

SCALA

Multistage centrifugal boosters, 50/60 Hz



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1. Product introduction



TM075413

Left to right: SCALA1, SCALA2

Grundfos SCALA pumps are all-in-one integrated pressure boosters designed for domestic use and ensure a constant supply of clean water to households, gardens and light commercial applications.

SCALA1

Grundfos SCALA1 is a self-priming, multistage pump, which combines all the components of a pressure booster into a compact composite enclosure.

SCALA1 can communicate with Grundfos GO Remote app through a built-in Bluetooth technology, which enables high customization options, making this pump a good fit for every application.

SCALA2

Grundfos SCALA2 is a fully integrated, self-priming, compact waterworks for pressure boosting in domestic applications.

SCALA2 incorporates integrated speed control which allows maintaining a perfect pressure in the taps. This means that the pump performance will adjust to the increasing demand.

1.1 Features and benefits

General benefits of SCALA pumps:

- Easy installation.
- Easy commission.
- Easy operation.

| Features | SCALA1 | SCALA2 |
|--------------------------------|----------|----------|
| Auto start-stop | √ | √ |
| Self-priming | √ | √ |
| Alarm indication | √ | √ |
| Dry-run protection | √ | √ |
| Anti-cycling protection | √ | √ |
| Maximum runtime protection | √ | √ |
| Bluetooth communication | √ | - |
| Twin enabled | √ | - |
| External input | √ | - |
| Adjustable constant pressure | - | √ |
| Integrated frequency converter | - | √ |
| Low noise | 55 dB(A) | 47 dB(A) |

1.2 Applications

The SCALA boosters are suitable for domestic and light commercial water supply, where pressure boosting is required.

We recommend SCALA pumps for the following applications:

- pressure boosting of city mains water
- pressure boosting of water from roof tank
- pressure boosting of water from break tank
- pressure boosting of water from ground tank
- water supply from shallow wells [8 m (26.2 ft)]
- garden irrigation
- water transfer.

Depending on the application needs and required comfort, one pump can be a better fit than the other.

1.3 Pumped liquids

The product is suitable for pumping clean, thin, non-aggressive and non-explosive liquids without solid particles or fibres.

The product is designed for fresh water with a maximum chloride content of 300 ppm and a free chlorine content below 1 ppm.

Examples of liquids:

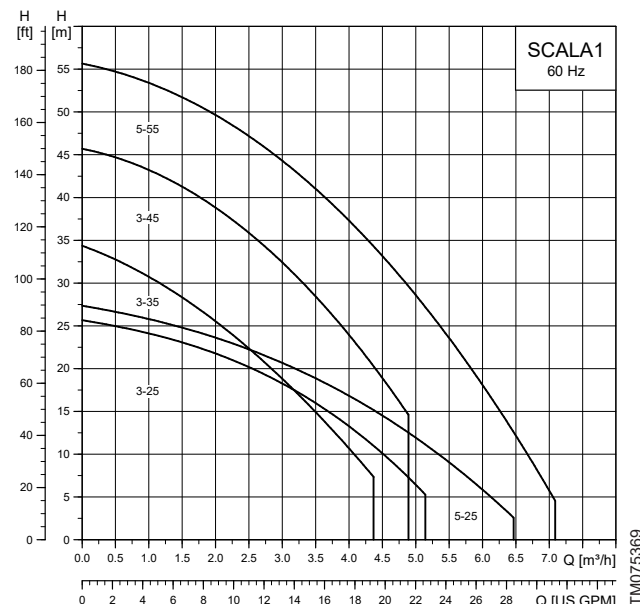
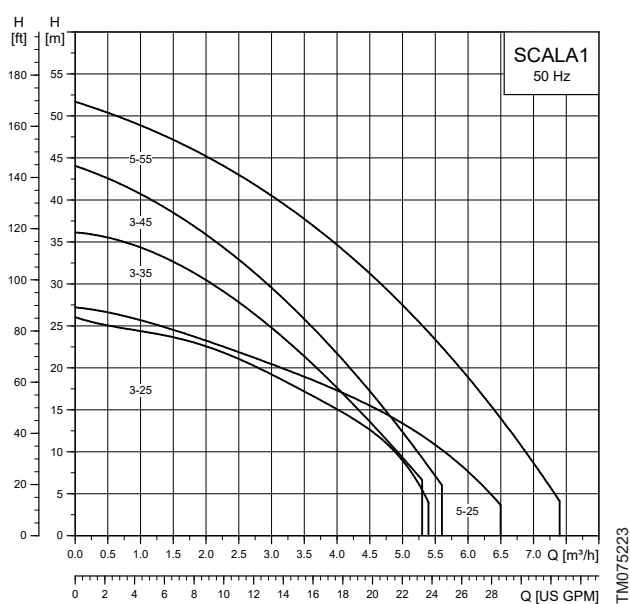
- drinking water
- rainwater.

1.4 Product range

| Pump type | Nominal flow rate [m ³ /h (gpm)] | Max. head [m (ft)] |
|-------------|--|-----------------------|
| SCALA1 3-25 | 3 (13) | 25 (82) |
| SCALA1 3-35 | 3 (13) | 35 (114) |
| SCALA1 3-45 | 3 (13) | 45 (147) |
| SCALA1 5-25 | 5 (22) | 25 (82) |
| SCALA1 5-55 | 5 (22) | 55 (180) |
| SCALA2 3-45 | 3 (13) | 45 (147) |

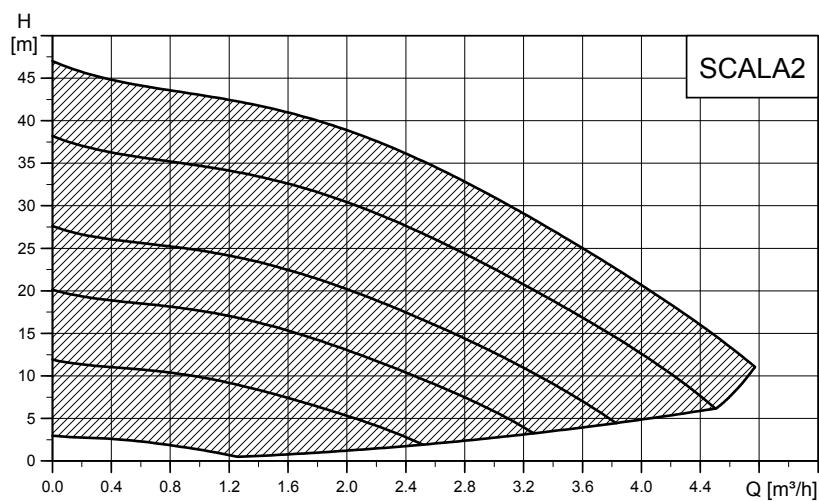
1.5 Performance range

The performance curves show the range of the SCALA pumps.



Performance range, SCALA1 50 Hz

Performance range, SCALA1 60 Hz



Performance range, SCALA2 50/60 Hz

2. Selection guide

This guide helps you to size and select the most suitable SCALA product.

Follow the instructions below to determine which product variant is best suited to your needs.

1. Choose the right pump for your application.

| Application | Pump | Suitability rating | Recommendation |
|---|--------|--------------------|---|
| City water mains | SCALA1 | • • | Due to integrated frequency converter, SCALA2 can adapt the speed to varying water pressure in the city mains, delivering constant pressure in all taps any time. PN10 rating ensures robustness towards maximum system pressure. |
| | SCALA2 | • • • | |
| Shallow well | SCALA1 | • • • | SCALA1 construction offers better suction capabilities with different modes to handle air. |
| | SCALA2 | • • | |
| Water storage tank (above ground level) | SCALA1 | • • | Adjustable constant pressure for SCALA2 enables user to select the desired pressure for the entire home, and thus avoids overpressure. |
| | SCALA2 | • • • | |
| Water storage tank (below ground level) | SCALA1 | • • • | SCALA1 construction offers better suction capabilities with different modes to handle air. |
| | SCALA2 | • • | |
| Roof tank | SCALA1 | • • | Adjustable constant pressure for SCALA2 enables user to select the desired pressure for the entire home and thus avoids overpressure. |
| | SCALA2 | • • • | |
| Water transfer | SCALA1 | • • • | External input and fixed speed in SCALA1 will make sure water is transferred as quickly as possible from point A to B, when needed. |
| | SCALA2 | • | |
| Garden irrigation | SCALA1 | • • • | External input and calendar function are a perfect combination for irrigation purposes. |
| | SCALA2 | • | |
| Kitchen | SCALA1 | • • | SCALA2 delivers constant pressure to all taps regardless of the inlet pressure. |
| | SCALA2 | • • • | |
| Bathroom | SCALA1 | • • | SCALA2 delivers constant pressure to all taps regardless of the inlet pressure. |
| | SCALA2 | • • • | |

2. Size your pump.

| Number of floors | 1-5 taps | 6-10 taps | 11-20 taps | 21-50 taps |
|------------------|-------------------------------|-------------------------------|-------------------------------|------------------|
| 4 | SCALA1 3-45 or SCALA2 3-45 | SCALA1 5-55 | SCALA1 Twin 5-55 | SCALA1 Twin 5-55 |
| 3 | SCALA1 3-45 or SCALA2 3-45 | SCALA1 3-45 or SCALA2 3-45 | SCALA1 5-55 | SCALA1 Twin 5-55 |
| 2 | SCALA1 3-35 or SCALA2 3-45 | SCALA1 3-45 or SCALA2 3-45 | SCALA1 5-55 | SCALA1 Twin 5-55 |
| 1 | SCALA1 3-25 or SCALA2 3-45 | SCALA1 3-35 or SCALA2 3-45 | SCALA1 3-45 or SCALA2 3-45 | SCALA1 Twin 5-55 |

Preconditions:

- A tap pressure of 3 bar (43.5 psi) is considered. To achieve pressure of 4 bar (58 psi), remove two floors.
- The inlet is flooded. For suction operation, remove a floor for every 3 metres (9.84 ft) of suction depth.
- A tap flow between 9 and 12 l/min average usage and half of the taps opened at the same time will be considered.

3. Installation and operation

3.1 Mechanical installation

Placing the pump above ground is generally a convenient way to establish water or rainwater supply. The pump can be installed both indoors and outdoors.

The product should be placed as close as possible to the liquid to be pumped to minimize the length of the inlet pipe. The motor is water-cooled, but we still recommend a clearance of 0.5 m (1.64 ft) on three sides of the product.

The product should be fastened to a solid horizontal foundation with a maximum inclination angle of $\pm 5^\circ$. The base plate must be facing downwards.

If the pump is used for pumping rainwater or well water, we recommend installing a filter on the inlet side to protect the pump from sand, gravel or other debris. If the pump is installed above the liquid level, we recommend fitting a foot valve with a strainer to the inlet pipe.

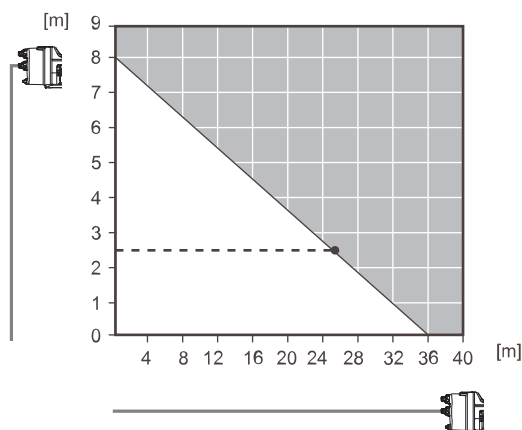
3.1.1 Pipe system

To obtain the optimum suction capacity which the dry-installed pump is designed for, the correct dimension of the pipe system is important. If a hose is used as inlet pipe, it must be non-collapsible.

The diameter of the inlet pipe must be larger than 1", if the inlet pipe is longer than 10 m (32.8 ft), or if the suction lift exceeds 4 m (13.1 ft).

3.1.2 Inlet pipe length and suction lift

The length of the inlet pipe of self-priming pumps depends on the geodetic suction lift. The recommended maximum length of the inlet pipe according to the suction lift is shown in the figure below. The example shows that if the suction lift is 2.5 m (8.2 ft), the length of the inlet pipe must not exceed 25 m (82 ft).



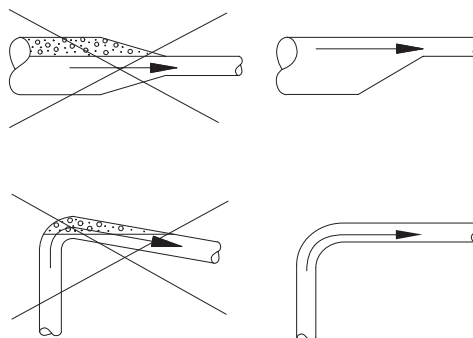
Maximum inlet pipe length (horizontal axis) according to the suction lift (vertical axis)

TM075339

3.1.3 Inlet and outlet pipes

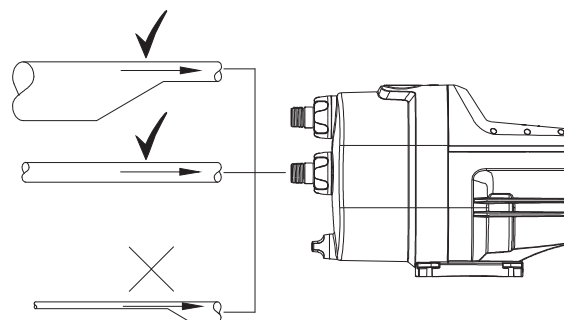
Follow these general precautions when connecting the inlet and outlet pipes.

- Install the pipes so that air pockets are avoided, especially on the inlet side of the pump.
- Use eccentric reducers with the tapered side down.
- Make sure the pipes are as straight as possible to avoid unnecessary bends and fittings. We recommend long-radius 90° pipe bends to decrease friction loss.
- If possible, run a horizontal inlet line. We recommend a gradual upward slope for pumps operating in suction-lift conditions.
- A short pipe must be of the same diameter as the inlet port or larger.
- A long pipe must be one or two sizes larger than the inlet port, depending on the length.



TM040338

Recommended pipe installation to avoid friction and air pockets



TM075387

Correct pipe sizing for connection to the pump inlet or outlet

3.1.4 Maximum system pressure



Make sure that the system in which the pump is installed is designed for the maximum pump pressure.



When installing a non-return valve in the plumbing system, make sure that the system has an expansion tank at the water heater and that the pressure-relief valve in the water heater is plumbed to a drain. Carry out the installation in accordance with local regulations.

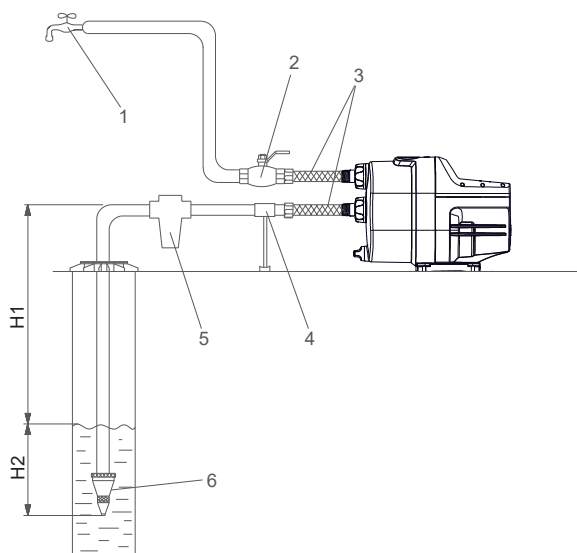
The maximum inlet pressure depends on the head at the actual duty point. The sum of the inlet pressure and the head must not exceed the maximum system pressure.

We recommend installing a pressure-relief valve to protect the pump so that the outlet pressure does not exceed the maximum system pressure.

3.2 Installation examples

We recommend that you follow the installation examples. Valves are not supplied with the pump.

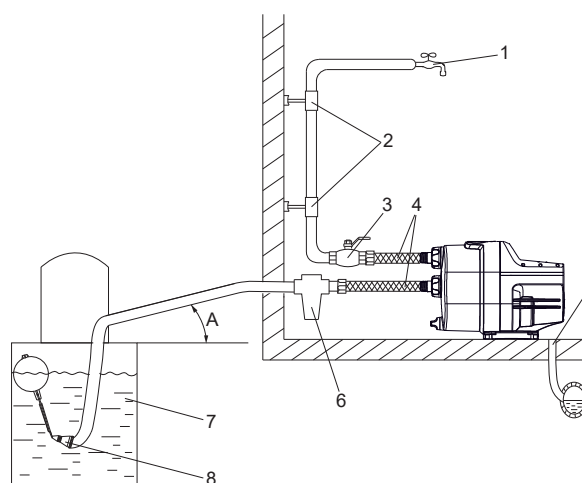
3.2.1 Suction from a well



TM075006

| Pos. | Description |
|------|---|
| 1 | Highest tapping point |
| 2 | Isolating valve |
| 3 | Flexible hoses |
| 4 | Pipe support |
| 5 | Inlet filter |
| 6 | Foot valve with strainer |
| H1 | Maximum suction lift: 8 m (26.2 ft) |
| H2 | Inlet pipe must be submerged at least 0.5 m (1.64 ft) |

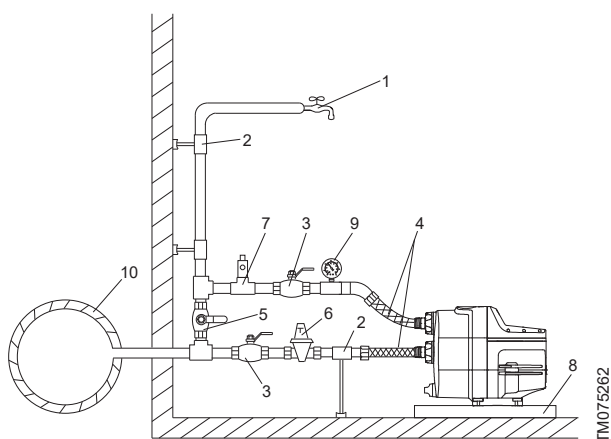
3.2.2 Suction from a tank



TM075007

| Pos. | Description |
|------|------------------------------|
| 1 | Highest tapping point |
| 2 | Pipe hangers |
| 3 | Isolating valve |
| 4 | Flexible hoses |
| 5 | Drain to sewer |
| 6 | Inlet filter |
| 7 | Freshwater tank |
| 8 | Foot valve with strainer |
| 9 | Minimum 1-degree inclination |

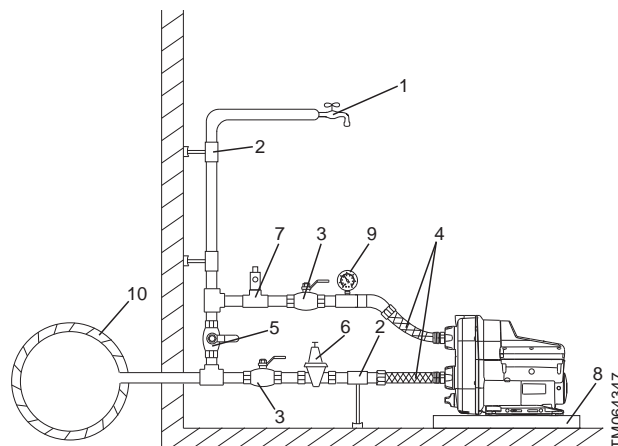
3.2.3 Mains water pressure boosting, SCALA1



Mains water pressure boosting, SCALA1

| Pos. | Description |
|------|---|
| 1 | Highest tapping point |
| 2 | Pipe hangers and supports |
| 3 | Isolating valves |
| 4 | Flexible hoses |
| 5 | Bypass valve |
| 6 | Optional pressure-reducing valve on the inlet side if the system pressure can exceed 8 bar (115 psi). |
| 7 | Optional pressure relief valve on the outlet side if the installation cannot withstand the outlet pressure. |
| 8 | Drip tray. Install the pump on a small stand to prevent the ventilation holes from being flooded. |
| 9 | Pressure gauge |
| 10 | Mains water pipe |

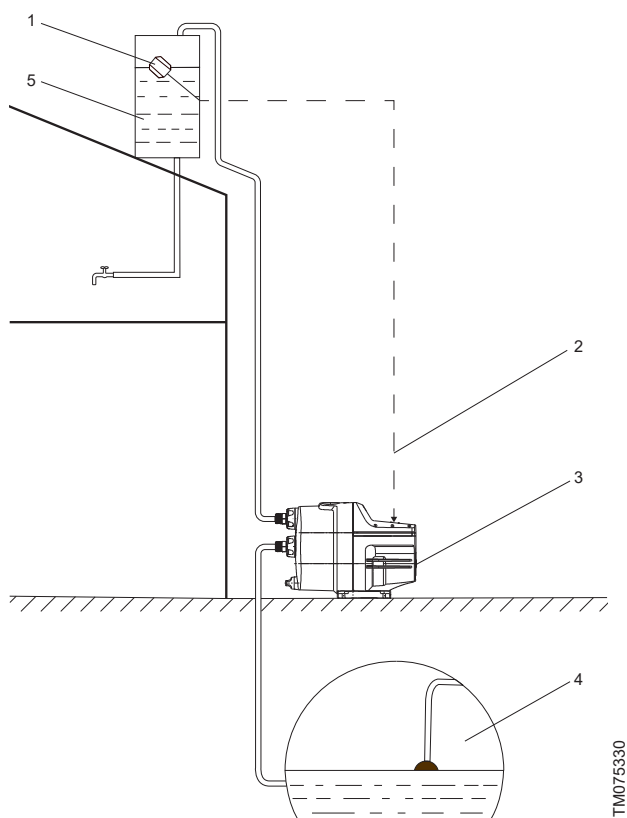
3.2.4 Mains water pressure boosting, SCALA2



Mains water pressure boosting, SCALA2

| Pos. | Description |
|------|--|
| 1 | Highest tapping point |
| 2 | Pipe hangers and supports |
| 3 | Isolating valves |
| 4 | Flexible hoses |
| 5 | Bypass valve |
| 6 | Optional pressure-reducing valve on the inlet side if the pressure can exceed 10 bar (145 psi). |
| 7 | Optional pressure-relief valve on the outlet side if the installation cannot withstand a pressure of 6 bar (87 psi). |
| 8 | Drip tray. Install the pump on a small stand to prevent the ventilation holes from being flooded. |
| 9 | Pressure gauge |
| 10 | Mains water pipe |

3.2.5 Roof tank filling



TM075330

| Pos. | Description |
|------|-------------------------------|
| 1 | Float switch |
| 2 | External input (switch) cable |
| 3 | Pump |
| 4 | Water source (tank) |
| 5 | Roof tank |

3.3 Electrical connection

The electrical connection and protection must be carried out in accordance with local regulations. Please also observe the following requirements:

- Make sure that the pump is suitable for the power supply to which they are to be connected.
- The pump must always be correctly earthed.
- The plug on the pump must have the same protective earth (PE) connection system as the power outlet. If not, use a suitable adapter if allowed by local regulations.
- A pump without plug must be connected to an external main switch or wired with a plug.

3.4 Motor protection

The pump incorporates current- and temperature-dependent motor protection. If the pump is blocked or otherwise overloaded, the built-in thermal switch will cut out. When the motor has cooled sufficiently, it will restart automatically.

No external motor protection is required.

4. SCALA1



TM075390

SCALA1 pump

Grundfos SCALA1 is a self-priming, multistage pump, which combines all of the components of a pressure booster into a compact composite enclosure.

SCALA1 can communicate with the Grundfos GO Remote app through a built-in Bluetooth technology, which enables high customization options, making this pump a good fit for every application.

4.1 Product range

| Pump type | Nominal flow rate [m ³ /h (gpm)] | Max. head [m (ft)] |
|-------------|--|-----------------------|
| SCALA1 3-25 | 3 (13) | 25 (82) |
| SCALA1 3-35 | 3 (13) | 35 (114) |
| SCALA1 3-45 | 3 (13) | 45 (147) |
| SCALA1 5-25 | 5 (22) | 25 (82) |
| SCALA1 5-55 | 5 (22) | 55 (180) |

4.2 Motor

The motor is water-cooled and equipped with sealed, greased-for-life ball bearings to ensure silent operation and minimum service. The motor has a built-in thermal switch and requires no additional motor protection.

4.3 Features and benefits of SCALA1

- Water on demand.
- All-in-one integrated booster.
- Bluetooth communication.
- External input.
- Twin booster enabled.
- Low noise level < 55 dB(A).

4.3.1 Self-priming

A self-priming pump ensures a stable operation, even if the pump is not fully filled with liquid. The self-priming pump is able to lift liquid from below the inlet level and handle a mix of air and liquid until the pump reaches a fully-primed pumping condition.

4.3.2 Robust design

The pump is designed for long and trouble-free operation. Composite construction combined with excellent corrosion-resistant internal components ensure high robustness in operation.

4.3.3 Easy installation

SCALA pumps can be installed in three easy steps:

- Connecting the pipes.
- Priming the pump.
- Plugging the pump into a power outlet.

The pump will start running after it has been plugged into a power outlet.

4.4 Protection features

4.4.1 Dry-running protection

The product incorporates dry-running protection that automatically stops the pump from running without liquid. Dry-running protection means less risk of pump damage and lower maintenance costs.

4.4.2 Anti-cycling function

The anti-cycling function prevents the product from starting and stopping too often in case of a minor leakage in the system or if a tap has not been closed completely. The anti-cycling function will stop the pump, and an alarm will be indicated.

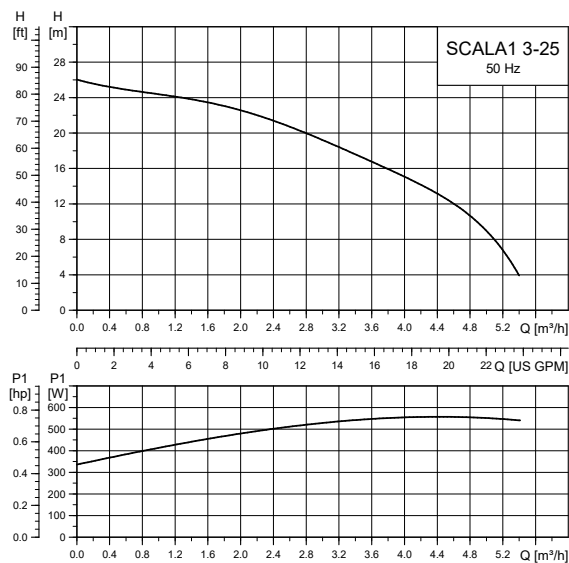
4.4.3 Maximum runtime

The maximum runtime function is a timer that can turn the pump off if it runs continuously for a certain amount of time. This time period is adjustable via Grundfos GO Remote app.

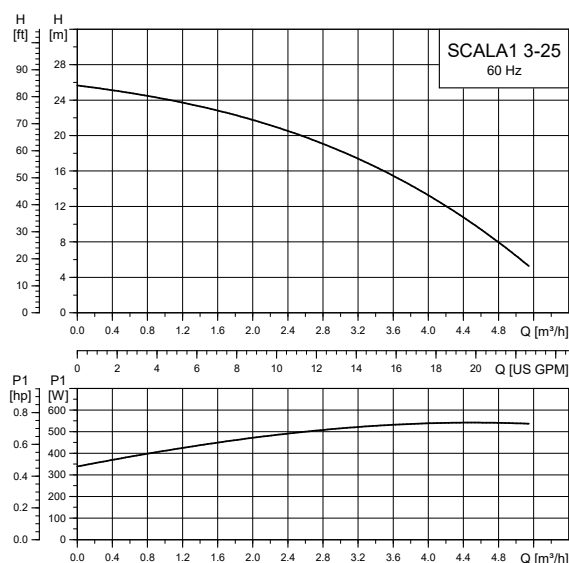
4.5 Performance curves

50 Hz

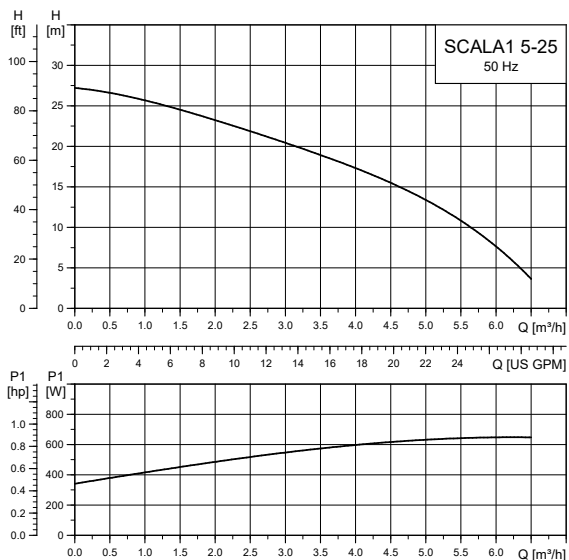
60 Hz



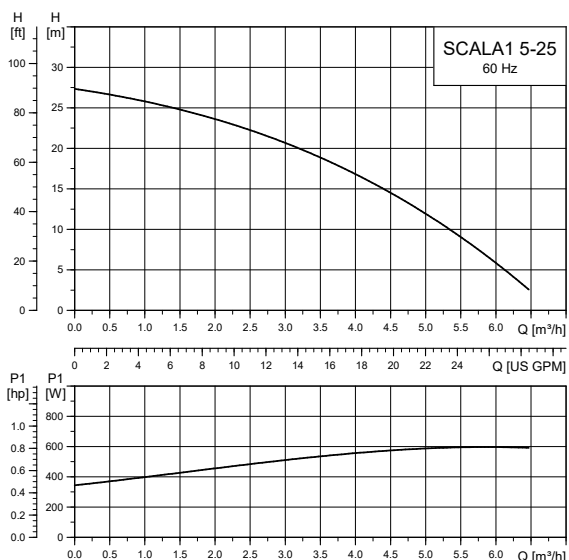
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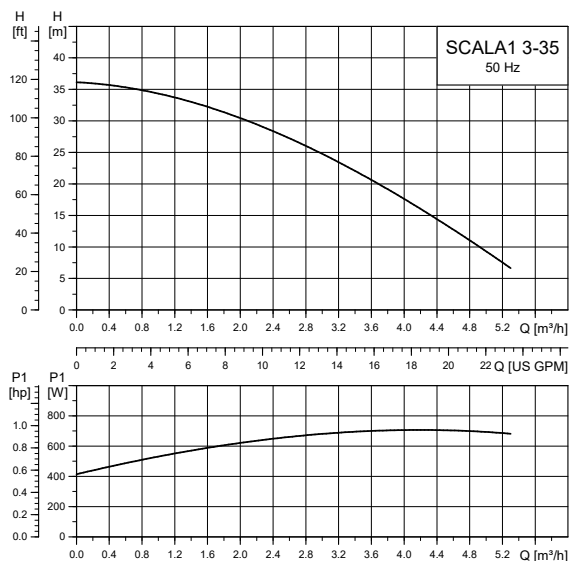
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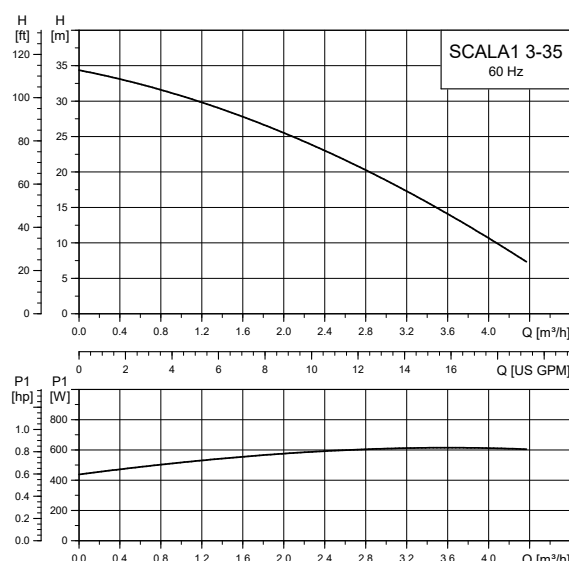
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TM075367



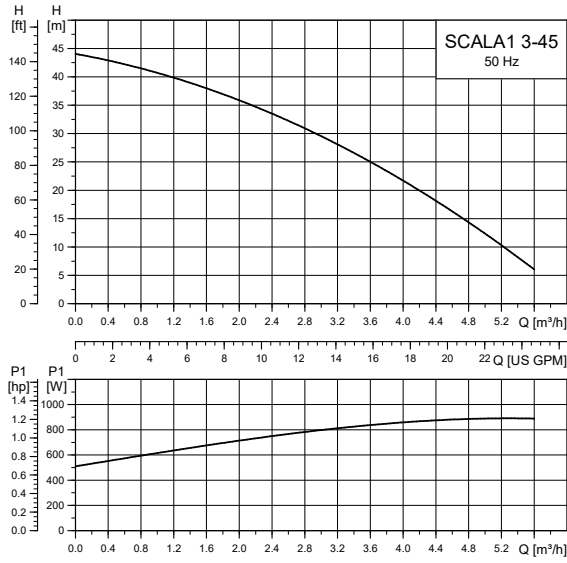
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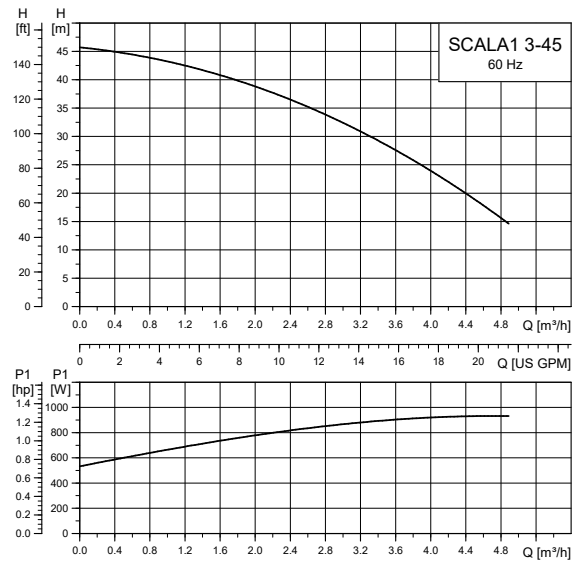
TM075365

50 Hz

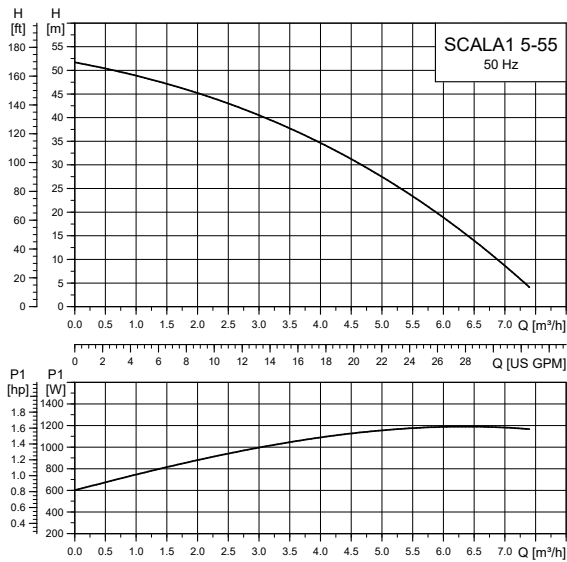
60 Hz



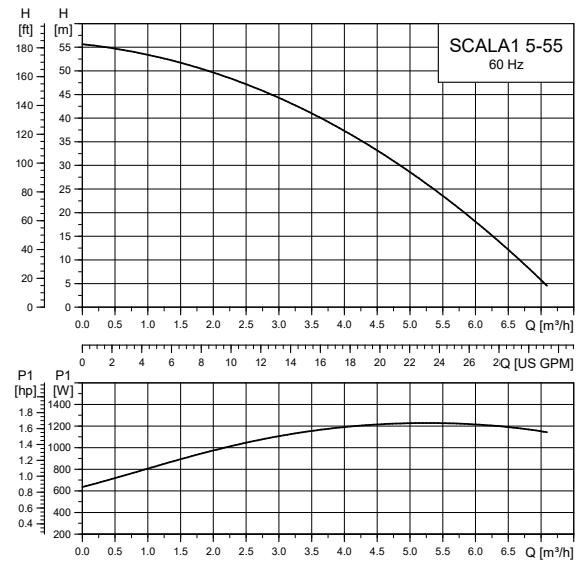
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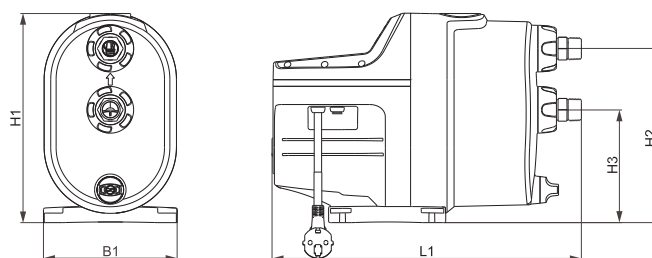
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4.6 Technical data

4.6.1 Dimensions and weights



TM075267

| Pos. | H1 | H2 | H3 | L1 | B1 |
|-----------------------|----------------|----------------|----------------|----------------|----------------|
| | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] |
| SCALA1 (all variants) | 316 12.4 | 263 10.4 | 171 6.7 | 466 18.4 | 202 8.0 |

Weight

| SCALA1 3-25 | SCALA1 3-35 | SCALA1 3-45 | SCALA1 5-25 | SCALA1 5-55 |
|--------------|--------------|--------------|--------------|--------------|
| [kg] [lb] | [kg] [lb] | [kg] [lb] | [kg] [lb] | [kg] [lb] |
| 11 | 12 | 12 | 12 | 14 |
| 24.2 | 26.4 | 26.4 | 26.4 | 30.8 |

4.6.2 Operating conditions

| | SCALA1 | | | | |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 3-25 | 3-35 | 3-45 | 5-25 | 5-55 |
| Max. ambient temperature | 55 °C (131 °F) | 55 °C (131 °F) | 55 °C (131 °F) | 55 °C (131 °F) | 55 °C (131 °F) |
| Max. liquid temperature | 45 °C (113 °F) | 45 °C (113 °F) | 45 °C (113 °F) | 45 °C (113 °F) | 45 °C (113 °F) |
| Maximum system pressure [bar (psi)] | 8 (116) | 8 (116) | 8 (116) | 8 (116) | 8 (116) |
| Maximum inlet pressure [bar (psi)] | 5 (72.5) | 4 (58) | 3 (43.5) | 5 (72.5) | 2 (29) |
| Max. head [m (ft)] 50 Hz | 25 (82) | 36 (118.1) | 44 (144.3) | 26 (85.3) | 52 (170.6) |
| Max. head [m (ft)] 60 Hz | 25 (82) | 35 (114.8) | 46 (150) | 27 (85.3) | 55 (180) |
| Nominal head [m (ft)] | 15 (49.2) | 20 (65.6) | 25 (82) | 15 (49.2) | 25 (82) |
| Nominal flow [m ³ /h (gpm)] | 3.00 (12.19) | 3.72 (16.38) | 3.59 (15.80) | 4.80 (21.12) | 5.33 (23.48) |
| IP Rating | X4D | X4D | X4D | X4D | X4D |
| Pumped liquid | Clean water | Clean water | Clean water | Clean water | Clean water |
| Noise level [db(A)] | < 55 | < 55 | < 55 | < 55 | < 55 |
| Frequency of starts and stops | 25 per hour | 25 per hour | 25 per hour | 25 per hour | 25 per hour |
| Start pressure (pstart) [bar (psi)] | 1.2 (17.4) | 1.5 (21.8) | 2.2 (31.9) | 1.2 (17.4) | 2.8 (40.6) |

4.6.3 Electrical data

All variants have insulation class F.

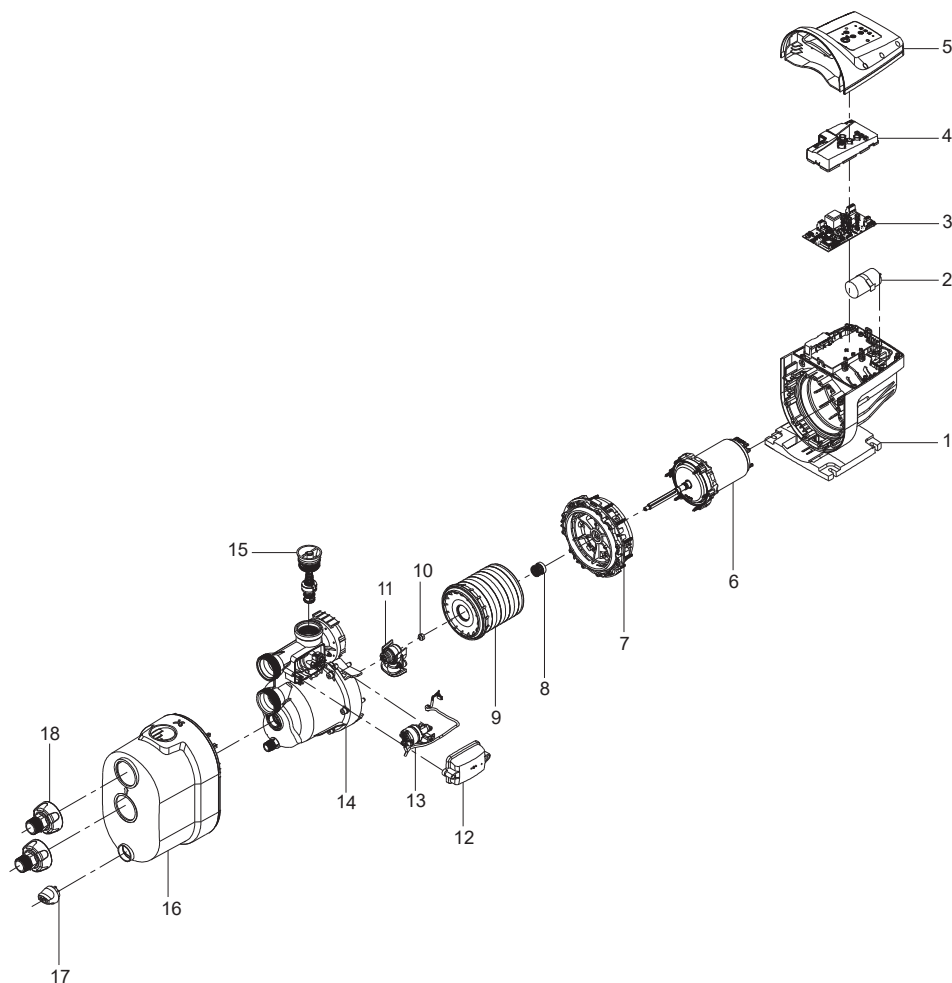
50 Hz

| Pump type | Voltage [V] | P1 [W (hp)] | P2 [W (hp)] | n [rpm] | I _n [A] | I _{start} [A] | Standby power [W] |
|-------------|-------------|-------------|-------------|---------|--------------------|------------------------|-------------------|
| SCALA1 3-25 | 1 x 230 | 550 (0.74) | 360 (0.50) | 2850 | 2.58 | 13.0 | 1.5 |
| SCALA1 3-35 | 1 x 230 | 720 (0.97) | 450 (0.60) | 2800 | 3.27 | 13.0 | 1.5 |
| SCALA1 3-45 | 1 x 230 | 910 (1.23) | 580 (0.80) | 2800 | 4.10 | 17.0 | 1.5 |
| SCALA1 5-25 | 1 x 230 | 650 (0.88) | 425 (0.60) | 2850 | 3.00 | 13.0 | 1.5 |
| SCALA1 5-55 | 1 x 230 | 1200 (1.62) | 780 (1.00) | 2850 | 5.38 | 26.0 | 1.5 |

60 Hz

| Pump type | Voltage [V] | P1 [W (hp)] | P2 [W (hp)] | n [rpm] | I _n [A] | I _{start} [A] | Standby power [W] |
|-------------|-------------|-------------|-------------|---------|--------------------|------------------------|-------------------|
| SCALA1 3-25 | 1 x 230 | 540 (0.72) | 350 (0.50) | 3450 | 2.37 | 13.0 | 1.5 |
| | 1 x 115 | 560 (0.75) | 350 (0.50) | 3450 | 5.10 | 29.5 | 1.5 |
| SCALA1 3-35 | 1 x 230 | 650 (0.88) | 470 (0.60) | 3400 | 2.76 | 13.0 | 1.5 |
| | 1 x 115 | 650 (0.88) | 470 (0.60) | 3400 | 5.71 | 29.5 | 1.5 |
| SCALA1 3-45 | 1 x 230 | 870 (1.17) | 570 (0.80) | 3350 | 3.72 | 15.5 | 1.5 |
| | 1 x 115 | 950 (1.28) | 590 (0.80) | 3400 | 8.62 | 40.0 | 1.5 |
| SCALA1 5-25 | 1 x 230 | 600 (0.80) | 420 (0.60) | 3450 | 2.60 | 13.0 | 1.5 |
| | 1 x 115 | 610 (0.82) | 450 (0.60) | 3450 | 5.70 | 29.5 | 1.5 |
| SCALA1 5-55 | 1 x 230 | 1250 (1.68) | 810 (1.10) | 3450 | 5.25 | 22.5 | 1.5 |
| | 1 x 115 | 1250 (1.68) | 860 (1.10) | 3450 | 11.57 | 64.0 | 1.5 |

4.6.4 Construction of SCALA1



TM075375

Exploded view of SCALA1

Material specification

| Pos. | Component | Material |
|------|----------------------------------|----------------|
| 1 | Combined pump and stator housing | Composite |
| 4 | PCB cover | Composite |
| 5 | Cover for control box | Composite |
| 7 | Motor flange | Composite |
| 8 | Shaft seal, complete | Carbon/Ceramic |
| 9 | Chamber stack | Composite |
| 11 | Air handling unit | Composite |
| 14 | Connection part for hydraulic | Composite |
| 15 | Non-return valve discharge | Composite |
| 16 | Cover for hydraulic | Composite |
| 17 | Drain plug | Composite |
| 18 | Fittings, thread R 1" / NPT 1" | Composite |

4.7 Approvals and markings

Safety approvals



TM075405



TM074611



TM074115

Drinking water approvals

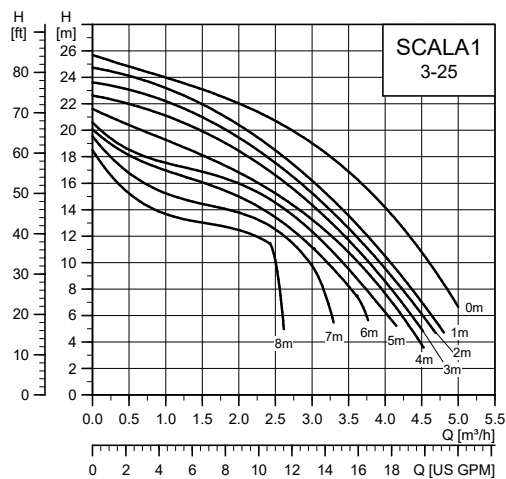


TM074613

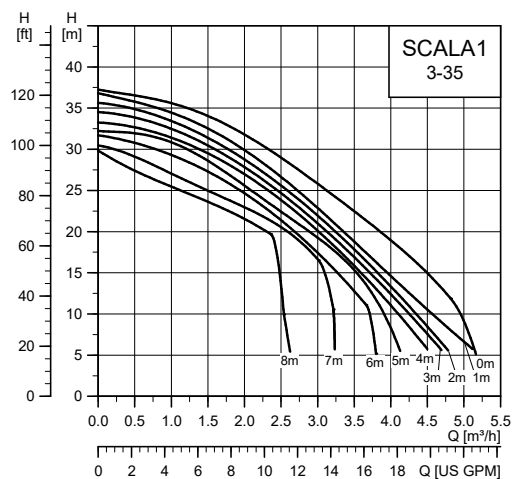


TM074116

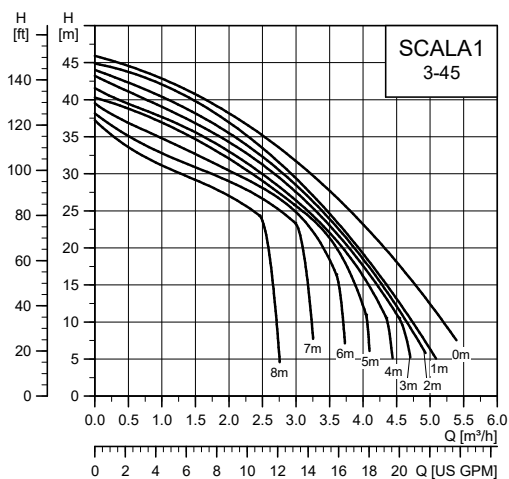
4.8 Suction performance



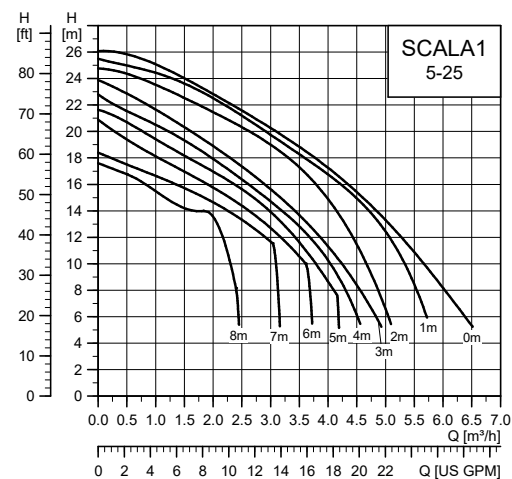
TM075531



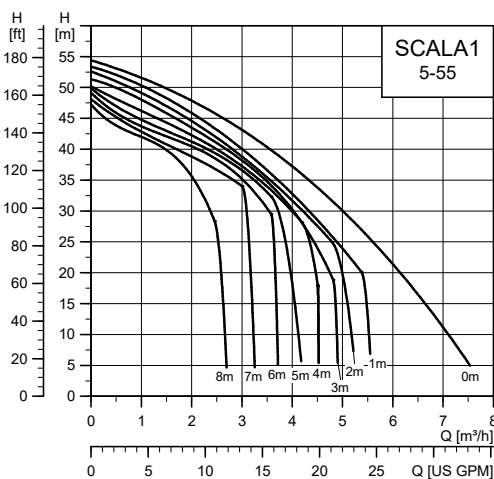
TM075532



TM075533



TM075534



TM075535

5. SCALA1 twin booster system



TM075391

SCALA1 twin booster system

SCALA1 can be easily setup as a twin booster, in case there is a need for a stand-by pump or higher flow demand.

For this purpose, there is a dedicated accessory set that includes:

- base plate
- inlet and outlet manifolds with valves
- communication cable
- fixing screws.

In the twin setup, the two SCALA1 pumps communicate together via a cable included in the accessory kit, enabling optimum double-pump operation.

5.1 Features and benefits

The twin system has all the features and benefits of the SCALA1 pump, along with the ability to handle increased flow demand.

5.1.1 Easy installation

SCALA1 twin booster can be quickly installed. After the pumps are mounted on the base plate and connected with a cable and manifolds, it is only a matter of connecting to the pipe system.

Once the system is primed, it is ready to deliver water.

5.1.2 Alternation

Once the communication cable is connected and the system powered on, the pumps are automatically assigned a priority at the start.

Alternation determines when the pumps will switch priority in starting, enabling equal use during operation lifetime. Grundfos GO Remote allows selecting the following options:

- alternate on runtime
- alternate on the number of starts.

Alternate on runtime

Pump 1 will be the first to start until it accumulates the defined number of running hours. After that, Pump 2 will start first.

Alternate on number of starts

Pump 1 will be the first to start until it accumulates the defined number of starts. After that, Pump 2 will start first.

5.1.3 Grundfos GO Remote enabled

SCALA1 twin booster system can be connected to Grundfos GO Remote via Bluetooth communication to be able to adjust the system parameters to specific user needs.

5.2 Protection features

SCALA1 twin booster has all the protective functions of the SCALA1 pump.

Dry-run protection will stop each pump separately, while the anti-cycling protection and maximum runtime protection will stop the system.

5.3 Operation modes

5.3.1 Duty/Assist

In Duty/Assist, both pumps can run at the same time, delivering more flow on the outlet side.

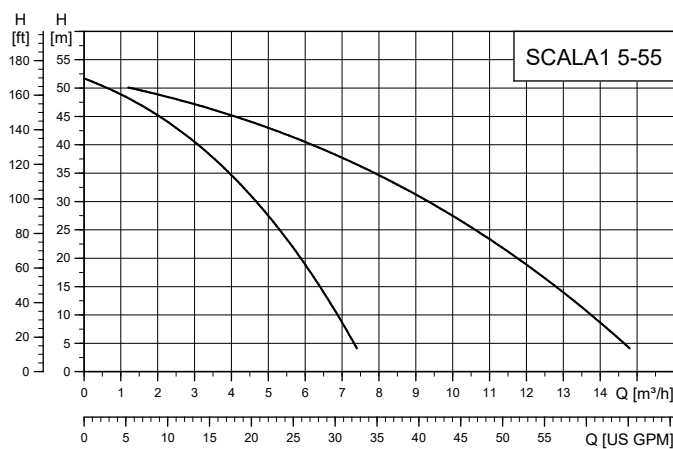
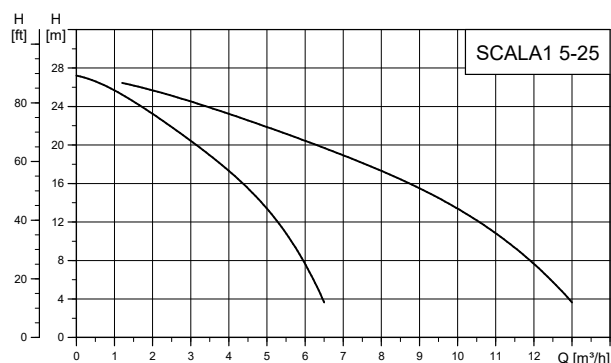
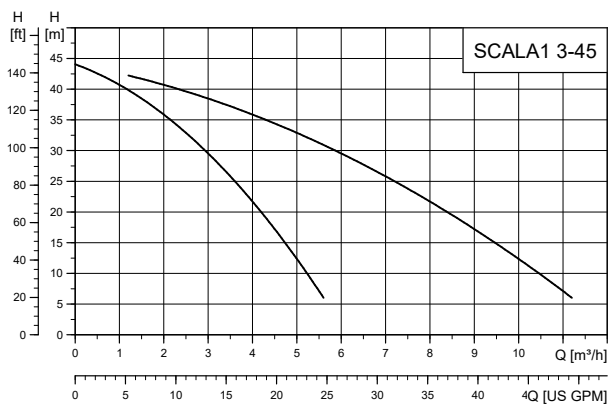
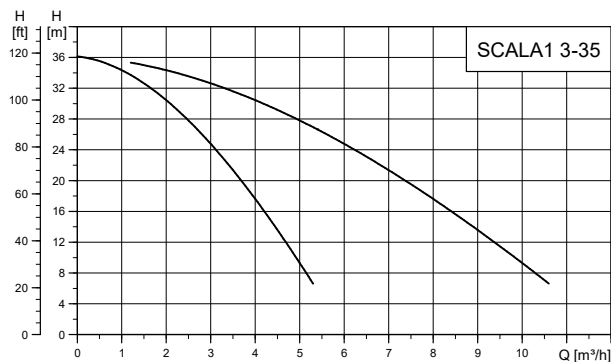
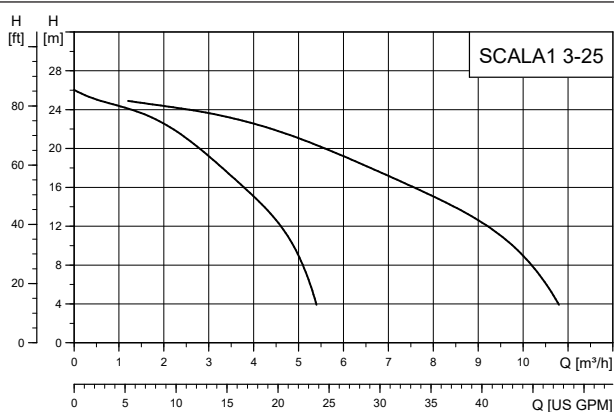
If one pump is unable to meet the demand, the second pump will start up.

5.3.2 Duty/Standby

In this mode, only one pump will run at a time, while the other pump will remain as a standby pump.

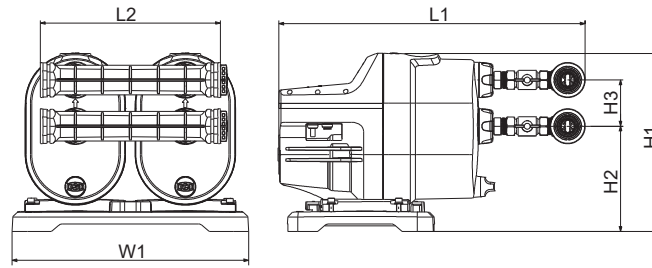
Based on alternation settings, the pumps will switch priority in starting.

5.4 Performance curves



5.5 Technical data

5.5.1 Dimensions

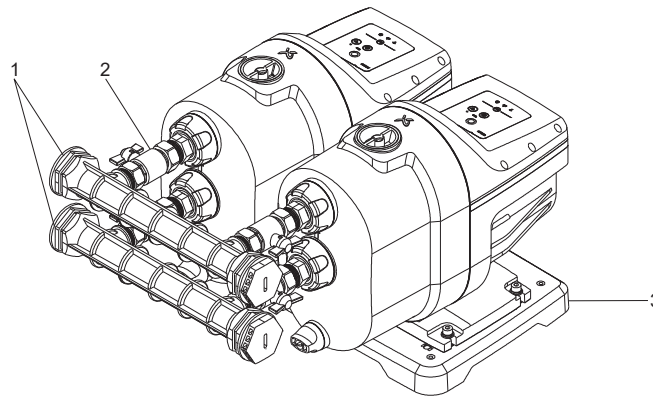


TM075401

Dimensions of SCALA1 twin system

| Pos. | H1 | H2 | H3 | L1 | L2 | W1 |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] |
| SCALA1 twin system | 360 14.2 | 210 8.3 | 92 3.6 | 614 24.2 | 360 14.2 | 473 18.6 |

5.5.2 Construction of SCALA1 twin system



TM075400

SCALA1 twin system

| Pos. | Component | Material |
|------|----------------------------|-----------|
| 1 | Inlet and outlet manifolds | Composite |
| 2 | Isolation valves | Brass |
| 3 | Twin base plate | Composite |

6. SCALA2



TM075409

SCALA2 pump

Grundfos SCALA2 is a fully integrated, self-priming, compact waterworks for pressure boosting in domestic applications.

SCALA2 incorporates integrated speed control, enabling the ability to keep perfect pressure in the taps, which means that the pump performance will adjust to the increasing demand.

6.1 Motor

The highly efficient motor with a permanent magnet is water-cooled and equipped with sealed, greased-for-life ball bearings to ensure silent operation and minimum service.

It has a built-in thermal switch and requires no additional motor protection.

6.2 Features and benefits of SCALA2

- Perfect water pressure.
- All-in-one integrated booster.
- High energy efficiency.
- Easy selection.
- Compact.
- Low noise < 47 dB(A) with typical use.

6.2.1 Perfect water pressure

SCALA2 is equipped with an integrated sensor that measures the pressure discharged from the pump. The sensor sends a signal to the pump control and compares the measured pressure level with the desired pressure level, which is the pressure set according to the homeowner's needs.

If there is a difference between these two measurements, the pump control signals the frequency converter to increase or decrease the pump speed, thus maintaining a constant pressure in the system.

6.2.2 Self-priming

A self-priming pump ensures a stable operation, even if the pump is not fully filled with liquid. The self-priming pump is able to lift liquid from below the inlet level and handle a mix of air and liquid until the pump reaches a fully-primed pumping condition.

6.2.3 Robust design

The pump is designed for long and trouble-free operation. Aluminium construction combined with excellent corrosion-resistant internal components ensure high robustness in operation.

6.2.4 Easy installation

SCALA pumps can be installed in three easy steps:

- Connecting the pipes.
- Priming the pump.
- Plugging the pump into a power outlet.

The pump will start running after it has been plugged into a power outlet.

6.3 Protection features

6.3.1 Dry-running protection

The product incorporates dry-running protection that automatically stops the pump from running without liquid. Dry-running protection means less risk of pump damage and lower maintenance costs.

6.3.2 Anti-cycling function

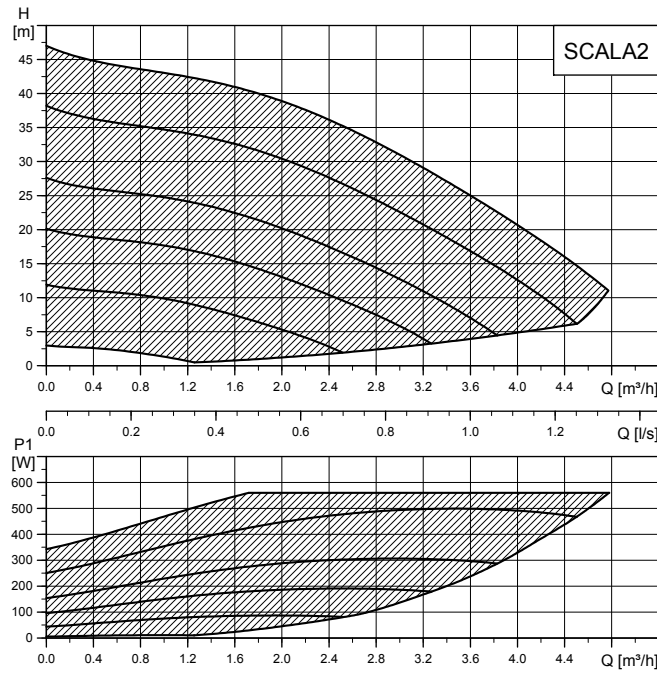
The anti-cycling function prevents the product from starting and stopping too often in case of a minor leakage in the system or if a tap has not been closed completely. The anti-cycling function will stop the pump, and an alarm will be indicated.

6.3.3 Maximum runtime

The maximum runtime function is a timer that can turn the pump off if it runs continuously for a certain amount of time. For SCALA2, this time period is 30 minutes.

6.4 Performance curves

50/60 Hz

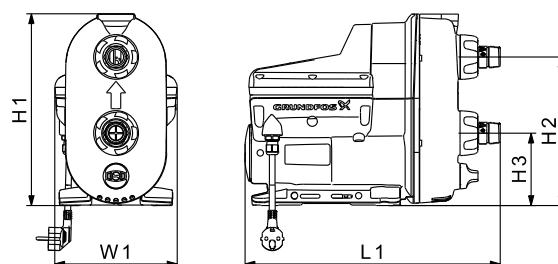


TM064320

SCALA2 performance curves

6.5 Technical data

6.5.1 Dimensions and weights



TM063305

Dimensions of SCALA2

| Pos. | H1 | H2 | H3 | L1 | W1 | Weight |
|--------|----------------|----------------|----------------|----------------|----------------|--------|
| | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] | [mm] [inch] | |
| SCALA2 | 302 | 234 | 114 | 403 | 193 | 10 |
| | 11.9 | 9.2 | 4.5 | 15.9 | 7.6 | 22 |

6.5.2 Operating conditions

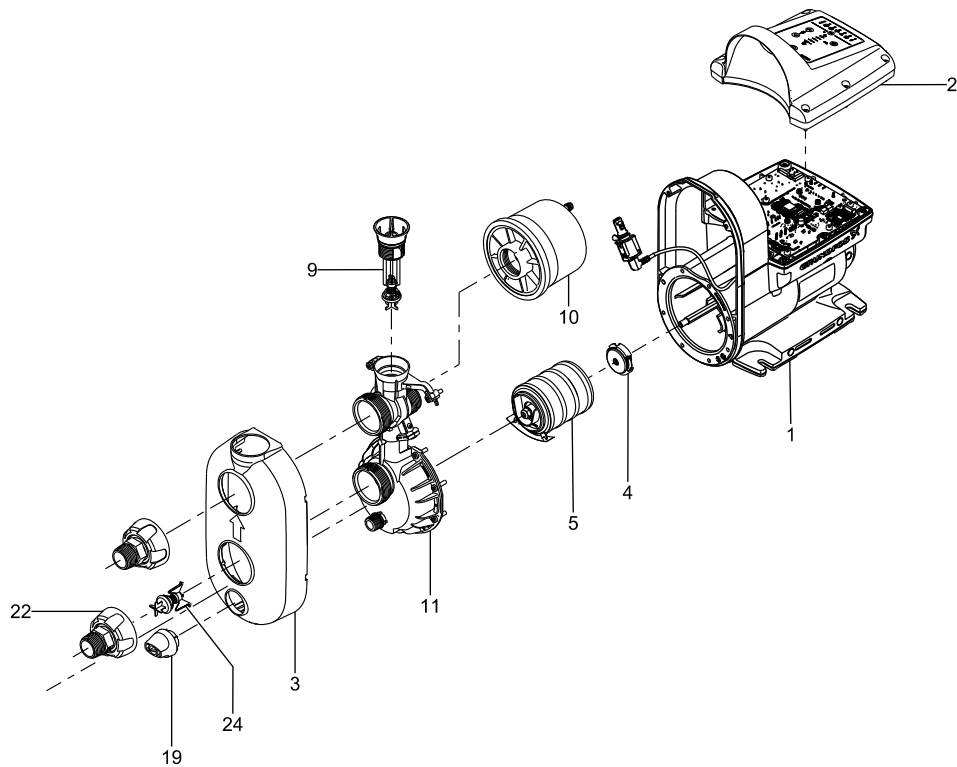
| | SCALA2 3-45 |
|--|--|
| Max. ambient temperature, 60 Hz models | 45 °C (113 °F) |
| Max. ambient temperature for 1 x 200-240 V, 50 Hz models | 55 °C (131 °F) |
| Max. liquid temperature | 45 °C (113 °F) |
| Maximum system pressure [bar (psi)] | 10 (145) |
| Max. inlet pressure [bar (psi)] | 6 (87) |
| Max. head [m (ft)] | 45 (147) |
| Nominal head [m (ft)] | 27 (88.6) |
| Nominal flow [m ³ /h (GPM)] | 3 (13.21) |
| IP Rating | X4D (Outdoor installation) |
| Pumped liquid | Clean, fresh water and chlorinated water < 300 ppm |
| Noise level [db(A)] | < 47 |

6.5.3 Electrical data

50/60 Hz

| Voltage and Frequency [V] ([Hz]) | P1 [W (hp)] | P2 [W (hp)] | n [rpm] | I _n [A] | Insulation class |
|----------------------------------|---------------|---------------|---------|--------------------|------------------|
| 1 x 200-240 (50/60) | 550 (0.74) | 450 (0.60) | 5200 | 2.80 | F |
| 1 x 208-230 (60) | | | | | |
| 1 x 115 (60) | | | | | |

6.5.4 Construction of SCALA2



TM063306

Exploded view of SCALA2

Material specification

| Pos. | Component | Material |
|------|----------------------------------|---|
| 1 | Combined pump and stator housing | Aluminium, Composite and EN 1.4301 / AISI 304 |
| 2 | Control box cover | Composite |
| 3 | Pump cover | Composite |
| 4 | Shaft seal | Carbon/Ceramic |
| 5 | Chamber stack (four stages) | Composite |
| 9 | Non-return valve, outlet | Composite |
| 10 | Pressure tank complete | Composite, Butyl and EN 1.4301 / AISI 304 |
| 11 | Connection part | Composite |
| 19 | Drain plug | Composite |
| 22 | Thread R 1" / NPT 1" | Composite |
| 24 | Non-return valve, inlet | Composite |

6.6 Approvals and markings

Safety approvals



TM075405



TM074611



TM075404

Drinking water approvals



TM074610



TM074613

Combined



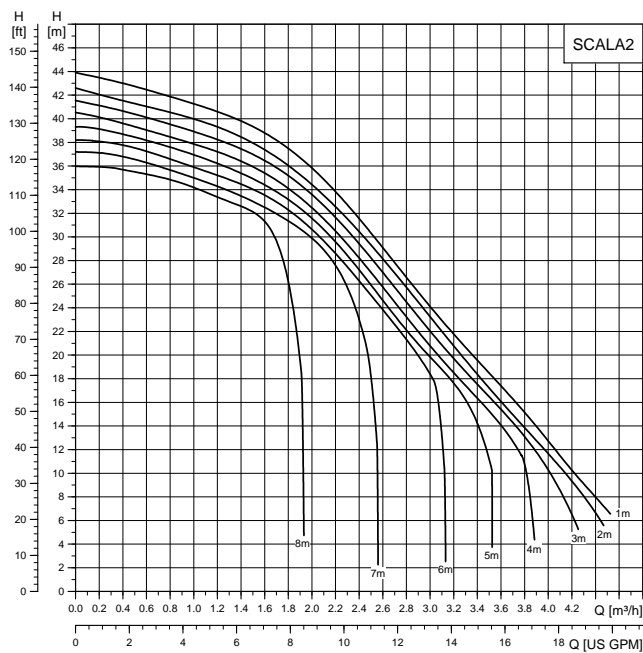
Water circulation pump
99K4



WATER QUALITY
Drinking water system component
NSF/ANSI 61
MH26400
NSF/ANSI 372

TM070539

6.7 Suction performance

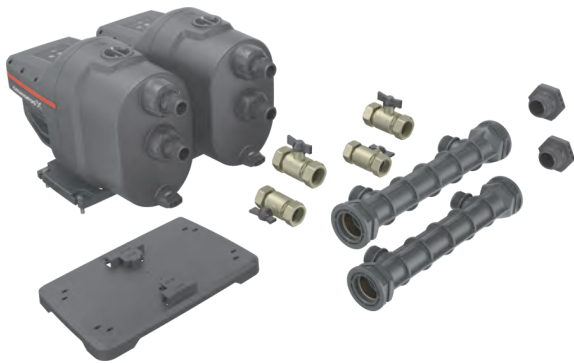


TM066277

Suction performance for SCALA2

7. Accessories

7.1 SCALA twin accessory set



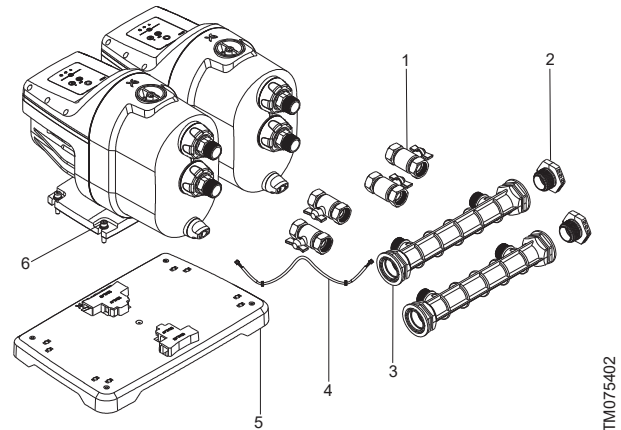
Twin accessory set

When an installation requires a two-pump solution, SCALA pumps can be easily connected using this set. It includes all the necessary components to set up SCALA pumps as a twin booster system.

This set includes:

- base plate
- two manifolds (inlet and outlet) including the isolation valves
- communication cable (for SCALA1 only)
- fixing screws.

7.1.1 Construction of SCALA twin accessory set



Exploded view of SCALA twin accessory set

| Pos. | Component | Material |
|------|----------------------------|-----------------|
| 1 | Isolation valves | Brass |
| 2 | Manifold cap with O-ring | Composite, NBR |
| 3 | Inlet and outlet manifolds | Composite |
| 4 | Communication cable | - |
| 5 | Twin base plate | Composite |
| 6 | Fixing screws | Stainless steel |

7.1.2 Product numbers

| Description | Valve Connection | Manifold Connection | Part number |
|---------------------------|------------------|---------------------|-------------|
| SCALA1 twin accessory set | 1" Rp | 1 1/4" Rp | 99725165 |
| SCALA1 twin accessory set | 1" NPT | 1 1/4" NPT | 99725168 |
| SCALA2 twin accessory set | 1" Rp | 1 1/4" Rp | 99743076 |
| SCALA2 twin accessory set | 1" NPT | 1 1/4" NPT | 99743075 |

7.2 Inlet filter



Inlet filter accessory

When using SCALA products for pumping rainwater or well water, we recommend installing a filter on the inlet side to provide clean water to increase the longevity of the pump, and to protect it from sand, gravel or other debris.

Features of the filter include:

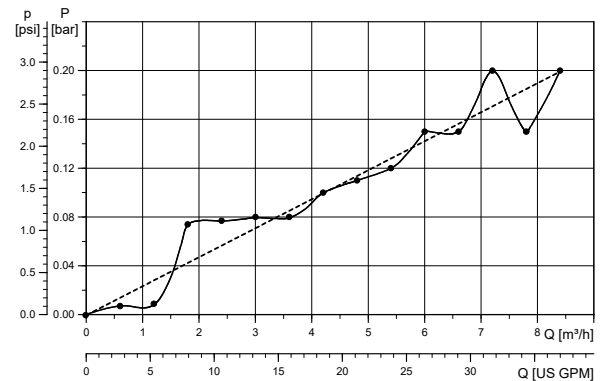
- Clean water provides long life for the pump.
- Quick and easy installation.
- Easy maintenance and cleaning.

The square mesh allows a uniform flow along the entire surface of the cartridge itself, which minimizes the possibility of clogging. Also, the smooth surface of the filter ensures easy washing and cleaning. The filter cartridges provide a nominal filtration with an efficiency of 80 %. If properly used, they can be used repeatedly maintaining constant efficiency.

The inside core is manufactured from talc-filled polypropylene and a welded nylon net. The filter housing is composite.

7.2.1 Filter specifications

| | |
|--|----------------|
| Micron rating | 250 |
| Efficiency percentage | 80 |
| Max. working pressure [bar (psi)] | 8 (116) |
| Max. differential pressure [bar (psi)] | 0.8 (11.6) |
| Max. working temperature | 45 °C (113 °F) |



Inlet filter pressure loss

7.2.2 Product numbers

| Description | Connection | Part number |
|--------------------------|------------|-------------|
| Inlet filter, 250 micron | 1" Rp | 99725183 |
| Inlet filter, 250 micron | 1" NPT | 99725185 |

7.3 Flexible hoses



TM080290

The flexible hose range provides a safe and taint-free conveyance of potable water supplies in domestic and commercial applications. The range is designed to achieve robust and flexible solutions with the following attributes:

- Water Regulation Advisory Scheme (WRAS)-approved for both hot and cold water
- Strong construction with excellent abrasion and crush-resistant construction
- Excellent flexibility and kink resistance.

7.3.1 Product numbers

| Description | Product number |
|---|----------------|
| Flexible hose set | 99891639 |
| Flexible hose set (with brass elbow connection) | 99891647 |

8. Product numbers

Guide on how to read the product number tables

| Abbreviation | Description |
|--------------|--|
| SNI | Warranty card for Indonesia is included. |
| ARB | Printed installation and operating instructions in English (GB) and Arabic are included. |
| CCC | CCC approval on the nameplate. |
| CSA | CSA approval on the nameplate. |

8.1 SCALA1

50 Hz

| Pump model | Voltage | Plug type/cable | Country of origin | Product number |
|-----------------|-----------------|-----------------|-------------------|----------------|
| SCALA1 3-25 | 1 x 230 V 50 Hz | Schuko | Hungary | 99530403 |
| SCALA1 3-35 | 1 x 230 V 50 Hz | Schuko | Hungary | 99530404 |
| SCALA1 3-45 | 1 x 230 V 50 Hz | Schuko | Hungary | 99530405 |
| SCALA1 5-25 | 1 x 230 V 50 Hz | Schuko | Hungary | 99530406 |
| SCALA1 5-55 | 1 x 230 V 50 Hz | Schuko | Hungary | 99530407 |
| SCALA1 3-25 | 1 x 230 V 50 Hz | No plug | Hungary | 99530408 |
| SCALA1 3-35 | 1 x 230 V 50 Hz | No plug | Hungary | 99530409 |
| SCALA1 3-45 | 1 x 230 V 50 Hz | No plug | Hungary | 99530410 |
| SCALA1 5-25 | 1 x 230 V 50 Hz | No plug | Hungary | 99530411 |
| SCALA1 5-55 | 1 x 230 V 50 Hz | No plug | Hungary | 99530412 |
| SCALA1 3-25 | 1 x 230 V 50 Hz | Thailand | Hungary | 99530413 |
| SCALA1 3-35 | 1 x 230 V 50 Hz | Thailand | Hungary | 99530414 |
| SCALA1 3-45 | 1 x 230 V 50 Hz | Thailand | Hungary | 99530415 |
| SCALA1 5-25 | 1 x 230 V 50 Hz | Thailand | Hungary | 99530416 |
| SCALA1 5-55 | 1 x 230 V 50 Hz | Thailand | Hungary | 99530417 |
| SCALA1 3-25 | 1 x 230 V 50 Hz | Australia | Hungary | 99530418 |
| SCALA1 3-35 | 1 x 230 V 50 Hz | Australia | Hungary | 99530419 |
| SCALA1 3-45 | 1 x 230 V 50 Hz | Australia | Hungary | 99530420 |
| SCALA1 5-25 | 1 x 230 V 50 Hz | Australia | Hungary | 99530421 |
| SCALA1 5-55 | 1 x 230 V 50 Hz | Australia | Hungary | 99530422 |
| SCALA1 3-25 | 1 x 230 V 50 Hz | UK | Hungary | 99530423 |
| SCALA1 3-35 | 1 x 230 V 50 Hz | UK | Hungary | 99530424 |
| SCALA1 3-45 | 1 x 230 V 50 Hz | UK | Hungary | 99530425 |
| SCALA1 5-25 | 1 x 230 V 50 Hz | UK | Hungary | 99530426 |
| SCALA1 5-55 | 1 x 230 V 50 Hz | UK | Hungary | 99530427 |
| SCALA1 3-25 SNI | 1 x 230 V 50 Hz | Schuko | Hungary | 99530428 |
| SCALA1 3-35 SNI | 1 x 230 V 50 Hz | Schuko | Hungary | 99530429 |
| SCALA1 3-45 SNI | 1 x 230 V 50 Hz | Schuko | Hungary | 99530430 |
| SCALA1 5-25 SNI | 1 x 230 V 50 Hz | Schuko | Hungary | 99530431 |
| SCALA1 5-55 SNI | 1 x 230 V 50 Hz | Schuko | Hungary | 99530432 |
| SCALA1 3-25 | 1 x 230 V 50 Hz | Argentina | Hungary | 99656462 |
| SCALA1 3-35 | 1 x 230 V 50 Hz | Argentina | Hungary | 99656484 |
| SCALA1 3-45 | 1 x 230 V 50 Hz | Argentina | Hungary | 99656485 |
| SCALA1 5-25 | 1 x 230 V 50 Hz | Argentina | Hungary | 99656486 |
| SCALA1 5-55 | 1 x 230 V 50 Hz | Argentina | Hungary | 99656487 |
| SCALA1 3-25 CCC | 1 x 230 V 50 Hz | No plug | Hungary | 99530433 |

| Pump model | Voltage | Plug type/cable | Country of origin | Product number |
|-----------------|-----------------|-----------------|-------------------|----------------|
| SCALA1 3-35 CCC | 1 x 230 V 50 Hz | No plug | Hungary | 99530434 |
| SCALA1 3-45 CCC | 1 x 230 V 50 Hz | No plug | Hungary | 99530435 |
| SCALA1 5-25 CCC | 1 x 230 V 50 Hz | No plug | Hungary | 99530436 |
| SCALA1 5-55 CCC | 1 x 230 V 50 Hz | No plug | Hungary | 99530437 |

60 Hz

| Pump model | Voltage | Plug type/cable | Country of origin | Product number |
|-----------------|-----------------|-----------------|-------------------|----------------|
| SCALA1 3-25 ARB | 1 x 230 V 60 Hz | No plug | Hungary | 99530438 |
| SCALA1 3-35 ARB | 1 x 230 V 60 Hz | No plug | Hungary | 99530439 |
| SCALA1 3-45 ARB | 1 x 230 V 60 Hz | No plug | Hungary | 99530440 |
| SCALA1 5-25 ARB | 1 x 230 V 60 Hz | No plug | Hungary | 99530441 |
| SCALA1 5-55 ARB | 1 x 230 V 60 Hz | No plug | Hungary | 99530441 |
| SCALA1 3-25 | 1 x 230 V 60 Hz | No plug | Hungary | 99530443 |
| SCALA1 3-35 | 1 x 230 V 60 Hz | No plug | Hungary | 99530444 |
| SCALA1 3-45 | 1 x 230 V 60 Hz | No plug | Hungary | 99530445 |
| SCALA1 5-25 | 1 x 230 V 60 Hz | No plug | Hungary | 99530446 |
| SCALA1 5-55 | 1 x 230 V 60 Hz | No plug | Hungary | 99530447 |
| SCALA1 3-25 CSA | 1 x 230 V 60 Hz | NEMA 6-15 | Hungary | 99631734 |
| SCALA1 3-35 CSA | 1 x 230 V 60 Hz | NEMA 6-15 | Hungary | 99631735 |
| SCALA1 3-45 CSA | 1 x 230 V 60 Hz | NEMA 6-15 | Hungary | 99631736 |
| SCALA1 5-25 CSA | 1 x 230 V 60 Hz | NEMA 6-15 | Hungary | 99631737 |
| SCALA1 5-55 CSA | 1 x 230 V 60 Hz | NEMA 6-15 | Hungary | 99631739 |
| SCALA1 3-25 | 1 x 115 V 60 Hz | No plug | Hungary | 99530448 |
| SCALA1 3-35 | 1 x 115 V 60 Hz | No plug | Hungary | 99530449 |
| SCALA1 3-45 | 1 x 115 V 60 Hz | No plug | Hungary | 99530450 |
| SCALA1 5-25 | 1 x 115 V 60 Hz | No plug | Hungary | 99530451 |
| SCALA1 5-55 | 1 x 115 V 60 Hz | No plug | Hungary | 99530452 |
| SCALA1 3-25 CSA | 1 x 115 V 60 Hz | NEMA 5-15 | Hungary | 99631740 |
| SCALA1 3-35 CSA | 1 x 115 V 60 Hz | NEMA 5-15 | Hungary | 99631741 |
| SCALA1 3-45 CSA | 1 x 115 V 60 Hz | NEMA 5-15 | Hungary | 99631742 |
| SCALA1 5-25 CSA | 1 x 115 V 60 Hz | NEMA 5-15 | Hungary | 99631753 |
| SCALA1 5-55 CSA | 1 x 115 V 60 Hz | NEMA 5-15 | Hungary | 99631754 |

8.2 SCALA2

50/60 Hz

| Pump model | Voltage | Plug type/cable | Country of origin | Product number |
|-----------------|--------------------|-----------------|-------------------|----------------|
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | Schuko | Serbia | 98562862 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | Schuko | Serbia | 99027073 |
| SCALA2 3-45 SNI | 1 x 230 V 50/60 Hz | Schuko | Serbia | 99027077 |
| SCALA2 3-45 CCC | 1 x 230 V 50/60 Hz | No plug | Serbia | 98562863 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | No plug | Serbia | 98562865 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | No plug | Serbia | 99027076 |
| SCALA2 3-45 ARB | 1 x 230 V 50/60 Hz | No plug | Serbia | 99448121 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | Australia | Serbia | 98562866 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | UK | Serbia | 98562870 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | Argentina | Serbia | 98562872 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | Chile | Serbia | 99342334 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | Thailand | Serbia | 99371163 |
| SCALA2 3-45 | 1 x 230 V 50/60 Hz | India | Serbia | 99471149 |
| SCALA2 3-45 CSA | 1 x 230 V 50/60 Hz | US | Serbia | 98562817 |
| SCALA2 3-45 CSA | 1 x 115 V 50/60 Hz | US | Serbia | 98562818 |
| SCALA2 3-45 | 1 x 115 V 50/60 Hz | No plug | Serbia | 99027074 |
| SCALA2 3-45 | 1 x 115 V 50/60 Hz | US | Serbia | 99027075 |
| SCALA2 3-45 | 1 x 115 V 50/60 Hz | Japan | Serbia | 99240350 |

9. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

From the international view, you can select your specific country to view the product range available to you.

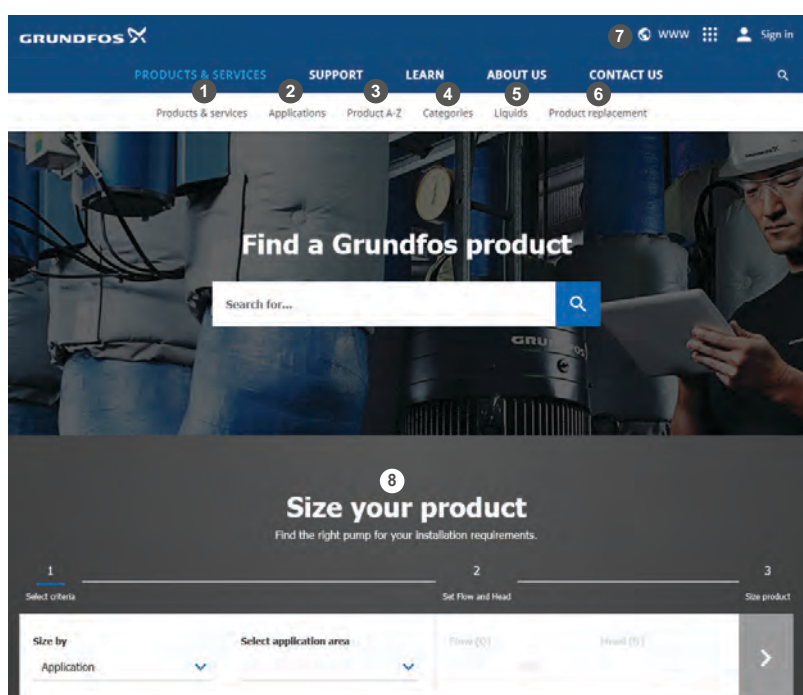
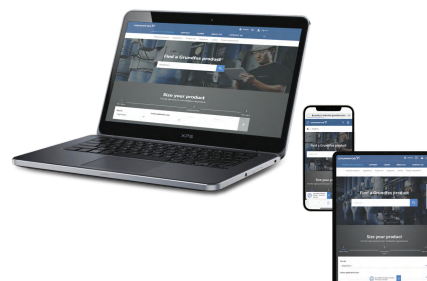
International view: <http://product-selection.grundfos.com>

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc., in PDF format.



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When you select your country, you will see the menus below. Note that some menus may not be available depending on the country.

Example: <https://product-selection.grundfos.com/uk>

| Pos. | Description |
|------|---|
| 1 | Products & services enables you to find products and documents by typing a product number or name into the search field. |
| 2 | Applications enables you to choose an application to see how Grundfos can help you design and optimise your system. |
| 3 | Products A-Z enables you to look through a list of all the Grundfos products. |
| 4 | Categories enables you to look for a product category. |
| 5 | Liquids enables you to find pumps designed for aggressive, flammable or other special liquids. |
| 6 | Product replacement enables you to find a suitable replacement. |
| 7 | WWW enables you to select the country, which changes the language, the available product range and the structure of the website. |
| 8 | Sizing enables you to size a product based on your application and operating conditions. |

