

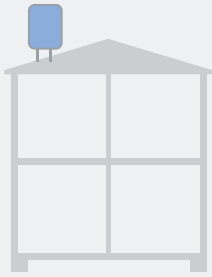



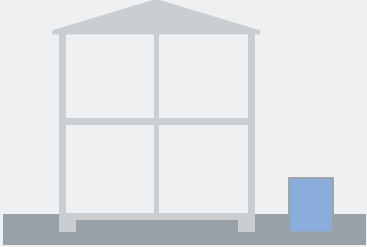



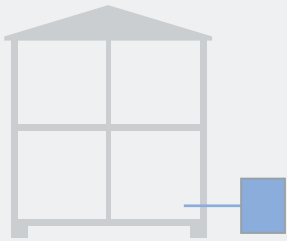



**PERFECT WATER PRESSURE
JUST WHEN YOU NEED IT**

QUICK SELECTION GUIDE

FOR PRESSURE BOOSTING

PRESSURE BOOSTING - PUMP SELECTION

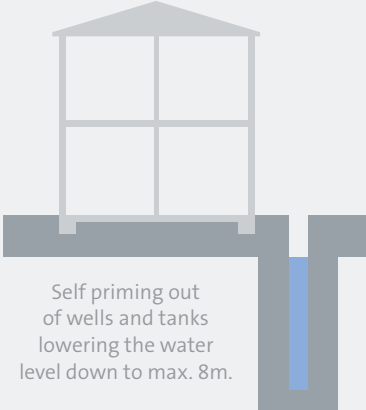



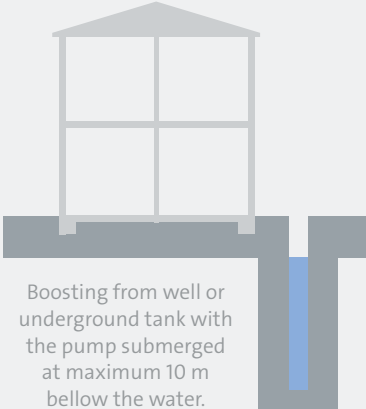



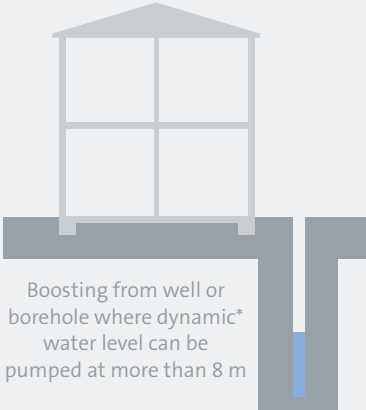


Use the table below to select the best Grundfos pump for any type of water supply task. Once you've settled on a pump model, use the corresponding sizing guide to get the perfect fit.

	Good	Better	Best
 <p>Boosting from roof tank</p>	 <p>UPA</p>	 <p>SCALA1</p>	 <p>SCALA2</p>
 <p>Boosting from tank</p>	 <p>Jet pump & booster</p>	 <p>SCALA1</p>	 <p>SCALA2</p>
 <p>Boosting from mains</p>	 <p>SCALA1</p>	 <p>SCALA2</p>	 <p>CME BOOSTER</p>

POSITIVE INLET PRESSURE (down to 1 metre below ground level)

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.

	Good	Better	Best	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">NEGATIVE INLET PRESSURE</p>	<p>DRY INSTALLED</p>  <p>Self priming out of wells and tanks lowering the water level down to max. 8m.</p>	 <p>Jet pump & booster</p>	 <p>SCALA1</p>	 <p>SCALA2</p>
	<p>SUBMERGED</p>  <p>Boosting from well or underground tank with the pump submerged at maximum 10 m below the water.</p>	 <p>SB with PM1</p>	 <p>SBA</p>	 <p>SB with PM2</p>
	 <p>Boosting from well or borehole where dynamic* water level can be pumped at more than 8 m</p>		 <p>SQ</p>	 <p>SQE CONSTANT PRESSURE PACKAGE</p>

* Dynamic water level means the correct installation of the pump to avoid dry running.

PRESSURE BOOSTING - QUICK SIZING


○ Tapping point


Ex. sizing and selection


- Required comfort level:**
- Adjustable constant pressure
- Find the right booster:**
- How many taps: 6 taps
- How many floors: 3 floors
- 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	4	CMBE 1-75	CMBE 3-62	CMBE 5-62
3	3	CMBE 1-44	CMBE 3-62	CMBE 5-62	—
2	2	CMBE 1-44	CMBE 3-62	CMBE 5-62	—
1	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	4	—	—	—
3	3	—	—	—	CMBE TWIN 5-62
2	2	—	—	—	CMBE TWIN 5-62
1	1	—	—	—	CMBE TWIN 5-31

 SCALA2 · All-in-one design · Dry-run protection	Floors \ Taps	1-5	6-10	11-20
	4	4	SCALA2 3-45*	—
3	3	SCALA2 3-45	SCALA2 3-45	—
2	2	SCALA2 3-45	SCALA2 3-45	—
1	1	SCALA2 3-45	SCALA2 3-45	SCALA2 3-45





PRESSURE BOOSTING - QUICK SIZING

CONVENTIONAL PUMP CONTROL

 <p>SCALA1</p> <ul style="list-style-type: none"> · 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	—

 <p>SCALA1 TWIN (Duty/Assist)</p> <ul style="list-style-type: none"> · 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

 <p>Jet pump & booster</p> <ul style="list-style-type: none"> · Easy to install · Self-priming · Robust design 	Manually controlled water supply	Taps or m ³ /h		
		1-5 taps 1-2 m ³ /h	6-10 taps 3-4 m ³ /h	11-20 taps 4-5 m ³ /h
	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

 <p>UPA</p> <ul style="list-style-type: none"> · 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



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

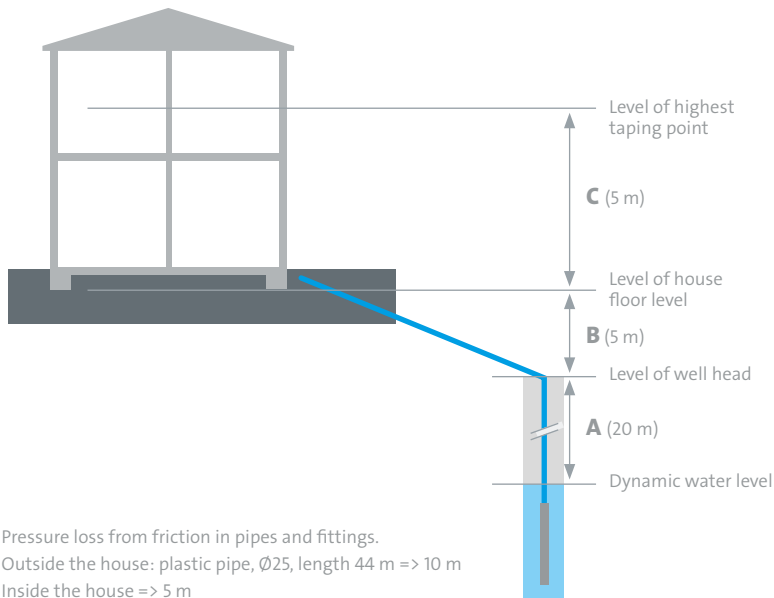
• 3 bar tap pressure is considered, to achieve 4 bar pressure add 2 more floors • Flooded Suction • 0.5 l/s per tap average, usage pattern is taken into account

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 [m ³ /h]	Recommended pump size
	Small house	1		1				1
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



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

$$H_{total} = X + Y + Z$$

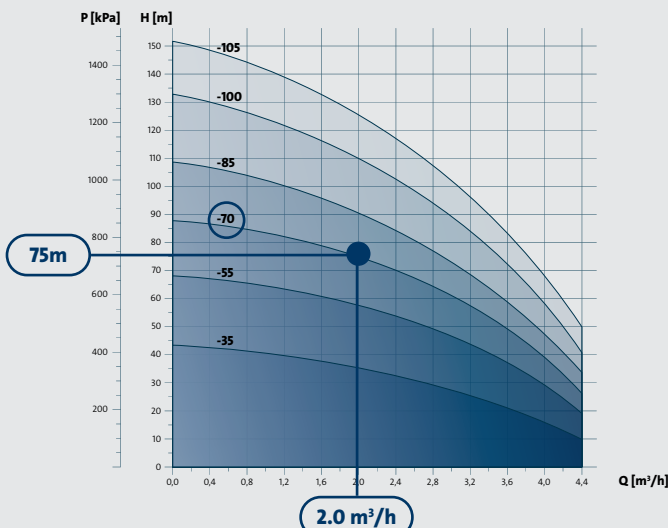
Example of calculation

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:

$$H_{total} = 30 \text{ m} + 30 \text{ m} + 15 \text{ m} = \mathbf{75 \text{ m}}$$

PUMP SELECTION



Example of flow sizing

Medium house


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

Pump choice

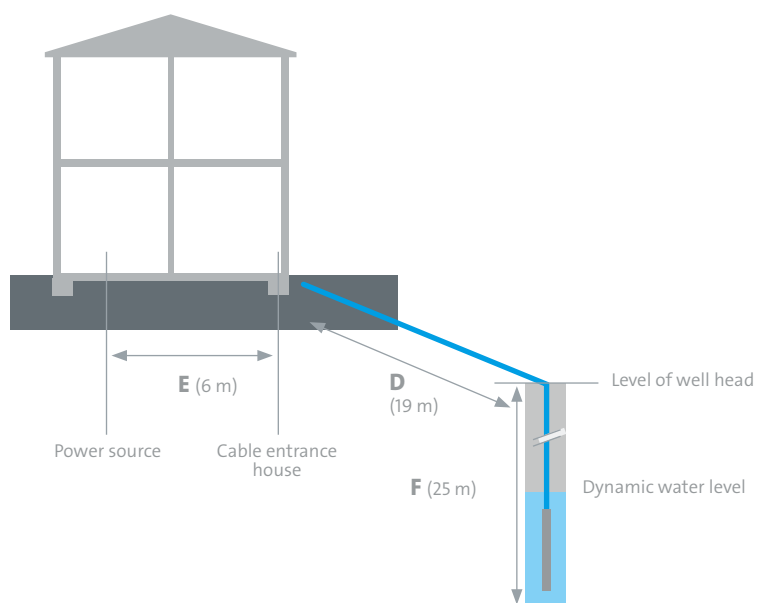
SQ 2 - 70

GROUNDWATER - QUICK SIZING - CABLE

MAXIMUM CABLE LENGTH

 <p>SQ CABLE · Supply voltage 240 V · 5% voltage drop</p>	P2 [kW]	I _{MAX} [A]	Wire cross sectional area [mm ²]			
			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