Perfect water pressure

Just when you need it

For pressure boosting

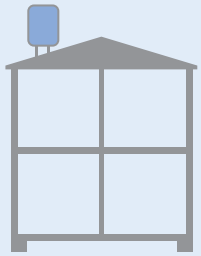
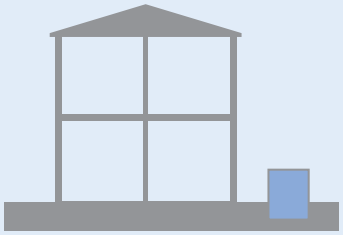
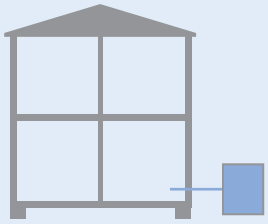
GRUNDFOS

Possibility in every drop

Pressure boosting – Pump selection

Use the table below to select the best Grundfos pump for any type of water supply task.
Once you've settled on a pump model, use the corresponding sizing guide to get the perfect fit.

Positive inlet pressure (down to 1 metre below ground level)

	Good	Better	Best
 Boosting from roof tank	 **UPA**	 **SCALA1**	 **SCALA2**
 Boosting from tank	 **Jet pump & booster**	 **SCALA1**	 **SCALA2**
 Boosting from mains	 **SCALA1**	 **SCALA2**	 **CME BOOSTER**

Grundfos cannot be held responsible for wrong sizing based on this guide. If any questions to selection or sizing please feel free to contact us any time or go to grundfos.com

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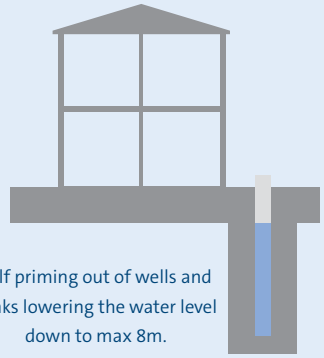
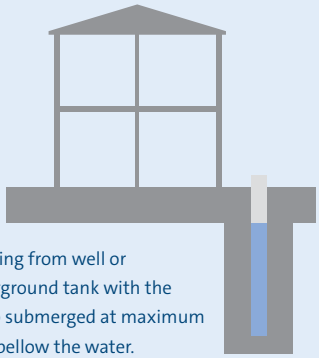
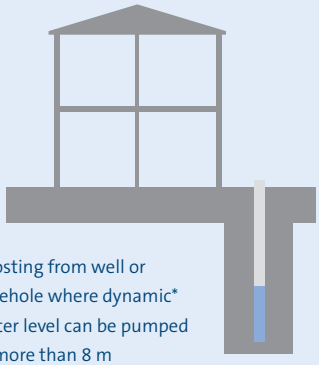
Pressure boosting – Pump selection

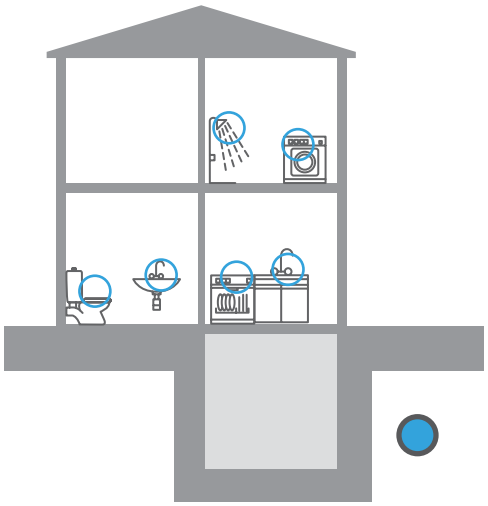
Use the table below to select the best Grundfos pump for any type of water supply task.
Once you've settled on a pump model, use the corresponding sizing guide to get the perfect fit.

Negative inlet pressure

	Good	Better	Best
 Self priming out of wells and tanks lowering the water level down to max 8m.	**Dry installed**  **Jet pump & booster**	 **SCALA1**	 **SCALA2**
 Boosting from well or underground tank with the pump submerged at maximum 10 m bellow the water.	**Submerged**  **SB with PM1**	 **SBA**	 **SB with PM2**
 Boosting from well or borehole where dynamic* water level can be pumped at more than 8 m * Dynamic water level means the correct installation of the pump to avoid dry running.		 **SQ**	 **SQE constant pressure package**

Pressure boosting – Quick sizing

Tapping point



Ex. sizing and selection

1. **Required comfort level:**
   - Adjustable contant pressure
2. **Find the right booster:**
   - How many taps: 6 taps
   - How many floors: 3 floors
3. **Result: CMBE 1-44**

Taps	1-5	6-10
Floors		
4	CMBE 1-75	CMBE 1-75
3	CMBE 1-44	CMBE 1-44
2	CMBE 1-44	CMBE 1-44
1	CMBE 1-44	CMBE 1-44

Adjustable constant pressure level

CMBE

Floors\Taps	1-5	6-10	11-20	21-50
4	CMBE 1-75	CMBE 3-62	CMBE 5-62	—
3	CMBE 1-44	CMBE 3-62	CMBE 5-62	—
2	CMBE 1-44	CMBE 3-62	CMBE 5-62	—
1	CMBE 1-44	CMBE 3-30	CMBE 3-30	—

CMBE TWIN (Duty/Assist)

Floors\Taps	1-5	6-10	11-20	21-50
4	—	—	—	CMBE TWIN 5-62
3	—	—	—	CMBE TWIN 5-62
2	—	—	—	CMBE TWIN 5-62
1	—	—	—	CMBE TWIN 5-31

SCALA2

- All-in-one design
- Dry-run protection

Floors\Taps	1-5	6-10	11-20
4	SCALA2 3-45*	—	—
3	SCALA2 3-45	SCALA2 3-45	—
2	SCALA2 3-45	SCALA2 3-45	—
1	SCALA2 3-45	SCALA2 3-45	SCALA2 3-45

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Pressure boosting – Quick sizing

Conventional pump control

SCALA1

- All-in-one booster
- Water on demand
- Self-priming

Floors\Taps	1-5	6-10	11-20	21-50
4	SCALA1 3-45*	SCALA1 5-55	—	—
3	SCALA1 3-45	SCALA1 3-45	SCALA1 5-55	—
2	SCALA1 3-35	SCALA1 3-45	SCALA1 5-55	—
1	SCALA1 3-25	SCALA1 3-35	SCALA1 3-45	—

SCALA1 TWIN (Duty/Assist)

- Easy solution for twin-booster
- Easy installation
- Enabled for Grundfos GO Remote

Floors\Taps	1-5	6-10	11-20	21-50
4	—	—	SCALA1 TWIN 5-55	SCALA1 TWIN 5-55
3	—	—	—	SCALA1 TWIN 5-55
2	—	—	—	SCALA1 TWIN 5-55
1	—	—	—	SCALA1 TWIN 5-55

Jet pump & booster

- Easy to install
- Self-priming
- Robust design

	Taps or m3/h		
	1-5 taps 1-2 m3/h	6-10 taps 3-4 m3/h	11-20 taps 4-5 m3/h
Manually controlled water supply	JP 3-42	JP 4-47/54	JP 5-48
Contant water supply with pressure-drop compensation	JP 3-42 PT-V/H	JP 4-47/54 PT-V/H	JP 5-48 PT-V/H
Constant water supply. Dry-running protection and anti-cycling function	JP 3-42 PM	JP 4-47/54 PM	JP 5-48 PM

UPA

- Low noise
- High energy efficiency
- Easy installation

Taps 1-2	Taps 2-4	Taps 4-8
UPA15-90	UPA15-120	UPA-15-160
UPA15-90	UPA15-120	UPA-15-160
UPA15-90	UPA15-120	UPA-15-160
UPA15-90	UPA15-120	UPA-15-160

Preconditions
• 3 bar tap pressure is considered, to achieve 4 bar pressure add 2 more floors • Flooded Suction • 0.5 l/s per tap average, usage pattern is taken into account

Pressure boosting – Quick sizing

Conventional pump control

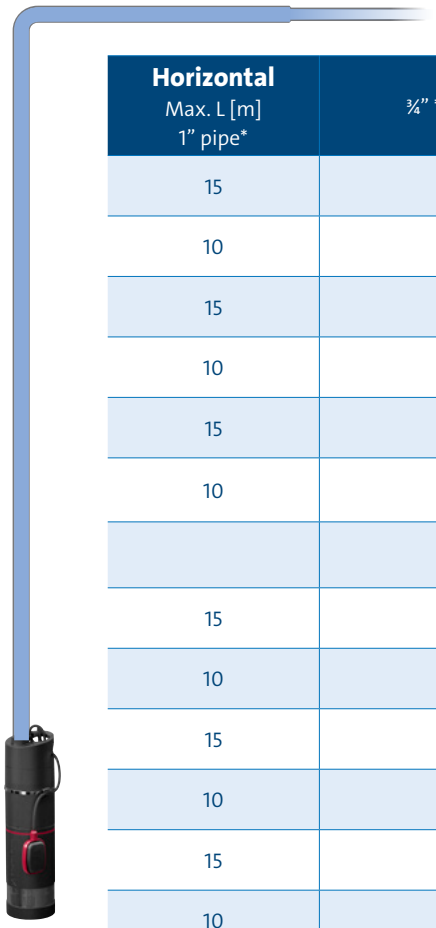
SBA

SB

Grundfos SB pumps can be equipped with:

- full control (SBA)
- simple float switches for dry running protection
- or a connected priming kit with floating ball and strainer that collects the water right below the surface

See more details on variants on Grundfos Product Center



	Vertical Max. Hgeo [m] 1" pipe*	Horizontal Max. L [m] 1" pipe*	¾" ** / ½" *** pipe	Total hor. length [m] with 1" + ¾" / 1" + ½" pipes
SB(A) 3-45 at 3m³/h 2.8 bar	15	15	20/4	25/19
	15	10	22/5	32/15
	10	15	33/8	48/23
	10	10	35/8.5	45/18.5
	5	15	46/11	61/26
	5	10	48/11.5	58/22.5
SB(A) 3-35 at 3m³/h 2.4 bar	15	15	9/2	16/17
	15	10	11/3	21/13
	10	15	23/5.5	38/20.5
	10	10	25/6	35/16
	5	15	36/8.5	51/23.5
	5	10	38/9	48/19

*Inner-ø 25mm
** Inner-ø 20mm
*** Inner-ø 15mm

The calculation is based on the assumption that inside the home you use ½" for piping or ¾".
From the cistern to the house and to that point where you change to a smaller diameter use 1".
There are considered a NRV and gate valve, an extension from small to bigger pipe and a few 90° bends

Preconditions
• 3 bar tap pressure is considered, to achieve 4 bar pressure add 2 more floors • Flooded Suction • 0.5 l/s per tap average, usage pattern is taken into account

Groundwater – Quick sizing – Pump

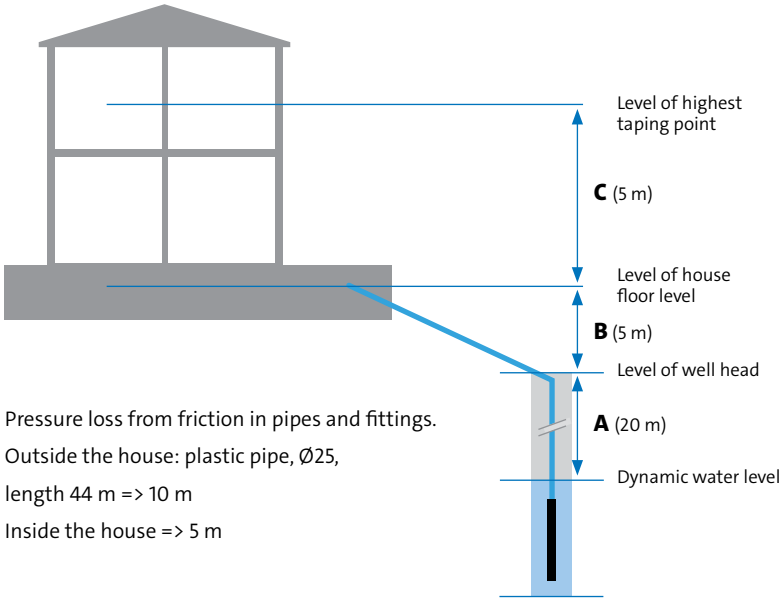
Flow sizing

SQ

- Compact design
- Built-in motor protection
- Easy installation

	Kitchen sink	Dish washer, washing machine	Toilet w. wash basin and WC	Bathroom w. wash basin, WC and shower	Bathroom w. wash basin, WC and bathtub	Garden and lawn irrigation	Nominal flow [m³/h]	Recommended pump size
Small house	1		1				1	SQ1
Medium house	1	2	1	1			2	SQ2
Large house	2	2		1	1	2	3	SQ3
2 x large house							5	SQ5
3 x large house							7	SQ7

Head sizing



Pressure loss from friction in pipes and fittings.
Outside the house: plastic pipe, Ø25,
length 44 m => 10 m
Inside the house => 5 m

Calculate max. pressure required

1. Pressure (H) at the tap requiring max. pressure = X
2. Static head (A + B + C) = Y
3. Pressure loss from friction in pipes and fittings = Z

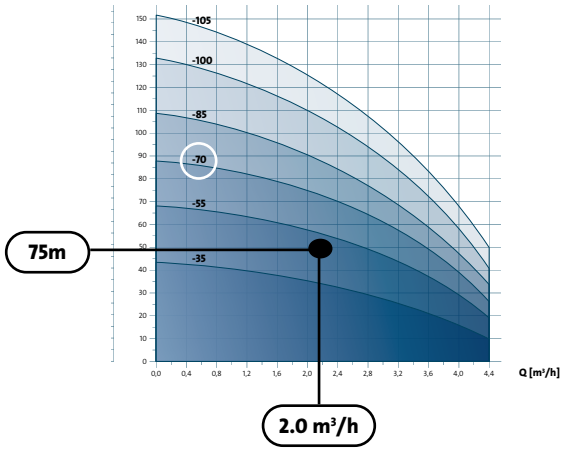
H_{total} = X + Y + Z

Example of calculation

1. Pressure at the tap (max pressure): 3 bar = 30 m
2. Static head: 20 m + 5 m + 5 m = 30 m
3. Pressure loss from friction in pipes and fittings: 10 m+5 m = 15 m

Maximum pressure required:
H_{total} = 30 m + 30 m + 15 m = **75 m**

Pump selection



Example of flow sizing

Medium house
=> Nominal flow **2 m³/h** => Pump size **SQ2**

Pump choice
SQ 2 - 70

Groundwater – Quick sizing – Cable

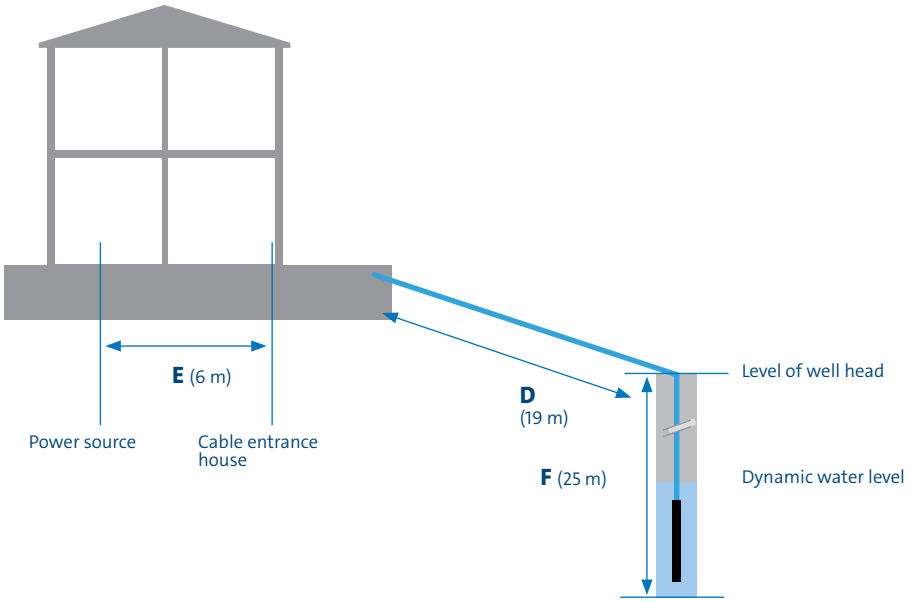
Maximum cable length

SQ cable

- Supply voltage 240 V
- 5% voltage drop

P2 [kW]	I_{MAX} [A]	Wire cross sectional area [mm²]			
		(1.5)	2.5	4.0	6.0
		Maximum cable length [m]			
0.70	5.2	86	144	230	346
(1.15)	8.4	(53)	89	142	214
1.68	11.2	40	66	107	160
1.85	12.0	37	62	100	150

How to select the cross-sectional area



! Supply voltage 240 V 5% voltage drop and cable supplied by Grundfos.

How to select the cross-sectional area of the individual wire of a submersible drop cable

1. Select SQ pump incl. motor size
2. Required total length of cable (D + E + F)
3. Read the cross-sectional area of individual wire of the drop cable

Example:

1. SQ pump incl. motor size
   SQ 2-70, motor size 1.15 kW

2. Distance from pump to the power source (outside 44 m (D + F) + inside 6 m (E))
   50 m

3. Selected cross-sectional area
   1.5 mm2