

Motion Controller in Dynamic Testing Application



Customer: Rambal Limited

Year of Commissioning of system: December 2011

Total systems commissioned : 2

Actuator Force: 3500 kgf / 1000 kgf

Stroke: 250mm

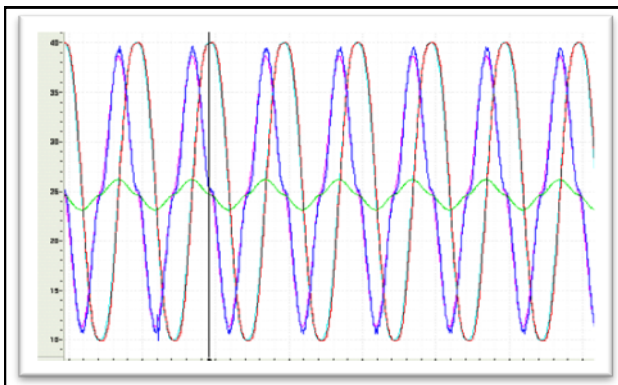
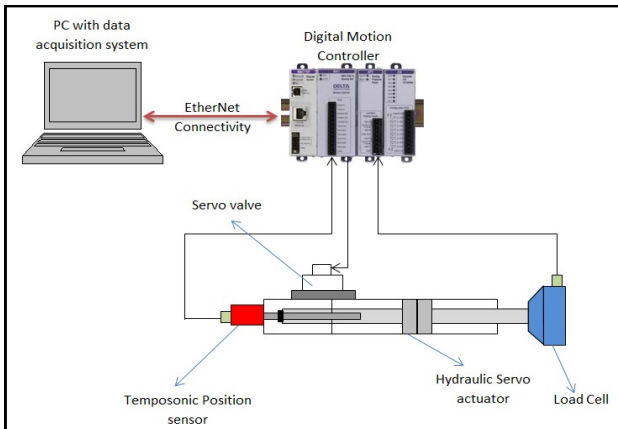
Cycle Frequency : 0.1 to 10 Hz

Also Supplied to many Test OEM's under NDA

Closed Loop motion control offers precise, smooth motion control in the field of Dynamic testing application. The control system consists of a PC based Data acquisition system, Man Machine Interface software, Motion controller & Servo actuator with inbuilt load cell, Temposonic position sensor and Servo valve. The Man Machine interface software loaded into the PC allows the user to set the desired motion patterns and acquires the system data from various sensors for user display, plotting and report generation. The motion pattern or command set by the Man Machine interface software will be fed into the Digital RMC70 motion controller for the execution.

The Servo Actuator consists of inbuilt high resolution (up to 0.5 microns) position sensor and Load Cell. The High response Servo valve is used to drive the Servo Actuator. The RMC70 motion controller continuously reads position / force information (2000 reads / sec) from inbuilt position sensor and load cell for precise monitoring and control of servo actuator position / force. The designed servo actuator is capable of moving at a rate up to 10Hz.

The RMC70 Motion Controller can be programmed to operate in Load control mode (by closing the loop with Load Cell), position/Velocity control mode (by closing the loop with inbuilt position sensor) or both position and force control mode (by closing loop with both Position sensor and Load Cell).



Online plot captured during testing

SERVOCONTROLS

 Save Energy with Feedback

APPLICATION NOTE

Motion Controller in Dynamic Testing Application

The NDT programs often involves the application of repetitive stress cycles on the device being tested. A motion controller that supports direct execution of cyclic motion operations makes it quick and easy to set up testing profiles. The RMC70 motion controller is capable of generating various motion profiles that includes

- ◆ Sinusoidal
- ◆ Triangular
- ◆ Square and
- ◆ Random waveforms.

The pattern Frequency, Amplitude and phase parameter can be set online without stopping the test.

The RMC70 Motion controller offers online tuning facility where the system gains can be changed while the system is running. The motion controller offers velocity and acceleration feed forwards in addition with standard PID which will help to increase the system dynamics. Online graphing and event log provides easy set up and trouble shooting of the system.

Scope of Supply

- ◆ Delta RMC70 Motion Controller
- ◆ MTS Magnetostrictive position sensor
- ◆ High response servo valve
- ◆ Manifold Blocks.
- ◆ Human Machine Interface (HMI)
- ◆ Pressure Sensors
- ◆ Control Cabinet



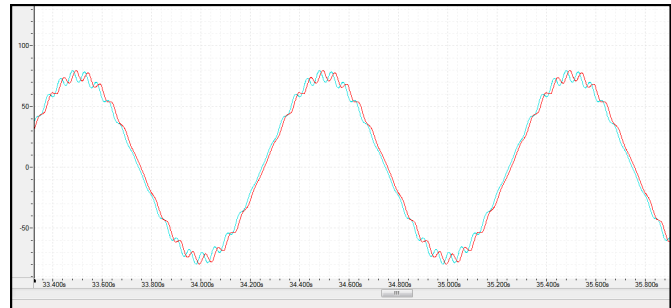
Delta RMC70 Motion Controller



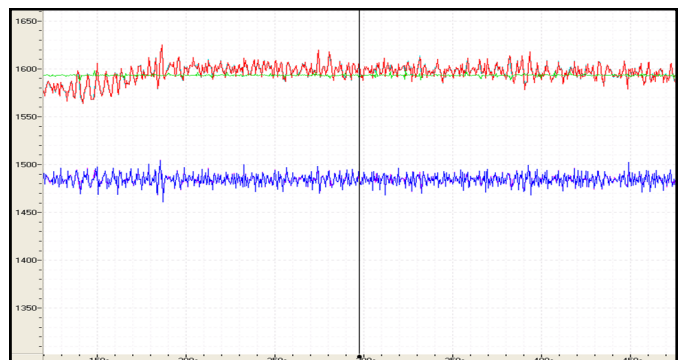
Tempsonic Position Sensor



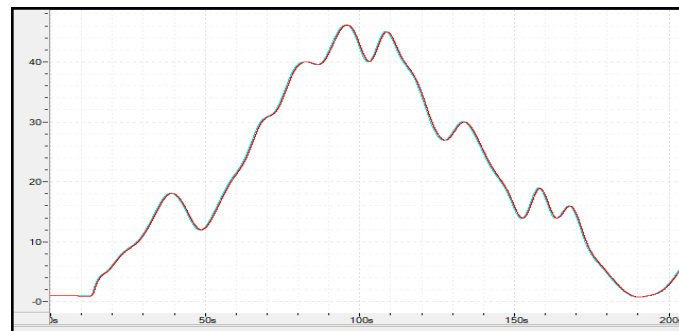
Servo Valve



Superimposed Sinusoidal profile



Road Data profile



Random profile

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