 64,5 | 70,4 | 67,2 | 60,2 | - | - | - | - | - | - | - | - | - | |
| 0,50 | 73,0 | 76,1 | 73,4 | 73,0 | 73,8 | 69,6 | 73,0 | 71,3 | 65,7 | - | - | - | - | - | - | - | - | - | |
| 0,55 | 74,1 | 74,2 | 70,4 | 74,1 | 73,6 | 68,8 | 74,1 | 72,7 | 67,1 | - | - | - | - | - | - | - | - | - | |
| 0,75 | 82,5 | 83,1 | 81,3 | 82,8 | 82,7 | 80,1 | 82,6 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 3 |
| 1,1 | 84,0 | 84,7 | 83,4 | 84,4 | 84,5 | 82,5 | 84,3 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | |
| 1,5 | 85,6 | 86,5 | 85,8 | 85,9 | 86,4 | 84,9 | 86,0 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | |
| 2,2 | 86,5 | 87,4 | 86,8 | 86,4 | 86,9 | 85,7 | 86,6 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | |
| 3 | 87,2 | 88,5 | 88,3 | 87,5 | 88,2 | 87,5 | 87,5 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | |
| 4 | 89,1 | 90,1 | 89,2 | 89,1 | 90,1 | 89,2 | 89,1 | 90,1 | 89,2 | 89,1 | 90,3 | 90,4 | 89,6 | 90,4 | 89,9 | 89,6 | 90,1 | 89,2 | |
| 5,5 | 89,5 | 89,6 | 88,0 | 89,5 | 89,6 | 88,0 | 89,5 | 89,6 | 88,0 | 89,5 | 90,3 | 89,9 | 89,7 | 90,0 | 89,0 | 89,6 | 89,6 | 88,0 | |

** Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

1-22HM-ie3-mott-2p50-en_c_te

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# CHARACTERISTICS OF CEA ELECTRIC PUMPS

## PUMP DESIGN

- Close-coupled, single-impeller centrifugal pump featuring axial suction and radial discharge.
- Compact construction, with pump coupled directly to motor; special motor shaft extension in common with the pump and supported by ball bearings.
- Rotating assembly with back pull-out design, eliminating the need to disconnect the pump body from the pipe line.
- Threaded suction and discharge ports (Rp ISO 7).
- High performance enclosed impeller made of **AISI 304** stainless steel (**AISI 316** for N version).
- **Mechanical seal** with Ceramic/Carbon rings, NBR elastomers, (EPDM for N version) other parts are made of AISI 304 stainless steel (AISI 316 for N version). Mounting dimensions according to EN 12756 (ex DIN 24960) and ISO 3069.
- **O-rings** made of NBR (EPDM for N version).

## SPECIFICATIONS

### PUMP

- Delivery up to **31 m³/h**.
- Head up to **32 m**.
- Temperature of pumped liquid:
  from -10°C to +85°C for CEA (NBR elastomers).
  from -10°C to +110°C for CEA..N and for CEA..V (FKM elastomers).
- Maximum operating pressure: **8 bar** (PN 8).
- Hydraulic performance compliant with ISO 9906:2012 (Grade 3B). (ex ISO 9906:1999 - Annex A).
- Counter-clockwise rotation facing the pump from the suction port.

### MOTOR

- Asynchronous, squirrel cage rotor, close construction, external ventilation.
- Protection class:
  **IP55** as motor (EN 60034-1).
  **IPX5** as electric pump (EN 60335-1).
- **Class 155** (F) Insulation
- Performance to EN 60034-1 specifications.
- **Standard voltage**:
  - Single-phase version: 220-240 V, 50 Hz
  - Three-phase version: 220-240/380-415 V, 50 Hz.
- Condensate drain plugs in the standard version.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS CEA HYDRAULIC PERFORMANCE TABLE AT 50 Hz

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | MEI ≥ | Q = DELIVERY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | | l/min 0 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 320 |
| | | * $P_1$ | $P_N$ | TYPE | | $m^3/h$ 0 | 3,6 | 5,4 | 7,2 | 9,0 | 10,8 | 12,6 | 14,4 | 16,2 | 19,2 |
| | | kW | kW | | (1) | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | |
| 70/3 | 1 ~ | 2 X 0,55 | 2 X 0,4 | SM63BG/1045 | - | 22,2 | 20,2 | 18,8 | 16,8 | 14,1 | | | | | |
| 70/5 | | 2 X 0,91 | 2 X 0,75 | SM80BG/1075 | - | 31,9 | 29,7 | 28,3 | 26,0 | 22,8 | | | | | |
| 80/5 | | 2 X 1,06 | 2 X 1,1 | SM80BG/1115 | - | 32,6 | 30,6 | 29,6 | 28,3 | 26,5 | 24,1 | | | | |
| 120/3 | | 2 X 0,79 | 2 X 0,55 | SM71BG/1055 | 0,40 | 22,3 | | | 18,7 | 17,6 | 16,5 | 15,1 | 13,6 | 11,9 | 8,7 |
| 120/5 | | 2 X 1,30 | 2 X 1,1 | SM80BG/1115 | 0,40 | 32,1 | | | 28,5 | 27,4 | 26,1 | 24,6 | 22,9 | 21,0 | 17,6 |
| 70/3 | 3 ~ | 2 x 0,61 | 2 x 0,4 | SM63BG/304 | - | 22,1 | 20,0 | 18,7 | 16,6 | 13,8 | | | | | |
| 70/5 | | 2 x 0,88 | 2 x 0,55 | SM71BG/305 | - | 31,1 | 28,8 | 27,2 | 24,8 | 21,5 | | | | | |
| 80/5 | | 2 x 0,98 | 2 x 0,75 | SM80BG/307 PE | - | 32,1 | 30,0 | 28,9 | 27,4 | 25,5 | 23,0 | | | | |
| 120/3 | | 2 x 0,82 | 2 x 0,55 | SM71BG/305 | 0,40 | 22,5 | | | 18,9 | 17,9 | 16,8 | 15,5 | 14,0 | 12,3 | 9,1 |
| 120/5 | | 2 x 1,28 | 2 x 1,1 | SM80BG/311 PE | 0,40 | 31,9 | | | 28,2 | 27,0 | 25,7 | 24,1 | 22,4 | 20,5 | 17,1 |

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | MEI ≥ | Q = DELIVERY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | | l/min 0 | 240 | 280 | 320 | 360 | 400 | 440 | 480 | 520 | 600 |
| | | * $P_1$ | $P_N$ | TYPE | | $m^3/h$ 0 | 14,4 | 16,8 | 19,2 | 21,6 | 24,0 | 26,4 | 28,8 | 31,2 | 36,0 |
| | | kW | kW | | (1) | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | |
| 210/2 | 1 ~ | 2 X 1,11 | 2 X 1,1 | SM80BG/1115 | 0,40 | 17,9 | 16,9 | 16,5 | 16,1 | 15,6 | 15,0 | 14,4 | 13,7 | 12,9 | 11,1 |
| 210/3 | | 2 X 1,37 | 2 X 1,1 | SM80BG/1115 | 0,40 | 20,7 | 19,6 | 19,3 | 18,9 | 18,4 | 17,9 | 17,3 | 16,7 | 15,9 | 14,2 |
| 210/4 | | 2 X 1,81 | 2 X 1,5 | PLM90BG/1155 | 0,40 | 25,6 | 24,9 | 24,5 | 24,1 | 23,7 | 23,1 | 22,4 | 21,7 | 20,9 | 19,1 |
| 210/2 | 3 ~ | 2 x 1,04 | 2 x 0,75 | SM80BG/307 PE | 0,40 | 17,7 | 16,5 | 16,1 | 15,6 | 15,1 | 14,4 | 13,8 | 13,0 | 12,2 | 10,4 |
| 210/3 | | 2 x 1,35 | 2 x 1,1 | SM80BG/311 PE | 0,40 | 20,8 | 19,7 | 19,4 | 19,0 | 18,6 | 18,0 | 17,5 | 16,8 | 16,1 | 14,4 |
| 210/4 | | 2 x 1,73 | 2 x 1,5 | SM80BG/315 PE | 0,40 | 25,6 | 24,8 | 24,5 | 24,1 | 23,6 | 23,0 | 22,4 | 21,6 | 20,8 | 19,0 |
| 210/5 | | 2 x 2,2 | 2 x 2,2 | PLM90BG/322 E3 | 0,40 | 29,0 | 28,2 | 27,9 | 27,5 | 27,1 | 26,6 | 26,0 | 25,4 | 24,7 | 23,1 |

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | MEI ≥ | Q = DELIVERY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MOTOR | | | | l/min 0 | 360 | 450 | 540 | 630 | 720 | 810 | 900 | 990 | 1040 |
| | | * $P_1$ | $P_N$ | TYPE | | $m^3/h$ 0 | 21,6 | 27,0 | 32,4 | 37,8 | 43,2 | 48,6 | 54,0 | 59,4 | 62,4 |
| | | kW | kW | | (1) | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | |
| 370/1 | 1 ~ | 2 X 1,4 | 2 X 1,1 | SM80BG/1115 | 0,40 | 16,3 | 15,5 | 14,7 | 13,7 | 12,4 | 10,9 | 9,1 | | | |
| 370/2 | | 2 X 1,95 | 2 X 1,5 | PLM90BG/1155 | 0,40 | 20,4 | | 18,8 | 17,9 | 16,9 | 15,6 | 14,1 | 12,3 | | |
| 370/1 | 3 ~ | 2 x 1,4 | 2 x 1,1 | SM80BG/311 PE | 0,40 | 16,3 | 15,5 | 14,8 | 13,8 | 12,6 | 11,0 | 9,2 | | | |
| 370/2 | | 2 x 1,95 | 2 x 1,5 | SM80BG/315 PE | 0,40 | 20,4 | | 18,7 | 17,9 | 16,8 | 15,5 | 13,9 | 12,1 | | |
| 370/3 | | 2 x 2,45 | 2 x 2,2 | PLM90BG/322 E3 | 0,40 | 24,4 | | 22,5 | 21,7 | 20,7 | 19,5 | 18,1 | 16,3 | 14,3 | 13,0 |
| 370/5 | | 2 x 3,26 | 2 x 3 | PLM90BG/330 E3 | 0,40 | 30,3 | | 27,9 | 27,1 | 26,2 | 25,0 | 23,6 | 22,0 | 20,2 | 19,0 |

Hydraulic performances in compliance withi ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_cea-2p50-en_b_th

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

(1) Minimum efficiency index MEI

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMPS CEA
# HYDRAULIC PERFORMANCE TABLE AT 50 Hz

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 kW | PN kW | TYPE | 1x(220-240)Vac A |
| CEAM 70/3 | 1 ~ | 2 X 0,55 | 2 X 0,4 | SM63BG/1045 | 4,7 |
| CEAM 70/5 | | 2 X 0,91 | 2 X 0,75 | SM80BG/1075 | 8,1 |
| CEAM 80/5 | | 2 X 1,06 | 2 X 1,1 | SM80BG/1115 | 9,4 |
| CEAM 120/3 | | 2 X 0,79 | 2 X 0,55 | SM71BG/1055 | 6,9 |
| CEAM 120/5 | | 2 X 1,30 | 2 X 1,1 | SM80BG/1115 | 11,5 |
| | | | | | GMD 3x(380-415)Vac A |
| CEA 70/3 | 3 ~ | 2 x 0,61 | 2 x 0,4 | SM63BG/304 | 2,9 |
| CEA 70/5 | | 2 x 0,88 | 2 x 0,55 | SM71BG/305 | 3,3 |
| CEA 80/5 | | 2 x 0,98 | 2 x 0,75 | SM80BG/307 PE | 3,6 |
| CEA 120/3 | | 2 x 0,82 | 2 x 0,55 | SM71BG/305 | 3,2 |
| CEA 120/5 | | 2 x 1,28 | 2 x 1,1 | SM80BG/311 PE | 4,7 |

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 kW | PN kW | TYPE | 1x(220-240)Vac A |
| CEAM 210/2 | 1 ~ | 2 X 1,11 | 2 X 1,1 | SM80BG/1115 | 9,8 |
| CEAM 210/3 | | 2 X 1,37 | 2 X 1,1 | SM80BG/1115 | 12,2 |
| CEAM 210/4 | | 2 X 1,81 | 2 X 1,5 | PLM90BG/1155 | 16,5 |
| | | | | | GMD 3x(380-415)Vac A |
| CEA 210/2 | 3 ~ | 2 x 1,04 | 2 x 0,75 | SM80BG/307 PE | 3,7 |
| CEA 210/3 | | 2 x 1,35 | 2 x 1,1 | SM80BG/311 PE | 4,9 |
| CEA 210/4 | | 2 x 1,73 | 2 x 1,5 | SM80BG/315 PE | 6,3 |
| CEA 210/5 | | 2 x 2,2 | 2 x 2,2 | PLM90BG/322 E3 | 8,5 |

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 kW | PN kW | TYPE | 1x(220-240)Vac A |
| CEAM 370/1 | 1 ~ | 2 X 1,43 | 2 X 1,1 | SM80BG/1115 | 12,6 |
| CEAM 370/2 | | 2 X 1,95 | 2 X 1,5 | PLM90BG/1155 | 17,7 |
| | | | | | GMD 3x(380-415)Vac A |
| CEA 370/1 | 3 ~ | 2 x 1,4 | 2 x 1,1 | SM80BG/311 PE | 5,0 |
| CEA 370/2 | | 2 x 1,95 | 2 x 1,5 | SM80BG/315 PE | 6,9 |
| CEA 370/3 | | 2 x 2,45 | 2 x 2,2 | PLM90BG/322 E3 | 9,1 |
| CEA 370/5 | | 2 x 3,26 | 2 x 3 | PLM90BG/330 E3 | 11,7 |

The current shown is the nominal current of set

2p_cea-2p50-en_b_te

* Maximum value in specific range:P1 = input power

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS CEA SINGLE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | MOTOR TYPE | IEC SIZE | Construction Design | INPUT CURRENT In (A) 220-240 V | CAPACITOR µF | CAPACITOR V | DATA FOR 230 V 50 Hz VOLTAGE $min^{-1}$ | Is / In | η % | cosφ | Tn Nm | Ts/Tn | Tm/Tn | OPERATING CONDITIONS * Altitude asl m | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,4 | SM63BG/1045 | 63 | SPECIAL | 2,52-2,41 | 16 | 450 | 2800 | 3,24 | 70,4 | 0,99 | 1,36 | 0,66 | 1,98 | ≤1000 | -15/45 | No |
| 0,55 | SM71BG/1055 | 71 | | 3,33-3,19 | 16 | 450 | 2810 | 4,16 | 74,1 | 0,99 | 1,87 | 0,69 | 2,13 | | | |
| 0,75 | SM80BG/1075 | 80 | | 4,38-4,27 | 25 | 450 | 2865 | 5,11 | 77,4 | 0,97 | 2,50 | 0,40 | 2,26 | | | |
| 1,1 | SM80BG/1115 | 80 | | 6,26-5,93 | 30 | 450 | 2860 | 4,78 | 79,6 | 0,98 | 3,67 | 0,50 | 2,14 | | | |
| 1,5 | PLM90CEA-CO/1155 E2 | 90 | | 8,41-7,87 | 50 | 450 | 2890 | 6,71 | 81,3 | 0,97 | 4,95 | 0,59 | 2,78 | | | |

** Operating conditions related only to the motor. For the electric pump refer to the IOM.

cea-motm-2p50-en_d_te

# THREE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | Manufacturer: Xylem Service Italia Srl, Reg. No. 07520560967, Montecchio Maggiore Vicenza - Italia; Model | IEC SIZE | Construction Design | N. of Poles | $f_N$ Hz | Data for 400 V / 50 Hz Voltage cosφ | Is / $I_N$ | $T_N$ Nm | $Ts/T_N$ | Tm/Tn |
|---|---|---|---|---|---|---|---|---|---|---|
| 0,4 | SM63BG/304 | 63 | SPECIALE | 2 | 50 | 0,64 | 4,35 | 1,37 | 4,14 | 4,10 |
| 0,55 | SM71BG/305 | 71 | | | | 0,71 | 6,25 | 1,84 | 3,96 | 3,97 |
| 0,75 | SM80BG/307 PE | 80 | | | | 0,78 | 7,38 | 2,48 | 3,57 | 3,75 |
| 1,1 | SM80BG/311 PE | 80 | | | | 0,79 | 8,31 | 3,63 | 3,95 | 3,95 |
| 1,5 | SM80BG/315 PE | 80 | | | | 0,80 | 8,80 | 4,96 | 4,31 | 4,10 |
| 2,2 | PLM90BG/322 E3 | 90 | | | | 0,80 | 8,77 | 7,28 | 3,72 | 3,70 |
| 3 | PLM90BG/330 E3 | 90 | | | | 0,79 | 7,81 | 9,93 | 4,26 | 3,94 |

| $P_N$ kW | Voltage $U_N$ V: Δ 220 V | Δ 230 V | Δ 240 V | Y 380 V | Y 400 V | Y 415 V | Δ 380 V | Δ 400 V | Δ 415 V | Y 660 V | Y 690 V | $n_N$ $min^{-1}$ | Operating conditions ** Altitude Above Sea Level (m) | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$ (A) | | | | | | | | | | | | | | |
| 0,4 | 2,03 | 2,18 | 2,32 | 1,17 | 1,26 | 1,34 | - | - | - | - | - | 2745 ÷ 2800 | ≤ 1000 | -15 / 40 | No |
| 0,55 | 2,46 | 2,49 | 2,56 | 1,43 | 1,44 | 1,48 | - | - | - | - | - | 2835 ÷ 2865 | | | |
| 0,75 | 2,96 | 2,94 | 2,96 | 1,71 | 1,70 | 1,71 | 1,70 | 1,69 | 1,70 | 0,98 | 0,98 | 2875 ÷ 2895 | | | |
| 1,1 | 4,19 | 4,14 | 4,16 | 2,42 | 2,39 | 2,40 | 2,41 | 2,38 | 2,38 | 1,39 | 1,37 | 2870 ÷ 2900 | | | |
| 1,5 | 5,56 | 5,49 | 5,51 | 3,21 | 3,17 | 3,18 | 3,21 | 3,18 | 3,19 | 1,85 | 1,84 | 2870 ÷ 2895 | | | |
| 2,2 | 7,97 | 7,90 | 7,98 | 4,60 | 4,56 | 4,61 | 4,57 | 4,54 | 4,57 | 2,64 | 2,62 | 2880 ÷ 2900 | | | |
| 3 | 11,0 | 11,0 | 11,2 | 6,35 | 6,33 | 6,44 | 6,29 | 6,27 | 6,34 | 3,63 | 3,62 | 2865 ÷ 2895 | | | |

| $P_N$ kW | Efficiency $\eta_N$: Δ 220 V Y 380 V 4/4 | 3/4 | 2/4 | Δ 230 V Y 400 V 4/4 | 3/4 | 2/4 | Δ 240 V Y 415 V 4/4 | 3/4 | 2/4 | Δ 380 V Y 660 V 4/4 | 3/4 | 2/4 | Δ 400 V Y 690 V 4/4 | 3/4 | 2/4 | Δ 415 V 4/4 | 3/4 | 2/4 | IE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,4 | 70,4 | 73,2 | 68,9 | 70,4 | 70,3 | 64,5 | 70,4 | 67,2 | 60,2 | - | - | - | - | - | - | - | - | - | 2 |
| 0,55 | 74,1 | 74,2 | 70,4 | 74,1 | 73,6 | 68,8 | 74,1 | 72,7 | 67,1 | - | - | - | - | - | - | - | - | - | |
| 0,75 | 82,5 | 83,1 | 81,3 | 82,8 | 82,7 | 80,1 | 82,6 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 3 |
| 1,1 | 84,0 | 84,7 | 83,4 | 84,4 | 84,5 | 82,5 | 84,3 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | |
| 1,5 | 85,6 | 86,5 | 85,8 | 85,9 | 86,4 | 84,9 | 86,0 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | |
| 2,2 | 86,5 | 87,4 | 86,8 | 86,4 | 86,9 | 85,7 | 86,6 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | |
| 3 | 87,2 | 88,5 | 88,3 | 87,5 | 88,2 | 87,5 | 87,5 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | |

** Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

cea-IE3-mott-2p50-en_c_te

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# CHARACTERISTICS OF BG ELECTRIC PUMPS

## PUMP DESIGN

The **BG** are self-priming close-coupled centrifugal pumps with built-in ejector system, designed to remain primed even in the presence of water-dissolved gases. The extensive use of pressed stainless steel ensures a high-performance, durable and lightweight pump. Suitable for use with drinking water.

## SPECIFICATIONS

### PUMP

- Delivery up to **4,2 m³/h**.
- Head up to **53 m**.
- Temperature of pumped liquid: from -10°C to +40°C
- Maximum working **pressure**: 8 bar (PN 8).
- **Maximum total lift**: 8 m.
- Hydraulic performance compliant with ISO 9906:2012 (Grade 3B). (ex ISO 9906:1999 - Annex A).
- Counter-clockwise rotation facing the pump from the suction port.

### MOTOR

- Asynchronous, squirrel cage rotor, enclosed construction in aluminum casing, external ventilation.
- **Protection**: IP55.
- Class 155 (F) **insulation**.
- Performances according to EN 60034-1.
- **Standard voltage**:

- **Single-phase** version:
  220-240 V 50 Hz, 2 poles with built-in automatic reset overload protection.
- **Three-phase** version:
  220-240/380-415 V 50 Hz;
  overload protection to be provided by the user.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMPS BG
# HYDRAULIC PERFORMANCE TABLE AT 50 Hz

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | Q = DELIVERY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 20 | 35 | 50 | 65 | 80 | 95 | 110 | 125 | 140 |
| | | * P1 | PN | TYPE | m3/h 0 | 1,2 | 2,1 | 3,0 | 3,9 | 4,8 | 5,7 | 6,6 | 7,5 | 8,4 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | |
| BGM3 | 1 ~ | 2 X 0,67 | 2 X 0,4 | SM71BG/1055 | 38,9 | 32,5 | 28,5 | 25,2 | 22,1 | 19,2 | 16,3 | | | |
| BGM5 | | 2 X 0,85 | 2 X 0,75 | SM71BG/1075 | 41,5 | 37,1 | 34,2 | 31,7 | 29,3 | 27,0 | 24,6 | 22,0 | | |
| BGM7 | | 2 X 1,04 | 2 X 0,8 | SM71BG/1075 | 45,6 | | | 36,6 | 34,2 | 31,8 | 29,5 | 27,3 | | |
| BGM11 | | 2 X 1,34 | 2 X 1,1 | SM80BG/1115 | 52,9 | | | 43,9 | 41,5 | 39,2 | 37,0 | 34,7 | 32,4 | 30,0 |
| BG3 | 3 ~ | 2 X 0,68 | 2 X 0,37 | SM63BG/304 | 36,9 | 30,6 | 26,8 | 23,5 | 20,6 | 17,7 | 14,8 | | | |
| BG5 | | 2 X 0,81 | 2 X 0,55 | SM71BG/305 | 40,2 | 35,7 | 32,9 | 30,3 | 28,0 | 25,7 | 23,3 | 20,7 | | |
| BG7 | | 2 X 1,02 | 2 X 0,75 | SM80BG/307PE | 45,4 | | | 36,5 | 34,0 | 31,7 | 29,4 | 27,1 | | |
| BG9 | | 2 X 1,11 | 2 X 0,9 | SM80BG/311PE | 49,6 | | | 39,4 | 37,0 | 34,8 | 32,8 | 30,9 | 29,2 | |
| BG11 | | 2 X 1,3 | 2 X 1,1 | SM80BG/311PE | 53,2 | | | 44,1 | 41,8 | 39,5 | 37,3 | 35,0 | 32,7 | 30,3 |

Maximum delivery depends on geodetic suction lift with clean 8 m pipe and 1¼" foot valve. 2p_bg-2p50-en_b_th

Hydraulic performances in compliance withi ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A)

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

The table refers to performance with 2 pumps running.

# ELECTRICAL DATA TABLE AT 50 Hz

| PUMP TYPE | VERSION | ELECTRIC PUMP | | | CURRENT ABSORBED |
|---|---|---|---|---|---|
| | | | MOTOR | | GXS |
| | | * P1 | PN | TYPE | 1x(220-240)Vac |
| | | kW | kW | | A |
| BGM3 | 1 ~ | 2 X 0,67 | 2 X 0,4 | SM71BG/1055 | 5,7 |
| BGM5 | | 2 X 0,85 | 2 X 0,75 | SM71BG/1075 | 7,6 |
| BGM7 | | 2 X 1,04 | 2 X 0,8 | SM71BG/1075 | 9,3 |
| BGM11 | | 2 X 1,34 | 2 X 1,1 | SM80BG/1115 | 11,8 |
| | | | | | GMD |
| | | | | | 3x(380-415)Vac |
| | | | | | A |
| BG3 | 3 ~ | 2 X 0,68 | 2 X 0,37 | SM63BG/304 | 3,0 |
| BG5 | | 2 X 0,81 | 2 X 0,55 | SM71BG/305 | 3,2 |
| BG7 | | 2 X 1,02 | 2 X 0,75 | SM80BG/307PE | 3,7 |
| BG9 | | 2 X 1,11 | 2 X 0,9 | SM80BG/311PE | 4,4 |
| BG11 | | 2 X 1,3 | 2 X 1,1 | SM80BG/311PE | 4,8 |

The current shown is the nominal current of set 2p_bg-2p50-en_b_te

* Maximum value in specific range: P1 = input power

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS BG SINGLE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | MOTOR TYPE | IEC SIZE | Construction Design | INPUT CURRENT In (A) 220-240 V | CAPACITOR $\mu$F | CAPACITOR V | DATA FOR 230 V 50 Hz VOLTAGE $min^{-1}$ | Is / In | η % | cosφ | Tn Nm | Ts/Tn | Tm/Tn | Operating conditions * Altitude A.S.L. m | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,55 | SM71BG/1055 | 71 | SPECIAL | 3,33-3,19 | 16 | 450 | 2810 | 4,16 | 74,1 | 0,99 | 1,87 | 0,69 | 2,13 | ≤ 1000 | -15 / 40 | No |
| 0,75 | SM80BG/1075 | 80 | | 4,38-4,27 | 25 | 450 | 2865 | 5,11 | 77,4 | 0,97 | 2,50 | 0,40 | 2,26 | | | |
| 0,8 | SM80BG/1085 | 80 | | 4,71-4,52 | 25 | 450 | 2850 | 4,79 | 77,8 | 0,97 | 2,68 | 0,37 | 2,11 | | | |
| 1,1 | SM80BG/1115 | 80 | | 6,26-5,93 | 30 | 450 | 2860 | 4,78 | 79,6 | 0,98 | 3,67 | 0,50 | 2,14 | | | |

* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

bg-motm_2p50-en_c_te

# THREE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | Manufacturer: Xylem Service Italia Srl, Reg. No. 07520560967, Montecchio Maggiore Vicenza - Italia; Model | IEC SIZE | Construction Design | N. of Poles | $f_N$ Hz | Data for 400 V / 50 Hz Voltage cosφ | Is / $I_N$ | $T_N$ Nm | $Ts/T_N$ | Tm/Tn |
|---|---|---|---|---|---|---|---|---|---|---|
| 0,40 | SM63BG/304 | 63 | SPECIAL | 2 | 50 | 0,64 | 4,35 | 1,37 | 4,14 | 3,13 |
| 0,55 | SM71BG/305 | 71 | | | | 0,74 | 5,97 | 1,85 | 3,74 | 3,56 |
| 0,75 | SM80BG/307 PE | 80 | | | | 0,78 | 7,38 | 2,48 | 3,57 | 3,75 |
| 1,1 | SM80BG/311 PE | 80 | | | | 0,79 | 8,31 | 3,63 | 3,95 | 3,95 |

| $P_N$ kW | Voltage $U_N$ V: Δ 220 V | Δ 230 V | Δ 240 V | Y 380 V | Y 400 V | Y 415 V | Δ 380 V | Δ 400 V | Δ 415 V | Y 660 V | Y 690 V | $n_N$ $min^{-1}$ | Operating conditions * Altitude Above Sea Level (m) | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$ (A) | | | | | | | | | | | | | | |
| 0,40 | 2,03 | 2,18 | 2,32 | 1,17 | 1,26 | 1,34 | - | - | - | - | - | 2745 ÷ 2800 | ≤ 1000 | -15 / 40 | No |
| 0,55 | 2,46 | 2,49 | 2,56 | 1,42 | 1,44 | 1,48 | - | - | - | - | - | 2835 ÷ 2865 | | | |
| 0,75 | 2,96 | 2,94 | 2,96 | 1,71 | 1,70 | 1,71 | 1,70 | 1,69 | 1,70 | 0,98 | 0,98 | 2875 ÷ 2895 | | | |
| 1,1 | 4,19 | 4,14 | 4,16 | 2,42 | 2,39 | 2,40 | 2,41 | 2,38 | 2,38 | 1,39 | 1,37 | 2870 ÷ 2900 | | | |

| $P_N$ kW | Δ 220 V Y 380 V 4/4 | 3/4 | 2/4 | Δ 230 V Y 400 V 4/4 | 3/4 | 2/4 | Δ 240 V Y 415 V 4/4 | 3/4 | 2/4 | Δ 380 V Y 660 V 4/4 | 3/4 | 2/4 | Δ 400 V Y 690 V 4/4 | 3/4 | 2/4 | Δ 415 V 4/4 | 3/4 | 2/4 | IE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,40 | 70,4 | 73,2 | 68,9 | 70,4 | 70,3 | 64,5 | 70,4 | 67,2 | 60,2 | - | - | - | - | - | - | - | - | - | 2 |
| 0,55 | 74,1 | 74,2 | 70,4 | 74,1 | 73,6 | 68,8 | 74,1 | 72,7 | 67,1 | - | - | - | - | - | - | - | - | - | |
| 0,75 | 82,5 | 83,1 | 81,3 | 82,8 | 82,7 | 80,1 | 82,6 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 3 |
| 1,1 | 84,0 | 84,7 | 83,4 | 84,4 | 84,5 | 82,5 | 84,3 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | |

* Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

bg-IE3-mott-2p50-en_b_te

# BOOSTER SETS GXS AND GMD SERIES
# CHARACTERISTICS OF e-SV ELECTRIC PUMPS
## PUMP DESIGN

The **e-SV** pump is a non-self priming vertical multistage pump coupled to a standard motor.

- The liquid end, located between the upper cover and the pump casing, is held in place by tie rods.
- The pump casing is available with different configurations and connection types.
- The following versions are available:
  - **F**: round flanges, in-line delivery and suction ports, AISI 304.
  - **T**: oval flanges, in-line delivery and suction ports, AISI 304.
  - **R**: round flanges, delivery port above the suction port, with four adjustable positions, AISI 304.
  - **N**: round flanges, in-line delivery and suction ports, AISI 316.
  - **V**: Victaulic® couplings, in-line delivery and suction ports, AISI 316.
  - **P**: reinforced sleeve, Victaulic® couplings, in-line delivery and suction ports, AISI 316.
  - **C**: Clamp couplings (DIN 32676), in-line delivery and suction ports, AISI 316.
  - **K**: threaded couplings, (DIN 11851), in-line delivery and suction ports, AISI 316.
- **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.
- Versions with round flanges that can be coupled to counter-flanges, according to EN 1092.
- Threaded, oval counter-flanges made of stainless steel are standard supply for the T versions.
- Round counter-flanges made of stainless steel are available on request for the F, R and N versions.
- Easy maintenance. No special tools required for assembly or disassembly.

## SPECIFICATIONS

### PUMP

- Delivery: up to **29 m³/h**.
- Head: up to **160 m**.
- Temperature of pumped liquid:
  - from -30°C to +120°C for standard version.
- Maximum operating **pressure**:
  - 1, 3, 5, 10, 15, 22SV with oval flanges: 16 bar (PN16).
  - 1, 3, 5, 10, 15, 22SV with round flanges: 25 bar (PN25).
- Hydraulic performance compliant with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A).
- Direction of rotation: clockwise looking at the pump from the top down (marked with an arrow on the adapter and on the coupling).

### MOTOR

- Squirrel cage in short circuit, enclosed construction with external ventilation.
- IP55 protection.
- Class 155 (F) insulation.
- Performances according to EN 60034-1.
- Standard voltage:
  - Single-phase version: 220-240 V, 50 Hz.
  - Three-phase version: 220-240/380-415 V, 50 Hz for power up to 3 kW, 380-415/660-690 V, 50 Hz for power above 3 kW.
- Supplied **single-phase** surface motors with **IE2** efficiency level
- Supplied **three-phase** surface motors with **IE2** efficiency level (power < 0,75 kW) or **IE3** efficiency level (power ≥ 0,75 kW) as standard according to EN 60034-30:2009 and EN 60034-30-1:2014.

Inlet pressure of the pump plus static pressure of the water within the pump cannot exceed the nominal pressure (PN). Using different motors from those provided could limit inlet pressure.
In this event please contact customer services.

**The pumps for drinking water use are WRAS, ACS and D.M. 174 certified for F, T, R, N versions.**

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMPS e-SV
# HYDRAULIC PERFORMANCE TABLE AT 50 Hz

| PUMP TYPE | RATED POWER | MEI ≥ | Q = DELIVERY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | l/min 0 | 24 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 120 | 146 |
| | | | $m^3/h$ 0 | 1,4 | 2,4 | 3,0 | 3,6 | 4,2 | 4,8 | 5,4 | 6,0 | 7,2 | 8,8 |
| | kW | (1) | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | | |
| 3SV02 | 2 x 0,37 | 0,70 | 14,9 | | 14,5 | 14,3 | 14,0 | 13,5 | 13,0 | 12,4 | 11,7 | 9,8 | 6,5 |
| 3SV03 | 2 x 0,37 | 0,70 | 22,0 | | 21,2 | 20,8 | 20,3 | 19,6 | 18,7 | 17,7 | 16,6 | 13,7 | 8,6 |
| 3SV04 | 2 x 0,37 | 0,70 | 28,9 | | 27,7 | 27,1 | 26,2 | 25,2 | 23,9 | 22,5 | 20,8 | 16,8 | 10,1 |
| 3SV05 | 2 x 0,55 | 0,70 | 37,2 | | 36,4 | 35,8 | 35,0 | 33,9 | 32,6 | 31,1 | 29,2 | 24,5 | 16,2 |
| 3SV06 | 2 x 0,55 | 0,70 | 44,4 | | 43,4 | 42,6 | 41,6 | 40,2 | 38,6 | 36,6 | 34,3 | 28,5 | 18,5 |
| 3SV07 | 2 x 0,75 | 0,70 | 52,5 | | 51,8 | 51,0 | 50,0 | 48,7 | 47,0 | 45,0 | 42,5 | 36,1 | 24,6 |
| 3SV08 | 2 x 0,75 | 0,70 | 60,0 | | 59,1 | 58,2 | 57,0 | 55,4 | 53,4 | 51,0 | 48,1 | 40,7 | 27,5 |
| 3SV09 | 2 x 1,1 | 0,70 | 67,7 | | 66,8 | 65,8 | 64,5 | 62,8 | 60,6 | 57,9 | 54,6 | 46,4 | 31,6 |
| 3SV10 | 2 x 1,1 | 0,70 | 75,0 | | 73,8 | 72,7 | 71,3 | 69,3 | 66,9 | 63,8 | 60,2 | 51,0 | 34,5 |
| 3SV11 | 2 x 1,1 | 0,70 | 82,3 | | 81,0 | 79,7 | 78,0 | 75,8 | 73,1 | 69,7 | 65,7 | 55,5 | 37,4 |
| 3SV12 | 2 x 1,1 | 0,70 | 89,6 | | 87,8 | 86,4 | 84,5 | 82,1 | 79,1 | 75,5 | 71,1 | 59,9 | 40,1 |
| 3SV13 | 2 x 1,5 | 0,70 | 98,1 | | 96,7 | 95,4 | 93,5 | 91,0 | 87,8 | 83,9 | 79,2 | 67,2 | 45,6 |
| 3SV14 | 2 x 1,5 | 0,70 | 105,6 | | 104,1 | 102,5 | 100,4 | 97,7 | 94,2 | 89,9 | 84,8 | 71,8 | 48,5 |
| 3SV16 | 2 x 1,5 | 0,70 | 119,9 | | 117,8 | 116,1 | 113,6 | 110,5 | 106,5 | 101,6 | 95,8 | 80,9 | 54,2 |
| 3SV19 | 2 x 2,2 | 0,70 | 144,3 | | 142,3 | 140,3 | 137,5 | 133,9 | 129,2 | 123,5 | 116,7 | 99,1 | 67,6 |
| 3SV21 | 2 x 2,2 | 0,70 | 159,3 | | 156,9 | 154,6 | 151,4 | 147,3 | 142,1 | 135,7 | 128,0 | 108,5 | 73,6 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_3sv-2p50-en_a_th

(1) Value referred to the F, T, R, N, V, C, K versions. P version excluded.

The table refers to performance with 2 pumps running.

| PUMP TYPE | RATED POWER | MEI ≥ | Q = DELIVERY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | l/min 0 | 50 | 70 | 80 | 90 | 100 | 120 | 146 | 200 | 240 | 282 |
| | | | $m^3/h$ 0 | 3,0 | 4,2 | 4,8 | 5,4 | 6,0 | 7,2 | 8,8 | 12,0 | 14,4 | 16,9 |
| | kW | (1) | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | | |
| 5SV02 | 2 x 0,37 | 0,70 | 14,8 | | | 13,8 | 13,7 | 13,4 | 13,0 | 12,2 | 10,2 | 8,2 | 5,7 |
| 5SV03 | 2 x 0,55 | 0,70 | 22,8 | | | 21,8 | 21,6 | 21,3 | 20,7 | 19,7 | 16,9 | 14,1 | 10,3 |
| 5SV04 | 2 x 0,55 | 0,70 | 30,0 | | | 28,2 | 27,9 | 27,5 | 26,6 | 25,2 | 21,2 | 17,3 | 12,2 |
| 5SV05 | 2 x 0,75 | 0,70 | 38,0 | | | 36,4 | 36,0 | 35,5 | 34,5 | 32,9 | 28,2 | 23,5 | 17,1 |
| 5SV06 | 2 x 1,1 | 0,70 | 45,3 | | | 43,7 | 43,3 | 42,8 | 41,6 | 39,6 | 33,9 | 28,1 | 20,3 |
| 5SV07 | 2 x 1,1 | 0,70 | 52,7 | | | 50,7 | 50,1 | 49,5 | 48,1 | 45,8 | 39,1 | 32,2 | 23,1 |
| 5SV08 | 2 x 1,1 | 0,70 | 60,1 | | | 57,6 | 57,0 | 56,2 | 54,6 | 51,8 | 44,1 | 36,2 | 25,8 |
| 5SV09 | 2 x 1,5 | 0,70 | 68,0 | | | 65,5 | 64,8 | 64,0 | 62,2 | 59,3 | 50,6 | 41,9 | 30,2 |
| 5SV10 | 2 x 1,5 | 0,70 | 75,5 | | | 72,4 | 71,7 | 70,8 | 68,7 | 65,4 | 55,7 | 46,0 | 33,0 |
| 5SV11 | 2 x 1,5 | 0,70 | 82,8 | | | 79,3 | 78,4 | 77,5 | 75,2 | 71,4 | 60,7 | 49,9 | 35,6 |
| 5SV12 | 2 x 2,2 | 0,70 | 90,8 | | | 88,0 | 87,0 | 86,0 | 83,4 | 79,3 | 67,4 | 55,7 | 40,5 |
| 5SV13 | 2 x 2,2 | 0,70 | 98,3 | | | 95,0 | 94,0 | 92,8 | 90,0 | 85,5 | 72,6 | 59,9 | 43,5 |
| 5SV14 | 2 x 2,2 | 0,70 | 105,7 | | | 102,0 | 100,9 | 99,6 | 96,6 | 91,7 | 77,8 | 64,0 | 46,3 |
| 5SV15 | 2 x 2,2 | 0,70 | 113,1 | | | 109,0 | 107,8 | 106,4 | 103,1 | 97,8 | 82,8 | 68,1 | 49,1 |
| 5SV16 | 2 x 2,2 | 0,70 | 120,5 | | | 115,9 | 114,6 | 113,1 | 109,6 | 103,9 | 87,8 | 72,1 | 51,8 |
| 5SV18 | 2 x 3 | 0,70 | 135,8 | | | 131,1 | 129,7 | 128,0 | 124,1 | 117,8 | 99,9 | 82,3 | 59,5 |
| 5SV21 | 2 x 3 | 0,70 | 157,9 | | | 152,0 | 150,3 | 148,3 | 143,6 | 136,1 | 114,9 | 94,2 | 67,6 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_5sv-2p50-en_a_th

(1) Value referred to the F, T, R, N, V, C, K versions. P version excluded.

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-SV HYDRAULIC PERFORMANCE TABLE AT 50 Hz

| PUMP TYPE | RATED POWER | MEI ≥ | Q = DELIVERY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | l/min 0 | 166,7 | 200 | 266 | 340 | 366,7 | 466 | 540 | 700 | 860 | 966,7 |
| | | | $m^3/h$ 0 | 10,0 | 12,0 | 16,0 | 20,4 | 22,0 | 28,0 | 32,4 | 42,0 | 51,6 | 58,0 |
| | kW | (1) | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | | | | |
| 10SV01 | 2 x 0,75 | 0,70 | 11,8 | 11,2 | 10,9 | 9,9 | 8,3 | 7,6 | 4,3 | | | | |
| 10SV02 | 2 x 0,75 | 0,70 | 23,6 | 21,9 | 21,3 | 19,6 | 17,0 | 15,8 | 10,0 | | | | |
| 10SV03 | 2 x 1,1 | 0,70 | 35,7 | 33,0 | 32,1 | 29,6 | 25,8 | 24,1 | 16,0 | | | | |
| 10SV04 | 2 x 1,5 | 0,70 | 47,7 | 44,2 | 43,0 | 39,9 | 34,8 | 32,6 | 21,7 | | | | |
| 10SV05 | 2 x 2,2 | 0,70 | 60,0 | 56,1 | 54,7 | 50,9 | 44,9 | 42,2 | 29,0 | | | | |
| 10SV06 | 2 x 2,2 | 0,70 | 71,8 | 66,8 | 65,0 | 60,4 | 53,1 | 49,8 | 33,9 | | | | |
| 10SV07 | 2 x 3 | 0,70 | 83,6 | 78,3 | 76,2 | 70,8 | 62,1 | 58,3 | 39,8 | | | | |
| 10SV08 | 2 x 3 | 0,70 | 95,3 | 88,9 | 86,5 | 80,1 | 70,2 | 65,7 | 44,5 | | | | |
| 10SV09 | 2 x 4 | 0,70 | 106,3 | 100,1 | 97,5 | 90,8 | 80,0 | 75,1 | 52,1 | | | | |
| 10SV10 | 2 x 4 | 0,70 | 118,0 | 110,8 | 107,9 | 100,3 | 88,2 | 82,8 | 57,2 | | | | |
| 10SV11 | 2 x 4 | 0,70 | 129,6 | 121,3 | 118,1 | 109,6 | 96,3 | 90,3 | 62,1 | | | | |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_10sv-040-2p50-en_a_th

(1) Value referred to the F, T, R, N, V, C, K versions. P version excluded.

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-SV ELECTRICAL DATA TABLE AT 50 Hz

| PUMP | | GXS20 | GMD20 |
|---|---|---|---|
| TYPE | NOMINAL POWER $P_N$ kW | CURRENT ABSORBED 1x(220-240)Vac A | CURRENT ABSORBED 3 x 400 V A |
| 3SV02 | 2 x 0,37 | 2 x (2,34-2,28) | 2,5 |
| 3SV03 | 2 x 0,37 | 2 x (2,34-2,28) | 2,5 |
| 3SV04 | 2 x 0,37 | 2 x (2,34-2,28) | 2,5 |
| 3SV05 | 2 x 0,55 | 2 x (3,33-3,19) | 3,0 |
| 3SV06 | 2 x 0,55 | 2 x (3,33-3,19) | 3,0 |
| 3SV07 | 2 x 0,75 | 2 x (4,38-4,27) | 3,4 |
| 3SV08 | 2 x 0,75 | 2 x (4,38-4,27) | 3,4 |
| 3SV09 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 3SV10 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 3SV11 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 3SV12 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 3SV13 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 3SV14 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 3SV16 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 3SV19 | 2 x 2,2 | - | 9,2 |
| 3SV21 | 2 x 2,2 | - | 9,2 |
| 5SV02 | 2 x 0,37 | 2 x (2,34-2,28) | 2,5 |
| 5SV03 | 2 x 0,55 | 2 x (3,33-3,19) | 3,0 |
| 5SV04 | 2 x 0,55 | 2 x (3,33-3,19) | 3,0 |
| 5SV05 | 2 x 0,75 | 2 x (4,38-4,27) | 3,4 |
| 5SV06 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 5SV07 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 5SV08 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 5SV09 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 5SV10 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 5SV11 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 5SV12 | 2 x 2,2 | - | 9,2 |
| 5SV13 | 2 x 2,2 | - | 9,2 |
| 5SV14 | 2 x 2,2 | - | 9,2 |
| 5SV15 | 2 x 2,2 | - | 9,2 |
| 5SV16 | 2 x 2,2 | - | 9,2 |
| 5SV18 | 2 x 3 | - | 12,7 |
| 5SV21 | 2 x 3 | - | 12,7 |
| 10SV01 | 2 x 0,75 | 2 x (4,38-4,27) | 3,4 |
| 10SV02 | 2 x 0,75 | 2 x (4,38-4,27) | 3,4 |
| 10SV03 | 2 x 1,1 | 2 x (6,26-5,93) | 4,8 |
| 10SV04 | 2 x 1,5 | 2 x (8,81-7,87) | 6,3 |
| 10SV05 | 2 x 2,2 | - | 9,2 |
| 10SV06 | 2 x 2,2 | - | 9,2 |
| 10SV07 | 2 x 3 | - | 12,7 |
| 10SV08 | 2 x 3 | - | 12,7 |
| 10SV09 | 2 x 4 | - | 15,5 |
| 10SV10 | 2 x 4 | - | 15,5 |
| 10SV11 | 2 x 4 | - | 15,5 |

The current shown is the nominal current of the set.

g20v-2p50-en_e_te

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-SV SINGLE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | MOTOR TYPE | IEC SIZE* | Construction Design | INPUT CURRENT In (A) 220-240 V | CAPACITOR µF | CAPACITOR V | DATA FOR 230 V 50 Hz VOLTAGE $min^{-1}$ | Is / In | η % | cosφ | Tn Nm | Ts/Tn | Tm/Tn | OPERATING CONDITIONS ** Altitude asl m | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,37 | SM71RB14/1045 E2 | 71R | V18/B14 | 2,52-2,41 | 16 | 450 | 2800 | 3,24 | 70,4 | 0,99 | 1,36 | 0,66 | 1,98 | ≤1000 | -15/45 | No |
| 0,55 | SM71B14/1055 E2 | 71 | | 3,33-3,19 | 16 | 450 | 2810 | 4,16 | 74,1 | 0,99 | 1,87 | 0,69 | 2,13 | | | |
| 0,75 | SM80B14/1075 E2 | 80 | | 4,38-4,27 | 25 | 450 | 2865 | 5,11 | 77,4 | 0,97 | 2,50 | 0,40 | 2,26 | | | |
| 1,1 | SM80B14/1115 E2 | 80 | | 6,26-5,93 | 30 | 450 | 2860 | 4,78 | 79,6 | 0,98 | 3,67 | 0,50 | 2,14 | | | |
| 1,5 | PLM90B14/1155 E2 | 90 | | 8,41-7,87 | 50 | 450 | 2890 | 6,71 | 81,3 | 0,97 | 4,95 | 0,59 | 2,78 | | | |

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

1-22sv-motm_2p50-en_d_te

** Operating conditions related only to the motor. For the electric pump refer to the IOM.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-SV THREE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | Manufacturer: Xylem Service Italia Srl, Reg. No. 07520560967, Montecchio Maggiore Vicenza - Italia. Model | IEC SIZE* | Construction Design | N. of Poles | $f_N$ Hz | Data for 400 V / 50 Hz Voltage: cosφ | Is / $I_N$ | $T_N$ Nm | $Ts/T_N$ | Tm/Tn |
|---|---|---|---|---|---|---|---|---|---|---|
| 0,37 | SM71RB14/304 | 71R | V18/B14 | 2 | 50 | 0,64 | 4,35 | 1,37 | 4,14 | 4,10 |
| 0,55 | SM71B14/305 | 71 | | | | 0,71 | 6,25 | 1,84 | 3,96 | 3,97 |
| 0,75 | SM80B14/307 PE | 80 | | | | 0,78 | 7,38 | 2,48 | 3,57 | 3,75 |
| 1,1 | SM80B14/311 PE | 80 | | | | 0,79 | 8,31 | 3,63 | 3,95 | 3,95 |
| 1,5 | SM90RB14/315 PE | 90R | | | | 0,80 | 8,80 | 4,96 | 4,31 | 4,10 |
| 2,2 | PLM90B14/322 E3 | 90 | | | | 0,80 | 8,77 | 7,28 | 3,72 | 3,70 |
| 3 | PLM100RB14/330 E3 | 100R | | | | 0,79 | 7,81 | 9,93 | 4,26 | 3,94 |
| 4 | PLM112RB14S6/340 E3 | 112R | | | | 0,85 | 9,13 | 13,2 | 3,82 | 4,32 |
| 5,5 | PLM132RB5/355 E3 | 132R | V1/B5 | | | 0,85 | 10,5 | 18,1 | 4,74 | 5,11 |
| 7,5 | PLM132B5/375 E3 | 132 | | | | 0,85 | 10,2 | 24,4 | 3,43 | 4,76 |
| 11 | PLM160RB5/3110 E3 | 160R | | | | 0,86 | 9,89 | 35,9 | 3,46 | 4,59 |
| 15 | PLM160B5/3150 E3 | 160 | | | | 0,88 | 9,51 | 48,6 | 2,73 | 4,32 |
| 18,5 | PLM160B5/3185 E3 | 160 | | | | 0,88 | 9,81 | 59,9 | 2,81 | 4,53 |
| 22 | PLM180RB5/3220 E3 | 180R | | | | 0,85 | 10,9 | 71,1 | 3,26 | 5,12 |

| $P_N$ kW | Voltage $U_N$ V: Δ 220 V | Δ 230 V | Δ 240 V | Y 380 V | Y 400 V | Y 415 V | Δ 380 V | Δ 400 V | Δ 415 V | Y 660 V | Y 690 V | $n_N$ $min^{-1}$ | Operating conditions **: Altitude Above Sea Level (m) | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$ (A) | | | | | | | | | | | | | | |
| 0,37 | 2,03 | 2,18 | 2,32 | 1,17 | 1,26 | 1,34 | - | - | - | - | - | 2745 ÷ 2800 | ≤ 1000 | -15 / 40 | No |
| 0,55 | 2,46 | 2,49 | 2,56 | 1,42 | 1,44 | 1,48 | - | - | - | - | - | 2835 ÷ 2865 | | -15 / 50 | |
| 0,75 | 2,96 | 2,94 | 2,96 | 1,71 | 1,70 | 1,71 | 1,70 | 1,69 | 1,70 | 0,98 | 0,98 | 2875 ÷ 2895 | | | |
| 1,1 | 4,19 | 4,14 | 4,16 | 2,42 | 2,39 | 2,40 | 2,41 | 2,38 | 2,38 | 1,39 | 1,37 | 2870 ÷ 2900 | | | |
| 1,5 | 5,56 | 5,49 | 5,51 | 3,21 | 3,17 | 3,18 | 3,21 | 3,18 | 3,19 | 1,85 | 1,84 | 2870 ÷ 2895 | | | |
| 2,2 | 7,97 | 7,90 | 7,98 | 4,6 | 4,56 | 4,61 | 4,57 | 4,54 | 4,57 | 2,64 | 2,62 | 2880 ÷ 2900 | | | |
| 3 | 11,0 | 11,0 | 11,2 | 6,35 | 6,33 | 6,44 | 6,29 | 6,27 | 6,34 | 3,63 | 3,62 | 2865 ÷ 2895 | | | |
| 4 | 13,6 | 13,4 | 13,4 | 7,87 | 7,75 | 7,74 | 7,80 | 7,62 | 7,61 | 4,50 | 4,40 | 2885 ÷ 2910 | | | |
| 5,5 | 18,1 | 17,9 | 18,1 | 10,4 | 10,4 | 10,4 | 10,6 | 10,5 | 10,7 | 6,10 | 6,05 | 2880 ÷ 2910 | | | |
| 7,5 | 24,8 | 24,4 | 24,3 | 14,3 | 14,1 | 14,0 | 14,4 | 14,1 | 14,2 | 8,32 | 8,16 | 2920 ÷ 2935 | | | |
| 11 | 35,7 | 35,0 | 34,9 | 20,6 | 20,2 | 20,2 | 20,6 | 20,2 | 20,2 | 11,9 | 11,7 | 2910 ÷ 2930 | | | |
| 15 | 47,6 | 46,1 | 45,2 | 27,5 | 26,6 | 26,1 | 27,5 | 26,6 | 26,1 | 15,9 | 15,3 | 2940 ÷ 2950 | | | |
| 18,5 | 58,3 | 56,7 | 55,6 | 33,7 | 32,7 | 32,1 | 34,0 | 33,0 | 32,7 | 19,6 | 19,0 | 2940 ÷ 2950 | | | |
| 22 | 72,9 | 73,1 | 73,7 | 42,1 | 42,2 | 42,6 | 40,9 | 40,4 | 40,6 | 23,6 | 23,3 | 2950 ÷ 2960 | | | |

| $P_N$ kW | Efficiency $\eta_N$ % — Δ 220 V Y 380 V: 4/4 | 3/4 | 2/4 | Δ 230 V Y 400 V: 4/4 | 3/4 | 2/4 | Δ 240 V Y 415 V: 4/4 | 3/4 | 2/4 | Δ 380 V Y 660 V: 4/4 | 3/4 | 2/4 | Δ 400 V Y 690 V: 4/4 | 3/4 | 2/4 | Δ 415 V: 4/4 | 3/4 | 2/4 | IE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,37 | 70,4 | 73,2 | 68,9 | 70,4 | 70,3 | 64,5 | 70,4 | 67,2 | 60,2 | - | - | - | - | - | - | - | - | - | 2 |
| 0,55 | 74,1 | 74,2 | 70,4 | 74,1 | 73,6 | 68,8 | 74,1 | 72,7 | 67,1 | - | - | - | - | - | - | - | - | - | |
| 0,75 | 82,5 | 83,1 | 81,3 | 82,8 | 82,7 | 80,1 | 82,6 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 3 |
| 1,1 | 84,0 | 84,7 | 83,4 | 84,4 | 84,5 | 82,5 | 84,3 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | |
| 1,5 | 85,6 | 86,5 | 85,8 | 85,9 | 86,4 | 84,9 | 86,0 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | |
| 2,2 | 86,5 | 87,4 | 86,8 | 86,4 | 86,9 | 85,7 | 86,6 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | |
| 3 | 87,2 | 88,5 | 88,3 | 87,5 | 88,2 | 87,5 | 87,5 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | |
| 4 | 89,1 | 90,1 | 89,2 | 89,1 | 90,1 | 89,2 | 89,1 | 90,1 | 89,2 | 89,1 | 90,3 | 90,4 | 89,6 | 90,4 | 89,9 | 89,6 | 90,1 | 89,2 | |
| 5,5 | 89,5 | 89,6 | 88,0 | 89,5 | 89,6 | 88,0 | 89,5 | 89,6 | 88,0 | 89,5 | 90,3 | 89,9 | 89,7 | 90,0 | 89,0 | 89,6 | 89,6 | 88,0 | |
| 7,5 | 90,6 | 90,5 | 89,0 | 90,6 | 90,5 | 89,0 | 90,6 | 90,5 | 89,0 | 90,6 | 91,0 | 90,2 | 90,8 | 90,8 | 89,6 | 90,7 | 90,5 | 89,0 | |
| 11 | 91,3 | 92,0 | 91,1 | 91,3 | 92,0 | 91,1 | 91,3 | 92,0 | 91,1 | 91,3 | 92,2 | 92,2 | 91,6 | 92,2 | 91,7 | 91,7 | 92,0 | 91,1 | |
| 15 | 92,5 | 92,4 | 91,2 | 92,5 | 92,4 | 91,2 | 92,5 | 92,4 | 91,2 | 92,7 | 93,3 | 92,9 | 93,1 | 93,3 | 92,7 | 92,5 | 92,4 | 91,2 | |
| 18,5 | 92,6 | 93,1 | 92,4 | 92,6 | 93,1 | 92,4 | 92,6 | 93,1 | 92,4 | 92,6 | 93,2 | 93,0 | 92,9 | 93,3 | 92,8 | 92,9 | 93,1 | 92,4 | |
| 22 | 93,0 | 92,7 | 91,3 | 93,0 | 92,7 | 91,3 | 93,0 | 92,7 | 91,3 | 93,0 | 93,2 | 92,4 | 93,1 | 93,0 | 91,9 | 93,0 | 92,7 | 91,3 | |

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

sv-IE3-mott22-2p50-en_c_te

** Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

# BOOSTER SETS GXS AND GMD SERIES
# CHARACTERISTICS OF VM ELECTRIC PUMPS

## PUMP DESIGN

The VM is a non-self-priming vertical multistage, high pressure centrifugal pump, with threaded inlet and outlet manifolds. The pumps are close-coupled design and are equipped with non-standard Lowara motors.

The VM is equipped with mechanical seal. The VM are highly modular pumps that are fitted with an innovative hydraulic design that secures high efficiency performances and an increased Mean Time Between Failure.

The VM is available in four different sizes; the design is made of a cast iron pump body coupled to an external stainless steel (EN 1.4301/ AISI 304) TIG welded sleeve with the mean of stainless steel tie rods screwed in the aluminum motor flange. The impellers are made in technopolymer.

## SPECIFICATIONS

### PUMP

- Flow rate: up to **14 m³/h**.
- Head: up to **98 m**.
- Temperature of the pumped liquid: **+90°C** for uses as EN 60335-2-41.
- Maximum operating pressure: **10 bar** (PN 10).
- Connections: Rp threaded for both suction and discharge manifold.
- Hydraulic performances compliant with ISO 9906:2012 - Grade 3B.

### MOTOR

The VM are equipped with Lowara designed and manufactured surface motors in accordance with EN standards. The VM series can be equipped as well with Lowara variable speed drivers.

- Electric short-circuit squirrel-cage motor, enclosed construction, air-cooled (TEFC).
- IP 55 protection degree.
- Insulation class 155 (F).
- Performances according to EN 60034-1.
- Standard voltage:
  - Single-phase: 220-240V, 50 Hz.
  - Three-phase: 220-240/380-415V, 50 Hz up to 3 kW.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMP VM
# HYDRAULIC PERFORMANCE TABLE AT 50 Hz

| PUMP TYPE VM..P | VERSION | ELECTRIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 40,0 | 56,0 | 72,0 | 88,0 | 104,0 | 120,0 | 140,0 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 2,4 | 3,4 | 4,3 | 5,3 | 6,2 | 7,2 | 8,4 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 3VM02 | 1 ~ | 2 x 0,49 | 2 x 0,55 | SM71HM../1055 E2 | 24,1 | 22,1 | 21,1 | 19,7 | 17,9 | 15,9 | 13,6 | 10,4 |
| 3VM03 | | 2 x 0,62 | 2 x 0,55 | SM71HM../1055 E2 | 35,3 | 32,5 | 30,9 | 28,8 | 26,2 | 23,3 | 20,1 | 15,6 |
| 3VM04 | | 2 x 0,75 | 2 x 0,55 | SM71HM../1055 E2 | 46,5 | 42,4 | 40,1 | 37,2 | 33,6 | 29,7 | 25,3 | 19,4 |
| 3VM05 | | 2 x 0,94 | 2 x 0,75 | SM80HM../1075 E2 | 59,1 | 54,5 | 51,8 | 48,3 | 44,1 | 39,2 | 33,8 | 26,4 |
| 3VM06 | | 2 x 1,14 | 2 x 1,1 | SM80HM../1115 E2 | 71,4 | 66,2 | 63,0 | 58,9 | 53,9 | 48,1 | 41,6 | 32,7 |
| 3VM07 | | 2 x 1,29 | 2 x 1,1 | SM80HM../1115 E2 | 82,9 | 76,5 | 72,8 | 67,9 | 62,0 | 55,1 | 47,6 | 37,1 |
| 3VM08 | | 2 x 1,43 | 2 x 1,1 | SM80HM../1115 E2 | 94,3 | 86,7 | 82,4 | 76,6 | 69,7 | 61,9 | 53,2 | 41,3 |
| 3VM02 | 3 ~ | 2 x 0,43 | 2 x 0,3 | SM63HM../303 | 23,2 | 20,9 | 19,6 | 18,1 | 16,2 | 14,1 | 11,9 | 8,7 |
| 3VM03 | | 2 x 0,56 | 2 x 0,4 | SM63HM../304 | 34,5 | 31,3 | 29,4 | 27,2 | 24,5 | 21,6 | 18,4 | 13,9 |
| 3VM04 | | 2 x 0,70 | 2 x 0,5 | SM63HM../305 | 45,3 | 40,6 | 38,0 | 34,9 | 31,3 | 27,3 | 23,0 | 17,1 |
| 3VM05 | | 2 x 0,90 | 2 x 0,75 | SM80HM../307 E3 | 59,5 | 55,0 | 52,4 | 49,0 | 44,8 | 39,9 | 34,5 | 27,1 |
| 3VM06 | | 2 x 1,07 | 2 x 1,1 | SM80HM../311 E3 | 71,8 | 66,7 | 63,7 | 59,7 | 54,7 | 48,9 | 42,5 | 33,5 |
| 3VM07 | | 2 x 1,23 | 2 x 1,1 | SM80HM../311 E3 | 83,5 | 77,3 | 73,7 | 68,9 | 63,1 | 56,3 | 48,8 | 38,3 |
| 3VM08 | | 2 x 1,41 | 2 x 1,5 | SM80HM../315 E3 | 95,8 | 88,9 | 84,9 | 79,5 | 72,9 | 65,2 | 56,6 | 44,6 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_3vm-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE VM..P | VERSION | ELECTRIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 80,0 | 106,0 | 132,0 | 158,0 | 184,0 | 210 | 240 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 4,8 | 6,4 | 7,9 | 9,5 | 11,0 | 12,6 | 14,4 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 5VM02 | 1 ~ | 2 x 0,58 | 2 x 0,55 | SM71HM../1055 E2 | 24,4 | 21,2 | 19,8 | 18,3 | 16,5 | 14,4 | 11,7 | 7,7 |
| 5VM03 | | 2 x 0,77 | 2 x 0,55 | SM71HM../1055 E2 | 36,0 | 30,4 | 28,4 | 26,3 | 23,8 | 20,5 | 16,4 | 10,4 |
| 5VM04 | | 2 x 1,02 | 2 x 0,75 | SM80HM../1075 E2 | 48,6 | 41,6 | 39,2 | 36,5 | 33,2 | 28,9 | 23,5 | 15,5 |
| 5VM05 | | 2 x 1,27 | 2 x 1,1 | SM80HM../1115 E2 | 61,0 | 52,6 | 49,6 | 46,3 | 42,3 | 37,0 | 30,2 | 20,2 |
| 5VM06 | | 2 x 1,48 | 2 x 1,1 | SM80HM../1115 E2 | 72,9 | 62,3 | 58,6 | 54,5 | 49,5 | 43,1 | 34,9 | 22,9 |
| 5VM07 | | 2 x 1,75 | 2 x 1,5 | PLM90HM../1155 E2 | 85,8 | 74,4 | 70,3 | 65,8 | 60,2 | 52,9 | 43,4 | 29,4 |
| 5VM08 | | 2 x 1,96 | 2 x 1,5 | PLM90HM../1155 E2 | 97,8 | 84,3 | 79,6 | 74,3 | 67,8 | 59,4 | 48,5 | 32,6 |
| 5VM02 | 3 ~ | 2 x 0,52 | 2 x 0,4 | SM63HM../304 | 24,1 | 20,4 | 18,9 | 17,3 | 15,5 | 13,3 | 10,5 | 6,6 |
| 5VM03 | | 2 x 0,72 | 2 x 0,5 | SM63HM../305 | 35,3 | 28,9 | 26,8 | 24,5 | 21,9 | 18,6 | 14,4 | 8,4 |
| 5VM04 | | 2 x 0,99 | 2 x 1,1 | SM80HM../311 E3 | 49,3 | 43,0 | 40,7 | 38,2 | 35,1 | 30,9 | 25,6 | 17,6 |
| 5VM05 | | 2 x 1,22 | 2 x 1,1 | SM80HM../311 E3 | 61,4 | 53,2 | 50,3 | 47,1 | 43,1 | 37,9 | 31,1 | 21,1 |
| 5VM06 | | 2 x 1,45 | 2 x 1,5 | SM80HM../315 E3 | 73,8 | 64,1 | 60,7 | 56,9 | 52,1 | 45,9 | 37,8 | 25,8 |
| 5VM07 | | 2 x 1,67 | 2 x 1,5 | SM80HM../315 E3 | 85,8 | 74,2 | 70,1 | 65,6 | 60,0 | 52,7 | 43,2 | 29,2 |
| 5VM08 | | 2 x 1,93 | 2 x 2,2 | PLM90HM../322 E3 | 98,6 | 85,9 | 81,4 | 76,3 | 70,0 | 61,8 | 51,0 | 35,0 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_5vm-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

| PUMP TYPE VM..P | VERSION | ELECTRIC PUMP | | | Q = DELIVERY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MOTOR | | l/min 0 | 166,7 | 216 | 266 | 316 | 366 | 416 | 466 |
| | | * $P_1$ | $P_N$ | TYPE | $m^3/h$ 0 | 5,0 | 6,5 | 8,0 | 9,5 | 11,0 | 12,5 | 14,0 |
| | | kW | kW | | H = TOTAL HEAD IN METRES OF COLUMN OF WATER | | | | | | | |
| 10VM02 | 1 ~ | 2 x 1,28 | 2 x 1,1 | SM80HM../1115 E2 | 30,7 | 27,0 | 25,4 | 23,7 | 21,6 | 19,1 | 16,1 | 12,6 |
| 10VM03 | | 2 x 1,81 | 2 x 1,5 | PLM90HM../1155 E2 | 46,2 | 41,4 | 39,3 | 36,9 | 34,1 | 30,8 | 26,6 | 21,5 |
| 10VM02 | 3 ~ | 2 x 1,22 | 2 x 1,1 | SM80HM../311 E3 | 30,8 | 27,3 | 25,8 | 24,0 | 22,0 | 19,5 | 16,5 | 13,0 |
| 10VM03 | | 2 x 1,74 | 2 x 1,5 | SM80HM../315 E3 | 46,2 | 41,4 | 39,2 | 36,8 | 34,0 | 30,7 | 26,5 | 21,4 |
| 10VM04 | | 2 x 2,32 | 2 x 2,2 | PLM90HM../322 E3 | 61,8 | 55,4 | 52,6 | 49,4 | 45,8 | 41,3 | 35,8 | 29,0 |
| 10VM05 | | 2 x 2,91 | 2 x 3 | PLM90HM../330 E3 | 77,3 | 69,5 | 66,0 | 62,1 | 57,5 | 51,9 | 45,0 | 36,5 |
| 10VM06 | | 2 x 3,43 | 2 x 3 | PLM90HM../330 E3 | 92,5 | 82,6 | 78,3 | 73,5 | 67,9 | 61,1 | 52,8 | 42,6 |

Hydraulic performances in compliance with ISO 9906:2012 - Grade 3B (ex ISO 9906:1999 - Annex A) 2p_10vm-2p50-en_b_th

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

The table refers to performance with 2 pumps running.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMP VM ELECTRICAL DATA TABLE AT 50 Hz

| PUMP TYPE HM..P | MOTOR VERSION | NOMINAL POWER $P_N$ kW | GXS20 CURRENT ABSORBED 1x(220-240)Vac A | GMD20 CURRENT ABSORBED 3 x 400 Vac A |
|---|---|---|---|---|
| 3VM02 | 1 ~ | 2 x 0,5 | 4,4 | - |
| 3VM03 | | 2 x 0,5 | 5,3 | - |
| 3VM04 | | 2 x 0,5 | 6,4 | - |
| 3VM05 | | 2 x 0,75 | 8,3 | - |
| 3VM06 | | 2 x 0,95 | 10,0 | - |
| 3VM07 | | 2 x 0,95 | 11,3 | - |
| 3VM08 | | 2x 1,1 | 12,7 | - |
| 3VM02 | 3 ~ | 2 x 0,3 | - | 2,2 |
| 3VM03 | | 2 x 0,4 | - | 2,7 |
| 3VM04 | | 2 x 0,5 | - | 3,1 |
| 3VM05 | | 2 x 0,75 | - | 3,4 |
| 3VM06 | | 2 x 1,1 | - | 4,3 |
| 3VM07 | | 2 x 1,1 | - | 4,6 |
| 3VM08 | | 2 x 1,5 | - | 5,6 |

| PUMP TYPE VM..P | MOTOR VERSION | NOMINAL POWER $P_N$ kW | GXS20 CURRENT ABSORBED 1x(220-240)Vac A | GMD20 CURRENT ABSORBED 3 x 400 Vac A |
|---|---|---|---|---|
| 5VM02 | 1 ~ | 2 x 0,5 | 5,1 | - |
| 5VM03 | | 2 x 0,5 | 6,6 | - |
| 5VM04 | | 2 x 0,75 | 9,0 | - |
| 5VM05 | | 2 x 0,95 | 11,2 | - |
| 5VM06 | | 2 x 1,1 | 13,1 | - |
| 5VM07 | | 2 x 1,5 | 15,9 | - |
| 5VM08 | | 2 x 1,5 | 17,7 | - |
| 5VM02 | 3 ~ | 2 x 0,4 | - | 2,6 |
| 5VM03 | | 2 x 0,5 | - | 3,1 |
| 5VM04 | | 2 x 1,1 | - | 4,1 |
| 5VM05 | | 2 x 1,1 | - | 4,6 |
| 5VM06 | | 2 x 1,5 | - | 5,7 |
| 5VM07 | | 2 x 1,5 | - | 6,2 |
| 5VM08 | | 2 x 2,2 | - | 7,8 |

| PUMP TYPE HM..P | MOTOR VERSION | NOMINAL POWER $P_N$ kW | GXS20 CURRENT ABSORBED 1x(220-240)Vac A | GMD20 CURRENT ABSORBED 3 x 400 Vac A |
|---|---|---|---|---|
| 10VM02 | 1 ~ | 2 x 1,1 | 11,3 | - |
| 10VM03 | | 2 x 1,5 | 16,4 | - |
| 10VM02 | 3 ~ | 2 x 1,1 | - | 4,6 |
| 10VM03 | | 2 x 1,5 | - | 6,3 |
| 10VM04 | | 2 x 2,2 | - | 8,7 |
| 10VM05 | | 2 x 3 | - | 11,6 |
| 10VM06 | | 2 x 3 | - | 12,8 |

The current shown is the nominal current of the set.

LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# WITH ELECTRIC PUMP VM
# SINGLE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | MOTOR TYPE | IEC SIZE | Construction Design | INPUT CURRENT In (A) 220-240 V | CAPACITOR µF | CAPACITOR V | DATA FOR 230 V 50 Hz VOLTAGE $min^{-1}$ | Is / In | η % | cosφ | Tn Nm | Ts/Tn | Tm/Tn | OPERATING CONDITIONS * Altitude asl m | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,55 | SM71HM../1055 E2 | 71 | SPECIAL | 3,33-3,19 | 16 | 450 | 2810 | 4,16 | 74,1 | 0,99 | 1,87 | 0,69 | 2,13 | ≤1000 | -15/45 | No |
| 0,75 | SM80HM../1075 E2 | 80 | | 4,38-4,27 | 25 | 450 | 2865 | 5,11 | 77,4 | 0,97 | 2,50 | 0,40 | 2,26 | | | |
| 1,1 | SM80HM../1115 E2 | 80 | | 6,26-5,93 | 30 | 450 | 2860 | 4,78 | 79,6 | 0,98 | 3,67 | 0,50 | 2,14 | | | |
| 1,5 | PLM90HM../1155 E2 | 90 | | 8,41-7,87 | 50 | 450 | 2890 | 6,71 | 81,3 | 0,97 | 4,95 | 0,59 | 2,78 | | | |

** Operating conditions related only to the motor. For the electric pump refer to the IOM.

1-22hm-motm_2p50-en_c_te

# THREE-PHASE MOTORS, 2 POLES AT 50 Hz

| $P_N$ kW | Manufacturer: Xylem Service Italia srl, Reg. No. 07520560967, Montecchio Maggiore Vicenza - Italia. Model | IEC SIZE | Construction Design | N. of Poles | $f_N$ Hz | Data for 400 V / 50 Hz Voltage cosφ | Is / $I_N$ | $T_N$ Nm | Ts/$T_N$ | Tm/Tn |
|---|---|---|---|---|---|---|---|---|---|---|
| 0,30 | SM63HM../303 | 63 | SPECIAL | 2 | 50 | 0,63 | 4,20 | 1,04 | 4,18 | 4,12 |
| 0,40 | SM63HM../304 | 63 | | | | 0,64 | 4,35 | 1,37 | 4,14 | 4,10 |
| 0,50 | SM63HM../305 | 63 | | | | 0,69 | 4,72 | 1,75 | 4,08 | 4,00 |
| 0,55 | SM71HM../305 | 71 | | | | 0,71 | 6,25 | 1,84 | 3,96 | 3,97 |
| 0,75 | SM80HM../307 E3 | 80 | | | | 0,78 | 7,38 | 2,48 | 3,57 | 3,75 |
| 1,1 | SM80HM../311 E3 | 80 | | | | 0,79 | 8,31 | 3,63 | 3,95 | 3,95 |
| 1,5 | SM80HM../315 E3 | 80 | | | | 0,80 | 8,80 | 4,96 | 4,31 | 4,10 |
| 2,2 | PLM90HM../322 E3 | 90 | | | | 0,80 | 8,77 | 7,28 | 3,72 | 3,70 |
| 3 | PLM90HM../330 E3 | 90 | | | | 0,79 | 7,81 | 9,93 | 4,26 | 3,94 |

| $P_N$ kW | Voltage $U_N$ V: Δ 220 V | Δ 230 V | Δ 240 V | Y 380 V | Y 400 V | Y 415 V | Δ 380 V | Δ 400 V | Δ 415 V | Y 660 V | Y 690 V | $n_N$ $min^{-1}$ | Operating conditions ** Altitude Above Sea Level (m) | T. amb min/max °C | ATEX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $I_N$ (A) | | | | | | | | | | | | | | |
| 0,30 | 1,66 | 1,82 | 1,96 | 0,96 | 1,05 | 1,13 | - | - | - | - | - | 2715 ÷ 2775 | ≤ 1000 | -15 / 50 | No |
| 0,40 | 2,03 | 2,18 | 2,32 | 1,17 | 1,26 | 1,34 | - | - | - | - | - | 2745 ÷ 2800 | | | |
| 0,50 | 2,42 | 2,51 | 2,65 | 1,40 | 1,45 | 1,53 | - | - | - | - | - | 2690 ÷ 2765 | | | |
| 0,55 | 2,46 | 2,49 | 2,56 | 1,42 | 1,44 | 1,48 | - | - | - | - | - | 2835 ÷ 2865 | | | |
| 0,75 | 2,96 | 2,94 | 2,96 | 1,71 | 1,70 | 1,71 | 1,70 | 1,69 | 1,70 | 0,98 | 0,98 | 2875 ÷ 2895 | | | |
| 1,1 | 4,19 | 4,14 | 4,16 | 2,42 | 2,39 | 2,40 | 2,41 | 2,38 | 2,38 | 1,39 | 1,37 | 2870 ÷ 2900 | | | |
| 1,5 | 5,56 | 5,49 | 5,51 | 3,21 | 3,17 | 3,18 | 3,21 | 3,18 | 3,19 | 1,85 | 1,84 | 2870 ÷ 2895 | | | |
| 2,2 | 7,97 | 7,90 | 7,98 | 4,60 | 4,56 | 4,61 | 4,57 | 4,54 | 4,57 | 2,64 | 2,62 | 2880 ÷ 2900 | | | |
| 3 | 11,0 | 11,0 | 11,2 | 6,35 | 6,33 | 6,44 | 6,29 | 6,27 | 6,34 | 3,63 | 3,62 | 2865 ÷ 2895 | | | |

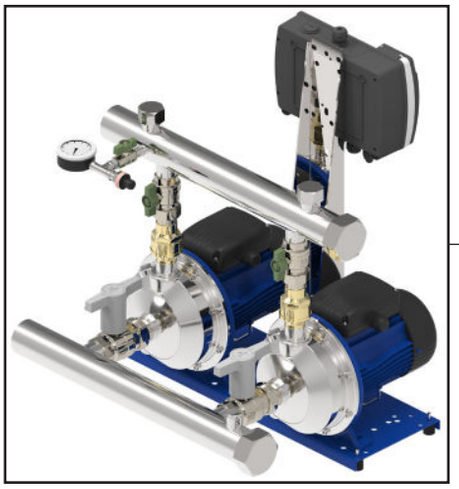
| $P_N$ kW | Efficiency $\eta_N$ % — Δ 220 V Y 380 V: 4/4 | 3/4 | 2/4 | Δ 230 V Y 400 V: 4/4 | 3/4 | 2/4 | Δ 240 V Y 415 V: 4/4 | 3/4 | 2/4 | Δ 380 V Y 660 V: 4/4 | 3/4 | 2/4 | Δ 400 V Y 690 V: 4/4 | 3/4 | 2/4 | Δ 415 V: 4/4 | 3/4 | 2/4 | IE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0,30 | 67,1 | 69,6 | 65 | 67,1 | 66,5 | 60,2 | 67,1 | 63,3 | 55,7 | - | - | - | - | - | - | - | - | - | 2 |
| 0,40 | 70,4 | 73,2 | 68,9 | 70,4 | 70,3 | 64,5 | 70,4 | 67,2 | 60,2 | - | - | - | - | - | - | - | - | - | |
| 0,50 | 73 | 76,1 | 73,4 | 73 | 73,8 | 69,6 | 73 | 71,3 | 65,7 | - | - | - | - | - | - | - | - | - | |
| 0,55 | 74,1 | 74,2 | 70,4 | 74,1 | 73,6 | 68,8 | 74,1 | 72,7 | 67,1 | - | - | - | - | - | - | - | - | - | |
| 0,75 | 82,5 | 83,1 | 81,3 | 82,8 | 82,7 | 80,1 | 82,6 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 82,5 | 82,0 | 78,9 | 3 |
| 1,1 | 84,0 | 84,7 | 83,4 | 84,4 | 84,5 | 82,5 | 84,3 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | 84,0 | 84,0 | 81,4 | |
| 1,5 | 85,6 | 86,5 | 85,8 | 85,9 | 86,4 | 84,9 | 86,0 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | 85,6 | 86,0 | 84,0 | |
| 2,2 | 86.5 | 87,4 | 86,8 | 86,4 | 86,9 | 85,7 | 86,6 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | 86,4 | 86,7 | 85,0 | |
| 3 | 87.2 | 88,5 | 88,3 | 87,5 | 88,2 | 87,5 | 87,5 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | 87,2 | 87,8 | 86,4 | |

** Operating conditions to be referred to motor only. About electric pump, refer to limits in user's manual.

1-10VM-ie3-mott-2p50-en_b_te

## BOOSTER SETS GXS AND GMD SERIES RANGE

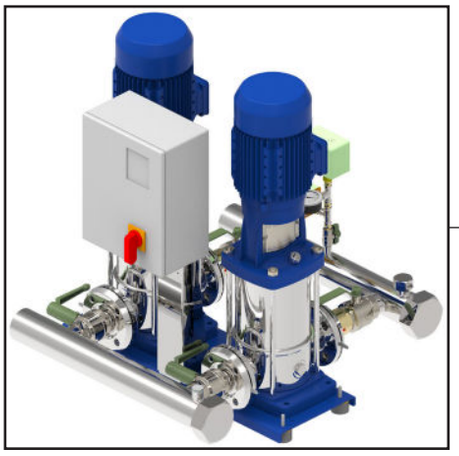
The range of two-pump booster sets includes fixed speed systems available in a variety of material configurations to suit the specific requirements of different applications.



### GXS SERIES SETS

- Single-phase power supply, fixed speed and pressure transducer.
  For BG, CEA, e-HM, VM, e-SV series electric pumps.

**Head** up to141 m.
**Flow rate** up to 62,4 $m^3$/h.
**Power** up to 2 x 1,5 kW.



### GMD SERIES SETS

- Three-phase power supply, fixed speed and pressure switches control.
  For BG, CA, CEA, e-HM and e-SV series electric pumps.

**Head** up to 160 m.
**Flow rate** up to 62,4 $m^3$/h.
**Power** up to 2 x 4 kW.

# Booster sets

## MARKET SECTORS
CIVIL

## APPLICATIONS
- Water network supply in condominiums, offices, hotels, shopping centers, factories.
- Water supply to agricultural water networks (e.g. irrigation).

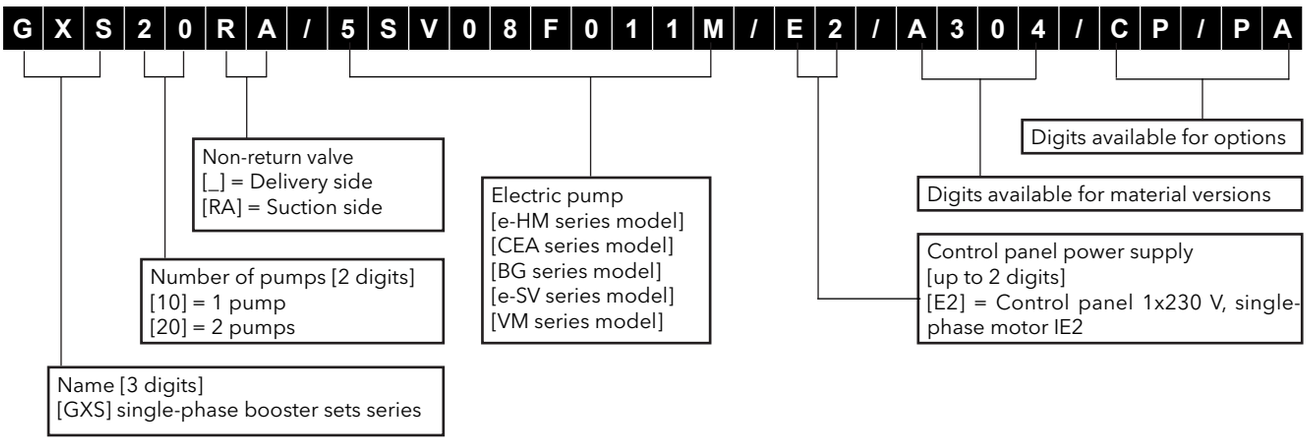
## GXS Series

## SPECIFICATIONS
- **Flow rate:**
  up to 64 $m^3$/h.
- **Head:**
  up to 141 m.
- **Electrical panel supply voltage:**
  1 x 230V ± 10%.
- **Frequency:**
  50 Hz.
- **Protection class electrical panel:**
  IP 55.
- **Maximum electric pump power:**
  2 x 1,5 kW.
- **Direct motor start.**
- **Maximum temperature of pumped liquid(set):**
  - for e-HM, e-SV, CEA:
    from +5 to +60° C, standard version
    from +5 to +80° C, A304, B304, C304, A316, B316, C316 versions
  - for BG: from +5 to +40° C
  - for VM: from +5 to +60° C
- **Horizontal design pump**
  **Maximum operating pressure:**
  10 bar for e-HM...P
  16 bar for e-HM...S
  8 bar for BG and CEA
- **Vertical design pump**
  **Maximum operating pressure:**
  10 bar for VM
  16 bar for e-SV

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

LOWARA
a xylem brand

## BOOSTER SETS GXS SERIES
## IDENTIFICATION CODE




## VERSIONS

A304 Main components in contact with the liquid in AISI 304 stainless steel or higher. Galvanized screws and bolts. Flanges not in contact with the liquid galvanized.

B304 Main components in contact with the liquid in AISI 304 stainless steel or higher. Screws and bolts in AISI 304 stainless steel or higher. Flanges not in contact with the liquid in AISI 304 stainless steel.

C304 Main components in contact with the liquid in AISI 304 stainless steel or higher. Base, brackets, supports, screws and bolts in AISI 304 stainless steel or higher. Flanges not in contact with the liquid in AISI 304 stainless steel or higher. Valves fully made of AISI 304 stainless steel or higher (body, heads, disc).

A316 Main components in contact with the liquid in AISI 316 stainless steel or higher. Galvanized screws and bolts. Flanges not in contact with the liquid galvanized.

B316 Main components in contact with the liquid in AISI 316 stainless steel. Screws and bolts in AISI 316 stainless steel. Flanges not in contact with the liquid in AISI 316 stainless steel.

C316 Main components in contact with the liquid in AISI 316 stainless steel. Base, brackets, supports, screws and bolts in AISI 316 stainless steel. Flanges not in contact with the liquid in AISI 316 stainless steel. Valves fully made of AISI 316 stainless steel (body, heads, disc).

## OPTIONS

3A Set with 1A certified pumps (Factory test report issued from end of line, QH curve included).

3B Set with 1B certified pumps (Test bulletin issued by Sala Audit (Audit Room); it includes QH curve, output and power).

BAP High pressure switch on the delivery manifold.

CM Suction or delivery manifold larger than standard size.

DR1 Set with 1 optical sensor for lack/presence of water.

CP Dry contact version: power line, Automatic/Manual mode, Run/Stop for each pump, thermal block.

IP65 IP65 protection degree control panel.

PE Control panel with emergency button.

PMA Minimum pressure switch and vacuum pressure gauge for protection against dry running, installed on the suction manifold.

PQ Set for aqueduct installation (with pressure gauge/ pressure switches/transmitters oversized by one size).

RE Control panel with condensation resistance, controlled by a thermostat.

SA Without suction: without suction valves and without suction manifold.

SC Set without control devices such as pressure switches and transmitters; with pressure gauge.

SCA Without suction manifold (but with suction valves).

SCM Without delivery manifold (without pressure switches, transmitters and pressure gauge; with delivery valves).

SM Without delivery: without delivery valves and without delivery manifold.

SQC Booster set without control panel and bracket; with out pressure transmitter.

TS Set with electric pumps with special seals.

VA Control panel with digital voltmeter and ammeter.

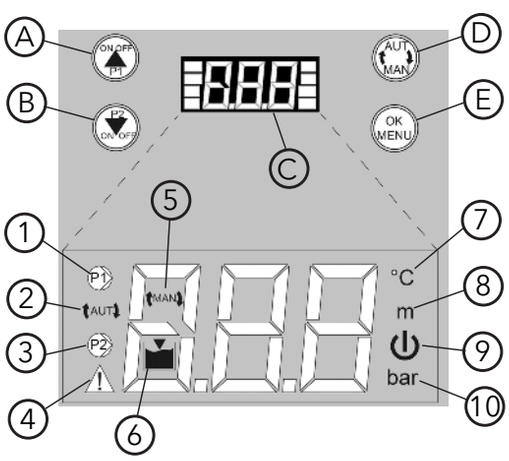
WM Wall mounted control panel; cables L=5m.

## BOOSTER SETS GXS SERIES
## CONTROL PANEL

Q-Smart single-phase electronic control panel, single-phase power input, for controlling and protecting up to two single-phase electric pumps, made of self-extinguishing thermoplastic polymer and protected to IP55.

## MAIN CHARACTERISTICS

- Automatic switch with general overload protection and short circuit protection fuses for each motor.
- Standard supply voltage: 1x230Vac +/-10%, 50/60Hz.
- In standard setting, pressure controlled by sensor.
- Inside digital control unit, with microprocessor, offers the following functions:
- Alphanumeric LED's display (rif. C)
- Indicator LED's: power on (ref. 9), general fault (rif. 4) and no water level alarm (ref. 6), electric pump running (ref. 1, 3), automatic mode (rif. 2) and manual mode (rif. 5), unit (rif. 7, 8, 10).
- Push buttons (rif. A, B, D, E) to set the unit, control the electric pumps in manual mode, show the alarm log and unit's status. Alarms visualized on display:
  - Maximum, minimum pressure;
  - Short circuit breaker protection for each motor;
  - Pressure transmitter fault.
  - Out-of-curve operation;
  - No water;
  - Maximum/minimum pressure
  - Block for tripped external device (digital input configurable)
- In standard configuration with sensor, pressure is measured and shown.
- Cycle reversal function (can be disabled). Automatically switches pumps after every start/stop cycle.
- Jockey pump management by disabled of cycle reversal function.
- Adjustable electronic thresholds to manage start and stop of each electric pumps. Ready for connection of pressure switches. Automatic switch-on of the pressure switches if the sensor is defective.
- Adjustable timer extending the operation of each electric pumps.
- Dedicated circuit for connection of electrode probes with sensitivity adjustment.
- Adjustable timer delaying tripping the no-water protection system
- Set electronic thresholds for maximum and minimum discharge pressure.
- Recording of operating hours and alarms.
- No-water protection system alternatives: float, minimum pressure switch.
- Connection for maximum pressure switch.
- Connection for external ON/OFF or external alarm.
- Inside card, automatic, manual or exclusion switches for each electric pump. To be used in the event of failure of the electronic board to guarantee the operation of the pumps.
- Connection for 6 relais card (optional) to boost the following




signals:
- Electric pump 1 running,
- Electric pump 2 running,
- Fuse electric pump 1 burned,
- Fuse electric pump 2 burned,
- No water alarm,
- Maximum pressure threshold alarm,
- Minimum pressure threshold alarm,
- External alarm,
- Auto-test faulty,
- Power ON,
- Aut/Man mode.

- Connection ready for ModBus kit RTU 485 (optional).

## BOOSTER SETS GXS SERIES
## MAIN COMPONENTS

- **Main On-off valves** on suction and discharge side of each pump, ball type with threaded coupling.
- **Check valve** on discharge side of each pump,spring-loaded type
- **Suction manifold** with threaded ends. Threaded coupling for water charging
- **Delivery manifold** with threaded ends. Fitted with two R1" threaded couplings with caps to allow connection of diaphragm pressure vessels.
- **Pressure gauge and control transmitters** located on the delivery side of the unit.
- **Electric control panel**
- **Various couplings** for the connections.
- **Mounting base**, for pump set and panel mounting brackets
- **Anti-vibration dampers** sized depending on the set. In some sets they are provided but not assembled. The installation is the responsibility of the customer.

### Version available:

Manifolds, valves, non-return valves and main components with parts directly in contact with the pumped liquid are made of AISI 304 or AISI 316 stainless steel.
.../A304, .../B304, .../C304
.../A316, .../B316, .../C316

**Accessories on request:**

Devices for protection against dry running in one of the following versions:
- float switch
- pack of electronic module and probe electrodes
- minimum pressure switch

**Diaphragm expansion vessel** kit Hydrotube with on-off valve, depending on the maximum head of the pump:
- 24 lt, 8 bar hydro tube kit
- 24 lt, 10 bar hydro tube kit
- 24 lt, 16 bar hydro tube kit
- 20 lt, 25 bar hydro tube kit

**SPECIAL VERSIONS AVAILABLE ON REQUEST (Contact the Sales and technical Assistance Service)**
- Units with special valves.
- Units with stainless steel expansion vessels.

LOWARA
a xylem brand

## BOOSTER SETS GXS SERIES
## TABLE OF MATERIALS

| DENOMINATION | G... (STANDARD) | G.../A304 | G.../A316 |
|---|---|---|---|
| Manifolds | AISI 304 | AISI 304 | AISI 316 |
| On-off valves | Nickel-plated brass | AISI 316 | AISI 316 |
| Non-return valves | Brass | AISI 304 | AISI 316 |
| Pressure switches | Galvanized steel/AISI 301 | AISI 301 | AISI 301 |
| Pressure transmitters | AISI 304 | AISI 304 | AISI 304 |
| Caps/plugs | AISI 304 / 316 | AISI 304 / 316 | AISI 316 |
| Slinding/Blind Flanges (not in contact with liquid) | Galvanized steel | Galvanized steel * | Galvanized steel * |
| Welded flanges (contact with liquid) | AISI 304 | AISI 304 | AISI 316 |
| Fittings | AISI 316 | AISI 316 | AISI 316 |
| Bracket | Galvanized steel/painted steel | Galvanized steel/painted steel | Galvanized steel/painted steel |
| Base | Painted steel | Painted steel | Painted steel |

*** B304, C304 version in AISI 304; B316, C316 version in AISI 316**

g_wad_3-22sv-en_b_tm

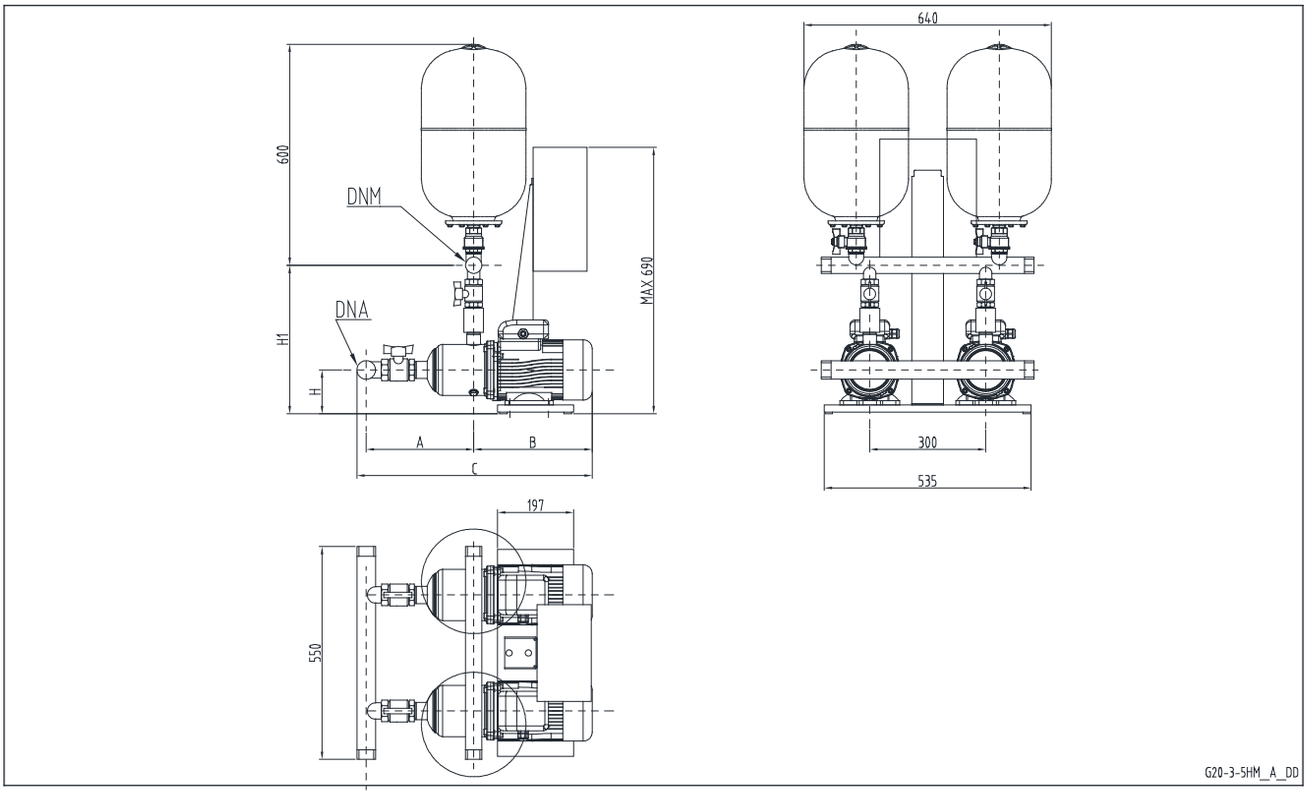
## BOOSTER SETS GXS SERIES
## OPERATING CHARACTERISTICS AND LIMITS

| | |
|---|---|
| Permitted liquids | Water without gases and corrosive and/or aggressive substances. |
| Fluid temperature | per e-HM, e-SV, CEA:<br>da +5 a +60° C, standard version.<br>da +5 a +80° C, version A304, B304, C304, A316, B316, C316.<br>per BG:<br>da +5 a +40° C.<br>per VM:<br>da +5 a +60° C. |
| 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. |

* Higher PN available on request depending on pump type

GX_2p-en_a_ti

# BOOSTER SETS GXS SERIES
# HM..P HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE



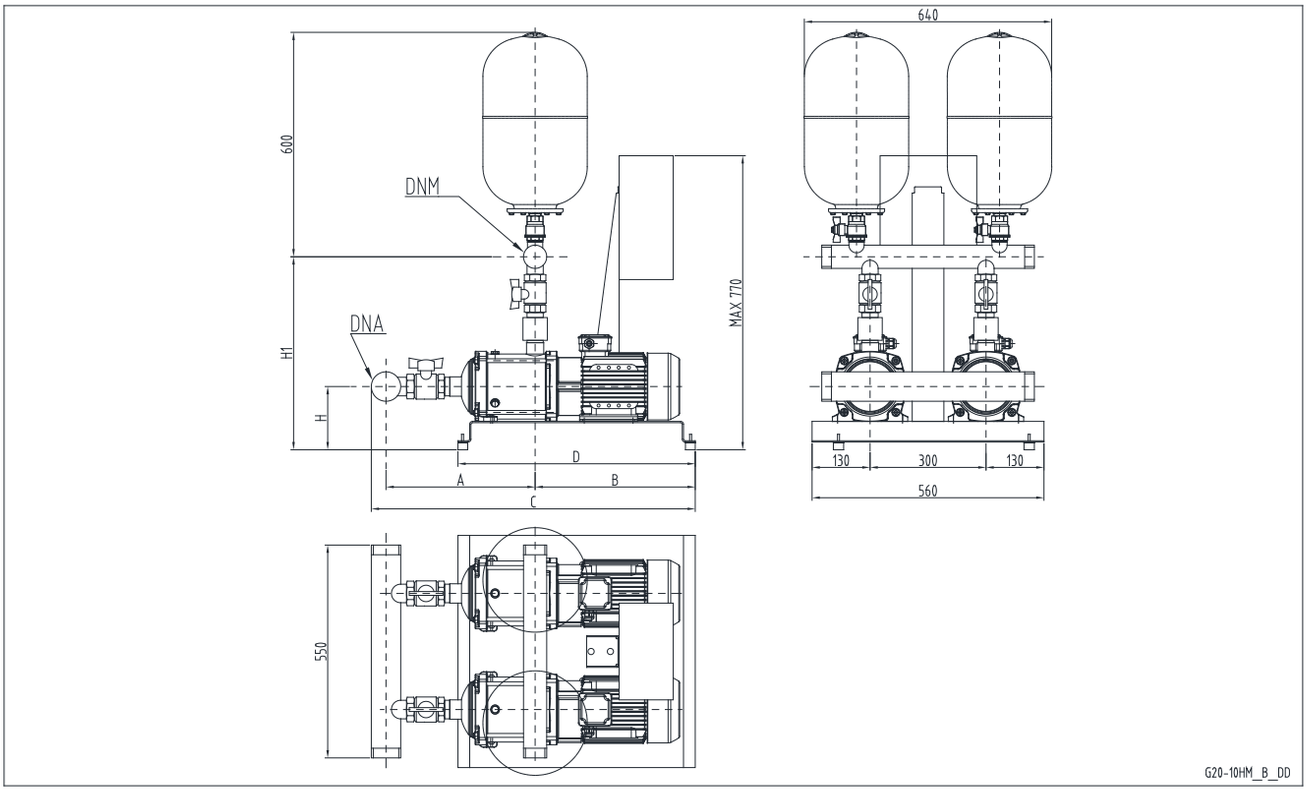

| GXS 20 | DNA | DNM | A | B | C | H | H1 |
|---|---|---|---|---|---|---|---|
| 3HM02 | R 2" | R 2" | 224 | 263 | 517 | 113 | 398 |
| 3HM03 | R 2" | R 2" | 224 | 263 | 517 | 113 | 398 |
| 3HM04 | R 2" | R 2" | 244 | 263 | 537 | 113 | 398 |
| 3HM05 | R 2" | R 2" | 264 | 308 | 602 | 113 | 398 |
| 3HM06 | R 2" | R 2" | 284 | 308 | 622 | 113 | 398 |
| 5HM02 | R 2" | R 2" | 245 | 263 | 538 | 113 | 398 |
| 5HM03 | R 2" | R 2" | 245 | 263 | 538 | 113 | 398 |
| 5HM04 | R 2" | R 2" | 265 | 308 | 603 | 113 | 398 |
| 5HM05 | R 2" | R 2" | 285 | 308 | 623 | 113 | 398 |
| 5HM06 | R 2" | R 2" | 305 | 308 | 643 | 113 | 398 |

gxs20_3-5hm_c_td

Dimensions in mm. Tolerance ± 10 mm.

LOWARA
a xylem brand

# BOOSTER SETS GXS SERIES
# HM..P HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

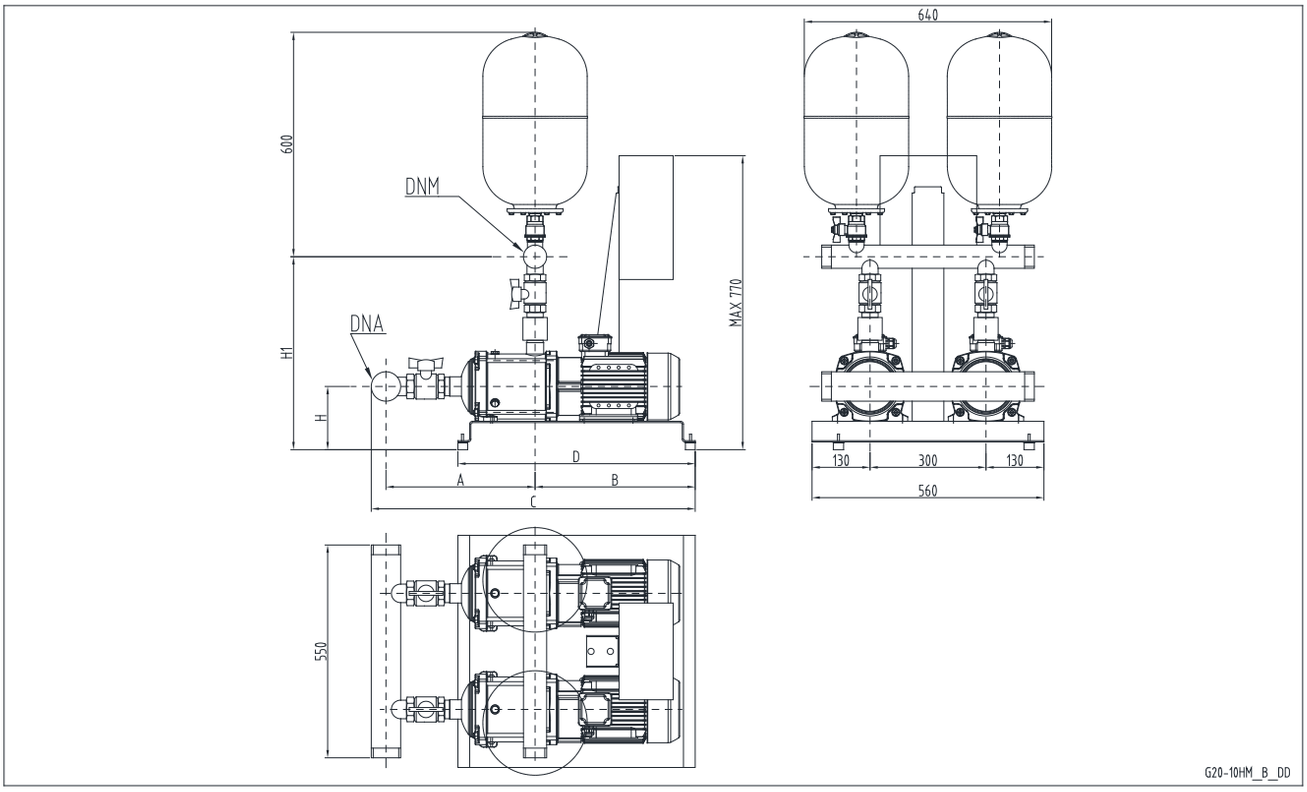



| GXS 20 | DNA | DNM | A | B | C | D | H | H1 |
|---|---|---|---|---|---|---|---|---|
| 10HM02 | R 2"1/2 | R 2"1/2 | 302 | 354 | 694 | 590 | 205 | 547 |
| 10HM03 | R 2"1/2 | R 2"1/2 | 302 | 354 | 694 | 590 | 205 | 547 |

gxs20_10hm_c_td

Dimensions in mm. Tolerance ± 10 mm.

# BOOSTER SETS GXS SERIES
# HM..S HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

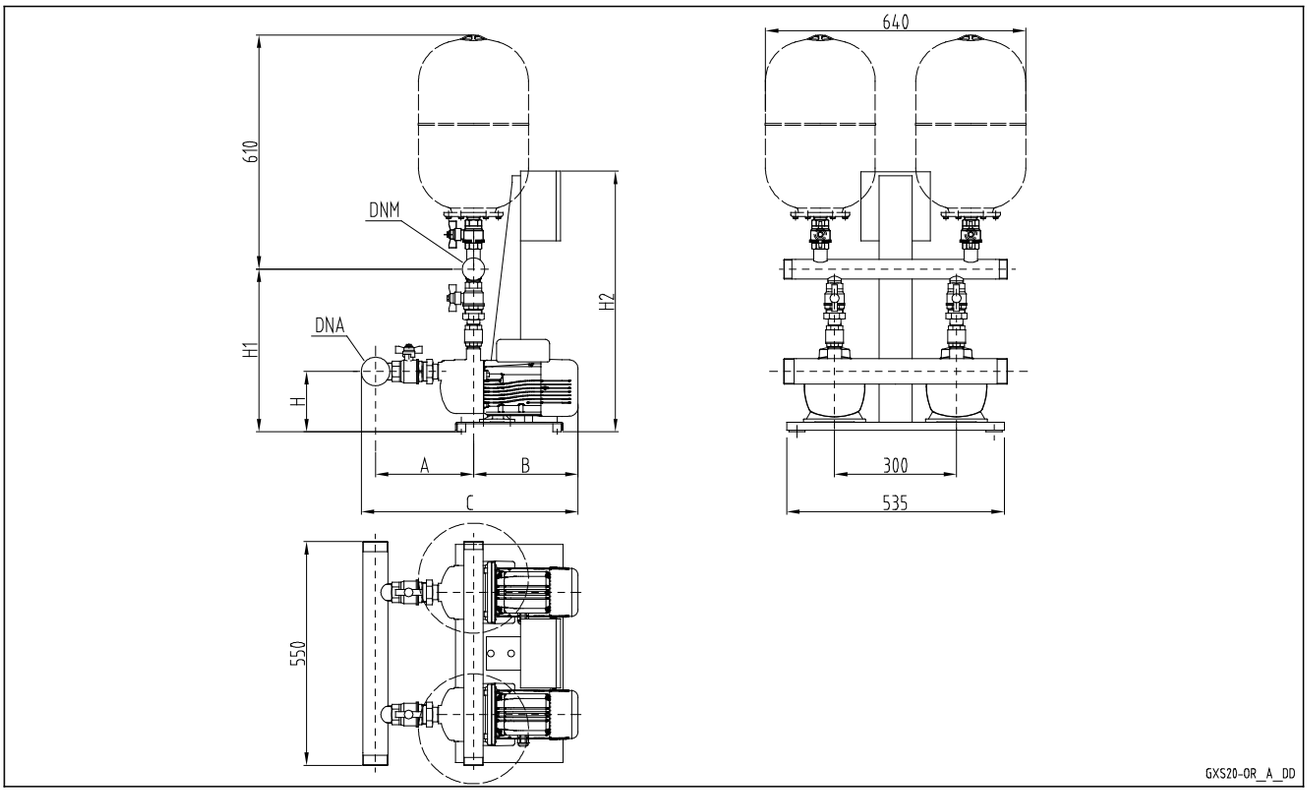



| GXS 20 | DNA | DNM | A | B | C | D | H | H1 |
|---|---|---|---|---|---|---|---|---|
| 3HM10 | R 2" | R 2" | 348 | 354 | 732 | 590 | 205 | 490 |
| 3HM11 | R 2" | R 2" | 368 | 354 | 671 | 590 | 205 | 490 |
| 3HM12 | R 2" | R 2" | 388 | 354 | 691 | 590 | 205 | 490 |
| 3HM13 | R 2" | R 2" | 408 | 354 | 755 | 762 | 205 | 490 |
| 3HM14 | R 2" | R 2" | 428 | 354 | 775 | 762 | 205 | 490 |
| 3HM16 | R 2" | R 2" | 468 | 354 | 815 | 762 | 205 | 490 |
| 3HM17 | R 2" | R 2" | 488 | 354 | 835 | 762 | 205 | 490 |
| 3HM19 | R 2" | R 2" | 528 | 377 | 875 | 762 | 205 | 490 |
| 5HM09 | R 2" | R 2" | 389 | 354 | 736 | 590 | 205 | 490 |
| 5HM10 | R 2" | R 2" | 414 | 354 | 817 | 762 | 205 | 490 |
| 5HM11 | R 2" | R 2" | 439 | 354 | 842 | 762 | 205 | 490 |
| 5HM12 | R 2" | R 2" | 464 | 390 | 867 | 762 | 205 | 490 |

Dimensions in mm. Tolerance ± 10 mm.

gxs20_3-5hms_c_td

# BOOSTER SETS GXS SERIES
# BG / CEA HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE



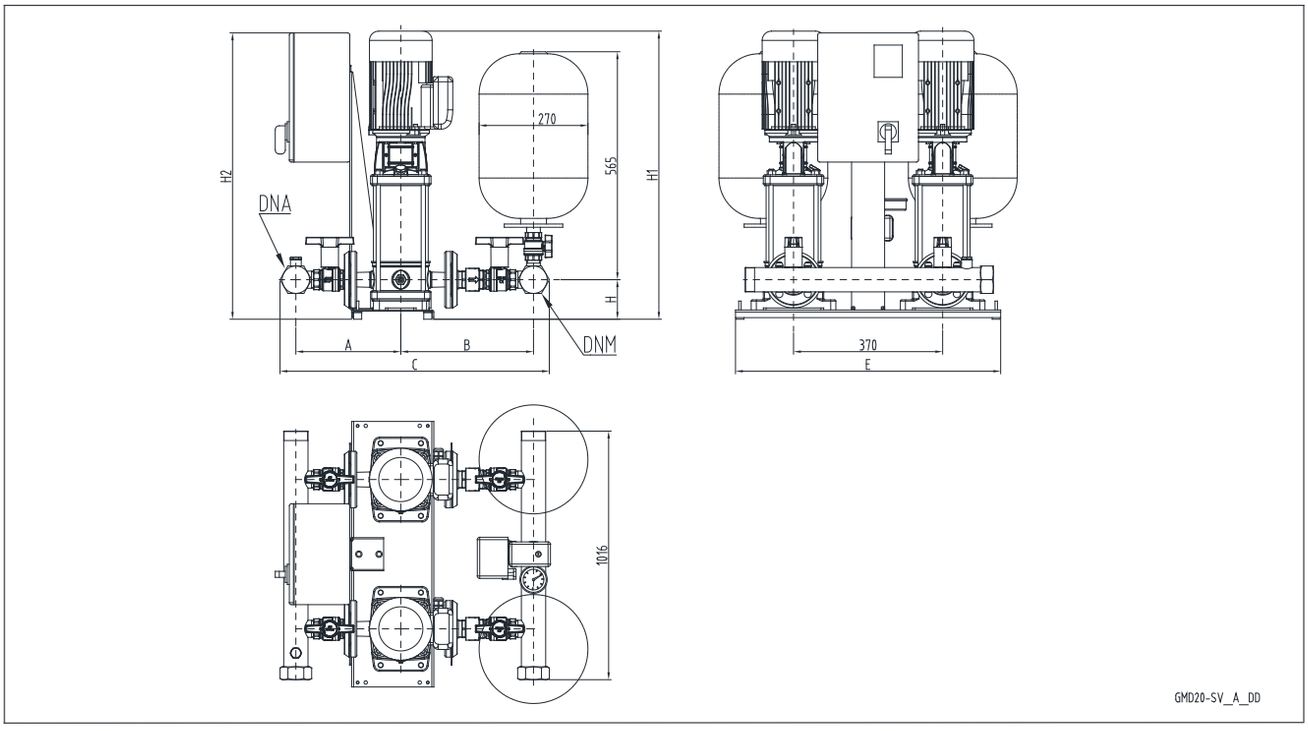

| GXS 20 | DNA | DNM | A | B | C | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|
| BGM3 | R 2" | R 1 "1/2 | 225 | 311 | 566 | 189 | 431 | 640 |
| BGM5 | R 2" | R 1 "1/2 | 225 | 356 | 611 | 189 | 431 | 640 |
| BGM7 | R 2" | R 1 "1/2 | 225 | 356 | 611 | 189 | 431 | 640 |
| BGM11 | R 2" | R 1 "1/2 | 225 | 356 | 611 | 189 | 431 | 640 |
| CEAM70/3 | R 2" | R 1 "1/2 | 207 | 260 | 497 | 134 | 429 | 640 |
| CEAM70/5 | R 2" | R 1 "1/2 | 207 | 320 | 557 | 134 | 429 | 640 |
| CEAM80/5 | R 2" | R 1 "1/2 | 207 | 320 | 557 | 134 | 429 | 640 |
| CEAM120/3 | R 2" | R 2" | 207 | 274 | 511 | 134 | 453 | 640 |
| CEAM120/5 | R 2" | R 2" | 220 | 320 | 570 | 134 | 453 | 640 |
| CEAM210/2 | R 2" 1/2 | R 2 "1/2 | 231 | 331 | 600 | 134 | 493 | 640 |
| CEAM210/3 | R 2" 1/2 | R 2 "1/2 | 231 | 331 | 600 | 134 | 493 | 640 |
| CEAM210/4 | R 2" 1/2 | R 2 "1/2 | 231 | 379 | 648 | 134 | 493 | 640 |
| CEAM370/1 | R 3" | R 2 "1/2 | 272 | 331 | 647 | 134 | 578 | 640 |
| CEAM370/2 | R 3" | R 2 "1/2 | 272 | 331 | 647 | 134 | 578 | 640 |

gxs20_or_i_td

Dimensions in mm. Tolerance ± 10 mm.

LOWARA
a xylem brand

# BOOSTER SETS GXS SERIES
# e-SV VERTICAL ELECTRIC PUMPS
# DIMENSIONAL TABLE



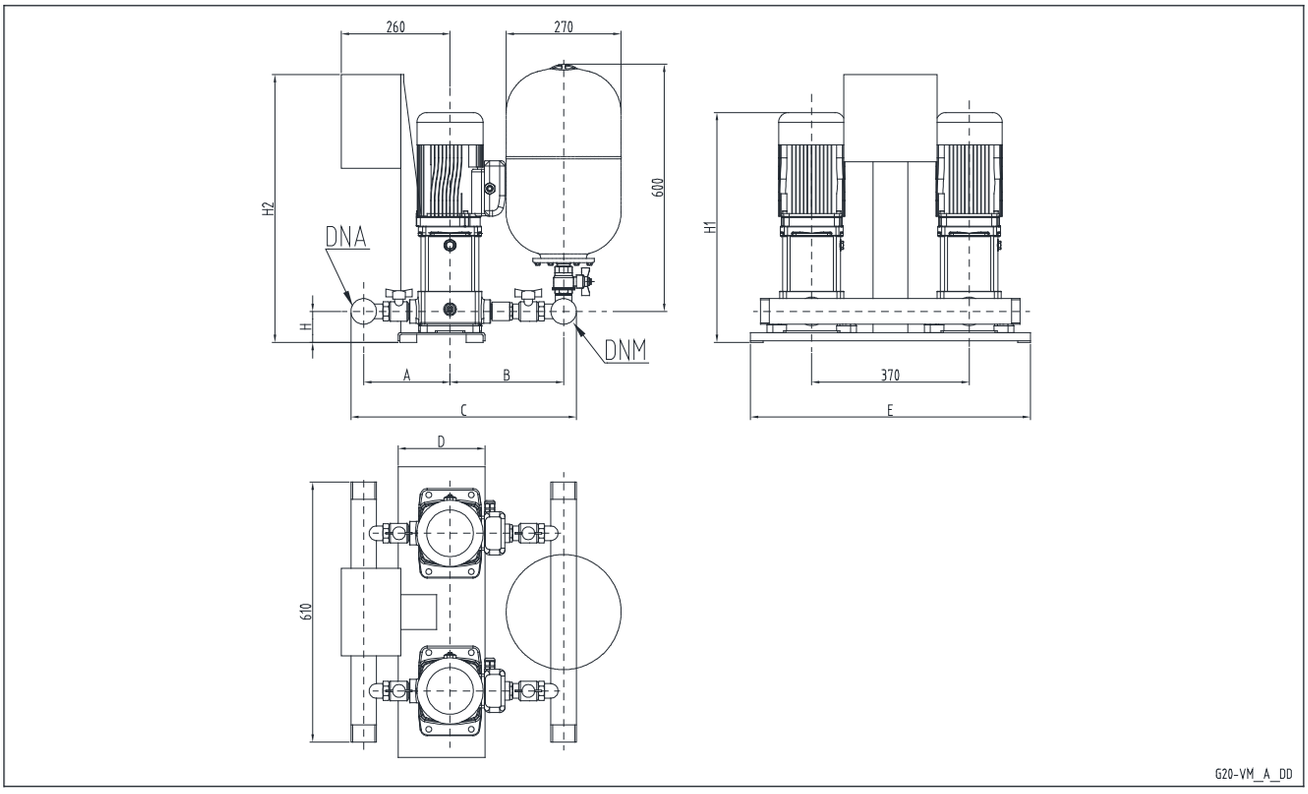

| GXS 20 | DNA | DNM | A | B | C | E | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|---|
| 3SV02F003M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 510 | 629 |
| 3SV03F003M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 510 | 629 |
| 3SV04F003M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 530 | 629 |
| 3SV05F005M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 572 | 629 |
| 3SV06F005M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 592 | 629 |
| 3SV07F007M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 654 | 629 |
| 3SV08F007M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 674 | 629 |
| 3SV09F011M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 694 | 629 |
| 3SV10F011M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 714 | 629 |
| 3SV11F011M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 734 | 629 |
| 3SV12F011M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 754 | 629 |
| 3SV13F015M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 784 | 629 |
| 3SV14F015M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 804 | 629 |
| 3SV16F015M | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 844 | 629 |
| 5SV02F003M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 500 | 629 |
| 5SV03F005M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 547 | 629 |
| 5SV04F005M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 572 | 629 |
| 5SV05F007M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 639 | 629 |
| 5SV06F011M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 664 | 629 |
| 5SV07F011M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 689 | 629 |
| 5SV08F011M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 714 | 629 |
| 5SV09F015M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 749 | 629 |
| 5SV10F015M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 774 | 629 |
| 5SV11F015M | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 799 | 629 |
| 10SV01F007M | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 654 | 640 |
| 10SV02F007M | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 654 | 640 |
| 10SV03F011M | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 686 | 640 |
| 10SV04F015M | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 728 | 640 |

gxs20_esv-f_c_td

Dimensions in mm. Tolerance ± 10 mm.

LOWARA
a xylem brand

# BOOSTER SETS GXS SERIES
# VM VERTICAL ELECTRIC PUMPS
# DIMENSIONAL TABLE




| GXS 20 | DNA | DNM | A | | B | | C | | D | E | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | STD | AISI | STD | AISI | STD | AISI | | | | | |
| 3VM02 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 402 | 629 |
| 3VM03 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 402 | 629 |
| 3VM04 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 422 | 629 |
| 3VM05 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 456 | 629 |
| 3VM06 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 476 | 629 |
| 3VM07 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 496 | 629 |
| 3VM08 | R2" | R2" | 232 | 314 | 287 | 419 | 579 | 793 | 204 | 658 | 73 | 560 | 629 |
| 5VM02 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 402 | 629 |
| 5VM03 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 402 | 629 |
| 5VM04 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 436 | 629 |
| 5VM05 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 456 | 629 |
| 5VM06 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 520 | 629 |
| 5VM07 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 540 | 629 |
| 5VM08 | R2" | R2" | 251 | 329 | 320 | 449 | 631 | 838 | 204 | 658 | 73 | 560 | 629 |
| 10VM02 | R2"1/2 | R2"1/2 | 287 | 374 | 354 | 517 | 717 | 967 | 235 | 682 | 114 | 535 | 640 |
| 10VM03 | R2"1/2 | R2"1/2 | 287 | 374 | 354 | 517 | 717 | 967 | 235 | 682 | 114 | 567 | 640 |

Dimensioni in mm. Tolleranza ± 10 mm.

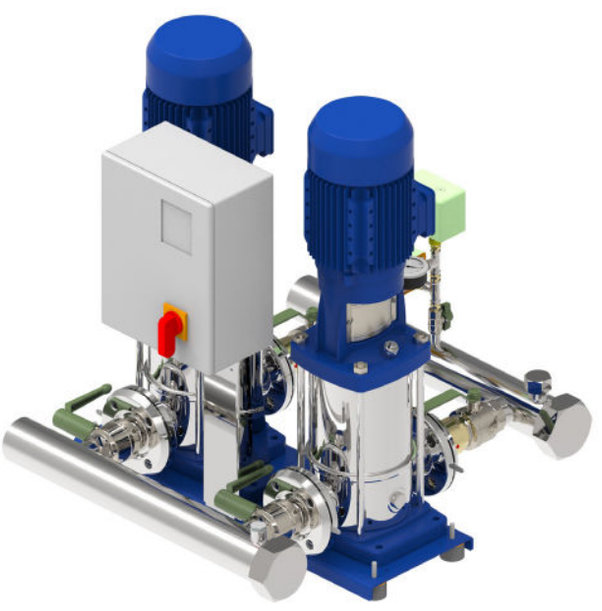
gxs20_vm_c_td

# Booster sets

## MARKET SECTORS
CIVIL

## APPLICATIONS
- Water network supply in condominiums, offices, hotels, shopping centers, factories.
- Water supply to agricultural water networks (e.g. irrigation).

## GMD Series

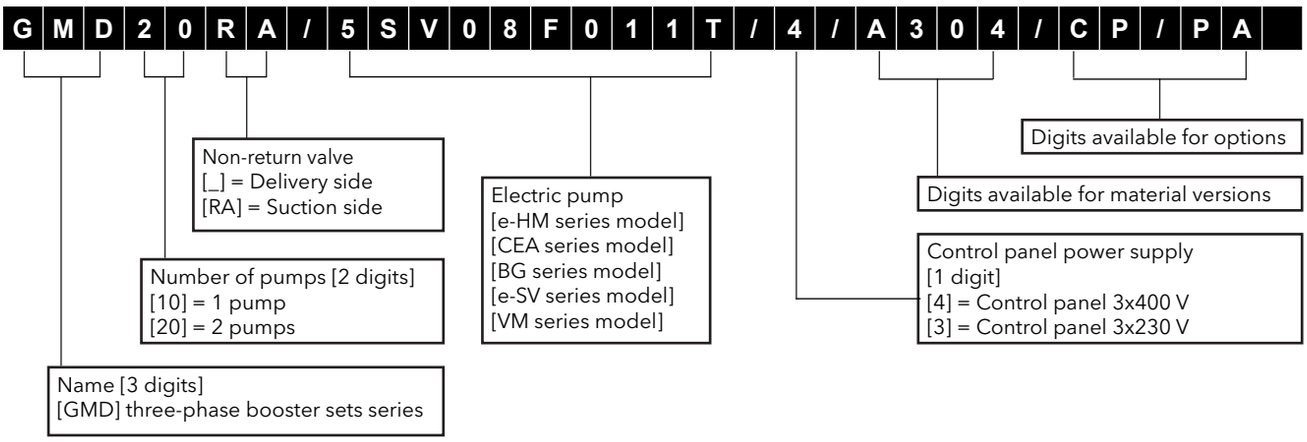


## SPECIFICATIONS
- **Flow rate:**
  up to 64 $m^3/h$.
- **Head:**
  up to 160 m.
- **Electrical panel supply voltage:**
  3 x 400V ± 10%.
- **Frequency:**
  50 Hz.
- **Protection class electrical panel:**
  IP 54.
- **Maximum electric pump power:**
  2 x 4 kW.
- **Direct motor start.**
- **Maximum temperature of pumped liquid(set):**
  - for e-HM, e-SV, CEA, VM:
    from +5 to +60° C, standard version
    from +5 to +80° C, A304, B304, C304, A316, B316, C316 versions
  - for BG: from +5 to +40° C
- **Horizontal design pump**
  **Maximum operating pressure:**
  10 bar for e-HM...P
  16 bar for e-HM...S
  8 bar for BG and CEA
- **Vertical design pump**
  **Maximum operating pressure:**
  10 bar for VM
  16 bar for e-SV

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

LOWARA
a xylem brand

# BOOSTER SETS GMD SERIES
# IDENTIFICATION CODE




## VERSIONS

A304 Main components in contact with the liquid in AISI 304 stainless steel or higher. Galvanized screws and bolts. Flanges not in contact with the liquid galvanized.

B304 Main components in contact with the liquid in AISI 304 stainless steel or higher. Screws and bolts in AISI 304 stainless steel or higher. Flanges not in contact with the liquid in AISI 304 stainless steel.

C304 Main components in contact with the liquid in AISI 304 stainless steel or higher. Base, brackets, supports, screws and bolts in AISI 304 stainless steel or higher. Flanges not in contact with the liquid in AISI 304 stainless steel or higher. Valves fully made of AISI 304 stainless steel or higher (body, heads, disc).

A316 Main components in contact with the liquid in AISI 316 stainless steel or higher. Galvanized screws and bolts. Flanges not in contact with the liquid galvanized.

B316 Main components in contact with the liquid in AISI 316 stainless steel. Screws and bolts in AISI 316 stainless steel. Flanges not in contact with the liquid in AISI 316 stainless steel.

C316 Main components in contact with the liquid in AISI 316 stainless steel. Base, brackets, supports, screws and bolts in AISI 316 stainless steel. Flanges not in contact with the liquid in AISI 316 stainless steel. Valves fully made of AISI 316 stainless steel (body, heads, disc).

## OPTIONS

3A Set with 1A certified pumps (Factory test report issued from end of line, QH curve included).

3B Set with 1B certified pumps (Test bulletin issued by Sala Audit (Audit Room); it includes QH curve, output and power).

60 Booster sets frequency of functioning 60 Hz, electric pump with 60 Hz motor.

BAP High pressure switch on the delivery manifold.

CM Suction or delivery manifold larger than standard size.

DR1 Set with 1 optical sensor for lack/presence of water.

CP Dry contact version: power line, Automatic/Manual mode, Run/Stop for each pump, thermal block.

IP65 IP65 protection degree control panel.

PE Control panel with emergency button.

PMA Minimum pressure switch and vacuum pressure gauge for protection against dry running, installed on the suction manifold.

PQ Set for aqueduct installation (with pressure gauge/ pressure switches/transmitters oversized by one size).

RE Control panel with condensation resistance, controlled by a thermostat.

RV Control panel with phase missing, phase asymmetry and minimum and maximum voltage value control.

SA Without suction: without suction valves and without suction manifold.

SC Set without control devices such as pressure switches and transmitters; with pressure gauge.

SCA Without suction manifold (but with suction valves).

SCM Without delivery manifold (without pressure switches, transmitters and pressure gauge; with delivery valves).

SM Without delivery: without delivery valves and without delivery manifold.

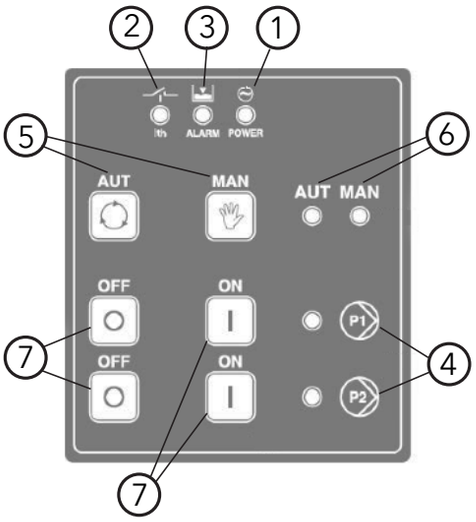
SQC Booster set without control panel and bracket; with out pressure transmitter.

TS Set with electric pumps with special seals.

VA Control panel with digital voltmeter and ammeter.

WM Wall mounted control panel; cables L=5m.

# BOOSTER SETS GMD SERIES
# CONTROL PANEL




Electric panel, three-phase power supply, for controlling and protecting up to two three-phase electric pumps, with case made from sheet steel and protected to IP54.

## MAIN CHARACTERISTICS

- Main door-lock switch, fuse holders and fuses, starting contactors and thermal protection such as overload protectors for each motor.
- Standard supply voltage: 3x400Vac +/-10%, 50/60 Hz. Non standard voltages on request, 3x230Vac +/-10%, 3x440Vac +/-10%, 3x460Vac +/-10%, 3x480Vac +/-10%, 50/60 Hz.
- Transformer for low voltage auxiliary circuit; auxiliary voltage 24 Vac.
- Lowara SM20 digital control unit, offers the following functions:
  - Indicator LED's: power on (ref. 1), thermal protection cut-in (ref. 2), no-water level alarm (ref. 3), pump running (ref. 4).
  - Automatic / manual operation buttons (ref. 5) and indicator LED's (ref. 6).
  - Manual pump stop/start (one button for each pump) (ref. 7).
  - Automatic cascade pump control with two pressure switches (one for each pump).
  - Jockey pump management by disabling cycle reversal.
  - Cycle reversal function (can be disabled). Automatically switches pumps after every start/stop cycle.
  - Automatic, manual or disabled mode switches for each pump (inside board). Only to be used if a board fault develops in order to assure pump operation.
  - No-water protection system alternatives: float, minimum pressure switch, external contact or electrode probes with sensitivity adjustment.
  - Adjustable timer delaying tripping of the no-water protection system (inside board); can be adjusted from 0 to 30 seconds.
  - Adjustable timer extending the operation of each pump (inside board); can be adjusted from 0 to 100 sec.
  - A relay board (optional) can be installed on the board to boost the following signals: pump 1,2 running, manual mode, overload alarm, no-water alarm, power on.
- External enable connection or pressure switch for maximum pressure protection.

## BOOSTER SETS GMD SERIES
## MAIN COMPONENTS

- **Main On-off valves** on suction and discharge side of each pump, ball type with threaded coupling.
- **Check valve** on discharge side of each pump,spring-loaded type
- **Suction manifold** with threaded ends. Threaded coupling for water charging
- **Delivery manifold** with threaded ends. Fitted with two R1" threaded couplings with caps to allow connection of diaphragm pressure vessels.
- **Pressure gauge and control transmitters** located on the delivery side of the unit.
- **Electric control panel**
- **Various couplings** for the connections.
- **Mounting base**, for pump set and panel mounting brackets
- **Anti-vibration dampers** sized depending on the set. In some sets they are provided but not assembled. The installation is the responsibility of the customer.

### Version available:

Manifolds, valves, non-return valves and main components with parts directly in contact with the pumped liquid are made of AISI 304 or AISI 316 stainless steel.
.../A304, .../B304, .../C304
.../A316, .../B316, .../C316

**Accessories on request:**

Devices for protection against dry running in one of the following versions:
- float switch
- pack of electronic module and probe electrodes
- minimum pressure switch

**Diaphragm expansion vessel** kit Hydrotube with on-off valve, depending on the maximum head of the pump:
- 24 lt, 8 bar hydro tube kit
- 24 lt, 10 bar hydro tube kit
- 24 lt, 16 bar hydro tube kit
- 20 lt, 25 bar hydro tube kit

**SPECIAL VERSIONS AVAILABLE ON REQUEST (Contact the Sales and technical Assistance Service)**
- Units with special valves.
- Units with stainless steel expansion vessels.

LOWARA
a xylem brand

## BOOSTER SETS GMD SERIES
## TABLE OF MATERIALS

| DENOMINATION | G... (STANDARD) | G.../A304 | G.../A316 |
|---|---|---|---|
| Manifolds | AISI 304 | AISI 304 | AISI 316 |
| On-off valves | Nickel-plated brass | AISI 316 | AISI 316 |
| Non-return valves | Brass | AISI 304 | AISI 316 |
| Pressure switches | Galvanized steel/AISI 301 | AISI 301 | AISI 301 |
| Pressure transmitters | AISI 304 | AISI 304 | AISI 304 |
| Caps/plugs | AISI 304 / 316 | AISI 304 / 316 | AISI 316 |
| Slinding/Blind Flanges (not in contact with liquid) | Galvanized steel | Galvanized steel * | Galvanized steel * |
| Welded flanges (contact with liquid) | AISI 304 | AISI 304 | AISI 316 |
| Fittings | AISI 316 | AISI 316 | AISI 316 |
| Bracket | Galvanized steel/painted steel | Galvanized steel/painted steel | Galvanized steel/painted steel |
| Base | Painted steel | Painted steel | Painted steel |

*** B304, C304 version in AISI 304; B316, C316 version in AISI 316**

g_wad_3-22sv-en_b_tm

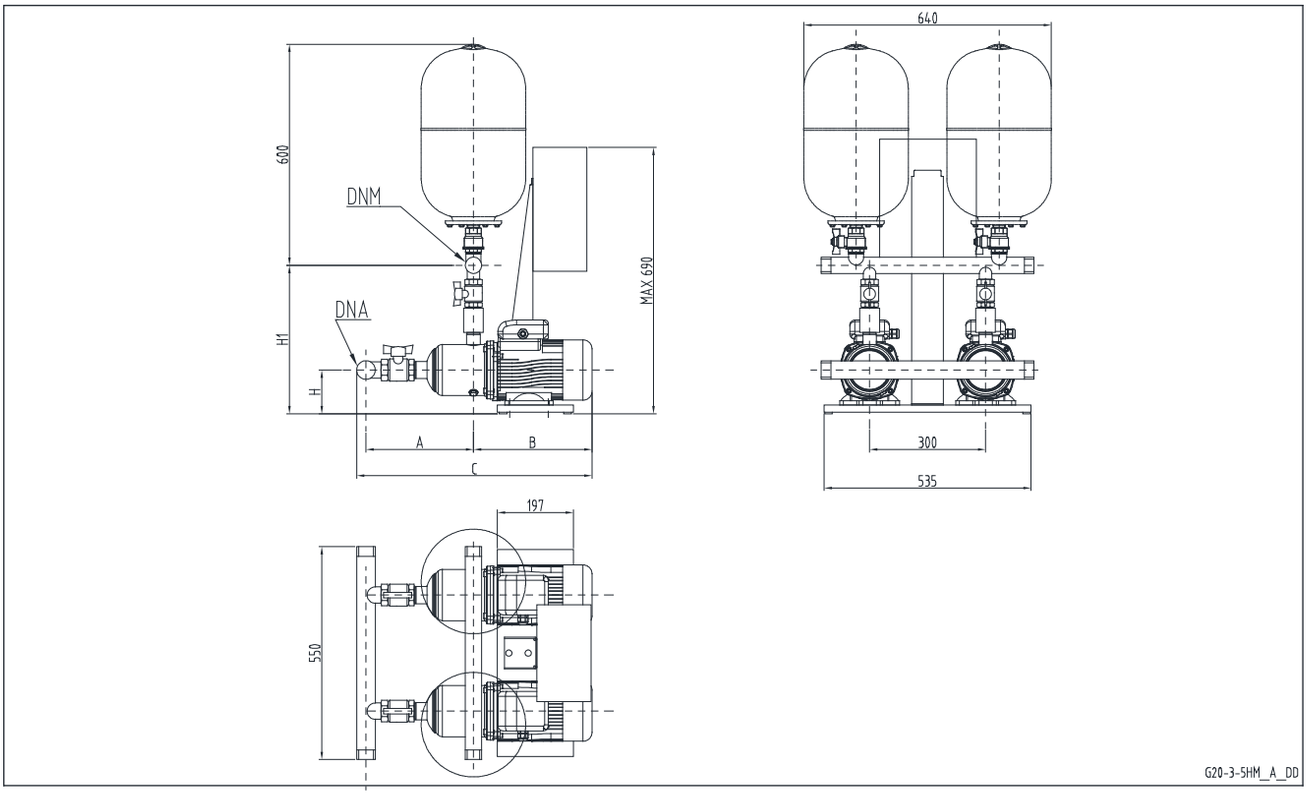
## BOOSTER SETS GMD SERIES
## OPERATING CHARACTERISTICS AND LIMITS

| | |
|---|---|
| Permitted liquids | Water without gases and corrosive and/or aggressive substances. |
| Fluid temperature | per e-HM, e-SV, CEA, VM:<br>da +5 a +60° C, standard version.<br>da +5 a +80° C, version A304, B304, C304, A316, B316, C316.<br>per BG:<br>da +5 a +40° C. |
| 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. |

* Higher PN available on request depending on pump type

GM_2p-en_a_ti

# BOOSTER SETS GMD SERIES
# HM..P HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

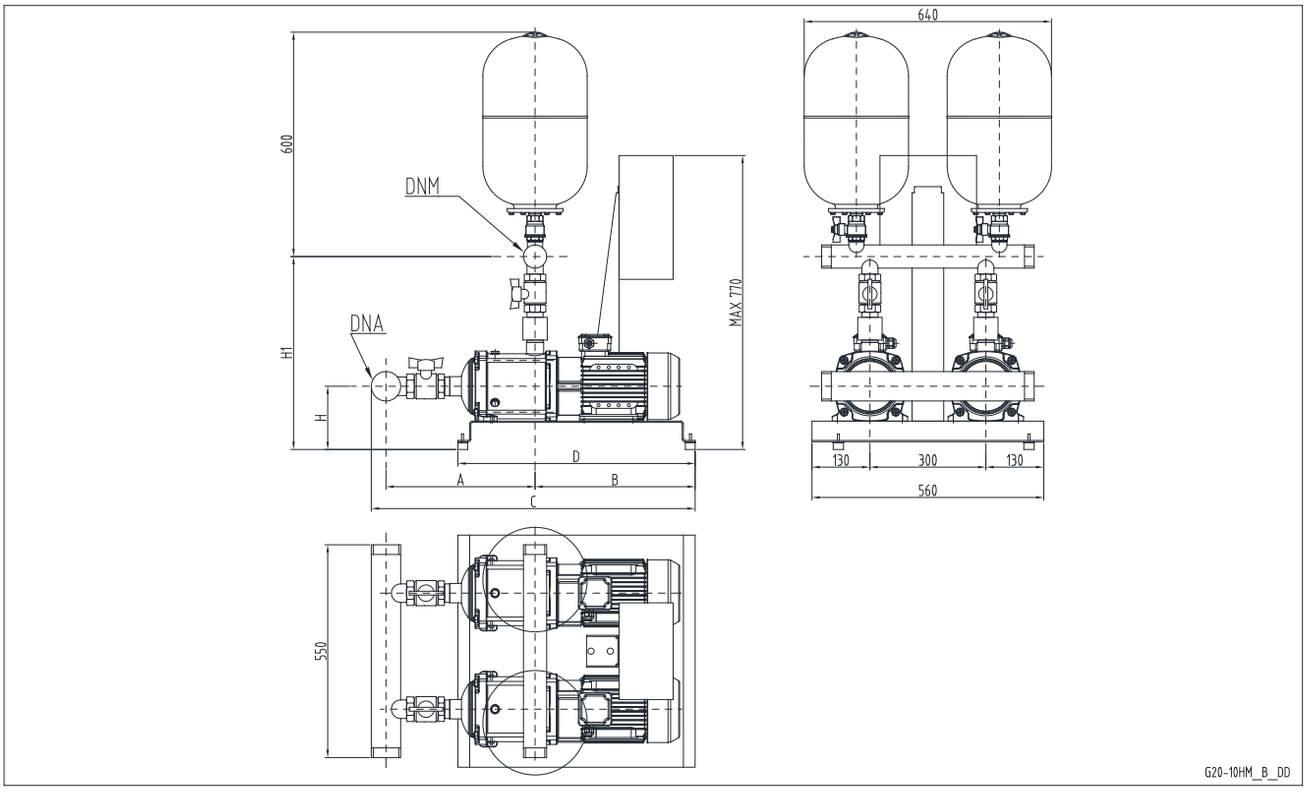



| GMD 20 | DNA | DNM | A | B | C | H | H1 |
|---|---|---|---|---|---|---|---|
| 3HM02 | R 2" | R 2" | 224 | 249 | 503 | 113 | 398 |
| 3HM03 | R 2" | R 2" | 224 | 249 | 503 | 113 | 398 |
| 3HM04 | R 2" | R 2" | 244 | 249 | 523 | 113 | 398 |
| 3HM05 | R 2" | R 2" | 264 | 308 | 602 | 113 | 398 |
| 3HM06 | R 2" | R 2" | 284 | 308 | 622 | 113 | 398 |
| 5HM02 | R 2" | R 2" | 245 | 249 | 524 | 113 | 398 |
| 5HM03 | R 2" | R 2" | 245 | 249 | 524 | 113 | 398 |
| 5HM04 | R 2" | R 2" | 265 | 308 | 603 | 113 | 398 |
| 5HM05 | R 2" | R 2" | 285 | 308 | 623 | 113 | 398 |
| 5HM06 | R 2" | R 2" | 305 | 308 | 643 | 113 | 398 |

gmd20_3-5hm_c_td

Dimensions in mm. Tolerance ± 10 mm.

# BOOSTER SETS GMD SERIES
# HM..P HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

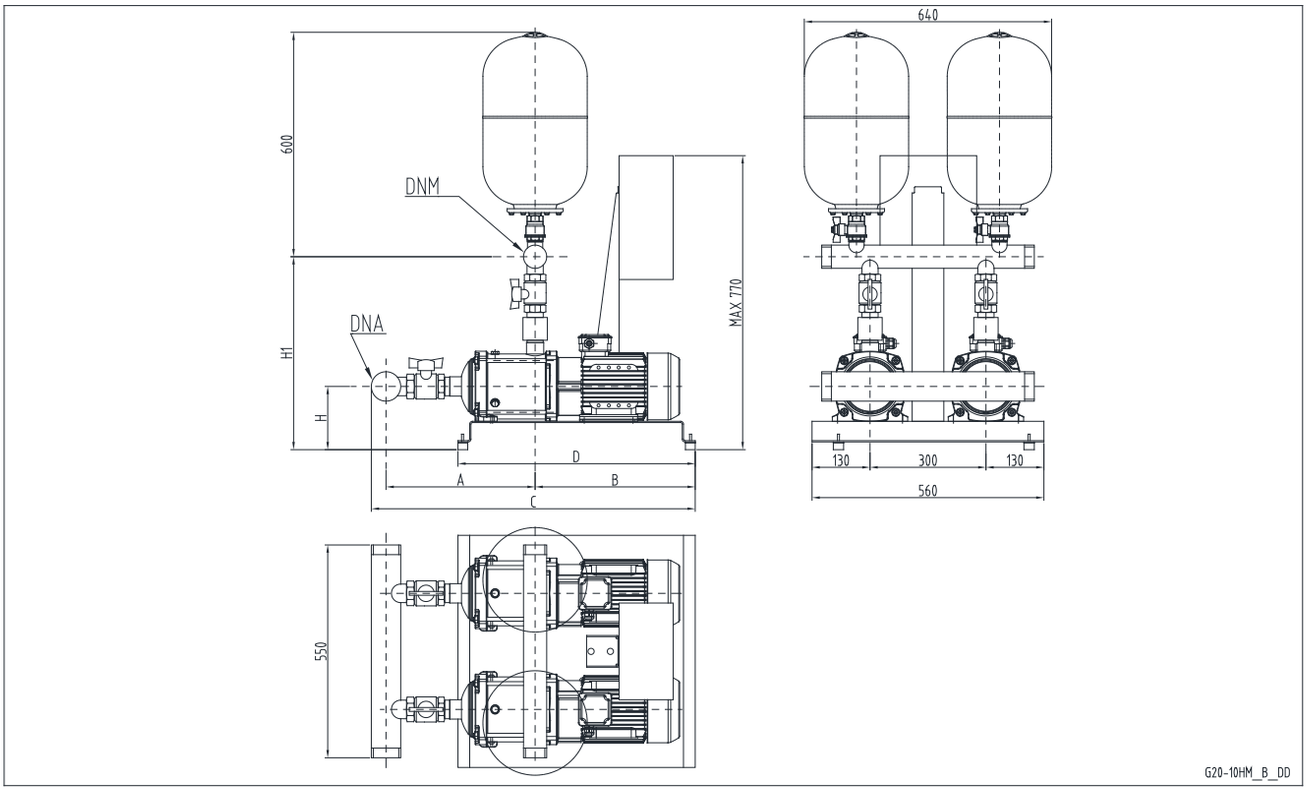



| GMD 20 | DNA | DNM | A | B | C | D | H | H1 |
|---|---|---|---|---|---|---|---|---|
| 10HM02 | R 2"1/2 | R 2"1/2 | 302 | 354 | 694 | 590 | 205 | 547 |
| 10HM03 | R 2"1/2 | R 2"1/2 | 302 | 354 | 694 | 590 | 205 | 547 |
| 10HM04 | R 2"1/2 | R 2"1/2 | 334 | 354 | 726 | 590 | 205 | 547 |
| 10HM05 | R 2"1/2 | R 2"1/2 | 366 | 390 | 794 | 590 | 205 | 547 |
| 10HM06 | R 2"1/2 | R 2"1/2 | 398 | 390 | 826 | 590 | 205 | 547 |

gmd20_10hm_c_td

Dimensions in mm. Tolerance ± 10 mm.

# BOOSTER SETS GMD SERIES
# HM..S HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE



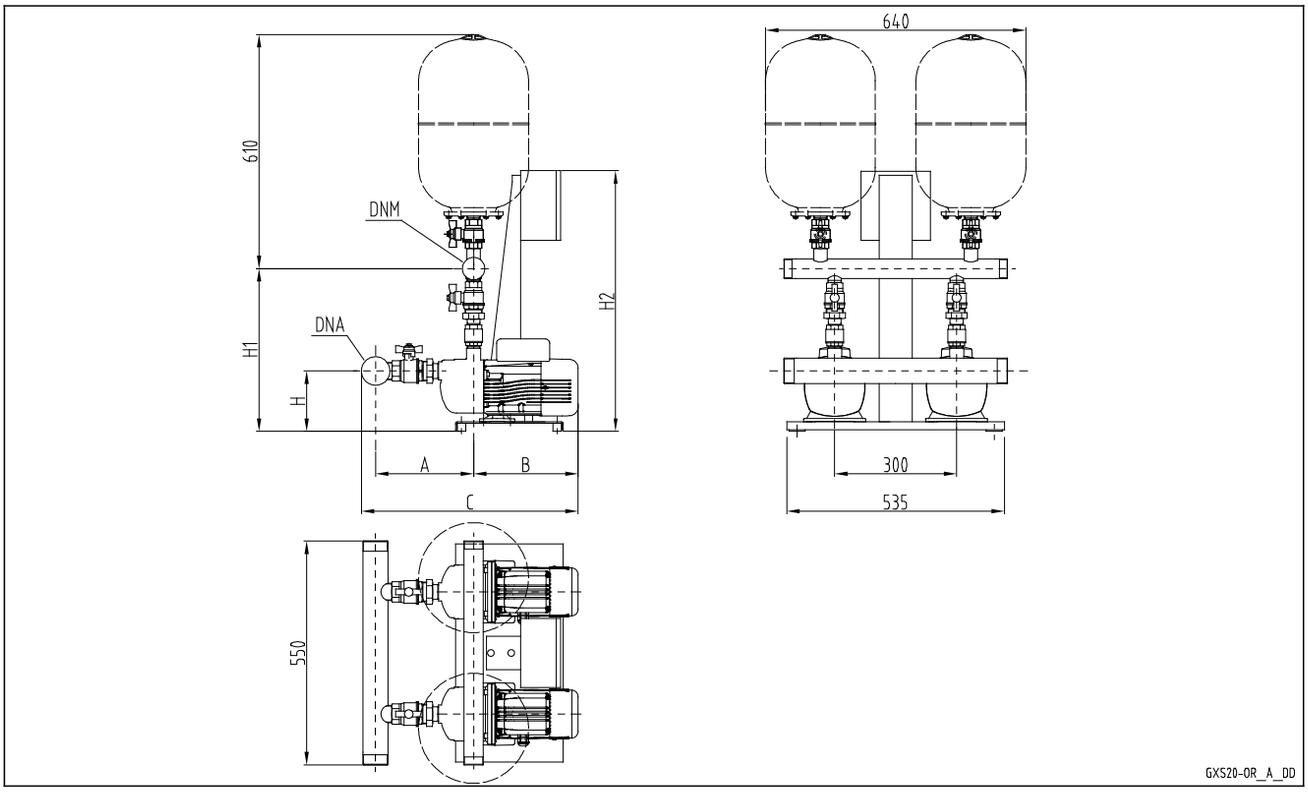

| GMD 20 | DNA | DNM | A | B | C | D | H | H1 |
|---|---|---|---|---|---|---|---|---|
| 3HM10 | R 2" | R 2" | 348 | 354 | 732 | 590 | 205 | 490 |
| 3HM11 | R 2" | R 2" | 368 | 354 | 752 | 590 | 205 | 490 |
| 3HM12 | R 2" | R 2" | 388 | 354 | 772 | 590 | 205 | 490 |
| 3HM13 | R 2" | R 2" | 408 | 354 | 792 | 762 | 205 | 490 |
| 3HM14 | R 2" | R 2" | 428 | 354 | 812 | 762 | 205 | 490 |
| 3HM16 | R 2" | R 2" | 468 | 354 | 852 | 762 | 205 | 490 |
| 3HM17 | R 2" | R 2" | 488 | 354 | 872 | 762 | 205 | 490 |
| 3HM19 | R 2" | R 2" | 528 | 377 | 935 | 762 | 205 | 490 |
| 3HM21 | R 2" | R 2" | 568 | 390 | 988 | 902 | 205 | 490 |
| 5HM09 | R 2" | R 2" | 389 | 354 | 773 | 590 | 205 | 490 |
| 5HM10 | R 2" | R 2" | 414 | 354 | 798 | 762 | 205 | 490 |
| 5HM11 | R 2" | R 2" | 439 | 354 | 823 | 762 | 205 | 490 |
| 5HM12 | R 2" | R 2" | 464 | 390 | 884 | 762 | 205 | 490 |
| 5HM13 | R 2" | R 2" | 489 | 390 | 909 | 762 | 205 | 490 |
| 5HM14 | R 2" | R 2" | 514 | 390 | 934 | 762 | 205 | 490 |
| 5HM15 | R 2" | R 2" | 539 | 390 | 959 | 762 | 205 | 490 |
| 5HM17 | R 2" | R 2" | 589 | 390 | 1009 | 902 | 205 | 490 |
| 5HM19 | R 2" | R 2" | 639 | 390 | 1059 | 902 | 205 | 490 |
| 5HM21 | R 2" | R 2" | 689 | 390 | 1109 | 902 | 205 | 490 |
| 10HM07 | R 2"1/2 | R 2"1/2 | 430 | 390 | 858 | 762 | 205 | 547 |
| 10HM08 | R 2"1/2 | R 2"1/2 | 462 | 390 | 890 | 762 | 205 | 547 |
| 10HM09 | R 2"1/2 | R 2"1/2 | 494 | 417 | 949 | 762 | 215 | 557 |
| 10HM10 | R 2"1/2 | R 2"1/2 | 526 | 417 | 981 | 762 | 215 | 557 |
| 10HM11 | R 2"1/2 | R 2"1/2 | 558 | 417 | 1013 | 902 | 215 | 557 |
| 15HM02 | R3" | R3" | 362 | 371 | 777 | 590 | 205 | 651 |
| 15HM03 | R3" | R3" | 362 | 407 | 813 | 590 | 205 | 651 |
| 15HM04 | R3" | R3" | 410 | 407 | 861 | 590 | 205 | 651 |
| 15HM05 | R3" | R3" | 458 | 433 | 935 | 762 | 215 | 661 |
| 22HM02 | R3" | R3" | 362 | 414 | 820 | 590 | 205 | 651 |
| 22HM03 | R3" | R3" | 362 | 414 | 820 | 590 | 205 | 651 |
| 22HM04 | R3" | R3" | 410 | 433 | 887 | 762 | 215 | 661 |

Dimensions in mm. Tolerance ± 10 mm.

gmd20_3-22hms_d_td

LOWARA
a xylem brand

# BOOSTER SETS GMD SERIES
# BG / CEA HORIZONTAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

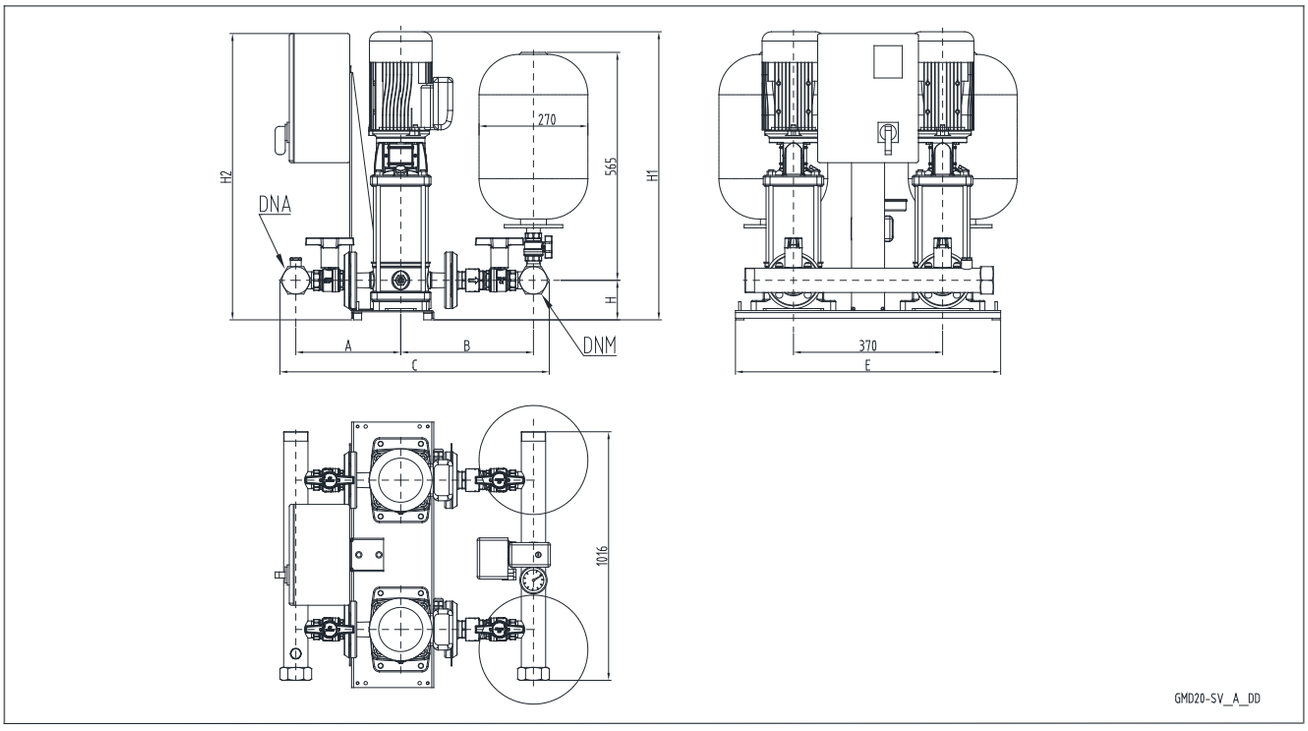



| GMD 20 | DNA | DNM | A | B | C | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|
| BG3 | R 2" | R 1 "1/2 | 225 | 297 | 552 | 189 | 431 | 640 |
| BG5 | R 2" | R 1 "1/2 | 225 | 311 | 566 | 189 | 431 | 640 |
| BG7 | R 2" | R 1 "1/2 | 225 | 356 | 611 | 189 | 431 | 640 |
| BG9 | R 2" | R 1 "1/2 | 225 | 356 | 611 | 189 | 431 | 640 |
| BG11 | R 2" | R 1 "1/2 | 225 | 356 | 611 | 189 | 431 | 640 |
| CEA70/3 | R 2" | R 1 "1/2 | 207 | 260 | 497 | 134 | 429 | 640 |
| CEA70/5 | R 2" | R 1 "1/2 | 207 | 274 | 511 | 134 | 429 | 640 |
| CEA80/5 | R 2" | R 1 "1/2 | 207 | 320 | 557 | 134 | 429 | 640 |
| CEA120/3 | R 2" | R 2" | 207 | 274 | 511 | 134 | 453 | 640 |
| CEA120/5 | R 2" | R 2" | 220 | 320 | 570 | 134 | 453 | 640 |
| CEA210/2 | R 2" 1/2 | R 2 "1/2 | 231 | 331 | 600 | 134 | 493 | 640 |
| CEA210/3 | R 2" 1/2 | R 2 "1/2 | 231 | 331 | 600 | 134 | 493 | 640 |
| CEA210/4 | R 2" 1/2 | R 2 "1/2 | 231 | 375 | 644 | 134 | 493 | 640 |
| CEA210/5 | R 2" 1/2 | R 2 "1/2 | 231 | 375 | 644 | 134 | 493 | 640 |
| CEA370/1 | R 3" | R 2 "1/2 | 272 | 331 | 647 | 134 | 578 | 640 |
| CEA370/2 | R 3" | R 2 "1/2 | 272 | 375 | 691 | 134 | 578 | 640 |
| CEA370/3 | R 3" | R 2 "1/2 | 272 | 375 | 691 | 134 | 578 | 640 |
| CEA370/5 | R 3" | R 2 "1/2 | 272 | 375 | 691 | 134 | 578 | 640 |

Dimensions in mm. Tolerance ± 10 mm.

gmd20 or i td

# BOOSTER SETS GMD SERIES
# e-SV VERTICAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

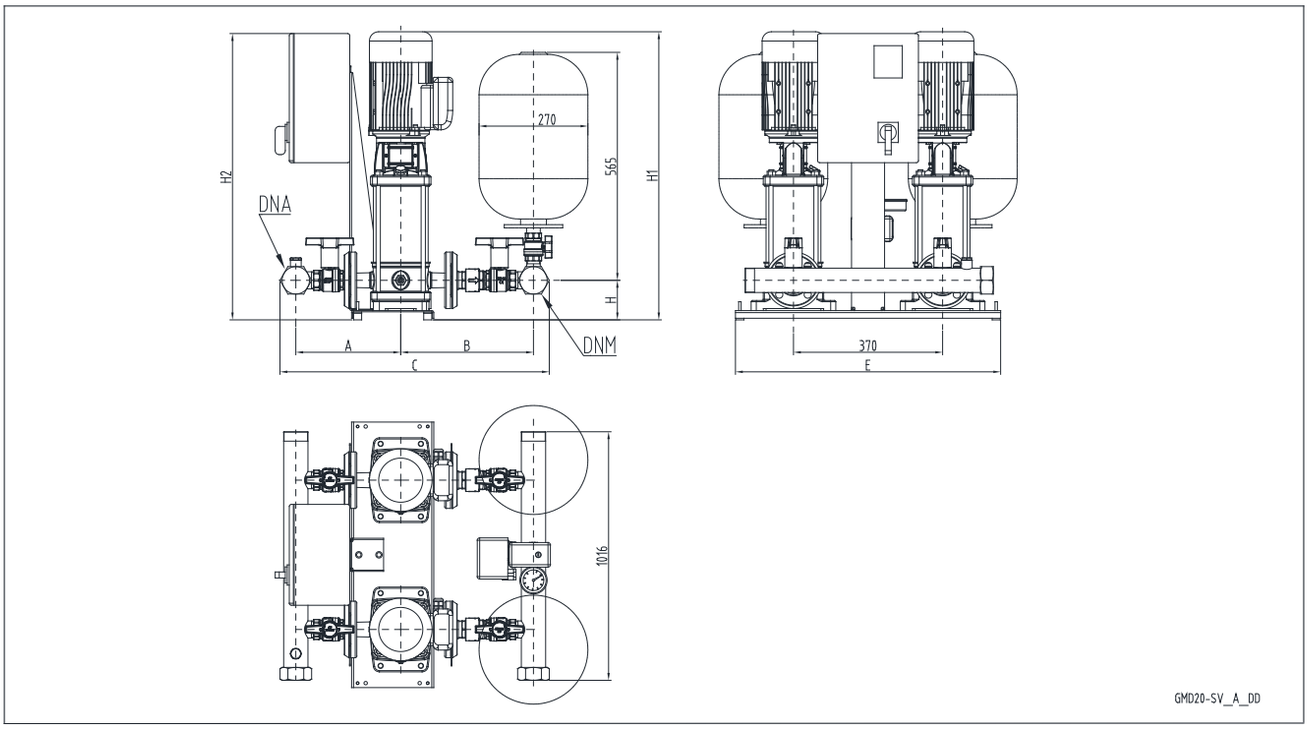



| GMD 20 | DNA | DNM | A | B | C | E | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|---|
| 3SV02F003T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 510 | 700 |
| 3SV03F003T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 510 | 700 |
| 3SV04F003T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 530 | 700 |
| 3SV05F005T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 572 | 700 |
| 3SV06F005T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 592 | 700 |
| 3SV07F007T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 654 | 700 |
| 3SV08F007T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 674 | 700 |
| 3SV09F011T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 694 | 700 |
| 3SV10F011T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 714 | 700 |
| 3SV11F011T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 734 | 700 |
| 3SV12F011T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 754 | 700 |
| 3SV13F015T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 784 | 700 |
| 3SV14F015T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 804 | 700 |
| 3SV16F015T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 844 | 700 |
| 3SV19F022T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 939 | 700 |
| 3SV21F022T | R 2" | R 2" | 256 | 311 | 627 | 658 | 98 | 979 | 700 |
| 5SV02F003T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 500 | 700 |
| 5SV03F005T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 547 | 700 |
| 5SV04F005T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 572 | 700 |
| 5SV05F007T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 639 | 700 |
| 5SV06F011T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 664 | 700 |
| 5SV07F011T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 689 | 700 |
| 5SV08F011T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 714 | 700 |
| 5SV09F015T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 749 | 700 |
| 5SV10F015T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 774 | 700 |
| 5SV11F015T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 799 | 700 |
| 5SV12F022T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 859 | 700 |
| 5SV13F022T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 884 | 700 |
| 5SV14F022T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 909 | 700 |
| 5SV15F022T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 934 | 700 |
| 5SV16F022T | R 2" | R 2" | 260 | 329 | 649 | 658 | 98 | 959 | 700 |
| 5SV18F030T | R 2" | R 2" | 260 | 329 | 649 | 682 | 109 | 1030 | 720 |
| 5SV21F030T | R 2" | R 2" | 260 | 329 | 649 | 682 | 109 | 1105 | 720 |

Dimensions in mm. Tolerance ± 10 mm.

gmd20_esv-f-1_a_td

# BOOSTER SETS GMD SERIES
# e-SV VERTICAL ELECTRIC PUMPS
# DIMENSIONAL TABLE

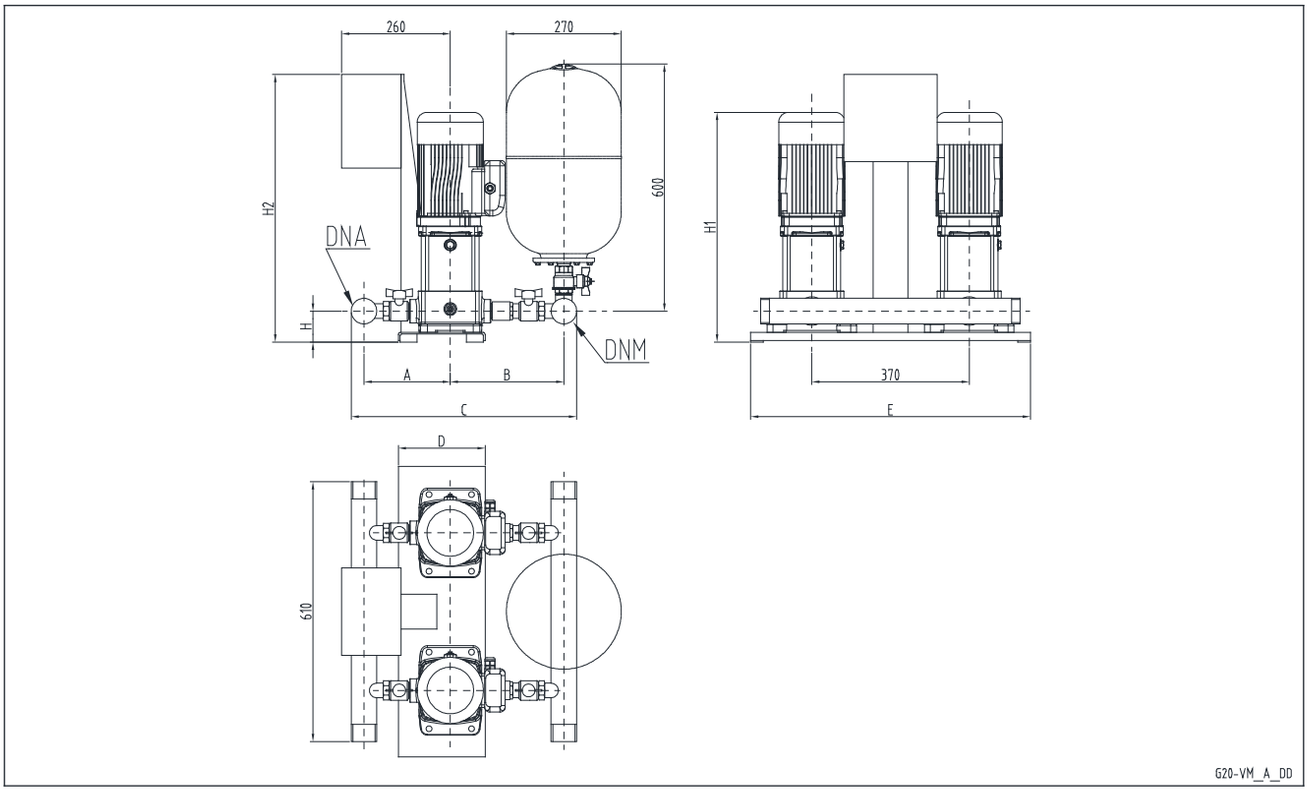



| GMD 20 | DNA | DNM | A | B | C | E | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|---|
| 10SV01F007T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 654 | 720 |
| 10SV02F007T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 654 | 720 |
| 10SV03F011T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 686 | 720 |
| 10SV04F015T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 728 | 720 |
| 10SV05F022T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 795 | 720 |
| 10SV06F022T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 827 | 720 |
| 10SV07F030T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 869 | 720 |
| 10SV08F030T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 901 | 720 |
| 10SV09F040T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 954 | 720 |
| 10SV10F040T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 986 | 720 |
| 10SV11F040T | R 2"1/2 | R 2"1/2 | 294 | 356 | 726 | 682 | 114 | 1018 | 720 |

Dimensions in mm. Tolerance ± 10 mm.

gmd20_esv-f-2_a_td

# BOOSTER SETS GMD SERIES
# VM VERTICAL ELECTRIC PUMPS
# DIMENSIONAL TABLE




| GMD 20 | DNA | DNM | A | B | C | D | E | H | H1 | H2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 3VM02 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 402 | 709 |
| 3VM03 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 402 | 709 |
| 3VM04 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 422 | 709 |
| 3VM05 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 500 | 709 |
| 3VM06 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 520 | 709 |
| 3VM07 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 540 | 709 |
| 3VM08 | R2" | R2" | 232 | 287 | 579 | 204 | 658 | 73 | 560 | 709 |
| 5VM02 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 402 | 709 |
| 5VM03 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 402 | 709 |
| 5VM04 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 480 | 709 |
| 5VM05 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 500 | 709 |
| 5VM06 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 520 | 709 |
| 5VM07 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 540 | 709 |
| 5VM08 | R2" | R2" | 251 | 320 | 631 | 204 | 658 | 73 | 616 | 709 |
| 10VM02 | R2"1/2 | R2"1/2 | 287 | 354 | 717 | 235 | 682 | 114 | 535 | 720 |
| 10VM03 | R2"1/2 | R2"1/2 | 287 | 354 | 717 | 235 | 682 | 114 | 567 | 720 |
| 10VM04 | R2"1/2 | R2"1/2 | 287 | 354 | 717 | 235 | 682 | 114 | 655 | 720 |
| 10VM05 | R2"1/2 | R2"1/2 | 287 | 354 | 717 | 235 | 682 | 114 | 687 | 720 |
| 10VM06 | R2"1/2 | R2"1/2 | 287 | 354 | 717 | 235 | 682 | 114 | 719 | 720 |

gmd20_vm_e_td

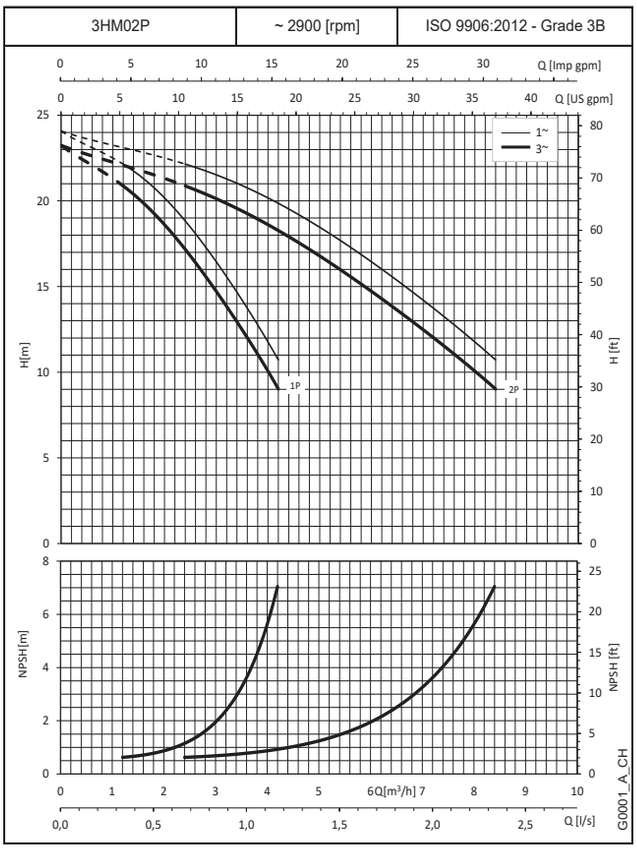
Dimensions in mm. Tolerance ± 10 mm.

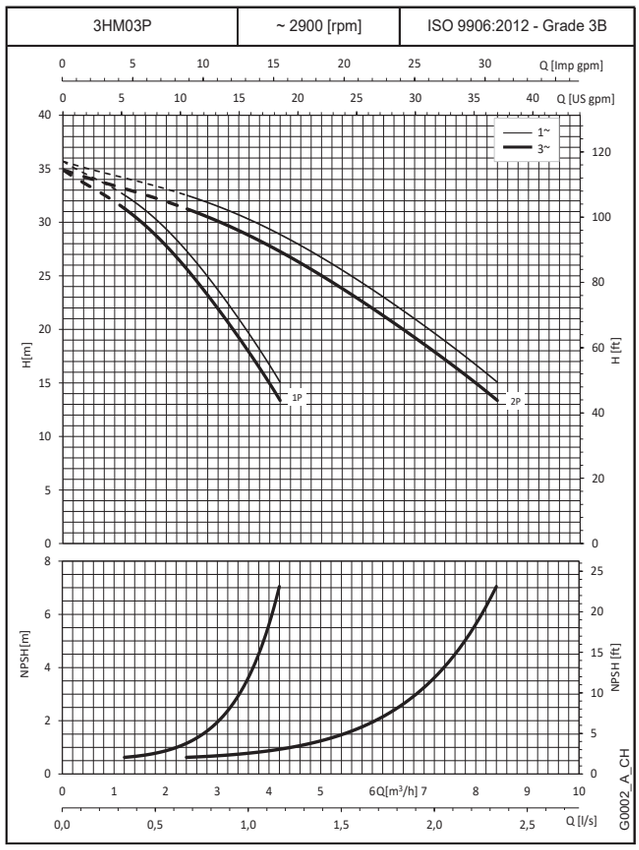
LOWARA
a xylem brand

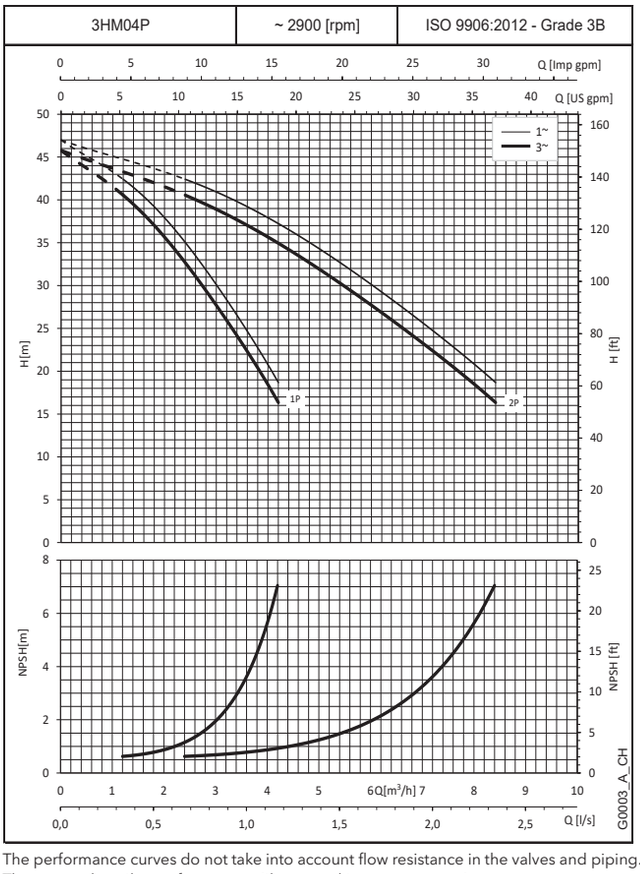
# PERFORMANCE CURVES

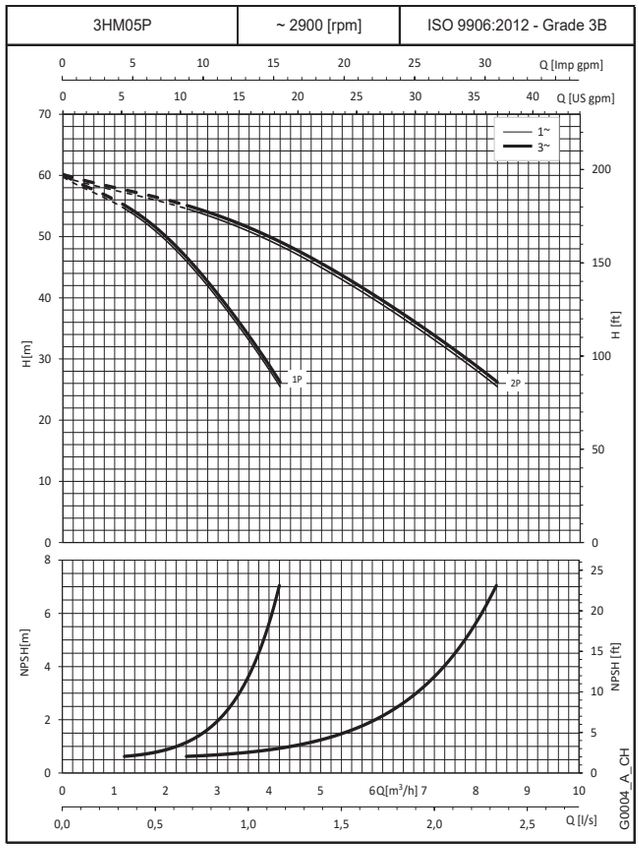
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



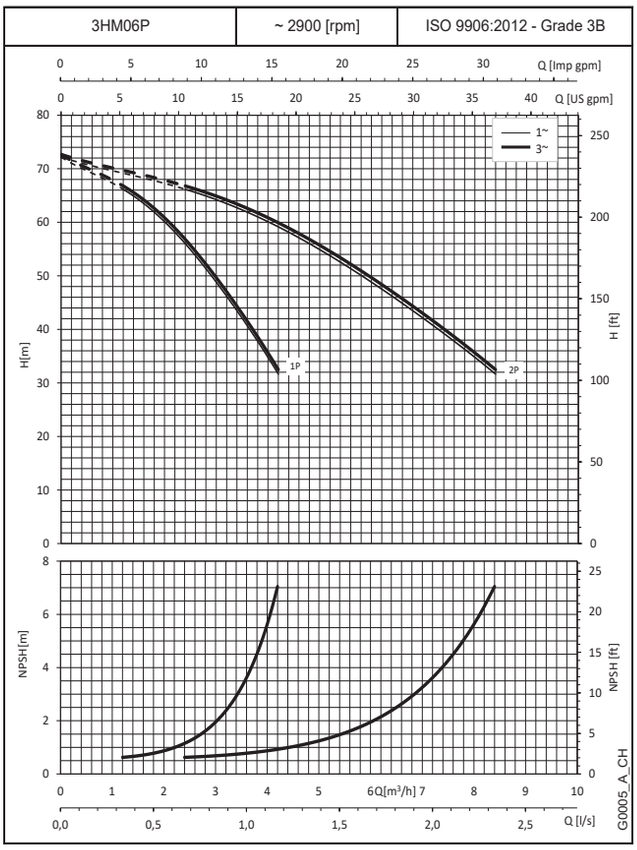



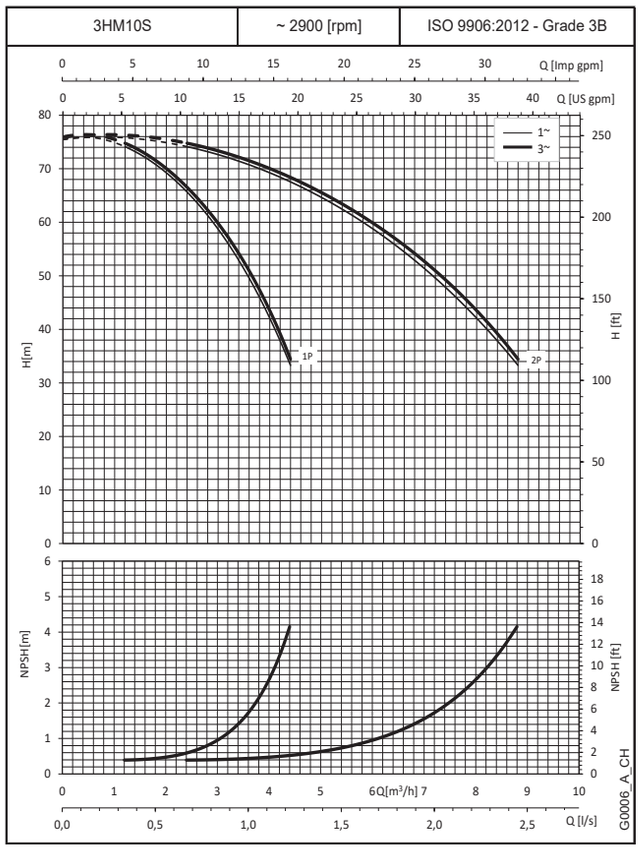



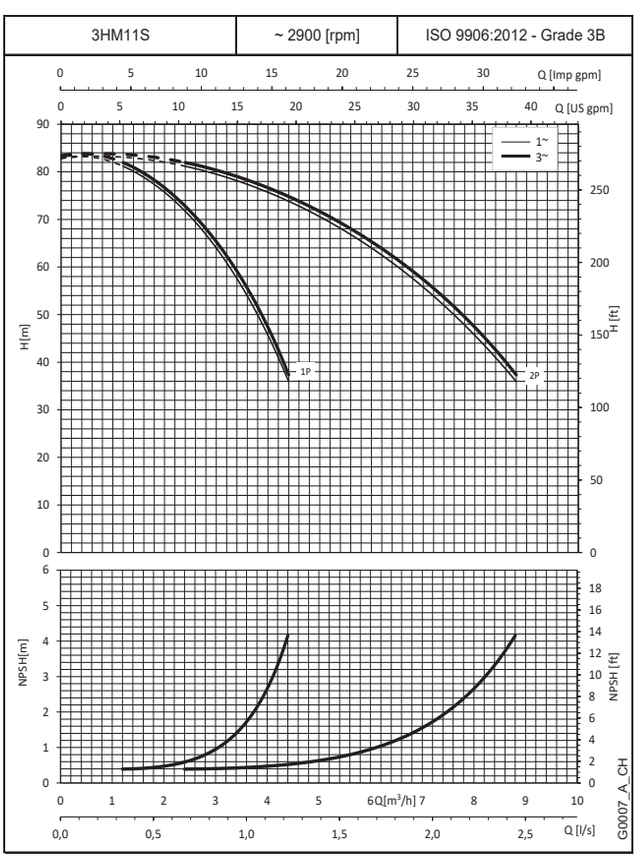

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

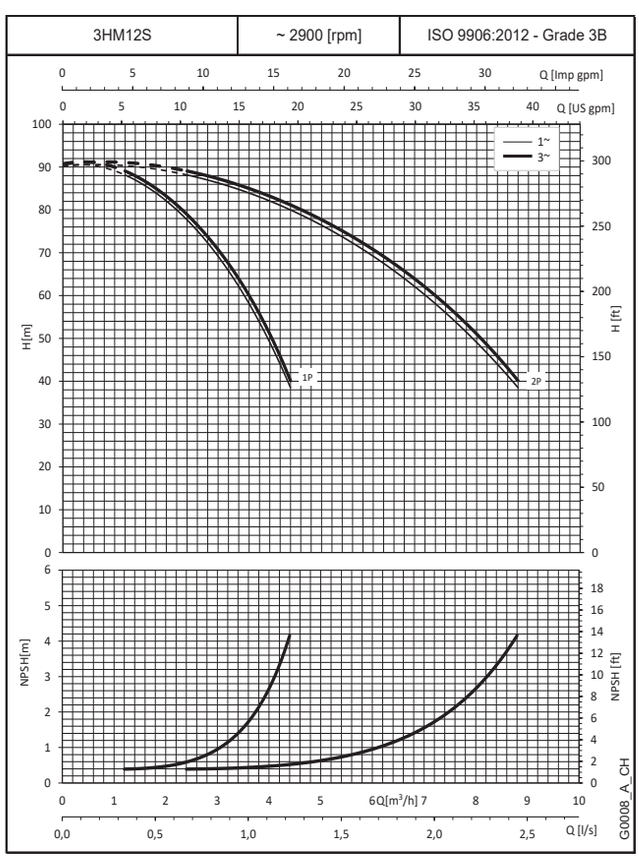
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



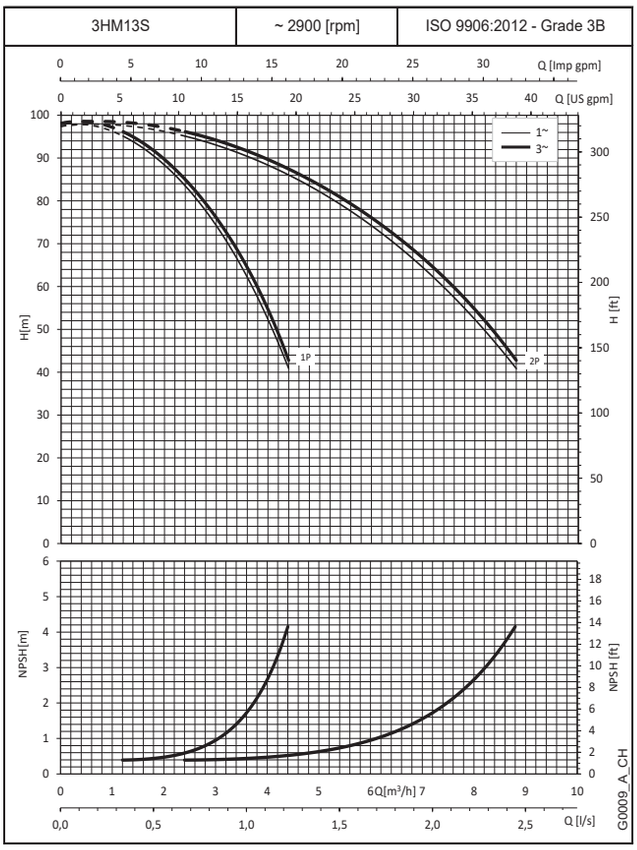



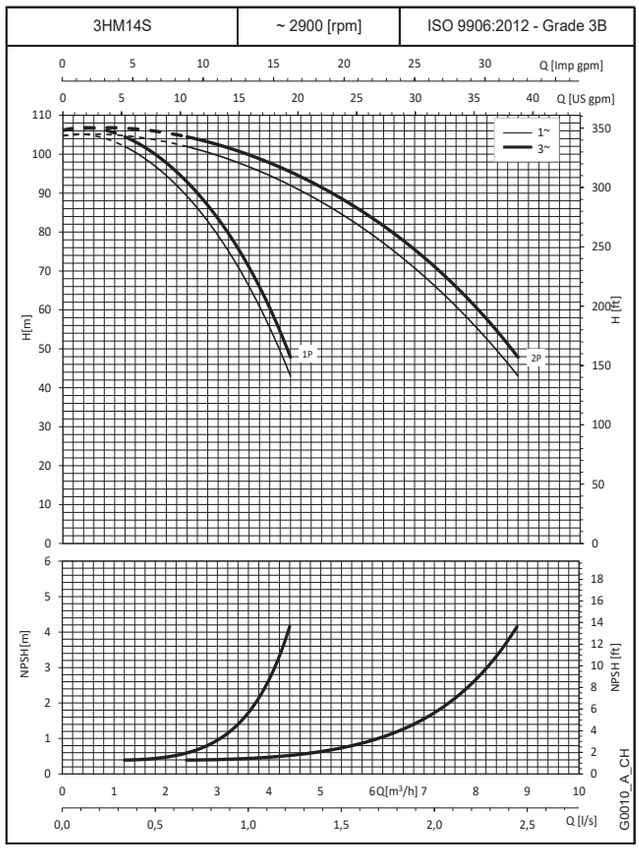



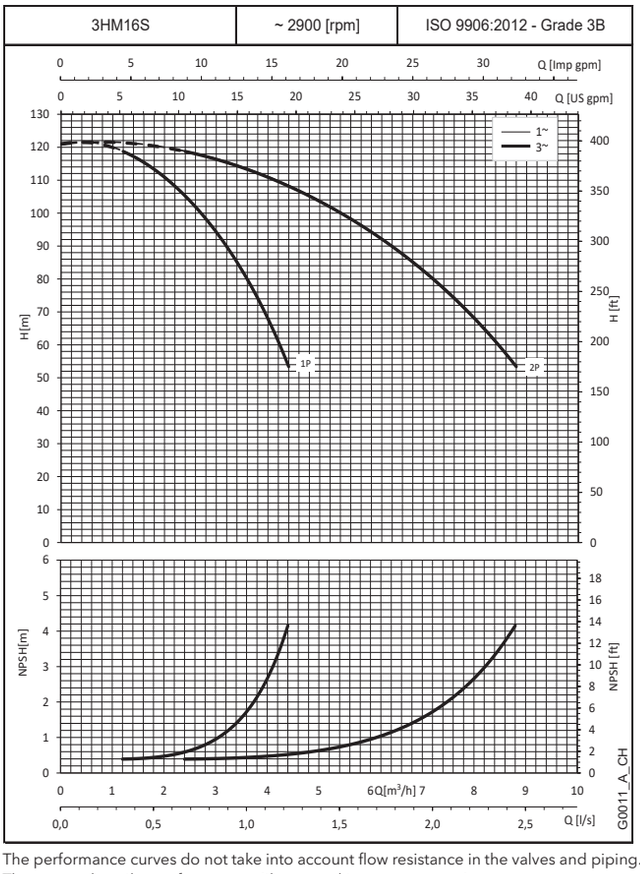

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

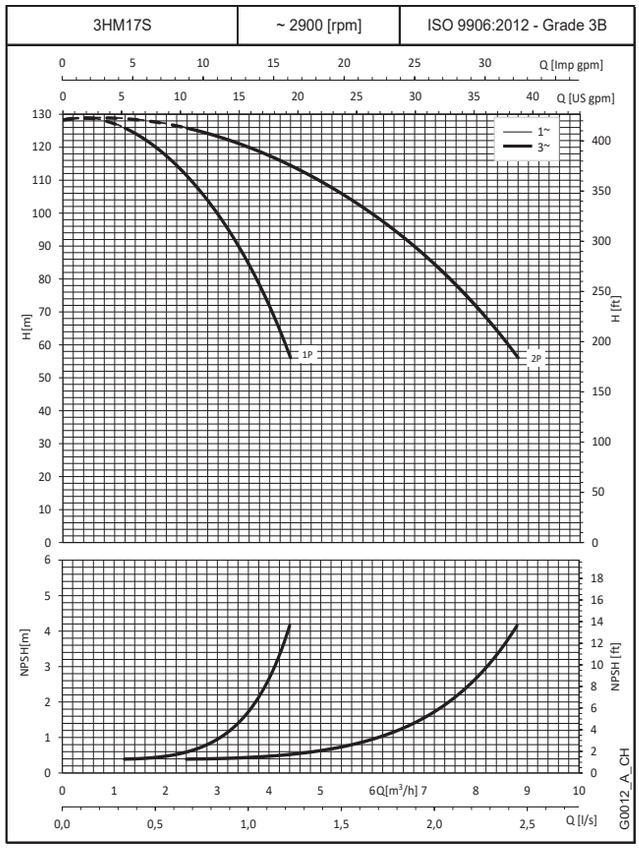
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



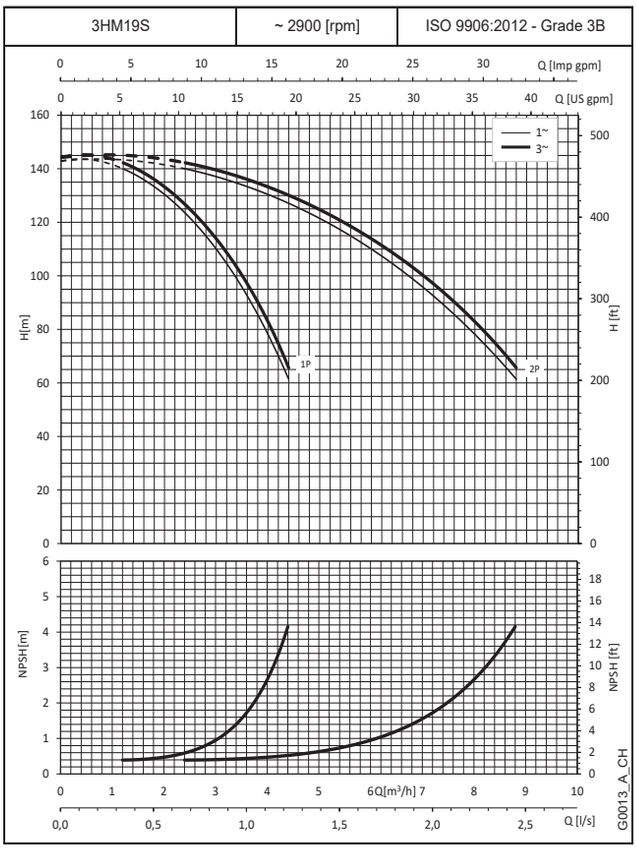



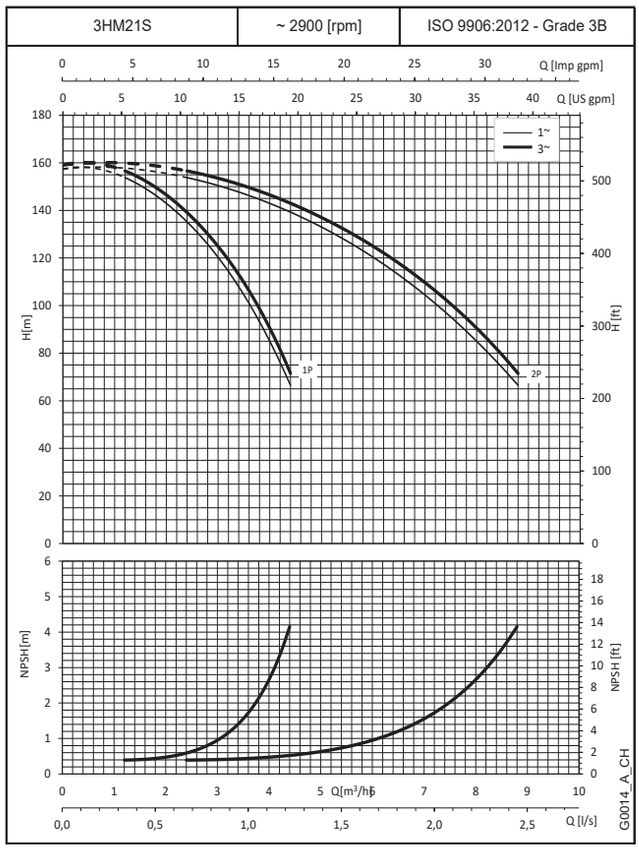



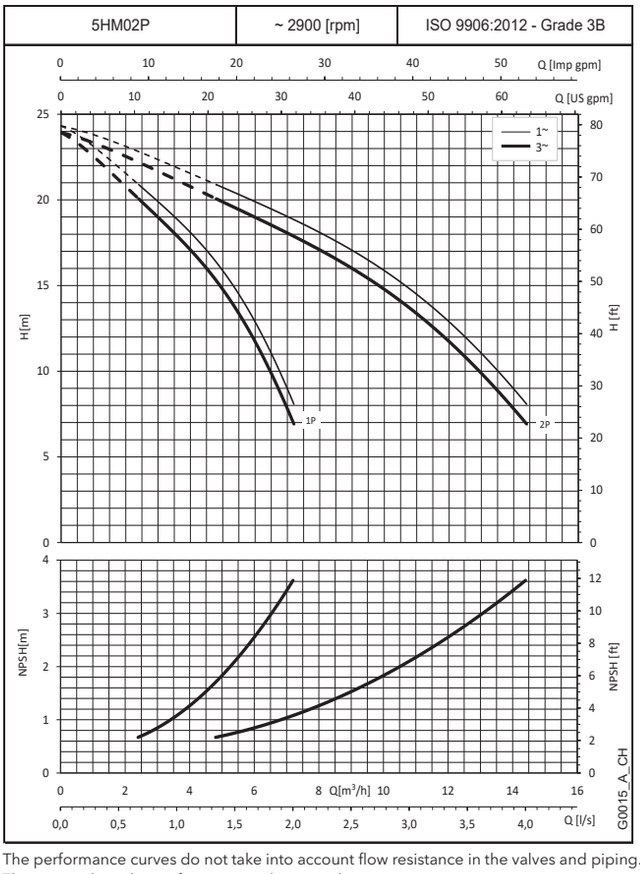



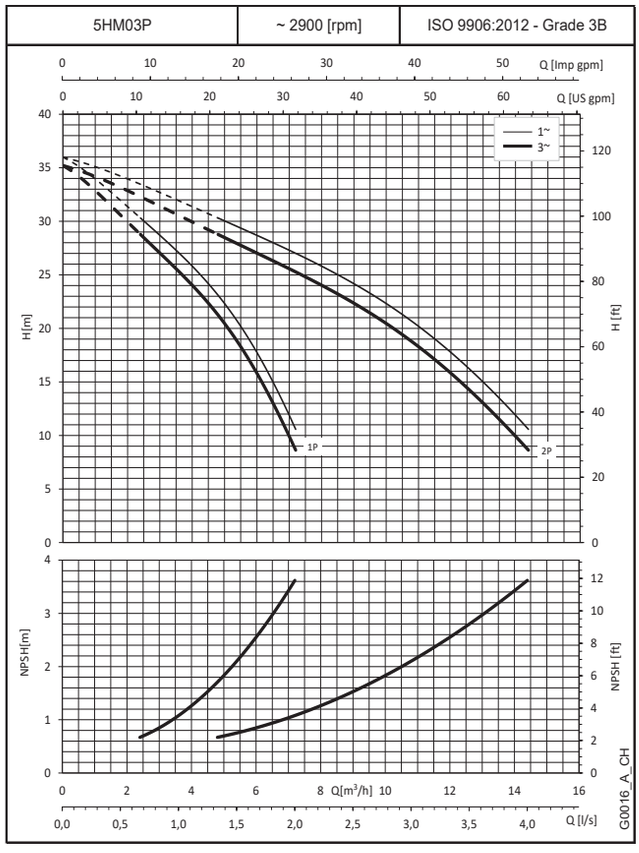

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



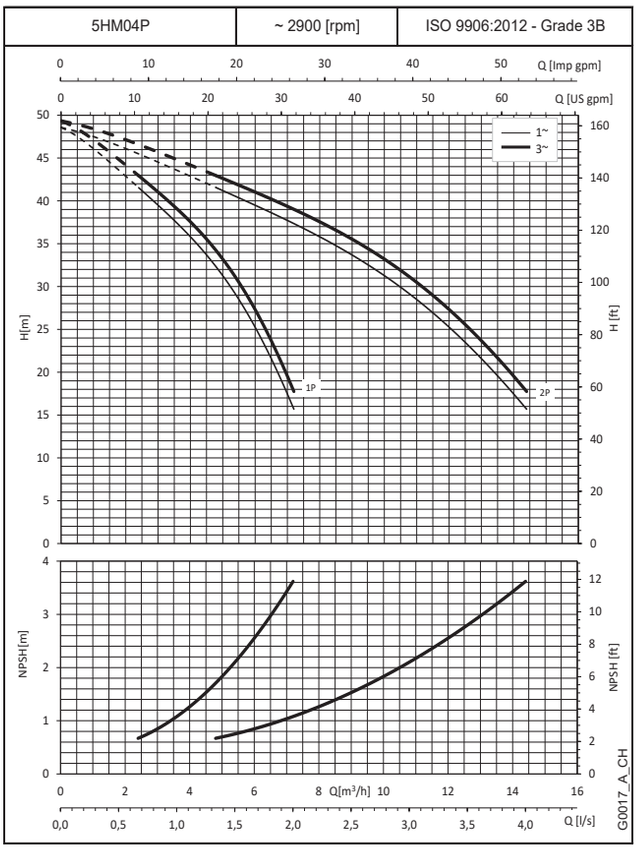



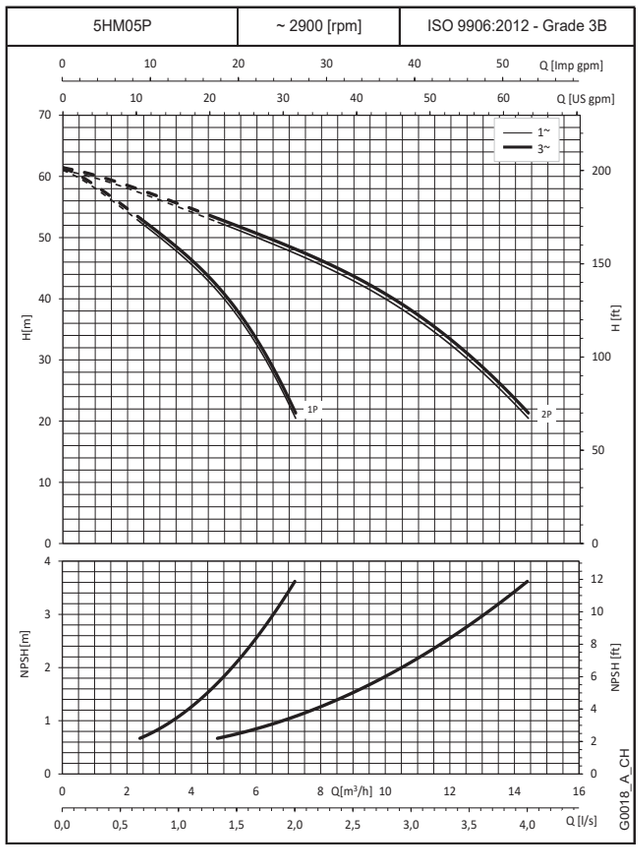



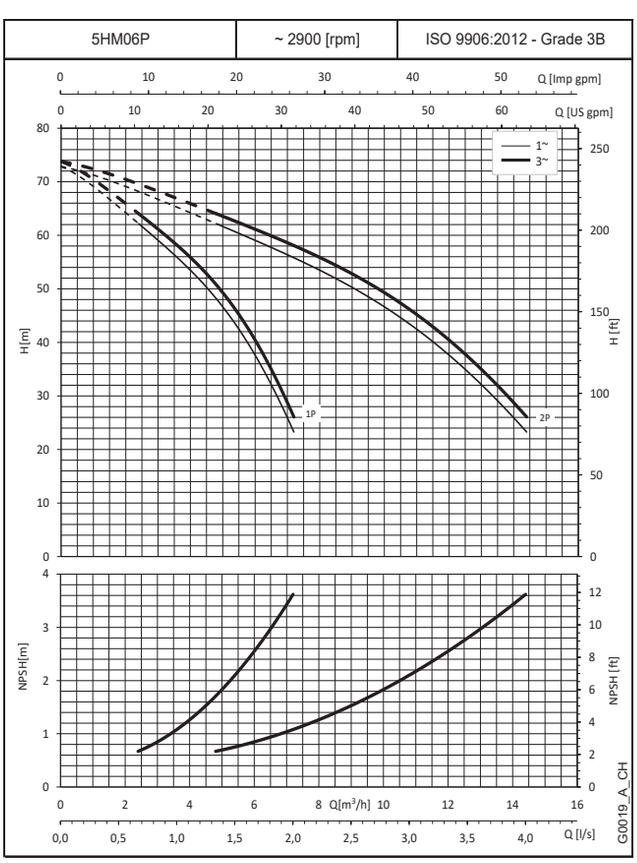

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

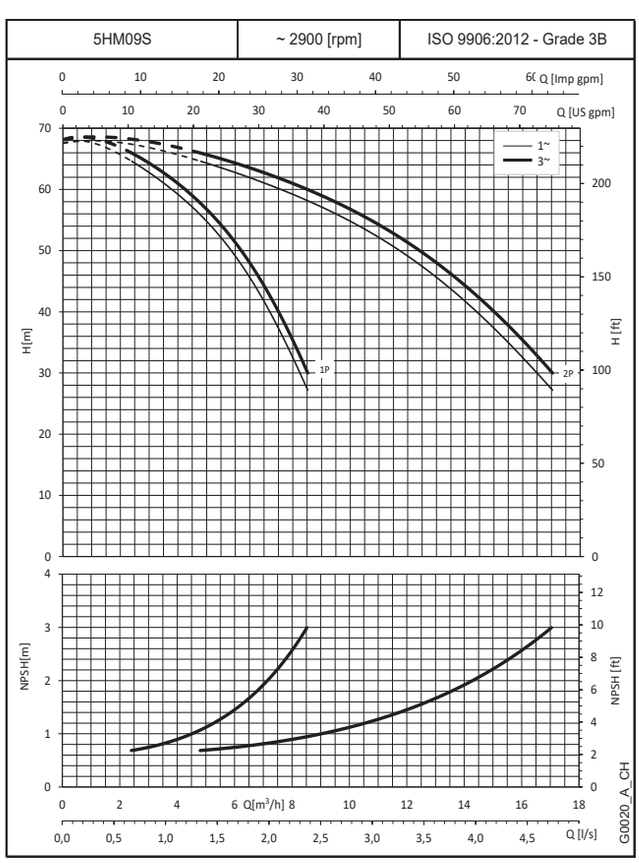
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



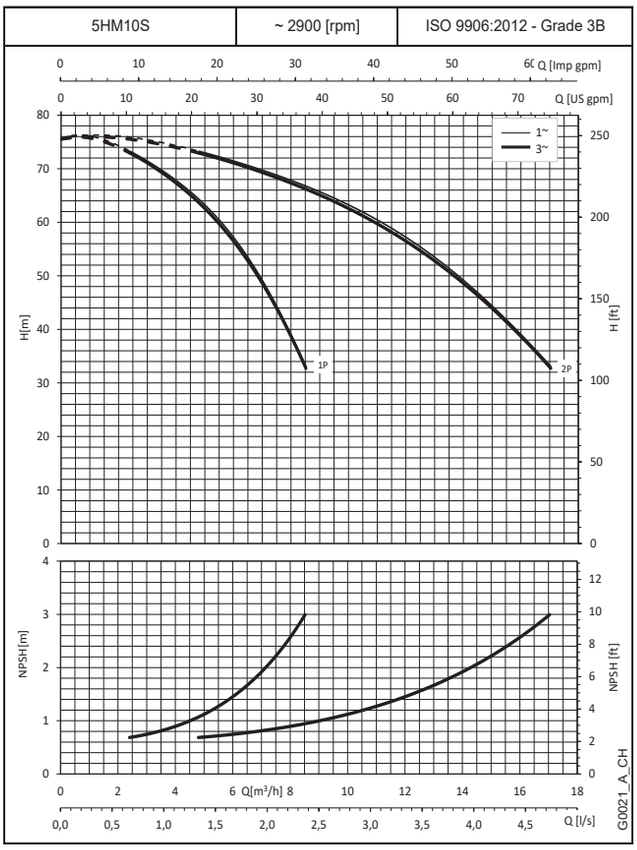



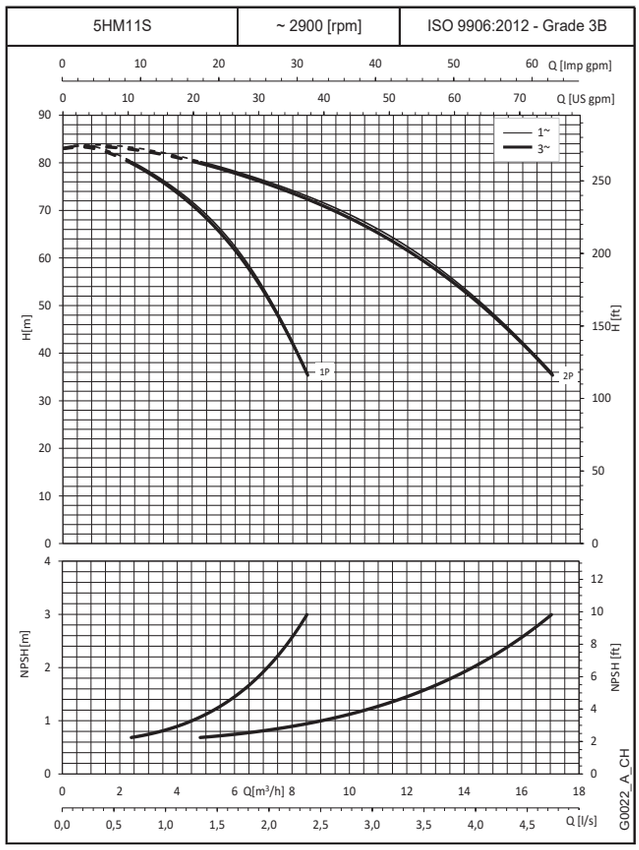



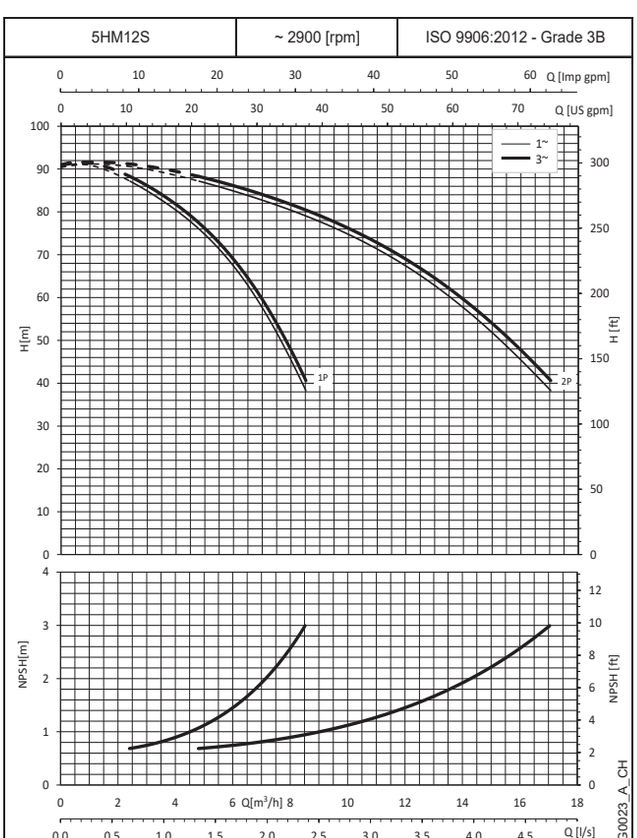

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

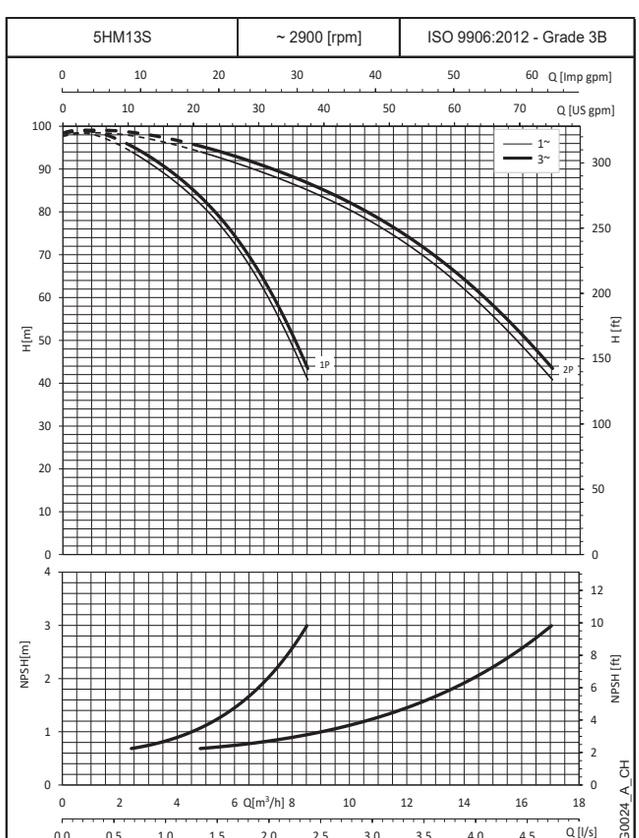
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



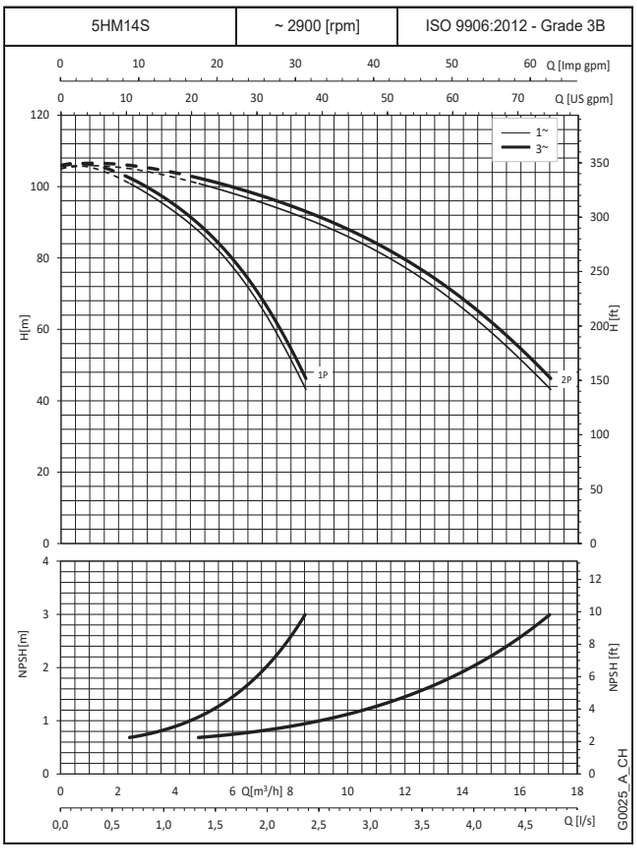



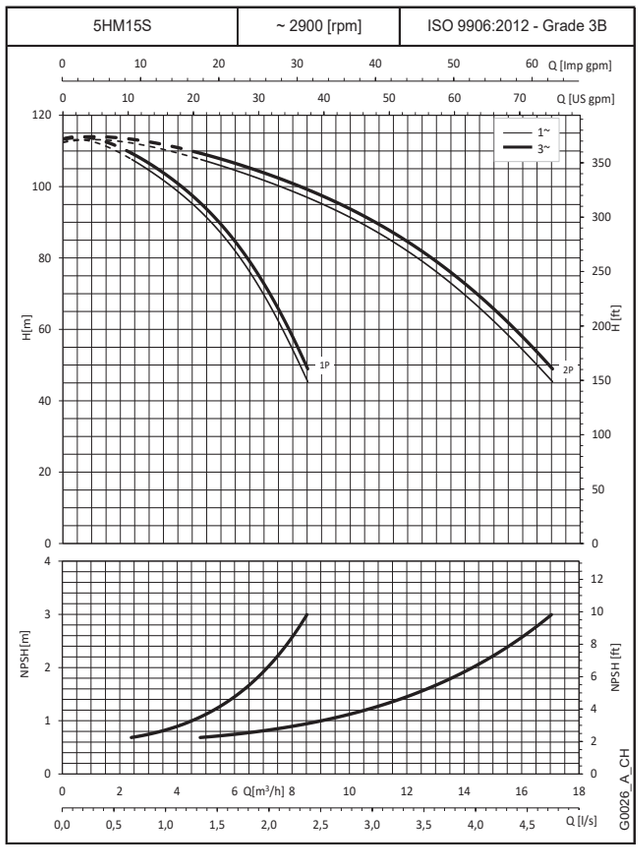



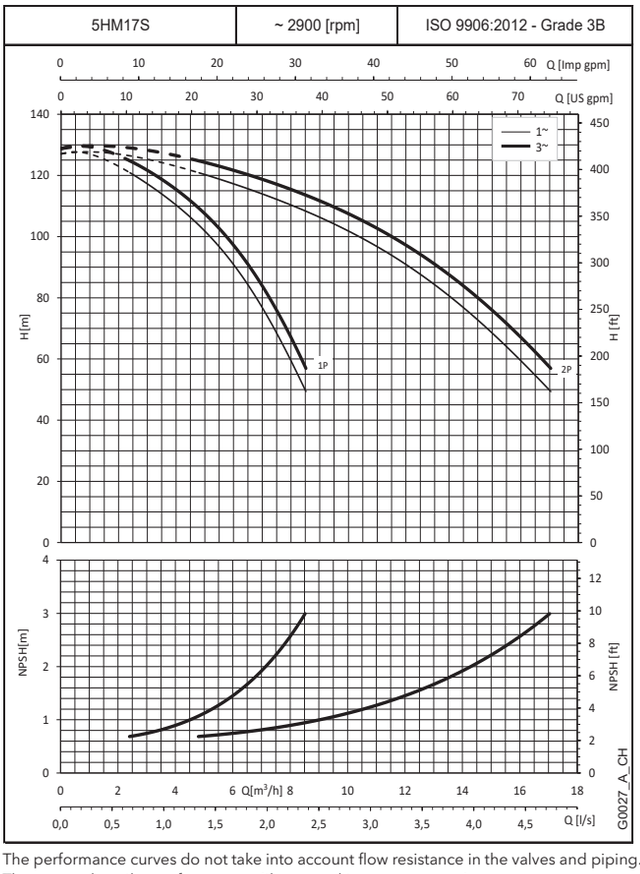



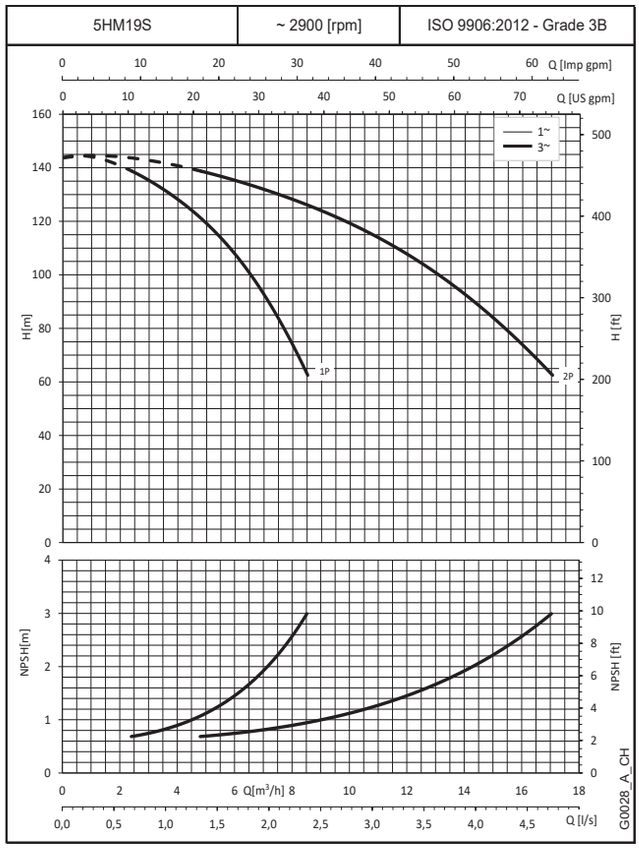

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



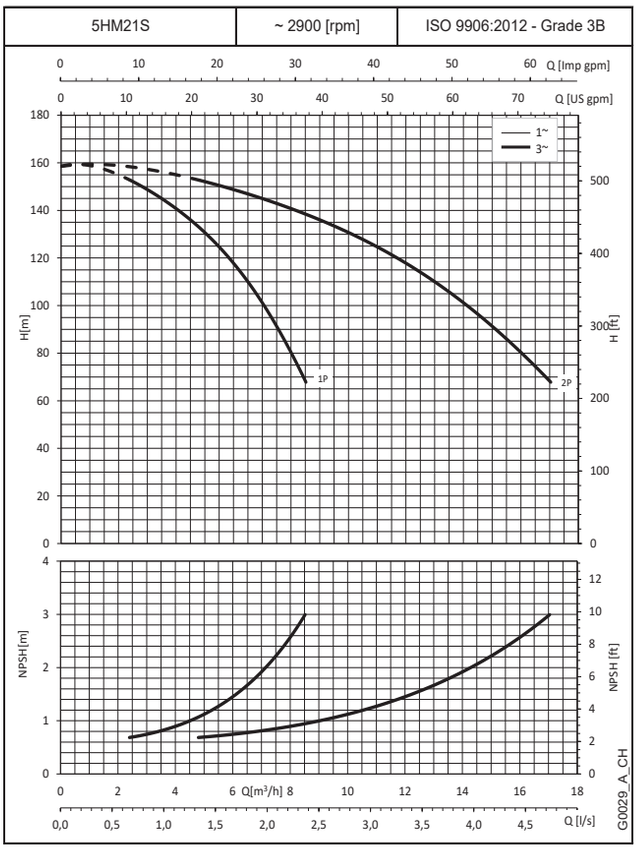



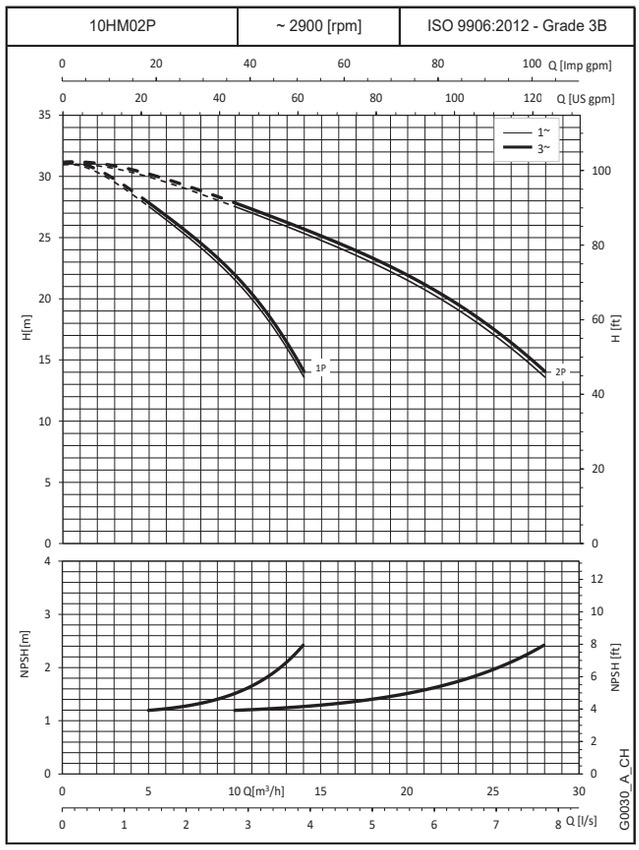



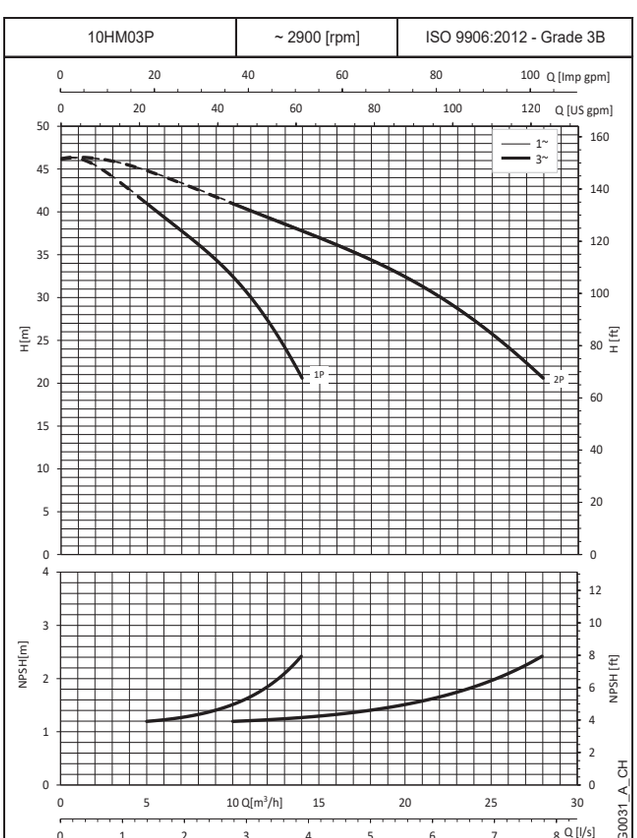

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

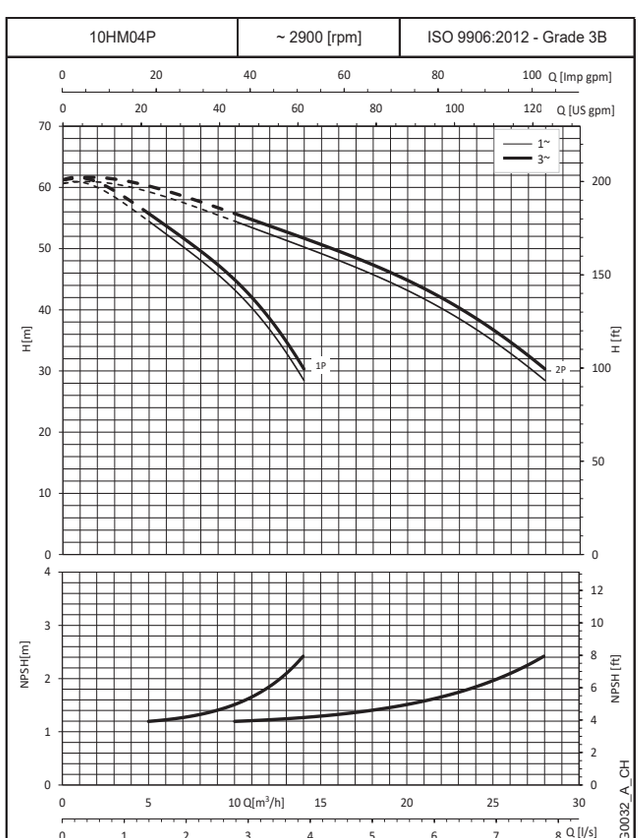
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



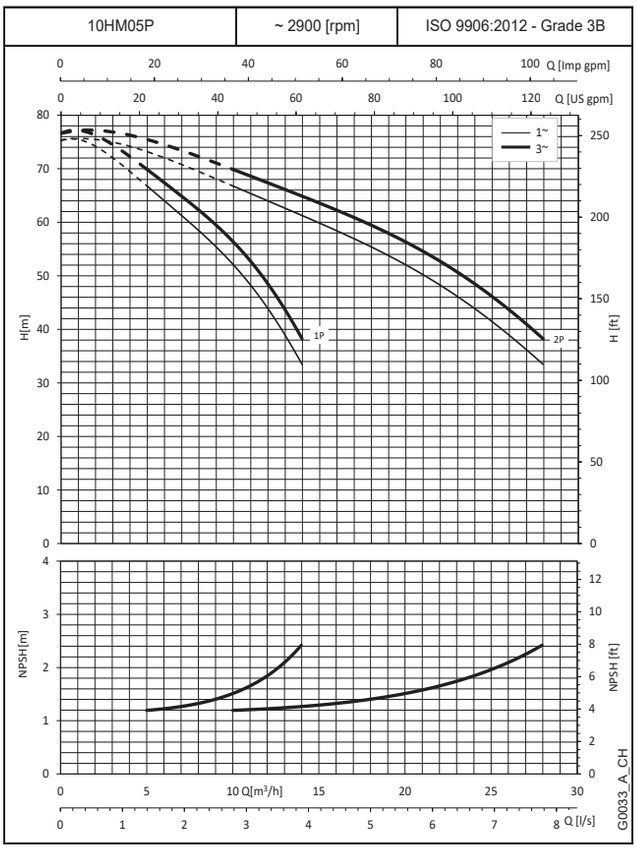



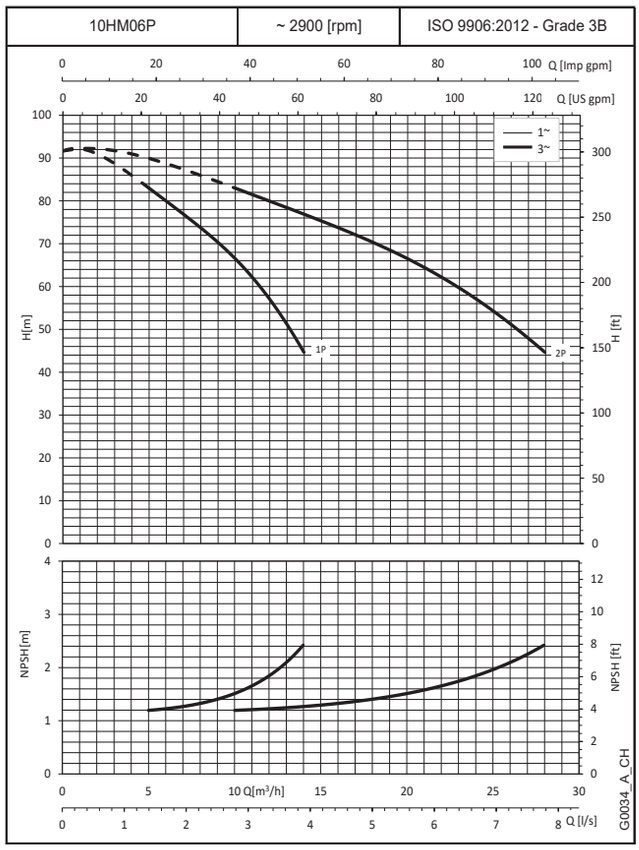



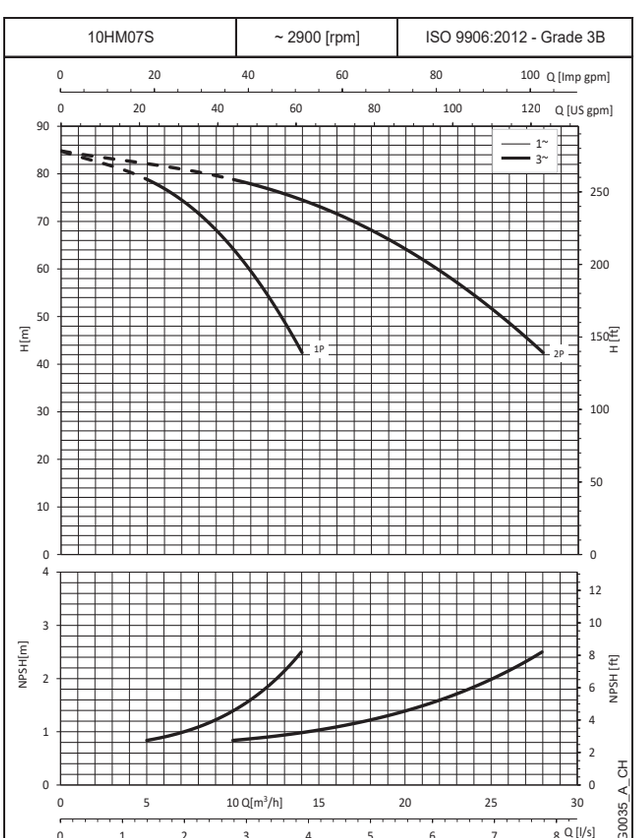



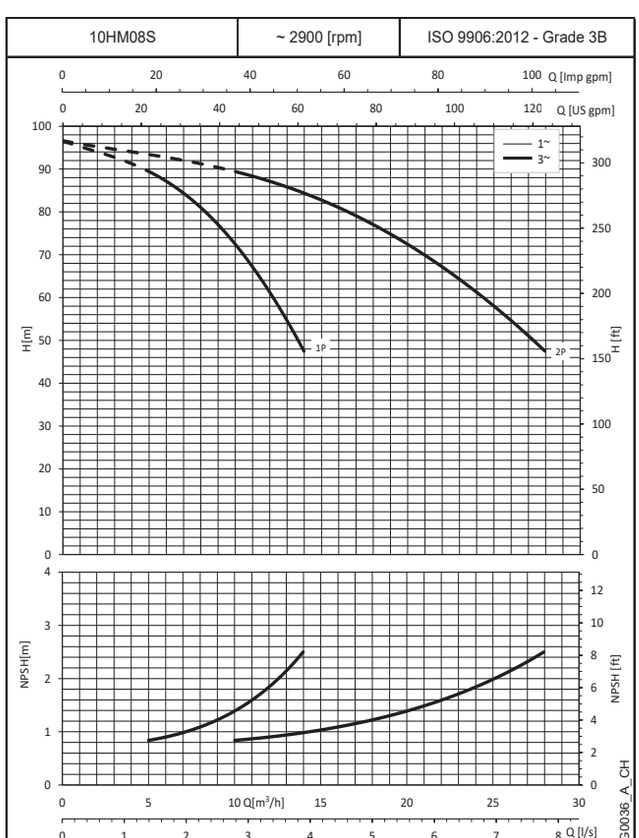

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



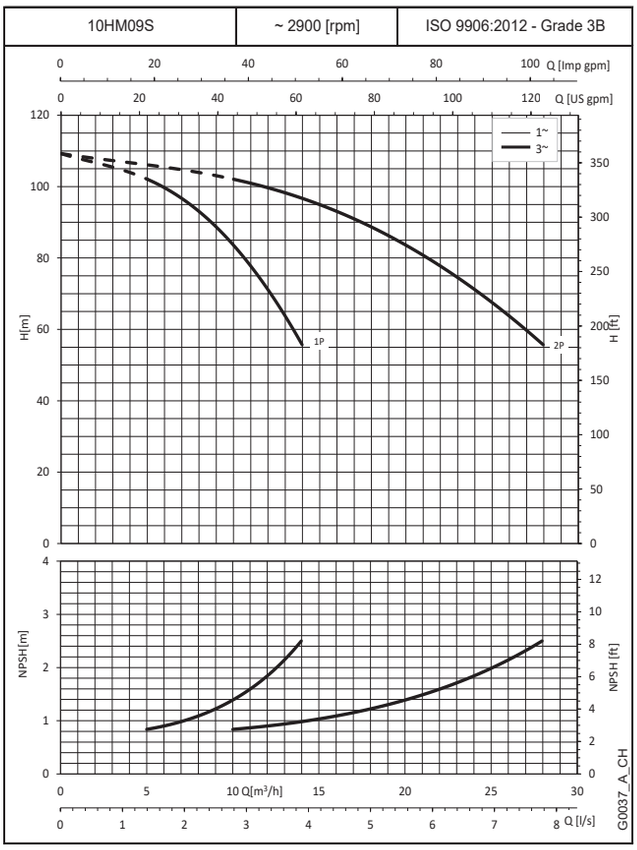



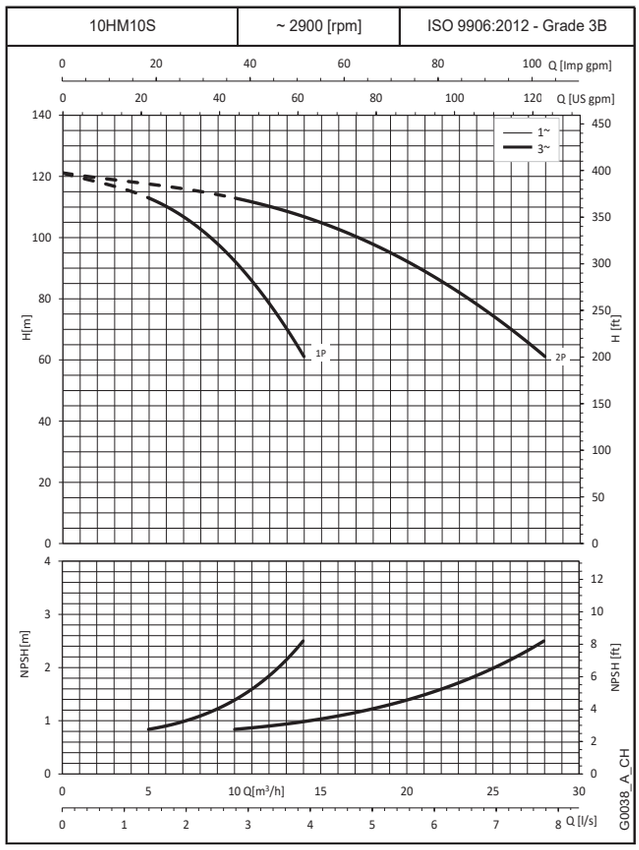



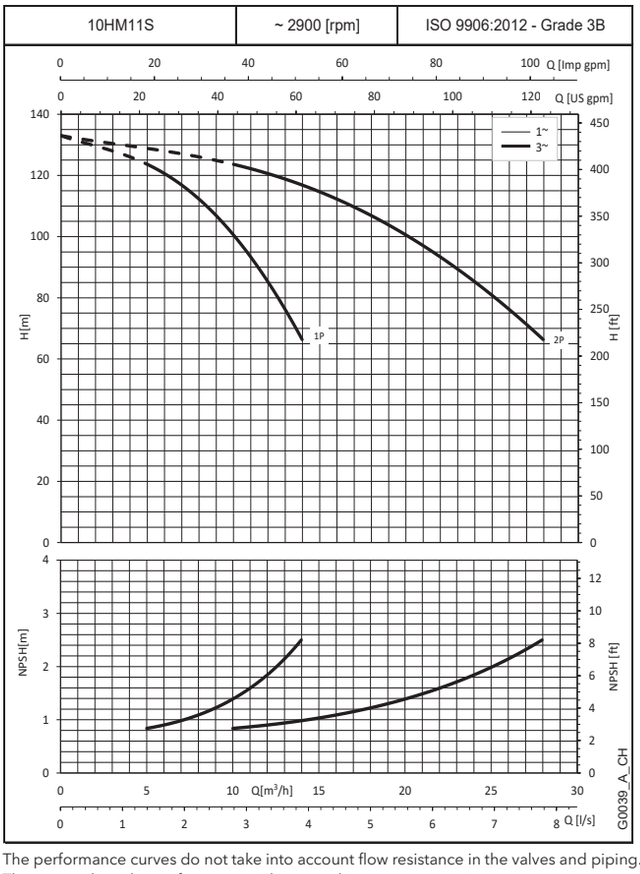

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

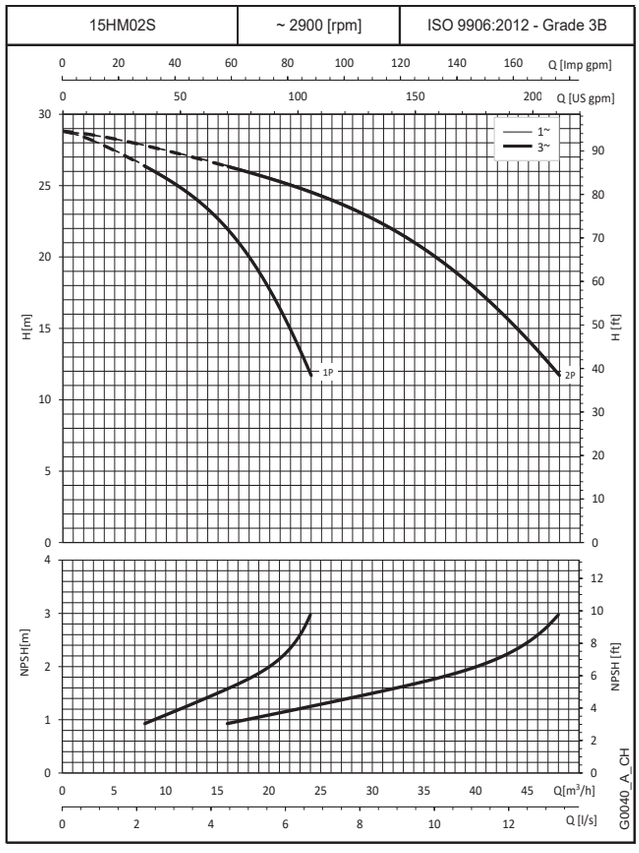
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



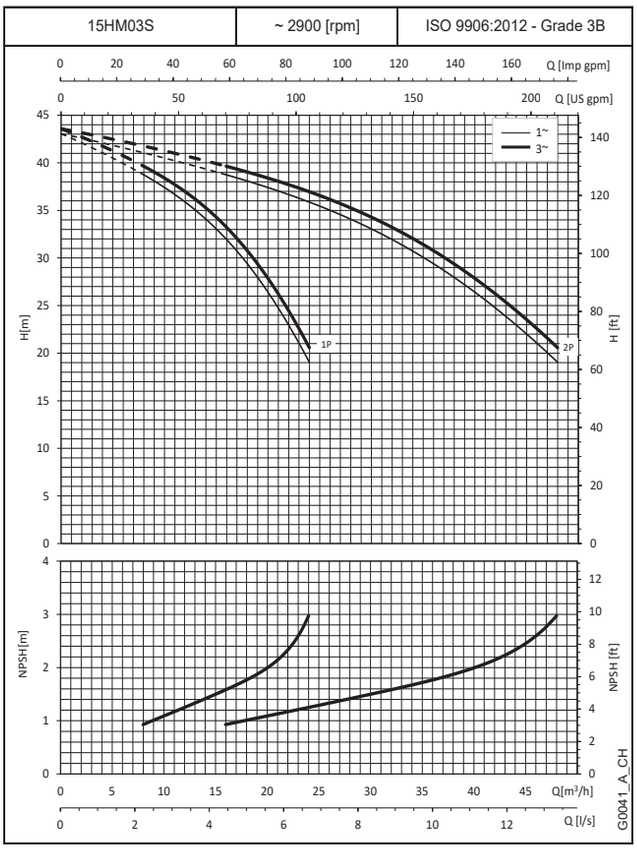



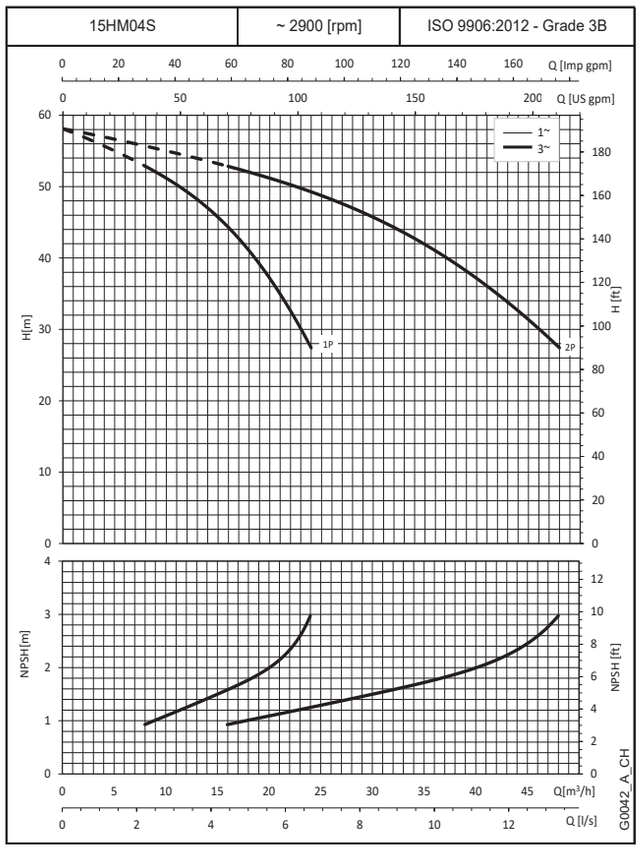



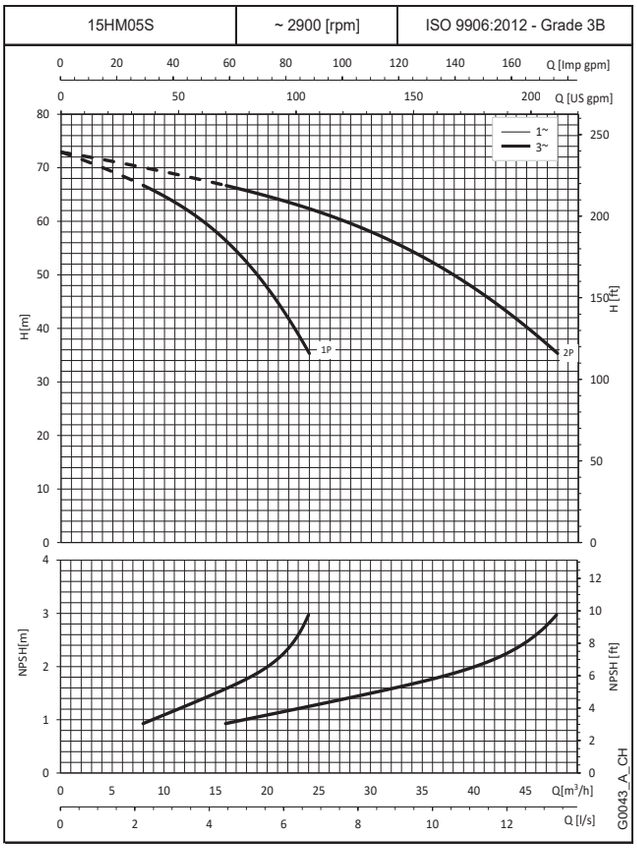

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

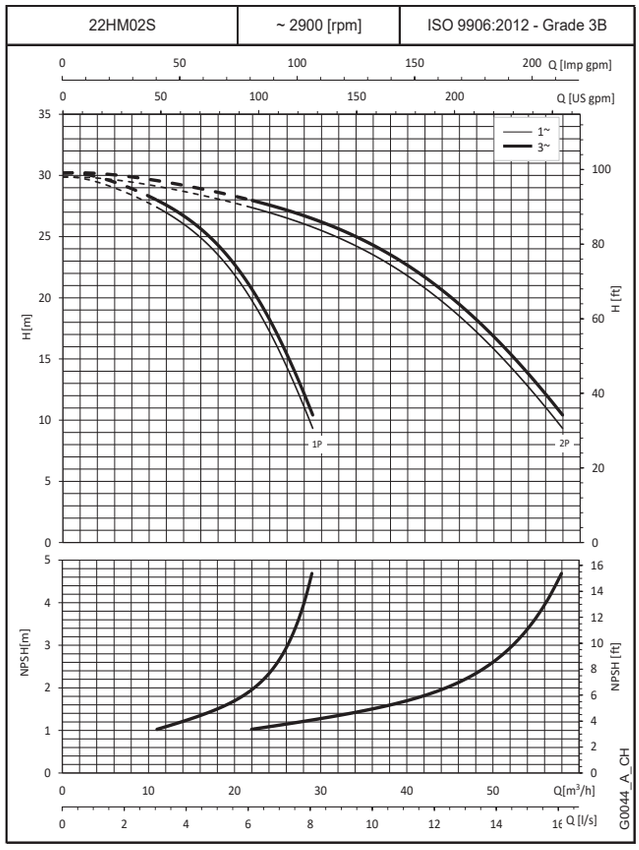
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



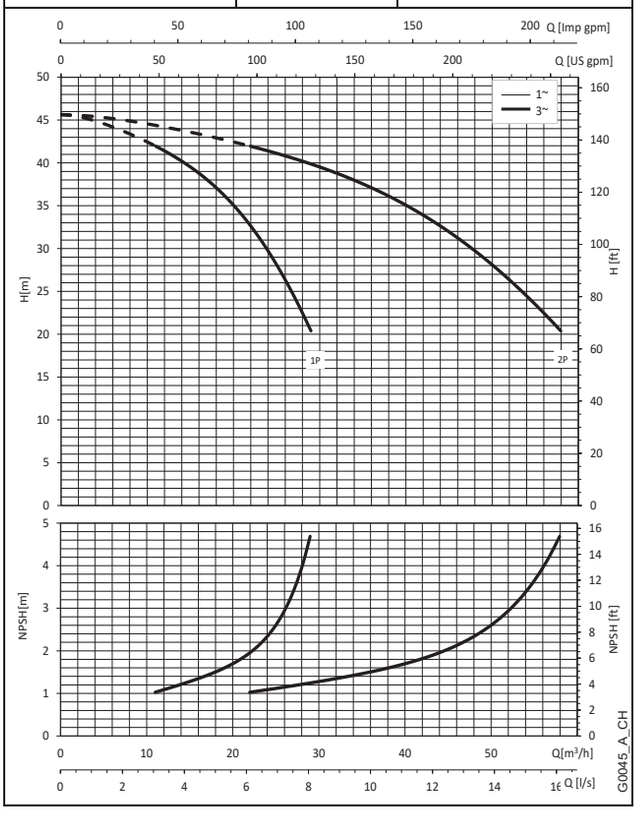



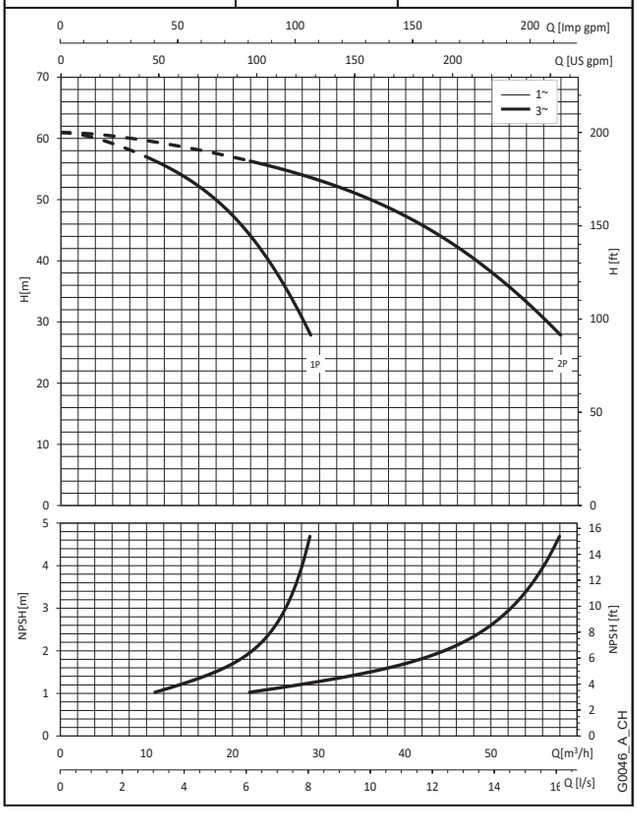

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

| 22HM03S | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



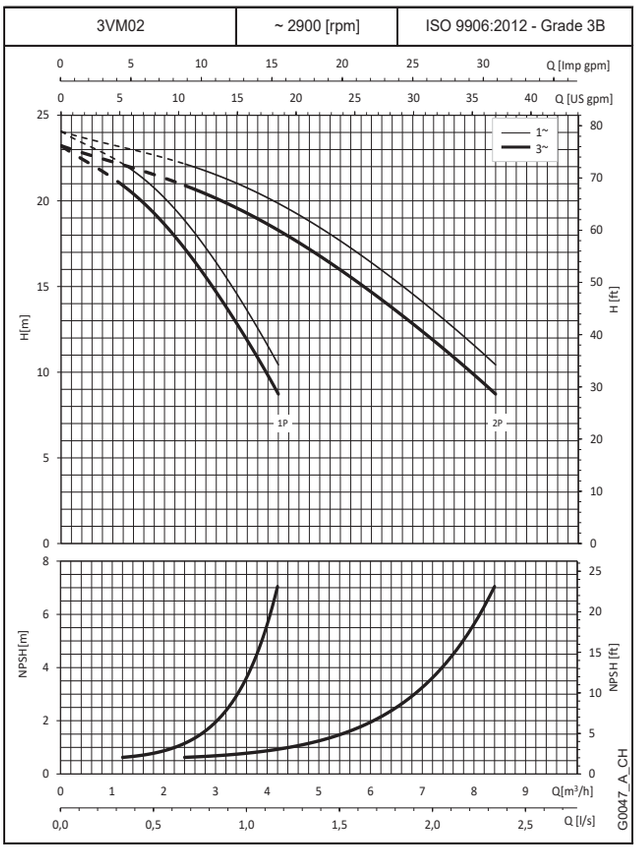

| 22HM04S | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|

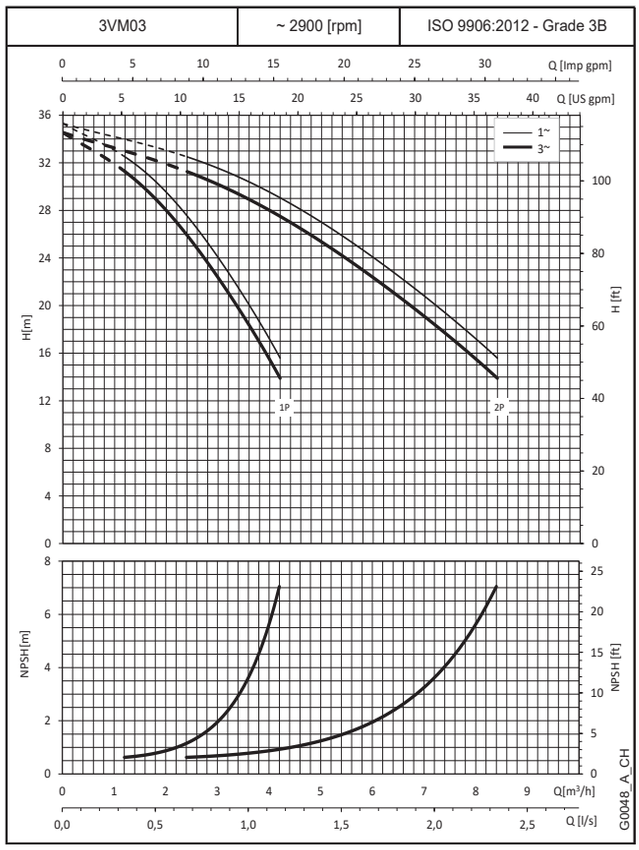


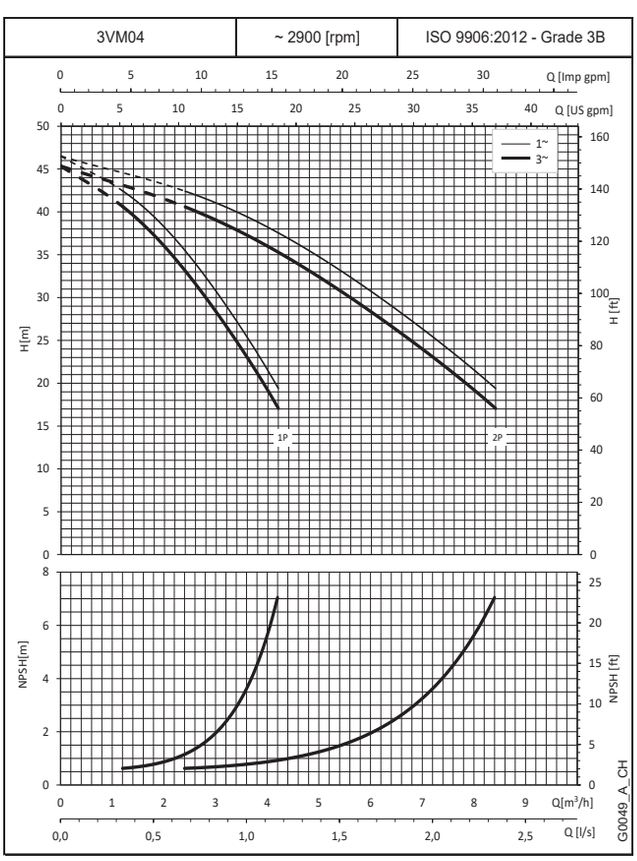

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

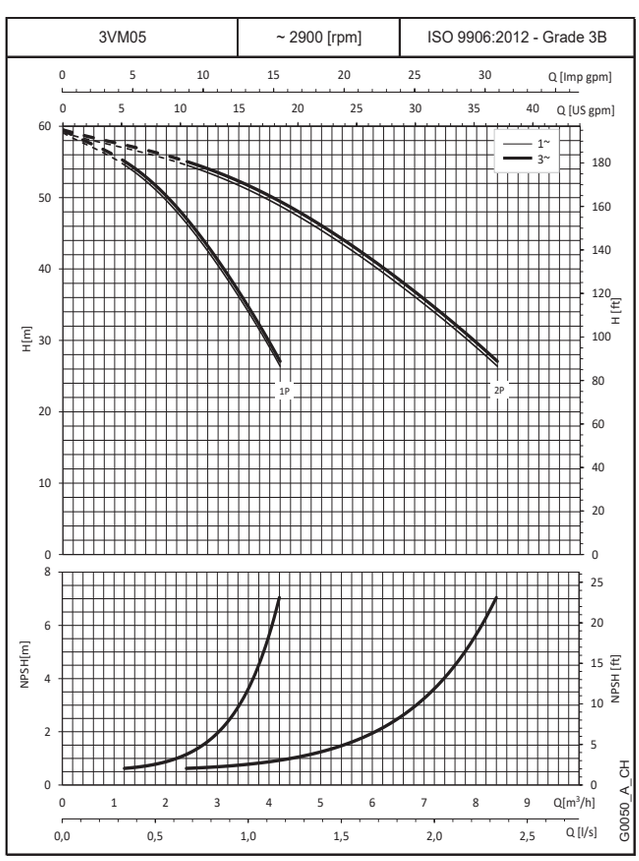
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



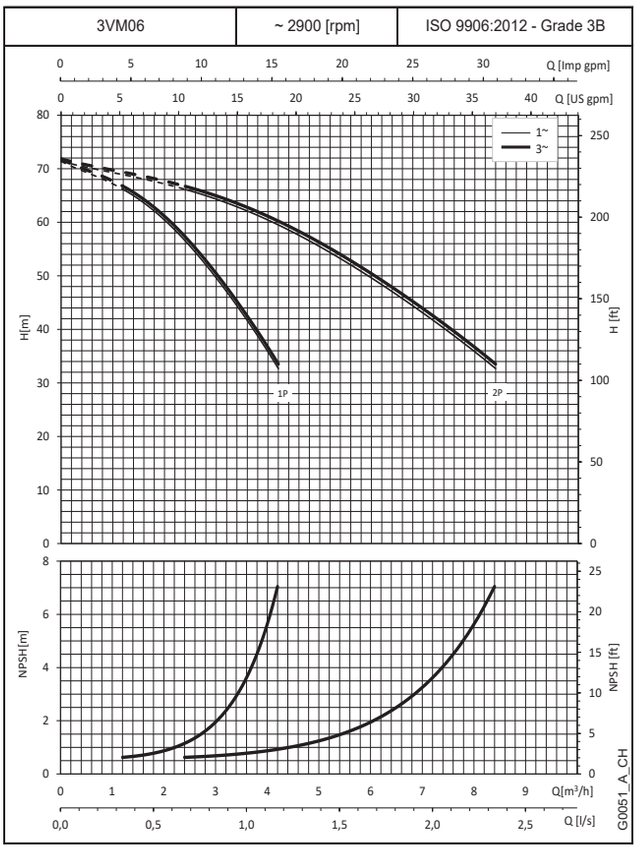



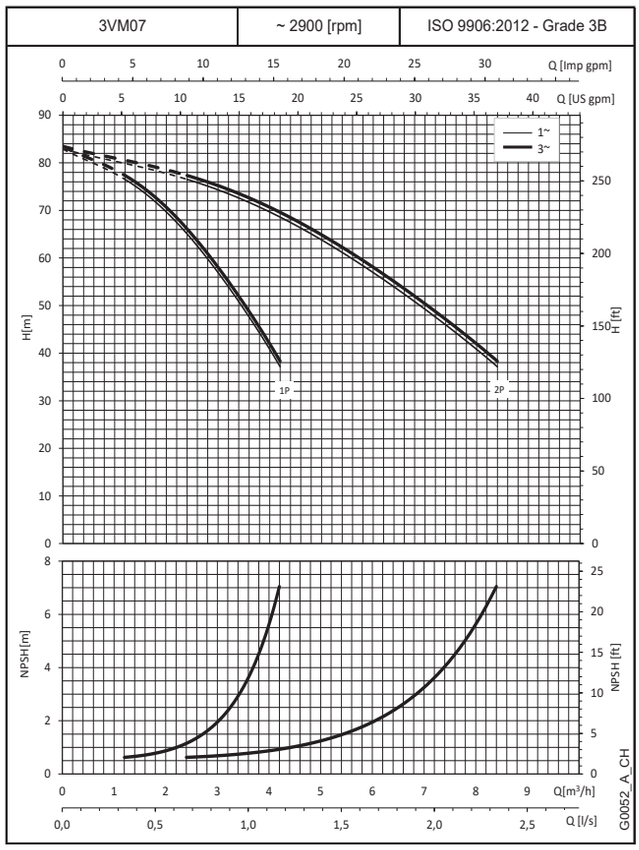



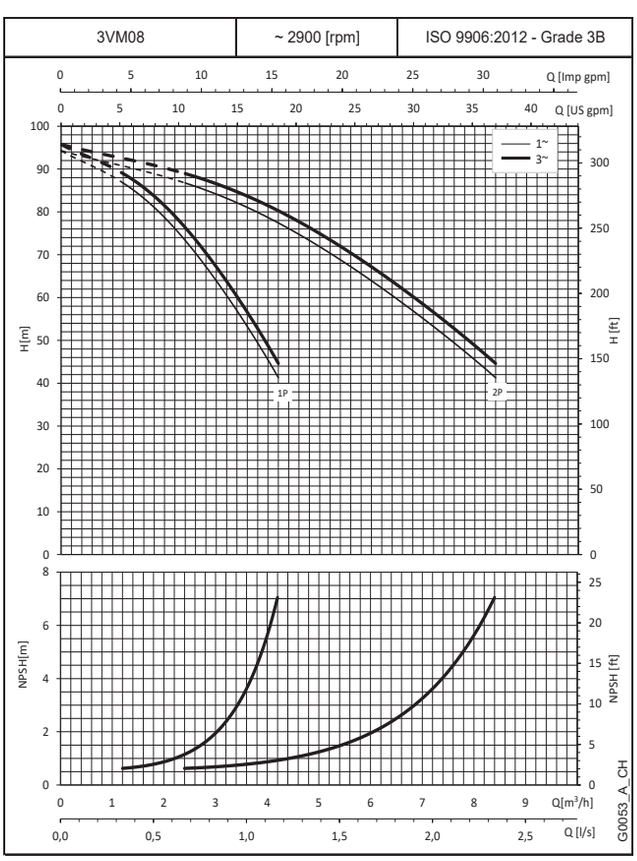

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

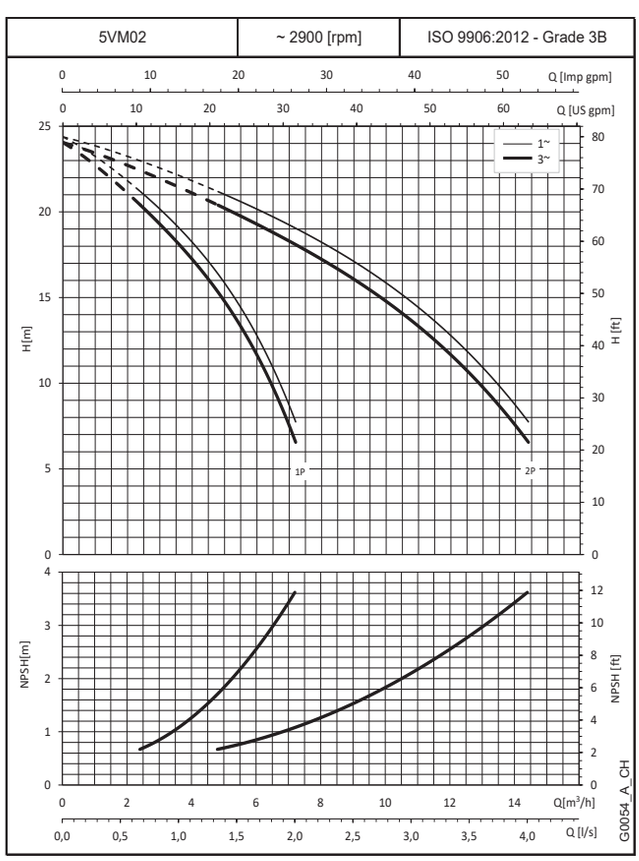
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



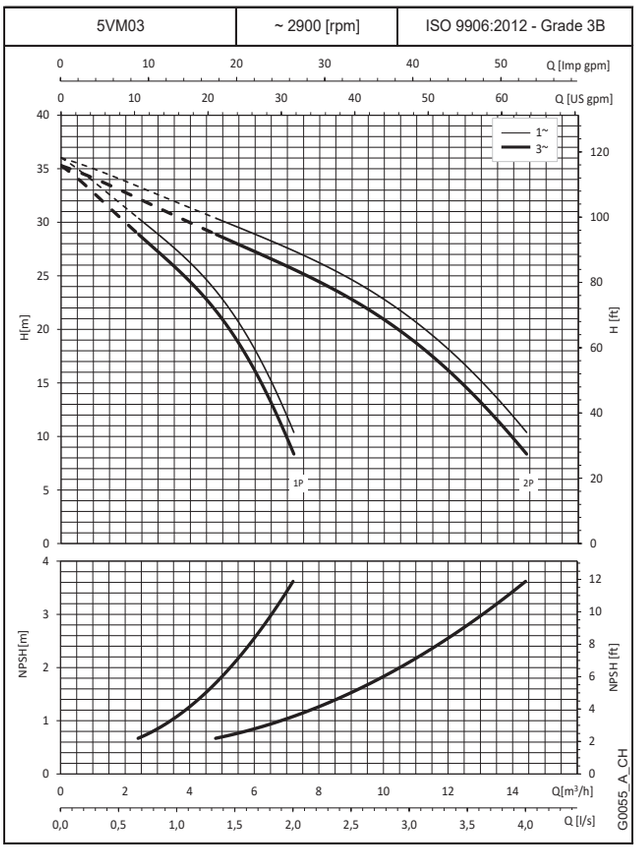



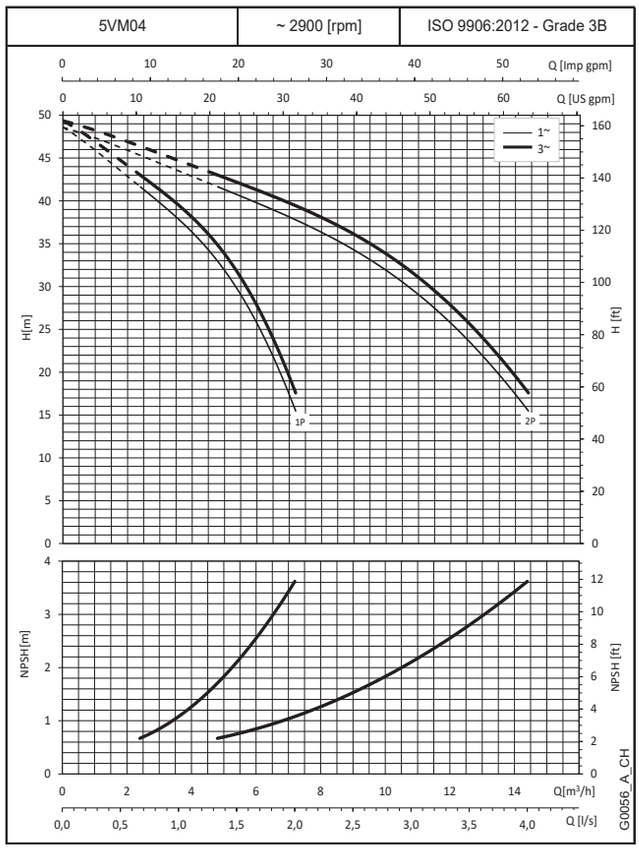



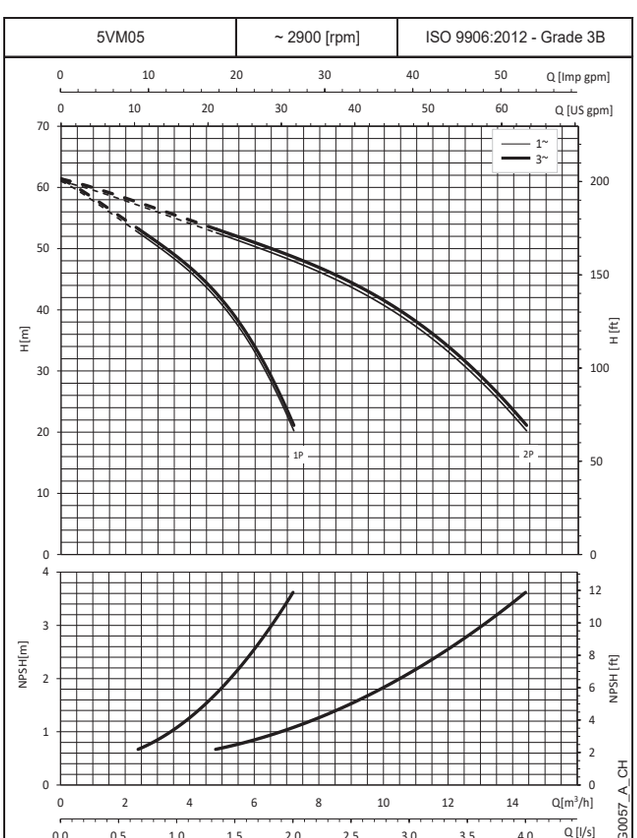

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

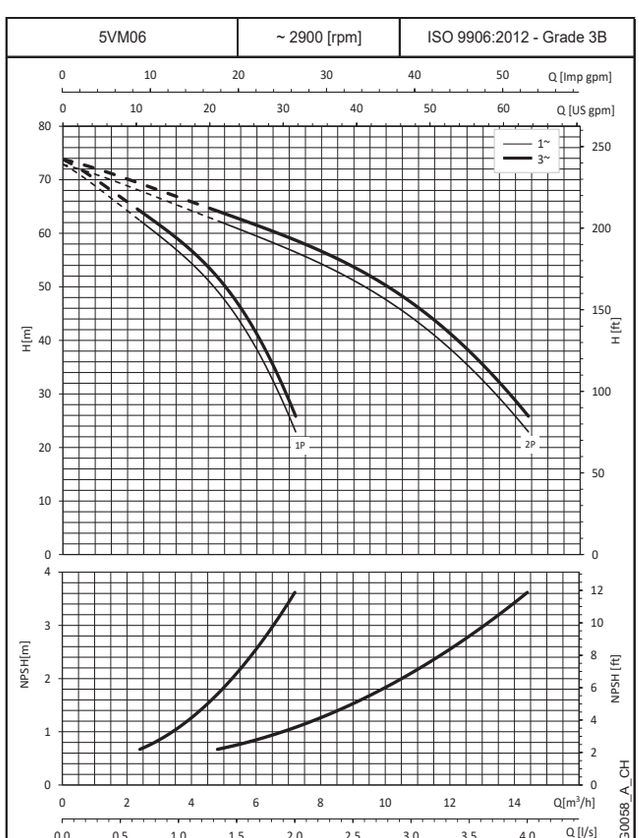
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



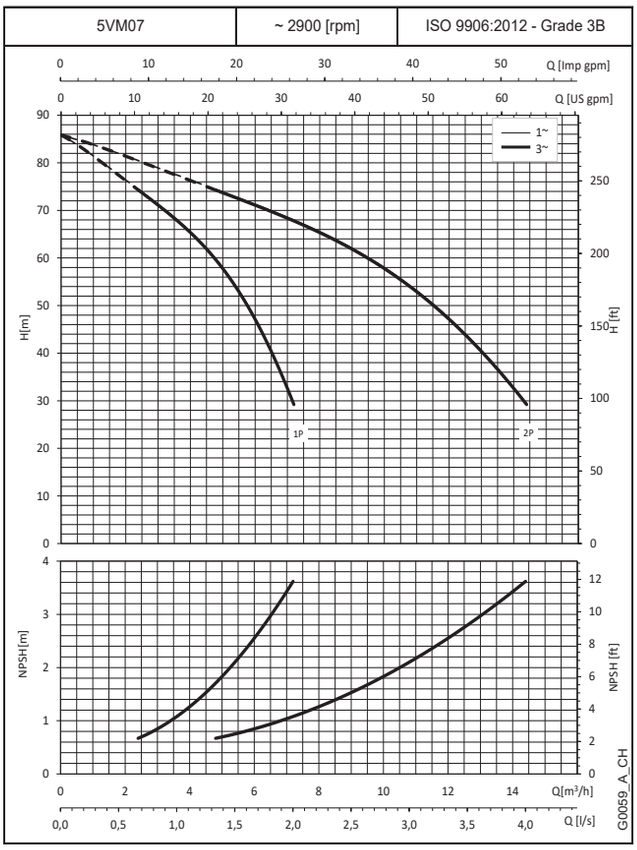



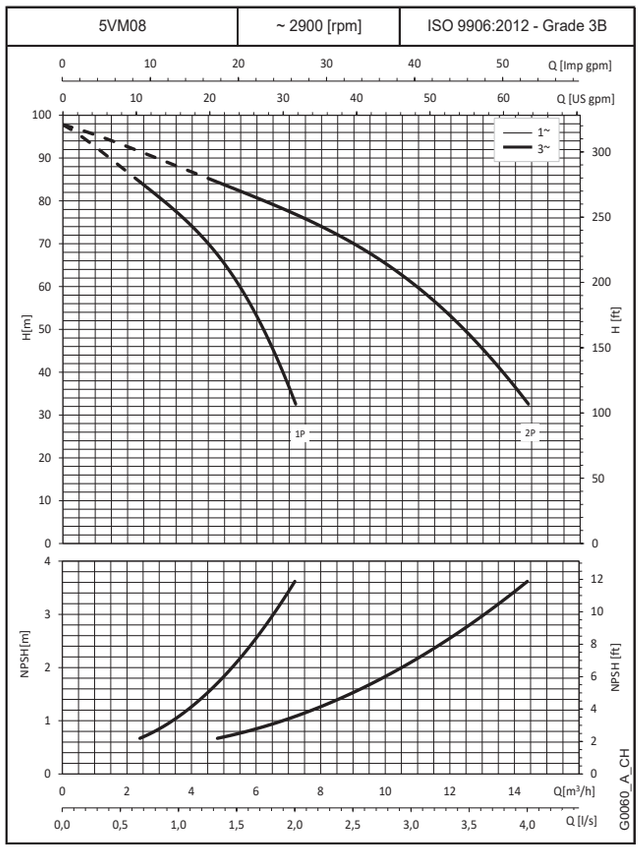



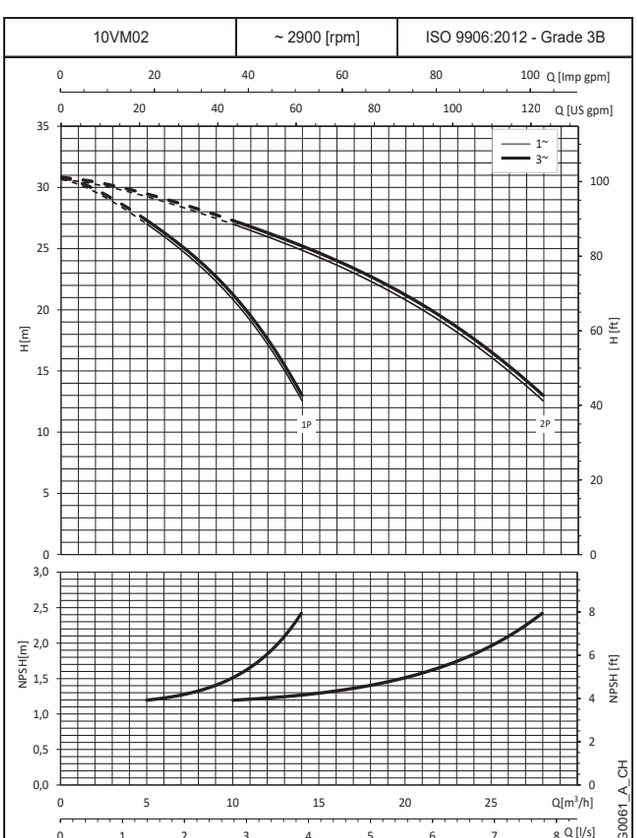

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

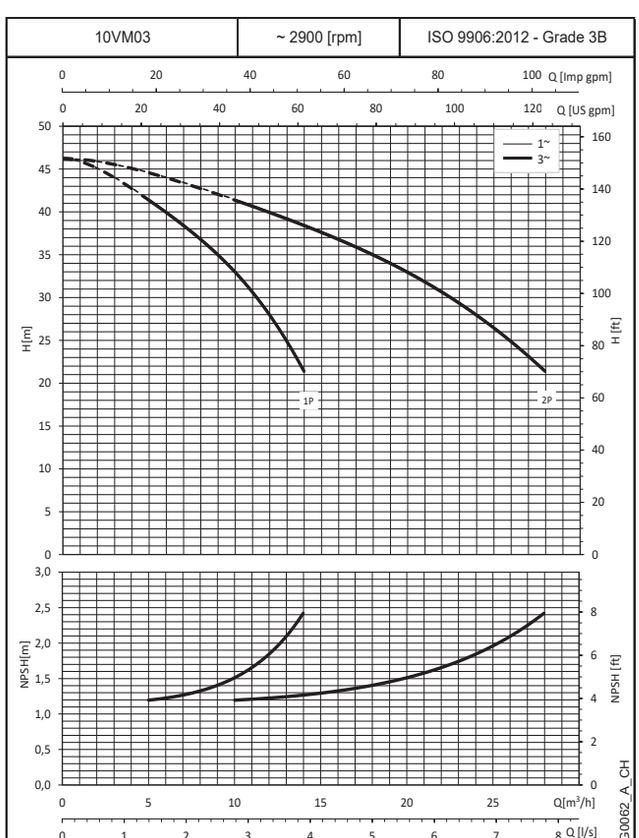
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



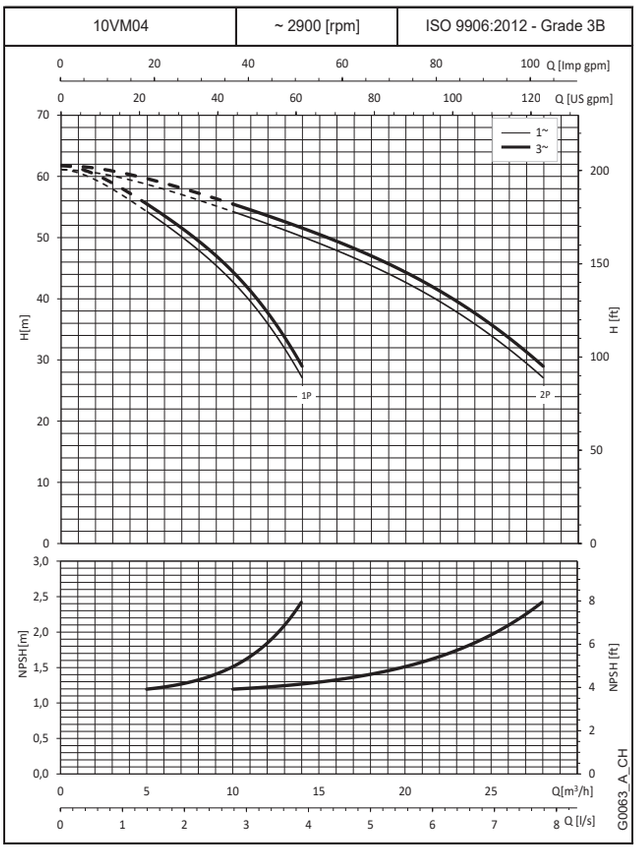



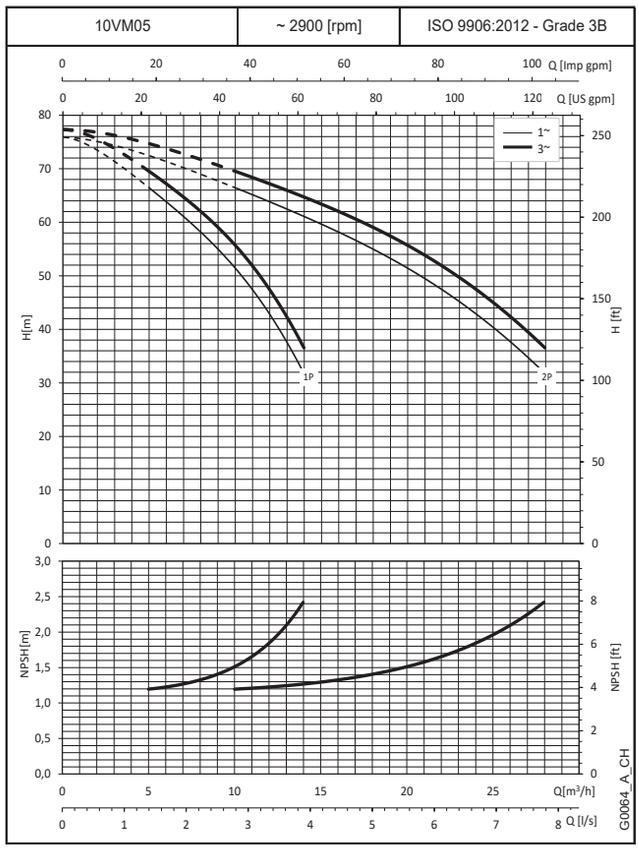



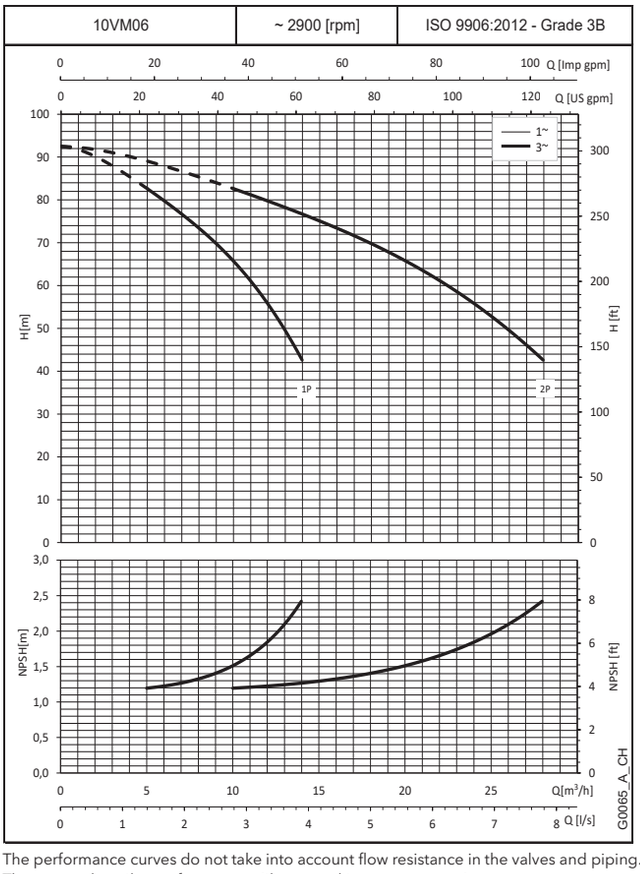




The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

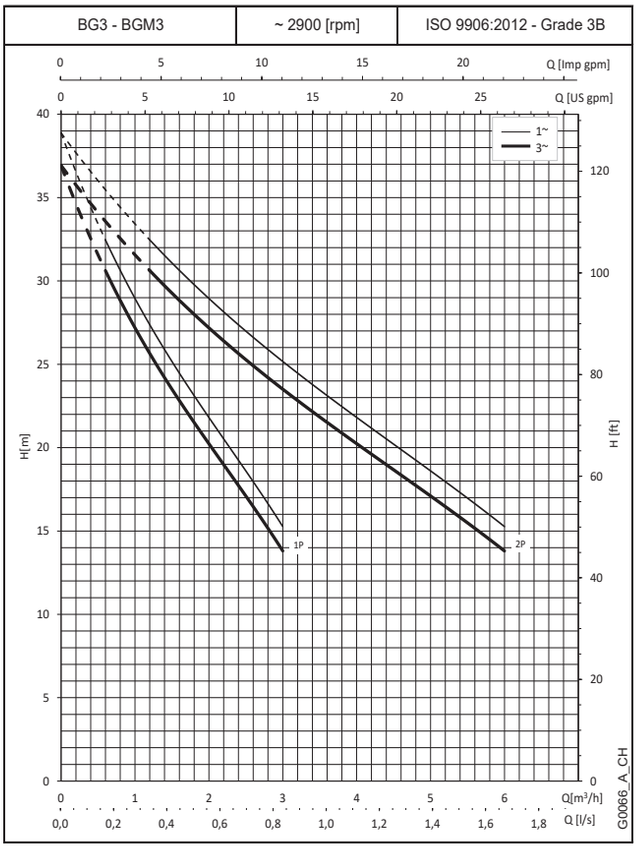


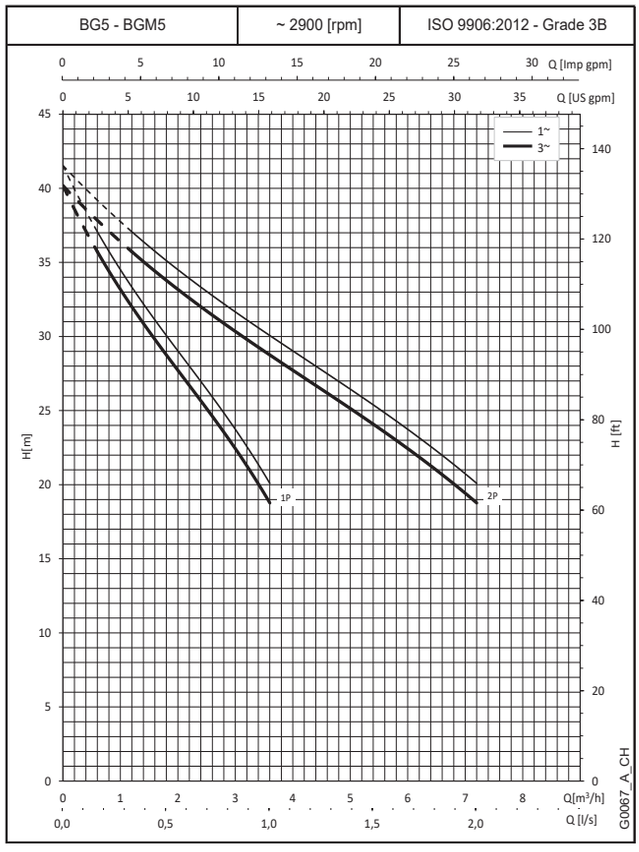



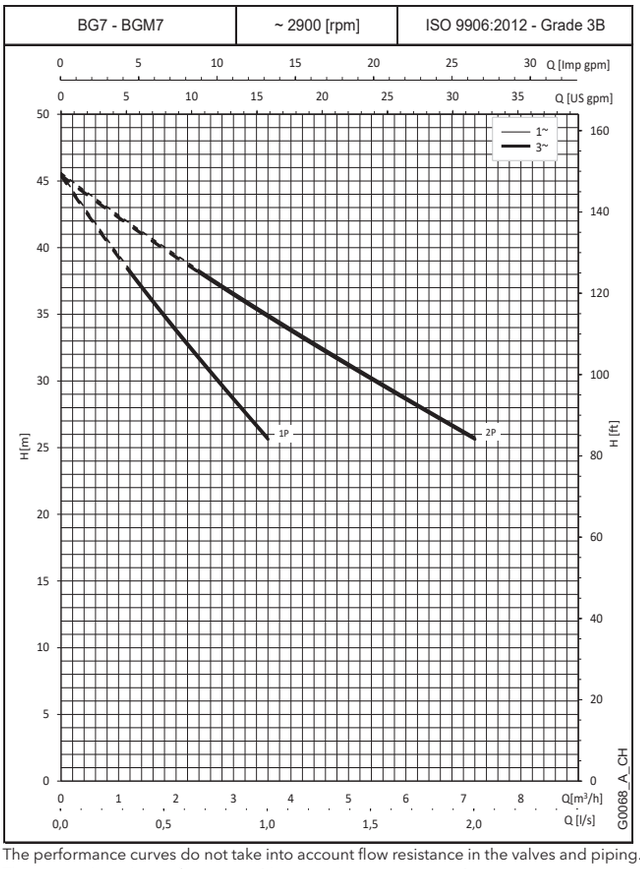



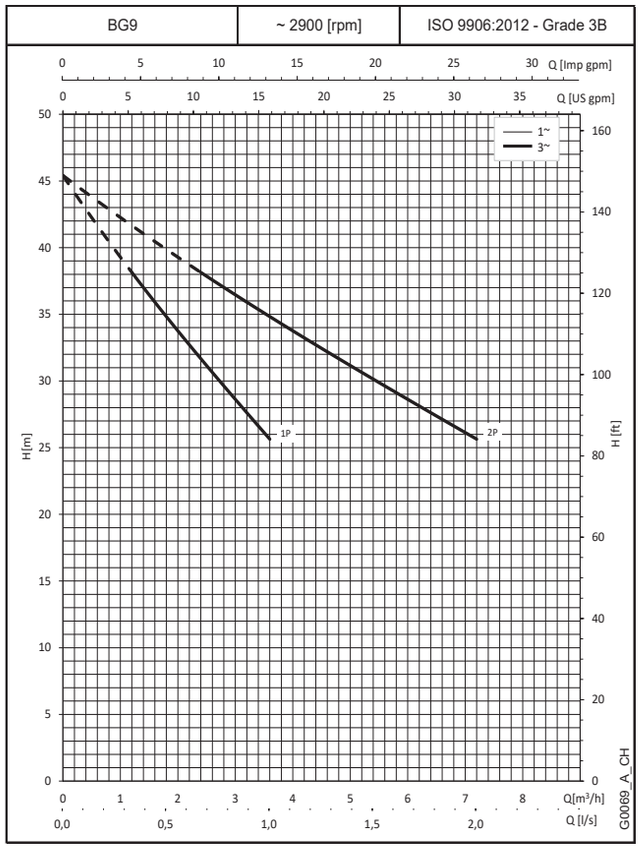

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



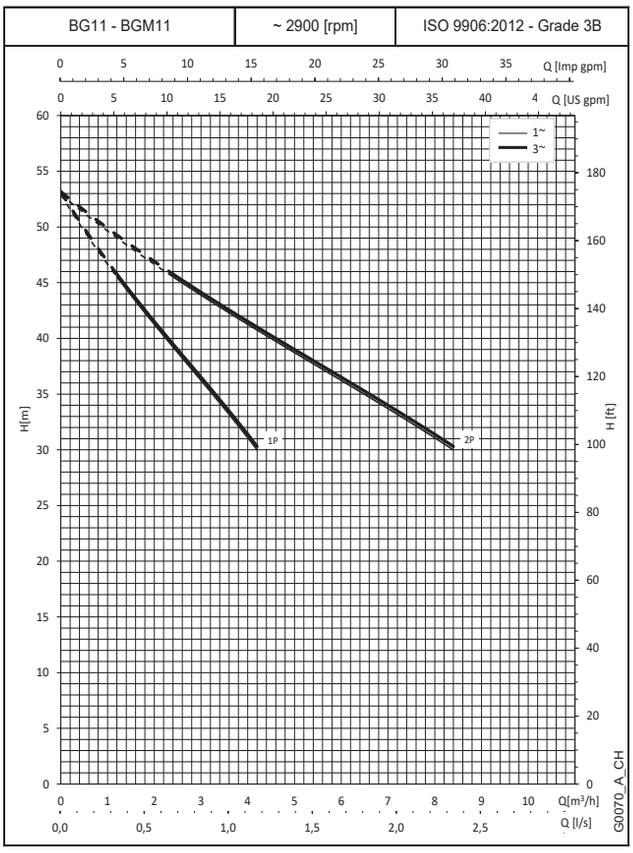




The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density $\rho$ = 1.0 kg/dm$^3$ and kinematic viscosity $\nu$ = 1 mm$^2$/sec.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

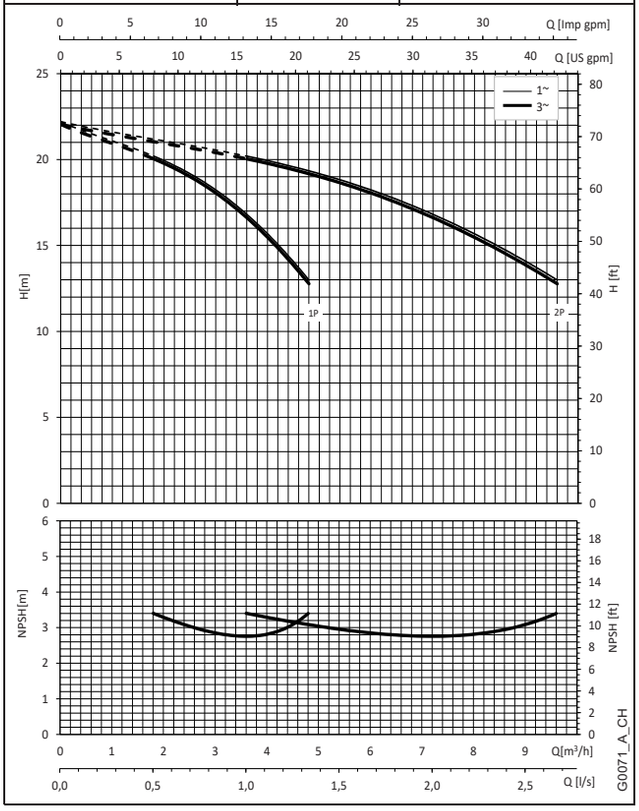



The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.

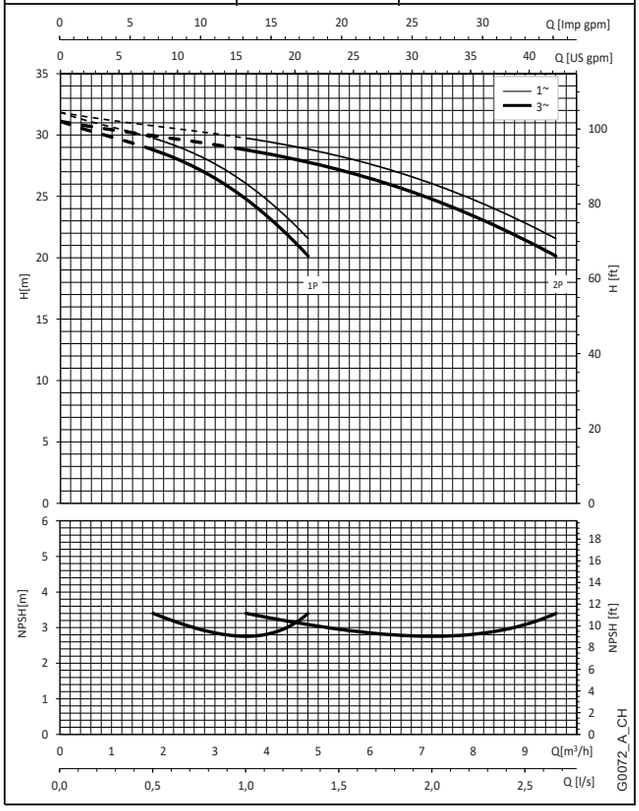
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

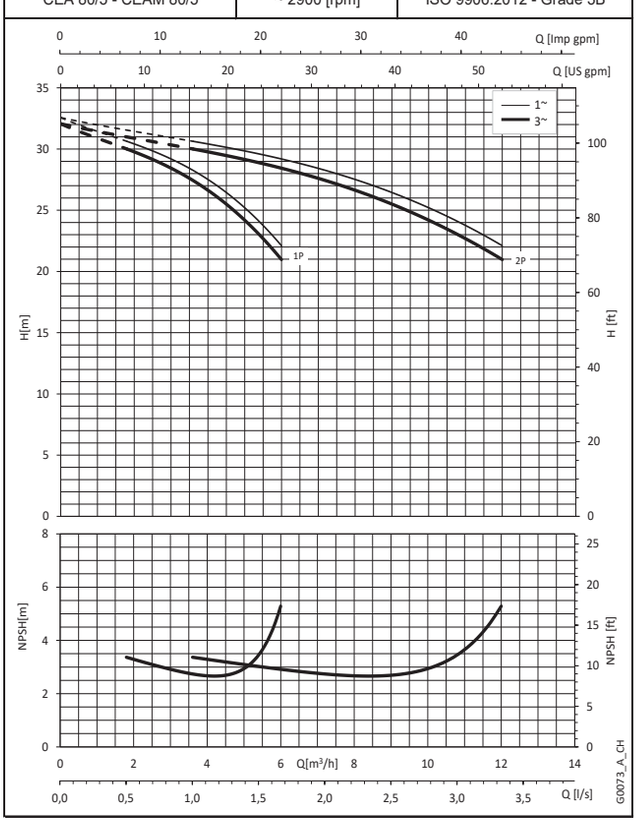
CEA 70/3 - CEAM 70/3 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B



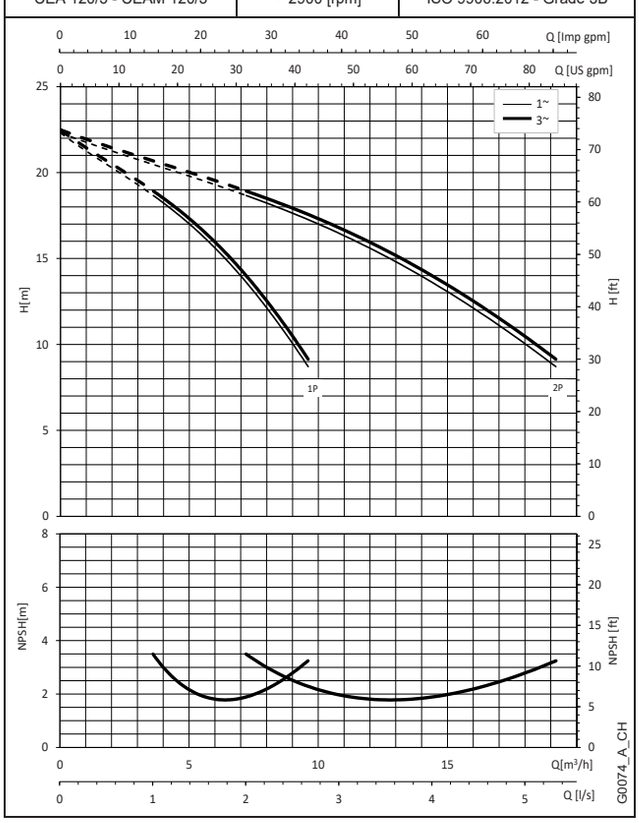

CEA 70/5 - CEAM 70/5 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B




CEA 80/5 - CEAM 80/5 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B



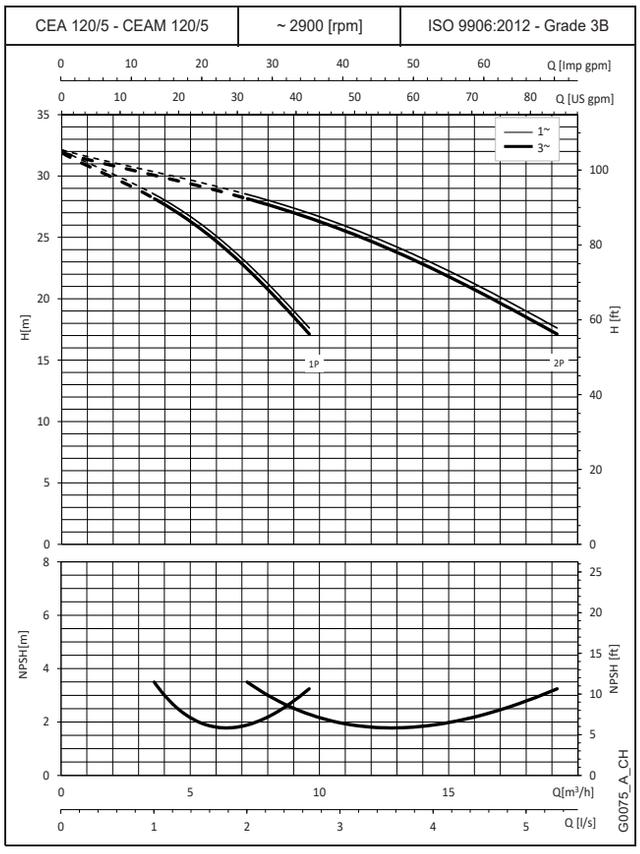

CEA 120/3 - CEAM 120/3 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B

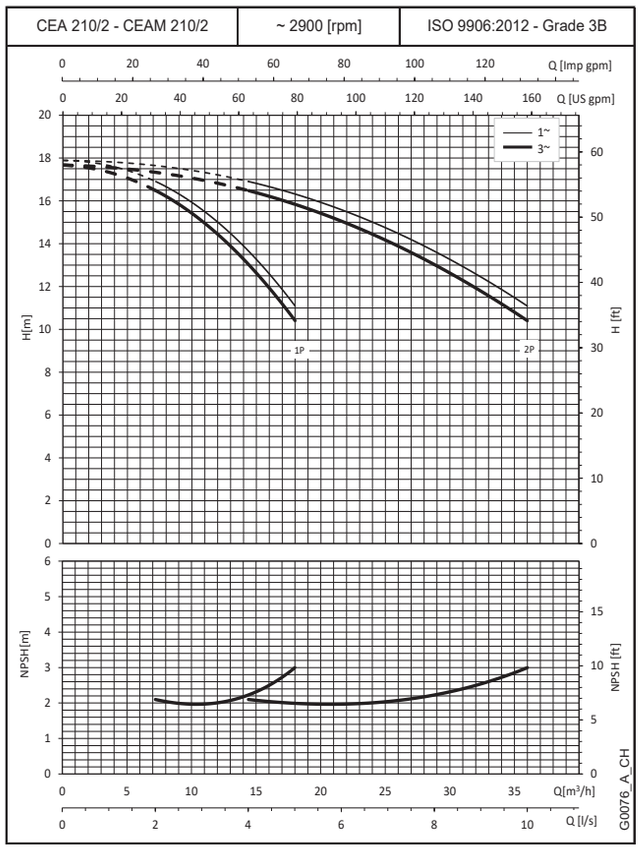


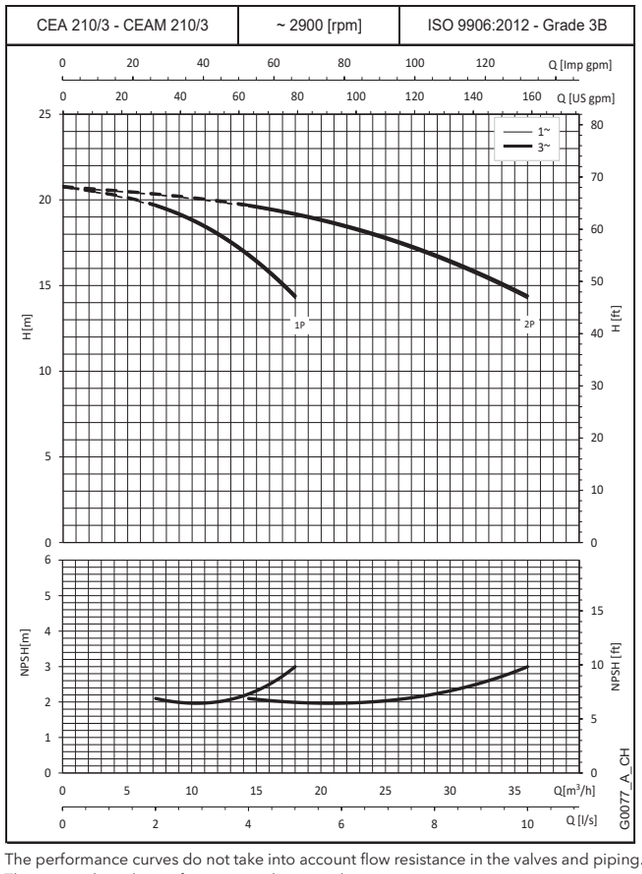

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

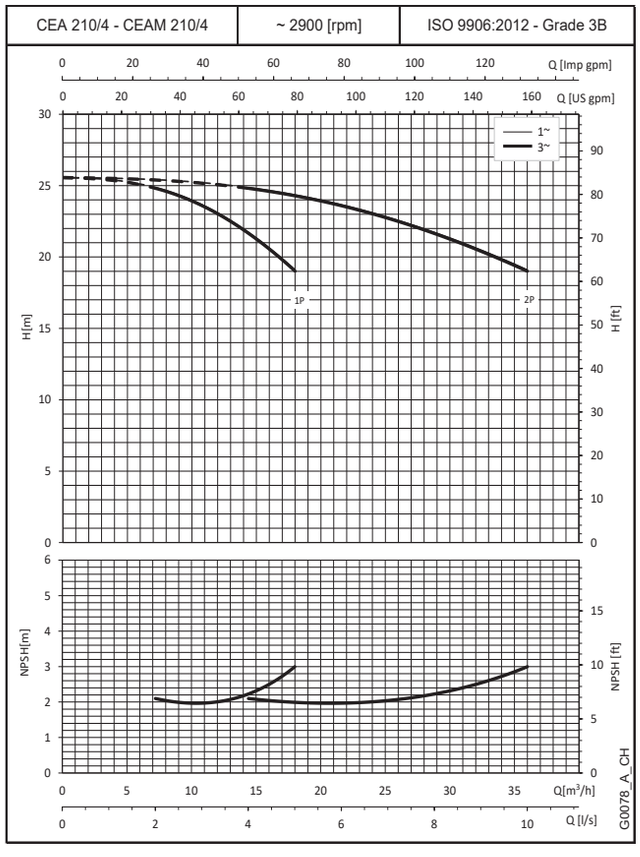
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



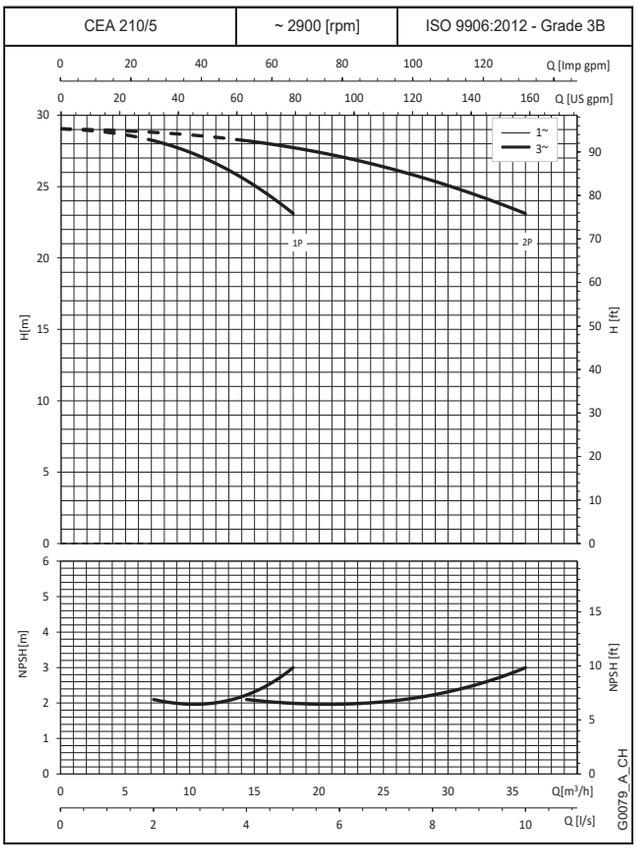



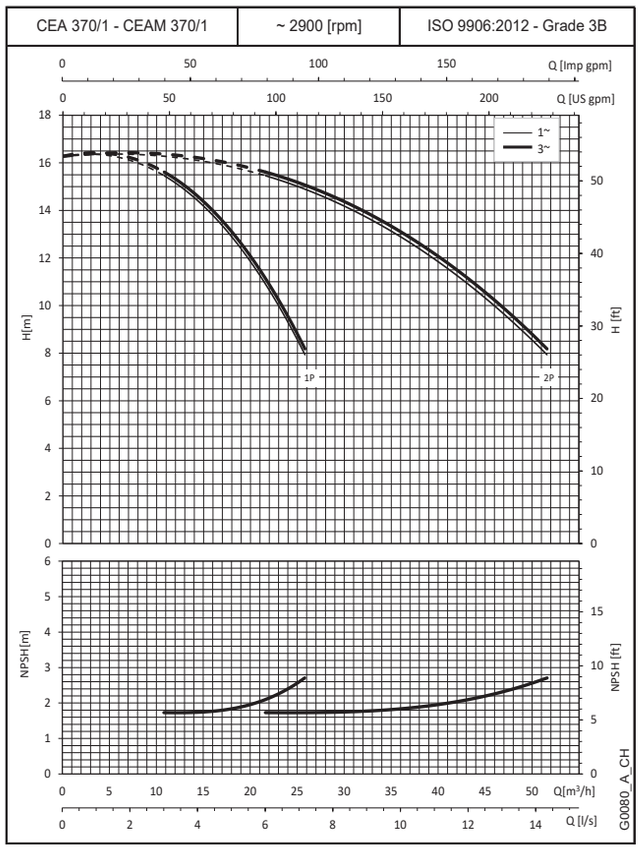



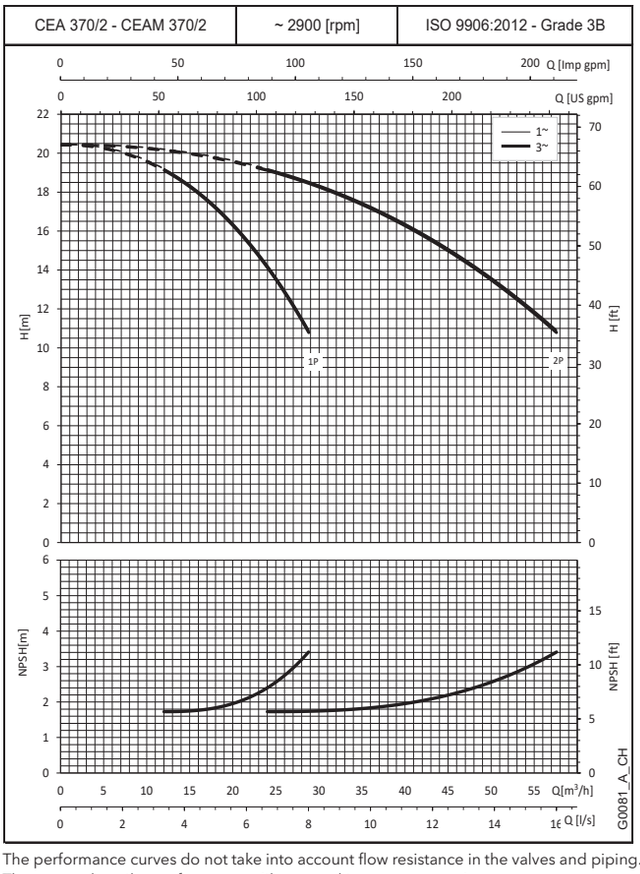



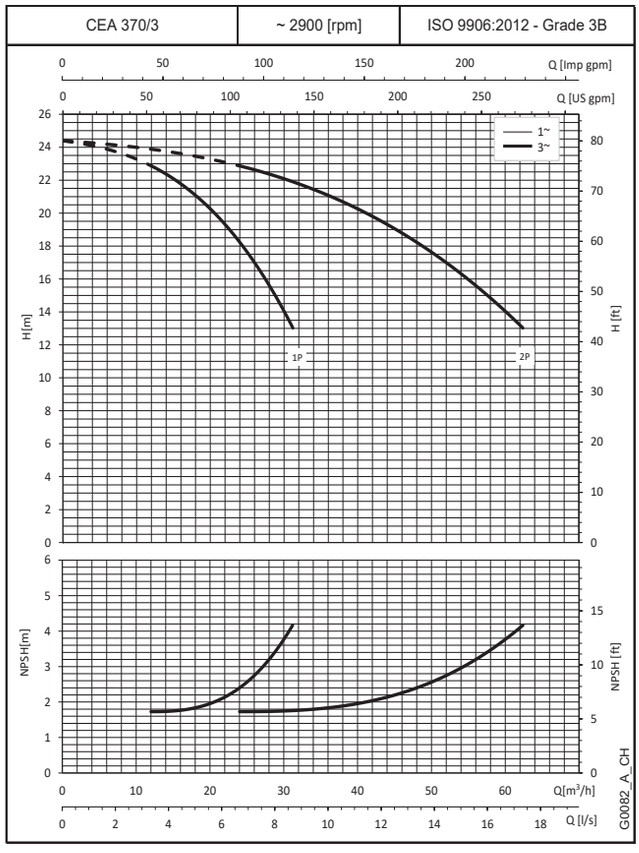

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



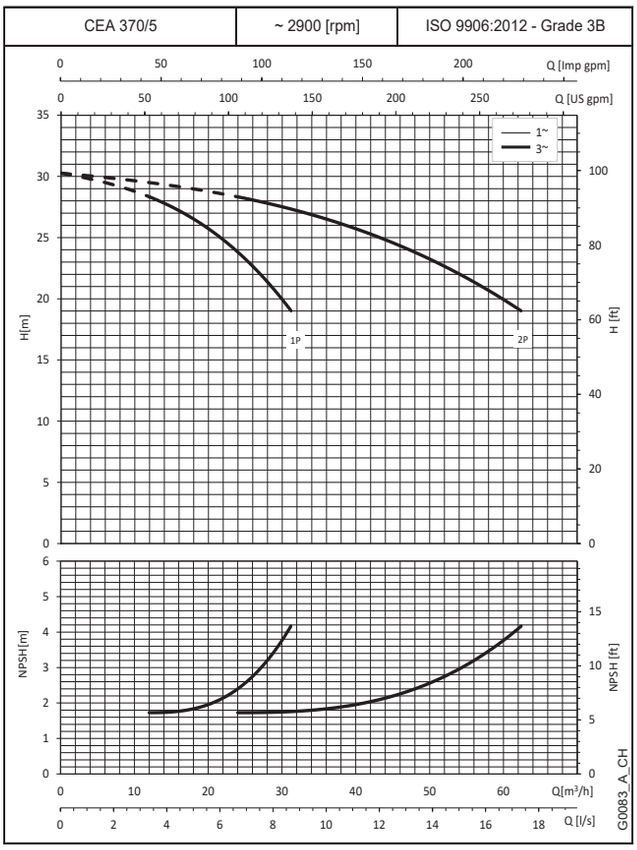




The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

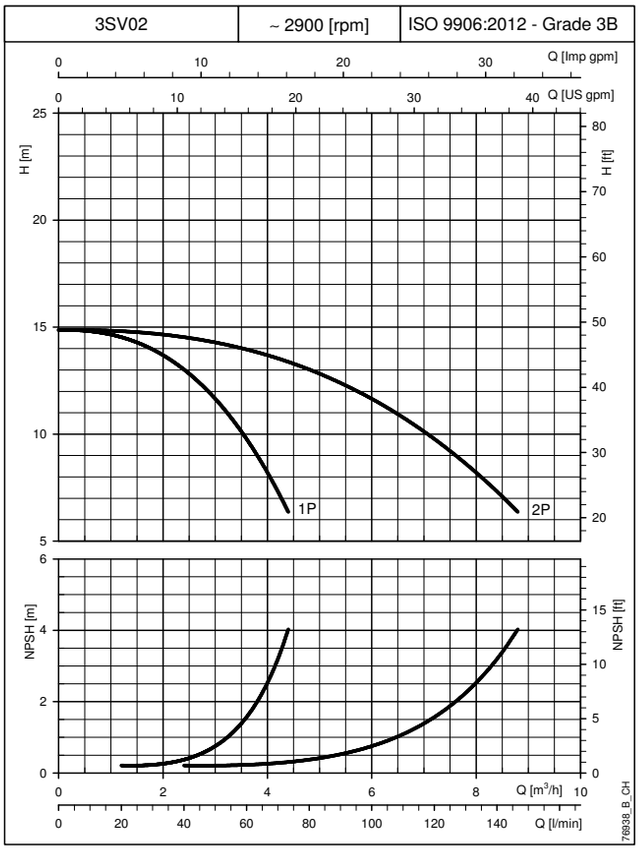
# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

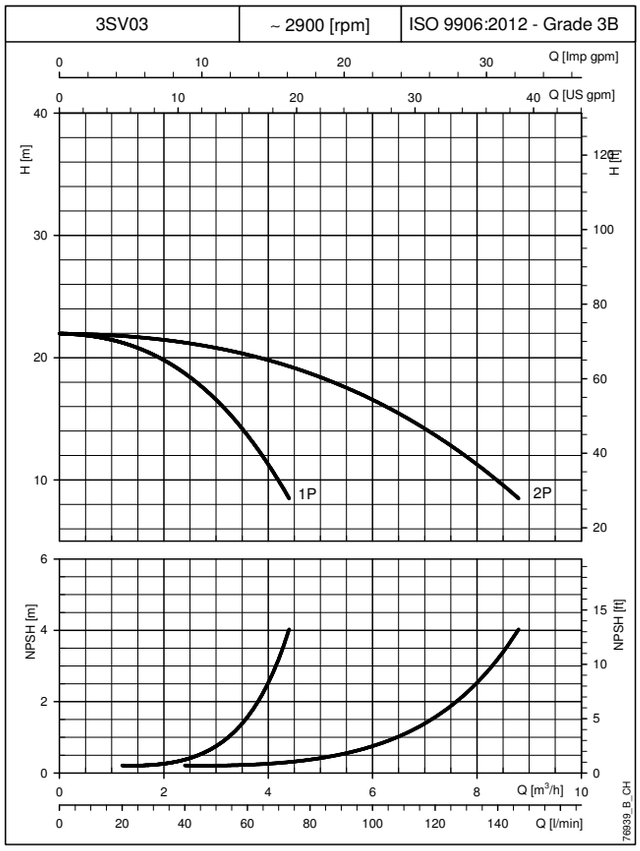


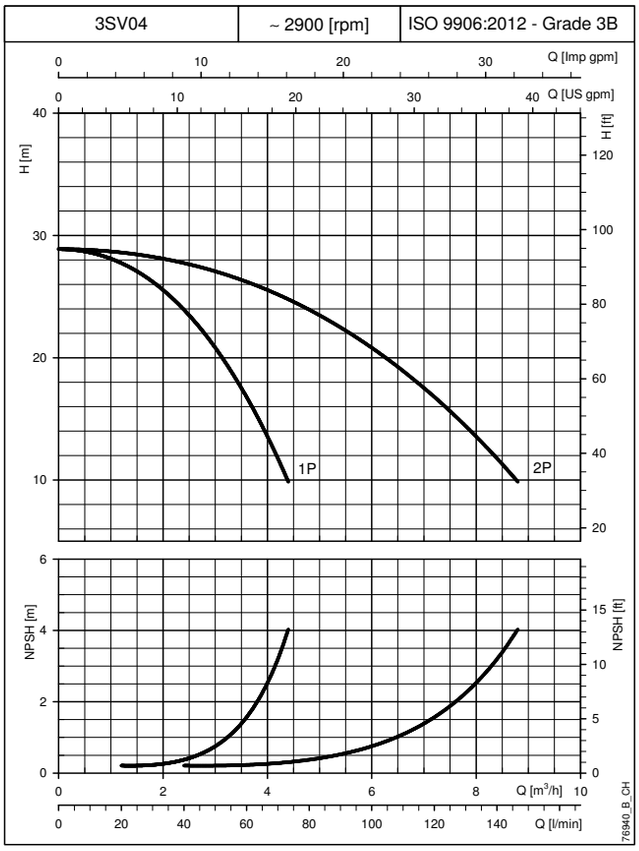

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

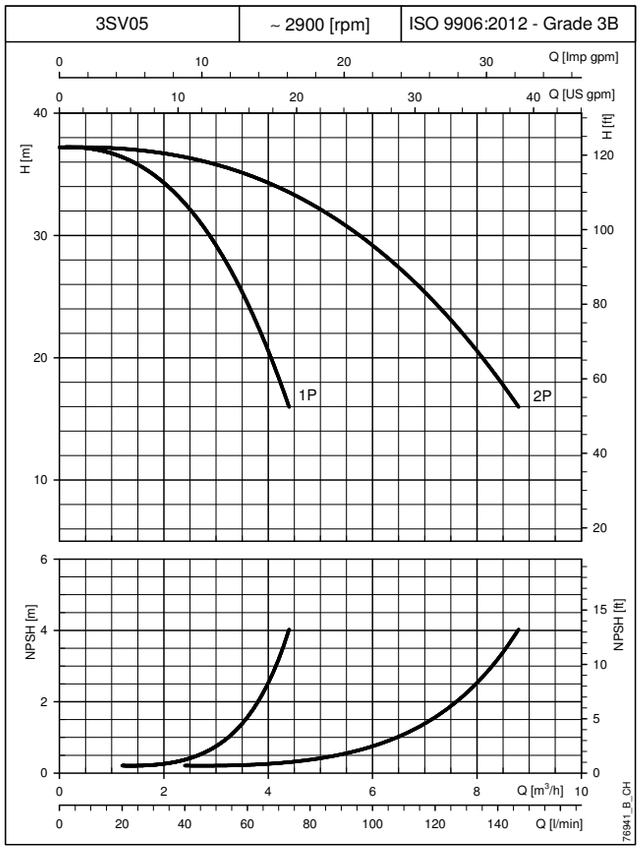
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



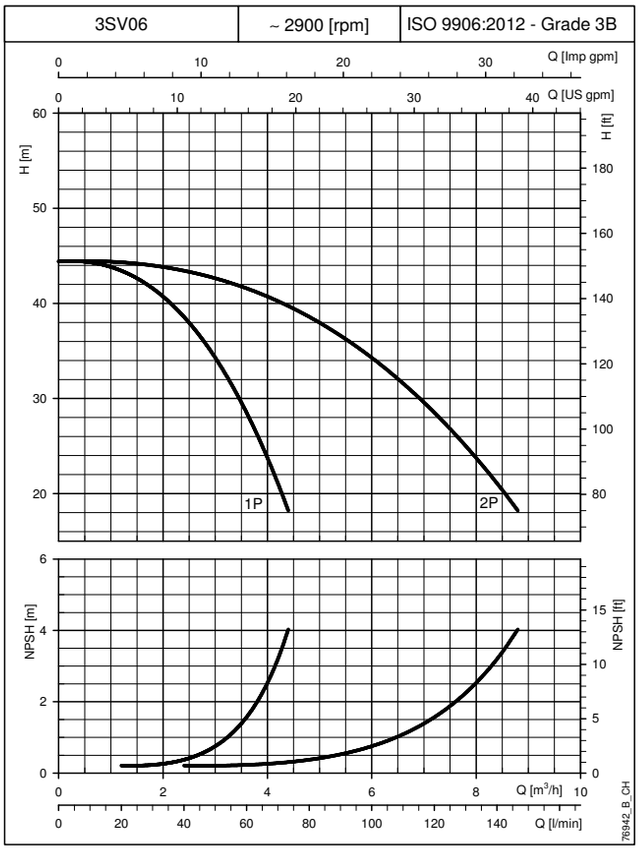



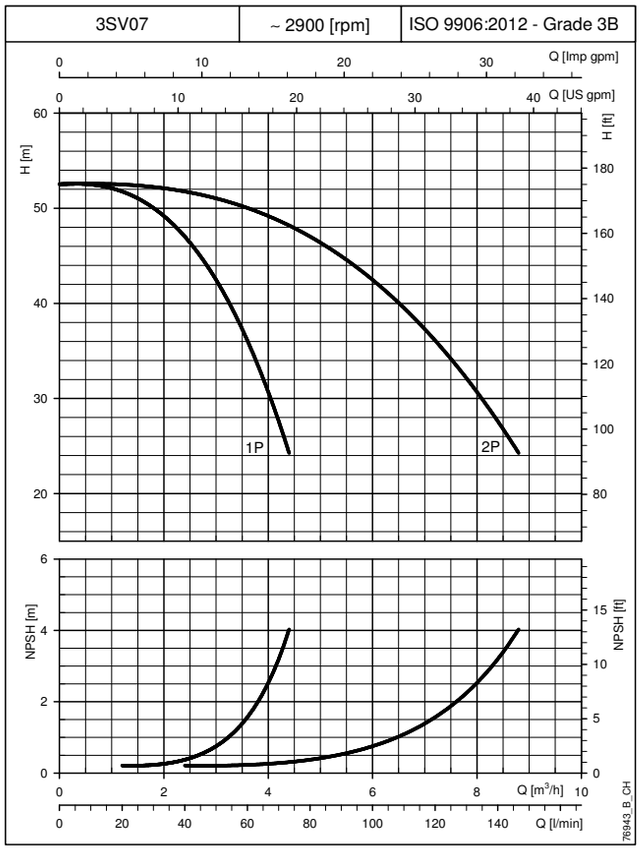



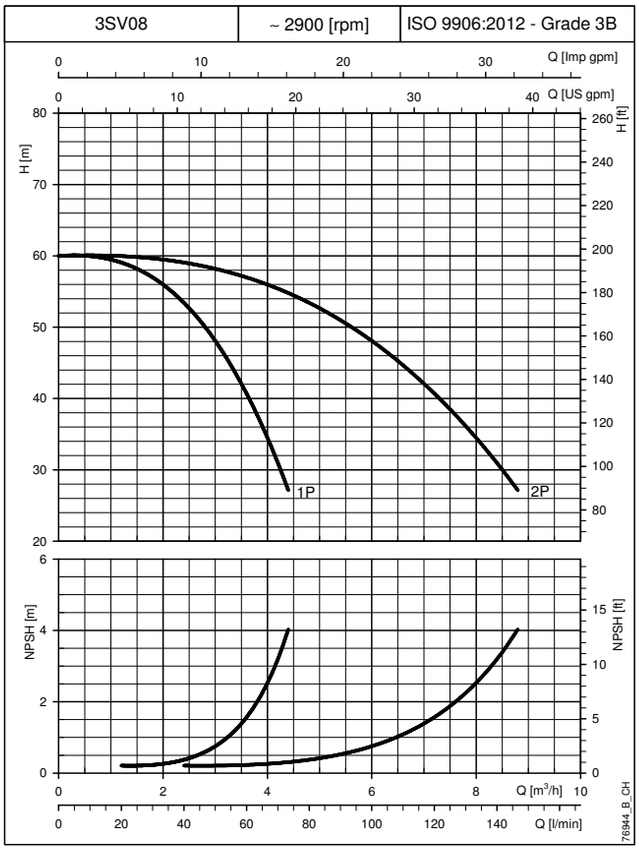



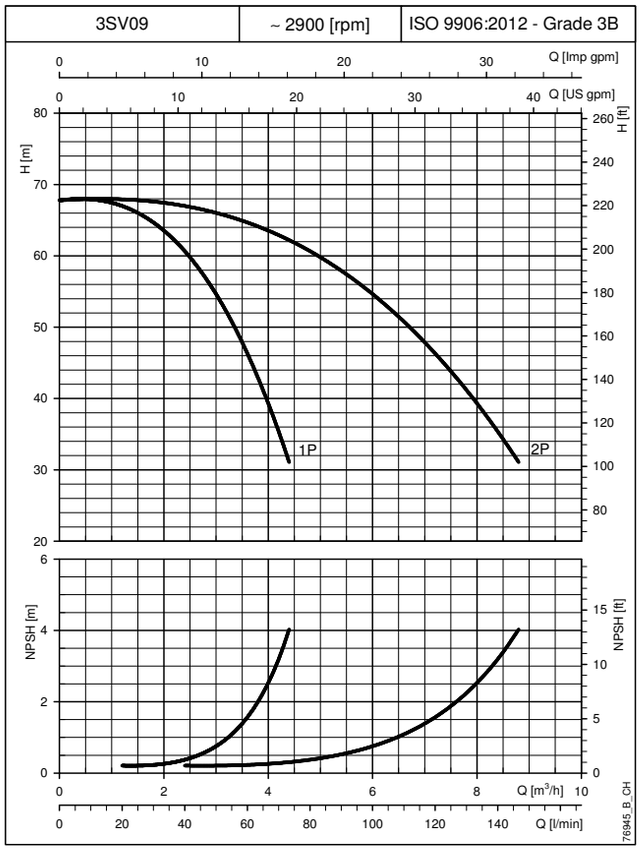

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



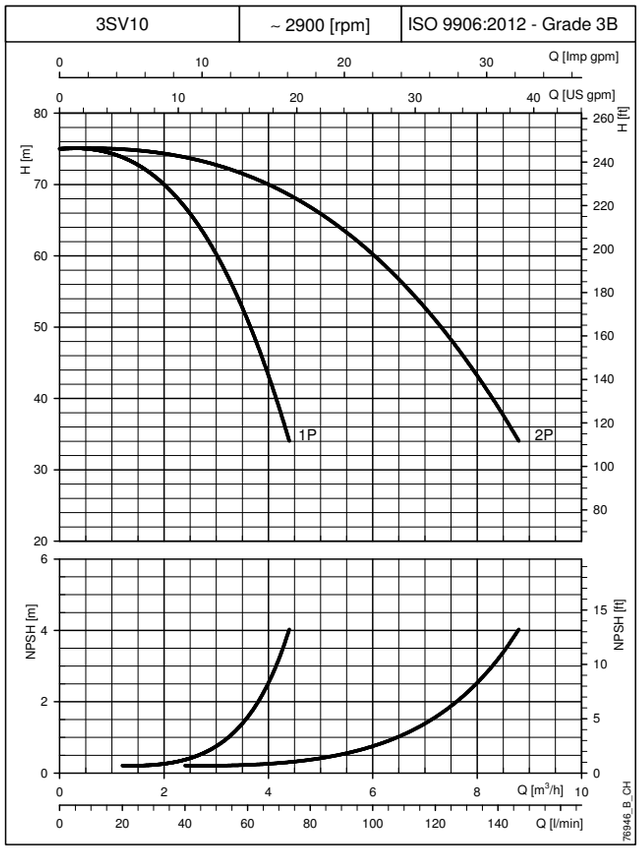



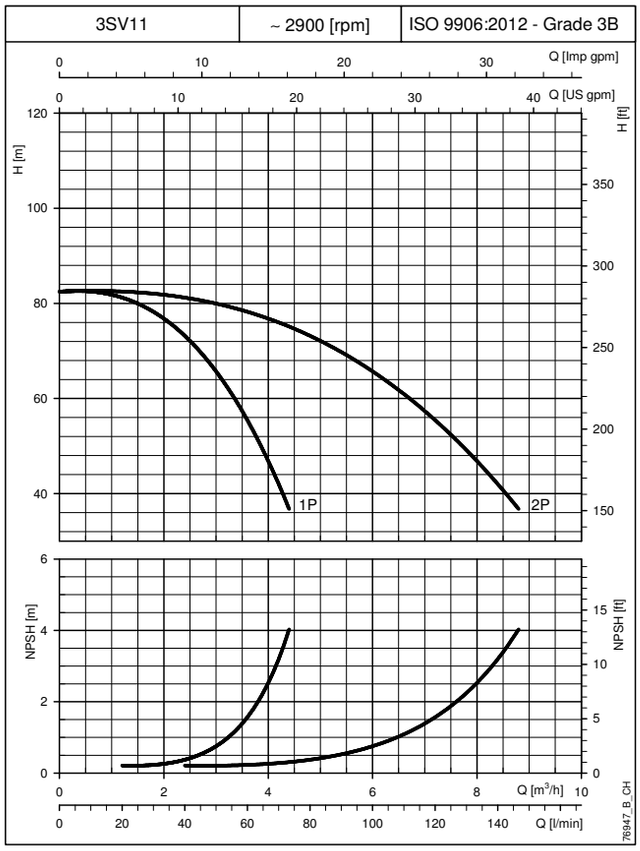



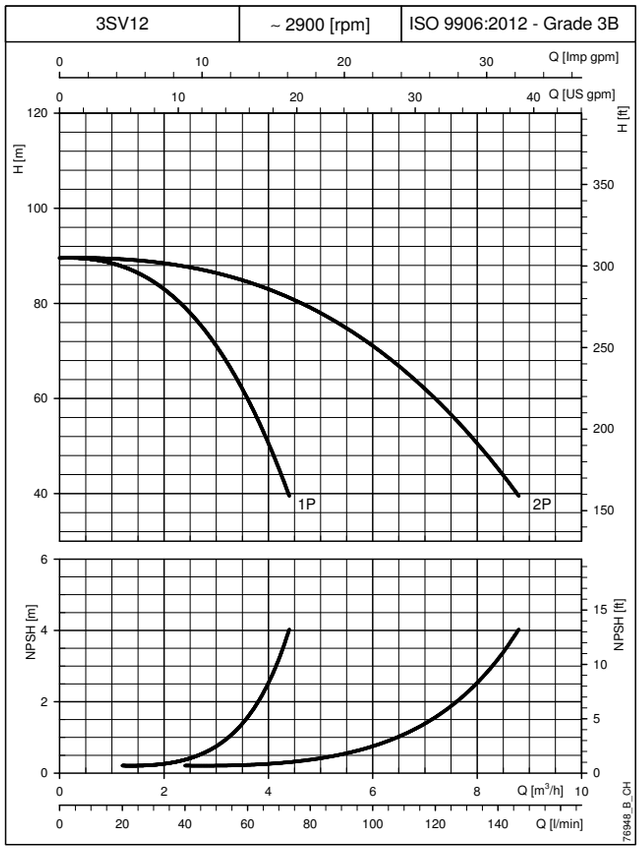



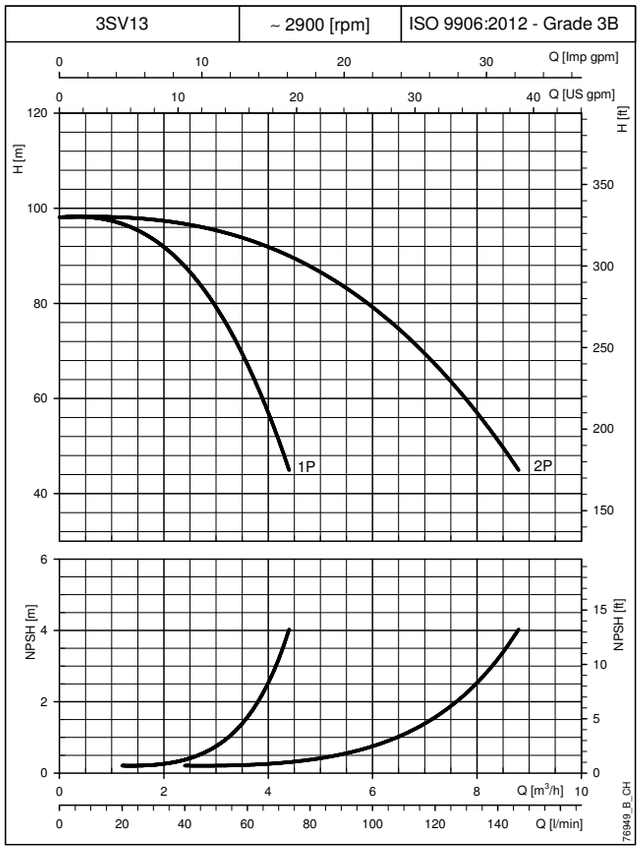

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



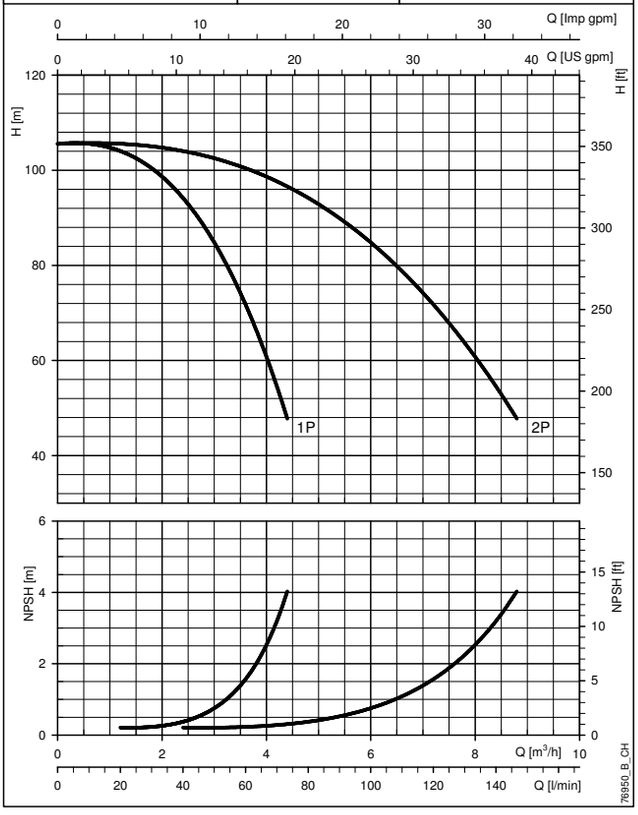




The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

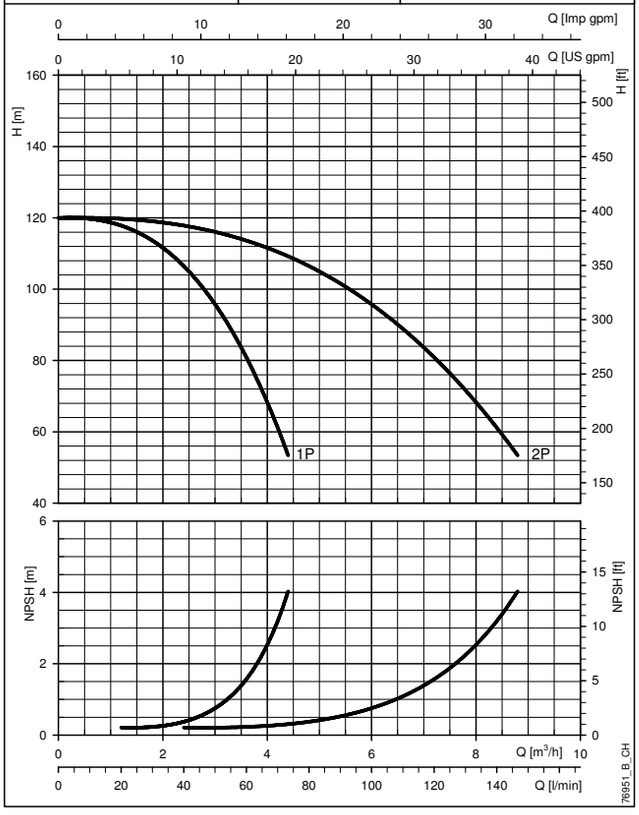
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

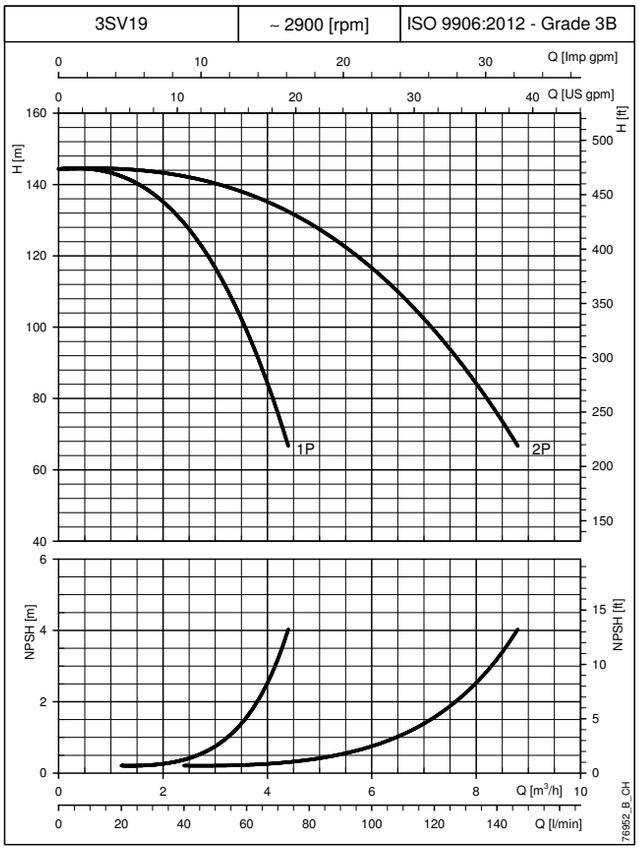
| 3SV14 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



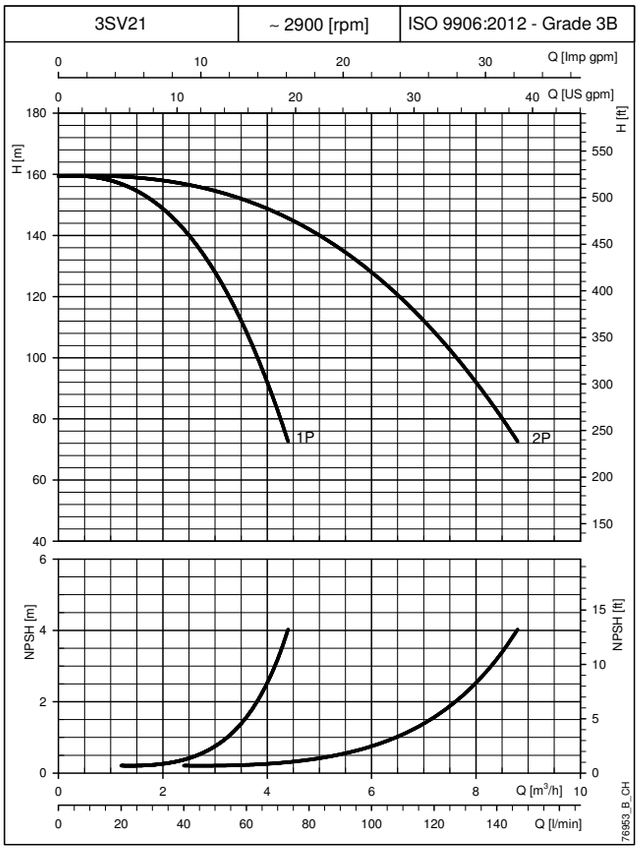

| 3SV16 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|




| 3SV19 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



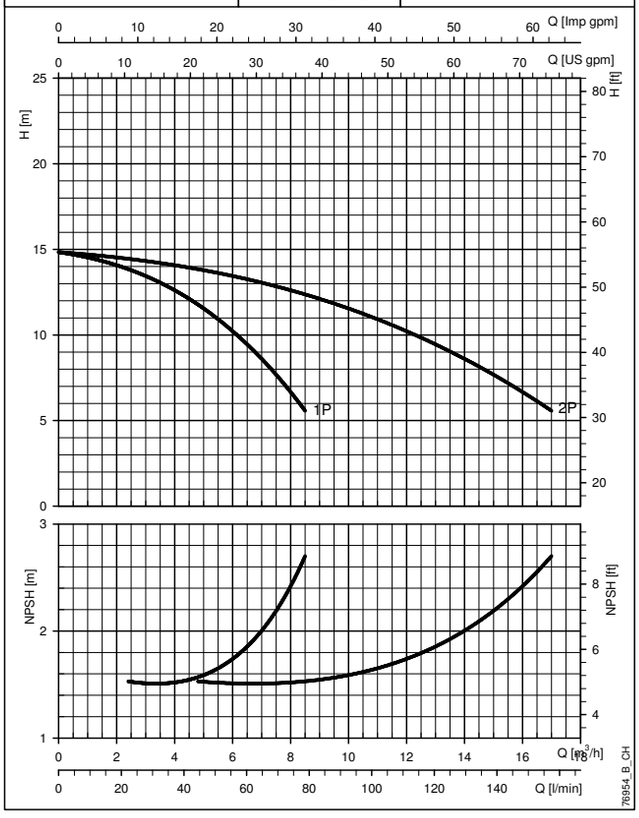

| 3SV21 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



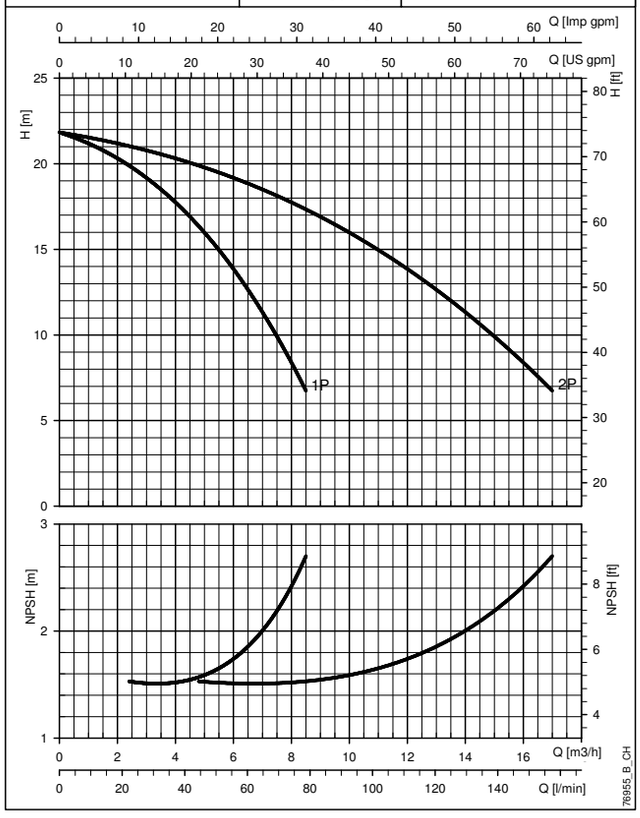

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

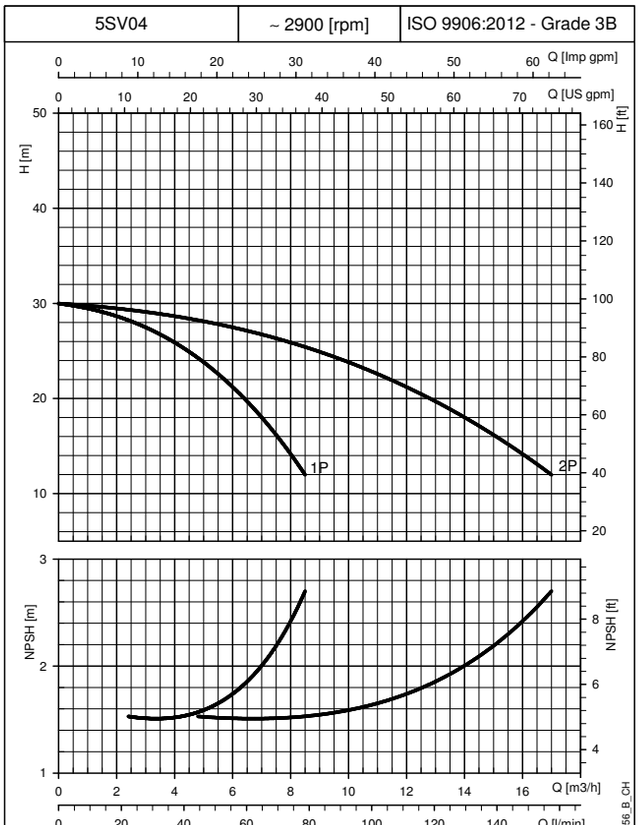
| 5SV02 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



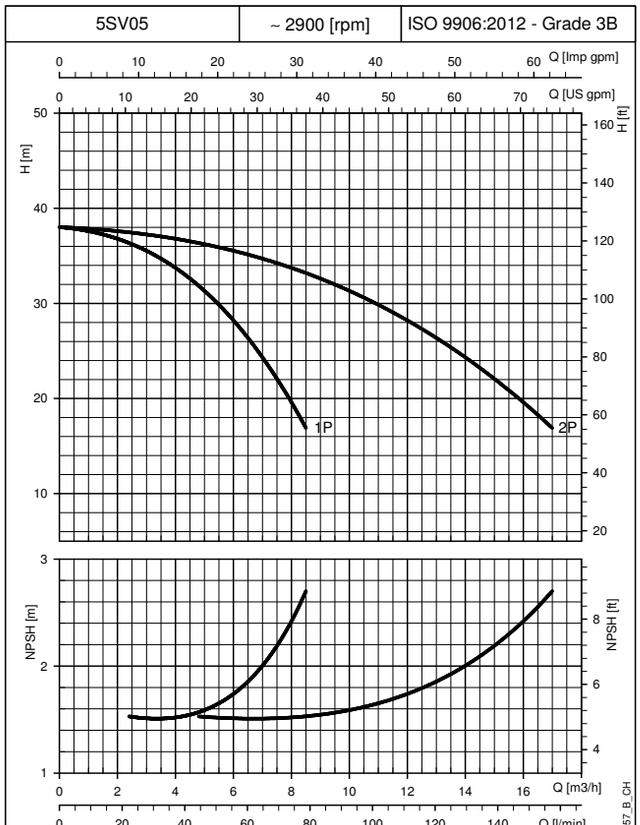

| 5SV03 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|




| 5SV04 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



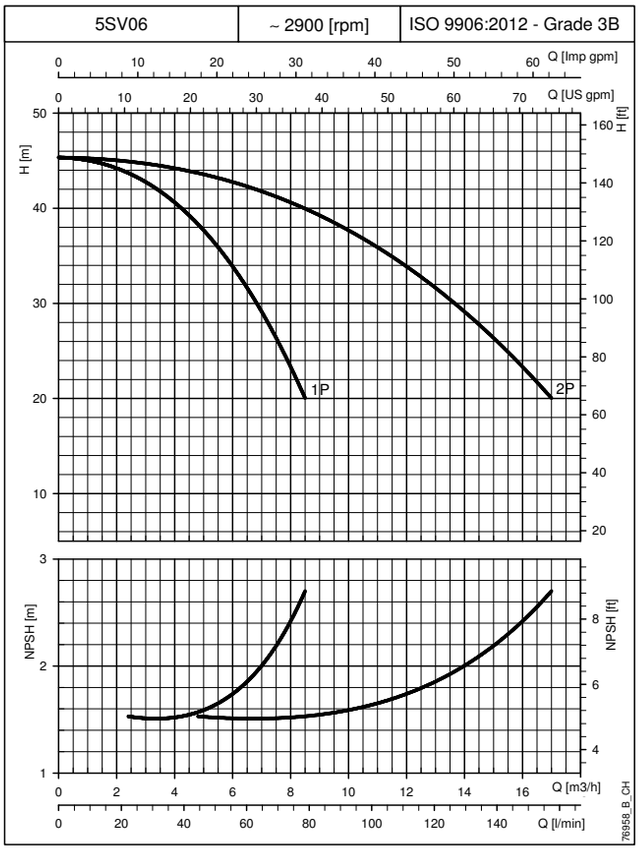

| 5SV05 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|

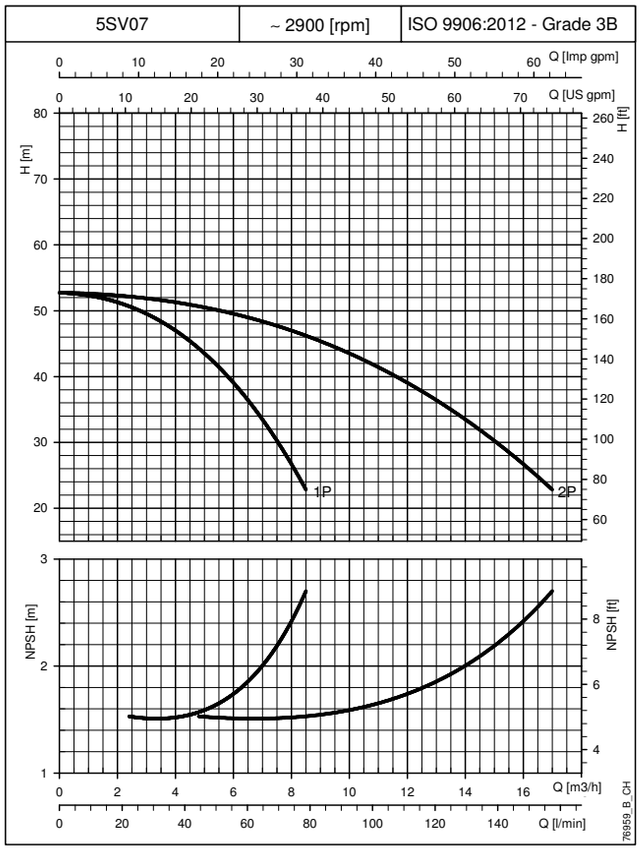


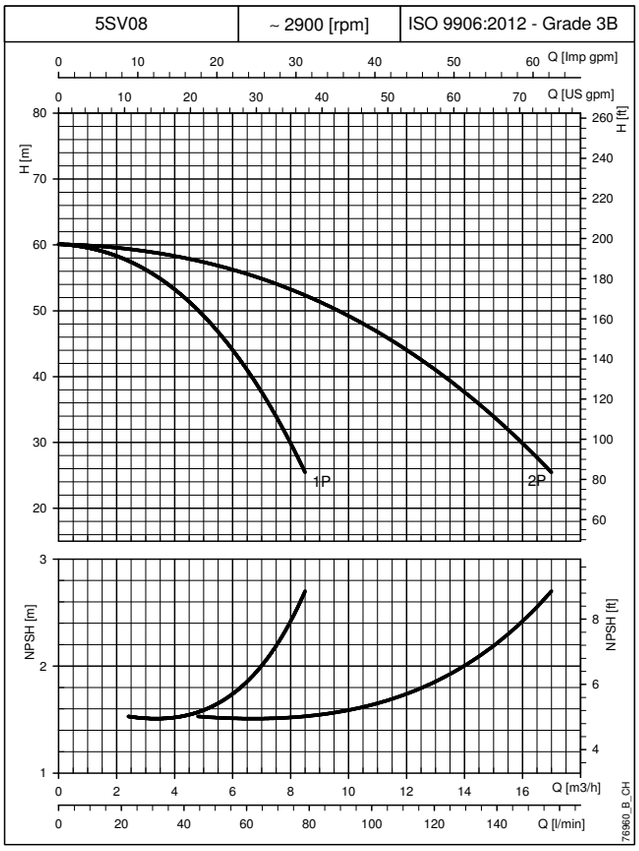

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

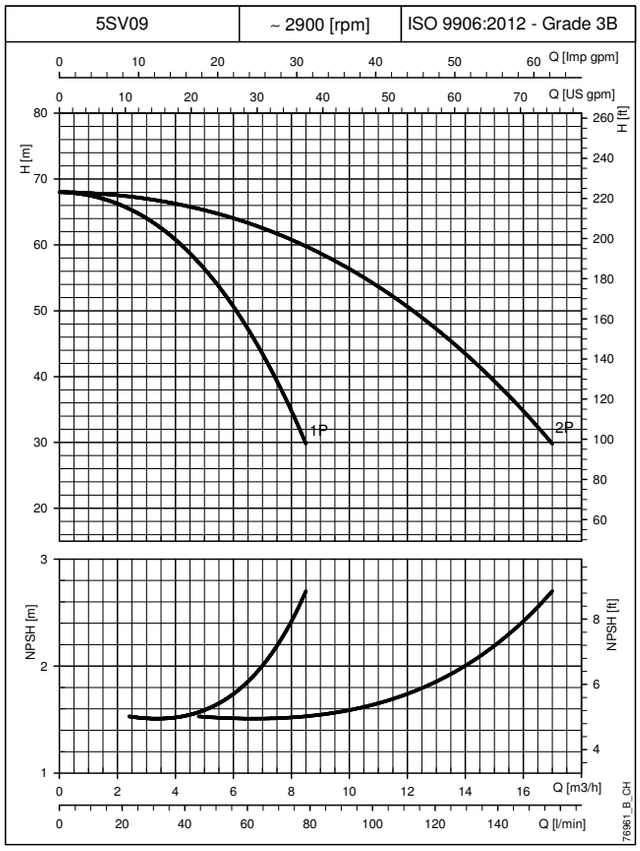
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



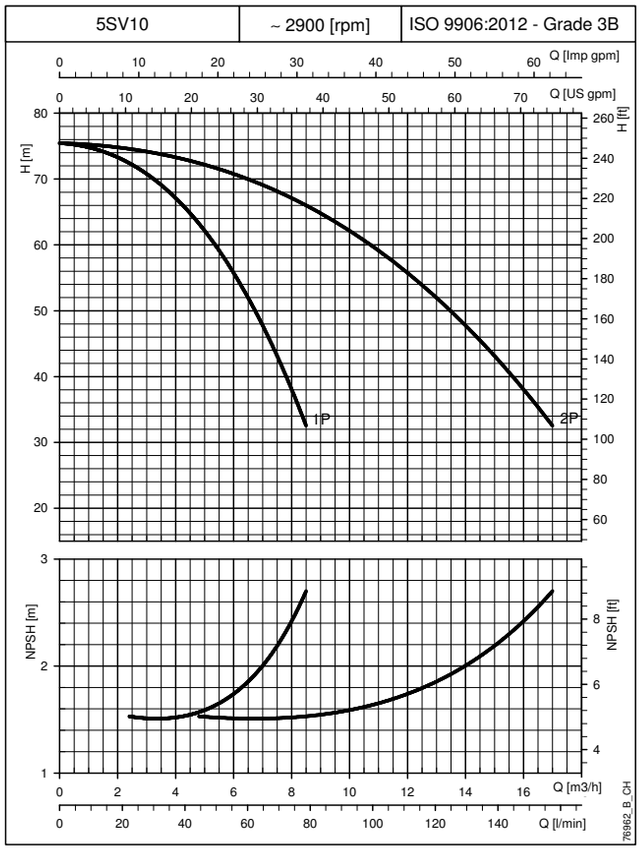



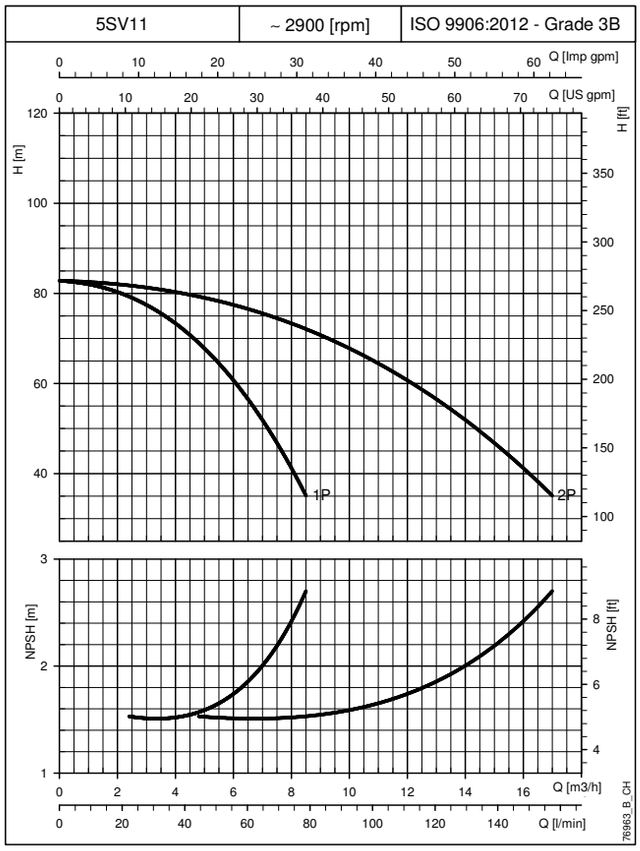



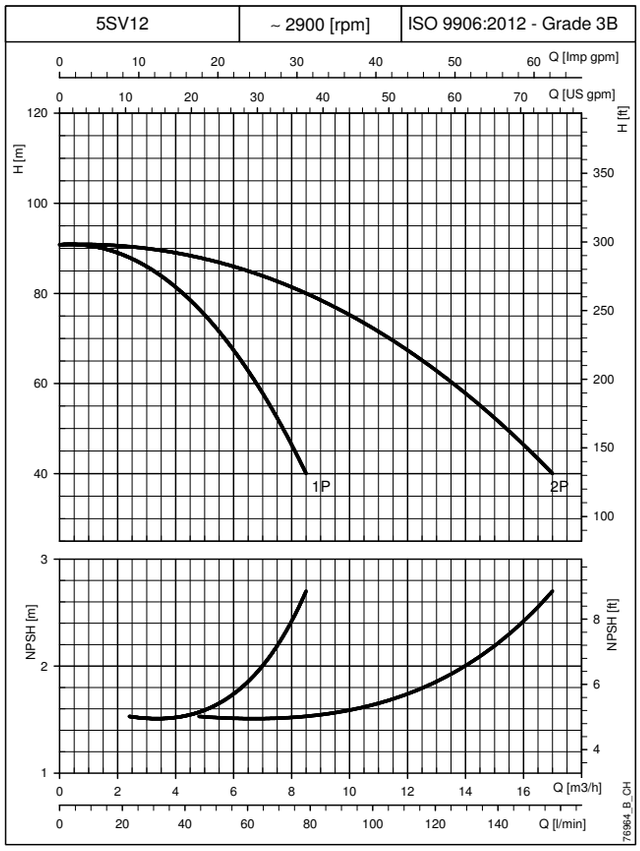



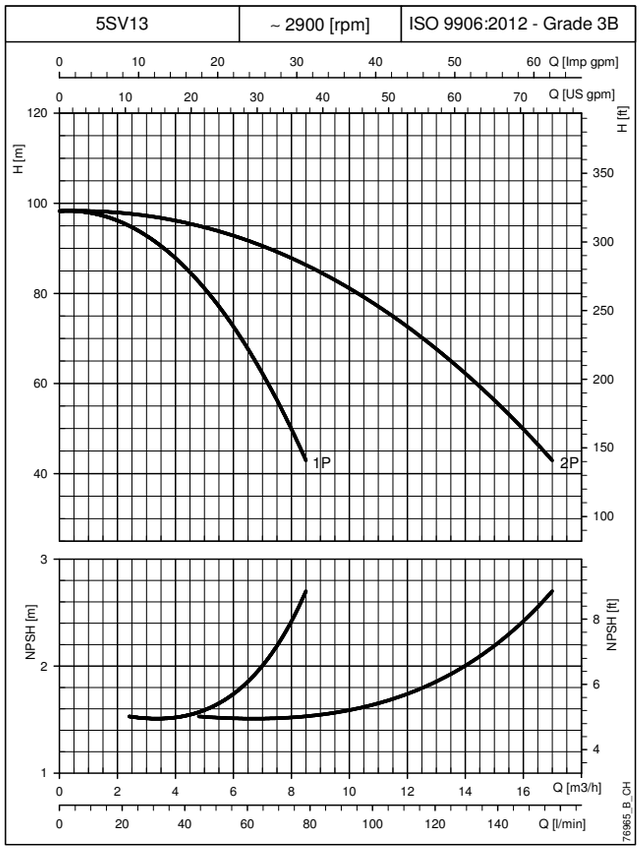

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



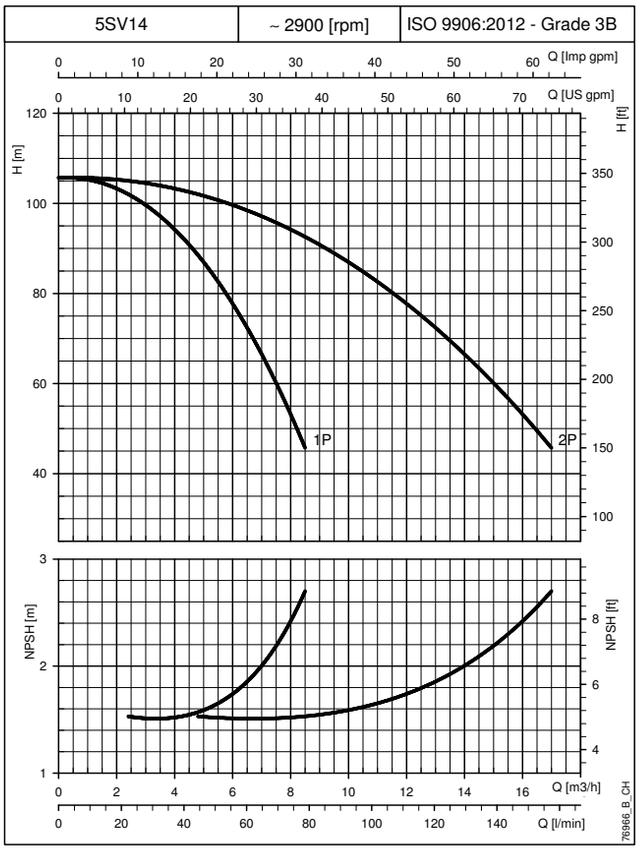



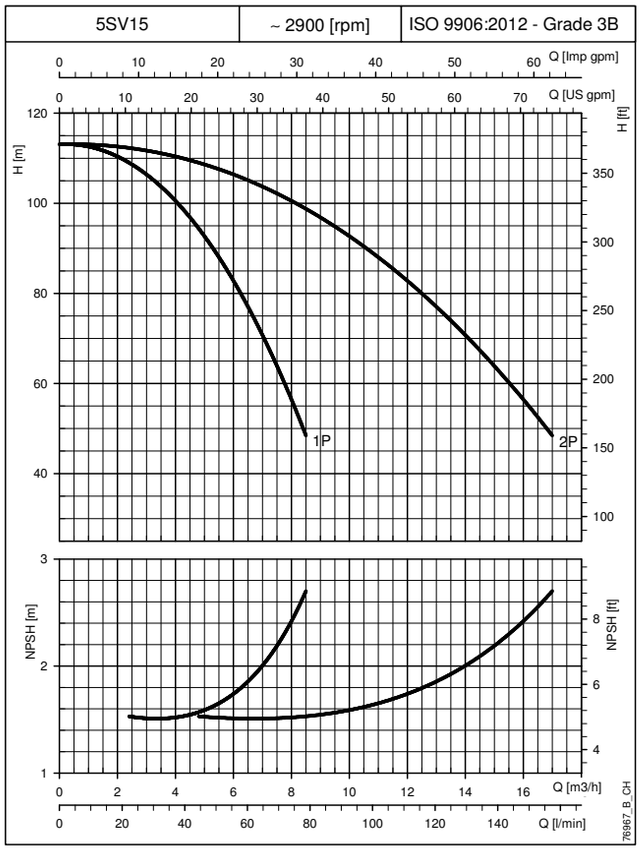



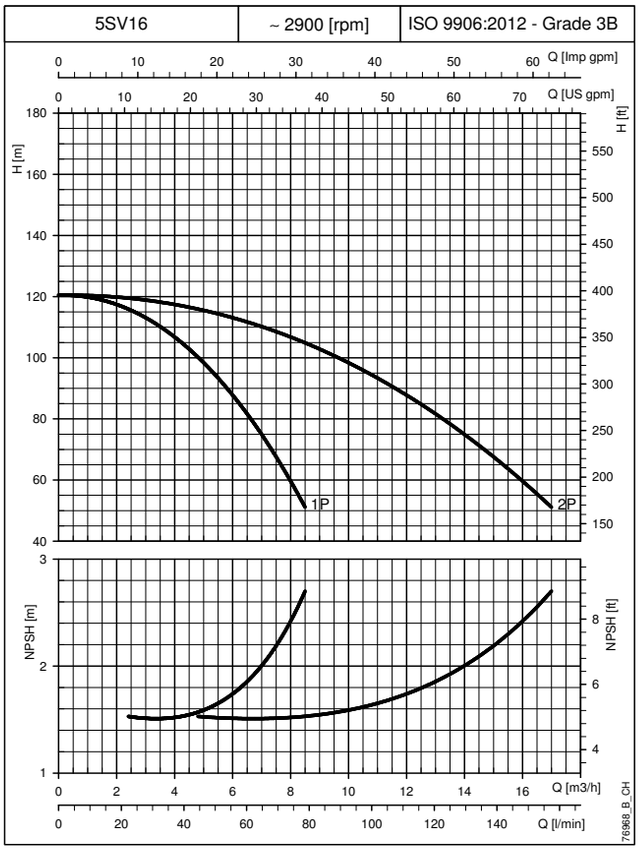



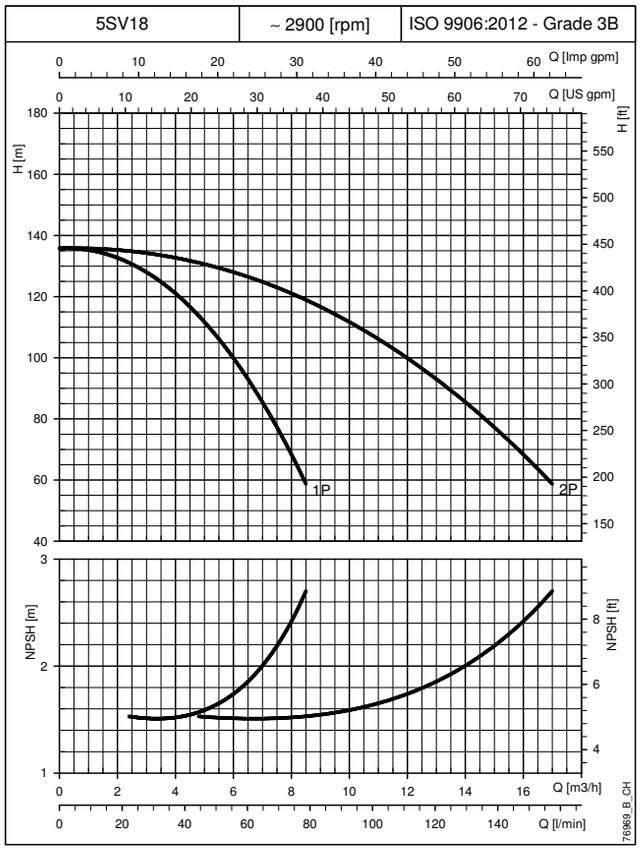

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



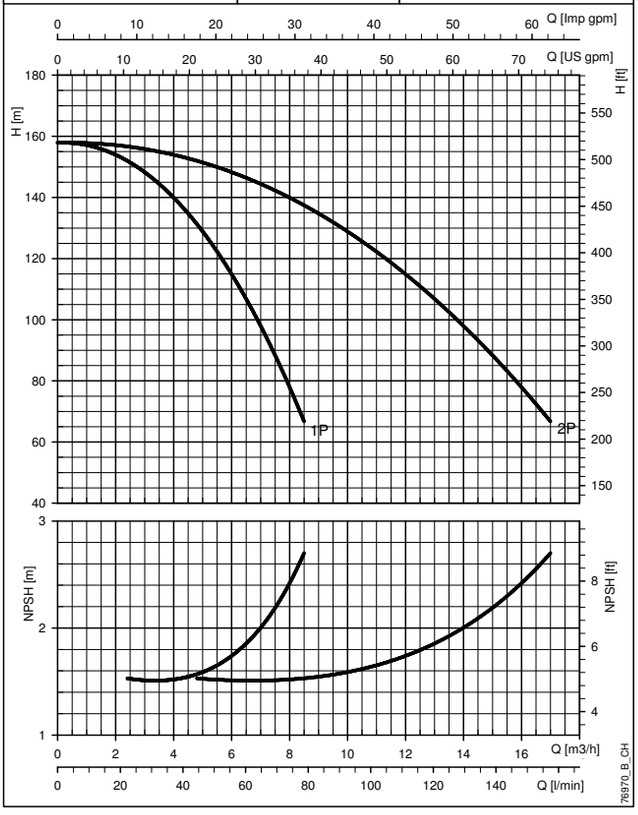




The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

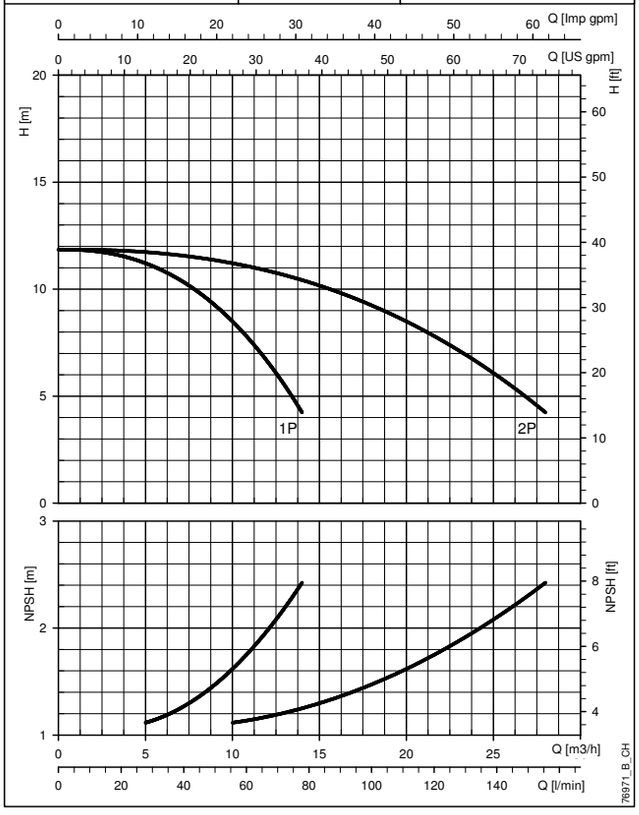
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

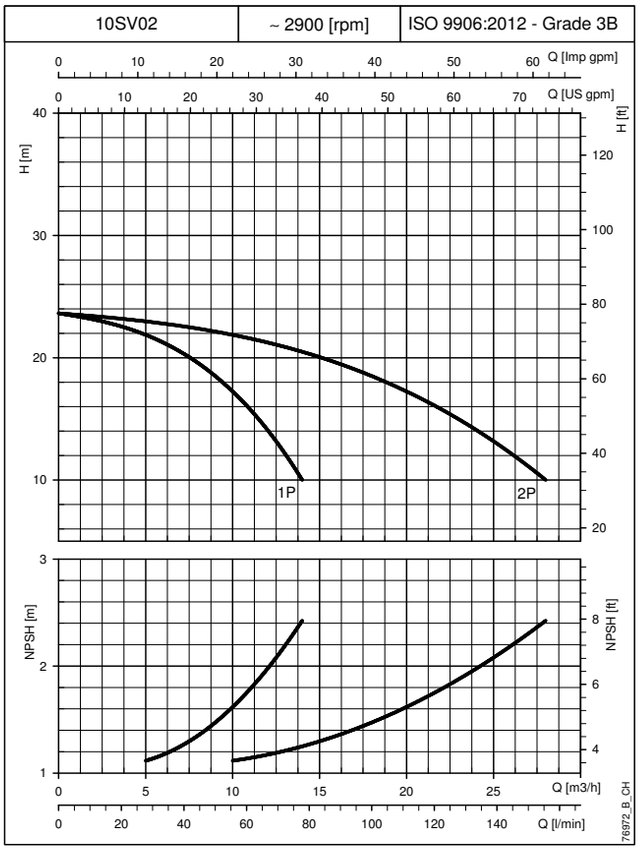
| 5SV21 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



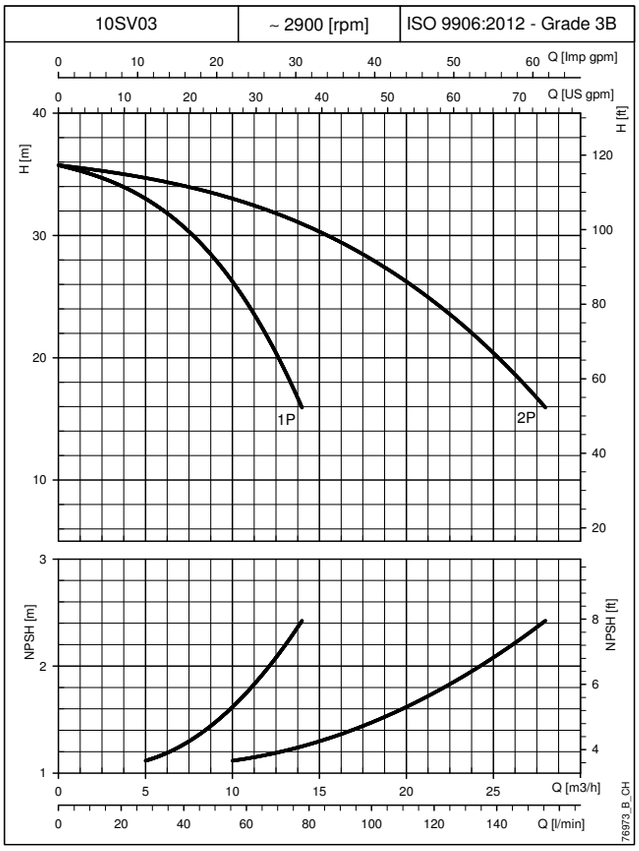

| 10SV01 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|




| 10SV02 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



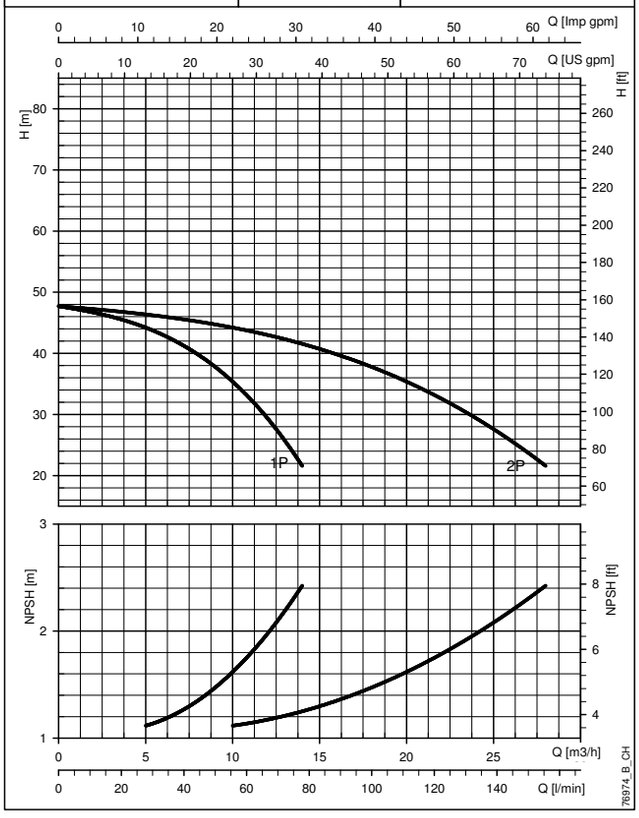

| 10SV03 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



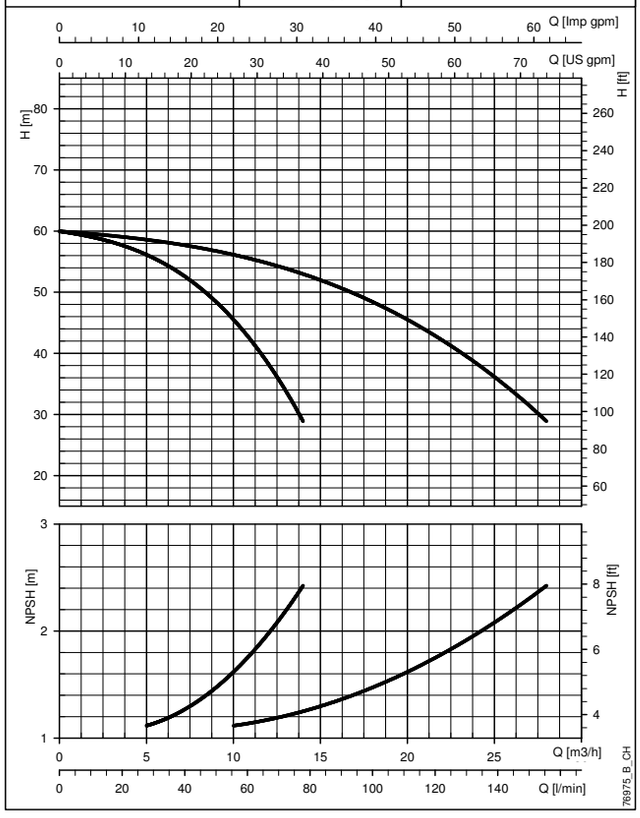

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz

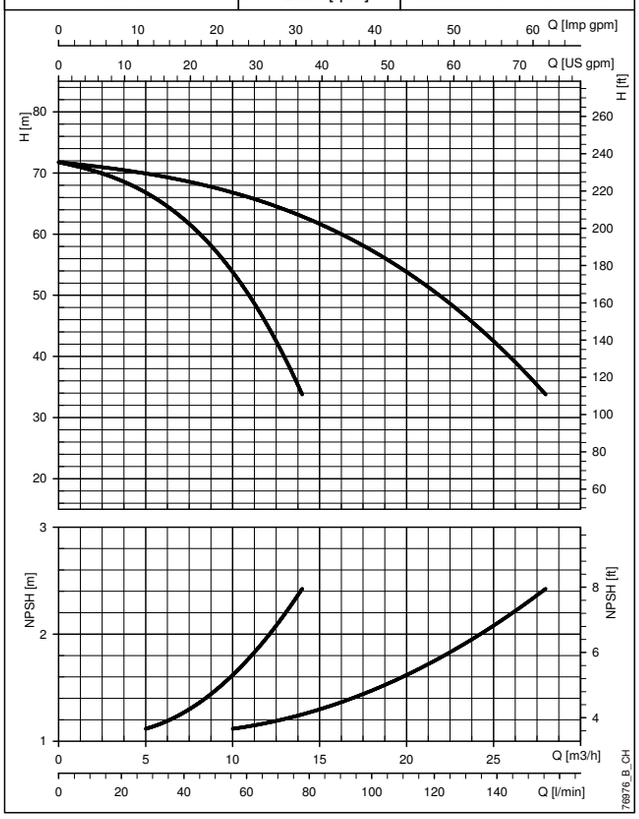
| 10SV04 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|



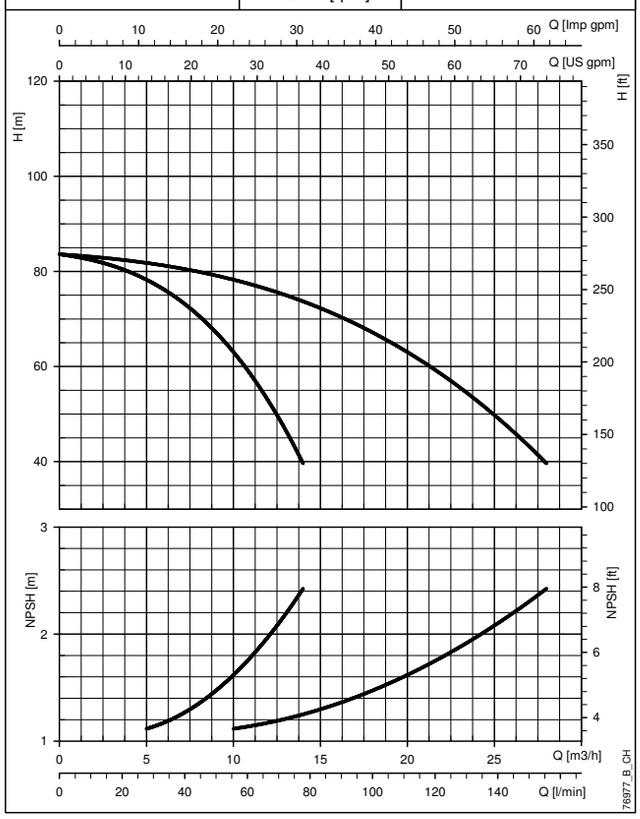

| 10SV05 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|




| 10SV06 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|

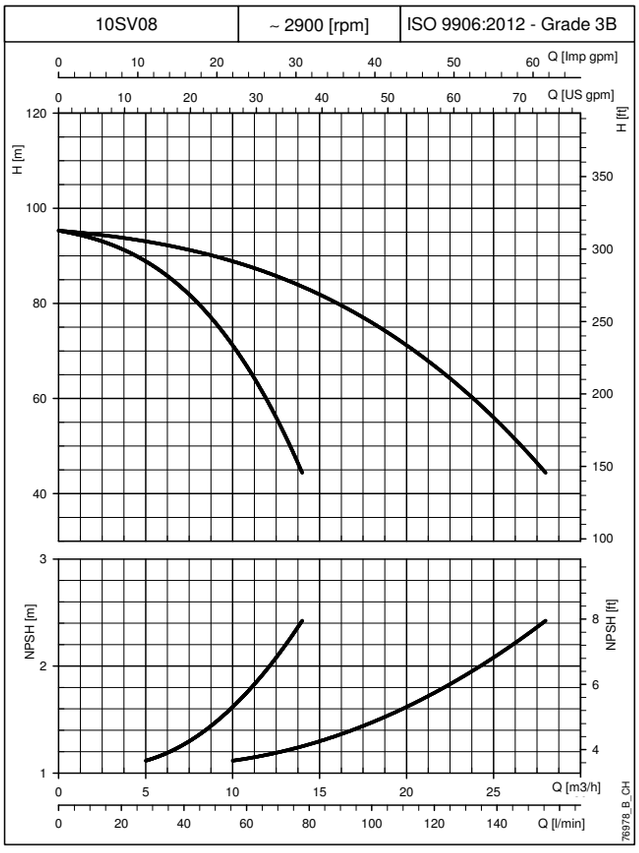


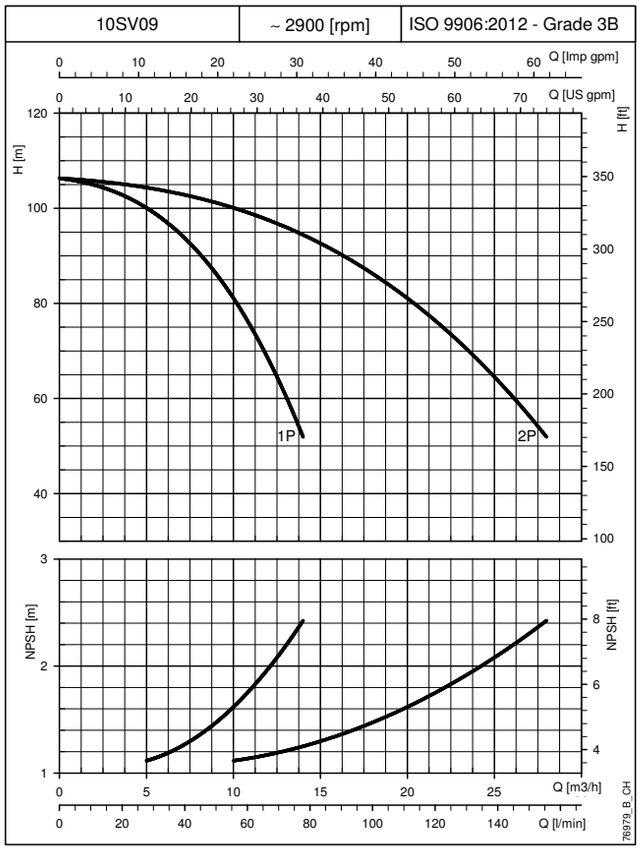

| 10SV07 | ~ 2900 [rpm] | ISO 9906:2012 - Grade 3B |
|---|---|---|

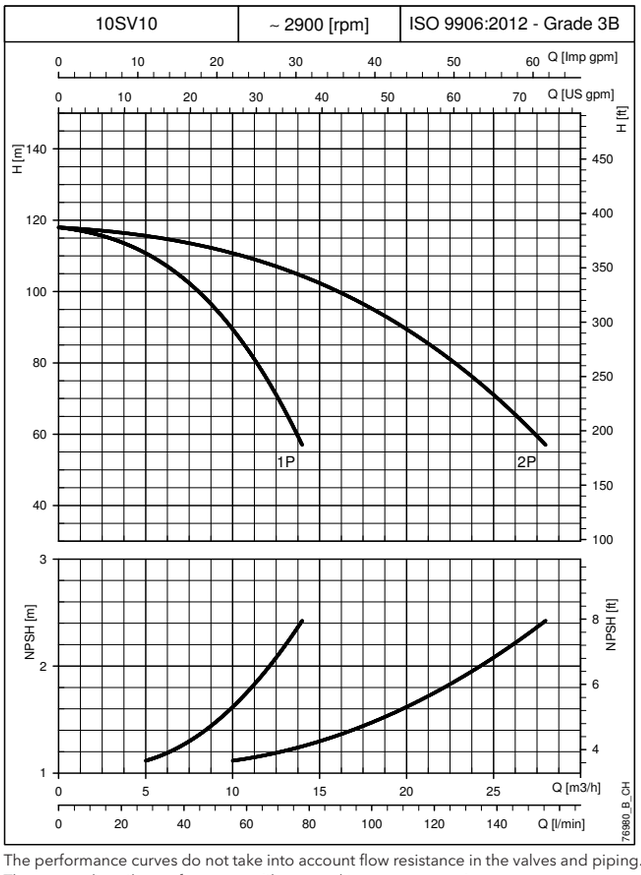


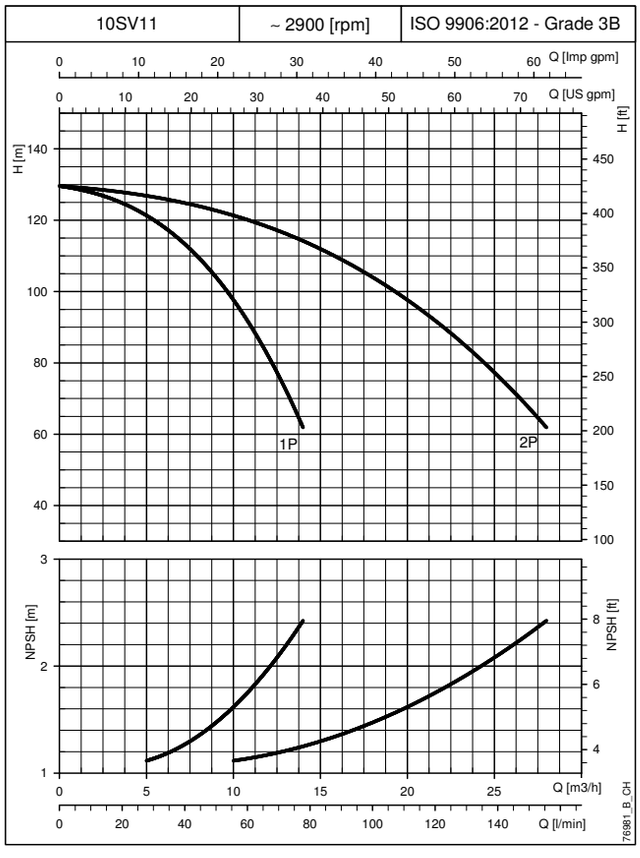

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# OPERATING CHARACTERISTICS AT 50 Hz



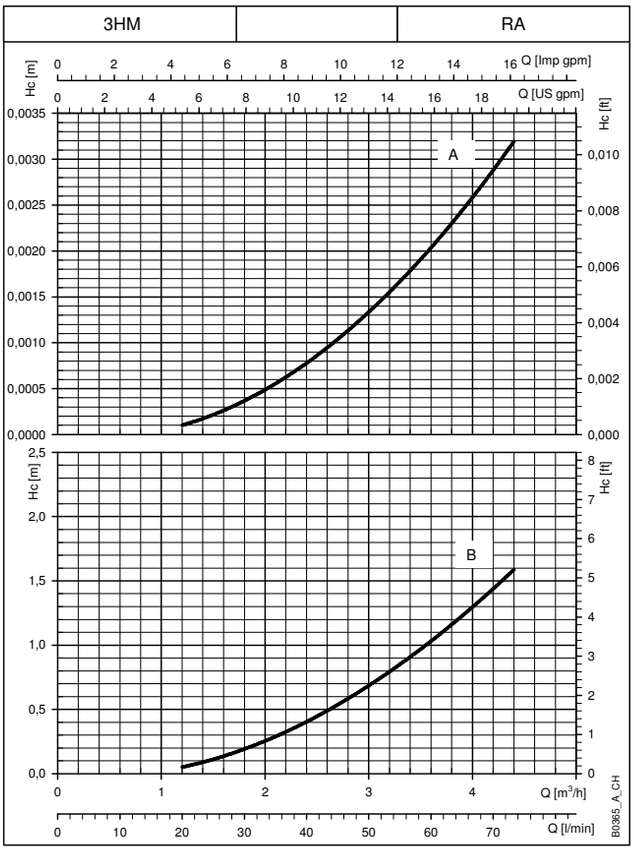



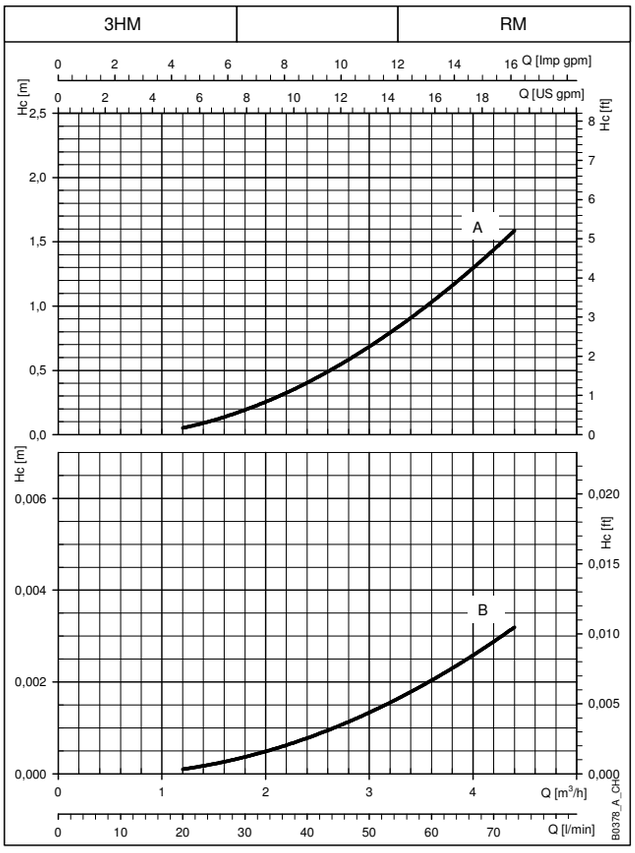



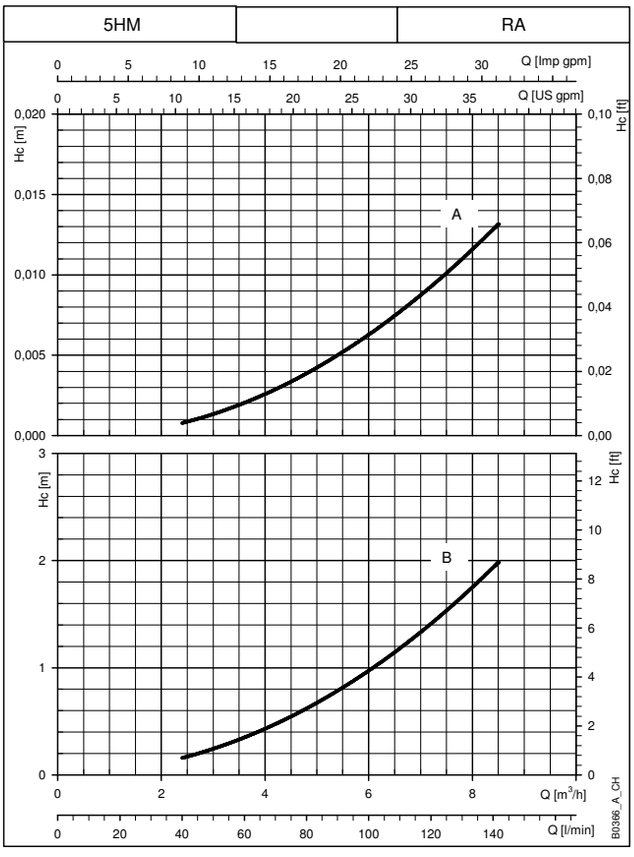



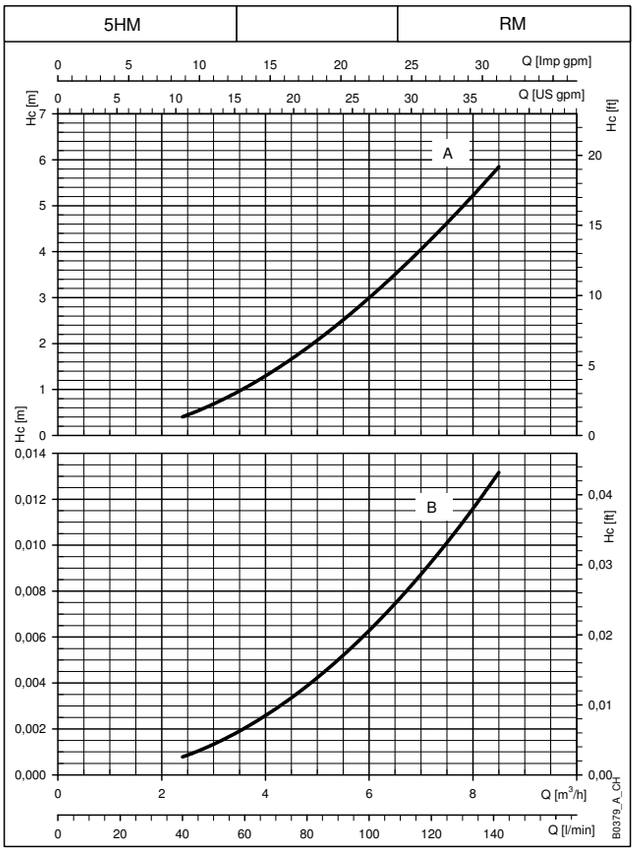

The performance curves do not take into account flow resistance in the valves and piping.
The curves show the performance with one and two pumps running.
These performances are valid for liquids with density ρ = 1.0 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



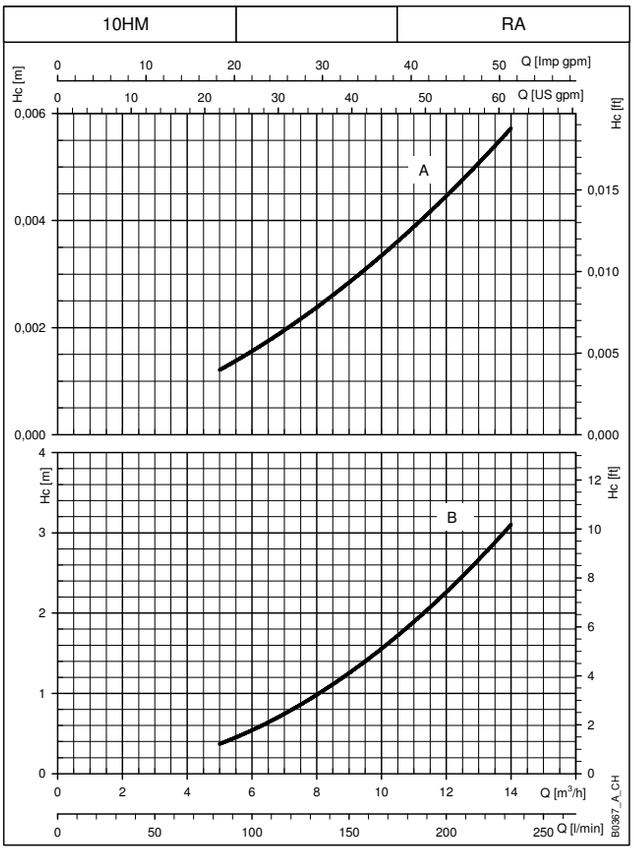



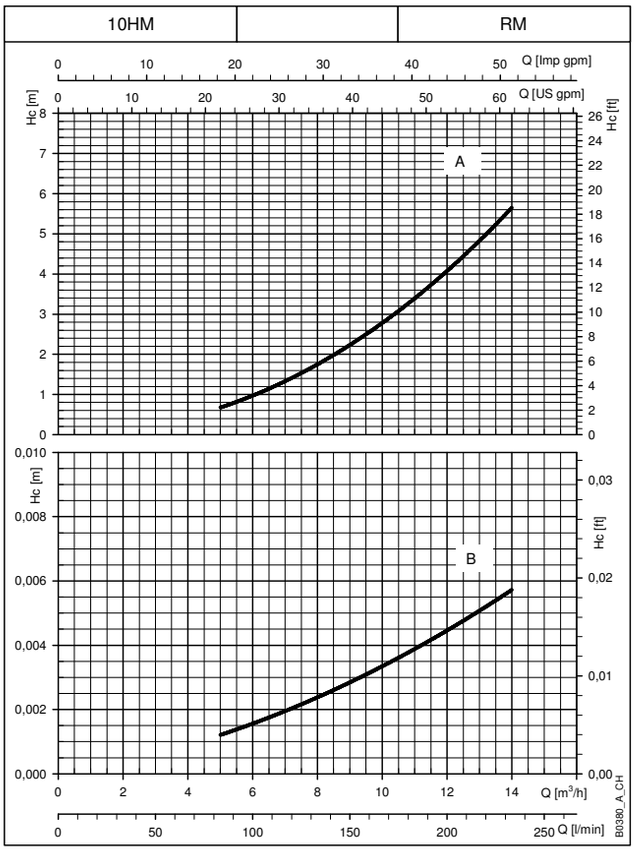



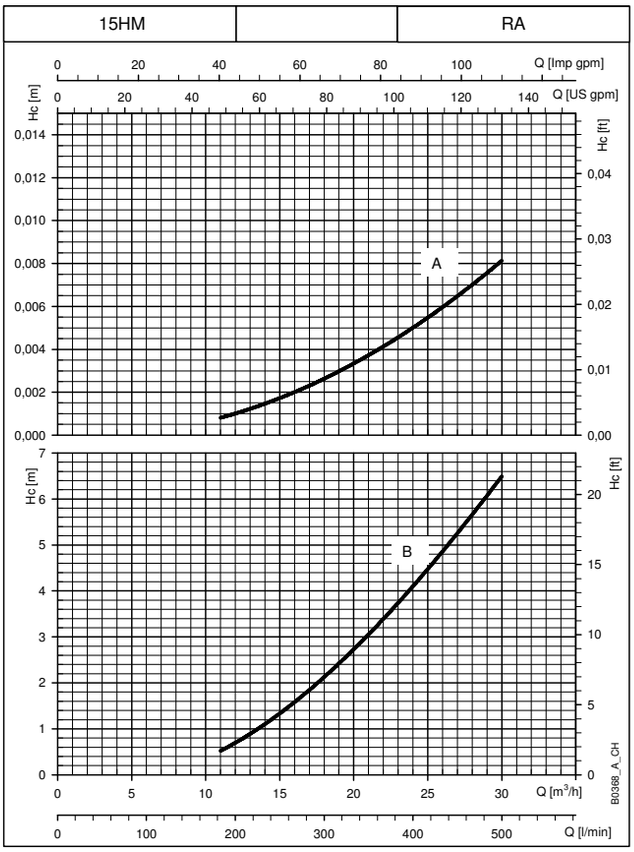

The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

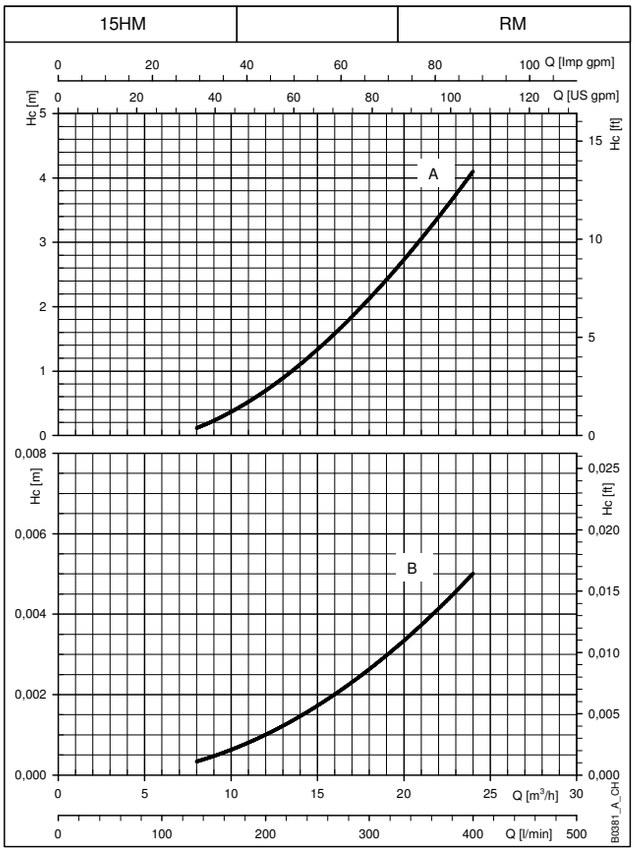
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



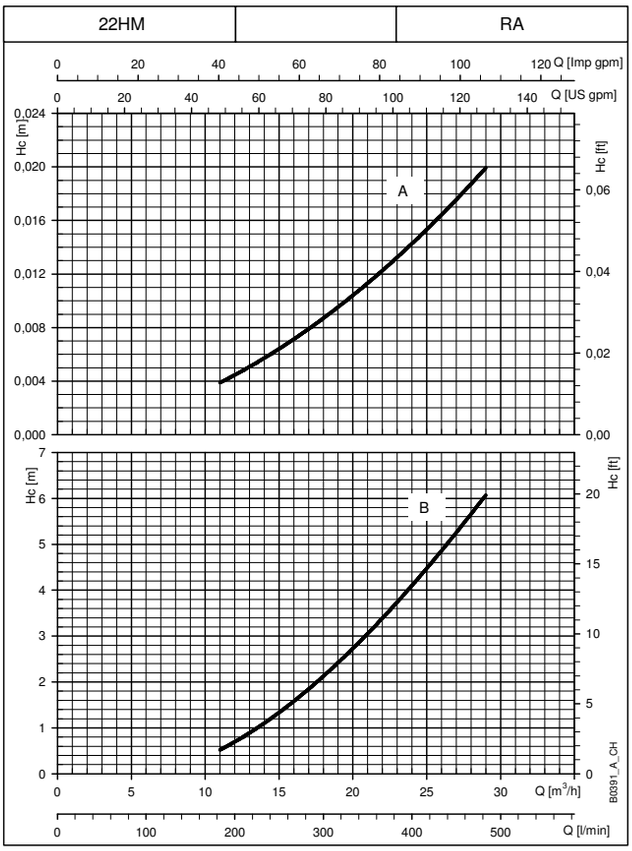



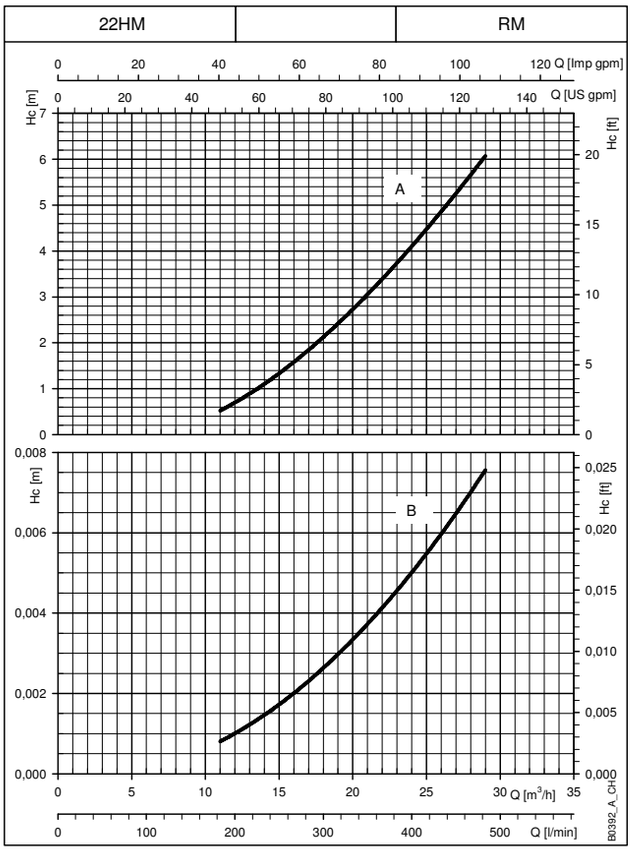



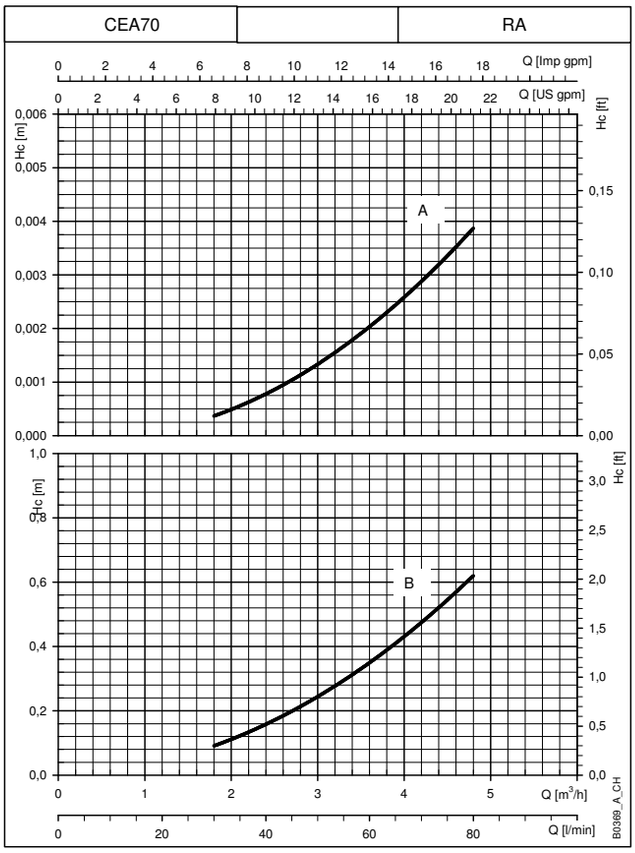

The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

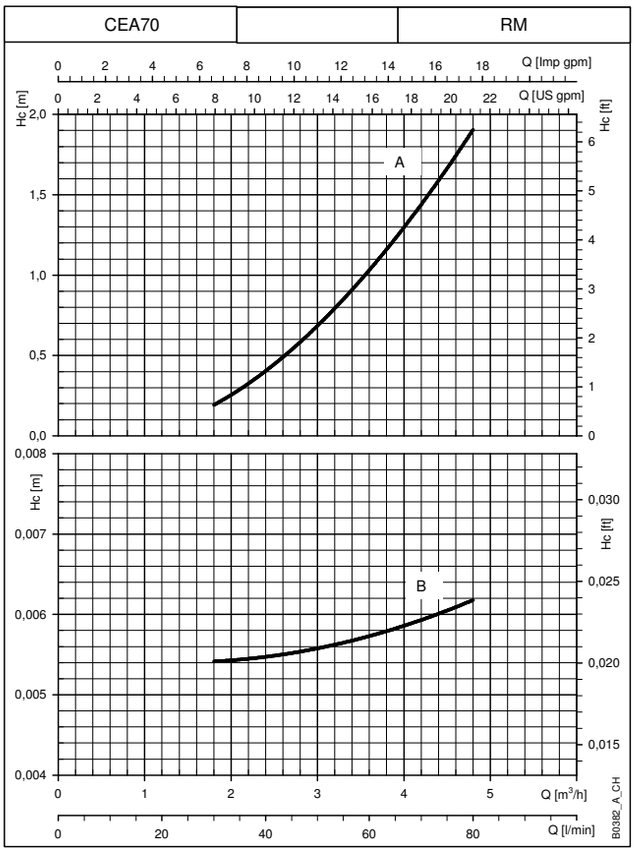
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



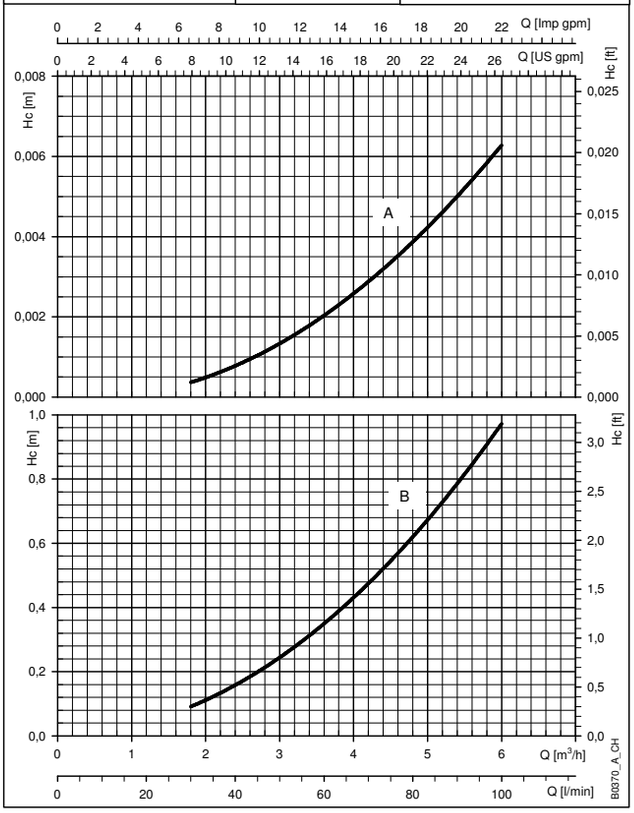




The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

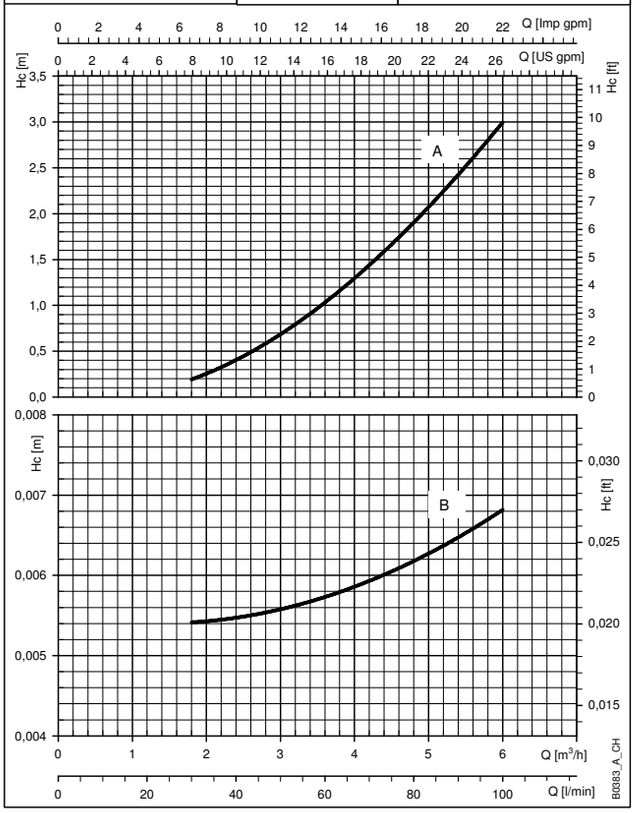
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE

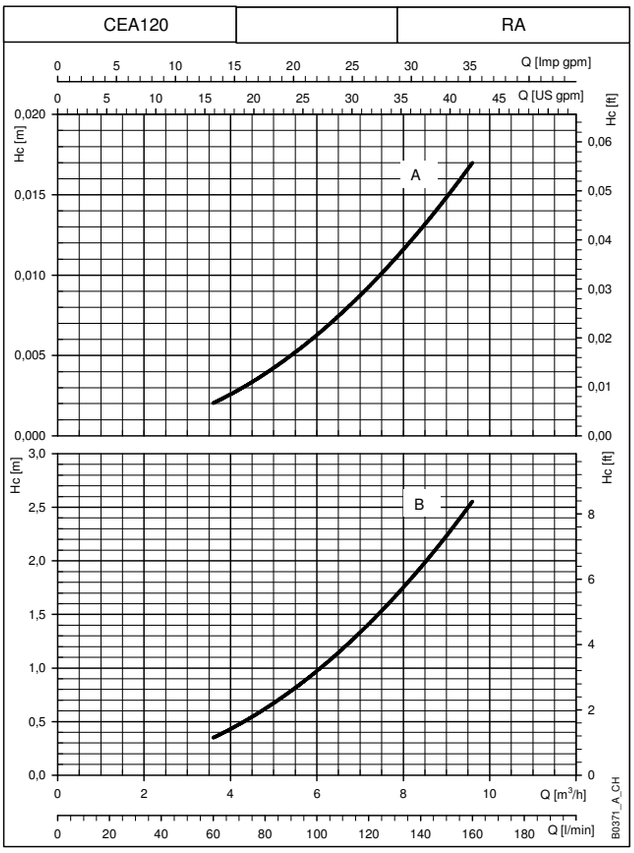
CEA80 RA



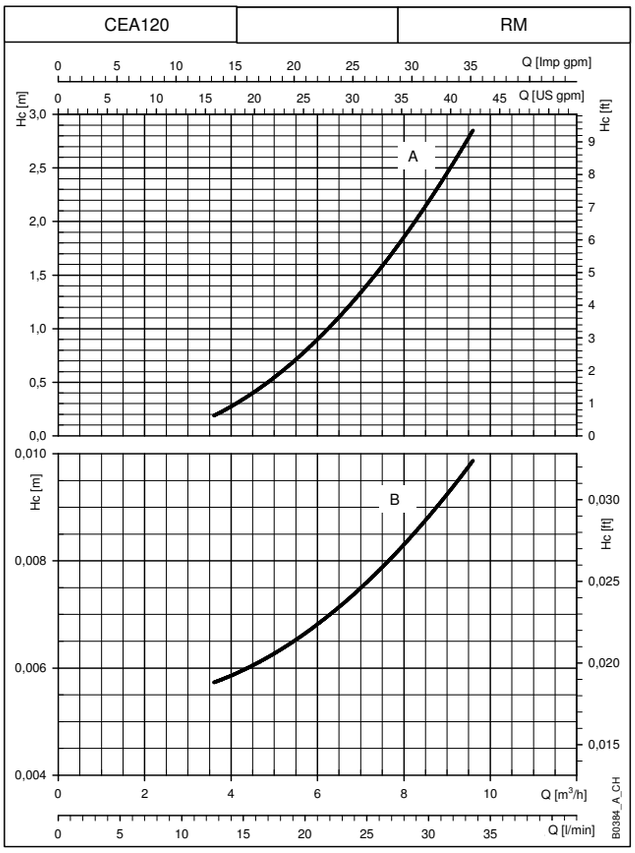

CEA80 RM




CEA120 RA



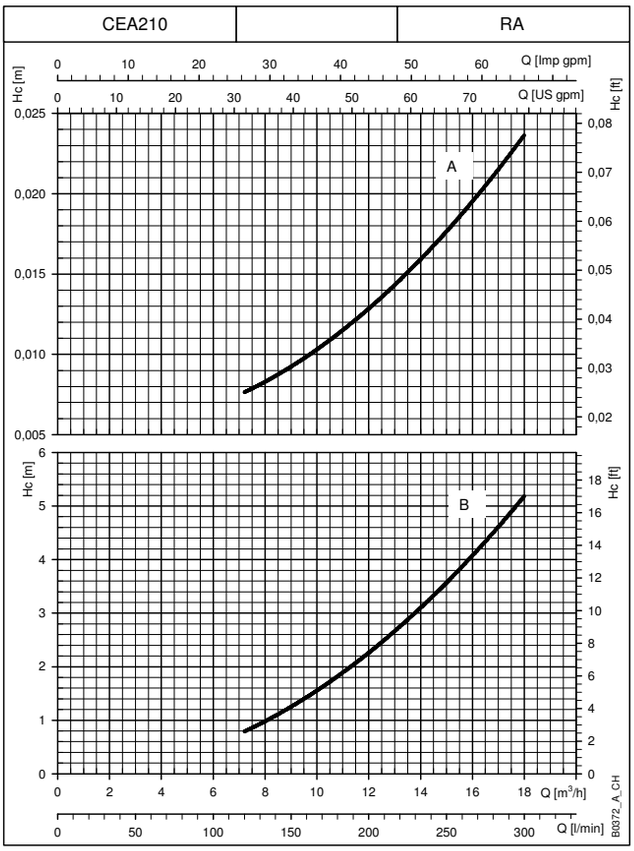

CEA120 RM

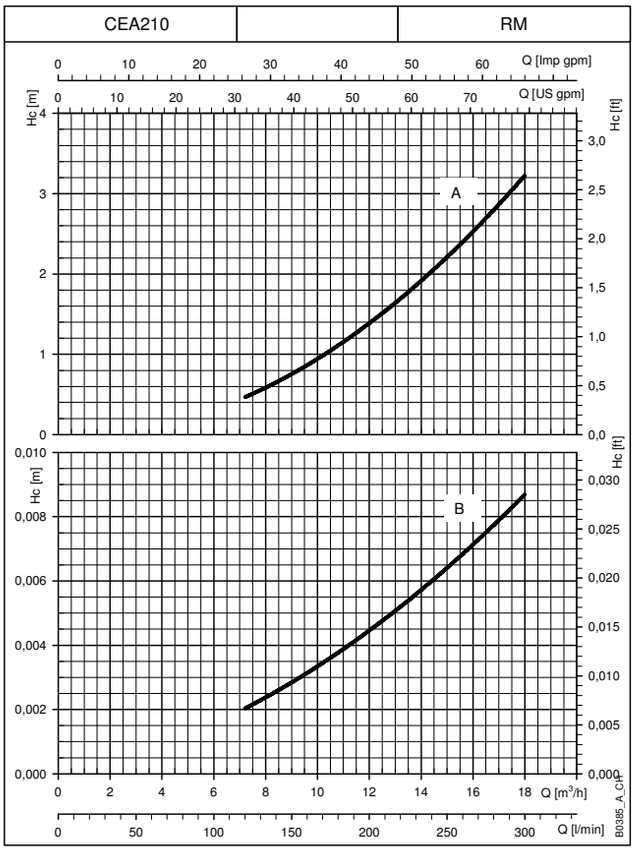


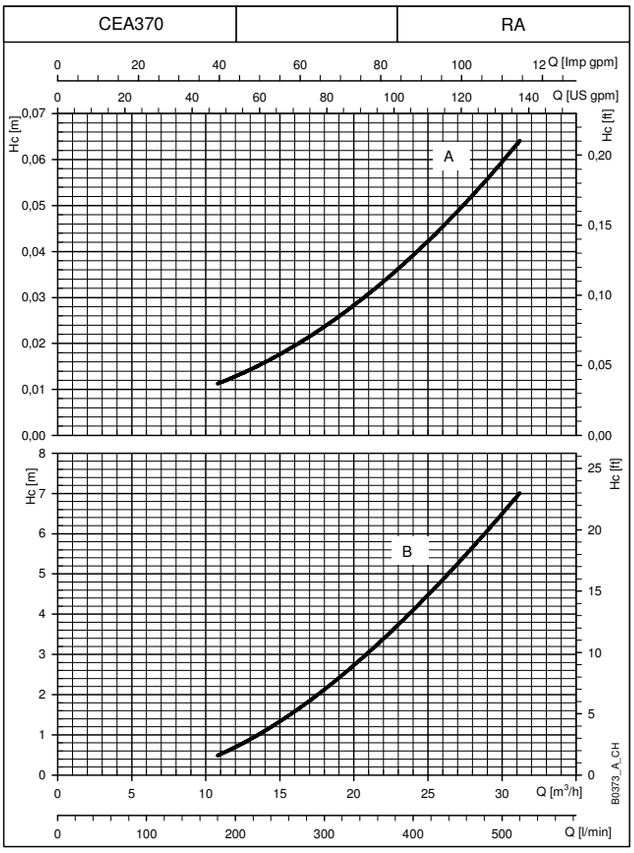

The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

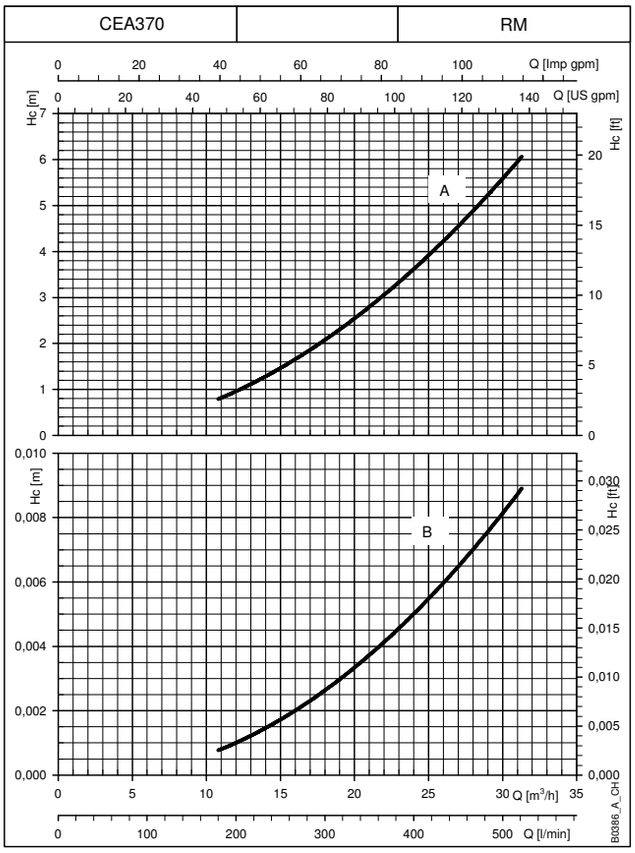
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



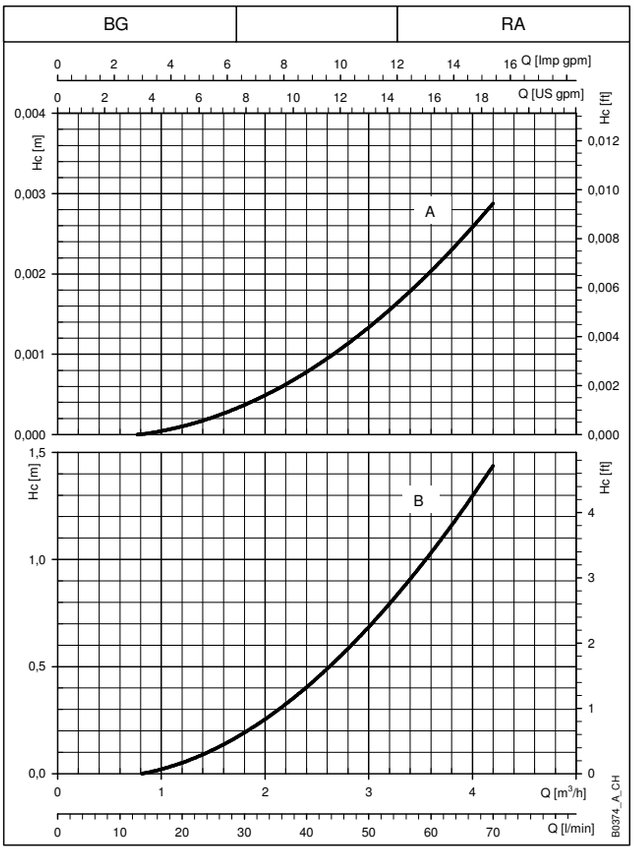



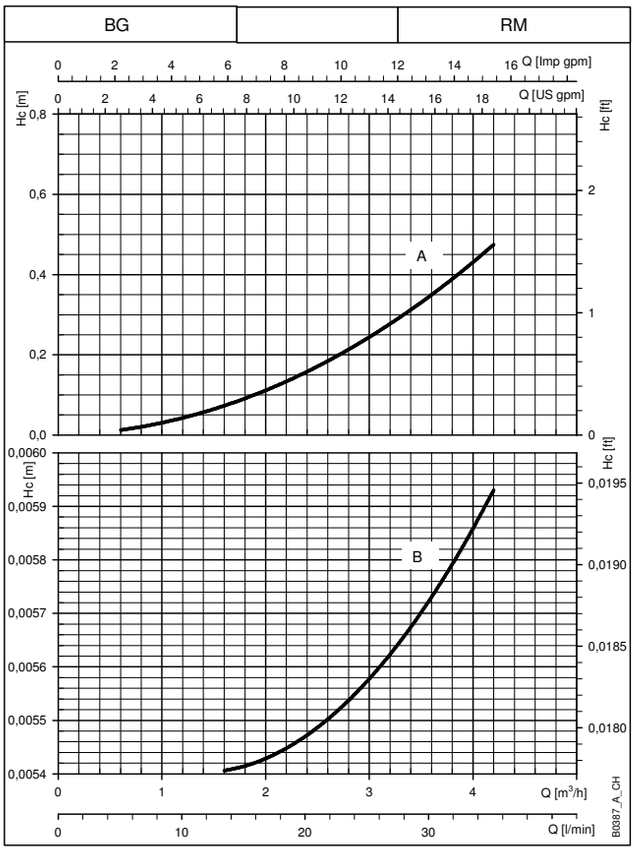



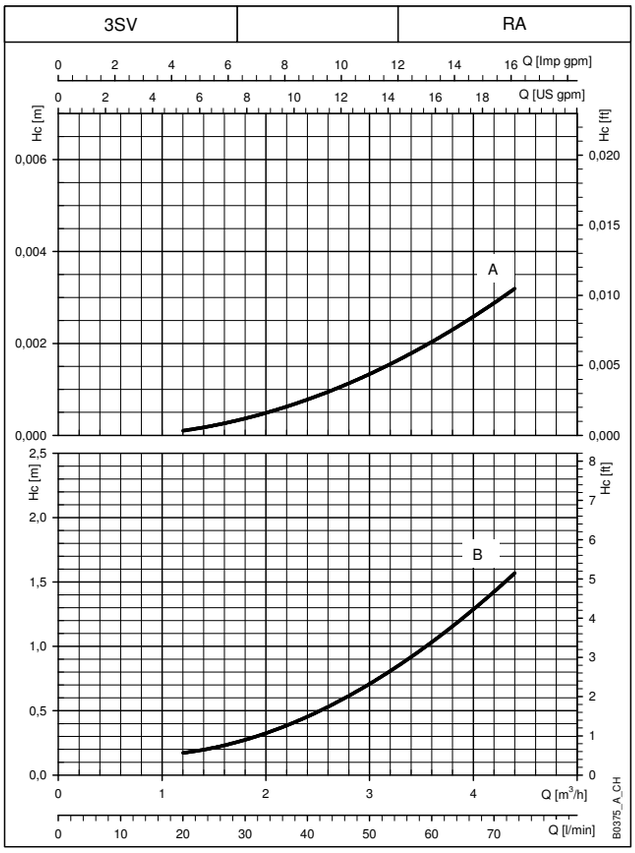



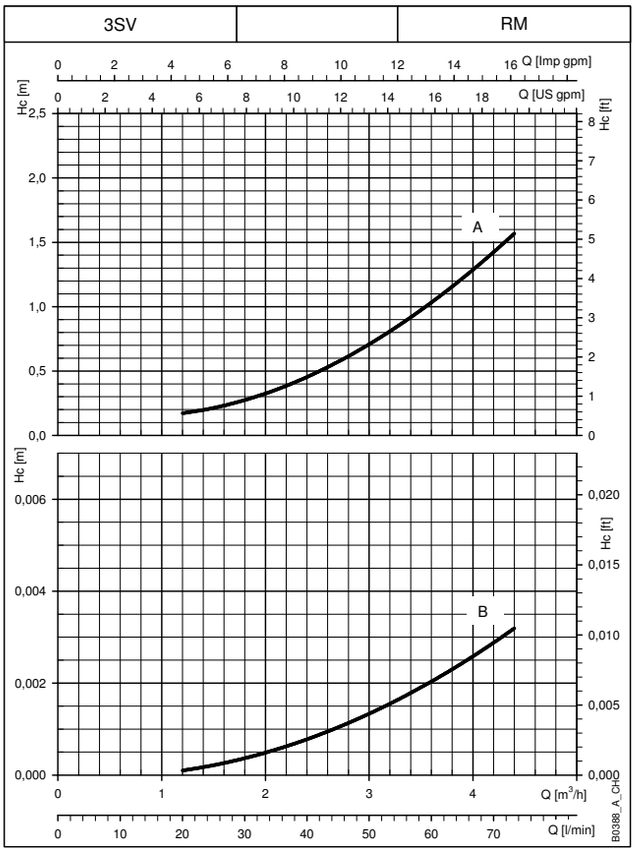

The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



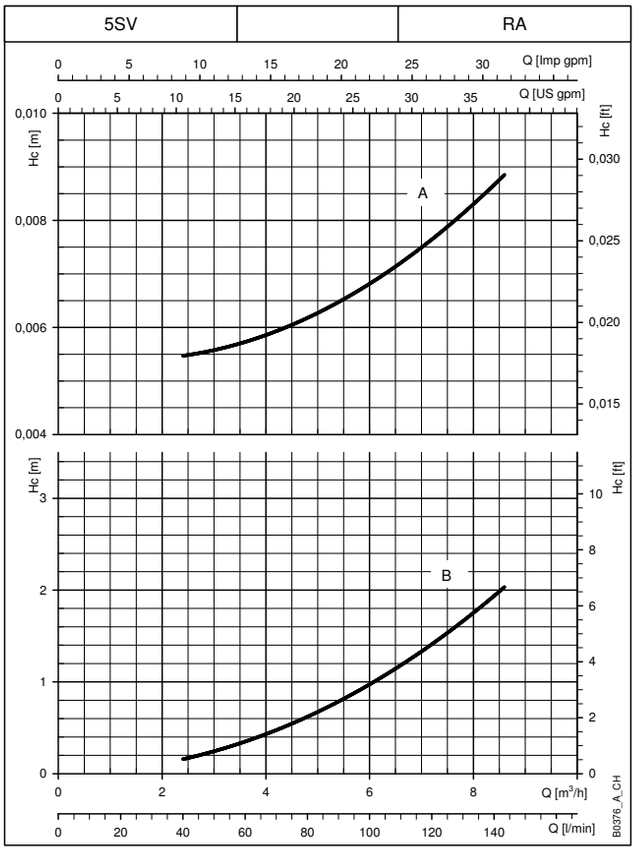



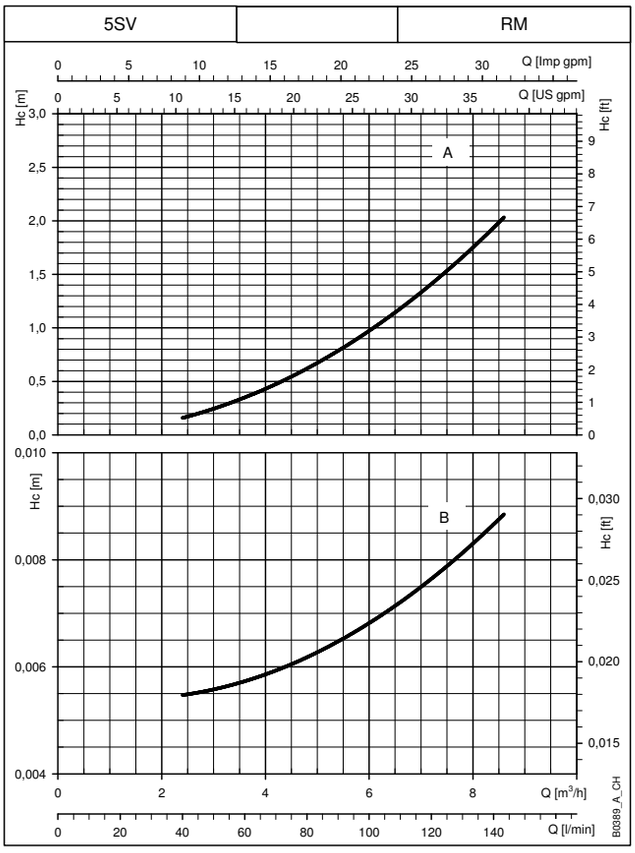



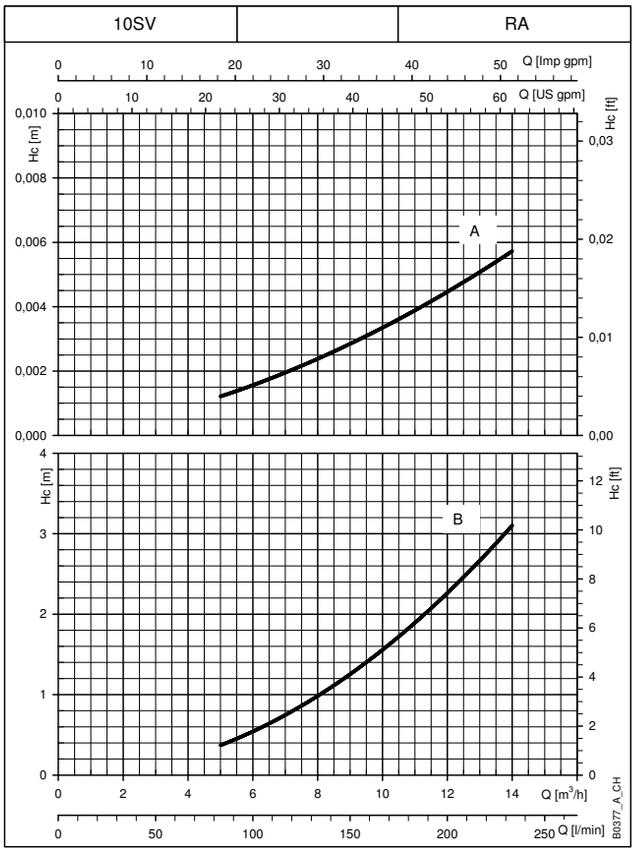

The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

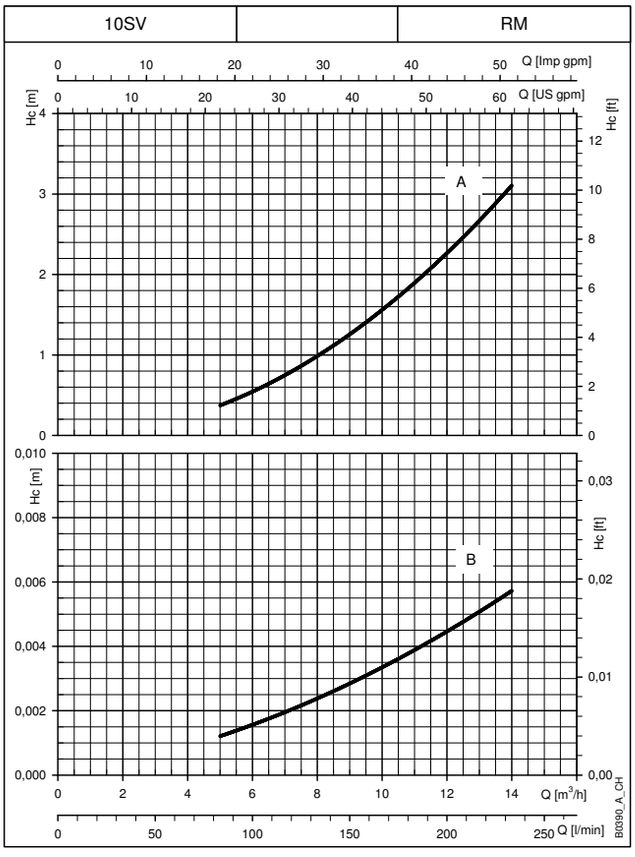
LOWARA
a xylem brand

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



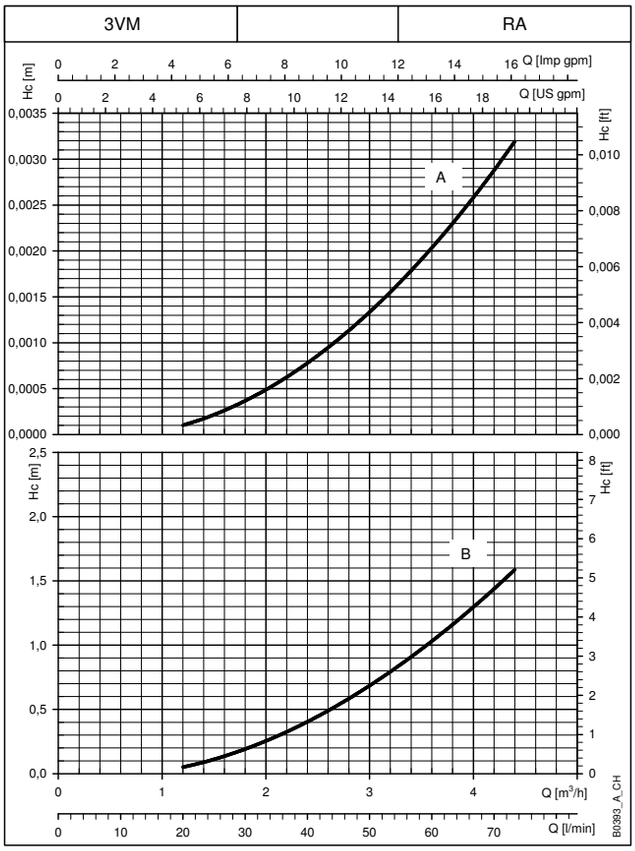



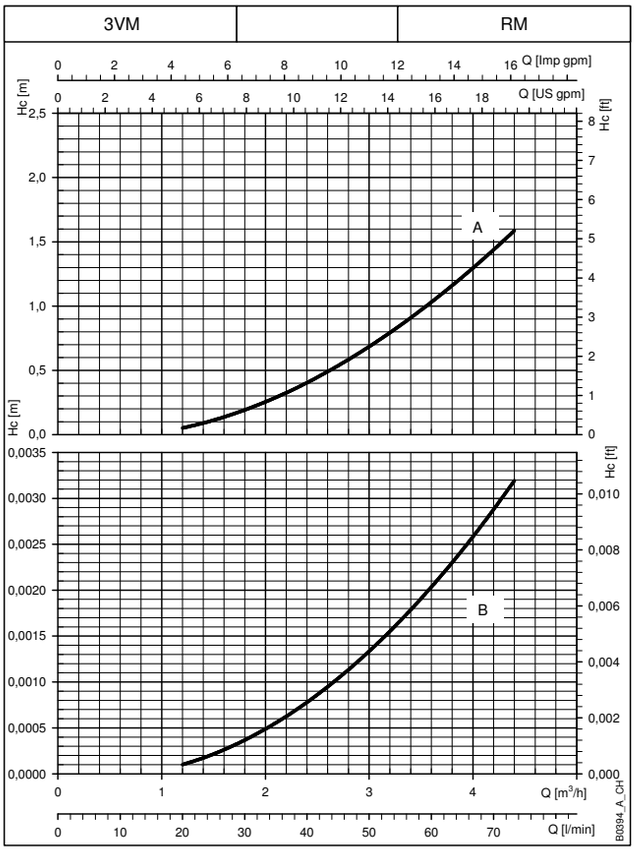



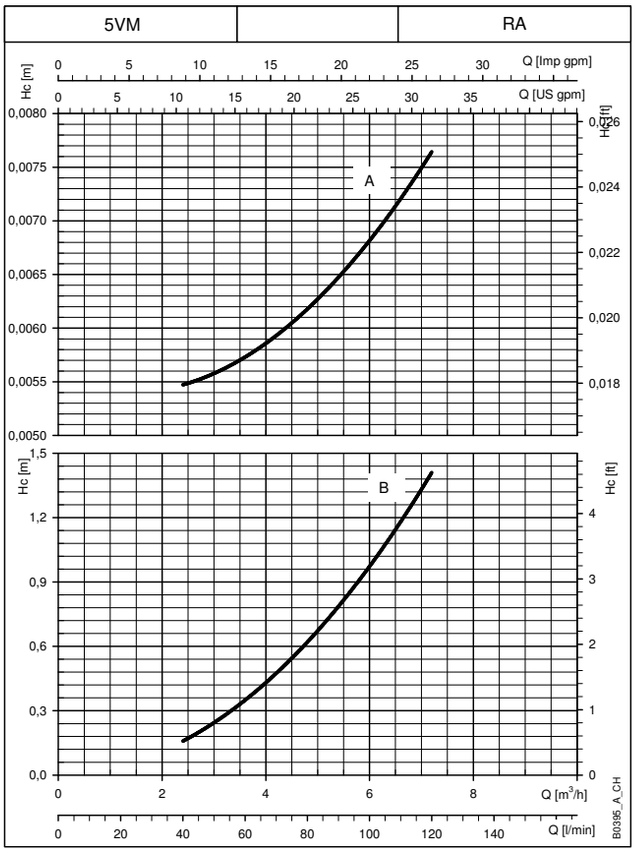



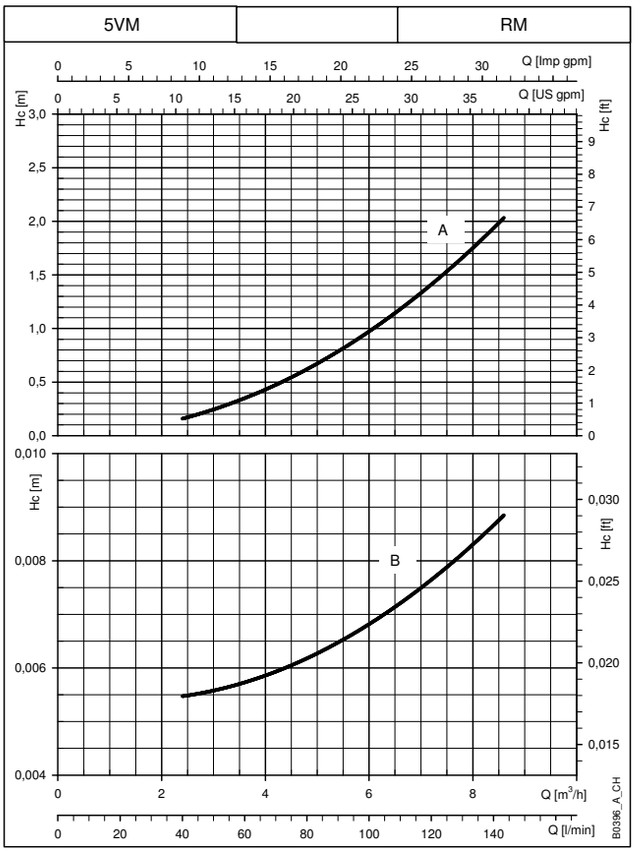

The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

# BOOSTER SETS GXS AND GMD SERIES
# Hc PRESSURE DROP CURVE



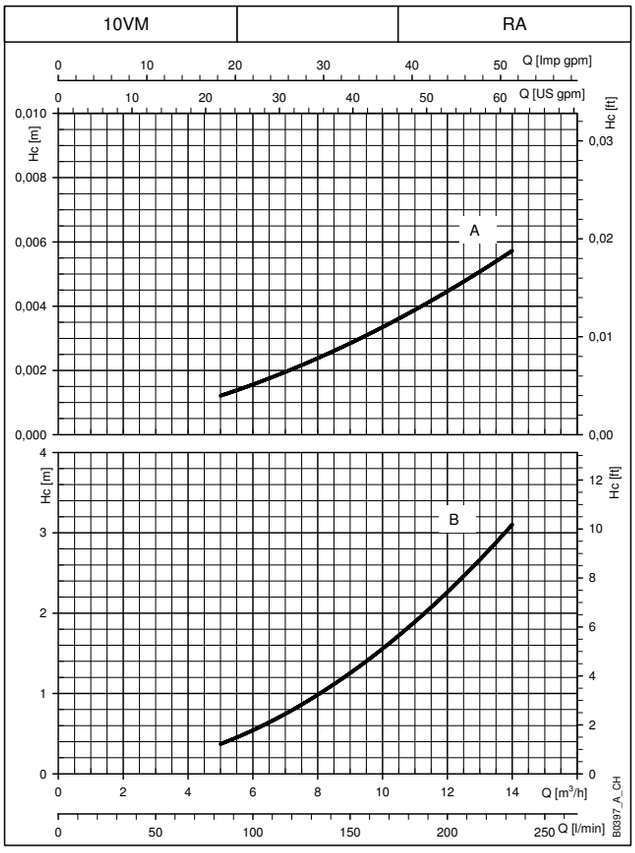



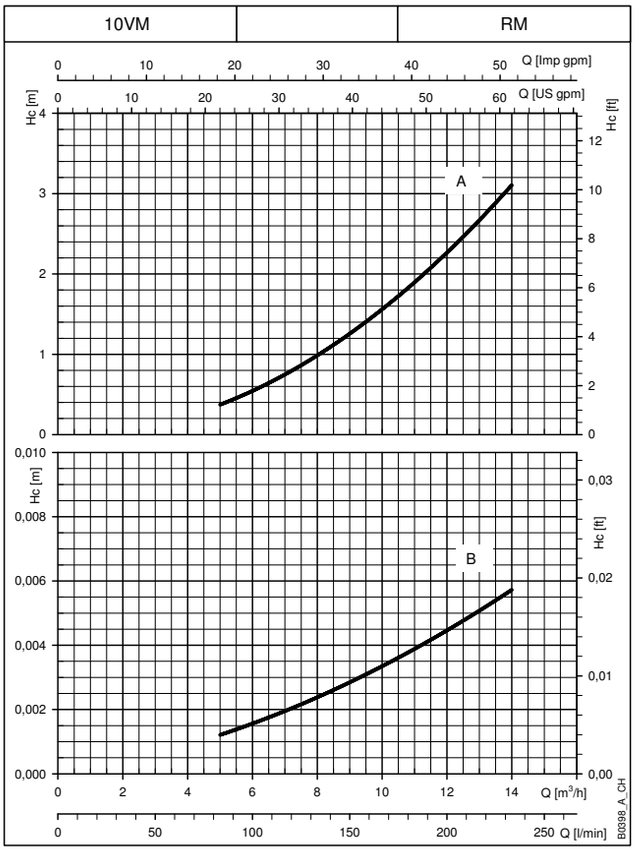




The declared curves are valid for liquids with density ρ = 1 kg/dm³ and kinematic viscosity ν = 1 mm²/sec.
Hc (A): Pressure drop curve on delivery side of the pump. Hc (B): Pressure drop curve on suction side of the pump.
RA: check valve on suction side. RM: check valve on delivery side.
The pressure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

# BOOSTER SETS GXS AND GMD 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.

LOWARA
a xylem brand

# ACCESSORIES

## EXPANSION VESSELS

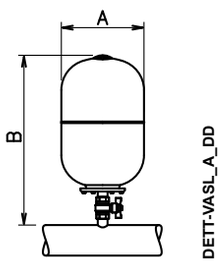
Booster sets have delivery manifolds with attachments for the installation of 8 or 24 liter diaphragm expansion vessels (hydrotube).
The caps for sealing any unused attachments are supplied with the set.
Any large size vessels can be connected to the unused end of the delivery manifold. For proper sizing of the vessel, please refer to the technical appendix.
Kits featuring the following accessories are **available on request:**

- expansion vessel.
- on-off valve.
- instructions sheet.
- packing.

## DIAPHRAGM EXPANSION VESSELS KITS

| Volume | PN | DIMENSIONS (mm) | | | Materials | | |
|---|---|---|---|---|---|---|---|
| Litres | bar | ø A | B | Valve | Diaphragm | Vessel | Valve |
| 8 | 8 | 205 | 390 | 1" FF | EPDM | Painted steel | Nickel-plated brass |
| 24 | 8 | 270 | 555 | 1" FF | EPDM | Painted steel | Nickel-plated brass |
| 24 | 10 | 270 | 555 | 1" FF | EPDM | Painted steel | Nickel-plated brass |
| 24 | 16 | 270 | 555 | 1" FF | EPDM | Painted steel | Nickel-plated brass |
| 24 | 10 | 270 | 575 | 1" FF | Butyl | Stainless steel | AISI 316 stainless steel |
| 20 | 25 | 270 | 555 | 1" FF | EPDM | Painted steel | Nickel-plated brass |

Gcom-vmb-en_c_td



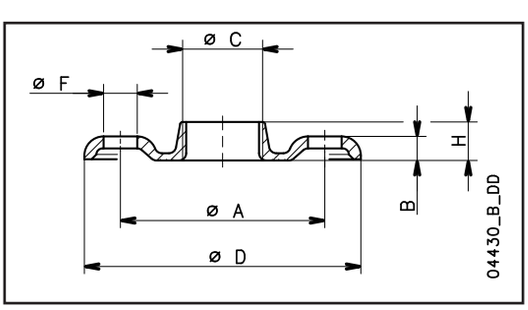

## FLANGES KIT

Manifolds 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 COUNTER FLANGES

| KIT | | | DIMENSIONS (mm) | | | | HOLES | | |
|---|---|---|---|---|---|---|---|---|---|
| TYPE | DN | ø C | ø A | B | ø D | H | ø F | N° | PN |
| 2" | 50 | Rp 2 | 125 | 16 | 165 | 24 | 18 | 4 | 25 |
| 2" ½ | 65 | Rp 2 ½ | 145 | 16 | 185 | 23 | 18 | 4 | 16 |
| 3" | 80 | Rp 3 | 160 | 17 | 200 | 27 | 18 | 8 | 16 |

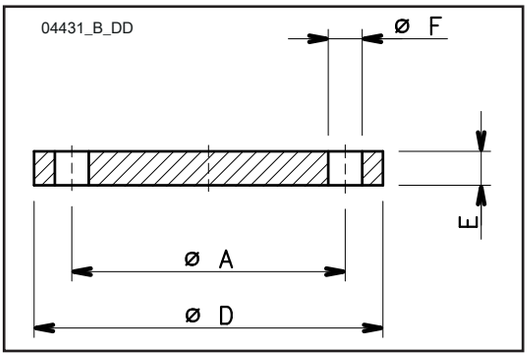
Gcom-ctf-tonde-f-en_a_td




## WELD-ON COUNTER FLANGES

| KIT | | | DIMENSIONS (mm) | | | HOLES | | |
|---|---|---|---|---|---|---|---|---|
| TYPE | 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 |

Gcom-ctf-tonde-s-en_d_td



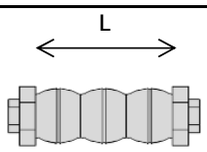
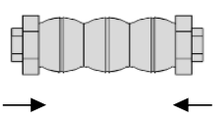
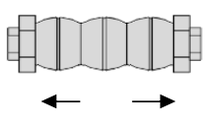
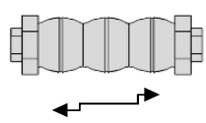
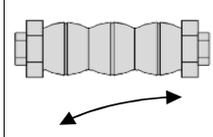
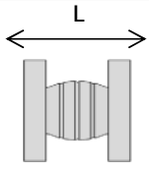
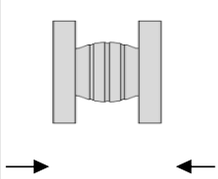
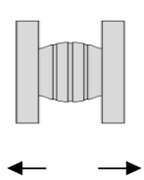
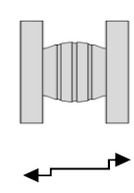
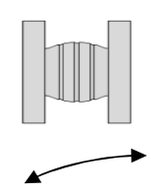
## ANTI-VIBRATION JOINT KIT

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

GD-316_JOINT_A_TD

** Maximum pressure permitted up to 80°C water

## LEGEND

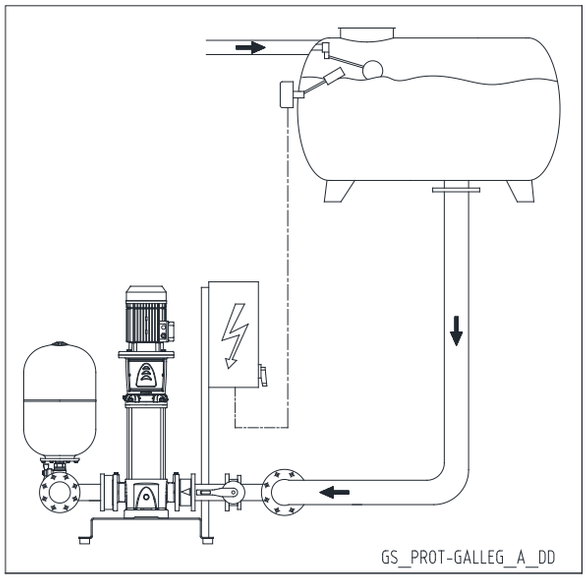
**A** = compression
**B** = extension
**C** = transverse
**D** = angular movement
NOTE. **A** - **B** - **C** - **D** can not be cumulative

## PROTECTION SYSTEMS AGAINST DRY RUNNING

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

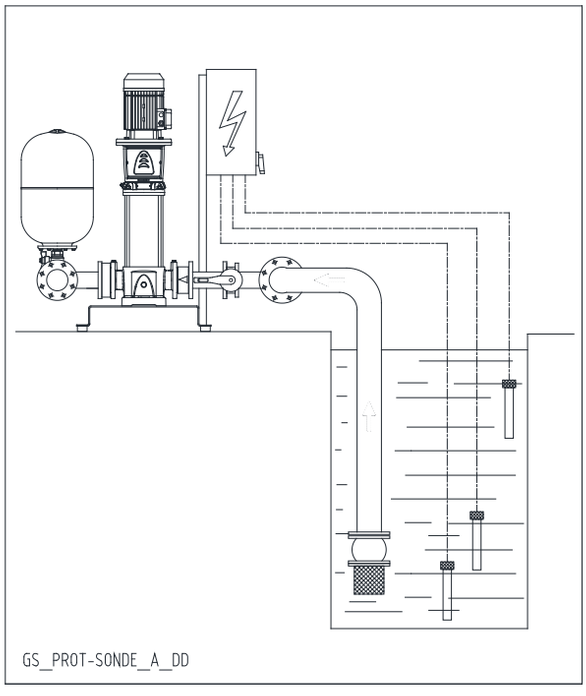
## FLOAT SWITCH PROTECTION

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.



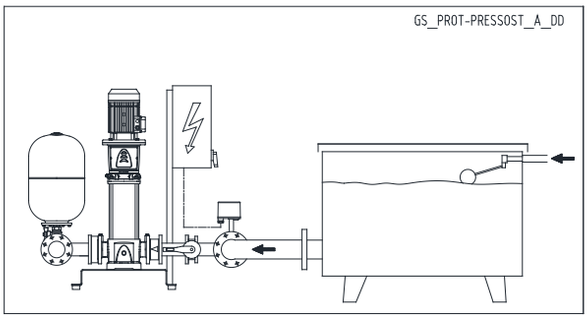

## ELECTRODE PROBE PROTECTION

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**

- The sensor can be fitted directly on the filling cap of the e-SV series of pumps.
- Operation is independent of the hardness and conductivity of the water. The sensor cannot detect frozen liquids.

**Available in two power versions depending on foreseen use:**

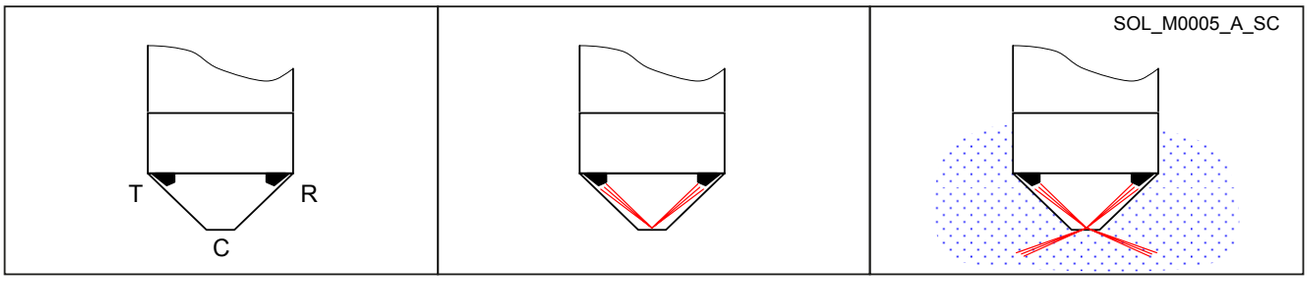
- 21÷27 Vac, universal solid state output for external relay at 24 Vac (21÷27 Vac, Max 50 mA).
- 15÷25 Vdc, NPN output at 25 V (10 mA) for HYDROVAR inverter.

**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.



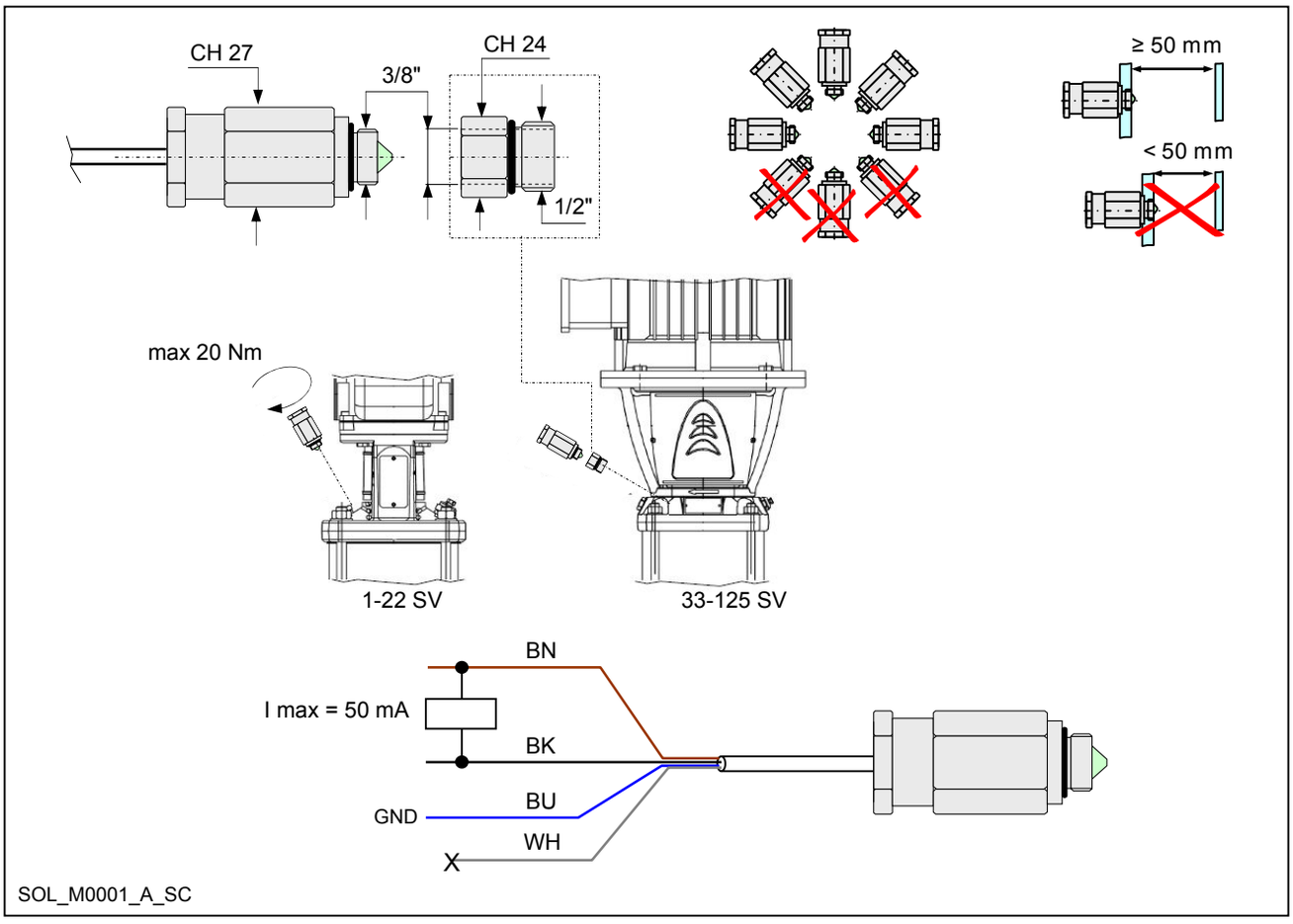

## SPECIFICATIONS

- 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
  - Alarm delay: 10 seconds (factory setting)
  - FROR cable 4 x 0,34 $mm^2$ (PVC-CEI 20-22) 2 meters long.

## 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 installed.

**KIT SENSOR DRP-GP** (code 109394610)




BK = Black
BN = Brown
BU = Blue
WH = White

LOWARA
a xylem brand

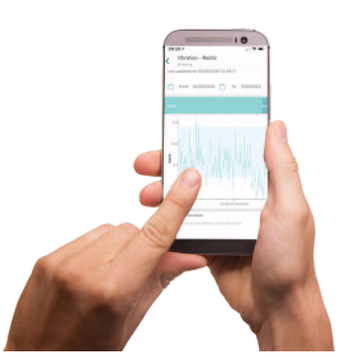
# OPTIMYZE™
# CONDITION MONITORING TO OPTIMIZE YOUR BOTTOM LINE

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

LOWARA
a xylem brand

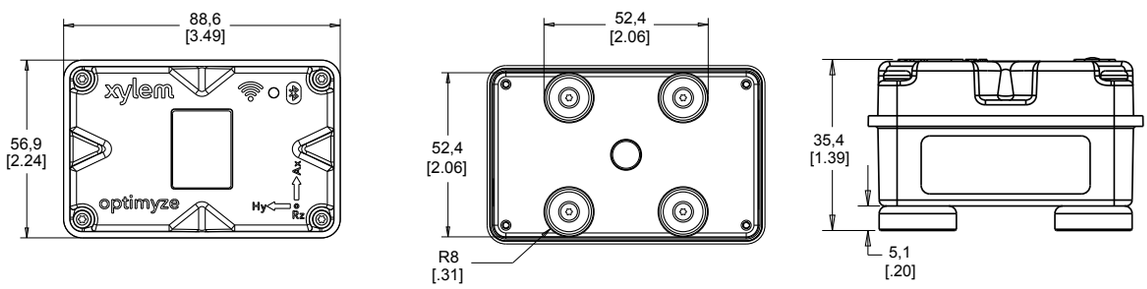
# OPTIMYZE™
# CONDITION MONITORING AND OPTIMIZATION SPECIFICATIONS

| | |
|---|---|
| **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

opt-en_a_sc

## DIMENSIONS: mm [in]



LOWARA
a xylem brand

# TECHNICAL APPENDIX

LOWARA
a xylem brand

# 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 |
| | | | |
| | | | |

G-at_npsh_b_sc

# 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 expansion vessel 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 expansion vessel version, neither air supply units nor compressor are needed, as contact between air and water is prevented by a flexible expansion vessel 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.

## EXPANSION VESSEL

If you decide to use an expansion vessel, 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

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

A 500-litre surge tank is therefore required.

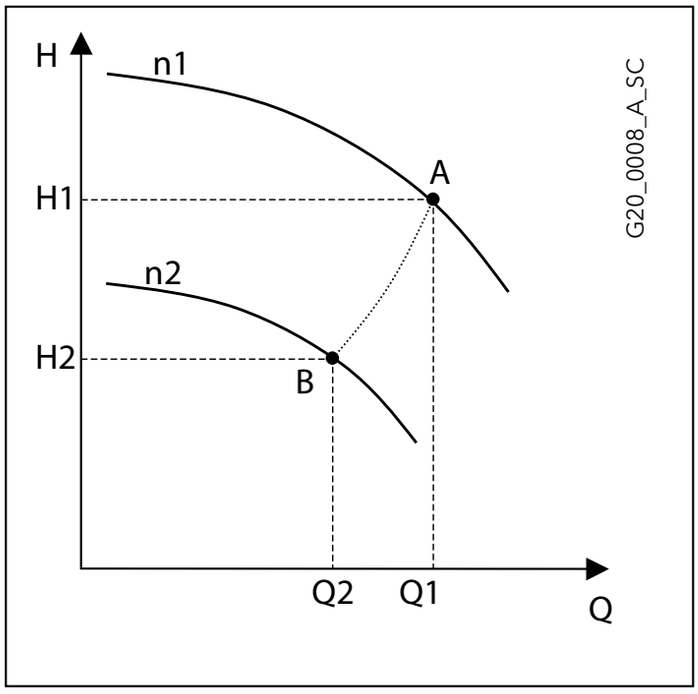
## TANK
## PERFORMANCE WITH VARYING SPEED: EQUIVALENCE RELATIONS

Fitting the electric pump with a frequency converter makes it possible to vary the pump rotation speed, normally according to the system pressure parameter. **Variations in electric pump speed** result in **modified performances** according to the equivalence relations.

Flow rate $\frac{Q1}{Q2} = \left[\frac{n1}{n2}\right]$

Head $\frac{H1}{H2} = \left[\frac{n1}{n2}\right]^2$

Power $\frac{P1}{P2} = \left[\frac{n1}{n2}\right]^3$




n1 = initial speed; n2= speed required.
Q1 = initial flow rate; Q2= flow rate required.
H1 = initial head; H2= head required.
P1 = initial power; P2= power required

**Frequency ratios** can be used instead of speed in practical applications, keeping 30 Hz as the bottom limit.

**Example** : 2-pole 50 Hz electric pump n1 =2900 rpm (point A)
Flow rate (A) = 100 l/min; Head (A) = 50 m
By reducing the frequency to 30 Hz the speed is reduced to approx. n2 = 1740 rpm (point B)
Flow rate (B) = 60 l/min; Head (B) = 18 m
The power of the new work point B is cut to about 22% of the initial power.

## SIZING THE EXPANSION VESSEL IN SYSTEMS WITH SPEED VARIATION

**Variable speed** booster sets need **smaller expansion vessel** compared to traditional systems. Generally speaking, the vessel 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 vessel 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 vessel is 40 liters. This size can be obtained by using two 24-litre vessels mounted directly onto the set's manifold.
The calculation establishes the minimum value needed for proper operation.

LOWARA
a xylem brand

# 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<br>1/2" | 20<br>3/4" | 25<br>1" | 32<br>1 1/4" | 40<br>1 1/2" | 50<br>2 | 65<br>2 1/2" | 80<br>3" | 100<br>4" | 125<br>5" | 150<br>6" | 175<br>7" | 200<br>8" | 250<br>10" | 300<br>12" | 350<br>14" | 400<br>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 | $1 \times 10^{-5}$ | $1,45 \times 10^{-4}$ | $1,02 \times 10^{-4}$ | 0,0075 |
| 1 000,0000 | **1,0000** | 0,0100 | 0,1450 | 0,1020 | 7,5006 |
| $1 \times 10^5$ | 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 | $1 \times 10^6$ | 219,9694 | 264,1720 | 35,3147 |
| 0,0010 | **1,0000** | 1 000,0000 | 0,2200 | 0,2642 | 0,0353 |
| $1 \times 10^{-6}$ | 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 | $°F = °C \times \frac{9}{5} + 32$ <br> $°C = (°F - 32) \times \frac{5}{9}$ |
|---|---|---|---|---|
| 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
## Xylect


Xylect is pump solution selection software with an extensive online database of product information across the entire Lowara 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.

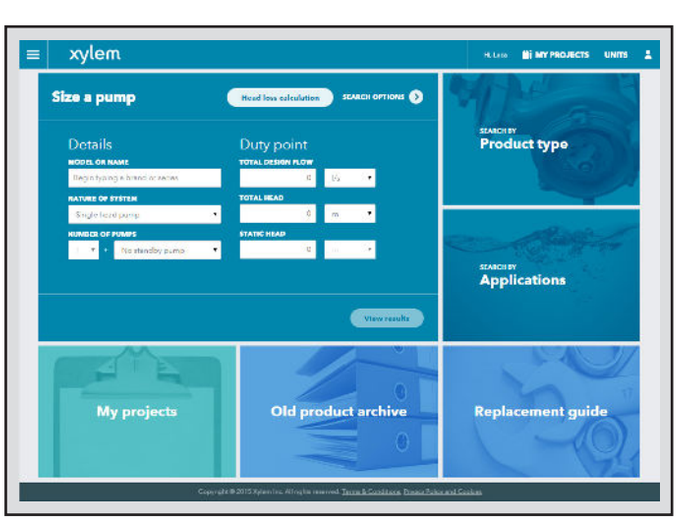
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Lowara products.

The search can be made by:

- Application
- Product type
- Duty point

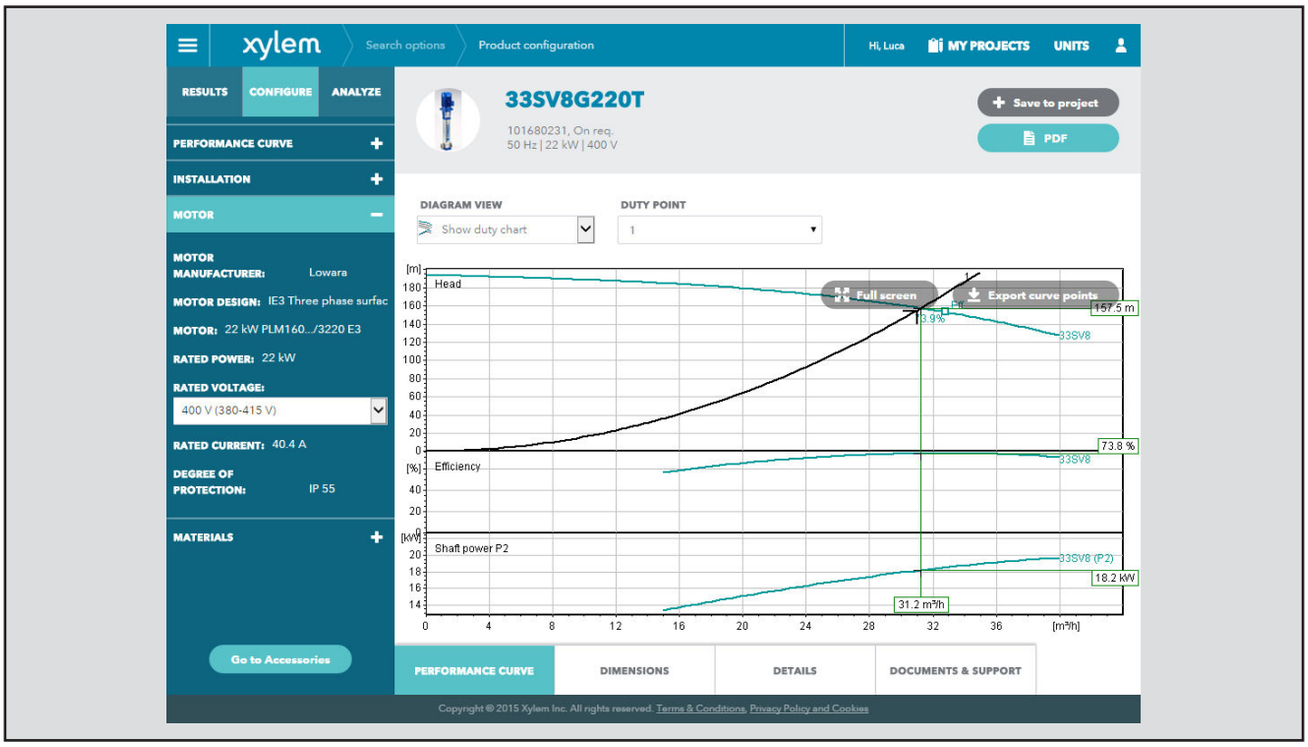
Xylect gives a detailed output:

- List with search results
- Performance curves (flow, head, power, efficiency, NPSH)
- Motor data
- Dimensional drawings
- Options
- Data sheet printouts
- Document downloads included dxf files




*The search by application guides users not familiar with the product range to the right choice.*

# FURTHER PRODUCT SELECTION AND DOCUMENTATION
## Xylect



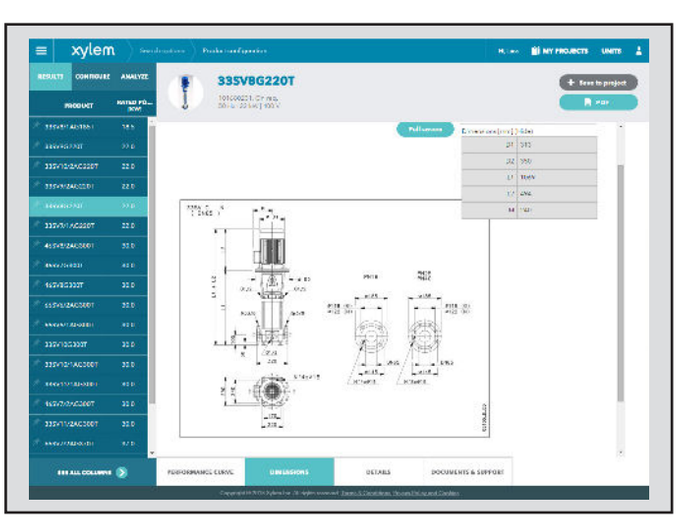

*The detailed output makes it easy to select the optimal pump from the given alternatives.*

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

- Set own standard units
- Create and save projects
- Share projects with other Xylect users

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

For more information about Xylect please contact our sales network or visit www.xylect.com.




*Dimensional drawings appear on the screen and can be downloaded in dxf format.*

# Xylem |'zīləm|

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

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

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

LOWARA®

xylem
Let's Solve Water

For information and technical support
Xylem Service Italia Srl

Via Dottor Vittorio Lombardi 14
36075 - Montecchio Maggiore (VI) - Italy
Tel. (+39) 0444 707111
Fax (+39) 0444 491043
xylem.com/lowara