

Problem

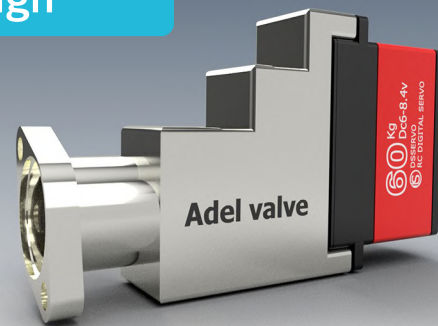


Heavy equipment accidents can result in catastrophic consequences, posing serious risks to workers. These incidents often involve large machinery such as Cranes and Excavators causing significant disruptions to projects and operations. Preventative measures such as using remote control are crucial for minimizing the impact of heavy equipment accidents on both personnel and property .

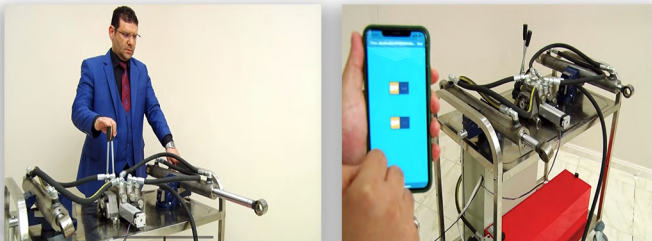
Abstract

The present invention is an electromechanical device based on a mechanical and electronic engineering system, in which the inner shaft of a manual hydraulic control valve is connected to a servo motor via the aluminum adapter and brass coupling, to remotely control the hydraulic systems with very high accuracy .

Design



Test



Results

The test was created under these conditions :

Ambient Temperature : 28° C - Relative Humidity : 75 %
Hydraulic circuit working pressure : 140 bar
Device test time : 163 Hours
Number of Cycles : 78240
Hydraulic cylinder capacity : 3 Tons
Radio remote control distance : 200 m

Features

- Adel Valve converts heavy equipment into smart equipment that can be operated remotely, enabling more productive, safe, and efficient operation .
- its price point is very competitive compared to other methods.
- The functionality relies on Pulse Width Modulation (PWM) using Microcontrollers.
- The device can be used without any changes in the hydraulic circuit's properties like pressure or flow rate.
- Device maintenance can be done smoothly using readily available spare parts
- Finally, Adel Valve is compatible with any type of manual hydraulic valves .