

CSW

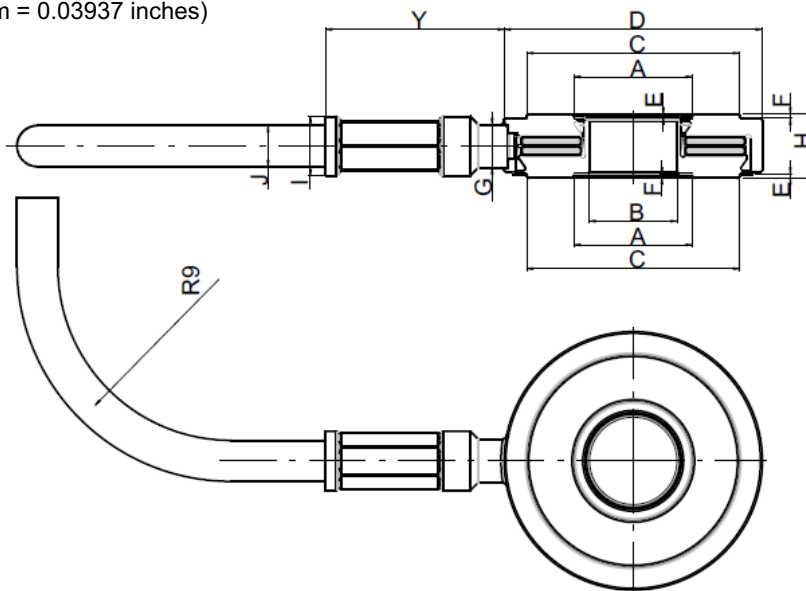
Piezoelectric force washer for shear forces

Special features

- Extremely flat and compact design for easy integration
- Sensors can simply be connected in parallel to generate a measurement platform
- Nominal (rated) forces: 1 kN, 2 kN, 3 kN, 4.5 kN and 8 kN
- Rustless materials, degree of protection IP65
- Low crosstalk



Dimensions (in mm; 1 mm = 0.03937 inches)



Type	A	B	C	D	R	F	G	H	I	J	Y
CSW/1KN	7.8	6.1 H7	13.9	16 _{-0.05}	0.29	0.32	2	3.5 _{-0.05}	~2.7	1.9	~8.3
CSW/2KN	9.8	8.1 H7	17.9	20 _{-0.05}	0.3	0.32	2	3.5 _{-0.05}	~2.7	1.9	~8.3
CSW/3KN	11.8	10.1 H7	21.9	24 _{-0.05}	0.29	0.32	2	3.5 _{-0.05}	~2.7	1.9	~8.3
CSW/4.5KN	13.8	12.1 H7	27.9	30 _{-0.05}	0.5	0.32	2	4 _{-0.05}	~2.7	1.9	~8.3
CSW/8KN	15.8	14.1 H7	33.9	36 _{-0/05}	0.52	0.32	2	5 _{+0.15/-0.05}	~2.7	1.9	~8.3

Specifications

Nominal (rated) force	F_{nom}	kN	1	2	3	4.5	8
Accuracy							
Relative reversibility error	v	%	1				
Non-linearity	d lin	%	1				
Crosstalk from F_z (force in prestressing direction) on the measurement result, typically		%	0.1				
Crosstalk from bending moments M_b on the measurement result, typically		N/Nm	0.6				
Transverse sensitivity (crosstalk from forces transverse to the measurement direction), typically		%	3	2	2	1	1
Rated electrical output							
Sensitivity, typically ¹⁾	S	pC/N	-7.0	-7.5	-7.5	-7.5	-8.0
Insulation resistance	R_{is}	Ω	>10 ¹³				
Temperature							
Nominal (rated) temperature range	$B_{t,nom}$	°C	-20...+120				
Operating temperature range	$B_{t,g}$	°C	-20...+120				
Storage temperature range	$B_{t,s}$	°C	-20...+120				
Characteristic mechanical quantities							
Maximum operating force	F_G	% of F_{nom}	110				
Force limit	F_L	% of F_{nom}	125				
Breaking force	F_B	% of F_{nom}	150				
Max. bending moment at ²⁾							
With pre-stressing force 500 % of F_{nom}	$M_{B, perm}$	Nm	10.2	24	30.5	96.5	100
With pre-stressing force 1000 % of F_{nom}		Nm	1	2.4	3	9.6	10
Maximum pre-stressing force	F_Q	% of F_{nom}	1000				
Nominal (rated) displacement	S_{nom}	μm	3.5	3.5	4	4	4.5
Fundamental frequency	f_G	kHz	120	120	120	140	120
Relative permissible oscillatory stress	F_{rb}	% of F_{nom}	100				
General information							
Degree of protection per EN 60529			IP65				
Sensor material			Stainless steel, quartz				
Cable sheath material			FPM (fluorinated rubber)				
Cable length	L	m	1				
Plug			10-32UNF				
Weight (without cable)	m	g	6	6	10	15	29

¹⁾ Must be calibrated under mounting conditions

²⁾ Relative to a force application point on the force application surface

Scope of supply

Ordering number	
1-CSW/1KN	Piezoelectric force washer for shear forces CSW/1KN with test record; cable length 1 m
1-CSW/2KN	Piezoelectric force washer for shear forces CSW/2KN with test record; cable length 1 m
1-CSW/3KN	Piezoelectric force washer for shear forces CSW/3KN with test record; cable length 1 m
1-CSW/4.5KN	Piezoelectric force washer for shear forces CSW/4.5KN with test record; cable length 1 m
1-CSW/8KN	Piezoelectric force washer for shear forces CSW/8KN with test record; cable length 1 m

Subject to modifications.

All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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