AutomatikCentret
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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).

GREEN COMFORT
Intelligent Control
Maximum comfort with
low energy consumption

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KNOW-HOW CREATES




	Type	DRHX-1055-MNN5	DRHX-1220-MNN5	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
Nominel 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) Default: 38.4k baud, 1 stop bit, none parity			
Modbus connection		2 x RJ12 & 3 x spring terminals			
Modbus cable		Max. 100 m			
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