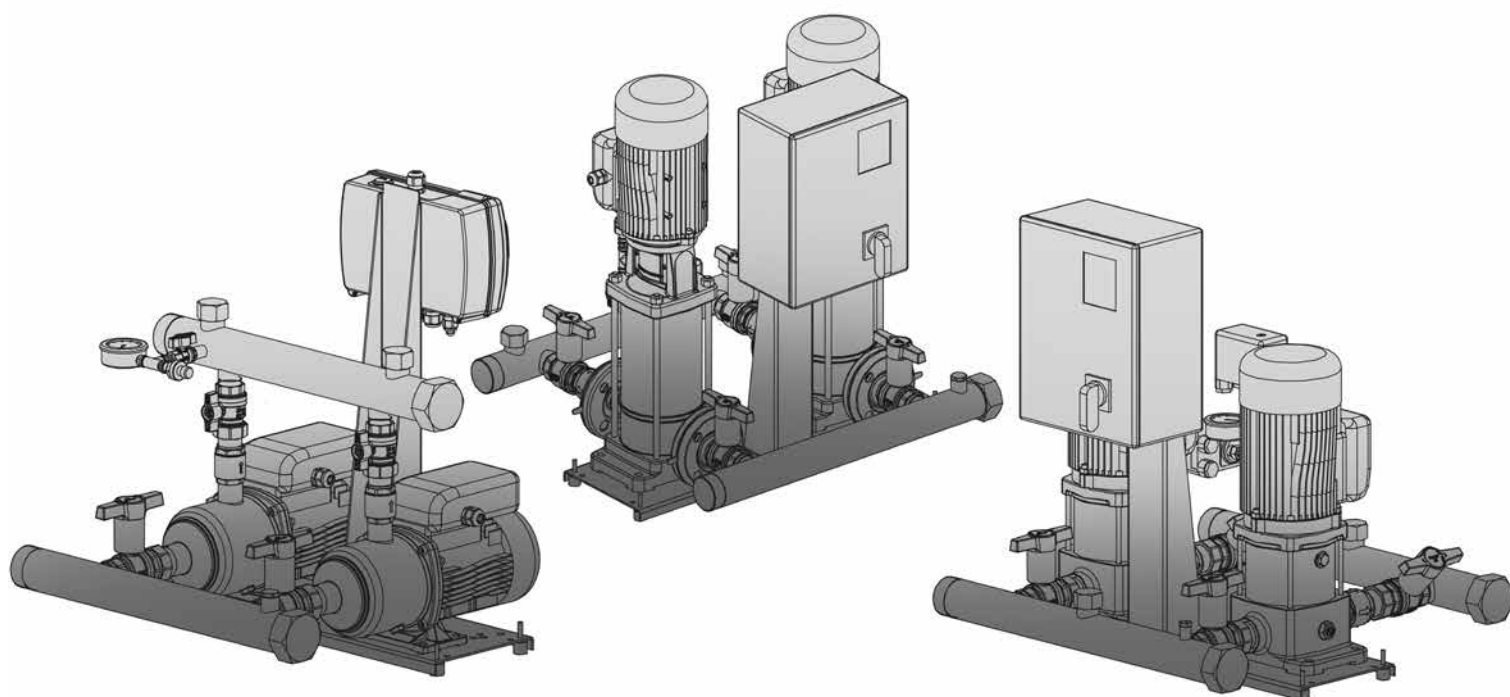


**50 Hz**



# 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



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## **BOOSTER SETS GX S AND GMD SERIES GENERAL INTRODUCTION - PRODUCT DESCRIPTION**

Lowara **GXS** and **GMD** series 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 series are pumping stations assembled with two horizontal centrifugal multi-stages **e-HM** series, horizontal centrifugal **CEA/CEAM** or **BG/BGM** series, vertical multi-stage **e-SV** series, vertical multi-stage close-coupled **VM** series.

The booster sets **GXS** and **GMD** series are pumping station with single-phase or three-phase. 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 costumized 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 GX S 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



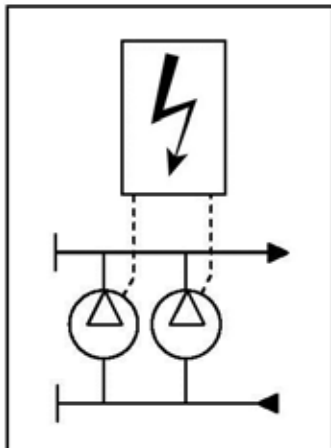
## BOOSTER SETS GX5 AND GMD SERIES DESCRIPTION OF OPERATION

### 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.

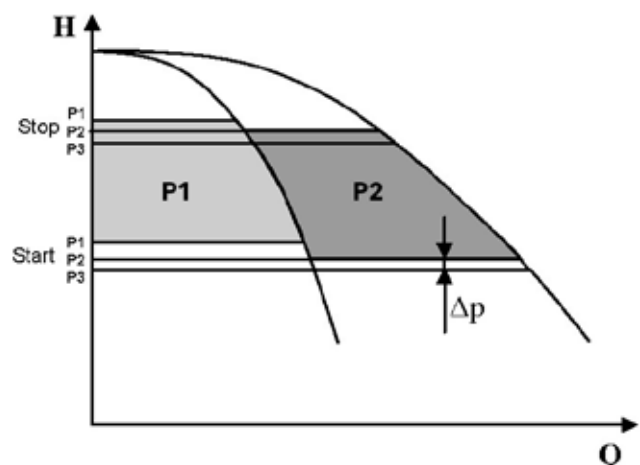
### GMD BOOSTER SERIES

The starting and stopping of the pumps are determined 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 start the first pump ( $P1_{start}$ ).
- If the water consumption increases, the pressure decreased and the second pump starts ( $P2_{start}$ ).
- When the water consumption decreases, the pressure in the system increases and the first pump stops at the  $P2$  setting ( $P2_{stop}$ ).
- If the water consumption decrease yet, the second pump stops ( $P1_{stop}$ ).
- 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.

#### **Protection against dry running**

The protection function against dry running intervenes if the water reserve to which the booster set is connected falls below the minimum level guaranteed for suction. The level may be controlled by a float, level probes or minimum pressure switch. (option /PA).

#### **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.

#### **Protection against dry running**

The protection function against dry running intervenes if the water reserve to which the booster set is connected falls below the minimum level guaranteed for suction. The level may be controlled by a float, level probes or minimum pressure switch. (option /PA).

#### **Maximum delivery pressure protection**

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

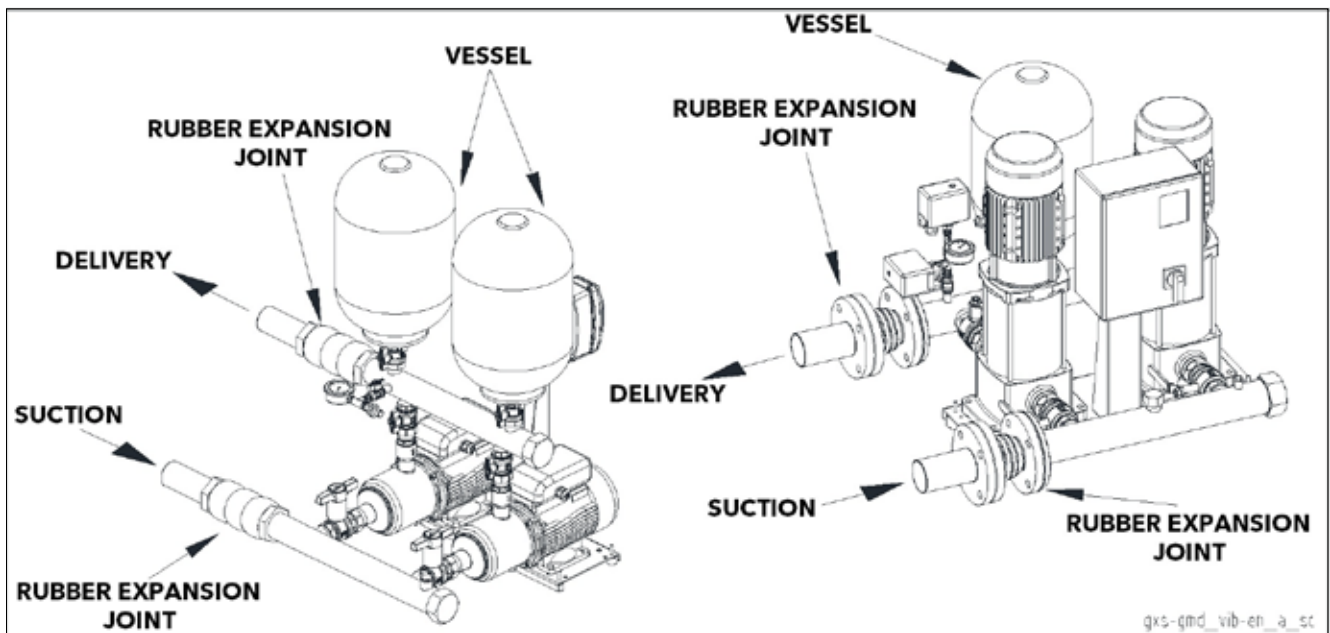
#### **Tank**

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 GX5 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 pressurised 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 stabilise 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 GX5 AND GMD SERIES SELECTING THE PUMPS

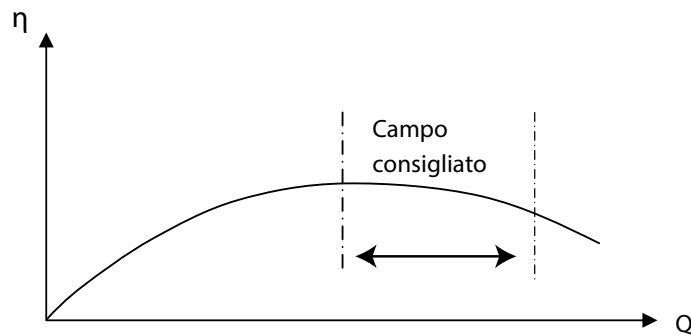
What type of pump to choose?

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.

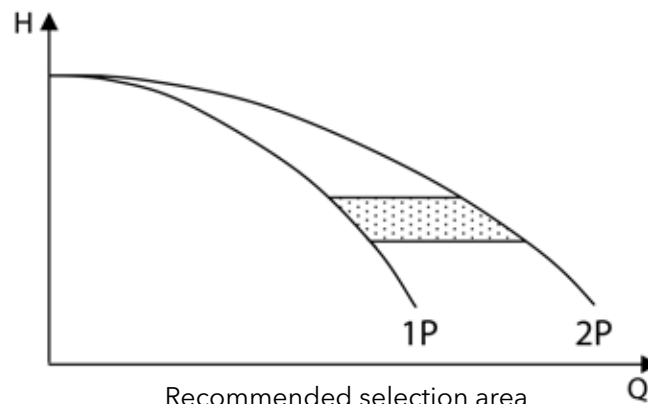
Generally the choice of the pump, based on the performance curve, should fall around the maximum efficiency point. The pump must ensure operation within its rated performance.

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:



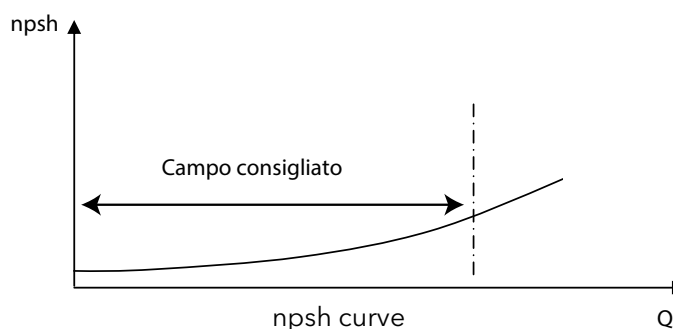
Recommended selection area

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.

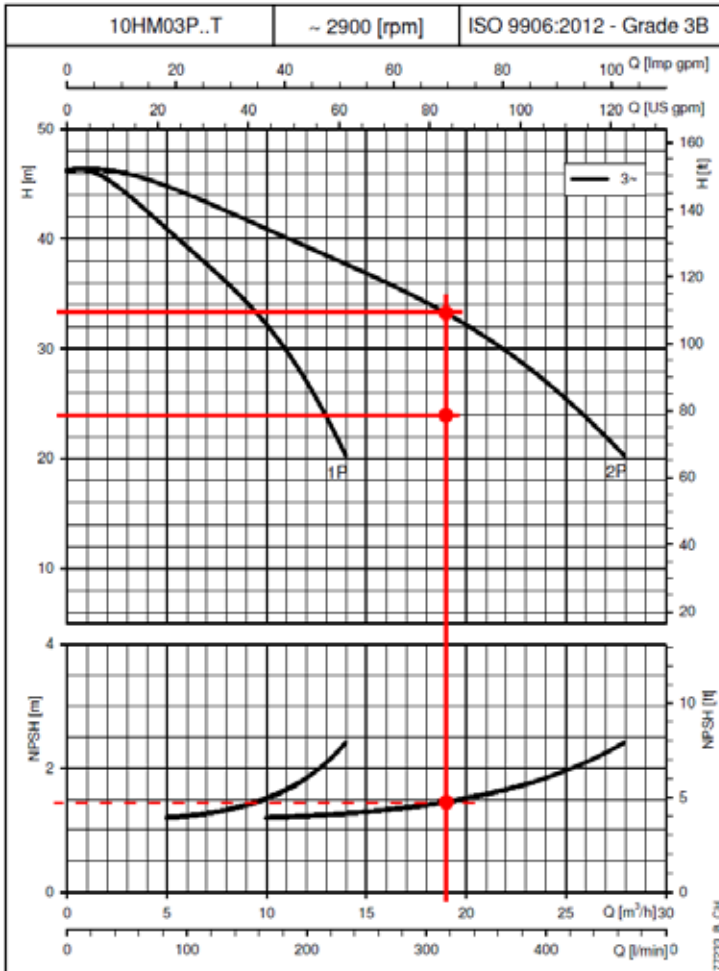
The npsH of the pump must always be checked at the maximum flow rate requested.



npsH curve

## BOOSTER SETS GX5 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 m<sup>3</sup>/h and a pressure of 22 water column.

As may be seen from the specific selection page 93, 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.

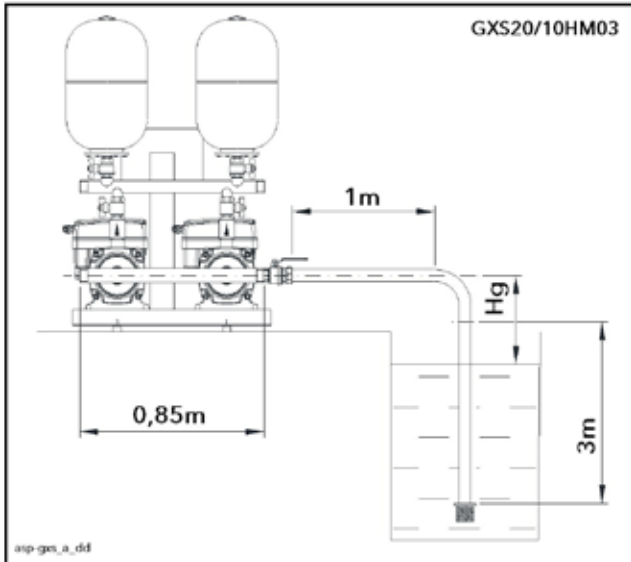
The vapour-filled cavities flow with the current and when they reach a higher pressure area the vapour contained in the cavities condenses. The cavities collide, generating pressure waves that are transmitted to the walls. These, being subjected to stress cycles, gradually become deformed and yield due 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.

## BOOSTER SETS GX5 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 assessed. 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 be assessed, and which connects this value, is the following:

$NPSH_{available} \geq NPSH_{required}$ , when the equality condition represents the limit condition.

$$NPSH_{available} = Patm + Hg - \sum t - \sum a$$

Where:

$Patm$  is the atmospheric pressure, equal to 10,33 m

$Hg$  is the geodetic level difference

$\sum t$  are the pressure drops for suction components such as foot check valve, suction piping, curve, gate valve.

$\sum a$  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<sup>3</sup>/h, it corresponds to 1,45 m (page 93). Before calculating the  $NPSH_{available}$ , it is necessary to calculate the pressure drops at the suction, using the tables on page 142-143, 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  $\sum t$  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 69).

Calculation of suction drops  $\sum c$  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)  $\sum c = 3,2 \times 6,85 / 100 = 0,219$  m

Calculation of suction drops  $\sum s$  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)  $\sum s = (1,3 + 4 + 1) \times 6,85 \times 0,54 / 100 = 0,23$  m

Pressure drops for suction components  $\sum t = \sum c + \sum s = 0,219 + 0,23 = 0,45$  m

The total sum of the pressure drops  $\sum a$  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 69).

$H_c$  pressure drops for suction set branch must be assessed on the B curve (page 125, scheme A0367\_A\_CH); at the flow value of each pump equal to 9 m<sup>3</sup>/h, a value of  $H_c = 1,25$  m is obtained

Calculation of suction drops  $\sum s$  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)  $\sum s = (2,6 + 0,85) \times 6,85 \times 0,54 / 100 = 0,0127$  m

Pressure drops  $\sum a = H_c + \sum s = 1,25 + 0,0127 = 1,377$  m

Remembering that  $NPSH_{available} = Patm + Hg - \sum t - \sum a$  and that  $NPSH_{available} \geq NPSH_{requested}$  we have that  $Patm + Hg - \sum t - \sum a$  must be  $\geq NPSH_{requested}$ .

Substituting the values we get that  $10,33 + Hg - 0,45 - 1,377 \geq 1,45$  m ( $NPSH_{requested}$ ),

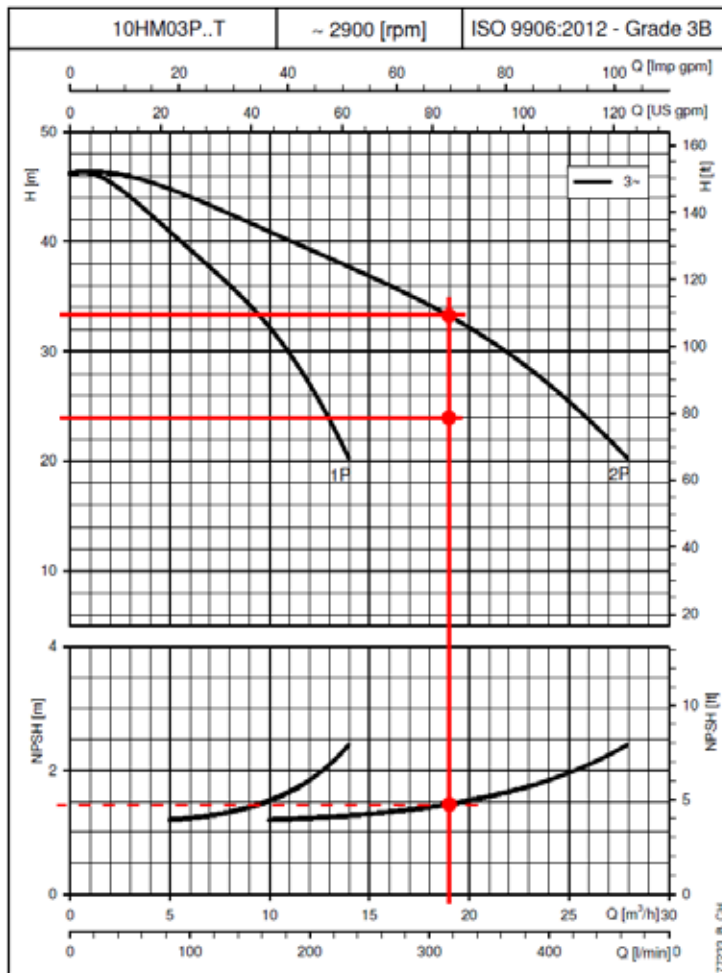
$Hg = 1,45 + 0,45 + 1,377 - 10,33 = -9,8$  m, it represents the limit condition for which

**$NPSH_{available} = NPSH_{requested}$**

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  $Q = 18 \text{ m}^3/\text{h}$  and  $H = 22 \text{ mH}_2\text{O}$  (P requested), and the installation height  $H_g$  (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  $\geq$  P requested, when the equality condition represents the limit condition.

$$P \text{ net available} = H - (H_g + \sum t + \sum a + \sum m)$$

Where:

H head value of booster set

$H_g$  is the geodetic level difference (estimated to 3 m)

$\sum t$  are the pressure drops for suction components such as foot check valve, suction piping, curve and gate valve.

$\sum a$  are the pressure drops for suction set branch

$\sum m$  are the pressure drops for delivery set branch

The total sum of the pressure drops  $\sum t$  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 69).

Calculation of suction drops  $\sum c$  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)  $\sum c = 3,2 \times 6,85 / 100 = 0,219 \text{ m}$

Calculation of suction drops  $\sum s$  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)  $\sum s = (1,3 + 4 + 1) \times 6,85 \times 0,54 / 100 = 0,23 \text{ m}$

The total sum of the pressure drops for suction components  $\sum t = \sum c + \sum s = 0,219 + 0,23 = 0,45 \text{ m}$

The total sum of the pressure drops  $\sum t$  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 69).

$H_c$  pressure drops for suction set branch must be assessed on the B curve (page 125, scheme A0367\_a\_CH); at the flow value of each pump equal to  $9 \text{ m}^3/\text{h}$ , a value of  $H_c = 1,25 \text{ m}$  is obtained.

Calculation of suction drops  $\sum s$  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)  $\sum s = (2,6 + 0,85) \times 6,85 \times 0,54 / 100 = 0,127 \text{ m}$

The total pressure drops  $\sum a$  for suction components are:

$\sum a = H_c + \sum s = 1,25 + 0,127 = 1,377 \text{ m}$

The total sum of the pressure drops  $\sum m$  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 69).  
Hc pressure drops for delivery set branch must be assessed on the A curve (page 125, scheme A0380\_A\_CH); at the flow value of each pump equal to 9 m<sup>3</sup>/h, a value of Hc = 0,0028 m is obtained

Calculation of delivery drops  $\sum s$  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)  $\sum s = (2,6 + 0,85) \times 6,85 \times 0,54 / 100 = 0,127$  m

Pressure drops in delivery manifold  $\sum m = Hc + \sum s = 0,0028 + 0,127 = 0,1298$  m

If we analyse the performance of the set at the flow value of 18 m<sup>3</sup>/h, the head value H is 33,5 m. The net pressure at the delivery manifold will be P net available = H - (Hg +  $\sum t$  +  $\sum a$  +  $\sum m$ )

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 THE e-HM ELECTRIC PUMPS

The **e-HM™** series comprises horizontal multi-stage centrifuge pumps in pressed AISI 304 stainless steel. Compact construction, with pump coupled directly to motor; special motor shaft extension in common with the pump.



### Technical Information:

**Flow rate:** up to 24 m<sup>3</sup>/h.

**Head:** up to 159 m.

### Temperature of the pumped liquid:

minimum from -10°C to -30°C according to gasket material. maximum

+90°C for three-phase version and uses according to EN 60335-2-41

+120°C for three-phase version with stainless steel impellers (HM..S HM..N) and uses other than EN 60335-2-41.

+60°C for single-phase version.

### Maximum operating pressure:

10 bar (PN 10) for pumps with Noryl™ impeller.

16 bar (PN 16) for pumps with stainless steel impeller.

**Power:** from 0,75 to 5,5 kW.

### Mechanical seal:

Ceramic/Carbon/EPDM (standard).

Silicon carbide/Carbon/EPDM (PN 16).

**Elastomers:** EPDM.

### Motor

#### Standard supplied IE3 three-phase surface motors surface motors ≥ 0,75 kW

Performance to EN 60034-1.

Insulation class: 155 (F).

Protection class: IP55.

Condensate drain plugs on standard version.

Cooling by fan according to EN 60034-6.

Cable gland metric size according to EN 50262.

Standard voltage:

- **Single-phase version:**

220-240 V 50 Hz (incorporated automatic-reset overload protection until 2.2 kW)

- **Three-phase version:**

220-240/380-415 V 50 Hz until 3 kW.

380-415/660-690 V 50 Hz up to 3 kW.

(overload protection to be provided by the user)

For electrical data of the motors used see Technical Appendix.

### Material

All pumps are certified for drinking water use (WRAS, ACS and D.M.174.).

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

**GXS-GMD  
e-HM**

PUMP TYPE HM..P	VERSION	ELECTRIC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	40	56	72	88	104	120	140
					m <sup>3</sup> /h 0	2,4	3,4	4,3	5,3	6,2	7,2	8,4
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
3HM02	1 ~	2 x 0,53	2 x 0,5	SM63HM../1055	23,6	21,5	20,4	18,9	17,1	15,1	12,9	9,9
3HM03		2 x 0,65	2 x 0,5	SM63HM../1055	34,8	31,2	29,3	27,0	24,3	21,2	17,9	13,4
3HM04		2 x 0,77	2 x 0,5	SM63HM../1055	45,5	40,3	37,5	34,2	30,3	26,2	21,8	15,9
3HM05		2 x 1,00	2 x 0,75	SM71HM../1075	58,4	52,5	49,4	45,5	40,9	35,8	30,3	22,8
3HM06		2 x 1,20	2 x 0,95	SM71HM../1095	70,2	63,0	59,2	54,4	48,9	42,8	36,2	27,2
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
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\_a\_th

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

The table refers to performance with 2 pumps running.

PUMP TYPE HM..S HM..N	VERSION	ELECTRIC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	40	58	76	94	112	130	146,7
					m <sup>3</sup> /h 0	2,4	3,5	4,6	5,6	6,7	7,8	8,8
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
3HM10	1 ~	2 x 1,10	2 x 0,75	SM71HM../1075	73,0	69,8	66,1	60,9	54,4	46,4	36,7	25,8
3HM11		2 x 1,24	2 x 0,95	SM71HM../1095	80,7	77,5	73,3	67,8	60,8	52,1	41,4	29,4
3HM12		2 x 1,31	2 x 0,95	SM71HM../1095	87,8	83,7	79,1	72,9	65,1	55,5	43,8	30,7
3HM13		2 x 1,42	2 x 1,1	SM80HM../1115	96,4	93,1	88,6	82,2	74,1	64,0	51,4	37,2
3HM14		2 x 1,50	2 x 1,1	SM80HM../1115	103,5	99,6	94,6	87,7	78,8	67,8	54,2	39,0
3HM16		2 x 1,76	2 x 1,5	SM80HM../1155	119,2	115,9	110,6	103,2	93,5	81,1	65,8	48,4
3HM17		2 x 1,85	2 x 1,5	SM80HM../1155	126,4	122,7	116,9	108,9	98,5	85,3	68,8	50,4
3HM19		2 x 2,02	2 x 1,5	SM80HM../1155	141	136	129	120	108	93,0	74,6	54,0
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
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\_a\_th

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

The table refers to performance with 2 pumps running.

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

PUMP TYPE HM..P	VERSION	ELECTRIC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	80	106	132	158	184	210	240
					m <sup>3</sup> /h 0	4,8	6,4	7,9	9,5	11,0	12,6	14,4
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
5HM02	1 ~	2 x 0,61	2 x 0,5	SM63HM../1055	23,8	20,1	18,7	17,2	15,5	13,4	10,7	7,0
5HM03		2 x 0,78	2 x 0,5	SM63HM../1055	35,0	28,6	26,3	23,8	21,1	17,8	13,8	8,3
5HM04		2 x 1,06	2 x 0,75	SM71HM../1075	47,6	39,7	36,8	33,7	30,2	25,9	20,6	13,2
5HM05		2 x 1,30	2 x 0,95	SM71HM../1095	59,4	49,3	45,6	41,7	37,3	31,9	25,2	16,0
5HM06		2 x 1,52	2 x 1,1	SM80HM../1115	72,0	60,4	56,1	51,5	46,2	39,8	31,9	20,8
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\_a\_th

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

The table refers to performance with 2 pumps running.

PUMP TYPE HM..S HM..N	VERSION	ELECTRIC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	80	114	148	182	216	250	284
					m <sup>3</sup> /h 0	4,8	6,8	8,9	10,9	13,0	15,0	17,0
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
5HM09	1 ~	2 x 1,54	2 x 1,1	SM80HM../1115	66,9	63,1	59,5	55,3	50,0	43,2	34,7	24,6
5HM10		2 x 1,77	2 x 1,5	SM80HM../1155	74,7	71,5	67,9	63,6	58,0	50,7	41,3	30,0
5HM11		2 x 1,90	2 x 1,5	SM80HM../1155	82,0	78,2	74,1	69,1	62,9	54,7	44,3	32,0
5HM12		2 x 2,04	2 x 1,5	SM80HM../1155	89,3	84,7	80,1	74,5	67,5	58,5	47,1	33,7
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\_a\_th

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

The table refers to performance with 2 pumps running.

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

**GXS-GMD  
e-HM**

PUMP TYPE HM..P	VERSION	ELECRTC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	166,7	216	266	316	366	416	466
					m <sup>3</sup> /h 0	10,0	13,0	16,0	19,0	22,0	25,0	28,0
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
10HM02	1 ~	2 x 1,33	2 x 1,1	SM80HM../1115	30,6	26,9	25,2	23,4	21,4	19,1	16,2	12,6
10HM03		2 x 1,87	2 x 1,5	SM80HM../1155	45,6	39,7	37,2	34,7	31,9	28,4	24,0	18,8
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\_a\_th

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

The table refers to performance with 2 pumps running.

PUMP TYPE HM..S HM..N	VERSION	ELECRTC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	166,7	216	266	316	366	416	466
					m <sup>3</sup> /h 0	10,0	13,0	16	19,0	22	25,0	28
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
10HM07	3 ~	2 x 2,96	2 x 3	PLM90HM../330 E3	84,8	78,8	75,8	71,7	66,3	59,7	51,7	42,4
10HM08		2 x 3,34	2 x 3	PLM90HM../330 E3	96,6	89,4	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	109	103	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-p-2p50-en\_a\_th

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

The table refers to performance with 2 pumps running.

PUMP TYPE HM..S HM..N	VERSION	ELECRTC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	266	356	446	536	626	716	800
					m <sup>3</sup> /h 0	16	21,4	26,8	32,2	37,6	43,0	48
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-p-2p50-en\_a\_th

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

The table refers to performance with 2 pumps running.

PUMP TYPE HM..S HM..N	VERSION	ELECRTC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	366	466	566	666	766	866	966
					m <sup>3</sup> /h 0	22	28	34	40	46	52	58
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-p-2p50-en\_a\_th

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

The table refers to performance with 2 pumps running.

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

**GXS-GMD  
e-HM**

PUMP TYPE HM..P	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GXS 1 x 230Vac A
3HM02	1 ~	2 x 0,53	2 x 0,5	SM63HM../1055	5,1
3HM03		2 x 0,65	2 x 0,5	SM63HM../1055	5,8
3HM04		2 x 0,77	2 x 0,5	SM63HM../1055	6,7
3HM05		2 x 1,00	2 x 0,75	SM71HM../1075	9,1
3HM06		2 x 1,20	2 x 0,95	SM71HM../1095	10,6
					<b>GMD 3 x 400Vac A</b>
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
					<b>GMD 3 x 400Vac A</b>
PUMP TYPE HM..S	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GXS 1 x 230Vac A
3HM10	1 ~	2 X 1,10	2 X 0,75	SM71HM../1075	9,8
3HM11		2 X 1,24	2 X 0,95	SM71HM../1095	10,9
3HM12		2 X 1,31	2 X 0,95	SM71HM../1095	11,4
3HM13		2 X 1,42	2 X 1,1	SM80HM../1115	12,8
3HM14		2 X 1,50	2 X 1,1	SM80HM../1115	13,5
3HM16		2 X 1,76	2 X 1,5	SM80HM../1155	15,6
3HM17		2 X 1,85	2 X 1,5	SM80HM../1155	16,4
3HM19		2 X 2,02	2 X 1,5	SM80HM../1155	18,0
					<b>GMD 3 x 400Vac A</b>
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\_a\_te

\* Maximum value in specific range: P1 = input power

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

PUMP TYPE HM..P	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GXS 1 x 230Vac A
5HM02	1 ~	2 X 0,61	2 X 0,5	SM63HM../1055	5,6
5HM03		2 X 0,78	2 X 0,5	SM63HM../1055	6,8
5HM04		2 X 1,06	2 X 0,75	SM71HM../1075	9,6
5HM05		2 X 1,30	2 X 0,95	SM71HM../1095	11,4
5HM06		2 X 1,52	2 X 1,1	SM80HM../1115	13,7
					<b>GMD 3 x 400Vac A</b>
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
					<b>GMD 3 x 400Vac A</b>
PUMP TYPE HM..S	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GXS 1 x 230Vac A
5HM09	1 ~	2 X 1,54	2 X 1,1	SM80HM../1115	13,7
5HM10		2 X 1,77	2 X 1,5	SM80HM../1155	15,6
5HM11		2 X 1,90	2 X 1,5	SM80HM../1155	16,8
5HM12		2 X 2,04	2 X 1,5	SM80HM../1155	18,1
					<b>GMD 3 x 400Vac A</b>
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\_a\_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
		* P1 kW	PN kW	MOTOR TYPE	GXS 1 x 230Vac A
10HM02	1 ~	2 X 1,33	2 X 1,1	SM80HM../1115	12,1
10HM03		2 X 1,87	2 X 1,5	SM80HM../1155	16,6
					<b>GMD</b> 3 x 400Vac 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
					<b>GMD</b> 3 x 400Vac A
PUMP TYPE HM..S	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GMD 3 x 400Vac A
10HM07	3 ~	2 X 2,96	2 X 3	PLM90HM../330 E3	11,7
10HM08		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\_a\_te

\* Maximum value in specific range: P1 = input power

PUMP TYPE HM..S	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GMD 3 x 400Vac 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\_a\_te

\* Maximum value in specific range: P1 = input power

PUMP TYPE HM..S	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GMD 3 x 400Vac 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\_a\_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 50Hz

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE	Construction Design	INPUT CURRENT		CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE					
				In (A) 220-240 V	μF	V	min <sup>-1</sup>	Is / In	η %	cosφ	T <sub>n</sub> Nm	T <sub>s</sub> /T <sub>n</sub>	T <sub>m</sub> /T <sub>n</sub>
0,50	SM63HM../1055	63	SPECIAL	3,46-3,30	16	450	2705	2,90	66,9	0,98	1,76	0,56	1,61
0,55	SM71HM../1055	71		3,76-3,99	16	450	2820	3,72	68,9	0,91	1,86	0,61	2,00
0,75	SM71HM../1075	71		4,90-4,85	20	450	2765	3,42	70,1	0,96	2,59	0,58	1,75
0,95	SM71HM../1095	71		6,25-5,89	25	450	2740	3,39	71,1	0,98	3,31	0,58	1,66
1,1	SM80HM../1115	80		6,88-6,65	30	450	2800	3,89	74,7	0,96	3,75	0,46	1,72
1,5	SM80HM../1155	80		9,21-8,58	40	450	2810	4,00	76,1	0,98	5,09	0,39	1,74
2,2	PLM90HM../1225	90		12,5-11,6	70	450	2825	4,47	82,4	0,97	7,43	0,53	1,87

1-22hm-motm-2p50-en\_a\_te

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

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		Year of manufacture		
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				IE	
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4			
0,30	65,1	64,4	59,3	65,2	62,1	54,7	62,8	58,5	50,1	-	-	-	-	-	-	-	-	-	-	3	By June 2013
0,40	72,7	72,3	67,9	71,4	69,5	63,5	68,7	65,9	58,8	-	-	-	-	-	-	-	-	-	-		
0,50	72,9	73,5	70,3	72,3	71,5	66,7	71,1	69,1	63,0	-	-	-	-	-	-	-	-	-	-		
0,55	77,3	76,9	73,3	77,1	75,8	71,3	76,1	74,3	69,1	-	-	-	-	-	-	-	-	-	-		
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	-		
1,1	84,0	84,7	83,4	84,4	84,5	82,5	84,3	84,0	81,4	84,0	81,4	84,0	81,4	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	-		

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>n</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	Is / I <sub>N</sub>	T <sub>N</sub> Nm	Ts/T <sub>N</sub>	T <sub>m</sub> /T <sub>n</sub>
	Model										
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 <sub>N</sub> kW	Voltage U <sub>N</sub> V										n <sub>N</sub> min <sup>-1</sup>	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	Δ			Y			Δ			Y			Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V					
0,30	1,66	1,82	1,96	0,96	1,05	1,13	-	-	-	-	-	2715 ÷ 2775	≤ 1000	-15 / 40	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			

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

1-22hm-ie3-mott-2p50-en\_b\_te



**BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS e-HM  
ELECTRIC PUMP NOISE**

POWER kW	NOISE LpA dB
0,30	52
0,40	52
0,50	52
0,55	55
0,75	55
0,95	55
1,1	60
1,5	60
2,2	60
3	60
4	60
5,5	60

1-22hm\_mot\_2p50-en\_a\_tr

The table show the mean sound pressure (Lp) measured as per Curve A (Standard ISO 1680).  
Noise values were measured with the 50 Hz running with a tolerance of 3 dB (A).

## **BOOSTER SETS GXS AND GMD SERIES CHARACTERISTICS OF THE ELECTRIC PUMPS CEA / CEAM**

The **CEA** and **CEAM**, series comprises centrifuge pumps with single impeller in pressed AISI 304 stainless steel. The enbloc centrifuge pump features 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. The rotating part can be removed from the control side without removing the pump body from the system piping. Threaded suction and discharge ports (Rp ISO 7).

**GXS-GMD  
CEA/CEAM**



### **Technical Information (standard version):**

**Flow rate:** up to 31 m<sup>3</sup>/h.

**Head:** up to 32 m.

**Temperature of the pumped liquid:**  
from -10°C to +85°C (standard version)

**Maximum operating pressure:** 8 bar

**Power:** from 0,37 to 3 kW.

**Mechanical seal:**  
Ceramic/Carbon/EPDM (standard).

**Elastomers:** NBR.

### **Motor**

**Standard supplied IE2/IE3 three-phase surface motors Standard supplied IE2/IE3 three-phase surface motors  $\geq 0,75$  kW are compliant with Regulation (EC) no. 640/2009 and IEC 60034-30.**

Performance to EN 60034-1.

Insulation class: 155 (F).

Protection class: IP55.

Condensate drain plugs on standard version.

Cooling by fan according to EN 60034-6.

Cable gland metric size according to EN 50262.

Standard voltage:

- **Single-phase version:**

220-240 V 50 Hz (incorporated automatic-reset overload protection until 1,5 kW).

- **Three-phase version:**

220-240/380-415 V 50 Hz (overload protection to be provided by the user).

For electrical data of the motors used see Technical Appendix.

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

PUMP TYPE	VERSION	ELETTRIC PUMP			MEI $\approx$ (1)	Q = DELIVERY									
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE		l/min 0	60	80	120	160	200	240	280	320	
						m <sup>3</sup> /h 0	3,6	4,8	7,2	9,6	12,0	14,4	16,8	19,2	
H = TOTAL HEAD IN METRES OF COLUMN OF WATER															
CEAM 70/3	1 ~	2 x 0,6	2 x 0,4	SM63BG/1045	-	22,1	20,0	19,2	16,6	12,8					
CEAM 70/5		2 x 0,97	2 x 0,55	SM71BG/1055	-	31,1	28,8	27,8	24,8	20,1					
CEAM 80/5		2 x 1,07	2 x 0,75	SM71BG/1075	-	32,1	30,0	29,3	27,4	24,7	21,0				
CEAM 120/3		2 x 0,91	2 x 0,55	SM71BG/1055	0,40	22,5			18,9	17,6	15,9	14,0	11,7	9,1	
CEAM 120/5		2 x 1,39	2 x 0,95	SM71BG/1095	0,40	31,9			28,2	26,6	24,7	22,4	19,9	17,1	
CEA 70/3	3 ~	2 x 0,61	2 x 0,4	SM63BG/304	-	22,1	20,0	19,2	16,6	12,8					
CEA 70/5		2 x 0,88	2 x 0,55	SM71BG/305	-	31,1	28,8	27,8	24,8	20,1					
CEA 80/5		2 x 0,98	2 x 0,75	SM80BG/307 PE	-	32,1	30,0	29,3	27,4	24,7	21,0				
CEA 120/3		2 x 0,82	2 x 0,55	SM71BG/305	0,40	22,5			18,9	17,6	15,9	14,0	11,7	9,1	
CEA 120/5		2 x 1,28	2 x 1,1	SM80BG/311 PE	0,40	31,9			28,2	26,6	24,7	22,4	19,9	17,1	

PUMP TYPE	VERSION	ELETTRIC PUMP			MEI $\approx$ (1)	Q = DELIVERY									
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE		l/min 0	240	280	320	360	400	500	600		
						m <sup>3</sup> /h 0	14,4	16,8	19,2	21,6	24,0	30,0	36,0		
H = TOTAL HEAD IN METRES OF COLUMN OF WATER															
CEAM 210/2	1 ~	2 x 1,13	2 x 0,75	SM71BG/1075	0,40	17,7	16,5	16,1	15,6	15,1	14,4	12,6	10,4		
CEAM 210/3		2 x 1,48	2 x 1,1	SM80BG/1115	0,40	20,8	19,7	19,4	19,0	18,6	18,0	16,4	14,4		
CEAM 210/4		2 x 1,91	2 x 1,5	SM80BG/1155	0,40	25,6	24,8	24,5	24,1	23,6	23,0	21,3	19,0		
CEA 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	12,6	10,4		
CEA 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	16,4	14,4		
CEA 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	21,3	19,0		
CEA 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	25,1	23,1		

PUMP TYPE	VERSION	ELETTRIC PUMP			MEI $\approx$ (1)	Q = DELIVERY									
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE		l/min 0	360	400	500	600	700	800	860	960	1040
						m <sup>3</sup> /h 0	21,6	24,0	30,0	36,0	42,0	48,0	51,6	57,6	62,4
H = TOTAL HEAD IN METRES OF COLUMN OF WATER															
CEAM 370/1	1 ~	2 x 1,49	2 x 1,1	SM80BG/1115	0,40	16,3	15,5	15,2	14,3	13,0	11,4	9,4	8,1		
CEAM 370/2		2 x 2,05	2 x 1,5	SM80BG/1155	0,40	20,4		19,1	18,3	17,2	15,8	14,1	13,0	10,8	
CEA 370/1	3 ~	2 x 1,4	2 x 1,1	SM80BG/311 PE	0,40	16,3	15,5	15,2	14,3	13,0	11,4	9,4	8,1		
CEA 370/2		2 x 1,95	2 x 1,5	SM80BG/315 PE	0,40	20,4		19,1	18,3	17,2	15,8	14,1	13,0	10,8	
CEA 370/3		2 x 2,45	2 x 2,2	PLM90BG/322 E3	0,40	24,4		22,9	22,1	21,1	19,8	18,2	17,1	15,0	13,0
CEA 370/5		2 x 3,26	2 x 3	PLM90BG/330 E3	0,40	30,3		28,3	27,5	26,5	25,3	23,8	22,8	20,8	19,0

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

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 \* Maximum value in specified range; P<sub>1</sub> = input power.

(1) Minimum efficiency index MEI

The table refers to performance with 2 pumps running.

**BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMPS CEA / CEAM  
ELECTRICAL DATA TABLE AT 50Hz**
**GXS-GMD  
CEA/CEAM**

PUMP TYPE	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	
CEAM 70/3	1 ~	2 x 0,6	2 x 0,4	SM63BG/1045	GXS 1 x 230Vac A 5,4
CEAM 70/5		2 x 0,97	2 x 0,55	SM71BG/1055	9,1
CEAM 80/5		2 x 1,07	2 x 0,75	SM71BG/1075	9,7
CEAM 120/3		2 x 0,91	2 x 0,55	SM71BG/1055	8,7
CEAM 120/5		2 x 1,39	2 x 0,95	SM71BG/1095	12,5
					GMD 3 x 400Vac 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
		* P1 kW	PN kW	MOTOR TYPE	
CEAM 210/2	1 ~	2 x 1,13	2 x 0,75	SM71BG/1075	GXS 1 x 230Vac A 10,2
CEAM 210/3		2 x 1,48	2 x 1,1	SM80BG/1115	13,4
CEAM 210/4		2 x 1,91	2 x 1,5	SM80BG/1155	17,2
					GMD 3 x 400Vac 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
		* P1 kW	PN kW	MOTOR TYPE	
CEAM 370/1	1 ~	2 x 1,49	2 x 1,1	SM80BG/1115	GXS 1 x 230Vac A 13,5
CEAM 370/2		2 x 2,05	2 x 1,5	SM80BG/1155	18,5
					GMD 3 x 400Vac 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

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\* Maximum value in specific range:P1 = input power

**BOOSTER SETS GX S AND GMD SERIES WITH ELECTRIC PUMPS CEA  
SINGLE-PHASE MOTORS, 2 POLES AT 50Hz**

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE	Construction Design	INPUT CURRENT	CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE						
				I <sub>n</sub> (A) 220-240 V	μF	V	min <sup>-1</sup>	I <sub>s</sub> / I <sub>n</sub>	η %	cosφ	T <sub>n</sub> Nm	T <sub>s</sub> /T <sub>n</sub>	T <sub>m</sub> /T <sub>n</sub>
0,40	SM63BG/1045	63	SPECIAL	2,79-2,85	14	450	2745	2,64	65,1	0,96	1,39	0,68	1,63
0,55	SM71BG/1055	71		3,76-3,99	16	450	2820	3,72	68,9	0,91	1,86	0,61	2,00
0,75	SM71BG/1075	71		4,90-4,85	20	450	2765	3,42	70,1	0,96	2,59	0,58	1,75
0,95	SM71BG/1095	71		6,25-5,89	25	450	2740	3,39	71,1	0,98	3,31	0,58	1,66
1,10	SM80BG/1115	80		6,88-6,65	30	450	2800	3,89	74,7	0,96	3,75	0,46	1,72
1,50	SM80BG/1155	80		9,21-8,58	40	450	2810	4,00	76,1	0,98	5,09	0,39	1,74
2,20	PLM90CEA-CO/1225	90		12,5-11,6	70	450	2825	4,47	82,4	0,97	7,43	0,53	1,87

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**GXS-GMD  
CEA/CEAM**
**BOOSTER SETS GX S AND GMD SERIES WITH ELECTRIC PUMPS CEAM  
THREE-PHASE MOTORS, 2 POLES AT 50Hz**

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		Year of manufacture	
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				IE
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
0,40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	from 11/2014
0,55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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	84,7	83,4	84,4	84,5	82,5	84,3	84	81,4	84	84	81,4	84	84	81,4	84	84	81,4		
1,5	85,6	86,5	85,8	85,9	86,4	84,9	86	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	86,4	86,7	85	86,4	86,7	85	86,4	86,7	85		
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		

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>n</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	I <sub>s</sub> / I <sub>n</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
0,40	SM63BG/304		63	SPECIALE	2	50	0,66	4,32	1,38	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
1,10	SM80BG/311 PE		80				0,79	8,31	3,63	3,95	3,95
1,50	SM80BG/315 PE		80				0,80	8,80	4,96	4,31	4,10
2,20	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 <sub>N</sub> kW	Voltage U <sub>N</sub> V										n <sub>N</sub> min <sup>-1</sup>	Operating conditions **				
	Δ			Y			Δ			Y		Altitude Above Sea Level (m)	T. amb min/max °C	ATEX		
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V					690 V	
0,40	2,20	2,34	2,51	1,27	1,35	1,45	-	-	-	-	-	2740 ÷ 2790	See note.	≤ 1000	-15 / 40	No
0,55	2,56	2,56	2,62	1,48	1,48	1,51	-	-	-	-	-	2825 ÷ 2850				
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				
1,10	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37	2870 ÷ 2900				
1,50	5,56	5,49	5,51	3,21	3,17	3,18	3,21	3,18	3,19	1,85	1,84	2870 ÷ 2895				
2,20	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				

Note: Observe the regulations and codes locally in force regarding sorted waste disposal.

cea-IE3-mott-2p50-en\_b\_te

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

## **BOOSTER SETS GX5 AND GMD SERIES CHARACTERISTICS OF THE ELECTRIC PUMPS BG / BGM**

The **BG** and **BGM** series comprises self-priming, single-impeller, horizontal centrifuge pumps featuring stainless steel bodies and rotors.

Motor: enbloc motor-pump coupling with rotor directly splined onto the motor shaft protrusion.

**GXS-GMD  
BG/BGM**



### **Technical Information (standard version):**

**Flow rates:** up to 4,2 m<sup>3</sup>/h.

**Head:** up to 53 m.

**Temperature of pumped liquid:**  
from -10°C to +40°C.

**Maximum ambient temperature:** +40°C.

**Maximum suction head:** 8 m.

**Mechanical seal:** Ceramic/Carbon/EPDM.

**Elastomers:** EPDM.

### **Motor**

**Standard supplied IE2/IE3 three-phase surface motors  $\geq 0,75$  kW are compliant with Regulation (EC) no. 640/2009 and IEC 60034-30.**

Electrical performances according to EN 60034-1.

Insulation class 155 (F).

IP55 protection.

Condensate drain plugs on standard version.

Cooling by fan according to EN 60034-6.

Cable gland metric size according to EN 50262.

Standard voltage:

- **Single-phase version:** 220-240 V 50 Hz (incorporated automatic-reset overload protection).
- **Three-phase version:** 220-240/380-415 V 50 Hz (overload protection to be provided by the user).

For electrical data of the motors used see Technical Appendix.

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

PUMP TYPE	VERSION	ELECTRIC PUMP			Q = DELIVERY								
		* P1 kW	PN kW	MOTOR TYPE	l/min 0	20	40	60	80	100	120	130	140
					m <sup>3</sup> /h 0	1,2	2,4	3,6	4,8	6,0	7,2	7,8	8,4
H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
BGM3	1 ~	2 x 0,67	2 x 0,37	SM63BG/1045	36,9	30,6	25,6	21,5	17,7	13,8			
BGM5		2 x 0,91	2 x 0,55	SM71BG/1055	40,2	35,7	32,0	28,8	25,7	22,4	18,8		
BGM7		2 x 1,11	2 x 0,75	SM71BG/1075	45,4		38,1	34,8	31,7	28,6	25,6		
BGM9		2 x 1,24	2 x 0,9	SM71BG/1095	49,6		41,1	37,7	34,8	32,2	29,8	28,6	
BGM11		2 x 1,43	2 x 1,1	SM80BG/1115	53,2		45,8	42,5	39,5	36,5	33,5	31,9	30,3
BG3	3 ~	2 x 0,68	2 x 0,37	SM63BG/304	36,9	30,6	25,6	21,5	17,7	13,8			
BG5		2 x 0,81	2 x 0,55	SM71BG/305	40,2	35,7	32,0	28,8	25,7	22,4	18,8		
BG7		2 x 1,02	2 x 0,75	SM80BG/307PE	45,4		38,1	34,8	31,7	28,6	25,6		
BG9		2 x 1,11	2 x 0,9	SM80BG/311PE	49,6		41,1	37,7	34,8	32,2	29,8	28,6	
BG11		2 x 1,30	2 x 1,1	SM80BG/311PE	53,2		45,8	42,5	39,5	36,5	33,5	31,9	30,3

Maximum delivery depends on geodetic suction lift with clean 8 m pipe and 1¼" foot valve.

2p\_bg-2p50-en\_a\_th

Hydraulic performances in compliance with 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.

## BOOSTER SETS GX S AND GMD SERIES WITH ELECTRIC PUMPS BG AND BGM ELECTRICAL DATA TABLE AT 50Hz

PUMP TYPE	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	GXS 1 x 230Vac A
BGM3	1 ~	2 X 0,67	2 X 0,37	SM63BG/1045	5,9
BGM5		2 X 0,91	2 X 0,55	SM71BG/1055	8,7
BGM7		2 X 1,11	2 X 0,75	SM71BG/1075	10,0
BGM9		2 X 1,24	2 X 0,9	SM71BG/1095	11,1
BGM11		2 X 1,43	2 X 1,1	SM80BG/1115	12,9
					<b>GMD</b> 3 x 400Vac 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\_a\_te

\* Maximum value in specific range: P1 = input power

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

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE	Construction Design	INPUT CURRENT		CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE					
				In (A)	220-240 V	μF	V	min <sup>-1</sup>	Is / In	η %	cosφ	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>
0,4	SM63BG/1045	63	SPECIAL	2,79-2,85	14	450	2745	2,64	65,1	0,96	1,39	0,68	1,63
0,55	SM71BG/1055	71		3,76-3,99	16	450	2820	3,72	68,9	0,91	1,86	0,61	2,00
0,75	SM71BG/1075	71		4,90-4,85	20	450	2765	3,42	70,1	0,96	2,59	0,58	1,75
0,95	SM71BG/1095	71		6,25-5,89	25	450	2740	3,39	71,1	0,98	3,31	0,58	1,66
1,1	SM80BG/1115	80		6,88-6,65	30	450	2800	3,89	74,7	0,96	3,75	0,46	1,72

bg-motm-2p50-en\_a\_te

GXS-GMD  
BG/BGM

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

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		Year of manufacture			
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				IE		
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4				
0,40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	from 11/2014
0,55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
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	-	-		
1,1	84	84,7	83,4	84,4	84,5	82,5	84,3	84	81,4	84	84	81,4	84	84	81,4	84	84	81,4	-	-		
1,5	85,6	86,5	85,8	85,9	86,4	84,9	86	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	86,4	86,7	85	86,4	86,7	85	86,4	86,7	85	-	-		
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	-	-		

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	Is / I <sub>N</sub>	T <sub>N</sub> Nm	Ts/T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
0,40	SM63BG/304		63	SPECIAL	2	50	0,66	4,32	1,38	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
1,10	SM80BG/311 PE		80				0,79	8,31	3,63	3,95	3,95
1,50	SM80BG/315 PE		80				0,80	8,80	4,96	4,31	4,10
2,20	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 <sub>N</sub> kW	Voltage U <sub>N</sub> V										n <sub>N</sub> min <sup>-1</sup>	Operating conditions **				
	Δ			Y			Δ			Y		Altitude Above Sea Level (m)	T. amb min/max °C	ATEX		
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V					690 V	
0,40	2,20	2,34	2,51	1,27	1,35	1,45	-	-	-	-	-	2740 ÷ 2790	See note.	≤ 1000	-15 / 40	No
0,55	2,56	2,56	2,62	1,48	1,48	1,51	-	-	-	-	-	2825 ÷ 2850				
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				
1,10	4,19	4,14	4,16	2,42	2,39	2,40	2,41	2,38	2,38	1,39	1,37	2870 ÷ 2900				
1,50	5,56	5,49	5,51	3,21	3,17	3,18	3,21	3,18	3,19	1,85	1,84	2870 ÷ 2895				
2,20	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				

Note: Observe the regulations and codes locally in force regarding sorted waste disposal.

bg-IE3-mott-2p50-en\_a\_te

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



## BOOSTER SETS GX5 AND GMD SERIES CHARACTERISTICS OF THE ELECTRIC PUMPS e-SV

The **e-SV** pump is a multistage vertical pump, not self-priming, combined with a normalised standard motor. The hydraulic part is kept in place between the upper cover and the pump body with tie-rods. The pump body is available in different configurations and connection typologies.



### Technical Information (standard version):

**Flow rate:** up to 29 m<sup>3</sup>/h.

**Head:** up to 160 m.

**Temperature of the pumped liquid:**  
+120°C

**Maximum operating pressure:** 16 bar (PN16)

**Power:** from 0,37 to 4 kW.

**Mechanical seal:**  
Ceramic/Carbon/EPDM (standard).

**Elastomers:** EPDM.

**GXS-GMD  
e-SV**

### Motor

#### Standard supplied IE3 three-phase surface motors surface motors ≥ 0,75 kW

Performance to EN 60034-1.  
Insulation class: 155 (F).  
Protection class: IP55.  
Condensate drain plugs on standard version.  
Cooling by fan according to EN 60034-6.  
Cable gland metric size according to EN 50262.

Standard voltage:

- **Single-phase version:**  
220-240 V 50 Hz (incorporated automatic-reset overload protection until 2.2 kW)
- **Versione trifase:**  
220-240/380-415 V 50 Hz until 3 kW.  
(overload protection to be provided by the user)

For electrical data of the motors used see Technical Appendix.

### Material

All pumps are certified for drinking water use (WRAS, ACS and D.M.174.).

## **BOOSTER SETS GXS AND GMD SERIES CHARACTERISTICS OF THE ELECTRIC PUMPS e-SV**

- Vertical multistage centrifugal pump. All metal parts in contact with the pumped liquid are made of stainless steel.
- Versions **F**: round flanges, in-line delivery and suction ports, AISI 304.
- The following versions are available:
  - **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.
- Reduced axial thrusts enable the use of **standard motors** that are easily found in the market.
- Mechanical seal according to EN 12756 (ex DIN 24960) and ISO 3069 for 1, 3, 5SV and 10, 15, 22SV ( $\leq$  of 4 kW) series.
- **Balanced mechanical seal** according to EN 12756 (ex DIN 24960) and ISO 3069, which **can be replaced without removing the motor from the pump** for 10, 15 and 22SV ( $\geq$  of 5,5 kW) series.
- Seal housing chamber designed to prevent the accumulation of air in the critical area next to the mechanical seal.
- A second plug is available for 10, 15, 22SV series.
- Easy maintenance. No special tools required for assembly or disassembly.

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

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

PUMP TYPE	RATED POWER kW	MEI ≥ (1)	Q = DELIVERY													
			l/min 0	24	40	50	60	70	80	90	100	120	146	200	240	282
			m <sup>3</sup> /h 0	1,4	2,4	3,0	3,6	4,2	4,8	5,4	6,0	7,2	8,8	12,0	14,4	16,9
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.

**GXS-GMD  
e-SV**

PUMP TYPE	RATED POWER kW	MEI ≥ (1)	Q = DELIVERY													
			l/min 0	24	40	50	60	70	80	90	100	120	146	200	240	282
			m <sup>3</sup> /h 0	1,4	2,4	3,0	3,6	4,2	4,8	5,4	6,0	7,2	8,8	12,0	14,4	16,9
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.

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

PUMP TYPE	RATED POWER kW	MEI ≥ (1)	Q = DELIVERY													
			l/min 0	166,7	200	266	340	366,7	466	540	660	700	800	860	920	966,7
			m <sup>3</sup> /h 0	10,0	12,0	16,0	20,4	22,0	28,0	32,4	39,6	42,0	48,0	51,6	55,2	58,0
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.

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

TYPE	PUMP		GXS20 CURRENT ABSORBED 1 x 230 V A	GMD20 CURRENT ABSORBED 3 x 400 V A
		NOMINAL POWER P <sub>N</sub> kW		
3SV02		2 x 0,37	5,6	2,5
3SV03		2 x 0,37	5,6	2,5
3SV04		2 x 0,37	5,6	2,5
3SV05		2 x 0,55	7,8	3,0
3SV06		2 x 0,55	7,8	3,0
3SV07		2 x 0,75	9,8	3,4
3SV08		2 x 0,75	9,8	3,4
3SV09		2 x 1,1	13,6	4,8
3SV10		2 x 1,1	13,6	4,8
3SV11		2 x 1,1	13,6	4,8
3SV12		2 x 1,1	13,6	4,8
3SV13		2 x 1,5	17,8	6,3
3SV14		2 x 1,5	17,8	6,3
3SV16		2 x 1,5	17,8	6,3
3SV19		2 x 2,2	-	9,2
3SV21		2 x 2,2	-	9,2
5SV02		2 x 0,37	5,6	2,5
5SV03		2 x 0,55	7,8	3,0
5SV04		2 x 0,55	7,8	3,0
5SV05		2 x 0,75	9,8	3,4
5SV06		2 x 1,1	13,6	4,8
5SV07		2 x 1,1	13,6	4,8
5SV08		2 x 1,1	13,6	4,8
5SV09		2 x 1,5	17,8	6,3
5SV10		2 x 1,5	17,8	6,3
5SV11		2 x 1,5	17,8	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	9,8	3,4
10SV02		2 x 0,75	9,8	3,4
10SV03		2 x 1,1	13,6	4,8
10SV04		2 x 1,5	17,8	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

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

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE*	Construction Design	INPUT CURRENT I <sub>n</sub> (A) 220-240 V	CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE						
					μF	V	min <sup>-1</sup>	I <sub>s</sub> / I <sub>n</sub>	η %	cosφ	T <sub>n</sub> Nm	T <sub>s</sub> /T <sub>n</sub>	T <sub>m</sub> /T <sub>n</sub>
0,37	SM71RB14/104	71R	V18/B14	2,79-2,85	14	450	2745	2,64	65,1	0,96	1,39	0,68	1,63
0,55	SM71B14/105	71		3,76-3,99	16	450	2820	3,72	68,9	0,91	1,86	0,61	2,00
0,75	SM80RB14/107	80R		4,90-4,85	20	450	2765	3,42	70,1	0,96	2,59	0,58	1,75
1,1	SM80B14/111	80		6,88-6,65	30	450	2800	3,89	74,7	0,96	3,75	0,46	1,72
1,5	SM90RB14/115	90R		9,21-8,58	40	450	2810	4,00	76,1	0,98	5,09	0,39	1,74
2,2	PLM90B14/122	90		12,5-11,6	70	450	2825	4,47	82,4	0,97	7,43	0,53	1,87

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

1-22sv-motm-2p50-en\_b\_te

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

P <sub>N</sub> kW	Efficiency $\eta_N$ %																		IE	Year of manufacture		
	$\Delta$ 220 V Y 380 V			$\Delta$ 230 V Y 400 V			$\Delta$ 240 V Y 415 V			$\Delta$ 380 V Y 660 V			$\Delta$ 400 V Y 690 V			$\Delta$ 415 V						
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4				
0,37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0,55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-
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	-	-	-	-

P <sub>N</sub> kW	Manufacturer		IEC SIZE*	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia Srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cos $\phi$	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
0,37	SM71RB14/304		71R	V18/B14	2	50	0,64	4,35	1,37	4,14	4,10
0,55	SM71B14/305		71				0,74	5,97	1,85	3,74	3,56
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				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 <sub>N</sub> kW	Voltage U <sub>N</sub> V											n <sub>N</sub> min <sup>-1</sup>	Observe the regulations and codes locally in force regarding sorted waste disposal.	Operating conditions **		
	$\Delta$			Y			$\Delta$			Y				Altitude Above Sea Level (m)	T. amb min/max °C	ATEX
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V	690 V					
0,37	2,03	2,18	2,32	1,17	1,26	1,34	-	-	-	-	-	2745 ÷ 2800	≤ 1000	-15 / 40	No	
0,55	2,56	2,56	2,62	1,48	1,48	1,51	-	-	-	-	-	2825 ÷ 2850				
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				

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

sv-IE3-mott22-2p50-en\_a\_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 WITH ELECTRIC PUMPS e-SV MOTOR NOISE 2-POLE MOTORS AT 50Hz

POWER	MOTOR TYPE	NOISE
kW	IEC SIZE*	LpA dB
0,37	71R	<70
0,55	71	<70
0,75	80-80R	<70
1,1	80	<70
1,5	90-90R	<70
2,2	90	<70
3	100R	<70
4	112R	<70
5,5	132R	<70
7,5	132	71
11	160R	73
15	160	71
18,5	160	73
22	180R	70
30	200	72
37	200	72
45	225	75
55	250	75

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

1-125sv\_mott\_2p50-en\_b\_tr

The table show the mean sound pressure (Lp) measured as per Curve A (Standard ISO 1680). Noise values were measured with the 50 Hz motor running idle with a tolerance of 3 dB (A).



## BOOSTER SETS GX5 AND GMD SERIES CHARACTERISTICS OF THE ELECTRIC PUMPS VM

The **VM** pump is a multistage vertical pump, not self-priming, with inlet and outlet manifolds threaded. The pump have a close-coupled design and equipped with no standard motor.



### Technical Information (standard version):

**Flow rate:** up to 14 m<sup>3</sup>/h.

**Head:** up to 98 m.

**Temperature of the pumped liquid:**

+90°C for single-phase version in according to EN 60335-2-41.

+60°C for three-phase version.

**Maximum operating pressure:** 10 bar (PN10)

**Power:** from 0,5 to 3 kW.

**Mechanical seal:**

Ceramic/Carbon/EPDM (standard).

**Elastomers:** EPDM.

### Motor

#### Standard supplied IE3 three-phase surface motors surface motors ≥ 0,75 kW

Performance to EN 60034-1.

Insulation class: 155 (F).

Protection class: IP55.

Condensate drain plugs on standard version.

Cooling by fan according to EN 60034-6.

Cable gland metric size according to EN 50262.

Standard voltage:

• **Single-phase version:**

220-240 V 50 Hz (incorporated automatic-reset overload protection until 2.2 kW)

• **Versione trifase:**

220-240/380-415 V 50 Hz until 3 kW.

(overload protection to be provided by the user)

For electrical data of the motors used see Technical Appendix.

### Material

All pumps are certified for drinking water use (WRAS, ACS and D.M.174.).

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

PUMP TYPE VM..P	VERSION	ELECTRIC PUMP			Q = DELIVERY							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	40,0	56,0	72,0	88,0	104,0	120,0	140,0
					m <sup>3</sup> /h 0	2,4	3,4	4,3	5,3	6,2	7,2	8,4
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
3VM02	1 ~	2 x 0,53	2 x 0,5	SM63HM../1055	23,6	21,5	20,4	18,9	17,1	15,0	12,8	9,6
3VM03		2 x 0,64	2 x 0,5	SM63HM../1055	34,4	31,2	29,5	27,2	24,6	21,7	18,4	14,0
3VM04		2 x 0,76	2 x 0,5	SM63HM../1055	45,0	40,3	37,7	34,5	30,9	26,8	22,5	16,6
3VM05		2 x 0,99	2 x 0,75	SM71HM../1075	57,8	52,5	49,6	45,9	41,5	36,5	31,1	23,7
3VM06		2 x 1,18	2 x 0,95	SM71HM../1095	69,4	63,1	59,4	54,9	49,6	43,7	37,2	28,3
3VM07		2 x 1,30	2 x 0,95	SM71HM../1095	80,3	72,3	67,9	62,5	56,2	49,2	41,6	31,2
3VM08		2 x 1,47	2 x 1,1	SM80HM../1115	93,0	84,6	79,9	73,9	66,8	58,9	50,2	38,3
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
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\_a\_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							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	80,0	106,0	132,0	158,0	184,0	210	240
					m <sup>3</sup> /h 0	4,8	6,4	7,9	9,5	11,0	12,6	14,4
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
5VM02	1 ~	2 x 0,60	2 x 0,5	SM63HM../1055	23,9	20,4	18,9	17,4	15,5	13,3	10,6	6,6
5VM03		2 x 0,77	2 x 0,5	SM63HM../1055	35,0	28,7	26,5	24,2	21,5	18,2	14,0	8,0
5VM04		2 x 1,05	2 x 0,75	SM71HM../1075	47,6	39,8	37,1	34,3	30,8	26,4	20,9	12,9
5VM05		2 x 1,29	2 x 0,95	SM71HM../1095	59,5	49,4	46,0	42,4	38,0	32,5	25,6	15,6
5VM06		2 x 1,51	2 x 1,1	SM80HM../1115	72,1	60,5	56,6	52,3	47,2	40,6	32,3	20,4
5VM07		2 x 1,80	2 x 1,5	SM80HM../1155	84,6	72,1	67,8	63,0	57,2	49,7	40,1	26,1
5VM08		2 x 2,00	2 x 1,5	SM80HM../1155	96,3	81,4	76,2	70,6	63,7	55,1	44,0	28,1
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
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\_a\_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							
		* P <sub>1</sub> kW	P <sub>N</sub> kW	MOTOR TYPE	l/min 0	166,7	216	266	316	366	416	466
					m <sup>3</sup> /h 0	5,0	6,5	8,0	9,5	11,0	12,5	14,0
H = TOTAL HEAD IN METRES OF COLUMN OF WATER												
10VM02	1 ~	2 x 1,32	2 x 1,1	SM80HM../1115	30,3	26,4	24,7	22,9	20,8	18,3	15,2	11,6
10VM03		2 x 1,87	2 x 1,5	SM80HM../1155	45,6	40,1	37,8	35,3	32,4	28,9	24,7	19,6
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\_a\_th

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

The table refers to performance with 2 pumps running.

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

PUMP TYPE VM..P	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	
3VM02	1 ~	2 X 0,53	2 X 0,5	SM63HM../1055	GXS 1 x 230Vac A 5,1
3VM03		2 X 0,64	2 X 0,5	SM63HM../1055	5,7
3VM04		2 X 0,76	2 X 0,5	SM63HM../1055	6,6
3VM05		2 X 0,99	2 X 0,75	SM71HM../1075	9,0
3VM06		2 X 1,18	2 X 0,95	SM71HM../1095	10,4
3VM07		2 X 1,30	2 X 0,95	SM71HM../1095	11,4
3VM08		2 X 1,47	2 X 1,1	SM80HM../1115	13,2
					GMD 3 x 400Vac A
3VM02	3 ~	2 X 0,43	2 X 0,3	SM63HM../303	2,2
3VM03		2 X 0,56	2 X 0,4	SM63HM../304	2,7
3VM04		2 X 0,70	2 X 0,5	SM63HM../305	3,1
3VM05		2 X 0,90	2 X 0,75	SM80HM../307 E3	3,4
3VM06		2 X 1,07	2 X 1,1	SM80HM../311 E3	4,3
3VM07		2 X 1,23	2 X 1,1	SM80HM../311 E3	4,6
3VM08		2 X 1,41	2 X 1,5	SM80HM../315 E3	5,6

The current shown is the nominal current of set

2p\_catemea\_3vm-p-2p50-en\_a\_te

\* Maximum value in specific range: P1 = input power

PUMP TYPE VM..P	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	
5VM02	1 ~	2 X 0,60	2 X 0,5	SM63HM../1055	GXS 1 x 230Vac A 5,5
5VM03		2 X 0,77	2 X 0,5	SM63HM../1055	6,7
5VM04		2 X 1,05	2 X 0,75	SM71HM../1075	9,5
5VM05		2 X 1,29	2 X 0,95	SM71HM../1095	11,3
5VM06		2 X 1,51	2 X 1,1	SM80HM../1115	13,5
5VM07		2 X 1,80	2 X 1,5	SM80HM../1155	15,9
5VM08		2 X 2,00	2 X 1,5	SM80HM../1155	17,8
					GMD 3 x 400Vac A
5VM02	3 ~	2 X 0,52	2 X 0,4	SM63HM../304	2,6
5VM03		2 X 0,72	2 X 0,5	SM63HM../305	3,1
5VM04		2 X 0,99	2 X 1,1	SM80HM../311 E3	4,1
5VM05		2 X 1,22	2 X 1,1	SM80HM../311 E3	4,6
5VM06		2 X 1,45	2 X 1,5	SM80HM../315 E3	5,7
5VM07		2 X 1,67	2 X 1,5	SM80HM../315 E3	6,2
5VM08		2 X 1,93	2 X 2,2	PLM90HM../322 E3	7,8

The current shown is the nominal current of set

2p\_catemea\_5vm-p-2p50-en\_a\_te

\* Maximum value in specific range: P1 = input power

PUMP TYPE VM..P	VERSION	ELECTRIC PUMP			CURRENT ABSORBED
		* P1 kW	PN kW	MOTOR TYPE	
10VM02	1 ~	2 X 1,32	2 X 1,1	SM80HM../1115	GXS 1 x 230Vac A 12,1
10VM03		2 X 1,87	2 X 1,5	SM80HM../1155	16,5
				GMD 3 x 400Vac A	
10VM02	3 ~	2 X 1,22	2 X 1,1	SM80HM../311 E3	4,6
10VM03		2 X 1,74	2 X 1,5	SM80HM../315 E3	6,3
10VM04		2 X 2,32	2 X 2,2	PLM90HM../322 E3	8,7
10VM05		2 X 2,91	2 X 3	PLM90HM../330 E3	11,6
10VM06		2 X 3,43	2 X 3	PLM90HM../330 E3	12,8

The current shown is the nominal current of set

2p\_catemea\_10vm-p-2p50-en\_a\_te

\* Maximum value in specific range: P1 = input power

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

P <sub>N</sub> kW	MOTOR TYPE	IEC SIZE	Construction Design	INPUT CURRENT I <sub>n</sub> (A)		CAPACITOR		DATA FOR 230 V 50 Hz VOLTAGE					
				220-240 V	μF	V	min <sup>-1</sup>	Is / I <sub>N</sub>	η %	cosφ	T <sub>N</sub> Nm	Ts/T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
0,50	SM63HM../1055	63	SPECIAL	3,46-3,30	16	450	2705	2,90	66,9	0,98	1,76	0,56	1,61
0,55	SM71HM../1055	71		3,76-3,99	16	450	2820	3,72	68,9	0,91	1,86	0,61	2,00
0,75	SM71HM../1075	71		4,90-4,85	20	450	2765	3,42	70,1	0,96	2,59	0,58	1,75
0,95	SM71HM../1095	71		6,25-5,89	25	450	2740	3,39	71,1	0,98	3,31	0,58	1,66
1,1	SM80HM../1115	80		6,88-6,65	30	450	2800	3,89	74,7	0,96	3,75	0,46	1,72
1,5	SM80HM../1155	80		9,21-8,58	40	450	2810	4,00	76,1	0,98	5,09	0,39	1,74
2,2	PLM90HM../1225	90		12,5-11,6	70	450	2825	4,47	82,4	0,97	7,43	0,53	1,87

1-22hm-motm-2p50-en\_a\_te

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

P <sub>N</sub> kW	Efficiency η <sub>N</sub> %																		Year of manufacture	
	Δ 220 V Y 380 V			Δ 230 V Y 400 V			Δ 240 V Y 415 V			Δ 380 V Y 660 V			Δ 400 V Y 690 V			Δ 415 V				IE
	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4	4/4	3/4	2/4		
0,30	65,1	64,4	59,3	65,2	62,1	54,7	62,8	58,5	50,1	-	-	-	-	-	-	-	-	-	-	By June 2013
0,40	72,7	72,3	67,9	71,4	69,5	63,5	68,7	65,9	58,8	-	-	-	-	-	-	-	-	-	-	
0,50	72,9	73,5	70,3	72,3	71,5	66,7	71,1	69,1	63,0	-	-	-	-	-	-	-	-	-	-	
0,55	77,3	76,9	73,3	77,1	75,8	71,3	76,1	74,3	69,1	-	-	-	-	-	-	-	-	-	-	
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	82,5	
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	84,0	
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	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	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	86,4	

P <sub>N</sub> kW	Manufacturer		IEC SIZE	Construction Design	N. of Poles	f <sub>N</sub> Hz	Data for 400 V / 50 Hz Voltage				
	Xylem Service Italia srl Reg. No. 07520560967 Montecchio Maggiore Vicenza - Italia						cosφ	Is / I <sub>N</sub>	T <sub>N</sub> Nm	Ts/T <sub>N</sub>	T <sub>m</sub> /T <sub>N</sub>
	Model										
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 <sub>N</sub> kW	Voltage U <sub>N</sub> V										n <sub>N</sub> min <sup>-1</sup>	Operating conditions **			
	Δ			Y			Δ			Y		Altitude Above Sea Level (m)	T. amb min/max °C	ATEX	
	220 V	230 V	240 V	380 V	400 V	415 V	380 V	400 V	415 V	660 V					690 V
0,30	1,66	1,82	1,96	0,96	1,05	1,13	-	-	-	-	-	2715 ÷ 2775	≤ 1000	-15 / 40	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			

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

GXS-GMD VM

**BOOSTER SETS GXS AND GMD SERIES WITH ELECTRIC PUMP VM  
MOTOR NOISE 2-POLES MOTORS AT 50Hz**

POWER kW	NOISE LpA dB
0,30	52
0,40	52
0,50	52
0,55	55
0,75	55
0,95	55
1,1	60
1,5	60
2,2	60
3	60

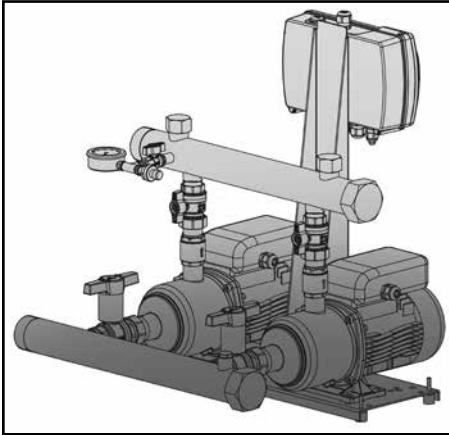
1-10vm\_mot\_2p50-en\_a\_tr

The table show the mean sound pressure (Lp) measured as per Curve A (Standard ISO 1680). Noise values were measured with the 50 Hz motor running idle with a tolerance of 3 dB (A).



## BOOSTER SETS GX5 AND GMD SERIES RANGE

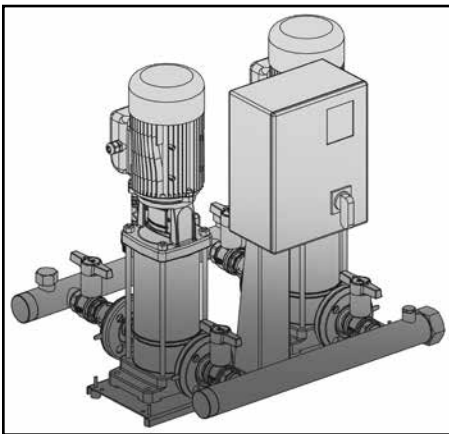
The range of two-pump booster sets includes fixed speed systems available in a variety of material configurations to suit the specific requirements of different applications.



### GX5 SERIES SETS

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

**Head** up to 141 m.  
**Flow rate** up to 62,4 m<sup>3</sup>/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<sup>3</sup>/h.  
**Power** up to 2 x 4 kW.

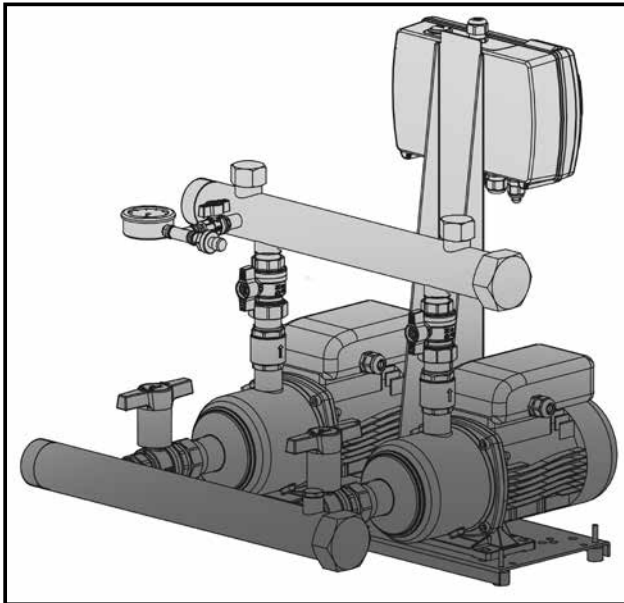
## Booster sets

## MARKET SECTORS CIVIL

### APPLICATIONS

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

## GXS Series



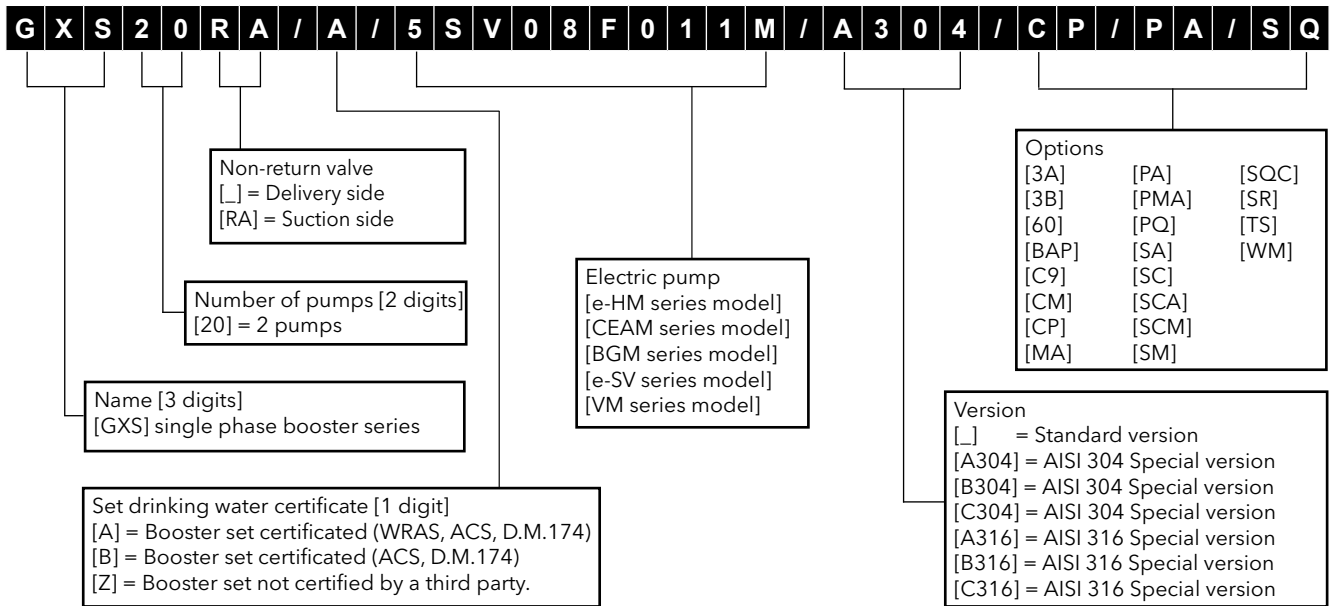
## SPECIFICATIONS

- **Flow rate:**  
up to 58 m<sup>3</sup>/h.
- **Head:**  
up to 140 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):**  
from -10 to +60° C (per e-HM).  
from -10 to +80° C (per CEA).  
from -10 to +40° C (per BG).  
from -10 to +80° C (per e-SV).  
from -10 to +60° C (per VM).
- **Horizontal design pump**  
**Maximum operating pressure:**  
10bar for e-HM...P  
16bar for e-HM...S  
8bar for BG and CEA
- **Vertical design pump**  
**Maximum operating pressure:**  
10bar for VM  
16bar 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.**



## BOOSTER SETS GXS SERIES IDENTIFICATION CODE



### VERSIONS AVAILABLE

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

### OPTIONS

- 3A Set with 1A certified pumps (Factory test report issued from end of line, QH curve included).
- 3B Set with 1B certified pumps (Test bulletin issued by Sala Audit (Audit Room); it includes QH curve, output and power).
- 60 Booster sets frequency of functioning 60 Hz, electric pump with 60Hz motor.
- BAP Pressure switch for high pressure installed on the delivery manifold.
- C9 Delivery manifold turned by 90°, curves. It is not possible to install expansion vessels directly on the manifold.
- CM Suction or delivery manifold larger than standard size.
- CP Dry contact version: power line, Automatic/Manual mode, Run/Stop for each pump, thermal block.
- MA Manometer installed on the suction manifold.
- PA Minimum pressure pressure switch on the suction manifold, for protection against dry running..
- PMA Minimum pressure pressure switch and vacuum pressure gauge for protection against dry running, installed on the suction manifold.
- PQ Set for aqueduct installation (with pressure gauge/ pressure switches/transmitters oversized by one size).
- 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.
- SR Without non-return valve.
- TS Set with electric pumps with special seals.
- WM Wall mounted control panel; cables L=5m.

## BOOSTER SETS GXS SERIES CONTROL PANEL

Q-Smart single-phase electronic control panel (fig. 1), 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 visualised 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 electricpump 1 burned, Fuse electricpump 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).



Fig.1 - Electric control panel

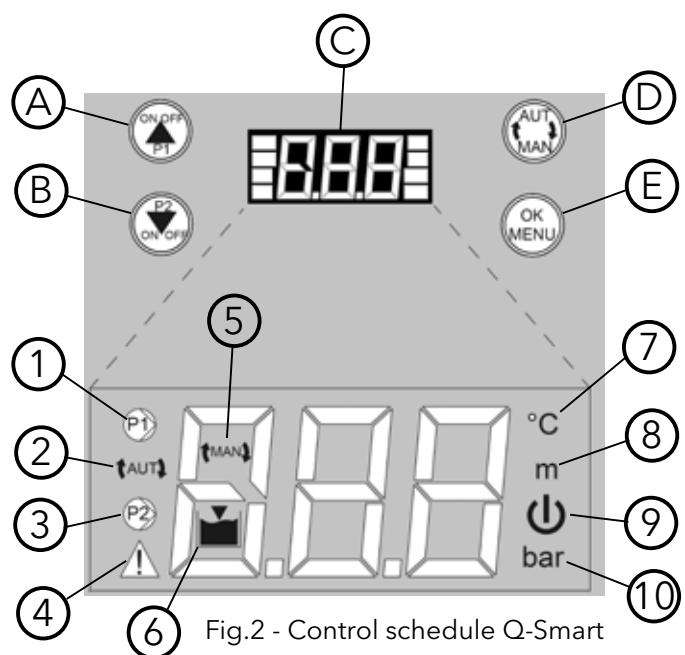


Fig.2 - Control schedule Q-Smart

## **BOOSTER SETS GX5 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 pumpset 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

Available in Z version.

### **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.

## BOOSTER SETS GX S 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/flanges	AISI 304 / 316	AISI 304 / 316	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

g\_wad\_3-22sv-en\_a\_tm

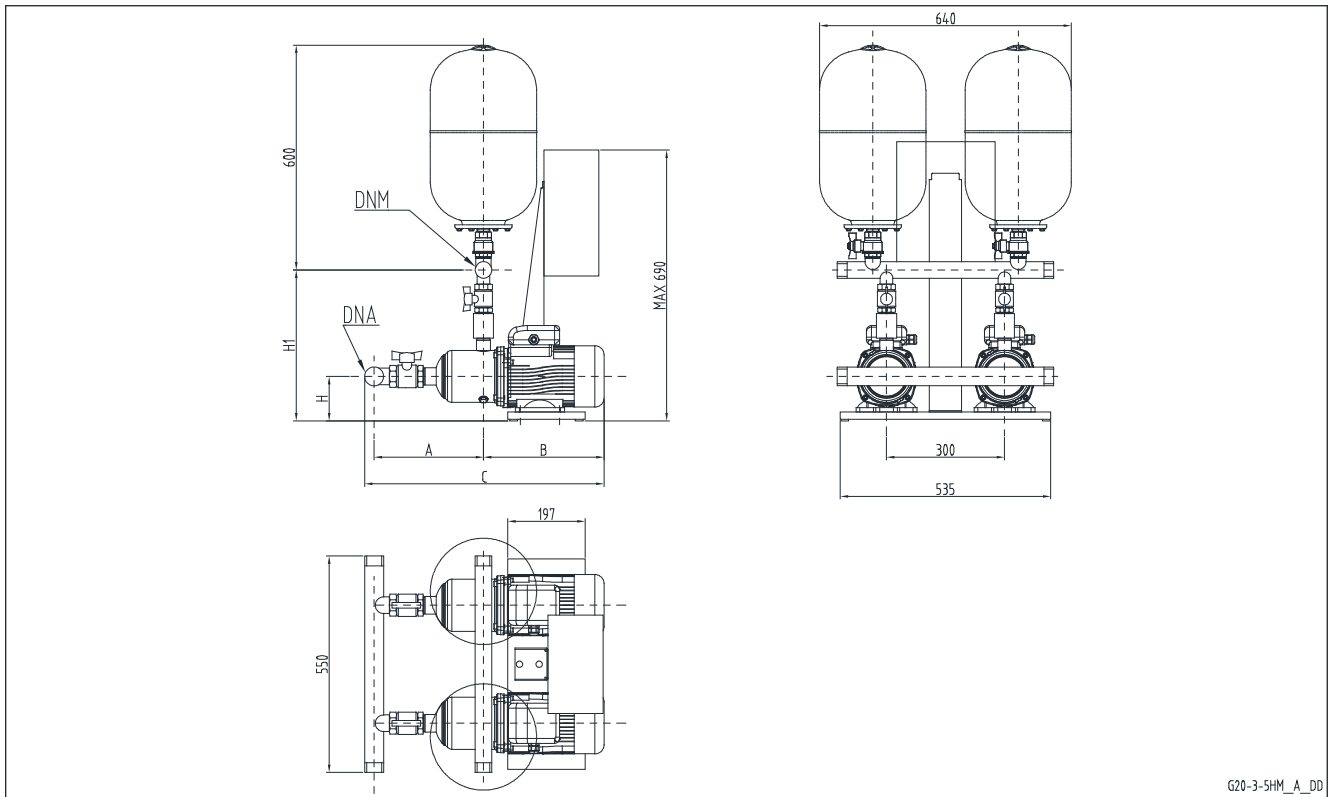
## BOOSTER SETS GX S SERIES OPERATING CHARACTERISTICS AND LIMITS

Permitted liquids	Water without gases and corrosive and/or aggressive substances.
Fluid temperature	-10°C to + 80 °C
Ambient temperature	0°C to + 40 °C
Maximum operating pressure*	Max 16 bar
Minimum input pressure	In line with the NPSH curve and the losses, with a margin of at least 0,5 m
Maximum input pressure	The input pressure added to the pump pressure without flow must be lower than the maximum operating pressure of the set.
Installation	Internal environment protected from atmospheric agents. Away from heat sources. Max altitude 1000 a.s.l. Max humidity 50%, without condensation.
Sound emission	See table

\* Higher PN available on request depending on pump type

smb\_2p-en\_a\_ti

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



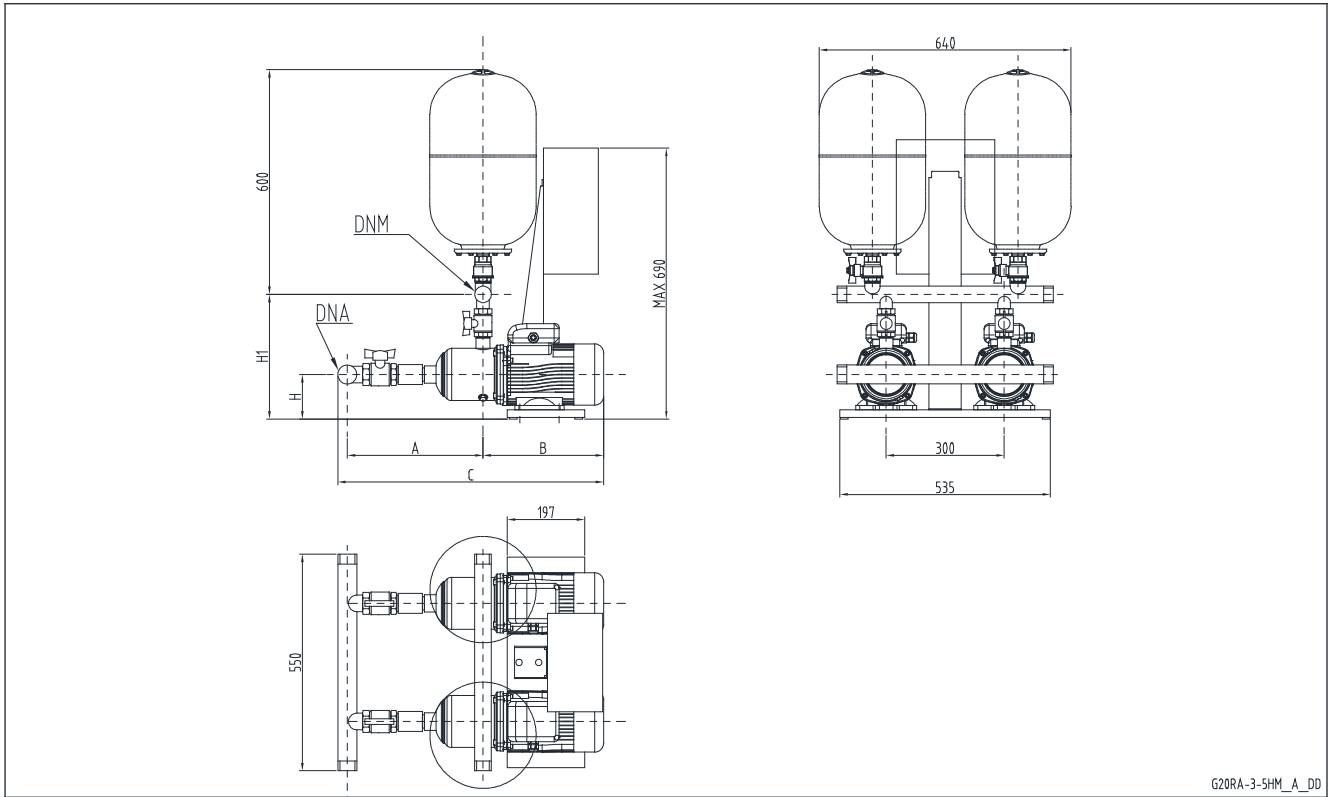
G20-3-5HM\_A\_DD

GXS 20	DNA	DNM	A		B	C		H	H1	
			STD	AISI		STD	AISI		STD	AISI
3HM02	R 2"	R 2"	224	236	249	503	515	113	398	530
3HM03	R 2"	R 2"	224	236	249	503	515	113	398	530
3HM04	R 2"	R 2"	244	256	249	523	535	113	398	530
3HM05	R 2"	R 2"	264	276	263	557	569	113	398	530
3HM06	R 2"	R 2"	284	296	263	577	589	113	398	530
5HM02	R 2"	R 2"	245	248	249	524	527	113	398	530
5HM03	R 2"	R 2"	245	248	249	524	527	113	398	530
5HM04	R 2"	R 2"	265	268	263	558	561	113	398	530
5HM05	R 2"	R 2"	285	288	263	578	581	113	398	530
5HM06	R 2"	R 2"	305	308	308	643	646	113	398	530

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20\_3-5hm\_en\_b\_td

**BOOSTER SETS GXS RA SERIES  
HM..P HORIZONTAL ELECTRIC PUMPS**



G20RA-3-5HM\_A\_DD

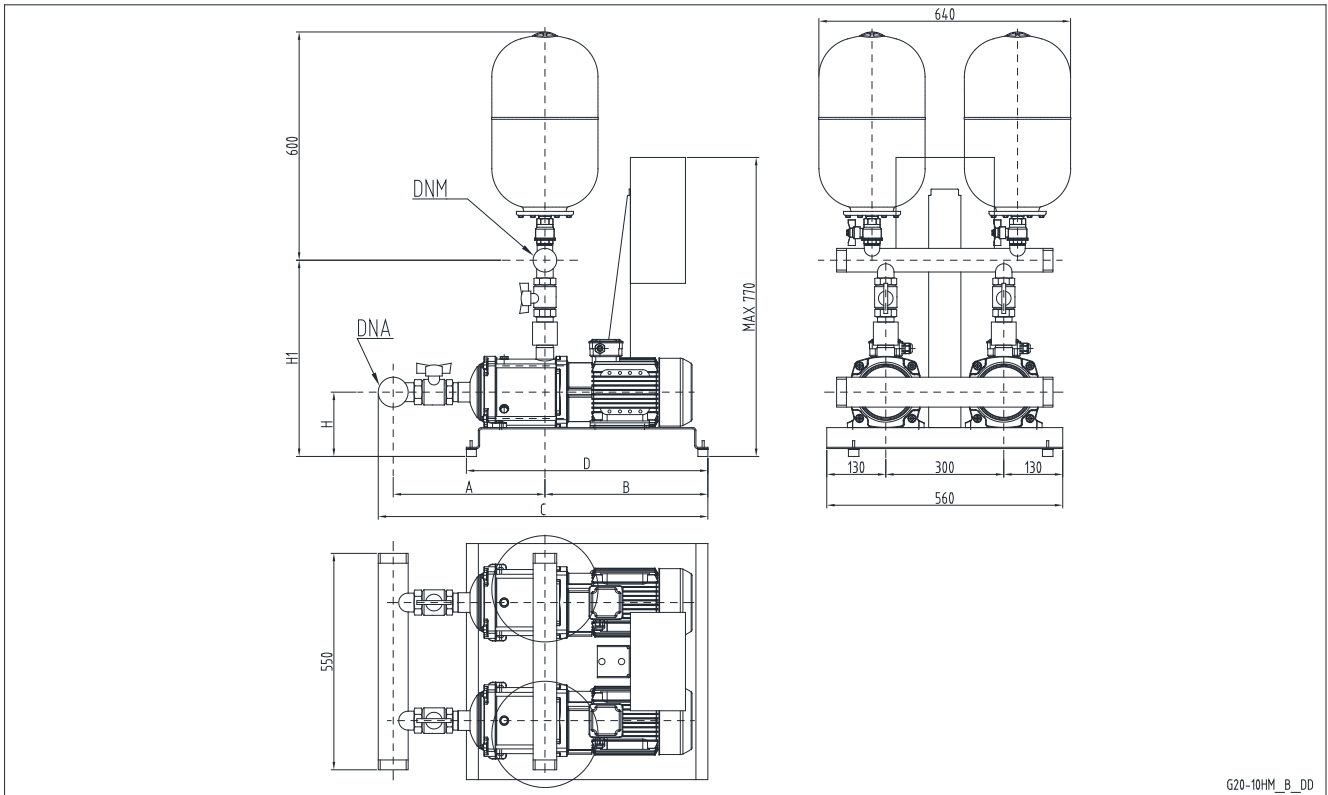
GXS 20RA	DNA	DNM	A		B	C		H	H1	
			STD	AISI		STD	AISI		STD	AISI
3HM02	R 2"	R 2"	252	439	249	531	718	113	343	355
3HM03	R 2"	R 2"	252	439	249	531	718	113	343	355
3HM04	R 2"	R 2"	272	459	249	551	738	113	343	355
3HM05	R 2"	R 2"	292	479	263	585	772	113	343	355
3HM06	R 2"	R 2"	312	499	263	605	792	113	343	355
5HM02	R 2"	R 2"	297	470	249	576	749	113	343	355
5HM03	R 2"	R 2"	297	470	249	576	749	113	343	355
5HM04	R 2"	R 2"	317	490	263	610	783	113	343	355
5HM05	R 2"	R 2"	337	510	263	630	803	113	343	355
5HM06	R 2"	R 2"	357	530	308	695	868	113	343	355

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20ra\_3-5hm\_en\_b\_td

**GXS**

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



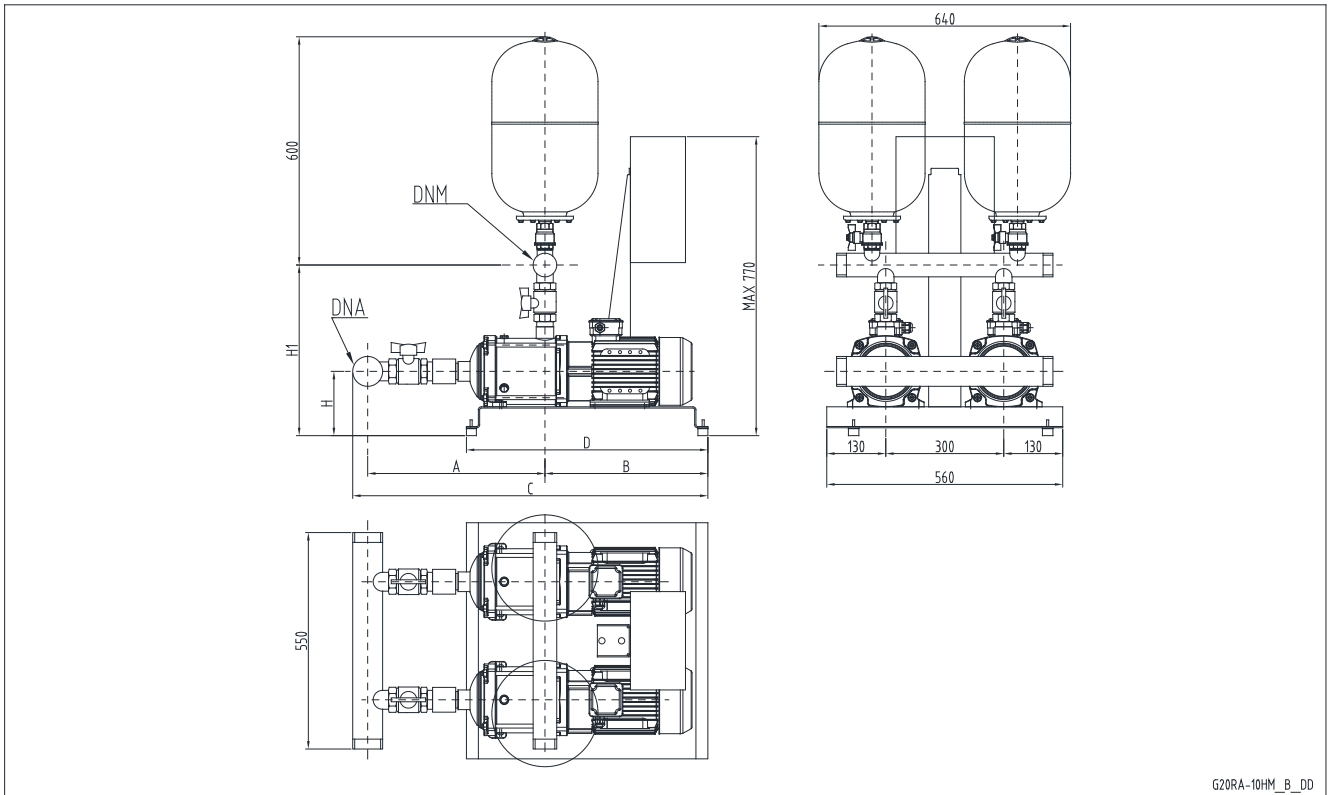
G20-10HM\_B\_DD

GXS 20	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
3HM10	R 2"	R 2"	348	360	354	732	744	590	205	490	622
3HM11	R 2"	R 2"	368	380	354	671	683	590	205	490	622
3HM12	R 2"	R 2"	388	400	354	691	703	590	205	490	622
3HM13	R 2"	R 2"	408	420	354	755	767	762	205	490	622
3HM14	R 2"	R 2"	428	440	354	775	787	762	205	490	622
3HM16	R 2"	R 2"	468	480	354	815	827	762	205	490	622
3HM17	R 2"	R 2"	488	500	354	835	847	762	205	490	622
3HM19	R 2"	R 2"	528	540	377	875	887	762	205	490	622
5HM09	R 2"	R 2"	389	392	354	736	739	590	205	490	622
5HM10	R 2"	R 2"	414	417	354	761	764	762	205	490	622
5HM11	R 2"	R 2"	439	442	354	786	789	762	205	490	622
5HM12	R 2"	R 2"	464	467	390	811	814	762	205	490	622

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20\_3-5hms-en\_b\_td

## BOOSTER SETS GXS RA SERIES HM..S HORIZONTAL ELECTRIC PUMPS



G20RA-10HM\_B\_DD

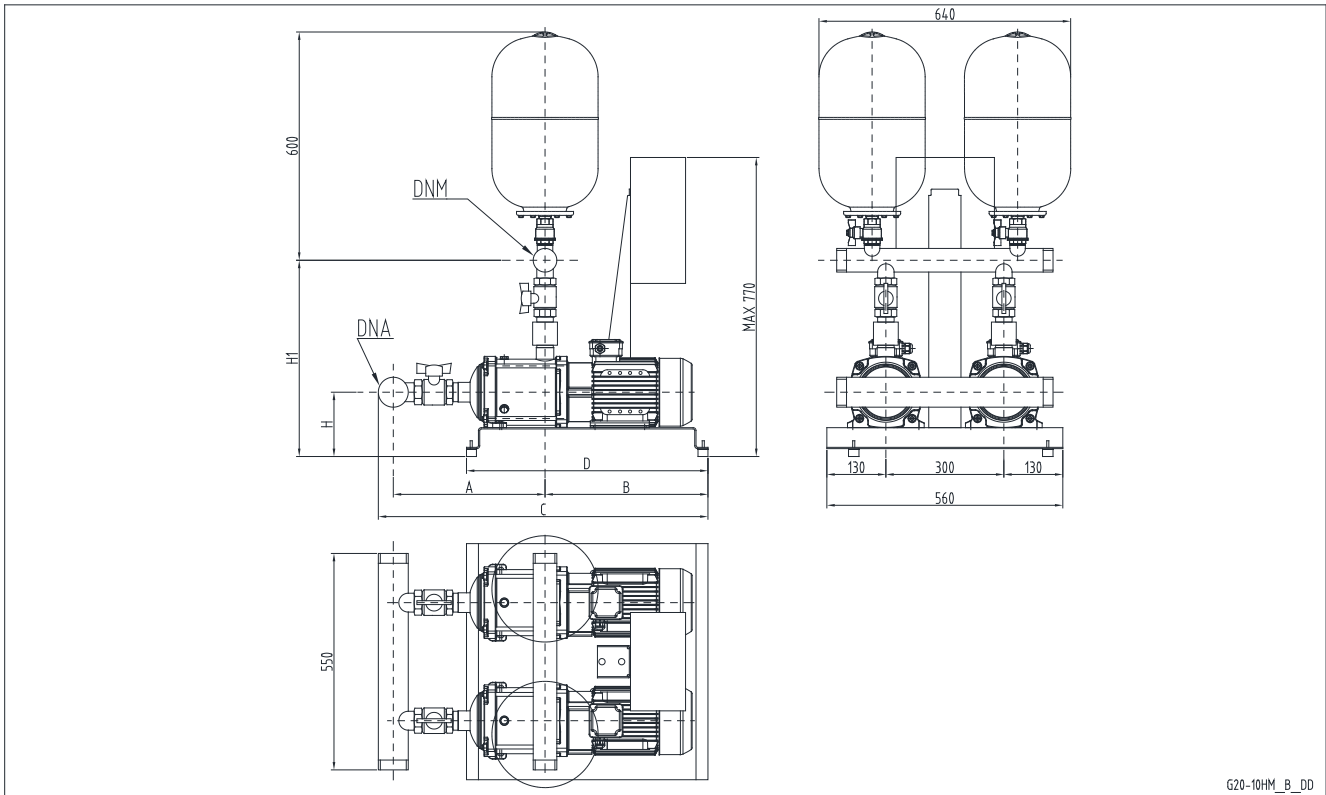
GXS 20RA	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
3HM10	R 2"	R 2"	376	563	354	760	947	590	205	435	447
3HM11	R 2"	R 2"	454	583	354	838	967	590	205	435	447
3HM12	R 2"	R 2"	474	603	354	858	987	590	205	435	447
3HM13	R 2"	R 2"	494	623	354	878	1007	762	205	435	447
3HM14	R 2"	R 2"	514	643	354	898	1027	762	205	435	447
3HM16	R 2"	R 2"	554	683	354	938	1067	762	205	435	447
3HM17	R 2"	R 2"	574	703	354	958	1087	762	205	435	447
3HM19	R 2"	R 2"	614	743	377	1021	1150	762	205	435	447
5HM09	R 2"	R 2"	441	614	354	825	998	590	205	435	447
5HM10	R 2"	R 2"	466	639	354	850	1023	762	205	435	447
5HM11	R 2"	R 2"	491	664	354	875	1048	762	205	435	447
5HM12	R 2"	R 2"	516	689	390	936	1109	762	205	435	447

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20ra\_3-5hms\_en\_b\_td



**BOOSTER SETS GXS SERIES  
HM..P HORIZONTAL ELECTRIC PUMPS**



G20-10HM\_B\_DD

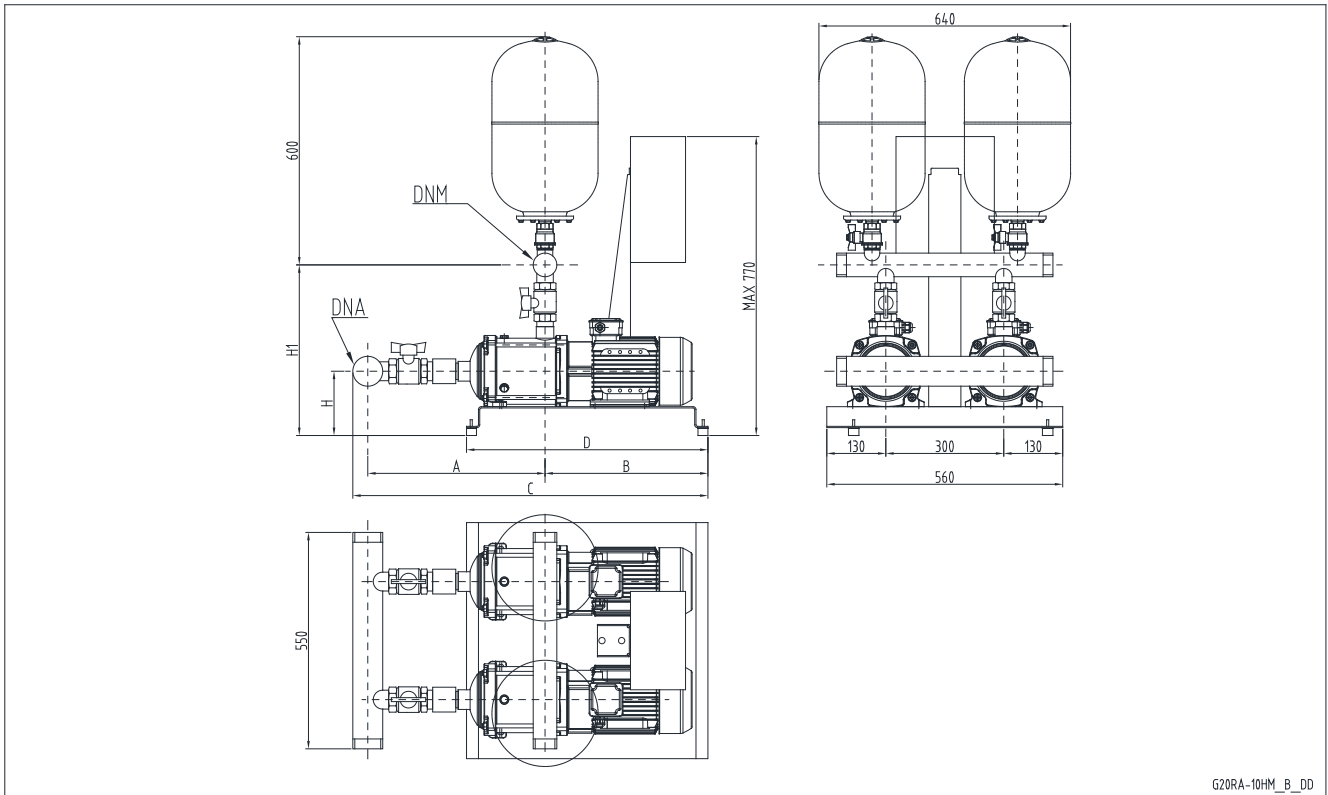
GXS 20	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
10HM02	R 2"1/2	R 2"1/2	302	309	354	694	701	590	205	547	680
10HM03	R 2"1/2	R 2"1/2	302	309	354	694	701	590	205	547	680

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20\_10hm-en\_b\_td



## BOOSTER SETS GXS RA SERIES HM..P HORIZONTAL ELECTRIC PUMPS



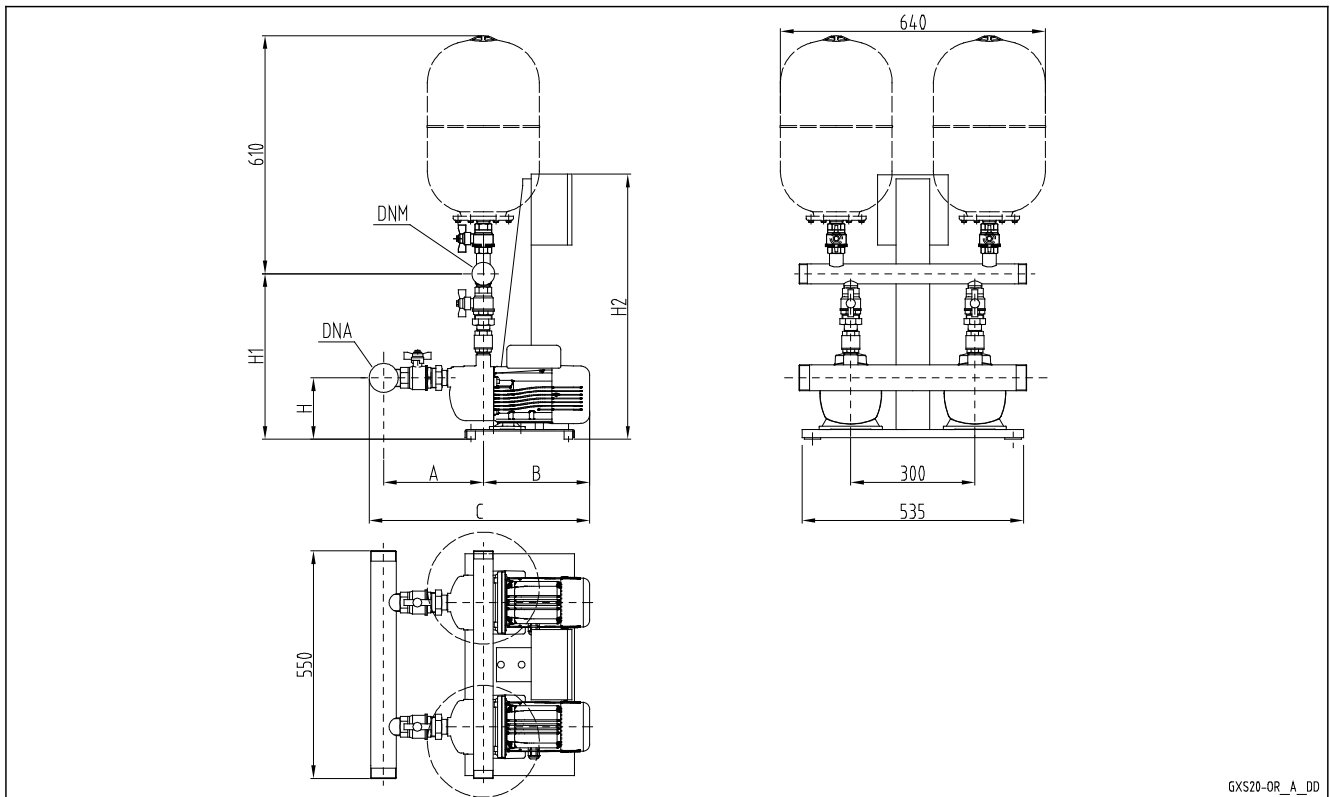
G20RA-10HM\_B\_DD

GXS 20RA	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
10HM02	R 2"1/2	R 2"1/2	357	554	354	749	946	590	205	482	485
10HM03	R 2"1/2	R 2"1/2	357	554	354	749	946	590	205	482	485

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20ra\_10hm-en\_b\_td

## BOOSTER SETS GXS SERIES BGM / CEAM HORIZONTAL ELECTRIC PUMPS



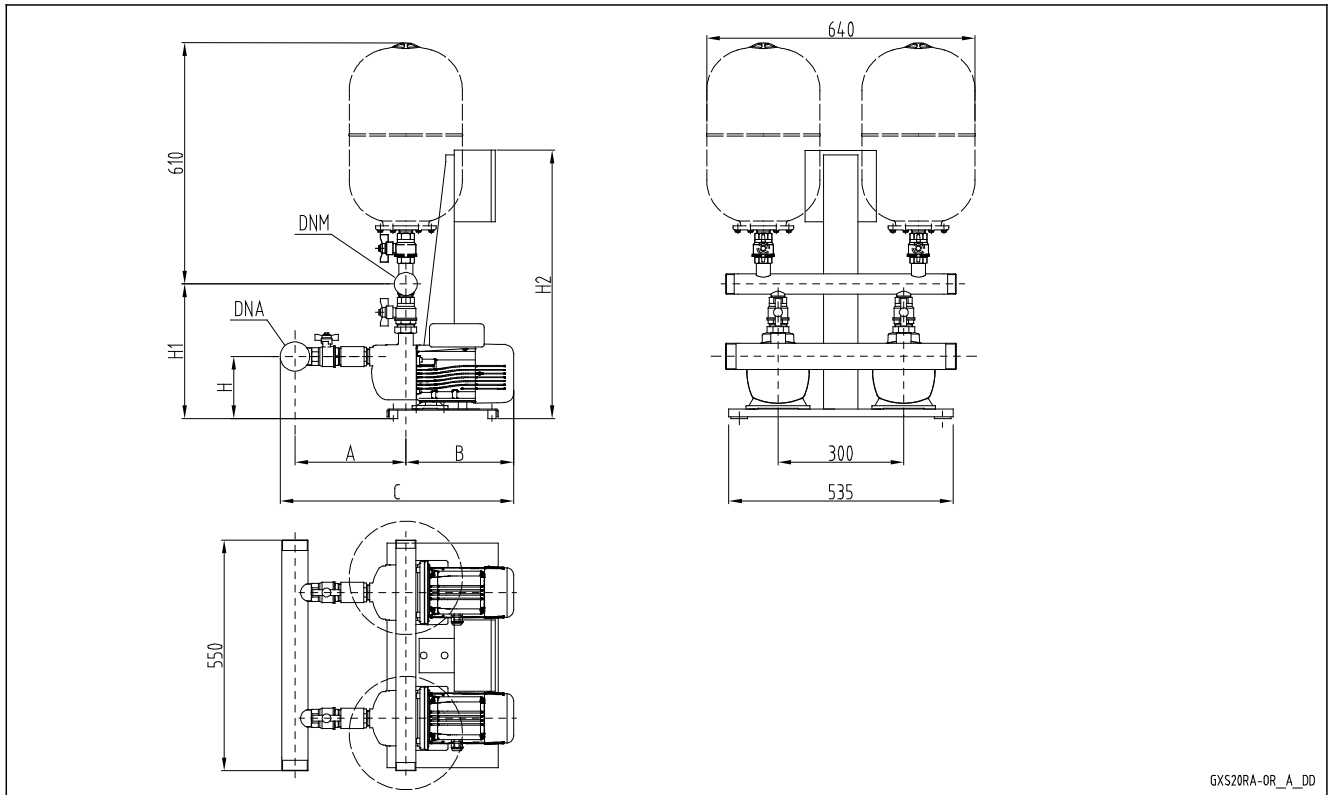
GXS20-OR\_A\_DD

GXS 20	DNA	DNM	A		B	C		H	H1		H2
			STD	AISI		STD	AISI		STD	AISI	
BGM3	R 2"	R 1 1/2"	225	299	297	552	626	189	431	501	640
BGM5	R 2"	R 1 1/2"	225	299	311	566	640	189	431	501	640
BGM7	R 2"	R 1 1/2"	225	299	356	611	685	189	431	501	640
BGM9	R 2"	R 1 1/2"	225	299	356	611	685	189	431	501	640
BGM11	R 2"	R 1 1/2"	225	299	356	611	685	189	431	501	640
CEAM70/3	R 2"	R 1 1/2"	207	281	260	497	571	134	429	499	640
CEAM70/5	R 2"	R 1 1/2"	207	281	274	511	585	134	429	499	640
CEAM80/5	R 2"	R 1 1/2"	207	281	320	557	631	134	429	499	640
CEAM120/3	R 2"	R 2"	207	281	274	511	585	134	453	505	640
CEAM120/5	R 2"	R 2"	220	281	320	570	631	134	453	505	640
CEAM210/2	R 2" 1/2"	R 2" 1/2"	231	318	331	600	687	134	493	602	640
CEAM210/3	R 2" 1/2"	R 2" 1/2"	231	318	331	600	687	134	493	602	640
CEAM210/4	R 2" 1/2"	R 2" 1/2"	231	318	375	644	731	134	493	602	640
CEAM370/1	R 2" 1/2"	R 2" 1/2"	265	318	331	634	687	134	578	602	640
CEAM370/2	R 2" 1/2"	R 2" 1/2"	265	318	375	678	731	134	578	602	640

Dimensions in mm. Tolerance  $\pm$  10 mm.

gxs20\_or-en\_g\_td

## BOOSTER SETS GXS RA SERIES BGM / CEAM HORIZONTAL ELECTRIC PUMPS



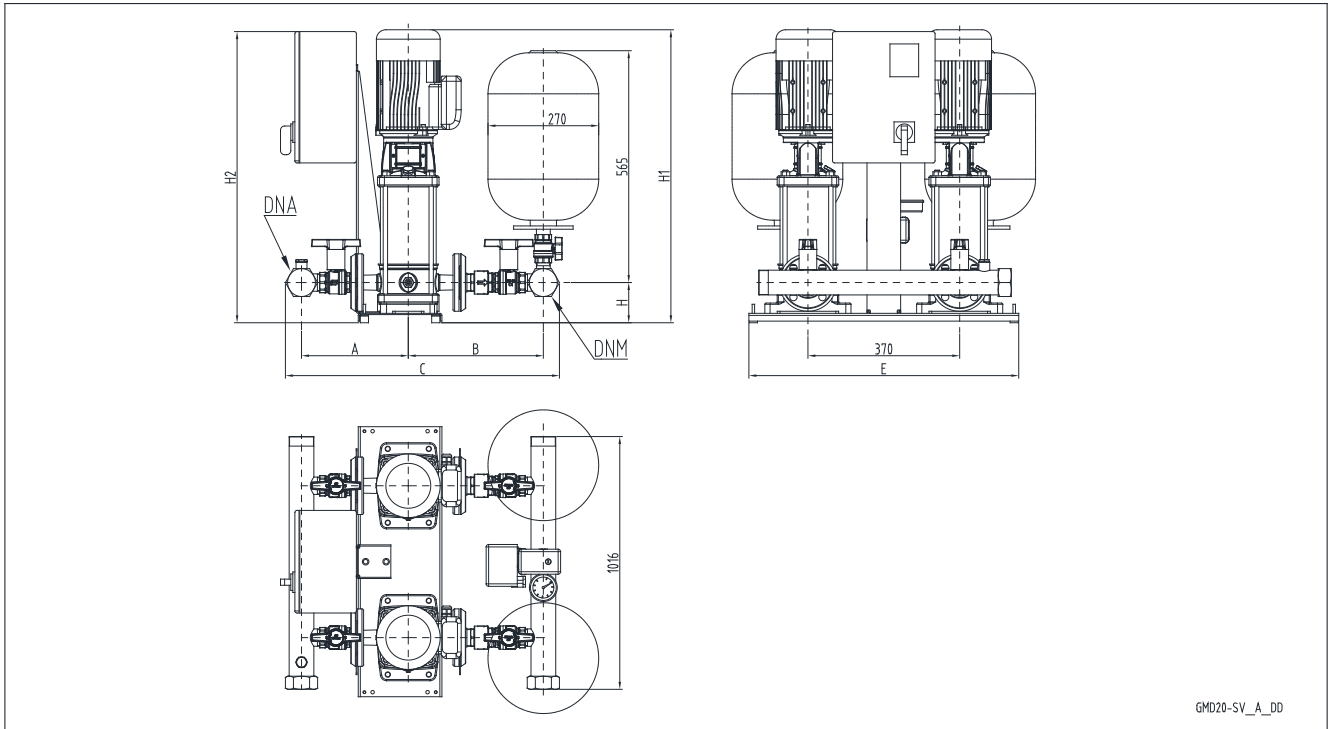
GXS20RA-OR\_A\_DD

GXS 20RA	DNA	DNM	A		B	C		H	H1		H2
			STD	AISI		STD	AISI		STD	AISI	
BGM3	R 2"	R 1 1/2"	277	445	297	604	772	189	376	454	640
BGM5	R 2"	R 1 1/2"	277	445	311	618	786	189	376	454	640
BGM7	R 2"	R 1 1/2"	277	445	356	663	831	189	376	454	640
BGM9	R 2"	R 1 1/2"	277	445	356	663	831	189	376	454	640
BGM11	R 2"	R 1 1/2"	277	445	356	663	831	189	376	454	640
CEAM70/3	R 2"	R 1 1/2"	259	427	260	549	717	134	374	452	640
CEAM70/5	R 2"	R 1 1/2"	259	427	274	563	731	134	374	452	640
CEAM80/5	R 2"	R 1 1/2"	259	427	320	609	777	134	374	452	640
CEAM120/3	R 2"	R 2"	259	427	274	563	731	134	380	458	640
CEAM120/5	R 2"	R 2"	259	427	320	609	777	134	380	458	640
CEAM210/2	R 2" 1/2	R 2 1/2"	288	493	331	657	862	134	409	483	640
CEAM210/3	R 2" 1/2	R 2 1/2"	288	493	331	657	862	134	409	483	640
CEAM210/4	R 2" 1/2	R 2 1/2"	288	493	375	701	906	134	409	483	640
CEAM370/1	R 2" 1/2	R 2 1/2"	395	493	331	764	862	134	409	483	640
CEAM370/2	R 2" 1/2	R 2 1/2"	395	493	375	808	906	134	409	483	640

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20ra\_or-en\_g\_td

## BOOSTER SETS GXS SERIES e-SV HORIZONTAL ELECTRIC PUMPS

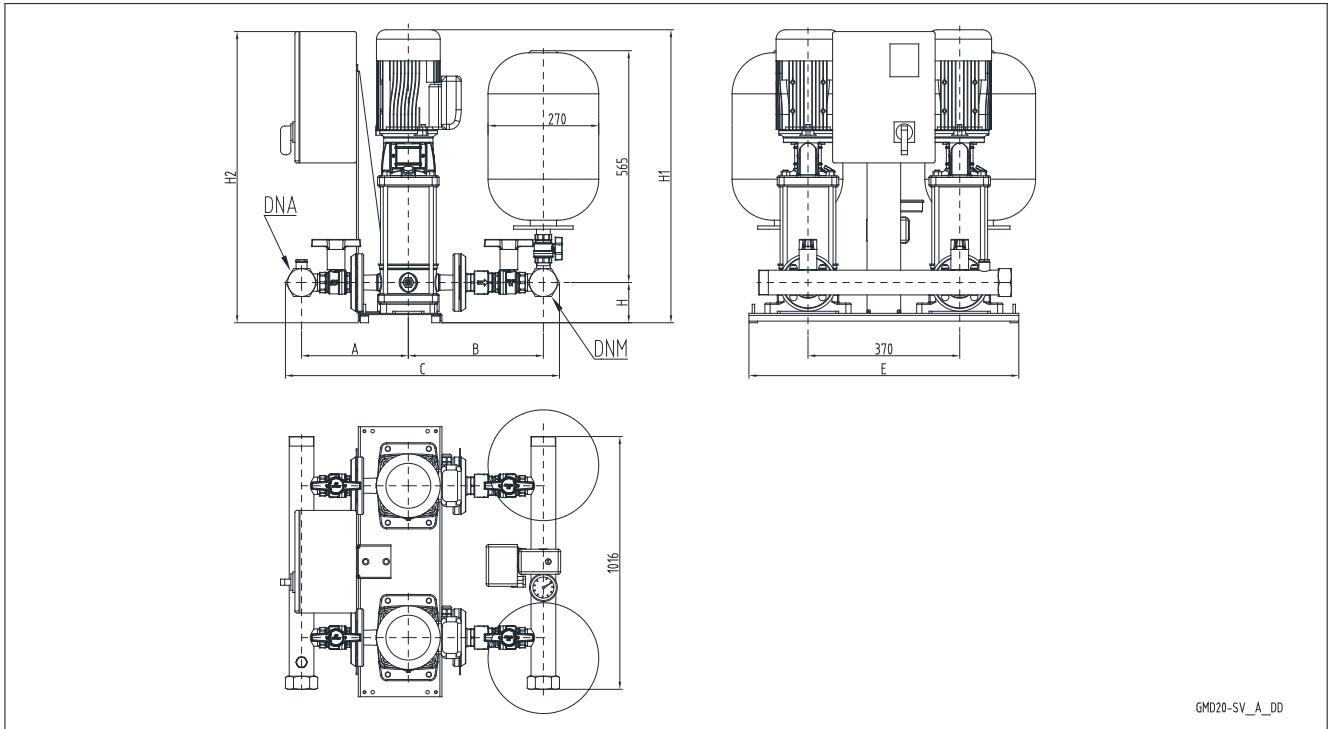


GXS 20	DNA	DNM	A		B		C		E	H	H1	H2
			STD	AISI	STD	AISI	STD	AISI				
3SV02F003M	R 2"	R 2"	256	257	311	363	627	680	658	98	510	629
3SV03F003M	R 2"	R 2"	256	257	311	363	627	680	658	98	510	629
3SV04F003M	R 2"	R 2"	256	257	311	363	627	680	658	98	530	629
3SV05F005M	R 2"	R 2"	256	257	311	363	627	680	658	98	572	629
3SV06F005M	R 2"	R 2"	256	257	311	363	627	680	658	98	592	629
3SV07F007M	R 2"	R 2"	256	257	311	363	627	680	658	98	654	629
3SV08F007M	R 2"	R 2"	256	257	311	363	627	680	658	98	674	629
3SV09F011M	R 2"	R 2"	256	257	311	363	627	680	658	98	694	629
3SV10F011M	R 2"	R 2"	256	257	311	363	627	680	658	98	714	629
3SV11F011M	R 2"	R 2"	256	257	311	363	627	680	658	98	734	629
3SV12F011M	R 2"	R 2"	256	257	311	363	627	680	658	98	754	629
3SV13F015M	R 2"	R 2"	256	257	311	363	627	680	658	98	784	629
3SV14F015M	R 2"	R 2"	256	257	311	363	627	680	658	98	804	629
3SV16F015M	R 2"	R 2"	256	257	311	363	627	680	658	98	844	629
5SV02F003M	R 2"	R 2"	260	267	329	387	649	714	658	98	500	629
5SV03F005M	R 2"	R 2"	260	267	329	387	649	714	658	98	547	629
5SV04F005M	R 2"	R 2"	260	267	329	387	649	714	658	98	572	629
5SV05F007M	R 2"	R 2"	260	267	329	387	649	714	658	98	639	629
5SV06F011M	R 2"	R 2"	260	267	329	387	649	714	658	98	664	629
5SV07F011M	R 2"	R 2"	260	267	329	387	649	714	658	98	689	629
5SV08F011M	R 2"	R 2"	260	267	329	387	649	714	658	98	714	629
5SV09F015M	R 2"	R 2"	260	267	329	387	649	714	658	98	749	629
5SV10F015M	R 2"	R 2"	260	267	329	387	649	714	658	98	774	629
5SV11F015M	R 2"	R 2"	260	267	329	387	649	714	658	98	799	629
10SV01F007M	R 2 1/2"	R 2 1/2"	294	301	356	453	726	830	682	114	654	640
10SV02F007M	R 2 1/2"	R 2 1/2"	294	301	356	453	726	830	682	114	654	640
10SV03F011M	R 2 1/2"	R 2 1/2"	294	301	356	453	726	830	682	114	686	640
10SV04F015M	R 2 1/2"	R 2 1/2"	294	301	356	453	726	830	682	114	728	640

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20\_esv-f-en\_b\_td

## BOOSTER SETS GXS RA SERIES e-SV HORIZONTAL ELECTRIC PUMPS



GMD20-SV\_A\_DD

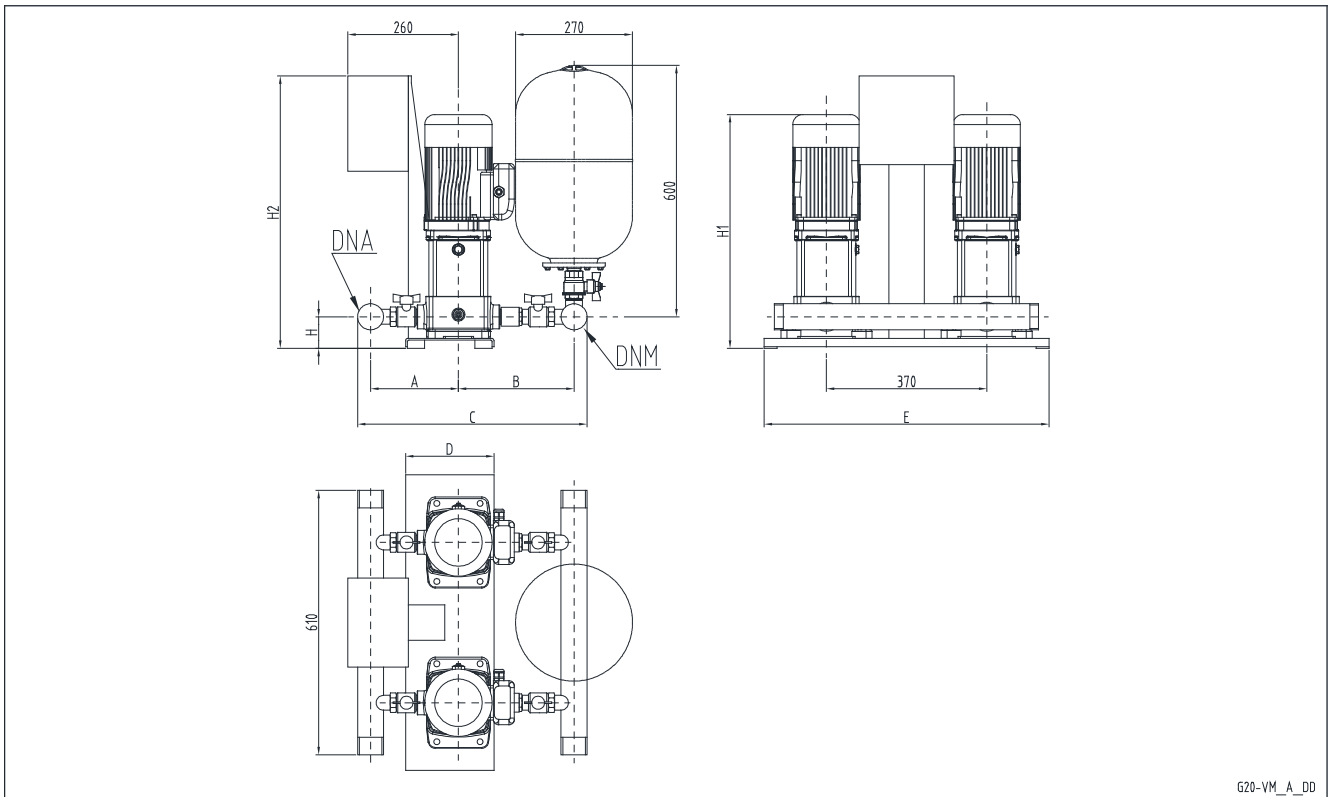
GXS

GXS 20RA	DNA	DNM	A		B		C		E	H	H1	H2
			STD	AISI	STD	AISI	STD	AISI				
3SV02F003M	R 2"	R 2"	304	439	319	301	683	800	658	98	510	629
3SV03F003M	R 2"	R 2"	304	439	319	301	683	800	658	98	510	629
3SV04F003M	R 2"	R 2"	304	439	319	301	683	800	658	98	530	629
3SV05F005M	R 2"	R 2"	304	439	319	301	683	800	658	98	572	629
3SV06F005M	R 2"	R 2"	304	439	319	301	683	800	658	98	592	629
3SV07F007M	R 2"	R 2"	304	439	319	301	683	800	658	98	654	629
3SV08F007M	R 2"	R 2"	304	439	319	301	683	800	658	98	674	629
3SV09F011M	R 2"	R 2"	304	439	319	301	683	800	658	98	694	629
3SV10F011M	R 2"	R 2"	304	439	319	301	683	800	658	98	714	629
3SV11F011M	R 2"	R 2"	304	439	319	301	683	800	658	98	734	629
3SV12F011M	R 2"	R 2"	304	439	319	301	683	800	658	98	754	629
3SV13F015M	R 2"	R 2"	304	439	319	301	683	800	658	98	784	629
3SV14F015M	R 2"	R 2"	304	439	319	301	683	800	658	98	804	629
3SV16F015M	R 2"	R 2"	304	439	319	301	683	800	658	98	844	629
5SV02F003M	R 2"	R 2"	312	458	325	311	697	829	658	98	500	629
5SV03F005M	R 2"	R 2"	312	458	325	311	697	829	658	98	547	629
5SV04F005M	R 2"	R 2"	312	458	325	311	697	829	658	98	572	629
5SV05F007M	R 2"	R 2"	312	458	325	311	697	829	658	98	639	629
5SV06F011M	R 2"	R 2"	312	458	325	311	697	829	658	98	664	629
5SV07F011M	R 2"	R 2"	312	458	325	311	697	829	658	98	689	629
5SV08F011M	R 2"	R 2"	312	458	325	311	697	829	658	98	714	629
5SV09F015M	R 2"	R 2"	312	458	325	311	697	829	658	98	749	629
5SV10F015M	R 2"	R 2"	312	458	325	311	697	829	658	98	774	629
5SV11F015M	R 2"	R 2"	312	458	325	311	697	829	658	98	799	629
10SV01F007M	R 2 1/2"	R 2 1/2"	349	497	357	356	782	929	682	114	654	640
10SV02F007M	R 2 1/2"	R 2 1/2"	349	497	357	356	782	929	682	114	654	640
10SV03F011M	R 2 1/2"	R 2 1/2"	349	497	357	356	782	929	682	114	686	640
10SV04F015M	R 2 1/2"	R 2 1/2"	349	497	357	356	782	929	682	114	728	640

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20ra\_esv-f-en\_b\_td

## BOOSTER SETS GXS SERIES VM VERTICAL ELECTRIC PUMPS



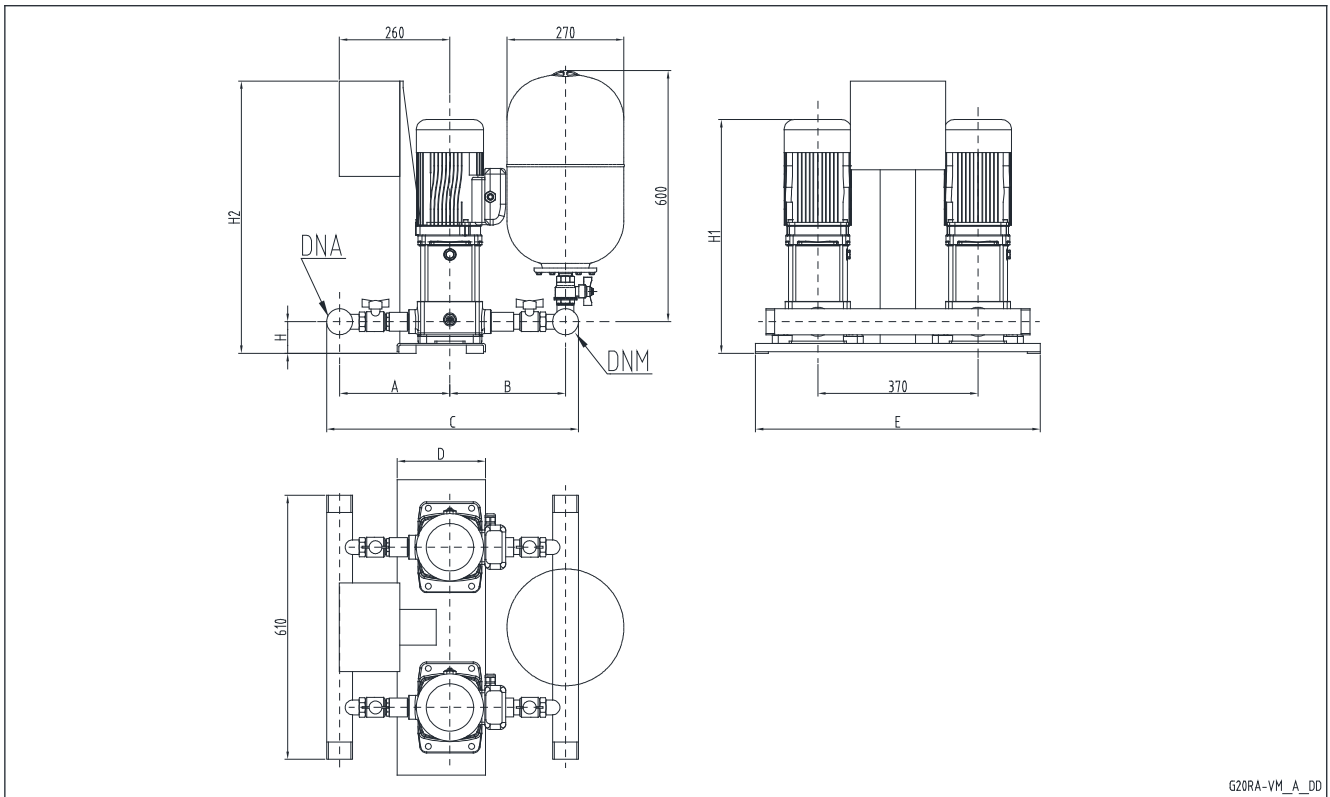
G20-VM\_A\_DD

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

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20\_vm-en\_c\_td

## BOOSTER SETS GXS RASERIES VM VERTICAL ELECTRIC PUMPS



G20RA-VM\_A\_DD

GXS 20RA	DNA	DNM	A		B		C		D	E	H	H1	H2
			STD	AISI	STD	AISI	STD	AISI					
3VM02	R2"	R2"	318	364	232	314	610	738	204	658	73	402	629
3VM03	R2"	R2"	318	364	232	314	610	738	204	658	73	402	629
3VM04	R2"	R2"	318	364	232	314	610	738	204	658	73	422	629
3VM05	R2"	R2"	318	364	232	314	610	738	204	658	73	456	629
3VM06	R2"	R2"	318	364	232	314	610	738	204	658	73	476	629
3VM07	R2"	R2"	318	364	232	314	610	738	204	658	73	496	629
3VM08	R2"	R2"	318	364	232	314	610	738	204	658	73	560	629
5VM02	R2"	R2"	303	379	251	329	614	768	204	658	73	402	629
5VM03	R2"	R2"	303	379	251	329	614	768	204	658	73	402	629
5VM04	R2"	R2"	303	379	251	329	614	768	204	658	73	436	629
5VM05	R2"	R2"	303	379	251	329	614	768	204	658	73	456	629
5VM06	R2"	R2"	303	379	251	329	614	768	204	658	73	520	629
5VM07	R2"	R2"	303	379	251	329	614	768	204	658	73	540	629
5VM08	R2"	R2"	303	379	251	329	614	768	204	658	73	560	629
10VM02	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	535	640
10VM03	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	567	640

Dimensions in mm. Tolerance  $\pm 10$  mm.

gxs20ra\_vm-en\_d\_td





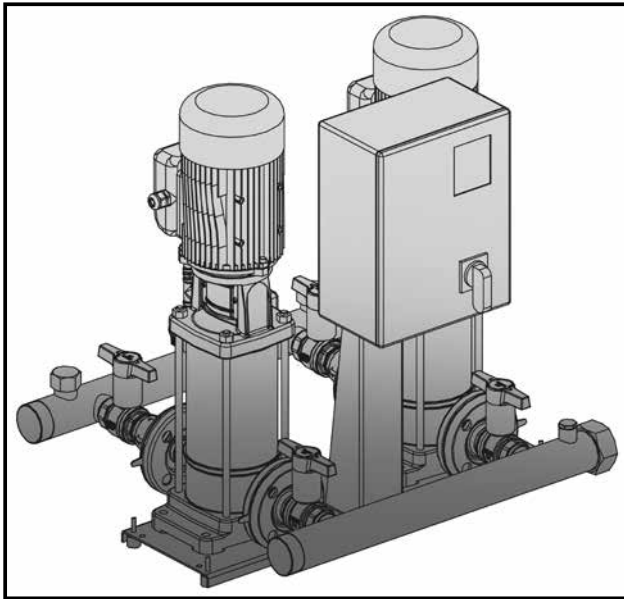
## Booster sets

## MARKET SECTORS CIVIL

### APPLICATIONS

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

## Serie GMD

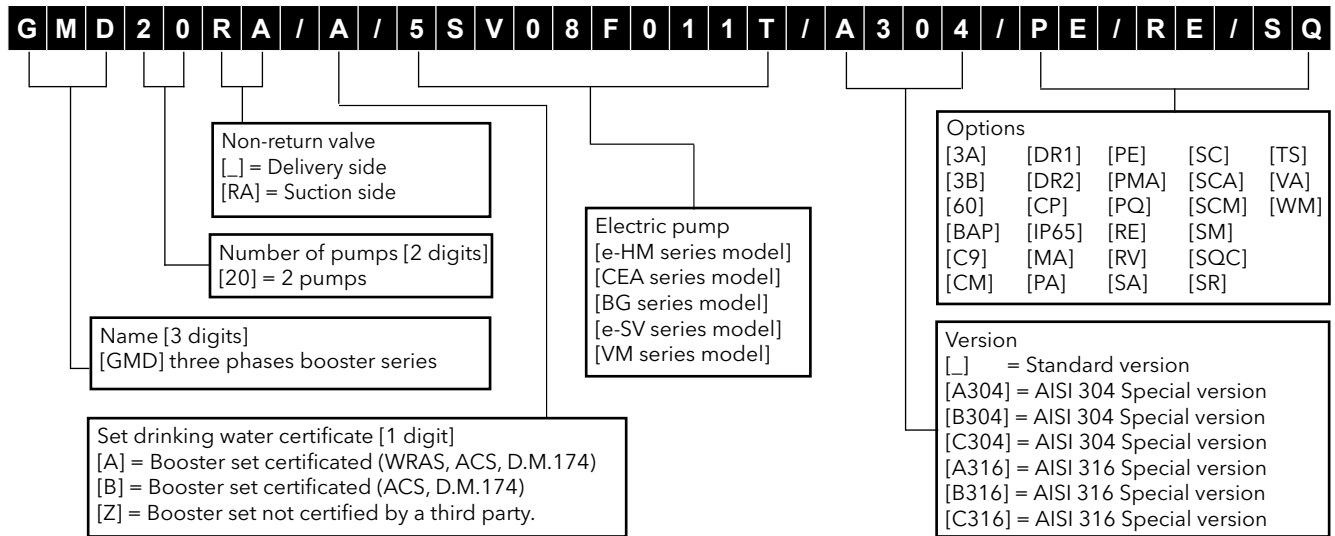


## SPECIFICATIONS

- **Flow rate:**  
up to 62,4 m<sup>3</sup>/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):**  
from -10 to +80° C (per e-HM...P).  
from -10 to +80° C (per e-HM...S).  
from -10 to +80° C (per CEA).  
from -10 to +40° C (per BG).  
from -10 to +80° C (per e-SV).  
from -10 to +80° C (per VM).
- **Horizontal design pump**  
**Maximum operating pressure:**  
10bar for e-HM...P  
16bar for e-HM...S  
8bar for BG and CEA
- **Vertical design pump**  
**Maximum operating pressure:**  
10bar for VM  
16bar for e-SV

**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 GMD SERIES IDENTIFICATION CODE



## VERSIONS AVAILABLE

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

## OPTIONS

- 3A** Set with 1A certified pumps (Factory test report issued from end of line, QH curve included).
- 3B** Set with 1B certified pumps (Test bulletin issued by Sala Audit (Audit Room); it includes QH curve, output and power).
- 60** Booster sets frequency of functioning 60 Hz, electric pump with 60Hz motor.
- BAP** Pressure switch for high pressure installed on the delivery manifold.
- C9** Delivery manifold turned by 90°, curves. It is not possible to install expansion vessels directly on the manifold.
- CM** Suction or delivery manifold larger than standard size.
- DR1** Set with 1 optical sensor for lack/presence of water, installed on the suction manifold.
- DR2** Set with 2 optical sensors for lack/presence of water (fixed to each pump).
- CP** Dry contact version: power line, Automatic / Manual mode, Run/Stop pomp 1 / pomp 2, thermal block, livell.
- IP65** IP65 version control panel.
- MA** Pressure gauge installed on suction manifold.
- PA** Minimum pressure pressure switch on the suction manifold, for protection against dry running.
- PE** Control panel with emergency button.
- PMA** Minimum pressure pressure switch and vacuum pressure gauge for protection against dry running, installed on the suction manifold.
- PQ** Set for aqueduct installation (with pressure gauge/ pressure switches/transmitters oversized by one size).
- RE** Heaters inside the control panel, with thermostat.
- RV** Electric panel with phase sequence, phase loss, over- and undervoltage and phase unbalance.
- 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 switches.
- SR** Without non-return valve.
- TS** Set with electric pumps with special seals.
- VA** Electric control panel fitted with analogue voltmeter and ammeter.
- WM** Wall mounted control panel; cables L=5m.

## BOOSTER SETS GMD SERIES CONTROL PANEL

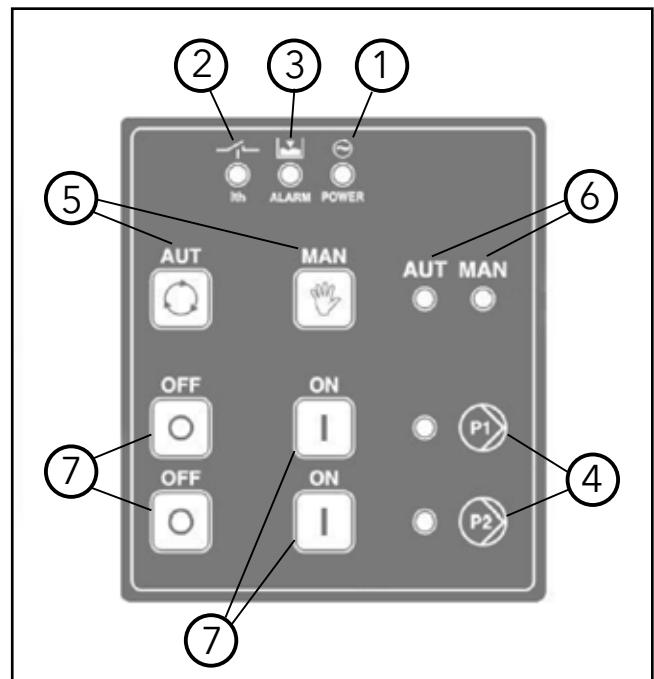
Electric panel, three-phase power supply, for controlling and protecting up to two three-phase electric pumps, with case made from sheet steel (fig. 1) and protected to IP54.

Caratteristiche principali:

- 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%, 50/60Hz. Non standard voltages on request, 3x230Vac +/-10%, 3x440Vac +/-10%, 3x460Vac +/-10%, 3x480Vac +/-10%, 50/60Hz.
- Transformer for low voltage auxiliary circuit; auxiliary voltage 24 Vac.
- Lowara SM20 digital control unit (see fig. 2), 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.



Fig.1 - QMD electrical panel



## **BOOSTER SETS GMD SERIES MAIN COMPONENTS**

- **Main On-off valves** on suction and discharge side of each pump, ball type.
- **Check valve** on discharge side of each pump, spring-loaded type.
- **Suction manifold** with threaded ends. Threaded coupling for water charging.
- **Delivery manifold** made of galvanized or AISI 304 stainless steel with threaded ends. Fitted with R1" threaded couplings with caps to allow connection of 24 or 20-litre diaphragm pressure vessels.
- **Pressure gauge and pressure switch** located on the delivery side of the unit.
- **Electric control panel.**
- **Various couplings** depending on the version.
- **Mounting base**, for pumpset 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

Available in Z version.

### **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.

## 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/flanges	AISI 304 / 316	AISI 304 / 316	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

g\_wad\_3-22sv-en\_a\_tm

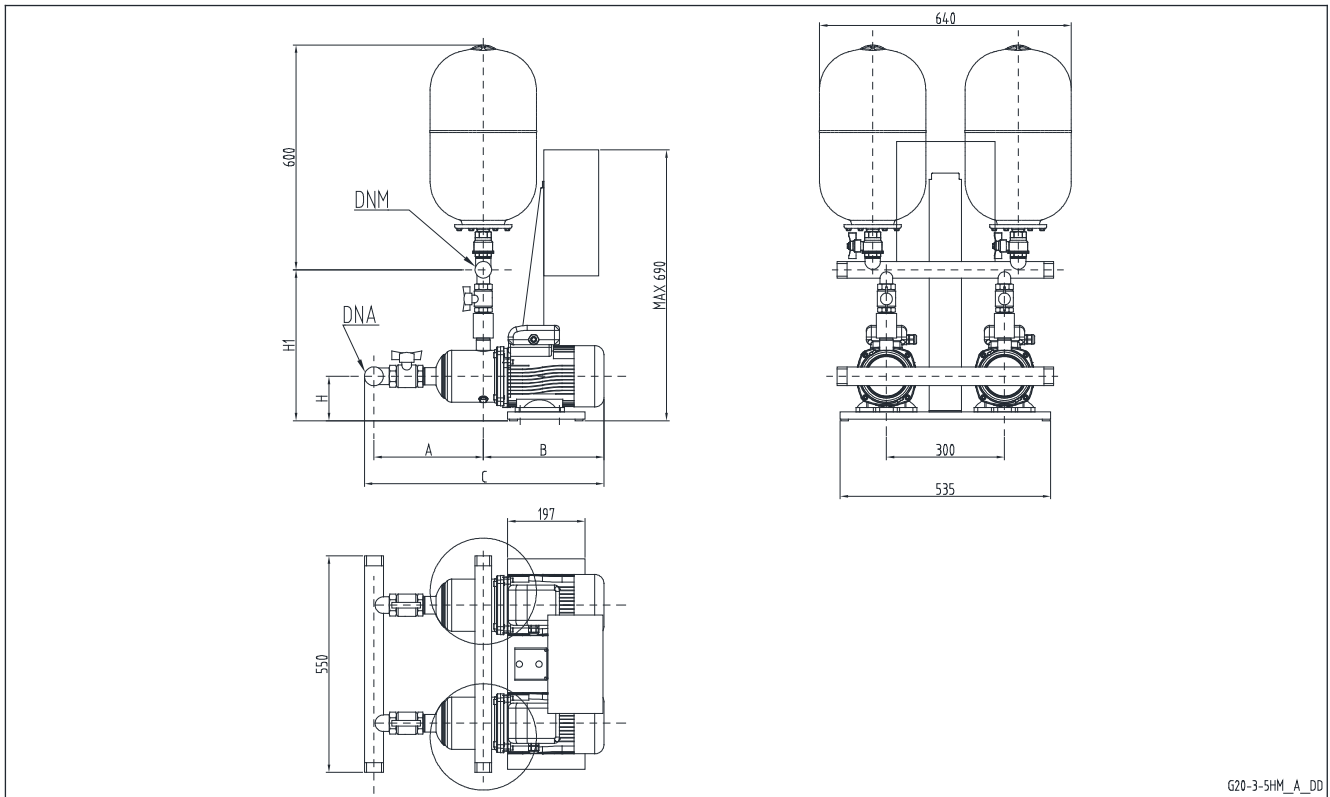
## BOOSTER SETS GMD SERIES OPERATING CHARACTERISTICS AND LIMITS

Permitted liquids	Water without gases and corrosive and/or aggressive substances.
Fluid temperature	-10°C to + 80 °C
Ambient temperature	0°C to + 40 °C
Maximum operating pressure*	Max 16 bar
Minimum input pressure	In line with the NPSH curve and the losses, with a margin of at least 0,5 m
Maximum input pressure	The input pressure added to the pump pressure without flow must be lower than the maximum operating pressure of the set.
Installation	Internal environment protected from atmospheric agents. Away from heat sources. Max altitude 1000 a.s.l. Max humidity 50%, without condensation.
Sound emission	See table

\* Higher PN available on request depending on pump type

smb\_2p-en\_a\_ti

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

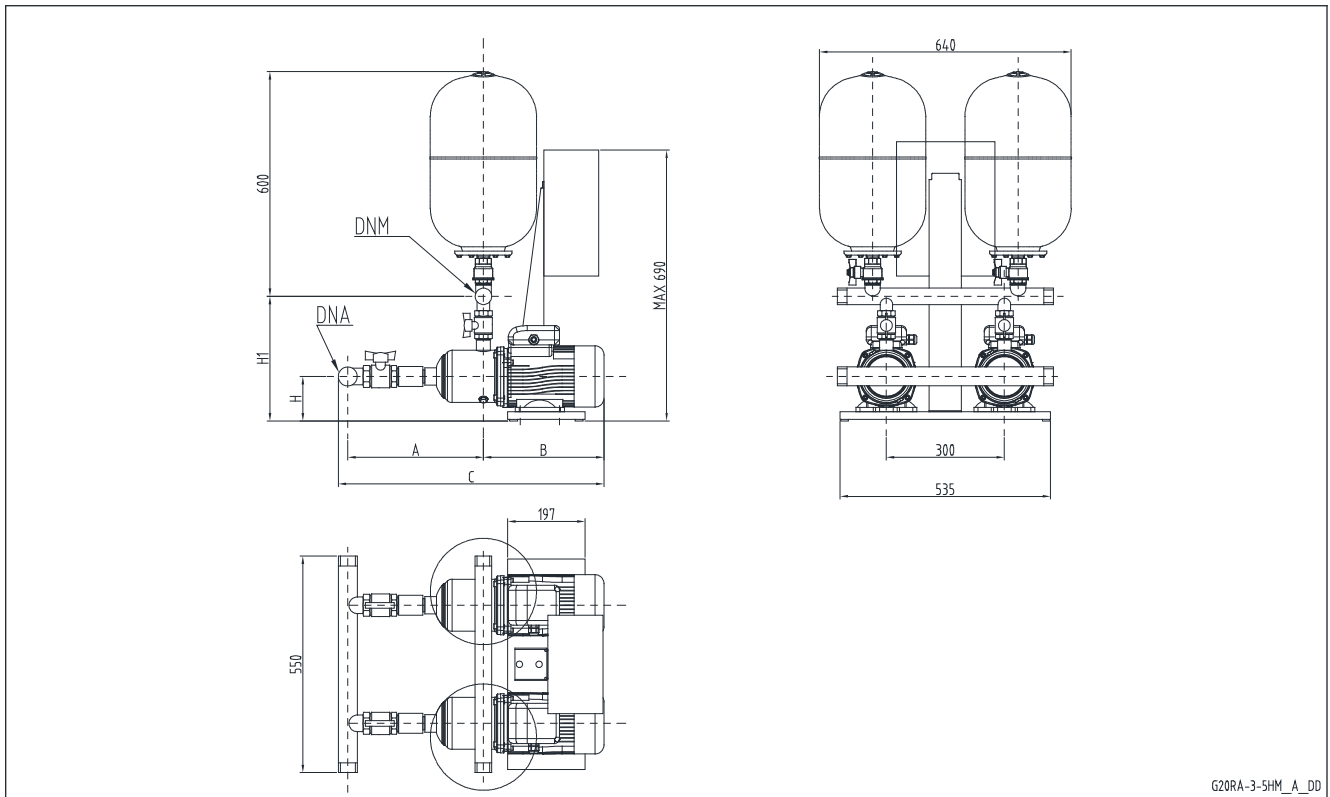


GMD 20	DNA	DNM	A		B	C		H	H1	
			STD	AISI		STD	AISI		STD	AISI
3HM02	R 2"	R 2"	224	236	249	503	515	113	398	530
3HM03	R 2"	R 2"	224	236	249	503	515	113	398	530
3HM04	R 2"	R 2"	244	256	249	523	535	113	398	530
3HM05	R 2"	R 2"	264	276	308	602	614	113	398	530
3HM06	R 2"	R 2"	284	296	308	622	634	113	398	530
5HM02	R 2"	R 2"	245	248	249	524	527	113	398	530
5HM03	R 2"	R 2"	245	248	249	524	527	113	398	530
5HM04	R 2"	R 2"	265	268	308	603	606	113	398	530
5HM05	R 2"	R 2"	285	288	308	623	626	113	398	530
5HM06	R 2"	R 2"	305	308	308	643	646	113	398	530

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20\_3-5hm\_en\_b\_td

## BOOSTER SETS GMD RA SERIES HM..P HORIZONTAL ELECTRIC PUMPS



G20RA-3-5HM\_A\_DD

GMD 20RA	DNA	DNM	A		B	C		H	H1	
			STD	AISI		STD	AISI		STD	AISI
3HM02	R 2"	R 2"	252	439	249	531	718	113	343	355
3HM03	R 2"	R 2"	252	439	249	531	718	113	343	355
3HM04	R 2"	R 2"	272	459	249	551	738	113	343	355
3HM05	R 2"	R 2"	292	479	308	630	817	113	343	355
3HM06	R 2"	R 2"	312	499	308	650	837	113	343	355
5HM02	R 2"	R 2"	297	470	249	576	749	113	343	355
5HM03	R 2"	R 2"	297	470	249	576	749	113	343	355
5HM04	R 2"	R 2"	317	490	308	655	828	113	343	355
5HM05	R 2"	R 2"	337	510	308	675	848	113	343	355
5HM06	R 2"	R 2"	357	530	308	695	868	113	343	355

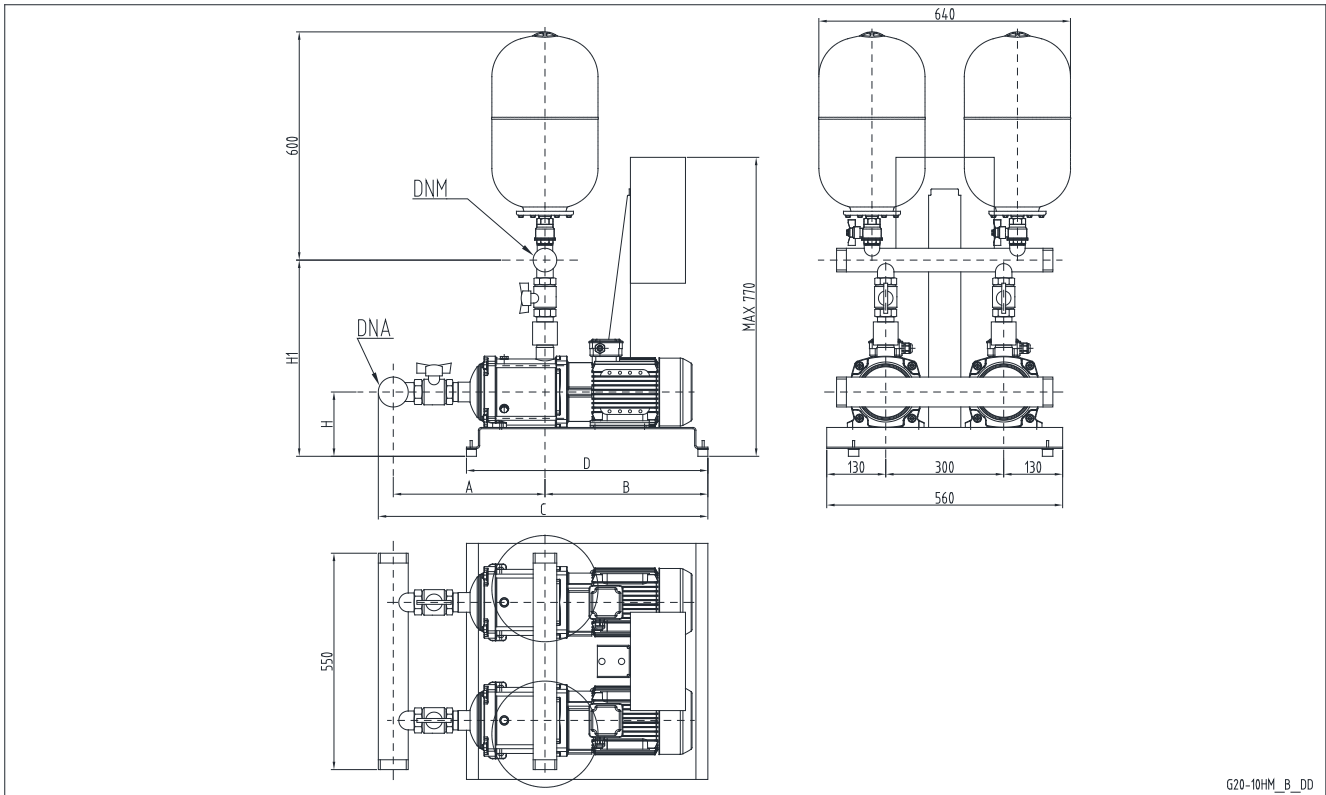
Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20ra\_3-5hm\_en\_b\_td

**GMD**



**BOOSTER SETS GMD SERIES  
HM..P HORIZONTAL ELECTRIC PUMPS**



G20-10HM\_B\_DD

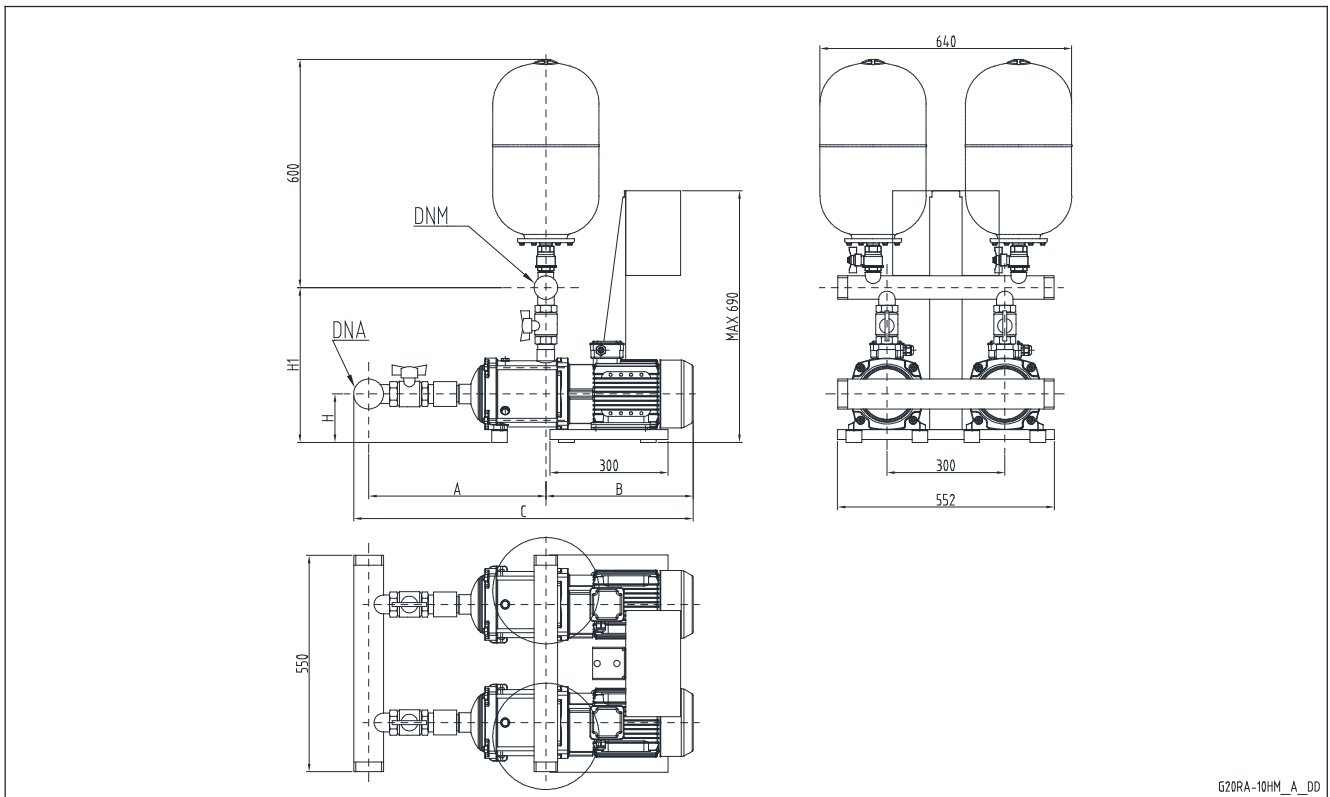
GMD 20	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
10HM02	R 2"1/2	R 2"1/2	302	309	354	694	701	590	205	547	680
10HM03	R 2"1/2	R 2"1/2	302	309	354	694	701	590	205	547	680
10HM04	R 2"1/2	R 2"1/2	334	341	390	762	769	590	205	547	680
10HM05	R 2"1/2	R 2"1/2	366	373	390	794	801	590	205	547	680
10HM06	R 2"1/2	R 2"1/2	398	405	390	826	833	590	205	547	680

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20\_10hm\_en\_b\_td

**GMD**

**BOOSTER SETS GMD RA SERIES  
HM..P HORIZONTAL ELECTRIC PUMPS**



G20RA-10HM\_A\_DD

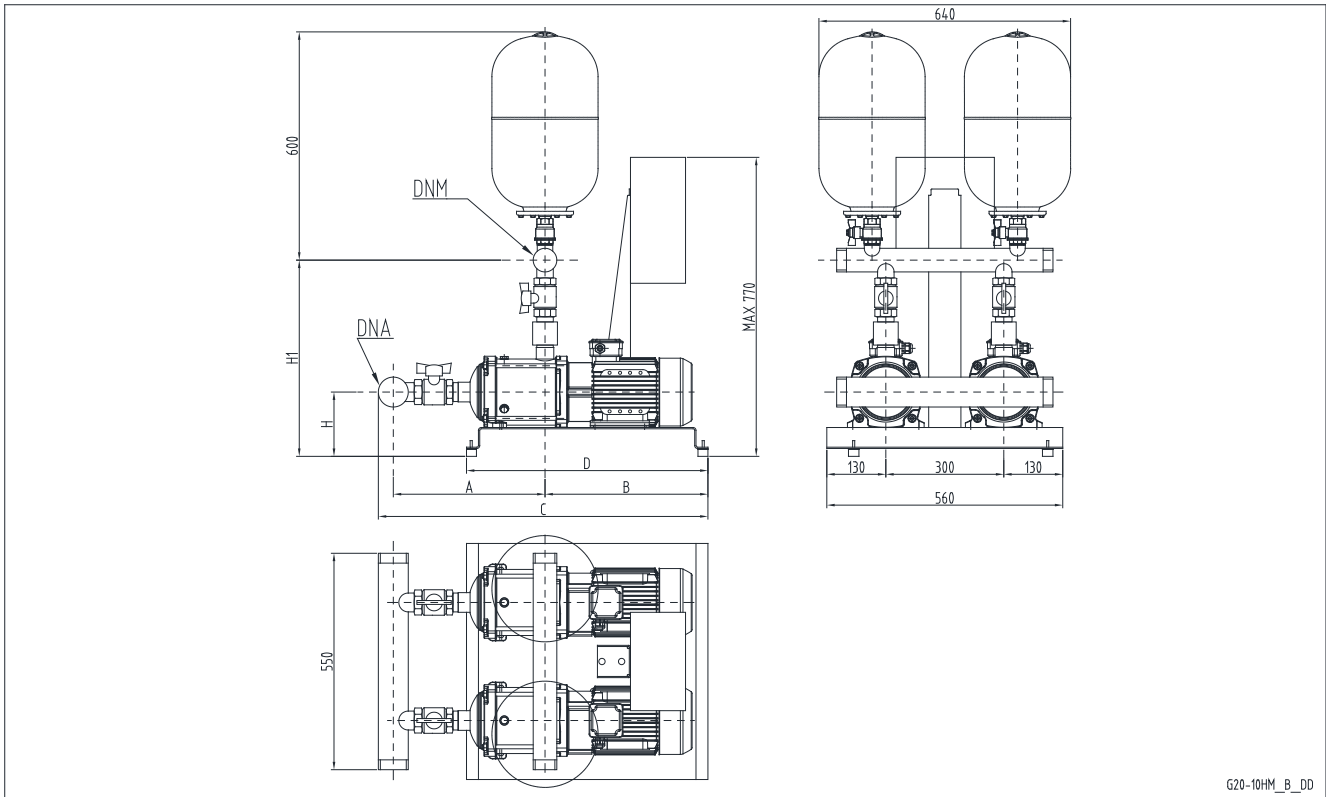
**GMD**

GMD 20RA	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
10HM02	R 2"1/2	R 2"1/2	357	554	354	749	946	590	205	482	485
10HM03	R 2"1/2	R 2"1/2	357	554	354	749	946	590	205	482	485
10HM04	R 2"1/2	R 2"1/2	389	586	390	817	1014	590	205	482	485
10HM05	R 2"1/2	R 2"1/2	421	618	390	849	1046	590	205	482	485
10HM06	R 2"1/2	R 2"1/2	453	650	390	881	1078	590	205	482	485

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20ra\_10hm\_en\_b\_td

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



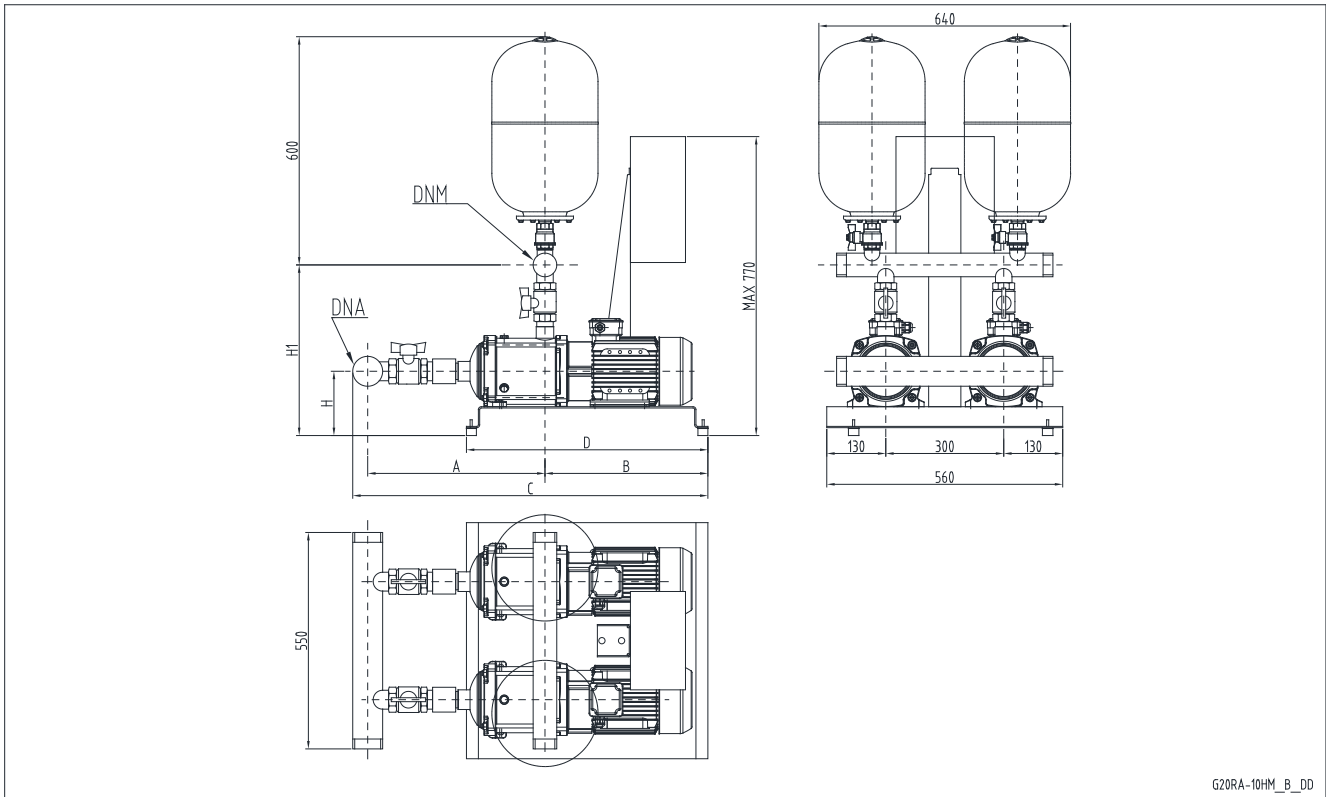
G20-10HM\_B\_DD

GMD 20	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
3HM10	R 2"	R 2"	348	360	354	732	744	590	205	490	622
3HM11	R 2"	R 2"	368	380	354	752	764	590	205	490	622
3HM12	R 2"	R 2"	388	400	354	772	784	590	205	490	622
3HM13	R 2"	R 2"	408	420	354	792	804	762	205	490	622
3HM14	R 2"	R 2"	428	440	354	812	824	762	205	490	622
3HM16	R 2"	R 2"	468	480	354	852	864	762	205	490	622
3HM17	R 2"	R 2"	488	500	354	872	884	762	205	490	622
3HM19	R 2"	R 2"	528	540	377	935	947	762	205	490	622
3HM21	R 2"	R 2"	568	580	390	988	1000	902	205	490	622
5HM09	R 2"	R 2"	389	392	354	773	776	590	205	490	622
5HM10	R 2"	R 2"	414	417	354	798	801	762	205	490	622
5HM11	R 2"	R 2"	439	442	354	823	826	762	205	490	622
5HM12	R 2"	R 2"	464	467	390	884	887	762	205	490	622
5HM13	R 2"	R 2"	489	492	390	909	912	762	205	490	622
5HM14	R 2"	R 2"	514	517	390	934	937	762	205	490	622
5HM15	R 2"	R 2"	539	542	390	959	962	762	205	490	622
5HM17	R 2"	R 2"	589	592	390	1009	1012	902	205	490	622
5HM19	R 2"	R 2"	639	642	390	1059	1062	902	205	490	622
5HM21	R 2"	R 2"	689	692	390	1109	1112	902	205	490	622
10HM07	R 2 1/2"	R 2 1/2"	430	437	390	858	865	762	205	547	680
10HM08	R 2 1/2"	R 2 1/2"	462	469	390	890	897	762	205	547	680
10HM09	R 2 1/2"	R 2 1/2"	494	501	417	949	956	762	215	557	690
10HM10	R 2 1/2"	R 2 1/2"	526	533	417	981	988	762	215	557	690
10HM11	R 2 1/2"	R 2 1/2"	558	565	417	1013	1020	902	215	557	690
15HM02	R 3"	R 3"	362	444	371	777	859	590	205	651	735
15HM03	R 3"	R 3"	362	444	407	813	895	590	205	651	735
15HM04	R 3"	R 3"	410	492	407	861	943	590	205	651	735
15HM05	R 3"	R 3"	458	540	433	935	1017	590	215	661	745
22HM02	R 3"	R 3"	362	444	414	820	902	590	205	651	735
22HM03	R 3"	R 3"	362	444	414	820	902	590	205	651	735
22HM04	R 3"	R 3"	410	492	433	887	969	762	215	661	745

Dimensions in mm. Tolerance ± 10 mm.

gmd20\_3-22hms-en\_c\_td

## BOOSTER SETS GMD RA SERIES HM..S HORIZONTAL ELECTRIC PUMPS



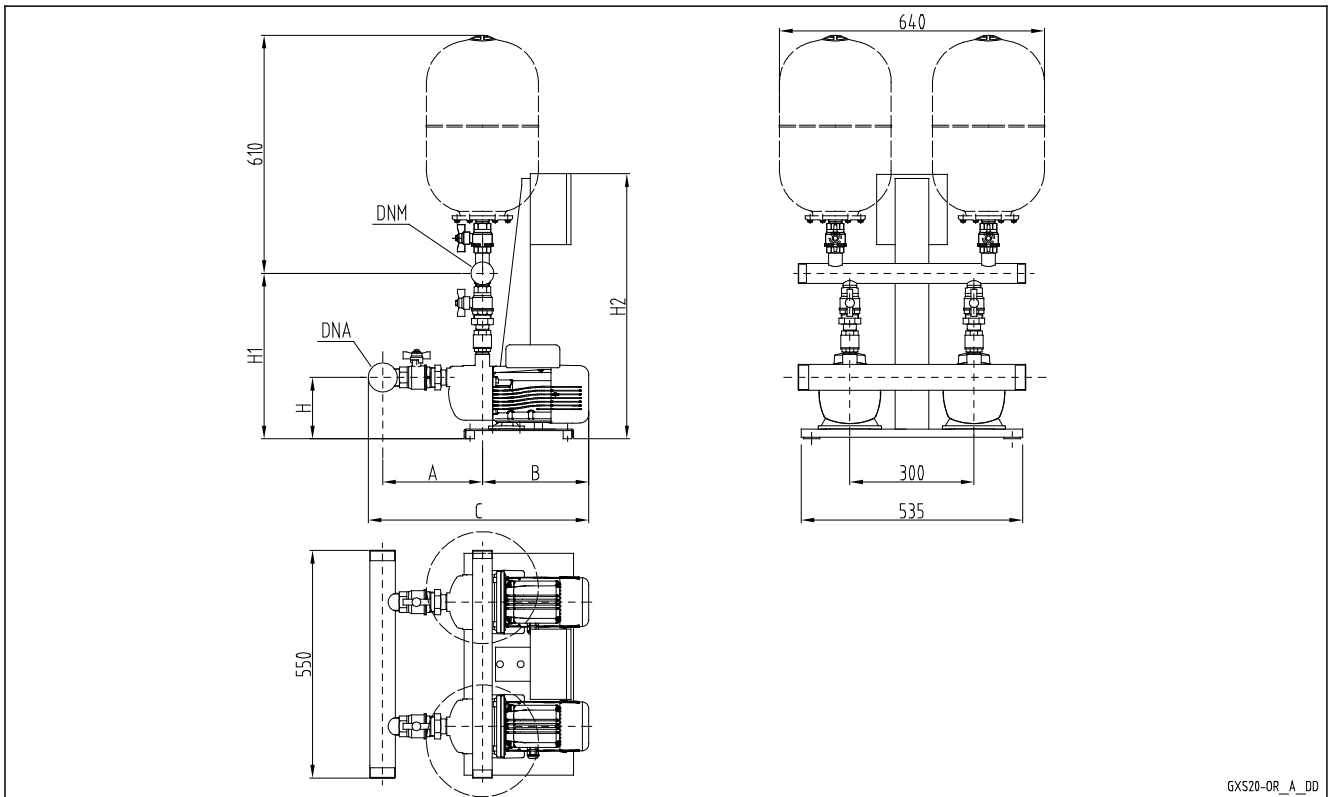
G20RA-10HM\_B\_DD

GMD 20RA	DNA	DNM	A		B	C		D	H	H1	
			STD	AISI		STD	AISI			STD	AISI
3HM10	R 2"	R 2"	376	563	354	760	947	590	205	435	447
3HM11	R 2"	R 2"	454	583	354	838	967	590	205	435	447
3HM12	R 2"	R 2"	474	603	354	858	987	590	205	435	447
3HM13	R 2"	R 2"	494	623	354	878	1007	762	205	435	447
3HM14	R 2"	R 2"	514	643	354	898	1027	762	205	435	447
3HM16	R 2"	R 2"	554	683	354	938	1067	762	205	435	447
3HM17	R 2"	R 2"	574	703	354	958	1087	762	205	435	447
3HM19	R 2"	R 2"	614	743	377	1021	1150	762	205	435	447
3HM21	R 2"	R 2"	654	783	390	1074	1203	902	205	435	447
5HM09	R 2"	R 2"	441	614	354	825	998	590	205	435	447
5HM10	R 2"	R 2"	466	639	354	850	1023	762	205	435	447
5HM11	R 2"	R 2"	491	664	354	875	1048	762	205	435	447
5HM12	R 2"	R 2"	516	689	390	936	1109	762	205	435	447
5HM13	R 2"	R 2"	541	714	390	961	1134	762	205	435	447
5HM14	R 2"	R 2"	566	739	390	986	1159	762	205	435	447
5HM15	R 2"	R 2"	591	764	390	1011	1184	762	205	435	447
5HM17	R 2"	R 2"	641	814	390	1061	1234	902	205	435	447
5HM19	R 2"	R 2"	691	864	390	1111	1284	902	205	435	447
5HM21	R 2"	R 2"	741	914	390	1161	1334	902	205	435	447
10HM07	R 2 1/2"	R 2 1/2"	485	682	390	913	1110	762	205	482	485
10HM08	R 2 1/2"	R 2 1/2"	517	714	390	945	1142	762	205	482	485
10HM09	R 2 1/2"	R 2 1/2"	549	746	417	1004	1201	762	215	492	495
10HM10	R 2 1/2"	R 2 1/2"	581	778	417	1036	1233	762	215	492	495
10HM11	R 2 1/2"	R 2 1/2"	613	810	417	1068	1265	902	215	492	495
15HM02	R3"	R3"	499	604	371	914	1019	590	205	493	589
15HM03	R3"	R3"	499	604	407	950	1055	590	205	493	589
15HM04	R3"	R3"	547	652	407	998	1103	590	205	493	589
15HM05	R3"	R3"	595	700	433	1072	1177	590	215	503	599
22HM02	R3"	R3"	499	604	414	957	1062	590	205	493	589
22HM03	R3"	R3"	499	604	414	957	1062	590	205	493	589
22HM04	R3"	R3"	547	652	433	1024	1129	762	215	503	599

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20ra\_3-22hms\_en\_b\_td

## BOOSTER SETS GMD SERIES BG AND CEA HORIZONTAL ELECTRIC PUMPS

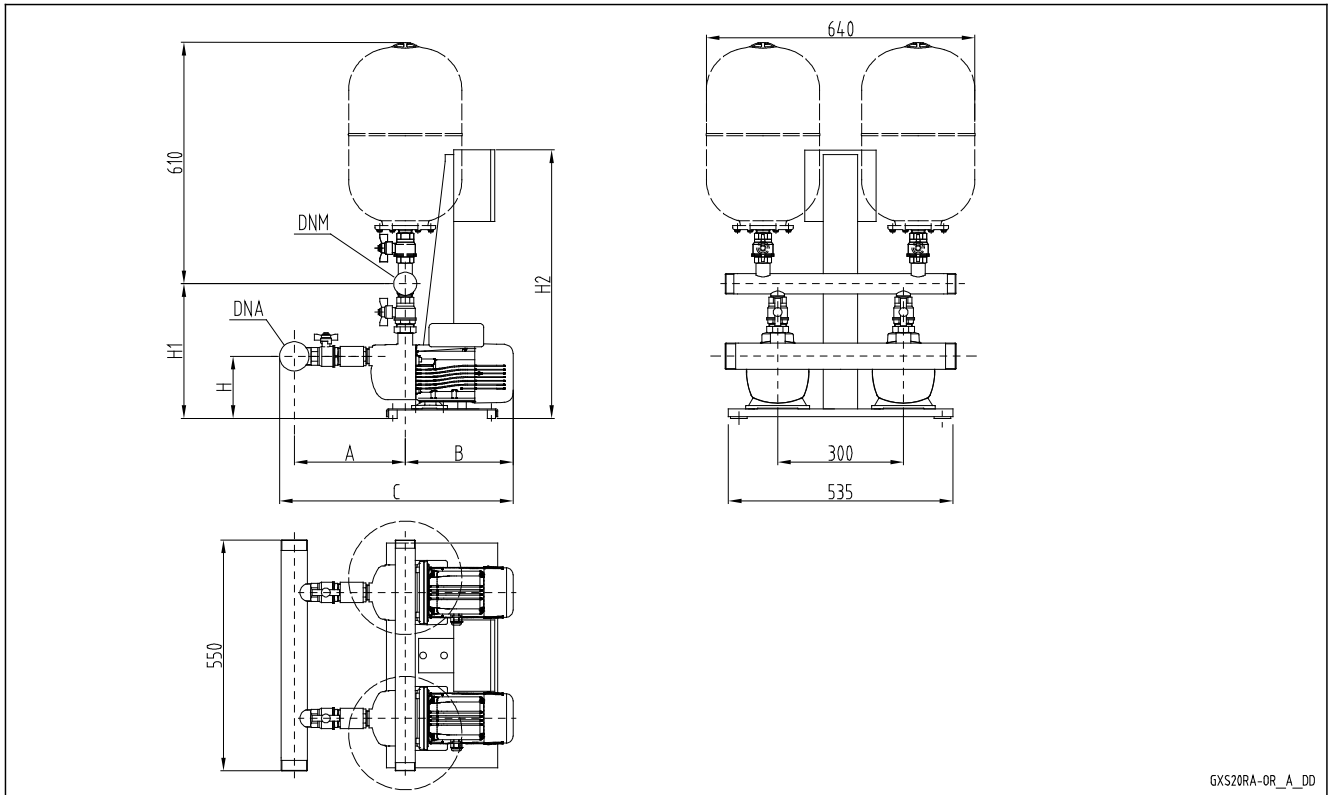


GMD 20	DNA	DNM	A		B	C		H	H1		H2
			STD	AISI		STD	AISI		STD	AISI	
BG3	R 2"	R 1 1/2"	225	299	297	552	626	189	431	501	640
BG5	R 2"	R 1 1/2"	225	299	311	566	640	189	431	501	640
BG7	R 2"	R 1 1/2"	225	299	356	611	685	189	431	501	640
BG9	R 2"	R 1 1/2"	225	299	356	611	685	189	431	501	640
BG11	R 2"	R 1 1/2"	225	299	356	611	685	189	431	501	640
CEA70/3	R 2"	R 1 1/2"	207	281	260	497	571	134	429	499	640
CEA70/5	R 2"	R 1 1/2"	207	281	274	511	585	134	429	499	640
CEA80/5	R 2"	R 1 1/2"	207	281	320	557	631	134	429	499	640
CEA120/3	R 2"	R 2"	207	281	274	511	585	134	453	505	640
CEA120/5	R 2"	R 2"	220	281	320	570	631	134	453	505	640
CEA210/2	R 2" 1/2"	R 2" 1/2"	231	318	331	600	687	134	493	602	640
CEA210/3	R 2" 1/2"	R 2" 1/2"	231	318	331	600	687	134	493	602	640
CEA210/4	R 2" 1/2"	R 2" 1/2"	231	318	375	644	731	134	493	602	640
CEA210/5	R 2" 1/2"	R 2" 1/2"	231	318	375	644	731	134	493	602	640
CEA370/1	R 2" 1/2"	R 2" 1/2"	265	318	331	634	687	134	578	602	640
CEA370/2	R 2" 1/2"	R 2" 1/2"	265	318	375	678	731	134	578	602	640
CEA370/3	R 2" 1/2"	R 2" 1/2"	265	318	375	678	731	134	578	602	640
CEA370/5	R 2" 1/2"	R 2" 1/2"	265	318	375	678	731	134	578	602	640

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20\_or-en\_g\_td

## BOOSTER SETS GMD RA SERIES BG AND CEA HORIZONTAL ELECTRIC PUMPS



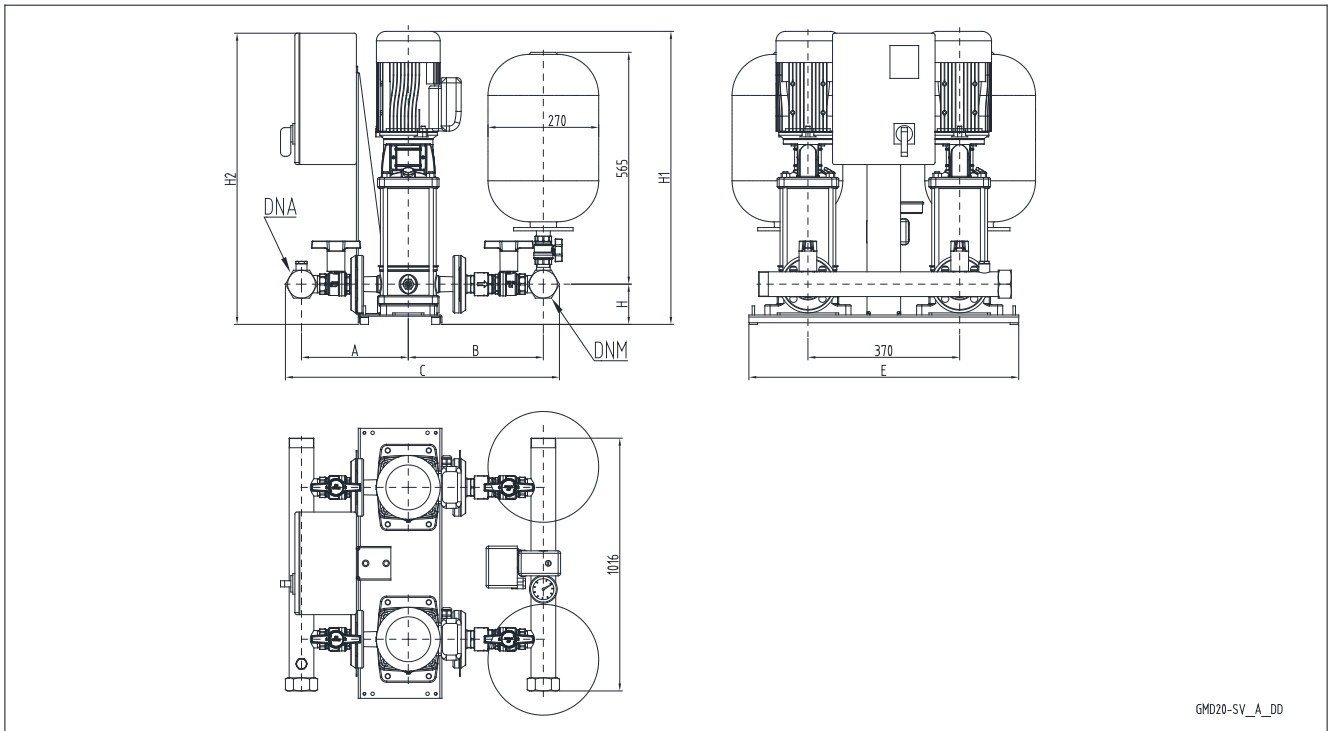
GX520RA-OR\_A\_DD

GMD 20RA	DNA	DNM	A		B	C		H	H1		H2
			STD	AISI		STD	AISI		STD	AISI	
BG3	R 2"	R 1 1/2"	277	445	297	604	772	189	376	454	640
BG5	R 2"	R 1 1/2"	277	445	311	618	786	189	376	454	640
BG7	R 2"	R 1 1/2"	277	445	356	663	831	189	376	454	640
BG9	R 2"	R 1 1/2"	277	445	356	663	831	189	376	454	640
BG11	R 2"	R 1 1/2"	277	445	356	663	831	189	376	454	640
CEA70/3	R 2"	R 1 1/2"	259	427	260	549	717	134	374	452	640
CEA70/5	R 2"	R 1 1/2"	259	427	274	563	731	134	374	452	640
CEA80/5	R 2"	R 1 1/2"	259	427	320	609	777	134	374	452	640
CEA120/3	R 2"	R 2"	259	427	274	563	731	134	380	458	640
CEA120/5	R 2"	R 2"	259	427	320	609	777	134	380	458	640
CEA210/2	R 2" 1/2	R 2" 1/2	288	493	331	657	862	134	409	483	640
CEA210/3	R 2" 1/2	R 2" 1/2	288	493	331	657	862	134	409	483	640
CEA210/4	R 2" 1/2	R 2" 1/2	288	493	375	701	906	134	409	483	640
CEA210/5	R 2" 1/2	R 2" 1/2	288	493	375	701	906	134	409	483	640
CEA370/1	R 2" 1/2	R 2" 1/2	395	493	331	764	862	134	409	483	640
CEA370/2	R 2" 1/2	R 2" 1/2	395	493	375	808	906	134	409	483	640
CEA370/3	R 2" 1/2	R 2" 1/2	395	493	375	808	906	134	409	483	640
CEA370/5	R 2" 1/2	R 2" 1/2	395	493	375	808	906	134	409	483	640

Dimensioni in mm. Tolleranza  $\pm 10$  mm.

gmd20ra\_or-en\_h\_ttd

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



GMD20-SV\_A\_DD

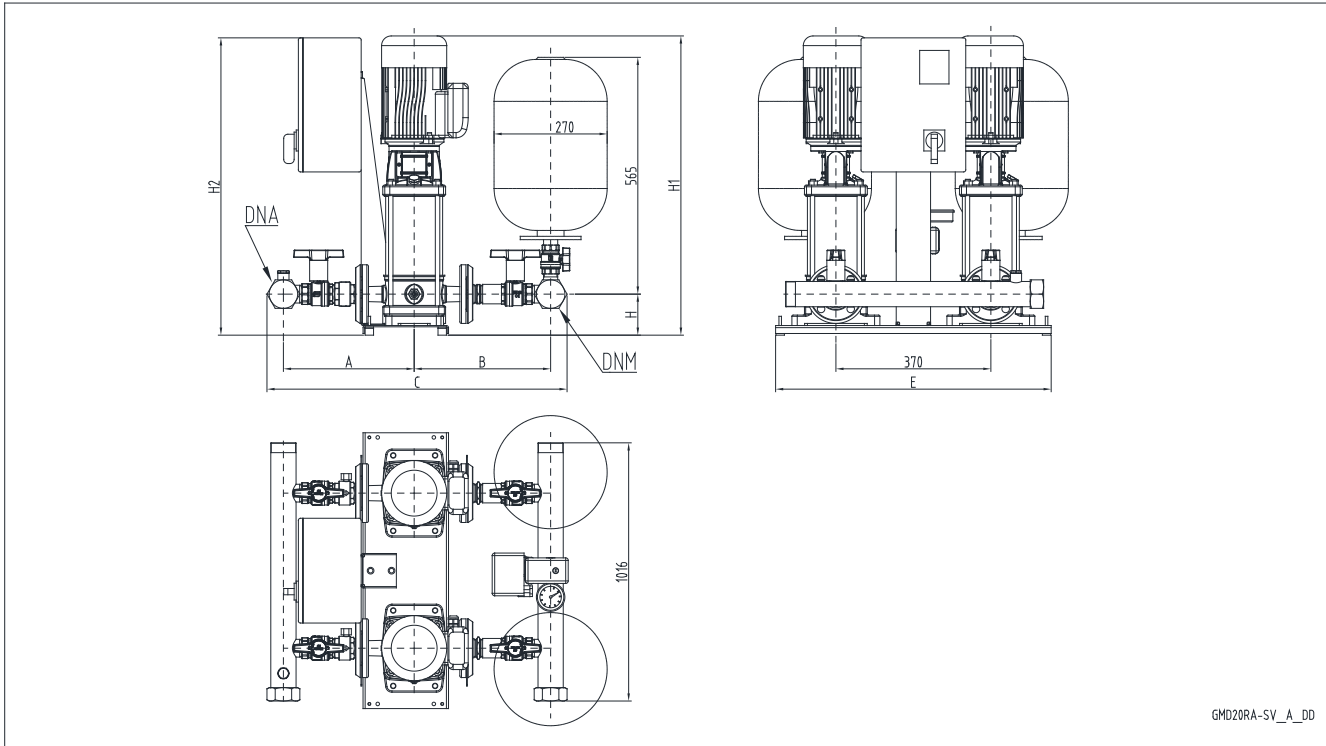
GMD 20	DNA	DNM	A		B		C		E	H	H1	H2
			STD	AISI	STD	AISI	STD	AISI				
3SV02F003T	R 2"	R 2"	256	257	311	363	627	680	658	98	510	700
3SV03F003T	R 2"	R 2"	256	257	311	363	627	680	658	98	510	700
3SV04F003T	R 2"	R 2"	256	257	311	363	627	680	658	98	530	700
3SV05F005T	R 2"	R 2"	256	257	311	363	627	680	658	98	572	700
3SV06F005T	R 2"	R 2"	256	257	311	363	627	680	658	98	592	700
3SV07F007T	R 2"	R 2"	256	257	311	363	627	680	658	98	654	700
3SV08F007T	R 2"	R 2"	256	257	311	363	627	680	658	98	674	700
3SV09F011T	R 2"	R 2"	256	257	311	363	627	680	658	98	694	700
3SV10F011T	R 2"	R 2"	256	257	311	363	627	680	658	98	714	700
3SV11F011T	R 2"	R 2"	256	257	311	363	627	680	658	98	734	700
3SV12F011T	R 2"	R 2"	256	257	311	363	627	680	658	98	754	700
3SV13F015T	R 2"	R 2"	256	257	311	363	627	680	658	98	784	700
3SV14F015T	R 2"	R 2"	256	257	311	363	627	680	658	98	804	700
3SV16F015T	R 2"	R 2"	256	257	311	363	627	680	658	98	844	700
3SV19F022T	R 2"	R 2"	256	257	311	363	627	680	658	98	939	700
3SV21F022T	R 2"	R 2"	256	257	311	363	627	680	658	98	979	700
5SV02F003T	R 2"	R 2"	260	267	329	387	649	714	658	98	500	700
5SV03F005T	R 2"	R 2"	260	267	329	387	649	714	658	98	547	700
5SV04F005T	R 2"	R 2"	260	267	329	387	649	714	658	98	572	700
5SV05F007T	R 2"	R 2"	260	267	329	387	649	714	658	98	639	700
5SV06F011T	R 2"	R 2"	260	267	329	387	649	714	658	98	664	700
5SV07F011T	R 2"	R 2"	260	267	329	387	649	714	658	98	689	700
5SV08F011T	R 2"	R 2"	260	267	329	387	649	714	658	98	714	700
5SV09F015T	R 2"	R 2"	260	267	329	387	649	714	658	98	749	700
5SV10F015T	R 2"	R 2"	260	267	329	387	649	714	658	98	774	700
5SV11F015T	R 2"	R 2"	260	267	329	387	649	714	658	98	799	700
5SV12F022T	R 2"	R 2"	260	267	329	387	649	714	658	98	859	700
5SV13F022T	R 2"	R 2"	260	267	329	387	649	714	658	98	884	700
5SV14F022T	R 2"	R 2"	260	267	329	387	649	714	658	98	909	700
5SV15F022T	R 2"	R 2"	260	267	329	387	649	714	658	98	934	700
5SV16F022T	R 2"	R 2"	260	267	329	387	649	714	658	98	959	700
5SV18F030T	R 2"	R 2"	260	267	329	387	649	714	682	109	1030	720
5SV21F030T	R 2"	R 2"	260	267	329	387	649	714	682	109	1105	720
10SV01F007T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	654	720
10SV02F007T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	654	720
10SV03F011T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	686	720
10SV04F015T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	728	720
10SV05F022T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	795	720
10SV06F022T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	827	720
10SV07F030T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	869	720
10SV08F030T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	901	720
10SV09F040T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	954	720
10SV10F040T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	986	720
10SV11F040T	R 2"1/2	R 2"1/2	294	301	356	453	726	830	682	114	1018	720

Dimensions in mm. Tolerance ± 10 mm.

gmd20\_esv-f-en\_b\_td

**GMD**

### BOOSTER SETS GMD RA SERIES e-SV VERTICAL ELECTRIC PUMPS



GMD20RA-SV\_A\_DD

**GMD**

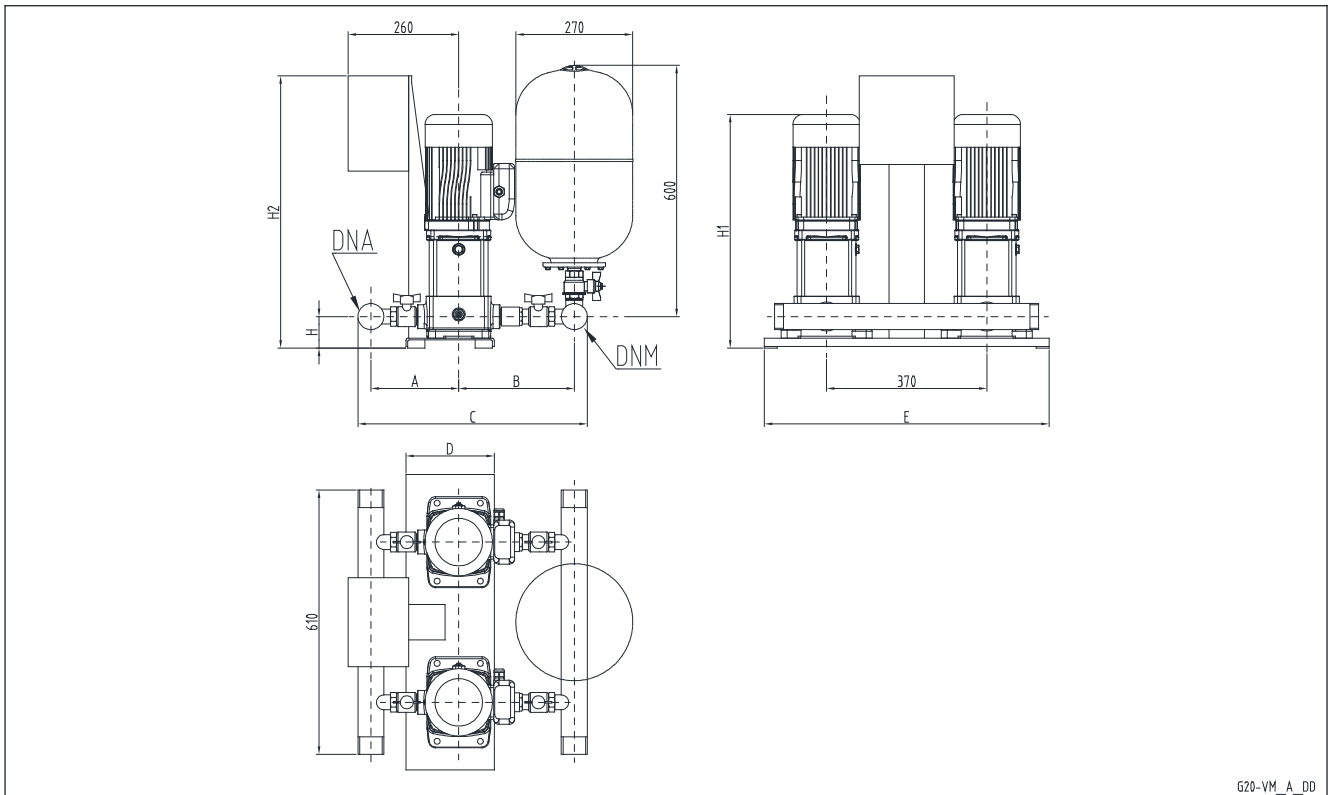
GMD 20RA	DNA	DNM	A		B		C		E	H	H1	H2
			STD	AISI	STD	AISI	STD	AISI				
3SV02F003T	R 2"	R 2"	304	439	319	301	683	800	658	98	510	700
3SV03F003T	R 2"	R 2"	304	439	319	301	683	800	658	98	510	700
3SV04F003T	R 2"	R 2"	304	439	319	301	683	800	658	98	530	700
3SV05F005T	R 2"	R 2"	304	439	319	301	683	800	658	98	572	700
3SV06F005T	R 2"	R 2"	304	439	319	301	683	800	658	98	592	700
3SV07F007T	R 2"	R 2"	304	439	319	301	683	800	658	98	654	700
3SV08F007T	R 2"	R 2"	304	439	319	301	683	800	658	98	674	700
3SV09F011T	R 2"	R 2"	304	439	319	301	683	800	658	98	694	700
3SV10F011T	R 2"	R 2"	304	439	319	301	683	800	658	98	714	700
3SV11F011T	R 2"	R 2"	304	439	319	301	683	800	658	98	734	700
3SV12F011T	R 2"	R 2"	304	439	319	301	683	800	658	98	754	700
3SV13F015T	R 2"	R 2"	304	439	319	301	683	800	658	98	784	700
3SV14F015T	R 2"	R 2"	304	439	319	301	683	800	658	98	804	700
3SV16F015T	R 2"	R 2"	304	439	319	301	683	800	658	98	844	700
3SV19F022T	R 2"	R 2"	304	439	319	301	683	800	658	98	939	700
3SV21F022T	R 2"	R 2"	304	439	319	301	683	800	658	98	979	700
5SV02F003T	R 2"	R 2"	312	458	325	311	697	829	658	98	500	700
5SV03F005T	R 2"	R 2"	312	458	325	311	697	829	658	98	547	700
5SV04F005T	R 2"	R 2"	312	458	325	311	697	829	658	98	572	700
5SV05F007T	R 2"	R 2"	312	458	325	311	697	829	658	98	639	700
5SV06F011T	R 2"	R 2"	312	458	325	311	697	829	658	98	664	700
5SV07F011T	R 2"	R 2"	312	458	325	311	697	829	658	98	689	700
5SV08F011T	R 2"	R 2"	312	458	325	311	697	829	658	98	714	700
5SV09F015T	R 2"	R 2"	312	458	325	311	697	829	658	98	749	700
5SV10F015T	R 2"	R 2"	312	458	325	311	697	829	658	98	774	700
5SV11F015T	R 2"	R 2"	312	458	325	311	697	829	658	98	799	700
5SV12F022T	R 2"	R 2"	312	458	325	311	697	829	658	98	859	700
5SV13F022T	R 2"	R 2"	312	458	325	311	697	829	658	98	884	700
5SV14F022T	R 2"	R 2"	312	458	325	311	697	829	658	98	909	700
5SV15F022T	R 2"	R 2"	312	458	325	311	697	829	658	98	934	700
5SV16F022T	R 2"	R 2"	312	458	325	311	697	829	658	98	959	700
5SV18F030T	R 2"	R 2"	312	458	325	311	697	829	682	109	1030	720
5SV21F030T	R 2"	R 2"	312	458	325	311	697	829	682	109	1105	720
10SV01F007T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	654	720
10SV02F007T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	654	720
10SV03F011T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	686	720
10SV04F015T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	728	720
10SV05F022T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	795	720
10SV06F022T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	827	720
10SV07F030T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	869	720
10SV08F030T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	901	720
10SV09F040T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	954	720
10SV10F040T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	986	720
10SV11F040T	R 2"1/2	R 2"1/2	349	497	357	356	782	929	682	114	1018	720

Dimensions in mm. Tolerance ± 10 mm.

gmd20ra\_esp-f-en\_b\_td



## BOOSTER SETS GMD SERIES VM VERTICAL ELECTRIC PUMPS



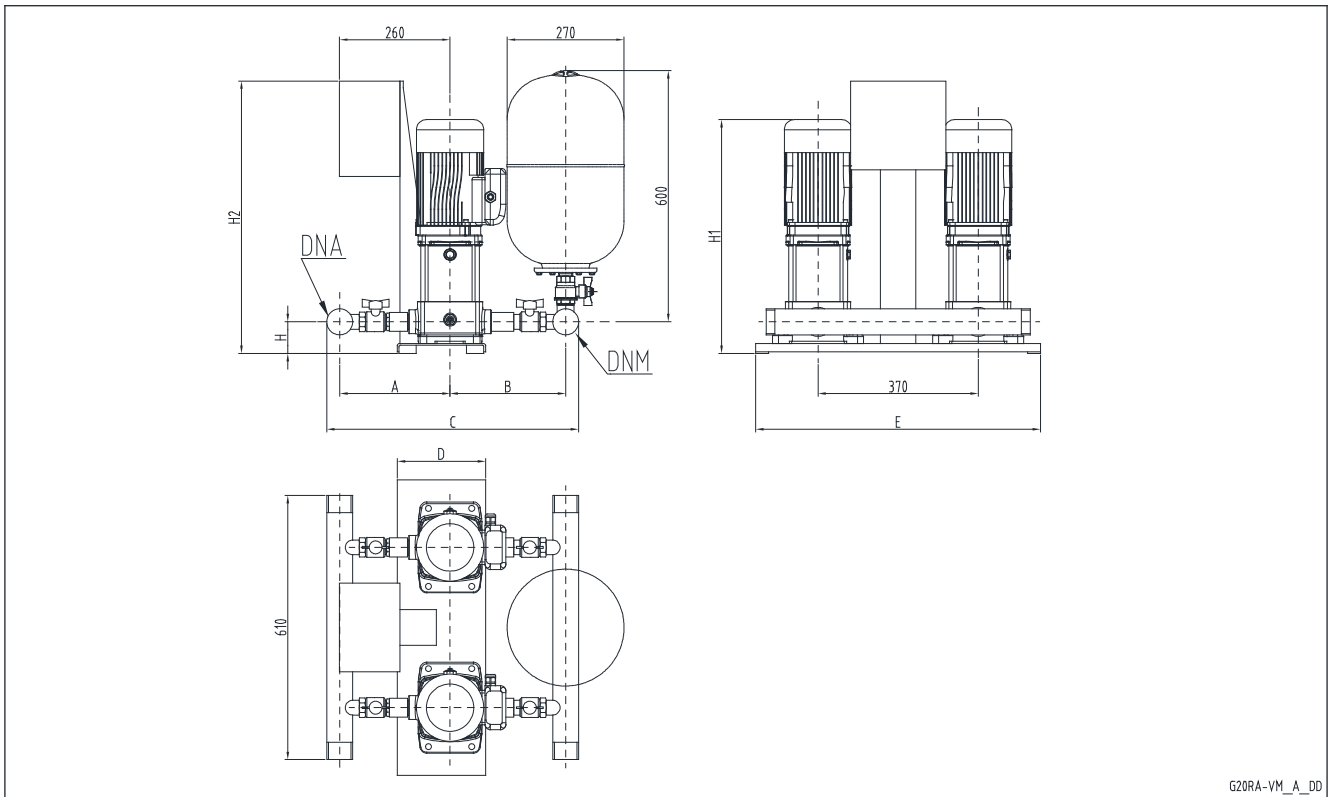
G20-VM\_A\_DD

GMD 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	709
3VM03	R2"	R2"	232	314	287	419	579	793	204	658	73	402	709
3VM04	R2"	R2"	232	314	287	419	579	793	204	658	73	422	709
3VM05	R2"	R2"	232	314	287	419	579	793	204	658	73	500	709
3VM06	R2"	R2"	232	314	287	419	579	793	204	658	73	520	709
3VM07	R2"	R2"	232	314	287	419	579	793	204	658	73	540	709
3VM08	R2"	R2"	232	314	287	419	579	793	204	658	73	560	709
5VM02	R2"	R2"	251	329	320	449	631	838	204	658	73	402	709
5VM03	R2"	R2"	251	329	320	449	631	838	204	658	73	402	709
5VM04	R2"	R2"	251	329	320	449	631	838	204	658	73	480	709
5VM05	R2"	R2"	251	329	320	449	631	838	204	658	73	500	709
5VM06	R2"	R2"	251	329	320	449	631	838	204	658	73	520	709
5VM07	R2"	R2"	251	329	320	449	631	838	204	658	73	540	709
5VM08	R2"	R2"	251	329	320	449	631	838	204	658	73	616	709
10VM02	R2"1/2	R2"1/2	287	374	354	517	717	967	235	682	114	535	720
10VM03	R2"1/2	R2"1/2	287	374	354	517	717	967	235	682	114	567	720
10VM04	R2"1/2	R2"1/2	287	374	354	517	717	967	235	682	114	655	720
10VM05	R2"1/2	R2"1/2	287	374	354	517	717	967	235	682	114	687	720
10VM06	R2"1/2	R2"1/2	287	374	354	517	717	967	235	682	114	719	720

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20\_vm-en\_d\_td

## BOOSTER SETS GMD RA SERIES VM VERTICAL ELECTRIC PUMPS



G20RA-VM\_A\_DD

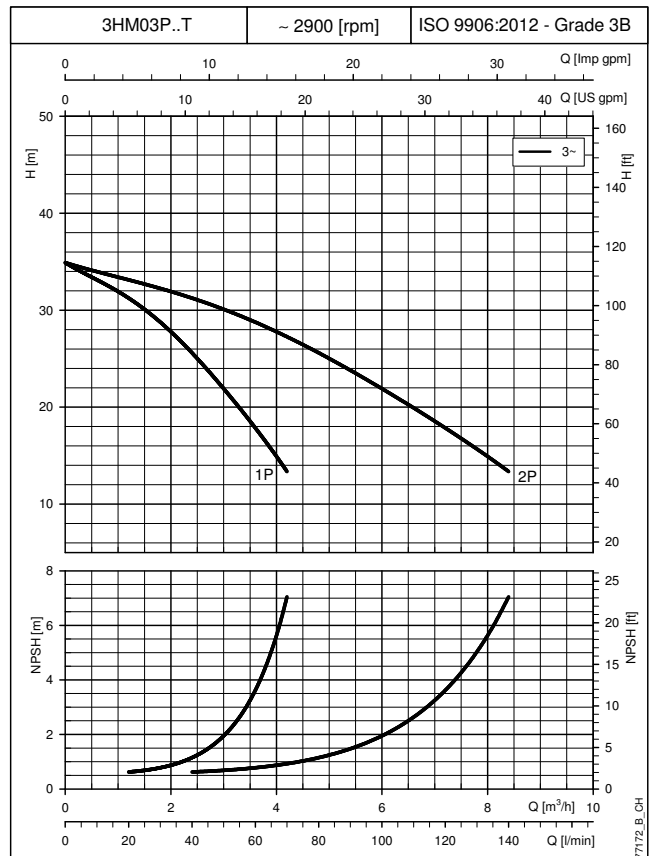
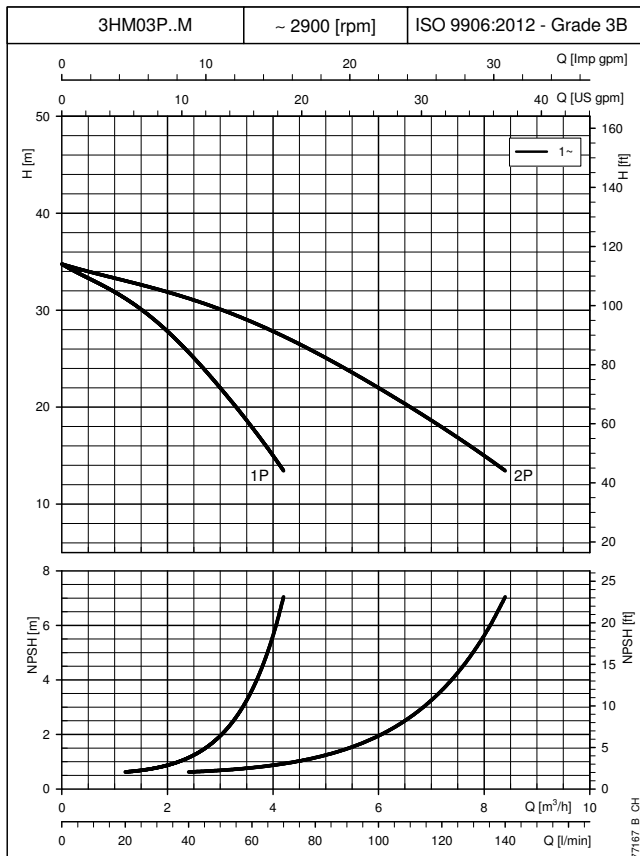
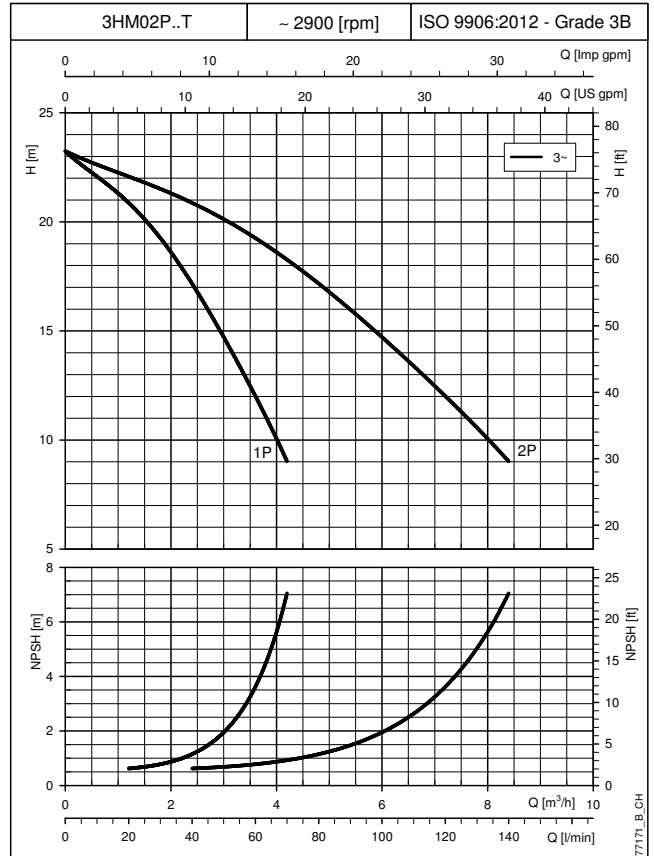
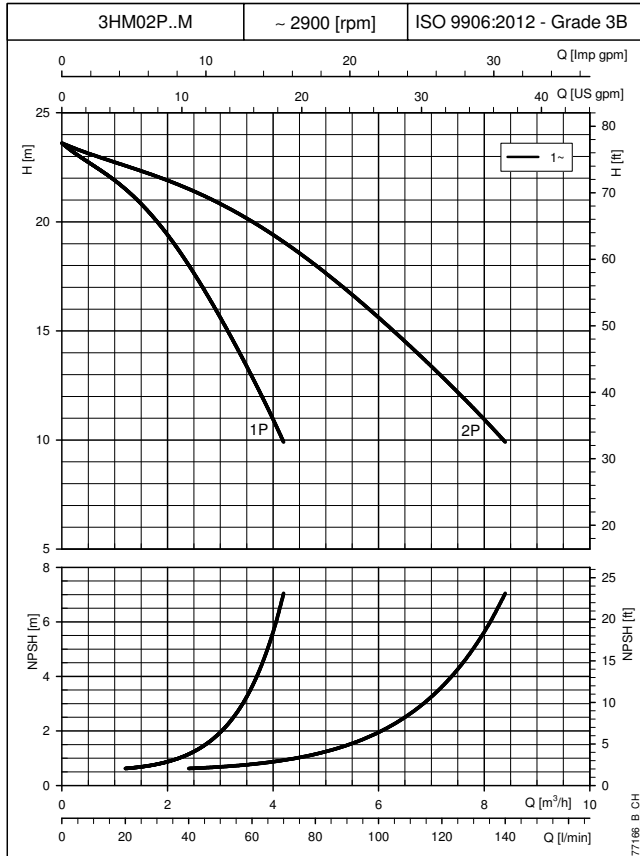
GMD 20RA	DNA	DNM	A		B		C		D	E	H	H1	H2
			STD	AISI	STD	AISI	STD	AISI					
3VM02	R2"	R2"	318	364	232	314	610	738	204	658	73	402	709
3VM03	R2"	R2"	318	364	232	314	610	738	204	658	73	402	709
3VM04	R2"	R2"	318	364	232	314	610	738	204	658	73	422	709
3VM05	R2"	R2"	318	364	232	314	610	738	204	658	73	500	709
3VM06	R2"	R2"	318	364	232	314	610	738	204	658	73	520	709
3VM07	R2"	R2"	318	364	232	314	610	738	204	658	73	540	709
3VM08	R2"	R2"	318	364	232	314	610	738	204	658	73	560	709
5VM02	R2"	R2"	303	379	251	329	614	768	204	658	73	402	709
5VM03	R2"	R2"	303	379	251	329	614	768	204	658	73	402	709
5VM04	R2"	R2"	303	379	251	329	614	768	204	658	73	480	709
5VM05	R2"	R2"	303	379	251	329	614	768	204	658	73	500	709
5VM06	R2"	R2"	303	379	251	329	614	768	204	658	73	520	709
5VM07	R2"	R2"	303	379	251	329	614	768	204	658	73	540	709
5VM08	R2"	R2"	303	379	251	329	614	768	204	658	73	616	709
10VM02	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	535	720
10VM03	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	567	720
10VM04	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	655	720
10VM05	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	687	720
10VM06	R2"1/2	R2"1/2	342	424	287	374	705	874	235	682	114	719	720

Dimensions in mm. Tolerance  $\pm 10$  mm.

gmd20ra\_vm-en\_e\_td

# PERFORMANCES CURVES

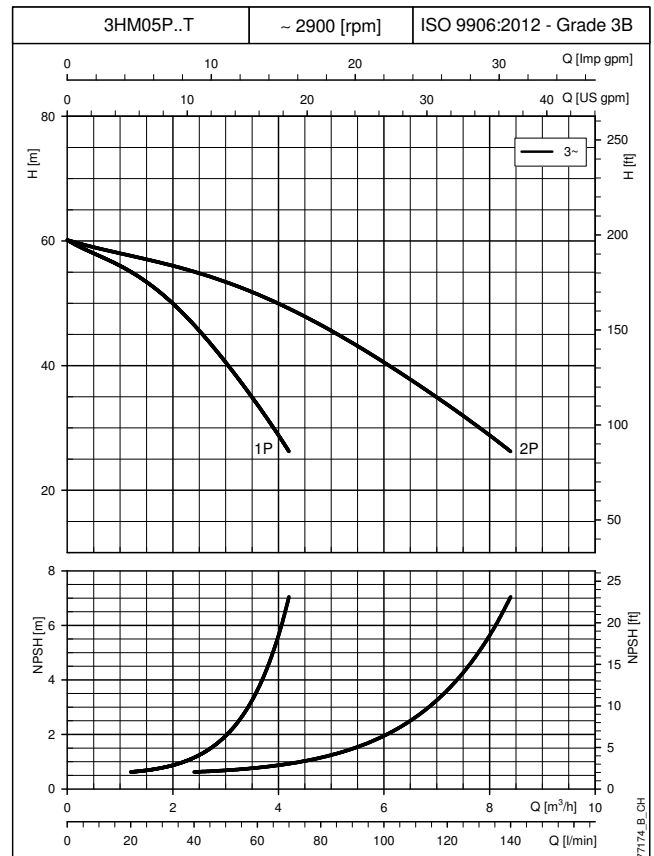
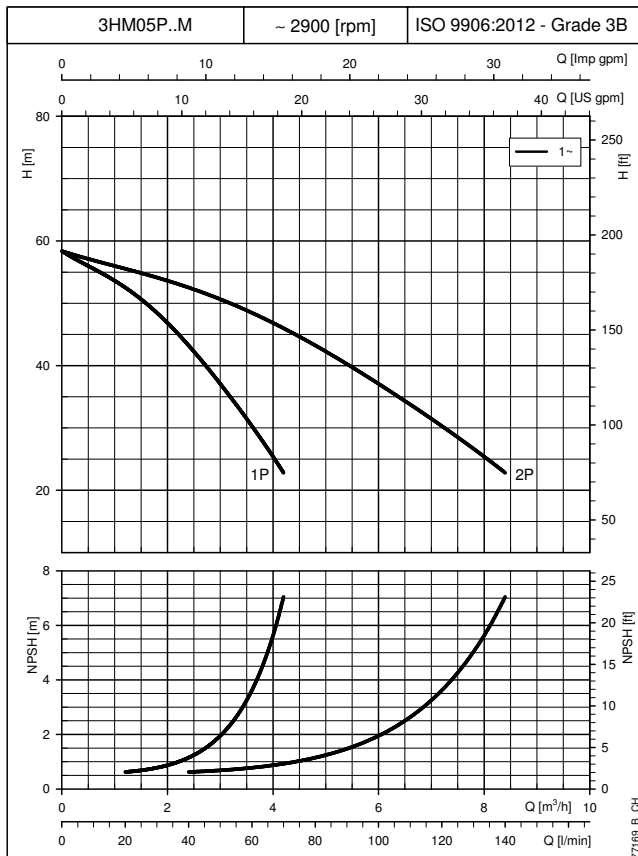
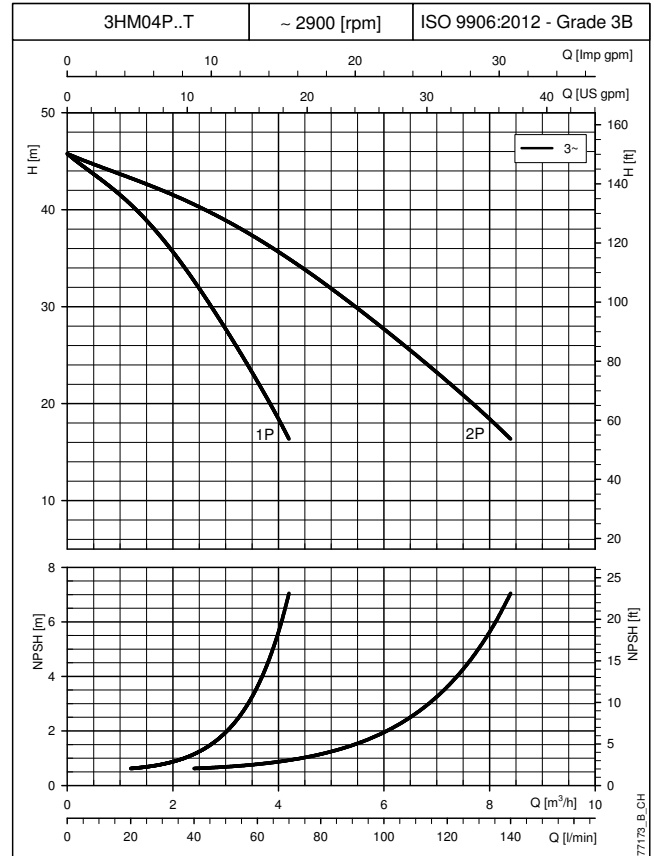
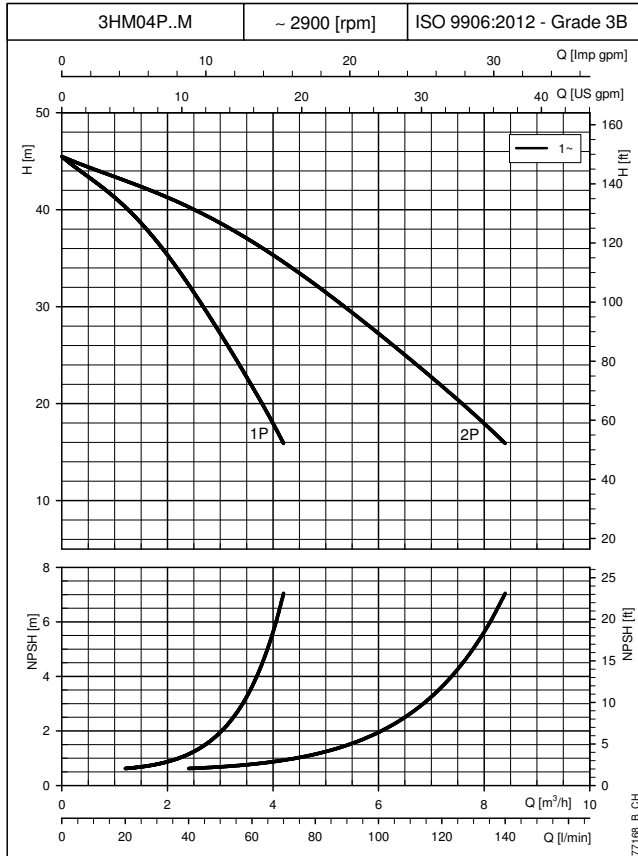
## BOOSTER SETS GX5 AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



**CURVES**

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  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
 The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

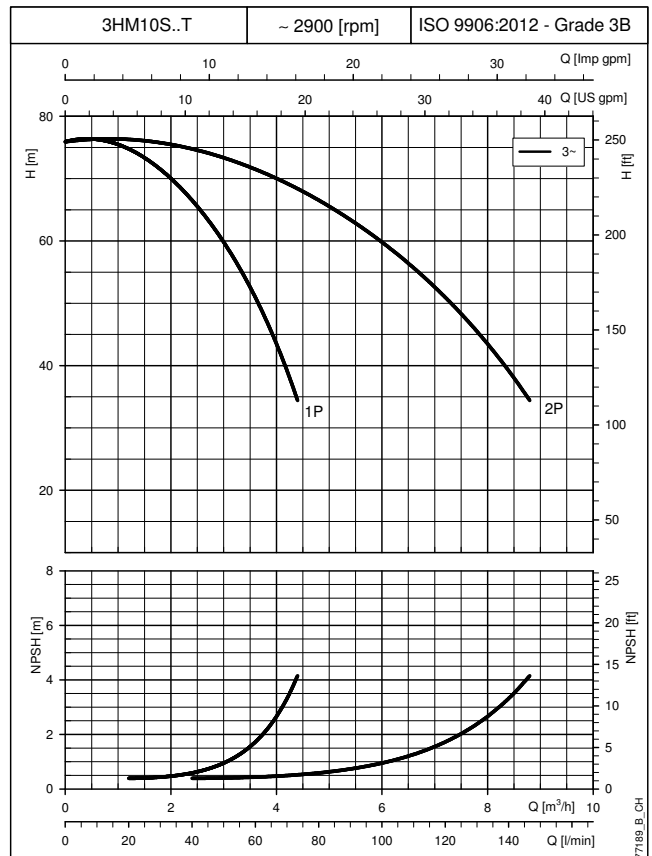
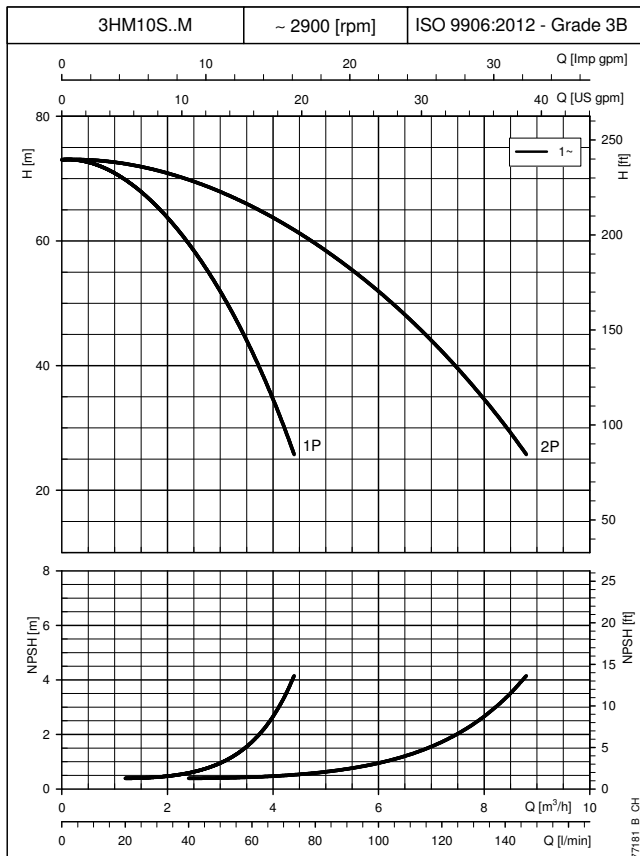
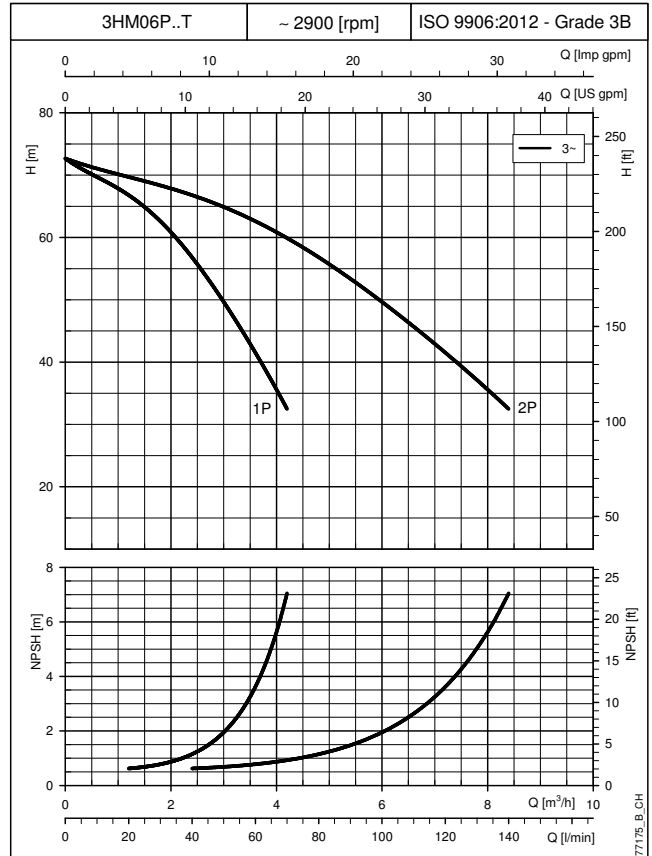
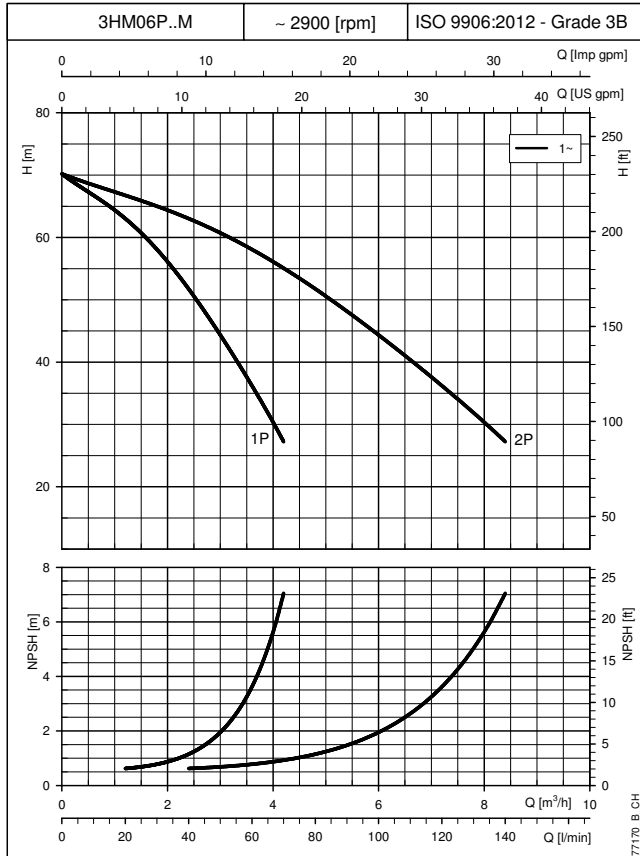
## BOOSTER SETS GX5 AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



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  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
 The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

**CURVES**

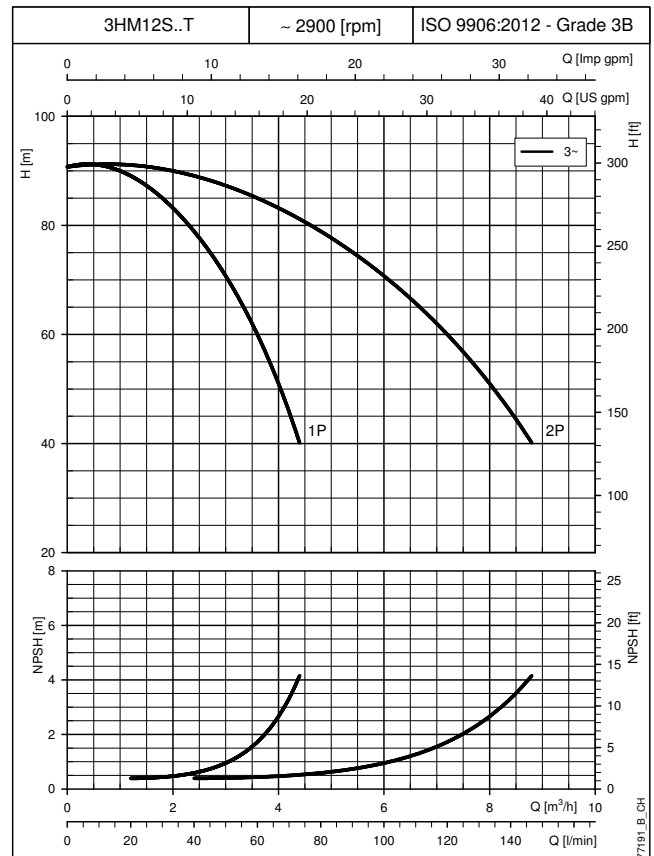
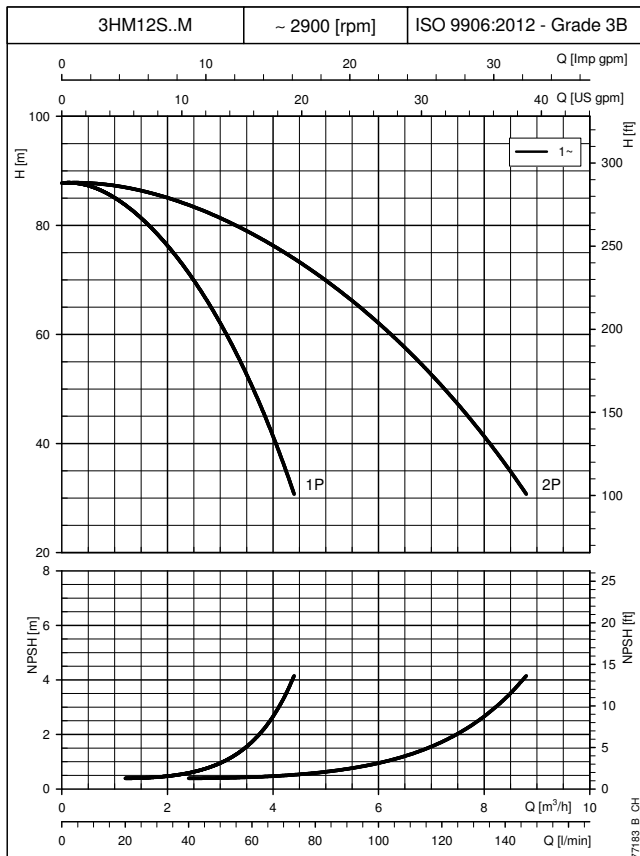
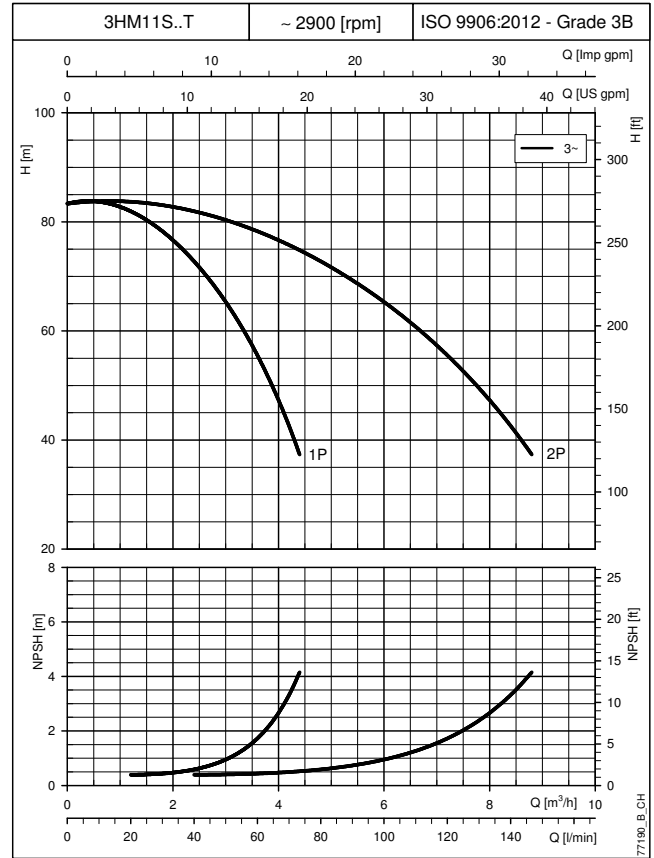
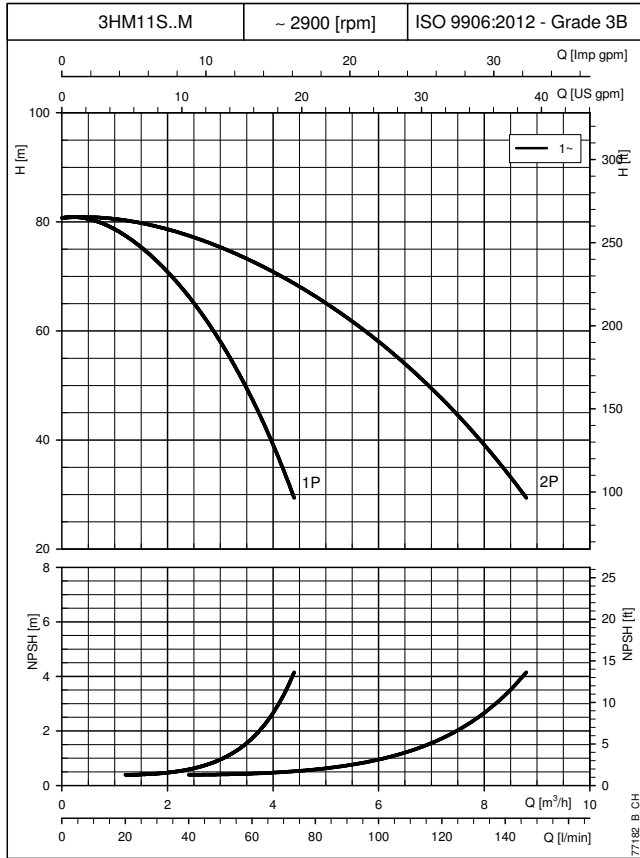
## BOOSTER SETS GX S AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



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  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
 The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

CURVES

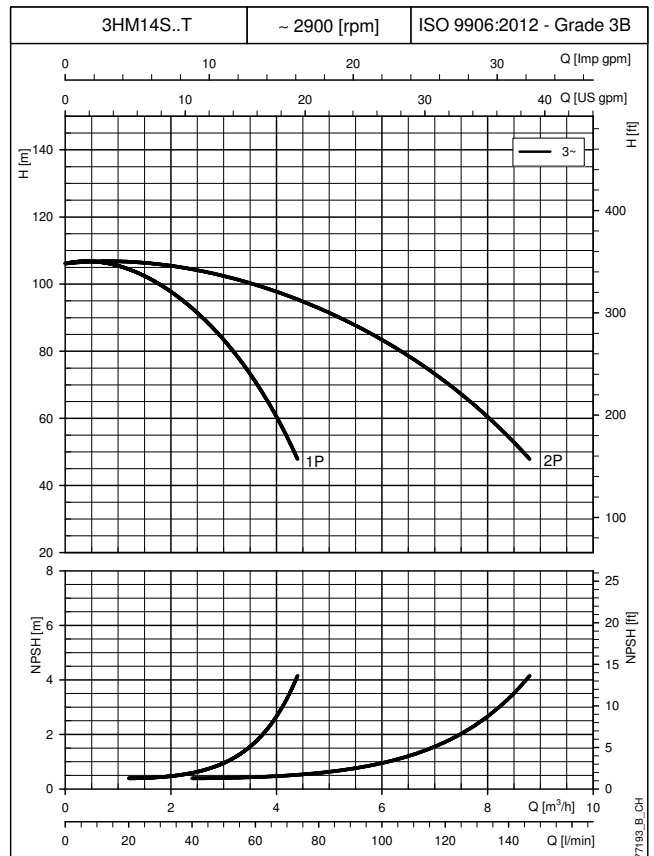
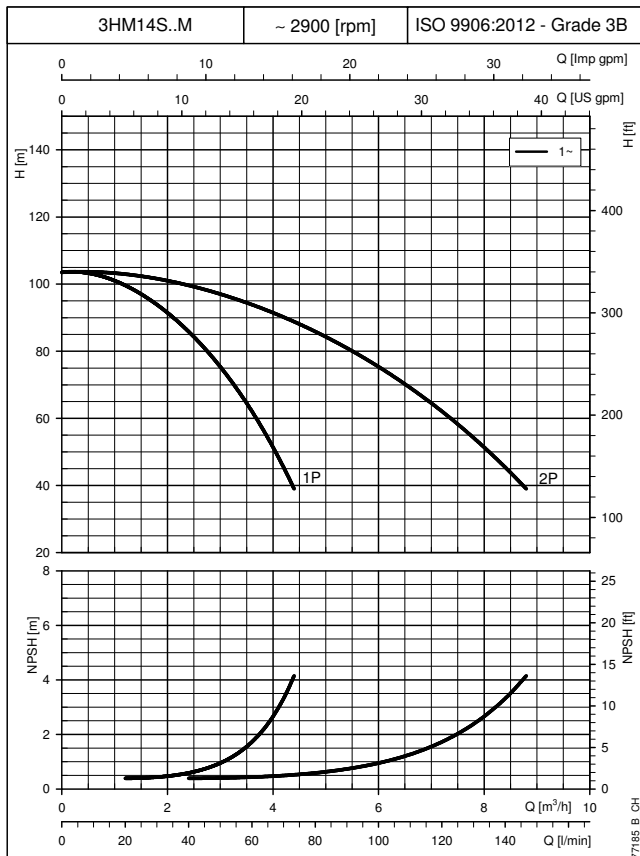
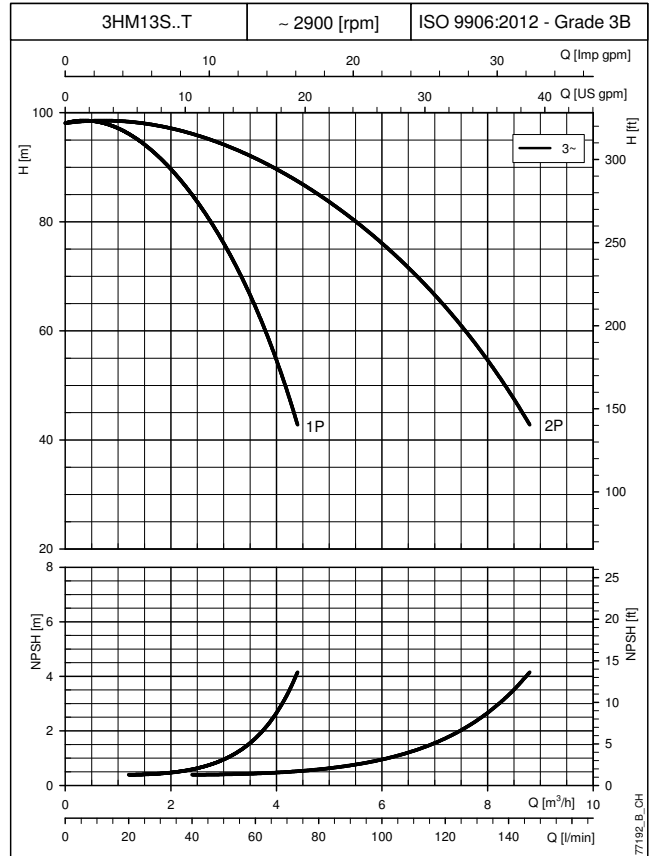
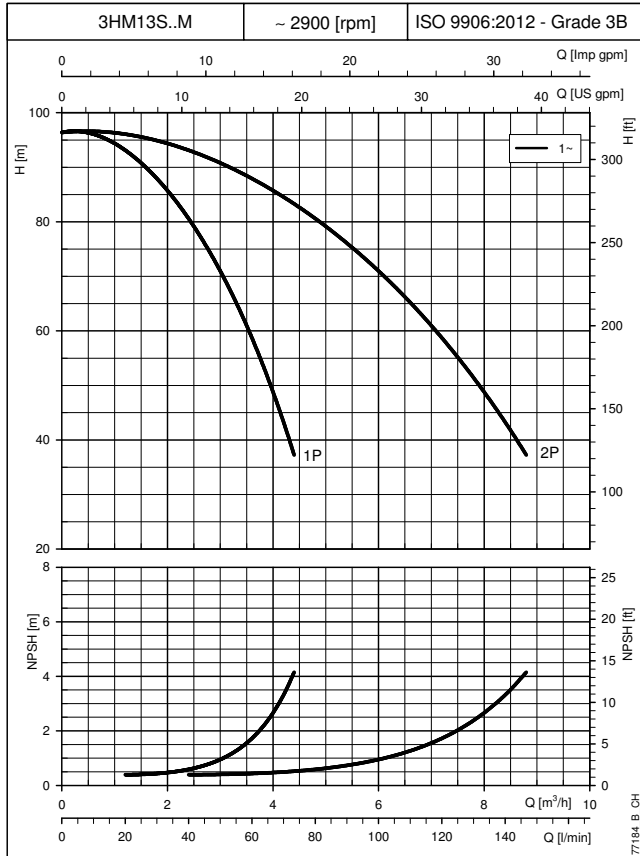
## BOOSTER SETS GX S AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



The performance curves do not take into account flow resistance in the valves and piping.  
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 These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
 The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

**CURVES**

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

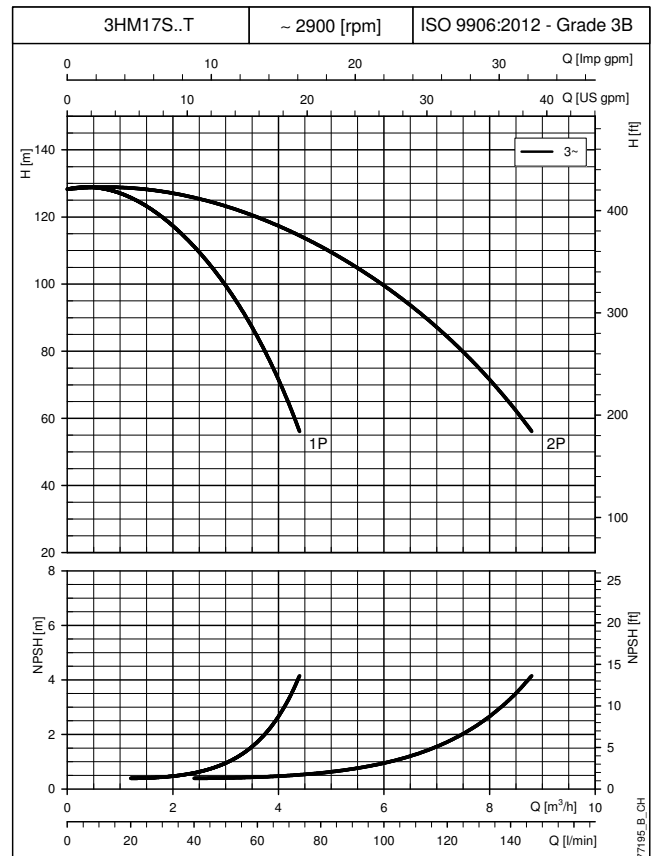
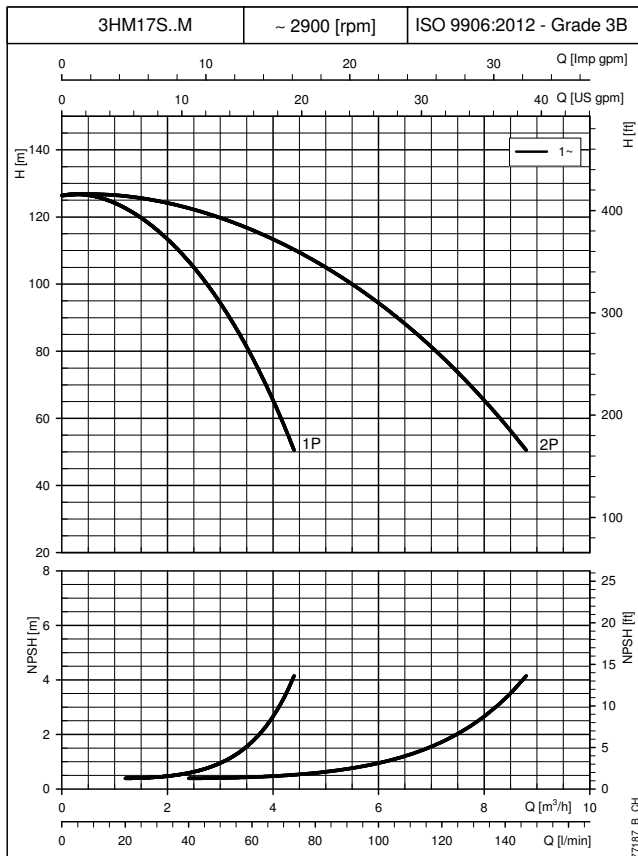
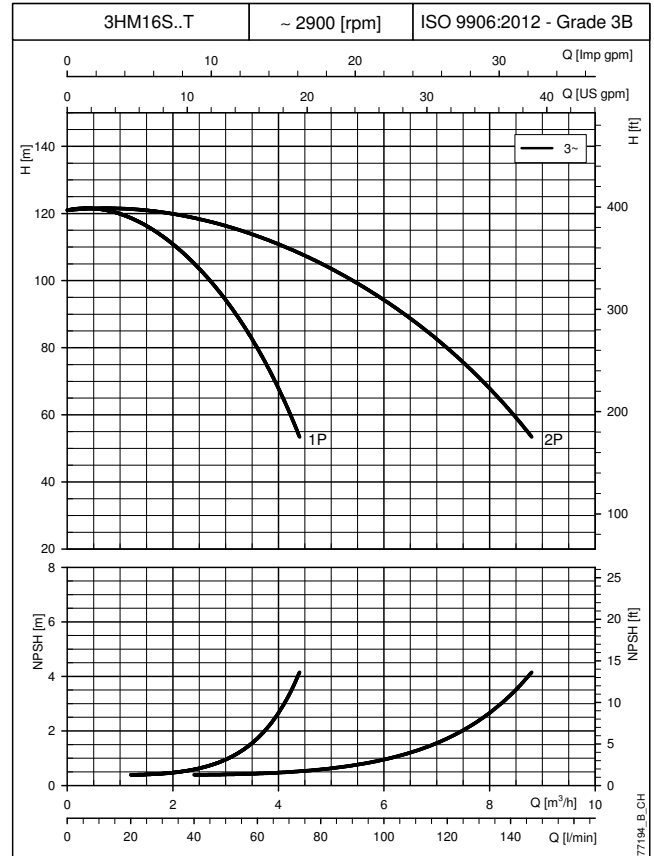
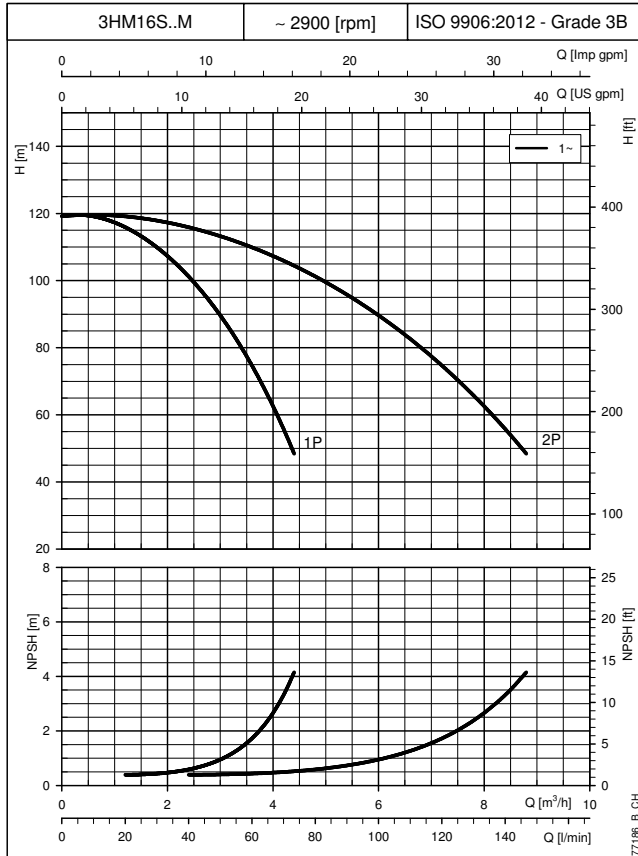


**CURVES**

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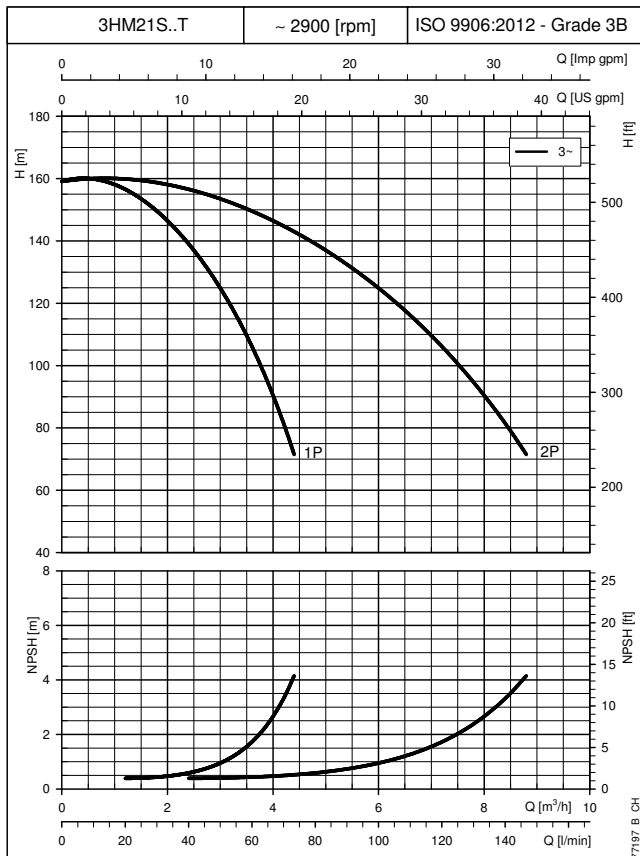
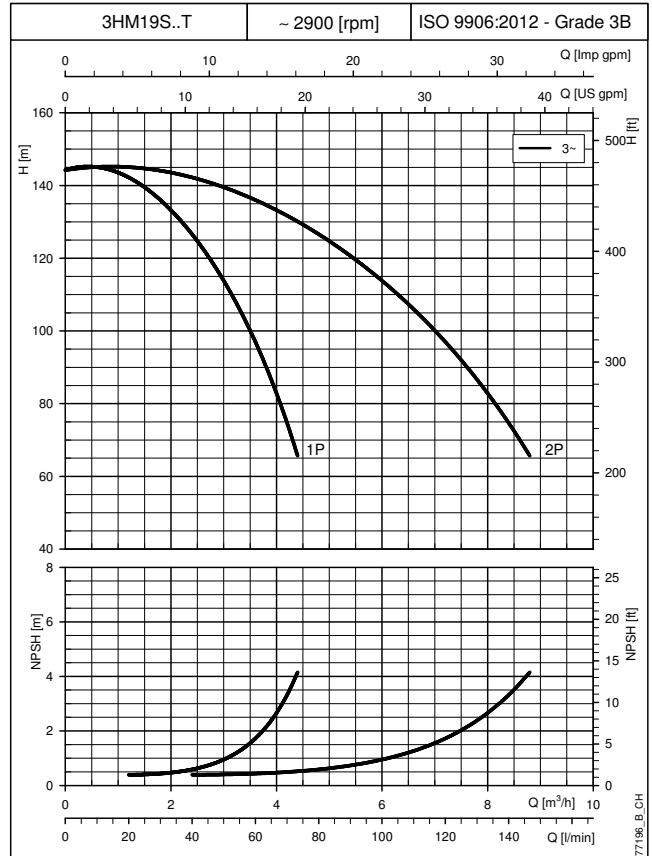
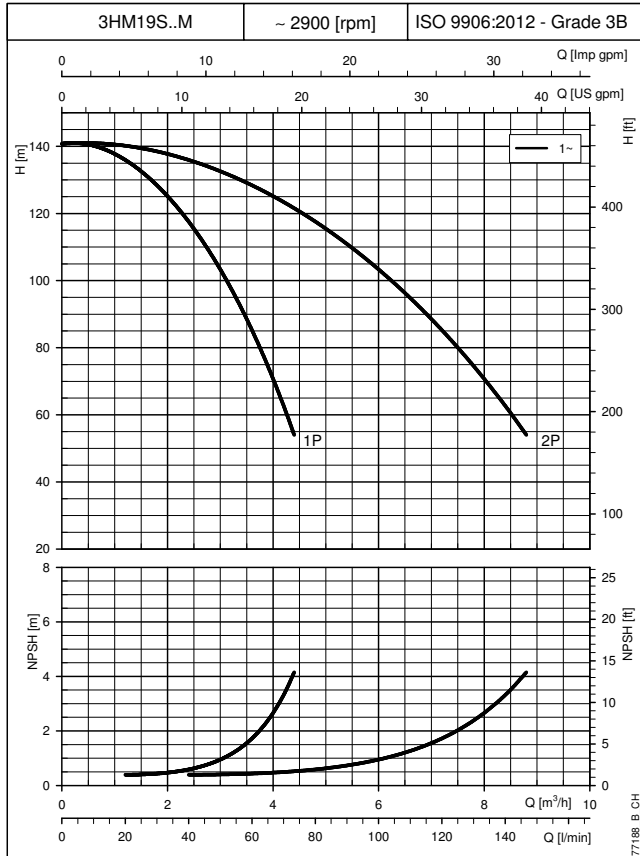
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**CURVES**

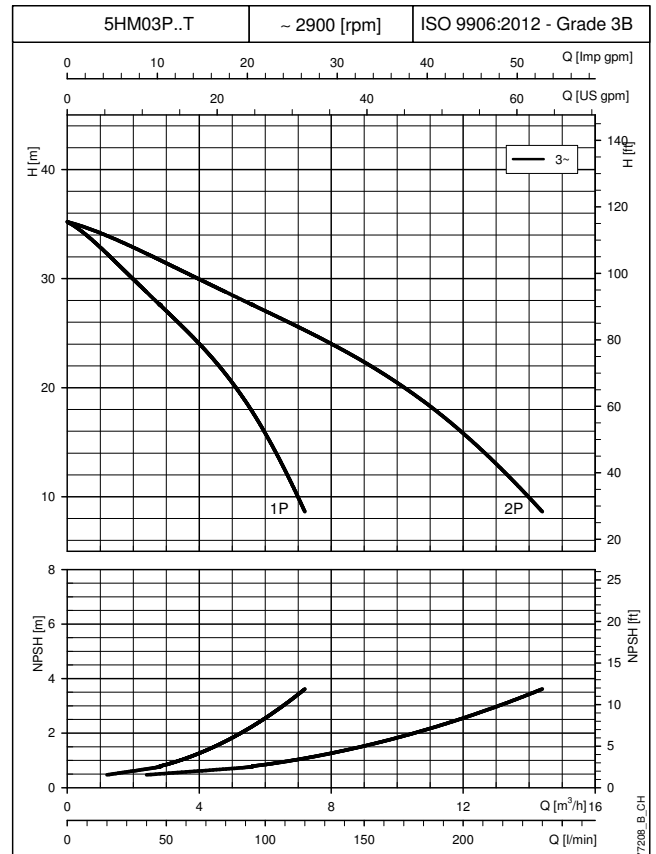
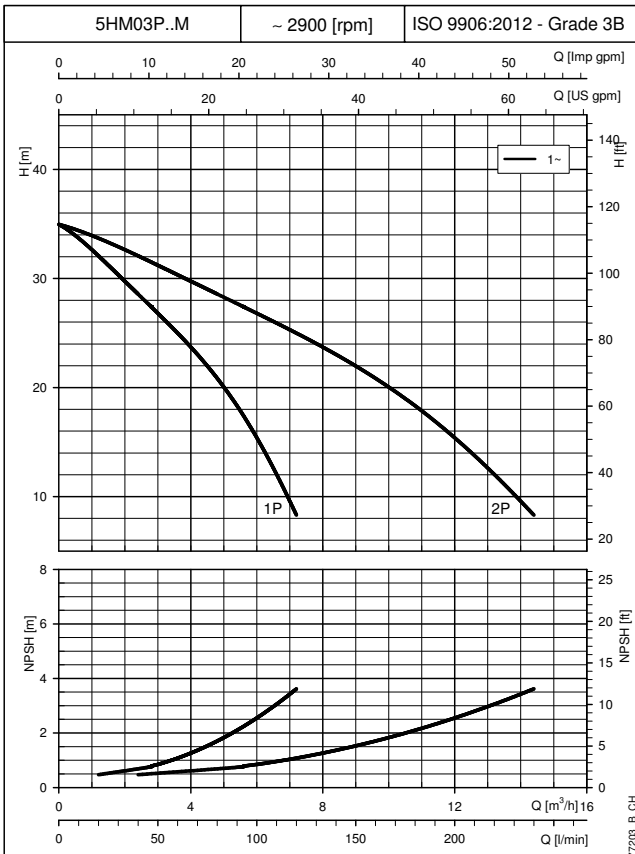
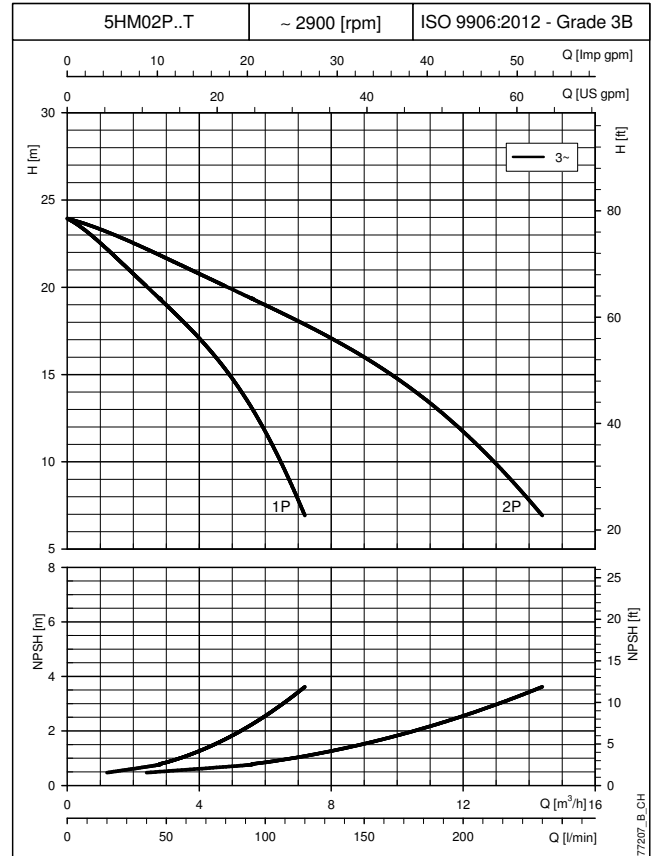
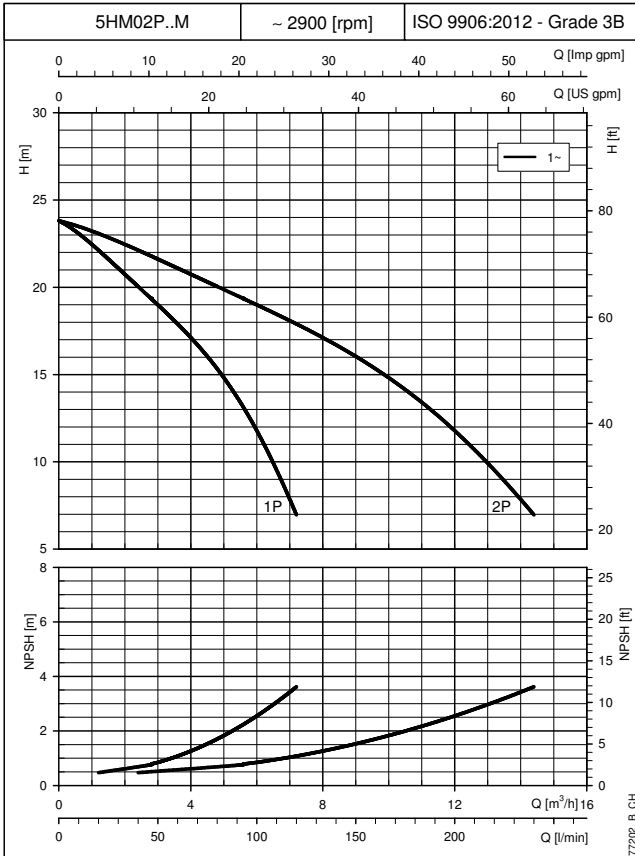
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**CURVES**

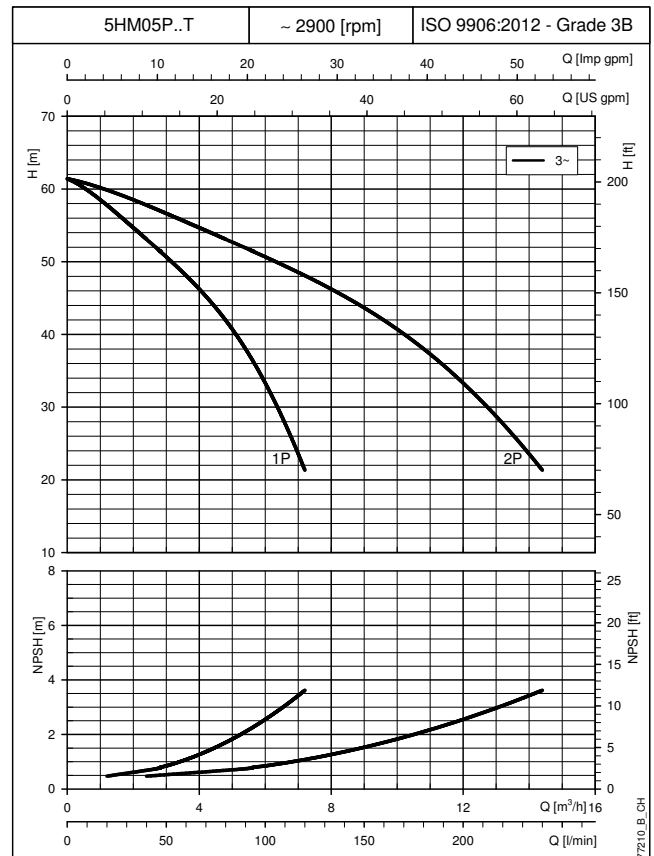
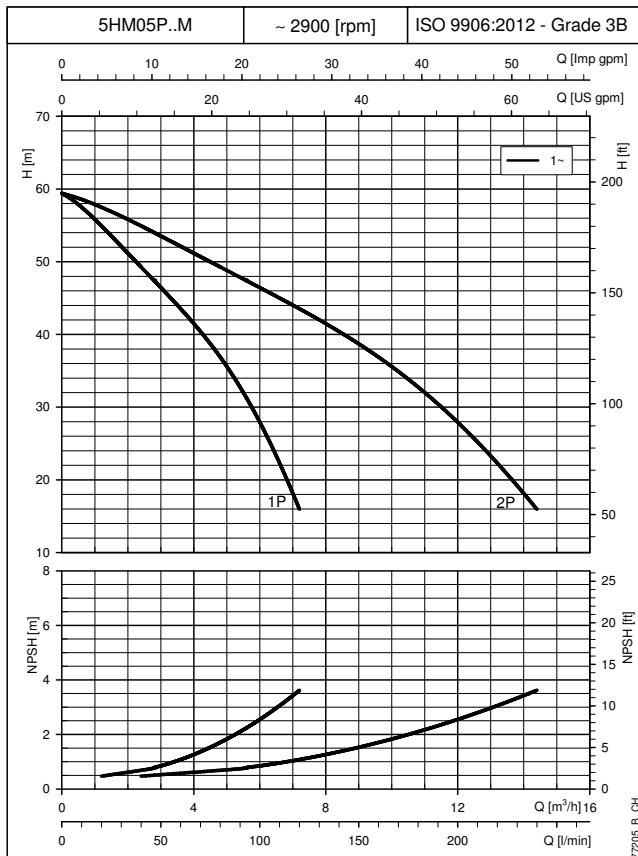
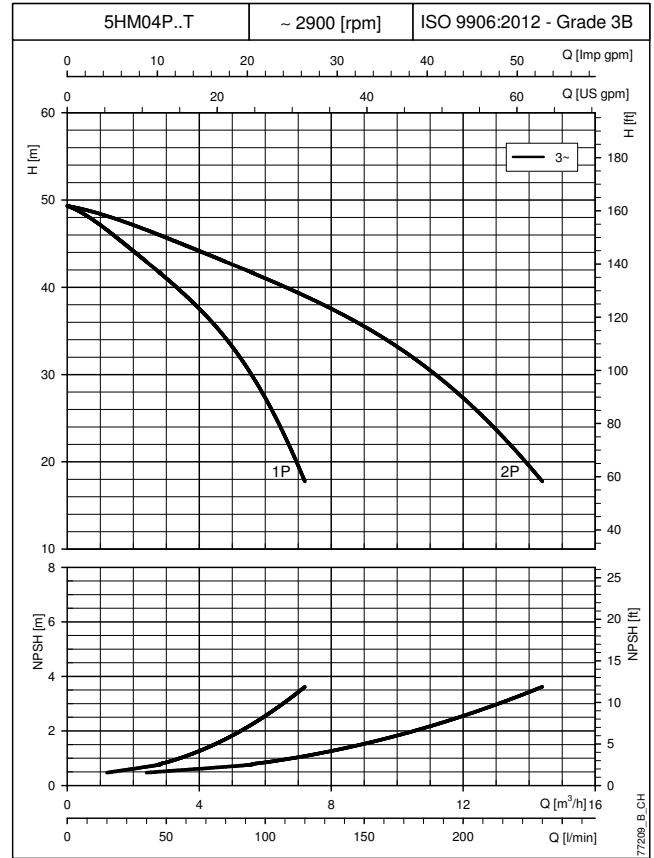
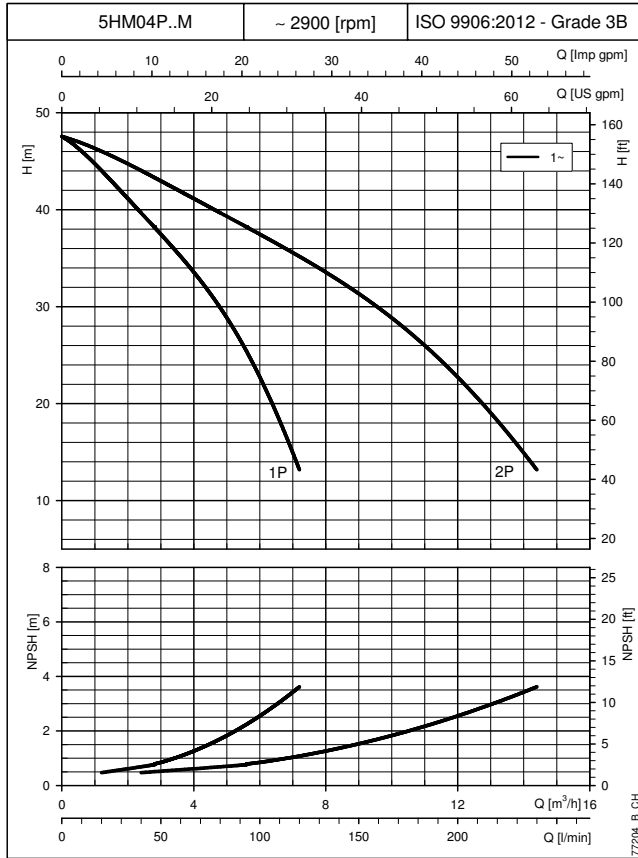
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 These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
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**CURVES**

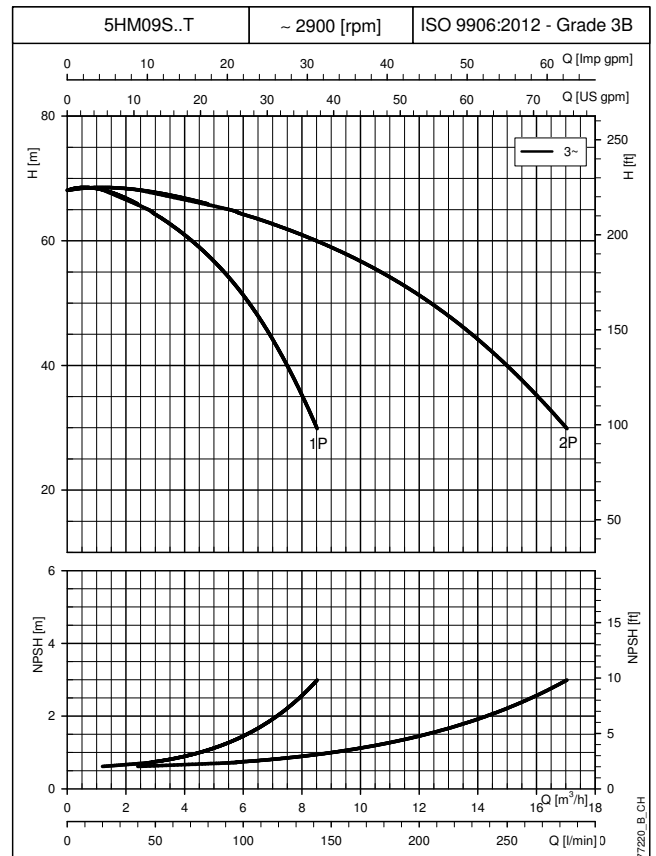
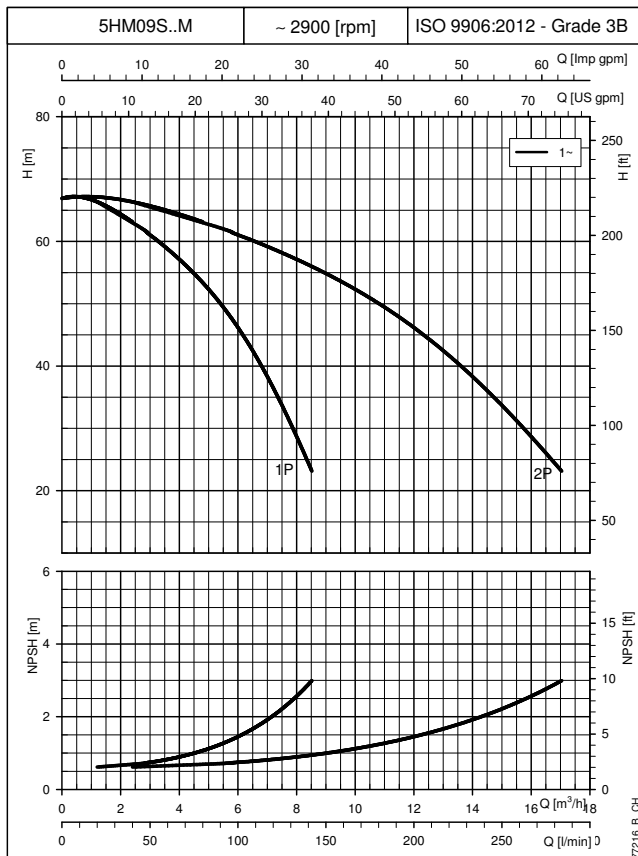
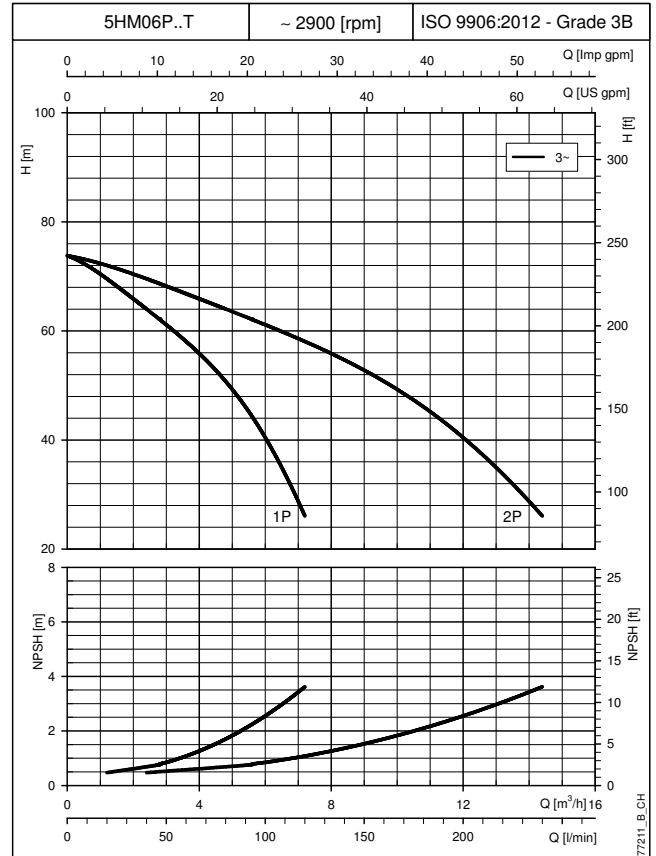
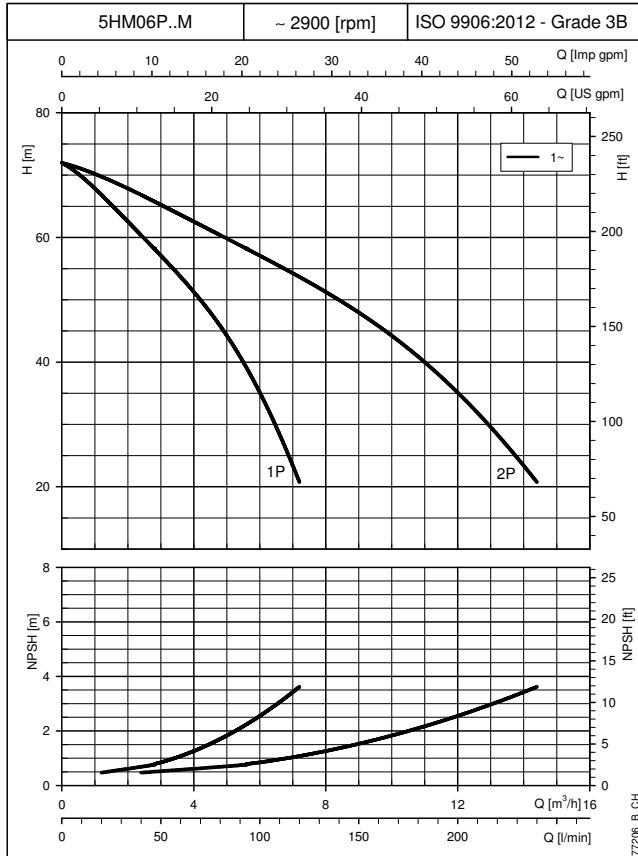
## BOOSTER SETS GX5 AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



CURVES

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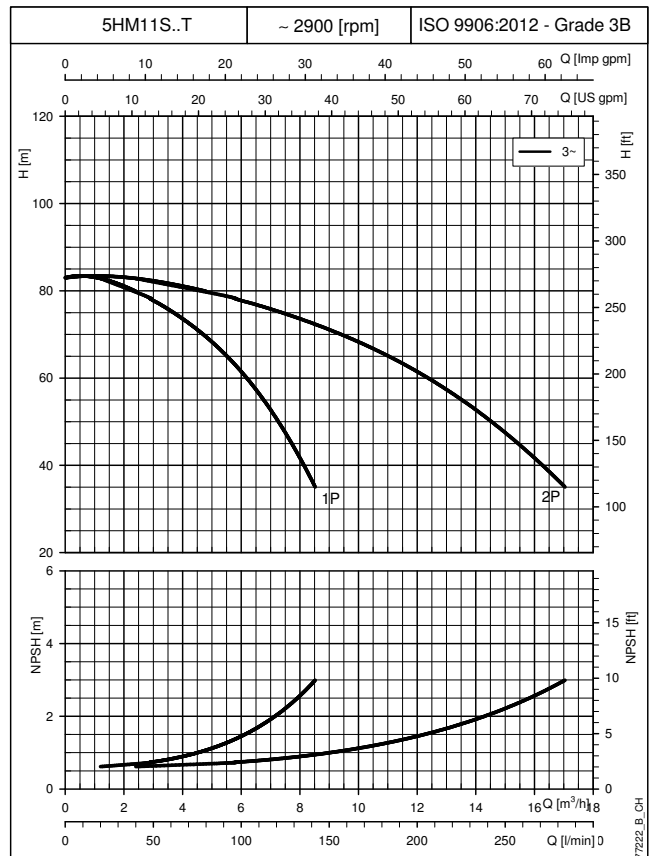
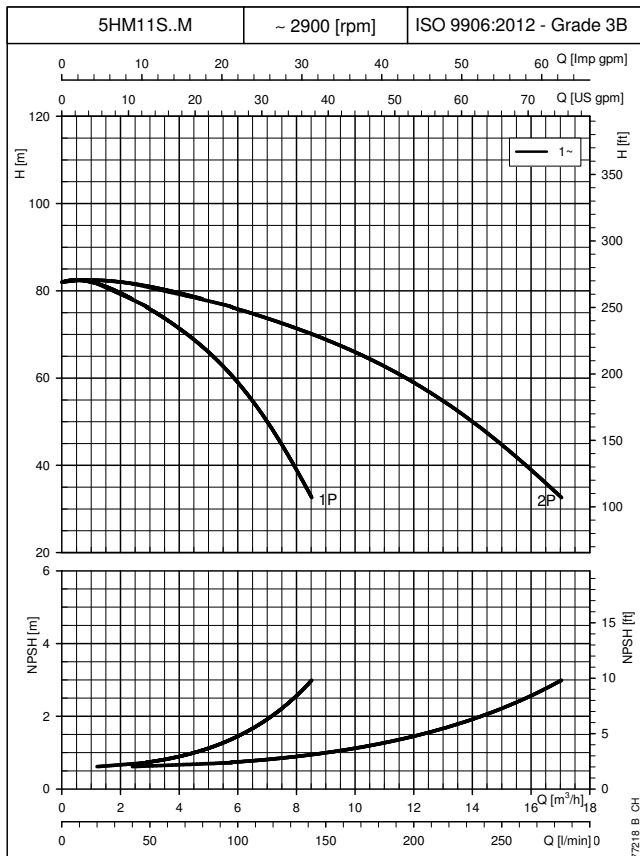
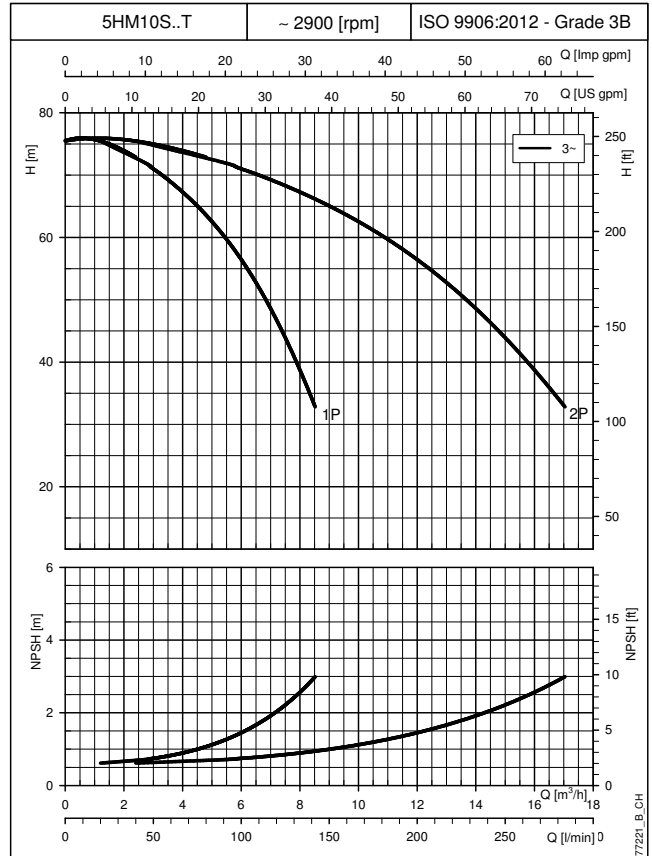
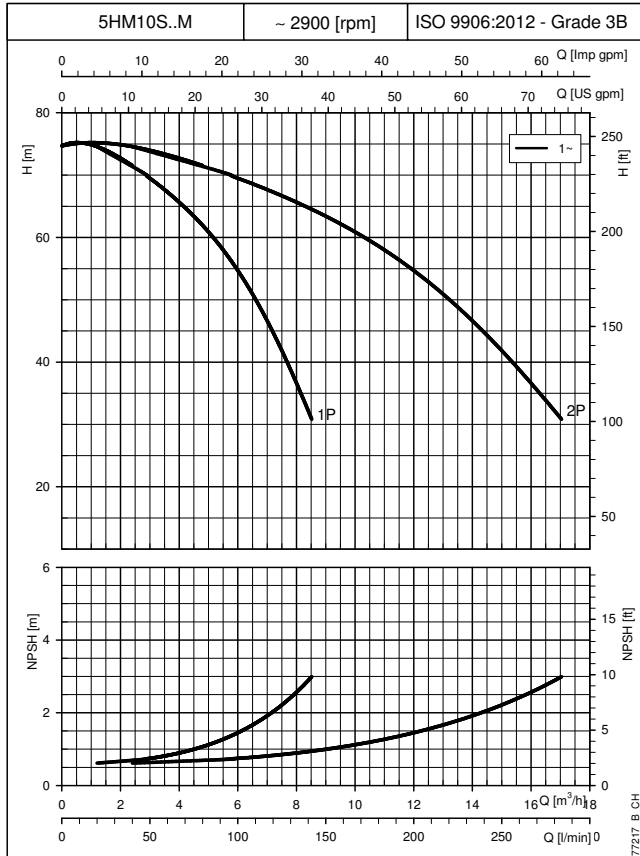
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**CURVES**

## BOOSTER SETS GX S AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



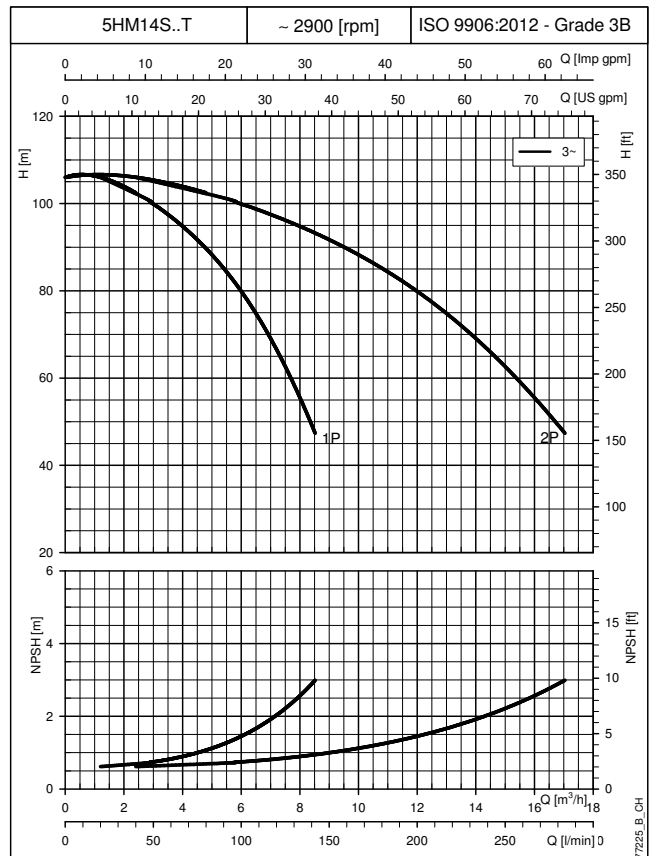
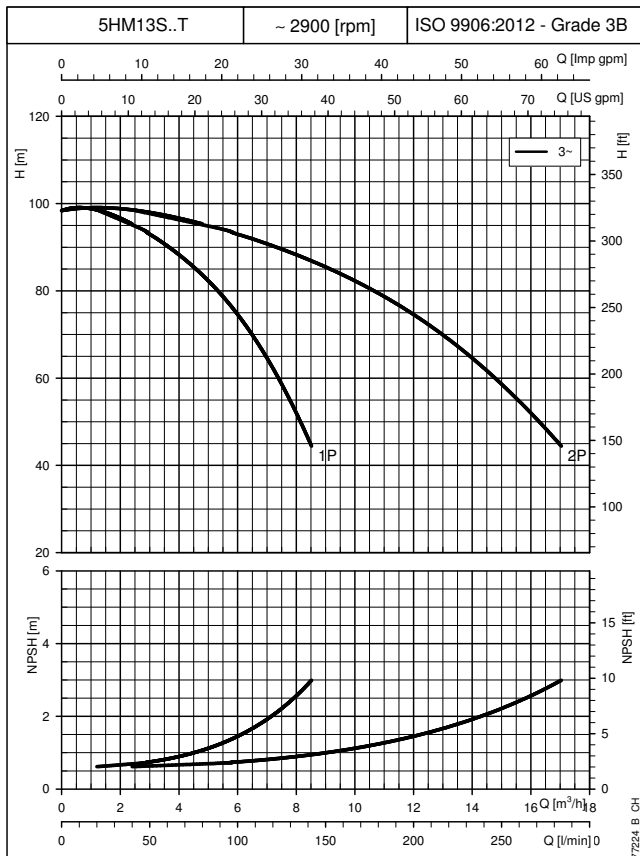
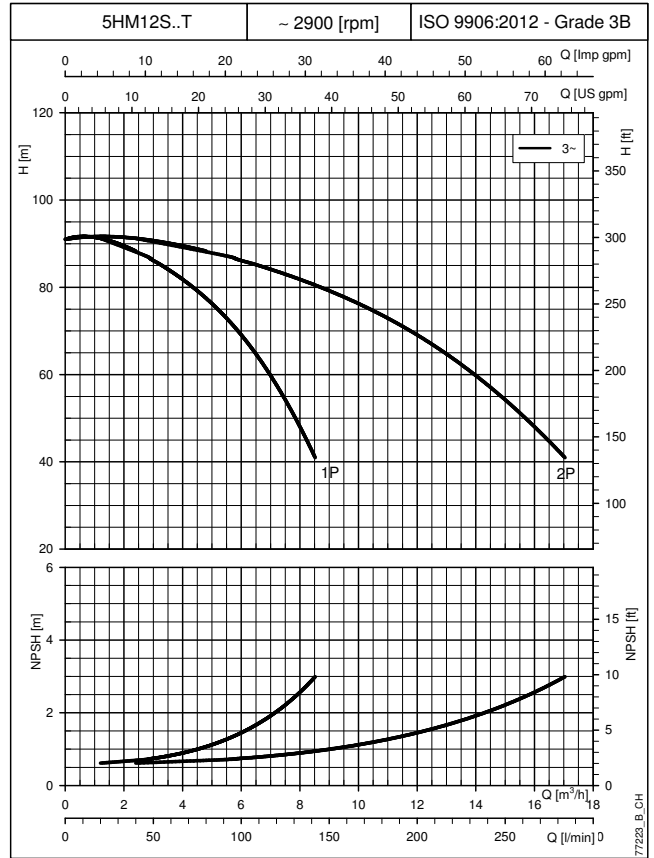
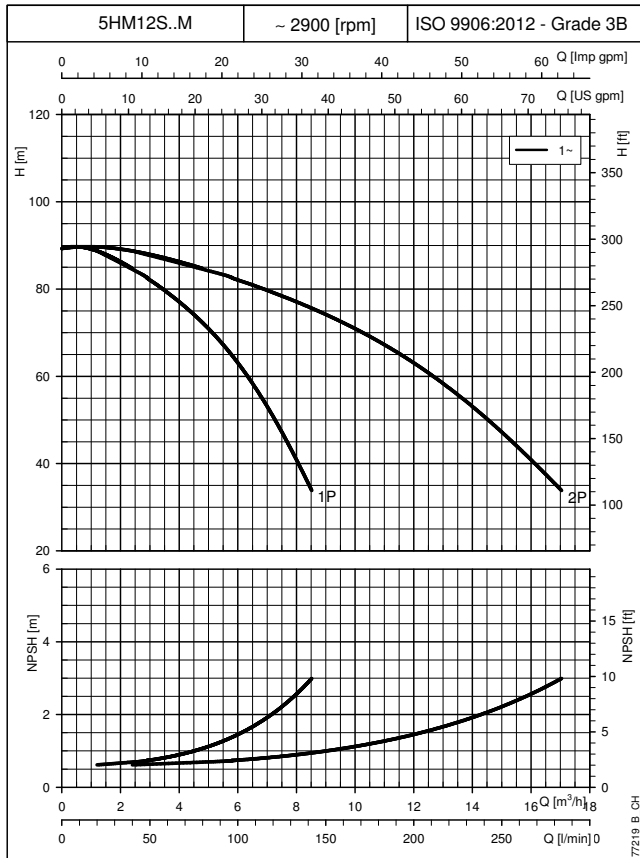
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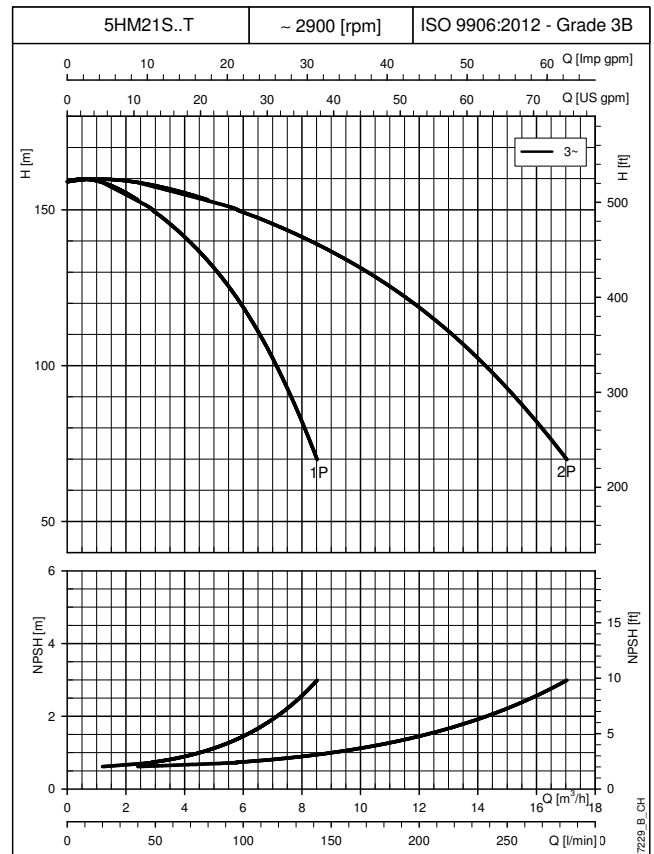
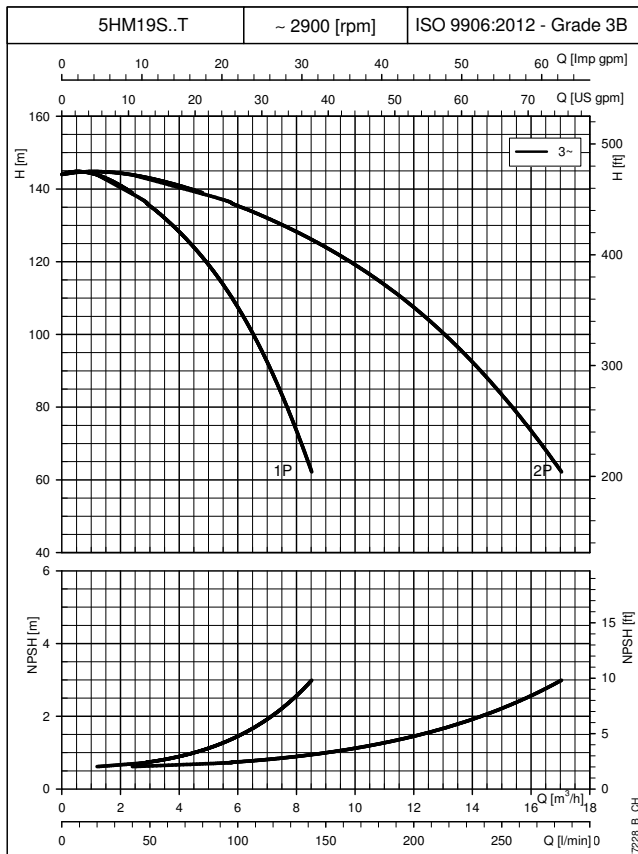
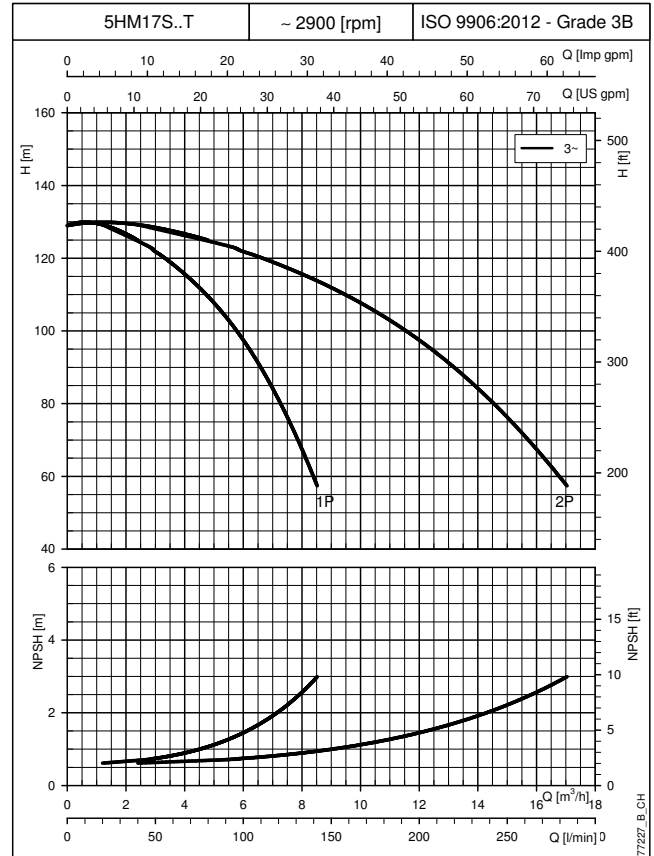
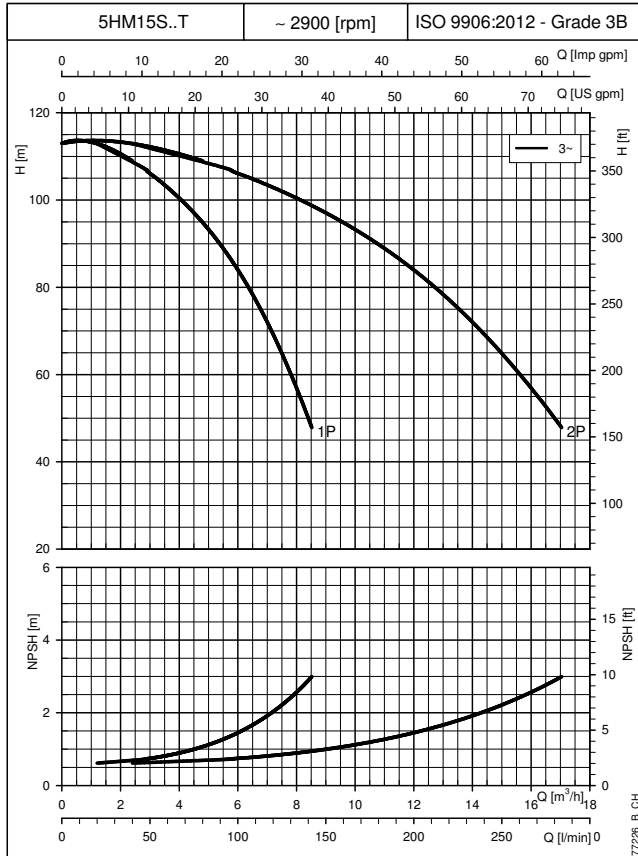
## BOOSTER SETS GX S AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



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

**CURVES**

## GRUPPI DI PRESSIONE SERIE GXS E GMD CARATTERISTICHE DI FUNZIONAMENTO A 50 Hz

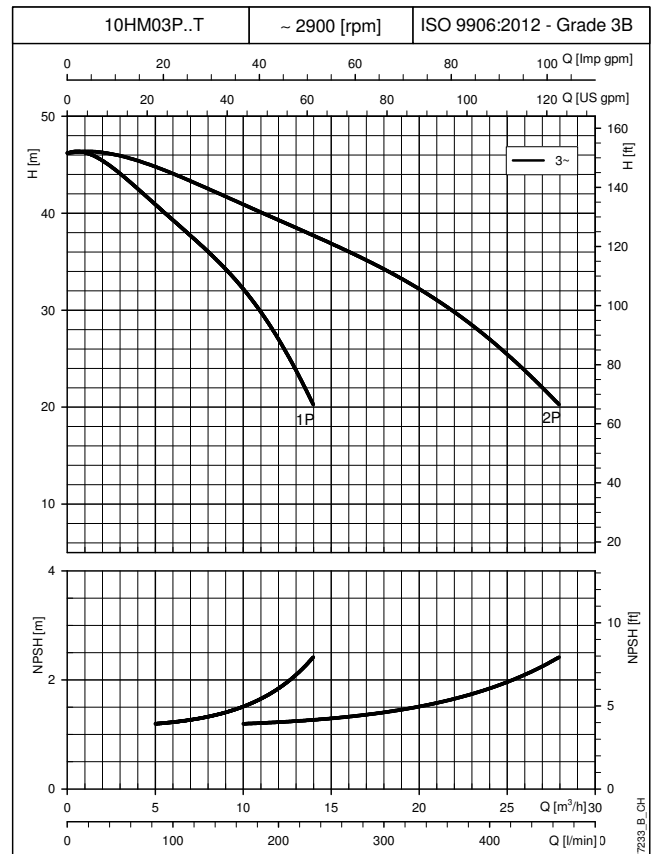
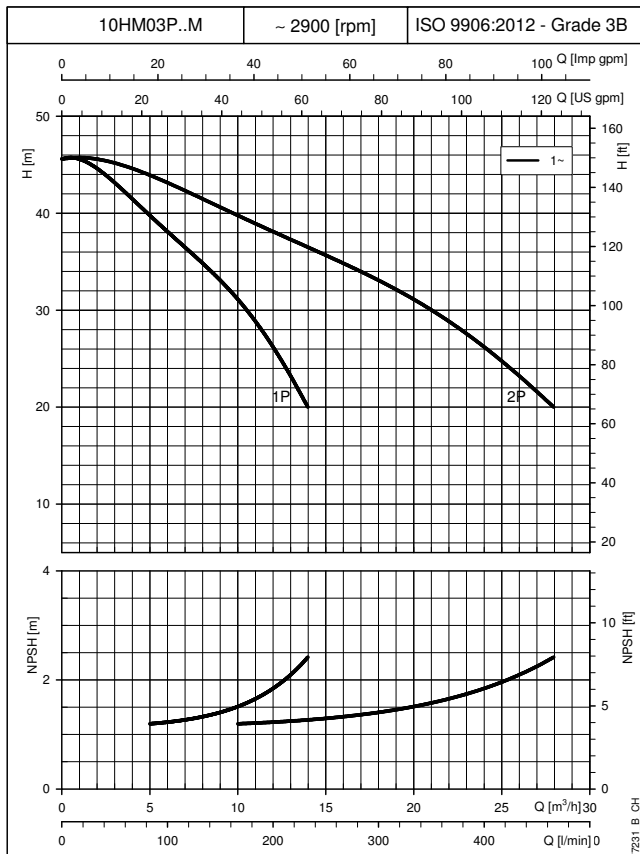
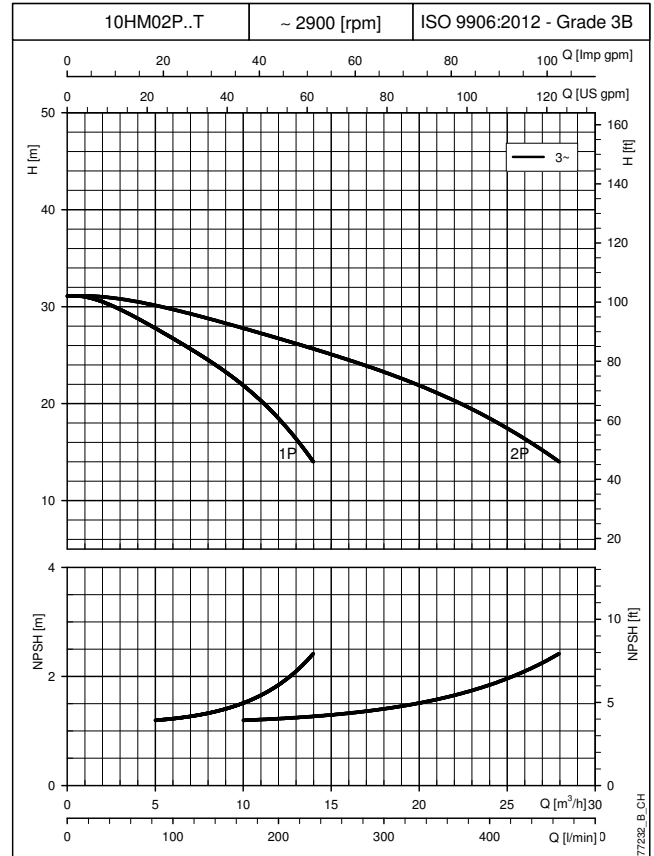
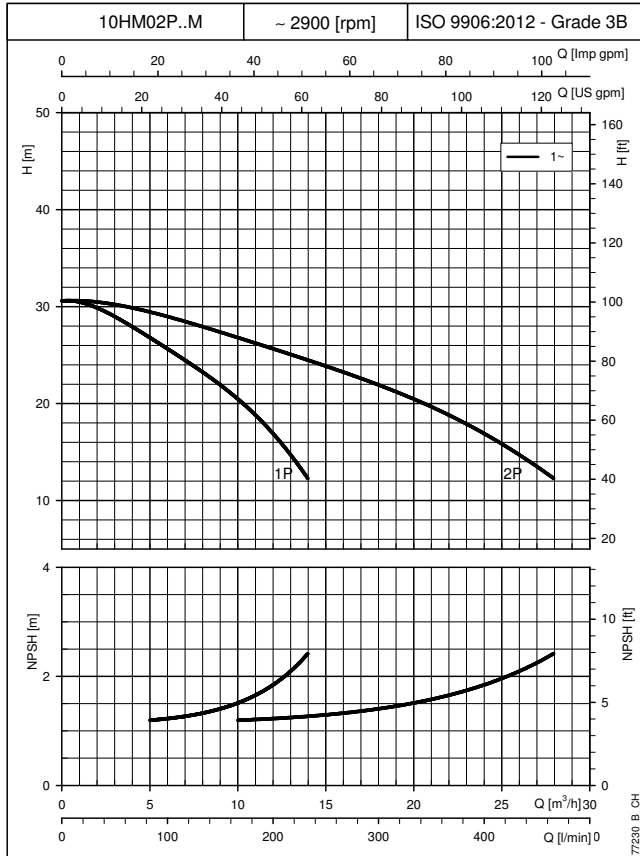


**CURVES**

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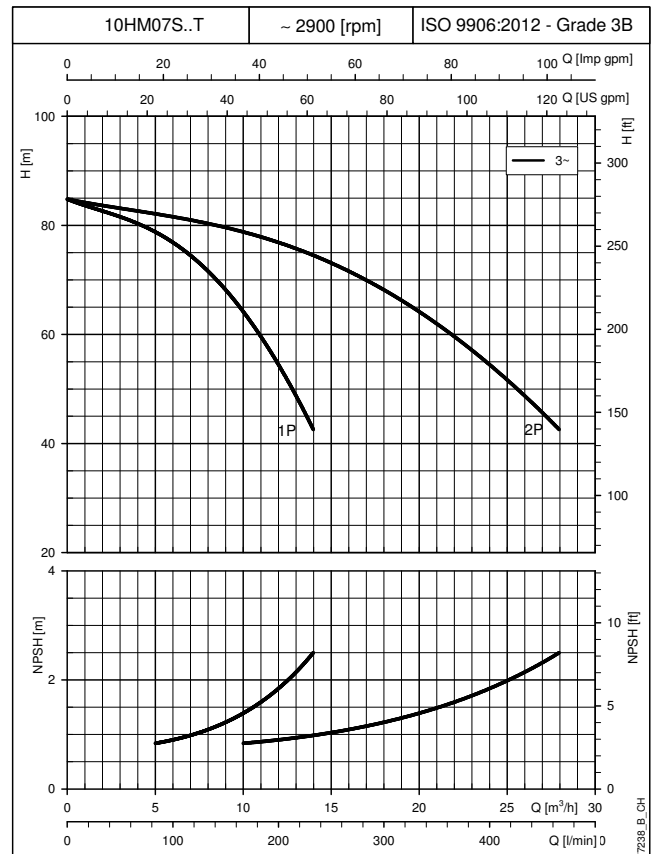
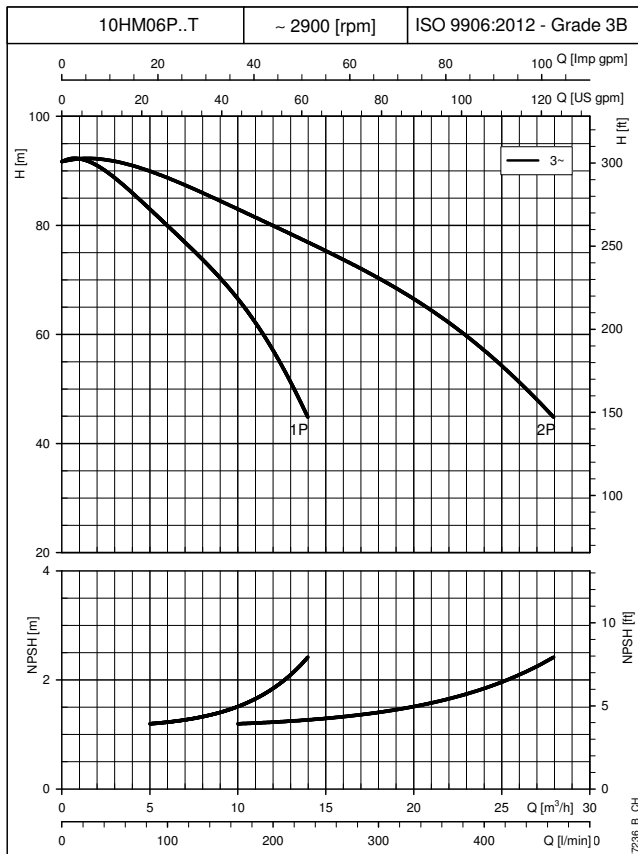
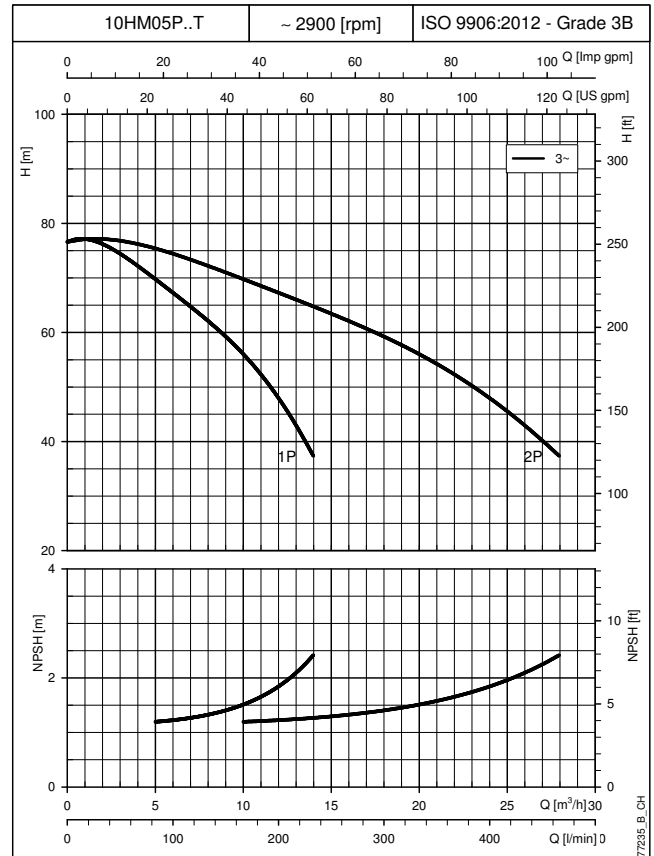
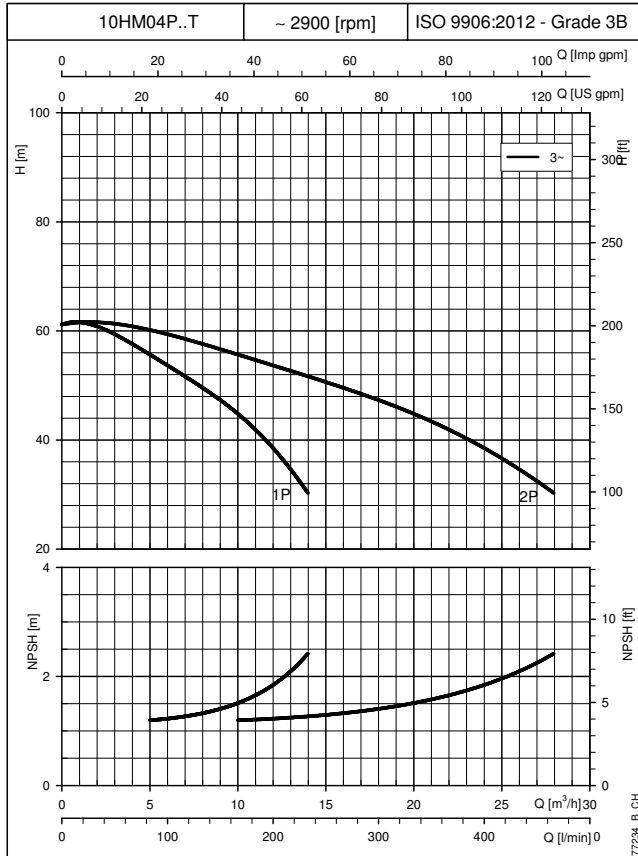
## BOOSTER SETS GX5 AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



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**CURVES**

## GRUPPI DI PRESSIONE SERIE GXS E GMD CARATTERISTICHE DI FUNZIONAMENTO A 50 Hz



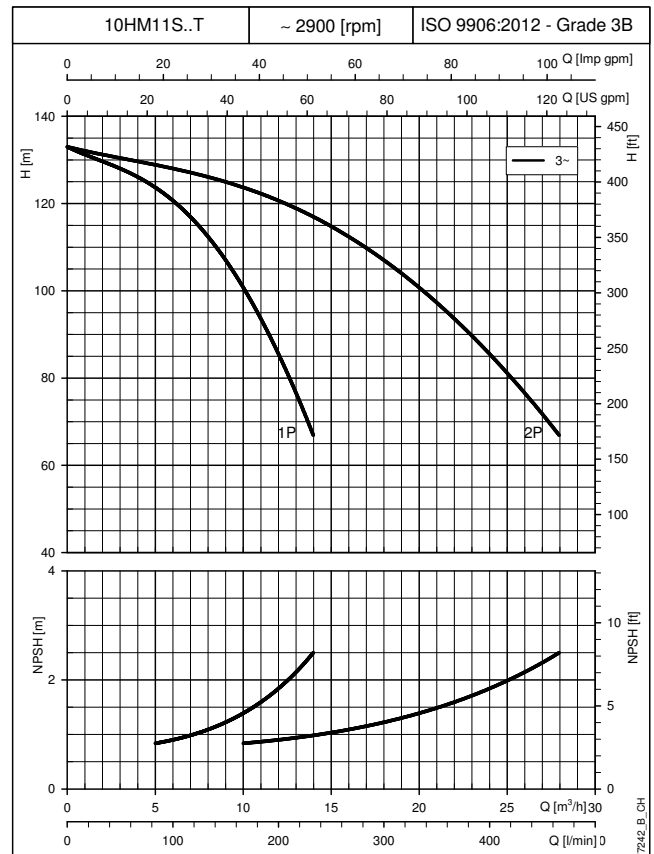
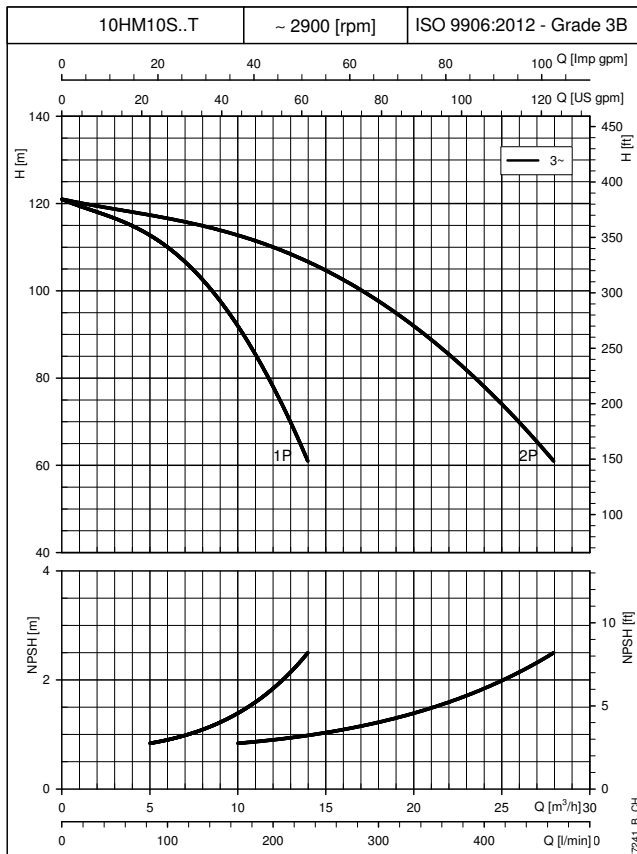
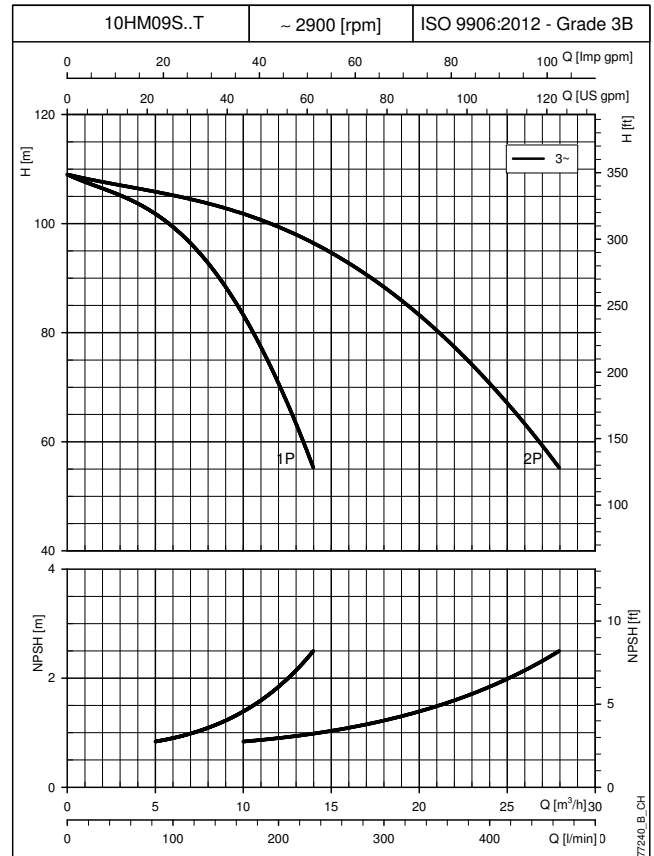
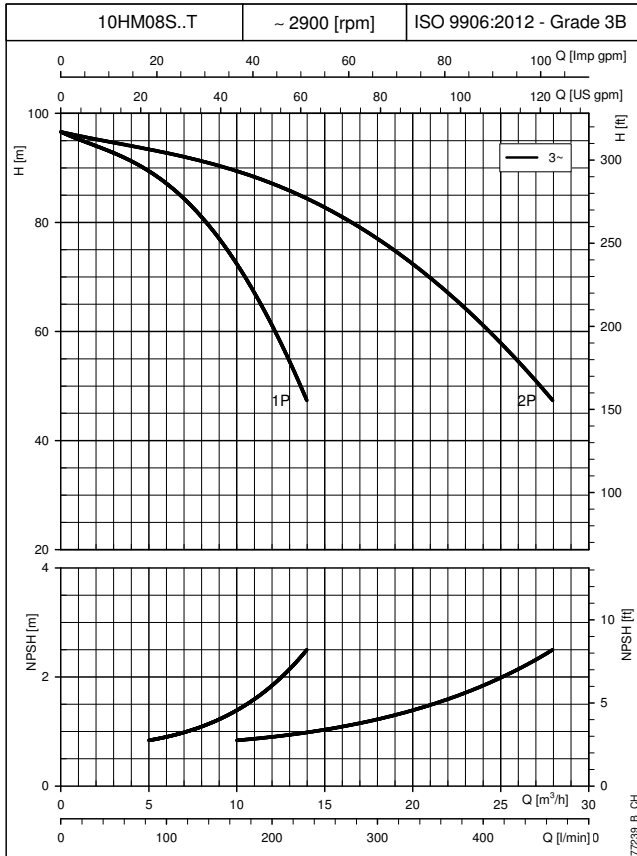
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CURVES

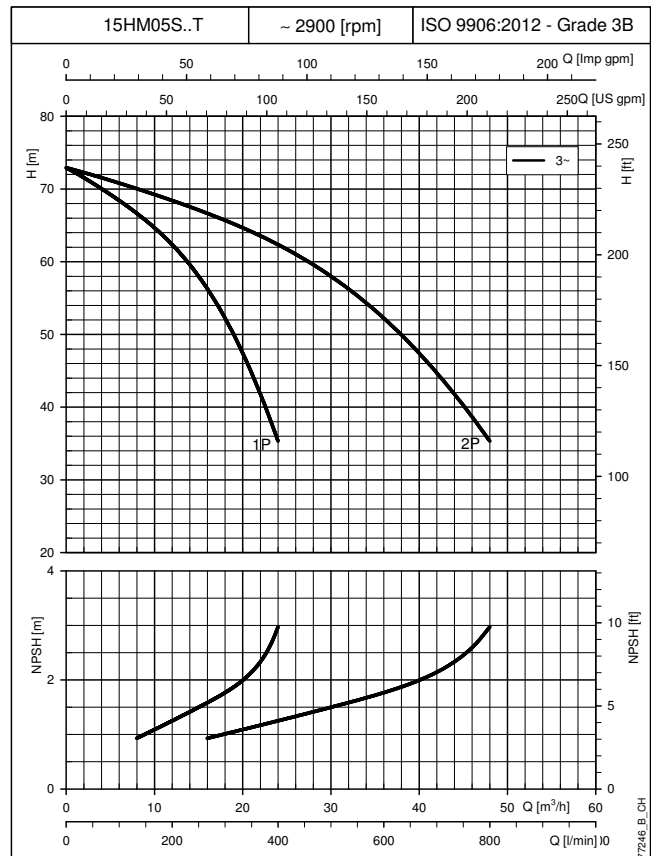
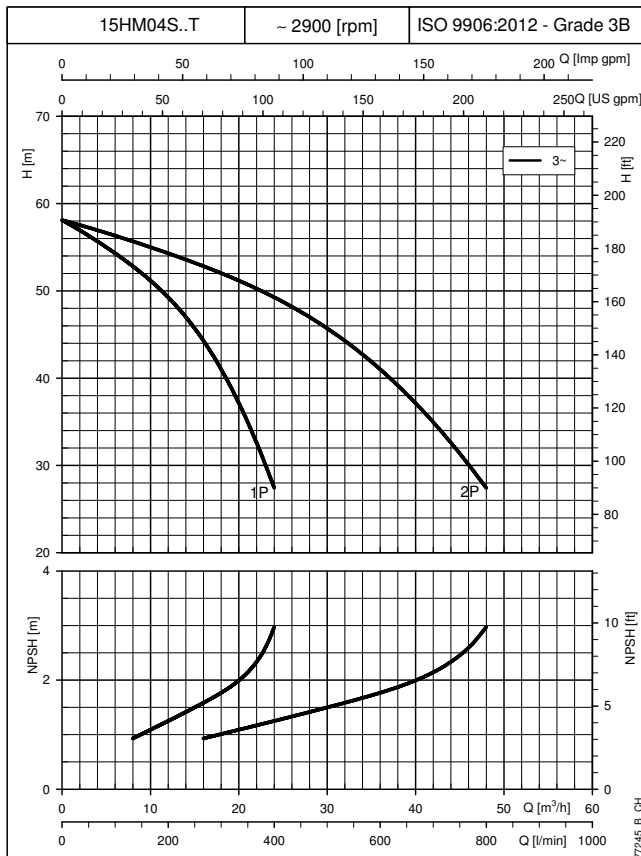
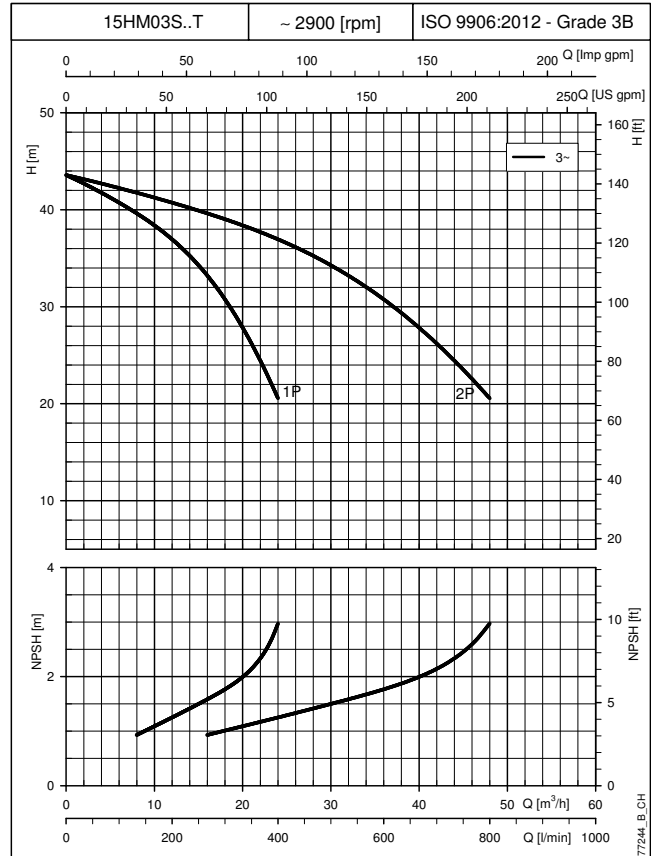
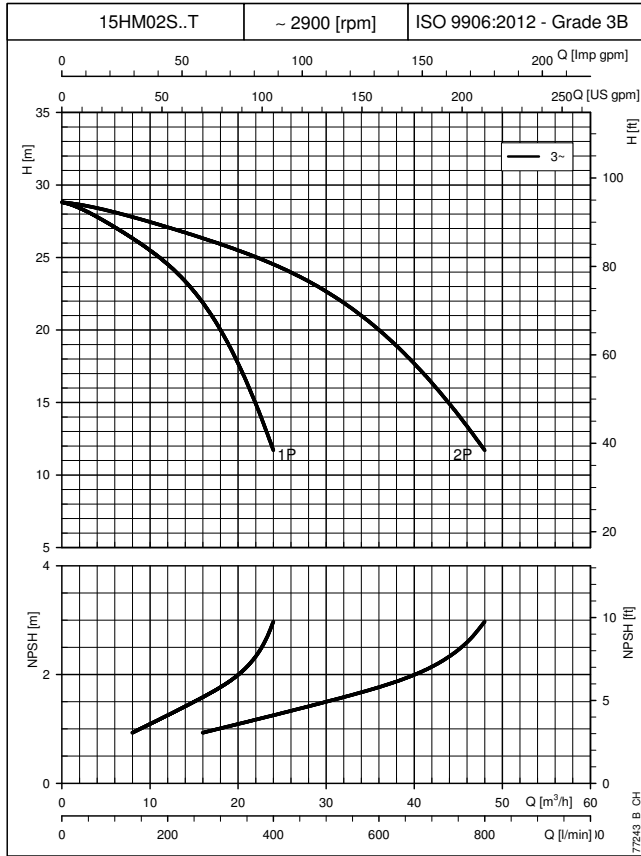
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**CURVES**

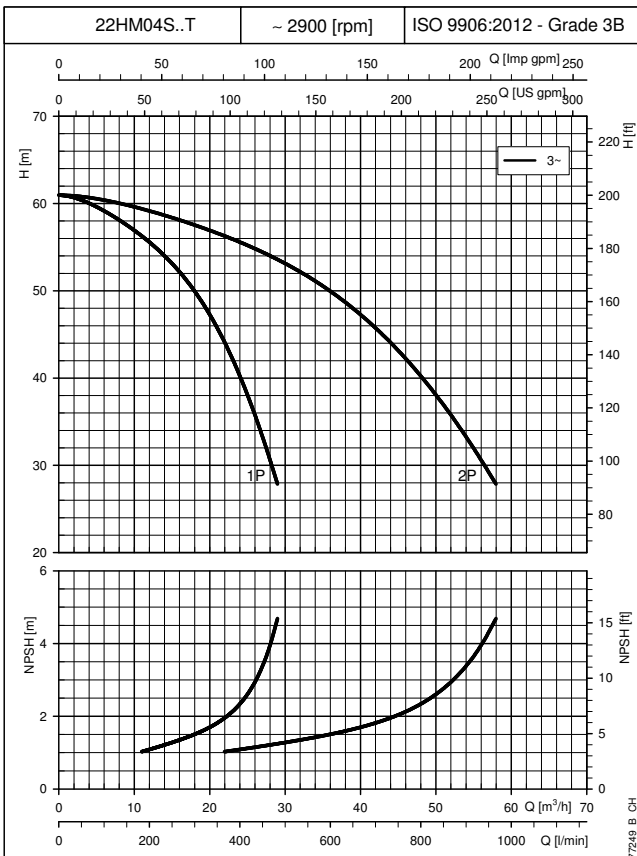
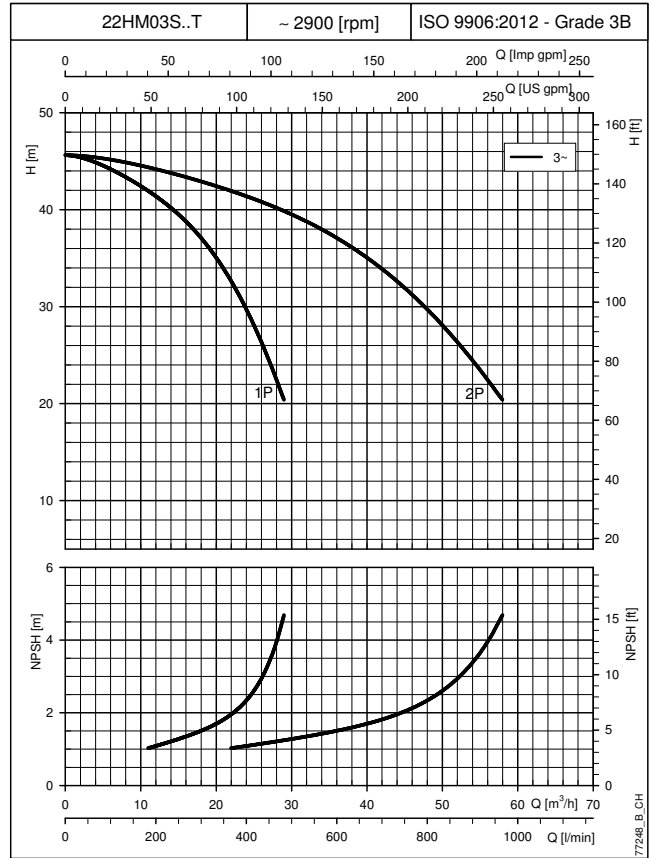
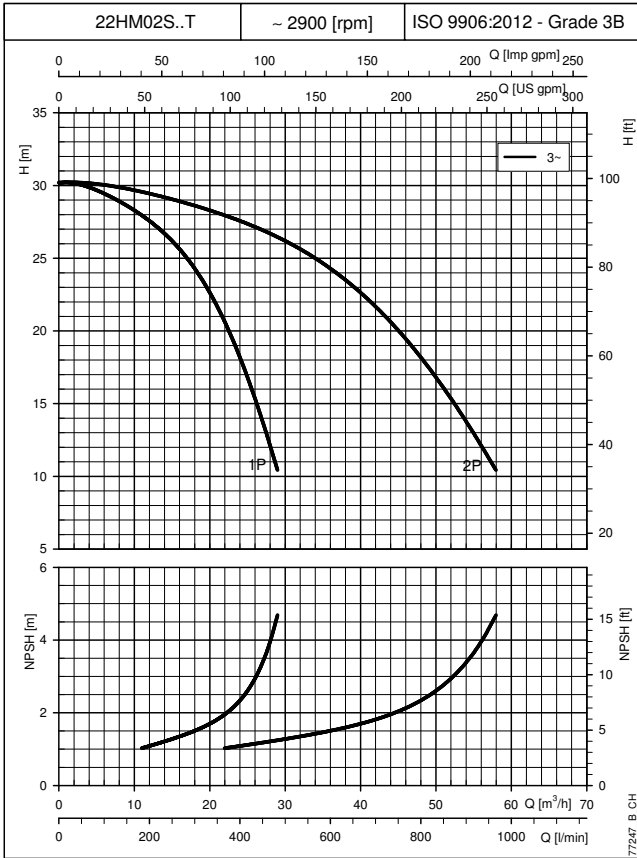
## BOOSTER SETS GX5 AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



CURVES

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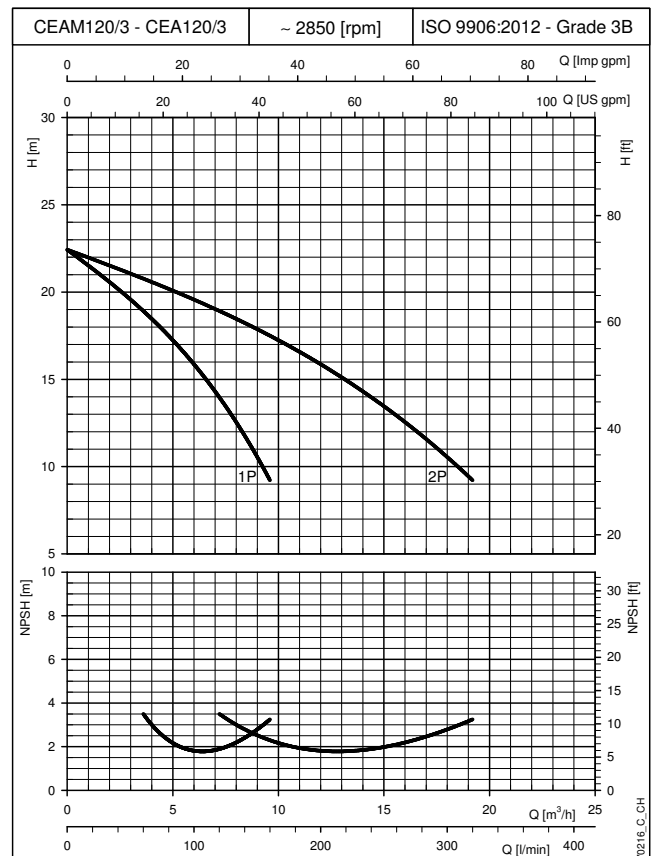
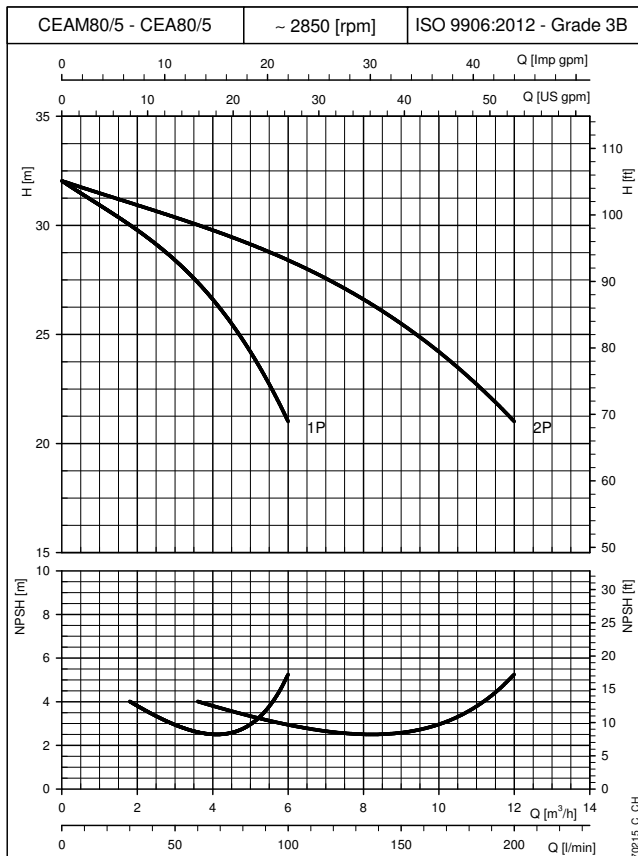
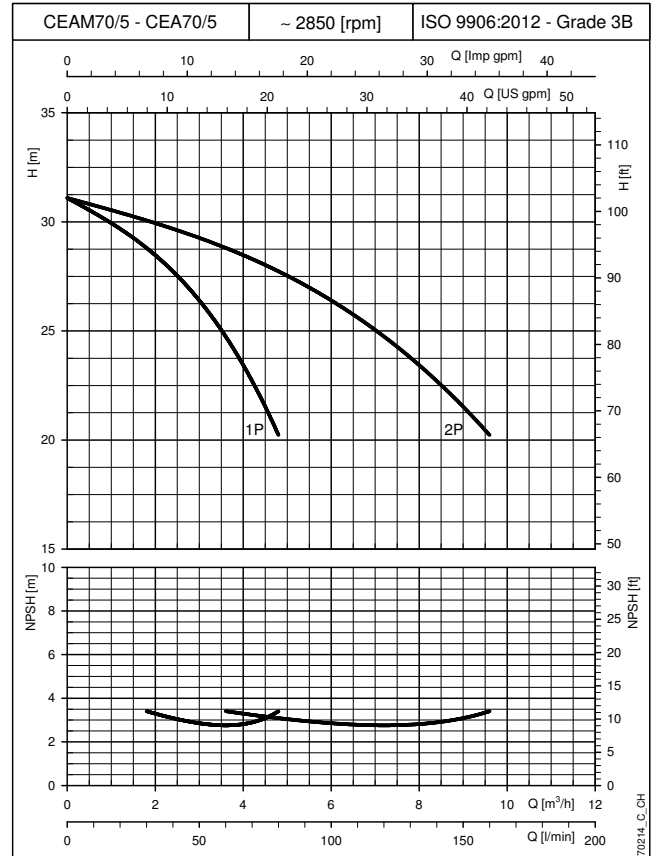
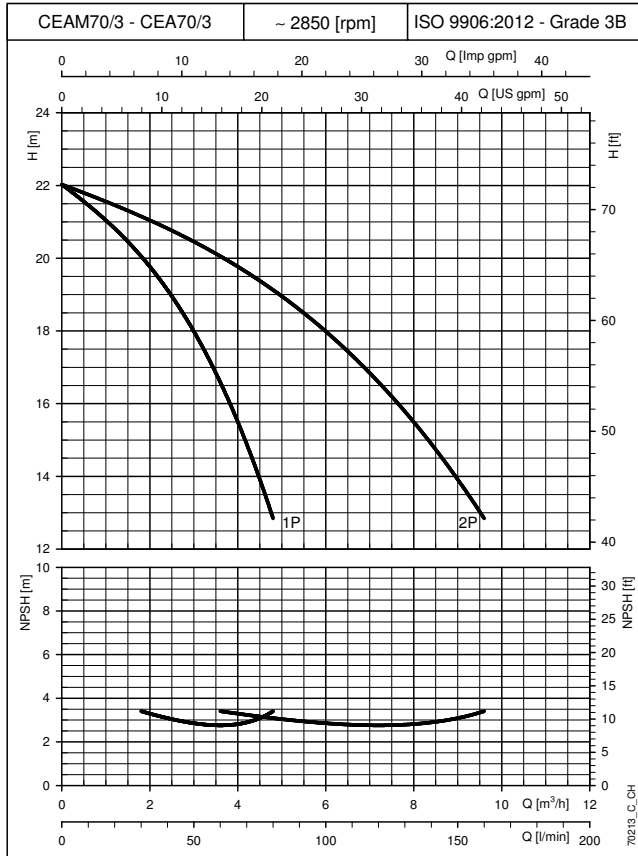
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**CURVES**

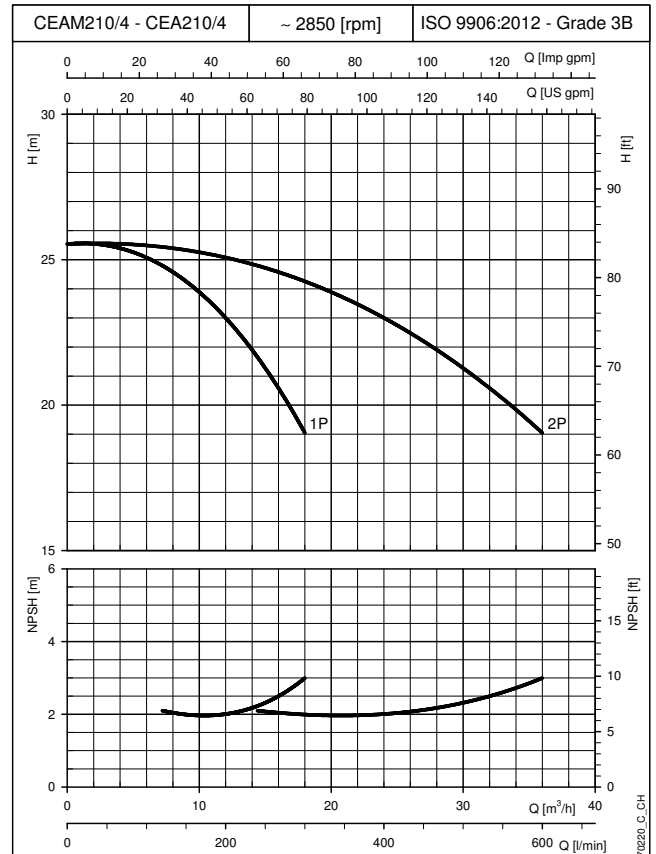
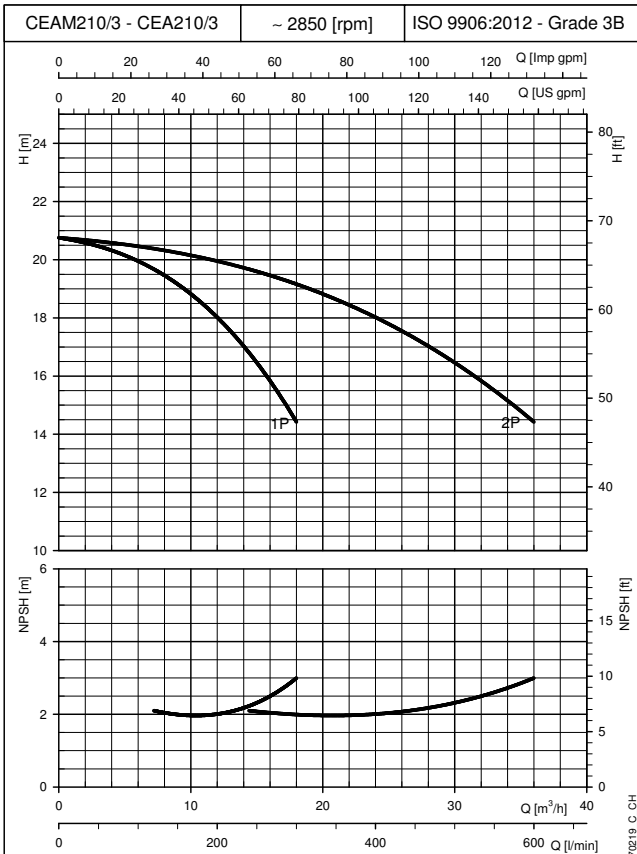
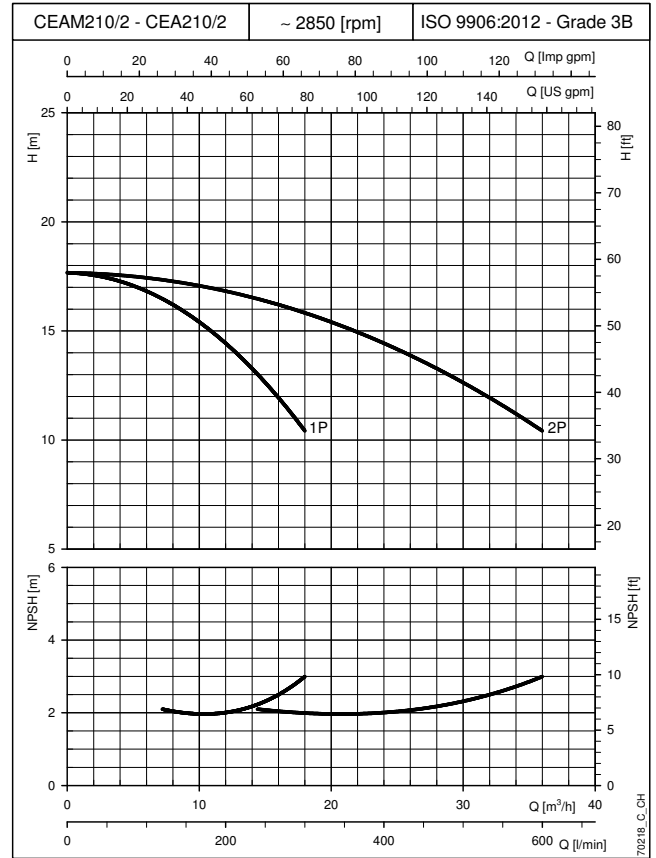
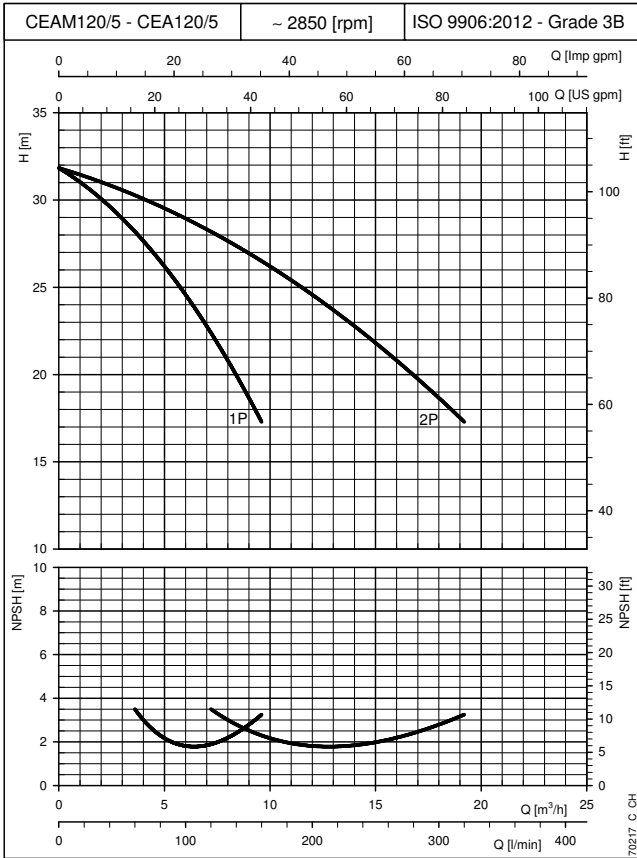
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CURVES

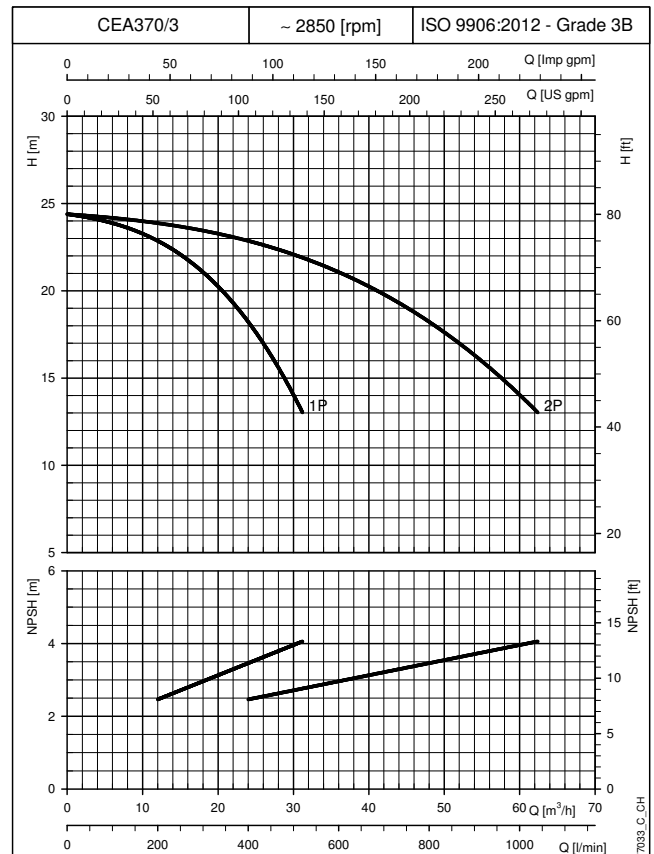
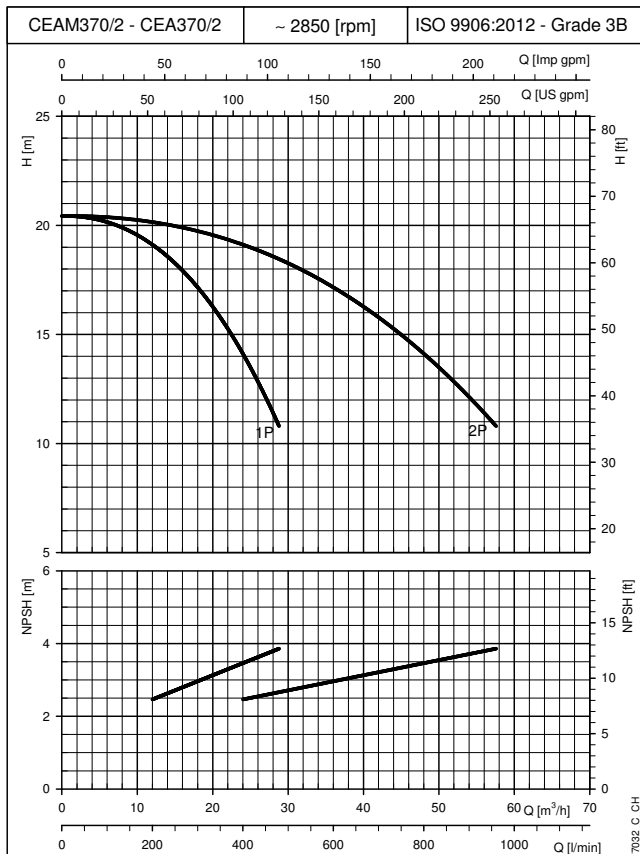
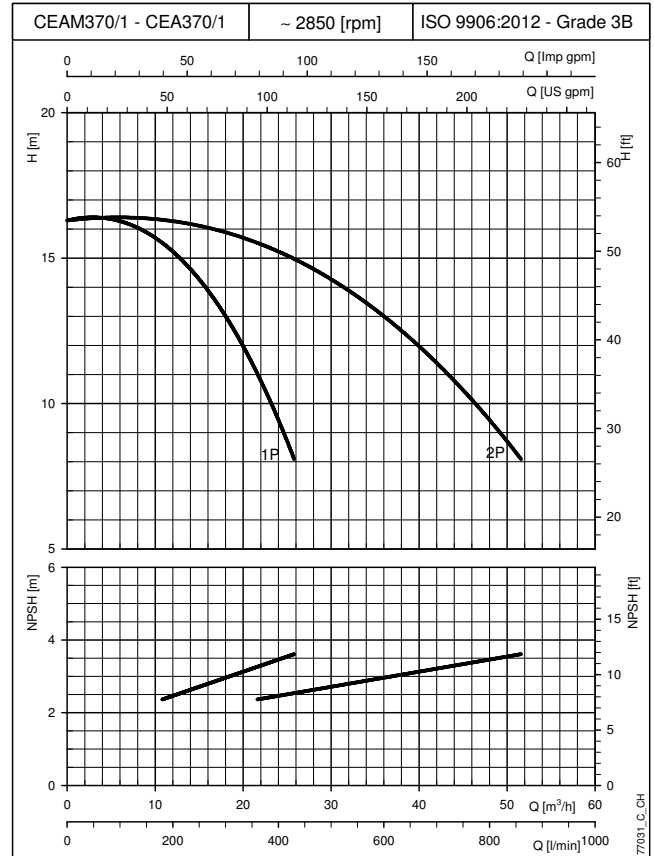
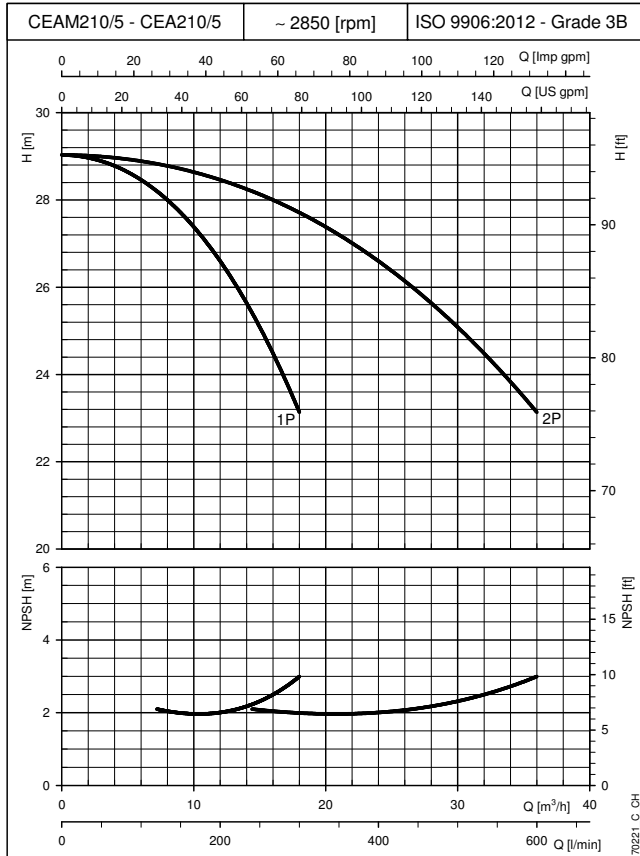
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**CURVES**

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

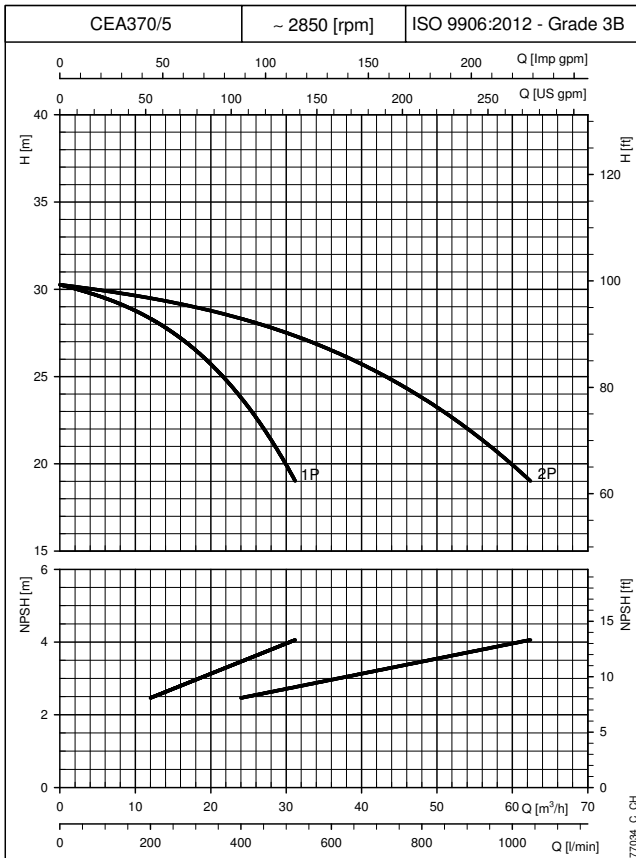


CURVES

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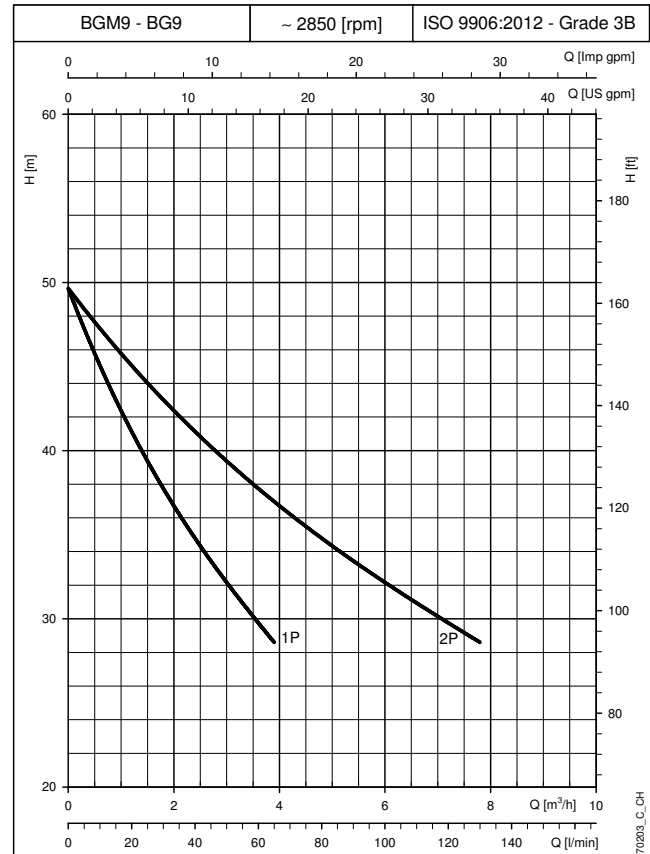
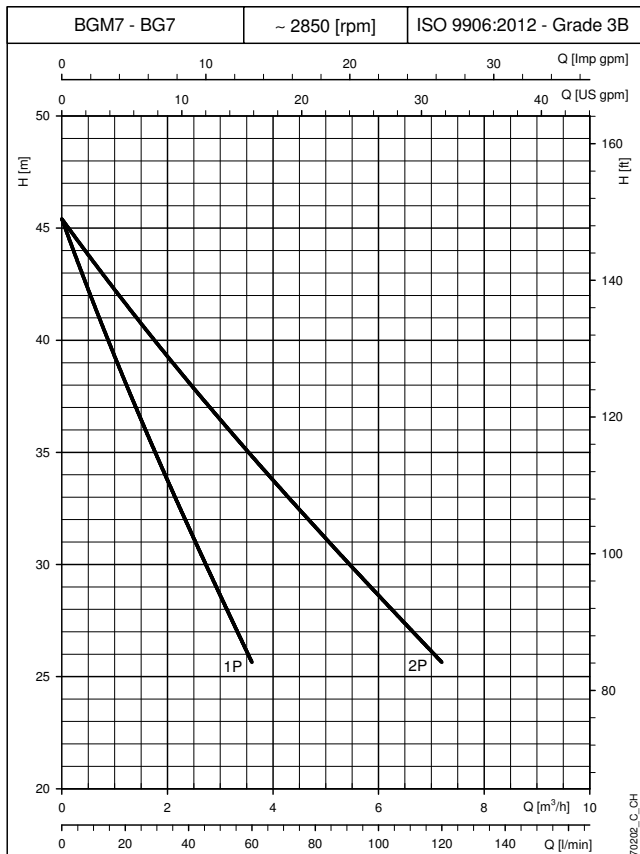
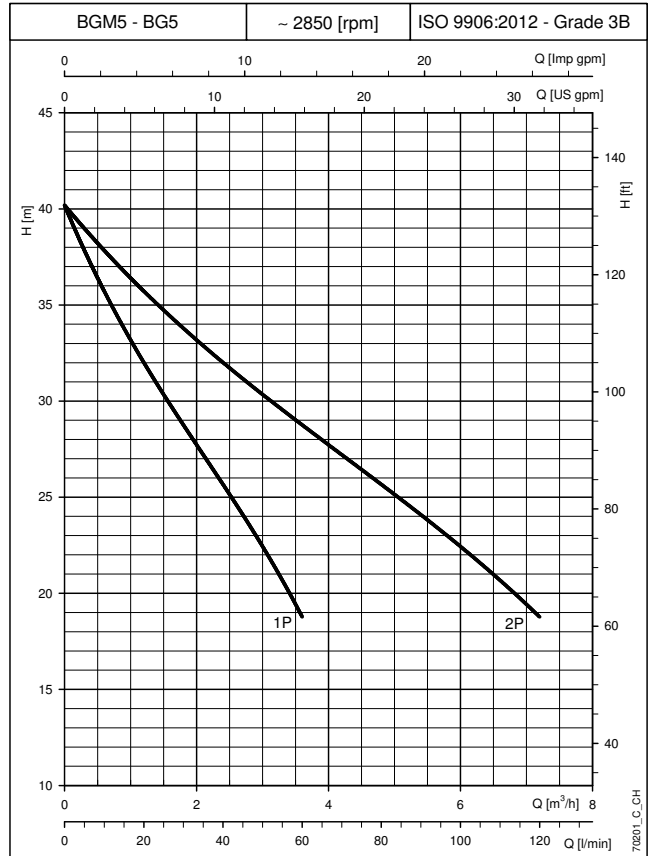
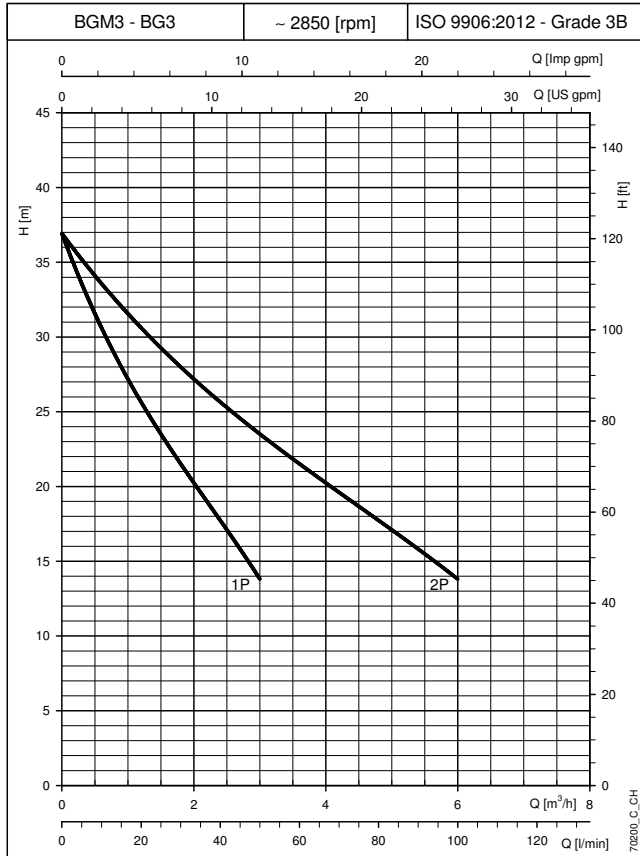


## BOOSTER SETS GXS AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



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 These performances are valid for liquids with density  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
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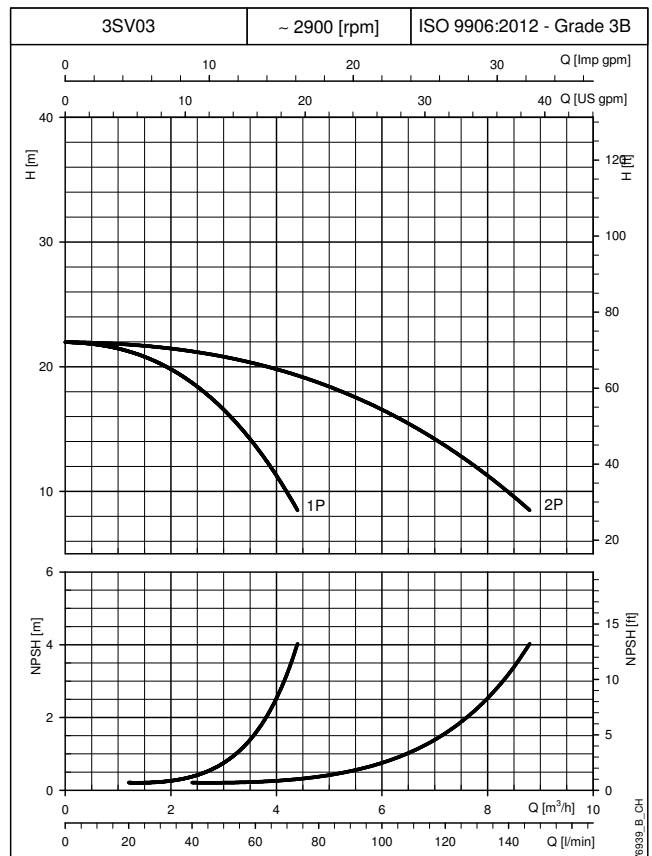
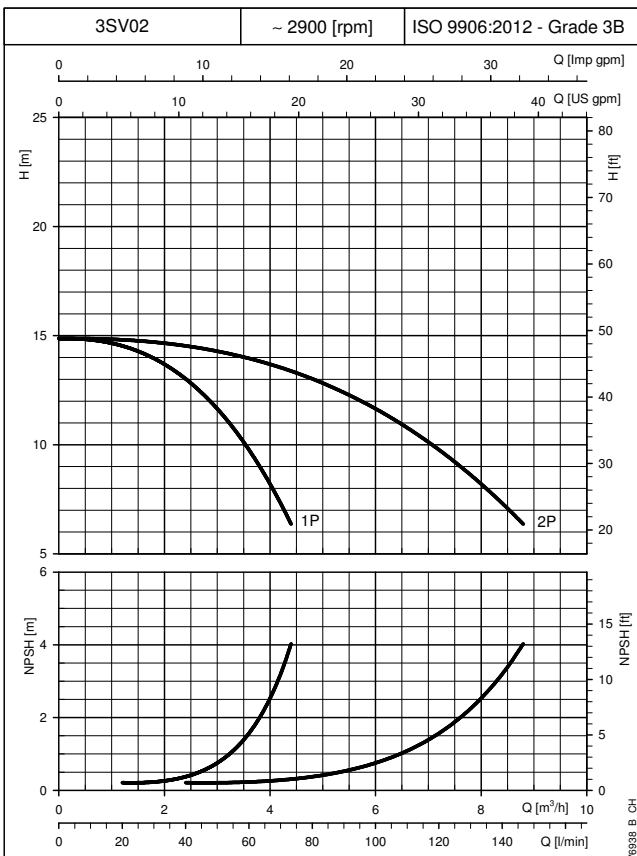
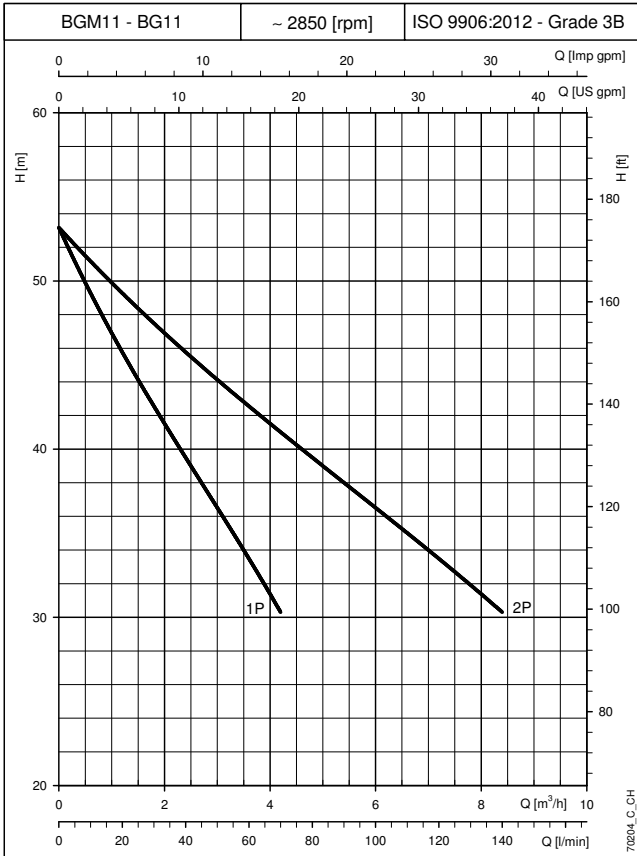
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**CURVES**

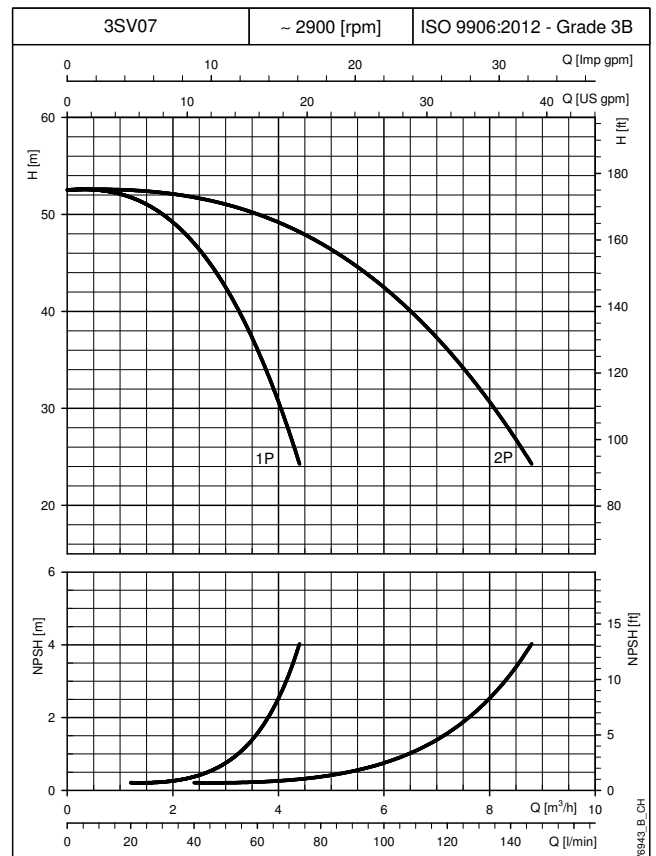
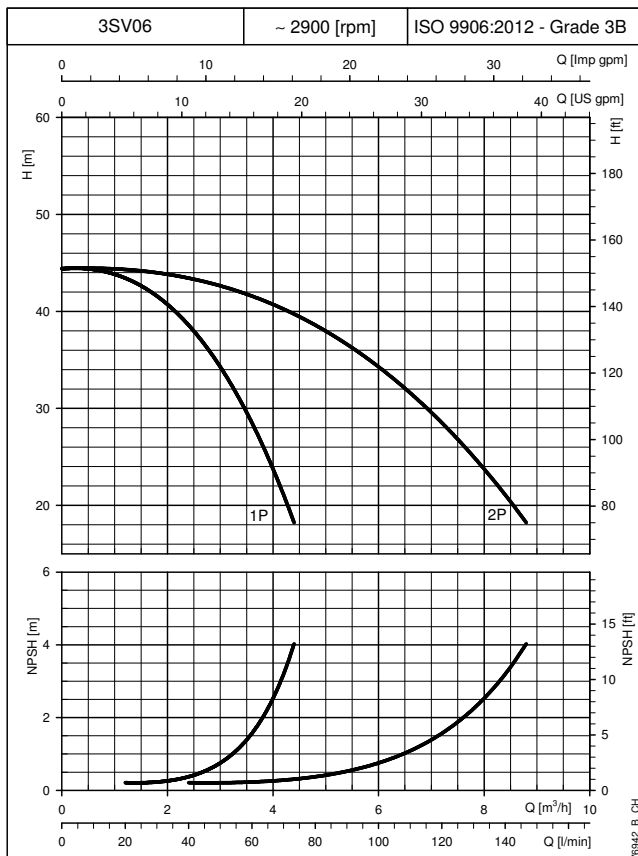
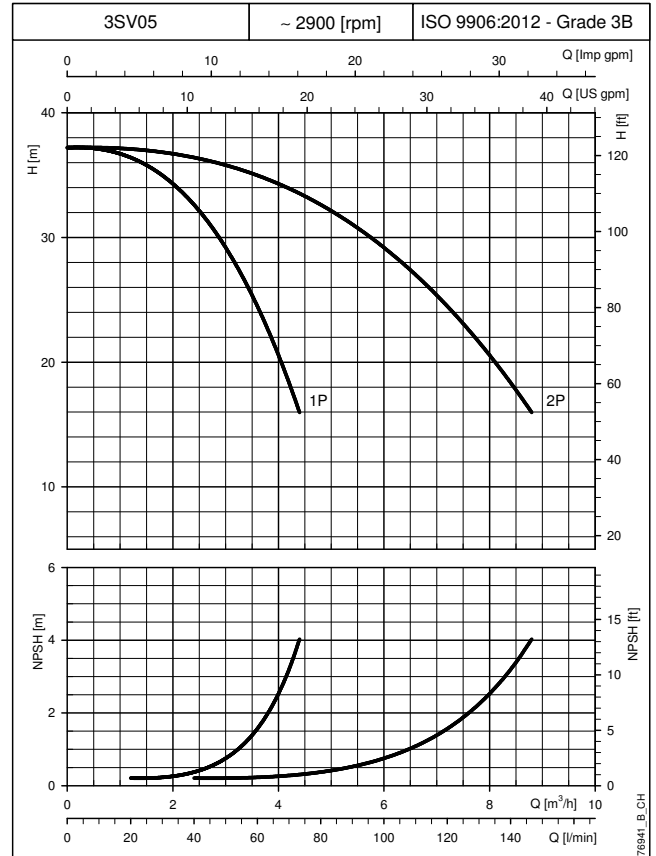
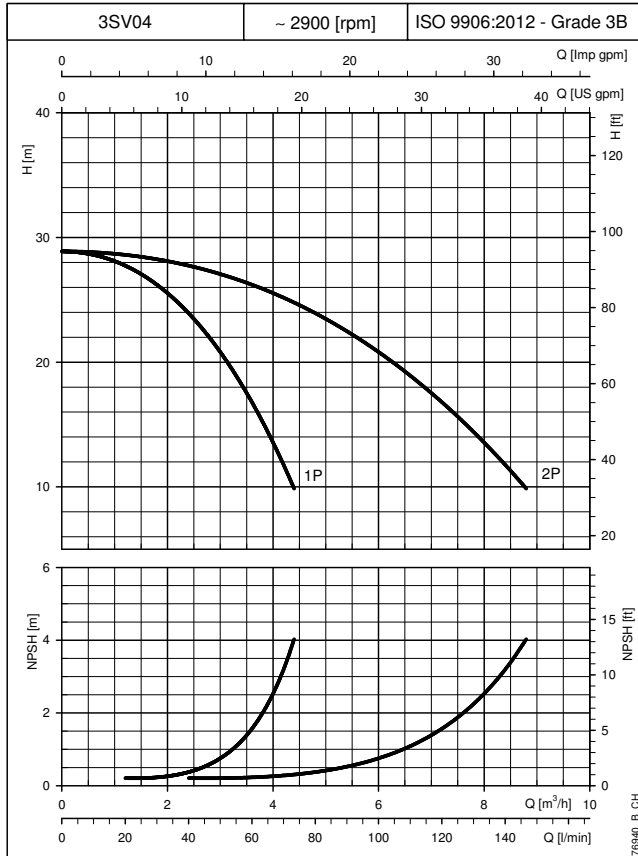
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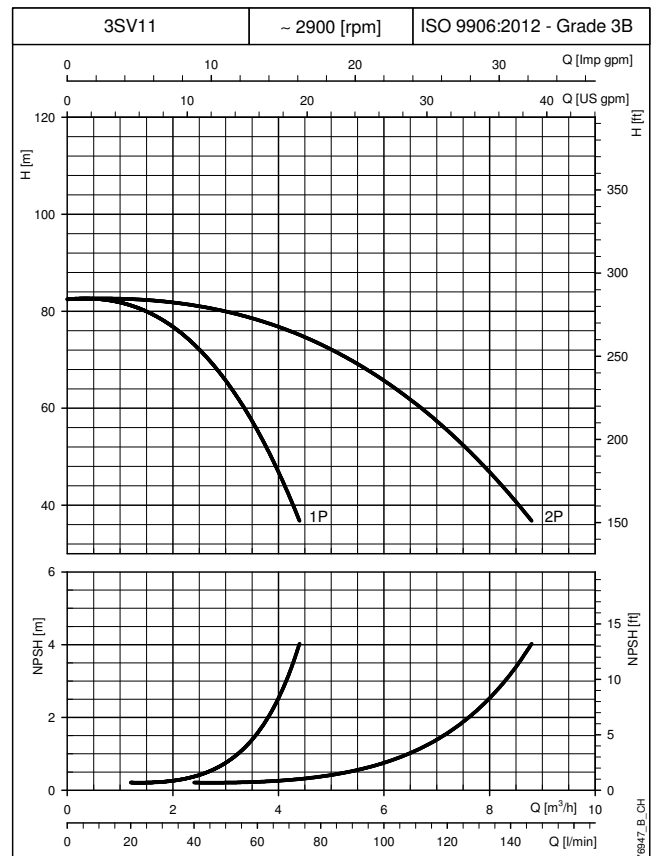
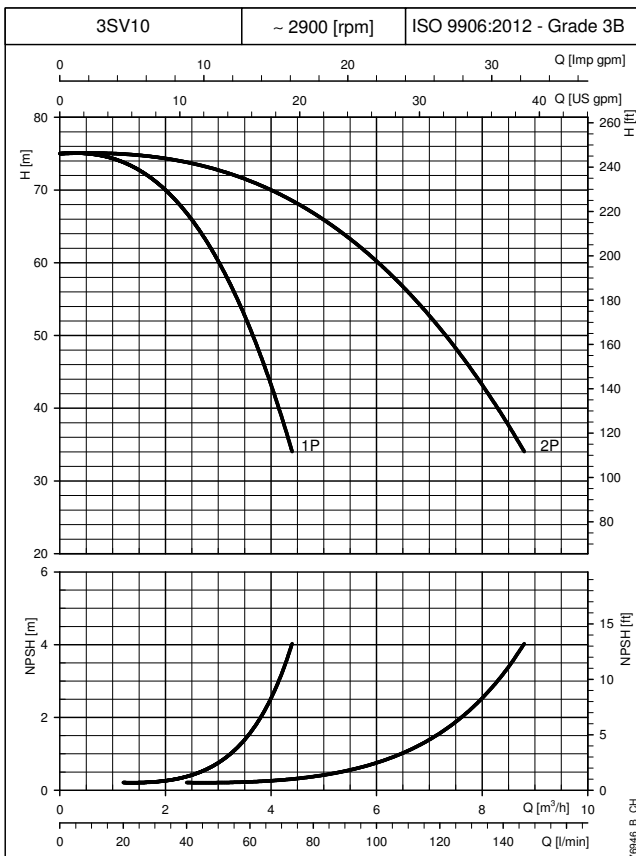
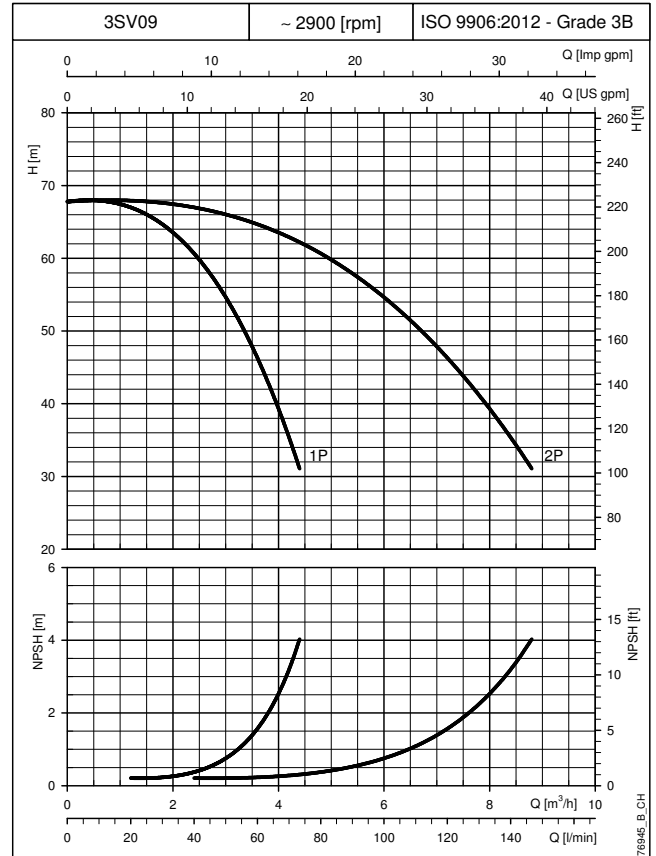
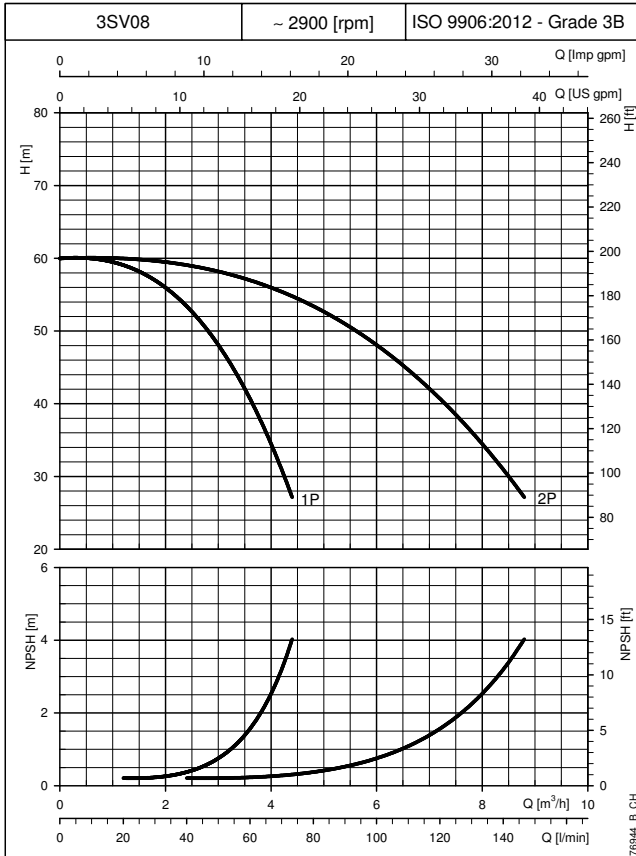
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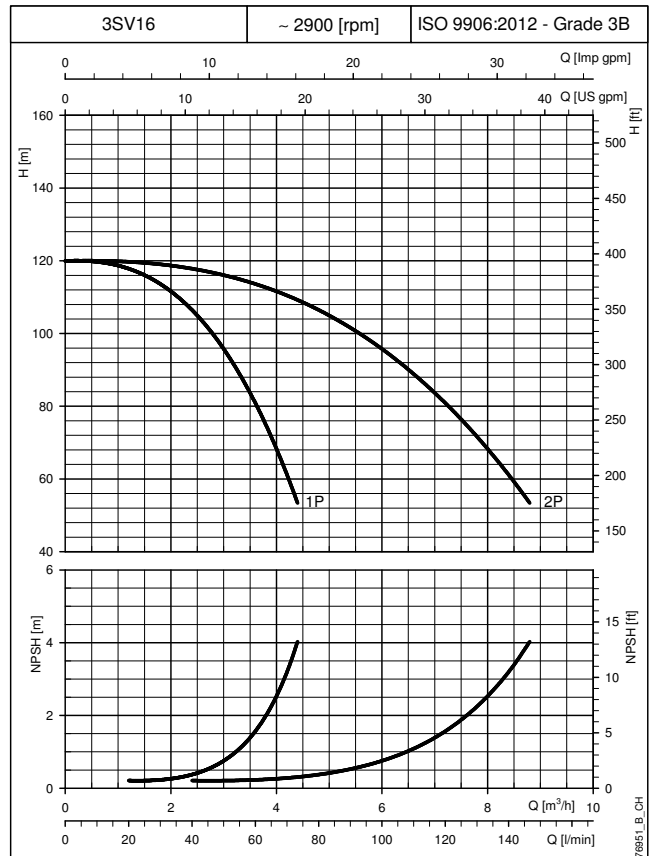
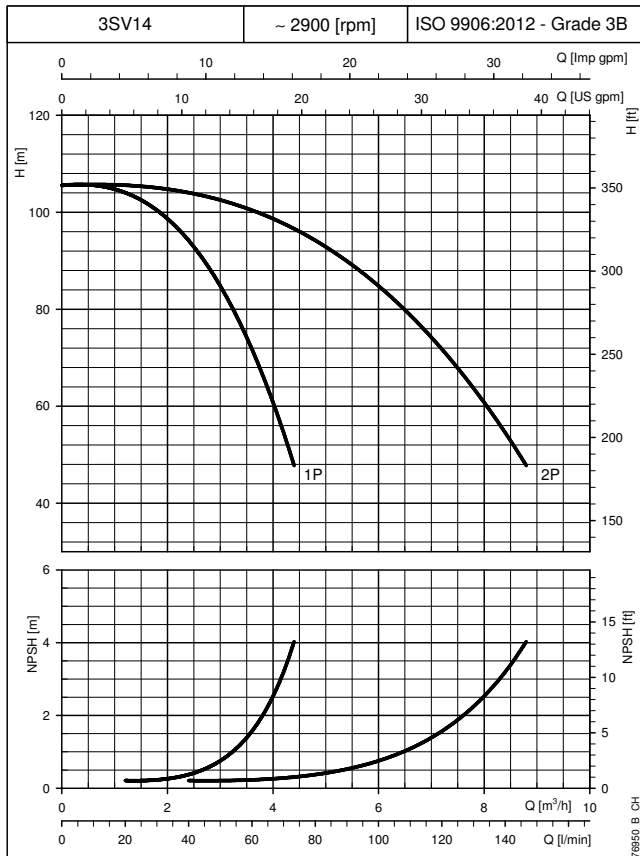
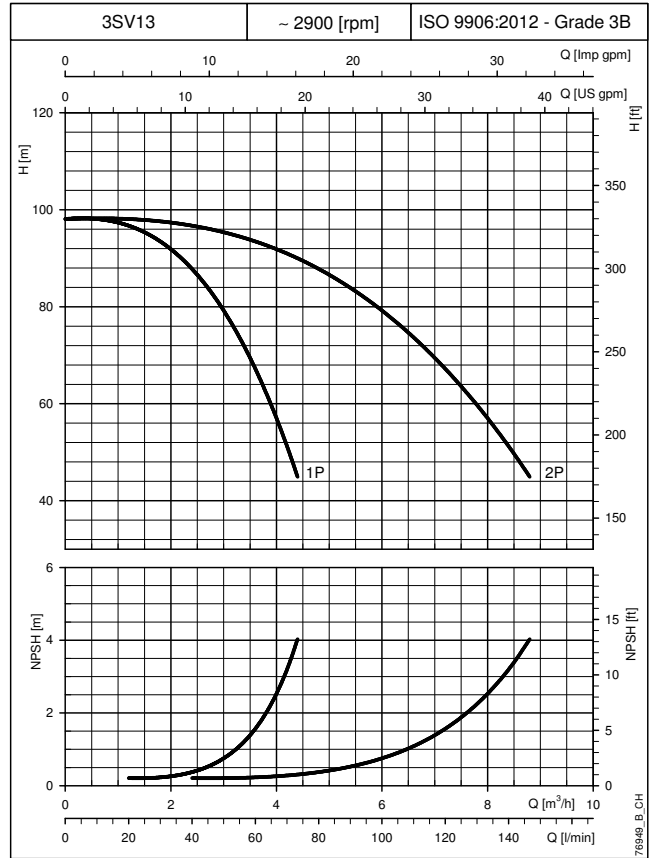
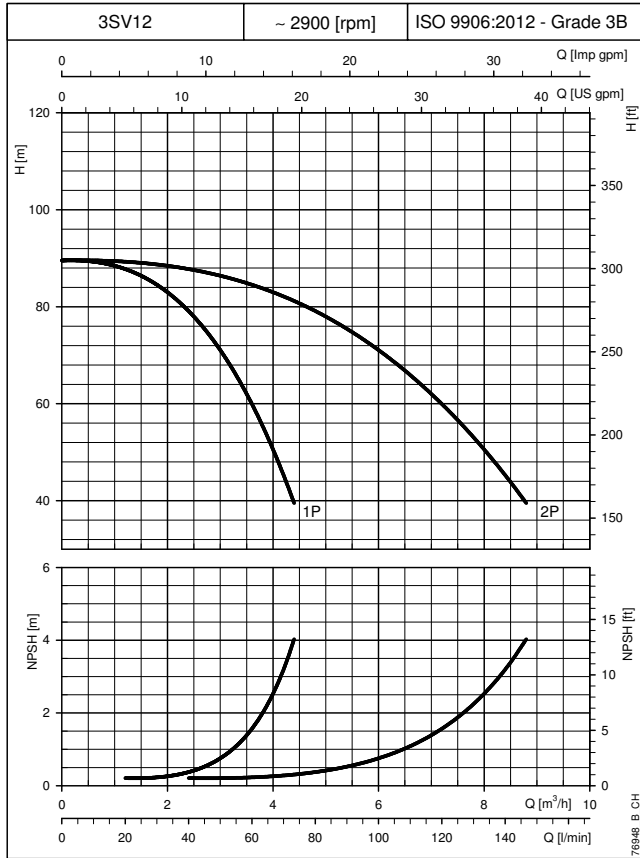
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**CURVES**

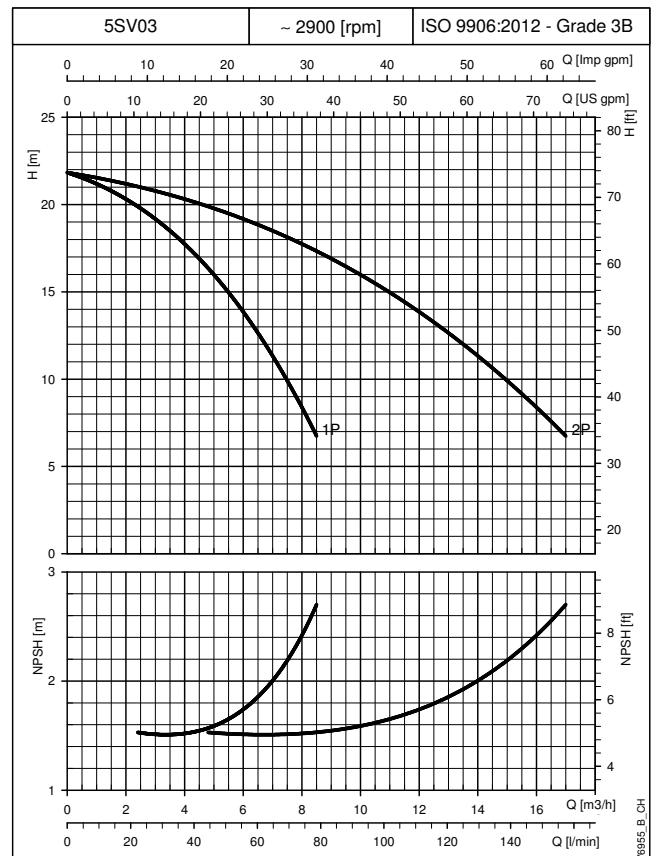
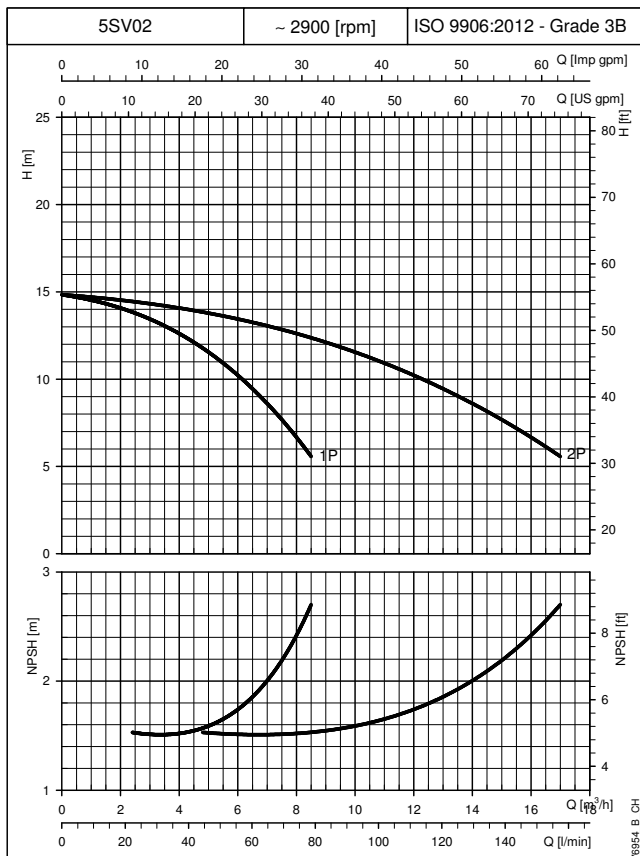
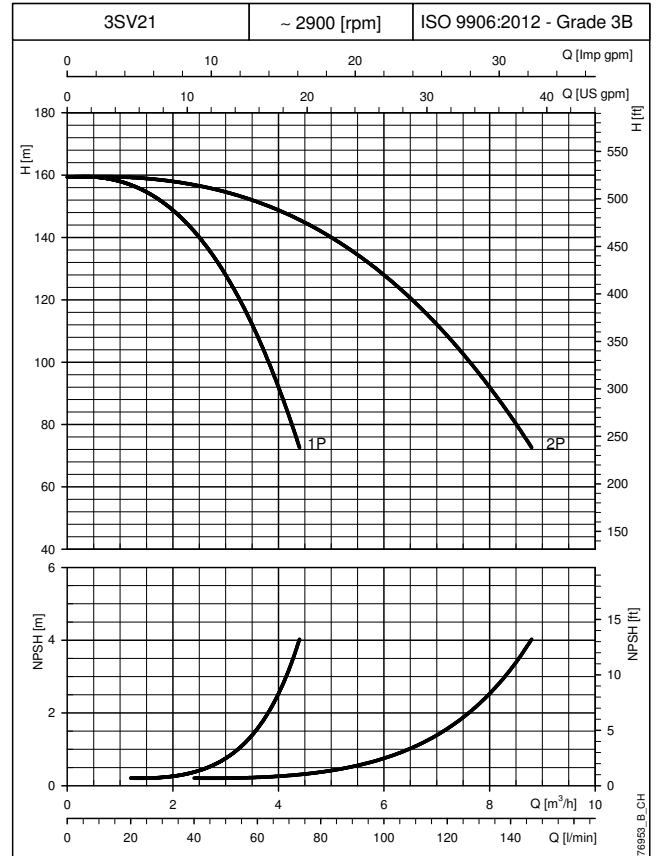
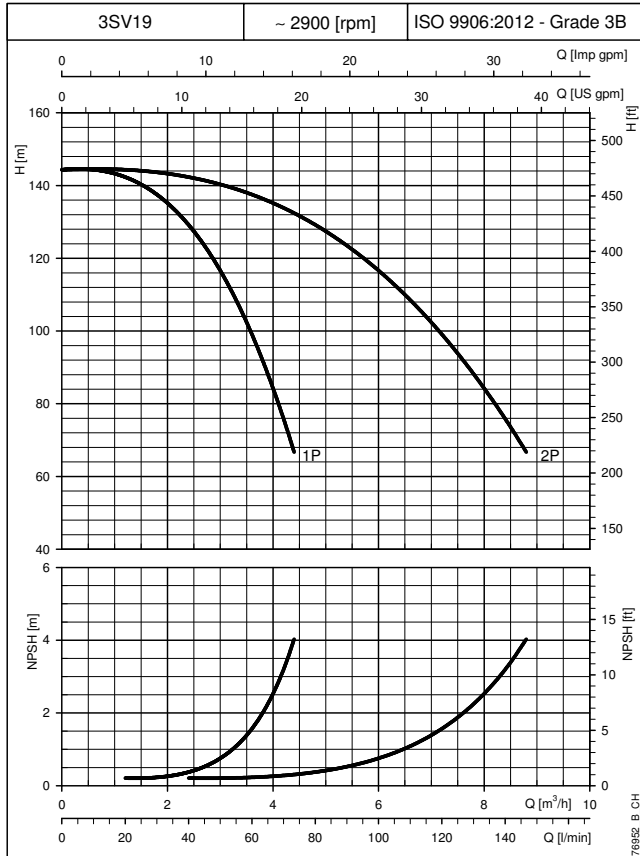
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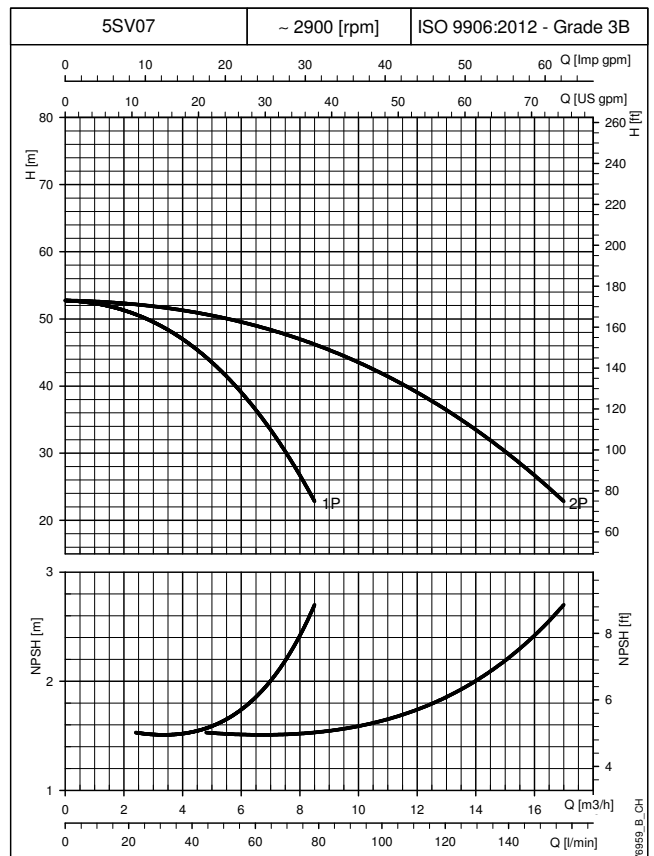
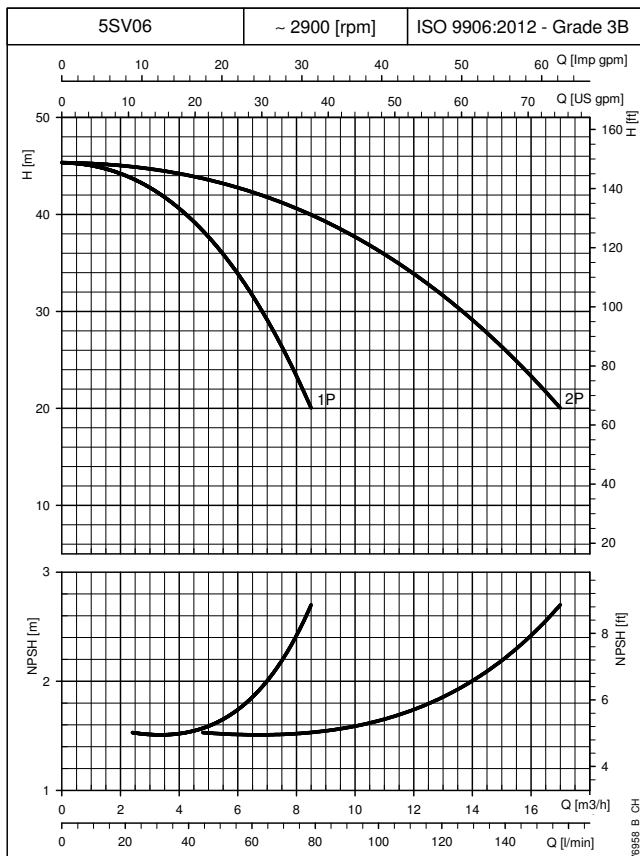
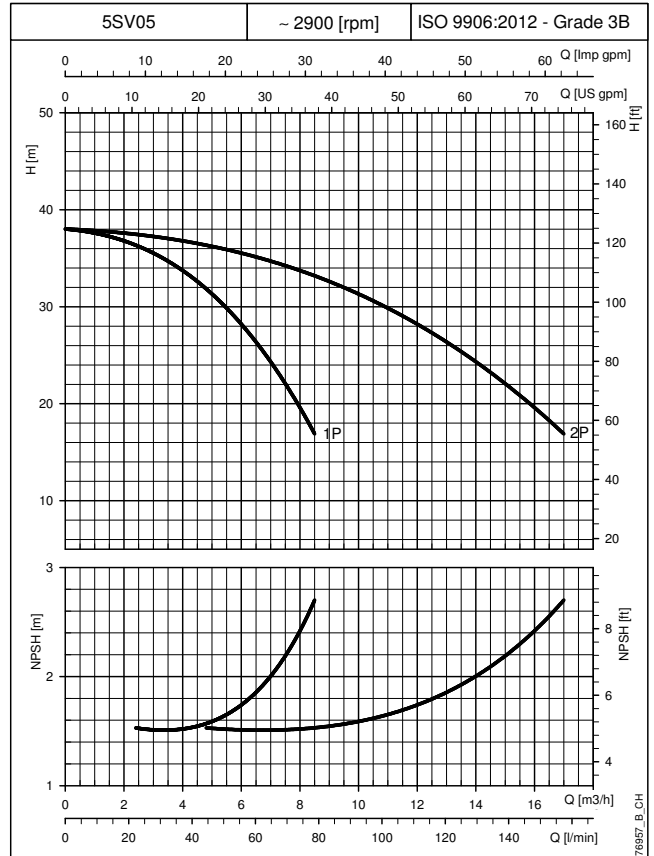
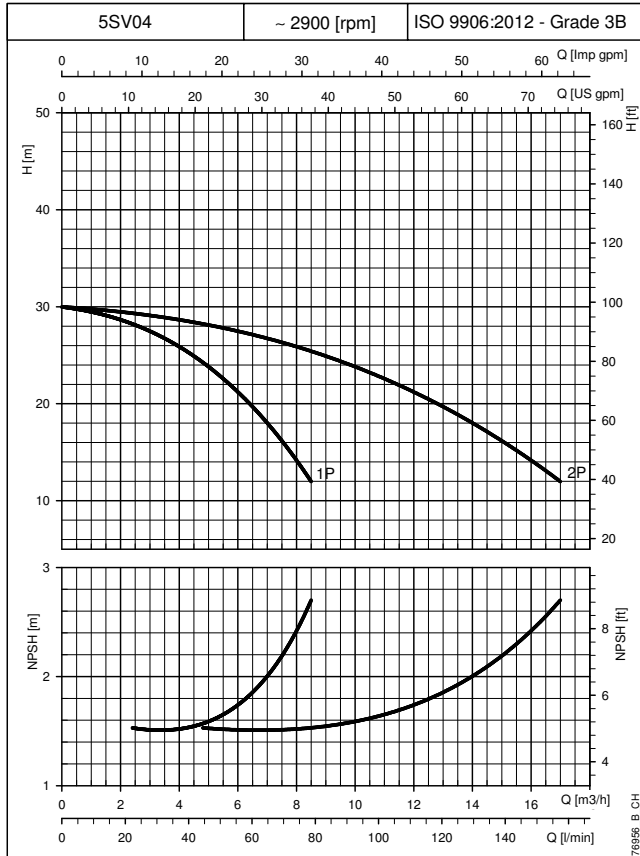
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**CURVES**

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

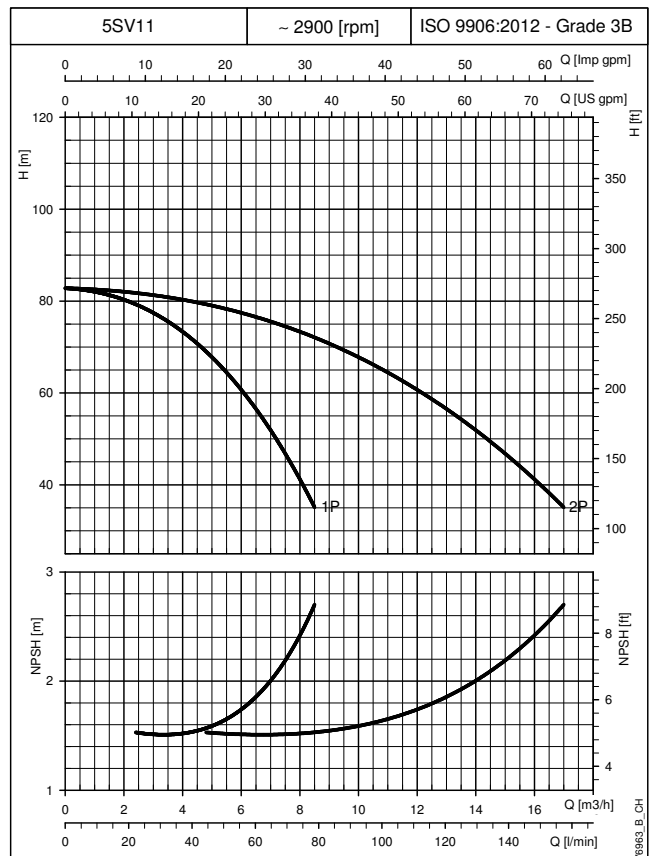
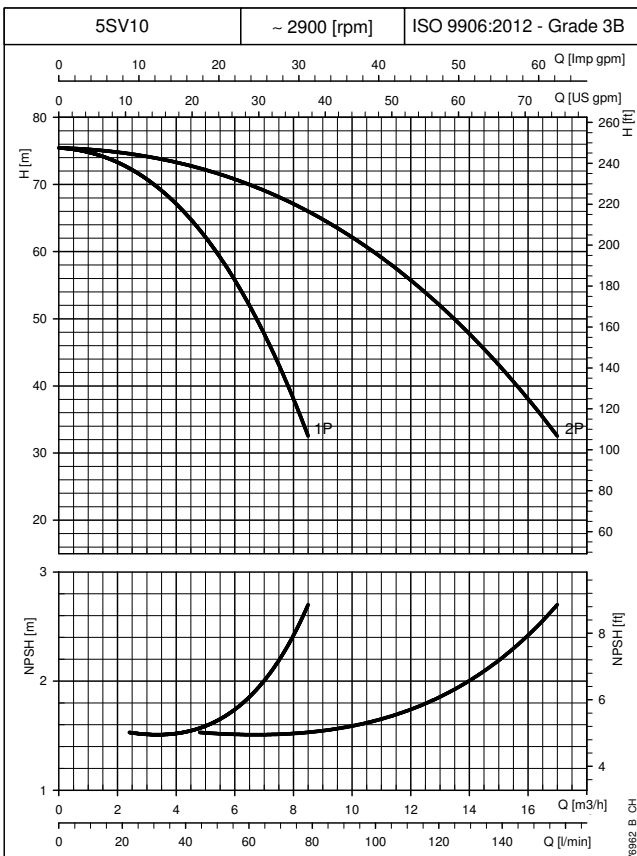
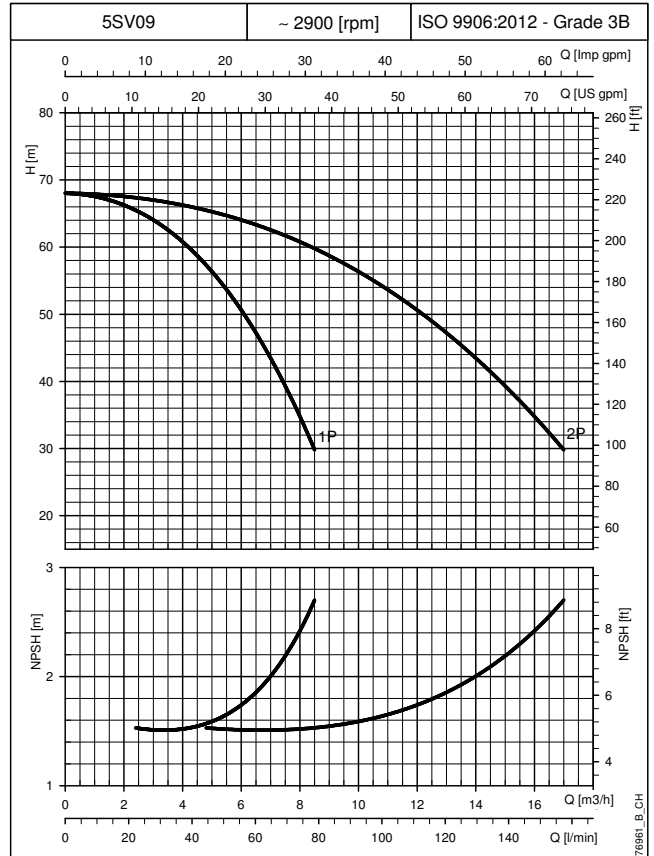
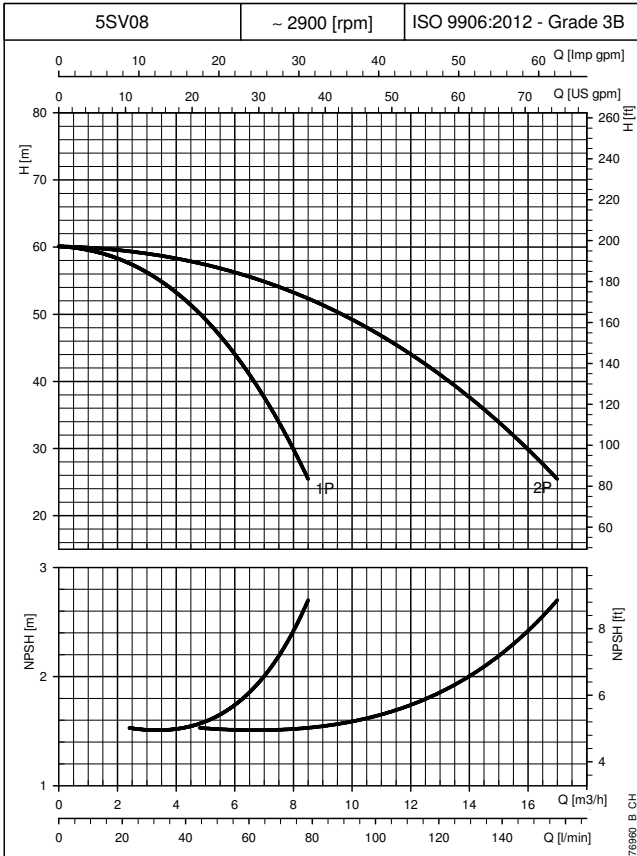


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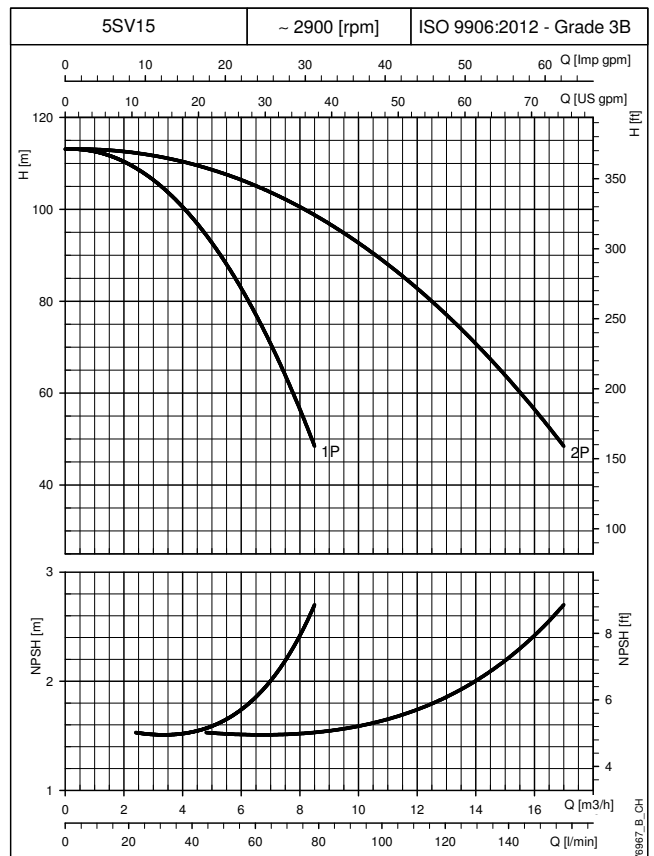
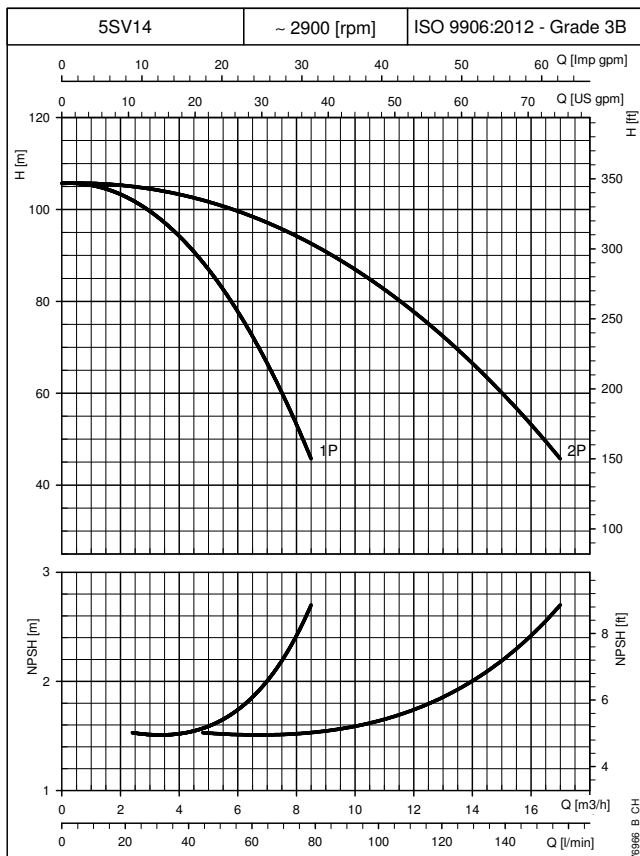
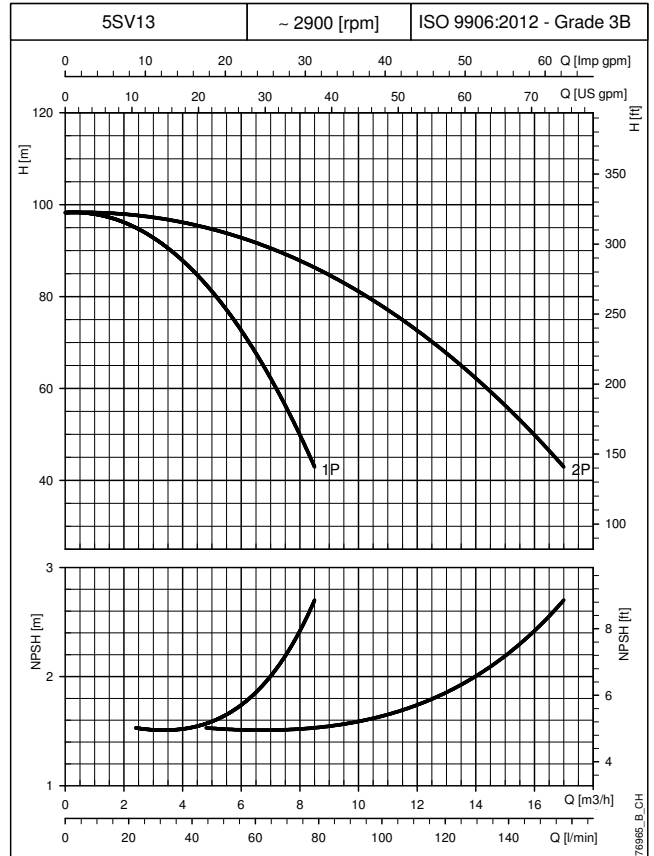
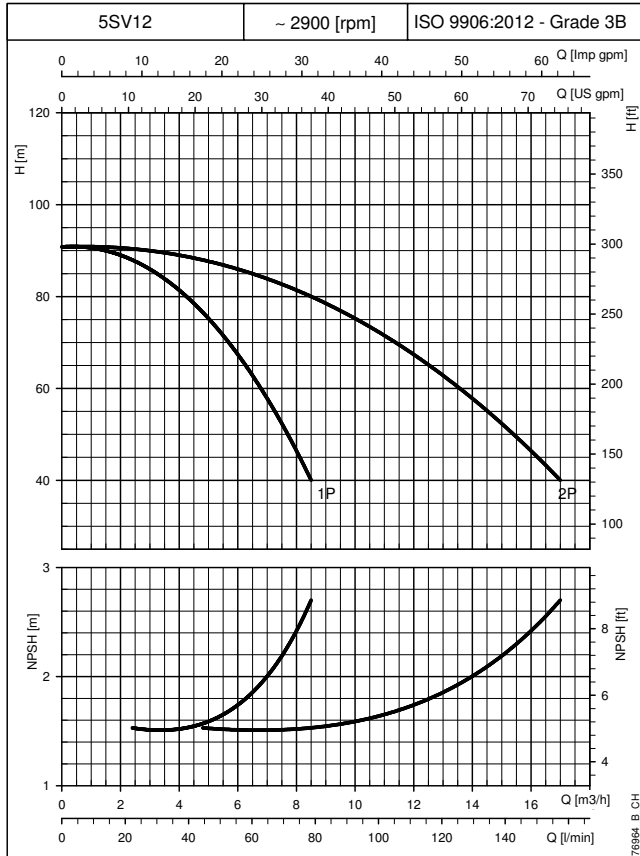
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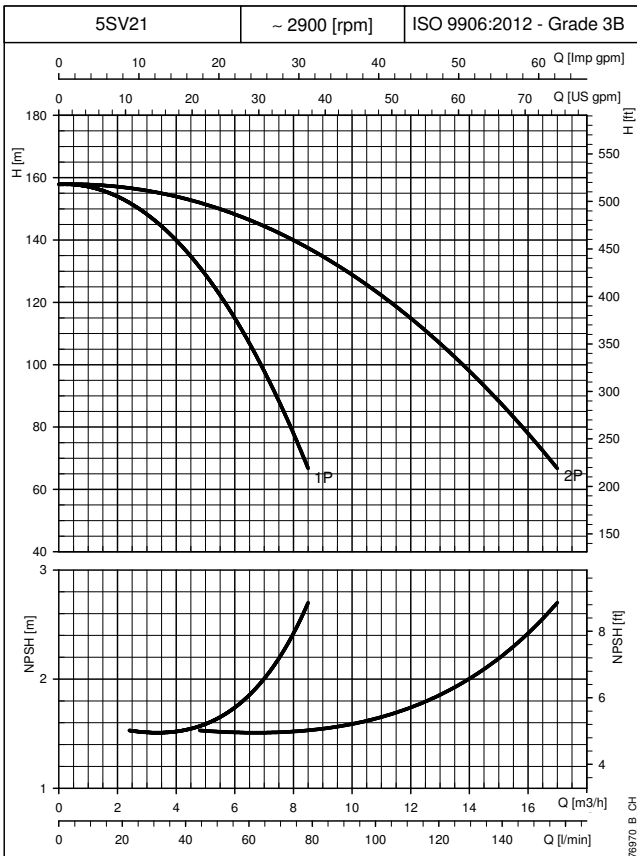
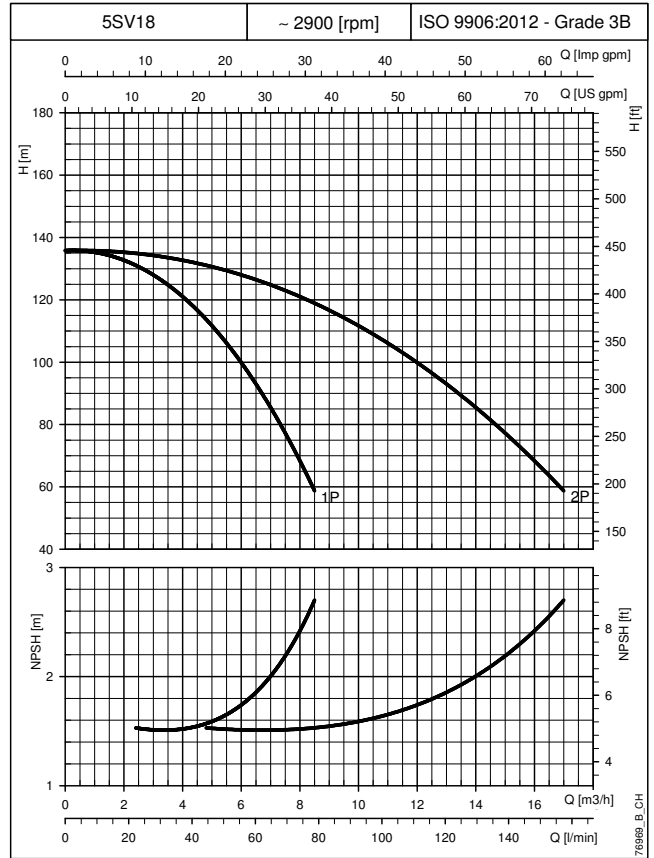
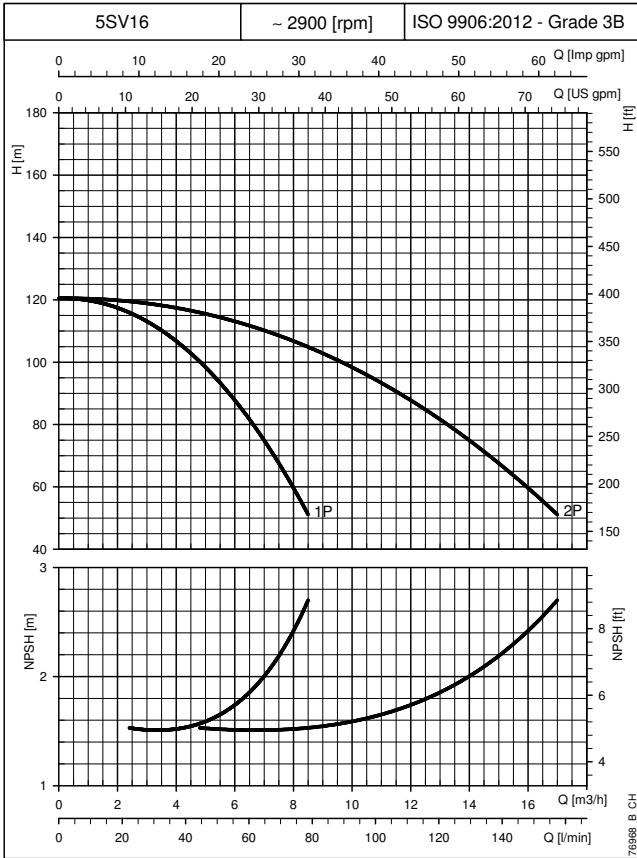
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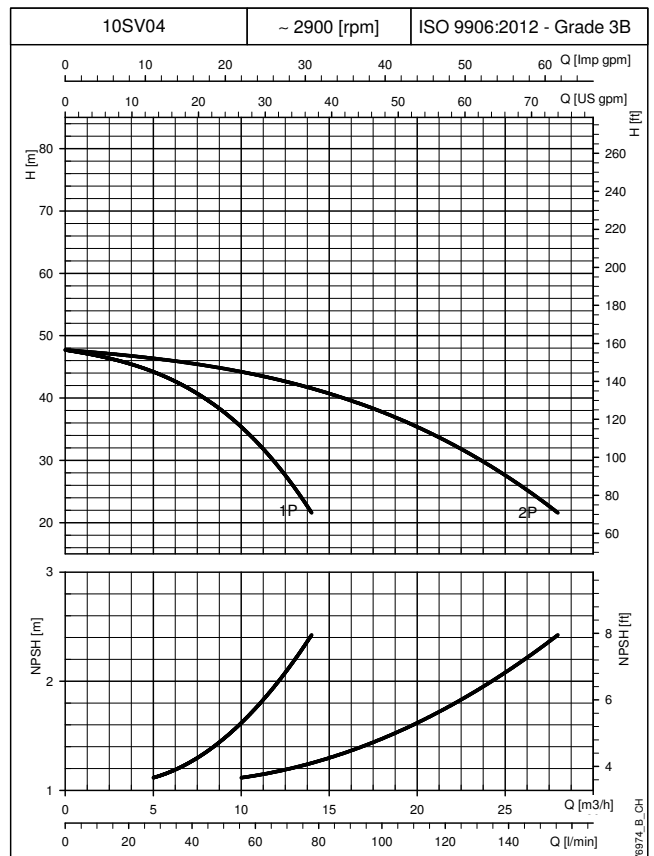
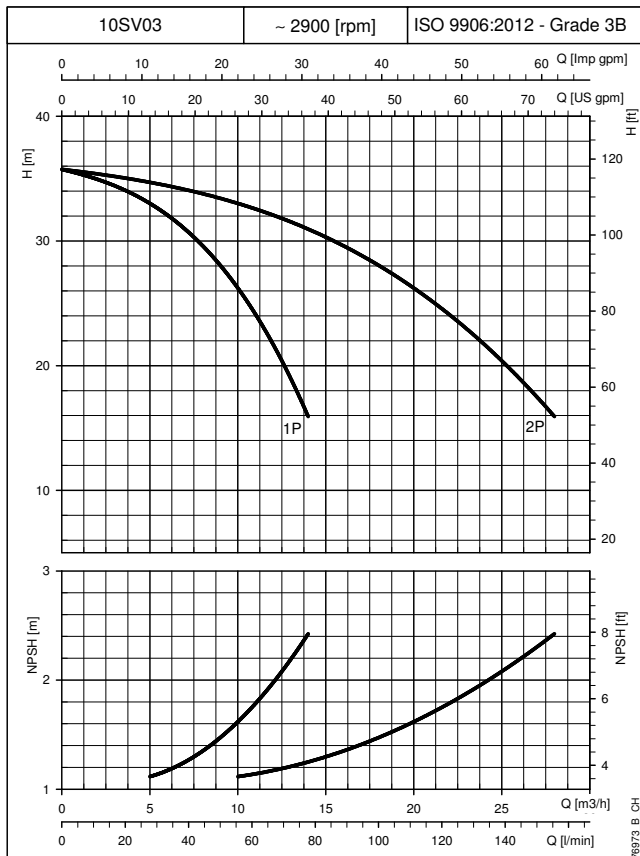
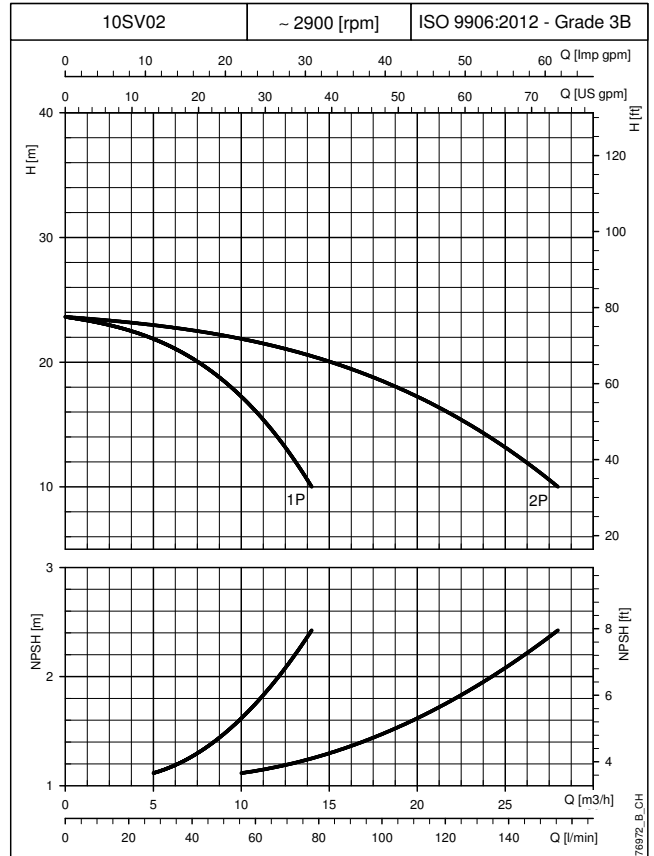
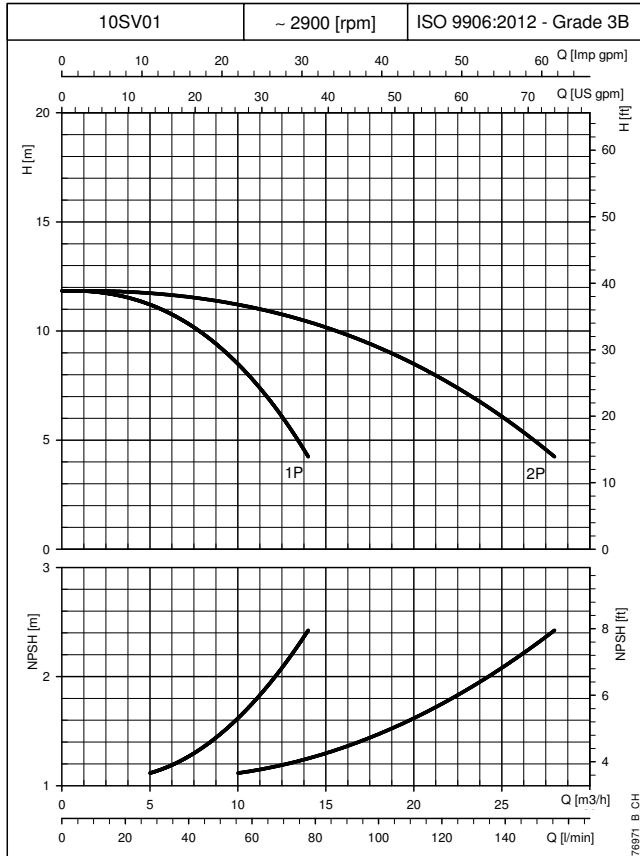
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CURVES

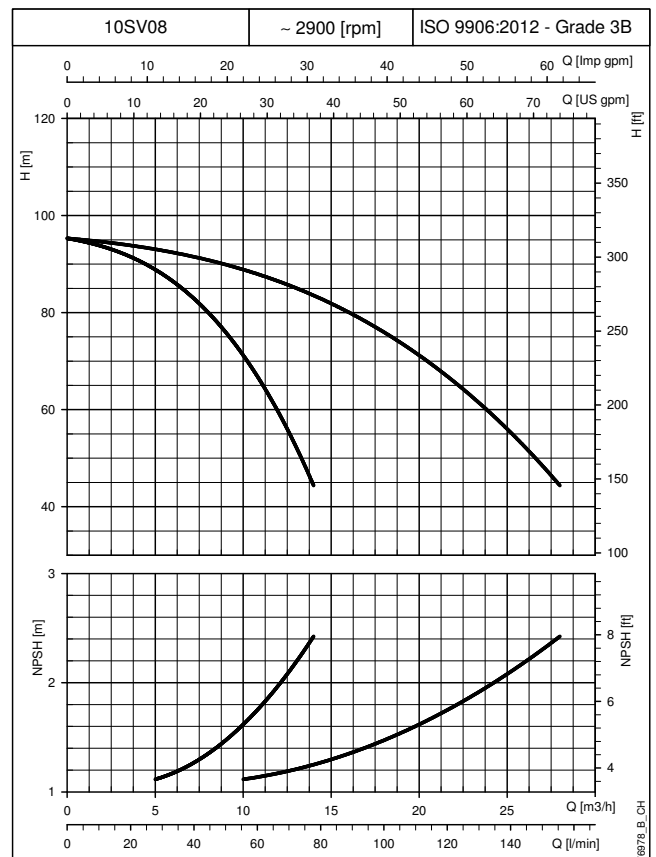
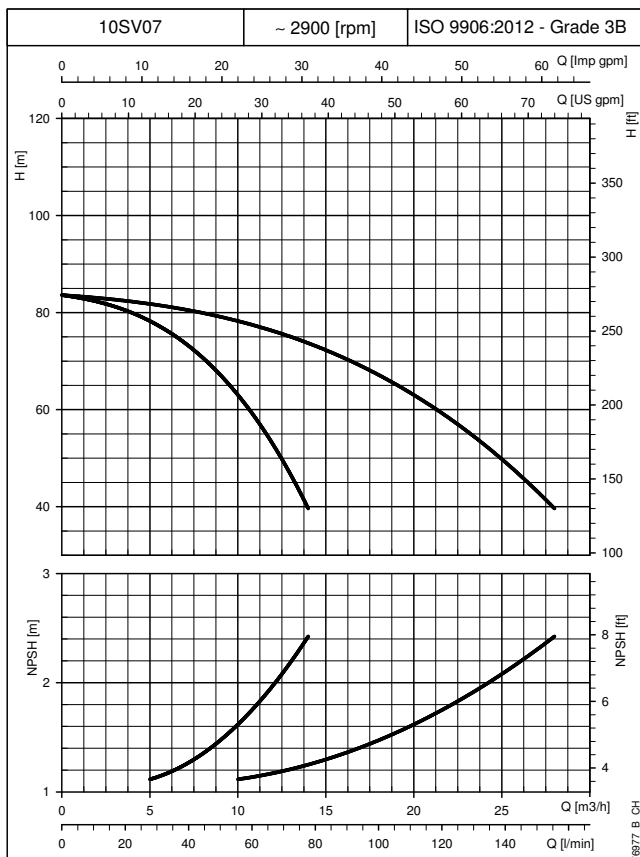
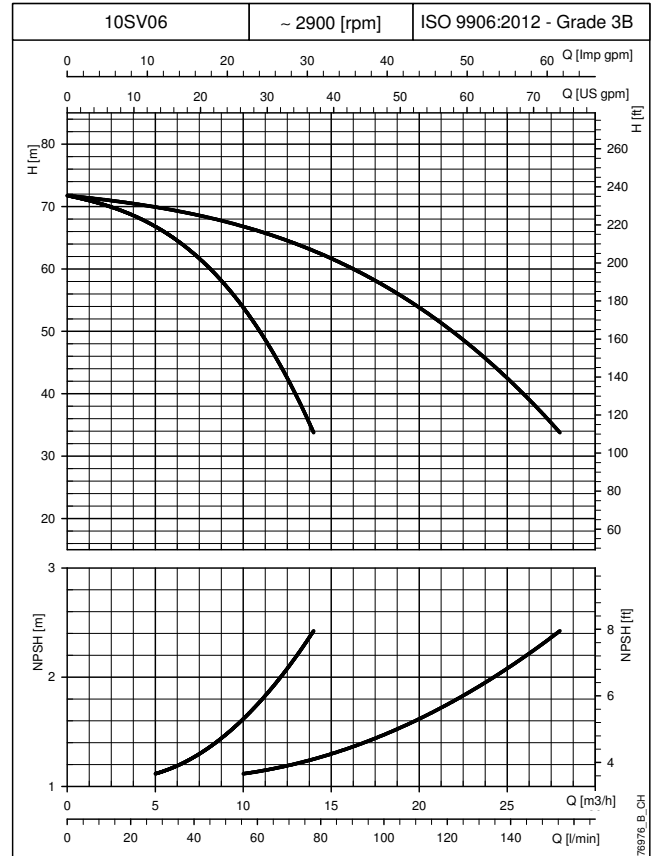
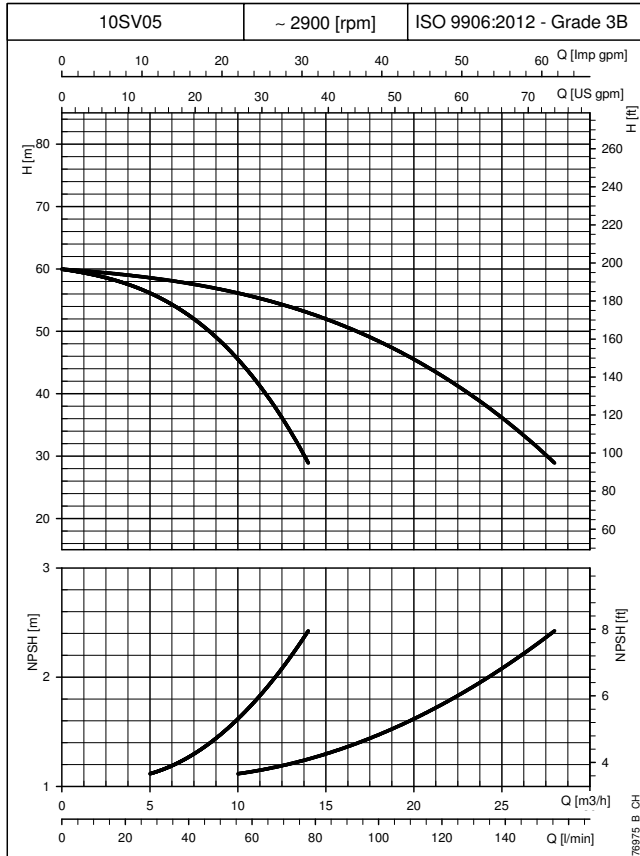
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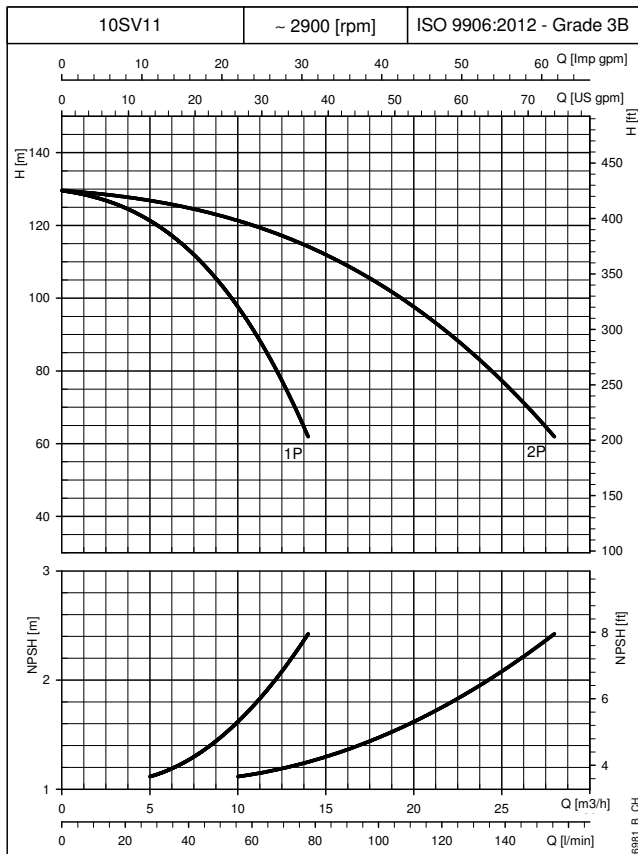
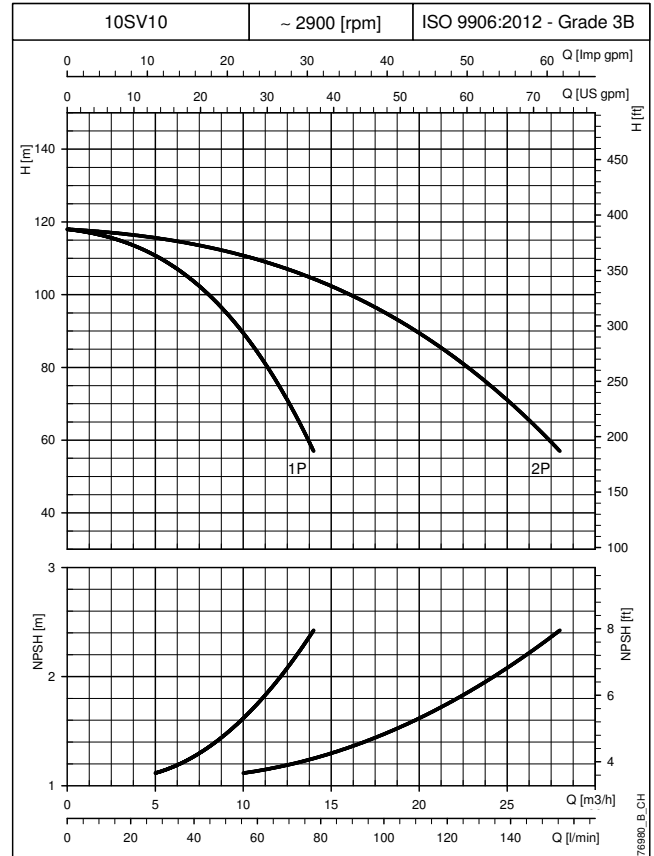
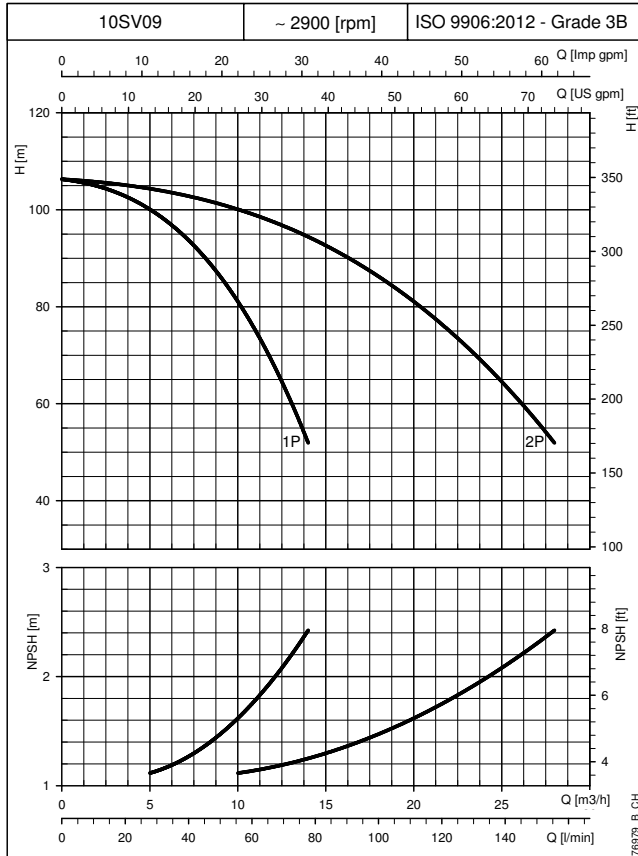
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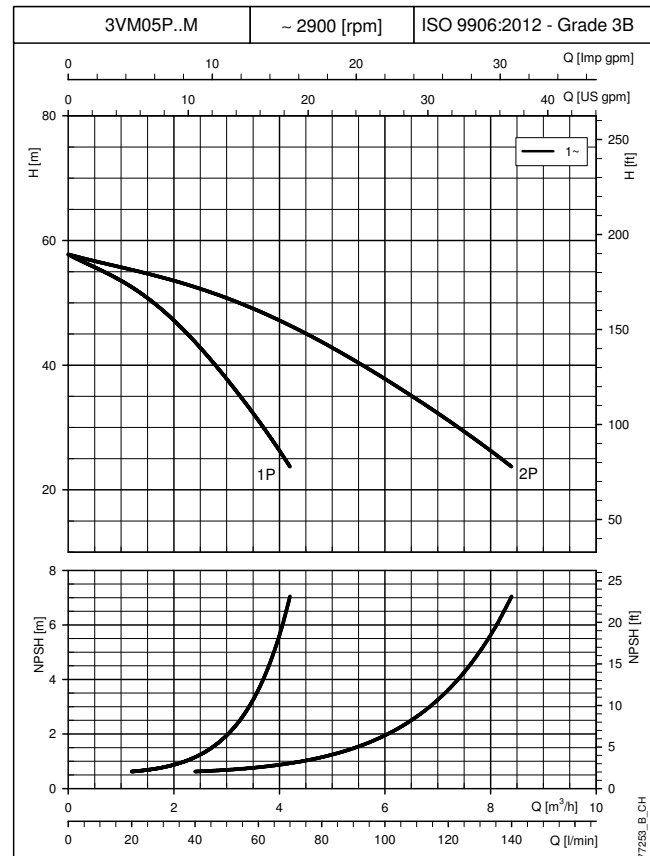
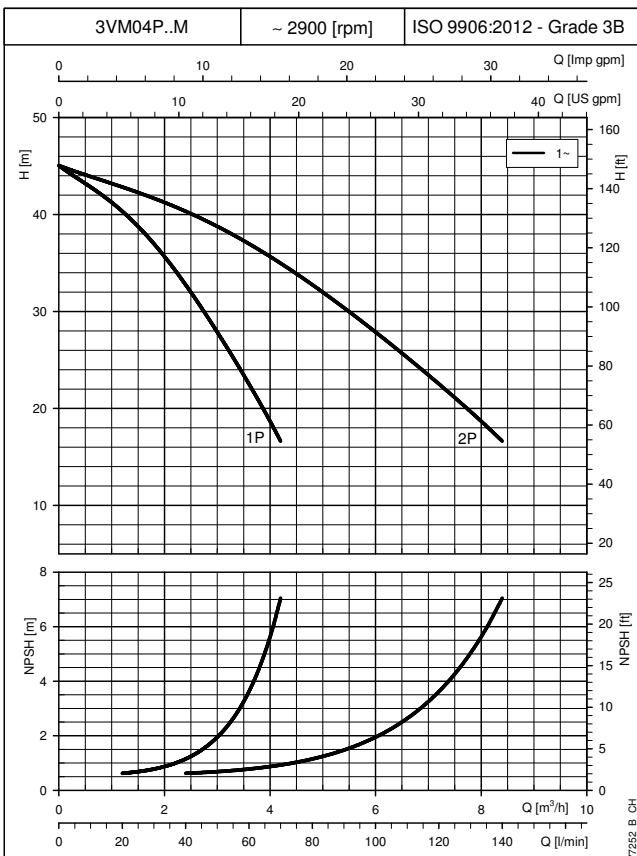
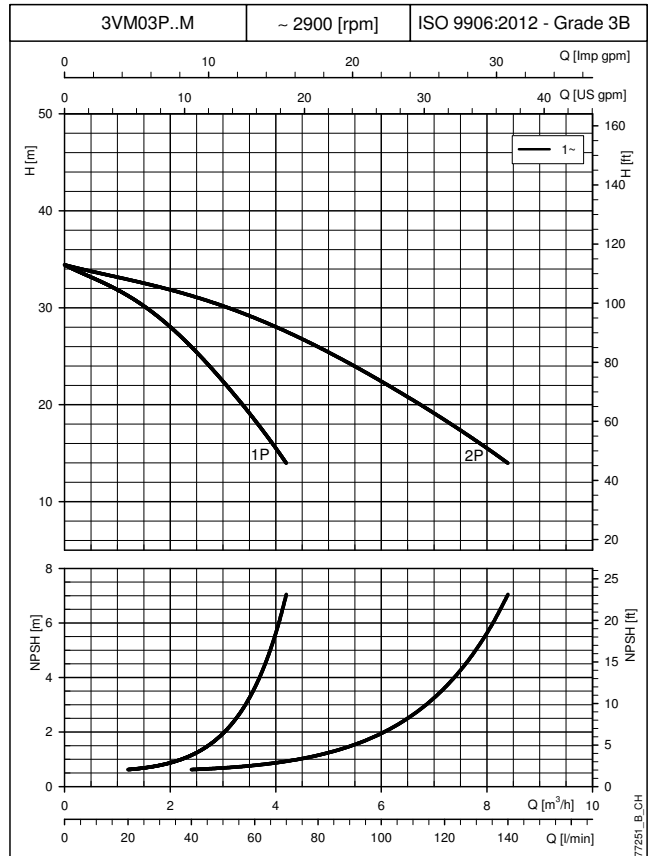
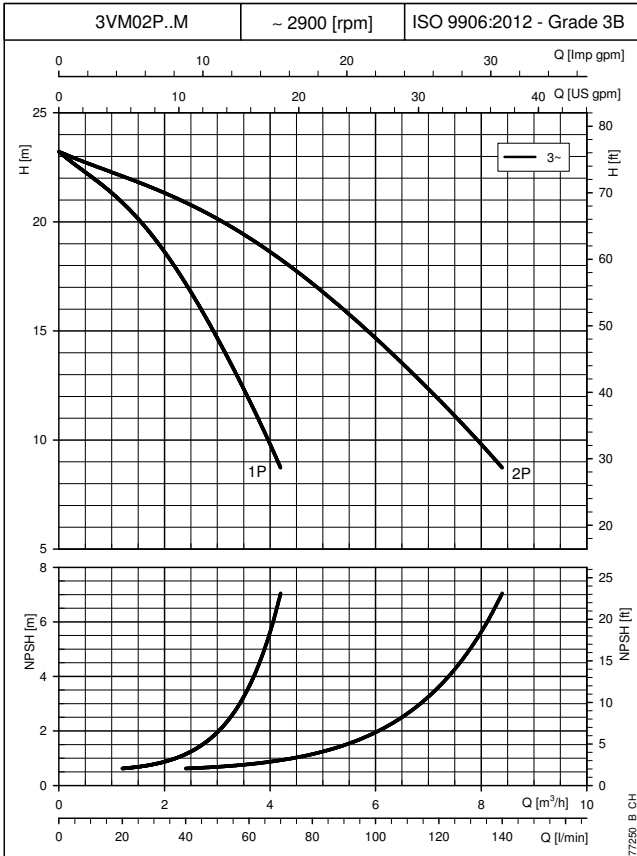
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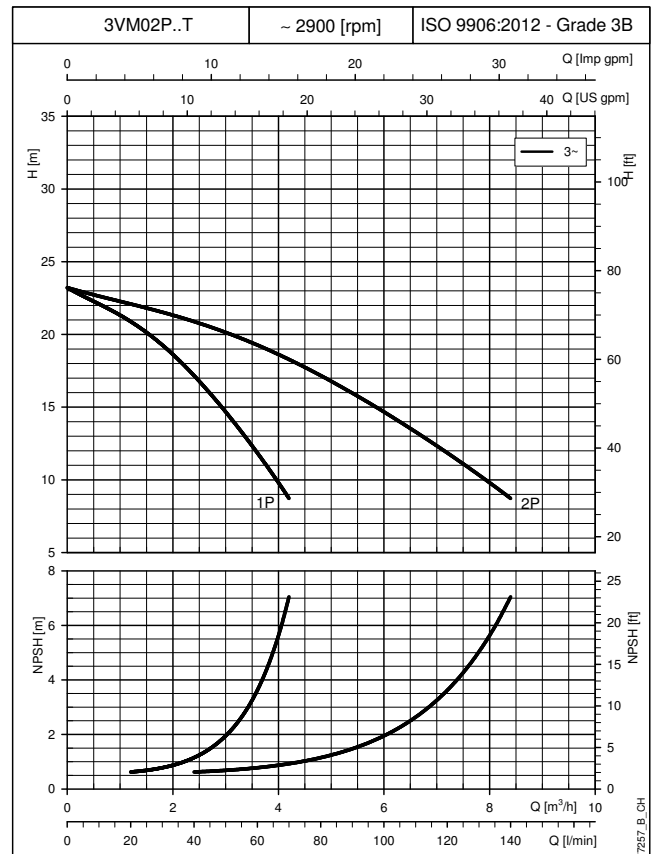
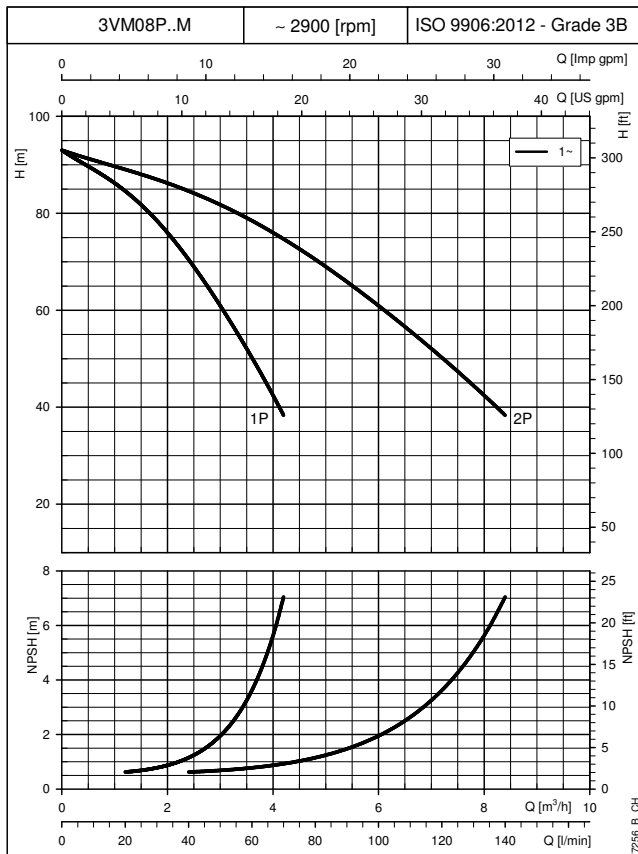
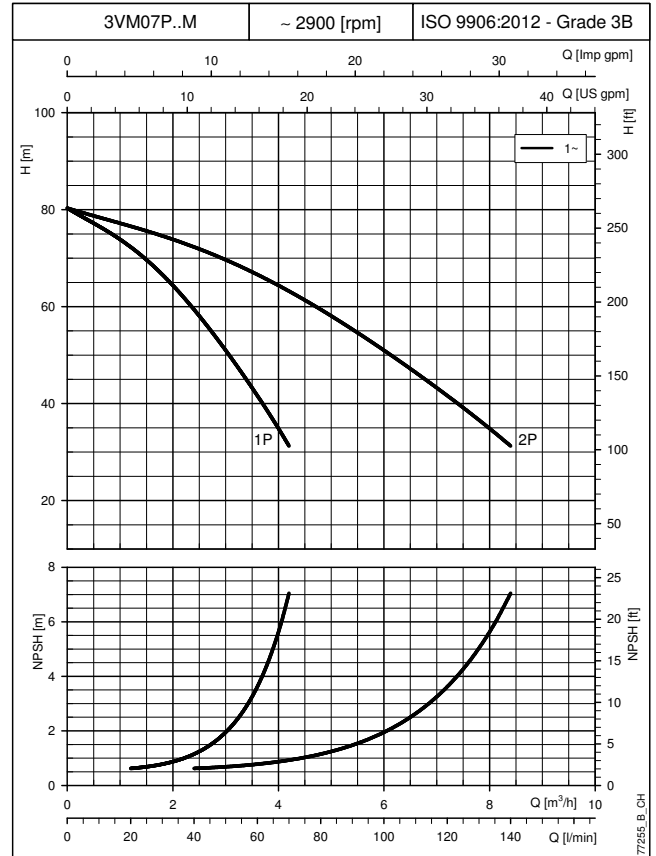
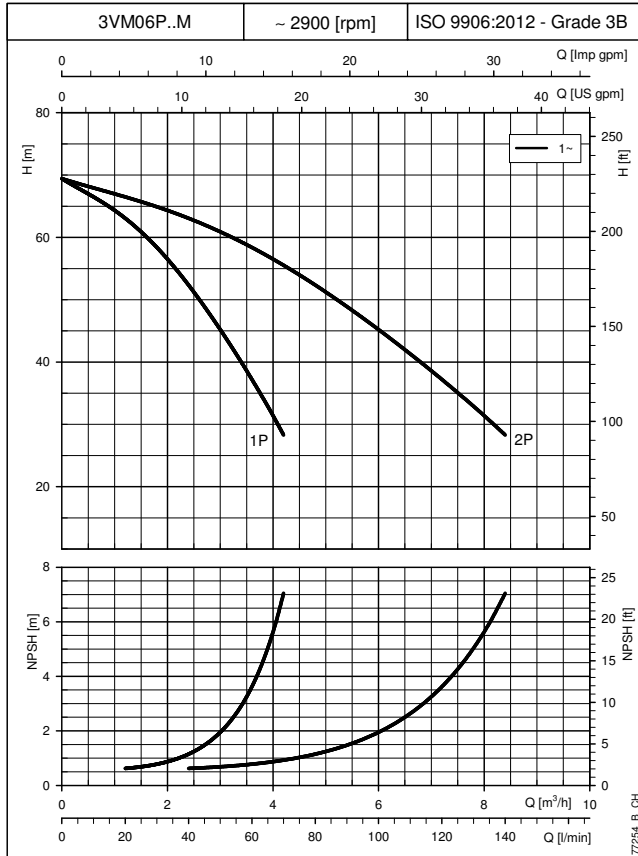
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CURVES

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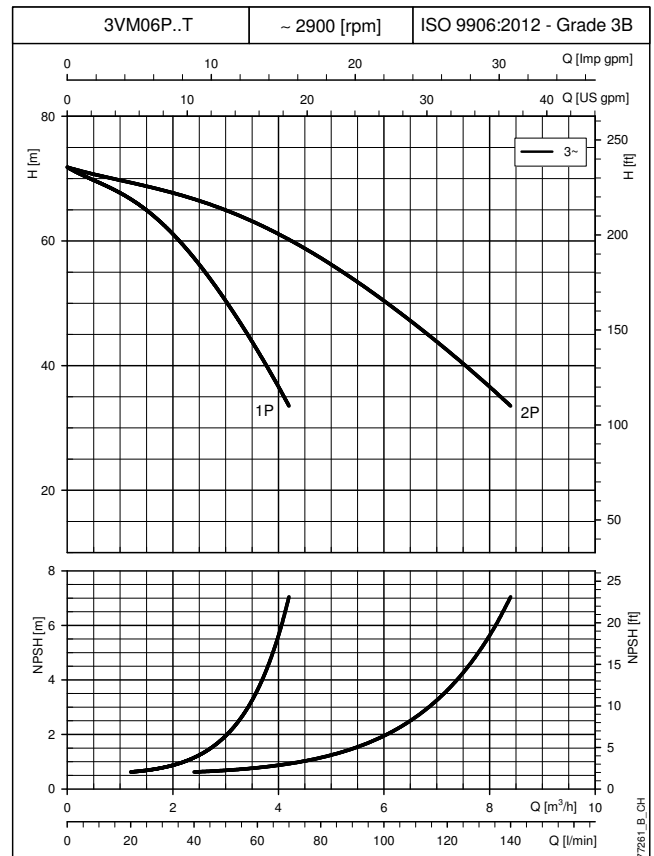
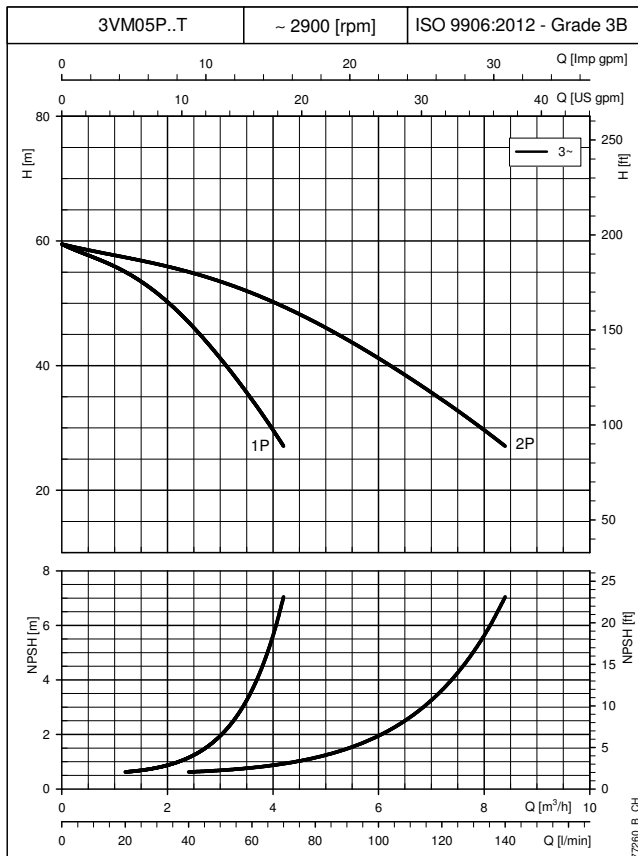
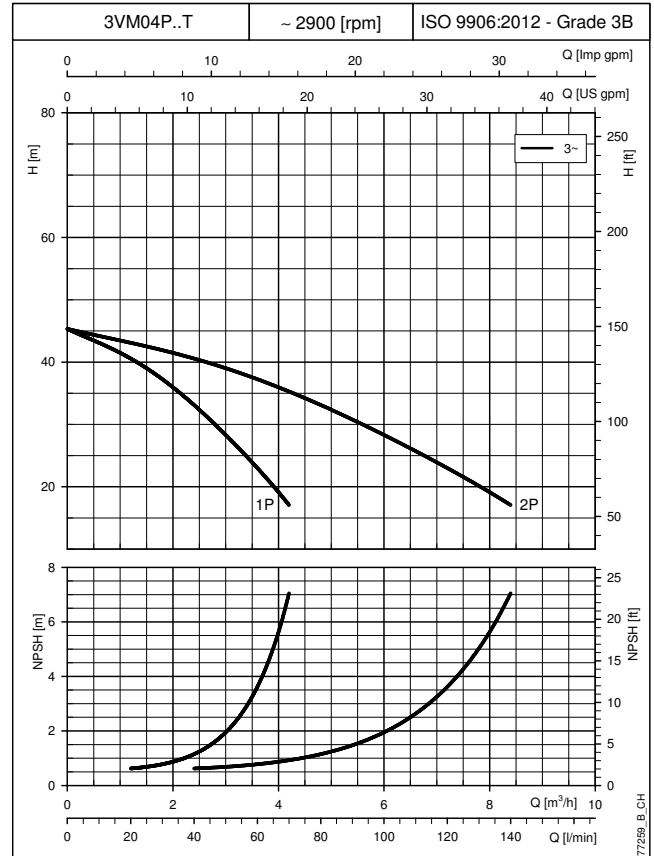
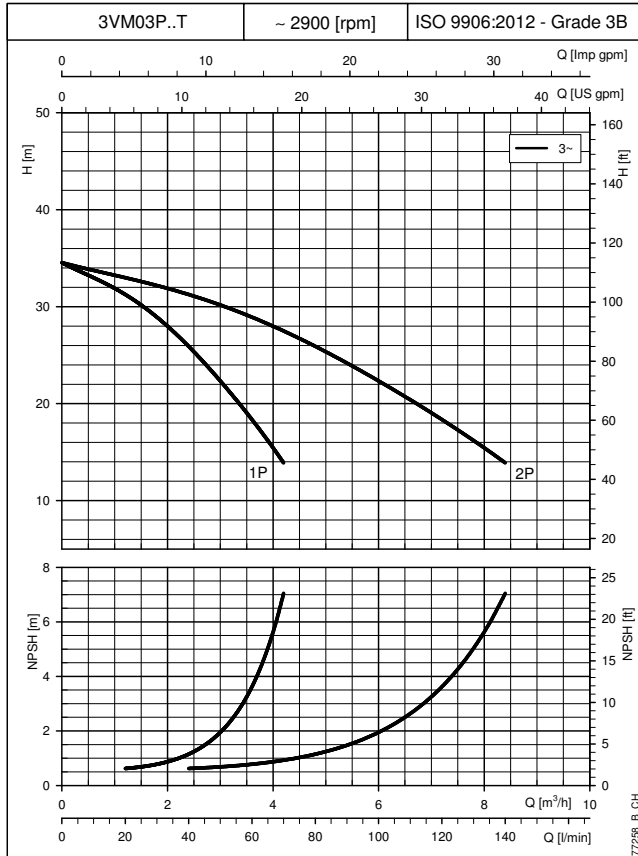


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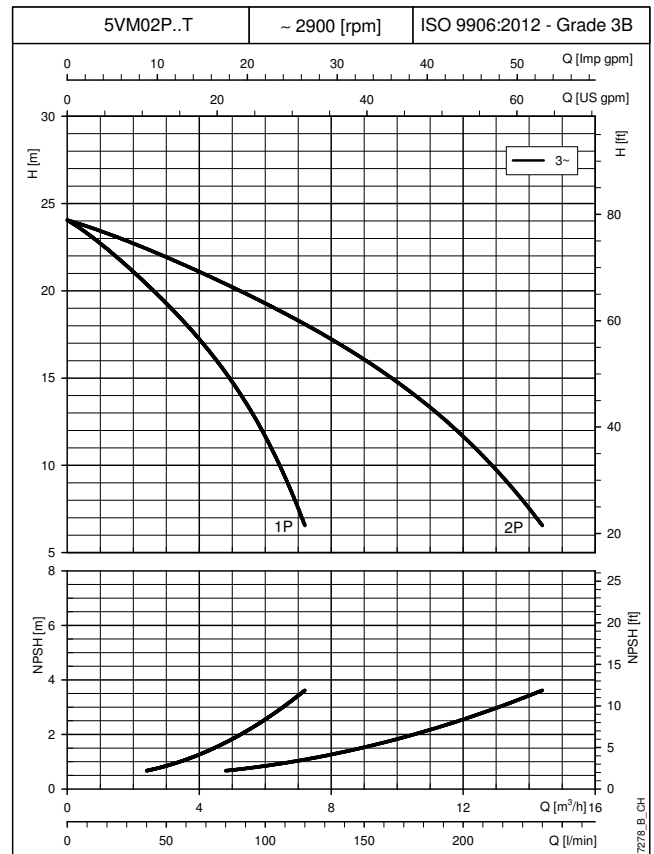
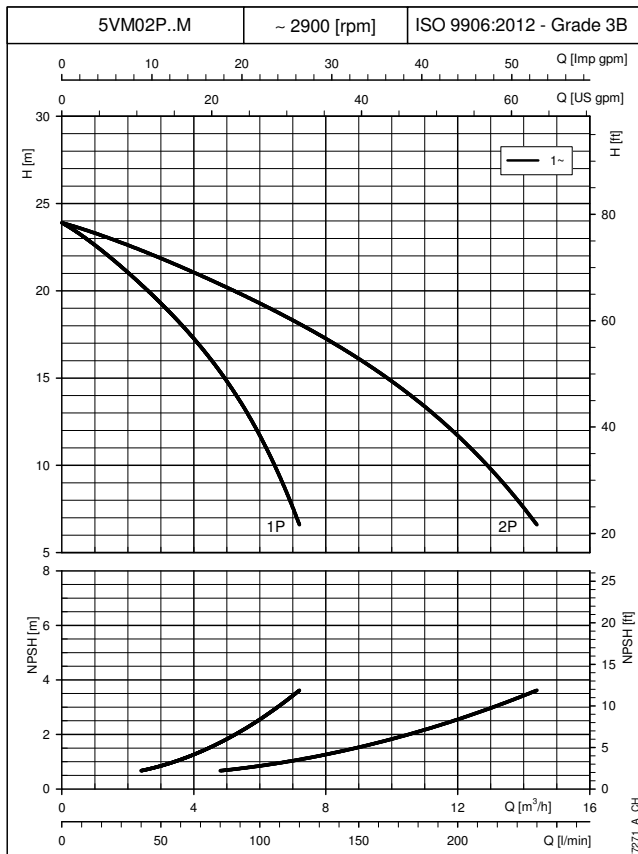
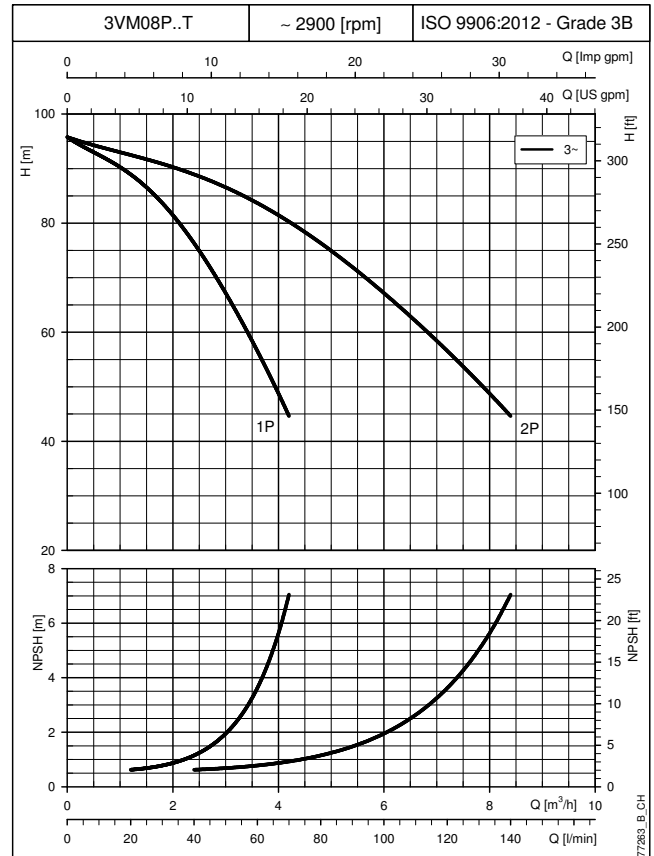
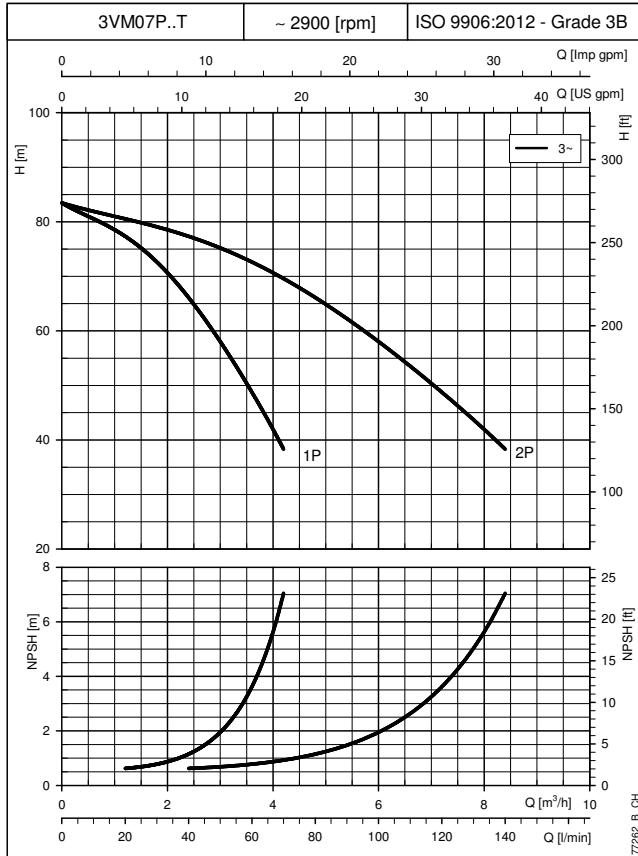
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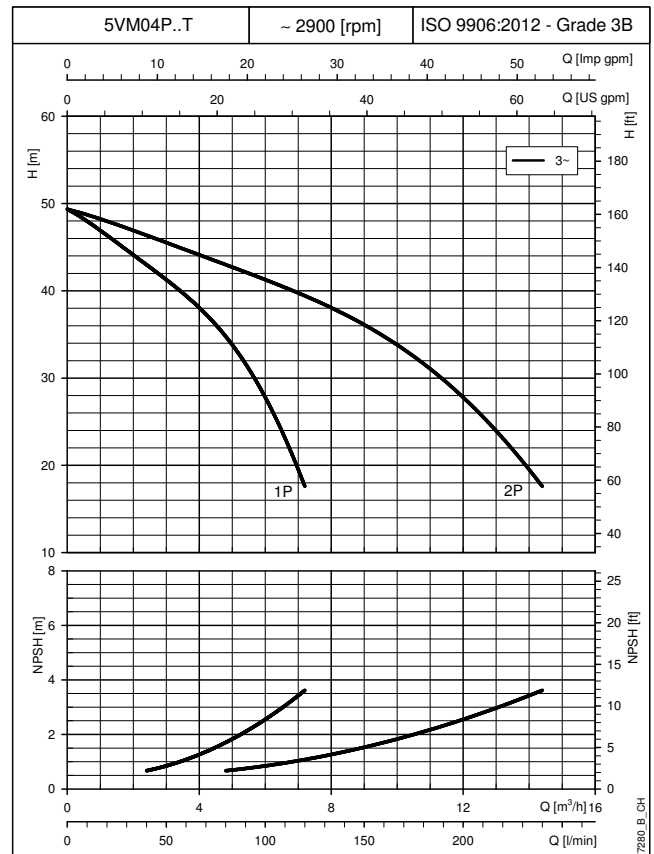
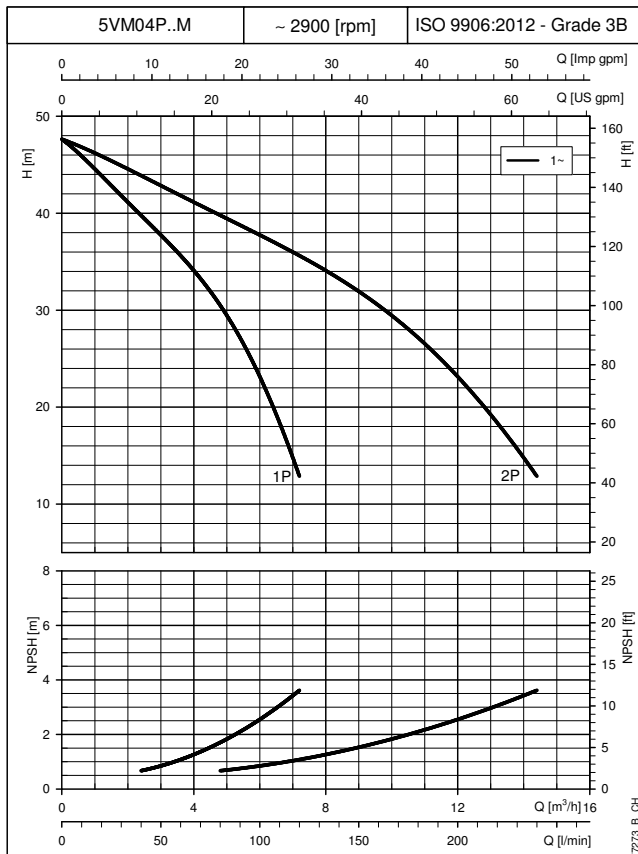
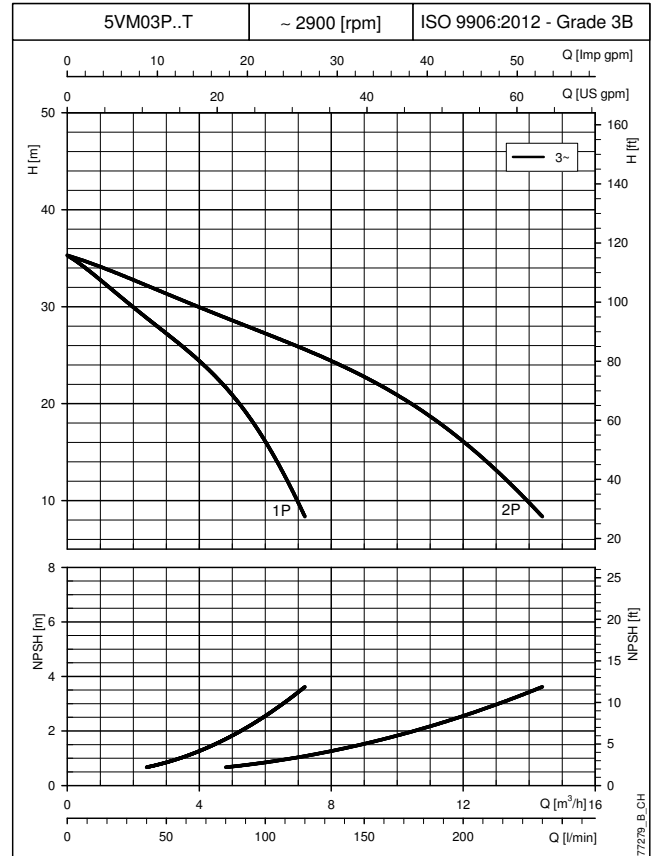
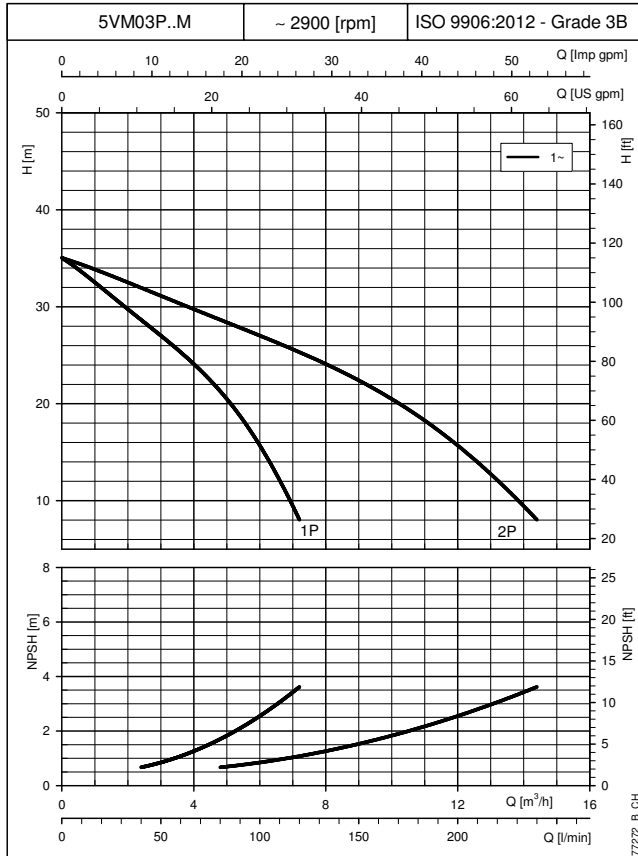
## BOOSTER SETS GX5 AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



**CURVES**

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  $\rho = 1.0 \text{ Kg/dm}^3$  and kinematic viscosity  $\nu = 1 \text{ mm}^2/\text{s}$ .  
 The declared NPSH values are laboratory values: for practical use we recommend increasing these values by 0,5 m.

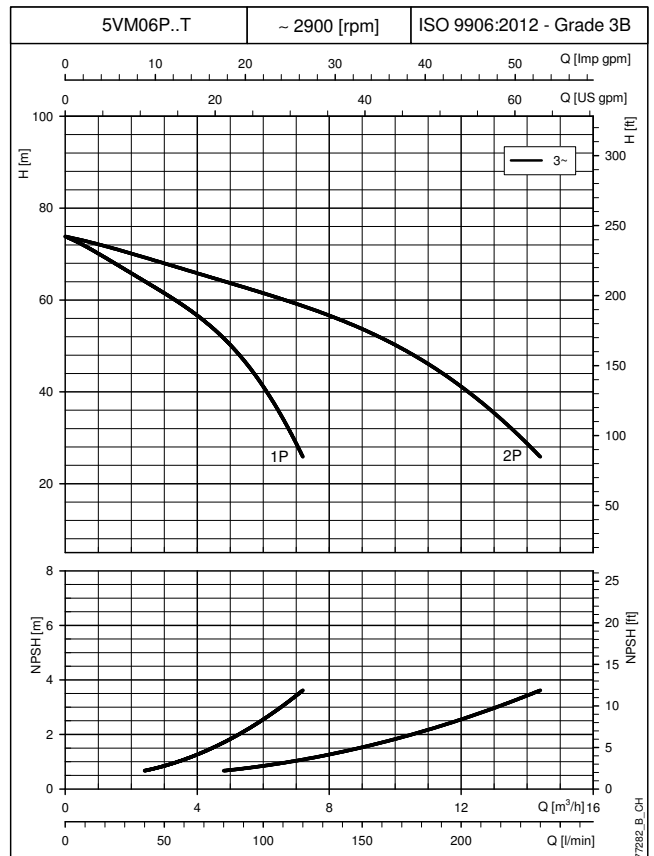
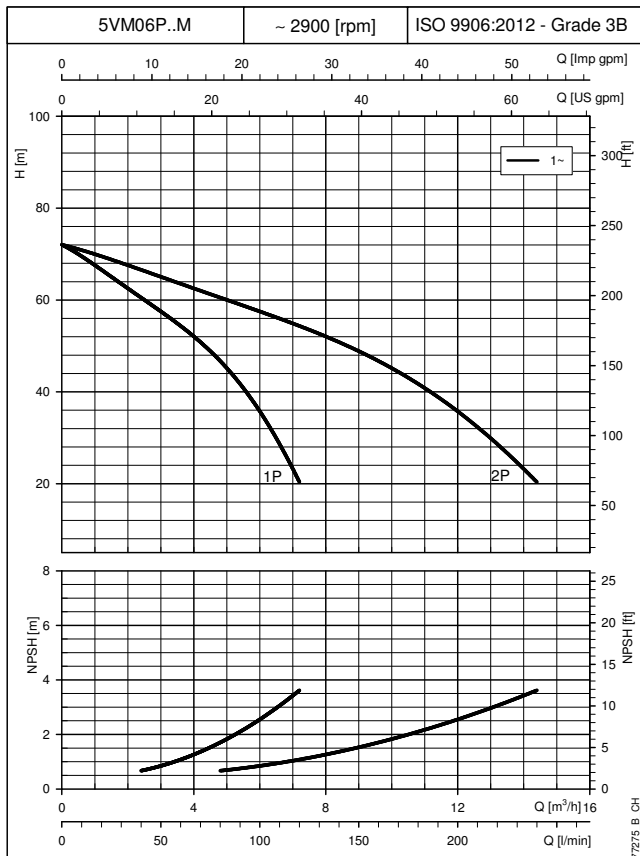
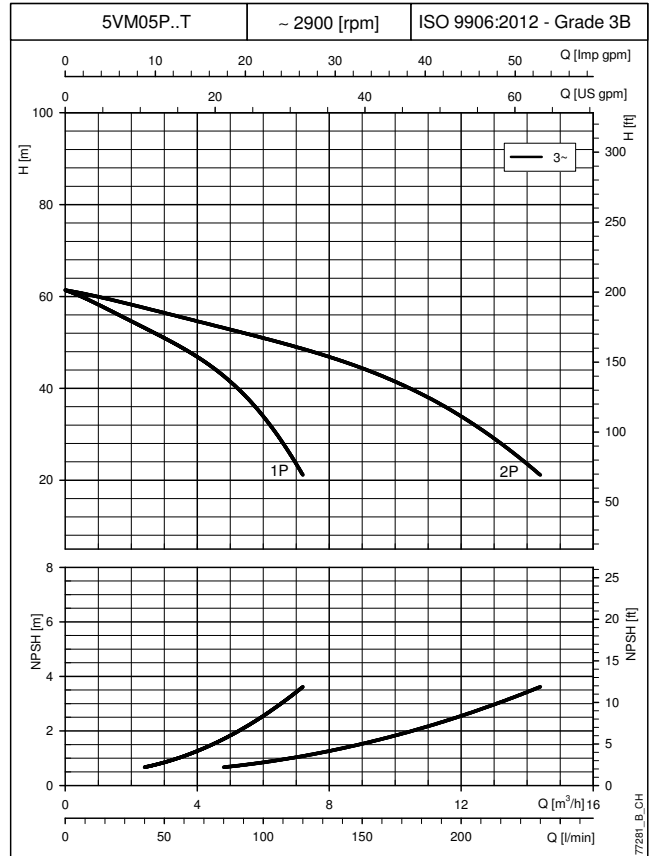
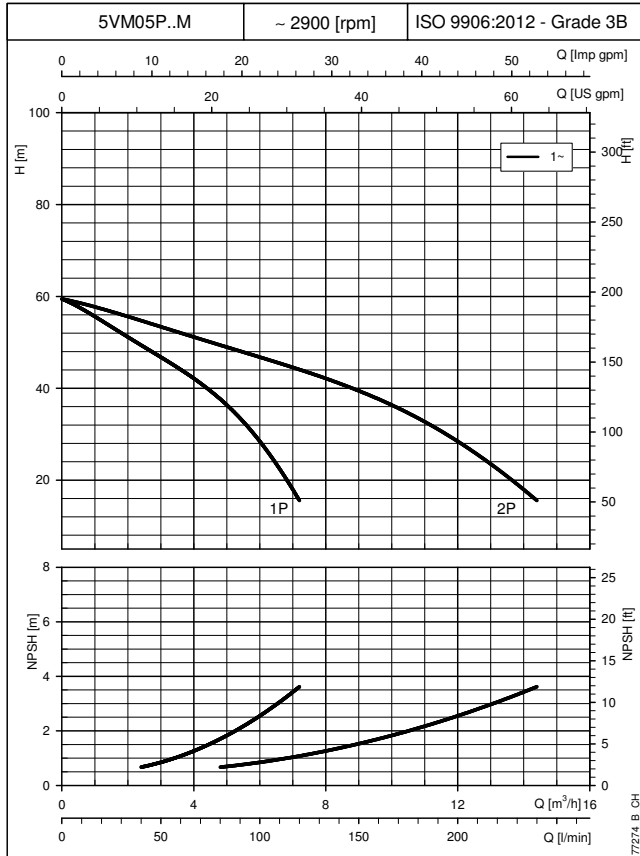
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**CURVES**

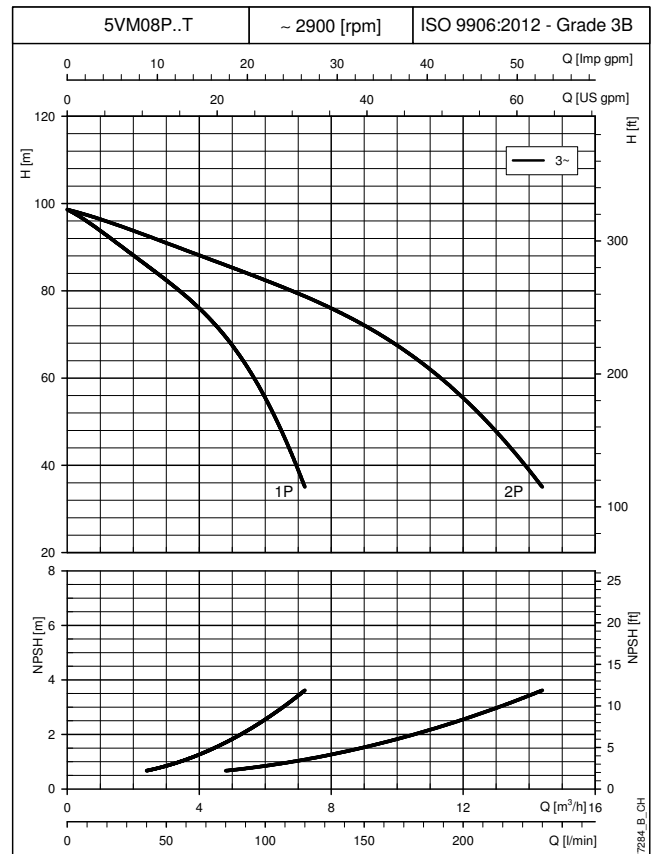
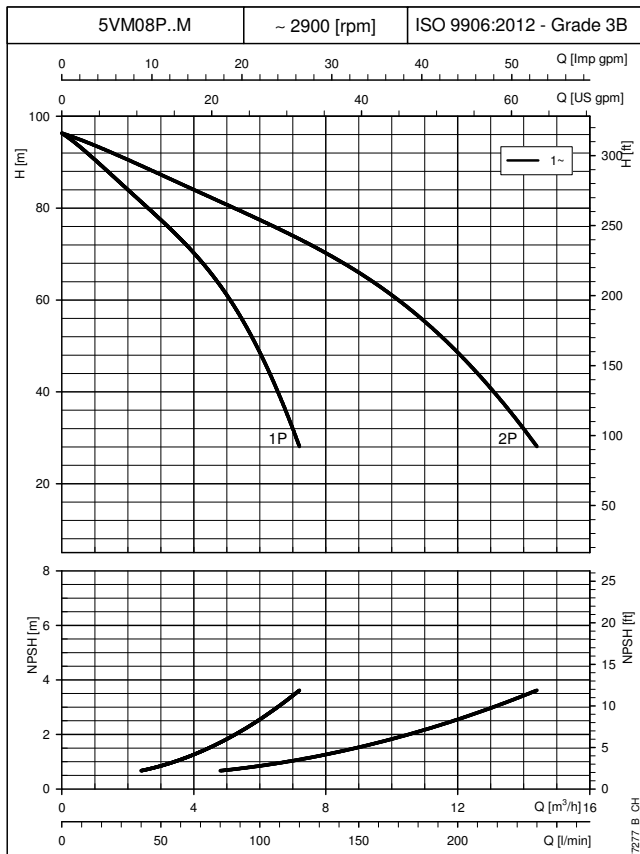
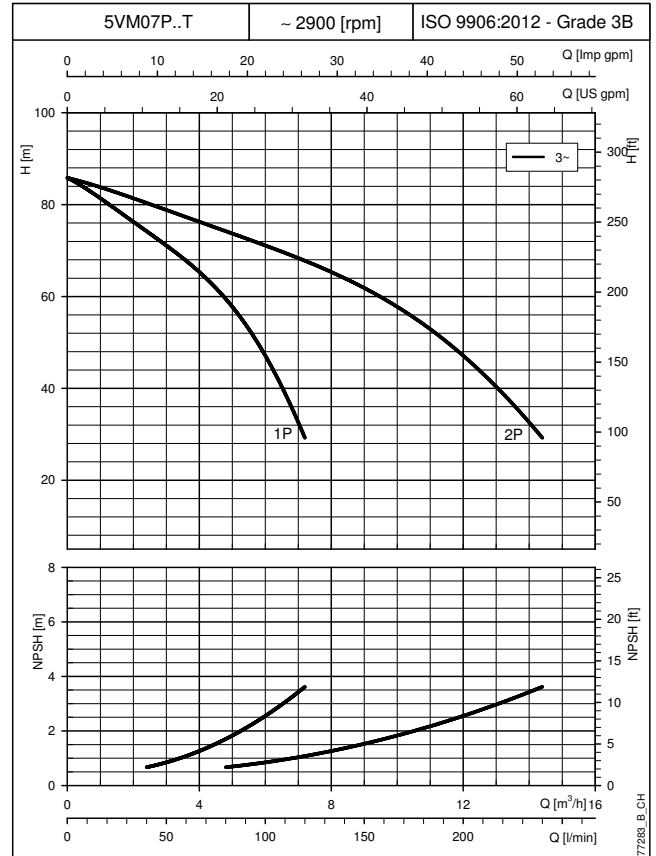
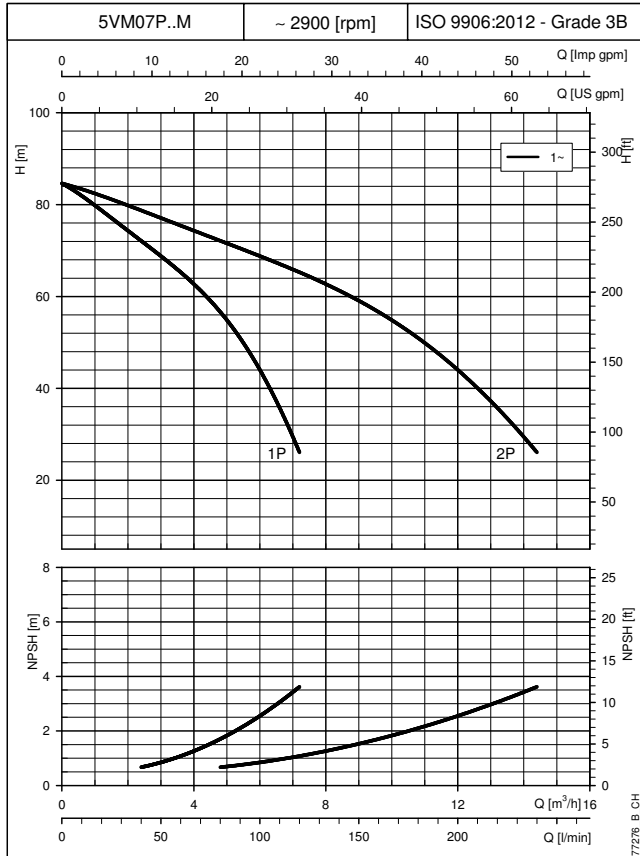
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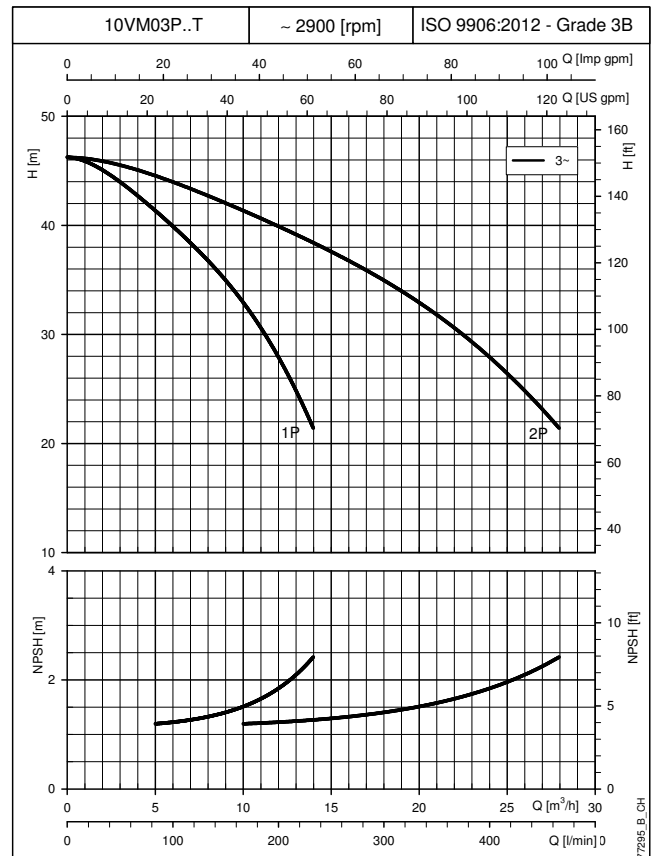
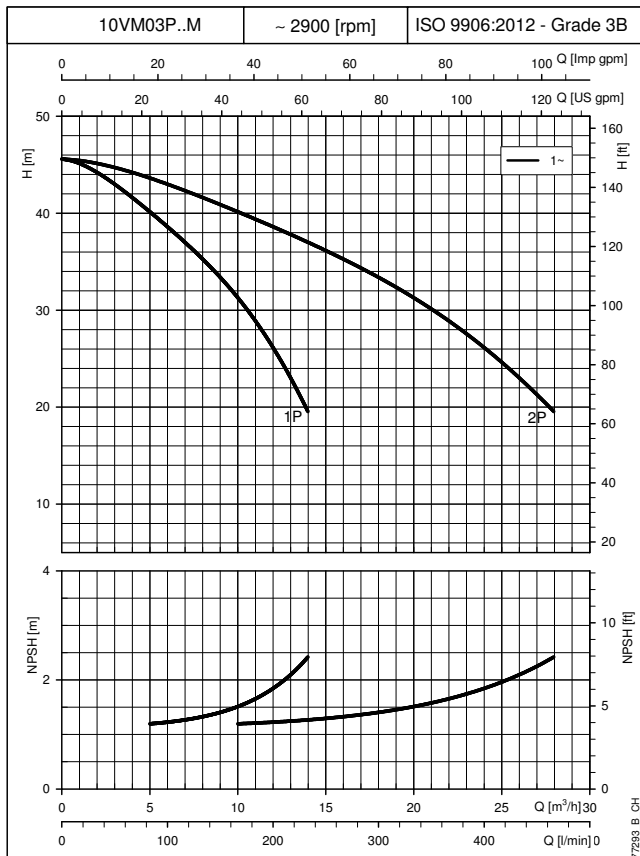
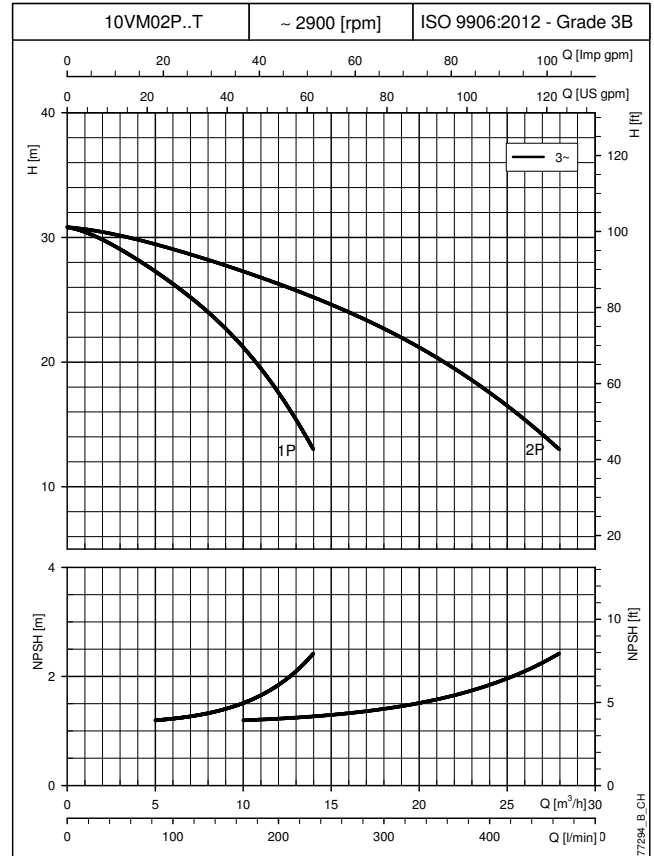
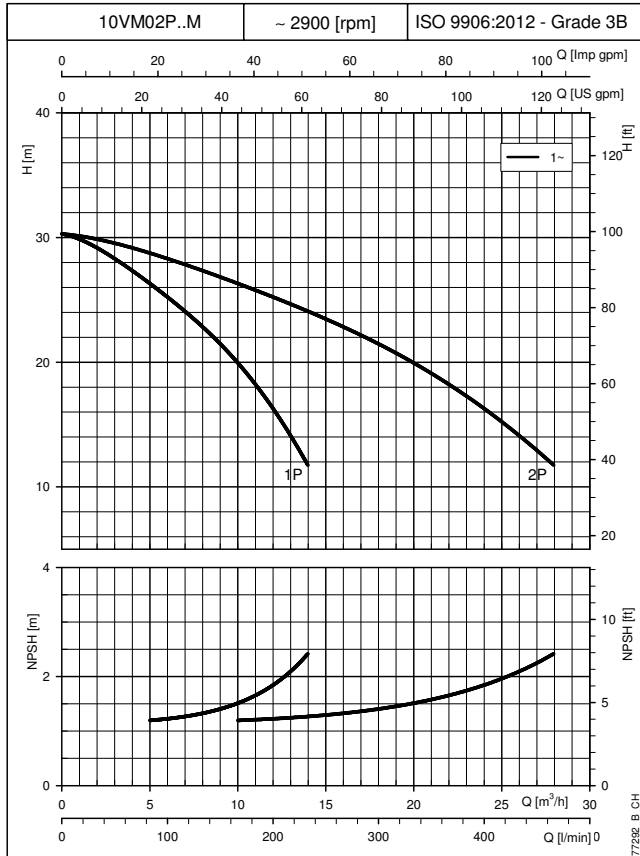
## BOOSTER SETS GXS AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



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**CURVES**

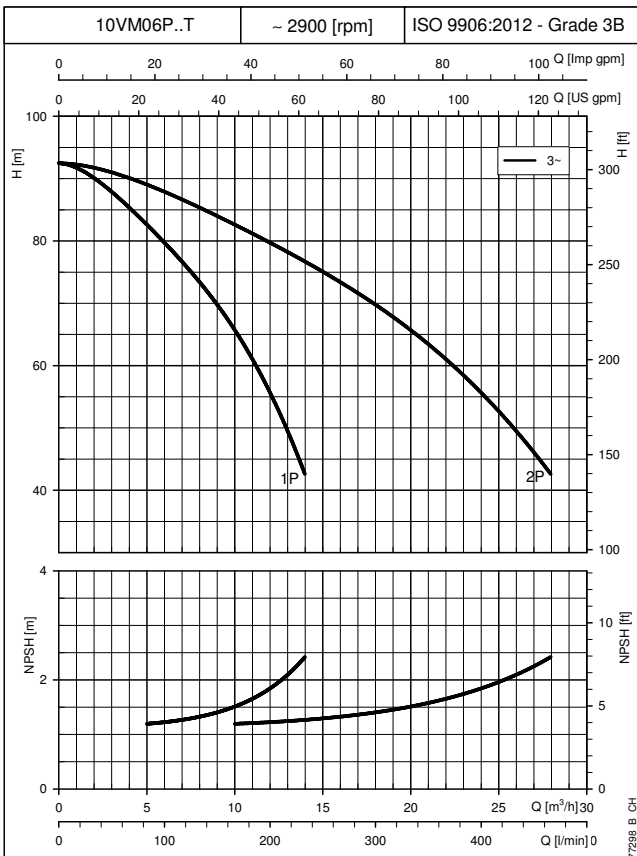
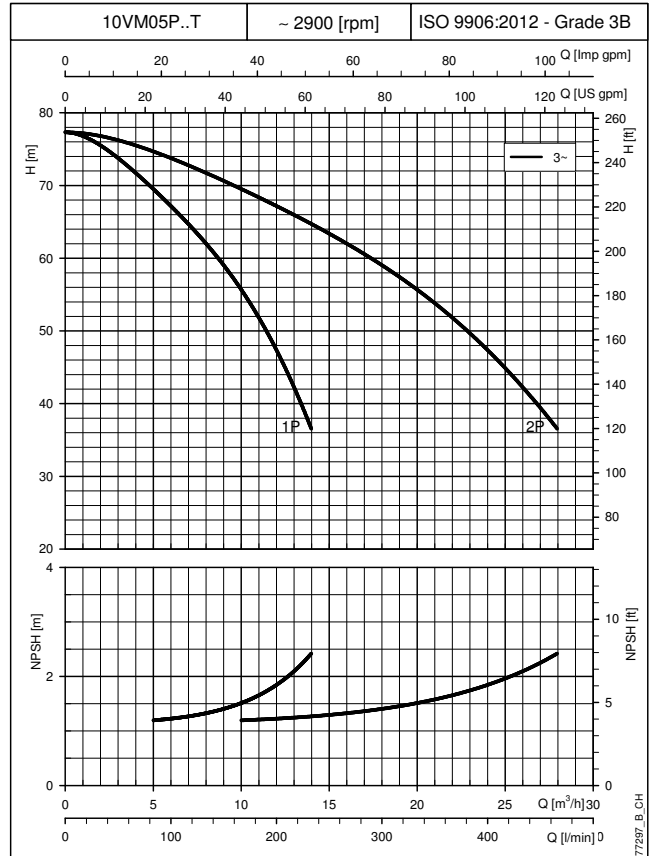
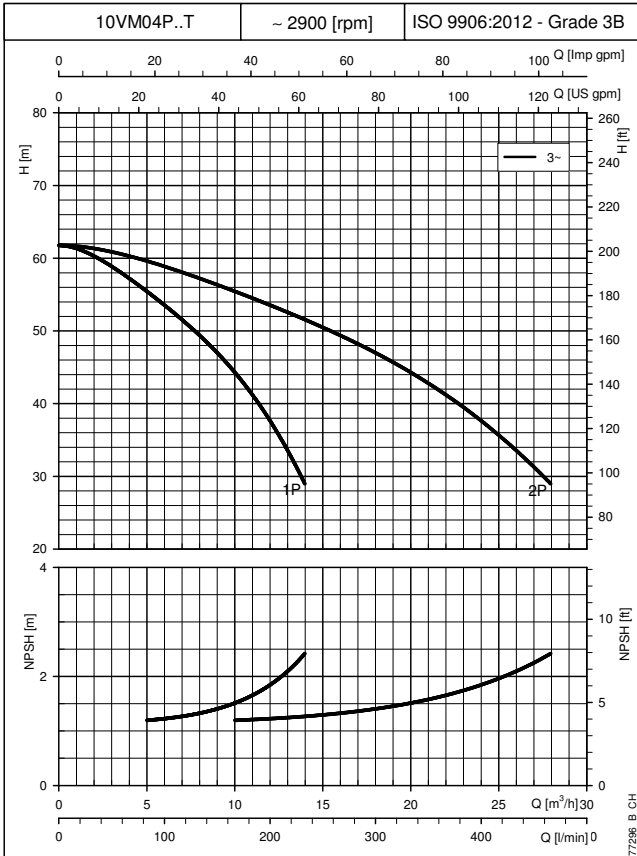
## BOOSTER SETS GXS AND GMD SERIES OPERATING CHARACTERISTICS AT 50 Hz



CURVES

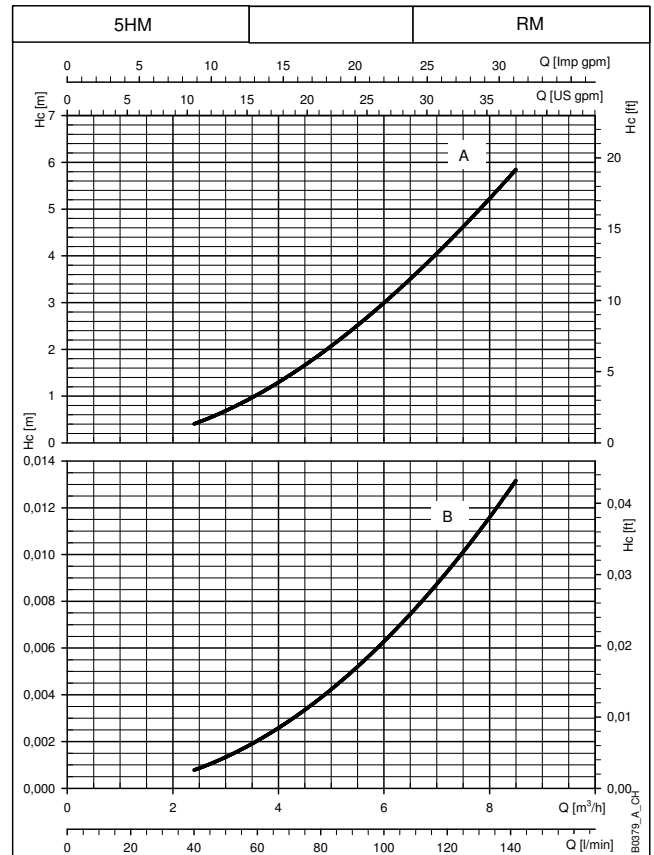
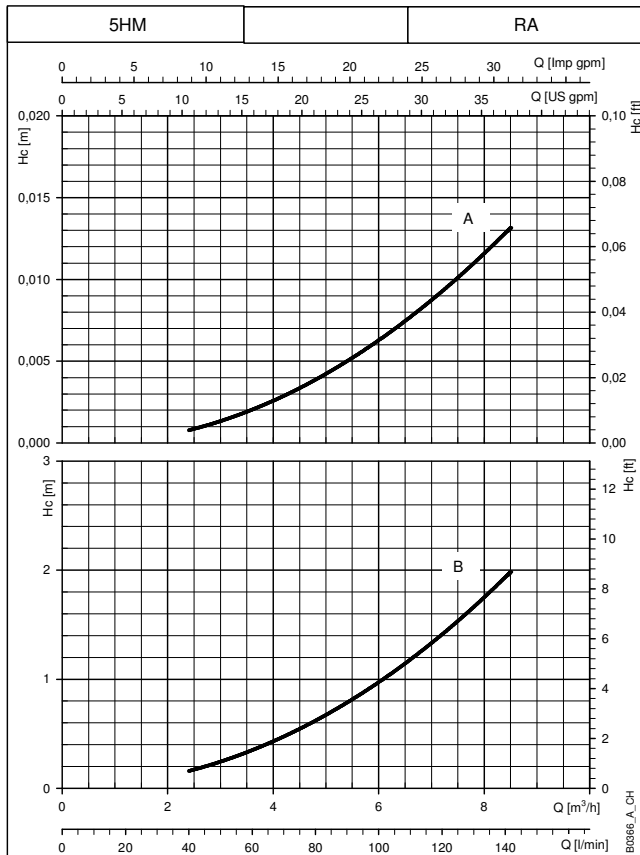
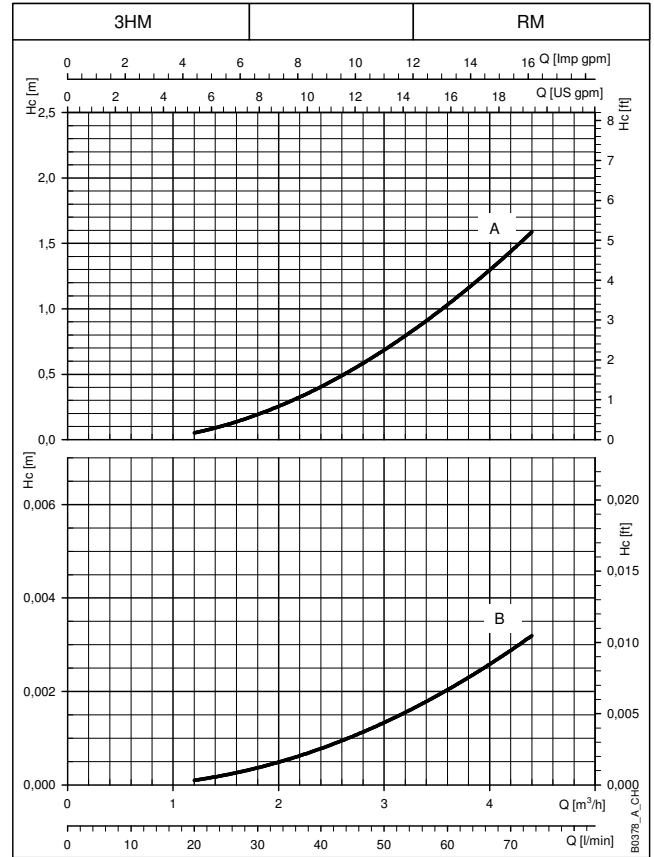
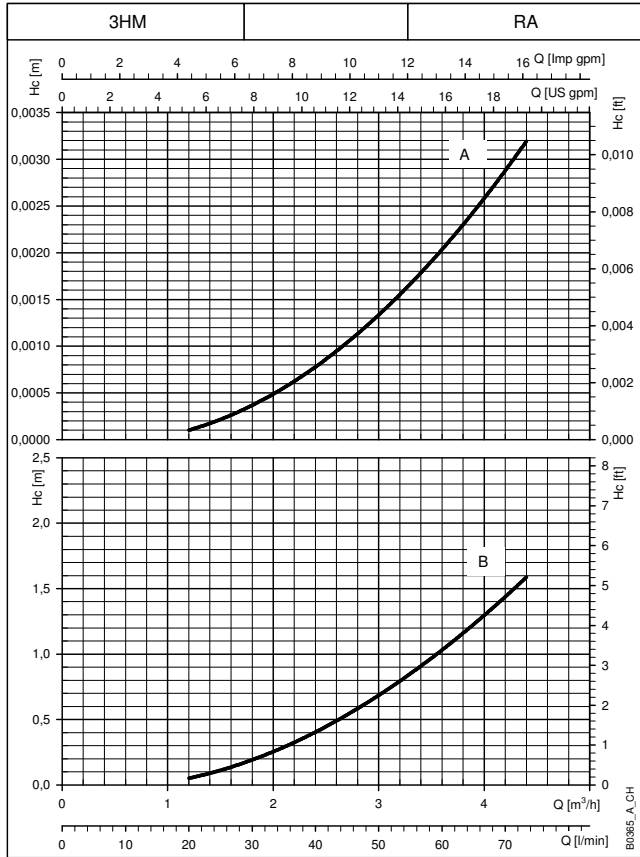
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**BOOSTER SETS GX5 AND GMD SERIES  
OPERATING CHARACTERISTICS AT 50 Hz**



**CURVES**

## BOOSTER SETS GX5 AND GMD SERIES H<sub>c</sub> PRESSURE DROP CURVE

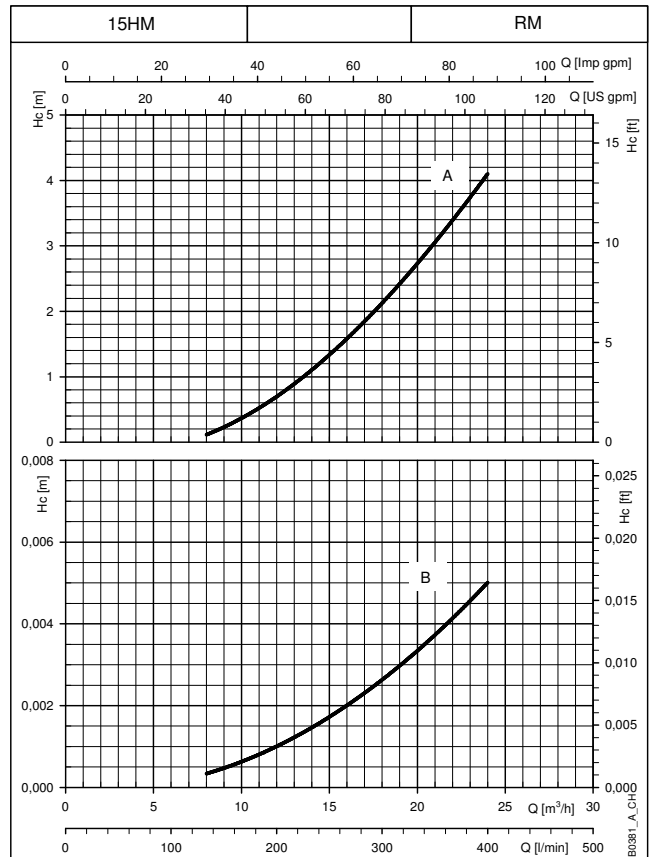
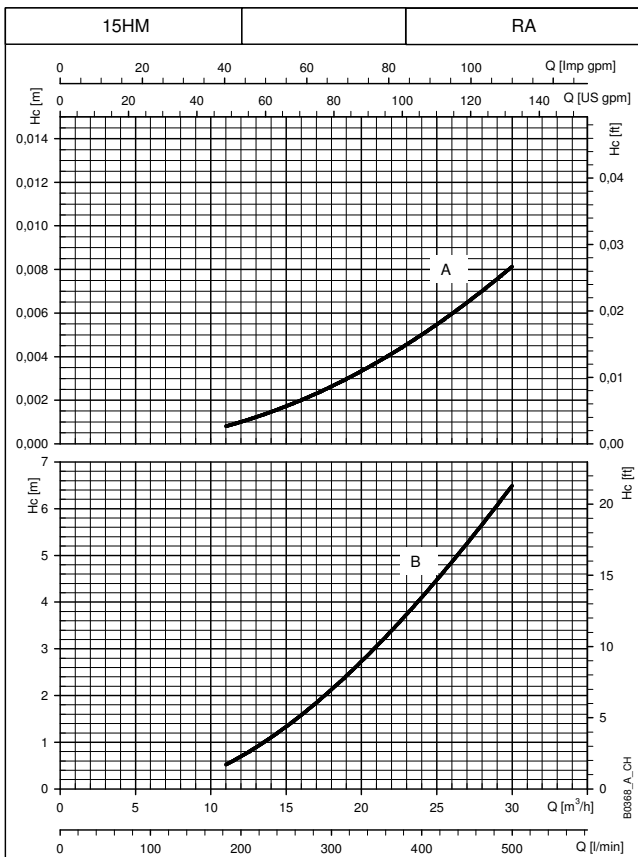
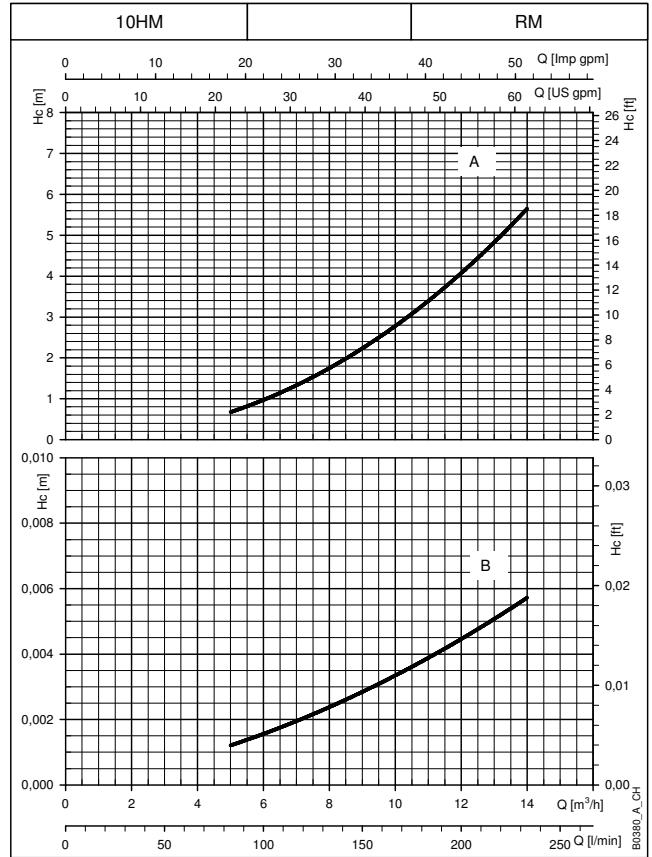
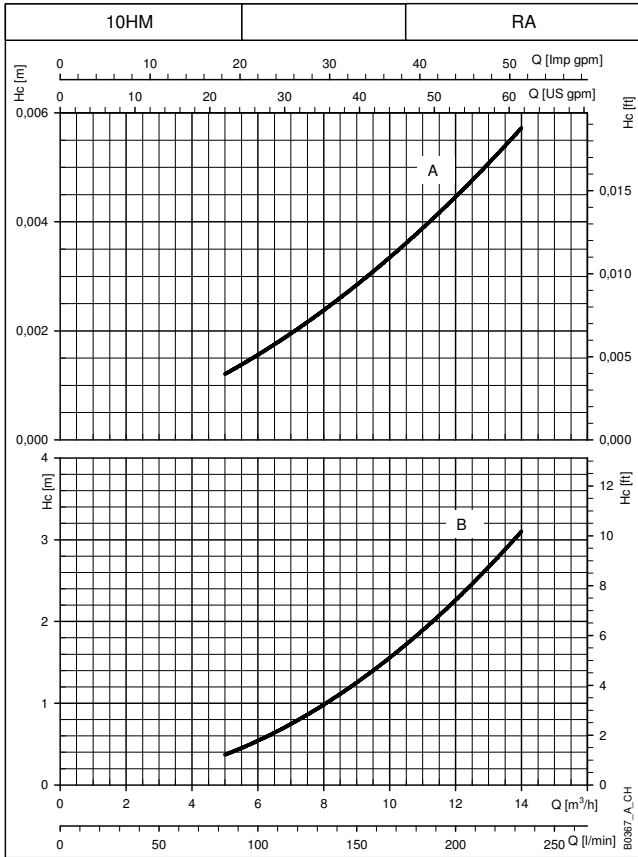


CURVES

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H<sub>c</sub> (A): Pressure drop curve on delivery side of the pump. H<sub>c</sub> (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.



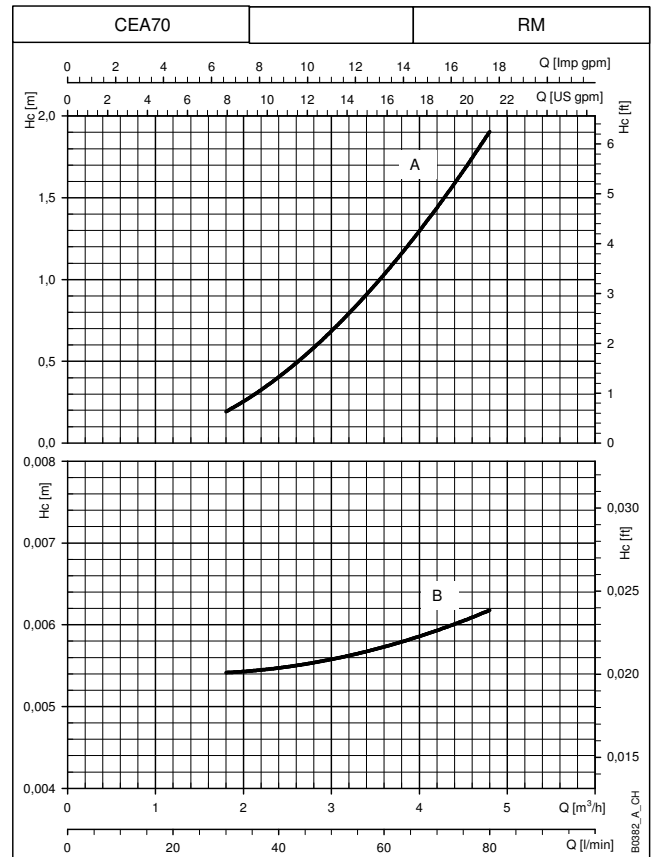
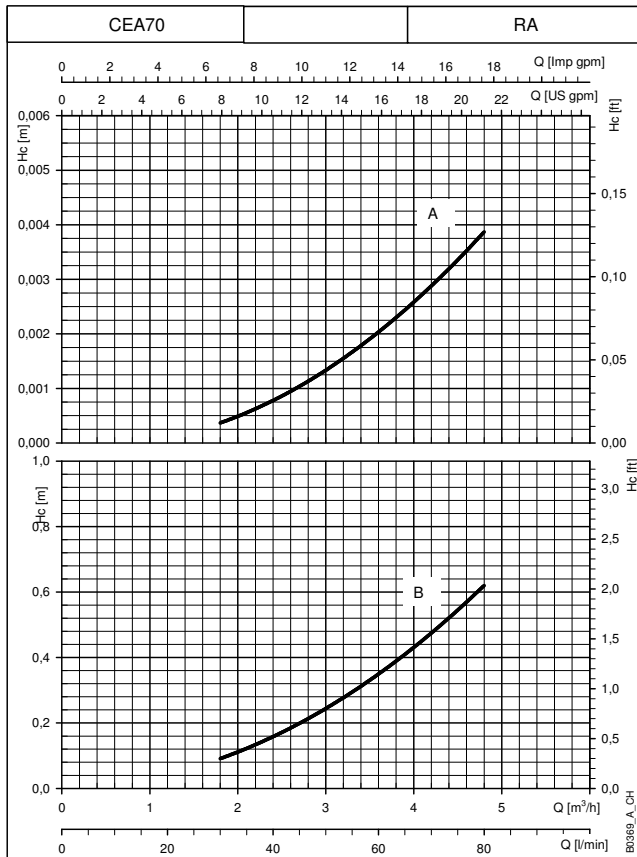
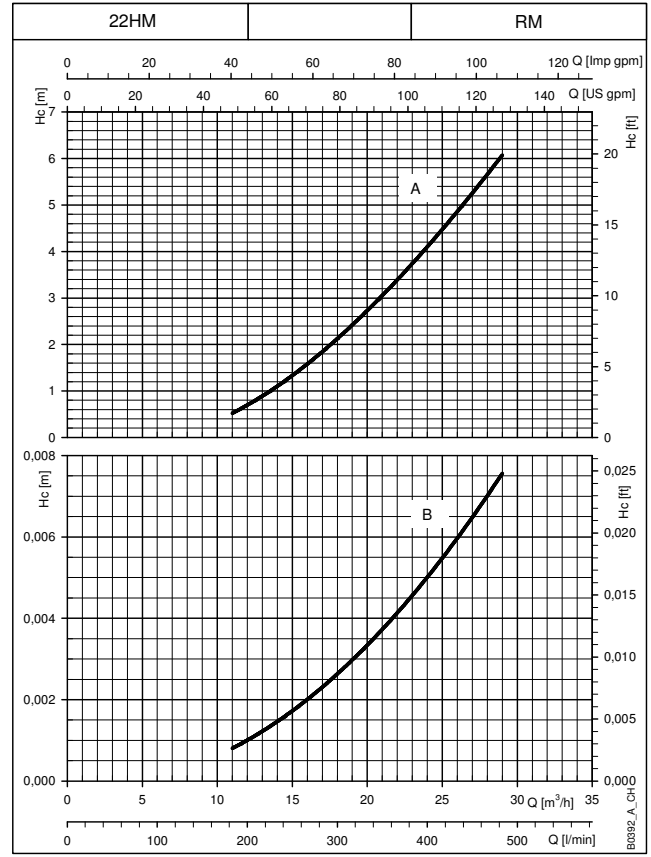
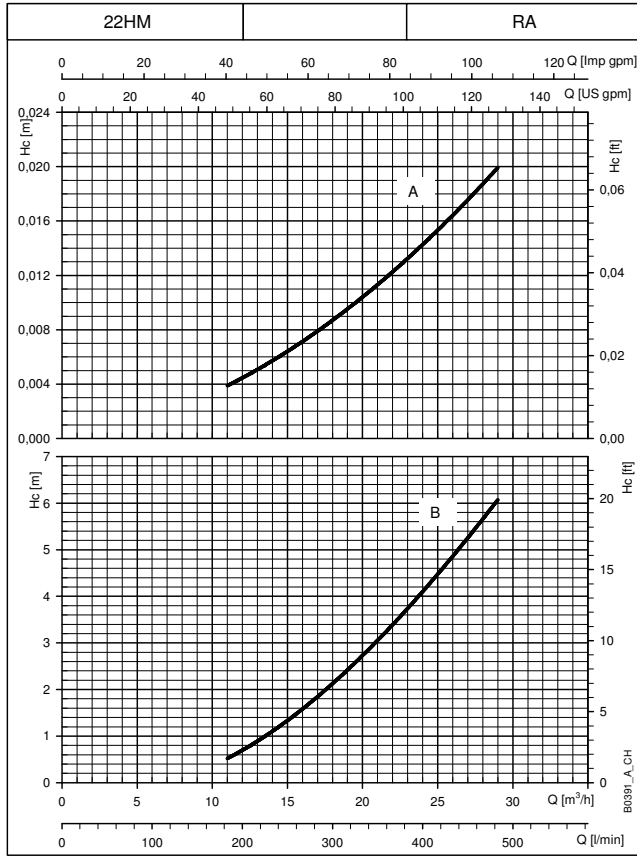
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**CURVES**

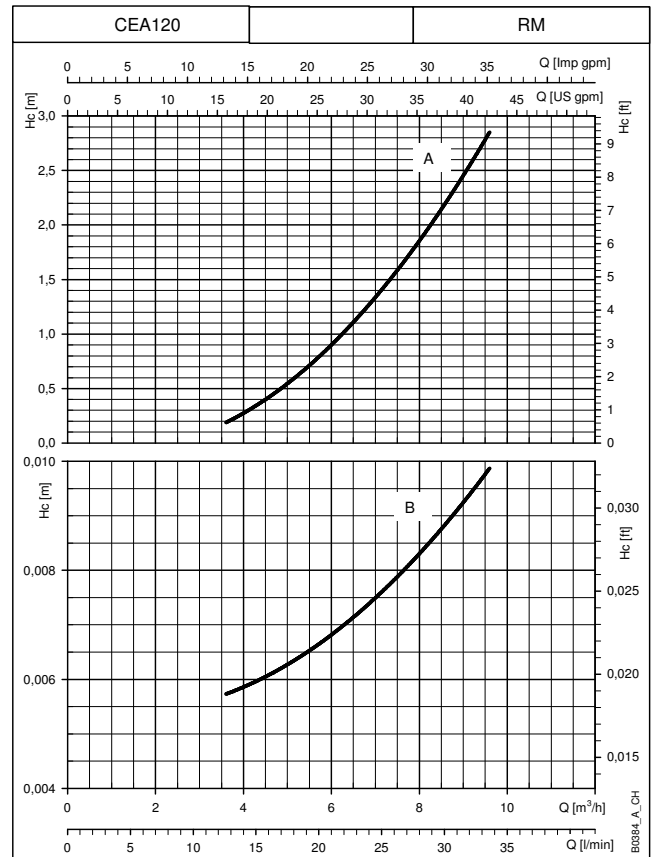
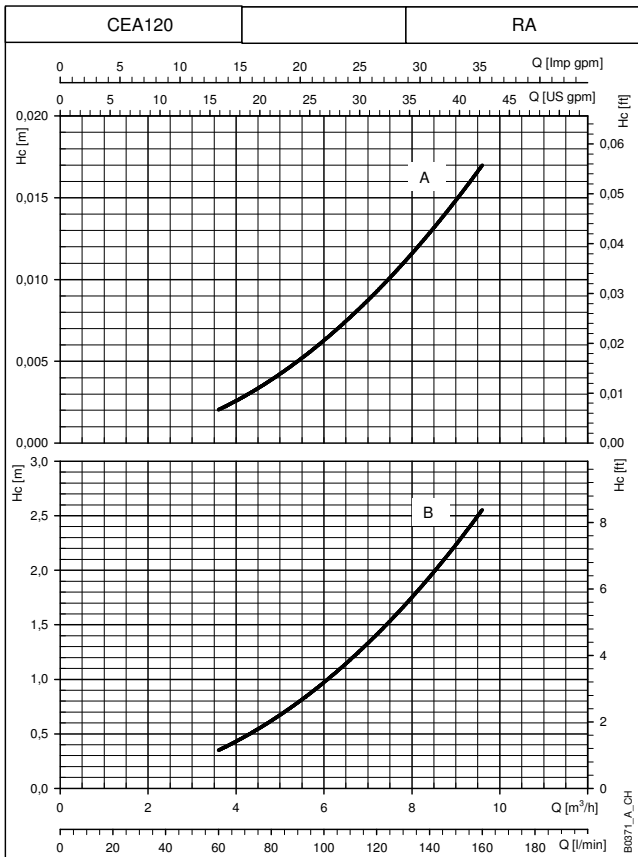
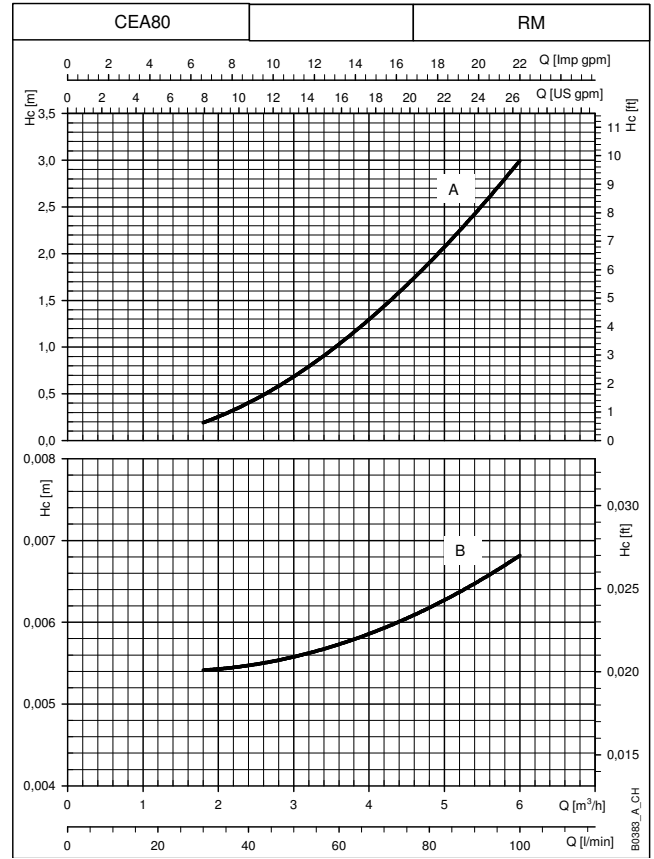
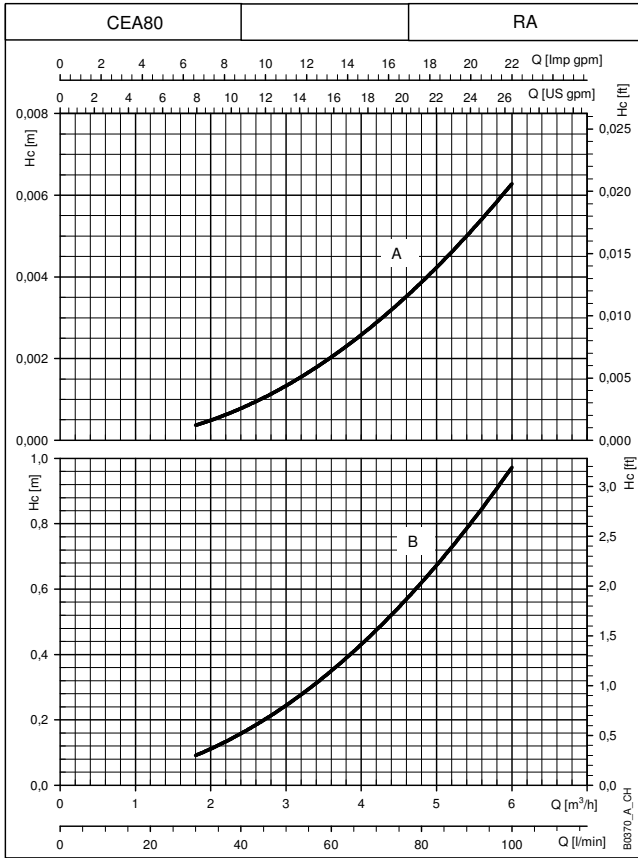
## BOOSTER SETS GX5 AND GMD SERIES H<sub>c</sub> PRESSURE DROP CURVE



CURVES

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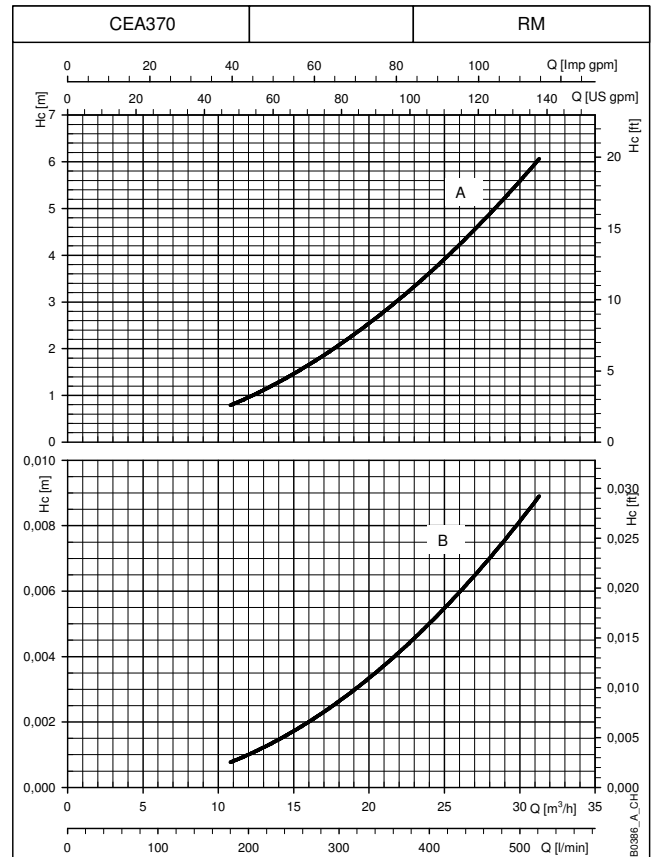
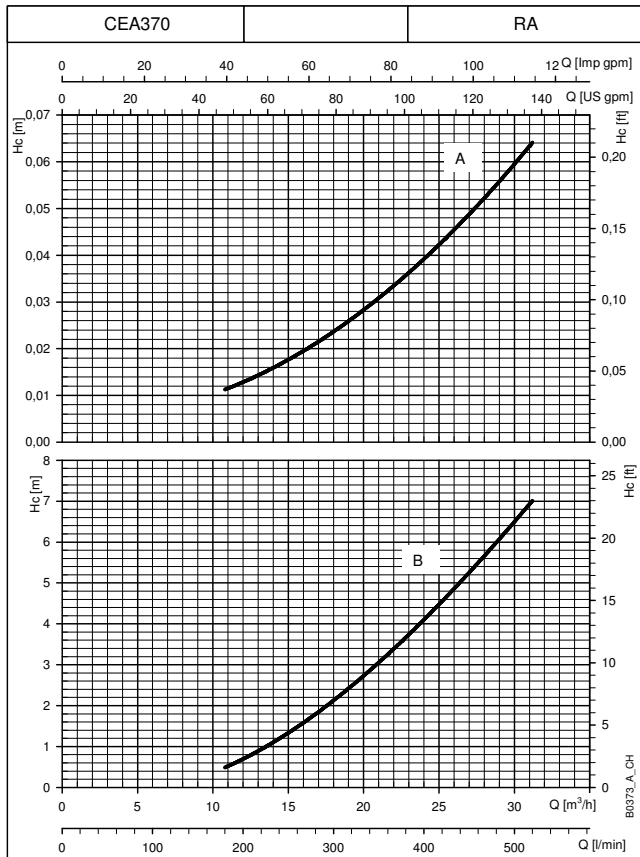
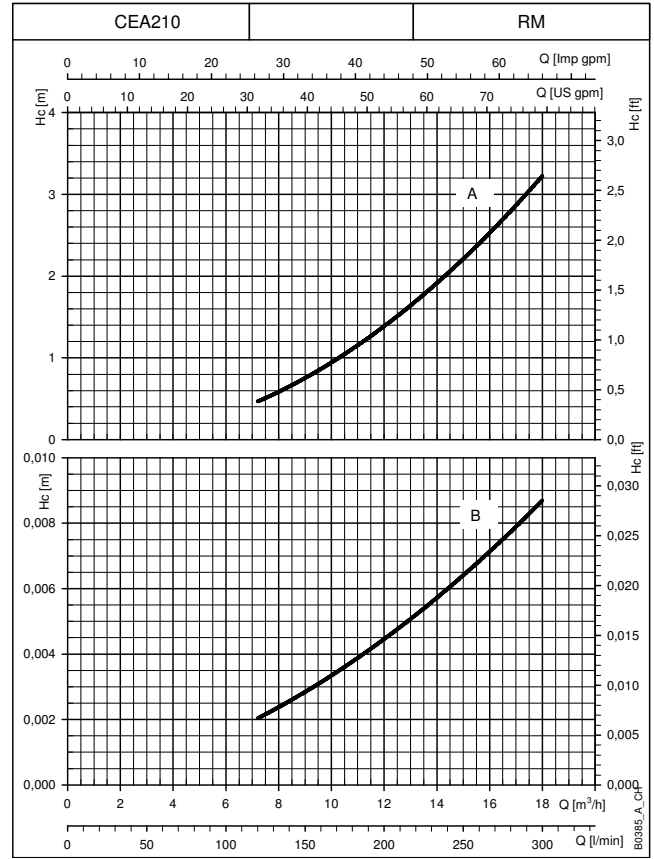
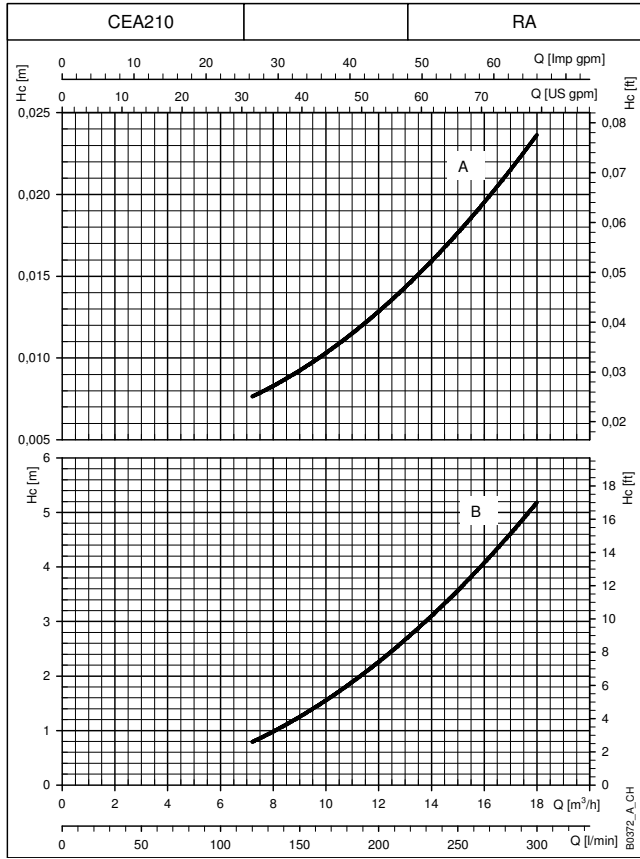
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**CURVES**

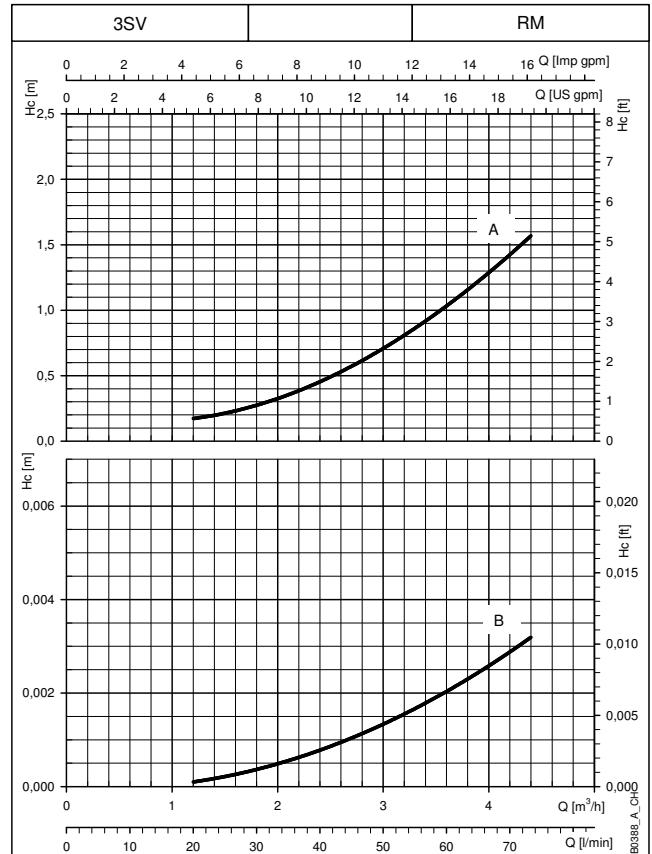
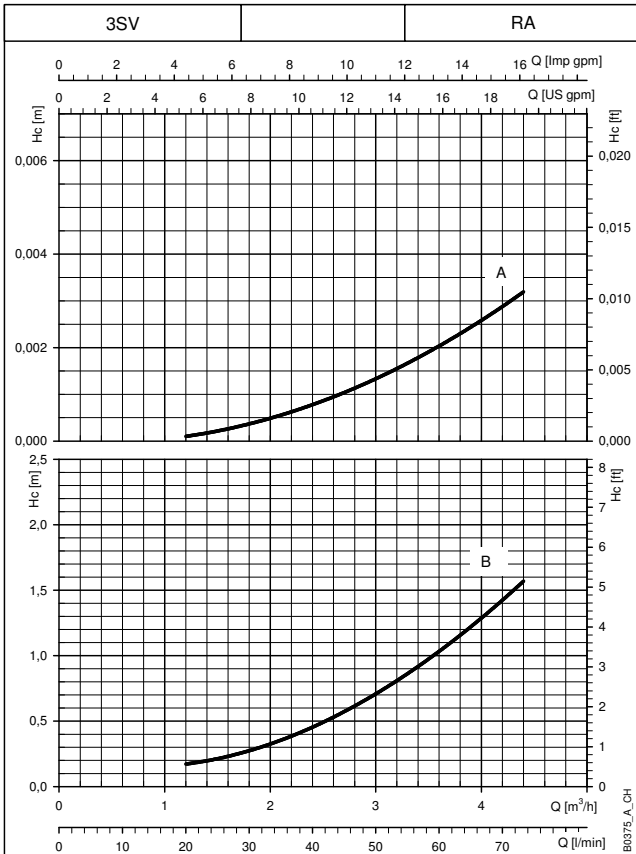
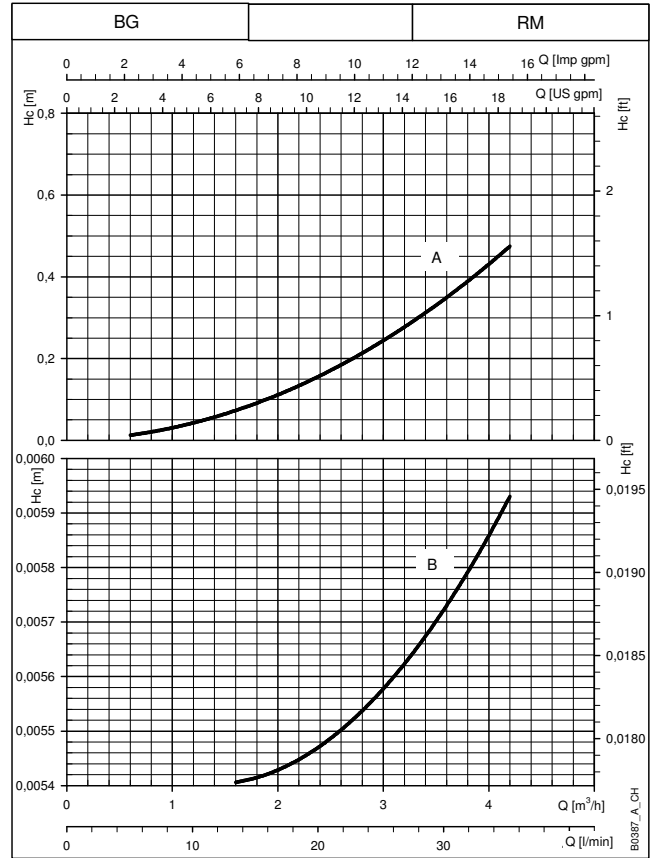
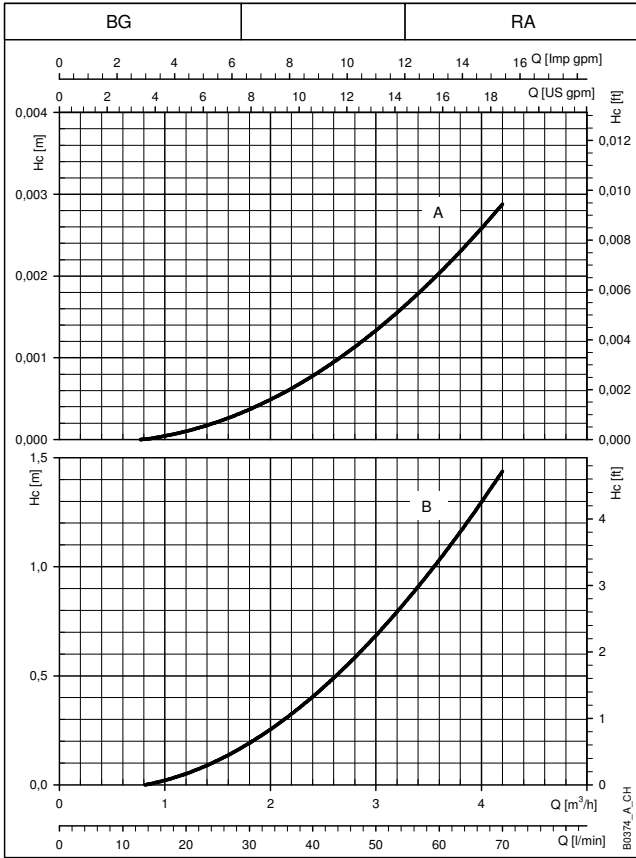
**BOOSTER SETS GXS AND GMD SERIES**  
**H<sub>c</sub> PRESSURE DROP CURVE**



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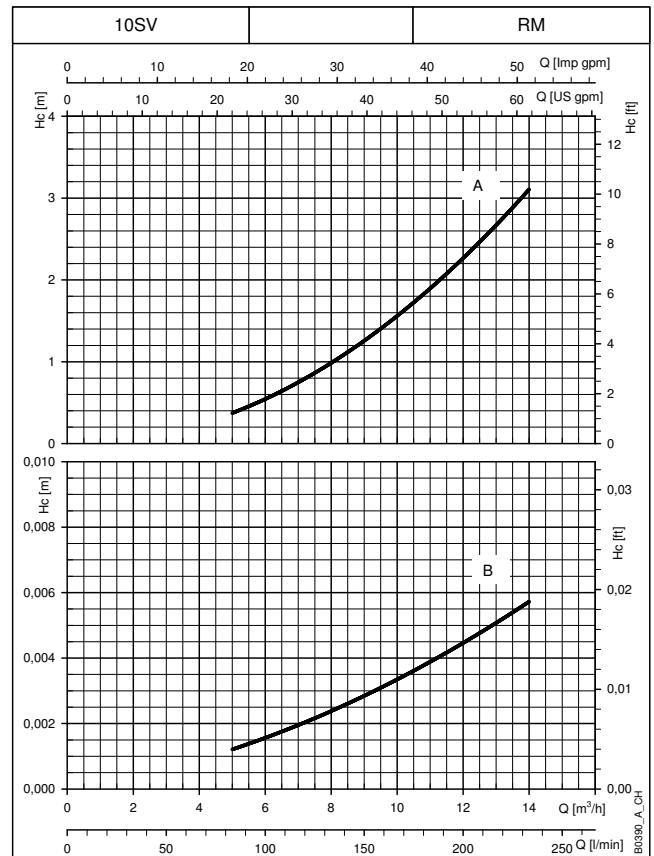
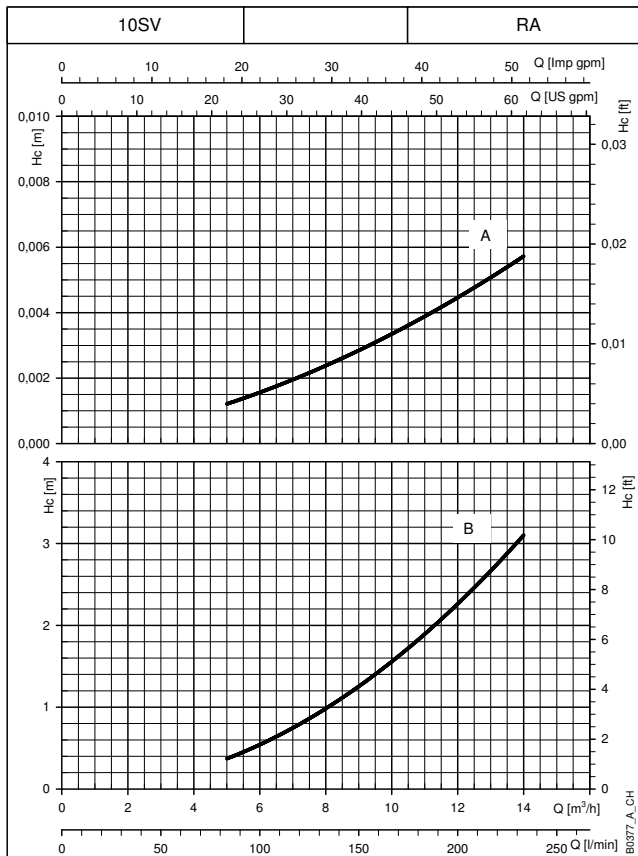
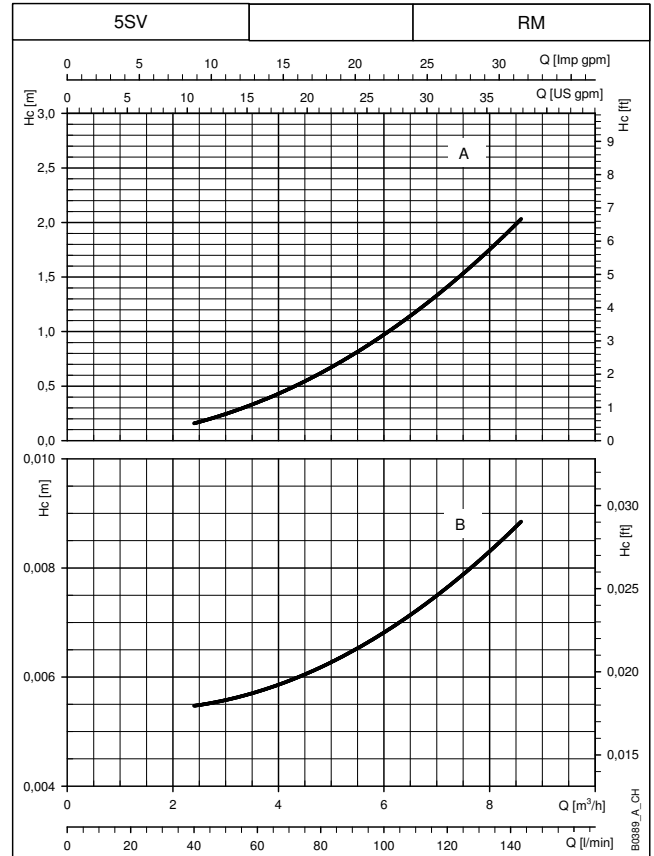
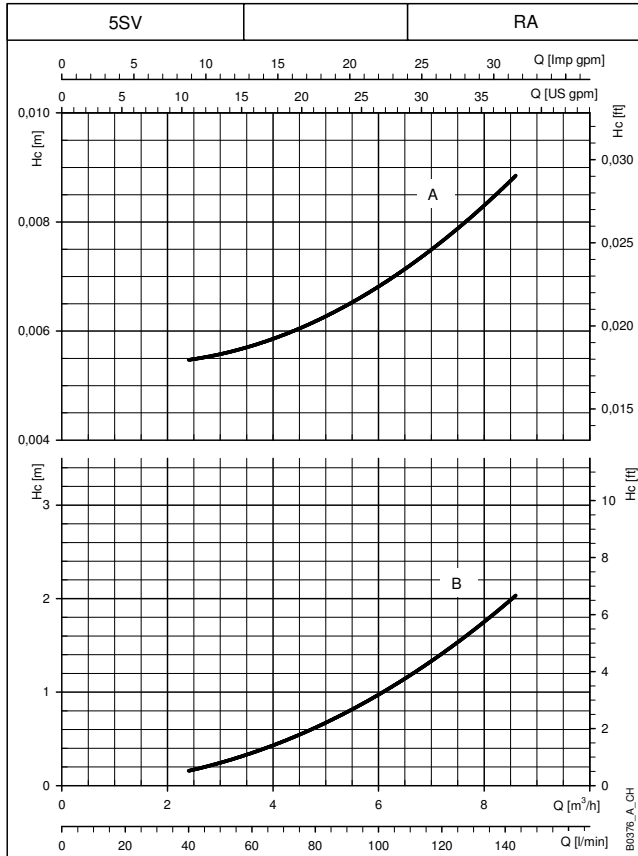
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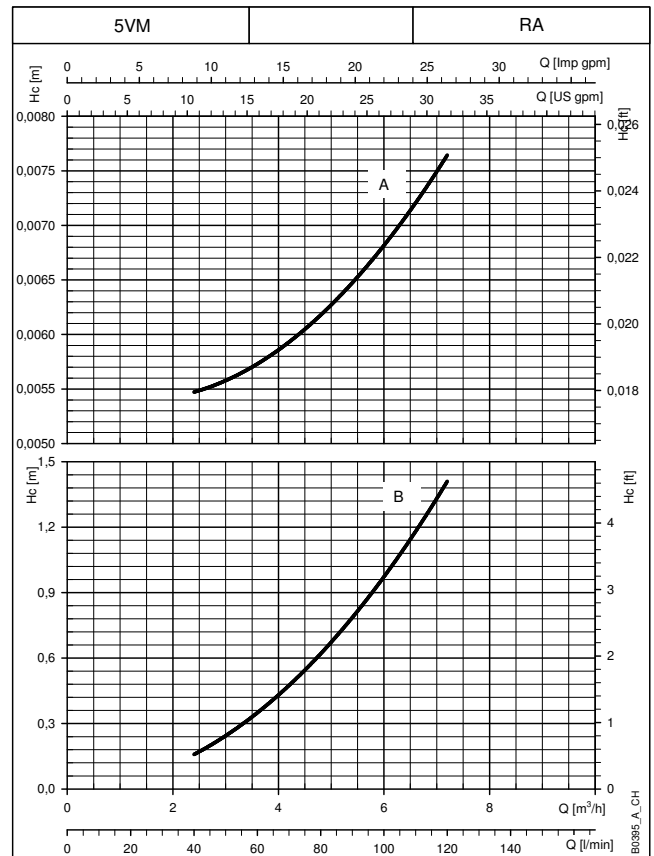
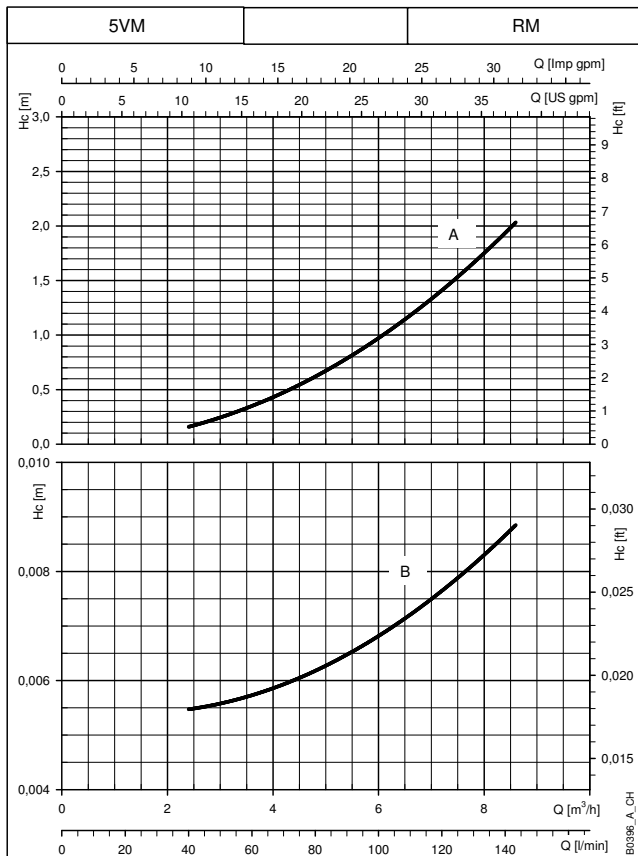
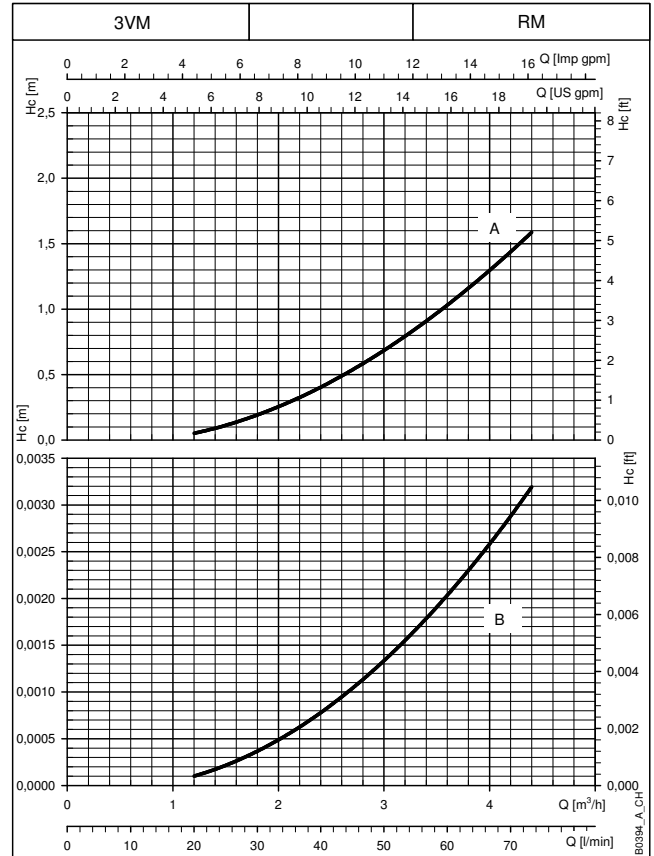
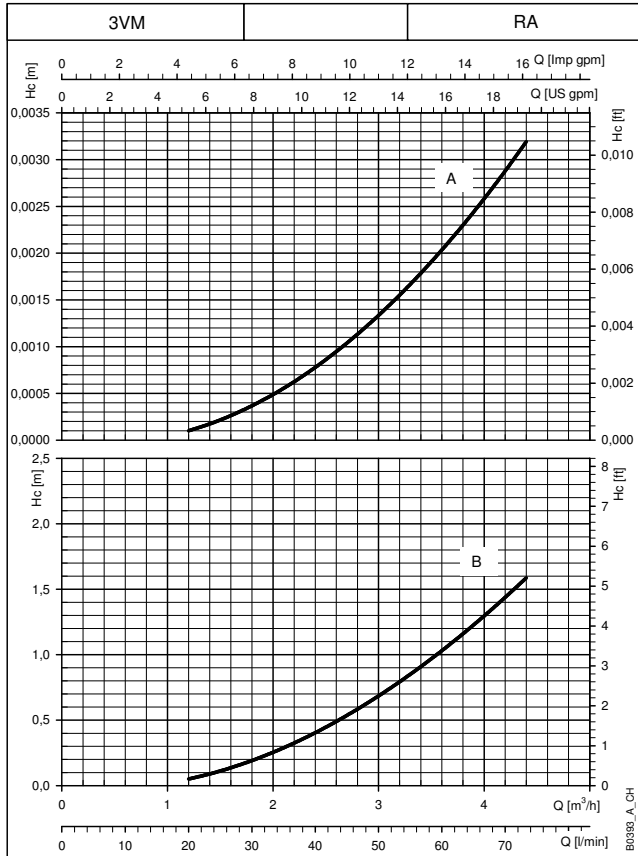
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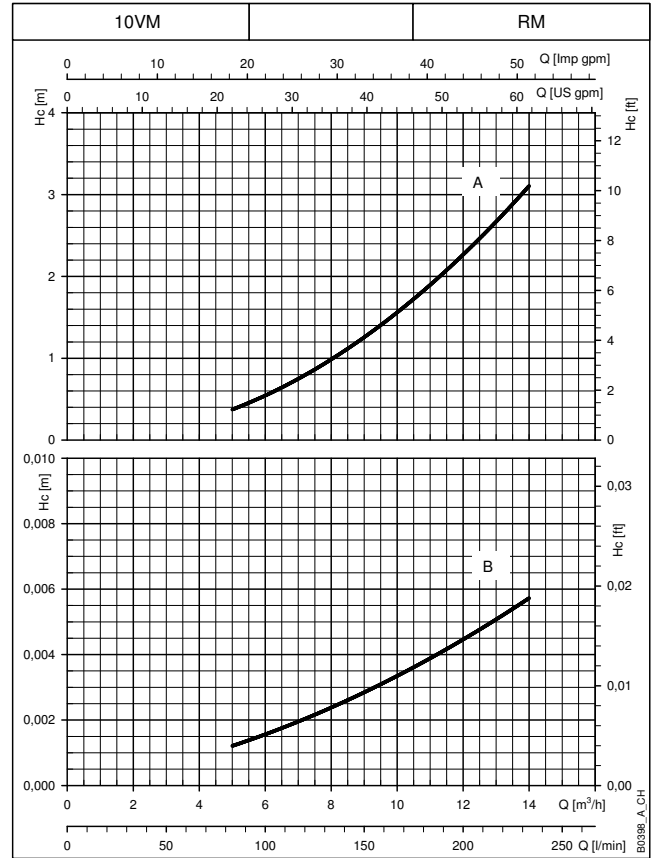
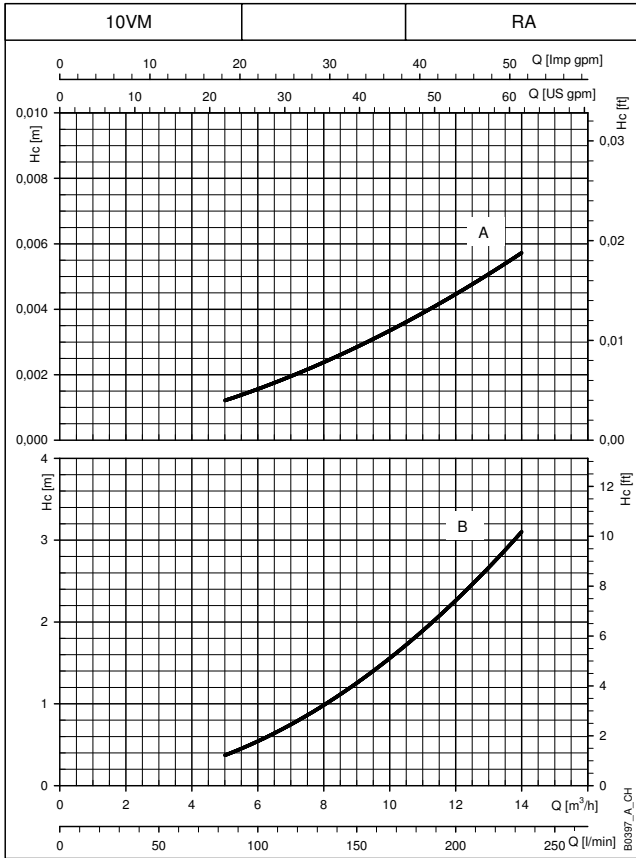
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The pressure drops do not consider the distributed pressure drops on the manifold.





# ACCESSORIES

## EXPANSION VESSELS

Booster sets have delivery manifolds with attachments for the installation of 8 or 24 litre diaphragm expansion vessels (hydrotube).

The caps for sealing any unused attachments are supplied with the set.

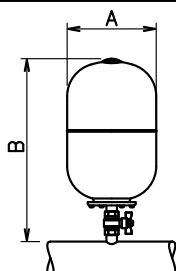
Any large size vessels can be connected to the unused end of the delivery manifold. For proper sizing of the vessel, please refer to the technical appendix.

Kits featuring the following accessories are **available on request**:

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

## DIAPHRAGM EXPANSION VESSELS KITS

Volume Litres	PN bar	DIMENSIONS (mm)			Materials		
		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



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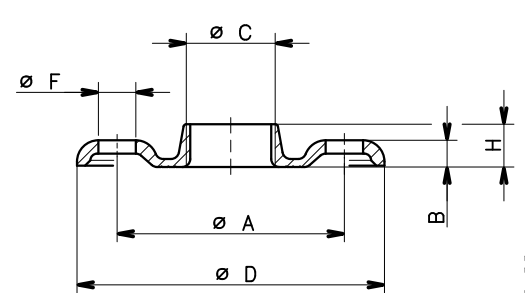
## FLANGE KIT

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 COUNTERFLANGES

KIT TYPE	DN	ø C	DIMENSIONS (mm)				HOLES		
			ø A	B	ø D	H	ø F	N°	PN
2"	50	Rp 2	125	16	165	24	18	4	25
2" 1/2	65	Rp 2 1/2	145	16	185	23	18	4	16
3"	80	Rp 3	160	17	200	27	18	8	16

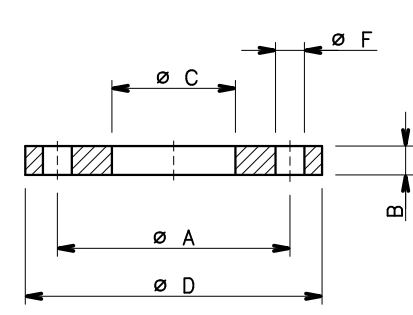


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## WELD-ON COUNTERFLANGES

KIT TYPE	DN	ø C	DIMENSIONS (mm)				HOLES		
			ø A	B	ø D	ø F	N°	PN	
2"	50	61	125	19	165	18	4	16	
2"1/2	65	77	145	20	185	18	4	16	
3"	80	90	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	



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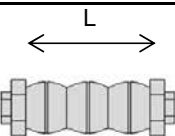
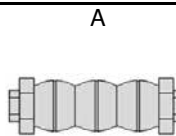
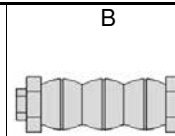
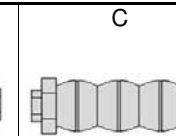
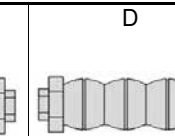
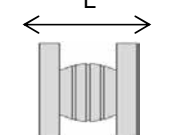
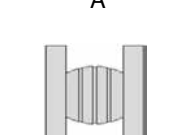
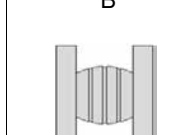
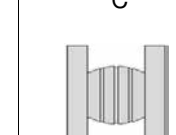
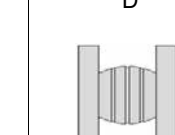
## ANTI-VIBRATION JOINT KIT

Anti-vibration joints, or compensation joints, can be used to absorb deformations, expansions, pipe noise and reduce water hammering. They can also withstand a high level of vacuum, which enables the absorption of negative expansions due to depression. Due to its elasticity, the material can deform or expand as necessary, making installation easier, simpler and quicker, even when the piping is not aligned.

The certificate for drinking water (WRAS, ACS, D.M. 174) is valid for the standard configuration, without joint. The certification could be voided if the booster was sent, on request, complete with fitted joints.

For more information, please contact the sales network.

## RUBBER EXPANSION JOINT

	L	A	B	C	D
DN	 ( mm )	 ( mm )	 ( mm )	 ( mm )	 ( ° )
1"	200	25	6	23	30
1"1/4	200	25	6	23	30
1"1/2	200	25	6	23	30
2"	200	25	6	23	20
2"1/2	225	25	6	23	15
DN	 ( mm )	 ( mm )	 ( mm )	 ( mm )	 ( ° )
32	95	8	4	8	15
40	95	8	4	8	15
50	105	8	5	8	15
65	115	12	6	10	15
80	130	12	6	10	15
100	135	18	10	12	15
125	170	18	10	12	15
150	180	18	10	12	15
200	205	25	14	22	15
250	240	25	14	22	15
300	260	25	14	22	15
350	265	25	16	22	15
400	265	25	16	22	15
450	265	25	16	22	15
500	265	25	16	22	15

GD\_JOINT\_B\_TD

### LEGEND

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

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

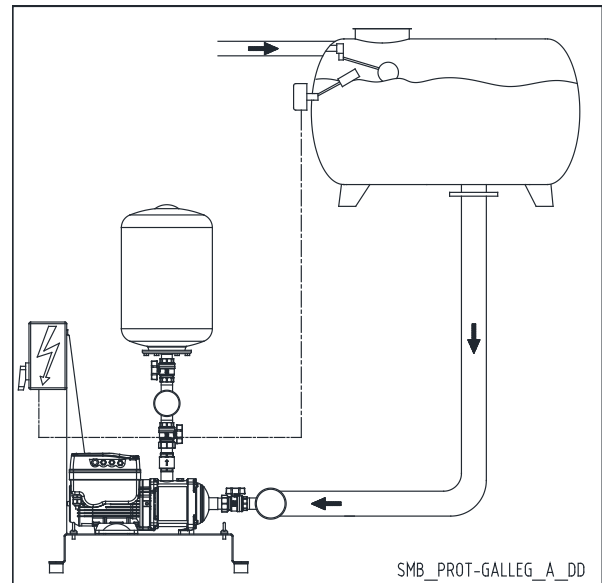
## PROTECTION SYSTEMS AGAINST DRY RUNNING

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

### FLOAT SWITCH PROTECTION

The float switch system is used for supplies from open tanks. The float switch immersed in the tank must be connected to the control panel.

If there is no water, the float switch opens the electrical contact and the electric pumps stop.

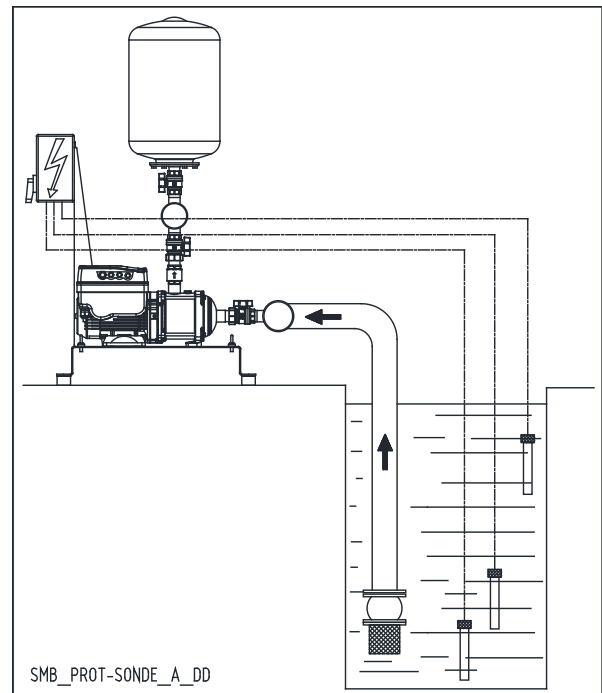


### ELECTRODE PROBE PROTECTION

The system with electrode probes is used for supplies from open tanks or wells.

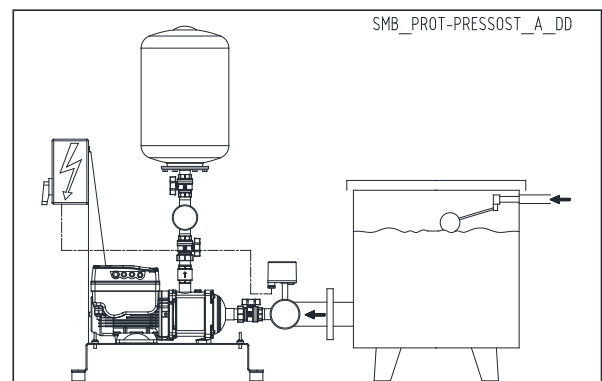
Three probes are directly connected to the electric module with adjustable sensitivity that can be installed in the control panel.

If there is no water, the control circuit opens the electrical contact and the electric pumps stop.



### MINIMUM PRESSURE SWITCH PROTECTION

The system with minimum pressure switch is used for water supplies from pressurised 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 metres of cable, an EPDM O-ring gasket and a stainless steel adapter.

### General operating features

- In the boosters sets the sensor is assembled on the suction manifold with a specific hydraulic fitting. (/DR1 set version).
- The sensor can also be fitted directly on the filling cap of the e-SV™ pumps series. (/DR2, /DR3 set versions).
- 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, 50 mA).
- 15÷25 Vdc, NPN output at 25 V (10 mA) for HYDROVAR inverter and e-SM drive.

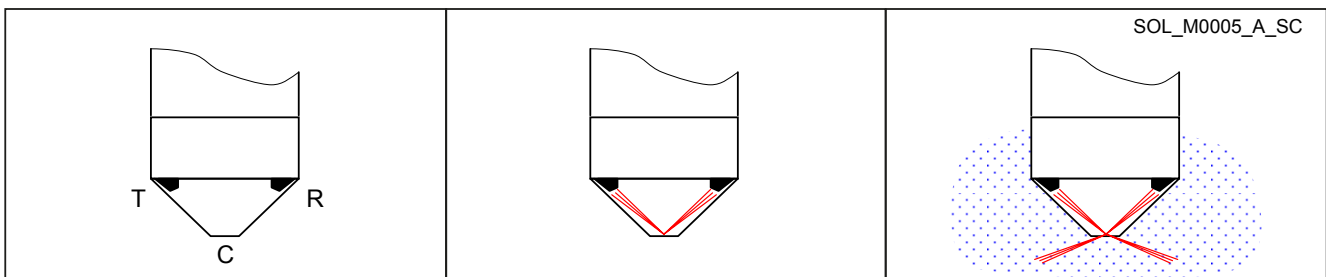
### Operating principle

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.



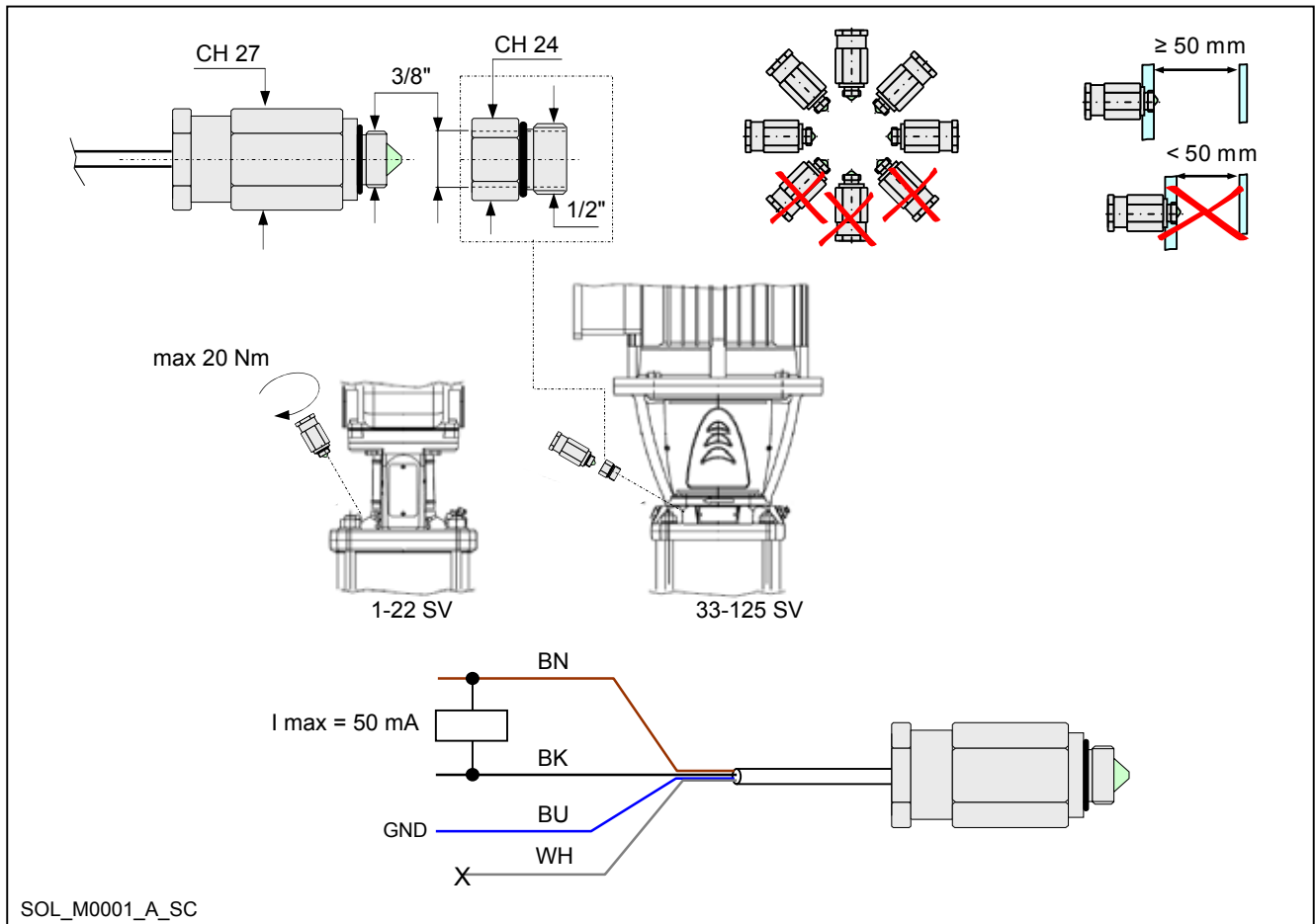
## SPECIFICATIONS

- 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 suitability 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" adaptor plug included in the Kit).
- Dimensions: 27x 60 mm
- IP55 protection.
- Electrical characteristics:
  - Input voltage SENSOR KIT DRP-GP: 21÷27 Vac  
SENSOR KIT DRP-HV: 15÷25 Vdc
  - Output SENSOR KIT DRP-GP: universal solid state 21÷27 Vac (50 mA) for 24 Vac external relay  
SENSOR KIT DRP-HV: NPN 25 V (10 mA) for HYDROVAR™ inverter and e-SM drive
  - Alarm delay: 10 seconds (factory setting)
  - FROR cable 4 x 0,34 mm<sup>2</sup> (PVC-CEI 20-22) 2 metres 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" adaptor ring included in the kit must also be installed.

### KIT SENSOR DRP-GP (codice 109394610)



BK	BN	BU	WH	X1, X3
Black	Brown	Blue	White	Terminal board

# TECHNICAL APPENDIX



**VAPOUR PRESSURE**  
**VAPOUR PRESSURE  $p_s$  AND  $\rho$  DENSITY OF WATER TABLE**

t °C	T K	$p_s$ bar	$\rho$ kg/dm <sup>3</sup>	t °C	T K	$p_s$ bar	$\rho$ kg/dm <sup>3</sup>	t °C	T K	$p_s$ bar	$\rho$ kg/dm <sup>3</sup>
0	273,15	0,00611	0,9998	55	328,15	0,15741	0,9857	120	393,15	1,9854	0,9429
1	274,15	0,00657	0,9999	56	329,15	0,16511	0,9852	122	395,15	2,1145	0,9412
2	275,15	0,00706	0,9999	57	330,15	0,17313	0,9846	124	397,15	2,2504	0,9396
3	276,15	0,00758	0,9999	58	331,15	0,18147	0,9842	126	399,15	2,3933	0,9379
4	277,15	0,00813	1,0000	59	332,15	0,19016	0,9837	128	401,15	2,5435	0,9362
5	278,15	0,00872	1,0000	60	333,15	0,1992	0,9832	130	403,15	2,7013	0,9346
6	279,15	0,00935	1,0000	61	334,15	0,2086	0,9826	132	405,15	2,867	0,9328
7	280,15	0,01001	0,9999	62	335,15	0,2184	0,9821	134	407,15	3,041	0,9311
8	281,15	0,01072	0,9999	63	336,15	0,2286	0,9816	136	409,15	3,223	0,9294
9	282,15	0,01147	0,9998	64	337,15	0,2391	0,9811	138	411,15	3,414	0,9276
10	283,15	0,01227	0,9997	65	338,15	0,2501	0,9805	140	413,15	3,614	0,9258
11	284,15	0,01312	0,9997	66	339,15	0,2615	0,9799	145	418,15	4,155	0,9214
12	285,15	0,01401	0,9996	67	340,15	0,2733	0,9793	155	428,15	5,433	0,9121
13	286,15	0,01497	0,9994	68	341,15	0,2856	0,9788	160	433,15	6,181	0,9073
14	287,15	0,01597	0,9993	69	342,15	0,2984	0,9782	165	438,15	7,008	0,9024
15	288,15	0,01704	0,9992	70	343,15	0,3116	0,9777	170	443,15	7,920	0,8973
16	289,15	0,01817	0,9990	71	344,15	0,3253	0,9770	175	448,15	8,924	0,8921
17	290,15	0,01936	0,9988	72	345,15	0,3396	0,9765	180	453,15	10,027	0,8869
18	291,15	0,02062	0,9987	73	346,15	0,3543	0,9760	185	458,15	11,233	0,8815
19	292,15	0,02196	0,9985	74	347,15	0,3696	0,9753	190	463,15	12,551	0,8760
20	293,15	0,02337	0,9983	75	348,15	0,3855	0,9748	195	468,15	13,987	0,8704
21	294,15	0,24850	0,9981	76	349,15	0,4019	0,9741	200	473,15	15,550	0,8647
22	295,15	0,02642	0,9978	77	350,15	0,4189	0,9735	205	478,15	17,243	0,8588
23	296,15	0,02808	0,9976	78	351,15	0,4365	0,9729	210	483,15	19,077	0,8528
24	297,15	0,02982	0,9974	79	352,15	0,4547	0,9723	215	488,15	21,060	0,8467
25	298,15	0,03166	0,9971	80	353,15	0,4736	0,9716	220	493,15	23,198	0,8403
26	299,15	0,03360	0,9968	81	354,15	0,4931	0,9710	225	498,15	25,501	0,8339
27	300,15	0,03564	0,9966	82	355,15	0,5133	0,9704	230	503,15	27,976	0,8273
28	301,15	0,03778	0,9963	83	356,15	0,5342	0,9697	235	508,15	30,632	0,8205
29	302,15	0,04004	0,9960	84	357,15	0,5557	0,9691	240	513,15	33,478	0,8136
30	303,15	0,04241	0,9957	85	358,15	0,5780	0,9684	245	518,15	36,523	0,8065
31	304,15	0,04491	0,9954	86	359,15	0,6011	0,9678	250	523,15	39,776	0,7992
32	305,15	0,04753	0,9951	87	360,15	0,6249	0,9671	255	528,15	43,246	0,7916
33	306,15	0,05029	0,9947	88	361,15	0,6495	0,9665	260	533,15	46,943	0,7839
34	307,15	0,05318	0,9944	89	362,15	0,6749	0,9658	265	538,15	50,877	0,7759
35	308,15	0,05622	0,9940	90	363,15	0,7011	0,9652	270	543,15	55,058	0,7678
36	309,15	0,05940	0,9937	91	364,15	0,7281	0,9644	275	548,15	59,496	0,7593
37	310,15	0,06274	0,9933	92	365,15	0,7561	0,9638	280	553,15	64,202	0,7505
38	311,15	0,06624	0,9930	93	366,15	0,7849	0,9630	285	558,15	69,186	0,7415
39	312,15	0,06991	0,9927	94	367,15	0,8146	0,9624	290	563,15	74,461	0,7321
40	313,15	0,07375	0,9923	95	368,15	0,8453	0,9616	295	568,15	80,037	0,7223
41	314,15	0,07777	0,9919	96	369,15	0,8769	0,9610	300	573,15	85,927	0,7122
42	315,15	0,08198	0,9915	97	370,15	0,9094	0,9602	305	578,15	92,144	0,7017
43	316,15	0,09639	0,9911	98	371,15	0,9430	0,9596	310	583,15	98,70	0,6906
44	317,15	0,09100	0,9907	99	372,15	0,9776	0,9586	315	588,15	105,61	0,6791
45	318,15	0,09582	0,9902	100	373,15	1,0133	0,9581	320	593,15	112,89	0,6669
46	319,15	0,10086	0,9898	102	375,15	1,0878	0,9567	325	598,15	120,56	0,6541
47	320,15	0,10612	0,9894	104	377,15	1,1668	0,9552	330	603,15	128,63	0,6404
48	321,15	0,11162	0,9889	106	379,15	1,2504	0,9537	340	613,15	146,05	0,6102
49	322,15	0,11736	0,9884	108	381,15	1,3390	0,9522	350	623,15	165,35	0,5743
50	323,15	0,12335	0,9880	110	383,15	1,4327	0,9507	360	633,15	186,75	0,5275
51	324,15	0,12961	0,9876	112	385,15	1,5316	0,9491	370	643,15	210,54	0,4518
52	325,15	0,13613	0,9871	114	387,15	1,6362	0,9476	374,15	647,30	221,20	0,3154
53	326,15	0,14293	0,9862	116	389,15	1,7465	0,9460				
54	327,15	0,15002	0,9862	118	391,15	1,8628	0,9445				

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### 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 <sup>3</sup> /h	l/min	15 1/2"	20 3/4"	25 1"	32 1 1/4"	40 1 1/2"	50 2	65 2 1/2"	80 3"	100 4"	125 5"	150 6"	175 7"	200 8"	250 10"	300 12"	350 14"	400 16"																																																																																				
0,6	10	v	0,94	0,53	0,34	0,21	0,13	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	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																																																																																															
		hr	57,7	14,21	4,79	1,44	0,16																																																																																															
1,5	25	v	2,36	1,33	0,85	0,52	0,33																																																																																															
		hr	87,2	21,5	7,24	2,18	0,25																																																																																															
1,8	30	v	2,83	1,59	1,02	0,62	0,40																																																																																															
		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																																																																																															
		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																						
		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																						
		hr		77,4	26,1	7,85	2,65																																																																									0,89																						
3,6	60	v		3,18	2,04	1,24	0,80	0,51																																																																																														
		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																																																																																														
		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																																																																																														
		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										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																																																																	

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 steel pipework, multiply the values by 1.41. For stainless steel, copper and coated cast iron pipework, multiply the values by 1.85. When the **equivalent pipeline length** has been determined, the flow resistance is obtained from the table of flow resistance.

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 the manufacturers.

## TANK CHOOSING AND SIZING THE SURGE TANK

The purpose of the surge tank is to limit the number of hourly starts of the pumps, placing part of its stock of water, which is maintained under pressure by the air above it, at the disposal of the system.

The surge tank can be of the air cushion or diaphragm type.

In the air cushion version there is no clear separation between air and water.

Since part of the air tends to mix with water, it is necessary to restore it by means of air supply units or a compressor.

In the diaphragm version, neither air supply units nor compressor are needed, as contact between air and water is prevented by a flexible diaphragm inside the tank.

The following method, which is used to determine the volume of a surge tank, is valid both for horizontal and vertical surge tanks.

When calculating the volume of the surge tank, it is generally sufficient to consider the first pump only.

### DIAPHRAGM TANK

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

$$V_m = \frac{Q_p}{4 \times Z} \times \frac{1}{1 - \frac{(P_{min} - 2)}{P_{max}}}$$

where:

$V_m$  = Total volume of the air-cushion surge tank in  $m^3$

$Q_p$  = Average pump flow rate in  $m^3/h$

$P_{max}$  = Maximum pressure setting (wcm)

$P_{min}$  = Minimum pressure setting (wcm)

$Z$  = Maximum number of starts per hour allowed by the motor

Example:

22SV10F110T electric pump

$P_{max}$  = 23 wcm

$P_{min}$  = 15 wcm

$Q_p$  = 20  $m^3/h$

$Z$  = 25

$$V_m = \frac{Q_p}{4 \times Z} \times \frac{1}{1 - \frac{(P_{min} - 2)}{P_{max}}} = 0,46 \text{ m}^3$$

A 500-litre surge tank is therefore required.

## VOLUMETRIC CAPACITY

Litres per minute l/min	Cubic metres per hour m <sup>3</sup> /h	Cubic feet per hour ft <sup>3</sup> /h	Cubic feet per minute ft <sup>3</sup> /min	Imperial gallon per minute Imp. gal/min	U.S. gallon per minute US gal/min
<b>1,000</b>	0,0600	2,1189	0,0353	0,2200	0,2642
16,6667	<b>1,000</b>	35,3147	0,5886	3,6662	4,4029
0,4719	0,0283	<b>1,000</b>	0,0167	0,1038	0,1247
28,3168	1,6990	60,0000	<b>1,000</b>	6,2288	7,4805
4,5461	0,2728	9,6326	0,1605	<b>1,000</b>	1,2009
3,7854	0,2271	8,0208	0,1337	0,8327	<b>1,000</b>

## PRESSURE AND HEAD

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

## LENGTH

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

## VOLUME

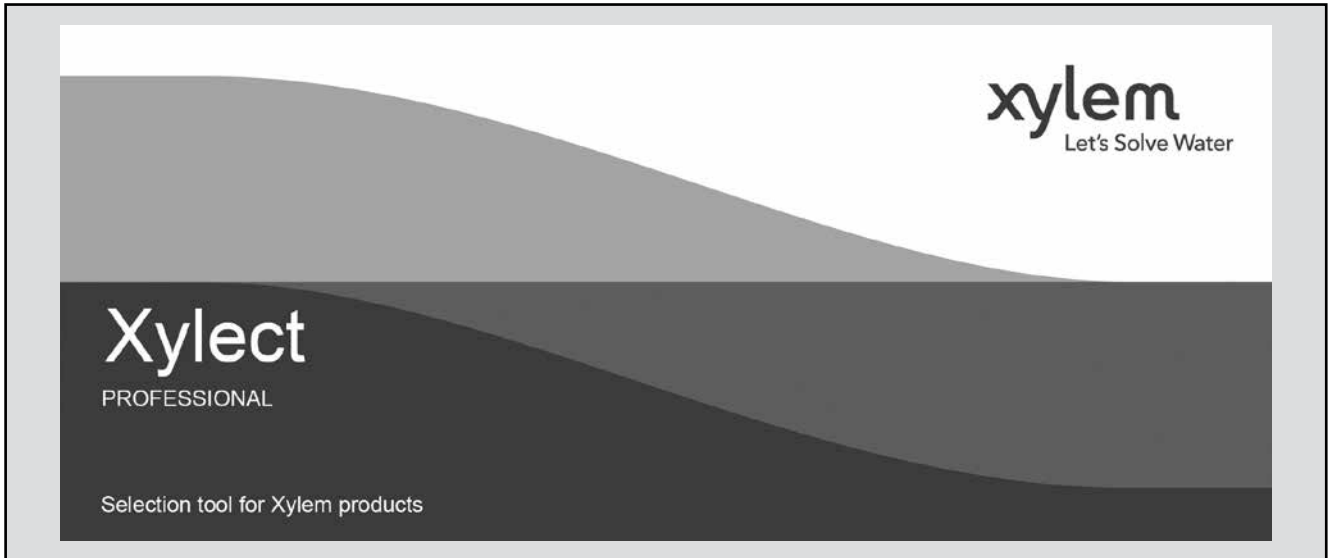
Cubic metre m <sup>3</sup>	Litre L	Millilitre ml	Imperial gallon imp. gal.	U.S. gallon US gal.	Cubic foot ft <sup>3</sup>
<b>1,000</b>	1 000,0000	$1 \times 10^6$	219,9694	264,1720	35,3147
0,0010	<b>1,000</b>	1 000,0000	0,2200	0,2642	0,0353
$1 \times 10^{-6}$	0,0010	<b>1,000</b>	$2,2 \times 10^{-4}$	$2,642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

## TEMPERATURE

Water	Kelvin K	Celsius °C	Fahrenheit °F	
icing	273,1500	0,0000	32,0000	$^{\circ}\text{F} = ^{\circ}\text{C} \times \frac{9}{5} + 32$ $^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times \frac{5}{9}$
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.

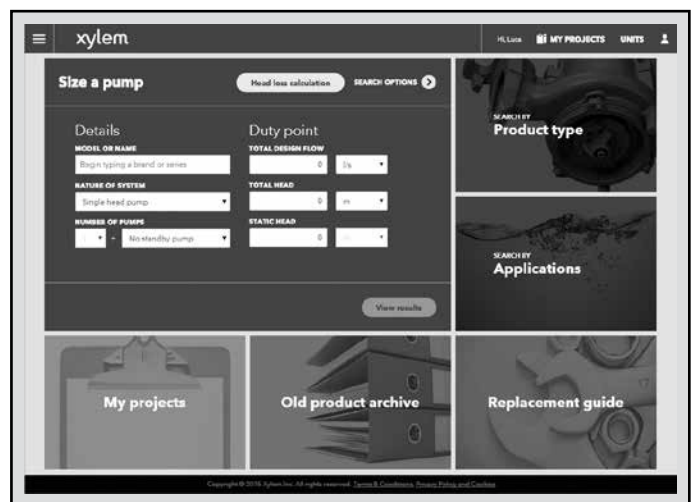
The possibility to search by applications and the detailed information output given makes it easy to make the optimal selection without having detailed knowledge about the Lowara products.

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 incl dxf files



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

## FURTHER PRODUCT SELECTION AND DOCUMENTATION

### Xylect™



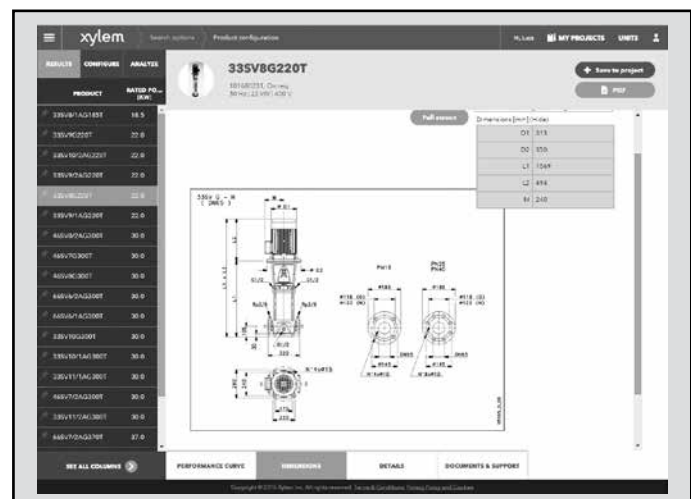
The detailed output makes it easy to select the optimal pump from the given alternatives.

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](http://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, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. 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.

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