

FMS Tension Control / Force Sensors

RMGZ9-Series Freely configurable cantilever force measuring roller

- **For a wide range of applications**
Nominal forces from 50 to 1'000 N
(11 to 220 lbf.)
- **Robust and durable**
Overload protection up to 10-times
nominal force, measuring body from high
strength aluminum
- **Precise performance even at low tension values**
Measuring range 30:1
Accuracy class $\pm 0.5\%$



RMGZ9-Series

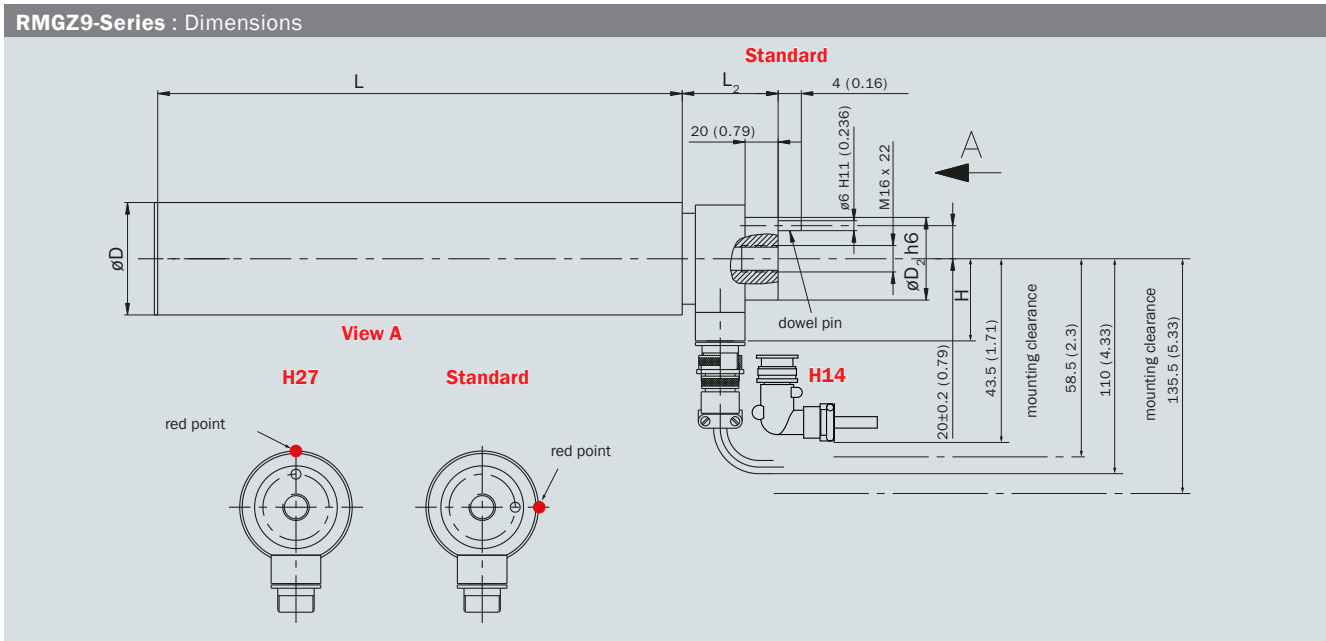
The force measuring rollers of the RMGZ9-Series combine force sensor and roller. The RMGZ9-Series design, incorporating dual bending beams, eliminates the load-specific influences of torque and ensures accurate measurement at any position on the roller while maintaining the parallel position of the material and eliminating angular deflection. The movement of the bending beams is detected by a set of strain gages arranged in a full bridge circuit. The resulting electrical signal, which is proportional to the applied force, is then amplified for use in monitoring or controlling web tension. With the superior performance of the RMGZ9-Series, accurate tension readings are obtained even with low web wrap angles and low material tension.

Functional description

The RMGZ9-Series force measuring rollers are designed as self-contained cantilever mount sensors that minimise machine space requirements in continuous material processing applications. They can be mounted horizontally or vertically directly or by means of an optionally available flange to the machine frame. Force measuring rollers of the RMGZ9-Series are available with a huge variety of roller materials and surface finishing, as well as a wide range of different dimensions.

DATA SHEET

FMS Tension Control | Force Sensors | **RMGZ9-Series**



RMGZ9-Series : Dimensions								
Size	Dimensions mm (.in)							
Type	L	L2	D	D2	H			
RMGZ9-250-69	250 (9.84)	58 (2.28)	69 (2.72)	50 (1.97)	63.5 (2.5)			
RMGZ9-320-69	320 (12.60)	58 (2.28)	69 (2.72)	50 (1.97)	63.5 (2.5)			
RMGZ9-400-69	400 (15.75)	58 (2.28)	69 (2.72)	50 (1.97)	63.5 (2.5)			
RMGZ9-500-99	500 (19.69)	55 (2.17)	99 (3.90)	75 (2.95)	77 (3.03)			
RMGZ9-630-99	630 (24.80)	55 (2.17)	99 (3.90)	75 (2.95)	77 (3.03)			
RMGZ9-800-119	800 (31.50)	58 (2.28)	119 (4.69)	75 (2.95)	77 (3.03)			
RMGZ9-900-119	900 (35.43)	60 (2.36)	119 (4.69)	75 (2.95)	77 (3.03)			

Other dimensions, roller material and surface treatments available on request.

RMGZ9-Series : Weight	
Size	Weight
Type	kg (.lbs)
RMGZ9-250-69	4.2 (9.26)
RMGZ9-320-69	4.4 (9.70)
RMGZ9-400-69	4.6 (10.14)
RMGZ9-500-99	9.4 (20.72)
RMGZ9-630-99	13.0 (28.66)
RMGZ9-800-119	18.4 (40.57)
RMGZ9-900-119	21.2 (39.09)

The RMGZ9-series force measuring rollers can be mounted in 2 different ways. Either directly with a pilot hole to the machine or with a mounting flange which can be ordered as an accessory.

RMGZ9-Series : Nominal forces, Shaft diameter							
Size	RMGZ9-250-69		RMGZ9-400-69		RMGZ9-630-99		Shaft diameter
Type	RMGZ9-320-69		RMGZ9-500-99		RMGZ9-800-119 RMGZ9-900-119		
Nominal force							mm (.in)
N (.lbs)	50 (11.24)						0.15 (0.0059)
	100 (22.48)		100 (22.48)				0.13 (0.0051)
	200 (44.96)		200 (44.96)		200 (44.96)		0.16 (0.0063)
	500 (112.40)		500 (112.40)		500 (112.40)		0.15 (0.0059)
	750 (168.61)		750 (168.61)		750 (168.61)		0.13 (0.0051)
	1000 (224.81)		1000 (224.81)		1000 (224.81)		0.12 (0.0047)

RMGZ9-Series : Technical data	
Sensitivity	1.8 mV/V
Tolerance of sensitivity	< ± 0.2%
Accuracy class	± 0.5% (F _{Nom})
Temperature coefficient	± 0.1% / 10 K
Temperature range	-10 °C to +60 °C (14 F to 140 F)
Input resistance	350 Ω
Power supply	1 to 10 VDC
Overload protection	10 times nominal force F _{Nom}
Material main body	Stainless steel
Protection class	IP 42
Electrical connection	Male flange connector, amphenol, 4-pole
Repeatability error	0.05%
Measuring range	30:1

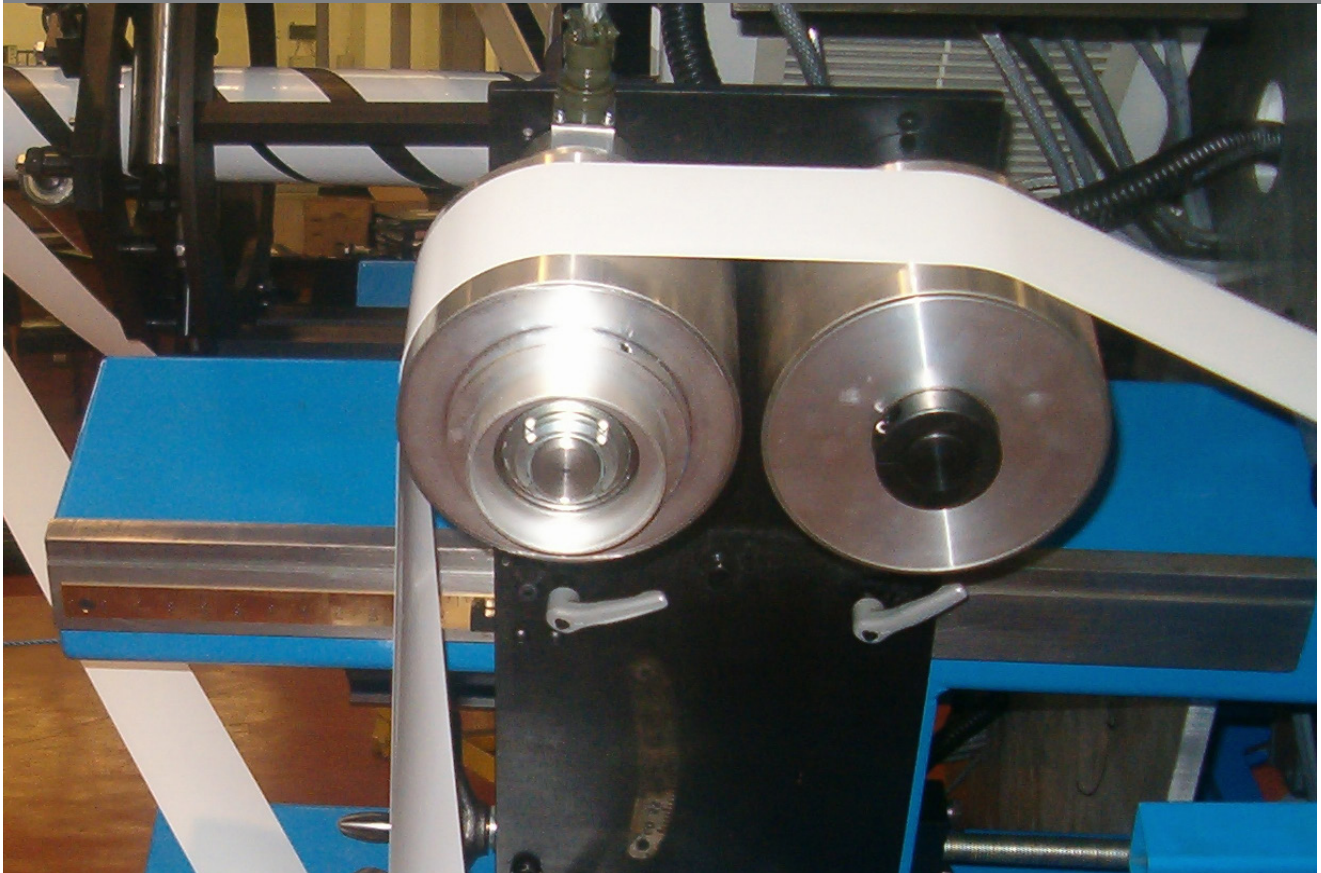
RMGZ9-Series : Order code	
RMGZ9	
-400-69	
.E	Options
.200	Nominal force rating in N
.H27	Roll material and surface finish Aluminum, black anodized
	Size: Roll length - roll ø in mm
	Series

RMGZ9-Series : Options	
H11	small connector, round type C 091
H12	axial electrical connection, repases radial, small connector, round type C 091
H14	right-angle connector in scope of supply, replaces straight connector
H16	temperature range up to 120 °C (248 °F)
H18	with water tight, straight connector, replaces original conector
H21	electrical connection with PG gland with 5 m (16.4 ft.) cable, replaces connector
H27	connector rotated 90° (red point on opposite side of connector)
H31	for vacuum applications to 1E-7 hPa 1E-5 Torr, temperature range up to 120 °C (248 °F)
D	material aluminum, Ra = 1.6
E	material aluminium, surface clear anodized
EB	material aluminum, surface anodized black
SS	material stainless steel

RMGZ9-Series : Scope of supply	
● force sensor ● straight connector (female)	

RMGZ9-Series : Accessories	
● cable, 1 m (3.25 ft.) without connector ● cable, 10 m (32.8 ft.) without connector ● cable, 5 m (16.4 ft.) without connector ● cable, 2 m (6.5 ft.) without connector ● connector, amphenol, 4-pole, straight ● connector, amphenol, right angle ● mounting flange RMGZ900.581699-Flansch (D120) ● mounting flange RMGZ900.581185-Flansch (D150)	

RMGZ9-Series : Typical application



Other products : Tension Control

Measuring Amplifiers



Tension Controllers



Intrinsically Safe Barrier



About us

FMS Force Measuring Systems AG is the market leader in the field of web tension measurement, control and specialist for web guiding solutions. For the wire industry we are the only manufacturer offering a complete range of technologies for force measurement, data processing and radio transmission of signals.

Our in house developed products are used in the manufacturing industry, converting, metals, paper, textiles, as well as in cable and wire rope production. Utilising the latest technology, high quality components and a firm understanding of customer applications, FMS supports customers worldwide in the effort to maximize the productivity of their machines. Since 1993, our highly qualified employees have been creating high-end solutions for machine builders and plant operators. As an owner-managed company, we pride ourselves on being personal and approachable with the ability to make decisive moves fast.

World Headquarters: FMS Force Measuring Systems AG

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