

Friendly, Intelligent,

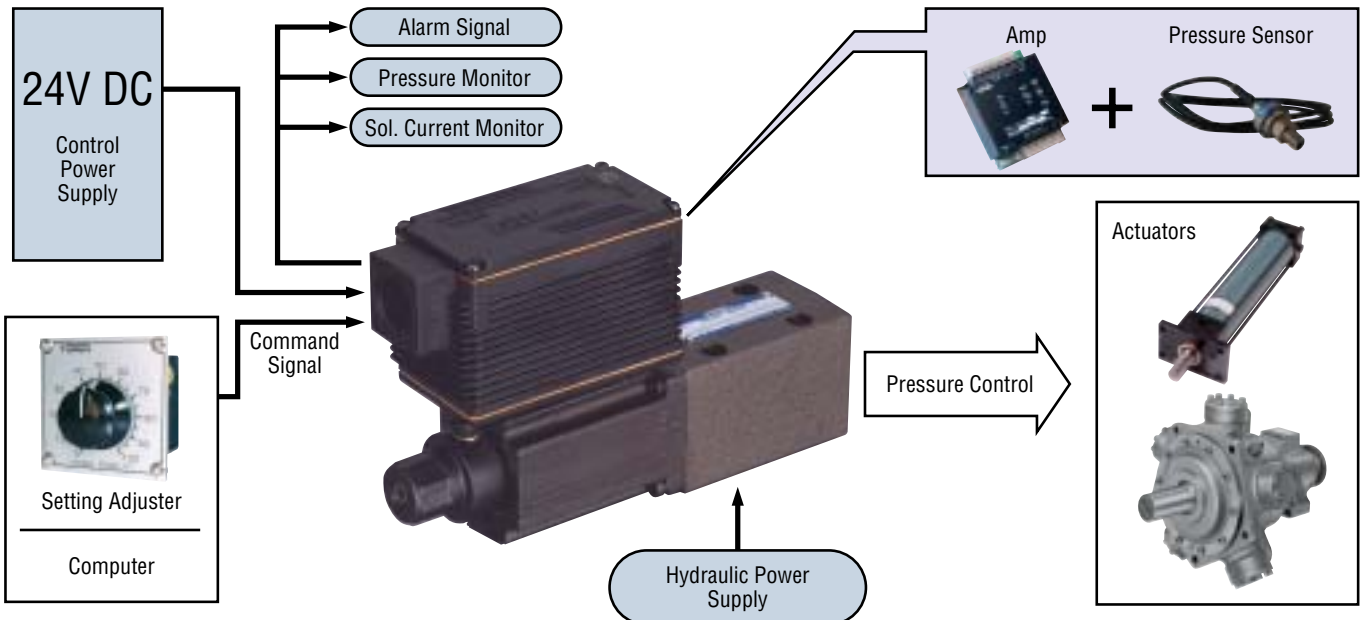
Proportional Electro — Hydraulic Controls

EH Series Proportional Electro-Hydraulic Control Valves

The EH Series on-board electronic proportional controls are compound electro-hydraulic products which merge the latest electronic and sensor technology with Yuken's reputable E Series proportional controls. Yuken has realized an industry leading position by creating compact hydraulic equipment that features high precision and reliability by unifying the amplifier, and sensor, all of which are required for proportional or servo control systems.



- Proportional control systems or servo systems can be easily structured by simply preparing the power source (DC) for controls and command signals along with the hydraulic source.
Amplifiers exclusively used for the system or separately installed control panels are unnecessary.
- By using built-in sensors;
 - (1) pressure and orifice openness, which can be converted to flow rate, can be detected and controlled remotely.
 - (2) along with a compound amplifier, a closed loop system can be structured.
 - (3) sensor output signals or deviation signals at structuring closed loop system can be monitored.
- Disadvantages seen in ordinary hydraulic systems in which hydraulic components, sensors and amplifiers are interconnected with each other but installed separately are eliminated.



Valve Type	Maximum Operating Pressure MPa	Max. Flow L/min											
		1	2	3	5	10	20	30	50	100	200	300	500
Pilot Relief Valves	24.5	EHDG-01											
Relief Valves	24.5	EHBG 03 06 10											
Reducing & Relieving Valves	24.5	EHRBG 06 10											
Flow Control (& Check) Valves	24.5	EHFG/EHFCG 03 06											
Flow Control & Relief Valves	24.5	EHFBG 03 06 10											
Directional & Flow Cont. Valves	24.5	EHDFG 01 03											
High Response Type Directional & Flow Cont. Valves	15.7	EHDFG 04 06											

Note) Setting adjusters are also available.

EH Series Proportional Electro — Hydraulic Control Valves

Proportional valves are able to control the system pressure or flow proportionally through a controlled input current from the amplifier.

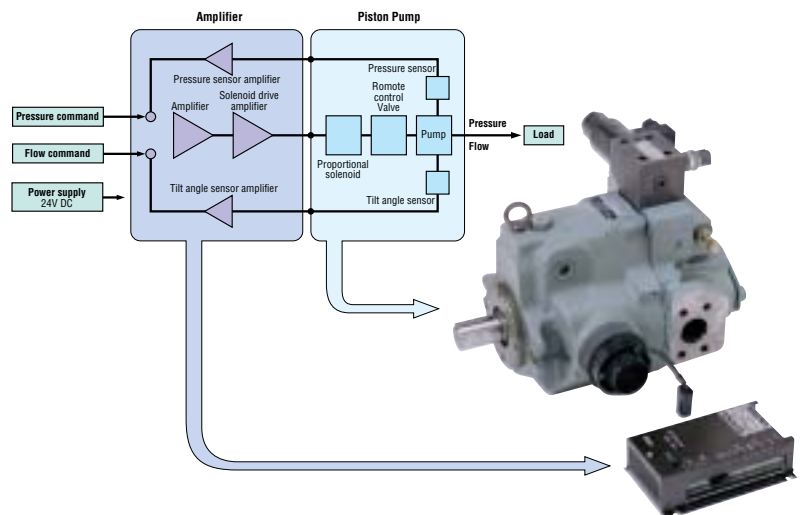


Valve Type	Maximum Operating Pressure MPa	Max. Flow L/min											
		1	2	3	5	10	20	30	50	100	200	300	500
Pilot Relief Valves	24.5	EDG-01											
Relief Valves	24.5	EBG 03 06 10											
Reducing & Relieving Valves	24.5	ERBG 06 10											
Flow Control (& Check) Valves	20.6	EFG/EF CG (40 Ω Series) 02 03 06 10											
	24.5	EFG/EF CG (10 Ω Series) 03 06											
Flow Control & Relief Valves	24.5	EFBG (40 Ω - 10 Ω Series) 03 06 10											
		EFBG (10 Ω - 10 Ω Series) 03 06 10											
		EFBG (High Flow Series) 03 06											
Directional & Flow Cont. Valves	24.5	EDFHG 03 04 06											
High Response Type Proportional Directional and Flow Control Valves	31.5	ELDFG-01											

Note) Power amplifiers and setting adjusters are also available.

"A" Series Variable Displacement Piston Pumps Electro—Hydraulic Proportional Pressure & Flow Control Type (04E Type)

The pumps with 04E control type enjoy a high reputation in the industrial machinery and equipment sectors, including the injection moulding machines. They are direct control type piston pumps developed on the same basic concept as the EH series variable displacement pumps and meet the customers' requirements for digital control. They provide a wide range of displacement capacities as from 15.8 to 145 cm³/rev.



Specifications

Model Numbers	Geometric Displacement cm ³ /rev	Operating Pres. MPa		Shaft Speed Range r/min	Max. Flow at 1800r/min L/min	Hysteresis	Repeatability	Input Signal	Supply Electric Power
		Rated	Intermittent						
A16-※R04E	15.8	16	21	600~1800	28.4	Less than 1%	Less than 1%	Max. Flow/ 5V DC Specified Control Pressure/ 5V DC	24V DC (21~28V Included Ripple)
A22-※R04E	22.2	16	16		40.0				
A37-※R04E	36.9	16	21		66.4				
A56-※R04E	56.2	16	21		101				
A70-※R04E	70.0	25	28		126				
A90-※R04E	91.0	25	28		163				
A145-※R04E	145	25	28		261				

High Response Type Proportional Directional and Flow Control Valves / Amplifiers

High response, high precision and high reliability are achieved by a combination of a compact and powerful solenoid and a spool-position-detection LVDT.

Direct type ELDFG-01/03 and two stage type ELDFHG-04/06 (which use the ELDFG-01 as a pilot) are available.

- **Fast response, high precision, and high reliability using closed-loop model**

Fast response plus high precision and high reliability are achieved by a combination of a compact, powerful solenoid and a spool-position-detection LVDT.

- **52 Hz/-3 dB ($\pm 25\%$ amplitude, ELDFG-01) response equivalent to simplified servo valve**

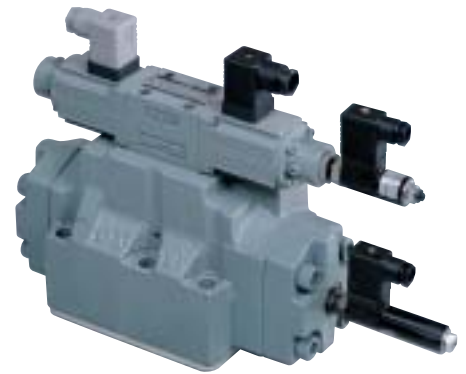
This product can be interchanged with the simplified servo valve to perform position control and pressure control.

- **Excellent contamination resistance**

Compared to servo valve nozzle flapper type, this product has excellent contamination resistance, which greatly reducing contamination-related problems.



Direct Type — ELDFG-01



Two Stage Type — ELDFHG-06

Specifications

Model Numbers	Rated Flow ELDFG-01, 03 : @1.5MPa ELDFG-04, 06 : @1.0MPa L/min	Max. Operating Pressure MPa	Max. T-Line Back Pressure MPa	Repeatability %	Step Response 0→100%V ms	Frequency Response ($\pm 25\%$ / -90 degree) Hz
ELDFG-01	10, 20, 35	31.5	21	Less than 0.5%	30	48
ELDFG-03	40, 80	31.5			29	36
ELDFHG-04	280	35			13	46
ELDFHG-06	350	35			15	66
	500	31.5			18	39

Amplifiers

- **DIN Specifications (euro card : AMB-EL)**

The euro card used in the power amplifier is single height 3U (100×160 mm). This amplifier can be easily mounted in a rack and allows for excellent heat dissipation.



AMN-L

Specifications

- Model AMN-L-01 / AMB-EL-03, 04, 06
- Max. Output Current 2.5 A (AMN-L-01)
3.0 A (AMB-EL-03)
2.5 A (AMB-EL-04, 06)
- Power Supply 20~30 V DC (AMN-L-01)
21~28 V DC (AMB-EL-03, 04, 06)
- Power Input (Max.) ± 10 V (AMN-L-01)
 ± 10 V / ± 5 V (AMB-EL)



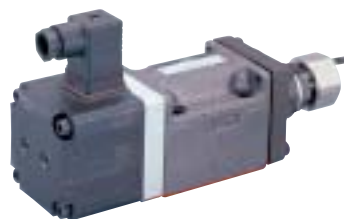
AMB-EL

Friendly, Intelligent, Powerful

Servo Valves

High-speed Linear Servo Valves/Servo Amplifiers

High-speed linear servo valves have outstanding features of high response and exceptional contamination resistance. These features are achieved by the compact and powerful linear motor which directly drives the spool and gives electric feedback of the spool position. These valves have garnered an excellent reputation since their launch by Yuken in 2001.



Direct Type — LSVG-03



Two Stage Type — LSVHG-04



Linear Servo Amplifiers — AMLS

Specifications

Model Numbers		Rated Flow ($\Delta P=7\text{MPa}$) L/min	Max. Operating Pressure MPa	Step Response 0↔100%V ms	Frequency Response ($\pm 25\%$ / -90deg.) Hz
Direct Type	LSVG-03	40, 10, 20, 40	35	2	450
		60	35	3	410
Two Stage Type	LSVHG-04	750	35	8	110
	LSVHG-06	900	35	8	105
		1300	31.5	10	100
	LSVHG-10	1500	31.5	8	100

On-board Electronics Type Linear Servo Valves

On-board electronics type linear servo valves have been developed based on high-speed linear servo valves, but with a focus on downsizing the pilot valve. The integration of the exclusive amplifier and the linear servo valve create a high performance valve in a compact package which greatly improves user-friendliness.

High accurate, simple and convenient — Ideal on-board electronics type linear servo valves

Convenient

Fault diagnosis is easy to conduct with the alarm indication when the command signal and the spool position differ due to abnormality in the system.

Colour	Description of Alarm Indicator
Green	Indication of power supply (Normal operation)
Red	Deviation alarm for the pilot valve
Yellow	Deviation alarm for the main valve

High Accuracy

Closed loop control by the combination of the position sensors for the pilot valve and the main valve in the compact amplifiers ensures excellent linearity, hysteresis and stability on control.

Simple

Highly accurate hydraulic control can be obtained only by supplying 24 V DC power and inputting a command signal.



Specifications

Model Numbers	Rated Flow ($\Delta P=7\text{MPa}$) L/min	Max. Operating Pressure MPa	Step Response 0↔100%V ms	Frequency Response ($\pm 25\%$ / -90deg.) Hz
LSVHG-03EH-230	230	31.5	8	110
LSVHG-03EH-270	270	31.5	7	110
LSVHG-04EH-750	750	35	11	90
LSVHG-06EH-900/1300	900/1300	35/31.5	11/15	90/70