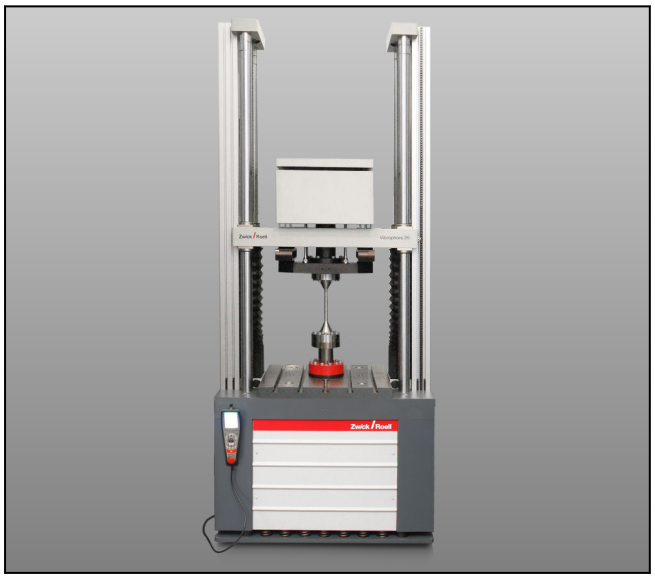
Product Information

ZwickRoell Vibrophore 25

CTA: 141474 154736



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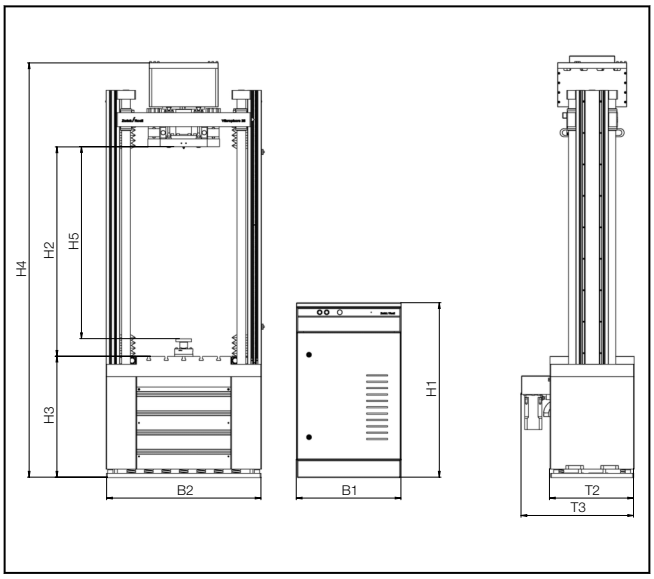

Drawing: Vibrophore 25

Range of applications

The ZwickRoell Vibrophore represents the latest generation of high-frequency pulsators, combining for the first time an electro-magnetically excited dynamic testing machine with a fully functional static materials testing machine. This is made possible by the 'two in one' function developed by ZwickRoell.

As well as being employed for quasi-static tensile and compression tests, Vibrophores are used in particular for determination of fatigue strength with regard to fatigue life and fatigue limit.

This allows highly efficient fatigue testing, for example to DIN 50100 (S-N curve), with tensile, compression, pulsating and alternating loads.

Other typical applications include fatigue tests on components (e.g. connecting rods, crankshafts, chains and threaded connectors) and standard metal specimens, together with fracture mechanics investigations on CT and SEB specimens,

All tests can be force, displacement or strain-controlled, while with the addition of appropriate devices testing can also be carried out under various environmental conditions (e.g. temperature, aggressive media), together with torsion and flexure tests.

Advantages and features

- fully functional static and dynamic testing machine with stiff four-column load frame
- high test-frequencies, giving short test times and high specimen throughput
- easy to operate via testXpert III and testXpert Research test programs matched exactly to the testing situations
- resonance drive has very low energy consumption (only around 2% of that of servo-hydraulic testing machines)
- easy to install - no ancillary units or systems (e.g. hydraulics, coolant) needed
- maintenance-free system - wear-free components
- clamping table at convenient working height for operator-friendly testing
- remote control with color display showing measurement channels, machine and test status; also used for machine set-up
- testControl II digital measurement and control electronics with 10kHz control frequency and 24-bit resolution
- continuously controlled servo motor for fast, accurate mean force control
- pulse-width modulation for high control stability and low failure liability
- easy test-frequency change simply by varying weights.
- large range of standard tools and fixtures

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Technical data

Description	Value	
Fmax	25	kN
Mean load max.	±25	kN
Force amplitude max.	±12.5	kN
Specimen elastic strain (oscillation displacement) max.	6 (±3)	mm
Test frequency range[1)]	35 to 300	Hz
No. of frequency steps[2)]	8	
No. of guide columns	4	
No. of lead-screw drives	2	
Frame stiffness at 1000mm crosshead separation[3)]	Approx. 170	kN/mm
Drive		
Static tests and for mean force control	AC drive	
min. crosshead speed	0.0001	mm/min
max. crosshead speed	600	mm/min
Maximum crosshead return speed	1000	mm/min
Repeat positioning accuracy on crosshead	±2	µm
Motor holding break	Yes	
Dynamic tests	Wear-free electro-magnetic drive	
Load-frame dimensions		
H4 - height	2375	mm
H3 - clamping-table height	693	mm
H2 - height of test area	1200	mm
H5 - height test area including force measurement chain	1100	mm
B2 - width	885	mm
T3 - depth	645	mm
T2 - depth, base	482	mm
Weight (approx.)[4)]	1900	kg
Test area dimensions		
Test-area height without load cell	1200	mm
Test area depth	482	mm
Free access width between columns	610[5)]	mm
Max. travel, machine frame	1099	mm
Item No.		
Vibrophore 25 including testControl II	1050926	
Optional: two in one for static tests	1028357	
Optional: oscillation displacement measurement	1033236	

1) The testing frequency is determined by the stiffness and mass of the test arrangement.
2) via activation / deactivation of weights
3) Load frame stiffness: this value is obtained via direct deformation measurement between the crossheads (moving and base crossheads) and does not take into account deformation of the drive and load cell.
4) Weight without specimen grips or fixtures
5) without bellows

All data at ambient temperature.

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testControl II measurement and control electronics		
Control frequency	10 kHz	
Measured-value acquisition	10 kHz, 24 bits, arithmetical	
Slots	5 x module bus (2 occupied as default)	
PC interface	GigaBit Ethernet	
Integrated safety concept	2-channel specification for maximum safety	
	interface for interlocked safety doors	
	interface for Emergency STOP loop	
Display-equipped remote control unit	set-up or testing mode	
	Emergency STOP button	
	key-switch for switching between setup and testing modes	
Dimensions, testControl II measurement and control electronics		
H1-height without table plate	1000	mm
B1-width	600	mm
Approx. weight	135	kg
Length of cable Vibrophore - testControl II	5	m
Accessories		
Universal measurement amplifier (029443)	Choice of AC/DC supply	
	Half and full-bridge strain-gages	
	4 and 6-conductor technology	
I/O card (029448)	1 analog ± 10V input (controllable)	
	2 analog ± 10V outputs	
	4 digital inputs, 24V	
	3 digital outputs, 24V	
	1 relay output, potential-free	

Installation conditions		
Operating temperature	+10 ... +35	°C
Storage temperature	-25 ... +50	°C
Humidity (non-condensing)	20 ... 90	%
Electrical supply		
power supply voltage 3 Ph/N/PE	400	V
power frequency	50 / 60	Hz
back-up fuse	10 / 16	A
Noise level at 1 meter distance[1)]	70 ... 100	dB(A)

1) Depends on test arrangement, test load and testing frequency

All data at ambient temperature.

We reserve the right to make technical changes in the course of ongoing development.