

stack type actuators

series PHL

- stack type actuators in multi-layer technique
- without mechanical pre-load
- motion up to 103 μm
(larger motions available upon request)
- high stiffness up to 175 N/ μm
- blocking force up to 3500 N

applications:

- micro positioning of heavy loads
- laser and mirror movement
- beam adjustment
- laser tuning
- nanotechnology
- micro lithography



fig.: series PHL

Concept

The actuators of the series PHL are based on stack type actuators built up in multi-layer technique. Based on the large ceramic size, the PHL series of actuators have high blocking forces in the kilo-N range. This feature enables the PHL series to move large masses and generate high forces. Therefore they are ideally suitable for applications in the machine tool industry.

Specials

The resolution PHL series is in the sub-nanometer range and is only limited by the control signal noise. These actuators are not pre-loaded and therefore not suitable for dynamic applications.

Mounting/Installation

Actuators should only be fastened with screws or clamps on the bottom plate of the actuator. During installation and use, it is important not to subject the actuator tip to non axial forces.

Actuators without pre-load are not suitable for dynamic applications.

technical data:

series PHL	unit	PHL 18/20	PHL 40/20	PHL 60/20	PHL 80/20	PHL 100/20	
part. no.		P-141-00	P-142-00	P-143-00	P-144-00	P-145-00	
motion (-10/+20)%*	µm-	20	41	61	82	103	
capacitance (±20%)**	µF	7	14	20	26	34	
resolution***	nm	0.04	0.08	0.12	0.16	0.21	
stiffness	N/µm	175	85	55	40	35	
blocking force	N	3500	3500	3500	3500	3500	
operating voltage	V	-20...+130					
connector	voltage	-					
		LEMO 0S.302					
cable length	m	1					
dimensions	length L	mm	36	54	72	90	108
	diameter D	mm	20	20	20	20	20

* typical value measured with NV 40/3

** typical value for small electrical field strength

*** please see piezoline

options:

- vacuum version
- cryogenic temperature version
- full bridge strain gage sensors
- top plate: spherical tungsten carbide (part no.Z-299-65)
size: diameter 5mm x 2.5mm, L +1mm
- other options available upon request

recommended supply (open loop):

30V300; NV 120/1; ENV-series

recommended supply (closed loop):

30V300 CLE; NV 120/1 CLE; ENV-series

Please pay attention to our “notes for mounting”, which are available as download on our homepage.