Obermann Grouting System
Dosing - Grouting - Monitoring

Obermann Grouting Equipment
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Measuring, Recording/Evaluating, Controlling

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- Recording & Evaluation Systems
- Remote Controls

Accessories
- Augers
- Hoses

Please Note:

*Selected Obermann equipment is also available for rent.*
Overview

Grouting Systems

Available Models
This catalogue shows the most common units. Please inquire for special configuration requirements.

Configuration
All grouting stations are available with Diesel/Gas engines or as Electric units. Generally they can be configured for manual or fully automatic operation. Plunger outlet valves are either ball valves or hydraulic operated.

Applications
All grout stations and pumps are suitable for anchor grouting and post-grouting. The decision on which pump to use depends on the pressure and volume required for the job.

High pressure pumps are designed to use for Jet Grouting, and high volume mixers could be used for Jet Grouting or Soil Mixing jobs.

Available Features
• On all grouting systems, pressure and flow can be controlled and recorded for quality control.
• Remote control and recording systems are available.
• Log systems and evaluation software is available for quality control.

Service
Con-Tech Systems Ltd. Is the distributor for Obermann Equipment And maintains the largest Obermann Inventory in North America

Financing options available.
Grouting unit VS 63-20-...electric drive

Application: Grouting and post-grouting of anchors and mini-pilings
2 pc. combined mixing and storage tank.

Technical Data

<table>
<thead>
<tr>
<th></th>
<th>VS 63-20-F/E</th>
<th>VS 63-20-G/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. pump quantity 1)</td>
<td>54 l / 14.28 US gal</td>
<td>54 l / 14.28 US gal</td>
</tr>
<tr>
<td>Max. pump pressure 1)</td>
<td>80 bar / 1137.6 psi</td>
<td>80 bar / 1137.6 psi</td>
</tr>
<tr>
<td>Pump valves automatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relief valve hydraulically operated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special suitability for viscous suspensions and low pump speeds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electro hydraulic drive

| Drive power in kW       | 11.0              | 11.0              |
| Electric connection type| CEE 32 A / 5P      | CEE 32 A / 5P     |
| Voltage and frequency in Volt / Hz | 480 / 60 | 480 / 60 |
| “C”-coupling            | "C”-coupling      | "C”-coupling      |
| Water connection        | BSP 2”            | BSP 2”            |
| Pump power connection   | BSP ¾ / RD 32     | BSP ¾ / RD 32     |
| Pump circulation connection | BSP ¾ / RD 32 | BSP ¾ / RD 32 |
| Dimensions L x W x H in mm | 2220 x 790 x 2000 2) / 2120 3) | 2220 x 790 x 2000 2) / 2120 3) |
| Weight                  | 660 kg / 1452 lbs | 680 kg / 1496 lbs |

1) Infinitely variable – both max. performances at the same time are not possible
2) Performance: typical pump performance, mentioned with water
3) lifting eye unscrewed
4) lifting eye fixed
5) 1 bar = 1 x 10^5 N/ m²

Technical data as of March 2005, subject to change
Grouting unit VS 63-20-D

Application: Grouting and post-grouting of anchors and mini-pilings
2 pc. combined mixing and storage tank.

Technical Data

Drive
: Diesel-hydraulically
: 18.7 kW

Connections
- Water
  : "C"-coupling, DN 50
- Grouting pump pressure side
  : G ¾" / RD 32

Dimensions (L, W, H)
: 2450 x 820² / 880³ x 2065 mm

Weight
: approx. 890 kg

Performance

Each mixer (2 pc.)
With cement bags
: max. 3.4 m³/h (899.5 US gal/h)

Grouting pump
Pressure
: max. 100 bar ¹) (1422 psi)
Quantity
: max. 65l/min ¹) (17 US gal/min)

¹) Infinitely variable – both max. performances at the same time are not possible
Performance: typical pump performance, mentioned with water
²) feed hopper unscrewed
³) feed hopper eye fixed
1 bar = 1 x 10⁵ N/m²

Technical data as of Jan. 2008, subject to change
# Technical Data

<table>
<thead>
<tr>
<th>Type</th>
<th>VS 63-20-F/G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. pump quantity 1)</td>
<td>54 l / 14.28 US gal</td>
</tr>
<tr>
<td>Max. pump pressure 1)</td>
<td>80 bar / 1137.6 psi</td>
</tr>
<tr>
<td>Pump valves automatic</td>
<td></td>
</tr>
<tr>
<td>Drive power in kW</td>
<td>11.8</td>
</tr>
<tr>
<td>Water connection</td>
<td>&quot;C&quot;-coupling</td>
</tr>
<tr>
<td>Pump power connection</td>
<td>BSP 2&quot;</td>
</tr>
<tr>
<td>Pump circulation connection</td>
<td>BSP ¾ / RD 32</td>
</tr>
<tr>
<td>Dimensions L x W x H in mm</td>
<td>2220 x 790 x 2000 2) / 2120 3)</td>
</tr>
<tr>
<td>in inch</td>
<td>87.4 x 31.1 x 78.7 2) / 83.5 3)</td>
</tr>
<tr>
<td>Weight</td>
<td>660 kg / 1452 lbs</td>
</tr>
</tbody>
</table>

1) Infinitely variable – both max. performances at the same time are not possible
   Performance typical pump performance, mentioned with water
2) lifting eye unscrewed
3) lifting eye fixed

1 bar = 1 x 10^5 N/m²

Technical data as of March 2005, subject to change
**Compact Grouting Units — electrical driven**

Up to 170 l/min and 100 bar (44.97 US gal/min and 1422 psi)

Incl. water dosage tank, mixer and grouting pump

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
<th>VS 110-1-E</th>
<th>VS 121-E</th>
<th>VS 110-2-E</th>
<th>AVS 110-2-E/W</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>305-1/E</td>
<td>306-1/E</td>
<td>305-2/E</td>
<td>306-2-E/W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feature</th>
<th>VS 110-1-E</th>
<th>VS 121-E</th>
<th>VS 110-2-E</th>
<th>AVS 110-2-E/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully automatic operation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Fully automatic operation §</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Capacity at 20 cycles/h</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>4 m³/h (1058 US gal/h)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Manually operated</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Pneumatically operated</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Capacity at 26 cycles/h</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>5.2 m³/h (1376 US gal/h)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Max. delivery rate</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>170 l/min (44.65 US gal/min)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Max. delivery pressure:</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>100 bar (1422 psi)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Mixing tank working capacity</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>200 l (52.91 US gal)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Water dosage tank working capacity</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>180 l (47.81 US gal)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Holding tank working capacity</td>
<td>450 l (119.04 US gal)</td>
<td>450 l (119.04 US gal)</td>
<td>450 l (119.04 US gal)</td>
<td>550 l (145.50 US gal)</td>
</tr>
<tr>
<td>2-plunger pump, double acting</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Pump valves automatic</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Total power requirement</td>
<td>19.6 kW</td>
<td>17.6 kW</td>
<td>19 kW</td>
<td>22 kW</td>
</tr>
<tr>
<td>400 V</td>
<td></td>
<td></td>
<td>400 V</td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grouting with</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>- Cement grout</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Flushing pump for drilling</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Especially used for grout-anchor works</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

1) Charging with bag cement
2) Cement charging with FS-DK 160-2.6
   Solid agent dosage volumetrical
   (Counting of charging auger rotation speed)
3) Proportioning auger FS-DKB 160-2.6 necessary
4) Solid agent gravimetrical
**Compact Grouting Units — Diesel hydraulical drive**

Up to 170 l/min and 100 bar (44.97 US gal/min and 1422 psi)

Incl. water dosage tank, mixer and grouting pump

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
<th>VS 110-1-D</th>
<th>VS 110-1-D/FS</th>
<th>VS 110-2-D/FS</th>
<th>AVS 110-2-D/W</th>
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<tbody>
<tr>
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<td>305-1-D</td>
<td>305-1-DFS</td>
<td>305-2-DFS</td>
<td>306-2-D/W</td>
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<table>
<thead>
<tr>
<th>Feature</th>
<th>VS 110-1-D</th>
<th>VS 110-1-D/FS</th>
<th>VS 110-2-D/FS</th>
<th>AVS 110-2-D/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic drive for cement auger</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Full automatic</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Valves pneumatically operated</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Performance of mixer at 20 cycles/h</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>4.0 m³/h (1056 US gal/h)</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Performance of mixer at 26 cycles/h</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>5.2 m³/h (1376 US gal/h)</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Max. delivery rate</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>170 l/min (44.97 US gal/min)</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Max. delivery pressure</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>100 bar (1422 psi)</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Mixing tank working capacity</td>
<td>200 l (52.9 US gal)</td>
<td>200 l (52.9 US gal)</td>
<td>220 l (58.2 US gal)</td>
<td>300 l (79.4 US gal)</td>
</tr>
<tr>
<td>Water dosage tank working capacity</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>180 l (47.61 US gal)</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Storage tank 350 l (145.50 US gal)</td>
<td>450 l (119.05 US gal)</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>2-plunger pump double acting</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Pump valves automatic</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Total power installed</td>
<td>24.0 kW</td>
<td>29.0 kW</td>
<td>29.0 kW</td>
<td>29.0 kW</td>
</tr>
<tr>
<td>Diesel drive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Mixing/ grouting/ filling with</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>- cement suspensions</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Flushing pump for drilling</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Especially used for grout-anchor works</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

1) Charging with bagged cement
2) Cement charging with FS-DK 160-2.6
3) Solid agent dosage volumetrical
   (Counting of changing auger rotation speed)
4) Solid agent gravimetrical

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**Grouting System**
**Technical Datasheet No. 305-1-DFS/E**

**Grouting Unit VS 110-1-D/FS**

Application: grouting of anchors and micropiles incl. postgrouting, flushing pump at drill works, manual operation, cement dosing by proportioning auger.

**Technical Data**

<table>
<thead>
<tr>
<th>Drive</th>
<th>incl. 4 kW for proportioning auger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>: Diesel-hydraulic</td>
</tr>
<tr>
<td></td>
<td>: 29.0 kW / 2.900 rpm</td>
</tr>
</tbody>
</table>

**Connections**

- Water feed
- Conveying pump pressure
- Conveying pump circulation
- Hydraulic drive to the proportioning auger (4 kW)

<table>
<thead>
<tr>
<th>Connections</th>
<th>R 2°</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G 1°</td>
</tr>
<tr>
<td></td>
<td>G 1°</td>
</tr>
</tbody>
</table>

: 2 x hydraulic-quick coupling

**Dimensions (L, W, H)**

: 2150 x 1650 x 2100 (mm)

: approx. 2200 kg

**Performance**

**Mixer**

- with cement bags
- with proportioning auger

: max. 4.2 m³/h (1111.11 gal/h)

: max. 5.7 m³/h (1507.93 gal/h)

**Grouting pump**

- Pressure
- Quantity

: max. 100 bar \(^1\) (1422 psi)

: max. 170 l/min \(^1\) (44.97 gal/h)

\(^1\) indefinitely variable pump performance, stated with water

1 bar = \(1 \times 10^5 \text{ N/m}^2\)

Technical data: May 2004. Subject to change.
Grouting unit VS 121-E/US

Application: Grouting of anchors and micro piles including post-grouting, flushing pump at drill works.
Manual operation

Technical data:

Drive
: electrical, electro-hydraulic
: 19.6 kW

Connections
- Electro
: xx / 480 V, 60 Hz
- Water
: BSP 2"
- Grouting pump pressure side
: BSP 1"
- Grouting pump circulation
: BSP 1"

Dimensions (L, W, H)
: 2050 x 1450 x 2100 (mm)
: 80.7 x 55.9 x 82.7 (inch)

Weight
: approx. 1700 kg (3748 lbs)

Performance

Mixer
With cement bags
: max. 4.0 m³/h (1058.20 US gal/h)
with proportioning auger
: max. 5.2 m³/h (1375.66 US gal/h)

Grouting pump
Pressure
: max. 100 bar \(^{(1)}\) (1422 psi)
Quantity
: max. 170 l/min \(^{(1)}\) (44.97 US gal/min)

\(^{(1)}\) infinitely variable pump performance, stated with water

For silo cement
Proportioning auger (optional)
electro drive 4.0 kW

Date: May 2004 Subject to change

OE-10
**Grout Pumps — electric drive**

**Up to 13 l/min and 150 bar (3.43 US gal/min and 2133 psi)**

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Max. delivery rate</td>
<td>13 l/min (3.43 US gal/min)</td>
<td>●</td>
<td>●</td>
<td>11.5 l/min (3.04 US gal/min)</td>
</tr>
<tr>
<td>Max. delivery pressure</td>
<td>100 bar (1422 psi)</td>
<td>●</td>
<td>●</td>
<td>150 bar (2133 psi)</td>
</tr>
<tr>
<td>2-plunger pump, double acting</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Pump valves automatic</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Pump valves and release valves hydraulically operated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total power requirement</td>
<td>4.0 kW 400 V</td>
<td>5.5 kW 400 V</td>
<td>5.5 kW 400 V</td>
<td></td>
</tr>
</tbody>
</table>

**Applications**

- Soil and rock grouting with
  - cement grout
  - microcement
  - silicate compounds
  - paste solutions

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*Grout System*

OE-11
Grouting pump DP 36-2-B

Application: post-grouting, structural rehabilitation, grouting
Grouting material: water-cement suspension, water glass mixtures, synthetic resins
Pump valves hydraulically operated

Technical data

Drive: electro-hydraulic
Drive power: 4 kW
Total required power: 4.1 kW
Connections - electric: CEE 16 A/380 V, 50 Hz
- delivery pump suction side: 2 x R 3/4"
- delivery pump pressure side: R 1/2"
Dimensions (L, W, H): 600 x 390 x 1380 (mm)
Weight: approx. 135 kg

Performance

Delivery pump pressure: max. 100 bar (1422 psi) 1)
Volume: max. 13 l/min (2.86 gal./min) 1)

1) infinitely variable
both max. performances are not possible at the same time

1 bar = 1 x 10^5 N/m^2
# Grout Pump DP 50 electric drive

Up to 34 l/min and 100 bar (8.99 US gal/min and 1422 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
<th>DP 50-4-F 20-4/E</th>
<th>DP 50-4-G 20-4/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. delivery rate</td>
<td>34 l/min (8.99 US gal/min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. delivery pressure</td>
<td>100 bar (1422 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-plunger pump, double acting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump valves</td>
<td>automatic</td>
<td>pump valves and release valves hydraulically operated</td>
<td></td>
</tr>
<tr>
<td>Total power requirement</td>
<td>7.5 kW, 400 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Applications**

- Grouting and post-grouting with
  - water with solids in suspension
  - sodium silicate mixtures

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DP 50-4-...
### Grouting pump DP 50-4

**Applications:** grouting, post-compaction, flush-drilling  
**Media:** water with solids in suspension, silicate mixes

---

**Technical data**

<table>
<thead>
<tr>
<th>Type</th>
<th>DP 50-4-F</th>
<th>DP 50-4-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. pump output in l/min. 1)</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Max. pump pressure in bar 1)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Self-acting pump valves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulically-operated pump valves and circulating/pressure release valve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speciality suitable for viscous suspensions &amp; low pump speeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electro-hydraulic drive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency in kW</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>Electrical connection type</td>
<td>CEE 16A / 5P</td>
<td>CEE 16A / 5P</td>
</tr>
<tr>
<td>Voltage and frequency in Volt / Hz</td>
<td>400 / 50</td>
<td>400 / 50</td>
</tr>
<tr>
<td>Pump suction connections (2 off)</td>
<td>Plug-in system, size I</td>
<td>Plug-in system, size I</td>
</tr>
<tr>
<td>Pump circulation connection</td>
<td>G ½ / RD 32</td>
<td>G ½ / RD 32</td>
</tr>
<tr>
<td>Dimensions in mm (L x B x H)</td>
<td>790 x 620 x 1480 ² / 1560 ³</td>
<td>790 x 620 x 1480 ² / 1560 ³</td>
</tr>
<tr>
<td>Weight in kg</td>
<td>280</td>
<td>300</td>
</tr>
</tbody>
</table>

---

1) continuously variable – both maximum figures cannot be achieved simultaneously
Output: typical pump output, measured with water

1 bar = $1 \times 10^5$ N m²

² suspension eye removed
³ suspension eye attached

---

As at April 2005. We reserve the right to make technical changes
Grout Pumps

Grout Pump DP 101

Applications:
- Grouting and post-grouting of anchors and micropiles
- Soil mix work, flush-drilling, flushing aid for pile driving and vibrating works

Grouting materials:
- Water-solid agent suspensions

Technical data:

<table>
<thead>
<tr>
<th>Type</th>
<th>DP 101-B</th>
<th>DP 101-F</th>
<th>DP 101-G</th>
<th>DP 101-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. pump volume in l/min</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. pump pressure in bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-acting pump valves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump valves, and circulation valve</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure and relief valves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special suitability for viscous suspensions and low pump speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electro-hydraulic drive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive output in kW</td>
<td>15</td>
<td>22</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>Electric connection</td>
<td>CEE 32A / 5P</td>
<td>CEE 63A / 5P</td>
<td>CEE 63A / 5P</td>
<td>CEE 125A / 5P</td>
</tr>
<tr>
<td>Voltage and frequency (V / Hz)</td>
<td>400 / 50</td>
<td>400 / 50</td>
<td>400 / 50</td>
<td>400 / 50</td>
</tr>
<tr>
<td>Suction connection to pump (2pc)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plug-in system size III / DN 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure connection</td>
<td>G 1&quot;</td>
<td>G 1&quot;</td>
<td>G 1&quot;</td>
<td>G 1&quot;</td>
</tr>
<tr>
<td>Circulation connection</td>
<td>G 1&quot;</td>
<td>G 1&quot;</td>
<td>G 1&quot;</td>
<td>G 1&quot;</td>
</tr>
<tr>
<td>Dimensions L x W x H in mm</td>
<td>1400 x 900 x 2100</td>
<td>1400 x 900 x 2100</td>
<td>1400 x 900 x 2100</td>
<td>1400 x 900 x 2100</td>
</tr>
<tr>
<td>Weight in kg</td>
<td>1100</td>
<td>1150</td>
<td>1220</td>
<td>1300</td>
</tr>
</tbody>
</table>

* Picture shows DP 101 with option complete panelling RV 101 and option Watch-A1

Infinitely variable – max. volume and max. pressure cannot both be achieved simultaneously
Performance: typical performance, determined with water
1 bar = 1 x 10^5 N/m²

Issue date: Dec 2005. Subject to modification
HD 100/1-4
High Pressure Jet-grouting Pumps
- Diesel drive
Up to 320 l/min and 550 bar (84.66 US gal/min and 7821 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
<th>HD 100/1-4-A 44-4/E</th>
<th>HD 115/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. delivery rate</td>
<td>185 l/min</td>
<td>185 l/min</td>
<td>320 l/min</td>
</tr>
<tr>
<td></td>
<td>(48.96 US gal/min)</td>
<td>(84.66 US gal/min)</td>
<td>(7821 psi)</td>
</tr>
<tr>
<td>Max. delivery pressure</td>
<td>550 bar</td>
<td>550 bar</td>
<td>520 bar</td>
</tr>
<tr>
<td></td>
<td>(7821 psi)</td>
<td>(7395 psi)</td>
<td></td>
</tr>
<tr>
<td>2-plunger pump, double acting</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Total power requirement</td>
<td>232 kW Diesel drive</td>
<td>up to 440 kW Diesel drive</td>
<td></td>
</tr>
</tbody>
</table>

Applications
- Jet-grouting
- Soil mixing
High-pressure jet-grouting pump type HD 115/1-C

Application: jet-grouting, soil-mix, flushing help for drill-, pile- and vibrating works

Technical data

Drive
Drive power
Connections
- delivery pump suction side
- delivery pump pressure side
Dimensions (L, W, H)
Weight

: diesel-hydraulic
: 440 kW
: 2 x quick couplings DIA. 75
: 5000 x 2300 x 2550 (mm)
: approx. 9500 kg

Performance

delivery pump pressure:
max. 520 bar ¹)
(max. 7395 psi)
volume:
max. 320 l/min ¹)
(max. 84.7 gal/min)

¹): infinitely variable
1 bar = 1 x 10^5 N/m²
## Batch Mixing Plants

**Semi-automatic units up to 13 m³/h (3439 US gal/h)**

Incl. water dosage tank, mixer and storage tank with agitator

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical data sheet No.</td>
<td>192-3-A/E</td>
<td>194-3-3/E</td>
<td>195-3-3/E</td>
</tr>
</tbody>
</table>

### Performance at 20 cycles/h

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance at 20 cycles/h</td>
<td>2.0 m³/h (529 US gal/h)</td>
<td>4.0 m³/h (1058 US gal/h)</td>
<td>10.0 m³/h (2646 US gal/h)</td>
</tr>
<tr>
<td>Performance at 26 cycles/h</td>
<td>2.6 m³/h (688 US gal/h)</td>
<td>5.2 m³/h (1376 US gal/h)</td>
<td>13.0 m³/h (3439 US gal/h)</td>
</tr>
</tbody>
</table>

### Mixing tank working capacity

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 l (26.45 US gal)</td>
<td>200 l (52.91 US gal)</td>
<td>500 l (132.27 US gal)</td>
<td></td>
</tr>
</tbody>
</table>

### Water dosage working capacity

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 l (26.45 US gal)</td>
<td>200 l (52.91 US gal)</td>
<td>500 l (132.27 US gal)</td>
<td></td>
</tr>
</tbody>
</table>

### Storage tank working capacity

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 l (52.91 US gal)</td>
<td>200 l (52.91 US gal)</td>
<td>500 l (132.27 US gal)</td>
<td></td>
</tr>
</tbody>
</table>

### Outlet connections

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1, open flange PN 16, DN 50</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>No. 2-4 prepared for PN 16 and covered, DN 50</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

### Total power requirement

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 100</th>
<th>OM 200</th>
<th>OM 500-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.7 kW</td>
<td>8.7 kW</td>
<td>12.4 kW</td>
<td></td>
</tr>
<tr>
<td>400 V</td>
<td>400 V</td>
<td>400 V</td>
<td></td>
</tr>
</tbody>
</table>

### Applications

- **Grouting**
- **Grout anchors**
- **Cave filling**
- **Soil mixing**

1) = Charging with cement bag
2) = Cement charging by conveyor
## Batch Mixing Plants

**Fully automatic devices, for up to 26 m³/h (6878 US gal/h)**
Incl. water dosage tank, mixer and storage tank with agitator and feeding pump

<table>
<thead>
<tr>
<th>Type</th>
<th>OM 500-4</th>
<th>OMP 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical data sheet No.</td>
<td>195-3-3/E</td>
<td>205-A/E</td>
</tr>
</tbody>
</table>

| Performance at 20 cycles/h | 10.0m³/h (2646 US gal/h) | 20.0 m³/h (5291 US gal/h) |
| Performance at 26 cycles/h | 13.0 m³/h (3439 US gal/h) | 26.0 m³/h (6878 US gal/h) |
| Mixing tank working capacity | 500 l (132.27 US gal) | 1000 l (264.55 US gal) |
| Water dosage tank working capacity | 500 l (132.27 US gal) | 1000 l (264.55 US gal) |
| Storage tank working capacity | 1000 l (264.55 US gal) | 2000 l (529.10 US gal) |
| Outlet connections | No. 1, open, PN 16 DN 50 | No. 2-4 prepared for PN 16 and covered DN 50 DN 80 |
| Feeding pump DN 80 | ● | ● |
| Total power requirement (without other units such as charging screws and silo vibrators) | 13.8 kW 400 V | 32.6 kW 400 V |

### Applications
- Grouting ●
- Grout anchors ●
- Jetgrouting ●
- Cave filling ●
- Soil mixing ●

**OM 500-4**
Mixing Plant OM 300/2-21-jet - E

Fully automatic unit, with menu control
Application area: jet-grouting, soil mix, flush drilling, slurry-trench walls
Mixing material: solid agent suspensions
Integrated feed pump and suspension filter
Tank made of stainless steel

Technical Data

Drive
- Mixer drive: 22 kW
- Feed pump: 5.5 kW
- Total required power: 29 kW

Connections
- Electric equipment with 37 kW total required power: 1 x CEE 63 A/ 400 V, 50 Hz
- Water inlet: 1 x flange DN 100/ PN 16
- Solid agents inlet: 1 x DN 200 quick coupling – m-part
- Suspension outlet: 1 x DN 80
- 24 V DC for magnetic valve for silo loosening up: 1-3 x sockets type AF01A (option SD50)
- 24 V AC agitator connection for silo: 1-3 x CEE 16 A (option SD6)
- Potential free switch contact for auger on site: 1-3 x sockets type AF10A (option SD21)
- Remote control – wire or wireless: 1 x socket type AF11A (option SD9)

Dimensions (L, W, H)
- without charging auger: 2400 x 1800 x 2300/2500 mm
- with max. 2 pc. charging augers FS 220-2.7 H fixed on the side of the machine: 4420 x 2200 x 2300/2500 mm

Weight
- without charging auger: approx. 2800 kg
- add. weight for one charging auger FS 220-2.7 H (max. 2 pc.): approx. 290 kg

Performance
Mixer: 21 m³/h at 35 double cycles / w/c 0.8
## Continuous Mixers

**Continuous batch mixing system**  
**Fully automatic units, for up to 48 m³/h (12698 US gal/h)**  
Separate storage tank is not needed

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM 300/2-21</td>
<td>195/2-21/E</td>
</tr>
<tr>
<td>OM 600/2-36</td>
<td>196-36/E</td>
</tr>
<tr>
<td>OM 1000/2-48</td>
<td>197/2-48/E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>OM 300/2-21</th>
<th>OM 600/2-36</th>
<th>OM 1000/2-48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity at 24 double cycles/h</td>
<td>---</td>
<td>---</td>
<td>48.0 m³/h (12698 US gal/h)</td>
</tr>
<tr>
<td>Capacity at 32 double cycles/h</td>
<td>---</td>
<td>36.0 m³/h (9624 US gal/h)</td>
<td>---</td>
</tr>
<tr>
<td>Capacity at 35 cycles/h</td>
<td>21 m³/h (5556 US gal/h)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Mixing tank (working capacity)</td>
<td>2 x 300 l (2 x 79 US gal)</td>
<td>2 x 600 l (2 x 159 US gal)</td>
<td>2 x 1000 l (2 x 265 US gal)</td>
</tr>
<tr>
<td>Water dosage tank (working capacity)</td>
<td>approx. 400 l (106 US gal)</td>
<td>approx. 700 l (185 US gal)</td>
<td>approx. 1000 l (265 US gal)</td>
</tr>
<tr>
<td>Outlet connections</td>
<td>quick coupling DN 80</td>
<td>quick coupling DN 100</td>
<td>quick coupling DN 100</td>
</tr>
<tr>
<td>Total power requirement incl. charging augers</td>
<td>30 kW 400 V</td>
<td>54 kW 400 V</td>
<td>88 kW 400 V</td>
</tr>
</tbody>
</table>

### Applications

- Grouting
- Grout anchors
- Jet-grouting
- Slurry walls, diaphragm walls
- Cave filling
- Soil mixing

---

**OM 600/2-36**

---

**OM 1000/2-48**
## Flow Measuring and Indicating Devices

<table>
<thead>
<tr>
<th>Type</th>
<th>MAQ-1-2MB</th>
<th>MAQ 10H</th>
<th>MAQ 15H</th>
<th>MAQ 25H</th>
<th>MAQ 40H</th>
<th>MAQ 50F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range with highest accuracy</td>
<td>2-50 l/min (0.52-13.2 gal/min)</td>
<td>5-100 l/min (1.3-26.4 gal/min)</td>
<td>15-250 l/min (3.9-61.13 gal/min)</td>
<td>35-750 l/min (9.25-198 gal/min)</td>
<td>60-1000 l/min (15.8-264 gal/min)</td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>100 bar (1422 psi)</td>
<td>100 bar (1422 psi)</td>
<td>100 bar (1422 psi)</td>
<td>100 bar (1422 psi)</td>
<td>40 bar (568.8 psi)</td>
<td></td>
</tr>
<tr>
<td>Connector, DIA</td>
<td>DN 10 / 3/8&quot;</td>
<td>DN 15 / 5/8&quot;</td>
<td>DN 25 / 1&quot;</td>
<td>DN 40 / 1 1/2&quot;</td>
<td>DN 50 / 2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

### Applications
- Measurement and digital indication of pressure and flow rate as measurement devices for recorder or LOG-system
- Cable to recording unit required for power supply

---

## Measuring and Indicating Devices for Pressure and Flow

Field unit with digital indication to fit in pressure hose

<table>
<thead>
<tr>
<th>Type</th>
<th>MAPQ-4-2MB</th>
<th>MAPQ 10HH</th>
<th>MAPQ 15HH</th>
<th>MAPQ 25HH</th>
<th>MAPQ 40HH</th>
<th>MAPQ 50FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range with highest accuracy</td>
<td>2-50 l/min (0.52-13.2 gal/min)</td>
<td>5-100 l/min (1.3-26.4 gal/min)</td>
<td>15-250 l/min (3.9-61.13 gal/min)</td>
<td>35-750 l/min (9.25-198 gal/min)</td>
<td>60-1000 l/min (15.8-264 gal/min)</td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>100 bar (1422 psi)</td>
<td>100 bar (1422 psi)</td>
<td>100 bar (1422 psi)</td>
<td>100 bar (1422 psi)</td>
<td>40 bar (568.8 psi)</td>
<td></td>
</tr>
<tr>
<td>Measuring range of pressure</td>
<td>0-100 bar (0-1422 psi)</td>
<td>0-100 bar (0-1422 psi)</td>
<td>0-100 bar (0-1422 psi)</td>
<td>0-100 bar (0-1422 psi)</td>
<td>0-100 bar (0-1422 psi)</td>
<td></td>
</tr>
<tr>
<td>Connector, DIA</td>
<td>DN 10 / 3/8&quot;</td>
<td>DN 15 / 5/8&quot;</td>
<td>DN 25 / 1&quot;</td>
<td>DN 40 / 1 1/2&quot;</td>
<td>DN 50 / 2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

### Applications
- Soil and rock grouting, anchors, cave filling
- Measurement devices recorder or LOG-system
- Cable to recorder required for power supply

---

## Type MAPQ-4-1MB

<table>
<thead>
<tr>
<th>Technical data sheet No.</th>
<th>MAPQ 125DD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>422-1041MB/E</td>
</tr>
</tbody>
</table>

| Measuring range with highest accuracy | 0.4-6.2 m³/h (88-1364 gal/h) |
| Max. operating pressure | 16 bar (227.52 psi) |
| Pressure range | 0-16 bar (0-227.52 psi) |
| Connector, DIA | DN 125 |
**LOG-System: LOG-SG**  
Monitoring equipment for grouting work  
Field units for data registration and indication

### Type  
<table>
<thead>
<tr>
<th>Technical data sheet No.</th>
<th>LOG-SG/2</th>
<th>501-SG/E</th>
</tr>
</thead>
</table>

**For two grouting pumps and two grouting places**  
Colour-monitor / size = 5.7”

**Measuring, indicating and recording of:**  
- Job-site, grouting point, step, phase
e- Date, start/stop time, grouting time  
- Grouting pressure  
- Flow rate, volume  
- Preselection of volume, flow rate, pressure  
- Flushing of grouting pump  
- Stop reasons

**Control of two grouting pumps**  
- Pump ON/OFF, pump FAST/SLOW  
- Preselection of flow rate, volume, max. pressure  
- Control of constant pressure and flow rate (option)  
- Switch for pumping, release valve, cracking pressure  
- Integrated power supply in case of power failure

**Requires separate sensors for pressure and flow rate**  
Measurement of flow rate by stroke counting

**Data store on USB-stick**  
- Evaluation by PC and Obermann software

**Total power requirement**  
150 W  
240 V / 50 Hz

**Applications**  
Grouting in general  
- Soil grouting with tube manchettes  
- Rock grouting  
- Cave filling

---

1) Range of measurement for pressure and flow rate depending on the sensors  
2) Range of measurement for pressure and flow rate depending on flow rate sensor or the grout pump
# LOG-System: LOG-JG

Monitoring system for jet-grouting
Built in unit for data registration and indication

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOG-JG</td>
</tr>
<tr>
<td></td>
<td>501-2-JG/E</td>
</tr>
</tbody>
</table>

- Colour-monitor, size = 5.7"
- Additional LCD-display (option)
- Additional colour monitor, size 10.4" (option)

**Measuring, indicating and recording of**
- Job site, drilling point
- Date, drill start, end, duration
- Drill depth - theoretical/effective
- Drill rotation speed, drill torque
- Pressing
- Flushing pressure, flushing quantity total
- Jet-depth
- Draw
- Rpm
- Pressure, jet-volume
- Pressure, flow rate for filling (option)
- Air pressure, air-volume (option)

Separate sensors for measurement of all data are required
Measurement of flow rate possible
by stroke counting of the pump

Data evaluation, data operation
- By PC and Obermann evaluation software

**Total power requirement**
- 150 W
- 24 VDC

- Current supply from 24 VDC boarding net of the drill rig

**Applications**
- Monitoring, registration and evaluation of jet-grouting works
  - Single, Duplex (option) and Triplex (option) system

---

- LOG mounted on drill rig
- Remote display integrated in the operation panel
- LOG recording unit with plug connections
Remote Controls, wire and wireless

RC 1
Cable remote control
Function:
Pump On and Off

RC 2
Cable remote control
Function:
Pump On and Off
Volume regulation

RC 3
Cable remote control
Function:
Pump On and Off
Circulation
Volume regulation

RC 4
Cable remote control
Function:
Pump On and Off
Circulation
Volume regulation
Flushing/pumping

for all standard pumps

for all standard pumps with electronical controlled volume regulator

for all standard pumps with electronical controlled volume regulator and controlled valves

for all standard pumps with electronical controlled volume regulator, controlled valves and bottom drain valve
Example of a Typical PC-Log System Layout

Measurement system and pump control for up to 8 pumps with one grouting point each:

- Pressure measurement at pump or at the grouting point
- Quantity measurement at pump (measuring of the pump strokes) or at the grouting points with flow rate measurement
- Pump-remote control by operating-panel at computer
- Measurement data transfer and pump control via cable or radio
- Measurement data storage on computer-hard disk
- Measurement data-evaluation and protocol printing with software LOG-ACCESS at computer
## Charging Augers

**Up to 64 t/h (Cement)**

<table>
<thead>
<tr>
<th>Type</th>
<th>FS 160-4.3</th>
<th>FS 220-4.3</th>
<th>FS 270-4.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical data sheet No.</td>
<td>331-B/E</td>
<td>331-B/E</td>
<td>331-B/E</td>
</tr>
</tbody>
</table>

- **Transportation speed with cement**
  - 16 t/h
  - 32 t/h
  - 64 t/h

- **Apparent density** 1.2

- **Inlet pipe DN 250**

- **Outlet pipe with quick coupling DN 200**

- **Total power requirement**
  - 5.5 kW, 400 V
  - 7.5 kW, 400 V
  - 11.0 kW, 400 V

**Applications**

Addition of solid agents in batch mixing plants, controlled by the mixing plant concerned

### Type

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- **Transportation speed with cement**
  - 16 t/h
  - 32 t/h
  - 64 t/h

- **Apparent density** 1.2

- **Inlet pipe DN 250**

- **Outlet pipe with quick coupling DN 200**

- **Hydraulic drive**

- **Power supply by mixing plant or grouting unit**

**Applications**

Addition of solid agents in batch mixing plants, controlled by the mixing plant concerned

---

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Technical data sheet No.</th>
<th>FS 160-2.6 H</th>
<th>FS 220-4.3 H</th>
<th>FS 270-4.3 H</th>
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</tbody>
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- **Transportation speed with cement**
  - 16 t/h
  - 32 t/h
  - 64 t/h

- **Inlet pipe DN 250**

- **Outlet pipe with quick coupling DN 200**

- **Hydraulic drive**

- **Power supply by mixing plant or grouting unit**

**Applications**

Addition of solid agents in batch mixing plants, controlled by the mixing plant concerned
Proportioning Augers
Up to 16 t/h (Cement)

<table>
<thead>
<tr>
<th>Type</th>
<th>FS-DK 160-2.6</th>
<th>FS-DK 160-2.6 H</th>
<th>FS-DKB 160-2.6</th>
<th>FS-DKB 160-2.6 H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical data sheet No.</td>
<td>335-3-A/E</td>
<td>335-3-A/E</td>
<td>337-3-A/E</td>
<td>337-3-A/E</td>
</tr>
</tbody>
</table>

- **Transportation speed with cement 16 t/h**
  - Apparent density 1.2

- **Compensation tank, silo-charging, capacity**
  - Approx. 30 l (6.6 US gal)
  - Approx. 30 l (6.6 US gal)

- **Storage and compensation tank, silo-charging and sack product, capacity**
  - Approx. 250 l (66.13 US gal)
  - Approx. 250 l (66.13 US gal)

- **Inlet pipe union DN 250**

- **Outlet pipe union DN 160**

- **Total power requirement**
  - 4.7 up to 6.0 kW
  - 400 V
  - Approx. 3 kW
  - Hydraulic power
  - 4.0 up to 4.8 kW
  - 400 V
  - Hydraulic power

- **Applications**
  - Dosing of solid agents into batch mixers

---

**FS-DKB 160-2.6 H**
driven by VS 110-...
Grouting Hoses

Bore – mm
Max. operating pressure – bar

<table>
<thead>
<tr>
<th>Bore</th>
<th>13</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Connections at both sides with cone nozzle / seal, as well as swivel nut - thread:

- Cone size: 83
- Hose length: 5 m = Typ
  - GH13-1/006
  - GH20-1/006
  - GH25-1/006
- Hose length: 10 m = Typ
  - GH13-1/010
  - GH20-1/010
  - GH25-1/010
- Hose length: 20 m = Typ
  - GH13-1/020
  - GH20-1/020
  - GH25-1/020
- Hose length: 25 m = Typ
  - GH13-1/025
  - GH20-1/025
  - GH25-1/025
- Hose length: 30 m = Typ
  - GH13-1/030
  - GH20-1/030
  - GH25-1/030
- Hose length: 40 m = Typ
  - GH13-1/040
  - GH20-1/040
  - GH25-1/040
- Hose length: 50 m = Typ
  - GH13-1/050
  - GH20-1/050
  - GH25-1/050

Sealing ring for cone nozzle – part no.
- 710 0200 000
- 710 0200 000
- 710 0250 000

Connecting nipple, for hose extension - thread:

- Cone size: B3
  - Rd 32 x 1/8" / Rd 32x1/8"
    - Part no.: 729 0005 005
- Cone size: B3
  - Rd 32 x 1/8" / Rd 32 x 1/8"
    - Part no.: 729 0005 005
- Cone size: C3
  - Rd 38 x 1/8" / Rd 38x1/8"
    - Part no.: 729 0006 005

Connecting nipple, for hose connection at grouting cap, flushing heads, etc.

- Cone size: B3
  - Rd 32x1/8" / G 1/4" A
    - Part no.: 729 0004 003
  - Rd 32x1/8" / G 1/8" A
    - Part no.: 729 0005 003
  - Rd 32x1/8" / G 1/8" A
    - Part no.: 729 0015 003
- Cone size: B3
  - Rd 32x1/8" / G 1/8" A
    - Part no.: 729 0004 003
  - Rd 32x1/8" / G 1/8" A
    - Part no.: 729 0005 003
  - Rd 32x1/8" / G 1/8" A
    - Part no.: 729 0015 003

Cone nozzle, type with swivel nut

- Cone size: B3 / 13-1
  - Rd 32 x 1/8"
    - Part no.: 729 0004 001
- Cone size: B3 / 20-1
  - Rd 32 x 1/8"
    - Part no.: 729 0005 001
- Cone size: C3 / 25-1
  - Rd 38 x 1/8"
    - Part no.: 729 0006 001

Footnote: Cone nozzle for manufacturing of grouting hoses

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