

PACEline CFT

Piezoelectric Force Transducer

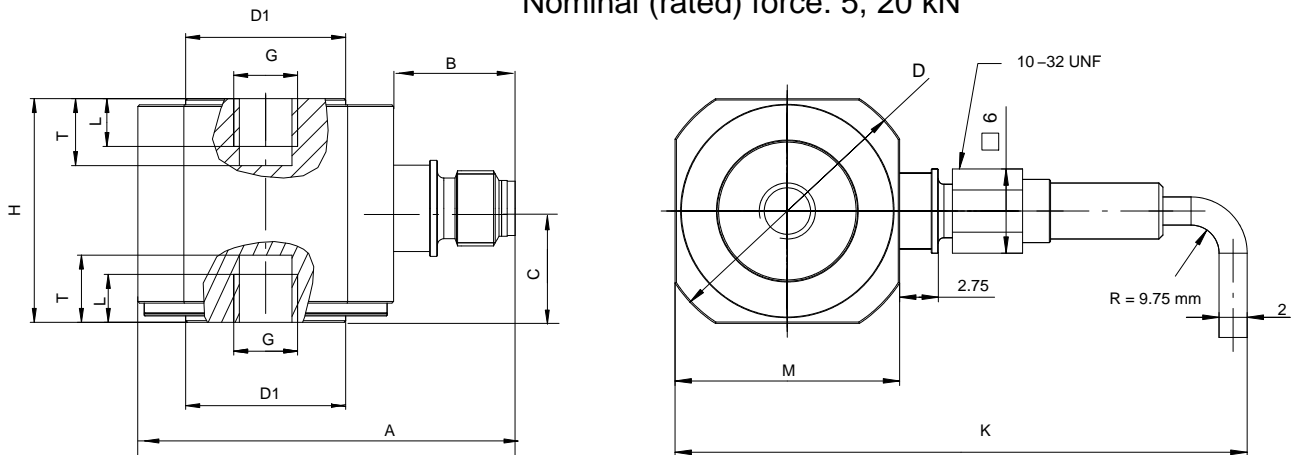
Special Features

- Extremely compact force transducer for compressive forces
- Nominal (rated) forces: 5, 20, 25, 50, 70, 120 kN
- Good stiffness, robust design
- Suitable for press-fit and mounting applications with rapid force variation
- Stainless steel housing
- Flange connection on both sides and central bore make integration easy



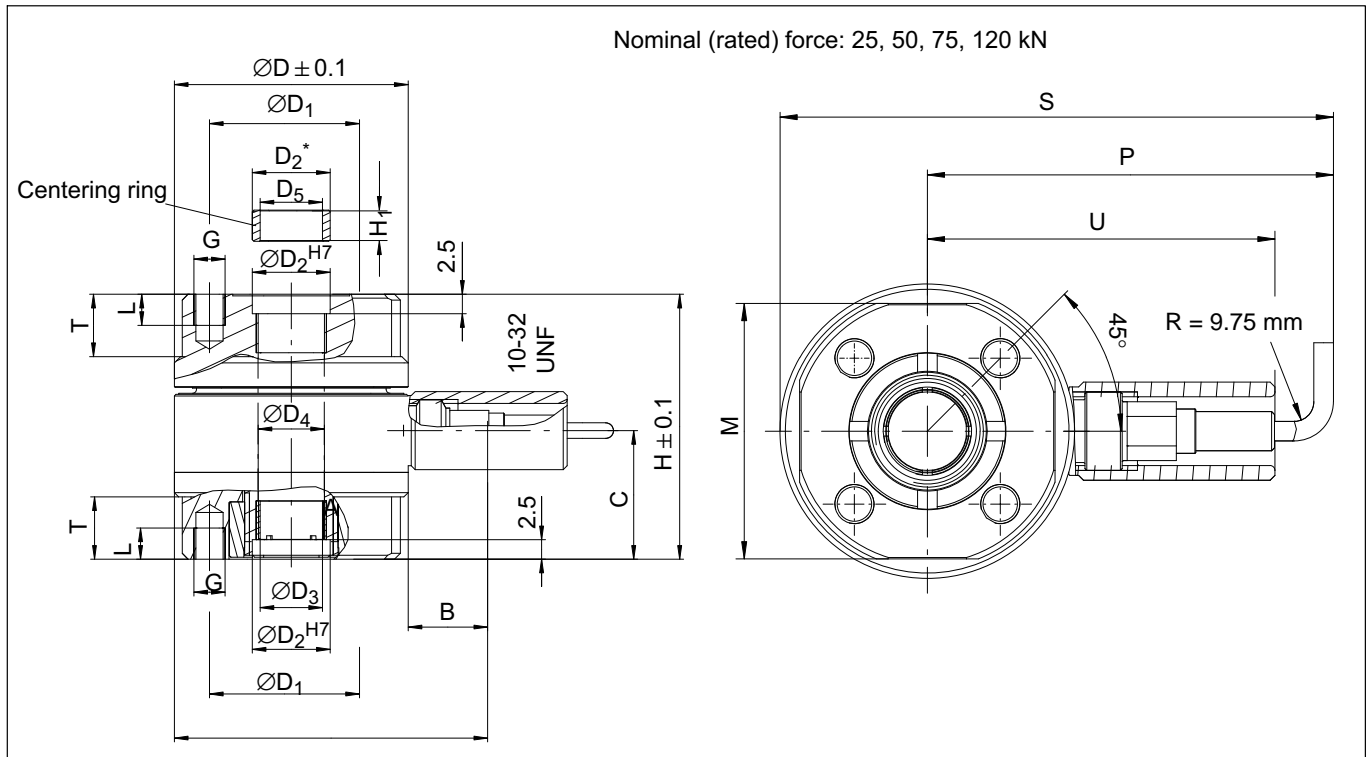
CFT dimensions

Nominal (rated) force: 5, 20 kN



Type	D	D1	M	H	B	G	T	L	K	A	C
CFT/5 kN	13	5	11	10	7.45	M2.5	3.15	2.25	36	18.45	5.05
CFT/20 kN	19	10	16	14	7.45	M4	4.35	3	41	23.45	7.13

Dimensions



Type	D	D ₁	D ₂	D ₂ *	D ₃	D ₄	D ₅	M	H	H ₁	B	G	T	L	A	C	S	P	U
CFT/25 kN	20	14	6	6 _{f7}	4	4	4 ^{+0.02}	17	26	4.5	10	M3	6	3	30.5	13	55	38	28
CFT/50 kN	30	21	10	10 _{f7}	8	8.5	8 ^{+0.02}	26	34	4	10.05	M4	8	4	40.05	16.5	56.35	41.35	35.4
CFT/70 kN	36	26	14	14 _{f7}	11	12	11 ^{+0.02}	32	42	4	10.15	M5	9	5	46.15	21.5	62.35	44.35	38.4
CFT/120 kN	54	40	21	21 _{f7}	17	18.5	17 ^{+0.02}	48	60	4	10.15	M8	13	8	64.15	32	80.35	53.35	47.4

Specifications (data per VDI/VDE 2638 standards)

Piezoelectric force transducer		CFT/...						
Nominal (rated) force	F_{nom}	kN	5	20	25	50	70	120
Accuracy								
Accuracy class			1					
Relative reversibility error	V 0.5	% FSO	1					
Linearity	d_{lin}	% FSO	1					
Effect of lateral forces (typical)	d_q	N/N	0.06	0.05	0.06	0.032	0.045	0.08
Effect of the bending moment (typical)	d_{mb}	N/Nm	-8	-6	0.6	0.3		0.25
Effect of temperature on sensitivity, per 10 K	TCS	%/10K	0.5					
Electrical characteristics								
Sensitivity	C	pC/N	-7.7	-7.5	-4.1		-4	
Sensitivity tolerance	d_c	%	5					
Insulation resistance	R_{is}	Ω	> 10E13					
Connector			Coaxial connector 10–32 UNF (Microdot)					
Temperature								
Nominal (rated) temperature range	$B_{t, nom}$	°C	-40 ... 120					
Operating temperature range	$B_{t, G}$	°C	-40 ... 120					
Storage temperature range	$B_{t, S}$	°C	-40 ... 120					
Characteristic mechanical quantities								
Max. operating force	F_G	% of F_{nom}	110		105	120		
Limit force	F_L	% of F_{nom}	110		105	120		
Breaking force	F_B	% of F_{nom}	200	150	120	300		420
Lateral limit force ²⁾	F_q	N	80	160	300	1000	1800	5800
Limit torque ²⁾	M_G	Nm	0.3	1	1.9	12	20	130
Limit bending moment with $F_z=0N$	M_b perm. 0%	Nm	2	4	25	75	150	650
Limit bending moment with $F_z=F_{nom}$	M_b perm. 0%	Nm	0.5	2	5	20	20	250
Nominal (rated) displacement $\pm 15\%$	s_{nom}	μm	11	18	19	30	30	31
Measurement spring stiffness	c_{ax}	N/ μm	≈ 450	≈ 1100	≈ 1300	≈ 1650	≈ 2300	≈ 3900
Fundamental resonance frequency	f_{rb}	kHz	40	36	67	54	46	31
Tightening torque for the threaded connector	M_{mont}	N·m	0.5	1	1.3	2	4	21
Maximum tensile force ¹⁾	F_{tens}	kN	0.5	2	2.5	4	10	24
Permissible vibrational stress at compressive force	F_{rb}	% F_{nom}	100		70	100		
General information								
Degree of protection per EN 60529			IP65					
Measuring element material			Gallium phosphate			Quartz		
Mass	m	g	8	22	48	137	240	720

¹⁾ Sensor is not calibrated in the tensile direction

²⁾ When loaded in the tensile direction, the sensor must only be loaded with 10% of the specified lateral force/limit torque

Scope of Supply

Ordering number	
1-CFT / 5 kN	Piezoelectric force transducer CFT / 5 kN, manufacturing certificate, mounting instructions
1-CFT / 20 kN	Piezoelectric force transducer CFT / 20 kN, manufacturing certificate, mounting instructions
1-CFT / 25 kN	Piezoelectric force transducer CFT / 25 kN, manufacturing certificate, mounting instructions, plug protection, threaded bushing (mounting aid), 2 centering rings for centering to the outside diameter
1-CFT / 50 kN	Piezoelectric force transducer CFT / 50 kN, manufacturing certificate, mounting instructions, plug protection, threaded bushing (mounting aid), 2 centering rings for centering to the outside diameter
1-CFT / 70 kN	Piezoelectric force transducer CFT / 70 kN, manufacturing certificate, mounting instructions, plug protection, threaded bushing (mounting aid), 2 centering rings for centering to the outside diameter
1-CFT / 120 kN	Piezoelectric force transducer CFT / 120 kN, manufacturing certificate, mounting instructions, plug protection, threaded bushing (mounting aid), 2 centering rings for centering to the outside diameter

Accessories

1-KAB143-3	Transducer connection cable (PFA material), 3 m long; 10-32 UNF connector plug (Microdot plug) at both ends
1-KAB143-2	Transducer connection cable (PFA material). 2 m long, 10-32 UNF connector plug (Microdot plug) at both ends
1-KAB143-3	Transducer connection cable (PFA material). 3 m long, 10-32 UNF connector plug (Microdot plug) at both ends
1-KAB143-7	Transducer connection cable (PFA material). 7 m long, 10-32 UNF connector plug (Microdot plug) at both ends
1-KAB176-2	Transducer connection cable (PFA material). 2 m long; 10-32 UNF connector plug on one end (Microdot plug), on other end BNC
1-KAB176-3	Transducer connection cable (PFA material). 3 m long; 10-32 UNF connector plug on one end (Microdot plug), on other end BNC
1-KAB145-3	Transducer connection cable (PFA material). 3 m long, 10-32 UNF connector plug (Microdot plug). Steel-clad for 500 mm at one end; robust design
1-KAB145-0.2	Transducer connection cable (PFA material). 0.2 m long, 10-32 UNF connector plug (Microdot plug). Steel-clad for 500 mm at one end; robust design
1-CCO	Coupling for piezoelectric charge cables. For connecting two coaxial cables with 10-32 UNF plugs. This can be used to interconnect all the charge cables, thereby lengthening them
1-CSB4/1	Summing box for connecting up to four piezoelectric sensors in parallel. Suitable for 10-32 UNF plugs

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

托驰 (上海) 工业传感器有限公司
上海市嘉定区华江路348号1号楼707室
电话: +86 021 51069888
传真: +86 021 51069009
邮箱: zhang@yanatoo.com
网址: www.sensor-hbm.com



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