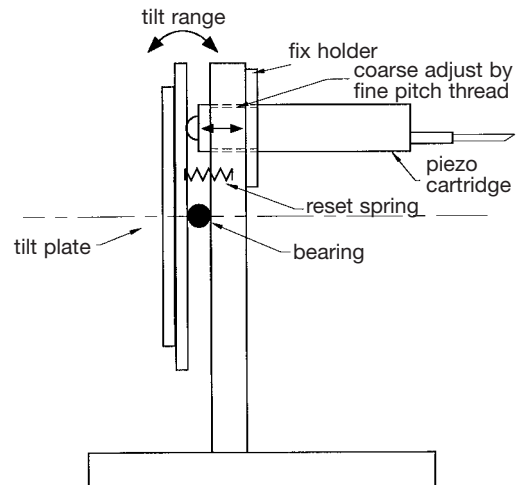


1.2 Piezocartridges: Low voltage actuators in casings with front mount threading



Stack actuators in cartridge-version offer elegant design features by simple attachment of an actuator to the mechanics using a front mounting thread. Using this thread a coarse adjustment for the system is provided. Piezocartridges can retrofit conventional lead screws. Mechanical arrangements for adjusting purposes can be very simply upgraded by using piezocartridges.



Schematic of a mirror mount based on piezo cartridges for coarse adjust by mounting screw and ultra fine adjustment by piezo action.

The stiffness of piezo cartridges is reduced compared to a normally mounted stack because of the force transmission from mounting plate to moving end via stack + casing, and in addition by the quality the screw mount. A lock nut is provided to increase attaching force.

Piezocartridges can therefore withstand high loads, but force generation is reduced due to the lower stiffness. Most applications (e.g. for adjusting purposes) use constant loading.

Standard configuration:

Casing: stainless steel
Electrical connection: 1 m coaxial cable RG 178 with BNC connector

Stroke A/B A: for -30 V thru +150 V
 B: for 0 V thru +150 V

Max. force generation: for -30 V thru +150 V

Options:

Coaxial cable RG178 with LEMO connectors 00250 or 0S250
Position detection
Thermostable

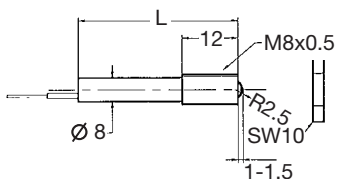


FPSt 150/4/... M8x0.5

(no internal prestress)

Maximum load: 150 N

Open loop sensitivity at 1 mV amplifier noise for actuator FPSt 150/4/20: approx. 0.1 Nanometer



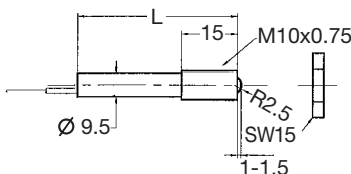
Type	max. stroke	length	el. capacitance
	μm	mm	nF
FPSt 150/4/20 M8	27/20	22	340
FPSt 150/4/40 M8	55/40	40	700
FPSt 150/4/60 M8	80/60	58	1000

FPSt 150/5/... M10x0.75

(no internal prestress)

Maximum load 600 N

Open loop sensitivity at 1 mV amplifier noise for actuator FPSt 150/5/20: approx. 0.1 Nanometer



Type	max. stroke	length	el. capacitance
	μm	mm	nF
FPSt 150/5/20 M10	27/20	23	800
FPSt 150/5/40 M10	55/40	41	1600
FPSt 150/5/60 M10	80/60	59	2400
FPSt 150/5/80 M10	105/80	77	3200
FPSt 150/5/100 M10	130/100	95	4000

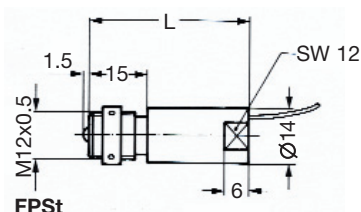
FPSt 150/5/... M12x0.5(-BD) (former versions MPSt(-BD))

(no internal prestress)

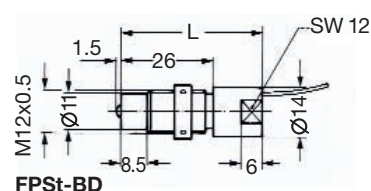
For retrofitting translation stages MRL 80.25 and Newport mirror mounts SL

Maximum load: 600 N

Open loop sensitivity at 1 mV amplifier noise for actuator FPSt 150/5/20 : approx. 0.1 Nanometer



FPSt



FPSt-BD

Type	max. stroke	length	el. capacitance
	μm	mm	nF
FPSt 150/5/20 M12 (BD)	27/20	25	800
FPSt 150/5/30 M12 (BD)	40/30	34	1200
FPSt 150/5/40 M12 (BD)	60/40	43	1600
FPSt 150/5/60 M12 (BD)	80/60	61	2400
FPSt 150/5/80 M12 (BD)	105/80	79	3200
FPSt 150/5/100 M12 (BD)	130/100	97	4000
FPSt 150/5/120 M12 (BD)	160/120	115	4800
FPSt 150/5/140 M12 (BD)	190/140	133	5600

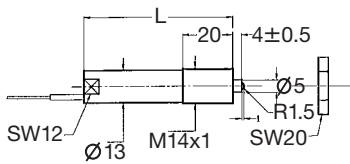


FPSt 150/7/... M14x1

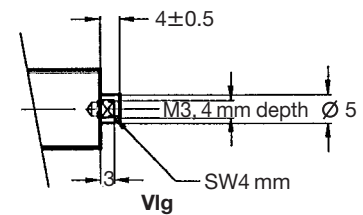
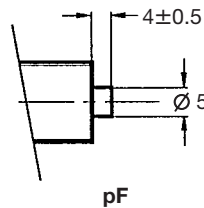
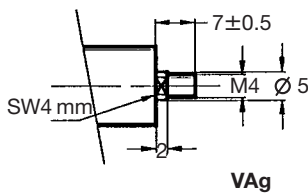
Prestress force = max. tensile force = 200 N

Maximum load: 1500 N

Open loop sensitivity at 1 mV amplifier noise for actuator FPSt 150/7/20: approx. 0.1 Nanometer



Type	max. stroke µm	length mm	el. capacitance µF
FPSt 150/7/20 M14	27/20	28	1.8
FPSt 150/7/40 M14	60/40	46	3.6
FPSt 150/7/60 M14	80/60	64	5.4
FPSt 150/7/80 M14	105/80	82	7.2
FPSt 150/7/1000 M14	130/100	100	9
FPSt 150/7/120 M14	160/120	118	11
FPSt 150/7/140 M14	190/140	136	13
FPSt 150/7/>140 M14	>140	on request	



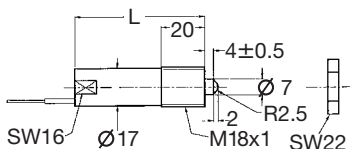
FPSt 150/10/... M18x1

(with internal prestress)

Prestress force = max. tensile force = 400 N

Maximum load: 3000 N

Open loop sensitivity at 1 mV amplifier noise for actuator FPSt 150/10/20: approx. 0.1 Nanometer



Type	max. stroke µm	length mm	el. capacitance µF
FPSt 150/10/20 M18	27/20	28	3.6
FPSt 150/10/40 M18	55/40	46	7.2
FPSt 150/10/60 M18	80/60	64	11
FPSt 150/10/80 M18	105/80	82	14
FPSt 150/10/100 M18	130/100	100	18
FPSt 150/10/120 M18	160/120	118	21
FPSt 150/10/140 M18	190/140	136	25
FPSt 150/10/>140 M18	>140	on request	

