

**Etabloc 050-032-2001 GG**  
 ETB 050-032-2001GGSBV11 WS2AP4HBB

**Operating point 1 Dimensioning operating point**

**Operating conditions (purchaser requirements)**

|                                   |                           |                                       |              |
|-----------------------------------|---------------------------|---------------------------------------|--------------|
| Target flow rate                  |                           | Vapour pressure determined            | 0.7032 bar.a |
| Target mass flow rate             |                           | Specified inlet pressure              | -0.1075 bar  |
| Target head                       |                           | NPSH available                        | 2 m          |
| Fluid                             | Water, condensate         | Specified ambient temperature         | 20 °C        |
| Fluid variant                     | treated to VdTÜV 1466     | Installation altitude above sea level | 1,000 m      |
| Specified fluid temperature       | 90 °C                     |                                       |              |
| Density Fluid handled             | 965.2 kg/m <sup>3</sup>   |                                       |              |
| Kinematic viscosity Fluid handled | 0.3297 mm <sup>2</sup> /s |                                       |              |

**Operating conditions (performance)**

|                               |                         |                                   |             |
|-------------------------------|-------------------------|-----------------------------------|-------------|
| Flow rate                     | 5.988 m <sup>3</sup> /h | Maximum power input at duty point | 0.3321 kW   |
| Minimum permissible flow rate | 2.145 m <sup>3</sup> /h | Maximum power input / curve       | 0.421 kW    |
| Head                          | 9.463 m                 | Pump speed                        | 1,452 1/min |
| Shut-off head                 | 10.5 m                  | Discharge pressure-max.           | 0.8867 bar  |
| Efficiency Pump               | 44.86 %                 |                                   |             |
| NPSH required                 | 0.69 m                  |                                   |             |

**Design data pump**

|                                                     |                                                          |                                        |                        |
|-----------------------------------------------------|----------------------------------------------------------|----------------------------------------|------------------------|
| Scope of supply Pump supplied by KSB                | Pump                                                     | Mains voltage                          | 400 V                  |
| Pump standard                                       | EN 733                                                   | Mains frequency                        | 50 Hz                  |
| Shaft axis position                                 | Horizontal                                               | Minimum efficiency index MEI           | 0.5                    |
| Pump design                                         | Close-coupled                                            | Minimum permissible fluid temperature  | 0 °C                   |
| Pump system design                                  | Single-pump system                                       | Maximum permissible fluid temperature  | 110 °C                 |
| Specification of wetted parts                       | Manufactured without paint wetting impairment substances | Quantity Stages, single-entry          | 1                      |
| Pump direction of rotation, viewed from casing side | Counterclockwise                                         | Casing wear ring design suction-side   | Flat                   |
| Hydraulic impeller diameter                         | 174.7 mm                                                 | Casing wear ring design discharge-side | Flat                   |
| Impeller type                                       | Radial, closed, multi-channel                            | Installation chamber Casing cover      | Conical (A-type cover) |
| Free passage                                        | 5.3 mm                                                   | Bearing bracket size / shaft unit      | 25                     |
| Nut lock for Impeller                               | No                                                       | Pump bearing type, non-drive end       | Anti-friction bearing  |
| Swirl break                                         | No                                                       | Pump bearing type, drive end           | Anti-friction bearing  |
| Support foot                                        | Yes                                                      | Pump directive                         | CE                     |

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**Nozzle connections pump**

|                                                  |                      |                                                    |          |
|--------------------------------------------------|----------------------|----------------------------------------------------|----------|
| Nominal diameter Suction nozzle                  | DN 50                | Nominal diameter Discharge nozzle                  | DN 32    |
| Nominal pressure Suction nozzle                  | PN 16                | Nominal pressure Discharge nozzle                  | PN 16    |
| Suction nozzle position                          | Axial                | Discharge nozzle position                          | 0 deg    |
| Suction nozzle design acc.to                     | EN1092-2             | Discharge nozzle design acc.to                     | EN1092-2 |
| Suction flange bolt hole pattern as per standard | EN1092-2             | Discharge flange bolt hole pattern as per standard | EN1092-2 |
| Flange facing type Inlet                         | Raised face (B,RF,C) |                                                    |          |
| Flange facing type Outlet                        | Raised face (B,RF,C) |                                                    |          |

**Auxiliary connections pump**

|                                         |                              |                                    |                                 |
|-----------------------------------------|------------------------------|------------------------------------|---------------------------------|
| 6B Fluid Drain                          | G 1/4<br>Drilled and plugged | 1M Pressure gauge Discharge nozzle | G 1/4<br>Fitted pressure sensor |
| 6D Fluid Filling and venting            | G 1/4<br>Drilled and plugged | 1M Pressure gauge Suction nozzle   | G 1/4<br>Fitted pressure sensor |
| Connection type 24E Quench liquid inlet | Without<br>Without           |                                    |                                 |
| Connection type 5B Venting and drain    | G 1/4<br>Drilled and plugged |                                    |                                 |

**Shaft sealing**

|                                  |                          |                                 |              |
|----------------------------------|--------------------------|---------------------------------|--------------|
| Shaft seal type                  | SMS A-type cover, vented | Shaft seal code                 | Code 11      |
| Piping plan                      | API plan 03              | Shaft seal manufacturer inboard | KSB's choice |
| Determined pressure Seal chamber | -0.05 bar                | Mechanical seal type inboard    | 1            |
|                                  |                          | Material Shaft seal inboard     | BQ1EGG-WA    |

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**Materials**

|                                                   |                                |                                                     |                            |
|---------------------------------------------------|--------------------------------|-----------------------------------------------------|----------------------------|
| Material Volute casing (102)                      | EN-GJL-250/A48 CL 35B          | Material Bolts/Screws                               | 8.8                        |
| Material Casing cover (161)                       | EN-GJL-250/A48 CL 35B          | Hydraulic casing (902.01)                           |                            |
| Material Shaft                                    | C45+N                          | Material Screw plug Hydraulic casing (903.01)       | ST                         |
| Material Impeller (230)                           | EN-GJL-250/A48 CL 35B          | Material Static seal Screw plug Volute casing (411) | A4/AISI 316                |
| Material Casing wear ring suction-side (502.01)   | JL/LAMELLAR GRAPHITE CAST IRON | Material Nut Impeller fastening (920.95)            | (ST)                       |
| Material Casing wear ring discharge-side (502.02) | JL/LAMELLAR GRAPHITE CAST IRON | Material Key                                        | C45+C/A311 GR 1045 CLASS A |
| Material Shaft protecting sleeve (523)            | (CRNIMO ST INT)                |                                                     |                            |
| Material Bearing bracket                          | WITHOUT                        |                                                     |                            |
| Material Static seal Discharge cover              | DPAF DW001                     |                                                     |                            |
| Material Drive lantern                            | EN-GJL-250/A48 CL 35B          |                                                     |                            |
| Material Support foot                             | (ST)                           |                                                     |                            |

**Driver**

|                                                             |                                  |                                                       |             |
|-------------------------------------------------------------|----------------------------------|-------------------------------------------------------|-------------|
| Electric motor                                              | Yes                              | Rated speed Motor                                     | 1,420 1/min |
| Drive concept                                               | With electric actuator           | Number of motor poles                                 | 4           |
| Drive standard, mechanical                                  | IEC                              | Rated power Motor                                     | 0.55 kW     |
| Drive standard electric                                     | IEC                              | Motor power reserve determined                        | 65.6 %      |
| Motor bearing, insulated                                    | No                               | Rated voltage Motor                                   | 400 V       |
| Motor manufacturer                                          | WEG                              | Motor winding                                         | 230 / 400 V |
| Customer supply Drive                                       | No                               | Rated frequency Motor                                 | 50Hz        |
| Motor construction type                                     | IM V1 (IM3011) IEC 60034-7       | Motor switching type                                  | Star        |
| Motor size                                                  | 80M                              | Rated current Motor                                   | 1.23 A      |
| Efficiency class                                            | IE3 (Premium)                    | Starting current ratio I <sub>a</sub> /I <sub>n</sub> | 6.6         |
| Material motor housing                                      | AL                               | Motor cos phi at nominal speed                        | 0.8         |
| Enclosure Motor                                             | IP55 (TEFC)                      | Rated efficiency Motor                                | 80.8 %      |
| Thermal class                                               | 155 (F) nach IEC 60085           | Directive Drive                                       | CE          |
| Temperature sensor motor                                    | 3 PTC thermistors                |                                                       |             |
| Terminal box position of motor (looking at the motor shaft) | 360 Grad                         |                                                       |             |
| Operation on a frequency inverter permitted                 | Yes, with KSB frequency inverter |                                                       |             |
| Sound pressure level Motor                                  | 44 dBa                           |                                                       |             |
| Type series Motor manufacturer                              | W21                              |                                                       |             |

**Installation parts / Accessories**

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**Coating**

**Aggregate**

Surface preparation

Properties Primer coat

Thickness Primer coat

Properties Top coat

Thickness Top coat

Colour Top coat

Free from dirt, grease, rust

Hydro dip primer, water-dilutable

60 µm

Acrylate dispersion water-thin

40 µm

RAL5002 Ultramarine Blue

**Packaging**

Suitable for transport

Suitable for storage

Packaging category

Truck transport

Indoor storage

KSB's choice (A0)

**Nameplates**

Duplicate name plate No

Material Installation part Pump (S185)

Name plate Line 1 Product 01 302

Name plate Line 1 Product 02 303

Additional text Name plate Yes

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### **KSB PumpMeter [A]**

PumpMeter

Intelligent pressure transmitter PumpMeter with on-site display of operating point

#### General description:

PumpMeter is an intelligent pressure transmitter with on-site display of measured values and pump operating data. It is supplied completely assembled and parameterised for the individual pump. PumpMeter is ready for operation as soon as the M12 plug connector is plugged in. PumpMeter records the load profile of the pump during operation in order to indicate any potential for optimising the energy efficiency and availability of your pumping system.

#### Display unit:

Backlit display for on-site display of measured values and pump operating data in a straightforward manner based on international symbols, rotatable in steps of 90°.

#### Values displayed:

Suction pressure, pressure at pump inlet in bar(g)  
Discharge pressure, pressure at pump outlet in bar(g)  
Differential pressure between pump inlet and outlet in bar  
Qualitative indication of the operating point

Connection of display unit via M12 x 1 5-pin connector, for power supply and utilisation of communication interfaces. Data options available: measured discharge pressure or calculated differential pressure of the pump via analog 4 - 20 mA signal or serial interface RS 485 (Modbus RTU).

Communication via RS232 service interface for parameterisation. Parameters factory-set for the individual pump.

#### Ambient conditions:

Enclosure: IP65  
Ambient temperature  
-30°C ... 80°C (transport, storage)  
-10°C ... 60°C (operation)  
Fluid temperature: -30°C to 140°C

#### Material resistance:

UV-resistant (suitable for outdoor installation)  
Resistant to most commonly used cleaning agents  
Resistant to oil mist

#### Silicone-free:

Manufactured without paint wetting impairment substances

#### Electrical data:

Power supply:  
24V DC  $\pm$  10%, min. 140 mA  
Interfaces, alternatives: 4 - 20 mA, 3-wire (discharge pressure or differential pressure)  
RS485, Modbus RTU (Slave)  
Service interface: RS232

#### EMC:

EN 61326-1 (interference immunity for industrial environments, interference emission for residential environments)

#### Sensors:

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Two gauge pressure sensors - one sensor factory-mounted at the pump inlet and outlet, respectively, and connected to the analysing unit by plug-type connector.

Measuring accuracy (sum of all errors relative to the measuring range):

±1% for a fluid temperature of -10 to 100 °C

±2.5% for a fluid temperature of -30 to -10 °C and 100 to 140 °C

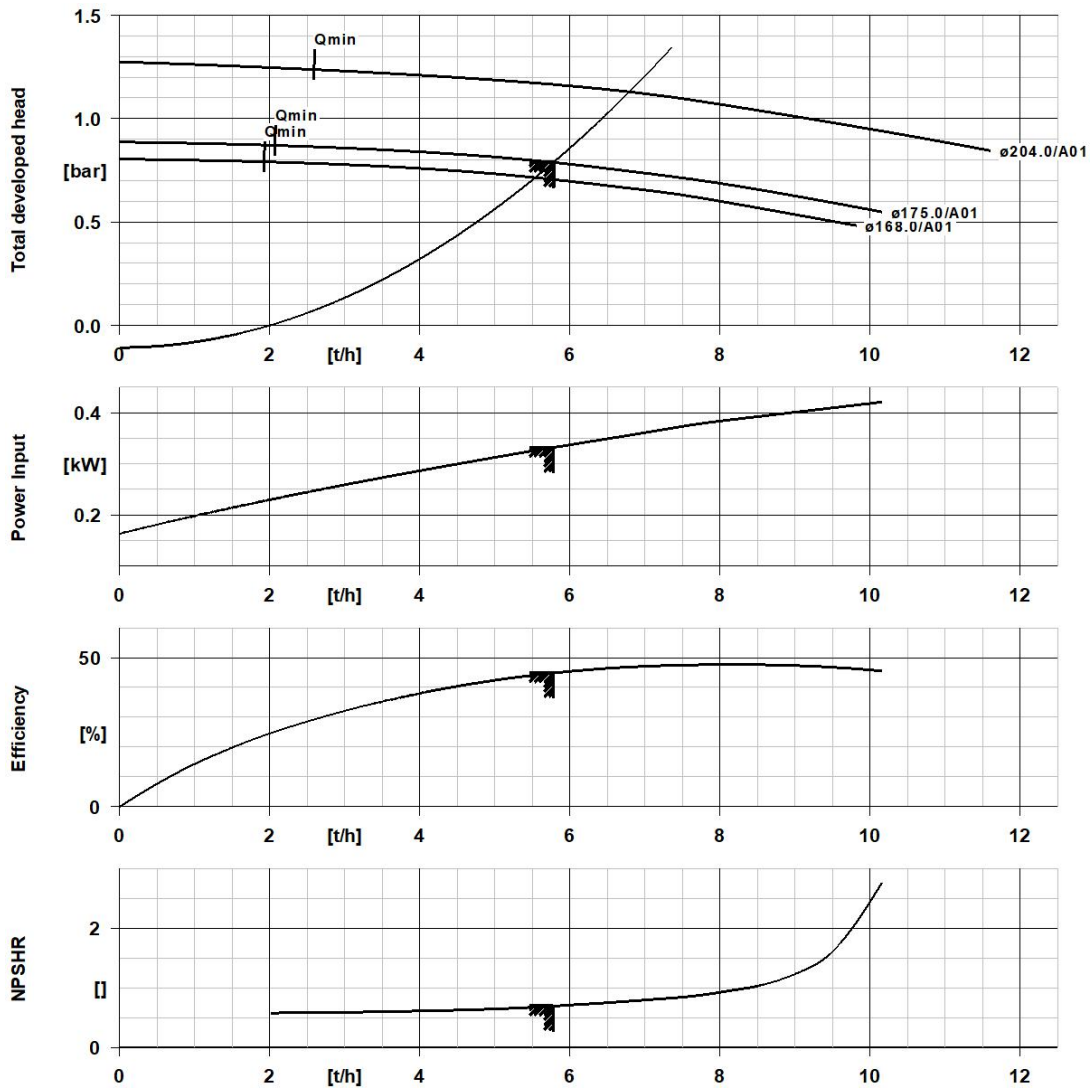
Measuring cell material: stainless steel (sealless)

Available measuring ranges:

-1 ...10 bar (gauge pressure)

-1 ...10 bar (gauge pressure)

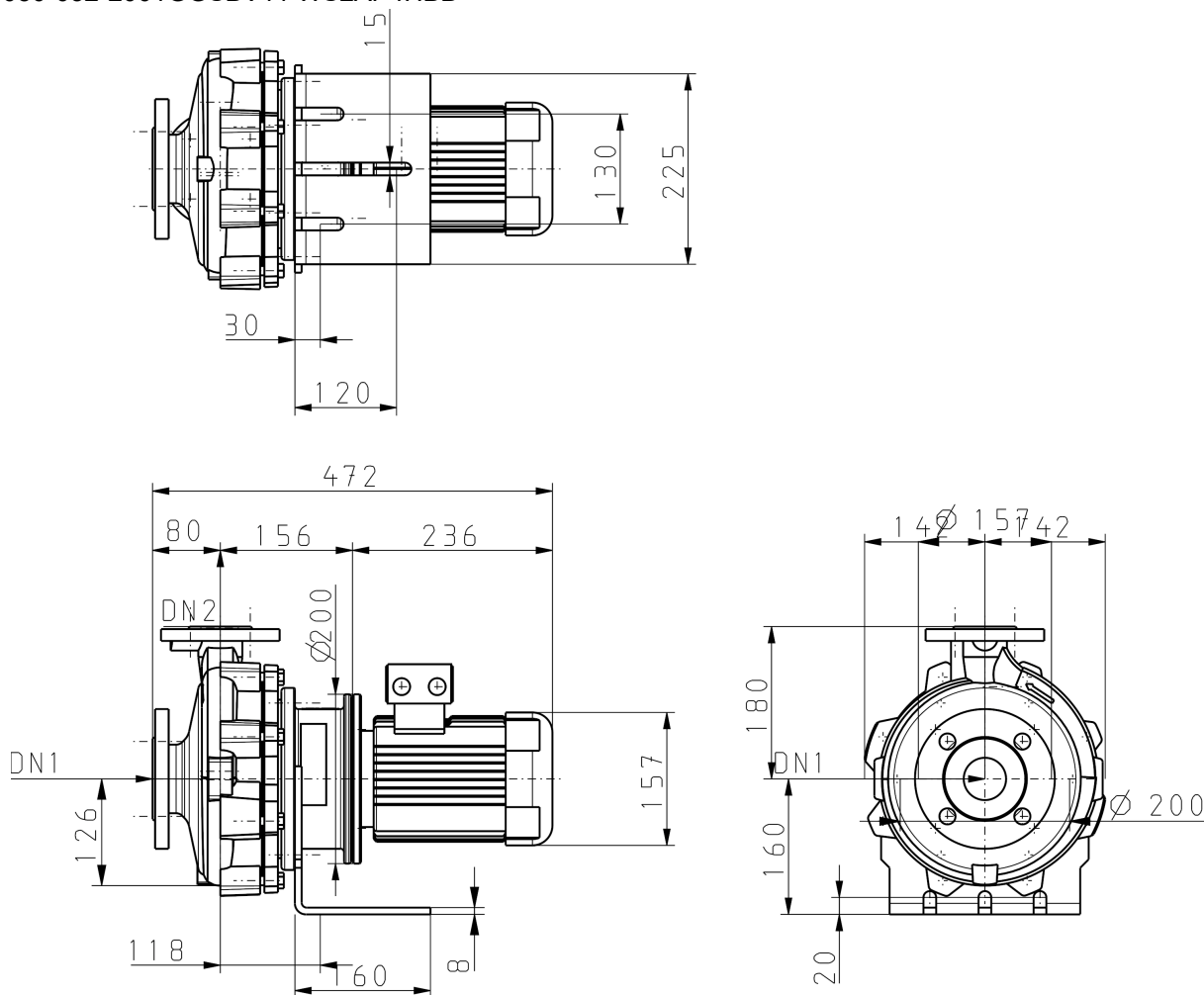
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**Curve Data**

|                                   |                         |                                                   |                      |
|-----------------------------------|-------------------------|---------------------------------------------------|----------------------|
| Pump speed                        | 1,452 1/min             | Efficiency Pump                                   | 44.9 %               |
| Density Fluid handled             | 965 kg/m <sup>3</sup>   | Minimum efficiency index MEI                      | 0.5                  |
| Kinematic viscosity Fluid handled | 0.33 mm <sup>2</sup> /s | Maximum power input at duty point                 | 0.33 kW              |
| Flow rate                         | 5.99 m <sup>3</sup> /h  | NPSH required                                     | 0.69 m               |
| Head                              | 9.46 m                  | Hydraulic impeller diameter                       | 174.7 mm             |
|                                   |                         | Hydraulic calculation according to standard/class | EN ISO 9906 class 3B |

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Drawing is not to scale.

Dimensions are given in mm

**Motor**

|                                                             |             |
|-------------------------------------------------------------|-------------|
| Motor manufacturer                                          | WEG         |
| Motor size                                                  | 80M         |
| Rated power Motor                                           | 0.55 kW     |
| Number of motor poles                                       | 4           |
| Rated speed Motor                                           | 1,420 1/min |
| Terminal box position of motor (looking at the motor shaft) | 360 Grad    |

**Connections**

|                                                    |          |
|----------------------------------------------------|----------|
| Nominal diameter Suction nozzle                    | DN 50    |
| Suction flange bolt hole pattern as per standard   | EN1092-2 |
| Nominal diameter Discharge nozzle                  | DN 32    |
| Discharge flange bolt hole pattern as per standard | EN1092-2 |
| Nominal pressure Suction nozzle                    | PN 16    |
| Nominal pressure Discharge nozzle                  | PN 16    |

**Net weight**

|                       |         |
|-----------------------|---------|
| Total weight Pump     | 39.8 kg |
| Total weight Drive    | 14.5 kg |
| Total weight Pump set | 57.2 kg |



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**Connect pipelines stress-free**

**Plan for additional connections see extra drawing**

Dimensional tolerances for shaft axis height: DIN 747

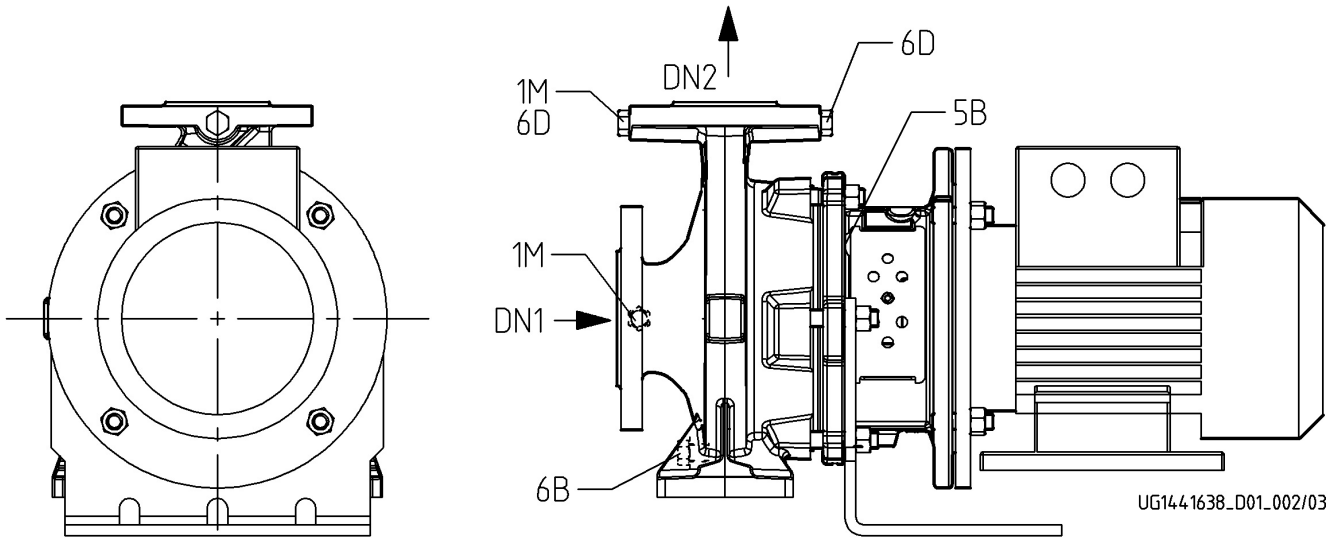
Dimensions without tolerances, middle tolerances to: ISO 2768-m

Connection dimensions for pumps: EN735

Dimensions without tolerances - welded parts: ISO 13920-B

Dimensions without tolerances - gray cast iron parts: ISO 8062-CT9

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UG144.1638\_D01\_002/03

**Connections**

6B Fluid Drain  
 6D Fluid Filling and venting

|       |                     |
|-------|---------------------|
| G 1/4 | Drilled and plugged |
| G 1/4 | Drilled and plugged |

Connection type 5B Venting and drain  
 1M Pressure gauge Discharge nozzle  
 1M Pressure gauge Suction nozzle

|       |                        |
|-------|------------------------|
| G 1/4 | Drilled and plugged    |
| G 1/4 | Fitted pressure sensor |
| G 1/4 | Fitted pressure sensor |