DN 44 DRY & LUBRICATED RECIPROCATING SLIDING & FRETTING MACHINE



Description

The DN 44 Dry & Lubricated Reciprocating Sliding & Fretting Machine incorporates a servo hydraulic actuator driven by a high frequency analogue controller, which derives its set points via a 16 bit control and data acquisition card from a standard PC running <u>COMPEND 2020</u> software. Real time adaptive control features provided within the software allows high precision control of the actuator when working against highly non-linear loads. Sine, square, triangular and random waveforms may be programmed and, depending on the physical capabilities of the hydraulic system, oscillating frequencies up to 200 Hz may be controlled.



The machine is designed for fretting and fretting fatigue tests with nominal relative movement between contacting surfaces in the range 20 microns to 80 microns. It may also be used for sliding reciprocating tests at strokes up to 20 mm. Servo hydraulic actuation with piezo transducer friction force measurement and servo controlled loading with force transducer feedback.

DN 44/1 Small Perturbation Signal Generator

This optional additional signal generator and signal analysis system allows combined sliding motion with co-axial vibration to be generated. The standard servo amplifier incorporates a summing junction on the input stage with dual inputs. This means that with the addition of a second signal generator, two separate signal inputs, one low frequency and long stroke and one high frequency and short stroke, can be combined, thus producing reciprocating motion with superimposed vibration from a single servo hydraulic actuator.

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Technical Specifications

Type of contact:

Type of Movement: Load: Friction Force: Stroke - continuously variable: Frequency: Environment: Temperature: Super High Response Servo Valve: Actuator Bearings: Dynamic Load: Static Load: Hvdraulic Power Pack: High Speed Interface: **Resolution:** Number of Input Channels: Maximum Data Rate: Interface: Software:

DN 44/1 Small Perturbation Signal Generator

Type of Movement:

Sliding Motion:

Maximum Stroke: Type of Movement: Frequency (FS): Ball/Flat Flat/Flat Line/Flat Sine, Square, Triangular and Random 5 to 1,000 N +/-500 N Maximum 10 microns to 20 mm 0.1 Hz to 200 Hz Drv or Lubricated Ambient to 600°C 12 l/min Hydrostatic 5.7 kN 8.6 kN 12 l/min at 250 bar USB ADC 16 bit 1 to 6 All channels at 50 kHz Phoenix Tribology USB micro-controller interface COMPEND 2020

Sinusoidal sliding stroke with co-linear superimposed sinusoidal perturbation

20 mm (Amplitude: 10 mm) Sinusoidal 0 to 5 Hz

Vibration Motion: Stroke/Frequency: Frequency (FP): Control Requirements:	200 microns (Amplitude 100 microns) @ 0 to 200 Hz 100 microns (Amplitude 50 microns) @ 0 to 300 Hz 0 - 300 Hz FP must be greater than FS x 20
Controlled Parameters	Frequency Stroke Load Temperature Test Duration
Measured Parameters	Frequency Stroke Load Friction Temperature Electrical Contact Resistance
Services	
Electricity:	380/415V, three phase + neutral, 50 Hz, 7.5 kW 380/415V, three phase + neutral, 60 Hz, 7.5 kW
Mains water and drain:	10 l/min (typical)