

OJ Drives®



OJ DRHX series

- Sealing grade of IP 54
- Self-cooling
- -40°C to +40°C
- Stepper motor
- 230V AC single-phase supply

New drive for rotary heat exchangers

The DRHX is the next generation drive for rotary heat exchangers – based on all-new technology. The DRHX series covers the range from 2Nm to 14Nm with both Modbus and analogue control. You can even get a version with a 3x7-segment display.

An excellent new alternative to geared motors

DRHX is an advantageous new alternative to traditional geared motor solutions.

In contrast to geared motors, which lose torque at low and high speed, the stepper motor provides even torque throughout the entire speed range.

The linear stepper motor torque curve means that rotor speed can be accurately controlled throughout a much wider range. This enables energy-efficient heat recovery and more precise temperature control.

Sensorless rotation monitor

The DRHX is equipped with a sophisticated software that monitors the rotation of the rotor, which means that no physical/optical rotor guard is required (patent pending). Naturally, fewer components also means that you get easier installation.

Sensorless closed-loop control

Combining a high-torque stepper motor with closed-loop sensorless control brings you a unique new solution – and great efficiency: The drive uses the feedback signal from the motor to ensure that the motor gets exactly the level of current required to achieve the desired speed and torque.

Norms and standards

The OJ DRHX series comes with a fully integrated EMC filter, meaning that it meets norms for emission and immunity in industrial and residential areas EN 61800-3 (C1 and C2).



Intelligent Control
Maximum comfort with
low energy consumption



| | Type | DRHX-1055-MNNS | DRHX-1220-MNNS | DRHX-1220-MAD5 | DRHX-1690-MAN5 |
|--|------|---------------------------------|--|-------------------------------------|-------------------|
| Torque | Nm | 2.0 | 4.0 / 8.0 | 4.0 / 8.0 | 14.0 |
| Power size | W | 55 | 220 | | 690 |
| Efficiency | % | | > 90% | | > 94% |
| Power supply | | | | | |
| Voltage | VAC | 1 x 230 V AC 50/60 Hz -10%/+10% | | | |
| Supply current at max. load | A | 0.6 | 1.2 / 2.4 | | 4.4 |
| Power factor (cos-phi) at max. load | | | 0.65 | | > 99 (Active PFC) |
| Motor output | | | | | |
| Nominal motor power (on shaft) *1 | kW | 55 | 110 / 220 | 110 / 220 | 690 |
| Motor speed | rpm | | 0-250 | | 0-400 |
| Nominal motor Torque | Nm | 2.0 | 4.0 / 8.0 | | 14.0 |
| Boost motor torque | Nm | 2.5 | 5.0 / 10.0 | | 17.5 |
| Frequency | Hz | | 0-120 | | |
| Max. output voltage | Vrms | | 3 x 0 - 150V AC | | 3 x 0 - 230V AC |
| Max. output current | Arms | 2.5 | 3.5 | 3.5 | 4.5 |
| Protection | | | | | |
| Max. fuse | A | | 10 | | |
| Motor output | | | Short-circuit protected between phases | | |
| Motor | | | Protected by current limit | | |
| Impulse protection | | | Transient protected by VDR | | |
| Overvoltage protection | | | No | | Yes, 400V (PTC) |
| Overload protection | | | Current and temperature overload protection | | |
| Environment | | | | | |
| Operating temperature | °C | | -40°C to +40°C | | |
| Starting temperature | °C | | -40°C to +40°C | | |
| Storage temperature | °C | | -40°C to +70°C | | |
| Dimensions | mm | | 183 x 143 x 55 | | 185 x 220 x 90 |
| Protection rating | IP | | 54 | | |
| Enclosure material | | | Plastic | | Aluminium |
| Front cover | | | Plastic | | |
| Weight | kg | | 0.9 | | 2.0 |
| Humidity | % rh | | 10-95% rh, non-condensing | | |
| Cooling | | | Self-cooling | | |
| Interfaces | | | | | |
| Modbus protocol | | | MODBUS RTU RS485 (Baud rate: 9.6, 19.2, 38.4, 57.6, 115.2 Kbaud) | | |
| Modbus connection | | | Default: 38.4k baud, 1 stop bit, none parity | | |
| Modbus cable | | | 2 x RJ12 & 3 x spring terminals | | |
| 7-segment display | | No | No | 3 | No |
| Analogue In1 | | No | No | 0 - 10 VDC, 100% @ 9.5 V DC +/-2% | |
| Analogue Out1 | | No | No | +10VDC | |
| Digital In1 (internal Pull up) | | No | No | Start / Stop (Configurable) | |
| Digital In2 (internal Pull up) | | No | No | Alarm reset (Configurable) | |
| Digital In3 (internal Pull up) | | No | No | External rotor guard (Configurable) | |
| Digital Out1 | | No | No | No | Alarm signal |
| Alarm relay | | No | No | SPDT relay 1A 30VDC/24VAC | |
| Green LED | | | On: Power connected Flashing: Active Modbus communication | | |
| Red LED | | | Flashing: Alarm but keep running Constant on: Serious alarm - stop motor | | |
| DIP switch | | 4 | 4 | 4 | No |
| Rotary switch | | No | No | No | Yes |
| Option module | | No | No | No | Yes *1 |
| Functions | | | | | |
| Technology | | | Sinusoidal back-EMF signal controlled via FOC (Field Oriented Control) | | |
| Ramp-up time | sec. | | 15-300 | | |
| Ramp-down time | sec. | | 15-300 | | |
| Alarm | | | Yes | | |
| Alarm reset | | | Via digital input, MODBUS or powering down for more than 60 seconds | | |
| Purging | sec. | | Yes | | |
| Service data log | | | Operating hours, alarms, loads, software version, max. temp., max. motor voltage, max. motor current, max. ripple voltage, max. ripple current | | |
| Software updating | | | Yes, via serial interface | | |
| Short-circuit protection | | | Yes | | |
| EMC filter | | | Integrated | | |
| Approvals | | | | | |
| EMC | | | EN 61800-3 (C1 & C2) | | |
| LVD | | | EN 61800-5-1 | | |
| Product standard | | | EN 61800 Part 2 | | |
| RoHS Directive | | | Yes | | |
| Product approvals | | | CE | | |
| Note: Data are valid at: nominal supply voltage and at +25°C ambient temperature | | | | | |
| *1: IO option module is mounted as standard | | | | | |