

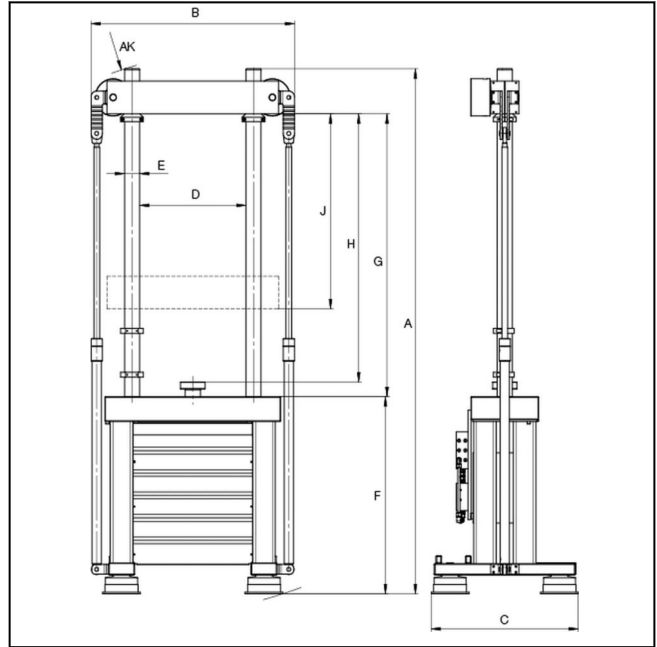
## Product Information

### Servo-hydraulic load frames – HA series

CTA: 11969 11970



HA 100 on air springs with hydraulic wedge-grips



Drawing: HA load frame

#### Application

With the testing actuator mounted in the lower cross-head and the load cell on the upper crosshead, the HA range of load frames represents the classical servo-hydraulic testing machine as used for determining material properties under fatigue loads, e.g. S-N test (fatigue test), fracture mechanics, LCF (low-cycle fatigue).

#### Description of operation

The 2-column load frames are designed for materials testing under dynamic loading in a closed force-flow. The frame is supported on vibration-isolating leveling units. The frame is supported on vibration-isolating leveling units so that no appreciable forces are transmitted to the floor during normal operation. Where tests or operating conditions are critical in nature, the use of optionally available air-springs is advisable; these offer a mounting frequency of approximately 3 - 6 Hz.

The performance of the testing system is enhanced by the especially high axial and lateral stiffness of the HA load frames, enabling higher frequencies and specimen deformations, while high lateral forces which may occur in compression and flexure tests can be absorbed without difficulty.

The frames also feature extremely precise alignment;

following installation of the testing actuator and load cell, alignment accuracy is +0.1 mm per meter separation; at distances below 350mm the offset is constant at 0.05mm. Plane-parallelity is equal to or better than 0.03 mm per 100 mm.

All fixtures are flange-mounted with a centering spigot, eliminating the need for retrospective alignment of the load string.

#### Features

- 4 standard nominal ratings from 50 kN to 500 kN
- testing actuator recessed into lower crosshead to keep piston-rod extension as short as possible
- convenient working height
- particularly suitable for integration of a high-temperature heating device
- hard-chromed columns for precise guidance of upper crosshead
- hydraulic clamping and adjustment for easy positioning of upper crosshead
- integrated oil-sump for collecting minor leakage
- safety housing to comply with CE Machinery Directive depending on application

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#### Technical data

Dynamic nominal force	50	100	250	500	kN
Crosshead clamping	electro-hydraulic	electro-hydraulic	electro-hydraulic	electro-hydraulic	
Crosshead adjustment	electro-hydraulic	electro-hydraulic	electro-hydraulic	electro-hydraulic	
A - max. height of test frame	2750 (3250) <sup>1)</sup>	2750 (3250) <sup>1)</sup>	3040 (3540) <sup>1)</sup>	3430 (3930) <sup>1)</sup>	mm
A <sub>K</sub> - tilted dimension for installation	2820 (3320) <sup>1)</sup>	2820 (3320) <sup>1)</sup>	3195 (3695) <sup>1)</sup>	3650 (4125) <sup>1)</sup>	mm
B – max. width of test frame	1079				mm
C – max. depth of test frame	780	780	790	1390	mm
D <sub>1</sub> – column spacing	565	565	670	800	mm
E – column diameter	80	80	100	120	mm
F - height of top edge of lower crosshead <sup>2)</sup>	1010	1010	1030	1020	mm
G – max. test area height <sup>3)</sup>	1450 (1950) <sup>1)</sup>	1450 (1950) <sup>1)</sup>	1750 (2250) <sup>1)</sup>	2000 (2500) <sup>1)</sup>	mm
H – max. working test area height <sup>4)</sup>	1372 (1872) <sup>1)</sup>	1372 (1872) <sup>1)</sup>	1659 (2159) <sup>1)</sup>	1900 (2400) <sup>1)</sup>	mm
J – crosshead displacement range	1000 (1250) <sup>1)</sup>				mm
Weight <sup>5)</sup>	920 (970) <sup>1)</sup>	920 (970) <sup>1)</sup>	1520 (1600) <sup>1)</sup>		kg
Frame stiffness with crosshead separation 1000 mm	673	673	967	2100	kN/mm
Suitable for actuators with maximum stroke	250	150	150	100	mm
<b>Item Number</b>					
Standard height	<b>039825</b>	<b>025238</b>	<b>924810</b>	<b>935267</b>	
Extra-high + 500 mm	<b>073968</b>	<b>935832</b>	<b>073969</b>	<b>073970</b>	

1) Variant with height increased by 500mm

2) With vibration-damping feet

3) Distance between upper and lower crossheads

4) Distance between piston flange and upper crosshead with piston retracted

5) Weight without actuator, load cell or any fixtures

#### Accessories

##### Vibration-damping feet

Rubber/air-spring element for impact and vibration isolation, natural frequency 3 - 6 Hz depending on static load, maximum permitted pressure 6 bar.

Description	Item number
Vibration-damping feet for HA 50 / 100	<b>924749</b>
Vibration-damping feet for HA 250	<b>924770</b>
Vibration-damping feet for HA 500	<b>935215</b>

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#### Safety device

Aluminium profile section construction with Makrolon panels enclosing testing machine on all four sides, safety door at front, electrically monitored and interlocked.

Description	Item number
Safety device for HA 50 / 100	<b>036535</b>
Safety device for HA 50 / 100 - 500 mm extra height	<b>036534</b>
Safety device for HA 250	<b>037386</b>
Safety device for HA 250 - 500 mm extra height	<b>075872</b>
Safety device for HA 500	<b>048463</b>
Safety device for HA 500 - 500 mm extra height	<b>075876</b>

