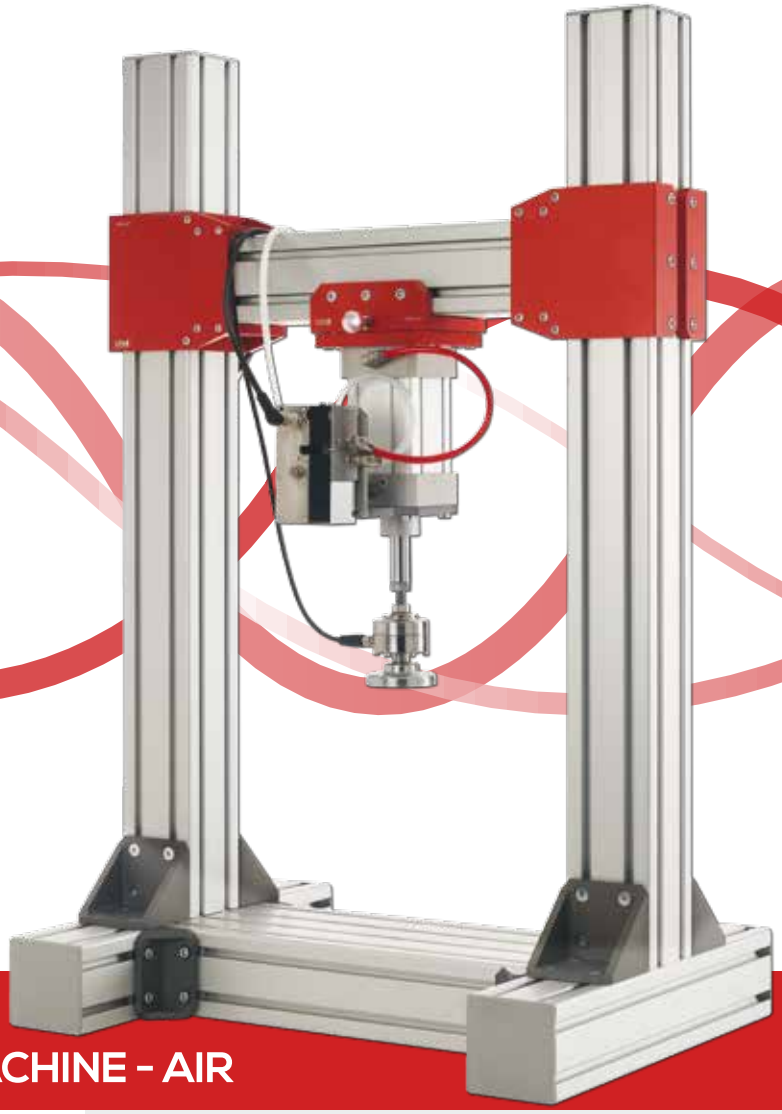
LiTeM
Life Testing Machines

EXPLORE BEYOND LIMITS



CUSTOMIZABLE

VERTICAL DOUBLE COLUMN MACHINE - AIR

CYCLIC FATIGUE TESTING MACHINE with servo-pneumatic actuator

LiTeM series **VDC-A** (**Vertical Double Column - Air**) systems are modular table top fatigue testing machines complete with external frames and guards, equipped with a pneumatic actuator with a load range of 0 to 7 kN and stroke up to 1500 mm.
The **VDC-A** series is made of modular aluminium profile members and enables the actuator to be positioned in 2 directions for even greater versatility. The actuator is mounted on an horizontal strut with variable gap, thus allowing **A63-A125 actuators** to be used and providing a larger test area. There is also a version with a gantry structure which enables the actuator to be positioned manually in 3 directions.
VDC-A machines are the solution for manufacturers and research centers who want to optimize their design and development processes. This enables them to offer their clients excellent quality control and final testing, while reducing costs and without compromising the quality of their results.
The load is applied by special low wear pneumatic actuators with contactless displacement sensors integrated into the rod. This ensures that the sensor itself is completely unaffected by wear.
Each machine has a **RTC9001-S (standard) controller**, complete with **RTC PN (Pneumatic) - STD (Standard) software** with Start Stop test and acquisition and display functions for the data coming from the load and displacement sensor or an auxiliary sensor.

The systems are constantly evolving
The piuctures are not binding

APPLICATIONS

1. STATIC YIELD/FAILURE TESTING,
for composite components, biological components, dental implants, etc.
2. RIGIDITY TESTING
for single components and assemblies, composite products
3. DYNAMIC TESTING with sine, pulsed square wave with settable duty cycle or constant speed triangle wave
(e.g. for characterization of suspensions/shock absorbers)
4. CONSTANT AMPLITUDE FATIGUE TESTING
to characterize the life under cyclic/repeated loads
for any type of component (Wöhler curves)
5. CONSTANT AMPLITUDE BLOCK FATIGUE TESTING
for determining the Palmgren-Miner relation
and the effective damage value
6. VARIABLE AMPLITUDE FATIGUE TESTING
using the reproduction/simulation in the laboratory
of real world load curves acquired on-site
7. REPRODUCTION OF LOAD CURVES
defined by the user during the design phase

CONTROLLER AND SOFTWARE

RTC9001-S (standard) and **RTC9001-P (pro) controllers** are designed for easy and comprehensible control of structural mechanical tests, with full control of an actuator, a force channel, a displacement channel and an auxiliary ±10V channel. **RTC9000** controllers have been proved to be ideal for static, dynamic and fatigue testing.

Easy and safe to configure tests, with full display of graphs and parameters in a single screen with overlapping layers, and logged data that is of genuine use to the operator - these are the keys to success of the **RTC-Pneumatic control software**.

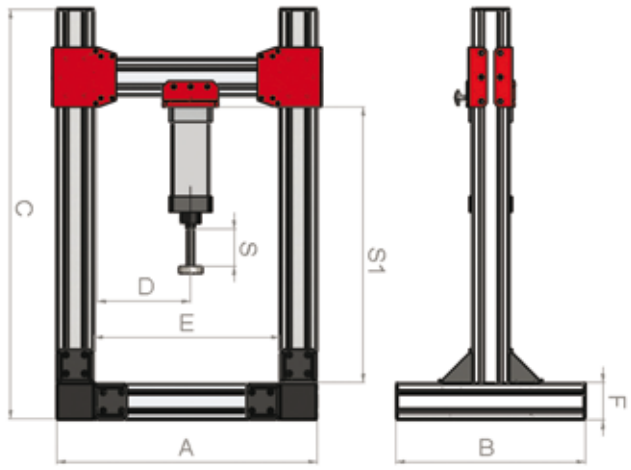
CONTROLLER TECHNICAL SPECIFICATIONS RTC 9001
REAL TIME CONTROLLER
PROCESSOR DUAL-CORE 667 MHZ (PRO VERSION DUAL-CORE 1.33 GHZ)
FORCE CHANNEL ±10V, 16BIT
DISPLACEMENT CHANNEL ±10V, 16BIT

On request software version for simultaneous control of two actuators.

CONTROL SOFTWARE SPECIFICATIONS RTC PNEUMATIC
CONTROL MODE: LOAD – POSITION – AUX 1
SETTINGS OF PID COEFFICIENTS
BUMPLESS CONTROL MODE CHANGE
SIGNAL AMPLITUDE CONTROL
WAVEFORM: RAMP SETPOINT – SINE – TRIANGLE – SQUARE
WAVEFORM: USER DEFINED PROFILE
CYCLE COUNTER
RECORDING VS. TIME - VS. CYCLE
EXPORT DATA: TEXT FORMAT – EXCEL – GRAPH IMAGES

GENERAL TECHNICAL SPECIFICATIONS				
ACTUATOR MODEL	**VDC-A-1,5**	**VDC-A-2,5**	**VDC-A-3**	**VDC-A-6**
STATIC FORCE (*)	1,8 kN	3 kN	4,5 kN	7 kN
DYNAMIC FORCE (**)	1,5 kN	2,5 kN	3 kN	6 kN
STROKE (mm)**(***)**	50-400	50-400	50-400	50-400
FORCE SENSOR Mounted to the base or to the actuator	5 kN	5 kN	5 kN	5 kN
FORCE ACCURACY	±2N	±2N	±2N	±2N
DISPLACEMENT ACCURACY (****)	±0,02mm	±0,02mm	±0,02mm	±0,02mm
SENSOR READ LIMIT	1kHz	1kHz	1kHz	1kHz
WORKING FREQUENCY	1-30 Hz	1-30 Hz	1-30 Hz	1-30 Hz
DIMENSIONS (mm)	500x700x1100			
SOFTWARE	RTC Pneumatic Standard			
CONTROLLER	RTC9001 Standard			

* The values are expressed in thrust with 6 bar pressure
** The dynamic force decreases as the deflection and cycle frequency increase
*** It's recommended to use 50mm stroke for fatigue testing and 100mm for stiffness testing to optimize the air consumption
**** Accuracy expressed in mm per 100 mm stroke of the sensor



DIMENSIONS	
S (mm)	50-1000
S1 (mm)	200-800
D (mm)	250-450
E (mm)	500-900

ACCESSORIES*	
T-GROVE PLANE	300x200 M6-M8
FLAT TEST PLATE	D80
FLAT PLATE FOR SPRING	D80 M8
VICE GRIP PA SERIES	S25-45 mm
VICE GRIP PT SERIES	S50-70-100mm
HIGH STIFFNESS SUPPORT TABLE WITH PROTECTION	800x800x1000mm

* See ACCESSORIES brochure

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