

## MD1.80.80.55.4.51D/450.SL

Grundfos pump 97577865



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<https://www.lenntech.com/grundfos/MULDOUB/97577865/MD1-80-80-55-4-51D-450-SL.html>

[info@lenntech.com](mailto:info@lenntech.com)

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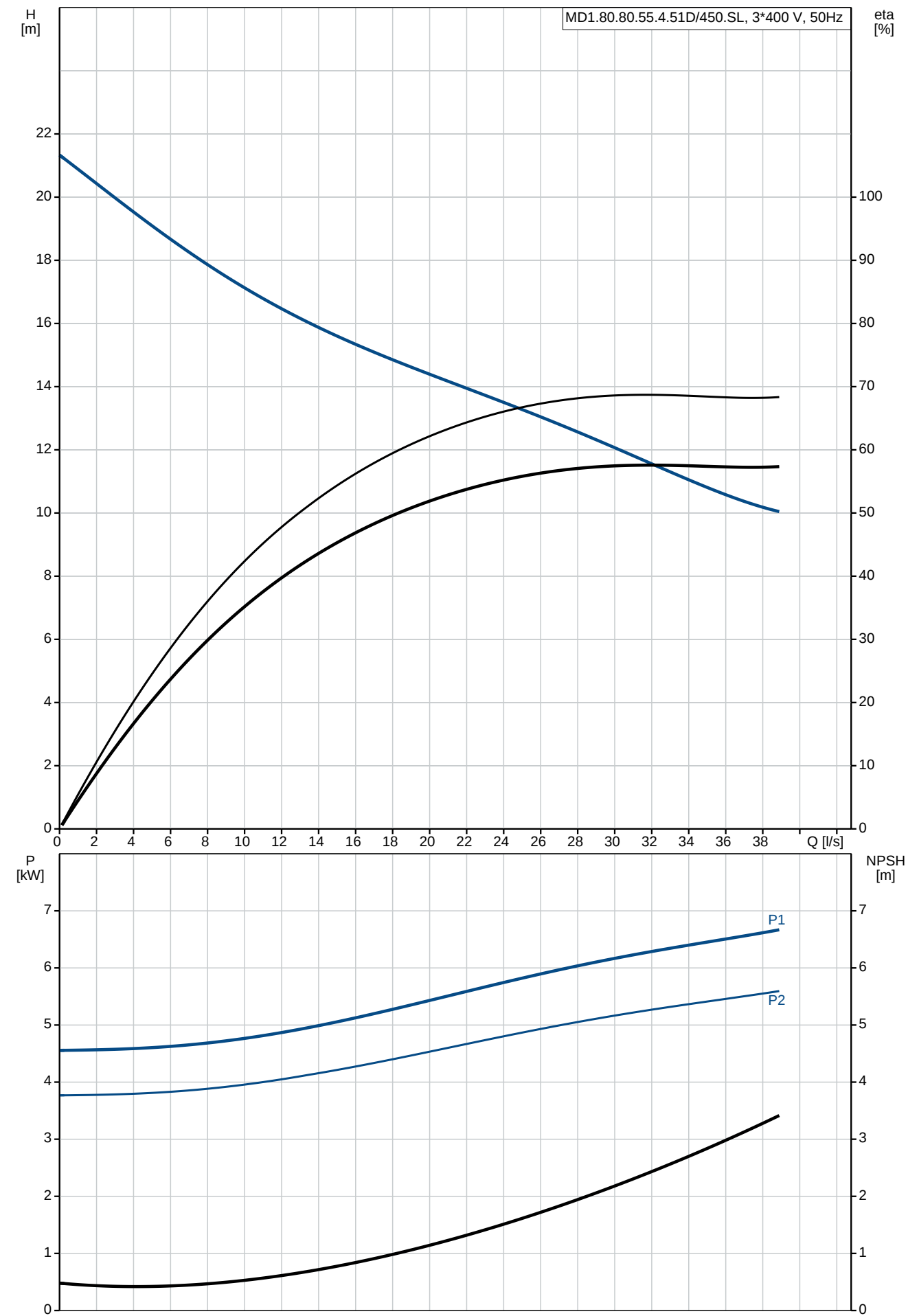
fax. +31 152 616 289

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|          | 1    | <p><b>MD1.80.80.55.4.51D/450.SL</b></p>  <p style="text-align: center;"><b>Note! Product picture may differ from actual product</b></p> <p>Product No.: On request</p> <p>Compact wastewater lifting station consist a package of one or two 450 litre collecting tanks, two horizontal submersible sewage pumps of the SL range, controller incl. analogue level sensor and connection accessories.</p> <p>The 450 liter tank is made of airtight, corrosion free polyethylene and absolute gas and odour free. It is provided with</p> <ul style="list-style-type: none"> <li>- three horizontal inlet sockets DN150 with one socket seal,</li> <li>- vertical inlet connecting piece DN100,</li> <li>- vertical connecting piece DN75 for venting with flex. connection piece and clamps</li> <li>- two horizontal connecting pieces DN40 with one connection piece and clamps for manually diaphragm pump (accessory).</li> </ul> <p>The tank is designed with an inner patented chamfer and suction bends to avoid sedimentation and to reduce residual water. In case of additional collecting tank 4 connection sockets DN150 are placed at the sides.</p> <p>Horizontal sewage pumps provides single channel impeller or vortex impeller for every request</p> <ul style="list-style-type: none"> <li>- free passage up to 80mm for reliable and blockage free operation,</li> <li>- a unique clamp system to dismantle hydraulic and motor within a minute,</li> <li>- a watertight stainless steel cable plug for easy maintenance and service,</li> <li>- double shaft seal cartridge for easy maintenance and service,- motor with thermal switches inside the winding</li> <li>- motor with thermal switches inside the winding</li> </ul> <p>Isolating valves, non-return valves, discharge pipes, a manually operated diaphragm pump, bolts and gaskets as well as a third 450-litre tank are available as accessories.</p> <p>An LC221 controller with microprocessor is equipped with display for full monitoring possibilities. The pump and sensor are connected to the controller with 4m or 10m cable and tube length. The power supply cable is 1,5m with plug (incl. phase inverter for 3 phase motor)</p> <p>Contactless, piezo resistive pressure sensor pluggable inside the cabinet, monitored by controller, accurate to the millimetre shown on display. Blockage free pressure tube inside the tank without movable parts inside wastewater.</p> <p>The controller offer thermal motor protection and monitoring of pump operation. The thermal motor protection consists of thermal switches in the winding.</p> <p>Controller functions:</p> <ul style="list-style-type: none"> <li>• start/delta operation for pumps &gt;5kW</li> <li>• on/off, regular and failure changeover of two wastewater pumps based on a continuous signal from a piezo-resistive sensor</li> <li>• motor protection via motor-protective circuit breaker and/or current measurement as well as connection of thermal switches.</li> <li>• dry running motor protection via run-time limitation with a following emergency operation</li> <li>• 24h automatic test runs during long periods of inactivity</li> <li>• setting of delay times:</li> </ul> |

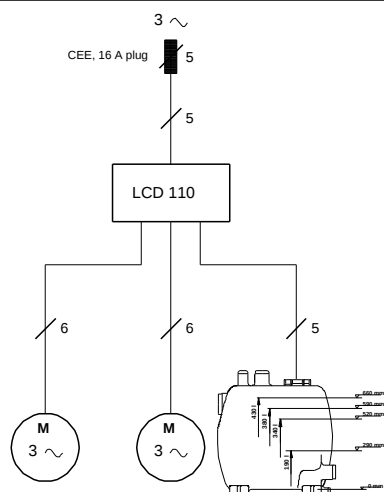
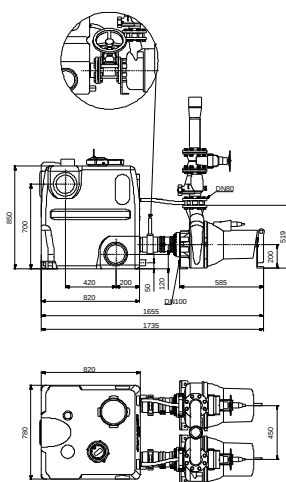
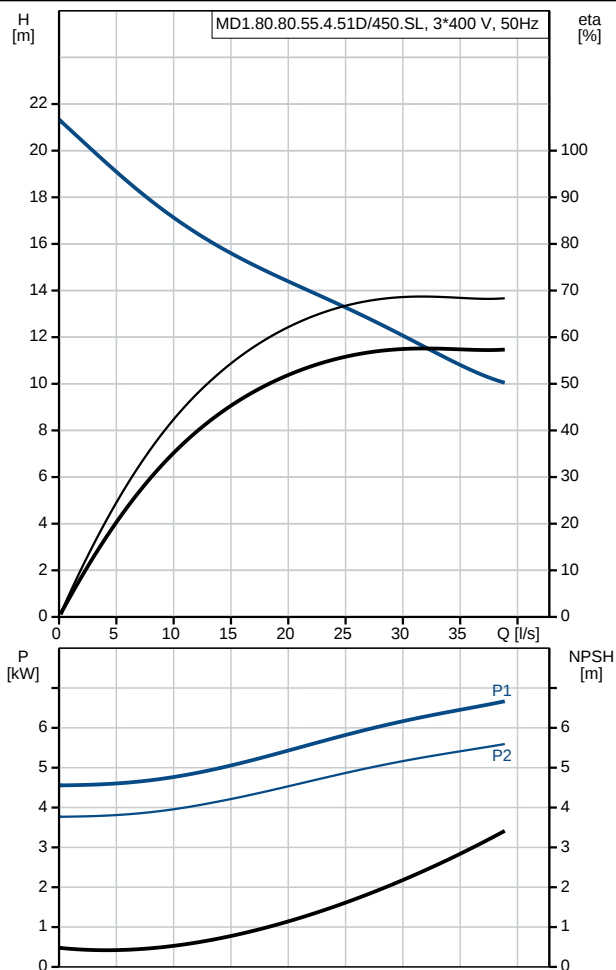
| Position                     | Qty.                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
|------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|------------------------|-------|---------------------|---------|-----------------------|-----------------|----------------------------|------|---------------|-----------------------------|-----------|-----------------------------|------------------------------|-------|--------------|----|-----------------------------|-----|-----------------------------|-------|----------|-------------|
|                              |                             | <ul style="list-style-type: none"><li>- stopping delay (time from the stop level is reached till the pumped is stopped)</li><li>- starting delay (time from the start level is reached till the pumped is started)</li><li>- alarm delay (time from a fault appears till an alarm is indicated) to prevents short-time high-level alarm in case of temporary high inflow to the tank.</li></ul> <ul style="list-style-type: none"><li>• automatic current measurement for alarm indications</li><li>• operating indication of:<ul style="list-style-type: none"><li>- operating mode (auto, manual)</li><li>- operating hours</li><li>- impulses (number of starts)</li><li>- highest measured motor current</li></ul></li><li>• alarm indication of:<ul style="list-style-type: none"><li>- pump status (running, fault)</li><li>- phase-sequence fault and missing phase</li><li>- thermal-switch failure</li><li>- high-water alarm</li><li>- time for service/maintenance (selectable).</li></ul></li><li>• selection of automatic alarm resetting</li><li>• fault log of up to 20 alarms</li><li>• selection between different start levels</li><li>• selection of connected sensor type</li><li>• calibration of sensor (preset)</li><li>• selection of maintenance interval (0, 3, 6 or 12 months).</li></ul> <p>As standard, the LC 221 has 6 potential-free outputs for:</p> <ul style="list-style-type: none"><li>– pump running</li><li>– pump failure</li><li>– high water-level alarm</li><li>– common fault.</li></ul> <p>6 digital inputs for the following functions:</p> <ul style="list-style-type: none"><li>– connecting a pressure sensor board (pre-assembled)</li><li>– connecting an analogue sensor (4-20mA or 0-5V)</li><li>– connecting up to four level switches or pressure switches instead of analogue sensor</li><li>– connecting a separate level switch to be used for flood detection outside the Multilift. Lifting stations are often installed in a sump inside the basement - the lowest point in the building. In case of e.g. groundwater inflow or water pipe burst, an alarm will be indicated by the controller.</li><li>– connecting an external alarm reset</li><li>– connecting the thermal switch of the motor.</li></ul> <p>The Multilift range is designed due to the standard EN12050-1, approved and monitored by external institute LGA. Further approvals are VDE, GHOST, CB, EMV</p> <p><b>Technical:</b></p> <table><tr><td>Type of impeller:</td><td>SINGLE CHANNEL</td></tr><tr><td>Maximum particle size:</td><td>80 mm</td></tr><tr><td>Primary shaft seal:</td><td>SIC/SIC</td></tr><tr><td>Secondary shaft seal:</td><td>CARBON/CERAMICS</td></tr><tr><td>Max. hydraulic efficiency:</td><td>63 %</td></tr></table> <p><b>Materials:</b></p> <table><tr><td>Pump housing:</td><td>Cast iron GG20<br/>EN-JL1030</td></tr><tr><td>Impeller:</td><td>Cast iron GG20<br/>EN-JL1030</td></tr></table> <p><b>Installation:</b></p> <table><tr><td>Maximum ambient temperature:</td><td>30 °C</td></tr><tr><td>Pump outlet:</td><td>80</td></tr><tr><td>Maximum installation depth:</td><td>2 m</td></tr></table> <p><b>Liquid:</b></p> <table><tr><td>Maximum liquid temperature:</td><td>40 °C</td></tr><tr><td>Density:</td><td>998.2 kg/m³</td></tr></table> | Type of impeller: | SINGLE CHANNEL | Maximum particle size: | 80 mm | Primary shaft seal: | SIC/SIC | Secondary shaft seal: | CARBON/CERAMICS | Max. hydraulic efficiency: | 63 % | Pump housing: | Cast iron GG20<br>EN-JL1030 | Impeller: | Cast iron GG20<br>EN-JL1030 | Maximum ambient temperature: | 30 °C | Pump outlet: | 80 | Maximum installation depth: | 2 m | Maximum liquid temperature: | 40 °C | Density: | 998.2 kg/m³ |
| Type of impeller:            | SINGLE CHANNEL              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Maximum particle size:       | 80 mm                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Primary shaft seal:          | SIC/SIC                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Secondary shaft seal:        | CARBON/CERAMICS             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Max. hydraulic efficiency:   | 63 %                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Pump housing:                | Cast iron GG20<br>EN-JL1030 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Impeller:                    | Cast iron GG20<br>EN-JL1030 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Maximum ambient temperature: | 30 °C                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Pump outlet:                 | 80                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Maximum installation depth:  | 2 m                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Maximum liquid temperature:  | 40 °C                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |
| Density:                     | 998.2 kg/m³                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                |                        |       |                     |         |                       |                 |                            |      |               |                             |           |                             |                              |       |              |    |                             |     |                             |       |          |             |

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p><b>Electrical data:</b></p> <p>Power input - P1: 2 x 6.5 kW</p> <p>Rated power - P2: 2 x 5.5 kW</p> <p>Mains frequency: 50 Hz</p> <p>Rated voltage: 3 x 380-415 V</p> <p>Voltage tolerance: +6/-10 %</p> <p>Max starts per. hour: 60</p> <p>Rated current: 13.3-13.8 A</p> <p>Rated current at 3/4 load: 11 A</p> <p>Rated current at 1/2 load: 9.5 A</p> <p>Starting current: 87 A</p> <p>Rated current at no load: 8.3 A</p> <p>Cos phi - p.f. at no load: 0.1</p> <p>Cos phi - p.f. at 3/4 load: 0.65</p> <p>Cos phi - p.f. at 1/2 load: 0.52</p> <p>Rated speed: 1455 rpm</p> <p>Locked-rotor torque: 98 Nm</p> <p>Breakdown torque: 122 Nm</p> <p>Moment of inertia: 0.1295 kg m<sup>2</sup></p> <p>Motor efficiency at full load: 83.9 %</p> <p>Motor efficiency at 3/4 load: 83.3 %</p> <p>Motor efficiency at 1/2 load: 81.0 %</p> <p>Number of poles: 4</p> <p>Start. method: star/delta</p> <p>Enclosure class (IEC 34-5): IP68</p> <p>Insulation class (IEC 85): F</p> <p>Length of cable: 10 m</p> <p>Cable type: H07RN-F</p> <p><b>Controls:</b></p> <p>Moisture sensor: without moisture sensors</p> <p>Water-in-oil sensor: without water-in-oil sensor</p> <p><b>Tank:</b></p> <p>Total volume of tank(s): 450 l</p> <p>Total effective volume of collecting tank at 180 mm inlet: 120 l</p> <p>Total effective volume of collecting tank at 250 mm inlet: 240 l</p> |

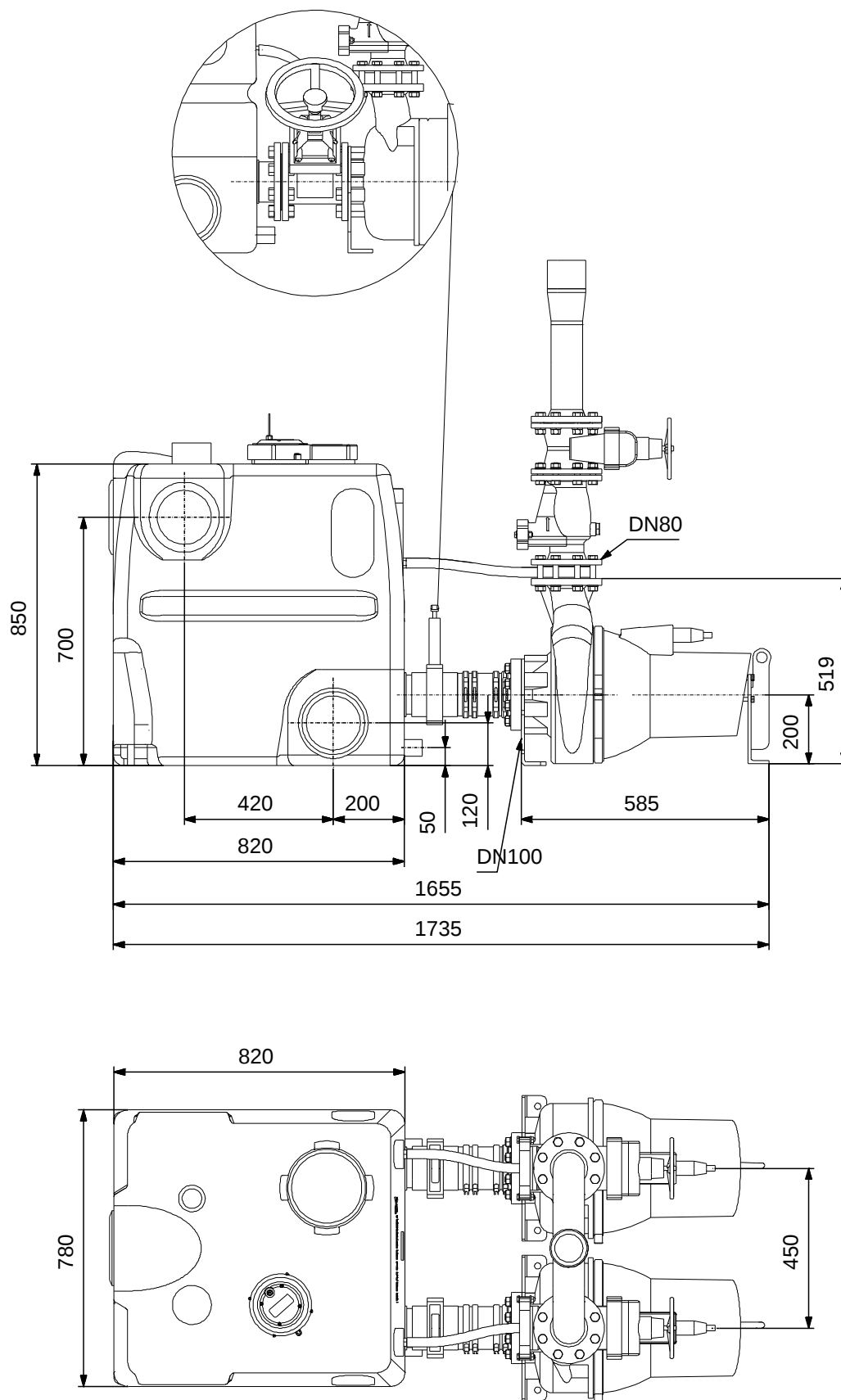
On request MD1.80.80.55.4.51D/450.SL 50 Hz



| Description                                                | Value                       |
|------------------------------------------------------------|-----------------------------|
| <b>General information:</b>                                |                             |
| Product name:                                              | MD1.80.80.55.4.51D/450.SL   |
| Product No:                                                | On request                  |
| EAN number:                                                | On request                  |
| <b>Technical:</b>                                          |                             |
| Max flow:                                                  | 38.9 l/s                    |
| Head max:                                                  | 20 m                        |
| Type of impeller:                                          | SINGLE CHANNEL              |
| Maximum particle size:                                     | 80 mm                       |
| Primary shaft seal:                                        | SIC/SIC                     |
| Secondary shaft seal:                                      | CARBON/CERAMICS             |
| Max. hydraulic efficiency:                                 | 63 %                        |
| <b>Materials:</b>                                          |                             |
| Pump housing:                                              | Cast iron GG20<br>EN-JL1030 |
| Impeller:                                                  | Cast iron GG20<br>EN-JL1030 |
| <b>Installation:</b>                                       |                             |
| Maximum ambient temperature:                               | 30 °C                       |
| Pump outlet:                                               | 80                          |
| Maximum installation depth:                                | 2 m                         |
| <b>Liquid:</b>                                             |                             |
| Maximum liquid temperature:                                | 40 °C                       |
| Density:                                                   | 998.2 kg/m <sup>3</sup>     |
| <b>Electrical data:</b>                                    |                             |
| Power input - P1:                                          | 2 x 6.5 kW                  |
| Rated power - P2:                                          | 2 x 5.5 kW                  |
| Mains frequency:                                           | 50 Hz                       |
| Rated voltage:                                             | 3 x 380-415 V               |
| Voltage tolerance:                                         | +6/-10 %                    |
| Max starts per. hour:                                      | 60                          |
| Rated current:                                             | 13.3-13.8 A                 |
| Rated current at 3/4 load:                                 | 11 A                        |
| Rated current at 1/2 load:                                 | 9.5 A                       |
| Starting current:                                          | 87 A                        |
| Rated current at no load:                                  | 8.3 A                       |
| Cos phi - p.f. at no load:                                 | 0.1                         |
| Cos phi - p.f. at 3/4 load:                                | 0.65                        |
| Cos phi - p.f. at 1/2 load:                                | 0.52                        |
| Rated speed:                                               | 1455 rpm                    |
| Locked-rotor torque:                                       | 98 Nm                       |
| Breakdown torque:                                          | 122 Nm                      |
| Moment of inertia:                                         | 0.1295 kg m <sup>2</sup>    |
| Motor efficiency at full load:                             | 83.9 %                      |
| Motor efficiency at 3/4 load:                              | 83.3 %                      |
| Motor efficiency at 1/2 load:                              | 81.0 %                      |
| Number of poles:                                           | 4                           |
| Start. method:                                             | star/delta                  |
| Enclosure class (IEC 34-5):                                | IP68                        |
| Insulation class (IEC 85):                                 | F                           |
| Motor protec:                                              | THERMAL SWITCH              |
| Length of cable:                                           | 10 m                        |
| Cable type:                                                | H07RN-F                     |
| <b>Controls:</b>                                           |                             |
| Moisture sensor:                                           | without moisture sensors    |
| Water-in-oil sensor:                                       | without water-in-oil sensor |
| Operation mode:                                            | S3 50%, 1 MIN.              |
| <b>Tank:</b>                                               |                             |
| Total volume of tank(s):                                   | 450 l                       |
| Total effective volume of collecting tank at 180 mm inlet: | 120 l                       |
| Total effective volume of collecting tank at 250 mm inlet: | 240 l                       |



# On request MD1.80.80.55.4.51D/450.SL 50 Hz



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

# Exploded view



Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

# Exploded view ( TM057026 for MGE model H/I )



*Disclaimer: The information about the Grundfos pump in this document may be outdated.*

*Data may be subject to alterations without further notice.*

*Please contact us to verify the data above is still accurate/up-to-date.*

*All information is copyright Grundfos.*



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