

➤ TABLE OF STANDARD PROPERTIES OF USE AND MEASUREMENT

The properties defined in the table below, are set up according to the technical conditions of use and measurement. These properties are warranted within their variation range and in compliance with the standard technical conditions of use.

Properties APA120ML	Standard technical conditions	Unit	Nominal values	Min. values	Max. values
Notes		-	-	-	-
Max. no load displacement	Quasistatic excitation, blocked-free	μm	130	117	169
Blocked force	Quasistatic excitation, blocked-free	N	1400	1120	1680
Stiffness	Quasistatic excitation, blocked-free	N/μm	10,77	8,62	11,85
Resonance frequency (free-free)	Harmonic excitation, free-free, on the admittance curve	Hz	6450	5483	7095
Response time (free-free)		ms	0,08	0,07	0,09
Resonance frequency (blocked-free)	Harmonic excitation, blocked-free, on the admittance curve	Hz	1750	1488	1925
Response time (blocked-free)		ms	0,29	0,26	0,33
Capacitance	Quasistatic excitation, free-free, on the admittance curve	μF	20,00	18,00	26,00
Max. no load displacement at resonance	Max. harmonic excitation, free-free	μm p-p	117	94	140
Max. voltage at resonance	Max. harmonic excitation, free-free	Vrms	9,00	7,20	10,80
Force limit (0-pk)	Max. harmonic excitation, free-free	N	700,00	560,00	770,00
Resolution	Quasistatic excitation	nm	1,30	-	-
Height (in actuation direction)		mm	45,00	44,90	45,10
Length		mm	78,90	78,80	79,00
Width (excl. wedge & wires)		mm	20,00	19,95	20,05
Width (incl. wedge & wires)		mm	22,50	21,50	24,00
Mass		g	160,0	-	-
Standard mechanical interface	2 flat surfaces 9*20 mm ² with 2 Ø 3.2 mm holes, centred at 5 mm from the side	-	-	-	-
Standard electrical interface	2 PTFE insulated AWG26 wires 300 mm long with Ø 1 banana plug	-	-	-	-

➤ PROPERTIES STANDARD TECHNICAL CONDITIONS OF USE AND MEASUREMENT

Free-free	: The actuator is not fixed
Blocked-free	: The actuator is fixed to a mechanical support assumed infinitely stiff
Quasistatic excitation	: AC voltage between -20 and 150 V at 1 Hz
Harmonic excitation	: Voltage of 0.5 Vrms, sinusoidal mode from 0 to 100 kHz
Max. harmonic excitation	: Voltage defined by the measurement of max. displacement, sinus at resonance frequency
Displacement measurement	: Laser interferometer, capacitive displacement sensor
Admittance measurement	: HP 4194 A or Cypher C60 electrical impedance analyser
Environment	: Ambient temperature (15-25°C) and dry air (Humidity < 50 % rH)

Any technical conditions of use, different from those defined above, can lead to temporary or definitive alterations of properties. Thank you to contact CEDRAT TECHNOLOGIES before using actuators under non standard technical conditions.

➤ FACTORY TESTS CARRIED OUT

- Test 1 : Electrical admittance vs. Frequency, free-free
- Test 2 : Displacement vs. input voltage

➤ EXTRA FACTORY TESTS

- Test 3 : Gain and linearity of the sensor
- Test 4 : Step response in closed loop
- Test 5 : Stability in closed loop

➤ MECHANICAL INTERFACE

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> [F] Flat Interface | <input checked="" type="checkbox"/> [H] Flat Interface with hole | <input checked="" type="checkbox"/> [TH] Flat Interface with threaded hole |
| <input type="checkbox"/> [SV] Specific version | <input checked="" type="checkbox"/> [FF] Free-free Interface | <input checked="" type="checkbox"/> [SI] Specific interface |

➤ AVAILABLE OPTIONS

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> [SG] Strain gauges | <input type="checkbox"/> [ECS] Eddy current displacement sensor | <input type="checkbox"/> [NM] Non-magnetic |
| <input checked="" type="checkbox"/> [VAC] Vacuum | | |