

EZ BOOST SYSTEM

Introduction

There are many applications within water supply where it is necessary to increase the system pressure. The Grundfos EZ Boost system is the optimum solution for applications requiring:

- Sealless pumps
- Quiet operation and/or
- Maintenance-free operation.

The EZ Boost system offers the following features:

- Dry-running protection
- High efficiency of pump and motor
- Excellent wear resistance
- Soft starter
- Over voltage and under voltage protection
- Overload protection
- Over temperature protection.
- Variable speed
- Electronic control and communication.

Applications

- Pressure boosting.
- Water treatment.

Pumped liquids

Thin, non-explosive liquids not containing abrasive particles or fibers. The liquid must not be able to attack the pump materials chemically or mechanically.

Should the density and/or viscosity of the pumped liquid exceed the density and/or viscosity of water, please contact Grundfos.

BMQE Pump

The pumps used for The Grundfos EZ Boost system are modified SQE submersible pumps. The EZ Boost BMQE pump is an SQE pump with an MSE 3 motor. Pump and motor are centered in the 4" stainless steel sleeve.

BMQE pumps are suitable for both continuous and intermittent operation for a variety of pressure boosting applications.

BMQE Motor

The MSE 3 motors are based on state-of-the-art technology within permanent magnets (PM motor), which accounts for the high motor efficiencies. In addition, the motors have a built-in electronic unit with a frequency converter for variable frequency and soft starting.

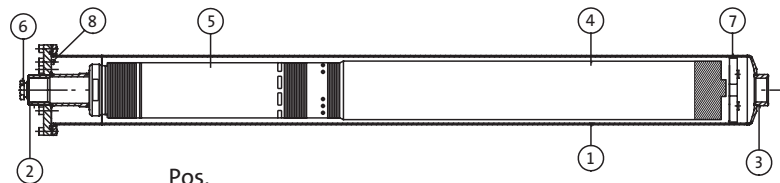
The MSE 3 motors features high efficiency within a wide load range. The high and flat efficiency curve of the PM motor enables the same motor to cover a wide power range as opposed to conventional AC motors. For BMQE pumps, this means fewer motor variants.

EZ Boost Controller

The BMQE pump features variable speed which is offered through frequency control via the EZ Boost controller. As a consequence, the pump can be set to operate in any duty point in the range between the minimum and maximum performance curves of the pump. Each BMQE pump must be connected to its own EZ Boost controller.

It is also possible to operate the BMQE without an EZ Boost controller, though the features offered will be fewer.

BMQE Pump Sectional Drawing



Pos.

- | | |
|-------------------------|---------------------|
| 1. Sleeve | 5. SQE pump |
| 2. Discharge connection | 6. Cable entry |
| 3. Suction connection | 7. Centering device |
| 4. MSE 3 motor | 8. Air vent screw |

Operating conditions

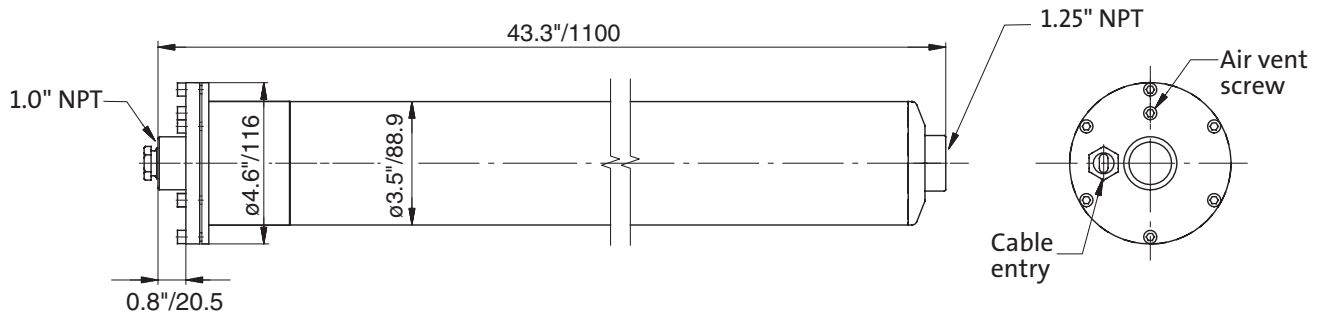
- | | |
|-----------------------|--|
| Flow: | Max. 39 US GPM (8.9 m ³ /h) |
| Head: | Max. 300 ft (91.4 m) |
| Temperature: | Max. 95°F (35°C) |
| Operating pressure: | Max. 347 PSI (23 bar) |
| Inlet pressure: | Min. 8 PSI (0.55 bar) |
| Sound-pressure level: | The sound pressure level of the BMQE is lower than 74 db[A] at a distance of 3 feet (1 meter). |

It is recommended by Grundfos that the pump be installed with sound and vibration dampening equipment such as flexible piping adapters and anti-vibration mounting. The pump should not be mounted in or adjacent to living quarters. The pump can also be wrapped with sound-proofing insulation to reduce noise (see page 16, EZ Boost System Diagram).

Weights and electrical data

Model	Material number	Max. motor output [P2]		Rated Voltage	Rated current [A]	Locked rotor current [A]	Shipping weight [lb (kg)]	Shipping volume [ft³ (m³)]
		hp	kW					
15 BMQE 05A-110	91128524	0.845	0.63	110-115	9.2	11.1	26 (11.8)	0.9 (0.025)
22 BMQE 05A-80	91128527	0.845	0.63	110-115	7.8	11.1	26 (11.8)	
15 BMQE 05A-110	91128525	0.845	0.63	200-240	4.6	5.0	26 (11.8)	
15 BMQE 07B-180	91128526	1.408	1.05	200-240	7.1	8.0	29 (13.2)	
22 BMQE 05A-80	91128528	0.845	0.63	200-240	3.9	5.0	26 (11.8)	
22 BMQE 05B-120	91128529	1.408	1.05	200-240	5.6	8.0	29 (13.2)	
22 BMQE 10C-190	91128530	2.320	1.73	200-240	9.9	11.1	31 (14.1)	
30 BMQE 05B-90	91128531	1.408	1.05	200-240	6.0	8.0	31 (14.1)	
30 BMQE 10C-130	91128533	2.320	1.73	200-240	9.5	11.1	31 (14.1)	

Dimensional sketch [in/mm]



Technical data - BMQE pump

Main power supply to pump	1 x 200-240 V –10%/+6%, 60 Hz 1 x 110-115 V –10%/+6%, 60 Hz
Starting	Soft starting.
Stopping	Soft stopping when stopped by the EZ Boost controller
Run-up time	Maximum: 2 seconds. No limitation to the number of starts/stops per hour.
Motor protection	Built into the pump. Protection against: Dry running Over voltage and under voltage 230 V cuts out at < 150 V and > 280 V 115 V cuts out at < 75 V and > 150 V Overload Over temperature
Sound pressure level	The sound pressure level is < 74 db[A] at a distance of 3 feet (1 meter). It is recommended by Grundfos that the pump be installed with sound and vibration dampening equipment such as; flexible piping adapters and anti-vibration mounting. The pump should not be mounted in or adjacent to living quarters. The pump can also be wrapped with sound proofing insulation to reduce noise. (See page 16, EZ Boost System Diagram.)
Reset function	BMQE pumps can be reset via EZ Boost controller.
Power factor	PF = 1.
Operation via generator	It is recommended that the generator output is equal to the motor input power P1 [kW] plus 50%; min. P1 +10%, however.
Pipe connection	1.25" NPT inlet / 1" NPT discharge.
Strainer	Holes of the strainer: ø0.09" (2.3 mm)
Marking	UL Listed, CE (SQE Pump with MSE 3 motor only)

EZ Boost Controller

The EZ Boost controller is a control and communication unit especially developed for the BMQE booster pumps in constant pressure applications.

The EZ Boost controller provides:

- Full control of the BMQE pumps
- Two-way communication with the BMQE pumps
- Possibility of adjusting the pressure
- Alarm indication (LED) when service is needed
- The possibility of starting, stopping and resetting the pump simply by means of a push-button

The EZ Boost controller communicates with the pump via power line communication, meaning that no extra cables are required between the EZ Boost controller and the BMQE pump.

The EZ Boost controller features the following indications (see drawing below):

1. Flow indicator
2. System pressure setting
3. System ON/OFF
4. Button lock indicator
5. Dry-running indicator
6. Service needed in case of:
 - No contact to pump
 - Over voltage
 - Under voltage
 - Speed reduction
 - Over temperature
 - Overload
 - Sensor defective

The EZ Boost controller incorporates external signal input for pressure sensor and a pump status relay for use with devices dependant on pump status.

Voltage	1 x 100-240 V –10%/+6%, 60 Hz
Power consumption	5 W
Current consumption	Maximum 130 mA
Enclosure class	NEMA 3R (IP 55)
Ambient temperature	In operation: -22 to +122°F (-30 to +50°C) during storage: -22 to +140°F (-30 to +60°C)
Relative air humidity	95%
Pump cable	Maximum length between EZ Boost controller and pump: 650 ft (198 m).
Back-up fuse	Maximum: 16 A
Marking	UL Listed, CE
Load	Max. 100 mA

