**RE 51055**
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rexroth
A Bosch Company

# Hydraulic power unit

# Type CytroPac

CytroPac

- Component series 1X

## Features

- Integrated frequency converter (variable-speed drive)
- Power 1.5 ... 4.0 kW with identical frame size and interfaces
- Power unit is suitable for S1 operation (continuous operation)
- Early warning signals in case of faults regarding oil level, temperature, return flow filter and frequency converter
- Easy commissioning through commissioning wizard (plug&play)
- Integrated cooling for motor and frequency converter, optionally also for active oil cooling
- Noise-reduced design
- Integrated oil drain facility and return flow filter
- Reduced oil volume due to degassing-optimized tank
- CytroPac UL (cULus-listed, optional)
- Sleep function to reduce the power consumption, e.g. during accumulator charging operation.

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## Ordering code

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **CYTROPAC** | **– 1X** | **/ 20** | **/** | | | **/ 2** | **/** | | **/ 1** | **/ 7035** | **/** |

| | | |
|---|---|---|
| 01 | Hydraulic power unit | **CYTROPAC** |
| 02 | Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions) | **1X** |

**Tank size**

| | | |
|---|---|---|
| 03 | 20 liters | **20** |

**Drive**

| | | |
|---|---|---|
| 04 | Asynchronous motor with frequency converter | **AF** |
| | Asynchronous motor with frequency converter and STO | **ST** |

**Performance class**

| | | |
|---|---|---|
| 05 | 1.5 kW | **1** |
| | 2.2 kW | **2** |
| | 3.0 kW | **3** |
| | 4.0 kW | **4** |

**Pump**

| | | |
|---|---|---|
| 06 | Size 4 | **AS04** |
| | Size 5 | **AS05** |
| | Size 8 | **AS08** |
| | Size 11 | **AS11** |
| 07 | Maximum operating pressure (see characteristic curve page 9) | **2** |

**Sensor technology**

| | | |
|---|---|---|
| 08 | Basic | **B** |
| | Premium RJ45 | **P** |
| | Premium M12x1 | **E** |

**Cooling type / maximum cooling power of fluid**[1)]

| | | |
|---|---|---|
| 09 | Without additional cooling packages | **WA** |
| | 500 ... 1000 Watt (1 cooling package) [2)] | **WB** |
| | 1000 ... 1500 Watt (2 cooling packages) [2)] | **WC** |
| | 1500 ... 2000 Watt (3 cooling packages) [2)] | **WD** |

**Filling**

| | | |
|---|---|---|
| 10 | Return flow filter | **1** |

**Coloring**

| | | |
|---|---|---|
| 11 | RAL 7035 | **7035** |

**Further details**

| | | |
|---|---|---|
| 12 | Without | **–** |
| | Additional tank port | **A1** |
| | UL-certified | **UL** |

1) The connection to a cooling water supply for cooling the motor and the frequency converter must always be ensured before the operation, also in version WA.

2) Depending on the water inlet temperature, oil level, pressure and flow

☞ **Notice:**
The required operating pressure can be pre-set at the factory. Please indicate in the order. If there is no specification, the operating pressure is set at the factory to 20 bar.

## Selection table

### CytroPac power 1.5 kW

| **Power** in kW | **Displacement** in cm³/r | **Sensor technology design** | **Cooling type** | **Material number** | **Material number STO** |
|---|---|---|---|---|---|
| 1.5 | 4 | Basic | WA | R901500001 | R901501001 |
| | | | WB | R901500002 | R901501002 |
| | | | WC | R901500003 | R901501003 |
| | | | WD | R901500004 | R901501004 |
| | | Premium RJ45 | WA | R901500009 | R901501009 |
| | | | WB | R901500010 | R901501010 |
| | | | WC | R901500011 | R901501011 |
| | | | WD | R901500012 | R901501012 |
| | 5.5 | Basic | WA | R901500013 | R901501013 |
| | | | WB | R901500014 | R901501014 |
| | | | WC | R901500015 | R901501015 |
| | | | WD | R901500016 | R901501016 |
| | | Premium RJ45 | WA | R901500021 | R901501021 |
| | | | WB | R901500022 | R901501022 |
| | | | WC | R901500023 | R901501023 |
| | | | WD | R901500024 | R901501024 |
| | 8 | Basic | WA | R901500025 | R901501025 |
| | | | WB | R901500026 | R901501026 |
| | | | WC | R901500027 | R901501027 |
| | | | WD | R901500028 | R901501028 |
| | | Premium RJ45 | WA | R901500033 | R901501033 |
| | | | WB | R901500034 | R901501034 |
| | | | WC | R901500035 | R901501035 |
| | | | WD | R901500036 | R901501036 |
| | 11 | Basic | WA | R901500037 | R901501037 |
| | | | WB | R901500038 | R901501038 |
| | | | WC | R901500039 | R901501039 |
| | | | WD | R901500040 | R901501040 |
| | | Premium RJ45 | WA | R901500045 | R901501045 |
| | | | WB | R901500046 | R901501046 |
| | | | WC | R901500047 | R901501047 |
| | | | WD | R901500048 | R901501048 |

## Selection table

### CytroPac power 2.2 kW

| **Power** in kW | **Displacement** in cm³/r | **Sensor technology design** | **Cooling type** | **Material number** | **Material number STO** |
|---|---|---|---|---|---|
| 2.2 | 4 | Basic | WA | R901500061 | R901501061 |
| | | | WB | R901500062 | R901501062 |
| | | | WC | R901500063 | R901501063 |
| | | | WD | R901500064 | R901501064 |
| | | Premium RJ45 | WA | R901500069 | R901501069 |
| | | | WB | R901500070 | R901501070 |
| | | | WC | R901500071 | R901501071 |
| | | | WD | R901500072 | R901501072 |
| | 5.5 | Basic | WA | R901500073 | R901501073 |
| | | | WB | R901500074 | R901501074 |
| | | | WC | R901500075 | R901501075 |
| | | | WD | R901500076 | R901501076 |
| | | Premium RJ45 | WA | R901500081 | R901501081 |
| | | | WB | R901500082 | R901501082 |
| | | | WC | R901500083 | R901501083 |
| | | | WD | R901500084 | R901501084 |
| | 8 | Basic | WA | R901500085 | R901501085 |
| | | | WB | R901500086 | R901501086 |
| | | | WC | R901500087 | R901501087 |
| | | | WD | R901500088 | R901501088 |
| | | Premium RJ45 | WA | R901500093 | R901501093 |
| | | | WB | R901500094 | R901501094 |
| | | | WC | R901500095 | R901501095 |
| | | | WD | R901500096 | R901501096 |
| | 11 | Basic | WA | R901500097 | R901501097 |
| | | | WB | R901500098 | R901501098 |
| | | | WC | R901500099 | R901501099 |
| | | | WD | R901500100 | R901501100 |
| | | Premium RJ45 | WA | R901500105 | R901501105 |
| | | | WB | R901500106 | R901501106 |
| | | | WC | R901500107 | R901501107 |
| | | | WD | R901500108 | R901501108 |

## Selection table

### CytroPac power 3.0 kW

| **Power** in kW | **Displacement** in cm³/r | **Sensor design** | **Cooling type** | **Material number** | **Material number STO** |
|---|---|---|---|---|---|
| 3.0 | 4 | Basic | WA | R901500121 | R901501121 |
| | | | WB | R901500122 | R901501122 |
| | | | WC | R901500123 | R901501123 |
| | | | WD | R901500124 | R901501124 |
| | | Premium RJ45 | WA | R901500129 | R901501129 |
| | | | WB | R901500130 | R901501130 |
| | | | WC | R901500131 | R901501131 |
| | | | WD | R901500132 | R901501132 |
| | 5.5 | Basic | WA | R901500133 | R901501133 |
| | | | WB | R901500134 | R901501134 |
| | | | WC | R901500135 | R901501135 |
| | | | WD | R901500136 | R901501136 |
| | | Premium RJ45 | WA | R901500141 | R901501141 |
| | | | WB | R901500142 | R901501142 |
| | | | WC | R901500143 | R901501143 |
| | | | WD | R901500144 | R901501144 |
| | 8 | Basic | WA | R901500145 | R901501145 |
| | | | WB | R901500146 | R901501146 |
| | | | WC | R901500147 | R901501147 |
| | | | WD | R901500148 | R901501148 |
| | | Premium RJ45 | WA | R901500153 | R901501153 |
| | | | WB | R901500154 | R901501154 |
| | | | WC | R901500155 | R901501155 |
| | | | WD | R901500156 | R901501156 |
| | 11 | Basic | WA | R901500157 | R901501157 |
| | | | WB | R901500158 | R901501158 |
| | | | WC | R901500159 | R901501159 |
| | | | WD | R901500160 | R901501160 |
| | | Premium RJ45 | WA | R901500165 | R901501165 |
| | | | WB | R901500166 | R901501166 |
| | | | WC | R901500167 | R901501167 |
| | | | WD | R901500168 | R901501168 |

**CytroPac power 4.0 kW**

| **Power** in kW | **Displacement** in cm³/r | **Sensor technology design** | **Cooling type** | **Material number** | **Material number STO** |
|---|---|---|---|---|---|
| 4.0 | 4 | Basic | WA | R901500181 | R901501181 |
| | | | WB | R901500182 | R901501182 |
| | | | WC | R901500183 | R901501183 |
| | | | WD | R901500184 | R901501184 |
| | | Premium RJ45 | WA | R901500189 | R901501189 |
| | | | WB | R901500190 | R901501190 |
| | | | WC | R901500191 | R901501191 |
| | | | WD | R901500192 | R901501192 |
| | 5.5 | Basic | WA | R901500193 | R901501193 |
| | | | WB | R901500194 | R901501194 |
| | | | WC | R901500195 | R901501195 |
| | | | WD | R901500196 | R901501196 |
| | | Premium RJ45 | WA | R901500201 | R901501201 |
| | | | WB | R901500202 | R901501202 |
| | | | WC | R901500203 | R901501203 |
| | | | WD | R901500204 | R901501204 |
| | 8 | Basic | WA | R901500205 | R901501205 |
| | | | WB | R901500206 | R901501206 |
| | | | WC | R901500207 | R901501207 |
| | | | WD | R901500208 | R901501208 |
| | | Premium RJ45 | WA | R901500213 | R901501213 |
| | | | WB | R901500214 | R901501214 |
| | | | WC | R901500215 | R901501215 |
| | | | WD | R901500216 | R901501216 |
| | 11 | Basic | WA | R901500217 | R901501217 |
| | | | WB | R901500218 | R901501218 |
| | | | WC | R901500219 | R901501219 |
| | | | WD | R901500220 | R901501220 |
| | | Premium RJ45 | WA | R901500225 | R901501225 |
| | | | WB | R901500226 | R901501226 |
| | | | WC | R901500227 | R901501227 |
| | | | WD | R901500228 | R901501228 |

## Technical data
(For applications outside these values, please consult us!)

| **General** | | | |
|---|---|---|---|
| Installation position | | | Vertical |
| Line connections | ▶ Pressure port | | G1/2 |
| | ▶ Return flow | | G1/2 (via filter)<br>G1 (2x, direct) |
| Place of installation | | | Industrial building with minor corrosion conditions<br>Air humidity < 80% |
| Ambient temperature range (during operation) | | °C | +10 ... +40 |
| Material | ▶ Oil tank | | Polyamide |
| | ▶ Hood<br>▶ Hood, UL version | | Polyamide<br>Steel |
| | ▶ Central plate | | GG, zinc thin layer-passivated (chromium VI-free) |
| Weight (depending on configuration level) without oil | | kg | 60 ... 65 |

| **Hydraulic** | | | |
|---|---|---|---|
| Maximum operating pressure | | bar | See characteristic curves from page 9 |
| Maximum flow | | l/min | See characteristic curves from page 9 |
| Oscillating volume | | l | 10 |
| Tank capacity | | l | 20 |
| Maximum return flow via return flow filter | | l/min | 35 |
| Temperature range hydraulic fluid | | °C | +10 ... +65 |
| Admissible hydraulic fluids | | | See table below |
| Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c) | | | Class 20/18/15 [1] |
| Return flow filter | | | 35.0035CP H10XL-R00-0-M |
| | ▶ Filter rating | µm | 10 |
| | ▶ Cold start | °C | < 10 →maximum flow 10 l/min |
| | ▶ Early warning | % | 75 |
| | ▶ Shut-off | % | 100 |
| Filling level monitoring (residual volume) | ▶ Early warning | l | 10 |
| | ▶ Shut-off | l | 7 |
| Temperature monitoring | ▶ Early warning | °C | 60 |
| | ▶ Shut-off | °C | 65 |
| Pump | | | |
| | ▶ Minimum flow | l/min | 0.5 ... 2; depending on motor and pump size<br>(see characteristic curve on page 11) |
| | ▶ Viscosity range of hydraulic fluid | $mm^2/s$ | 12 ... 800 (admissible range, for start at most 2000)<br>20 ... 100 (recommended range) |

| **Hydraulic fluid** | **Classification** | **Suitable sealing materials** | **Standards** | **Data sheet** |
|---|---|---|---|---|
| Mineral oils | HLP ISO VG 32<br>HLP ISO VG 46<br>HLP ISO VG 68 | NBR, FKM | DIN 51524 | 90220 |

☞ **Important notes on hydraulic fluids:**
- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.

[1] The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.
Available filters can be found at www.boschrexroth.com/filter.

## Technical data
(For applications outside these values, please consult us!)

| **Electrical** | | | |
|---|---|---|---|
| | ▶ Performance class | kW | 1.5; 2.2; 3.0; 4.0 |
| | ▶ Voltage (according to IEC 60038) | V | 380 ... 480 AC (-15% / +10%) |
| | ▶ Frequency | Hz | 50/60 |
| Protection class according to DIN EN 60529 | | | IP 54 |
| Maximum pre-fuse protective motor switch (on the customer side) | ▶ Power 1.5 kW | max. A | 10 |
| | ▶ Power 2.2 kW | max. A | 16 |
| | ▶ Power 3.0 kW | max. A | 20 |
| | ▶ Power 4.0 kW | max. A | 20 |

| **Cooling water** | | | |
|---|---|---|---|
| Requirement cooling water supply | ▶ Flow[1)] | l/min | > 8 |
| | ▶ Inlet temperature | °C | 15 ... 30 |
| | ▶ Connections | | G1/2 (2x, cylindrical) |
| | ▶ Maximum glycol share | % | 50 |
| | ▶ Maximum cooling water pressure | bar | 10 |

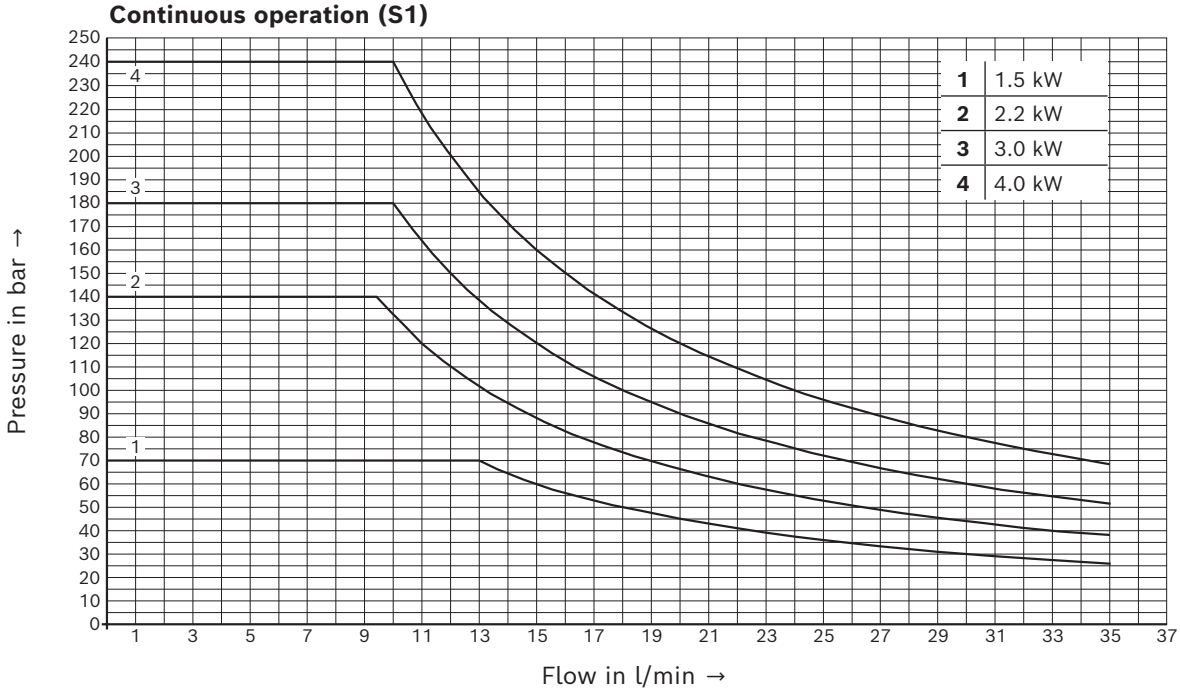
1) In case of deviating flow, please consult the product management.

☞ **Notice:**
The cooling water supply for cooling the motor and the frequency converter must always be activated before the operation. It must be ensured that the cooling water supply temperature does not fall below the dewpoint of the ambient air of the power unit.
Different coolant possible after consultation.

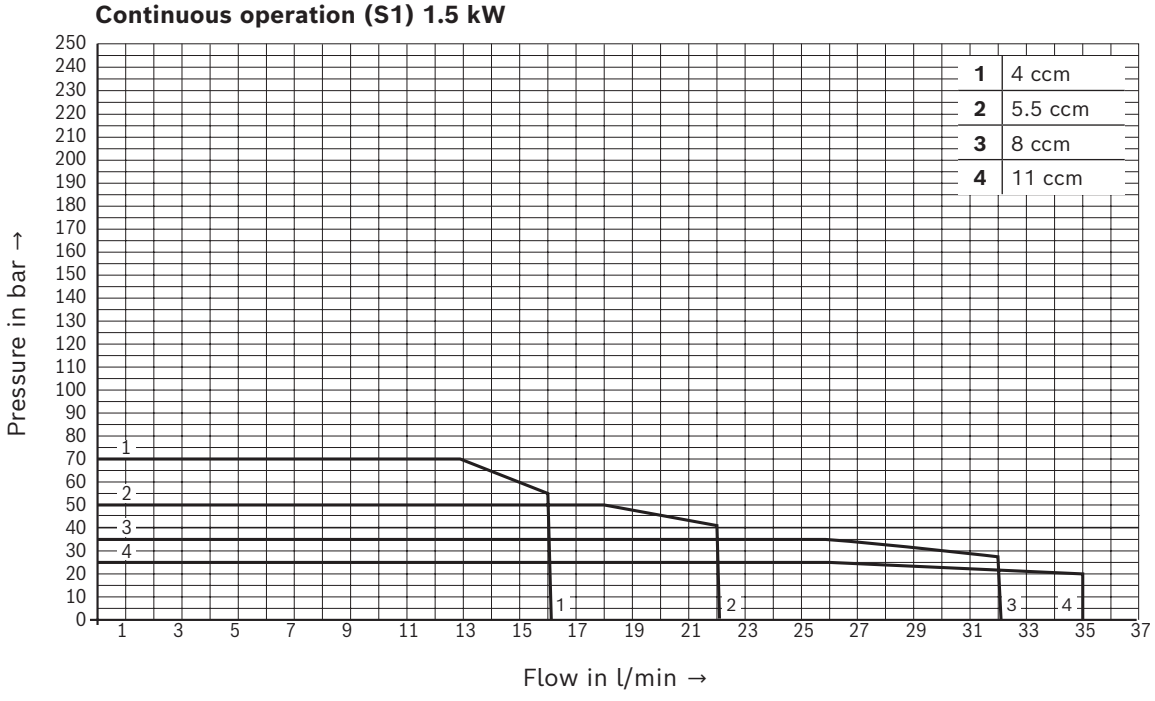
## Characteristic curves

(measured with HLP32, $\vartheta_{oil}$ = 40 ±5 °C; voltage 380 V - 480 V)

### Performance diagram for the project planning of the performance class



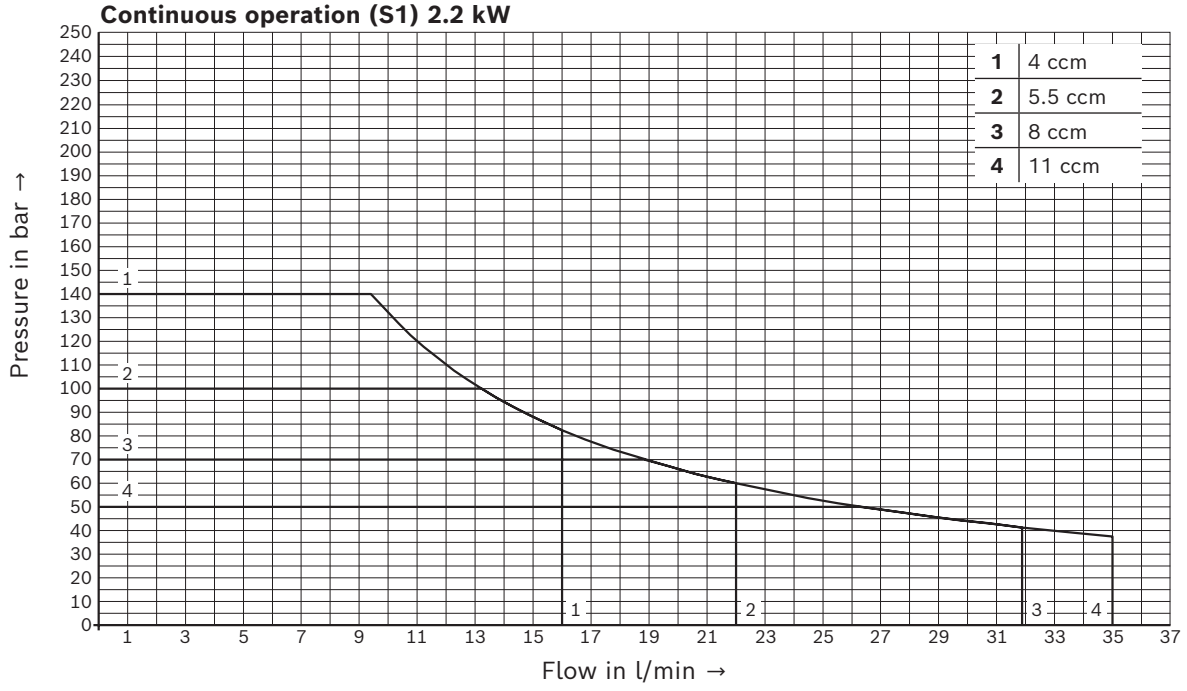

### Performance diagram for selecting the pump



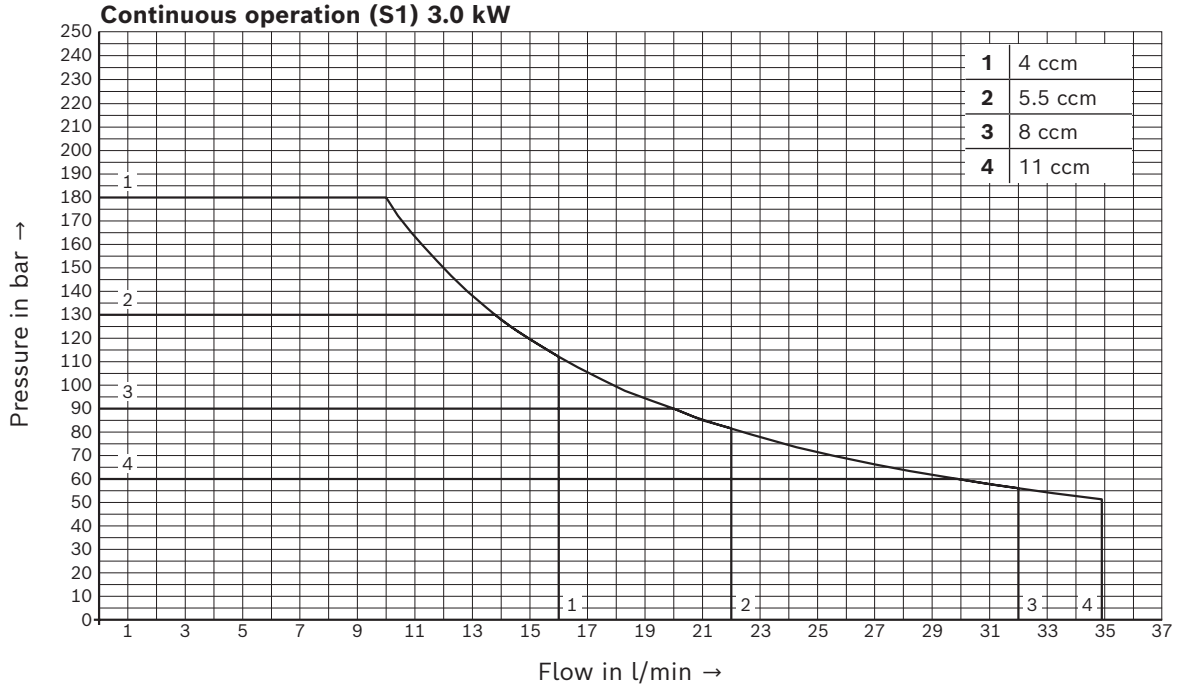
## Characteristic curves

(measured with HLP32, $\vartheta_{oil}$ = 40 ±5 °C; voltage 380 V - 480 V)

**Performance diagram for selecting the pump**




**Performance diagram for selecting the pump**

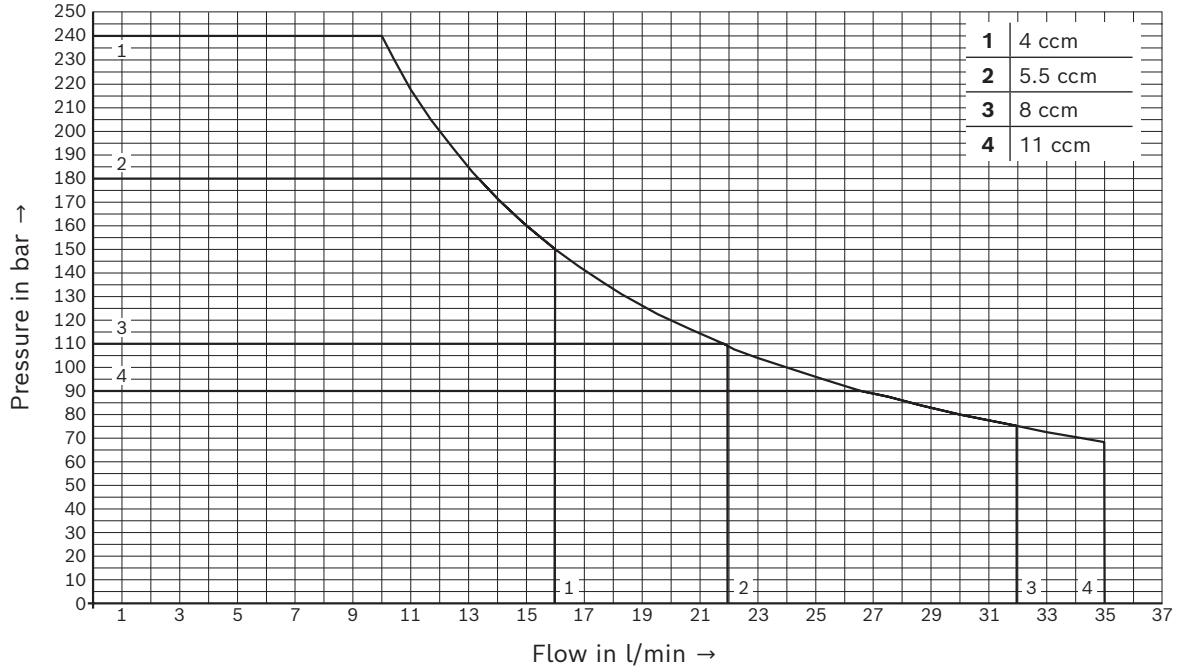


## Characteristic curves

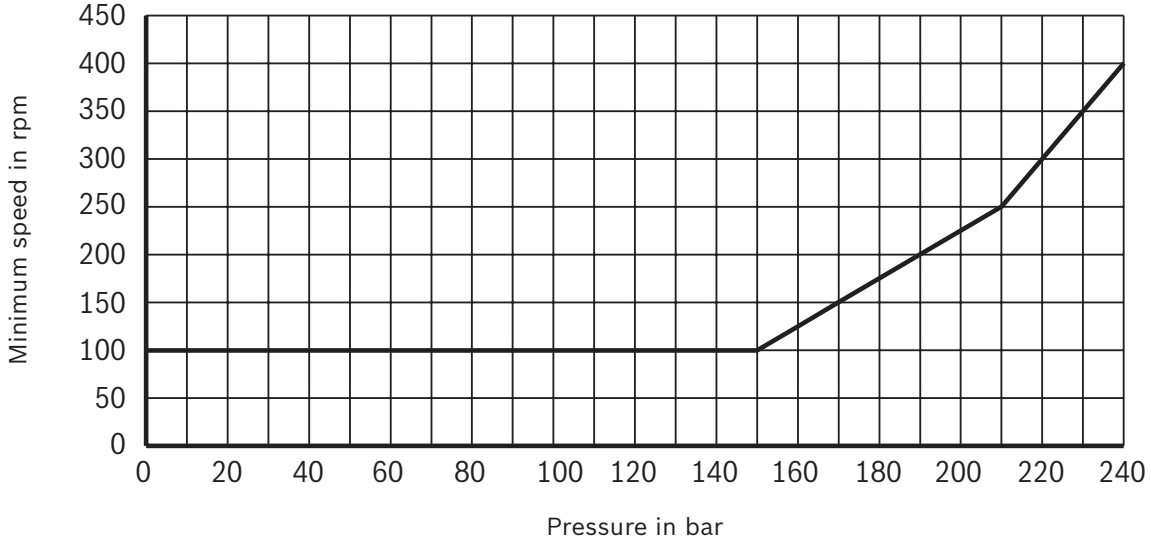
(measured with HLP32, $\vartheta_{oil}$ = 40 ±5 °C; voltage 380 V - 480 V)

### Performance diagram for selecting the pump

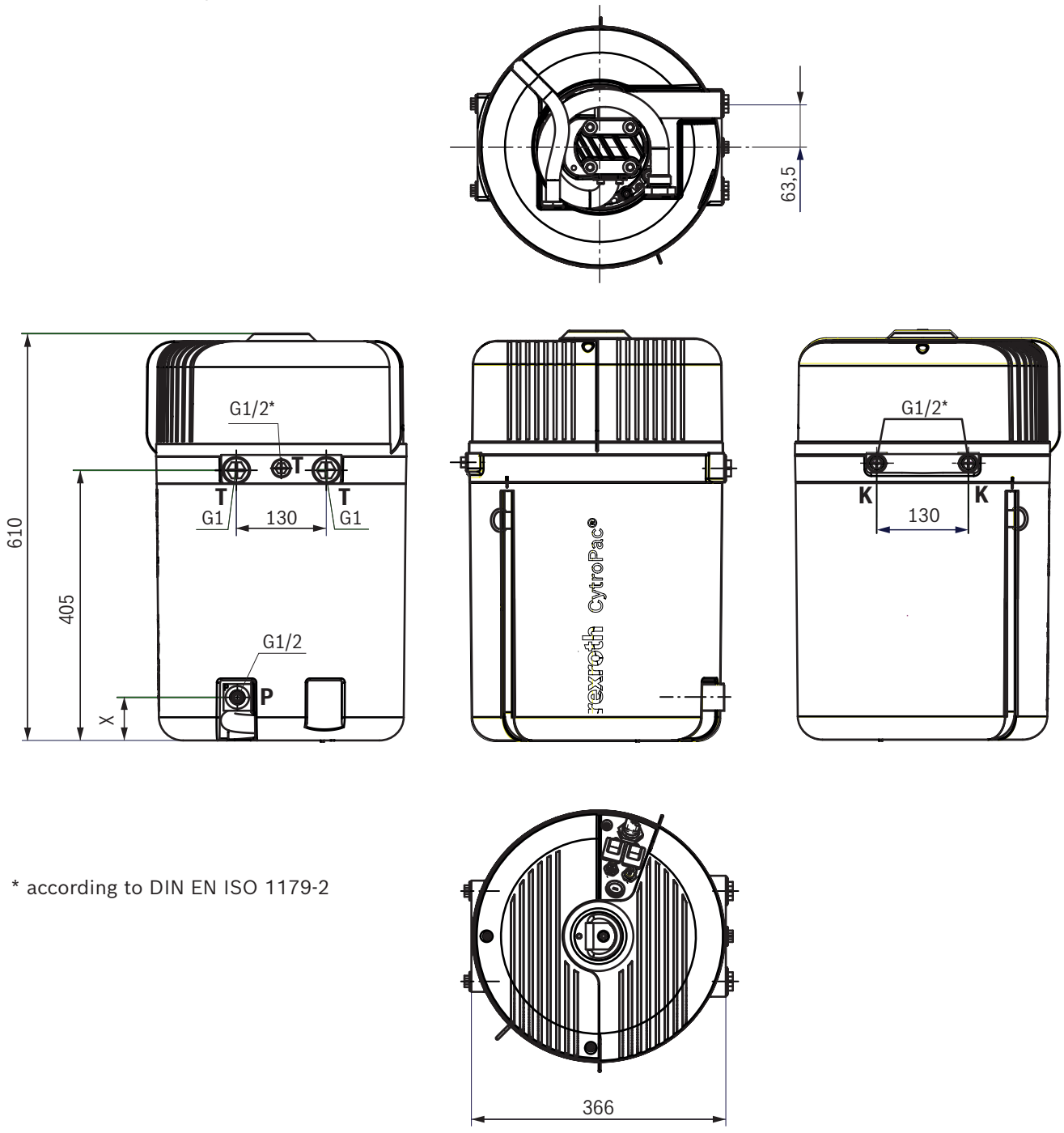
**Continuous operation (S1) 4.0 kW**




### Minimum speed of drive unit



## Dimensions:
(dimensions in mm)

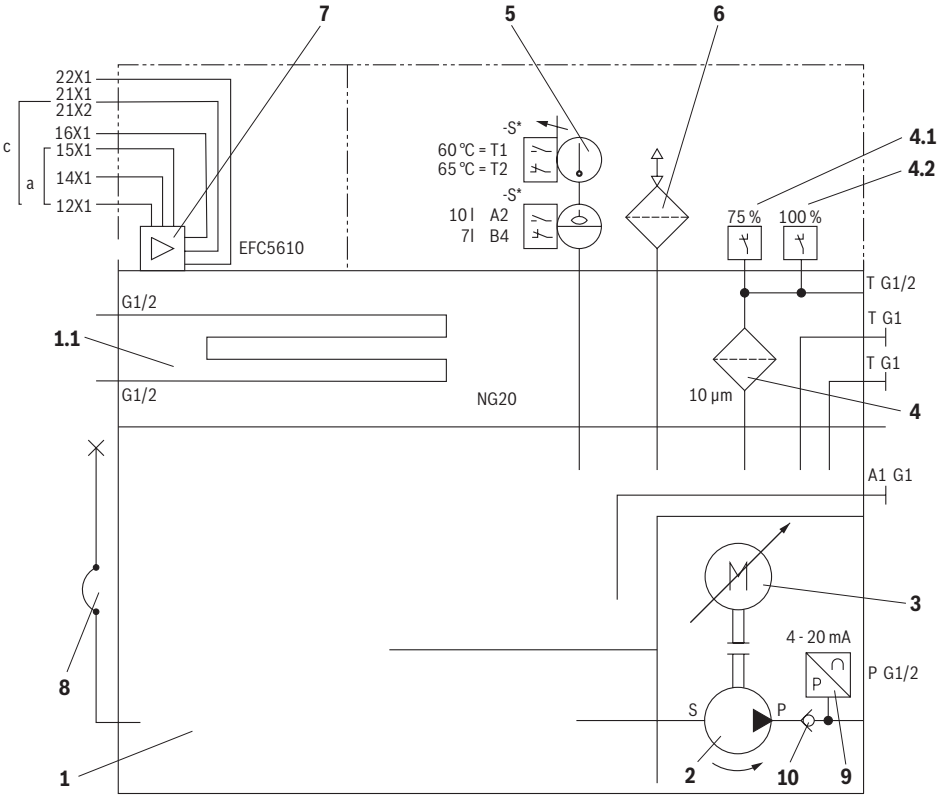



* according to DIN EN ISO 1179-2

| X (port p) | Pump design |
|---|---|
| 65 | AS04 |
| 64 | AS05 |
| 61 | AS08 |
| 58 | AS11 |

**Notice:**
The power unit must be set up on a level area, preferably on a damping mat.
For the fastening of the power unit, a fastening set (see Accessories) is available.
The cooling water ports K: G1/2 are to be designed with cylindrical fittings.

## Circuit diagram, hydraulic




**1** Oil tank

**1.1** Central plate (integrated heat exchanger)
* Feed/return flow can be exchanged

**2** Pump

**3** Motor

**4** Return flow filter

**4.1** Filter contamination sensor 75%

**4.2** Filter contamination sensor 100%

**5** Filling level and temperature sensor

**6** Breathing filter

**7** Frequency converter

**8** Opt. oil level check and oil drain

**9** Pressure load cell

**10** Check valve

**11** Filling coupling (optional)

**Electrical connections**

Sensor technology configuration: "Basic"

12X1: Feed-in/voltage supply

15X1: 24 V interface (M12x1, 8-pole)

14X1: Mini USB service interface

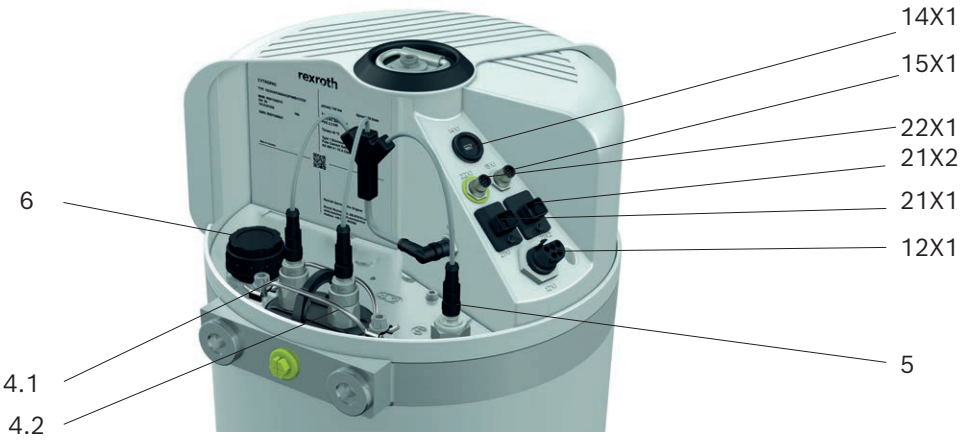
22X1: STO interface (optional)

Sensor technology configuration: "Premium" in addition:

21X1: Multi-Ethernet interface, network input

21X2: Multi-Ethernet interface, network output

22X1: STO interface (optional)



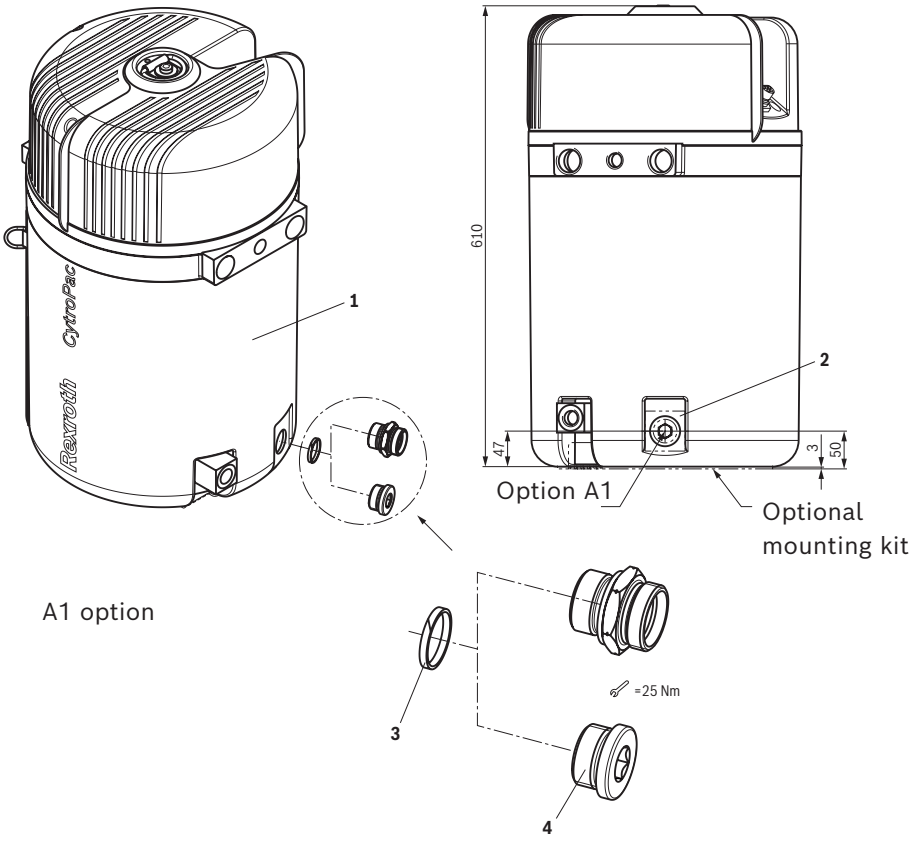
**STO functionality (Safe Torque Off)**
The STO function is used if separation from the mains is required to prevent an unexpected start-up. By means of this function, the energy supply of the motor can be safely interrupted.
In this case, the drive cannot generate any torque / force and thus no dangerous movements.

**Prestart Control (pressure drop/excessive pressure compensation)**
By means of a control signal, the drive unit is already accelerated before hydraulic actuators are connected. This reduces the collapse of pressure and you can possibly do without a hydraulic accumulator.

**A1 option**
With the A1 option, the CytroPac is available with another tank port. The port is designed in size G1" and is located next to the pressure port.

**Sleep function**
By means of the integrated pressure monitoring, the hydraulic power unit is automatically switched off if the command pressure is reached at a current flow below the set threshold value or respectively switched on if the pressure is dropping.
This increases the energy efficiency and you can, for example, realize an accumulator charging circuit without additional control signals (see R911378635 Sytronix quick guide).

**Notice:**
For further information, refer to the EFC operating instructions R911369847.




| Pos. | Component designation | Material number |
|---|---|---|
| 1 | CYTROPAC-1X | |
| 2 | SQUARE NUT 53X53X8 / G1 | R901483146 |
| 3 | CENTERING RING 32X28.6X3 (G1) *PVC | R901483194 |
| 4 | PLUG SCREW DCCS10001-G1A-ST+EP-& | R913011613 |

## Sensor and interface selection

| | | Basic | Premium |
|---|---|---|---|
| **Sensor technology** | Filling level sensor early warning (10 liters) | ✓ | ✓ |
| | Filling level sensor shut-off (7 liters) | ✓ | ✓ |
| | Oil temperature sensor early warning (60 °C) | ✓ | ✓ |
| | Oil temperature sensor shut-off (65 °C) | ✓ | ✓ |
| | Filter contamination sensor early warning (75%) | ✓ | ✓ |
| | Filter contamination sensor shut-off (100%) | ✓ | ✓ |
| | Shut-off overtemperature of the drive unit | ✓ | ✓ |
| **Analysis** | Wiring and evaluation of the sensor technology by machine control necessary | ✓ | – |
| | Wiring and evaluation of the sensor technology integrated in the power unit | – | ✓ |
| | Read-out of all power unit parameters for condition monitoring | – | ✓ |
| **Interfaces** | Input (24 V) enable power unit | ✓ | ✓ |
| | Input (24 V) reset power unit | ✓ | ✓ |
| | USB service interface | ✓ | ✓ |
| | Output - power unit ready for operation (24 V); fault 0 V | ✓ | ✓ |
| | Output - power unit early warning (24 V) | – | ✓ |
| | Multi-Ethernet interface | – | ✓ |
| **Functions** | Sleep function for accumulator charging circuit | ✓ | ✓ |
| | Up to four parameter configurations (e.g. pressure ratings) | ✓ | ✓ |
| | Prestart Control | ✓ | ✓ |
| | Error visualization via LED strip | – | ✓ |
| | Access to and adjustment of all power unit parameters (e.g. pressure ratings, flows) | – | ✓ |

## CytroPac UL version (cULus-listed)

The CytroPac is optionally available with cULus-listing and is therefore approved for the American and Canadian market.

The main difference to the standard is the newly designed steel hood and the UL-approved power connector with 5 m line, which is included in the scope of delivery.

The CytroPac can be found in the UL database by searching with file number E492120: https://iq.ulprospector.com/info/

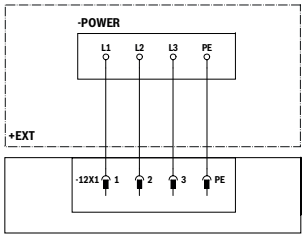
**Preferred types** [1)]

| Material number | Denomination |
|---|---|
| R901522117 | CYTROPAC-1X/20/ST2AS04/2/P/WB/1/7035/UL |
| R901522121 | CYTROPAC-1X/20/ST2AS04/2/P/WD/1/7035/UL |
| R901522118 | CYTROPAC-1X/20/ST2AS05/2/P/WB/1/7035/UL |
| R901522122 | CYTROPAC-1X/20/ST2AS05/2/P/WD/1/7035/UL |
| R901522119 | CYTROPAC-1X/20/ST2AS08/2/P/WB/1/7035/UL |
| R901522124 | CYTROPAC-1X/20/ST2AS08/2/P/WD/1/7035/UL |
| R901522120 | CYTROPAC-1X/20/ST2AS11/2/P/WB/1/7035/UL |
| R901522125 | CYTROPAC-1X/20/ST2AS11/2/P/WD/1/7035/UL |
| R901522126 | CYTROPAC-1X/20/ST4AS04/2/P/WB/1/7035/UL |
| R901522130 | CYTROPAC-1X/20/ST4AS04/2/P/WD/1/7035/UL |
| R901522127 | CYTROPAC-1X/20/ST4AS05/2/P/WB/1/7035/UL |
| R901522131 | CYTROPAC-1X/20/ST4AS05/2/P/WD/1/7035/UL |
| R901522128 | CYTROPAC-1X/20/ST4AS08/2/P/WB/1/7035/UL |
| R901522132 | CYTROPAC-1X/20/ST4AS08/2/P/WD/1/7035/UL |
| R901522129 | CYTROPAC-1X/20/ST4AS11/2/P/WB/1/7035/UL |
| R901522133 | CYTROPAC-1X/20/ST4AS11/2/P/WD/1/7035/UL |

[1)] Individual configurations can be created on request from a minimum order quantity of 5 units.

## Electrical connections

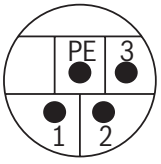
### 12X1: Feed-in / voltage supply




| | |
|---|---|
| **Voltage** | 3P 380 V ... 480 VAC (-15% / +10%) |
| **Frequency** | 50/60 Hz |
| **Assignment** | L1/L2/L3/PE |
| **Rotating field** | Rotating field right |
| **Pre-fuse on the customer side** | Power 1.5 kW → maximum 10 A<br>Power 2.2 kW → maximum 16 A<br>Power 3.0 kW → maximum 20 A<br>Power 4.0 kW → maximum 20 A |

Feed-in of voltage supply including pre-fuse and mains contactor are to be realized by the customer.

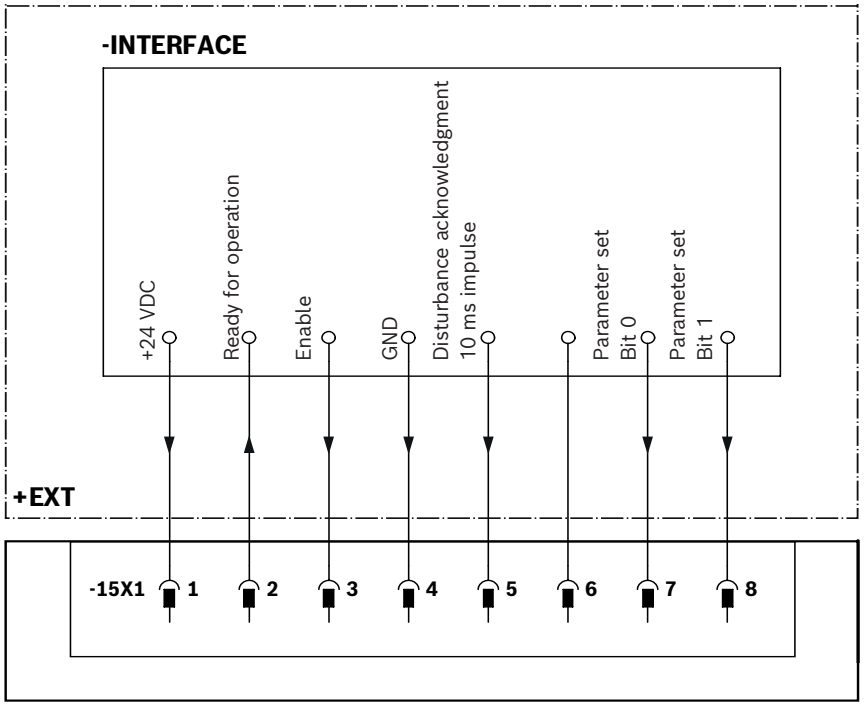
### 12X1: Connector




| Pin | Function |
|---|---|
| 1 | L1 |
| 2 | L2 |
| 3 | L3 |

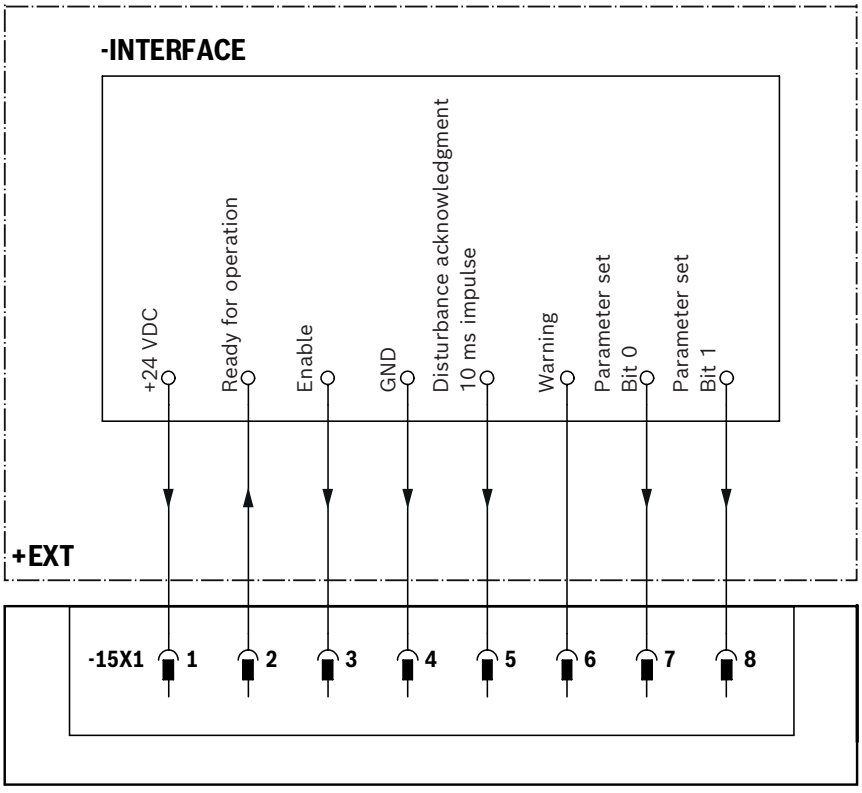
### 14X1: USB to the frequency converter

### 15X1: 24 V interface (Basic)




**Note:**
If no Ready for operation → then Fault

### 15X1: 24 V interface (Premium)




☞ **Note:**
If no Ready for operation → then Fault

### 15X1: 24 V interface (Basic and Premium)

(Connector)
M12x1; 8-pole,
A-coded

| Pin | Function | Basic | Premium |
|---|---|---|---|
| 1 | Voltage supply 24 VDC | ✓ | ✓ |
| 2 | Ready for operation | ✓ | * |
| 3 | Enable | ✓ | * |
| 4 | Ground | ✓ | ✓ |
| 5 | Fault acknowledgment | ✓ | * |
| 6 | Warning | – | * |
| 7 | Selection of pressure command value bit 0 | ✓ | * |
| 8 | Selection of pressure command value bit 1 | ✓ | * |

***** These functions can be realized via fieldbus.

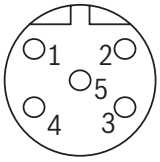
| Pin 8 bit 1 | Pin 7 bit 0 | | Parameter | Designation |
|---|---|---|---|---|
| 0 | 0 | Parameter set 1 | F1.05 | Pressure command digital setting 0 |
| 0 | 1 | Parameter set 2 | F1.06 | Pressure command digital setting 1 |
| 1 | 0 | Parameter set 3 | F1.07 | Pressure command digital setting 2 |
| 1 | 1 | Parameter set 4 | F1.08 | Pressure command digital setting 3 |

☞ **Note:**
In the "Premium" configuration level, the sensors are wired with the integrated control and evaluated at the factory.
The sensor conditions are signaled via the integrated LED strip and can be read out via the USB service interface.
**Changing the operating pressure:**
In the Basic version, up to four pressure ratings can be set.
The settings are described accordingly in the operating instructions R.51055-B CytroPac.

### 21X1 / 21X2: Multi-Ethernet interface

Device socket IP67 Push-Pull

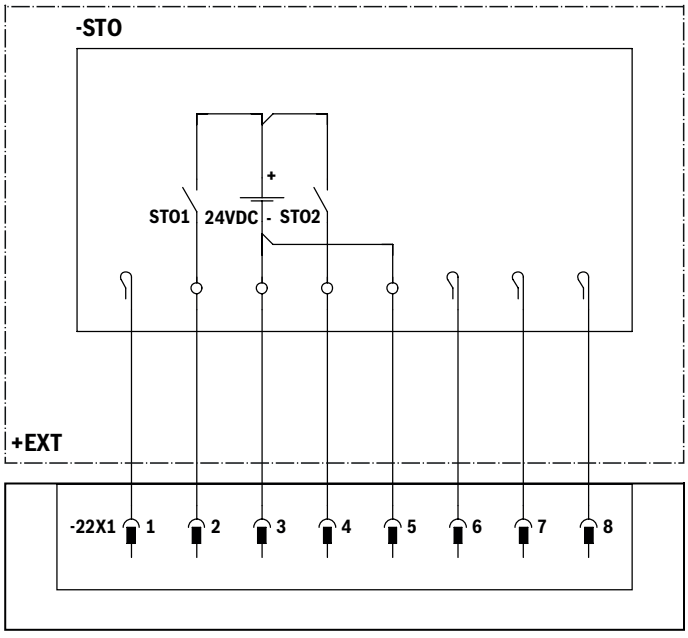
### 21X1 / 21X2: Alternative version "E" (Premium-M12)




| Pin | Function |
|---|---|
| 1 | TxD + |
| 2 | RxD + |
| 3 | TxD + |
| 4 | RxD + |
| 5 | Not used |

M12x1; 4-pole, D-coded
(bushing)

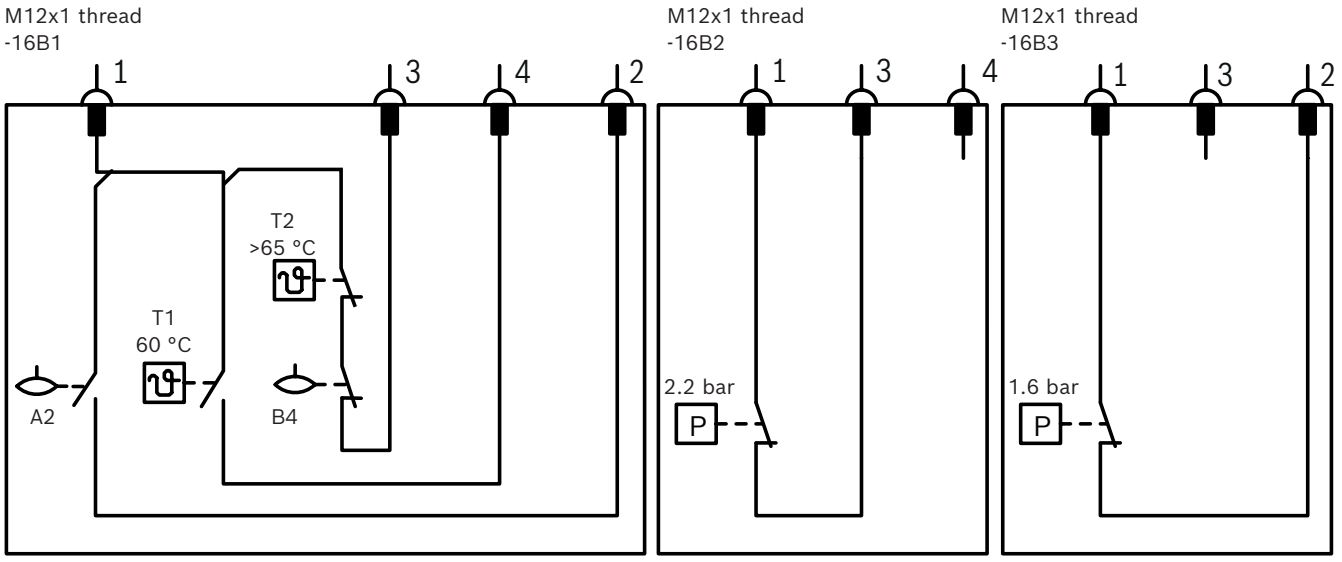
### 22X1: Safe Torque OFF (STO)



(Connector)
M12x1; 8-pole,
A-coded

| Pin | Function |
|---|---|
| 1 | Not used (NC) |
| 2 | STO 1 + |
| 3 | STO 1 - |
| 4 | STO 2 + |
| 5 | STO 2 - |
| 6 | Not used (NC) |
| 7 | Not used (NC) |
| 8 | Not used (NC) |

### Filling level, temperature and filter contamination sensor




Filling level/
temperature sensor

Filter contamination
sensor 100%

Filter contamination
sensor 75%

**Notice:**
In the "Basic" configuration, the sensors have to be wired and evaluated on the customer side.

**Notice:**
Circuit diagram representation in the ready for operation state, without filling level and temperature warnings.

### Filling level/temperature sensor

| Pin | Function |
|---|---|
| 1 | Voltage supply 24 VDC |
| 2 | Pre-warning level |
| 3 | Switch-off level and temperature |
| 4 | Early warning temperature |

M12x1; 4-pole, A-coded
(Connector)

### Filter contamination sensor 100%

| Pin | Function |
|---|---|
| 1 | Voltage supply 24 VDC |
| 3 | Early warning 100% at 2.2 bar |

M12x1; 4-pole, A-coded
(Connector)

### Filter contamination sensor 75%

| Pin | Function |
|---|---|
| 1 | Voltage supply 24 VDC |
| 2 | Pre-warning 75% at 1.6 bar |

M12x1; 4-pole, A-coded
(Connector)

**Notice:**
Use only suitable connectors and/or lines with IP67 rating.
Optionally available, see chapter Accessories on page 21

## Accessories (separate order)

Electric

| 12X1 | Voltage supply | | |
|---|---|---|---|
| R901460889 | MATING CONNECTOR 0DEG *OPT.CYTROPA& | | Straight power connector without cable (including manual unlocking) **mandatory for operation** |
| R901477770 | MATING CONNECTOR 99.401.3537.7 | | Straight power connector with cable, open end; length: 2 m |
| R901533758 | MATING CONNECTOR 99.402.3537.7 UL | | Straight power connector with cable, open end; length: 5 m |
| R901477936 | MATING CONNECTOR 10M CABLE OPEN END 9& | | Straight power connector with cable, open end; length: 10 m |
| R901460842 | MANUAL OPERATION RST20/25 SW | | Manual unlocking for power connector (for tool-free disconnection) |

| 14X1 | USB - service interface | | |
|---|---|---|---|
| R901544088 | USB CABLE USB 2.0 A/MINI-B 5 M& | | USB cable with ferrite core, A/Mini - B; length: 5 m **USB mobile phone or charging cables are not suitable and susceptible to fault!** |

| 15X1 / 22X1 | Enable customer interface / STO | | |
|---|---|---|---|
| R913002121 | MATING CONNECTOR | 8P 7000-17-2910500 | Straight bush, shielded 8-pole M12, with free PUR line end; length: 5 m (8x0.25 $mm^2$ / d=7.0 mm); 24 VAC/DC, max. 1.5 A, IP67 |
| R901467712 | MATING CONNECTOR | 7000-17041-3771000 | Straight bush with cable support sleeve 8-pole M12, with free PUR line end; length: 10 m (8x0.34 $mm^2$ / d=6.2 mm); 30 VAC/DC, max. 2 A, IP65 and IP67 in stretched and screwed condition |
| R901525292 | CONTACT JUMPER | CYTROPAC-STO-DEACTIVE& | Contact jumper for port 22X1 to be able to deactivate the STO functionality |

| 21X1 / 21X2 | Multi-Ethernet interface[1)] | | |
|---|---|---|---|
| R901469479 | CONNECTOR | IE-PS-V04P-RJ45-FH | Connector without cable |
| R901471844 | NETWORK CABLE | RJ45/IP67-RJ45 5M | Length: 5 m; certificate: CAT 6A /RoHS |
| R901471845 | NETWORK CABLE | RJ45/IP67-RJ45 10M | Length: 10 m; certificate: CAT 6A /RoHS |
| R901492613 | NETWORK CABLE | RJ45/IP67-RJ45 20M | Length: 20 m; certificate: CAT 6A /RoHS |
| R901559448 | NETWORK CABLE | M12-D-IP67/RJ45 5M | CAT5, 4-pole, PUR, shielded, straight connector M12 / IP67, coding: D, on straight connector RJ45 / IP20; length: 5 m |
| R901559450 | NETWORK CABLE | M12-D-IP67/RJ45 10M | CAT5, 4-pole, PUR, shielded, straight connector M12 / IP67, coding: D, on straight connector RJ45 / IP20; length: 10 m |
| R901559451 | NETWORK CABLE | M12-D-IP67/RJ45 20M | CAT5, 4-pole, PUR, shielded, straight connector M12 / IP67, coding: D, on straight connector RJ45 / IP20; length: 20 m |

| | General | | |
|---|---|---|---|
| R901451741 | CABLE SET | K160601NNZ | Optional cable set for Basic version to connect the sensors for filter contamination (early warning, shut-off) and level and temperature with one supply line |

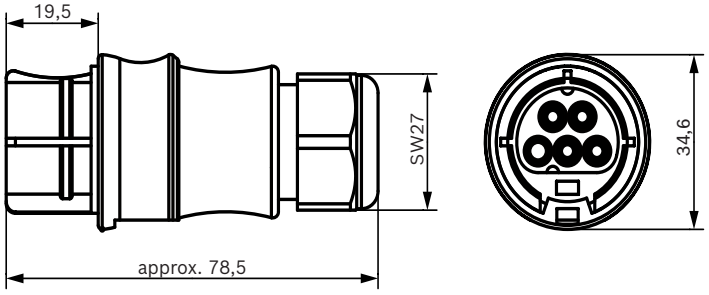
1) We recommend using the Multi-Ethernet cable provided by Bosch Rexroth with regard to IP67 rating.

## Accessories (separate order)

| | | | |
|---|---|---|---|
| | **Mounting kit** | | |
| Mechanical | R901460890 | MOUNTING KIT BASE285 *OPT CYTROPAC | Foot mounting assembly kit |
| | **Filling device** | | |
| Mechanical | R901460916 | FUEL UNIT MD-012-2*OPT.CYTROPAC | Filling device assembly kit |
| Mechanical | R900988089 | COUPLING SOCKET MD-012-0-WR521-19-1 | Counterpart quick-release coupling |
| | **Connection accessories** | | |
| Mechanical | R901460961 | CONNECTION ACCESSORIES HYDR.CON*OPT. CYTROPAC | Oil and water fitting assembly kit |
| | **Oil pan** | | |
| Mechanical | R920062334 | OIL PAN CYTROPAC - 600X 500X 105-ES | Optional oil pan (stainless steel according to WHG) |
| | **Filter element (return flow filter)** | | |
| Mechanical | R928035258 | 35.0035CP H10XL-R00-0-M | |
| | **Filter element (air filter)** | | |
| Mechanical | R901470062 | AIR FILTER TMDF/1/BRC | Standard |
| Mechanical | R901471242 | AIR FILTER TMDF/1/BR | Air filter without filling strainer |
| | **Pressure limitation unit** | | |
| Mechanical | R901519129 | PRESSURE LIMITATION UNIT 200BAR/2900PSI - CYT& | Set pressure up to 200 bar |
| Mechanical | R901519130 | PRESSURE LIMITATION UNIT 315BAR/4568PSI - CYT& | Set pressure up to 315 bar |

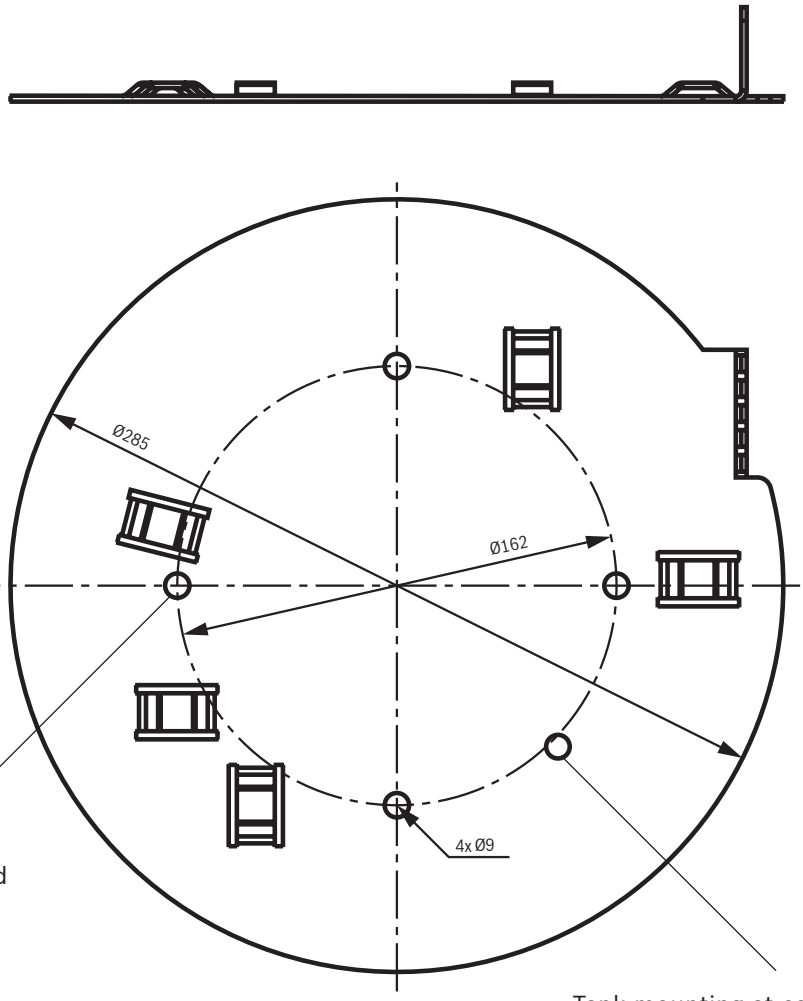
### Power connector (12X1)

| Material number | Denomination |
|---|---|
| R901460889 | MATING CONNECTOR 0DEG *OPT.CYTROPAC |



**Foot mounting**

| Material number | Denomination | |
|---|---|---|
| R901460890 | MOUNTING KIT BASE285 *OPT.CYTROPAC | Foot mounting assembly kit |

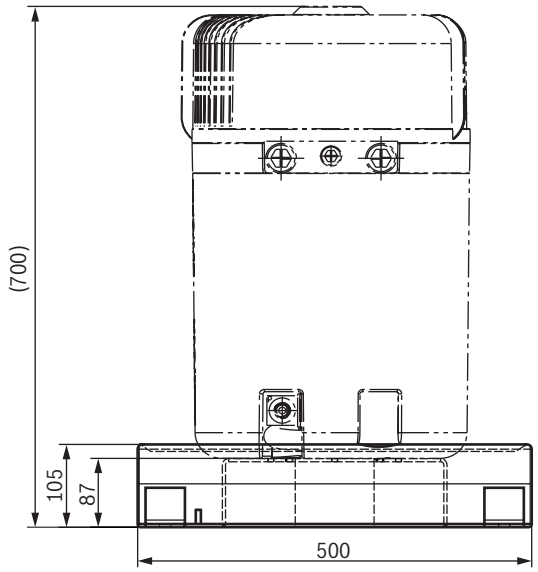


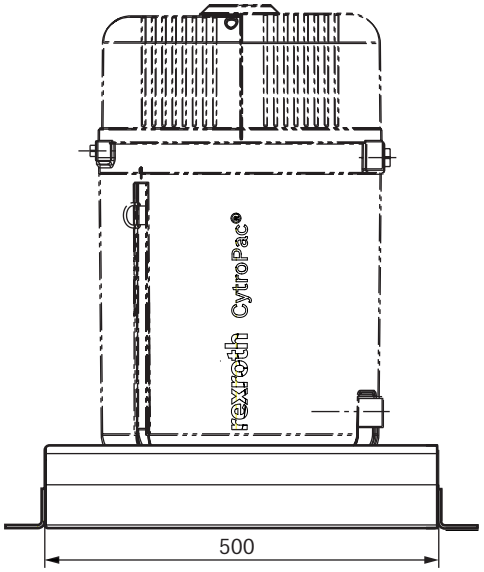

Foot mounting with 4x hexagon socket head cap screw M8 x 20 mm (not included in the scope of delivery)

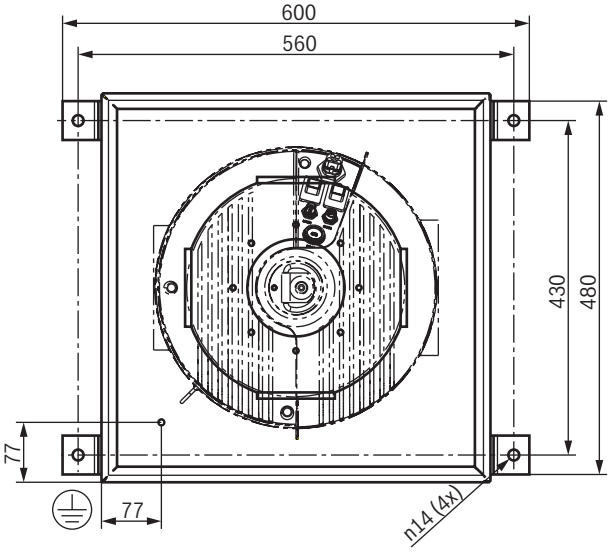
Tank mounting at central plate with 1x hexagon socket head cap screw M6 x 430 mm (not included in the scope of delivery)

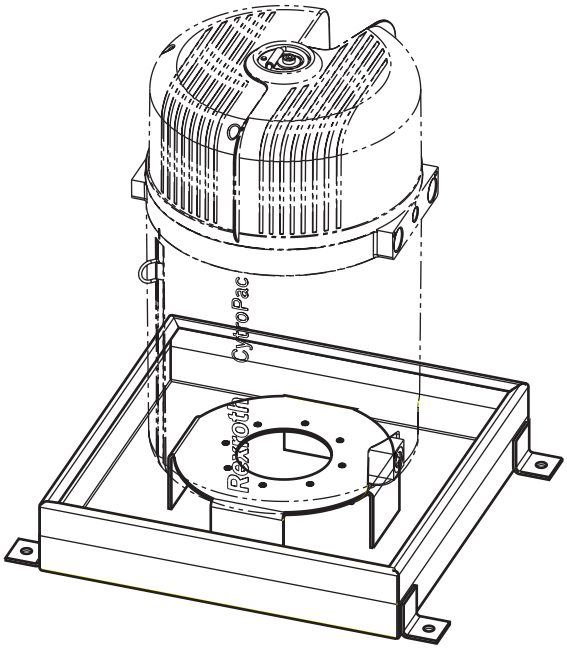
**Oil pan**

| Material number | Denomination | |
|---|---|---|
| R920062334 | OIL PAN CYTROPAC - 600X 500X 105-ES | Optional oil pan |



### Pressure limitation (optional)

| Material number | Denomination |
|---|---|
| R901519129 | PRESSURE LIMITATION UNIT 200BAR/2900PSI - CYT& |
| R901519130 | PRESSURE LIMITATION UNIT 315BAR/4568PSI - CYT& |

Contents assembly kit:
- Pressure relief valve DBDS (R. 25402)
- Minimess connection
- Hose
- Fittings

### Technical data

| **Hydraulic** | | |
|---|---|---|
| Size | NG | 6 |
| Set pressure | bar | up to 200 (R901519129) |
| | bar | up to 315 (R901519130) |
| Port P | | 16S |

## Project planning information

- It has to be ensured before the commissioning that on the customer side, a pressure relief valve (set pressure 10% over nominal pressure, however at most 260 bar) has been installed in the pressure line.
- The feed-in and 24 V supply must be secured on the customer side, as described on page 17.
- For the cooling of the motor and the frequency converter, the power unit must imperatively be connected to cooling water.
- The connection of the power unit to the machine must be realized by means of hydraulic hoses (no rigid pipeline admissible).
- It must be ensured on the customer side that the cooling water supply temperature does not fall below the dewpoint of the ambient air of the power unit.
- The maximum operating pressure of 240 bar must not be exceeded.

## Further information

| | |
|---|---|
| Hydraulic fluids on mineral oil basis | Data sheet 90220 |
| Environmentally compatible hydraulic fluids | Data sheet 90221 |
| Selection of filters | www.boschrexroth.com/filter |
| Information on available spare parts | www.boschrexroth.com/spc |
| EFC operating instructions | R911369847 |
| Quick guide FcP 5020 | R911378635 |

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