

# 1. Stack type piezo actuators

## 1.1 Low voltage actuators with preloaded casings VS

### PSt 150/4 /... VS9

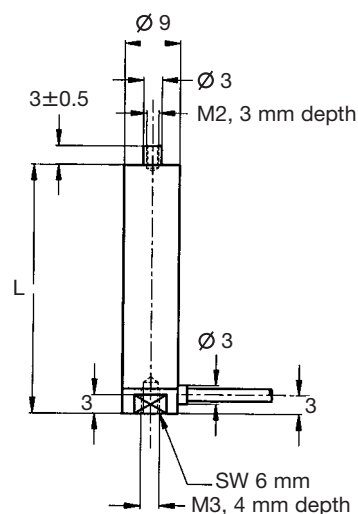
General data: see brochure: "First Steps towards Piezoaction"

Prestress force = max. tensile force = approx. 40 N

Max. load force: 300 N

Max. force generation: 300 N

Open loop sensitivity at 1 mV amplifier noise for actuator PSt 150/4/7 VS9: approx. 0.05 Nanometer



Type	max. stroke µm	length mm	el. capacitance nF	stiffness N/µm	resonance frequency kHz
PSt 150/4/7 VS9	13/9	19	170	25	40
PSt 150/4/20 VS9	27/20	28	340	12	30
PSt 150/4/40 VS9	55/40	46	700	6	20
PSt 150/4/60 VS9	80/60	64	1000	4	12

### Standard configuration:

Tapped hole in moving end

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

### Options:

Coaxial cable RG 178 with LEMO connectors 00250 or 0S250

Moving end with spherical end piece **VbS**

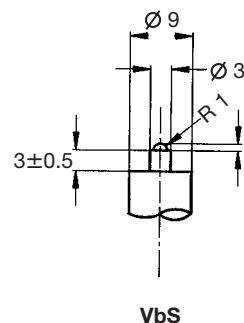
UHV compatibility

Accessories see section 3

**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**



## PSt 150/5/... VS10



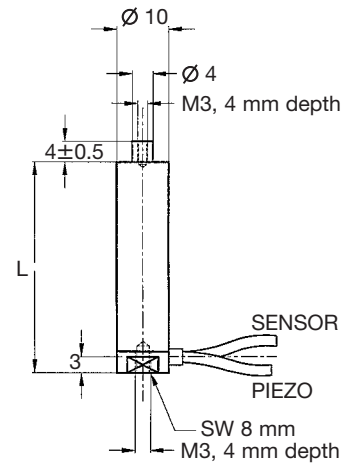
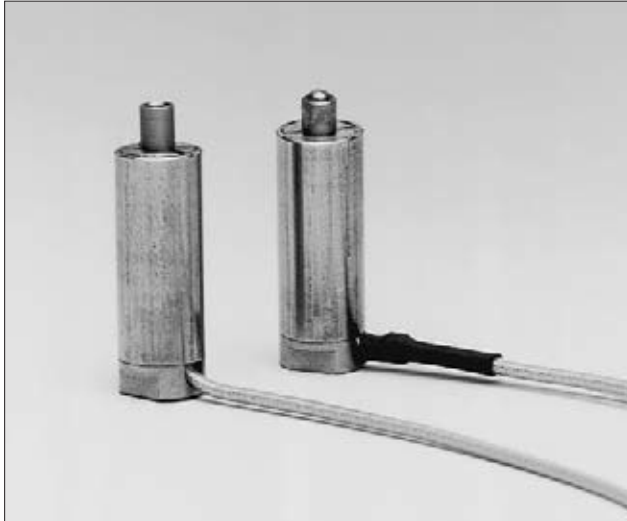
General data: see brochure: "First Steps towards Piezoaction"

Prestress force = max. tensile force = approx. 150 N

Max. load force: 800 N

Max force generation: 800 N

Open loop sensitivity at 1 mV amplifier noise for actuator PSt 150/5/7 VS10: 0.05 Nanometer



Type	max. stroke µm	length mm	el. capacitance nF	stiffness N/µm	resonance frequency kHz
PSt 150/5/7 VS10	13/9	19	350	50	40
PSt 150/5/20 VS10	27/20	28	800	25	30
PSt 150/5/40 VS10	55/40	46	1600	12	20
PSt 150/5/60 VS10	80/60	64	2400	8	15
PSt 150/5/80 VS10	105/80	82	3200	6	12
PSt 150/5/100 VS10	130/100	100	4000	5	10

### Standard configuration:

Tapped hole in moving end

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

### Options:

Coaxial cable RG 178 with LEMO connectors 00250 or 0S250

Moving end with spherical end piece **Vbs**

Moving end with threaded pin **VAg**

Moving end plane **pF**

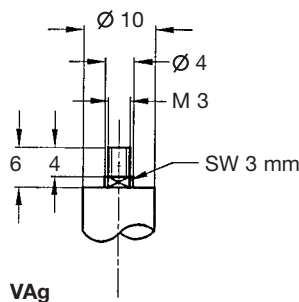
Thermostable modification

Low temperature modification

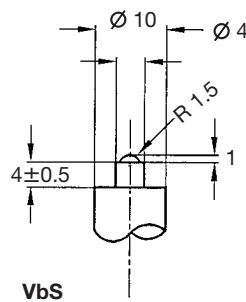
UHV compatibility

Position detection

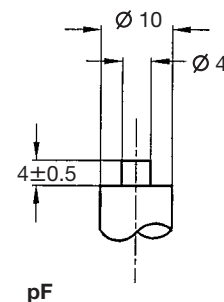
Accessories see section 3



VAg



Vbs



pF

# PSt 150/7/... VS12



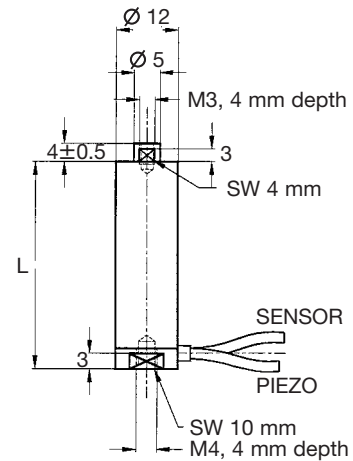
General data: see brochure: "First Steps towards Piezoaction"

Prestress force = max. tensile force = 300 N

Max. load force: 1800 N

Max. force generation: 1800 N

Open loop sensitivity at 1 mV amplifier noise for actuator PSt 150/7/7: 0.05 Nanometer



Type	max. stroke µm	length mm	el. capacitance µF	stiffness N/µm	resonance frequency kHz
PSt 150/7/700 VS12	013/9	19	0.7	120	40
PSt 150/7/20 VS12	27/20	28	1.8	60	30
PSt 150/7/400 VS12	55/40	46	3.6	25	20
PSt 150/7/60 VS12	80/60	64	5.4	15	15
PSt 150/7/800 VS12	105/80	82	7.2	12	12
PSt 150/7/100 VS12	130/100	100	9	10	10
PSt 150/7/120 VS12	160/120	118	11	8	8
PSt 150/7/140 VS12	190/140	136	13	7	6
PSt 150/7/160 VS12	210/160	154	15	6	5

### Standard configuration:

Tapped hole in moving end

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

### Options:

Coaxial cable RG178 with LEMO connectors 00250 or 0S250

Moving end with spherical end piece **VbS**

Moving end with threaded pin **VAg**

Moving end plane **pF**

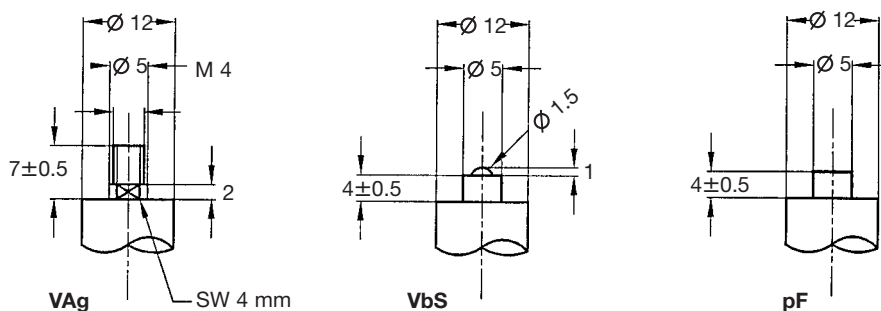
Thermostable modification

Low temperature modification

UHV compatibility

Position detection

Accessories see section 3



## PSt 150/10/... VS15



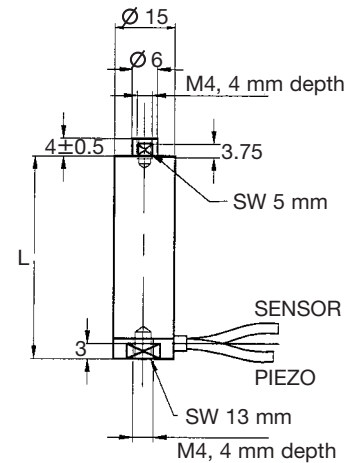
General data: see brochure: "First Steps towards Piezoaction"

Prestress force = max. tensile force = approx. 400 N

Max. load force: 4000 N

Max. force generation: 3500 N

Open loop sensitivity at 1 mV amplifier noise for actuator PSt 150/10/7 VS15: 0.05 Nanometer.



Type	max. stroke $\mu\text{m}$	length mm	el. capacitance $\mu\text{F}$	stiffness N/ $\mu\text{m}$	resonance frequency kHz
PSt 150/10/20 VS15	27/20	28	3.6	120	30
PSt 150/10/40 VS15	55/40	46	7.2	60	20
PSt 150/10/60 VS15	80/60	64	11	35	14
PSt 150/10/80 VS15	105/80	82	14	25	12
PSt 150/10/100 VS15	130/100	100	18	20	10
PSt 150/10/120 VS15	160/120	118	21	15	8
PSt 150/10/140 VS15	190/140	136	25	14	7
PSt 150/10/160 VS15	210/160	154	28	13	6
PSt 150/10/180 VS15	240/180	172	33	11	5
PSt 150/10/200 VS15	270/200	190	37	10	4

### Standard configuration:

Tapped hole in moving end

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

### Options:

Coaxial cable RG 178 with LEMO connectors 00250 or 0S250

Moving end with spherical end piece **Vbs**

Moving end with threaded pin **VAg**

Moving end plane **pF**

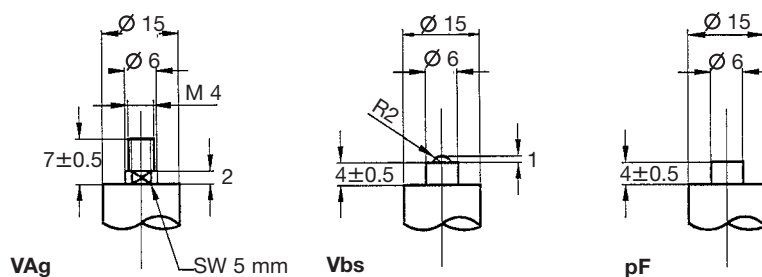
Thermostable modification

Low temperature modification

UHV compatibility

Position detection

Accessories see section 3



# PSt 150/14/... VS20



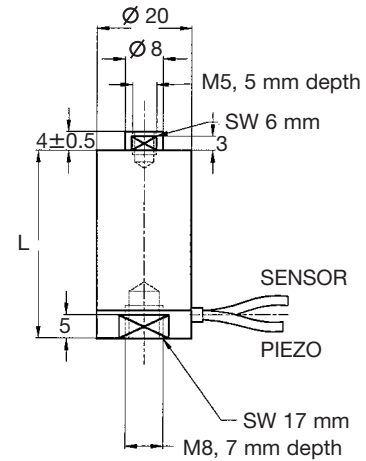
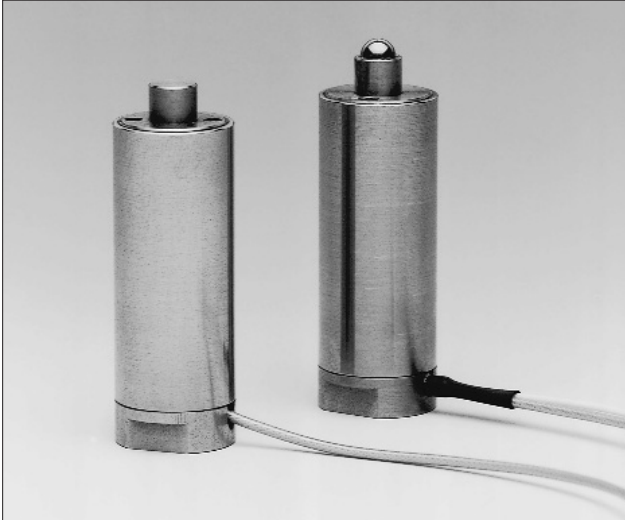
General data: see brochure: "First Steps towards Piezoaction"

Prestress force = max. tensile force = approx. 1000 N

Max. load force: 7000 N

Max. force generation: 7000 N

Open loop sensitivity at 1 mV amplifier noise for actuator PSt 150/14/20: approx. 0.1 Nanometer



Type	max. stroke µm	length mm	el. capacitance µF	stiffness N/µm	resonance frequency kHz
PSt 150/14/20 VS20	27/20	35	7	250	30
PSt 150/14/40 VS20	55/40	53	14	120	20
PSt 150/14/60 VS20	80/60	71	22	70	14
PSt 150/14/80 VS20	105/80	89	30	50	12
PSt 150/14/100 VS20	130/100	107	39	40	10
PSt 150/14/120 VS20	160/120	125	47	35	8
PSt 150/14/140 VS20	190/140	143	55	30	7
PSt 150/14/160 VS20	210/160	161	63	25	6
PSt 150/14/180 VS20	240/180	179	71	22	5
PSt 150/14/200 VS20	270/200	197	80	20	4

### Standard configuration:

Tapped hole in moving end  
1 m coaxial cable RG 178 with BNC connector

### Options:

Coaxial cable RG178 with LEMO connectors  
00250 or 0S250  
Coaxial cable RG 316 for power applications

Moving end with spherical end piece **Vbs**

Moving end with threaded pin **VAg**

Moving end plane **pF**

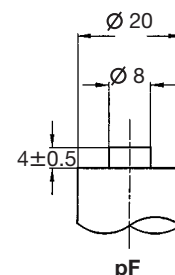
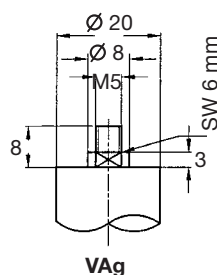
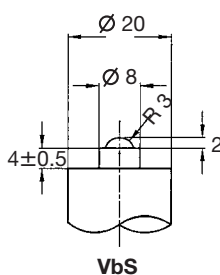
Thermostable modification

Low temperature modification

UHV compatibility

Position detection

Accessories see section 3



## PSt 150/20/... VS25



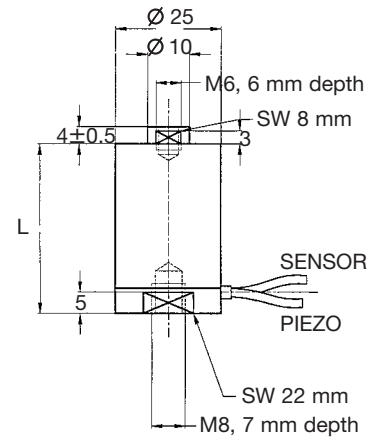
General data: see brochure: "First Steps towards Piezoaction"

Prestress force = max. tensile force = approx. 1500 N

Max. load force: 14000 N

Max. force generation: 11000 N

Open loop sensitivity at 1 mV amplifier noise for actuator PSt 150/20/20 VS25: approx. 0.1 Nanometer



Type	max. stroke µm	length mm	el. capacitance µF	stiffness N/µm	resonance frequency kHz
PSt 150/20/20 VS25	25/20	37	11	500	28
PSt 150/20/40 VS25	50/40	57	22	250	18
PSt 150/20/60 VS25	75/60	77	33	160	13
PSt 150/20/80 VS25	95/80	97	44	100	11
PSt 150/20/100 VS25	120/100	117	55	80	9
PSt 150/20/120 VS25	150/120	137	66	65	7
PSt 150/20/140 VS25	175/140	157	77	55	6
PSt 150/20/160 VS25	200/160	177	88	50	5
PSt 150/20/180 VS25	230/180	197	100	45	4
PSt 150/20/200 VS25	250/200	217	110	40	3

### Standard configuration:

Tapped hole in moving end

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

Thermostable modification

Low temperature modification

UHV compatibility

Position detection

### Options:

Coaxial cable RG178 with LEMO connectors 00250 or 0S250

Coaxial cable RG 316 for power applications

Modified end pieces on request

Accessories see section 3

**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**