

Development of Metal Hydride Actuator



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Research Contents

Development of equipment applying Metal Hydride Actuator

Figure 1 shows a schematic diagram of a Metal Hydride Actuator (MHA). The Metal hydride (MH) has the property of taking in the surrounding hydrogen when it is cooled and releasing the taken-in hydrogen when heated. The piston of the MHA is driven by the pressure difference that occurs when hydrogen is taken in and released. MHA can use low-density energy such as hot spring heat and factory waste heat, and is expected as an energy conversion device that can promote the use of natural energy and the effective use of energy. We have been developing equipment powered by MHA for the practical use.

Figure 2 shows a prototype of an autonomously driven MHA. The continuous reciprocating motion of the piston was realized, and the mechanism was devised to extract the output as a rotational force. We assumed the use of the temperature difference between hot spring water and seawater.

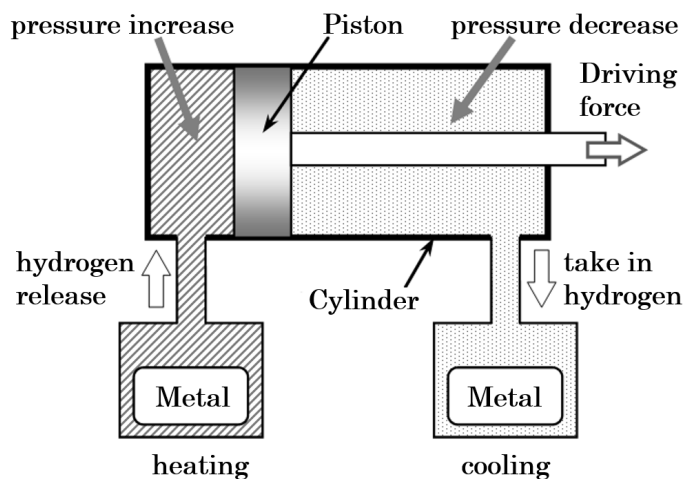


Fig.1 Schematic diagram of MHA

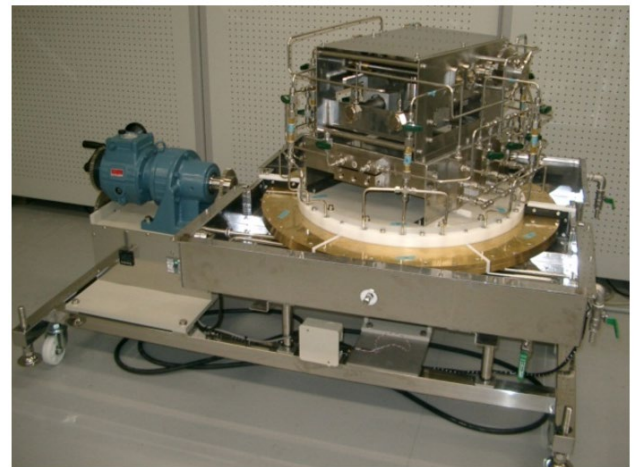


Fig.2 Autonomous drive MHA prototype

Available Facilities and Equipment

Hot wire Anemometer	Kanomax : Model IHW-100
Portable Anemometer	Kanomax : Model 6112
Aerodynamic experimental equipment	Megachem : AF-10
PIV System (High speed camera, PIV software, Laser light)	Seika Digital Image : Koncerto II