

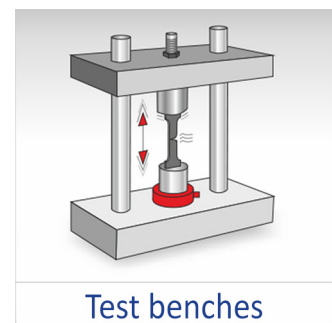
Datasheet

Ring force sensor

SM71

Ring force sensor for testing clamping forces

Measuring ranges from 20 kN up to 2000 kN



Features

- Available with an inner diameter of 6.5 mm to 43 mm
- Measuring ranges from 20 kN (M6) up to 2000 kN (M42)
- Completely made of stainless steel, protection class IP68
- Short measuring path, very high natural frequency (kHz)
- Ideal for determining screw preload
- Extremely flat and robust sensor design
- Hardened washer included

The SM71 series force sensors were specially developed for measuring clamping forces. The short measuring path of 0.019 - 0.14 mm (depending on the measuring range) and a natural frequency in the kHz range guarantee optimal results even for highly dynamic tasks. Typical applications include the simple determination of screw preloads, where the force sensor is used as a “measuring washer”. The very good reproducibility is less than one percent of the nominal load.

The sensor is available in measuring ranges from 20 up to 2000 kN. Hardened washers are already included in the scope of delivery for quick and easy installation. The extremely simple and robust design is made entirely of stainless steel (protection class IP68).

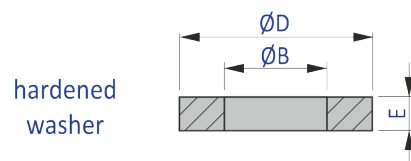
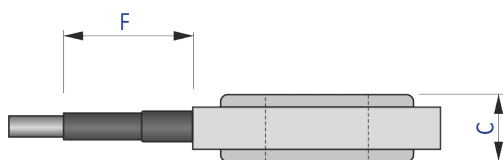
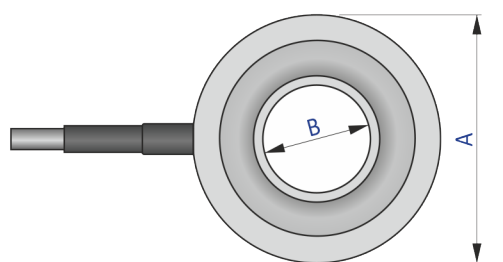
Technical data SM71

Model no.	Measuring range [kN]	A -0.1 [mm]	B +0.1 [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Measuring path [mm]	Natural frequency [kHz]
M6	20	19.9	6.5	8.5	17	3	30	0.019	48.1
M8	40	23.6	8	8.5	21	3	30	0.024	51.7
M10	60	26.9	10	8.5	24	4	30	0.024	54.9
M12	100	38.8	12.7	10	26.5	5	30	0.032	42.6
M16	200	48	16	10	34	6	30	0.035	44.1
M20	300	56.3	21	10.5	42	6	30	0.041	41.3
M24	400	60.6	25	12.5	46	8	30	0.050	38.1
M30	600	72.1	31	16.5	60	12.4	30	0.060	30.5
M36	1000	87.1	37	24.5	75	18.4	30	0.086	21.6
M42	2000	120.8	43	44.5	100	33.4	30	0.140	12.6

Other measuring ranges and sizes on request

D-SM71-160421

Characteristic value range	nominal value	1.7 ... 2.3 mV/V	
Reproducibility (with optimal installation position and installation situation)	of final value	±2 % (typical)	
Creep error / DR (30 min.)	of final value	±0.5 %	
Input resistance	nominal value	Up to 60 kN	Above 60 kN
		360 Ω ±50	710 Ω ±90
Output resistance	nominal value	340 Ω ±30	670 Ω ±50
Compensated temperature range	°C	-30 °C ... +70 °C	
Operating temperature range	°C	-30 °C ... +85 °C	
Temperature coefficient sensitivity	load / °C	±0.05 %	
Temperature coefficient zero point	final value/ °C	±0.05 %	
Recommended / max. supply voltage	DC or AC	5V / 10V	



hardened washer

Electrical connection

4 wire cable; 1.5m long, free cable ends

