

# IFPEX 2014

International Fluid Power Exhibition 2014

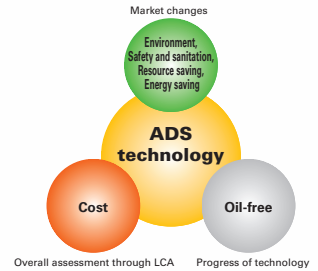
**Aqua Drive System Technology  
New Water Hydraulics**

Supplier List

## ADS [Aqua Drive System: The New Water Hydraulics Technology]

Global warming has in recent years proceeded to threaten our very existence. Reduction of carbon dioxide emissions as its preventive measure is an urgent issue on which we have no time to lose, and going forward, importance of "energy saving and resource saving" and "safety and security" should be established as the common wisdom. The ADS [Aqua Drive System: The New Water Hydraulics Technology], which uses "tap water" as the working fluid, is the innovation to meet these challenges.

The hydraulic technology, with its natural properties of being small, high-speed, and high-density, enables the provision of a linear motion with a simple, extremely rigid structure requiring no conversion of forces. With its higher density structure, the ADS has advantages over the electric drive in that it is not restricted by the standards for the prevention of water, drip or explosion. It excels in saving energy and controllability, is free from oil leakage and not bound by the fire laws. Thus, the ADS is a superb new technology in the future society with its extremely high environmental-friendliness and the use of water as the working fluid allowing its multiple and effective use, against the backdrop of water shortage expected in the near future.



## Major application examples and expected fields of application

### ■ River and coastal operating devices

Prevention of environmental pollution on-site at the worksites, such as water gates, navigation lock, tide embankments, coastal landfill and soil improvement, and ensuring safety in the work site including prevention of electric leakage of the device.

### ■ Medical product and pharmaceutical manufacturing process

Manufacturing process of rehabilitation-purpose bathing equipment and medicines.

### ■ Cosmetics production process

As powder and fluid are used as base materials, sanitary and easy-to-clean, as well as explosion-proof environment is needed. Molding processes of containers may also be involved.

### ■ Disaster prevention and rescue devices

Prevention of environmental pollution on-site at the worksites, such as water gates, navigation lock, tide embankments, coastal landfill and soil improvement, and ensuring safety in the work site including prevention of electric leakage of the device.

### ■ Household equipment

Operation of household equipment for the elderly/handicapped, such as household elevators.

### ■ Precision molding process with cleanness measures

Semiconductor press, medical devices-related molding, and electronic device-related molding processes.

### ■ Marine and underwater driven machinery

Undersea/underwater work machines for the work such as treatment of lake bed sediments.

### ■ Paper manufacturing process

Cleaning of rolls and dehydrating press, etc. in the paper manufacturing process in the high temperature/high humidity environment.

### ■ Seawater desalination and purification process

Seawater desalination devices and water purification processes to address anticipated water shortage.

### ■ Conveyance and packaging process

Addresses various beverage production factories and bottling processes. Involves high degree of safety and sanitary requirements, e.g. for the conveyance and packaging of high-temperature foods including retort food.

### ■ Food processing machinery

Must be sanitary and the whole machines should be washable. Electric standards, such as the one related to waterproof, drip proof and electric leakage, are not applicable.

### ■ Nuclear power generation process

Work at sites with anti-radiation measures, e.g. storage of radioactive waste and nuclear fuel rods, reactor core inspection, and decommissioning of reactors.

### ■ Semiconductor process

Operation of oil-free and clean-room ready machines and equipment.

### ■ Nursing-care equipment

Safe and sanitary environment is needed. Often operated in a wet place, e.g. rehabilitation equipment (bathtubs) and lifters in a bathroom. Measures against electric leakage are not needed.

## Hydraulic pump

Company name	Type					Max. working pressure	Displacement		Max. flow rate	Max. revolution speed
	Axial piston	Radial piston	Vane	Reciprocating	Others		Min.	Max.		
						[MPa]			[cm <sup>3</sup> /rev]	
KYB Corporation	○					14	6	15	27	1800
Taiyo International Corporation	○					8~16	2	444	500	1500
Maruyama Excell Co., Ltd.				○		50			519	3600

## Hydraulic motor

Company name	Type					Max. working pressure	Displacement		Max. flow rate	Revolution speed	
	Axial piston	Radial piston	Vane	Swing	Others		Min.	Max.		Min.	Max.
						[MPa]			[cm <sup>3</sup> /rev]		
KYB Corporation	○					14	4.5	6	18	500	3000
			○			2	4.6	18	27	500	1500
Taiyo International Corporation	○					14	4	12.5	40	300	4000

## Hydraulic control valve

Company name	Type									Rated pressure [MPa]	Flow rate [L/min]	Connection diameter	
	Pressure		Flow		Direction			Servo valve	Proportional valve				Other valves
	Relief valve	Reducing valve	Flow control valve	Throttle valve	Solenoid valve	Check valve							
KYB Corporation								○			14	~50	
									○		14	~35	
Dyden Corporation	○										0.1~1	60	1/2"~1"
		○									0.1~1	60	1/2"~1"
					○						2	~100	~1"
						○					0.1~1	40	1/2"~1"
								○			0.1~1	60	1/2"~1"
Taiyo International Corporation	○										21	120	3/8"~3/4"
		○									14	150	1/8"~1/2"
			○								14	150	1/8"~1"
				○							14	150	1/8"~1"
					○						14	150	1/8"~1"
								○			21	150	1/8"~1/2"
Hirose Valve Industry Co., Ltd.	○										25	60	1/2"
			○								14	~30	3/8"
				○							25	~800	1/8"~2"
					○						25	~800	1/8"~2"
								○			25	~800	1/8B~2B
									○		21	~4000	1/8B~2B
										○	21	~800	1/8B~2B
Maruyama Excell Co., Ltd.	○										50		3/8"~2"
			○										

## Hydraulic cylinder

Company name	Type		Max. working pressure or working pressure [MPa]	Cylinder bore [mm]	Max. stroke [mm]	Speed range [m/s]	Connection diameter
	Hydraulic cylinder	Hydraulic jack					
KYB Corporation	○		0.5~14	25~200			
Taiyo International Corporation	○		14	25~80			1/8"~1/2"
Horiuchi Machinery Co., Ltd.	○		0.25~14	25~400	4000	0.5	1/8"~1/2"
Murakami Seisakusho Co., Ltd.	○		~14	20~200	2000	0.5	Rc1/4~Rc1

## Hydraulic seal

Company name	Application
Sakagami Seisakusho Ltd.	Various hydraulic seal (water line pressure - high pressure)

## Hydraulic unit

Company name	Pump type					Max. working pressure	Flow rate	Tank volume
	Axial piston	Radial piston	Vane	Reciprocating	Others			
						[MPa]	[L/min]	[L]
KYB Corporation	○					14	~20	
					○	2	~150	
Taiyo International Corporation	○					14	1~60	
Maruyama Excell Co., Ltd.				○		50	519	
Murakami Seisakusho Co., Ltd.	○					~14	~20	~150

## Accumulator, booster

Company name	Type		Rated pressure	Volume	Flow rate	Connection diameter
	Accumulator	Booster				
			[MPa]	[L]	[L/min]	
Maruyama Excell Co., Ltd.	○		4~35	0.1~2		Rc1/2~3/4
Nippon Accumulator Co., Ltd.	○		5~25	0.1~160		Rc3/8, 3/4, M42~75
	○		0.95	2.4		R1/2
	○		15~50	0.1~160		Rc3/8, 3/4, M42~90

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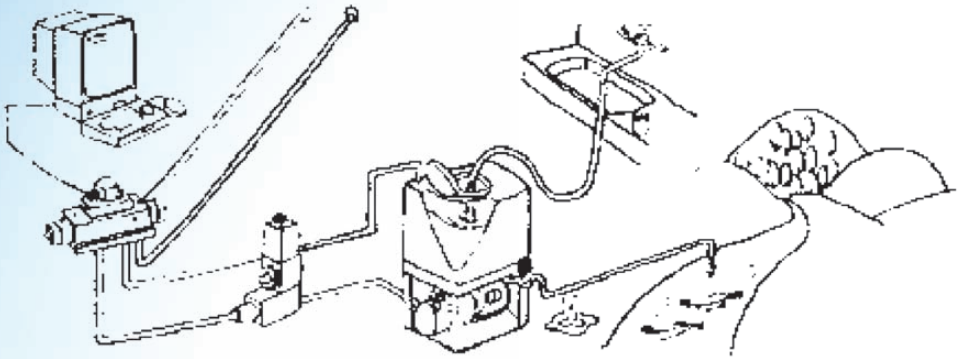
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**Japan Fluid Power Association**

**[www.jfpa.biz](http://www.jfpa.biz)**

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