# Axial piston variable pump A4VSO Series 10, 11 and 30

## for explosive areas
## II 2G Ex h IIC T4-T1 Gb X and
## II 3G Ex h IIC T4-T1 Gc X

- Sizes 40 to 500
- Nominal pressure 350 bar
- Maximum pressure 400 bar
- Open circuit

**Information on explosion protection**

- Application per Directive 2014/34/EU (ATEX)
- Gas: II 2G Ex h IIC T4-T1 Gb X according to DIN EN ISO 80079-36 :2016, DIN EN ISO 80079-37 :2016
- Gas: II 3G Ex h IIC T4-T1 Gc X according to DIN EN ISO 80079-36 :2016, DIN EN ISO 80079-37 :2016

**Features**

Variable displacement pump with axial piston rotary group of swashplate design for hydrostatic drives in open circuit
Flow is proportional to drive speed and displacement.
Flow can be infinitely varied by controlling the swashplate angle.

- Excellent suction characteristics
- Low noise level
- Long service life
- Modular design
- Short control response times
- Variable through drive options
- Optical swivel angle indicator

**Contents**

## Type code

| 01 | 02 | 03 | 04 | 05 | | 06 | 07 | | 08 | 09 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A4VS | O | | | / | | | – | | | | 25 | |

| | | | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Hydraulic fluid/type** | | | | | | | | | | |
| 01 | Mineral oil (without code) | | ● | ● | ● | ● | ● | ● | ● | |
| | High-speed version | | – | – | – | – | ● | ● | ● | H |
| **Axial piston unit** | | | | | | | | | | |
| 02 | Swashplate design, variable, nominal pressure 350 bar, maximum pressure 400 bar | | | | | | | | | A4VS |
| **Operating mode** | | | | | | | | | | |
| 03 | Pump, open circuit | | | | | | | | | O |
| **Sizes (NG)** | | | | | | | | | | |
| 04 | Geometric displacement, see table of values on page 6 | | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| **Control devices** | | Information on controller selection | | | | | | | | |
| 05 | Without control | | ● | ● | ● | ● | ● | ● | ● | OV |
| | Pressure controller | See page 10 and data sheet 92060 | ● | ● | ● | ● | ● | ● | ● | DR |
| | Pressure controller for parallel operation | | ● | ● | ● | ● | ● | ● | ● | DP |
| | Flow controller | | ● | ● | ● | ● | ● | ● | ● | FR.. |
| | Pressure and flow controller | | ● | ● | ● | ● | ● | ● | ● | DFR. |
| | Power controller with hyperbolic characteristic curve | See page 12, 13 and data sheet 92064 | ● | ● | ● | ● | ● | ● | ● | LR2.. |
| | Power controller with remotely controllable power characteristics | | ● | ● | ● | ● | ● | ● | ● | LR3.. |
| | Manual control | See page 14 Data sheet 92072 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | MA |
| | Rod system control (maximum working pressure 150 bar) | | – | ● | ● | ● | – | – | – | GE |
| | Hydraulic control, pressure-dependent HD.U and HD.T not available in ATEX | See page 13 and data sheet 92080 | ● | ● | ● | ● | ● | ● | ● | HD... |
| **Series** | | | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 06 | Series 1, index 0 | | ● | ● | – | – | – | – | – | 10 |
| | Series 1, index 1 only for HD control | | ● | ● | – | – | – | – | – | 11 |
| | Series 3, index 0 | | – | – | ● | ● | ● | ● | ● | 30 |
| **Directions of rotation** | | | | | | | | | | 40 ... 500 |
| 07 | Viewed on drive shaft | clockwise | | | | | | | | ● R |
| | | counter-clockwise | | | | | | | | ● L |
| **Seals and ATEX version** | | | | | | | | | | 40 ... 500 |
| 08 | FKM (fluoroelastomer) and ATEX version II 2G Ex h IIC T4-T1 Gb X | | | | | | | | | ● R |
| | FKM (fluoroelastomer) and ATEX version II 3G Ex h IIC T4-T1 Gc X | | | | | | | | | ● A |
| **Drive shafts** | | | | | | | | | | 40 ... 500 |
| 09 | Parallel keyed shaft DIN 6885 | | | | | | | | | ● P |
| | Splined shaft DIN 5480 | | | | | | | | | ● Z |
| **Mounting flange** | | | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 10 | In accordance with ISO 3019-2 (metric) | 4-hole | ● | ● | ● | ● | ● | ● | – | B |
| | | 8-hole | – | – | – | – | – | – | ● | H |
| **Working port** | | | | | | | | | | 40 ... 500 |
| 11 | SAE flange ports, Fastening thread metric | B and S offset 90° to the side | 2. Pressure port B1 opposite B, plugged with flange plate on delivery | | | | | | | ● 25 |

● = Available ○ = On request – = Not available

| 01 | 02 | 03 | 04 | 05 | | 06 | 07 | | 08 | 09 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A4VS | O | | | / | | | – | | | | 25 | |

**Through drives**[1] (for mounting options, see page 41)

| 12 | Flange ISO 3019-2 (metric)<br>Diameter | Hub for splined shaft<br>Diameter | | For mounting of<br>ATEX axial piston pump | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | without through drive and auxiliary pump | | | | ● | ● | ● | ● | ● | ● | ● | N00 |
| | with through drive for mounting of an axial piston pump | | | | ● | ● | – | – | – | – | ● | K... |
| | Universal through drive[2] | | | | – | – | ● | ● | ● | ● | – | U... |
| | 125-4 | 32x2x14x9g[3] | | A4VS NG40 | ● | ● | ● | ● | ● | ● | ● | 31 |
| | 140-4 | 40x2x18x9g[3] | | A4VS NG71 | – | ● | ● | ● | ● | ● | ● | 33 |
| | 160-4 | 50x2x24x9g[3] | | A4VS NG125 and NG180 | – | – | ● | ● | ● | ● | ● | 34 |
| | 224-4 | 60x2x28x9g[3] | | A4VS NG250 | – | – | – | – | ● | ● | ● | 35 |
| | | 70x3x22x9g[3] | | A4VS NG 355 and 500 | – | – | – | – | – | ● | ● | 77 |
| | 315-8 | 80x3x25x9g[3] | | A4VS NG 500 | – | – | – | – | – | – | ● | 43 |
| | 80-2 | 3/4 in | 11T 16/32DP[4] | A10VSO 18/31 | ○ | ● | ● | ● | ● | ● | ○ | B2 |
| | 100-2 | 7/8 in | 13T 16/32DP[4] | A10VSO 28/31 | ● | ● | ● | ● | ● | ● | ○ | B3 |
| | 100-2 | 1 in | 15T 16/32DP[4] | A10VSO 45/31 | ● | ● | ● | ● | ● | ● | ● | B4 |
| | 125-2 | 1 1/4 in | 14T 12/24DP[4] | A10VSO 71/31 | – | ● | ● | ● | ● | ● | ● | B5 |
| | 125-2 | 1 1/2 in | 17T 12/24DP[4] | A10VSO 100/31 | – | – | ● | ● | ● | ● | ○ | B6 |
| | Prepared for through drive, with pressure-resistant plugged cover | | | | ● | ● | ● | ● | ● | ● | ● | 99 |

● = Available ○ = On request – = Not available

**Notices**

- Note the project planning notes on page 45.
- In addition to the type code, please specify the relevant technical data when placing your order.

**Features of the ATEX version**

The ATEX version is an advanced development of the A4VSO for compliance with Directive 2014/34/EU (ATEX). External features distinguishing it from the standard pump 92050 are the ground terminal, the Ex marking and the CE marking on the name plate.

**Temperature classes per DIN EN ISO 80079-36**

Depending on the two temperature classes, T3 and T4, observe the maximum permissible temperatures (see "Hydraulic fluid" and "Operating data monitoring – X parameters").

**Notices**

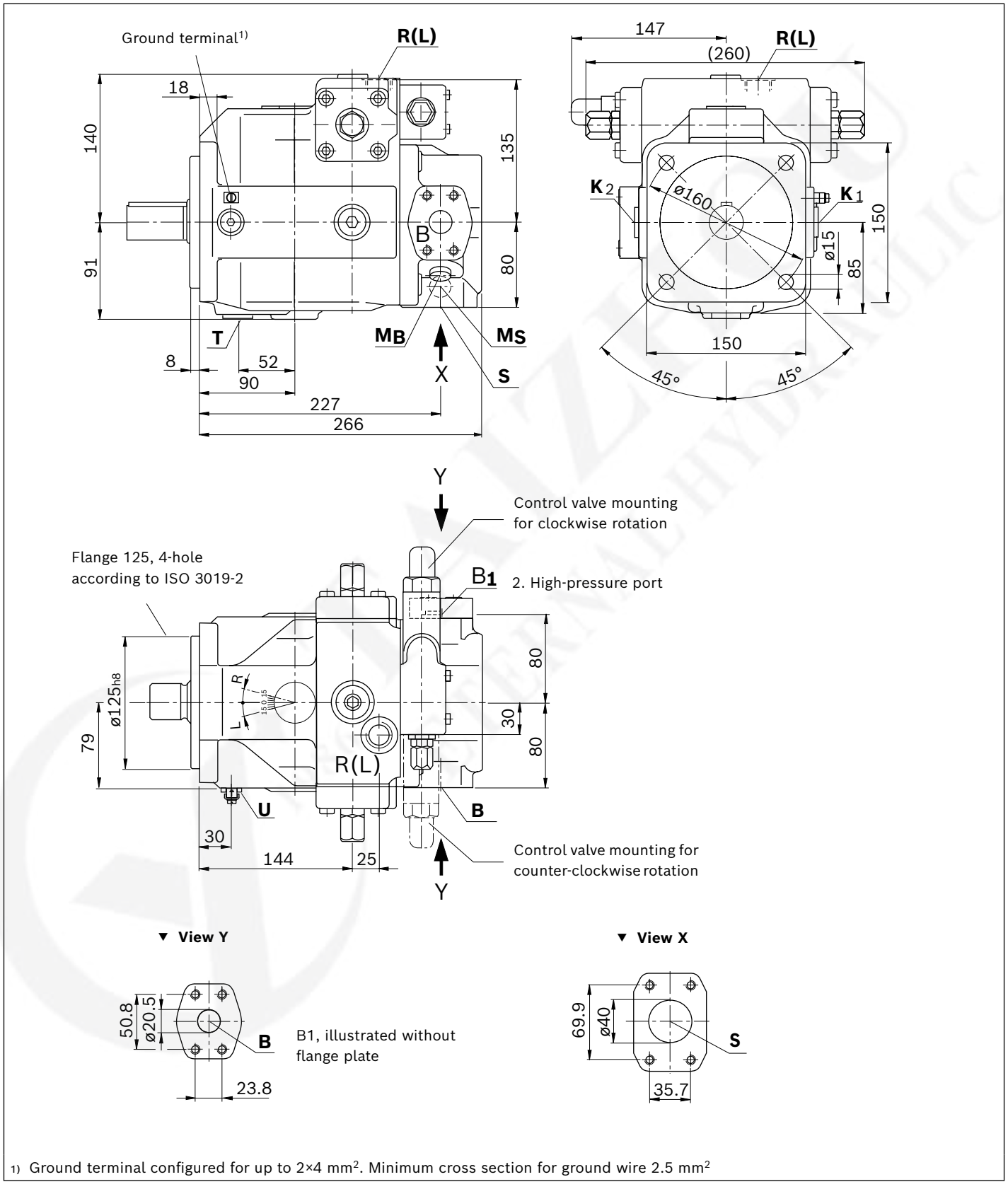
- **ATEX classification:** When ordering, please state which equipment group, category, explosion group, temperature class and ignition protection type are required for your planned ATEX application.
- **Technical data:** Compared to the standard pump, restrictions apply in terms of temperature, case pressure and bearing flushing/installation position.
- **Painting/color selection:** In order to avoid mechanically generated sparks from contaminants made of aluminum with iron oxide and/or particles of rust of the surface[5], the pump is painted as standard with corrosion protecting. Please contact your Rexroth partner for available colors.
- **Bearing service life:** The service life of the bearings must be calculated. The load cycle forms the basis for this. Please contact us.
- **Potential equalization:** The pump must be grounded. For grounding points, see drawings starting on page 15.

1) All attachment pumps must match the ATEX classification for the application in question.
2) With through-drive shaft, without hub, without intermediate flange, closed on a functionally reliable basis with cover.
3) Splined hub according to DIN 5480
4) Hub for splined shaft according to ANSI B92.1a, 30° pressure angle, flat root, side fit, tolerance class 5
5) See DIN EN ISO 80079-36, 6.4.2.1

## Dimensions, size 40

**DR – Pressure control; flange valve version metric**

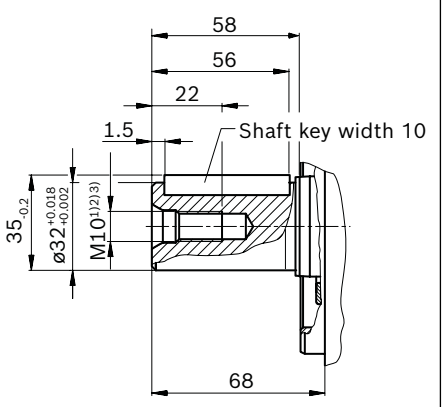
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

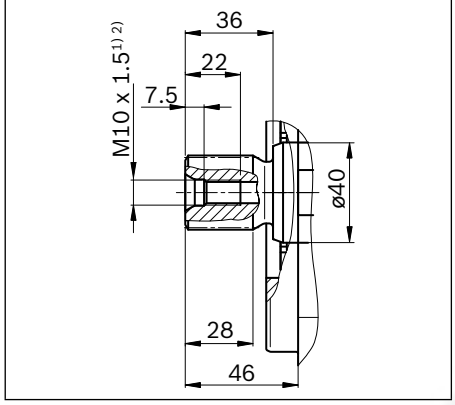
▼ **Cyl. shaft with shaft key (DIN 6885)**

**P** – AS10 × 8 × 56




▼ **Splined shaft (DIN 5480)**

**Z –** W32 × 2 × 14 × 9g



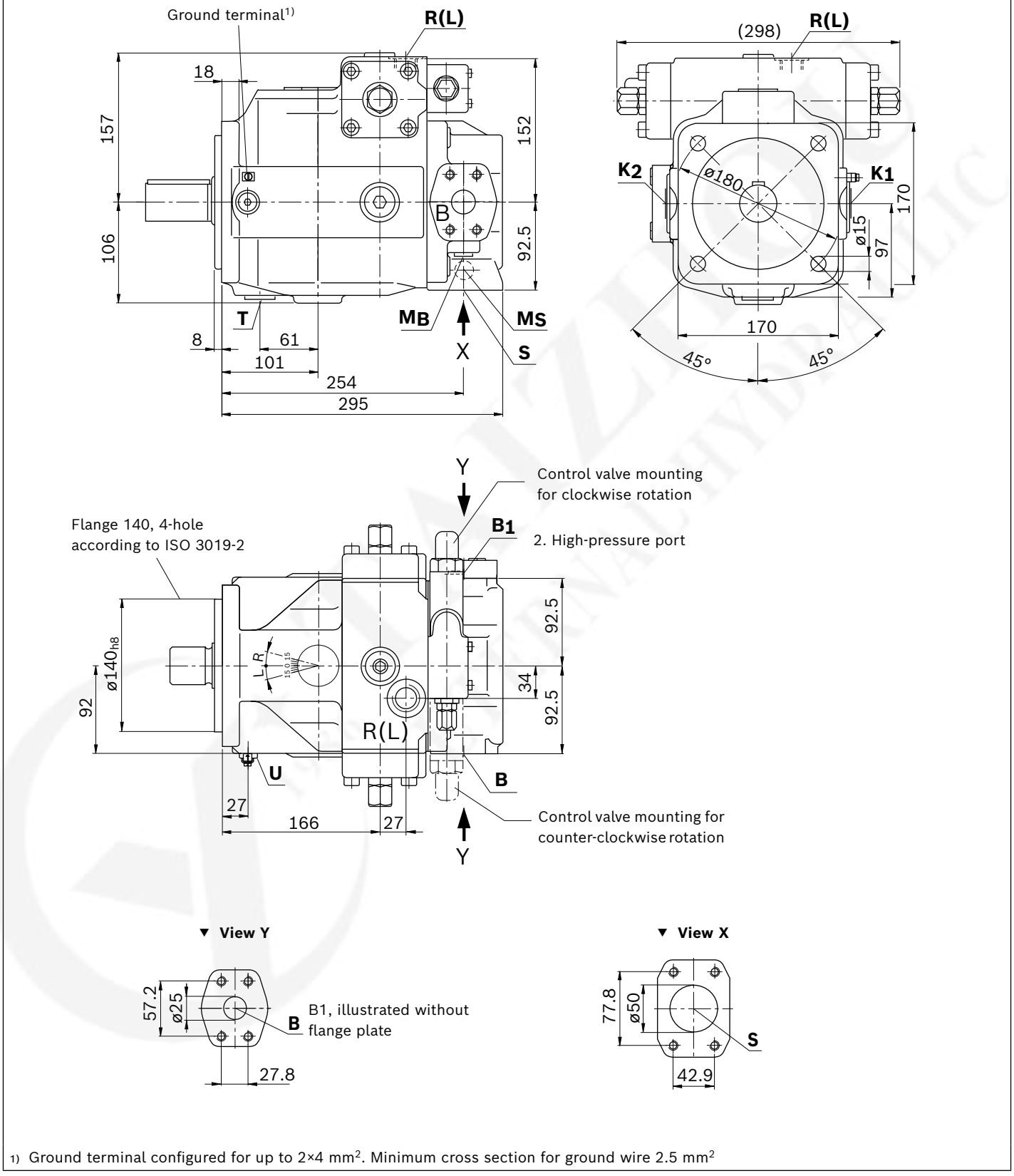

| Ports | | Standard | Size[3] | $p_{max\ abs}$ [bar][4] | State[9] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 3/4 in<br>M10 × 1.5; 17 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 3/4 in<br>M10 × 1.5; 17 deep | 400 | X[8] |
| **S** | Suction port<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 1/2 in<br>M12 × 1.75; 20 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5] | M22 × 1.5; 14 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5] | M22 × 1.5; 14 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5] | M14 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5] | M14 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding<br>(drain port) | DIN 3852[5] | M22 × 1.5; 12 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5] | M14 × 1.5; 11.5 deep | 5 | X[7] |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, size 71

**DR – Pressure control; flange valve version metric**

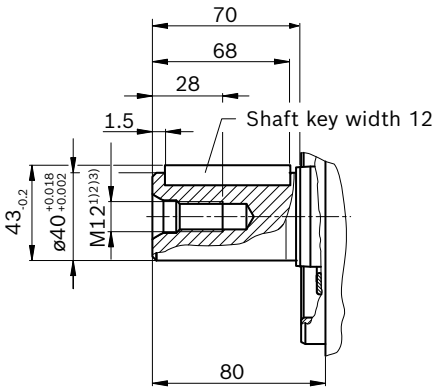
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

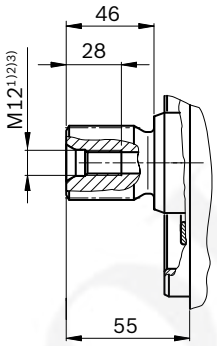
▼ **Parallel keyed shaft DIN 6885**

**P –** Ø40 AS 12×8×68




▼ **Splined shaft DIN 5480**

**Z –** W40×2×18×9g



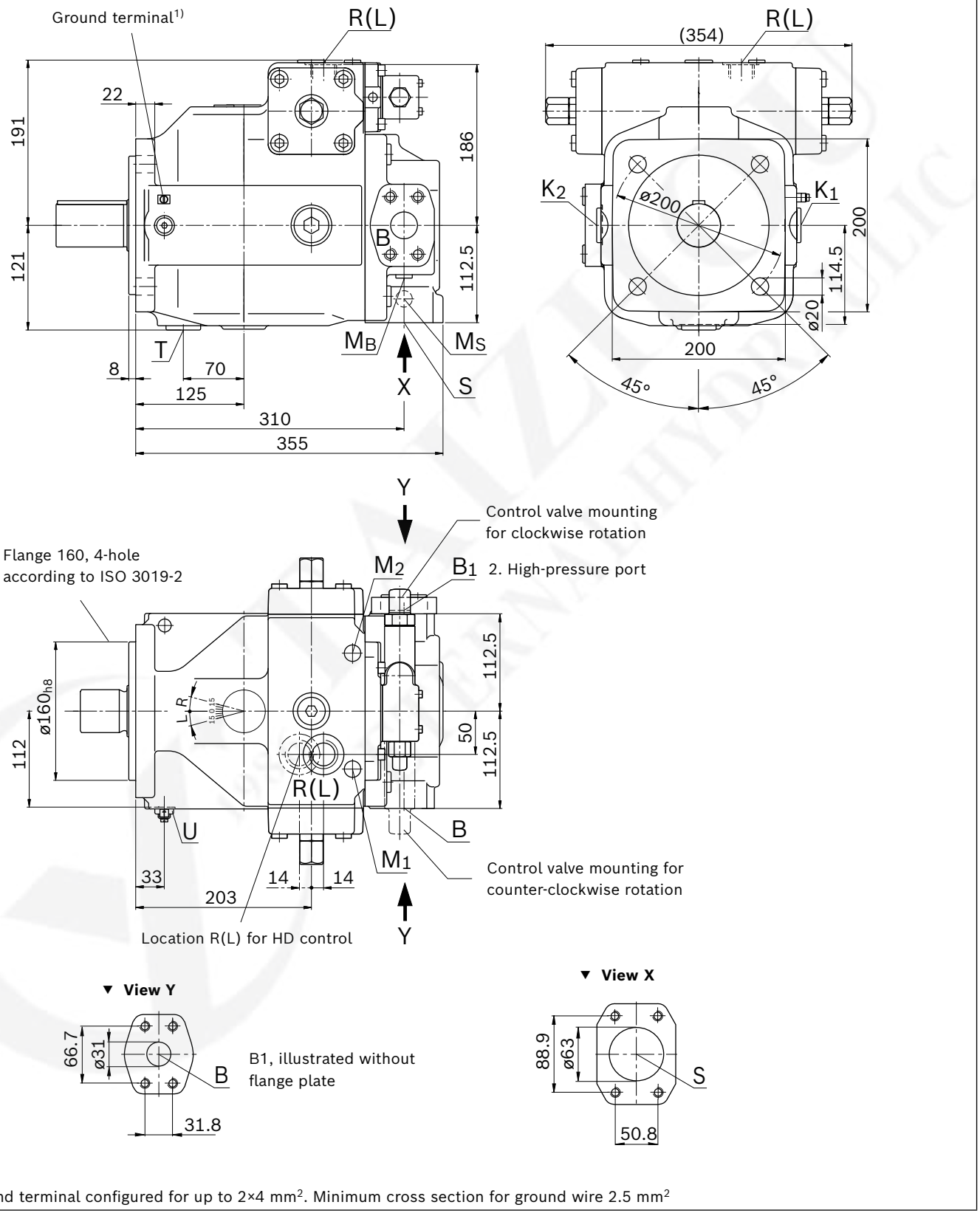

| Ports | | Standard | Size[3] | $p_{max\ abs}$ [bar][4] | State[9] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 in<br>M12 × 1.75; 20 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 in<br>M12 × 1.75; 20 deep | 400 | X[8] |
| **S** | Suction port | SAE J518[6]<br>DIN 13 | 2 in<br>M12 × 1.75; 20 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5] | M27 × 2; 16 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5] | M27 × 2; 16 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5] | M14 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5] | M14 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding<br>(drain port) | DIN 3852[5] | M27 × 2; 16 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5] | M14 × 1.5; 12 deep | 5 | X[7] |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, size 125

**DR – Pressure control; flange valve version metric**

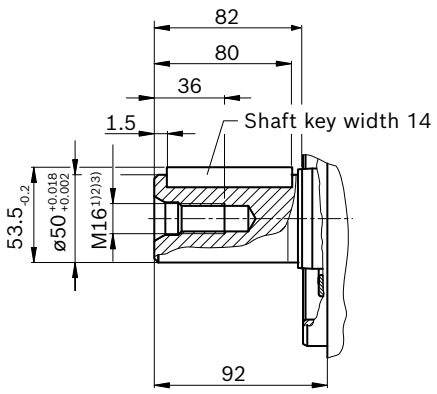
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

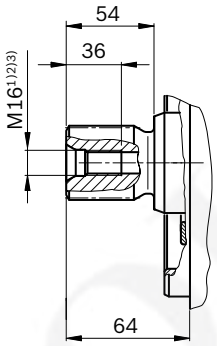
▼ **Parallel keyed shaft DIN 6885**

**P –** Ø50 AS 14×9×80




▼ **Splined shaft DIN 5480**

**Z –** W50×2×24×9g



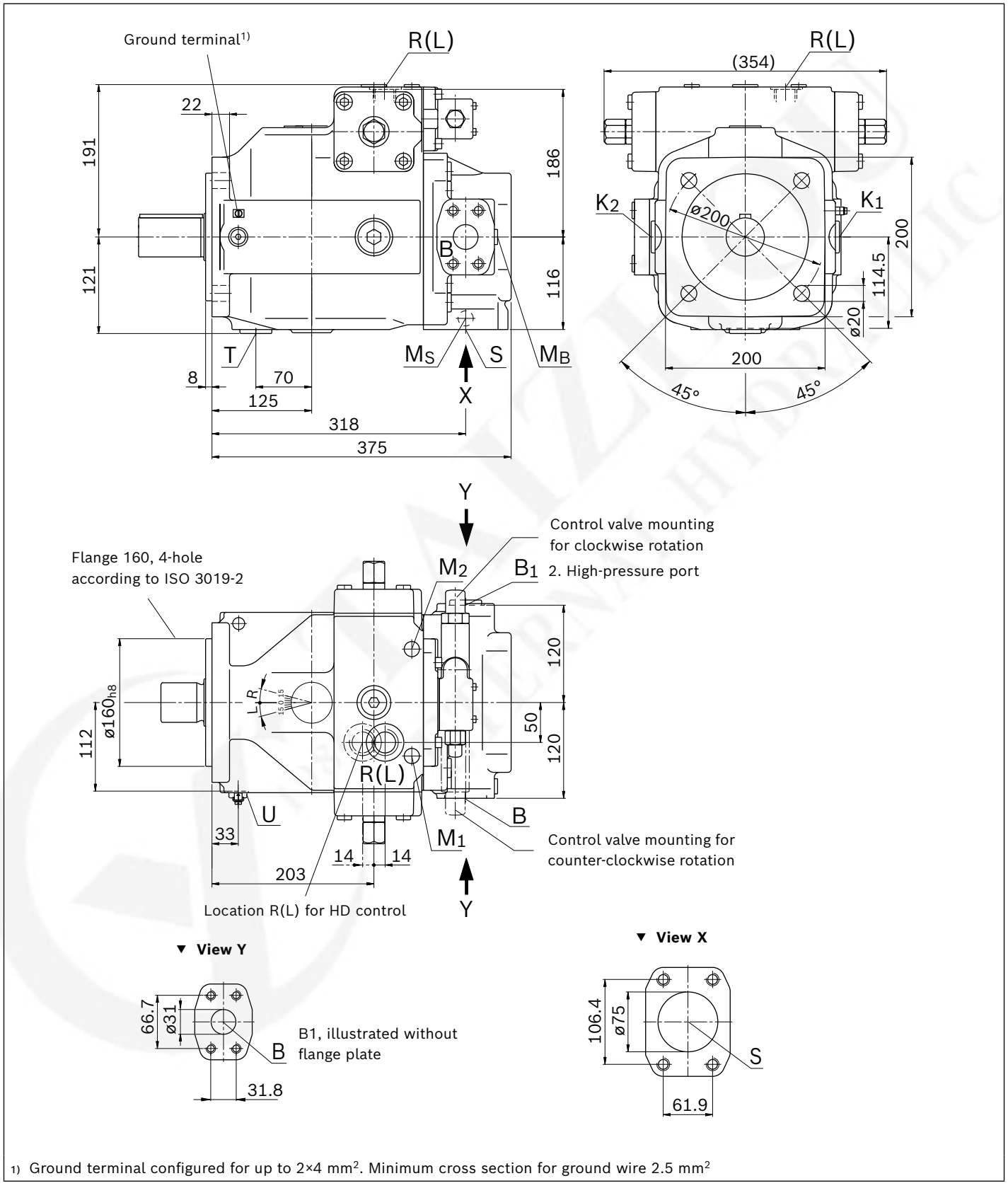

| Ports | | Standard | Size[3] | $p_{max\ abs}$ [bar][4] | State[9] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 1/4 in<br>M14 × 2; 19 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 1/4 in<br>M14 × 2; 19 deep | 400 | X[8] |
| **S** | Suction port | SAE J518[6]<br>DIN 13 | 2 1/2 in<br>M12 × 1.75; 18 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5] | M33 × 2; 18 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5] | M33 × 2; 18 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5] | M14 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5] | M14 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding (drain port) | DIN 3852[5] | M33 × 2; 18 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5] | M14 × 1.5; 12 deep | 5 | X[7] |
| **$M_1$, $M_2$** | Control pressure measuring | DIN 3852[5] | M14 × 1.5; 12 deep | 400 | X |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, size 180

**DR – Pressure control; flange valve version metric**

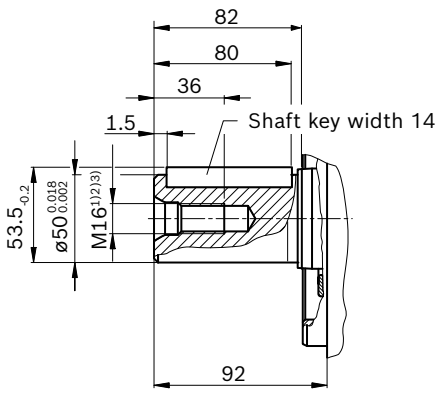
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

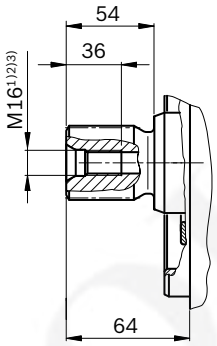
▼ **Parallel keyed shaft DIN 6885**

**P –** Ø50 AS 14×9×80




▼ **Splined shaft DIN 5480**

**Z –** W50×2×24×9g



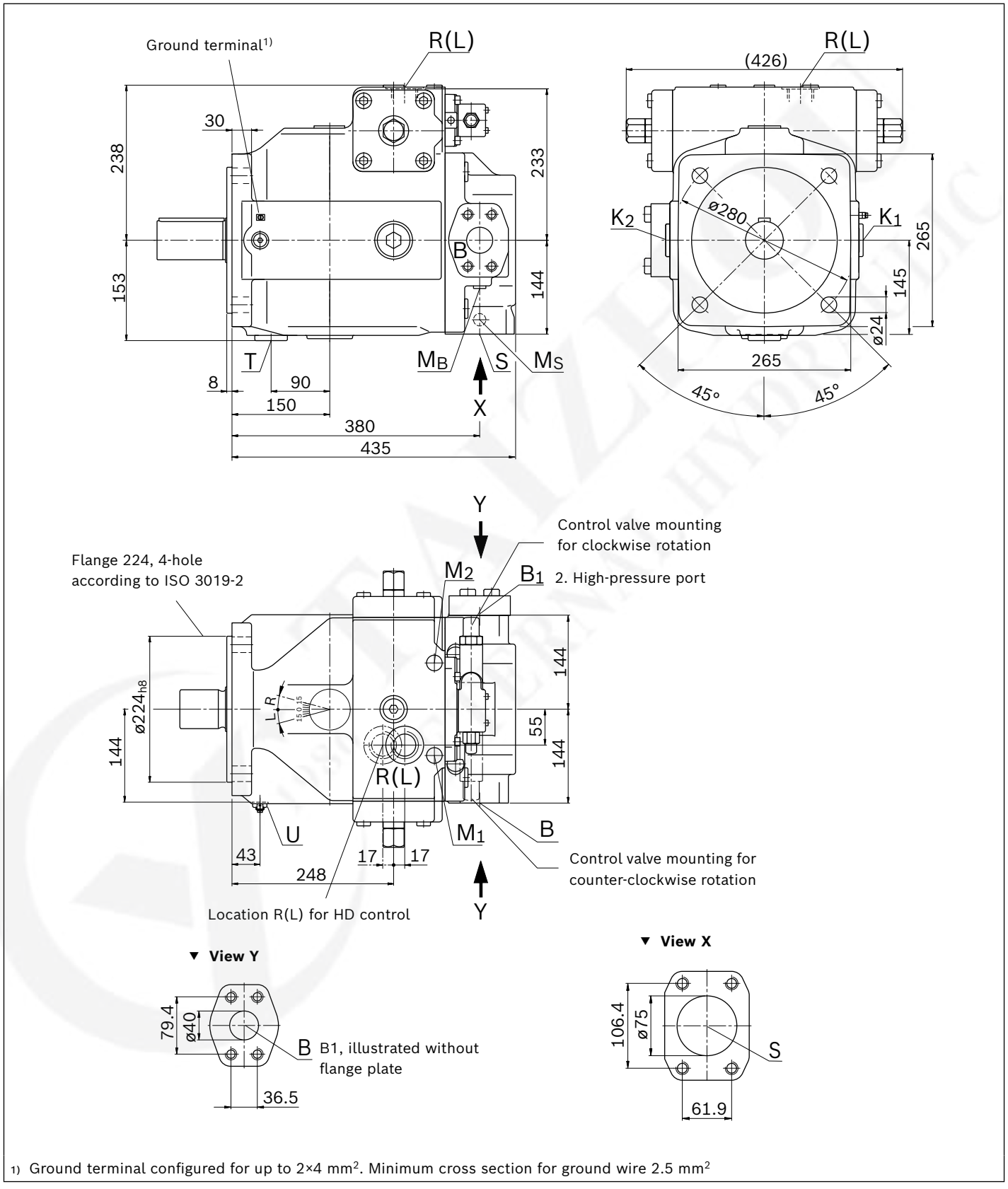

| Ports | | Standard | Size[3)] | $p_{max\ abs}$ [bar][4)] | State[9)] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6)]<br>DIN 13 | 1 1/4 in<br>M14 × 2; 19 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6)]<br>DIN 13 | 1 1/4 in<br>M14 × 2; 19 deep | 400 | X[8)] |
| **S** | Suction port | SAE J518[6)]<br>DIN 13 | 3 in<br>M16 × 2; 24 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5)] | M33 × 2; 18 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5)] | M33 × 2; 18 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5)] | M14 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5)] | M14 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding (drain port) | DIN 3852[5)] | M33 × 2; 18 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5)] | M14 × 1.5; 12 deep | 5 | X[7)] |
| **$M_1$, $M_2$** | Control pressure measuring | DIN 3852[5)] | M14 × 1.5; 12 deep | 400 | X |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, size 250

**DR – Pressure control; flange valve version metric**

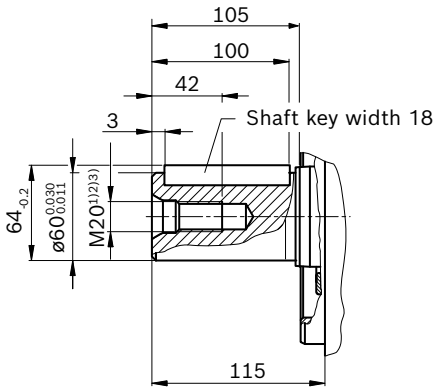
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

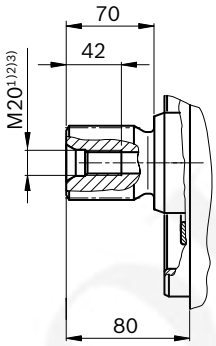
▼ **Parallel keyed shaft DIN 6885**

**P –** Ø60 AS 18×11×100




▼ **Splined shaft DIN 5480**

**Z –** W60×2×28×9g



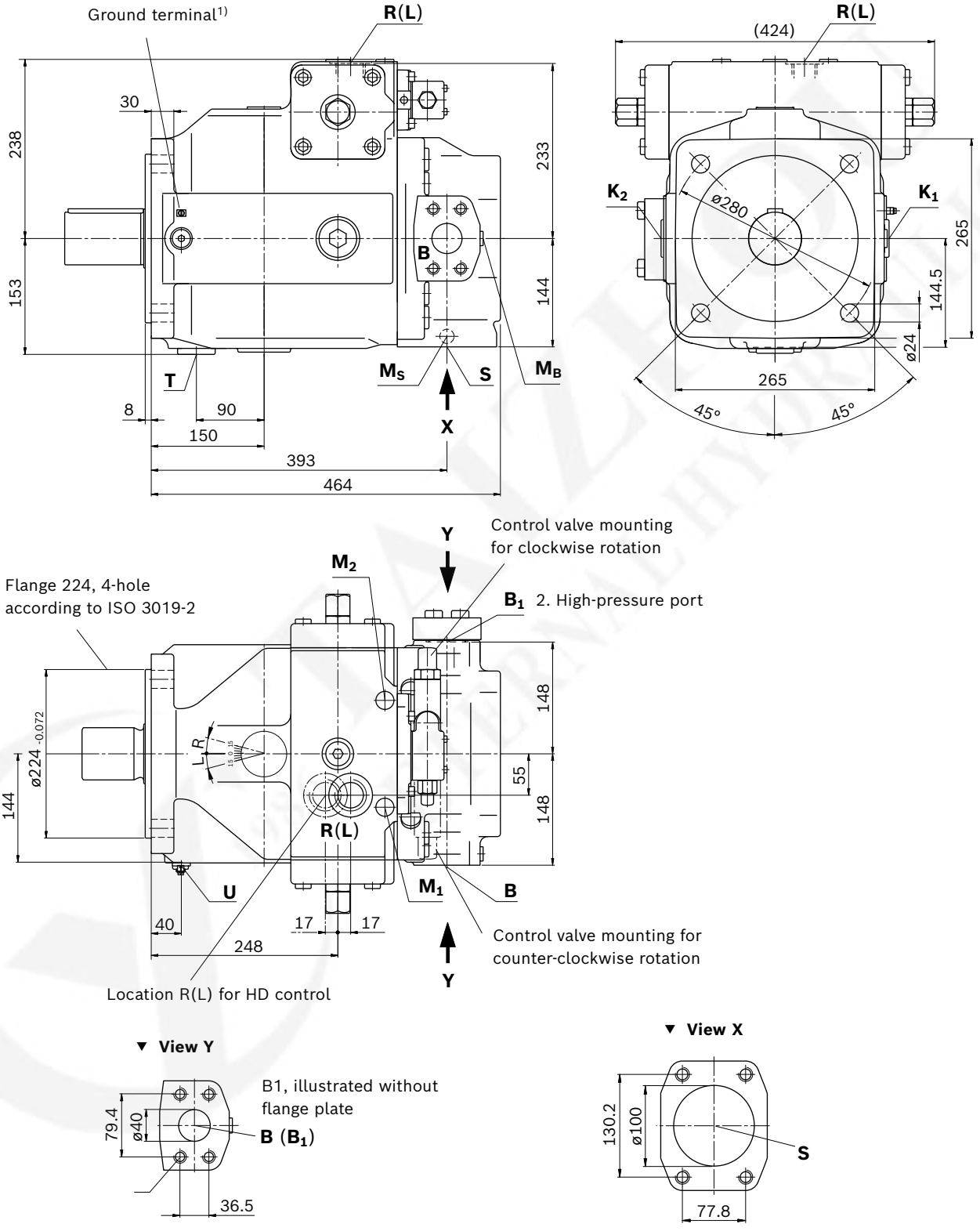

| Ports | | Standard | Size[3)] | $p_{max\ abs}$ [bar][4)] | State[9)] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6)]<br>DIN 13 | 1 1/2 in<br>M16 × 2; 25 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6)]<br>DIN 13 | 1 1/2 in<br>M16 × 2; 25 deep | 400 | X[8)] |
| **S** | Suction port | SAE J518[6)]<br>DIN 13 | 3 in<br>M16 × 2; 24 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5)] | M42 × 2; 20 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5)] | M42 × 2; 20 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5)] | M14 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5)] | M14 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding (drain port) | DIN 3852[5)] | M42 × 2; 20 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5)] | M14 × 1.5; 12 deep | 5 | X[7)] |
| **$M_1$, $M_2$** | Control pressure measuring | DIN 3852[5)] | M14 × 1.5; 12 deep | 400 | X |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, size 355

**DR – Pressure control; flange valve version metric**

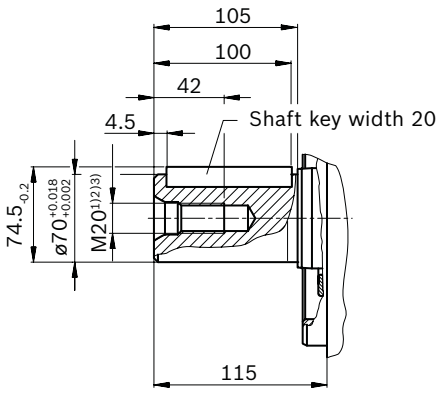
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

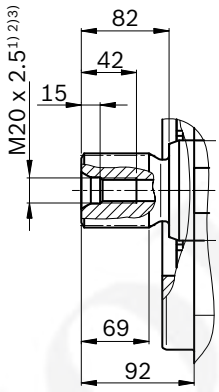
▼ **Parallel keyed shaft DIN 6885**

**P –** Ø70 AS 20×12×100




▼ **Splined shaft DIN 5480**

**Z –** W70×3×22×9g



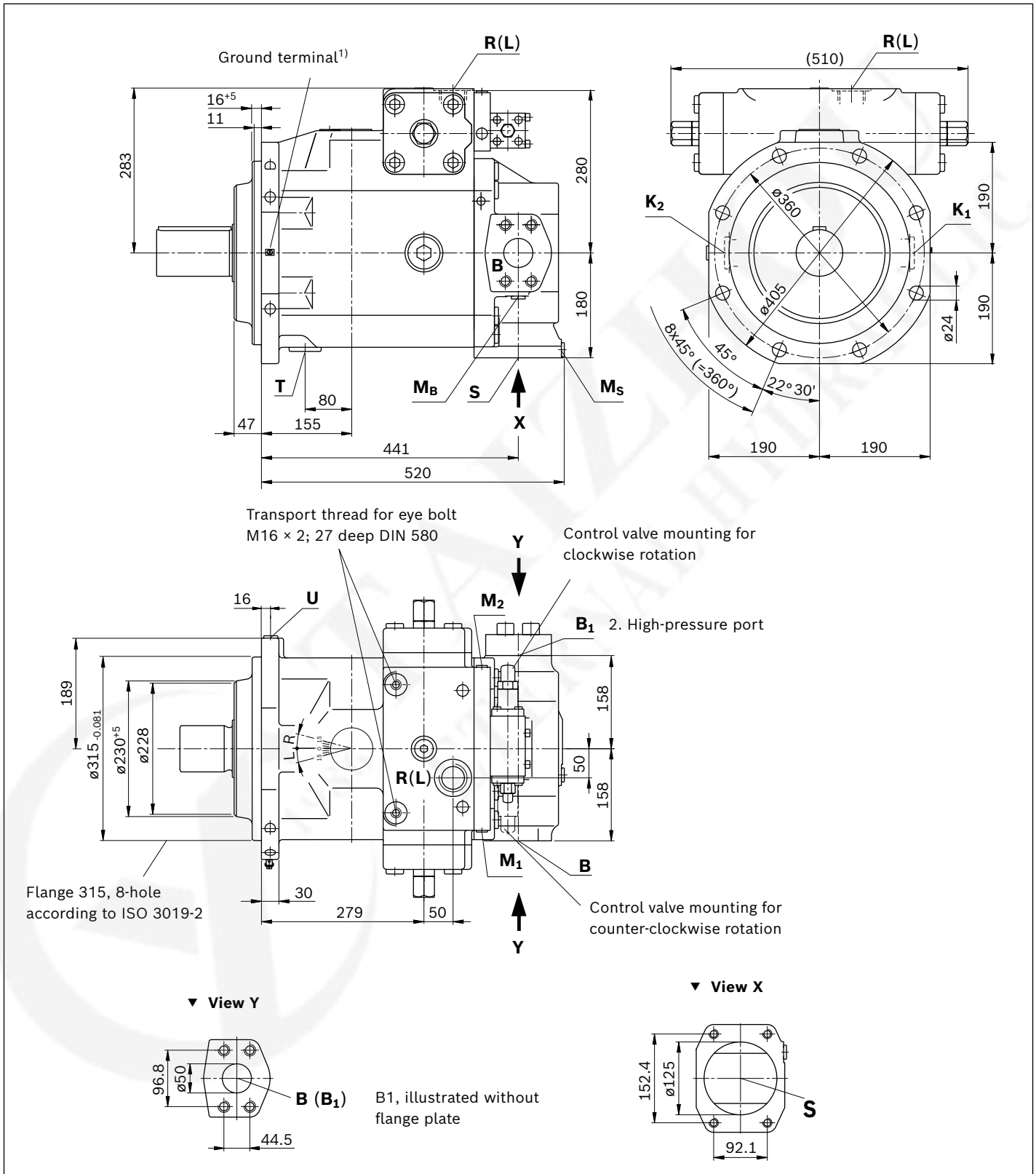

| Ports | | Standard | Size[3] | $p_{max\ abs}$ [bar][4] | State[9] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 1/2 in<br>M16 × 2; 25 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 1 1/2 in<br>M16 × 2; 25 deep | 400 | X[8] |
| **S** | Suction port | SAE J518[6]<br>DIN 13 | 4 in<br>M16 × 2; 24 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5] | M42 × 2; 20 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5] | M42 × 2; 20 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5] | M14 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5] | M14 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding<br>(drain port) | DIN 3852[5] | M42 × 2; 20 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5] | M18 × 1.5; 12 deep | 5 | X[7] |
| **$M_1$, $M_2$** | Control pressure measuring | DIN 3852[5] | M18 × 1.5; 12 deep | 400 | X |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, size 500

### DR – Pressure control; flange valve version metric

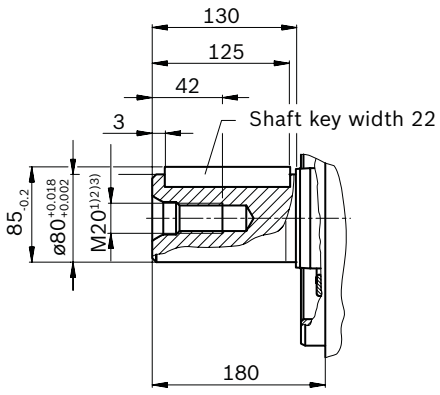
(for further dimensions of control units, please refer to the respective data sheets)




1) Ground terminal configured for up to 2×4 mm². Minimum cross section for ground wire 2.5 mm²

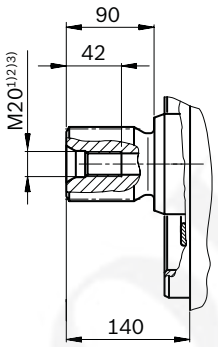
▼ **Parallel keyed shaft DIN 6885**

**P –** Ø80 AS 22×14×125




▼ **Splined shaft DIN 5480**

**Z –** W80×3×25×9g

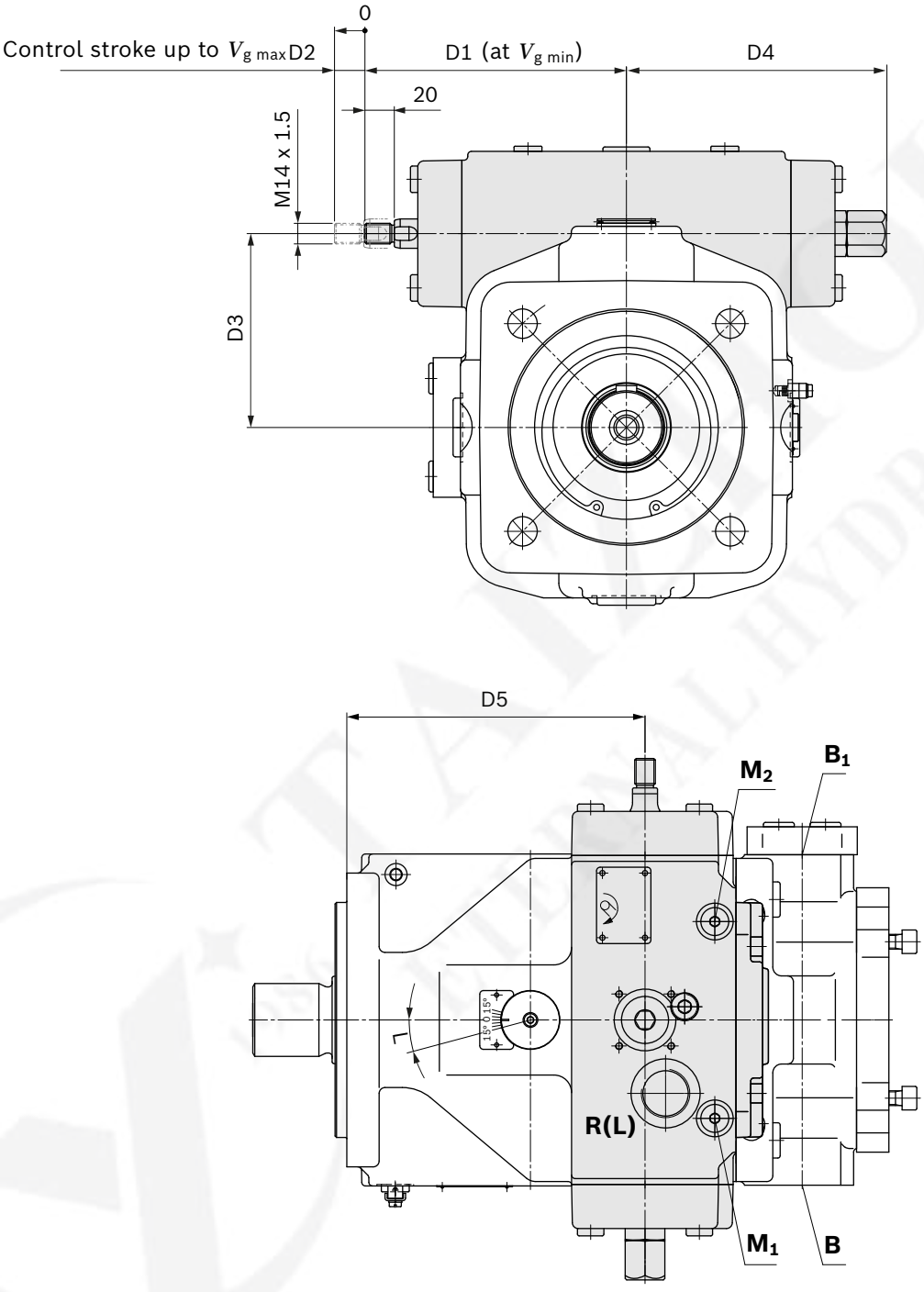



| Ports | | Standard | Size[3] | $p_{max\ abs}$ [bar][4] | State[9] |
|---|---|---|---|---|---|
| **B** | Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 2 in<br>M20 × 2; 25 deep | 400 | O |
| **B1** | 2. Working port (high-pressure series)<br>Fastening thread | SAE J518[6]<br>DIN 13 | 2 in<br>M20 × 2; 25 deep | 400 | X[8] |
| **S** | Suction port | SAE J518[6]<br>DIN 13 | 5 in<br>M16 × 2.5; 24 deep | 30 | O |
| **$K_1$, $K_2$** | Flushing port | DIN 3852[5] | M48 × 2; 22 deep | 2 | X |
| **T** | Fluid drain | DIN 3852[5] | M48 × 2; 22 deep | 2 | X |
| **$M_B$** | Measuring pressure **B** | DIN 3852[5] | M18 × 1.5; 12 deep | 400 | X |
| **$M_S$** | Measuring pressure **S** | DIN 3852[5] | M18 × 1.5; 12 deep | 30 | X |
| **R(L)** | Fluid filling and air bleeding<br>(drain port) | DIN 3852[5] | M48 × 2; 22 deep | 2 | O |
| **U** | Flushing port | DIN 3852[5] | M18 × 1.5; 12 deep | 5 | X[7] |
| **$M_1$, $M_2$** | Control pressure measuring | DIN 3852[5] | see data sheet of control units | 400 | X |

1) Center bore according to DIN 332
2) Thread according to DIN 13
3) Observe the instructions in Part I (product-specific and general instructions) concerning the maximum tightening torques.
4) Depending on the application, momentary pressure peaks can occur. Keep this in mind when selecting measuring devices and fittings.
5) The countersink may be deeper than specified in the standard.
6) Metric fastening thread is a deviation from standard.
7) For above-reservoir installation and for all installation positions with "drive shaft up" a bearing flushing must be installed.
8) Plugged and high-pressure-proof with flange plate. Depending on application, **B** and/or **$B_1$** must be connected. The unused port must be plugged with a flange plate.
9) O = Must be connected (comes plugged)
X = Plugged (in normal operation)

## Dimensions, GE control, NG 71, 125 and 180

### GE – Rod system control (clockwise rotation, counter-clockwise swivel direction)




Further dimensions and ports in respective sizes can be found in this manual.

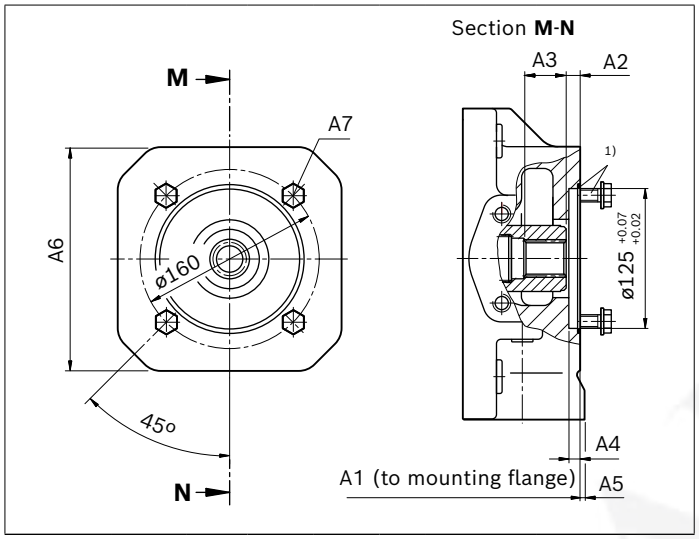
| Size | D1 | D2 | D3 | D4 | D5 | Ports $M_1$ and $M_2$ | State |
|---|---|---|---|---|---|---|---|
| **71** | 180 | 17.1 | 108 | 149 | 166 | – | – |
| **125** | 178 | 20.7 | 132 | 177 | 203 | M14 × 1.5 | plugged |
| **180** | 178 | 20.7 | 132 | 177 | 203 | M14 × 1.5 | plugged |

## Dimensions, through drive

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | Availability across sizes | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 125-4 | | N32×2×14×8H | ● | ● | – | – | – | – | ● | K31 |
| | | N32×2×14×8H | – | – | ● | ● | ● | ● | – | U31 |

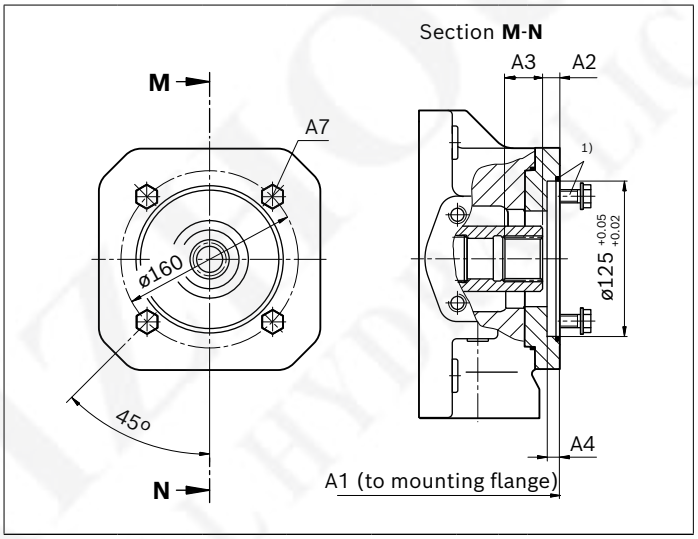
● = Available  o = On request  – = Not available

▼ **125-4**




| K31 | NG | A1 | A2 | A3 | A4 | A5 | A6 | A7[3] |
|---|---|---|---|---|---|---|---|---|
| | 40 | 288 | 12.5 | 40 | 9 | – | – | M12; 24 deep |
| | 71 | 316 | 12.5 | 33.6 | 9 | – | – | M12; 24 deep |
| | 500 | 505 | 12.5 | 38.5 | 9 | 15 | 240 | M12; 18 deep |

▼ **125-4**




| U31 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 12.5 | 35.6 | 9 | M12; 22 deep |
| | 180 | 393 | 12.5 | 35.6 | 9 | M12; 22 deep |
| | 250 | 453 | 12.5 | 38.0 | 9 | M12; 15 deep |
| | 355 | 482 | 12.5 | 38.0 | 9 | M12; 15 deep |

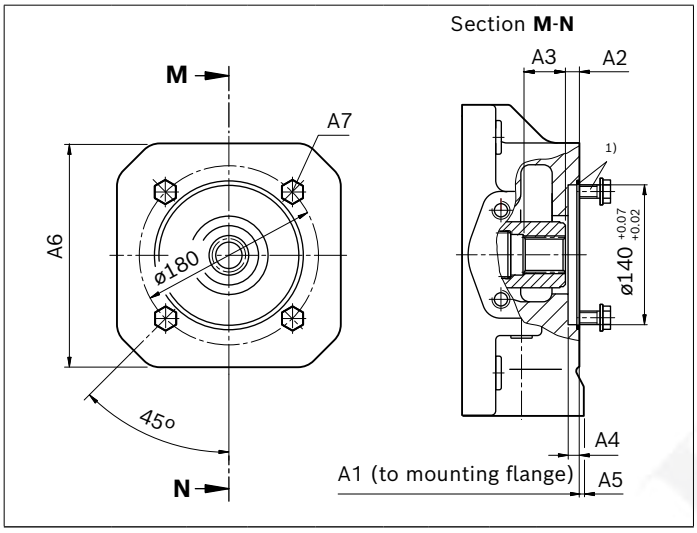
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Splined hub according to DIN 5480
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 140-4 | | N40×2×18×8H | – | ● | – | – | – | – | ● | K33 |
| | | N40×2×18×8H | – | – | ● | ● | ● | ● | – | U33 |

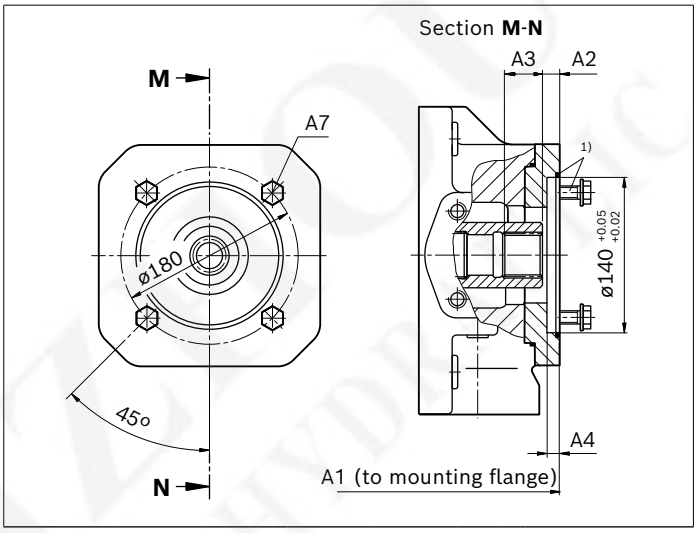
● = Available  o = On request  – = Not available

▼ **140-4**




| K33 | NG | A1 | A2 | A3 | A4 | A5 | A6 | A7[3] |
|---|---|---|---|---|---|---|---|---|
| | 71 | 316 | 11.5 | 42.8 | 9 | – | – | M12; 24 deep |
| | 500 | 505 | 12.5 | 57 | 9 | – | – | M12; 18 deep |

▼ **140-4**




| U33 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 12.5 | 43.8 | 9 | M12; 22 deep |
| | 180 | 393 | 12.5 | 43.8 | 9 | M12; 22 deep |
| | 250 | 453 | 12.5 | 48.9 | 9 | M12; 22 deep |
| | 355 | 482 | 12.5 | 48.0 | 9 | M12; 22 deep |

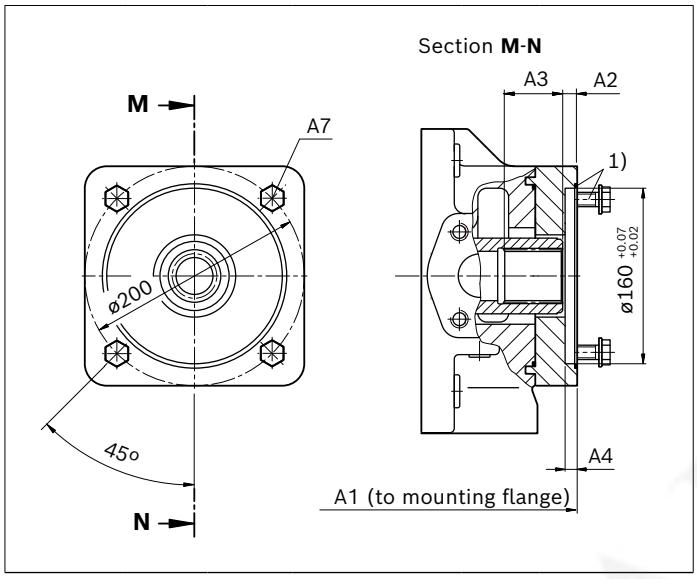
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

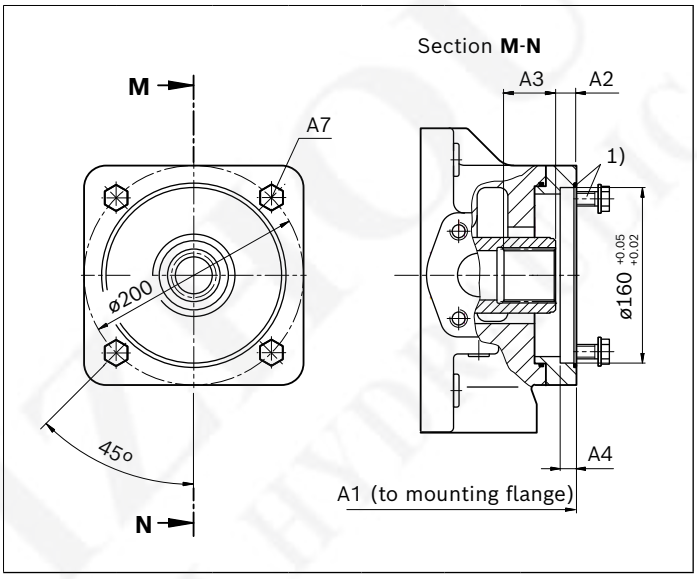
1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Splined hub according to DIN 5480
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 160-4 | ⌘ | N50×2×24×8H | – | – | – | – | – | – | ● | K34 |
| | | N50×2×24×8H | – | – | ● | ● | ● | ● | – | U34 |

● = Available  o = On request  – = Not available

▼ **160-4**




| K34 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 500 | 505 | 13.5 | 54.6 | 10 | M16; 24 deep |

| U34 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 12.5 | 51.6 | 9 | M16; 22 deep |
| | 180 | 393 | 12.5 | 51.6 | 9 | M16; 22 deep |
| | 250 | 453 | 12.5 | 54.0 | 9 | M16; 22 deep |
| | 355 | 482 | 12.5 | 54.0 | 9 | M15; 22 deep |

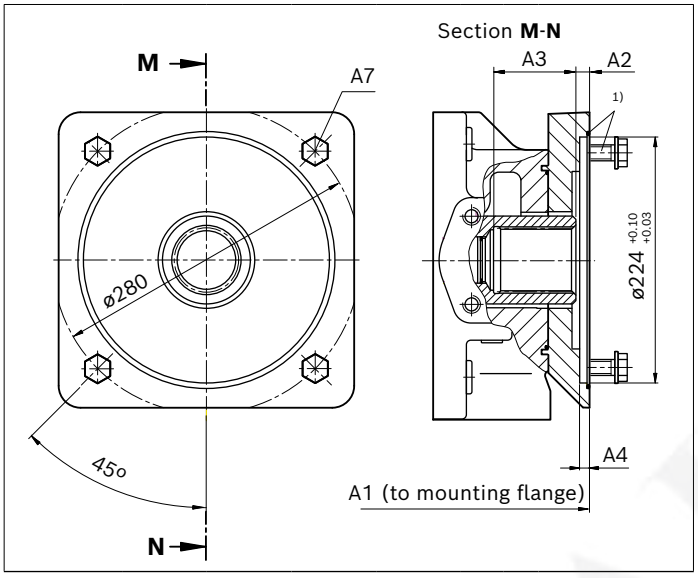
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Splined hub according to DIN 5480
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 224-4 | ⌘ | N60×2×28×8H | – | – | – | – | – | – | ● | K35 |
| | | N60×2×28×8H | – | – | – | – | ● | ● | – | U35 |

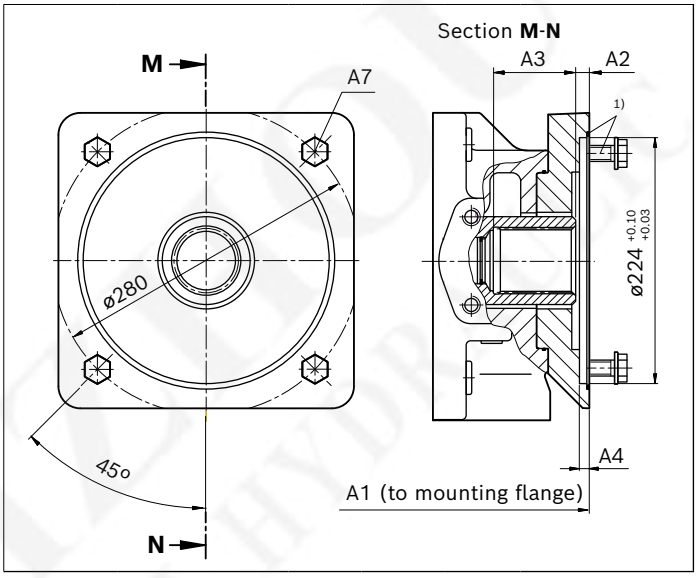
● = Available  o = On request  – = Not available

▼ **224-4**




| K35 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 500 | 541 | 12.5 | 74 | 9 | M20; 36 deep |

▼ **224-4**




| U35 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 250 | 469 | 12.5 | 75 | 9 | M20; 37 deep |
| | 355 | 498 | 12.5 | 75 | 9 | M20; 37 deep |

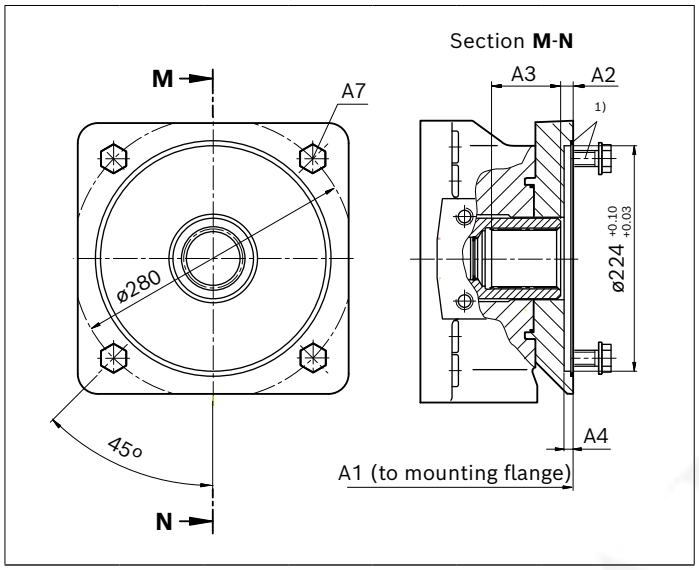
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Splined hub according to DIN 5480
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 224-4 | ⌘ | N70×3×22×8H | – | – | – | – | – | – | ● | K77 |
| | | N70×3×22×8H | – | – | – | – | – | ● | – | U77 |

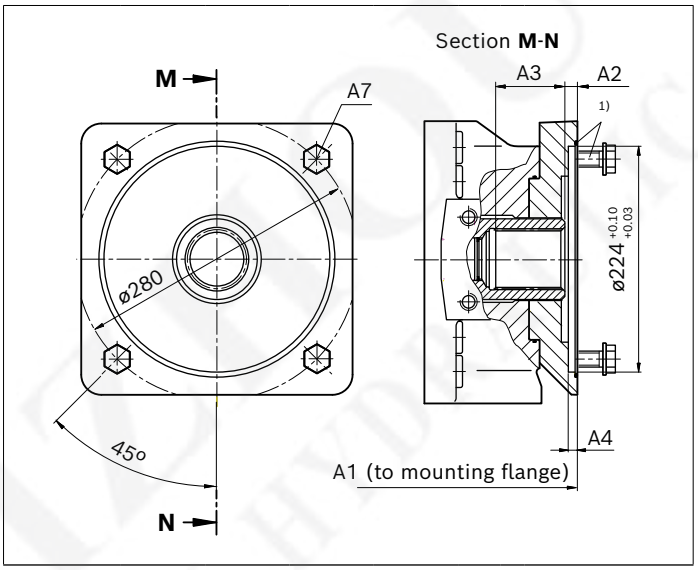
● = Available  o = On request  – = Not available

▼ **224-4**




| K77 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 500 | 541 | 12.5 | 82 | 9 | M20; 36 deep |

▼ **224-4**




| U77 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 355 | 498 | 12.5 | 75 | 9 | M20; 37 deep |

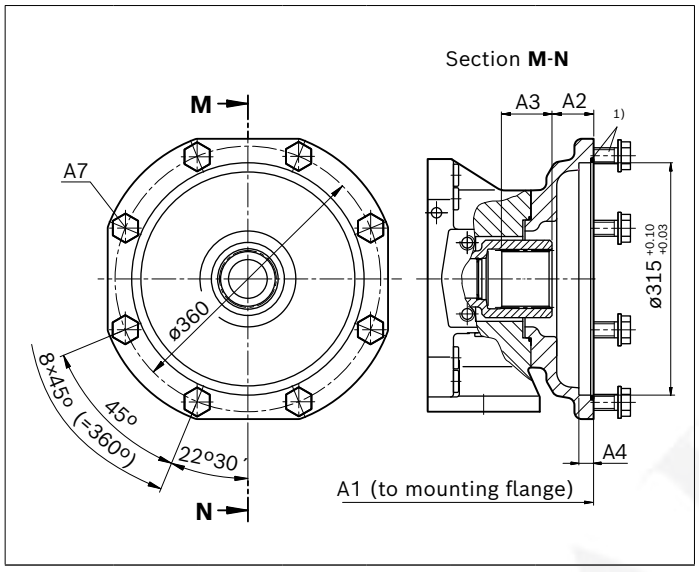
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Splined hub according to DIN 5480
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 315-8 | ⌬ | N80×3×25×8H | – | – | – | – | – | – | ● | K43 |

● = Available ○ = On request – = Not available

▼ **315-8**




| K43 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 500 | 590 | 53.5 | 71.9 | 19 | M20; 26 deep |

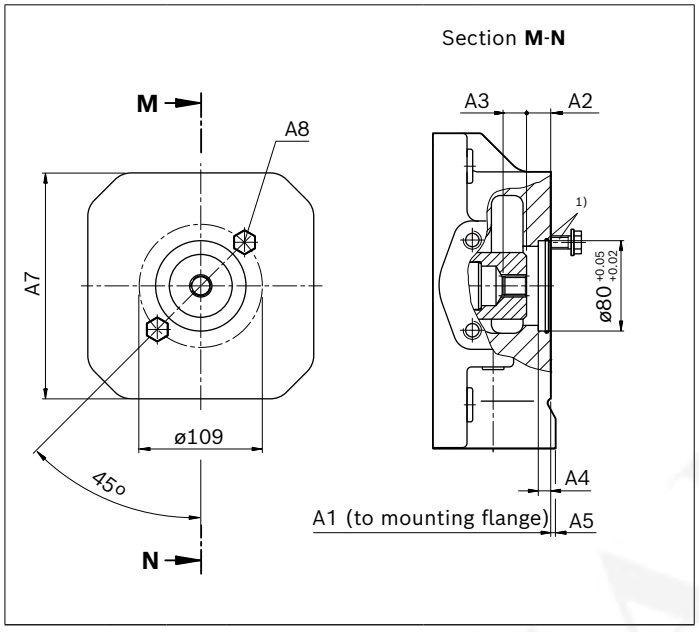
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Splined hub according to DIN 5480
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 80-2 | | 3/4 in 11T 16/32DP | ○ | ● | – | – | – | – | ○ | KB2 |
| | | 3/4 in 11T 16/32DP | – | – | ● | ● | ● | ● | – | UB2 |

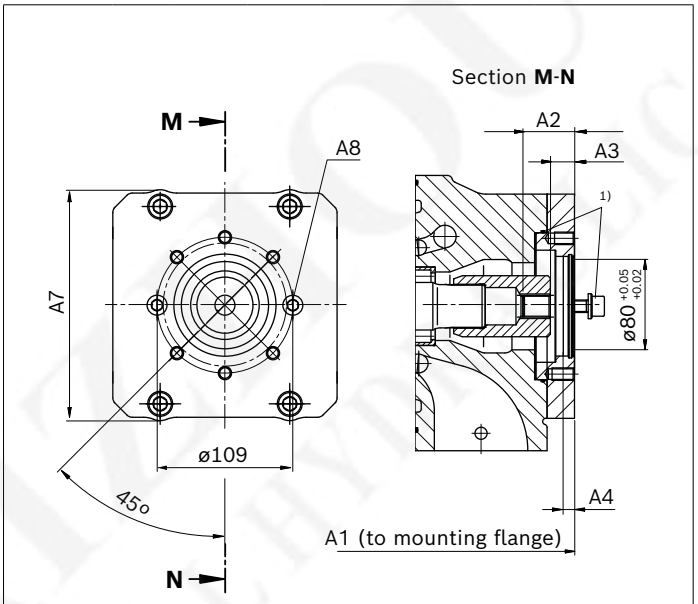
● = Available ○ = On request – = Not available

▼ **80-2**




| KB2 | NG | A1 | A2 | A3 | A4 | A5 | A7 | A8[3] |
|---|---|---|---|---|---|---|---|---|
| | 71 | 291 | 21.5 | 19 | 10 | 2 | 140 | M10; 15 deep |

▼ **80-2**




| UB2 | NG | A1 | A2 | A3 | A4 | A7[3] | A8[3] |
|---|---|---|---|---|---|---|---|
| | 125 | 367 | 40.5 | 19.4 | 9 | 180 | M10; 16 deep |
| | 180 | 393 | 40.5 | 19.4 | 9 | 180 | M10; 16 deep |
| | 250 | 453 | 40.5 | 19 | 9 | 200 | M10; 16 deep |
| | 355 | 482 | 40.4 | 19 | 9 | 200 | M10; 16 deep |

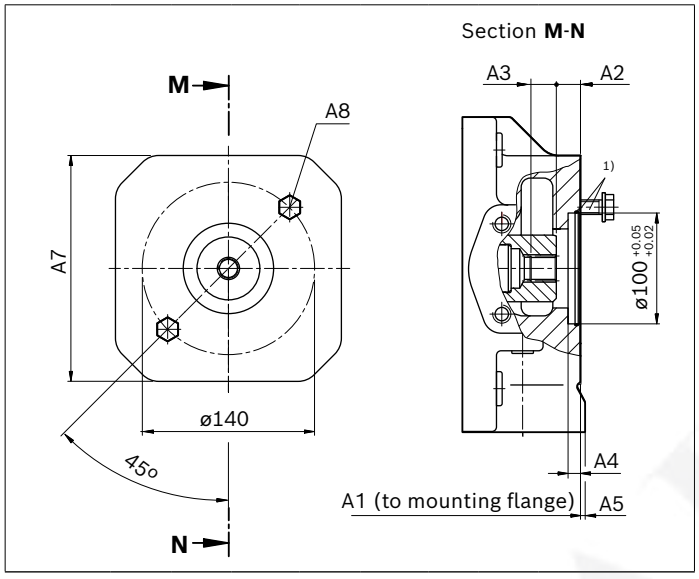
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit, tolerance class 5
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 100-2 | | 7/8 in 13T 16/32DP | ● | ● | – | – | – | – | ○ | KB3 |
| | | 7/8 in 13T 16/32DP | – | – | ● | ● | ● | ● | – | UB3 |

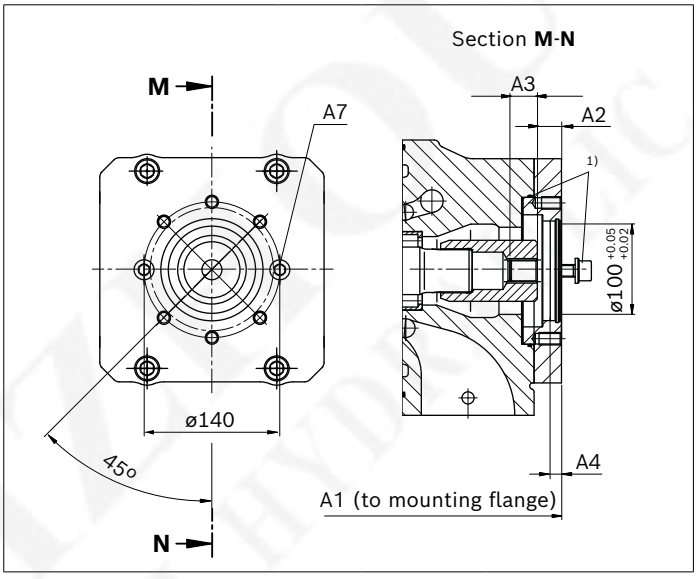
● = Available ○ = On request – = Not available

▼ **100-2**




| KB3 | NG | A1 | A2 | A3 | A4 | A5 | A7[3] | A8 |
|---|---|---|---|---|---|---|---|---|
| | 40 | 290 | 20.3 | 23 | 10 | – | – | M12; 18 deep |
| | 71 | 291 | 20.4 | 23 | 10 | 2 | 140 | M12; 18 deep |

▼ **100-2**




| UB3 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 20.5 | 24.9 | 10 | M12; 22 deep |
| | 180 | 393 | 20.5 | 24.9 | 10 | M12; 22 deep |
| | 250 | 453 | 19.5 | 23 | 10 | M12; 18 deep |
| | 355 | 482 | 19.5 | 23 | 10 | M12; 18 deep |

**Notice**

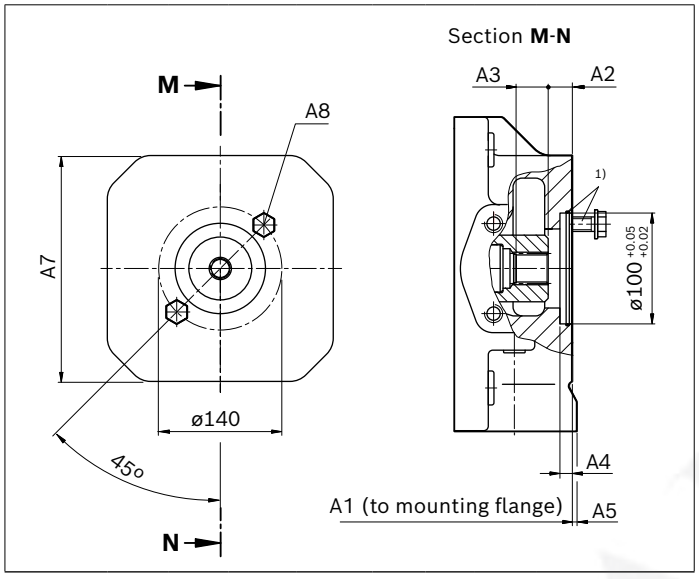
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit, tolerance class 5
3) Thread according to DIN 13, see Part I for maximum tightening torques.

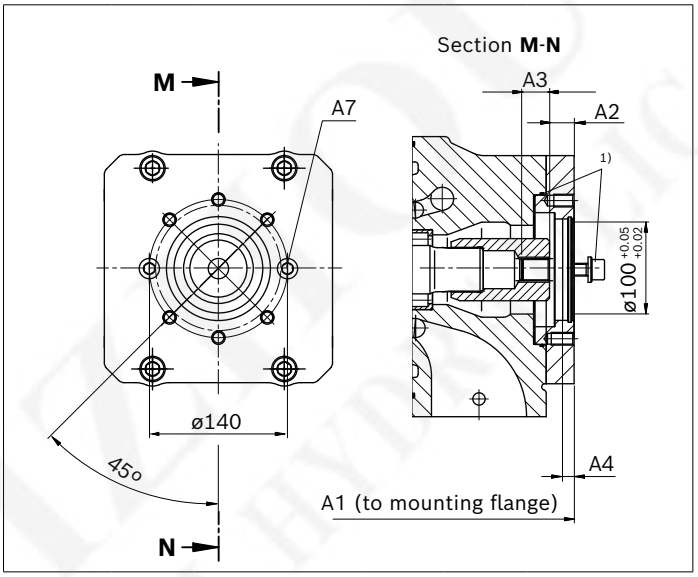
| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 100-2 | | 1 in 15T 16/32DP | ● | ● | – | – | – | – | ● | KB4 |
| | | 1 in 15T 16/32DP | – | – | ● | ● | ● | ● | – | UB4 |

● = Available  o = On request  – = Not available

▼ **100-2**




▼ **100-2**




| KB4 | NG | A1 | A2 | A3 | A4 | A5 | A7[3] | A8 |
|---|---|---|---|---|---|---|---|---|
| | 40 | 290 | 20.8 | 27.5 | 10 | – | – | M12; 18 deep |
| | 71 | 316 | 20.8 | 27.5 | 8 | – | – | M12; 24 deep |
| | 500 | 505 | 20.4 | 28.9 | 10 | 15 | 240 | M12; 18 deep |

| UB4 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 18.9 | 29.5 | 10 | M12; 22 deep |
| | 180 | 393 | 18.9 | 29.5 | 10 | M12; 22 deep |
| | 250 | 453 | 20.9 | 29.5 | 10 | M12; 18 deep |
| | 355 | 482 | 20.9 | 29.5 | 10 | M12; 18 deep |

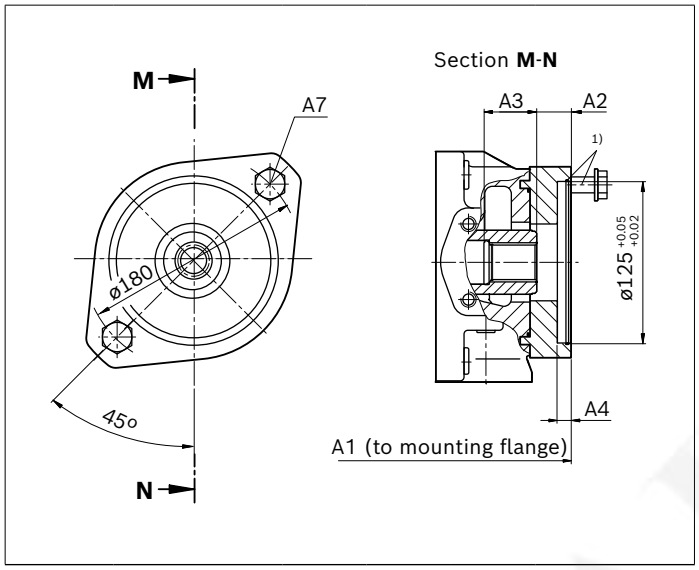
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit, tolerance class 5
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | |
| 125-2 | | 1 1/4 in 14T 12/24DP | – | ● | – | – | – | – | ● | KB5 |
| | | 1 1/4 in 14T 12/24DP | – | – | ● | ● | ● | ● | – | UB5 |

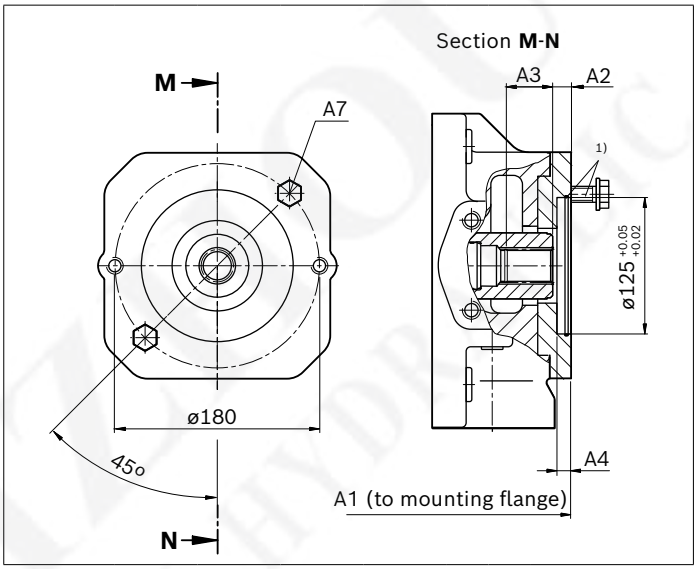
● = Available ○ = On request – = Not available

▼ **125-2**




| KB5 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 71 | 321 | 23 | 38 | 10 | M16; 29 deep |
| | 500 | 505 | 19.3 | 40.4 | 10 | M16; 20 deep |

▼ **125-2**




| UB5 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 20 | 38 | 9 | M16; 22 deep |
| | 180 | 393 | 20 | 38 | 9 | M16; 22 deep |
| | 250 | 453 | 20.9 | 37.9 | 9 | M16; 22 deep |
| | 355 | 482 | 20.9 | 37.9 | 9 | M16; 22 deep |

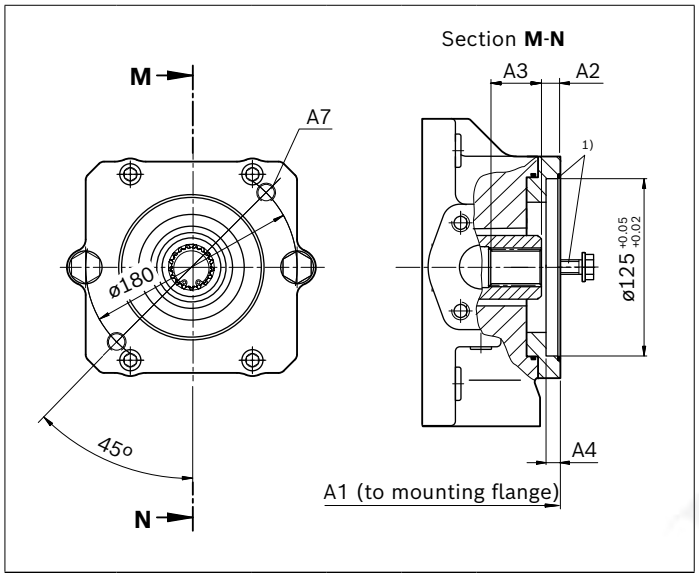
**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit, tolerance class 5
3) Thread according to DIN 13, see Part I for maximum tightening torques.

| Flange ISO 3019-2 (metric) | | Hub for splined shaft[2] | | | | | | | | | Code |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diameter | Symbol | Diameter | 40 | 71 | 125 | 180 | 250 | 355 | 500 | 750 | 1000 | |
| 125-2 | | 1 1/2 in 17T 12/24DP | – | – | ● | ● | ● | ● | – | – | – | UB6 |

● = Available  o = On request  – = Not available

▼ **125-2**




| UB6 | NG | A1 | A2 | A3 | A4 | A7[3] |
|---|---|---|---|---|---|---|
| | 125 | 369 | 10.4 | 50 | 9 | M16; 22 deep |
| | 180 | 393 | 10.4 | 50 | 9 | M16; 22 deep |
| | 250 | 453 | 12.5 | 55 | 9 | M16; 22 deep |
| | 355 | 482 | 12.5 | 55 | 9 | M16; 22 deep |

**Notice**
All attachment pumps must match the ATEX classification for the application in question.

1) Mounting bolts and O-ring seal are included in the scope of delivery
2) Involute spline according to ANSI B92.1a, 30° pressure angle, flat root, side fit, tolerance class 5
3) Thread according to DIN 13, see Part I for maximum tightening torques.