VERTICAL THERMOPLASTIC PUMPS

SAVINOBARBERA

PUMPMAKERS SINCE 1947

CORROSION-FREE OPERATIONS

VERTICAL CHEMICAL PUMPS

SAVINOBARBERA

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OVER 70 years SINCE 1947

SAVINOBARBERA

## VERTICAL PUMPS FOR CORROSIVE LIQUIDS

Vertical chemical pumps produced in lengths of between 200 and 3000 mm. With no intermediate supports, they are equipped with only one pair of bushings at the end of the shaft. They are also available with a completely cantilevered shaft with no guide elements (cantilever version) or a recessed impeller.

## PLASTICS: PP, PVC, PVDF

Savino Barbera vertical pumps are made of corrosion-resistant plastic and have no metal parts that come into direct contact with aggressive liquids. All their wetted parts are made of PP, PVC and PVDF, making them insensitive to chemical aggression. Less metal, less corrosion, fewer problems!

## CUSTOMISED PUMPS SUITABLE FOR EVERY TANK

Savino Barbera vertical pumps are designed for installation in tanks at atmospheric pressure.
They are not made in standard lengths but are built to suit individual requirements, so that they can be adapted to any tank or system.

# VERTICAL CHEMICAL PUMPS

Made of corrosion-resistant plastic, Savino Barbera vertical pumps have no metal parts that come into direct contact with the liquids pumped. The use of this type of pump eliminates the need for openings in the bottom of the tank and allows the pumping of acids in complete safety: any leaks are always handled inside the installation tank.
Their construction without predefined lengths makes them perfect for any depth, while their plastic-coated pump shaft, built in one piece without intermediate supports, is impervious to chemical aggression.
Vertical pumps are the ideal solution for handling aggressive fluids: they are close-coupled pumps with no weak points.

FOR DEMANDING OPERATIONS
GP vertical pumps are used for continuous services and heavy-duty work. They are fitted with motors with oversized bearings (double row angular ball bearings) and fans resistant to acid vapours. Pictured: GP80B pump in PP for acid fume control.

## AS SERIES

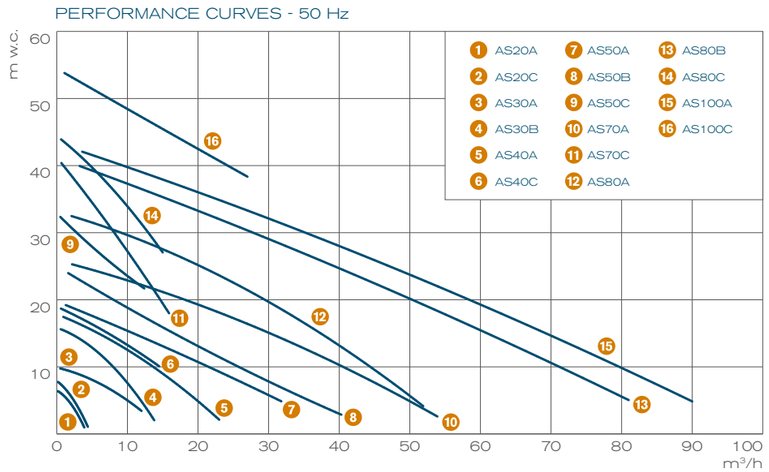
### AS PUMPS: TANK SAFETY

Single-stage vertical centrifugal pumps suitable for handling corrosive liquids and even slightly charged liquids.
The plastic pumps of the AS series are designed for installation from above in tanks and wells of various kinds: thanks to their construction without standard sizes (lengths from 200 to 3000 mm) they can be adapted to any depth.
A pair of guide bushes, flushed by the liquid being pumped and available in materials that are resistant to wear and corrosion, are fitted at the end of the shaft (which is coated in plastic and has no intermediate supports).
The hydraulics are created with impellers with open or closed blades and different rotation speeds.

### Technical features

- Plastic construction materials: PP, PVC, PVDF.
- Custom-made lengths from 200 to 3000 mm.
- Bushings made of filled-PTFE, SiC, Ceramic.
- Maximum flow rate of 90 $m^3/h$ and maximum head of 55 m w.c.

PERFORMANCE CURVES - 50 Hz




## GP SERIES

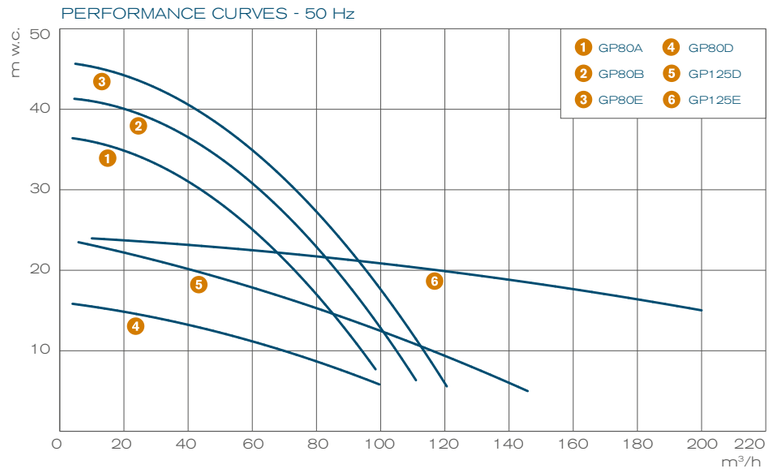
### GP PUMPS: HIGH FLOW RATES

Vertical centrifugal pumps with similar characteristics to the AS series are manufactured in customised lengths from 750 to 3000 mm.
GP chemical pumps are characterised by high performance (flow rate, head and efficiency), making them particularly suitable for heavy-duty services and continuous operations. Their solid volute pump body is a solid block of plastic material with excellent chemical and mechanical resistance.
Their reduced dimensions and suspended flat impellers considerably facilitate the use of these pumps in tanks that are shallow or have a reduced capacity, such as in wet fume control systems.

### Technical features

- Plastic construction materials: PP (polypropylene) only.
- Custom-made lengths from 750 to 3000 mm.
- End bushings made of silicon carbide (SiC).
- Maximum flow rate of 200 $m^3/h$ and maximum head of 42 m w.c.

PERFORMANCE CURVES - 50 Hz




CUSTOMISED PUMPS
AS vertical pumps. Top: AS30 pump in PP for copper sulphate at a temperature of 60°C with suspended solids. Opposite: AS30 pump in PVDF (light plastic) for hydrofluoric acid and AS70C pump in PVC (dark plastic) for sodium hypochlorite.

VERY ROBUST PUMP CASINGS
Machined from a solid block of plastic, GP vertical pump casings are structurally and chemically very robust. They are not affected by dirty liquids or high temperatures, thanks to their thick-walled plastic pump body.

BEARINGLESS PUMPS
BS vertical pumps have no intermediate supports or immersed bearings in proximity to the suction area: their cantilevered shafts are coupled directly to the motor. Pictured opposite: BS40 PP pump with 1.1 kW motor for brine.

BS SERIES

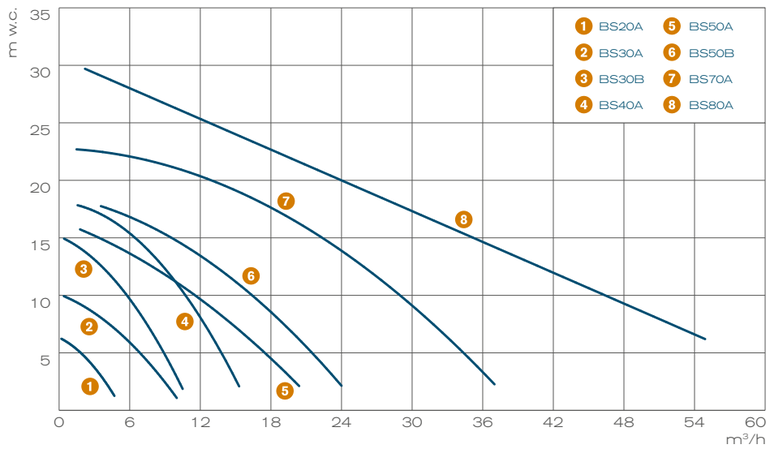
## BS PUMPS: CANTILEVER VERSION

Vertical centrifugal pumps characterised by the absence of sliding parts (bushings or supports). The plastic pumps of the BS series are recommended for handling corrosive liquids, sludge, liquids containing solids, that tend to crystallise or to form scale.
An unsupported overhung shaft coupled directly to the motor makes these pumps perfect for liquids containing particles or small abrasive solids.
Equipped with double-acting impellers, they are manufactured in standard lengths for tanks with a constant level. Accessory pipes are available to increase the suction length.

### Technical features

- Plastic construction materials: PP, PVC, PVDF.
- Cantilever shaft with no bushings or bearings.
- Standard lengths: 400, 550, 700, 900 mm.
- Maximum flow rate of 55 $m^3/h$ and maximum head of 30 m w.c.

PERFORMANCE CURVES - 50 Hz




SOLIDS-HANDLING APPLICATIONS
Due to the complete absence of sliding parts, BS vertical pumps are suitable for handling slightly abrasive liquids, liquids containing suspensions or with a tendency to form scale. Central photo: BS20 PVC pump with 0.55 kW motor. Pumped liquid: water and coolant (ethylene glycol).

FOR CLOGGING LIQUIDS
GA50 vertical pump with axial suction, made of polypropylene (PP) and equipped with 4 kW motor. Maximum flow rate: 40 $m^3/h$. Maximum head: 25 m w.c. Application: clogging and abrasive liquids.

GA SERIES

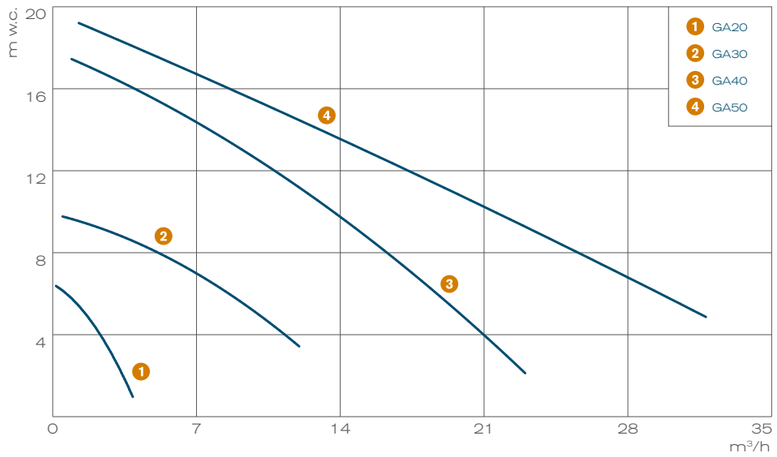
## GA PUMPS: RECESSED IMPELLER

The anti-corrosion pumps of the GA series have been designed by Savino Barbera to work in the presence of coarse solids and also (in the cantilever version) in the absence of liquid. Thanks to this last option (version without wear bushings) GA pumps can run dry without any problems. They are vertical centrifugal pumps with large internal spaces and a flat recessed impeller with a non-clogging profile. These features make it easier to pump aggressive liquids containing foreign bodies, filaments, fibres or other impurities typically found in certain industrial fluids. GA vertical pumps are available in two different versions: they are custom-made up to a maximum length of 3000 mm (version with bushings) or proposed in standard construction lengths (version without bushings).

### Technical features

- Plastic construction materials: PP, PVC, PVDF.
- Lots of internal space and recessed non-clogging impeller.
- Maximum flow rate of 32 $m^3/h$ and maximum head of 20 m w.c.
- Lengths of the cantilever version: 400, 550, 700 and 900 mm.
- Lengths of the version with bushings: up to a maximum of 3000 mm.

PERFORMANCE CURVES - 50 Hz




DRY RUNNING
The non-clog flat recessed impeller and the distance between the cover and the impeller make the GA an ideal pump for extreme use, such as the pumping of liquids containing suspended solids or, in the cantilever version, when there is a risk of dry running.

# PUMPS WITH A FIBREGLASS STRUCTURE

Fibreglass is a thermo-hardening compound material consisting of a glass-fibre reinforced polymer matrix and is universally known for its mechanical properties and chemical resistance. Because of these qualities and its traditional lightness, we chose fibreglass as the construction material for the outer structure of our longest vertical pumps. This gives the vertical pumps of the AS series extra strength. Clearly, this structural solidity equates to easier use and maintenance.

## STRUCTURAL STABILITY

All vertical axis pumps in the AS series with length of over 2000 mm have a reinforced configuration thanks to the simultaneous presence of aluminium motor bearings, oversized shafts and opposing fibreglass shells.
In this type of vertical pump, the thermoplastic support column is reinforced by a double fibreglass structure that adds extra stability to the pumping unit.
This is a construction solution that ensures additional resistance to vibrations while protecting the pump from other mechanical stress.
Pictured left: AS100A vertical pump made of polypropylene (PP).
The pump, which is designed to be equipped with additional tail pipes that extend its column to a final length of 4000 mm, is fitted with an 11 kW three-phase electric motor, an ISO d110 DN100 PN16 flange and an open impeller with a diameter of 220 mm.
The gap between the impeller and the pump casing allows the passage of solids with a size of approximately 10 mm.
This vertical pump is installed in a lifting station for pumping effluent to the final water treatment plant. The aggressive liquid pumped is a solution of water with traces of hydrofluoric acid and ammonia (with a specific weight of approximately 1000 kg/m$^3$).
Like all Savino Barbera vertical pumps, this pump has only one pair of bushings at the end of the shaft: in this case the pump-bushing is made of SiC while the shaft-bushing is made of filled PTFE. No other intermediate bushings are mounted on the shaft. The working conditions of the AS100A pump are: outdoor installation and continuous operation.
Maximum flow rate: 90 m$^3$/h. Maximum head: 43 m w.c.

## REINFORCEMENT STRUCTURE

The external reinforcement made of fibreglass conveys the right solidity to our vertical pumps, which are able to work in perfect conditions, even with considerable lengths and with pump shafts with no intermediate supports.

## FINNING

The fibreglass reinforcement of the vertical column is anchored to the delivery pipe by means of a plastic finning, the purpose of which is to keep the pump aligned, even in the event of extreme temperature changes or in the presence of other environmental causes that could bend its structure.

## STRONG BUT LIGHT

As indicated on the previous page, all AS vertical centrifugal pumps with lengths of over 2 metres are fitted with shaped fibreglass shells for additional structural stability. For pumps of a certain length, the advantages of having a very light reinforcement shell are basically twofold: easy handling and pumping operations with no annoying vibrations.
Moreover, in vertical pumps with a delivery diameter equal to or greater than d63, the double reinforcement in fibreglass continues along the whole length of the delivery pipe: this feature makes it possible to keep the delivery pipe in the correct position at all times, especially in the presence of strong temperature changes.
Pictured right: AS70A vertical pump
made of PVC The pump is 3000 mm long and is equipped with a three-phase electric motor with a power rating of 4 kW.
The open impeller has a diameter of 180 mm.
The corrosive liquid pumped is a solution of water, sulphuric acid (10% concentration) and nitric acid (5% concentration).
Maximum flow rate: 54 m$^3$/h. Maximum head: 25 m w.c.
Pictured left: AS50B vertical pump with a 3 kW motor. The construction material is polypropylene, chosen for its chemical compatibility with the corrosive liquids to be pumped: washing water with sodium hydroxide, hydrofluoric acid and phosphoric acid.
The open impeller has a diameter of 165 mm, while the overall length of the pump is 2960 mm.
Maximum flow rate: 40 m$^3$/h. Maximum head: 25 m w.c.

## UP TO 4 METRES LONG!

Besides having filter baskets to retain coarse impurities, Savino Barbera vertical axis pumps can also be fitted with suction extensions that can extend their total length up to 4000 mm.

# NO INTERMEDIATE SUPPORTS

Everything in our vertical plastic pumps is designed to be simply functional and chemically resistant.
There is virtually nothing at all between the motor and the impeller. We have eliminated all intermediate guide elements, leaving only a pair of wear bushings at the end of the pump.
The pump shaft requires no external flushing or additional lubrication.
It needs no maintenance either, which is ideal when pumping aggressive liquids.

### FLANGE, THREAD, HOSE ADAPTER

The delivery connections of vertical pumps are available in three versions: threaded, hose adapter or flange. In the event of particular requirements, special T connections, lowered deliveries or flanges with ANSI 150 drilling can be mounted.

### WEAR BUSHINGS

Savino Barbera vertical pumps are characterised by the complete absence of intermediate supports, even in the longest construction versions (3000 mm). The only guide element consists of a pair of wear bushings, with direct flushing and no need for lubrication, positioned at the end of the pump shaft. The standard configuration without intermediate bearings extends the pump's life-span and, above all, simplifies pump maintenance. The sliding bushings are also available in versions suitable for operation with sludge or non-abrasive solids. When the liquids contain coarse impurities or tend to crystallise or form scale, then special cantilever pumps without bearings and bushings can be used. The technical materials of the standard wear bushings are:

### FILLED PTFE
(Polytetrafluoroethylene)

PTFE can be filled with certain additional substances (fibreglass, ceramic powder or metal oxides) to obtain a final compound that combines the excellent chemical resistance and "self-lubrication" characteristics typical of traditional PTFE with improved tolerance of wear and tear.
This is the standard configuration normally adopted for Savino Barbera vertical pumps in most industrial applications.

### SINTERED CERAMIC
($Al_2O_3$ - 99.5%)

Sintered ceramic is used for pump bushings in the case of slightly abrasive liquids or liquids with suspensions. Characterised by increased hardness, it offers excellent resistance to chemical agents. Sintered ceramic is not, however, recommended in the presence of hydrofluoric acid, hot caustic solutions or when there is a risk of thermal shock.

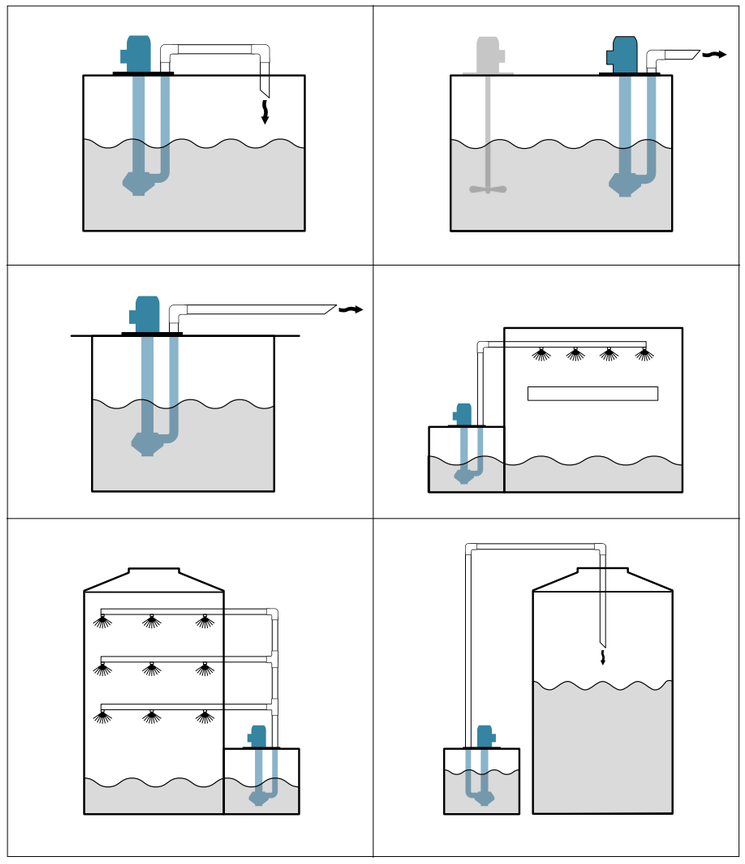
### SILICON CARBIDE
(SiC)

Resistance to wear and tear, its low expansion and friction coefficient and excellent thermal conductivity: these are the properties that make Silicon Carbide a valid alternative to Ceramic. SiC performs better in the presence of extreme temperature changes and guarantees a broad spectrum chemical compatibility (even with hot caustic solutions, hydrofluoric acid and hydrochloric acid).

### RECIRCULATION
Recirculation and mixing in process and treatment tanks.

### EMPTYING
Emptying of wells and underground tanks of various kinds.

### GAS SCRUBBING
Neutralisation acid fumes, scrubbers, control towers.



### PURIFICATION
Purification of waste waters and industrial waters.

### METAL FINISHING
Electroplating baths, pickling, other surface treatments.

### TRANSFERRAL
Transferral and storage of corrosive chemicals.

### WATCH OUT FOR CIGARETTE BUTTS

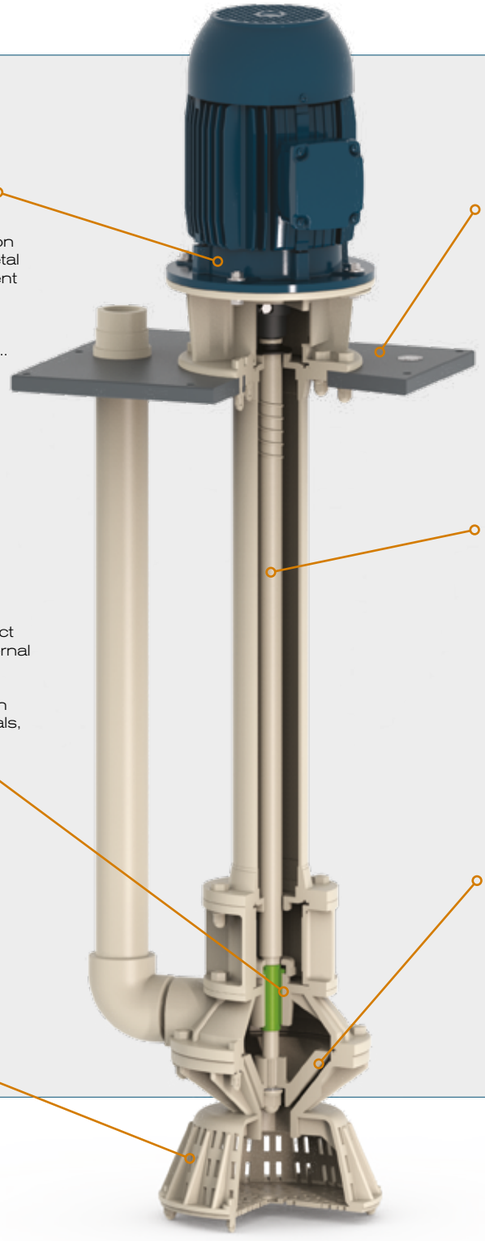
Savino Barbera vertical pumps can be equipped with filters and suckers. The screening of the liquid prevents the suction of process residues or foreign bodies, which are often present in wells and collection tanks.
Cigarette butts and coffee stirrers are sometimes more dangerous than corrosive acids.

# THE MAIN ADVANTAGES

- Modular design compatible with any plant, application or tank.
- Assembly in tank: exclusion of occasional external leakage of hazardous liquids.
- Impeller without priming problems due to immersed operation.
- Internal gaps of a few millimetres to facilitate the passage of solids.
- All parts that come into contact with water consist of just a few elements, which can be easily removed over time.
- Pump shaft without intermediate supports with significant improvements in maintenance.

SUPPORT FLANGE
The standard material is PVC. Support plates with custom-made dimensions are available by request, in alternative materials (metal or polymers other than PVC) and in special shapes (circular).

AS SERIES



LESS METAL
LESS CORROSION
Reduced dimensions thanks to the direct pump-motor coupling.
The close-coupled construction has a reduced number of metal components with a consequent reduction of the risk of corrosion.
And maintenance personnel prefer a lightweight pump too...

THE STORY OF EVERY PUMP
A plate on the motor support or on the support flange bears the serial number of every pump. This makes it possible to retrieve the original construction data at any time, facilitating the supply of spare parts and regular remote monitoring. You can't remember everything!

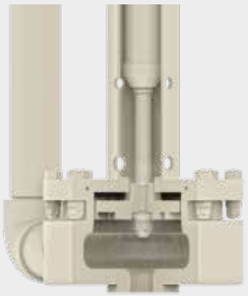
NO VIBRATION
One-piece shaft with no intermediate bearings. Keyed to the motor shaft and coated with corrosion-resistant plastic. Balanced, free from vibration, in custom-made lengths (up to 3000 mm). Obviously the absence of vibration equates to a reduction in maintenance.

JUST TWO BUSHINGS
Pair of end bushings with direct flushing, with no need for external lubrication.
The sliding bushings are proposed in different corrosion and abrasion-resistant materials, depending on the aggressive liquid to be pumped.

NO METAL CORE
Plastic impeller with no metal inserts, resistant to attack from acids, even on the inside. The conical configuration protects shaft and bushings from radial stress, conveying structural stability to the pump. Available in different diameters and geometries.

LIQUIDS WITH SOLIDS
Prevents the clogging of the pump and the entry of coarse impurities.
The filter is also available in a flat version to reduce the occupation of the bottom of the tank.

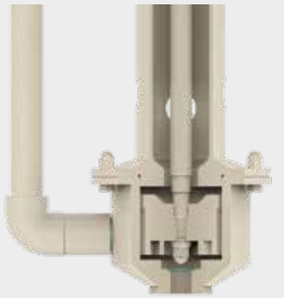
GA SERIES



VERTICAL PUMPS WITH RECESSED IMPELLER

GA model chemical pumps, characterised by a recessed flat impeller with non-clogging profile and by a pumping chamber with very wide internal clearance. These hydraulic and structural characteristics make it possible to pump aggressive liquids containing filaments, large suspended solids and other very coarse impurities.
In addition, the possibility to mount a shaft without bushings means that GA pumps can run dry with no problems, eliminating a classic application limitation of all plastic pumps for chemical applications.

BS SERIES



VERTICAL PUMPS WITH NO BUSHINGS

BS model chemical pumps with a typical cantilever construction: their pump shaft is completely cantilevered, i.e.: with no intermediate supports or bushings near the suction area. BS series pumps are also equipped with a double-acting impeller that dynamically ensures the hydraulic seal of the liquid on the shaft side. They represent a valid alternative to other vertical pumps as they are particularly well suited to the treatment of sludgy liquids, with scale or with a tendency to crystallise. They can also be equipped with PE-HD impellers, for increased resistance when pumping abrasive liquids.

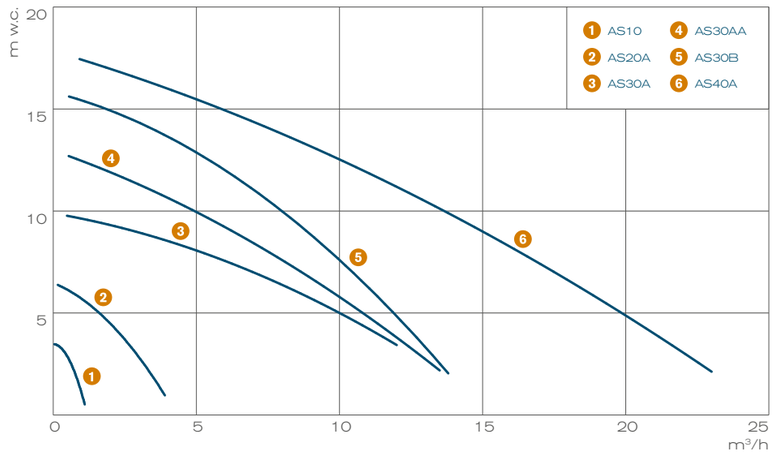
EXTRA THICK, EXTRA RESISTANT
Pump cases made of anti-acid plastic (PP, PVC, PVDF) moulded or machined from a solid block. Some structural components are ribbed to offer better mechanical stability and unconditional chemical resistance.

# PERFORMANCE CURVES

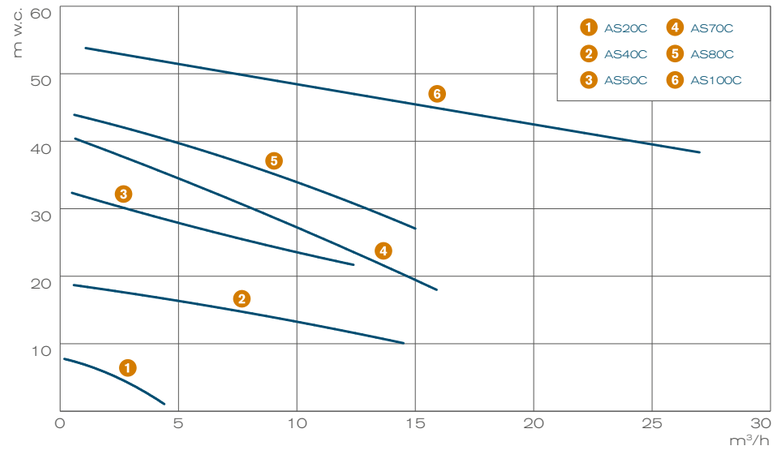
The selection of a pump requires the exact determination of two fundamental operating parameters: flow rate and head. Each individual pump is identified by a specific characteristic curve, which is the graphical representation of the relationship between these two values. Consequently, it is essential to avoid excessive safety margins: the pump would inevitably be oversized compared to the real needs of the system, offering unsatisfactory performance and causing an increase in purchase price and running costs. When choosing a pump, never forget that overdoing things costs money!

## 1 VERTICAL PUMP CURVES

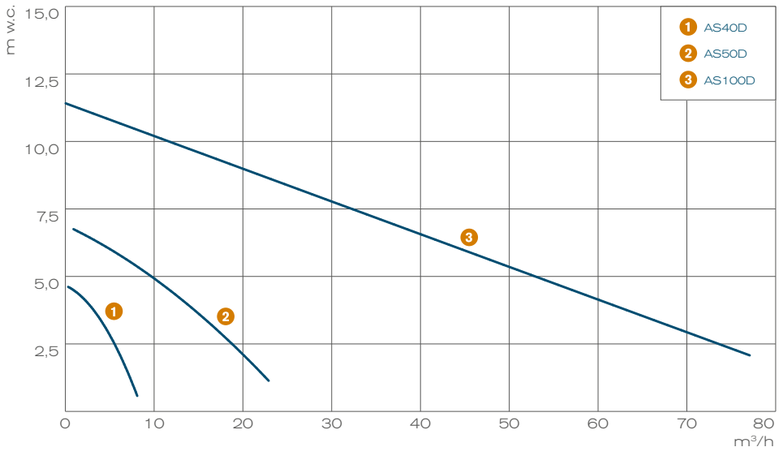
AS VERTICAL PUMPS
Open impellers, 2900 rpm.

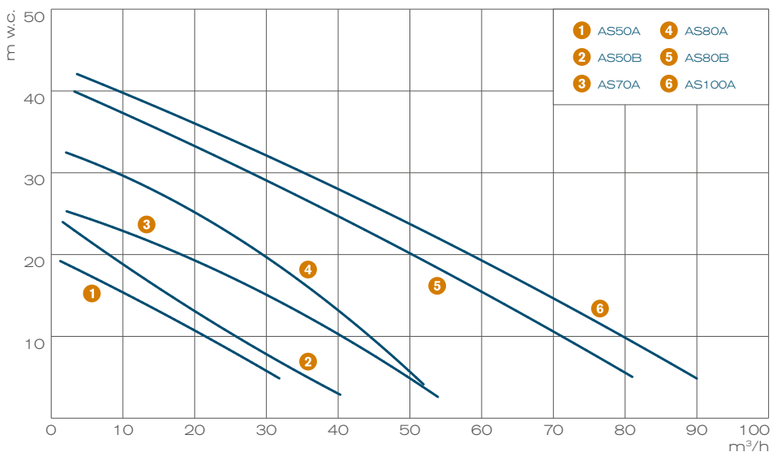



AS VERTICAL PUMPS
Closed impellers, 2900 rpm.

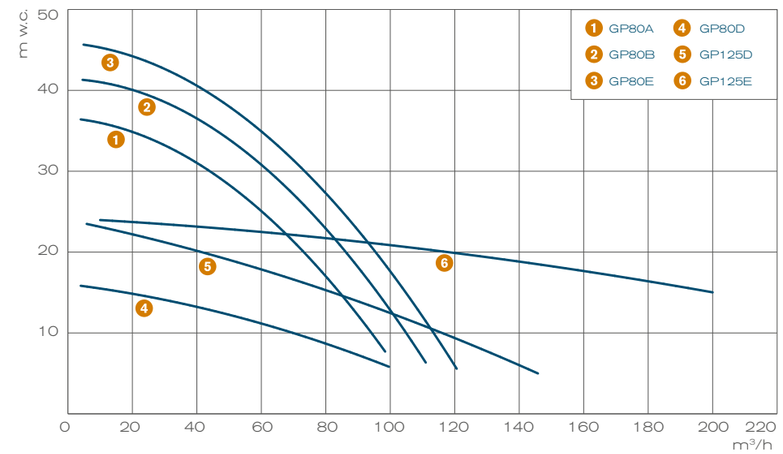



AS VERTICAL PUMPS
4-pole motor, 1450 rpm.

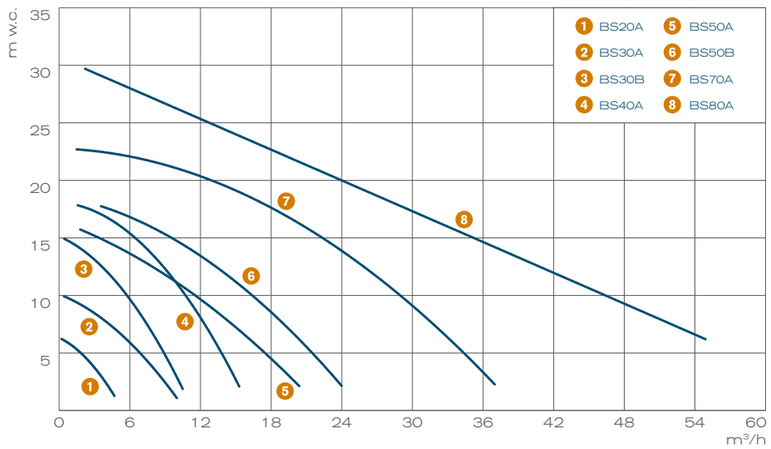


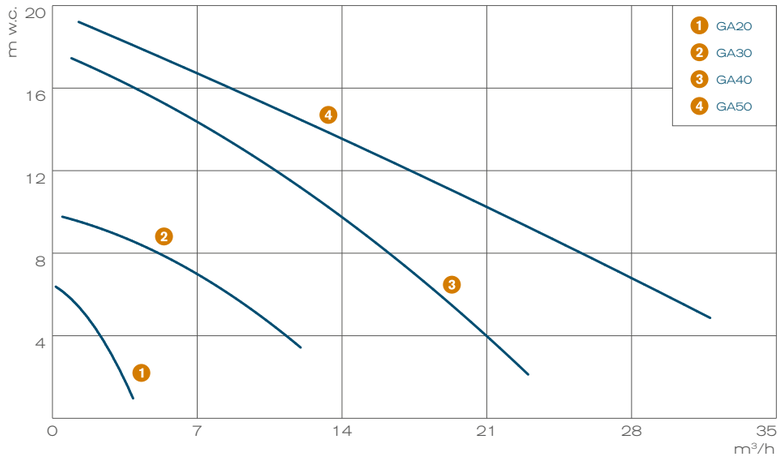

GP VERTICAL PUMPS
Flat impellers.
Impeller A: 2900 rpm.
Impeller B: 2900 rpm.
Impeller D: 1450 rpm.
Impeller E: 2900/1450.



## BS VERTICAL PUMPS
Cantilever version, 2900 rpm.




## GA VERTICAL PUMPS
Recessed impellers, 2900 rpm.




## Technical key

- Standard curves: 50 Hz. 60 Hz curves available by request.
- A-B series: open impeller. C series: closed impeller. D series: 4-pole motor.
- The curves refer to tests with cold, clean water and a density of 1000 kg/m³ (ISO9906).
- Performance may change in relation to changes in the characteristics of the liquid to be pumped.

### PVDF AS50 PUMP
AS50 vertical pump in PVDF for chrome plating bath at a temperature of 80°C. Equipped with elbow fitting designed for system requirements. Length: 465 mm. Maximum flow rate of 40 m³/h and maximum head of 25 m w.c.



## AS VERTICAL PUMPS

| Model | Q max m³/h | H max m w.c. | kW | rpm 50 Hz | Ø Impeller | Min - max length |
|---|---|---|---|---|---|---|
| AS10A | 1 | 3 | 0.18 | 2900 | 56 mm | 200 - 1000 mm |
| AS20A | 4 | 6.5 | 0.25 - 0.37 | 2900 | 82 mm | 250 - 1000 mm |
| AS20C | 4.5 | 8 | 0.25 - 0.37 | 2900 | 85 mm | 250 - 1000 mm |
| AS30A | 12 | 10 | 0.55 - 0.75 | 2900 | 95 mm | 320 - 3000 mm |
| AS30AA | 13.5 | 13 | 0.75 - 1.1 | 2900 | 105 mm | 320 - 3000 mm |
| AS30B | 14 | 16 | 1.1 - 1.5 - 2.2 | 2900 | 120 mm | 320 - 3000 mm |
| AS40A | 23 | 18 | 2.2 - 3 | 2900 | 128 mm | 320 - 3000 mm |
| AS40C | 14.5 | 19 | 1.5 - 2.2 | 2900 | 128 mm | 320 - 3000 mm |
| AS40D | 8 | 4.5 | 0.37 - 0.55 | 1450 | 128 mm | 320 - 3000 mm |
| AS50A | 32 | 20 | 2.2 - 3 | 2900 | 150 mm | 465 - 3000 mm |
| AS50B | 40 | 25 | 3 - 4 | 2900 | 165 mm | 465 - 3000 mm |
| AS50C | 13.5 | 33 | 3 - 4 | 2900 | 165 mm | 465 - 3000 mm |
| AS50D | 23 | 7 | 1.1 - 1.5 | 1450 | 165 mm | 465 - 3000 mm |
| AS70A | 54 | 25 | 4 - 5.5 | 2900 | 180 mm | 800 - 3000 mm |
| AS70C | 16 | 42 | 4 - 5.5 | 2900 | 180 mm | 800 - 3000 mm |
| AS80A | 52 | 32 | 5.5 - 7.5 - 9.2 | 2900 | 210 mm | 800 - 3000 mm |
| AS80B | 81 | 41 | 9.2 - 11 | 2900 | 217 mm | 800 - 3000 mm |
| AS80C | 15 | 45 | 5.5 - 7.5 - 9.2 | 2900 | 195 mm | 800 - 3000 mm |
| AS100A | 90 | 43 | 11 - 15 | 2900 | 220 mm | 800 - 3000 mm |
| AS100C | 27 | 55 | 11 - 15 | 2900 | 215 mm | 800 - 3000 mm |
| AS100D | 73 | 10 | 4 - 5.5 | 1450 | 220 mm | 800 - 3000 mm |

## GP VERTICAL PUMPS

| Model | Q max m³/h | H max m w.c. | kW | rpm 50 Hz | Ø Impeller | Min - max length |
|---|---|---|---|---|---|---|
| GP80A | 100 | 36 | 15 - 18.5 | 2900 | 170 mm | 750 - 3000 mm |
| GP80B | 110 | 42 | 18.5 - 22 | 2900 | 180 mm | 750 - 3000 mm |
| GP80D | 100 | 16 | 7.5 - 9.2 | 1450 | 220 mm | 750 - 3000 mm |
| GP80E | 115 | 45 | 18.5 - 22 | 2900 | 190 mm | 750 - 3000 mm |
| GP125D | 145 | 24 | 15 - 18.5 | 1450 | 270 mm | 750 - 3000 mm |
| GP125E | 225 | 23 | 15 - 18.5 - 22 | 1450 | 270 mm | 750 - 3000 mm |

## BS VERTICAL PUMPS

| Model | Q max m³/h | H max m w.c. | kW | rpm 50 Hz | Ø Impeller | Standard length |
|---|---|---|---|---|---|---|
| BS20A | 5 | 6 | 0.25 - 0.37 | 2900 | 82 - 87 mm | 400 mm |
| BS30A | 10 | 10 | 0.55 - 0.75 | 2900 | 100 - 105 mm | 550 mm |
| BS30B | 10 | 15 | 1.1 - 1.5 | 2900 | 125 - 120 mm | 550 mm |
| BS40A | 15 | 18 | 2.2 | 2900 | 130 - 135 mm | 550 mm |
| BS50A | 20 | 18 | 2.2 - 3 | 2900 | 145 - 150 mm | 700 mm |
| BS50B | 24 | 18 | 3 - 4 | 2900 | 155 - 160 mm | 700 mm |
| BS70A | 37 | 25 | 5.5 - 7.5 | 2900 | 170 - 175 mm | 900 mm |
| BS80A | 55 | 31 | 7.5 - 9.5 | 2900 | 185 - 190 mm | 900 mm |

## GA VERTICAL PUMPS

| Model | Q max m³/h | H max m w.c. | kW | rpm 50 Hz | Ø Impeller | Min - max length |
|---|---|---|---|---|---|---|
| GA20 | 6.2 | 7 | 0.37 - 0.55 | 2900 | 80 mm | 250 - 1000 mm |
| GA30 | 12 | 10 | 1.5 - 2.2 | 2900 | 120 mm | 320 - 3000 mm |
| GA40 | 23 | 18 | 2.2 - 3 | 2900 | 130 mm | 320 - 3000 mm |
| GA50 | 44 | 20 | 4 - 5.5 | 2900 | 155 mm | 435 - 3000 mm |

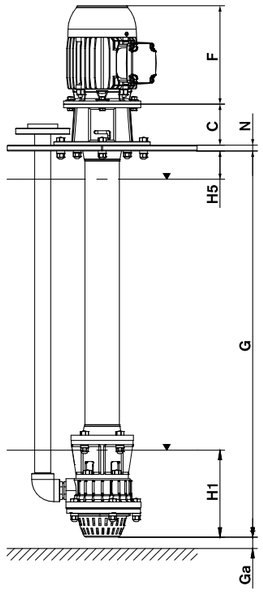
Technical data subject to change without prior notice.

## Other custom-made pumps

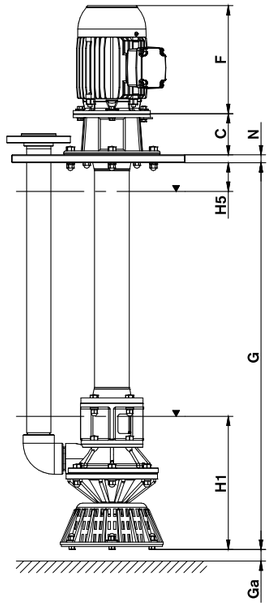
Savino Barbera manufactures custom pumps outside this production range. Impellers with different diameters and profiles are available. The motors are also available with non-standard powers, voltages, frequencies and protection devices: in particular, increased powers can be adopted for liquids with densities up to 1900 kg/m³ (e.g.: sulphuric acid, sodium hydroxide, nitric acid at high concentrations). Please contact our technical department for any special requirements.

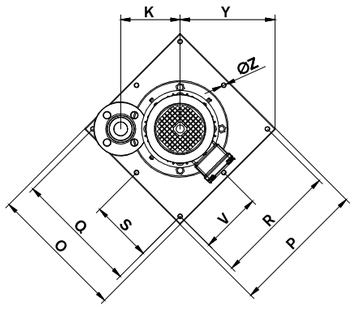
# AS VERTICAL PUMP DIMENSIONS

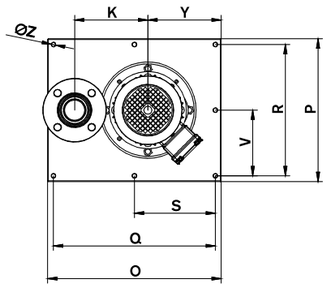
DRAWING A




DRAWING B




## DIMENSIONS

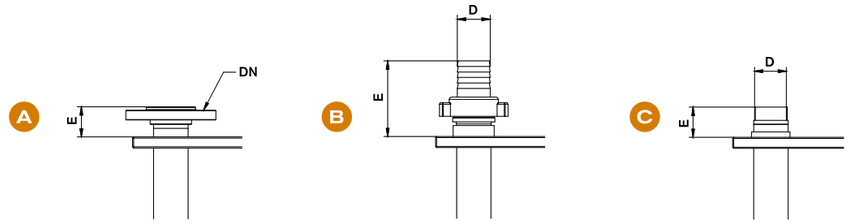
| Model | Figure | C | F max | G min | G max | Ga | H1 | H5 | K | N | O | P | Q | R | S | V | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AS10 | A | 45 | 193 | 200 | 1000 | 20 | 85 | 40 | 86 | 15 | 160 | - | 140 | - | - | - | 98 | 8.5 |
| AS20 | A | 45 | 218 | 250 | 1000 | 20 | 170 | 40 | 100 | 15 | 250 | 250 | 220 | 220 | - | - | 163 | 10.5 |
| AS30 short | A | 107 | 254 | 320 | 1950 | 30 | 225 | 80 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| AS30 long | A | 112 | 254 | 2000 | 3000 | 30 | 225 | 200 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| AS40 short | A | 107 | 279 | 320 | 1950 | 30 | 225 | 80 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| AS40 long | A | 112 | 279 | 2000 | 3000 | 30 | 225 | 200 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| AS50 short | B | 107 | 333 | 465 | 1550 | 50 | 350 | 80 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |
| AS50 medium | B | 112 | 333 | 1600 | 1950 | 50 | 350 | 80 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |
| AS50 long | B | 112 | 333 | 2000 | 3000 | 50 | 350 | 200 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |
| AS70 short | B | 110 | 372 | 800 | 1950 | 100 | 530 | 100 | 255 | 20 | 550 | 400 | 520 | 370 | 260 | 185 | 195 | 10.5 |
| AS70 long | B | 110 | 372 | 2000 | 3000 | 100 | 530 | 200 | 255 | 20 | 550 | 400 | 520 | 370 | 260 | 185 | 195 | 10.5 |
| AS80 short | B | 110 | 410 | 800 | 1950 | 100 | 530 | 100 | 255 | 20 | 550 | 400 | 520 | 370 | 260 | 185 | 195 | 10.5 |
| AS80 long | B | 110 | 410 | 2000 | 3000 | 100 | 530 | 200 | 255 | 20 | 550 | 400 | 520 | 370 | 260 | 185 | 195 | 10.5 |
| AS100 short | B | 110 | 488 | 800 | 1950 | 100 | 530 | 100 | 305 | 30 | 600 | 400 | 570 | 370 | 285 | 185 | 195 | 10.5 |
| AS100 long | B | 110 | 488 | 2000 | 3000 | 100 | 530 | 200 | 305 | 30 | 600 | 400 | 570 | 370 | 285 | 185 | 195 | 10.5 |

Dimensions in mm. Data subject to change without prior notice.

- Ga: minimum distance from the bottom of the tank.
- Gmin: minimum length.
- Gmax: maximum length.
- H1: minimum submergence .
- H5: maximum level
- Fmax: maximum motor size according to manufacturer.



## DELIVERY CONNECTIONS THE THREE POSSIBLE VERSIONS




| Model | A Stub end with backing ring | | B Hose adapter | | C Male thread | |
|---|---|---|---|---|---|---|
| | E | DN | E | D | E | D |
| AS10 | 275 | DN15 | 80 | 20 | 27 | G1/2 |
| AS20 | 275 | DN20 | 95 | 25 | 40 | G1 |
| AS30 | 55 | DN25 | 105 | 30 | 55 | G1 |
| AS40 | 55 | DN32 | 120 | 40 | 55 | G1 1/4 |
| AS50 | 55 | DN50 | 145 | 60 | 55 | G2 |
| AS70 | 56 | DN65 | - | - | - | - |
| AS80 | 70 | DN80 | - | - | - | - |
| AS100 | 74 | DN100 | - | - | - | - |

Dimensions in mm. Data subject to change without prior notice. Connections to choose from at no extra cost. Special nozzles by request.

## PLASTICS

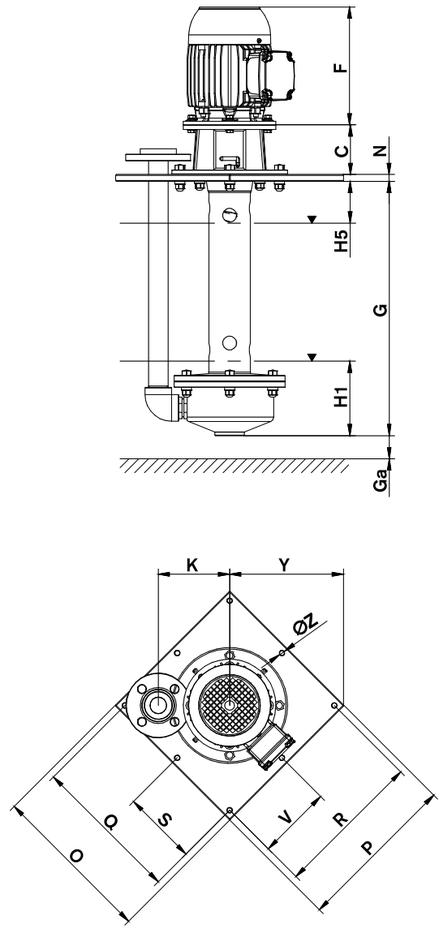
| | |
|---|---|
| Impeller, casing and cover | PP - PVC - PVDF - PEHD |
| Pump shaft | PP, PVC, PVDF coated steel |
| Gaskets | EPDM - FPM - PFA - PTFE |
| Guide bushings | Filled-PTFE - SiC - $Al_2O_3$ |
| Immersed nuts and bolts | Steel - Brass coated with PP - PVC - PVDF |

The choice of materials depends on the type of liquid (e.g.: concentration, operating temperature, specific weight, presence of solids).
Plastic pumps do not allow dry running.

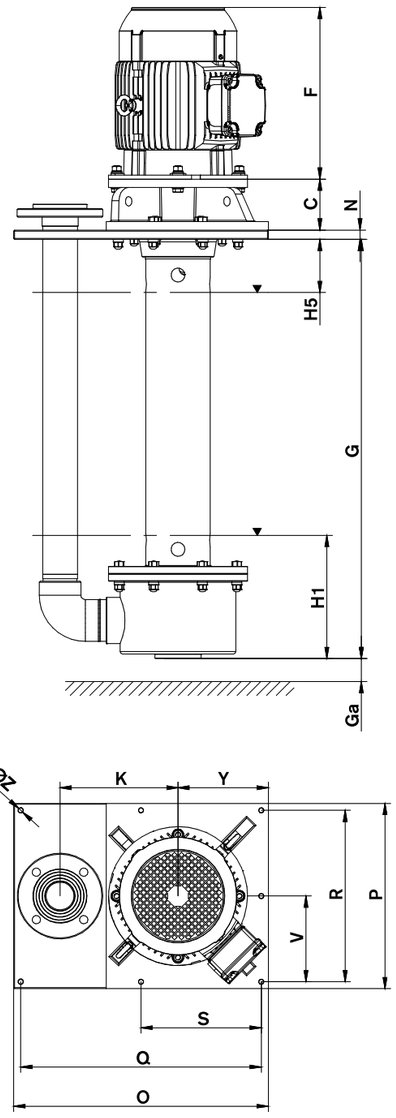
AS30 VERTICAL PUMP
AS30AA vertical pump in PP for 50% diluted hydrochloric acid. With a 0.75 kW motor and a 105 mm impeller, Maximum flow rate of 14 $m^3/h$ and maximum head of 13 m water column. Pump length: 788 mm.

# BS VERTICAL PUMP DIMENSIONS

DRAWING A




DRAWING B




## DIMENSIONS

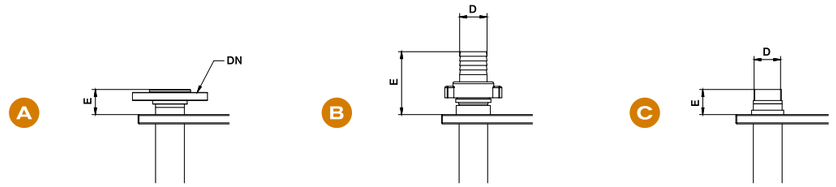
| Model | Figure | C | Fmax | G | Ga | H1 | H5 | K | N | O | P | Q | R | S | V | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BS20 | A | 45 | 218 | 400 | 20 | 115 | 40 | 100 | 15 | 250 | 250 | 220 | 220 | - | - | 163 | 10.5 |
| BS30 | A | 107 | 254 | 550 | 30 | 115 | 80 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| BS40 | A | 107 | 279 | 550 | 30 | 115 | 80 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| BS50 | B | 112 | 333 | 700 | 50 | 155 | 80 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |
| BS70 | B | 110 | 372 | 900 | 100 | 195 | 100 | 255 | 20 | 550 | 400 | 520 | 370 | 260 | 185 | 195 | 10.5 |
| BS80 | B | 110 | 410 | 900 | 100 | 195 | 100 | 255 | 20 | 550 | 400 | 520 | 370 | 260 | 185 | 195 | 10.5 |

Dimensions in mm. Data subject to change without prior notice.

- G: mixer length
- Ga: minimum distance from the bottom of the tank.
- H1: minimum submergence
- H5: maximum level.
- Fmax: maximum motor size according to manufacturer.



## DELIVERY CONNECTIONS THE THREE POSSIBLE VERSIONS




| Model | A Stub end with backing ring | | B Hose adapter | | C Male thread | |
|---|---|---|---|---|---|---|
| | E | DN | E | D | E | D |
| BS20 | 275 | DN20 | 95 | 25 | 40 | G1 |
| BS30 | 55 | DN25 | 105 | 30 | 55 | G1 |
| BS40 | 55 | DN32 | 120 | 40 | 55 | G1 1/4 |
| BS50 | 55 | DN50 | 145 | 60 | 55 | G2 |
| BS70 | 56 | DN65 | - | - | - | - |
| BS80 | 70 | DN80 | - | - | - | - |

Dimensions in mm. Data subject to change without prior notice. Connections to choose from at no extra cost. Special nozzles by request.

## PLASTICS

| | |
|---|---|
| Impeller, casing and cover | PP - PVC - PVDF - PEHD |
| Pump shaft | PP, PVC, PVDF coated steel |
| Gaskets | EPDM - FPM - PFA - PTFE |
| Guide bushings | Cantilevered shaft with no bushings |
| Immersed nuts and bolts | Steel - Brass coated with PP - PVC - PVDF |

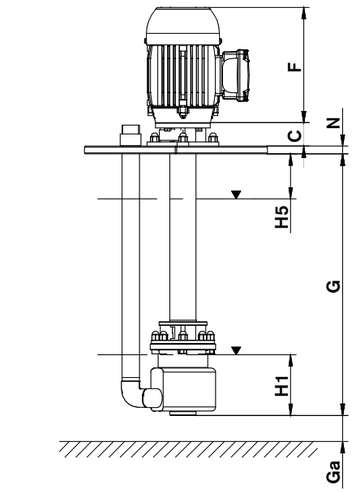
The choice of materials depends on the type of liquid (e.g.: concentration, operating temperature, specific weight, presence of solids).
Unless specifically confirmed by us, plastic pumps do not allow dry running.

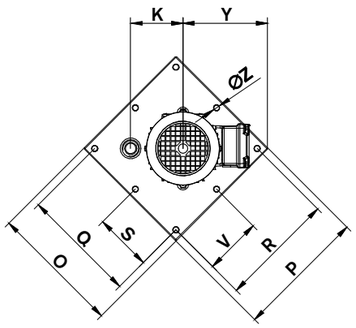
## BEARINGLESS PUMPS

BS vertical pumps have no bearings or bottom bushings: they are cantilever pumps with completely contact-free shafts. They are made in four standard lengths: 400, 550, 700 and 900 mm. Pictured: BS40 PP pump with a length of 550 mm and a 1.1 kW motor. Pumped liquid: solution of water, sulphuric acid and lead oxides from electrolyte bath washes.

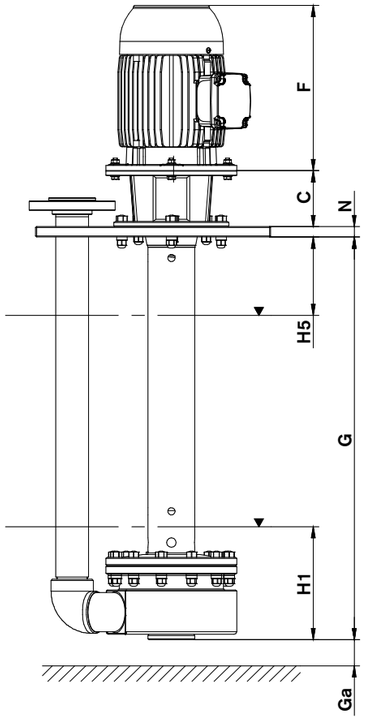
# GA VERTICAL PUMP DIMENSIONS

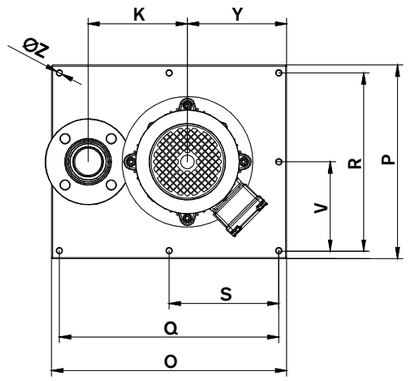
DRAWING A




DRAWING B




## DIMENSIONS

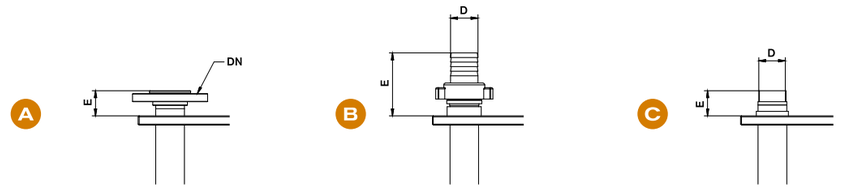
| Model | Figure | C | F max | G min | G max | Ga | H1 | H5 | K | N | O | P | Q | R | S | V | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GA20 | A | 45 | 218 | 250 | 1000 | 20 | 170 | 40 | 100 | 15 | 250 | 250 | 220 | 220 | - | - | 163 | 10.5 |
| GA30 short | A | 107 | 254 | 320 | 1950 | 30 | 230 | 80 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| GA30 long | A | 112 | 254 | 2000 | 3000 | 30 | 230 | 200 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| GA40 short | A | 107 | 279 | 320 | 1950 | 30 | 230 | 80 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| GA40 long | A | 112 | 279 | 2000 | 3000 | 30 | 230 | 200 | 154 | 15 | 350 | 350 | 320 | 320 | 160 | 160 | 247 | 10.5 |
| GA50 short | B | 107 | 333 | 465 | 1550 | 50 | 300 | 80 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |
| GA50 medium | B | 112 | 333 | 1600 | 1950 | 50 | 300 | 80 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |
| GA50 long | B | 112 | 333 | 2000 | 3000 | 50 | 300 | 200 | 190 | 20 | 450 | 370 | 420 | 340 | 210 | 170 | 190 | 10.5 |

Dimensions in mm. Data subject to change without prior notice.

- Ga: minimum distance from the bottom of the tank.
- Gmax: maximum length.
- Gmin: minimum length.
- H1: minimum submergence
- H5: maximum level.
- Fmax: maximum motor size according to manufacturer.



## DELIVERY CONNECTIONS THE THREE POSSIBLE VERSIONS




| Model | A Stub end with backing ring | | B Hose adapter | | C Male thread | |
|---|---|---|---|---|---|---|
| | E | DN | E | D | E | D |
| GA20 | 275 | DN20 | 95 | 25 | 40 | G1 |
| GA30 | 55 | DN25 | 105 | 30 | 55 | G1 |
| GA40 | 55 | DN32 | 120 | 40 | 55 | G1 1/4 |
| GA50 | 55 | DN50 | 145 | 60 | 55 | G2 |

Dimensions in mm. Data subject to change without prior notice. Connections to choose from at no extra cost. Special nozzles by request.

## PLASTICS

| | |
|---|---|
| Impeller, casing and cover | PP - PVC - PVDF - PEHD |
| Pump shaft | PP, PVC, PVDF coated steel |
| Gaskets | EPDM - FPM - PFA - PTFE |
| Guide bushings | Filled-PTFE - SiC - $Al_2O_3$ |
| Immersed nuts and bolts | Steel - Brass coated with PP - PVC - PVDF |

The choice of materials depends on the type of liquid (e.g.: concentration, operating temperature, specific weight, presence of solids).

## ABILITY TO RUN DRY

GA20 vertical pump in PP Maximum flow rate:
14 m³/h. Maximum head: 12 m w.c.
Application: pumping of liquids with fibres, filamentary solids and coarse impurities. All GA pumps, in the version without immersed bushings, have the ability to run dry without problems, eliminating a classic limit of all plastic pumps.

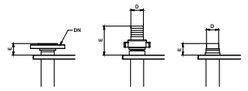
# GP VERTICAL PUMP DIMENSIONS

## POLYPROPYLENE

| | |
|---|---|
| Impeller, casing and cover | PP |
| Pump shaft | PP-coated steel |
| Gaskets | EPDM - FPM - PFA - PTFE |
| Guide bushings | Filled-PTFE - SiC - $Al_2O_3$ |
| Immersed nuts and bolts | Steel - Brass coated with -PP |

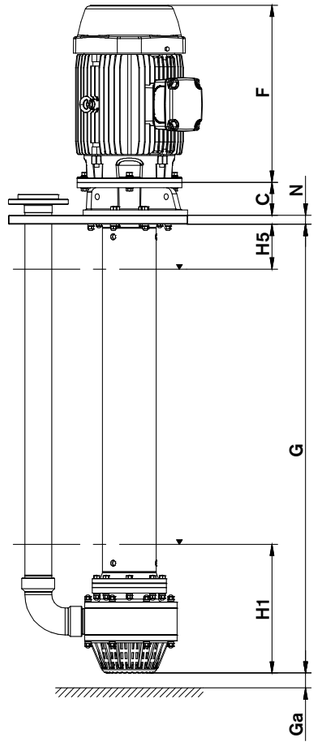
The choice of materials depends on the type of liquid (e.g.: concentration, operating temperature, specific weight, presence of solids). Plastic pumps do not allow dry running.

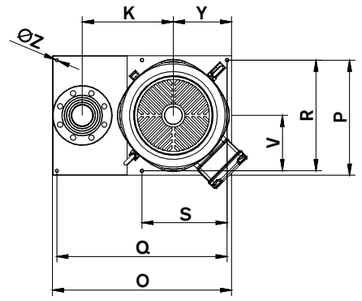
## FLANGED CONNECTION



| Model | Stub end with backing ring | |
|---|---|---|
| | E | DN |
| GP80A/B short | 70 | DN80 |
| GP80A/B long | 70 | DN80 |
| GP80D short | 70 | DN80 |
| GP80D long | 70 | DN80 |
| GP125D short | 80 | DN100 |
| GP125D long | 80 | DN100 |

Dimensions in mm. Data subject to change without prior notice.




## DIMENSIONS

| Model | C | F max | G min | G max | Ga | H1 | H5 | K | N | O | P | Q | R | S | V | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GP80A/B short | 110 | 540 | 750 | 1950 | 100 | 430 | 100 | 305 | 30 | 600 | 400 | 570 | 370 | 285 | 185 | 195 | 10.5 |
| GP80A/B long | 110 | 540 | 2000 | 3000 | 100 | 430 | 200 | 305 | 30 | 600 | 400 | 570 | 370 | 285 | 185 | 195 | 10.5 |
| GP80D short | 110 | 405 | 750 | 1950 | 100 | 450 | 100 | 420 | 30 | 900 | 550 | 840 | 490 | 420 | 245 | 270 | 14 |
| GP80D long | 110 | 405 | 2000 | 3000 | 100 | 450 | 200 | 420 | 30 | 900 | 550 | 840 | 490 | 420 | 245 | 270 | 14 |
| GP125D short | 110 | 540 | 750 | 1950 | 150 | 450 | 100 | 420 | 30 | 900 | 550 | 840 | 490 | 420 | 245 | 270 | 14 |
| GP125D long | 110 | 540 | 2000 | 3000 | 150 | 450 | 200 | 420 | 30 | 900 | 550 | 840 | 490 | 420 | 245 | 270 | 14 |

Dimensions in mm. Data subject to change without prior notice.

- Ga: minimum distance from the bottom of the tank.
- Gmin: minimum length.
- Gmax: maximum length.
- H1: minimum submergence .
- H5: maximum level
- Fmax: maximum motor size according to manufacturer.





## VERY ROBUST PUMP CASINGS

Machined from a solid block of PP, GP vertical pump casings are structurally and chemically very robust. They are not affected by dirty liquids or high temperatures, thanks to their thick-walled plastic pump body. Vertical axis GP pumps have a maximum flow rate of 200 $m^3/h$ and maximum head of 42 m w.c.

# THE BEST CONFIGURATOR IS EXPERIENCE

Several factors must be considered in the proper configuration of pumps and mixers for chemical applications: the chemical-physical nature of the liquid to be handled, hydraulic performance and mixing requirements to be met, expected life span and any other particularities. Moreover, there is the identification of the ideal plastic construction material, in compliance with the need for chemical resistance required by the aggressive nature of the liquids. To select the correct model of anti-corrosion pumps and mixers, rather than resorting to theoretical resistance tables or automatic configurators, it is advisable to rely on the expertise of those who have been making this selection for years.

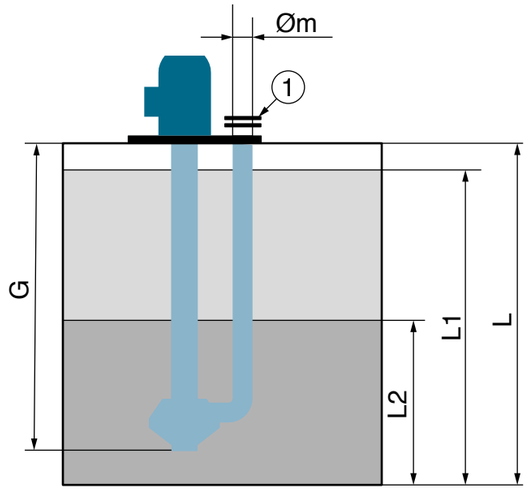
## The crucial information never to forget

In order to define the corrosion-resistant machine best suited to the specific case, it is essential to indicate the following information precisely and in advance:

- the flow rate and head values.
- the properties of the liquid to be handled.
- the actual conditions of use.
- any details of the system.
- other information of the pumps and pipe in use (where applicable).

## VERTICAL PUMP SELECTION GUIDELINES

To correctly size a vertical centrifugal pump, in addition to the usual information relating to its hydraulic performance and the liquid to be pumped, it is also necessary to know the desired length of the pump (or the depth of the installation tank), paying attention to the minimum and maximum levels of the liquid and the minimum distance from the bottom of the tank. Remember that, unless specifically confirmed by us, plastic pumps do not normally allow dry running.




VERTICAL PUMP
WITH IMMERSED COLUMN
G: pump length
L: tank depth
L1: maximum level
L2: minimum level
1: delivery pipe connection
Øm: delivery pipe diameter

Vertical axis centrifugal pumps must always be:

- installed in an area that is hydraulically calm, protected against the action of any mixers or swirling fluids, against the movement of liquid masses (when operating in horizontal circular tanks), and against the presence of gaseous phases (such as when mixing with air bubbles)
- positioned at a distance from the bottom of the tank which is at least equal to the "Ga" level, usually indicated on our technical data sheets.



SPARE PARTS ARE ALWAYS AVAILABLE
Every Savino Barbera pump is identified by a serial number which allows easy retrieval of construction data, information on any repairs carried out and identification of the spare parts supplied over time.
Savino Barbera
is always able to ensure the rapid availability of spare parts, even many years after the original supply.

ROBUST PACKAGING
Savino Barbera pumps are always packed in robust boxes or crates suitable for different weights and sizes and with internal protection to cope with all the movements they are subjected to during shipment.