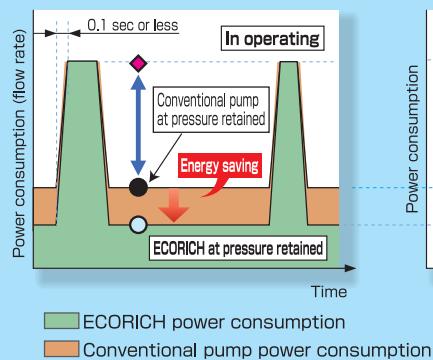


#### Used to supply control power

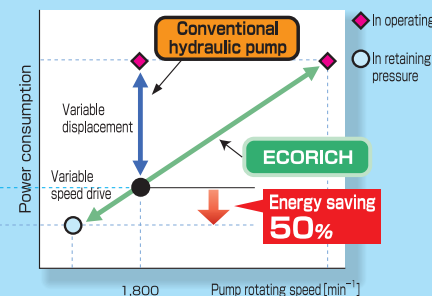
- 1 Chuck (chucking a work-piece)
- 2 Tail-stock (holding a work-piece)
- 3 Tool rest clamp (fastening a tool rest)

#### Principle of energy saving

##### Hydraulic operating pattern and energy-saving



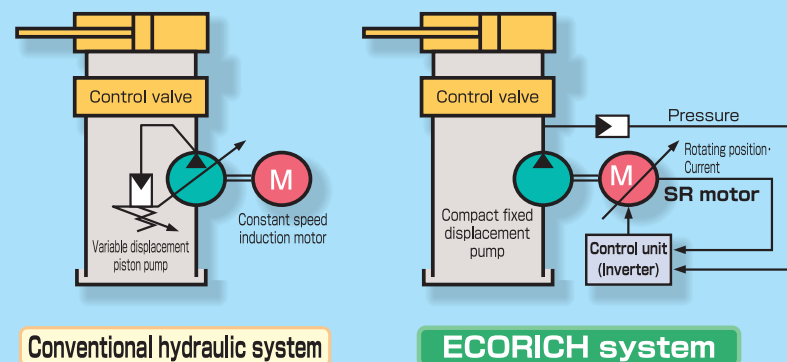
##### Principle of operation



#### 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

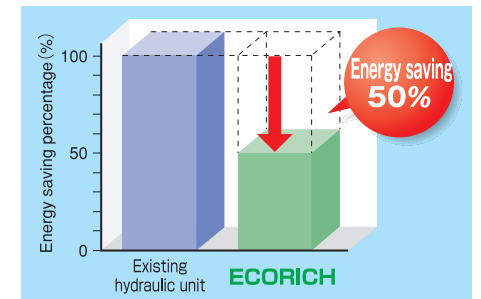
- ◆ Only connect to 200V commercial power source to operate.
- ◆ Pressure and flow rate can be set on the touch panel.
- ◆ Pressure and flow rate are legibly displayed in digital.

#### 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

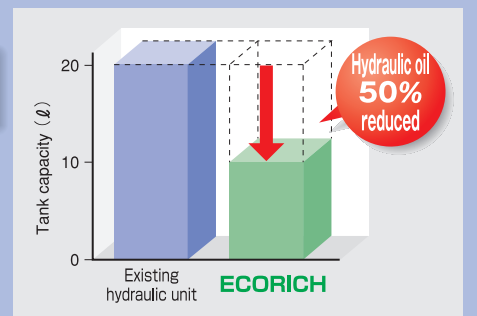
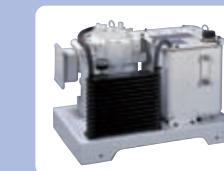
##### EHU25-M07

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	6.0 MPa
Discharge adjusting range	4~14 ℓ/min	5~25 ℓ/min	5~25 ℓ/min	5~28.5 ℓ/min
Model	EHU14-L04	EHU25-L04	EHU25-L07	EHU25-M07
				EHU30-M07

# ECORICH-R

## Hydraulic unit

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

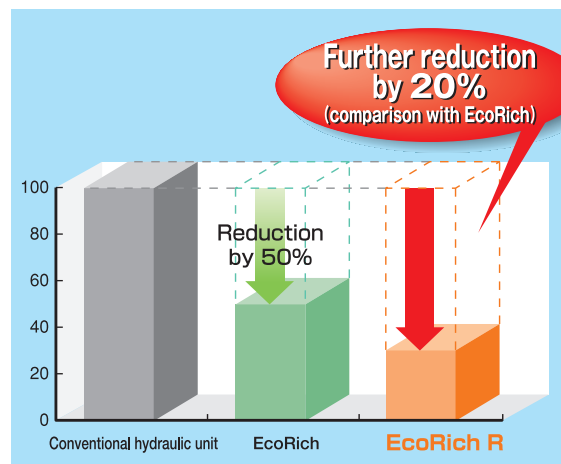
### Developed energy saving with high-efficiency IPM motor drive system installed.

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.



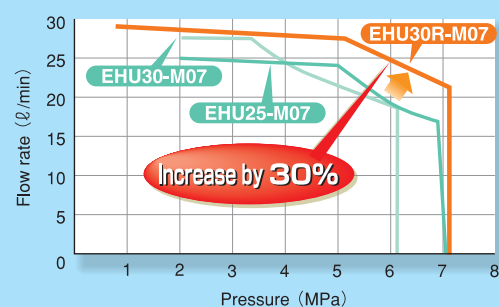
### Monitoring proper amount of tank oil level.

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.

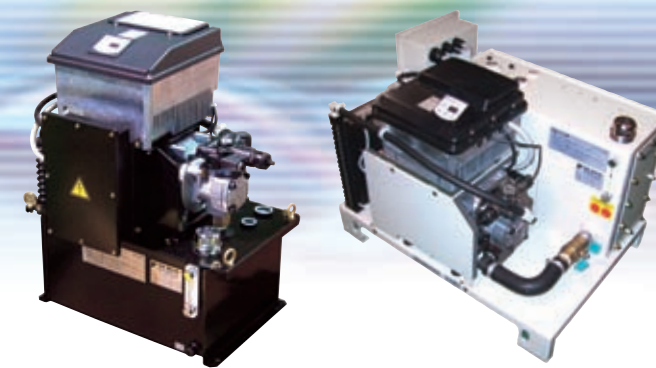
In comparison with conventional EcoRich, horsepower output has been extended by approximately 30%. Pressure setting is allowed starting from 0.5MPa.

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



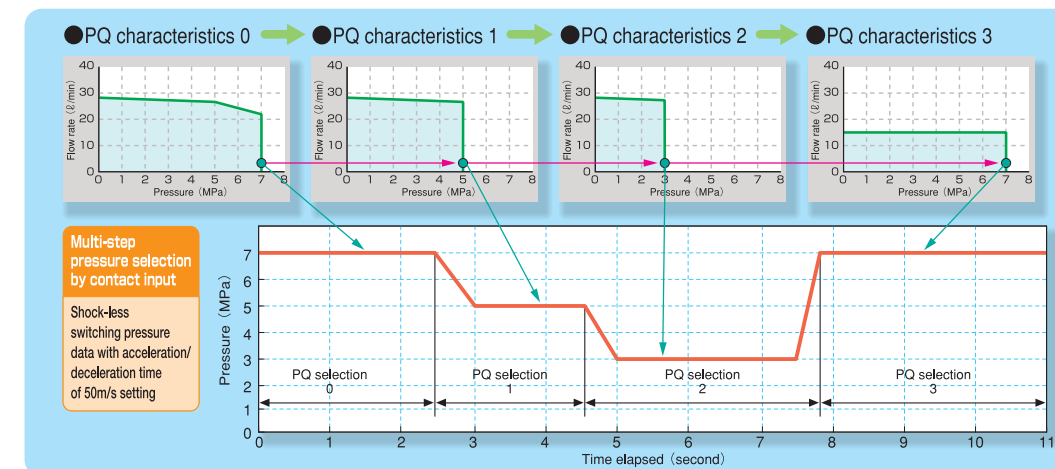
## Description of function

### 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.



### Shortened startup time upon turning on power.

The IPM motor has a reduced startup time into approximately 3 seconds, which used to be a maximum of 13 seconds in conventional system.

### Extended variations of tank capacity

Variations of 10- and 20-R tank capacity have been extended. Tank capacity can be selected according to specifications.

### Employment of multi-step pressure/flow rate control

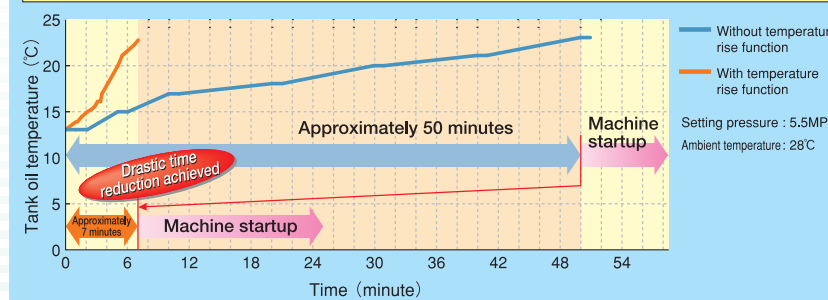
By inputting 4 patterns of pressure and flow volume settings and by selecting contact signals on the machine the multi-step pressure, and flow rate are controlled easily. Shock-less adjustment is possible upon switching.

### CE Standard Specification

CE standard is applicable additionally.

## Optional function

Comparison in cases where a temperature rises by 10°C [Comparison between system with no temperature rise function (EHU30R-M0702) and system with temperature rise function (EHU30R-M0702T)]



### 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

## ECORICH



### 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* <sup>Note 1</sup> (MPa)	1.5~3.5		1.5~7.0		1.5~6.0
Discharge rate adjustment range* <sup>Note 2</sup> (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	3-phase 200/200-220V AC, 50/60Hz Allowable POWER fluctuation ±10%				
Motor for pump	2-Phases 200/200/220V, 50/60/60H (supported by the controller)				
Oil-cooler Fan Motor	DC12/24 V AC100V (50/60Hz) The Max. Load Current : Below 1A (resistance load)				
Alarm output relay	DC12/24 V AC100V (50/60Hz) The Max. Load Current : Below 1A (resistance load)				
Standard painted color	Black				
Usable oil * <sup>Note 3</sup>	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 <sup>2</sup> /s (20~200 mm <sup>2</sup> /s recommended) ·Contamination :Class NAS9 or lower				
Tank oil temperature	0 ~ 60 °C (Recommended : 15 ~ 50 °C)				
Ambient temperature	0 ~ 35 °C				
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.)

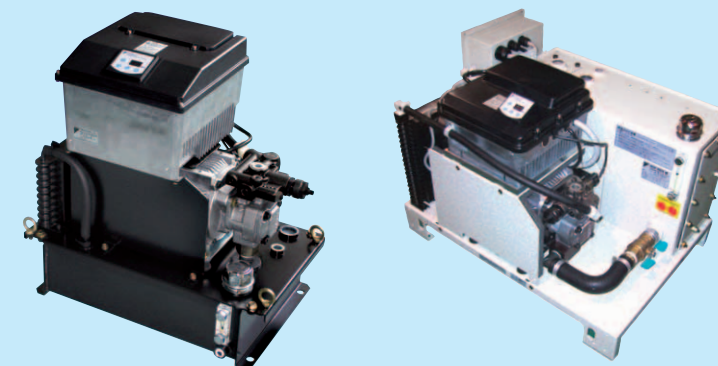
\*3: Other fluid (ex. water and glycol) than mineral oil base hydraulic fluid (hydrous or synthetic) can not be used.

### Nomenclature



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

## 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	3-phase 200/200-220V AC, 50/60Hz (Allowable power fluctuation ±10%)				
Motor for pump	1-phase 200/200-220V AC, 50/60Hz (Supplied by controller)				
AC fan motor	3 points, Photocoupler insulation, DC 24V (Max. 27V) 5mA/1ch				
External input signal	Photo coupler insulation, open collector output, DC 24V 50mA Max/1ch				
External output signal	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 * <sup>Note 1</sup>	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 <sup>2</sup> /s (20~200 mm <sup>2</sup> /s recommended) ·Contamination :Class NAS10 or lower				
Tank oil temperature	0~60 °C (Recommended operating temperatures : 15 ~ 50 °C)				
Ambient temperature	0~35°C				
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

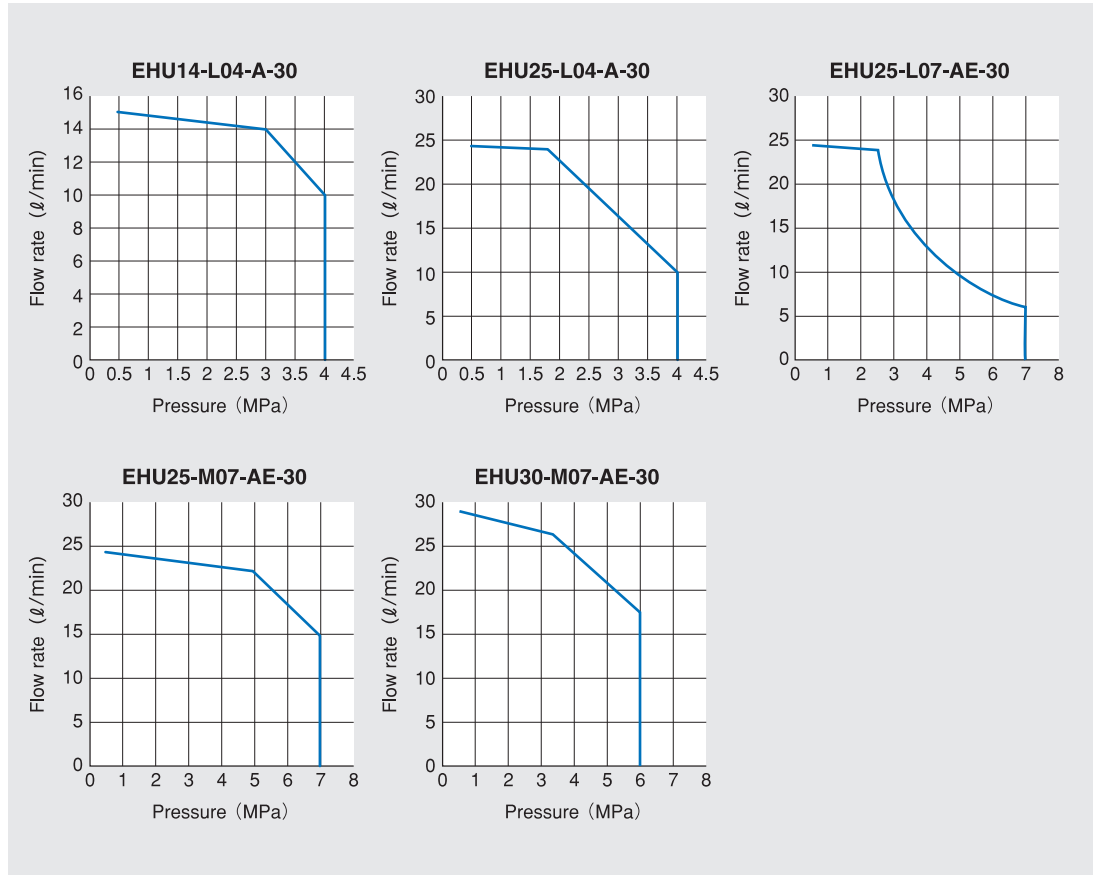


- |  |   |
|--|---|
| <p><b>1 Basic</b><br/>EHU**R : EcoRich R<br/>(IPMinstalled)</p> <p><b>2 Pump maximum flow rate</b><br/>15 : 15.2 ℓ/min<br/>30 : 28.5 ℓ/min</p> <p><b>3 Maximum operating pressure</b><br/>M07 : 7.0MPa</p> | <p><b>4 Tank capacity</b><br/>01 : 10 ℓ<br/>02 : 20 ℓ</p> <p><b>5 Hardware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

# Characteristics

## ECORICH

### Output characteristics (P-Q characteristics)



## ECORICH-R

