

eServo 3.0 Datasheet V1-11

| Parameter | Unit | Value |
|-------------------------------------|---------------------|------------------------------------|
| Displacement | [ccm/rev] | 12 |
| Flow rate @ 1500 rpm | [l/min] | 18 |
| System pressure (rated / max) | [bar] | 100 / 190 |
| Device speed range | [rpm] | 500 - 1500 |
| Drive type | | Direct |
| Motor type | | Permanent Magnet Synchronous Motor |
| Motor rated output power @ 1500 rpm | [kW] | 3.4 |
| Motor rated torque | [Nm] | 21.5 |
| Motor max. torque | [Nm] | 41 |
| Motor rated phase to phase Voltage | [V _{RMS}] | 400/230 |
| Motor rated current | [A _{RMS}] | 6.8/11,8 |
| Motor max. current | [A _{RMS}] | 13.5/23,4 |
| Overload operating mode @ 200 % | [s] | 60 |
| Ambient temperature range | [°C] | -30 / 80 |
| Noise level (pump only) | [dB(A)] | 41 |
| Protection class | | IP 67 |
| Base length | [mm] | 254 |
| Base width | [mm] | 145 |
| Base height | [mm] | 216 |
| Approved hydraulic pump unit oil | | See link below |
| Coolant | | Water/Glycol 50/50 |
| Min/Max flow rate | [l/min] | 2/5 |
| Pressure drop @ min/max flow rate | [bar] | 0.1/0.5 |
| Coolant max temperature | [°C] | 60 |
| Weight dry | [kg] | 13.2 |



It is not allowed to operate the hydraulic pump without hydraulic oil. Otherwise the guarantee expires.

Approved oil:

Use mineral oil compliant with *Bosch Rexroth Fluid Rating List RDE90245*. The **actual version** of this list can be found at the following link:

https://www.boschrexroth.com/en/xc/myrexroth/mediadirectory?publication=NET&search_query=90245&search_action=submit

Motor MMA 80-8-90-...-...-W

| Parameter | Unit | Value | |
|--------------------------------------|--------------------------|-------------------------|------------|
| | | 400 V | 230 V |
| Power | [kW] | 3.4 | |
| Torque (rated) | [Nm] | 21.5 | |
| Torque (max) | [Nm] | 41 | |
| Speed (rated) | [rpm] | 1500 | |
| Speed (max) | [rpm] | 1500 | |
| Freq. | [Hz] | 200 | |
| Pole pairs | | 8 | |
| Current (rated) | [A _{RMS}] | 6.8 | 11.8 |
| Current (max) | [A _{RMS}] | 13.5 | 23.4 |
| Motor voltage (rated phase to phase) | [V _{RMS}] | 400 | 230 |
| DC-link voltage | [V] | >560 | ≥ 325 |
| Phase: | | | |
| k _E | [V _{RMS} /krpm] | 121 | 121 |
| R _{Ph,20} | [Ohm] | 1.73 | 1.73 |
| L _d | [mH] | 7.1 | 7.1 |
| L _q | [mH] | 8.3 | 8.3 |
| Line to line: | | | |
| k _{E,LL} | [V _{RMS} /krpm] | 210 | 121 |
| R _{LL,20} | [Ohm] | 3.45 | 1.15 |
| L _{LL,d} | [mH] | 14.1 | 4.7 |
| L _{LL,q} | [mH] | 16.5 | 5.5 |
| Connection | | Y | Y |
| Moment of inertia | [kgm ²] | 0.0030 | |
| Weight | [kg] | 9.5 | |
| Protection class | | IP67 | |
| Thermal class | | H | |
| Thermal protection | | PTC (Pt1000 on request) | |
| Cooling type | | Water cooled | |
| Coolant | | Water/Glycol 50/50 | |
| Coolant max temperature | [°C] | 60 | |
| Rotational direction* | | Clockwise | |



In order to run the motor, a frequency inverter capable of conducting **sensorless control** for permanent magnet motors is needed, because the motor has no own position sensor or encoder.



*The Rotational Direction is defined according to DIN-EN60034-8 (looking on the motor shaft). For the eServo 3.0 application the motor has to run counter-clockwise (left) and therefore the rotational direction in the inverter has to be inverted.

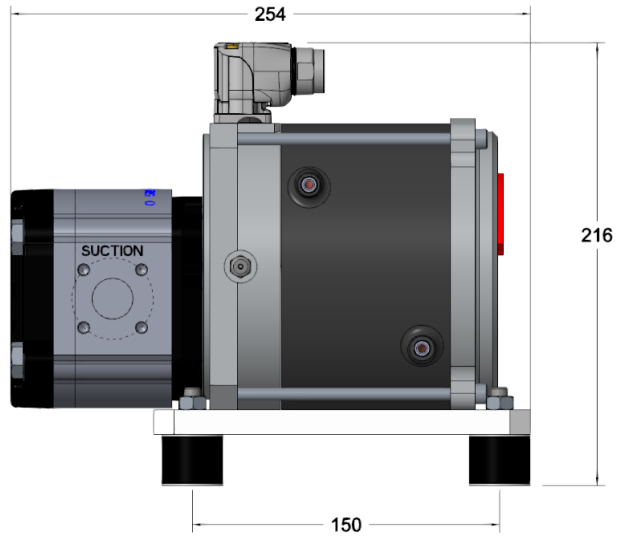


Fig. 1 eServo 3.0 Side View

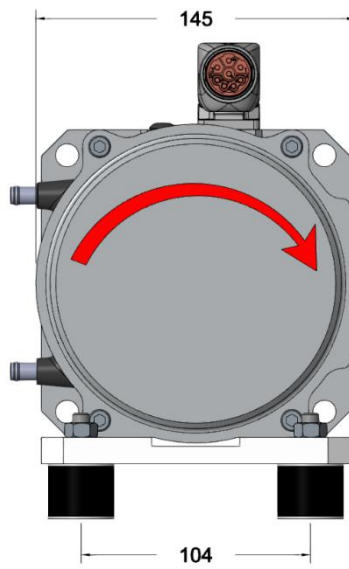


Fig. 2 eServo 3.0 Back View

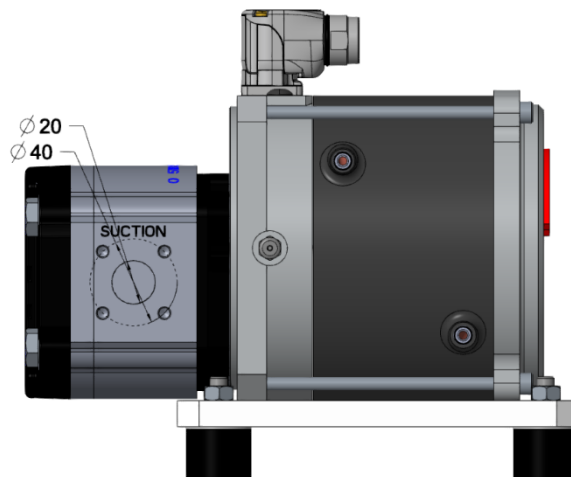


Fig. 3 eServo 3.0 Hydraulic Connection "Suction Side"

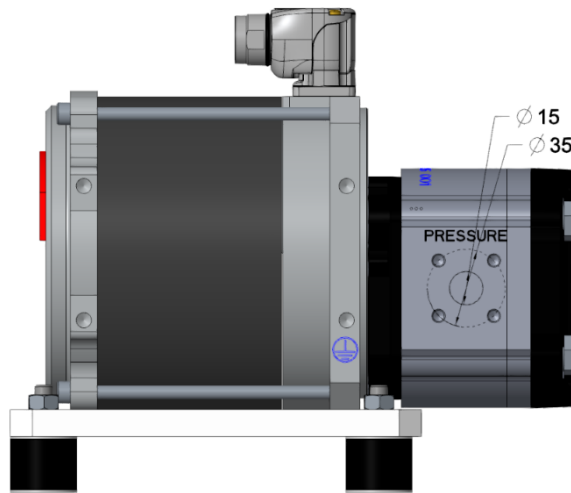


Fig. 4 eServo 3.0 Hydraulic Connection "Pressure Side"