

### Product Code: GP02

The Son-Mak Grout Pump has a double-acting piston pump, enabling to pumping most grout mixes applied in combination with sealing and reinforcement work in rock and overload formations.

The Pumps featuring to perform grouting (0.5-1mm) mixed sand.

It is capable of pumping most grout mixtures applied for sealing and reinforcement of rock, soil and concrete. The replaceable cylinders could change the pressure/flow configuration, widening the pump's application field.

Son-Mak Grout Pump is able to adjust pre-set to stop at two different pressure levels.

This is especially useful in the course of using "tubea-manchette" or other sequential grouting methods.

Son-Mak Grout Pump presents to adjust pressure and flow independently and step-less in the course of the whole grouting operation.

### Advantages

- Easy of use,
- Easy to demontage of the parts and montage,
- To gain high pressure and flow,
- Easy to clean of the injection,
- Being economical compared to other type of pumps,
- To be driven by Electric Motor and Diesel Engine.

### Applications

- Civil Engineering - dam foundations, tunnels, mining, soil nails, tiebacks, earth anchors, cable and rock bolts
- Structural - building and bridge restoration, foundation stabilization, foundation raising, soil compaction grouting; soil and rock grouting
- Construction - pavement under sealing, slab jacking and slab raising
- Marine - underwater foundations, piers, breakers, shoreline foundations
- Mining - tunnel lining, contact grouting, shaft waterproofing
- Utilities - encasements, waterproofing, slope line grouting.
- Geotechnical - deep well casing, monitor wells, well sealing and abandonment.



### HYDRAULIC REQUIREMENTS

To get the performance according to the capacities set the hydraulics requirements are;

Hydraulic Flow	0 - 65 l/min. (17 gal/min.)
Hydraulic Pressure	215 Bar (3118 psi)

### Cylinder - Diameter

Low Pressure, High Flow	150 mm - (6 in)
Medium Pressure, Medium Flow	110 mm - (4-1/3 in)
High Pressure, Low Flow	80 mm - (3-1/6 in)

### EP 150 GROUT PUMP

#### Ø 80 mm (3-1/6 in)

Grout Flow	0 - 55 l/min. (15 gal/min.)
2 Grout Pressure Setting Levels	Low pressure: 2 - 10 Bar (29 - 145 psi)
	High pressure: 10 - 190 Bar (145 - 2755 psi)
Electric Motor	22 kW - 1450 rpm/min.

#### Ø 110 mm (4-1/3 in)

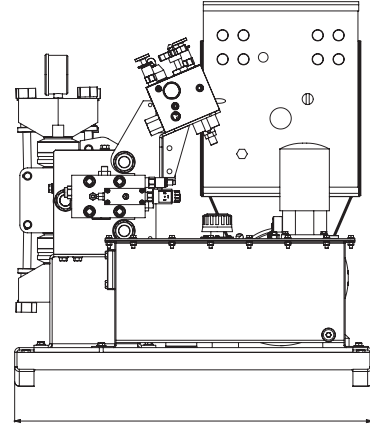
Grout Flow	0 - 110 l/min. (29 gal/min.)
2 Grout Pressure Setting Levels	Low pressure: 2 - 10 Bar (29 - 145 psi)
	High pressure: 10 - 100 Bar (145 - 2755 psi)
Electric Motor	22 kW - 1450 rpm/min.
	15 kW - 1450 rpm/min.
	7.5 kW - 1450 rpm/min.

#### Ø 150 mm (6 in)

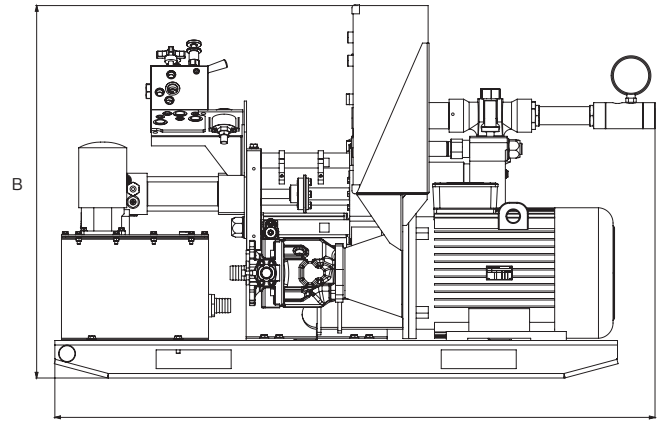
Grout Flow	0 - 195 l/min. (51 gal/min.)
2 Grout Pressure Setting Levels	Low pressure: 2 - 10 Bar (29 - 145 psi)
	High pressure: 10 - 55 Bar (145 - 797 psi)
Electric Motor	22 kW - 1450 rpm/min.
	15 kW - 1450 rpm/min.

### DIMENSIONS

A	925 mm (36.4 in)
B	993 mm (39 in)
C	1600 mm (63 in)



A



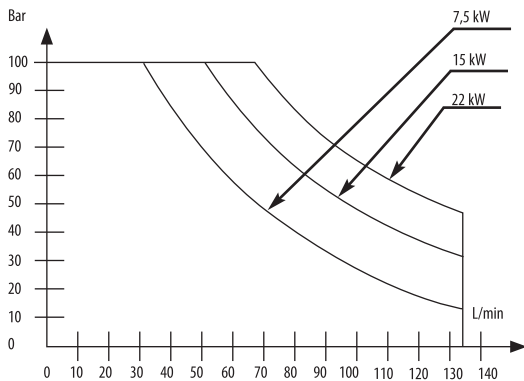
B

C

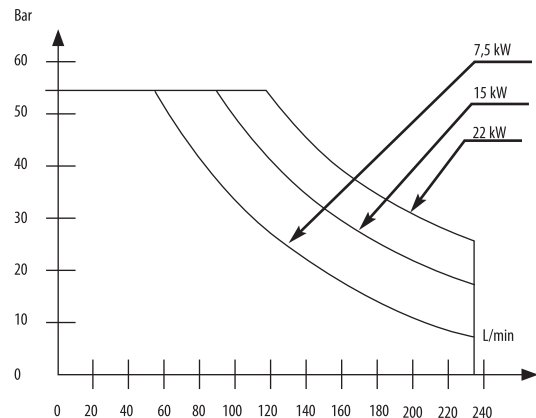
### WEIGHT

EP150 Grout Pump	500 kg / 1100 lb
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### GROUT PUMP CAPACITY GRAPHIC



Ø 110 mm (4 1/3 in)



Ø 150 mm (3 1/6 in)

### Product Code: GP02MS

EPM-150 Mobile Grout Set has a combination of Agitator (Sonag®) and Grout pump (EP150®) together in one plant. It is generally applied for the construction of highway, railway, hydropower, also for mining and other ground underground construction.

EPM-150 Mobile Grout Set enables the mixture prepared in the Grouting Plant to be injected into tunnel and the drilling wells on the drilled fields. It is also used for fast mobilization between locations.

With its compact size and easy to operate, it also keeps a small space.

### Advantages

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- Easy to demontage of the parts and montage,
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- Being economical compared to other type of pumps,
- To be driven by Electric Motor and Diesel Engine.

### Applications

- Civil Engineering - dam foundations, tunnels, mining, soil nails, tiebacks, earth anchors, cable and rock bolts
- Structural - building and bridge restoration, foundation stabilization, foundation raising, soil compaction grouting; soil & rock grouting
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## HYDRAULIC REQUIREMENTS

To get the performance according to the capacities set the hydraulics requirements are;

Hydraulic Flow	0 - 65 l/min. (17 gal/min.)
Hydraulic Pressure	215 Bar (3118 psi)

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Low Pressure, High Flow	150 mm - (6 in)
Medium Pressure, Medium Flow	110 mm - (4-1/3 in)
High Pressure, Low Flow	80 mm - (3-1/6 in)

## EP 150 GROUT PUMP

### Ø 80 mm (3-1/6 in)

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	High pressure: 10 - 190 Bar (145 - 2755 psi)
Electric Motor	22 kW - 1450 rpm/min.

### Ø 110 mm (4-1/3 in)

Grout Flow	0 - 110 l/min. (29 gal/min.)
2 Grout Pressure Setting Levels	Low pressure: 2 - 10 Bar (29 - 145 psi)
	High pressure: 10 - 100 Bar (145 - 2755 psi)
Electric Motor	22 kW - 1450 rpm/min.
	15 kW - 1450 rpm/min.
	7.5 kW - 1450 rpm/min.

### Ø 150 mm (6 in)

Grout Flow	0 - 195 l/min. (51 gal/min.)
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Electric Motor	22 kW - 1450 rpm/min.
	15 kW - 1450 rpm/min.

## SONAG AGITATOR UNIT

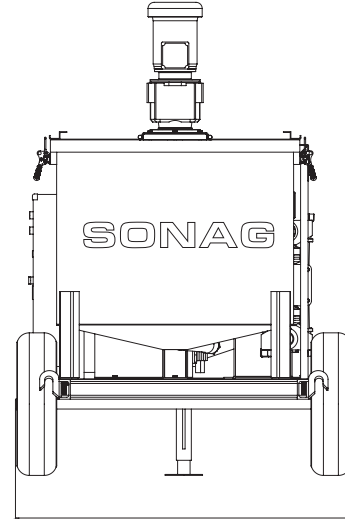
Volume	500 kg/ 1100 lb
	800 l/min 176 gal/min. (Optional)
Rotation speed of agitator shaft	65 rpm/min

## WEIGHT

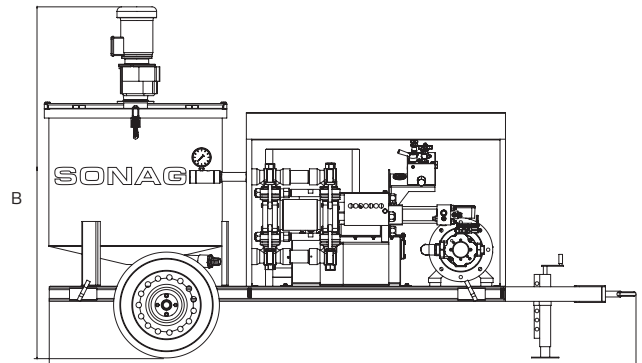
EP150 Mobil Grout Pump	850 kg./ 1870 lb
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## DIMENSIONS

A	1350 mm (53.15 in)
B	1925 mm (78 in)
C	3215 mm (126.5 in)



A



C

### Product Code: GPS02

GPS-150 Grouting Set has a combination of Mixer (Somix®) Agitator (Sonag®) and Grout pump (EP-150®) together in one plant. It is generally applied for the construction of highway, railway, hydropower, also for mining and other ground underground construction.

High-speed vortex mixer ensures mix quickly and evenly. Water, cement and other materials are quickly mixed into a homogeneous slurry. Then the mixed slurry was delivered to the Agitator (Sonag®). Grout pump injects from the (Sonag®). This ensures a continuous mixing and grouting operations.

The grouting pump is hydraulic drive. Grouting pressure and displacement is stepless adjustable. Compact size and it is easy to operate. It also takes up a small space.

### Advantages

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- Easy to demontage of the parts and montage,
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- Easy to clean of the injection,
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- To be driven by Electric Motor and Diesel Engine.

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To get the performance according to the capacities set the hydraulics requirements are;

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Electric Motor	22 kW - 1450 rpm/min.

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Electric Motor	22 kW - 1450 rpm/min.
	15 kW - 1450 rpm/min.

## SOMIX MIXER UNIT

Volume	250 l/min 55 gal/min Standard
	500 l/min 110 gal/min Optional
Rotation speed of mixer shaft	1500 rpm

## SONAG AGITATOR UNIT

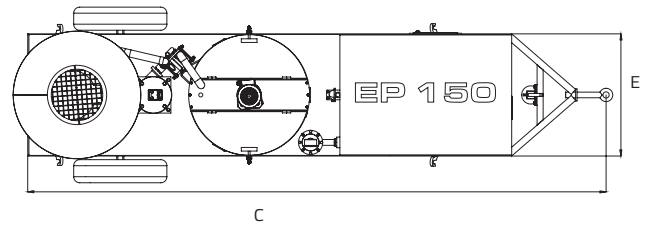
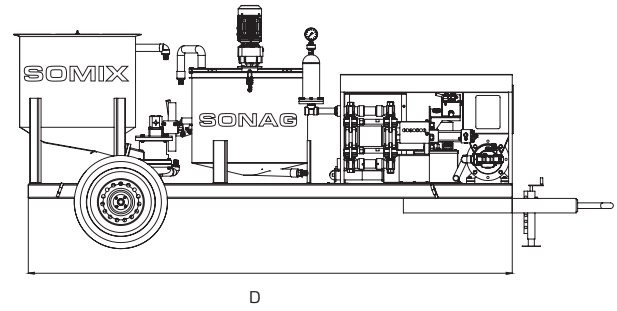
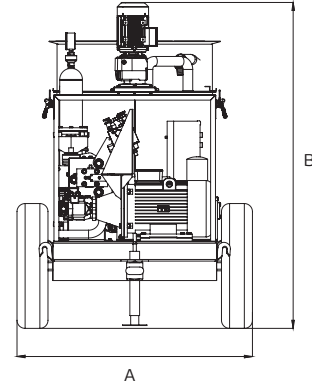
Volume	500 kg/ 1100 lb
	1000 l/min 264 gal/min. Optional
Rotation speed of agitator shaft	65 rpm/min

## WEIGHT

GPS150 Grouting Set	1550 kg/ 3417 lb
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## DIMENSIONS

A	1550 mm (61 in)
B	2090 mm (82 in)
C	4700 mm (185 in)
D	4000 mm (157.5 in)
E	1010 mm (40 in)



### Product Code: AGP-01 Capacity: 10m<sup>3</sup> / hour

Grouting is the process of injecting under pressure a fluid material into rock, soil or artificial constructions in order to stabilize, strengthen and seal the structure.

The Grouting Equipment consists of;

- 1 x SOMIX 500 Mixer Unit,
- 1 x SONAG 1000 Agitator Unit
- 1 x EP-150 Grout Pump (cylinder Ø 150mm - 5.9 in)
- 1 x Compressor
- 1 x Water Dosing Pump
- 1 x Chemical Dosing Pump
- 1 x Bentonite Dosing Pump
- 1 x Washing Pump
- 1 Recorder (Optional)
- Full Automatic Control Panel

The whole system can be mounted on the skid frame or in the container.



### Application

- Easy of use,
- Easy to demontage of the parts and montage,
- To gain high pressure and flow,
- Easy to clean of the injection,
- Being economical compared to other type of pumps,
- To be driven by Electric Motor and Diesel Engine.

### Advantages

- Civil Engineering - dam foundations, tunnels, mining, soil nails, tiebacks, earth anchors, cable and rock bolts
- Structural - building and bridge restoration, foundation stabilization, foundation raising, soil compaction grouting; soil & rock grouting
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- Utilities - encasements, waterproofing, slope line grouting.
- Geotechnical - deep well casing, monitor wells, well sealing and abandonment.



### SOMIX MIXER UNIT

- The SOMIX 500 is a high speed mixer and produces a homogeneous mixture. The mixing unit consists of a tank and gearbox.
- SOMIX 500 Mixer Unit weighs highly sensitive by 3 load cell assembled on the chassis.
- The mixer unit is directly connected to the electric motor via a spindle and additionally a reducer is mounted for better mixing of the particles.
- A Pneumatic valve is placed at the outlet of the Mixer Unit in order to discharge the prepared mixture into the Agigator Unit.
- Outputs of Water Dosing, Chemical Dosing and Bentonite Dosing pumps are connected to the Mixer Unit.
- The dosing pumps, pumping the liquids, which they draw, to the Mixer Tank by pneumatic valves according to the order of liquid intake formed by the injection mixture.

Mixer Electrical Motor	75 kW (10 hp)
Gearbox Output Circuit	607 rpm/min
Tank Capacity	500 lt

### SONAG AGITATOR UNIT

- The mixture, which is prepared in the mixer, is transferred into the agitator unit between the mixer and the grout pump, and following to this, the injection mortar ensures that it is kept ready for continuous injection.
- The Injection and mixing can be performed at the same time in the tank. The tank circulates continuously to ensure that the quality of the mortar is not lost.
- The low speed rotating mixing blades prevent the injection mortar from settling and eliminates the formation of air bubbles.

Agitator Electrical Motor	75 kW (10 hp)
Gearbox Output Circuit	65 rpm/min
Tank Capacity	1000 lt

### EP 150 GROUT PUMP

- SON-MAK - EP Model Grout Pumps have different work pressure and flow according to injection types. The Pumps have features to carry out grouting (0,5 - 1 mm) mixed sand.
- The piston pumps are used according to the necessity of the work and the situation. The piston pumps are sensitive regarding flow and pressure control compared to the other types pumps.
- SON-MAK - EP Grout Pumps can be single or double cylinders and they are manufactured in different flows and pressures. The movement of the pistons are driven by electric motor and diesel engine.
- With respect to occupational safety and health and as its size are small, the Grout Pumps worked with diesel engine and electric motor are preferred to carry out grouting in enclosed areas such as tunnel and shaft.

#### Ø 150 mm (6 in)

Grout Flow	0 - 195 l/min. (51 gal/min.)
2 Grout Pressure Setting Levels	Low pressure: 2 - 10 Bar (29 - 145 psi)
	High pressure: 10 - 55 Bar (145 - 797 psi)
Electric Motor	22 kW - 1450 rev/min.
	15 kW - 1450 rev/min.

### AUTOMATIC CONTROL PANEL

- Mixing ratios can be prepared by 10" PLC touch screen on the panel the different mixing formulas can be prepared and also the program can be called.
- The prepared recipes are weighed in the mixer tank according to the formulas prepared previously. Step by step the water is transferred into the tank by means of the using the water dosing pump, following to this the other liquids such as bentonite, chemical, etc. transferred to the mixer tank. After the liquid substances are transferred, the cement is transferred from the cement silo by means of auger. Cement transfer is only possible if there is water in the mixer tank.
- All these operations are shown on the PLC screen. Grout Plant can be operated manually or automatically and records of all operations can be displayed daily or weekly on the PLC screen. And also all the Information can be taken from the screen with the USB disk.

### OTHER EQUIPMENTS

Water Dosing Pump	SLG2" 3 hp-380V
Chemical Dosing Pump	SLG1" 0,5 hp-220V
Bentonite Dosing Pump	SLG2" 3 hp-380V
Washing Pump	SLG1" 0,5 hp-220V
Compressor	100 lt/8bar

### RECORDER (OPTIONAL)

- The Grout Plant can optionally be equipped with pressure and flow recording system.
- With the flowmeter and pressure gauge at the output of the grout pump, the data is transferred to the PLC display.
- These obtained data can be retrieved via USB disk.



### Product Code: AGP-02 Capacity: 20m<sup>3</sup> / hour

Grouting is the process of injecting under pressure a fluid material into rock, soil or artificial constructions in order to stabilize, strengthen and seal the structure.

The Grouting Equipment consists of;

- 1 x SOMIX 500 Mixer Unit,
- 2 x SONAG 1000 Agitator Unit
- 2x EP-150 Grout Pump (cylinder Ø 150mm - 5.9 in)
- 1 x Compressor
- 1 x Water Dosing Pump
- 1 x Chemical Dosing Pump
- 1 x Bentonite Dosing Pump
- 1 x Washing Pump
- 1 Recorder (Optional)
- Full Automatic Control Panel

The whole system can be mounted on the skid frame or in the container.



### Application

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- Outputs of Water Dosing, Chemical Dosing and Bentonite Dosing pumps are connected to the Mixer Unit.
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Mixer Electrical Motor	75 kW (10 hp)
Gearbox Output Circuit	607 rpm/min
Tank Capacity	500 lt

### SONAG AGITATOR UNIT

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- The Injection and mixing can be performed at the same time in the tank. The tank circulates continuously to ensure that the quality of the mortar is not lost.
- The low speed rotating mixing blades prevent the injection mortar from settling and eliminates the formation of air bubbles.

Agitator Electrical Motor	2.2 kW (3 hp)
Gearbox Output Circuit	65 rpm/min
Tank Capacity	1000 lt

### EP 150 GROUT PUMP

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- The piston pumps are used according to the necessity of the work and the situation. The piston pumps are sensitive regarding flow and pressure control compared to the other types pumps.
- SON-MAK - EP Grout Pumps can be single or double cylinders and they are manufactured in different flows and pressures. The movement of the pistons are driven by electrical, diesel engine and diesel motor.
- With respect to occupational safety and health and as its size are small, the Grout Pumps worked with diesel engine and electrical motor are preferred to carry out grouting in enclosed areas such as tunnel and shaft.

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- The prepared recipes are weighed in the mixer tank according to the formulas prepared previously. Step by step the water is transferred into the tank by means of the using the water dosing pump, following to this the other liquids such as bentonite, chemical, etc. transferred to the mixer tank. After the liquid substances are transferred, the cement is transferred from the cement silo by means of auger. Cement transfer is only possible if there is water in the mixer tank.
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