



# New Products Guide

We have a full line-up of hydraulic devices that are environment friendly in pursue of high precision and high response, energy and space conservation.

1. High-speed Linear Servo Valves / Servo Amplifier
2. On-board Electronics Type Linear Servo Valves
3. ASR Series AC Servo Motor Driven Pumps
4. Piston Pumps
5. 1/2 Modular Valves



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YUKEN highly responsive, high precision solution devices wherein specifications have been further improved by our compiled knowledge of hydraulic technology and our research and development.

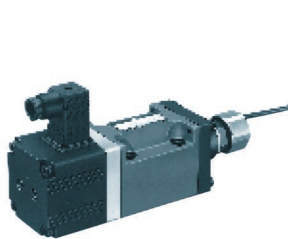
## High-speed Linear Servo Valves / Servo Amplifier

Winning the "2010 JSME Excellent Product Award"



### Lineup covering a high response of 450 Hz (direct type)/a high flow of 3800 L/min (two stage type)!

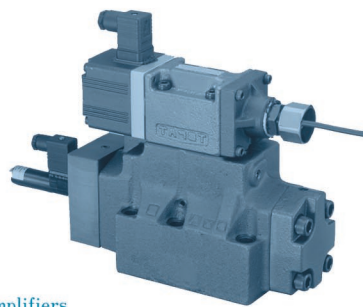
High precision and fast responsiveness are achieved by driving the spool directly using a compact, powerful linear motor as well as by feedback of the spool position.



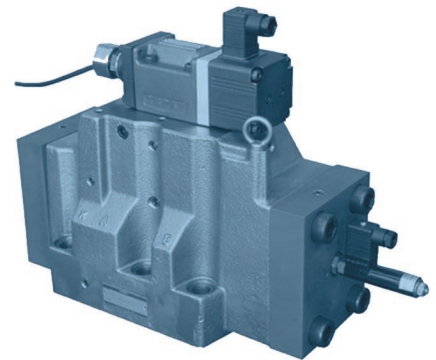
LSVG-03



AMLS  
Linear Servo Amplifiers



LSVHG-06



LSVHG-10

#### ●High accuracy

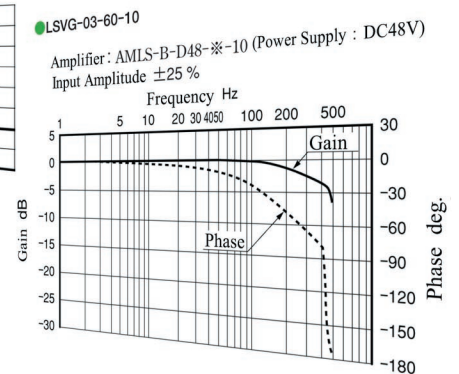
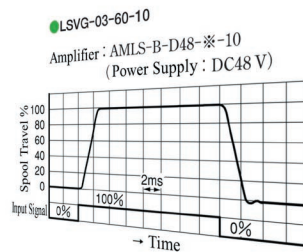
These valves have a low hysteresis of 0.1 % or less, achieving high accuracy. They allow the main unit to operate with much higher repeatability.

#### ●High response characteristics

The valves provide significantly high levels of step and frequency responses; the step response is 2 ms, and the frequency response is 450 Hz (for LSVG-03). Thus, the valves ensure that the main unit can achieve unprecedented high response.

#### ●Excellent contamination resistance

Compared to conventional servo valves for which the permissible contamination level is up to NAS 1638 class 7, the direct type linear servo valves can accept the contamination level of up to class 10.



### Specifications

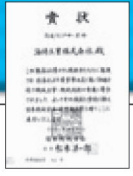
Model Numbers	Rated Flow @7MPa L/min	Max. Operating Pressure MPa	Step Response 0→100% V ms	Frequency Response (±25% / -90 degree) Hz	Spool Type
LSVG-03	4, 10, 20, 40	35	2	450	Neutral Zerolap
	60	35	3	350	
LSVHG-04	750	35	8	110	2P: Zerolap (Dual Flow Gain)
LSVHG-06	900	35	8	105	
	1300	31.5	10	100	
LSVHG-10	3800	35	15	85	40: A,B,T Connection

※ Cartridge type with 7000 L/min is also available.

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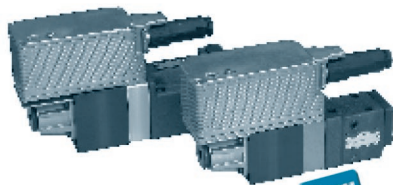
## On-Board Electronics Type Linear Servo Valves

Winning the "2010 JSME Excellent Product Award"

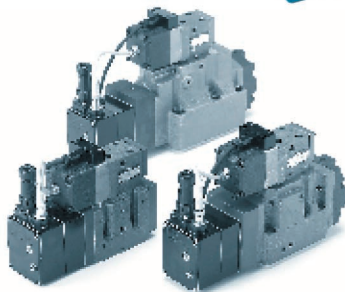


### Introducing new direct type models (LSVG-01EH/03EH): Wider range of products!

On-board electronics type linear servo valves have been developed based on the high-speed linear servo valves while aiming at downsizing the pilot valve and improving user-friendliness by integrating the exclusive amplifier and the high-speed linear servo valve compactly.



Direct Type



Two Stage Type

#### Convenient

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

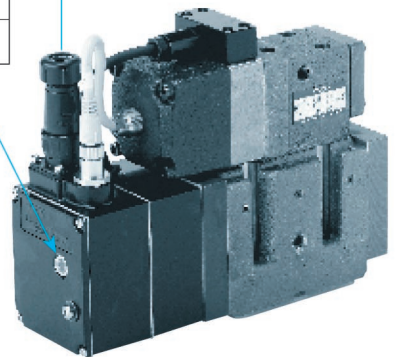
Colour	Description of Alarm Indicator
Green	Indication of power supply (normal operation)
Red	Deviation alarm for the pilot valve
Yellow	Deviation alarm for the main valve

#### High Accuracy

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

#### Simple

Highly accurate hydraulic control can be obtained only by supplying 24V DC power and inputting a command signal voltage of 0 to  $\pm 10V$ , 0 to  $\pm 10mA$  and 4 to 20mA.

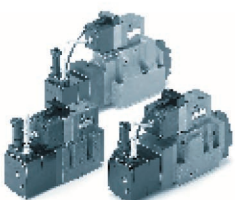


### Specifications

Model Numbers		Rated Flow @7MPa L/min	Max. Operating Pressure MPa	Step Response 0→100% V ms	Frequency Response ( $\pm 25\%$ / $-90$ degree) Hz	Spool Type
New Products Direct Type	LSVG-01EH	4, 10, 20	35	3	300	Neutral Zerolap
	LSVG-03EH	40, 60	35	3~4*	260~310*	
Two Stage Type	LSVHG-03EH	210, 230, 270	31	7~8*	110	2: 10% Overlap  40: A,B,T Connection  2P: Zerolap  (Dual Flow Gain)
	LSVHG-04EH	580, 750	35	11	90	2L: 2% Overlap  (Linear Flow Gain) 4J: A,B,T Connection  (Neutral)  or
	LSVHG-06EH	820, 900, 1300	31.5~35	11~15*	70~90*	

\* The values vary depending on the rated flow.

### High performance type incorporating a sleeve in the main stage is also available!

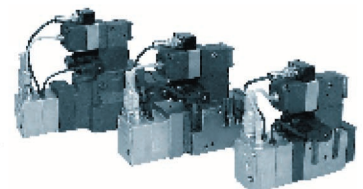


#### Specifications

- Max. Operating Pressure : 31.5/35 MPa
- Rated Flow @7MPa : 60~900 L/min
- Step Response : 0→100% : 7~12 ms
- Frequency Response (-90 degree) : 95~110 Hz

### Also offering fail-safe versions for improved safety!

For the above valves, a fail-safe function has been introduced to ensure the operation/stop of the actuator without using an additional safety circuit even when an electrical problem, such as a power outage or cable disconnection, occurs. User-friendliness has been improved by employing a wet type linear motor, which eliminates piping for the DR port.



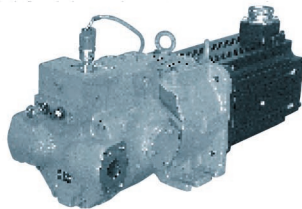
## "ASR" Series AC Servo Motor Driven Pumps

**Providing flexible flow/pressure control - ASR series pumps with rotational speed control are energy-saving, low-noise, high-performance, and user-friendly.**

The ASR series provides variable flow by driving a piston pump directly with an AC servo motor and controlling the rotational speed in a range from zero to the maximum level. This series allows for precise control of flow/pressure by using a dedicated AMSR controller. It also offers excellent response and repeatability.

- **Energy saving with low heat generation**  
These pumps run at a rotational speed suitable for mechanical requirements, eliminating unnecessary power loss. This minimises heat generation in the fluid and means a significantly smaller tank can be used.
- **Low noise**  
The motor operates at near-zero speed during unloaded operation or pressure control, keeping the noise level extremely low.
- **High performance**  
The AC servo motor, which directly controls the pump rotational speed, improves response and stability at low pressures and speeds.
- **Servo motor specially designed for rotational speed control adopted to offer high load/response**

- **Digital AMSR controller that reduces add on costs**  
The integration of the servopack and the controller saves space and wiring time. The parameters can be digitally adjusted easily.
- **Dual displacement type for a wider operation range**  
The dual displacement type has a solenoid operated directional valve to switch between large and small swash plate angles. A single pump unit of the dual displacement type can operate both with Low pressure/large flow and high pressure/small flow. Thus, in comparison to the single displacement type with the same motor capacity, the dual displacement type covers a significantly wider range of operating pressure and flow rates.

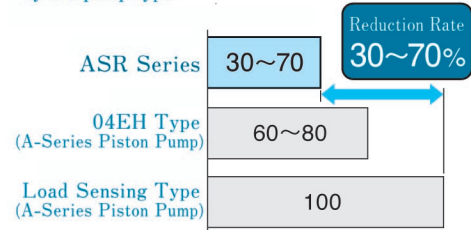


AC Servo Motor Driven Pump "ASR Pump"



AMSR Controller

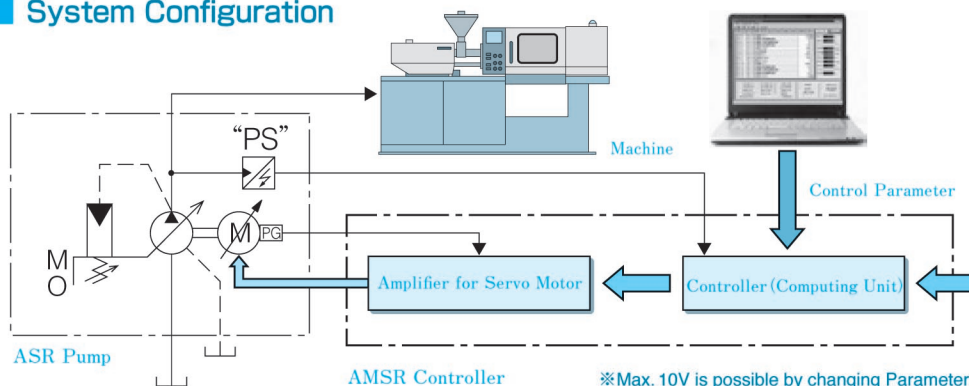
- **Example of energy saving by the pump type**



### Specifications

Model Numbers	Displacement cm <sup>3</sup> / rev	Operating Pressure MPa		Max. Shaft Speed r/min	Max. Flow L/min	Min. Adj. Pressure MPa	Hysteresis	Repeatability
		Rated	Intermittent				Flow Cont. & Pres. Cont.	Flow Cont. & Pres. Cont.
ASR1	15.8	16	21	2500	39.5	0.1	1 % or less	1 % or less
ASR2	22.2	16	16	2500	55.5			
ASR3	36.9	16	21	2500	92.2			
ASR5	56.2	16	21	2300	128.8			
ASR10	100.0	21	21	2000	200.0			

### System Configuration



### Application Field

Injection Moulding Machine  
Rubber Moulding Machine  
Press Forging Machine

Command Signal on the machine side

- Speed Command (0 to 5V) ※
- Pressure Command (0 to 5V) ※

YUKEN global standard devices available in a wide selection, including products for global markets.

## Piston Pumps

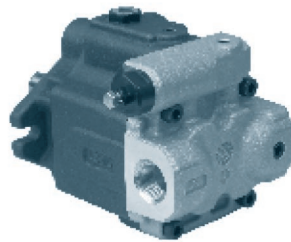
Yuken offers low noise/high efficiency, swash plate type variable displacement piston pumps. These pumps provide a diverse lineup to meet a wide range of application requirements.

### ARL1

#### AR L1 Series Piston Pumps

**New Products**

- Compact and Lightweight
- Low Noise



#### Specifications

- Geometric Displacement : 6.2~16.3 cm<sup>3</sup>/rev
- Intermittent Operating Pressure : 7 MPa
- Shaft Speed Range : 600~1800 r/min

### AR

#### AR Series Variable Displacement Piston Pumps

- Compact and Lightweight
- Low Noise



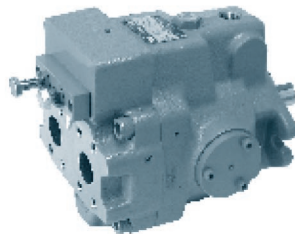
#### Specifications

- Geometric Displacement : 15.8/22.2 cm<sup>3</sup>/rev
- Operating Pressure Rated/Intermittent : 16 MPa
- Shaft Speed Range : 600~1800 r/min

### A

#### A Series Variable Displacement Piston Pumps

- high efficiency
- A variety of control type
- Low Noise



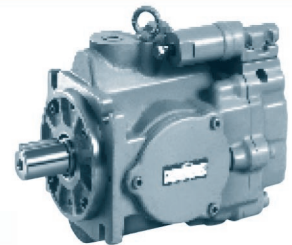
#### Specifications

- Geometric Displacement : 10~219 cm<sup>3</sup>/rev
- Operating Pressure  
Rated : 16, 21, 25 MPa      Intermittent : 16, 21, 28 MPa
- Shaft Speed Range  
A10~A145 : 600~1800 r/min      A220 : 600~1500 r/min

### A3H

#### A3H Series High Pressure Variable Displacement Piston Pumps

- High Pressure
- high efficiency



#### Specifications

- Geometric Displacement : 16.3~180.7 cm<sup>3</sup>/rev
- Operating Pressure  
Rated : 28 MPa      Intermittent : 35 MPa
- Shaft Speed Range  
Minimum : 600 r/min      Maximum : 1800~3600 r/min

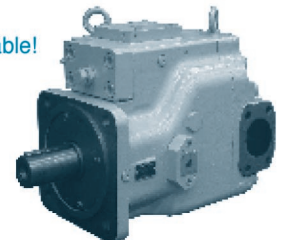
### A7H

#### A7H Series High Pressure Variable Displacement Piston Pumps

**New Products**

180 + 270 cm<sup>3</sup>/rev displacement with rated Pressure 35MPa, Intermittent Pressure 40MPa pumps are now available!

- High Pressure-Large Volume Displacement
- Optional Through Drive
- Fire-Resistant Fluids



#### Specifications

Type of Fluids	Geometric Displacement cm <sup>3</sup> /rev	Operating Pressure MPa		Shaft Speed Range r/min		Temperature Range °C	Viscosity Range mm <sup>2</sup> /s
		Rated	Intermittent	Rated	Intermittent		
Petroleum Base Oils	180/270	35	40	1800/1200	1900/1600	-20~80	10~1000
Water-Glycols		21	25		1800/1200	10~50	20~1000
Polyol Ester Type		35	40		1900/1600	10~70	10~1000

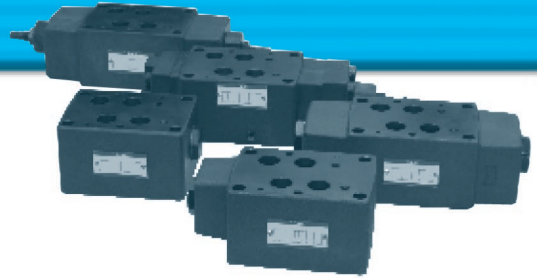
## 1/2 Modular Valves

New Products

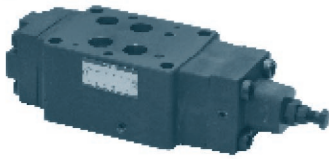
1/2 series added to the lineup of our popular modular valves!

### Specifications

- Max. Operating Pressure : 35 MPa
- Max. Flow : 300 L/min



### 1/2 Reducing Modular Valves



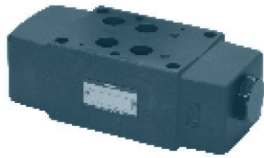
MRP/MRA/MRB-04  
● Pressure Adjustment Range : 0.7~25 MPa

### 1/2 Throttle and Check Modular Valves



MSW-04

### 1/2 Pilot Operated Check Modular Valves



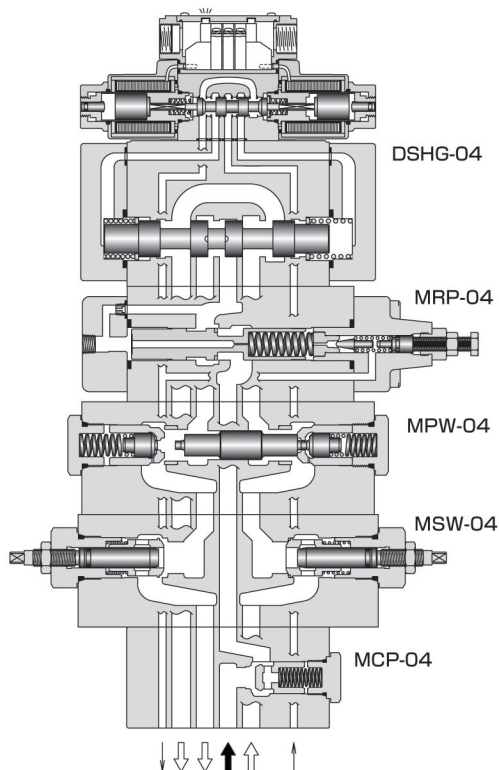
MPW-04  
● Cracking Pressure : 0.2, 0.4 MPa

### 1/2 Check Modular Valves



MCP-04  
● Cracking Pressure : 0.035, 0.2, 0.4 MPa

### Type of Modular Valves



Class	Name	Graphic symbols	Model Numbers
	Solenoid Controlled Pilot Operated Directional Valves		DSHG-04-*** -***-***-52
Pressure Control Valves	Reducing Valves (for "P-Line")		MRP-04-**-10
	Reducing Valves (for "A-Line")		MRA-04-**-10
	Reducing Valves (for "B-Line")		MRB-04-**-10
Flow Control Valves	Throttle and Check Valves (for "A-Line", Metre-out)		MSA-04-X-10
	Throttle and Check Valves (for "A-Line", Metre-in)		MSA-04-Y-10
	Throttle and Check Valves (for "B-Line", Metre-out)		MSB-04-X-10
	Throttle and Check Valves (for "B-Line", Metre-in)		MSB-04-Y-10
	Throttle and Check Valves (for "A&B-Line", Metre-out)		MSW-04-X-10
	Throttle and Check Valves (for "A&B-Line", Metre-in)		MSW-04-Y-10
Directional Control Valves	Check Valves (for "P-Line")		MCP-04-**-10
	Check Valves (for "T-Line")		MCT-04-**-10
	Pilot Operated Check Valves (for "A-Line")		MPA-04-**-10
	Pilot Operated Check Valves (for "B-Line")		MPB-04-**-10
	Pilot Operated Check Valves (for "A&B-Line")		MPW-04-**-10
Bolt Kits	Bolt Kits		MBK-04-**-10