



Maurer Söhne - Adaptive Cable Damper ACD - Data sheet



General

The ACD is a semi-active System, which adopt its damping force to the requirement of the structure. It is a safe system, cause no external energy will be introduced into the structure, only the properties of the device will be adjusted.

The ACD system consists of

- Hydraulic damper with controllable MR-fluid
- Sensor
- Electronic control unit

MR-fluids are a dispersion of carbonyl iron powder in a carrier fluid. The shear stiffness of the fluid changes under a magnetic field. Inside the damper is an arrangement of flow passes and coils to create this field. Proportional to the current in the coils is the magnetic field and the damping force. All types of ACD dampers are tested for characterisation of their force/current relation.

To run the damper a power unit board and micro controller board with flash memory, USB interface is used. The reaction time (sensor signal to force) is less than 10 ms. Control frequency is 50 Hz. The damper is usually in “power down” modus, where the status of the cable is only observed. The power consumption is than approx. 0.25 Watt.

If the cable starts swinging and a programmable threshold value is reached, the controller switches immediately to “power on” modus and the optimal damper force will be activated.

Damper properties:

Force range: 1.0 kN – 50 kN
 Stroke range: +/- 50 mm
 MR-Fluid: MR-B-05/2
 Current range: 0 – 3 Ampere

Requirement: 220 V / 50 Hz ~
 Electronic “Power down” 0.25 Watt
 Electronic “Power on” 2.60 Watt
 Damper passive 0.00 Watt
 Damper active max. 40.0 Watt

