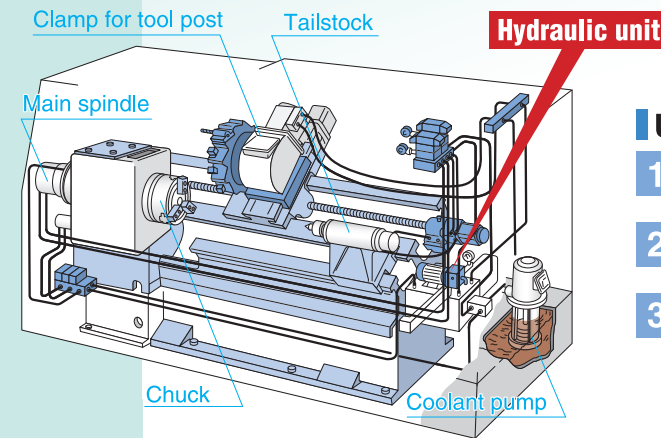


ECORICH

Hydraulic unit

Fusion of Hydraulic and Motor/Inverter Technology

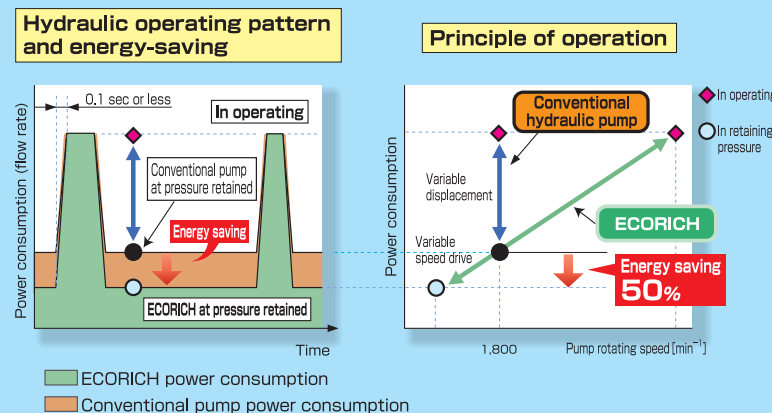
First in the world



Used to supply control power

- 1 Chuck (chucking a work-piece)
- 2 Tail-stock (holding a work-piece)
- 3 Tool rest clamp (fastening a tool rest)

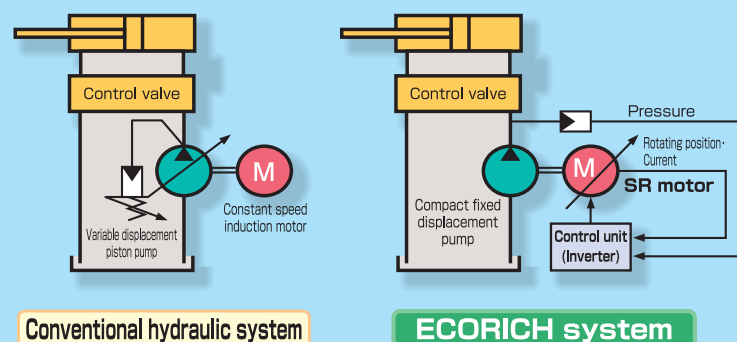
Principle of energy saving



Autonomous energy-saving pressure-flow rate control

- ◆ Supplies required flow according to load condition by monitoring the pressure.
- ◆ Holds necessary pressure and operates at the minimum rotating speed required to compensate for leakage from circuit in retaining pressure. Rotates at high speed and supplies required flow when hydraulic actuator operates.

System configuration



Easy installation and easy operation

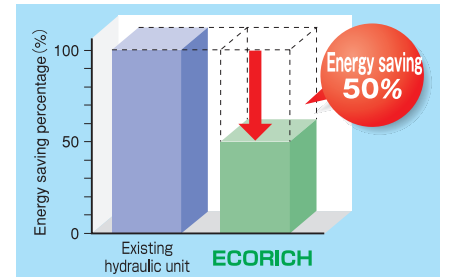
- ◆ Only connect to 200V commercial power source to operate.
- ◆ Pressure and flow rate can be set on the touch panel.
- ◆ Pressure and flow rate are legibly displayed in digital.

Energy saving

Energy saving 50%

(Compared to our product, when pressure is retained)

- ◆ Drastic energy saving by reducing the motor rotating speed under pressure-retained condition.
- ◆ Our original SR motor control unit of high efficiency and compact fixed-displacement pump are applied.



High-speed response

- ◆ Special SR motor, which has low inertia and generates high torque at low speed, and high-speed response inverter.
- ◆ Response equivalent to or higher than conventional variable displacement pump. (Pressure retained ⇔ Operation at maximum flow rate: 0.1 sec or less)

Compact design and resources saving

- ◆ Resources-saving design with compact, lightweight and simple structure with no permanent magnet.
- ◆ Minimized fluid is supplied at low-speed rotation to improve the hydraulic oil in deterioration.

● Example of comparison with our rotor pack (Type NDR151, NDR231) equivalent to motor

EHU25-M07

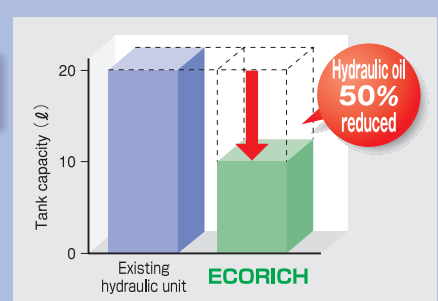
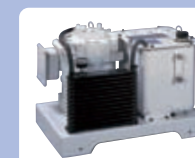
Capacity comparison of installation area

NDR151-103L : 82% (79kg)

NDR231-305 : 54% (105kg)

Weight 48kg

336×464×509



Specifications

Tank capacity	10 ℓ			
Motor capacity	equivalent to 0.75 kW	equivalent to 1.5 kW	equivalent to 2.2 kW	equivalent to 2.8 kW
Max. working pressure	4.0 MPa		7.0 MPa	
Discharge adjusting range	4~14 ℓ/min	5~25 ℓ/min	5~25 ℓ/min	
Model	EHU14-L04	EHU25-L04	EHU25-L07	EHU25-M07

ECORICH-R

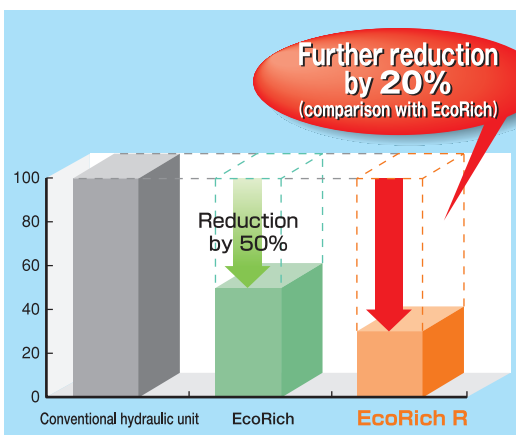
Hydraulic unit

Daikin's EcoRich R is seeking energy saving and user-friendliness to the last extremity.

Developed energy saving with high-efficiency IPM motor drive system installed.

The system uses ultra energy-saving IPM motor^{*1}, featuring combination of magnet torque (pull-in and repulsion force between coil and permanent magnet) and reluctance torque (pull-in force between coil and iron).

^{*1} IPM motor: Interior Permanent Magnet Synchronous Motor



High torque and high efficiency thanks to unique structure with rare-earth magnet embedded in depth of rotor.

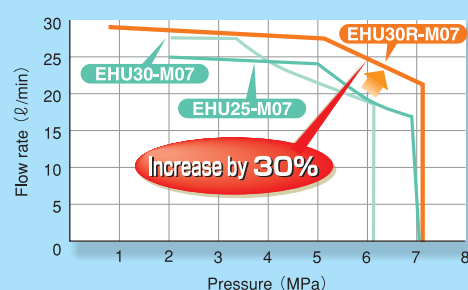
Monitoring proper amount of tank oil level.

Equipped with dry-run prevention function. This function stops operation automatically if an oil level in the tank drops below a certain gauge, preventing idle run of a pump. This contributes to prolonging a product life.

Extended hydraulic output area.

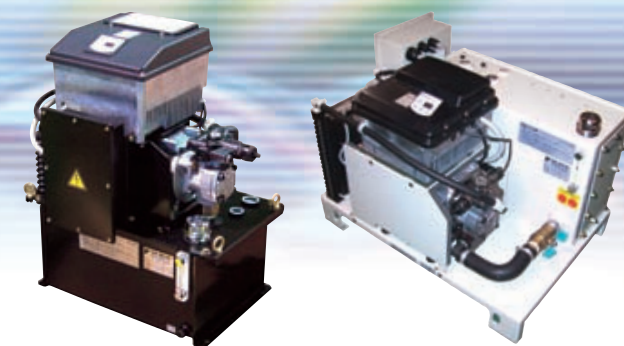
In comparison with conventional EcoRich, horsepower output has been extended by approximately 30%. Pressure setting is allowed starting from 0.5MPa.

Comparison of PQ characteristic between EcoRich and EcoRich R



The technology of Eco-Rich has been evolved further. New IPM motor system achieved dramatic improvement of energy saving.

First in the world



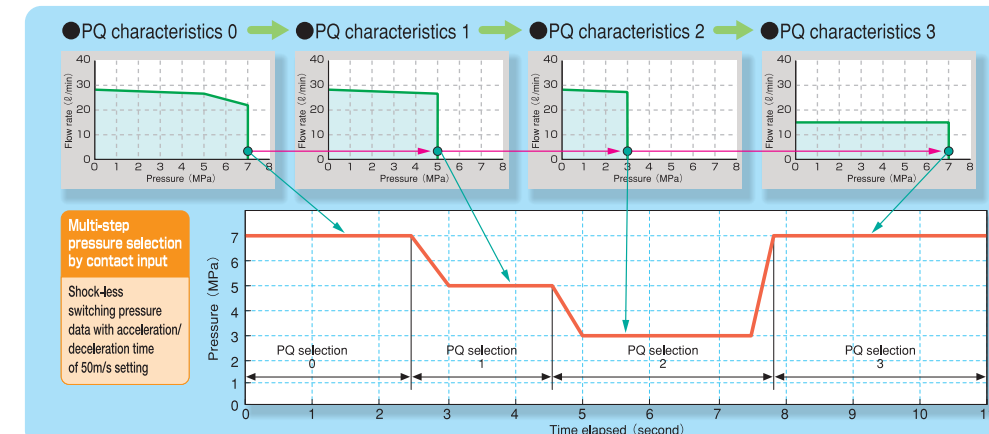
Description of function

Operation of actuator (cylinder) with 4 patterns of pressures (P) and flow rate (Q) by multi-step pressure (force) and flow rate (speed) control.

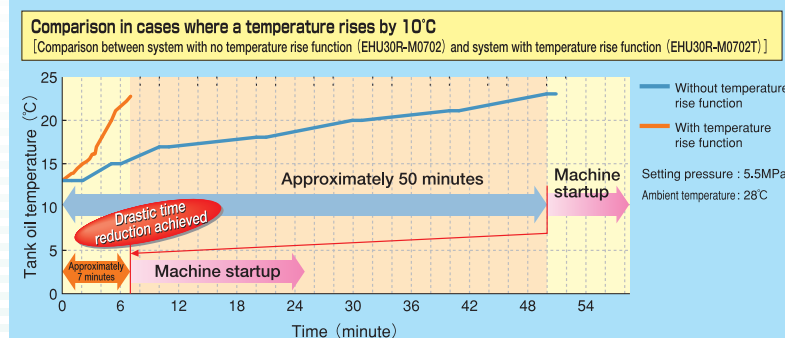
No need for proportional valves and formal pressure valves required in conventional actuator circuits. Required operation is only entering P and Q settings on controller parameters and selecting a parameter of 4-pattern contact signals on a machine (main unit). Switching between flow rate control and pressure control is performed autonomously in EcoRich R. (For example, switching between flow rate and pressure controls at cylinder ends.) Operation of turning on/off solenoid valves for cylinder is required on the machine.

Shock-less switching of flow rate (speed) and pressure (force).

Force or speed of the machine can be changed in a shock-less manner when switching pressure or flow rate setting by setting optimal acceleration/deceleration times for the machine is set to the parameter in advance.



Optional function



Hardware optional function

◆With terminal box : Safe and easy electrical wiring is made possible. (Refer to external dimensions view for details.)

Functional option

◆The temperature-rise function shortens standby time of the machine (main unit) by warming oil rapidly under low temperature.

The function terminates if a temperature on motor surface or on controller fin exceeds 40°C, automatically maintaining tank oil temperature at a suitable level. However, changing selection numbers of pressure (P) and flow rate (Q) is invalid if the temperature rise function is operating. Change pressure (P) and flow rate (Q) settings after a temperature has risen. A setting pressure of safety valve upon shipment is 7.5MPa.

Specifications

Tank capacity	10 ℓ		20 ℓ		30 ℓ
Motor capacity	equivalent to 2.2 kW				equivalent to 3.7 kW
Max. working pressure	7.0 MPa				
Discharge adjusting range	2.5~15.2 ℓ/min	3.5~28.5 ℓ/min	2.5~15.2 ℓ/min	3.5~28.5 ℓ/min	5.3~40.0 ℓ/min
Model	EHU15R-M0701	EHU30R-M0701	EHU15R-M0702	EHU30R-M0702	EHU40R-M07

Specification List



Specifications

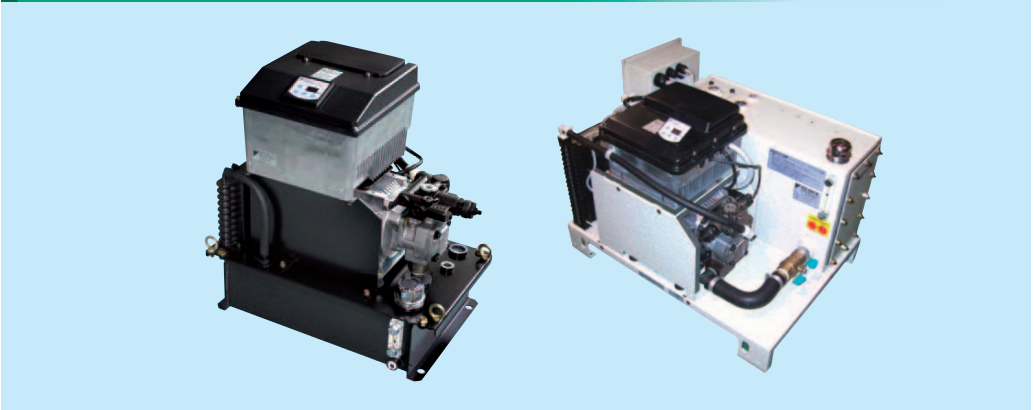
Model		EHU14-L04	EHU25-L04	EHU25-L07	EHU25-M07	EHU30-M07
Tank capacity (ℓ)		10				
Motor capacity (Nominal)		Equivalent to 0.75 kW	Equivalent to 1.5 kW	Equivalent to 2.2 kW	Equivalent to 2.8 kW	
Max operating pressure (MPa)		4.0		7.0		6.0
Pressure adjustment range ^{*Note 1} (MPa)		1.5~3.5		1.5~7.0		1.5~6.0
Discharge rate adjustment range ^{*Note 2} (ℓ/min)		4~14	5~25		5~28.5	
Weight (kg)		43		45	46	
Capacity of fan motor for oil cooler		16/15W (50/60 Hz)				
Power supply	Motor for pump	3-phase 200/200-220V AC, 50/60Hz Allowable POWER fluctuation ±10%				
	Oil-cooler Fan Motor	2-Phases 200/200/220V, 50/60/60H (supported by the controller)				
Alarm output relay		DC12/24 V AC100V (50/60Hz) The Max. Load Current : Below 1A (resistance load)				
Standard painted color		Black				
Usable oil ^{*Note 3}		Mineral oil based special hydraulic fluid/Abrasion resisting hydraulic fluid For recommended brands, refer to our "Hydraulic Equipment General Catalog (HK196A)". ・Viscosity grade :ISO VG32~68 ・Viscosity range :15~400mm ² /s (20~200 mm ² /s recommended) ・Contamination :Class NAS9 or lower				
Tank oil temperature		0 ~ 60 ℃ (Recommended :15 ~ 50 ℃)				
Ambient temperature		0 ~ 35 ℃				
Ambient humidity		85% RH or lower				
Installation place		Indoors (Fix with bolts without fail.)				
Others		The no fuse breaker and an earth leakage breaker must be used.				

Note) *1: The pressure is preset to be max pressure when delivered.
*2: It is preset to be the Max.Discharge Rate when delivered. (the Max. Discharge Rate is a theoretical value but not an exact one).
*3: Other fluid (ex. water and glycol) than mineral oil base hydraulic fluid (hydrous or synthetic) can not be used.

Nomenclature

EHU	**	*	**	*	*	**	***
1	2	3	4	5	6	7	8
1 Basic EHU : ECO-RICH EHU series							
2 Pump maximum flow rate 14 : 14 ℓ/min 25 : 25 ℓ/min 30 : 28.5 ℓ/min							
3 Output characteristic L : — M : —							
4 Maximum operating pressure 04 : 4.0 MPa 07 : 7.0 MPa							
5 Control system A : Pressure compensated control							
6 Specifications of control unit No symbol : With reactor (In case of EHU14 (25) -L04) E : With reactor (In case of EHU25-L07,M07,EHU30-M07)							
7 Design No. 10 : EHU40R-M07 May change according to model change.							
8 Non-standard No. No symbol : Standard							

ECORICH-R



Specifications

Model		EHU15R-M0701	EHU15R-M0702	M30R-M0701	EHU30R-M0702	EHU40R-M07-A
Tank capacity (ℓ)		10	20	10	20	30
Motor capacity (Nominal)		Equivalent to 2.2 kW		Equivalent to 2.8 kW		Equivalent to 3.7 kW
Max operating pressure (MPa)		7.0				
Pressure adjustment range (MPa)		0.5~7.0				1.5~7.0
Discharge rate adjustment range (ℓ/min)		2.5~15.2		3.5~28.5		5.3~40.0
Weight (kg)		39	40	41	42	68
Power supply	Motor for pump	3-phase 200/200-220V AC, 50/60Hz (Allowable power fluctuation ±10%)				
	AC fan motor	1-phase 200/200-220V AC, 50/60Hz (Supplied by controller)				
External	input signal	3 points, Photocoupler insulation, DC 24V (Max. 27V) 5mA/1ch				
External output signal	Disital output (2ch)	Photo coupler insulation, open collector output, DC 24V 50mA Max/1ch				
	Point of contact ourput (1ch)	Relay output: Contact capacity 30V DC, 0.5A(Resistance load) 1ch contact				
Reted current	200V/50Hz	7.9A		10.9A		11.2A
	200V/60Hz	7.7A		10.7A		10.9A
	220V/60Hz	7.1A		9.7A		10.0A
Standard painted color		Black				
Usable oil *Note 1		Mineral oil based special hydraulic fluid/Abrasion resisting hydraulic fluid For recommended brands, refer to our "Hydraulic Equipment General Catalog (HK196A)". ・Viscosity grade :ISO VG32~68 ・Viscosity range :15~400mm ² /s (20~200 mm ² /s recommended) ・Contamination :Class NAS10 or lower				
Tank oil temperature		0~60 ℃ (Recommended operating temperatures :15 ~ 50 ℃)				
Ambient temperature		0~35℃				
Ambient humidity		85% RH or lower				
Installation place		Indoors (Fix with bolts without fail.)				
Sea level		1,000m or lower				

Note) *1: Other fluid (ex. water, glycol) other than mineral oil based hydraulic fluid (hydrate/synthetic) can not be used.

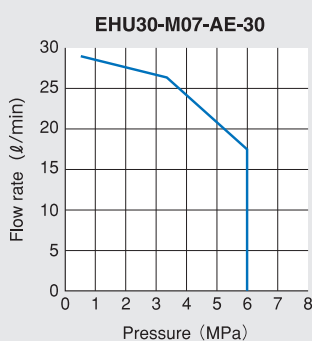
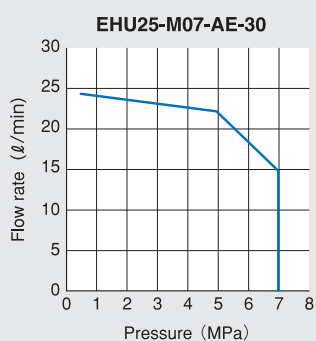
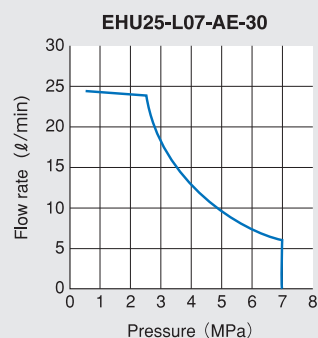
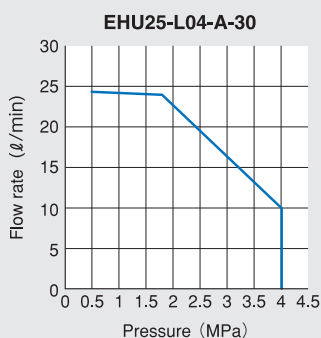
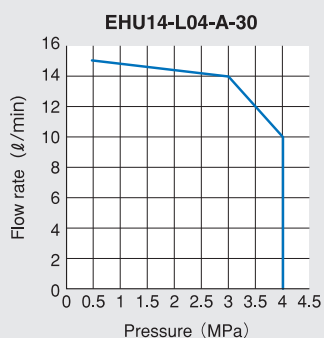
Nomenclature

EHU	**	R	-	M	**	**	*	*	-	**	-	***
1	2	1		3	4	5	6			7		8
1 Basic EHU**R : EcoRich R (IPMinstalled)				4 Tank capacity 01 : 10 ℓ 02 : 20 ℓ				6 Function option No symbol : Multi-step pressure / flow rate control function 4-pattern pressure T : Flow rate control				
2 Pump maximum flow rate 15 : 15.2 ℓ/min 30 : 28.5 ℓ/min				5 Hardware option No symbol : Standard B : with terminal box				7 Design No. May change according to model change.				
3 Maximum operating pressure M07 : 7.0MPa							8 Non-standard graduated number					
EHU	**	R	-	M	**	A	-	**	-	***		
1	2	1		3	4	5	6					
1 Basic EHU**R : EcoRich R (IPMinstalled)				3 Maximum operating pressure M07 : 7.0MPa				5 Design No. May change according to model change.				
2 Pump maximum flow rate 40 : 40.0 ℓ/min				4 Control mode A : Pressure compensation control				6 Non-standard graduated number				

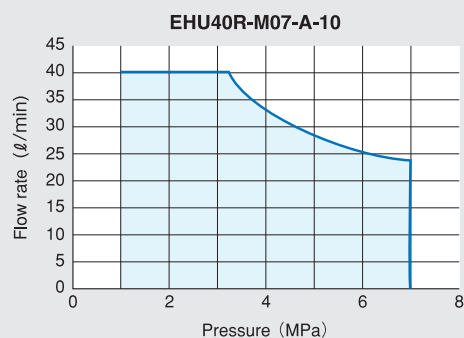
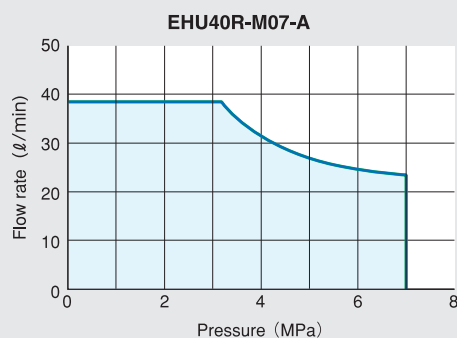
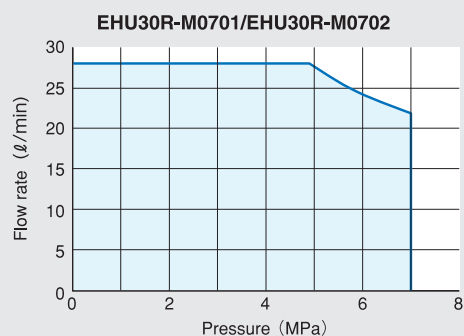
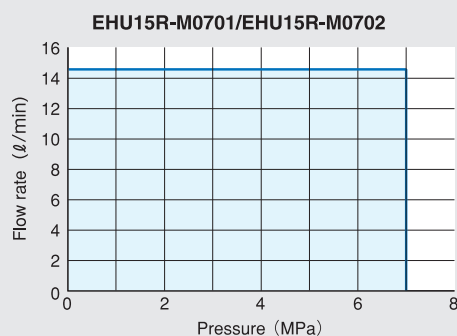
Characteristics

ECORICH

Output characteristics (P-Q characteristics)



ECORICH-R



Optional parts/Characteristics