

Self-contained actuator

Type CytroMotion



- ▶ Component series 1X
- ▶ Maximum force generated by pressure up to 275 kN
- ▶ Maximum travel velocity 740 mm/s
- ▶ Maximum stroke length 1000 mm
- ▶ Closed system

Features

- ▶ Ready to install, easy installation (purely electrical connection)
- ▶ For applications with a closed control loop
- ▶ Compact design
- ▶ Installation independent of position
- ▶ Flexible set-up
- ▶ Maintenance-free
- ▶ Robust in use
- ▶ Optionally connectable reduced-force rapid traverse (regenerative mode)
- ▶ Operation with standard converter technology

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Ordering codes

| | | | | | | | | | | | | | |
|--------------------|----------|-----------|----------|----------|----|----------|----------|----------|----------|----------|----------|----------|----------|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 |
| CYTROMOTION | - | 1X | / | H | | / | / | / | / | P | B | / | X |

| | | |
|----|-------------|--------------------|
| 01 | CytroMotion | CYTROMOTION |
|----|-------------|--------------------|

| | | |
|----|------------------------------------------------------------------------------------------|-----------|
| 02 | Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions) | 1X |
|----|------------------------------------------------------------------------------------------|-----------|

Cylinder design

| | | |
|----|-----------|----------|
| 03 | Mill type | H |
|----|-----------|----------|

Cylinder function

| | | |
|----|--------------------------------------------------------|----------|
| 04 | Differential cylinder | D |
| | Differential cylinder with position measurement system | S |

Cylinder mounting types

| | | |
|----|----------------------|----------|
| 05 | Round flange at head | F |
|----|----------------------|----------|

Piston \varnothing (\varnothing AL) ¹⁾

| | | |
|----|--------|------------|
| 06 | 40 mm | 040 |
| | 50 mm | 050 |
| | 63 mm | 063 |
| | 80 mm | 080 |
| | 100 mm | 100 |
| | 125 mm | 125 |

Piston rod \varnothing (\varnothing MM) ¹⁾

| | | |
|----|-------|------------|
| 07 | 28 mm | 028 |
| | 36 mm | 036 |
| | 45 mm | 045 |
| | 56 mm | 056 |
| | 70 mm | 070 |
| | 90 mm | 090 |

| | | |
|----|-------------------------------------------------|--|
| 08 | Stroke length 0050 ... 1000 in mm ²⁾ | |
|----|-------------------------------------------------|--|

| | | |
|----|----------------------|----------|
| 09 | Parallel orientation | P |
|----|----------------------|----------|

| | | |
|----|--------------|----------|
| 10 | Frame size 2 | B |
|----|--------------|----------|

Geometric displacement volume pump Vg

| | | |
|----|----------------------|----------|
| 11 | 3.6 cm ³ | C |
| | 5.2 cm ³ | E |
| | 7.3 cm ³ | G |
| | 9.3 cm ³ | I |
| | 10.4 cm ³ | J |
| | 11.4 cm ³ | K |

¹⁾ For possible combinations, see table on page 9

²⁾ Preferably in 100 mm steps. For version 040/028, the maximum stroke length is limited to 970 mm.

Ordering codes

| | | | | | | | | | | | | | |
|--------------------|----------|-----------|----------|----------|----|----------|----------|----------|----------|----------|----------|----------|----------|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 |
| CYTROMOTION | - | 1X | / | H | | / | / | / | / | P | B | / | X |

Rated power

| | | |
|----|--------|----------|
| 12 | 3.5 kW | C |
| | 4.8 kW | D |
| | 6.2 kW | F |

Hydraulic circuit

| | | |
|----|--------------------------------------------------|----------|
| 13 | Standard | S |
| | Reduced-force rapid traverse (regenerative mode) | R |

Cover

| | | |
|----|----------|----------|
| 14 | Standard | S |
| | Without | X |

Function

The CytroMotion is a compact, energy-efficient self-sustaining actuator that converts electrical energy into a precise, controllable movement of a hydraulic cylinder. The pre-tested overall system can be installed easily and independently of position, the integration is purely electric.

Forces up to 275 kN can be realized. Optionally, a rapid traverse with reduced force can be switched on in order to increase the speed of the cylinder during extension up to 740 mm/s (regenerative mode, version "R").

The CytroMotion basically consists of a synchronous motor with a rotary encoder (1), a 4Q-capable and low-noise internal gear pump (2), a cylinder unit (3), a compensator for the compensation of differential volume (4), a valve block (5) and an optional position measurement system (6).

Motor-pump group

The motor-pump group provides hydraulic power as required.

Cylinder unit / actuator

The cylinder unit of the compact axis converts flow and pressure into a linear movement with force.

Compensator (low-pressure accumulator)

The servo-hydraulic actuator is a hydraulically closed system. The compensator is used to receive differential volume of the retracting and extending piston rod and also temperature variations.

Valve block

By switching the 2/2 directional seat valves (VA, VB, VE and VR) used, various functions such as retraction and extension of the cylinder and holding the cylinder are implemented, and the rapid traverse is optionally switched on (see CytroMotion operation on page 6).

The pressure transducers SA, SB and SK used monitor the working pressures and the compensator pressure. In addition, the pressures are limited by the pressure relief valves used.

Position measurement system

(optional, cylinder version "S")

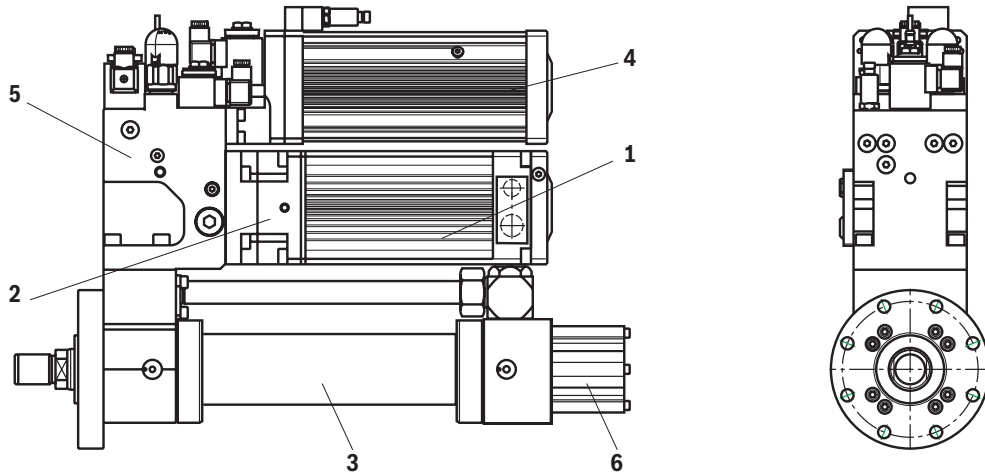
The piston position is detected by an installed absolute position measurement system.



Notice:

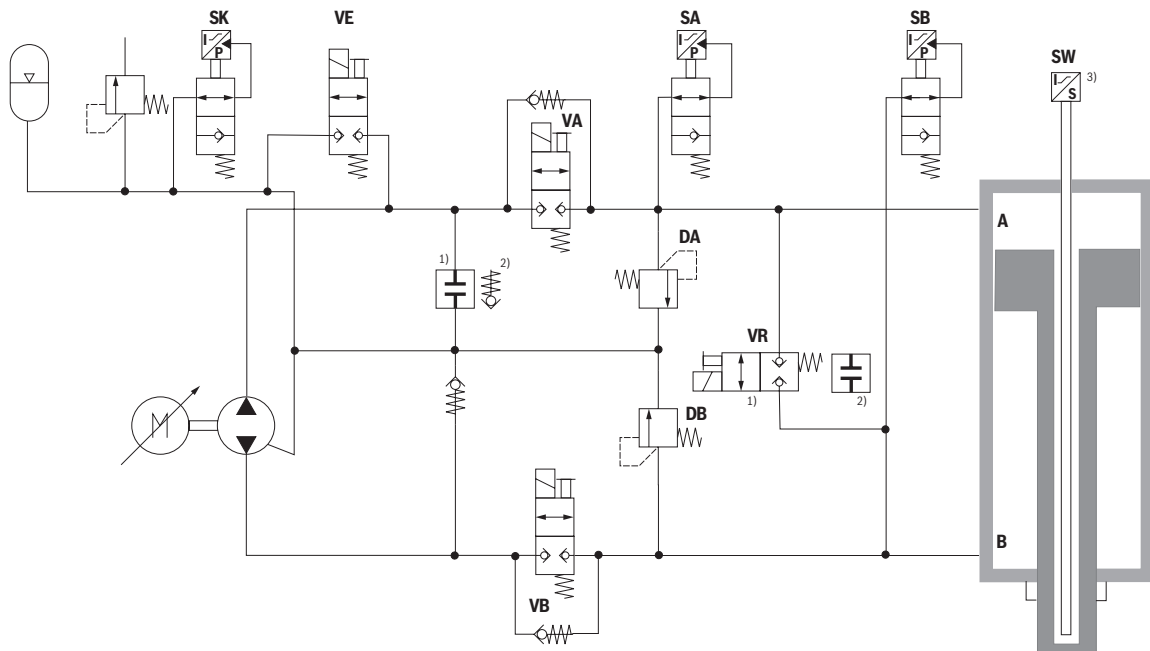
- **Generator operation:**
External force effect on the cylinder may drive the motor/pump group.
Consequently, the motor acts as a generator and generates electrical energy.
This energy must be dissipated or stored by suitable measures such as a braking resistor or a DC link.
- **Retraction under load:**
If the retraction of the self-contained actuator is to take place during the process under load in the direction of movement, please contact Bosch Rexroth.

Function



Representation of version "X" (without cover)

Function: Hydraulic circuit diagram



- 1) Fitting with version "R" (reduced-force rapid traverse – regenerative mode).
- 2) Fitting with version "S" (standard)
- 3) Only for cylinder version "S" (with position measurement system)

| Valve | VA | VB | VE | VR | Motor rotation direction ³⁾ |
|-------------------------------------------------------------------|-----------------|-----------------|----|----|----------------------------------------|
| Basic position | - ¹⁾ | - | - | - | - |
| Force traverse, extending | + ²⁾ | + | - | - | right (clockwise) |
| Extending reduced-force rapid traverse (regenerative mode) | + | - | - | + | right (clockwise) |
| Retraction | + | + | + | - | left (anti-clockwise) |
| Hold force generated by pressure | - ⁴⁾ | + | - | - | - |
| Hold traction force | + | - ⁴⁾ | - | - | - |

1) - → 2/2 directional seat valve, without current

2) + → 2/2 directional seat valve, with current

3) Looking onto the drive shaft (piston rod of the CytroMotion)

4) If required, the pressure can be adjusted via the by-pass check valve even when the VA seat valve is closed.

Note:

Activating the motor while the seat valve (VA) is closed can cause the cylinder to extend!

Pressure builds up in the piston chamber via the by-pass check valves. As soon as the pressure exceeds the protected pressure on the rod side (pressure intensification with a single-rod cylinder), the pressure relief valve opens and the cylinder extends.

CytrMotion operation

Basic position:

The motor is off / de-energized and all valves are without current. The pressure medium in the cylinder chambers A and B is blocked by the 2/2 directional seat valves.

Force traverse, extending:

Motor direction of rotation clockwise, the motor speed according to the speed requirement on the cylinder. The 2/2 directional seat valves VA and VB are switched/energized. The pressure medium is conveyed from the rod side of the cylinder B via the 2/2 directional seat valves VB and VA into the piston sides of the cylinder A. The additional differential volume is "sucked" out of the compensator via a check valve. The cylinder extends.

Reduced-force rapid traverse extension

(regenerative mode):

Only possible with version "R".

Motor direction of rotation clockwise, the motor speed according to the speed requirement on the cylinder. The 2/2 directional seat valves VA and VR are switched/energized. The pressure medium is conveyed by the pump via the 2/2 directional seat valve VA into the piston side A of the cylinder. The displacement additionally conveys the pressure medium from the rod side B via the 2/2 directional seat valve VR into the piston side A. The additional differential volume is "sucked" out of the compensator via a check valve. Thus, the extension speed can be nearly doubled compared to the "extension of the force traverse". As a result of the area ratios of the differential cylinder, the force generated by pressure is reduced by about half. (For the gear ratio, see page 9)
The cylinder extends in a reduced-force rapid traverse.

Retraction:

Motor direction of rotation counterclockwise, the motor speed according to the speed requirement on the cylinder. The 2/2 directional seat valves VA, VB and VE are switched/energized. The pressure medium is conveyed from the piston side of the cylinder A via the 2/2 directional seat valves VA and VB into the rod sides of the cylinder B. The differential volume from the piston side A is conveyed via the valve VE into the compensator. The cylinder retracts.

Hold force generated by pressure:

The motor is off / de-energized.

The 2/2 directional seat valve VB is switched/energized in order to relieve the rod side of the cylinder B.

The pressure in the piston side of the cylinder A is blocked by the closed 2/2 directional seat valve VA.

The force generated by pressure is held.

If required, the pressure can be adjusted via the by-pass check valve even when the seat valve VA is closed.

Hold traction force:

The motor is off / de-energized.

The 2/2 directional seat valve VA is switched/energized in order to relieve the piston side of the cylinder A.

The pressure in the rod side of the cylinder B is blocked by the closed 2/2 directional seat valve VB.

The traction force is held.

If required, the pressure can be adjusted via the by-pass check valve even when the seat valve VB is closed.

Technical data

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

| General | |
|-----------------------------------------------|-----------------------------------------------|
| Design | Closed system |
| Actuation | Electric |
| Type of connection | Round flange at head |
| Installation position | Any |
| Ambient temperature range operation | °C 5 ... +40 |
| Weight | kg 60 ... 130 (configuration dependent) |
| Condensation | Not admissible |
| Maintenance interval | >10m load cycles |
| Protection class according to EN 60529 | IP50 |
| Performance level according to EN ISO 13489-1 | Only on request, since configuration-specific |

| Hydraulic | |
|---------------------------------------------------|--------------------------------------|
| Nominal pressure | bar 225 |
| Admissible pressure peaks | bar 250 |
| Compensator pressure | bar 2.5 ... 4.5 |
| Maximum compensator pressure | bar 13 |
| Oil volume | l 2 ... 10 (configuration dependent) |
| Hydraulic fluid | HLP 46 (Data Sheet 90220) |
| Hydraulic fluid temperature range (flown-through) | °C 5 ... +75 |

| Internal gear pump | | | | | | | |
|-------------------------------------------------------------|-----------------|------------|------|------|------|------|------|
| Pump version | | C | E | G | I | J | K |
| Geometric displacement pump per rotation | cm ³ | 3.6 | 5.2 | 7.3 | 9.3 | 10.4 | 11.4 |
| Speed | 1/min | 0 ... 2400 | | | | | |
| Maximum permissible motor current in dependence on the pump | A | 11.7 | 16.8 | 23.6 | 26.4 | 29.5 | 32.3 |

| Synchronous motor | | | | |
|---------------------------------------------|----------|--------------------------------------------------------------------------------------------|------|------|
| Motor version | | C | D | F |
| Nominal power | kW | 3.5 | 4.8 | 6.2 |
| Mains voltage (input voltage for converter) | V | 400 ... 480 | | |
| Maximum link voltage | V DC | 560 ... 680 | | |
| Voltage tolerance (nominal voltage) | % | +/- 10 | | |
| Rated current | A | 7.6 | 10.5 | 13.8 |
| Maximum admissible current | A | Depending on the internal gear pump used. See table "Technical data of internal gear pump" | | |
| Rated speed | 1/min | 2400 | | |
| Nominal frequency | Hz | 200 | | |
| Rated torque | Nm | 13.8 | 19.3 | 24.8 |
| Resistance at 20°C | Ω | 2.66 | 1.8 | 1.4 |
| Number of poles | | 10 | | |
| D - impedance PH - PH | mH | 18 | 12 | 10 |
| Q - impedance PH - PH | mH | 28 | 20 | 16 |
| Back EMF | V ms/rpm | 137 / 1000 | | |

Technical data

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

| 2/2-way screw-in seat valves | | | |
|--------------------------------------|-------|----------------|-----------|
| Voltage type | | Direct voltage | |
| Nominal voltage | V | 24 | |
| Rated current | A | 1.36 | |
| Nominal power | W | 32.7 | |
| Duty cycle (ED) | % | 100 | |
| Switching time according to ISO 6403 | ▶ ON | ms | 50 ... 60 |
| | ▶ OFF | ms | 50 ... 60 |

| Position measurement system | | | |
|------------------------------------|----------------------------|----|----------------------------|
| Electrical connection | ▶ Type of connection | ms | 1 x M16 connector (7-pole) |
| | ▶ Power consumption | W | 1.2 typical |
| SSI | ▶ Interface | | SSI 24 bit (RS-485/RS-422) |
| | ▶ Resolution | μm | 0.5 |
| | ▶ Direction of measurement | | Synchronous forward |
| | ▶ Data format | | Gray |

| Pressure transducer | | | |
|----------------------------|--------------------------------------|-----------------|-------------------------------|
| Supply voltage | ▶ Nominal voltage | VDC | 24 |
| | ▶ Lower limit value (U_S) | VDC | 18 |
| | ▶ Upper limit value (U_S) | VDC | 36 ³⁾ |
| | ▶ Maximum admissible residual ripple | V _{SS} | 2.5 (40 ... 400 Hz) |
| Current consumption | | I_{max} | ≤ 12 mA (with voltage output) |
| Protection class | | | III |
| Isolation resistance | | MΩ | > 100 (500 VDC) |
| Measurement range | bar | | 10 250 |
| Overload protection | bar | | 20 500 |
| Bursting pressure | bar | | 200 1000 |

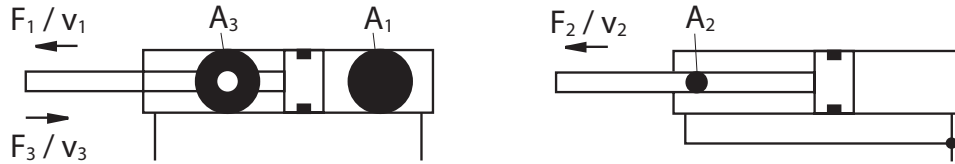
| Output | | | |
|-----------------------------------------------------------------------------------------------------|-------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------|
| Output signal and admissible load R_A | ▶ Current (I_{sig}) | mA | 4 ... 20; $R_A = (U_S - 8.5 \text{ V}) / 0.0215 \text{ A}$ with R_A in Ω and U_S in V |
| Setting time (10 to 90 %) | | ms | < 1 |
| Characteristic curve deviation (corresponds to the measuring deviation according to DIN EN 61298-2) | | % | < 0.5 (related to the complete measurement range, including non-linearity, hysteresis, zero point and end value deviation) |
| Temperature coefficient (TC) for zero point and range | ▶ Within nominal temperature range | % / 10 K | < 0.1 |
| | ▶ Outside nominal temperature range | % / 10 K | < 0.2 |
| Non-repeatability | | % | ±0.05 ⁴⁾ |
| Long-term drift (1 year) under reference conditions | | % | ±0.1 |

3) With cCULus max. 30 VDC

4) Related to the nominal temperature range

Performance range

Effective cylinder area, force generated by pressure and travel velocity with reduced rapid traverse (version "R")



| Area ratio and cylinder force | | | | | | | | | |
|-------------------------------|------------|--------------|---------------------|--------------------------|--------------------------|--------------------------|--------------------------------|-------------|-------------|
| Piston | Piston rod | Power class | Area ratio | Areas | | | Force at 225 bar ³⁾ | | |
| | | | | Piston | Rod | Ring | Pressure | Diff. | Pulling |
| ØAL mm | ØMM mm | kN | ϕ A_1/A_3 | A_1 cm ² | A_2 cm ² | A_3 cm ² | F_1 kN | F_2 kN | F_3 kN |
| 40 | 28 | 25 (~2.5 t) | 1.96 | 12.56 | 6.16 | 6.40 | 28.26 | 13.86 | 14.4 |
| 50 | 36 | 45 (~2.5 t) | 2.08 | 19.63 | 10.18 | 9.45 | 44.19 | 22.86 | 21.29 |
| 63 | 45 | 70 (~2.5 t) | 2.04 | 31.17 | 15.90 | 15.27 | 70.11 | 35.78 | 34.34 |
| 80 | 56 | 110 (~2.5 t) | 1.96 | 50.26 | 24.63 | 25.63 | 113.09 | 55.4 | 57.69 |
| 100 | 70 | 175 (~2.5 t) | 1.96 | 78.54 | 38.48 | 40.06 | 176.72 | 86.58 | 90.14 |
| 125 | 90 | 275 (~2.5 t) | 2.08 | 122.72 | 63.62 | 59.10 | 276.08 | 143.15 | 132.93 |

³⁾ Theoretical static cylinder force (without consideration of the efficiency and admissible load for attachment parts such as swivel heads, plates, or valves, etc.)

The specified force are maximum forces that are reached briefly during a process cycle at a permissible 2-fold overload of the servo-motor.

This time is determined by the selected maximum speed (displacement of the pump), the application cycle and the ambient temperature. A demanding combination may require the selection of a higher motor efficiency class or higher motor power at the engineering stage.

Thermal load

at maximum force (working pressure 225 bar) and high cyclic load

| Thermal load | | | |
|--------------------------------------------------|------------------|-----|-----|
| Geometric displacement volume [cm ³] | Rated power [kW] | | |
| | 3.5 | 4.8 | 6.2 |
| 3.6 | o | - | |
| 5.2 | + | o | o |
| 7.3 | | + | + |
| 9.3 | | ++ | + |
| 10.4 | | | ++ |
| 11.4 | | | ++ |

- Low thermal load
- o Mean thermal load
- + High thermal load
- ++ Very high thermal load

The thermal load increases with increasing force (with increasing working pressure). The combination of synchronous motor and internal gear pump also influences the thermal load (see table "Thermal load").

High loads over a certain cycle time can lead to an unacceptably high temperature rise and thus lead to shut-off.

For system designs with high cycle load, please contact Bosch Rexroth.

Performance range

Nominal maximum velocity [mm/sec]

at 2400 rpm

| Extending force traverse v_1 | | | | | | | |
|--------------------------------------------------|-----------|---------------|---------|---------|---------|---------|---------|
| Geometric displacement volume [cm ³] | Pump type | Cylinder size | | | | | |
| | | 040/028 | 050/036 | 063/045 | 080/056 | 100/070 | 125/090 |
| 3.6 | C | 115 | 73 | 46 | 29 | 18 | 12 |
| 5.2 | E | 166 | 106 | 67 | 41 | 26 | 17 |
| 7.3 | G | 232 | 149 | 94 | 58 | 37 | 24 |
| 9.3 | I | 296 | 190 | 119 | 74 | 47 | 30 |
| 10.4 | J | 331 | 212 | 133 | 83 | 53 | 34 |
| 11.4 | K | 363 | 232 | 146 | 91 | 58 | 37 |

| Extending reduced force rapid traverse v_2 (regenerative mode) | | | | | | | |
|------------------------------------------------------------------|-----------|---------------|---------|---------|---------|---------|---------|
| Geometric displacement volume [cm ³] | Pump type | Cylinder size | | | | | |
| | | 040/028 | 050/036 | 063/045 | 080/056 | 100/070 | 125/090 |
| 3.6 | C | 225 | 152 | 94 | 56 | 36 | 24 |
| 5.2 | E | 325 | 220 | 136 | 81 | 52 | 35 |
| 7.3 | G | 456 | 309 | 191 | 114 | 73 | 49 |
| 9.3 | I | 581 | 394 | 244 | 145 | 93 | 63 |
| 10.4 | J | 650 | 440 | 272 | 162 | 104 | 70 |
| 11.4 | K | 713 | 483 | 299 | 178 | 114 | 77 |

| Retracting v_3 | | | | | | | |
|--------------------------------------------------|-----------|---------------|---------|---------|---------|---------|---------|
| Geometric displacement volume [cm ³] | Pump type | Cylinder size | | | | | |
| | | 040/028 | 050/036 | 063/045 | 080/056 | 100/070 | 125/090 |
| 3.6 | C | 234 | 141 | 91 | 58 | 37 | 23 |
| 5.2 | E | 338 | 204 | 131 | 84 | 54 | 33 |
| 7.3 | G | 474 | 287 | 184 | 119 | 76 | 46 |
| 9.3 | I | 604 | 365 | 234 | 151 | 97 | 58 |
| 10.4 | J | 675 | 409 | 262 | 169 | 108 | 65 |
| 11.4 | K | 740 | 448 | 287 | 185 | 119 | 72 |

Notice:

As the pressure increases, the delivery volume and thus the maximum velocity are reduced.

Usually, high travel velocities with simultaneous high pressure are not encountered.

Dimensions:

(Dimensions in mm)

| ØAL | ØMM | KK | A | NV | ØD | ØDA | X +2 | D1 max | ØRD | WC ±2 | VD | NF js13 | ZB max | ØFB H13 | ØFC js13 | ØUC -1 | L1 ³⁾ |
|------------------|-----|---------|----|-------|-----|-----|---------|-----------|-----|----------|----|------------|-----------|------------|-------------|-----------|------------------|
| 40 ¹⁾ | 28 | M20x1.5 | 28 | 22 | 88 | 52 | Stroke | 80 | 52 | 22 | 4 | 25 | 239 | 11 | 115 | 138 | 580 |
| 50 | 36 | M27x2 | 36 | 27/30 | 102 | 62 | Stroke | 96 | 63 | 22 | 4 | 25 | 254 | 13.5 | 132 | 155 | 619 |
| 63 | 45 | M33x2 | 45 | 32/30 | 120 | 78 | Stroke | 96 | 75 | 25 | 4 | 28 | 299 | 13.5 | 150 | 175 | 779 |
| 80 | 56 | M42x2 | 56 | 41/46 | 145 | 95 | Stroke | 96 | 90 | 28 | 4 | 32 | 332.5 | 17.5 | 180 | 210 | 779 |
| 100 | 70 | M48x2 | 63 | 50/60 | 170 | 125 | Stroke | 96 | 110 | 32 | 5 | 36 | 340 | 22 | 212 | 250 | 779 |
| 125 | 90 | M64x3 | 85 | 65/75 | 206 | 150 | Stroke | 96 | 132 | 36 | 5 | 40 | 396 | 22 | 250 | 290 | 779 |

| ØAL | B2 ³⁾ | H1 | H2 ³⁾ | H3 ³⁾ |
|------------------|------------------|------|------------------|------------------|
| 40 ¹⁾ | 125 | 86.5 | 312.5 | 290 |
| 50 | 180 | 93.5 | 351.5 | 345 |
| 63 | 180 | 113 | 351.5 | 345 |
| 80 | 180 | 127 | 351.5 | 345 |
| 100 | 180 | 138 | 351.5 | 345 |
| 125 | 180 | 155 | 351.5 | 345 |

1) Piston diameter not standardized

2) Only for version "S" (with position measurement system)

3) Maximum dimension (largest components with max. stroke 800 mm) For configuration-based dimensions, see Configurator CytroMotion

Item explanations

- | | | | |
|---|-------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------|
| 1 | 2/2 directional seat valves VA | 10 | Resolver connection and motor temperature |
| 2 | 2/2 directional seat valves VB | 11 | Name plate |
| 3 | 2/2 directional seat valves VE | 12 | Motor name plate |
| 4 | 2/2 directional seat valves VR (only for version "R") | 13 | Piston rod end: Thread for the CGKD swivel head according to data sheet 17042 |
| 5 | Pressure transducer SA | 14 | Connection flange, cylinder "MF3" (installation at the head side) |
| 6 | Pressure transducer SB | 15 | M10 thread for attachment device 3 x R900003438, RING BOLT DIN580-M10-C15E (included in scope of delivery) |
| 7 | Pressure transducer SK | 16 | Space required to remove the connector |
| 8 | Position measurement system SW | | |
| 9 | Motor connection | | |

Mounting (see accessories, page 15)

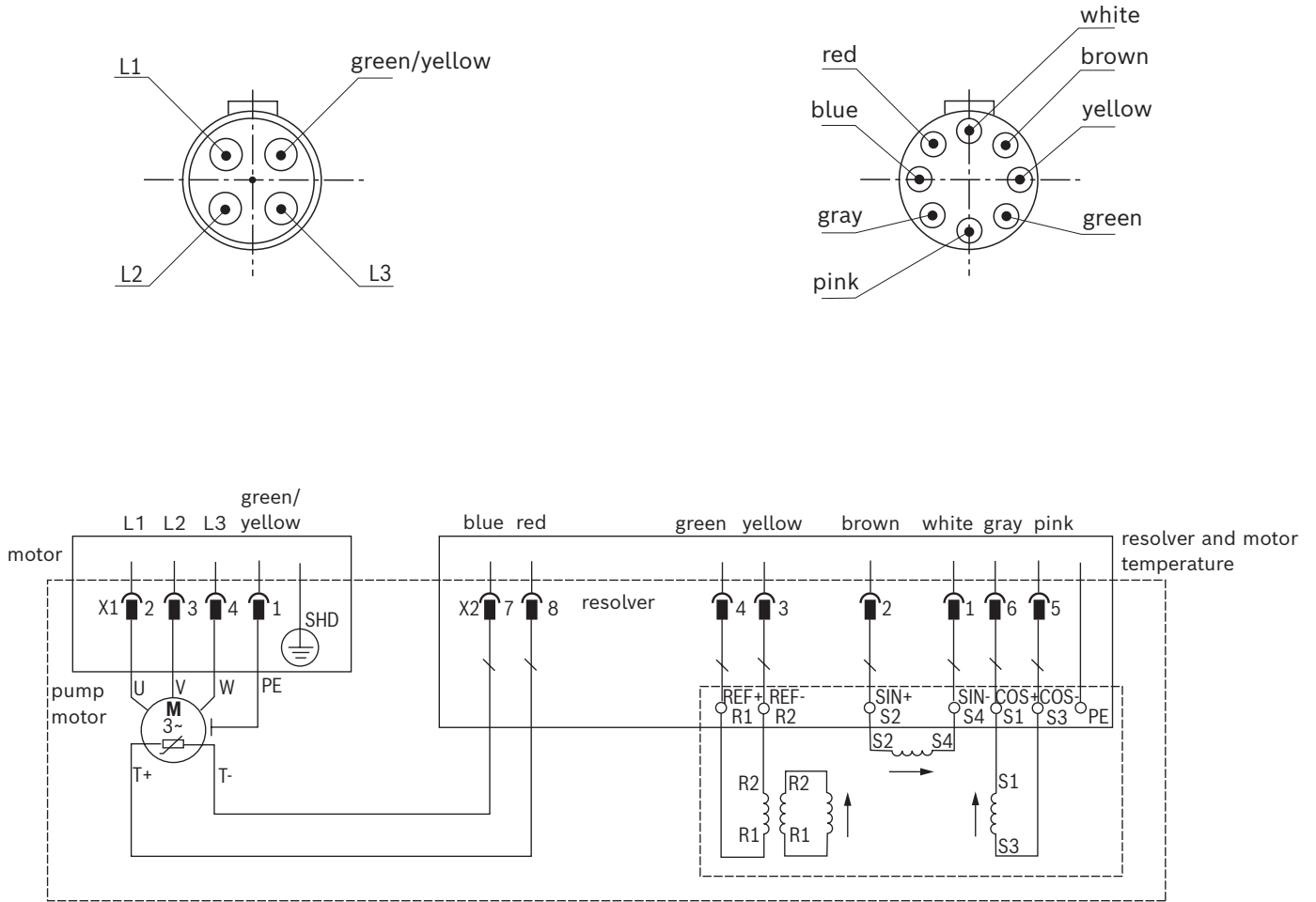
| Version | Clamping length | Quantity | Hexagon socket head cap screws ²⁾ (screw length for minimum screw-in depth 1.2 x d) | Torque +/- 5 % ¹⁾ |
|---------|-----------------|----------|---------------------------------------------------------------------------------------------------|------------------------------|
| 040/028 | 25 | 6 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M10X40-10.9-& | 57.5 Nm |
| | 105 | 2 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M10X120-10.9& | |
| 050/036 | 25 | 6 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X40-10.9-& | 100 Nm |
| | 105 | 2 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X120-10.9& | |
| 063/045 | 28 | 6 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X45-10.9-& | 100 Nm |
| | 108 | 2 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X125-10.9& | |
| 080/056 | 32 | 6 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M16X55-10.9-& | 245 Nm |
| | 112 | 2 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M16X135-10.9& | |
| 100/070 | 36 | 6 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X60-10.9-& | 480 Nm |
| | 116 | 2 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X140-10.9& | |
| 125/090 | 40 | 6 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X65-10.9-& | 480 Nm |
| | 120 | 2 | HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X150-10.9& | |

1) Maximum admissible torque of the specified hexagon socket head cap screws

2) For the depth of the receiving hole, observe the screw and clamping length!

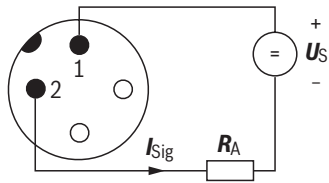
Electrical connections, assignment – individual connection

Device connector for motor, motor temperature and resolver

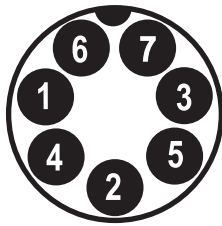


Device connector for 2/2 directional seat valves

| Ordering code for connector | Top view | Circuit diagram | Pin | Connections, assignment |
|-------------------------------------------------------------|----------|-----------------|-----|-------------------------------------|
| Connector 3-pole (2 + PE) according to DIN EN 175301-803 | | | 1 | Solenoid coil, polarity-independent |
| | | | 2 | Solenoid coil, polarity-independent |
| | | | | Grounding |

Electrical connections, assignment – individual connection**Device connector for pressure transducer, 4-pole, M12 x 1****Device connector for position measurement system**

(View to pin side)



| Pin | Cable | Function |
|-----|--------|-------------------------------------------|
| 1 | gray | Data (-) |
| 2 | pink | Data (+) |
| 3 | yellow | Clock (+) |
| 4 | green | Clock (-) |
| 5 | brown | +12 ... 30 VDC \pm 20% (9.6 ... 36 VDC) |
| 6 | white | DC ground (0 V) |
| 7 | - | Not assigned |

Accessories (separate order)

| Designation | | Version | Material number | Data sheet/ standard |
|--------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------|
| Cable set, motor | | | | |
| ASSEMBLY | CBL-1X/MOT-10W4X02.5 | 4-pole, angled, 10 m | R901559242 | See dimensions on page 11 |
| Resolver cable set and motor temperature | | | | |
| ASSEMBLY | CBL-1X/CRT-10W8XSPEZ | 8-pole, angled, 10 m | R901559243 | See dimensions on page 11 |
| Mating connectors for on/off valves | | | | |
| Mating connector; for valves with device connector, 2-pole + PE, design A | | Without circuitry, M16 x 1.5, 12 ... 240 V, "b" | R901017011 | 08006 |
| | | With indicator light, M16 x 1.5, 12 ... 240 V | R901017022 | |
| Mating connectors and cable sets for pressure transducers | | | | |
| Cable sets | | M12 x 1, 4-pole, straight, 2.0 m | R900773031 | 08006 |
| | | M12 x 1, 4-pole, straight, 5.0 m | R900779498 | |
| Mating connectors | | M12 x 1, 4-pole, straight, PG 7 | R900773042 | |
| Mating connector for position measurement system | | | | |
| MATING CONNECTOR | 7P STC09131D07 | M16, 7-pole, straight | R900079551 | See dimensions on page 11 |
| Mounting kit ¹⁾ (screw lengths for minimum screw-in depth 1.2 x d) | | | | |
| ASSEMBLY | MKT-1X/040M10/10.9ZN | Version "040/028" 6x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M10X40-10.9& 2x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M10X120-10.9& | R901564086 | ISO 4762 |
| ASSEMBLY | MKT-1X/050M12/10.9ZN | Version "050/036" 6x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X40-10.9-& 2x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X120-10.9& | R901564085 | ISO 4762 |
| ASSEMBLY | MKT-1X/063M12/10.9ZN | Version "063/045" 6x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X45-10.9-& 2x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M12X125-10.9& | R901564084 | ISO 4762 |
| ASSEMBLY | MKT-1X/080M16/10.9ZN | Version "080/056" 6x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M16X55-10.9-& 2x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M16X135-10.9& | R901564083 | ISO 4762 |
| ASSEMBLY | MKT-1X/100M20/10.9ZN | Version "100/070" 6x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X60-10.9-& 2x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X140-10.9& | R901576969 | ISO 4762 |
| ASSEMBLY | MKT-1X/125M20/10.9ZN | Version "125/090" 6x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X65-10.9-& 2x HEXAGON SOCKET HEAD CAP SCREW ISO4762-M20X150-10.9& | R901576977 | ISO 4762 |

¹⁾ For the depth of the receiving hole, observe the screw and clamping length!

Further information

CytroMotion

- ▶ Operating instructions

Instructions 62290-B

Electrics

- ▶ Pressure transducer for hydraulic applications
- ▶ Cable sets and valve plugs

Data sheet 30272

Data sheet 08006

Cylinder

- ▶ Mounting elements for hydraulic cylinders

Data sheet 17042

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