CONTROLLED LOAD ABORT MANIFOLD

SmarTEST CLAM FOR AEROSPACE TESTING

At Moog FCS, we understand that your investment in aerospace prototypes are very high. You need to protect the integrity of the test specimen in case of a failsafe situation. That is why you need a SmarTEST Controlled Load Abort Manifold (CLAM).

The CLAM is used in situations where it is vital to keep a certain load distribution across the test article during shutdown. It provides full protection of the test article via seamless integration of hardware and software. It prevents damage by controlling the unloading of the actuator to zero force in over- or underload situations, making it an indispensable tool in any aerospace test environment.

ADVANTAGES

- Self-contained safety unit for safely offloading test specimens in small to very large load situations
- Adjustable load limiting function provides over-load protection for added safety and reliability
- Set-up time is much improved as compared to a 'mechanically-tuned dump'
- Accurately controls oil flow (1 to 250 liter/minute) with very limited pressure drop (2-10 bar)
- Stand-alone system is protected against single point and dormant failures

AEROSPACE TESTING APPLICATIONS

Moog FCS offers static and fatigue testing, that ranges from complete aircraft to sub-assemblies to components.

- Aircraft/airframe structural tests
- Iron bird tests
- Landing gear tests
- Helicopter airframe, rotor head and blade tests
- Fuselage and cockpit pressurization
- Engine casing tests
- Fin actuation loading tests
- Hydraulic system tests
- Load calibration tests
- Spacecraft structural integrity

SPECIFICATIONS

The SmarTEST Controlled Load Abort Manifold is a unique, fully redundant system that protects your entire system. At a failsafe of the primary control system, the CLAM system takes control of the actuators and provides a synchronous ramp down to zero force. It is totally independent of the primary control system and works without supply of external hydraulic power.

KEY FEATURES

- Close coupled or remotely mounted option
- Reduces the applied load over a common programmable time period maintaining the load balance
- Maintains a uniform linear ramp to zero load (fadeout) irrespective of the different actuator flow requirements
- Operates on either tensile or compressive forces
- Detects over load and under load conditions by monitoring pressures in the actuator chambers
- Suitable for equal or unequal area actuators
- Completely isolates primary control system and servovalve in the event of a fatal control system error or hydraulic failure
- Incorporates fast-acting components for maximum test article protection
- Full redundant feedback by means of 4 pressure transducers

CLAM SPECIFICATIONS	**Pressure rating** 210 or 280 bar (3,045 or 4,060 psi) **Flow rating *** 65 l/min (17 g/min) 250 l/min (66 g/min) under development **Dimensions (l x w x h)** 152 x 178 x 190 mm (6 x 7 x 7.5 inch)
SOFTWARE	• Proven applications software • Fast set-up and tune of safety circuits
TRANSDUCERS	**Number of transducers** 4 pressure, 1 spool position **Interface type** 4-20 mA **Accuracy gain and drift** 1% FS **Resolution** 12 bit **Max. differential input voltage** 24V **Transducer power supply** 24V
SOLENOID DRIVERS	**Number** 2 **Max. current** 1.5 A **Type** High side **Protection and sensing** Over current Over temperature Under temperature Over-voltage (open circuit) **Response time** < 50 msec
SAFETY LINES	• 2 link-through switched lines • 2 current sense line link-through

*Other flow rates available as options.

This technical data is based on current available information and is subject to change at any time by Moog FCS. Specifications for specific systems or applications may vary.

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