



Water softener softliQ:LB50/70/100/120, 275 kg

Intended use

The water softeners softliQ:LB can be used in the following sectors:

- Continuous soft water supply
- Softening and partial softening of the following media:
 - Well water
 - Process water
 - Boiler feed water
 - Cooling water
 - Air-conditioning water
 - Cold drinking water
 - Industrial water

The water softeners softliQ:LB are adjusted to the soft water demand expected at the time of installation. The continuous flow

must not be exceeded for more than 15 minutes.

The softliQ:LB water softener protects water pipes and connected water-carrying systems from scaling but cannot prevent corrosion.

The water softeners softliQ:LB cannot be used in the following sectors:

- Slow removal of water
- Load above continuous flow

Please also observe the information in the technical specifications.

Intended use

- e.g.: for heating systems, laboratories, restaurants and catering, ventilation and air conditioning systems



Application limits

The water to be softened must be free of iron and manganese.

- Iron < 0.2 mg/l
- Manganese < 0.05 mg/l

Refer to the table of performance data and the continuous flow curve.

Mode of operation

The softliQ:LB water softeners are triple systems for the continuous supply of soft water according to the ion exchange principle.

Physical

The water softeners feature a central control valve for the 3 exchangers and are volume-controlled.

Regeneration is triggered when the next exchanger to be regenerated is exhausted or the next but one exchanger to be regenerated is exhausted over 50 %. The water softener regenerates with raw water.

Chemical

The exchangers contain ion exchange resin in the form of small resin beads to which sodium ions adhere. Hard water with a large proportion of calcium and magnesium ions flows through the exchanger.

The ion exchange resin absorbs calcium and magnesium ions from the water in exchange for sodium ions. This reaction is called ion exchange. The calcium and magnesium ions are retained in the exchanger. Soft water that leaves the exchanger.

This process continues until no more sodium ions are available. The ion exchanger resin is exhausted. The exchange can be reversed if a large amount of sodium ions is added. To this end, brine is drawn from the brine tank and recorded by means of the ultrasound brine

volume meter. The exchanger is flushed with brine.

By their sheer number, sodium ions displace calcium and magnesium ions on the ion exchanger resin. The water containing calcium and magnesium ions is then discharged to the drain. The initial condition is restored. The ion exchanger resin is regenerated, and thus ready for operation.

Brine tank

The brine tank has a maximum filling capacity of 275 kg of salt and a pallet truck receptacle for transport. The integrated flushing connections allow the brine tank to be cleaned without removing the salt. The pre-alarm salt supply in the lid of the salt tank checks the filling level of the salt tablets once per regeneration. If the filling level is below the minimum, the control unit issues a signal.

Guard

The leakage sensor (guard) detects a leak at the installation site of the system and reports this via the control unit of the softliQ:LB or via Grünbeck's myProduct app.

Grünbeck myProduct App

Via the myProduct app, you can call up the consumption data as well as the status information of the water softener.

Structure

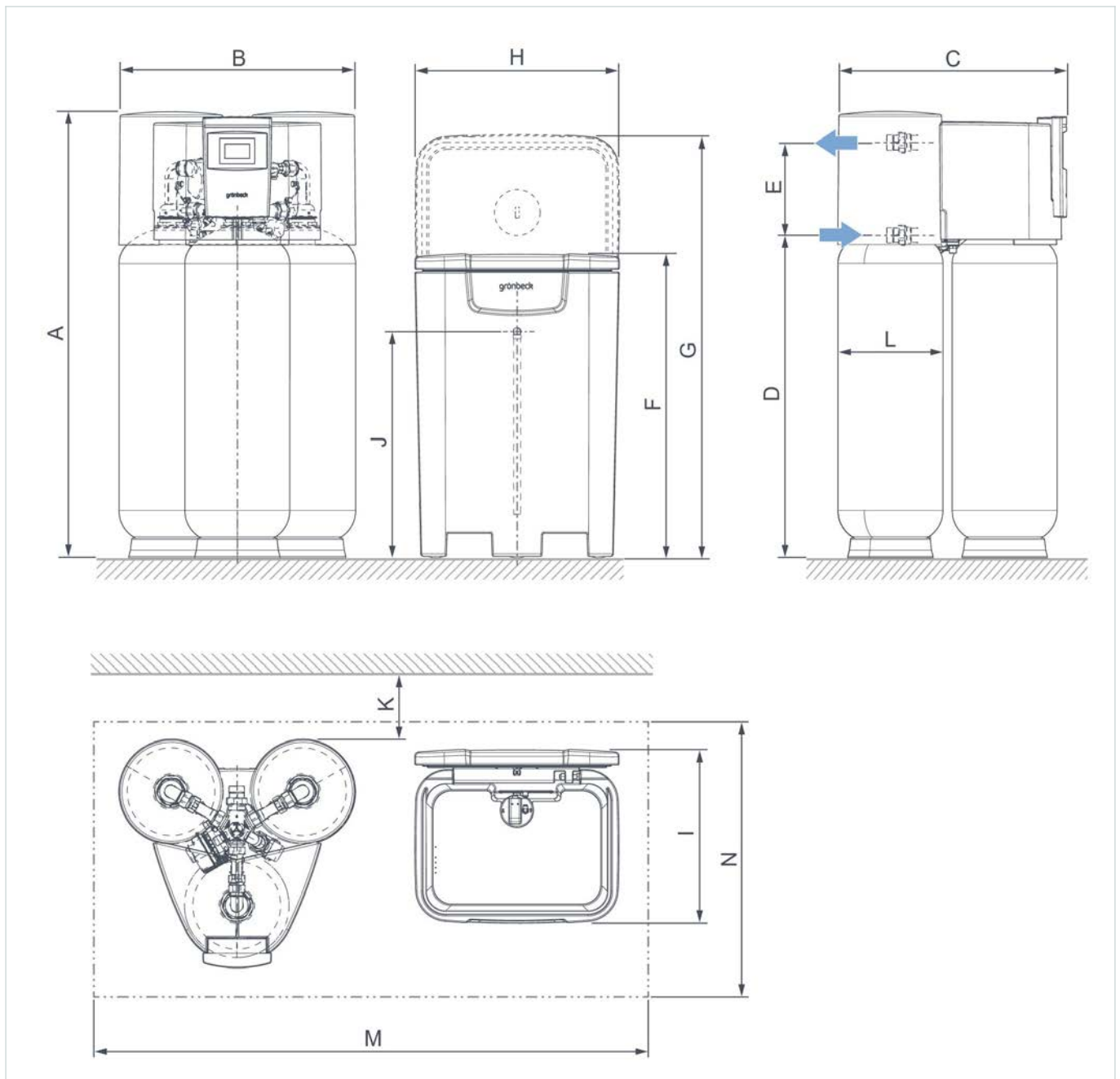
- 3 exchanger tanks
- Control unit with touch screen, LAN connection for connecting to the cloud and RS485 interface for bus connection (Modbus RTU/TCP)
- Electronically controlled transfer, regeneration and blending valve
- Fault detection with signalling and fault reporting contacts (programmable)
- Power supply by Schuko plug with a mains cable of 2 m
- Brine tank made of PE incl. sieve bottom, light sensor for salt volume detection, brine volume meter and integrated flushing connections

Scope of supply

- Water softener softliQ:LB
- Brine tank 275 kg
- Exchanger filling
- Water test kit for total hardness
- Installation and connection material



Technical specifications



Dimensions and weights			LB50	LB70	LB100	LB120
A	Height	mm	1270	1270	1610	1725
B	Width	mm	650	650	930	930
C	Depth	mm	670	670	880	880
D	Height raw water connection	mm	870	870	1125	1245
E	Height soft water connection	mm	300	300	360	360
F	Height salt dissolving tank without lid	mm	1200	1200	1200	1200
G	Height salt dissolving tank with lid	mm	1650	1650	1650	1650
H	Width of the brine tank	mm	800	800	800	800
I	Depth open brine tank	mm	650	650	650	650
J	Height of safety overflow, brine tank	mm	875	875	875	875
K	Distance to wall	mm	≥ 200	≥ 200	≥ 550	≥ 550
L	∅ Exchanger	mm	210	257	369	406
M	Recommended width for base	mm	1650	1650	1930	1930
N	Recommended depth for base	mm	820	820	1030	1030
Operating weight		kg	510,0	580,0	855,0	971,0

Connection data		LB50	LB70	LB100	LB120
Nominal diameter		DN 25	DN 32	DN 40	DN 50
Connection diameter		1"	1 ¼"	1 ½"	2"
Nominal diameter of drain connection		≥ DN 50	≥ DN 50	≥ DN 50	≥ DN 50
Mains connection voltage	VAC	230	230	230	230
Plant operation (safety extra-low voltage)	VAC	24	24	24	24
Mains connection frequency	Hz	50	50	50	50
Electrical power input operation	W	35	35	35	35
Power input in standby	W	≤ 19	≤ 19	≤ 19	≤ 19
Protection class		I	I	I	I



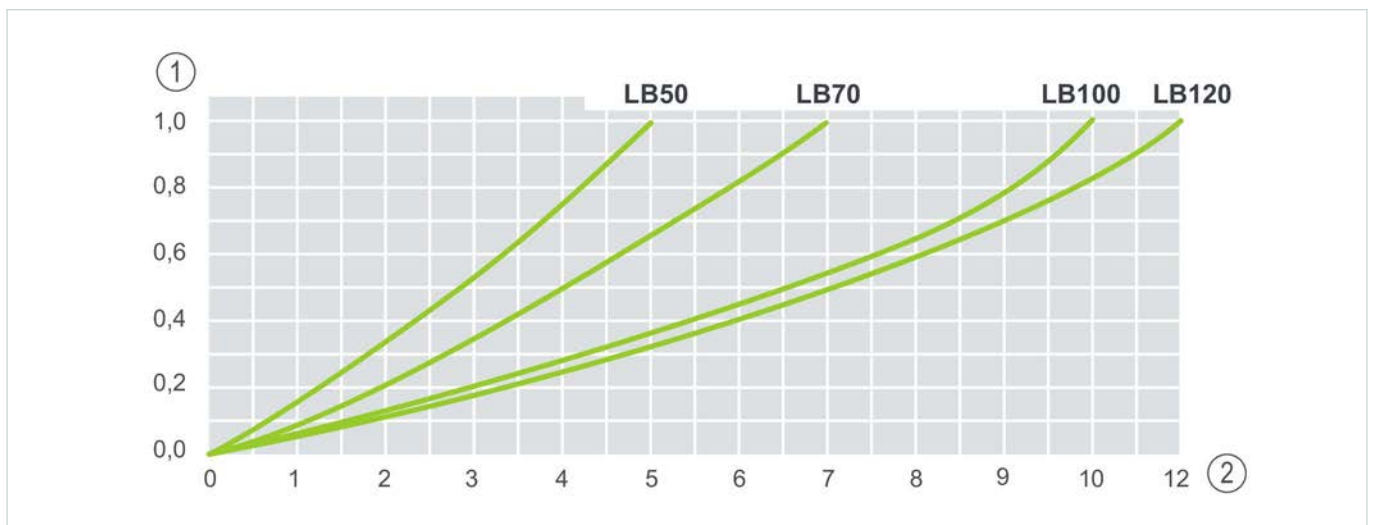
Performance data		LB50	LB70	LB100	LB120
Nominal pressure		PN 10	PN 10	PN 10	PN 10
Operating pressure	bar	2 - 10	2 - 10	2 - 10	2 - 10
Recommended operating pressure	bar	4	4	4	4
Nominal flow (0 °dH, 0 °f, 0 mol/m ³) acc. to DIN EN 14743 at a pressure loss of 1.0 bar	m ³ /h	5,0	7,0	10,0	12,0
Nenndurchfluss mit Anschlussset (0 °dH, 0 °f, 0 mol/m ³) gem. DIN EN 14743 bei 1,0 bar Druckverlust	m ³ /h	4,7	6,6	9,5	11,4
"Nominal flow at a pressure loss of 1.0 bar in accordance with DIN 19636 (raw water hardness 20 °dH (35.6 °f, 3.56 mol/m ³), soft water hardness 8 °dH (14.2 °f, 1.42 mol/m ³))"	m ³ /h	8,4	11,7	16,7	20,0
Continuous flow (restricted by hard raw water as from 20 °dH / 35.6 °f / 3.56 mol/m ³)	m ³ /h	3,0	5,0	8,0	12,0
Pressure loss at continuous flow	bar	0,5	0,6	0,6	1,0
Nominal capacity variable per m ³ and °dH per exchanger	m ³ x °dH	48,0	77,0	165,0	229,0
Nominal capacity variable per m ³ and °f per exchanger	m ³ x °f	85,6	137,6	296,3	410,8
Nominal capacity variable in mol per exchanger	mol	8,6	13,8	29,6	41,0
Capacity per kg of regeneration salt	mol/kg	5,7	5,5	5,7	5,7
Noise emission	dB (A)	> 70	> 70	> 70	> 70
Minimum volume of water for system control (raw water hardness 0 °dH (0 °f, 0 mol/m ³))	l/h	70	70	180	180

Filling volumes and consumption data		LB50	LB70	LB100	LB120
Resin volume per exchanger	l	21	33	75	100
Salt consumption at complete regeneration	kg	1,5	2,5	5,2	7,2
Regeneration salt supply	kg	≤ 275	≤ 275	≤ 275	≤ 275
Salt consumption per m ³ and °dH	kg/(m ³ x °dH)	0,03	0,03	0,03	0,03
Salt consumption per m ³ and °f	kg/(m ³ x °f)	0,018	0,018	0,018	0,018
Salt consumption per mol	kg/mol	0,18	0,18	0,18	0,18
Flushing water flow	m ³ /h	≤ 0,6	≤ 0,9	≤ 1,9	≤ 2
Total waste water volume per complete regeneration	l	68	155	330	350
Waste water volume with complete regeneration per m ³ and °dH	l/(m ³ x °dH)	1,42	2,01	1,42	1,37
Waste water volume with complete regeneration per m ³ and °f	l/(m ³ x °f)	0,79	1,13	0,79	0,77
Waste water volume with complete regeneration per mol	l/mol	7,95	11,27	7,94	7,68
Freeboard (resin in form of sodium)	mm	135	160	195	265
Operating water volume	l	4,2	6,9	14,4	20,0



General data		LB50	LB70	LB100	LB120
Media temperature	°C	5 - 30	5 - 30	5 - 30	5 - 30
Ambient temperature	°C	5 - 40	5 - 40	5 - 40	5 - 40
Air humidity (non-condensing)	%	≤ 90	≤ 90	≤ 90	≤ 90
Field of application number of persons		≥ 21	≥ 21	≥ 21	≥ 21
Order no.		185000100000	185000110000	185000120000	185000130000

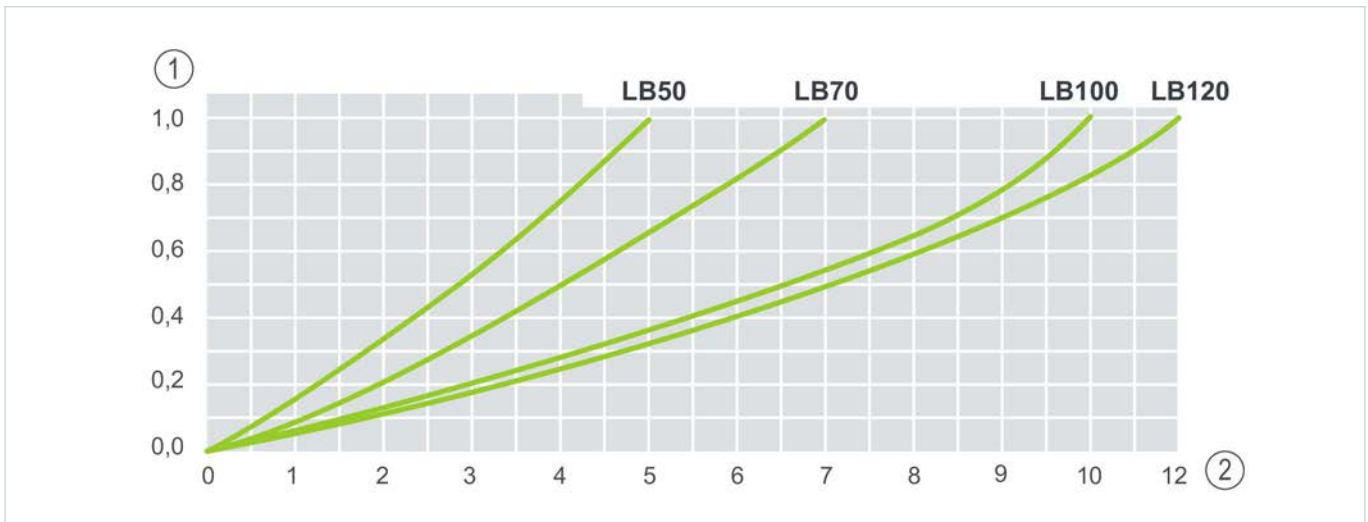
Pressure loss curve



Designation	Designation
1 Pressure loss in bar at 0 °dH, 0 °f, 0 mol/m³	2 Flow in m³/h

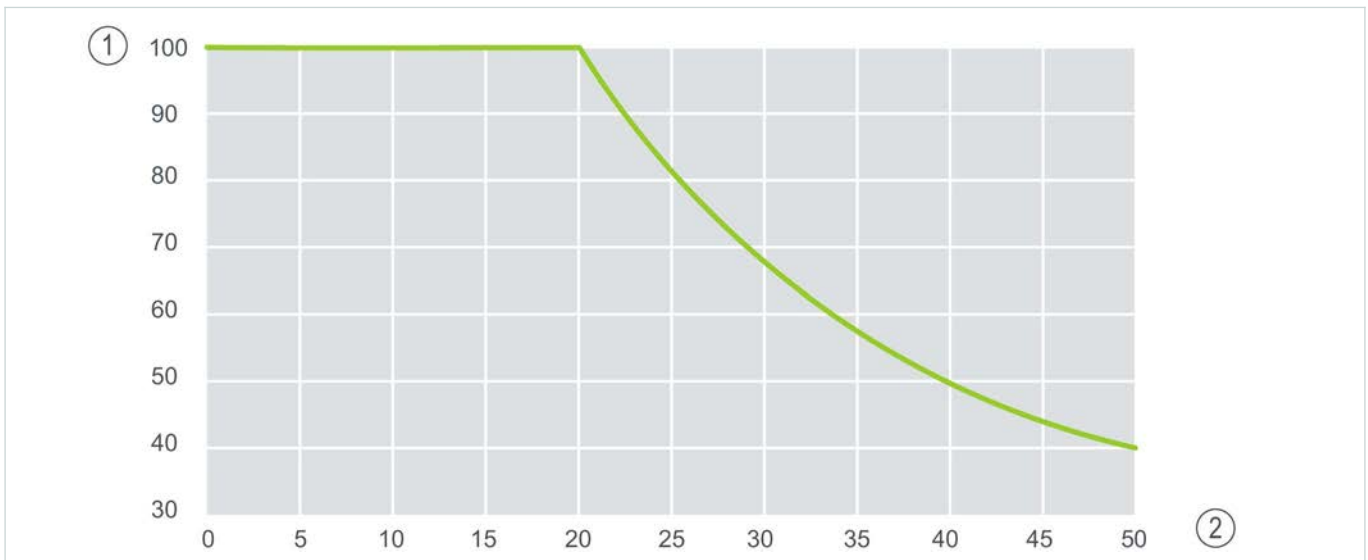


Pressure loss curve



Designation	Designation
1 Pressure loss in bar at 0 °dH, 0 °f, 0 mol/m³	2 Flow in m³/h

Continuous flow curve



Designation	Designation
1 max. Continuous flow in % at 0 °dH, 0 °f, 0 mol/m³	2 Raw water hardness in °dH

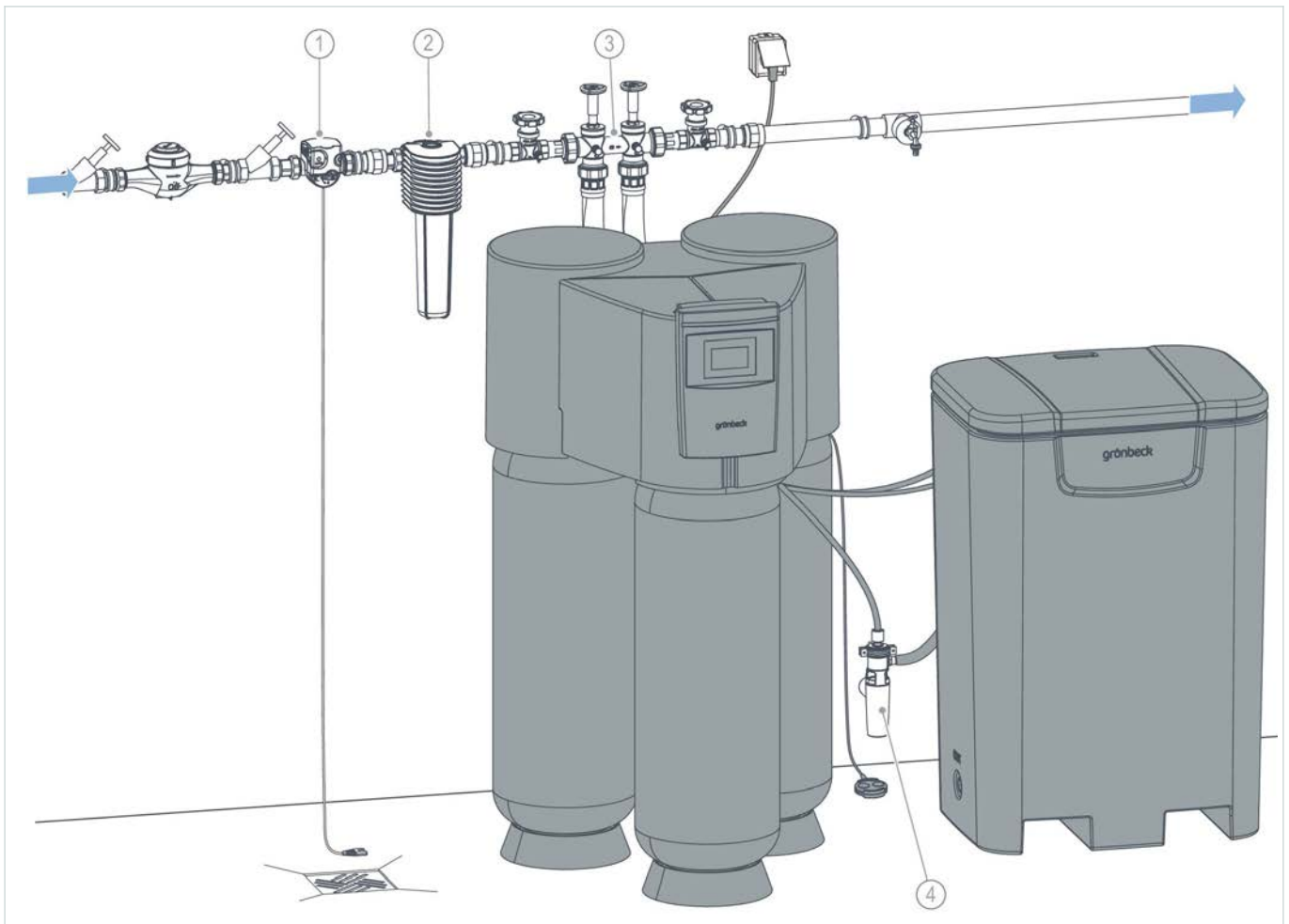
The chart shows the possible continuous flow in % subject to the raw water hardness.



Water hardness conversion table

°dH	14	16	18	20	22	24	26	28	30	32	34
°f	24,9	28,5	32,0	35,6	39,2	42,7	46,3	49,8	53,4	57,0	60,5
mol/m ³	2,49	2,85	3,20	3,56	3,92	4,27	4,63	4,98	5,34	5,70	6,05

Installation example



Designation

- 1 Safety device protectliQ
- 2 Drinking water filter BOXER

Designation

- 3 Connection kit
- 4 Drain connection DN 50 acc. to DIN EN 1717



Requirements for the installation site

Obey the local installation directives, general guidelines and technical specifications.

- Protection from frost, severe heat exposure and direct sunlight
- Protection from chemicals, dyes, solvents and their vapours
- Ambient temperature and radiation temperature in the immediate vicinity
 - ≤ 25 °C for applications in the drinking water sector
 - ≤ 40 °C for purely technical applications
- Protection from heat sources (e. g. heating systems, boilers and hot water pipes)
- Access for maintenance work (take required space into account)
- Sufficiently illuminated and ventilated
- Horizontal installation surface with sufficient load-bearing capacity to support the operating weight of the product

Water installation

- Drinking water filter installed upstream and pressure reducer, if required (e. g. fine filter BOXER)



- Floor drain or corresponding safety device with water stop function (e. g. safety device protectliQ)
- Salt water resistant lifting system in case the drain connection is located at a higher level
- Drain connection ≥ DN 50
- Shut-off valves and possibility of sampling upstream and downstream of the product
- The soft water pipe downstream of the system must be made of corrosion-resistant material or a corrosion inhibitor must be used.

Electrical installation

- Schuko socket with continuous power supply (max. 1.2 m from the control unit)
- The socket requires continuous power supply and must not be coupled with light switches, emergency heating switches or the like.

Accessories











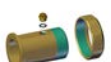

Availability may vary depending on the country.

	LB50	LB70	LB100	LB120
 <p>Connection kit softliQ:LB100/120 L260 mm Order no.: 185823 Compact valve block, built-in overflow valve, shut-off valves for hard and soft water, sample valves for raw and soft water, 2 flexible, pressure-resistant connection hoses. (For Switzerland, connection hoses are not included in the scope of delivery. Install the fixed pipework on site).</p>	–	–	✓	✓
 <p>Connection kit softliQ:LB50/70 L190 mm Order no.: 185807 Compact valve block, built-in overflow valve, shut-off valves for hard and soft water, sample valves for raw and soft water, 2 flexible, pressure-resistant connection hoses. (For Switzerland, connection hoses are not included in the scope of delivery. Install the fixed pipework on site).</p>	✓	✓	–	–



Accessories

Availability may vary depending on the country.

	LB50	LB70	LB100	LB120
 <p>Screw connection for connection block 1" Order no.: 185846 To install the filter in the pipe</p>	✓	-	-	-
 <p>Screw connection for connection block 1 1/4" Order no.: 185847 To install the filter in the pipe</p>	-	✓	-	-
 <p>Screw connection for connection block 1 1/2" Order no.: 185848 To install the filter in the pipe</p>	-	-	✓	-
 <p>Screw connection for connection block 2" Order no.: 185849 To install the filter in the pipe</p>	-	-	-	✓
 <p>Exchanger insulation softliQ:LB100/80i 3 pcs Order no.: 185000920000 Prevents condensed water formation on the exchangers</p>	-	-	✓	-
 <p>Exchanger insulation softliQ:LB120/120i 3 pcs Order no.: 185000930000 Prevents condensed water formation on the exchangers</p>	-	-	-	✓
 <p>Exchanger insulation softliQ:LB50/30i 3 pcs Order no.: 185000900000 Prevents condensed water formation on the exchangers</p>	✓	-	-	-
 <p>Exchanger insulation softliQ:LB70/50i 3 pcs Order no.: 185000910000 Prevents condensed water formation on the exchangers</p>	-	✓	-	-
 <p>Insert with injection point G 1/4 for LB100/80i/120/120i Order no.: 185000050000 For dosing in the soft water outlet of softliQ:LB</p>	-	-	✓	✓
 <p>Insert with injection point G 1/4 for softliQ:LB100/80i Order no.: 185000030000 For dosing in the soft water outlet of softliQ:LB</p>	-	-	✓	-
 <p>Insert with injection point G 1/4 for softliQ:LB120/120i Order no.: 185000040000 For dosing in the soft water outlet of softliQ:LB</p>	-	-	-	✓
 <p>Insert with injection point G 1/4 for softliQ:LB50/30i Order no.: 185000010000 For dosing in the soft water outlet of softliQ:LB</p>	✓	-	-	-



Accessories


Availability may vary depending on the country.

	LB50	LB70	LB100	LB120
 <p>Insert with injection point G ¼ for softliQ:LB70/50i Order no.: 185000020000 For dosing in the soft water outlet of softliQ:LB</p>	-	✓	-	-
 <p>Drain connection softliQ:LB DN 50 DIN EN 1717 Order no.: 185775 acc. to DIN EN 1717 including siphon</p>	✓	✓	✓	✓
 <p>Communication module DE200 Profibus Order no.: 185890 Forwards operating and alarm signals to the building management system (BMS)</p>	✓	✓	✓	✓
 <p>Parallel piping double softliQ:LB100 PVC Order no.: 185460 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	-	-	✓	-
 <p>Parallel piping double softliQ:LB100 VA Order no.: 185410 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	-	-	✓	-
 <p>Parallel piping double softliQ:LB120 PVC Order no.: 185465 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	-	-	-	✓
 <p>Parallel piping double softliQ:LB120 VA Order no.: 185415 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	-	-	-	✓
 <p>Parallel piping double softliQ:LB50 PVC Order no.: 185450 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	✓	-	-	-
 <p>Parallel piping double softliQ:LB50 VA Order no.: 185400 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	✓	-	-	-
 <p>Parallel piping double softliQ:LB70 PVC Order no.: 185455 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	-	✓	-	-
 <p>Parallel piping double softliQ:LB70 VA Order no.: 185405 For parallel piping of multiple triple water softeners with all connection components and connection kits</p>	-	✓	-	-






Accessories

Availability may vary depending on the country.



	LB50	LB70	LB100	LB120
 <p>Pedestal softliQ:LB100/120/80i/120i Order no.: 185825 Rack made of aluminium sections with adjustable feet and grating.</p>	–	–	✓	✓
 <p>Pedestal softliQ:LB50/70/30i/50i Order no.: 185820 Rack made of aluminium sections with adjustable feet and grating.</p>	✓	✓	–	–

Consumables

	LB50	LB70	LB100	LB120
 <p>Regeneration salt 25 kg sack Order no.: 127001 Regeneration salt in tablet form according to EN 973 type A for the regeneration of ion exchangers.</p>	✓	✓	✓	✓
 <p>Water test kit total hardness °dH and °f Order no.: 170187000000 For determining water hardness</p>	✓	✓	✓	✓
 <p>Water test kit for total hardness Pack of 10 pieces Order no.: 170100</p>	✓	✓	✓	✓

Recommended products


Availability may vary depending on the country.

	LB50	LB70	LB100	LB120
 <p>GENODOS DME softliQ:LB dosing system Order no.: 163000010000 For the addition of exaliQ mineral solutions in drinking water in proportion to the quantity. The water softener sends the dosing signal.</p>	✓	✓	✓	✓
 <p>Fine filter BOXER KDX 1 1/2", DN 40 Order no.: 101890000000 For the filtration of drinking water with pressure reducer and a 100 µm filter element</p>	–	–	✓	–



Recommended products

Availability may vary depending on the country.

	LB50	LB70	LB100	LB120
 <p>Fine filter BOXER KDX 2", DN 50 Order no.: 101895000000 For the filtration of drinking water with pressure re- ducer and a 100 µm filter element</p>	-	-	-	✓
 <p>Fine filter BOXER KDX DN 25 Order no.: 101820 For the filtration of drinking water with pressure re- ducer and a 100 µm filter element</p>	✓	-	-	-
 <p>Fine filter BOXER KDX DN 32 Order no.: 101825 For the filtration of drinking water with pressure re- ducer and a 100 µm filter element</p>	-	✓	-	-

