TECHNOLOGIES TRANSFERRED FROM ISRO

TT / 2000 / ISAC

MECHATRONIC HYDRAULIC VALVE (MHV)

(Technology Transferred to IPA (I) Pvt. Ltd.)

Testing of spacecraft structures for static loads serves as a design verification of the primary structure. It is traditionally done using a closed loop hydraulic loading system. The heart of the loading system is an electro-hydraulic servo valve. The design and operation is complex in nature in terms of electronic hardware and software requirements. In an attempt of simplification and indigenization a simple loading valve, Mechatronic Hydraulic Valve (MHV) has been developed and tested in automated and manual loading circuits and found suitable. The valve comprises of a shut off valve and a pressure relief valve operated by suitably rated stepper motors. The system is operated by a PC and suitable software in auto mode and in manual mode by rotation of a knob. This is a low cost design and is of modular construction. It is fully indigenous and all the components are easily available. It does not require expensive oil filtering requirements. Since it is PC based, custom software can be written in any programming language for operation. Thus it can operate at low pressures at low loads with the result of less heat generation avoiding the necessity of oil coolers. This device can find applications in hydraulic loading setups. This can be operated in manual / auto modes based on the requirements. It can replace expensive servo valves in static loading applications with limitations in control accuracy.

For further details, please contact:

Director
Technology Transfer & Industry Cooperation (TT&IC)
ISRO Headquarters
"Antariksh Bhavan"
New BEL Road
Bangalore - 560 094

2009