Installation Manual AMGZ

Force measuring sensor with (A) version dead shaft adapter

Version 1.10 01/2006 az

This operating manual is also available in German.
Please contact your local representative.

Diese Bedienungsanleitung ist auch in deutsch.
Bitte kontaktieren Sie die Vertretung im zuständigen Land.

1 Dimensions

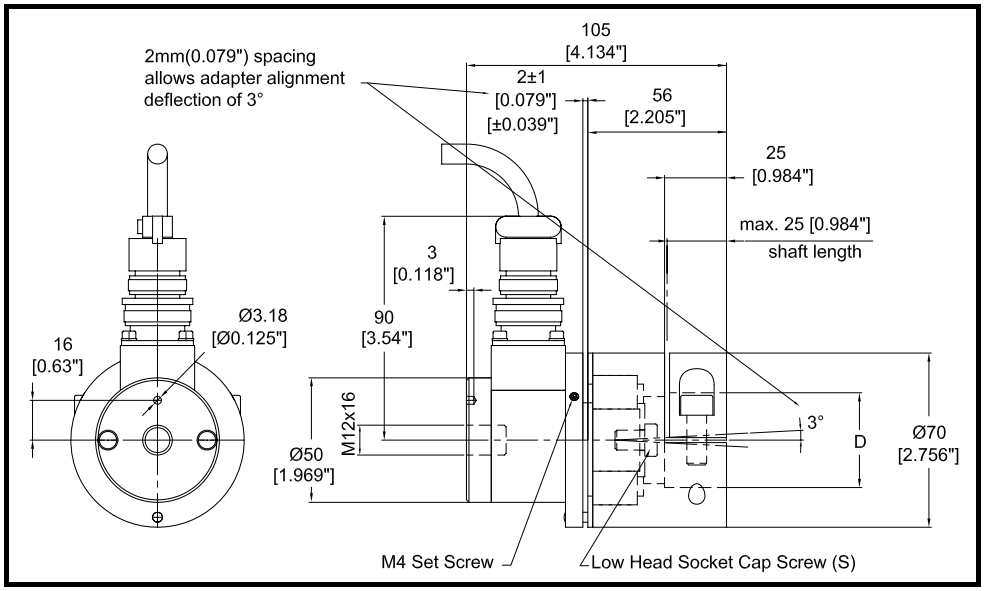

Fig. 1 A205001e

Nominal Force		Order Code FMS	D	S	S Torque Max		Weight	
N	[lbs]		Inches	Thread size	Nm	(ft/lb)	kg	[lbs]
100	[22]	AMGZ205.100.DI125 AMGZ205.100. DI150	1.25“ 1.50“	M4	2.9	[2.1]	2.4	[5.28]
200	[45]	AMGZ205.200. DI125 AMGZ205.200. DI150	1.25“ 1.50“	M4	2.9	[2.1]	2.4	[5.28]
375	[84]	AMGZ205.375. DI125 AMGZ205.375. DI150	1.25“ 1.50“	M4	2.9	[2.1]	2.4	[5.28]
500	[112]	AMGZ205.500. DI125 AMGZ205.500. DI150	1.25“ 1.50“	M8	11	[8]	2.4	[5.28]
750	[169]	AMGZ205.750. DI125 AMGZ205.750. DI150	1.25“ 1.50“	M8	11	[8]	2.4	[5.28]
1500	[337]	AMGZ205.1500. DI125 AMGZ205.1500. DI150	1.25“ 1.50“	M8	11	[8]	2.4	[5.28]
2250	[506]	AMGZ205.2250. DI125 AMGZ205.2250. DI150	1.25“ 1.50“	M8	11	[8]	2.4	[5.28]

Scope of delivery
Connection plug, fixing screw

Options:
AMGZ205.MB Mounting Bracket (See Fig. 4 for dimensions)
H14 = right angle plug
H16 = temperature range up to 150°C [302°F]
H18 = waterproof, straight plug
H29 = for use in aggressive media

2 Functional description

AMGZ Series Force Measuring Sensors are designed for use with dead shaft rollers to allow easy change out in continuous material processing applications. They can be easily mounted to the machine frame with a single bolt or utilizing the optional mounting brackets (see Fig. 4). The red point or force direction arrow on the connector indicates the positive measuring direction. The AMGZ Force Measuring Sensor ensures that even with small material wrap angles and high roller weights, tension will be measured accurately.

Foil type strain gauges mounted in a full Wheatstone Bridge configuration in each sensor perform the actual tension measurement. This configuration combined with the flexion beam design ensures tension measurement with the highest accuracy and reliability under the most stringent requirements. The dead shaft adapter can be turned in any direction so that the shaft will always load from the top.

3 Mounting

3.1 Mounting the Force Measuring Sensors

A large bore (for the M12 mounting screw) and a small bore for a position pin (that prevents radial displacement) should be provided in the machine frame (see Fig. 1). If the force acts in the direction indicated by the red point or arrow, positive force readings will be reflected by the measuring amplifier output.

To facilitate the insertion of the roller shaft into the adapter, it may be rotated so that its Locking Collar is on top as shown in the drawings (Fig. 1 and Fig. 2). This is done by slightly loosening the two M4 set screws on the Pin Collar and rotating the adapter to the desired position. After rotating the adapter make sure the face of the Pin Collar is flush with the shoulder of the sensor body, then re-tighten the two set screws.

Remove the Locking Collars, insert the shaft, and tighten them back in place. Before tightening down the second Locking Collar make sure there is 0.039” – 0.079” (1mm – 2mm) of total lateral play (Fig. 2). This will allow for the needed movement due to thermal expansion.

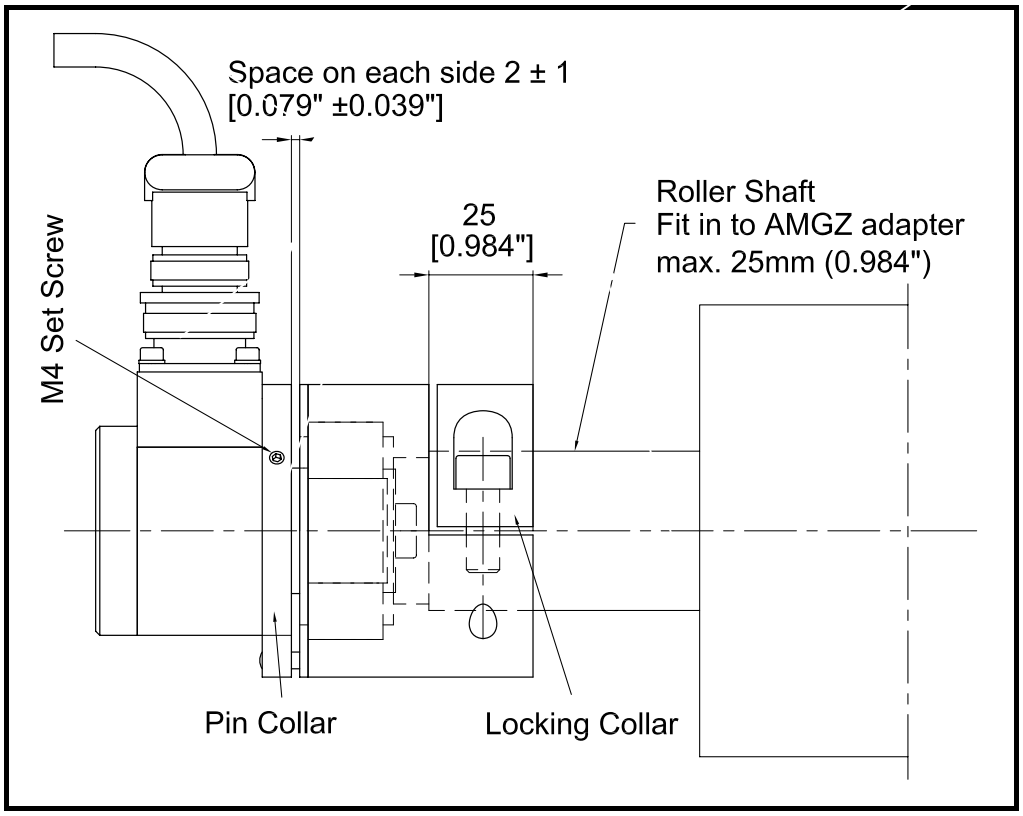

Fig. 2 AMGZ205A

3.2 Wiring

Connection between the Force Measuring Sensor and measuring amplifier is done by using 2x2x0.75mm^2 [AWG 18] shielded twisted-pair cable. (With cable length below 15m (50 feet), 2x2x0.25 mm^2 [AWG 23] is also suitable.) The cable must be installed separate from power lines. The connection is to be done referring to (Fig. 3). The shield has to be connected only to the measuring amplifier.

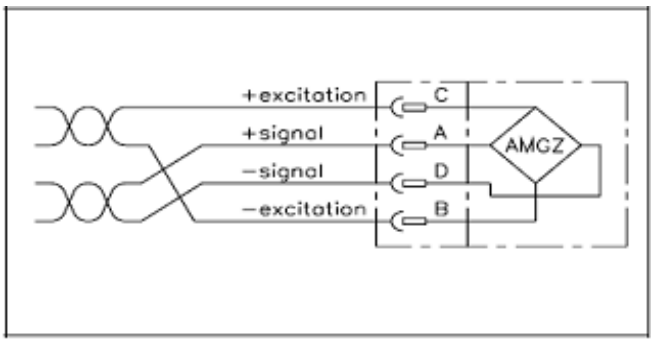

Fig.3: Wiring Diagram A000001e

4 Technical Data

Sensitivity	1.8mV/V
Tolerance of sensitivity	< ±0.2%
Accuracy class	±0.5%
Temperature coefficient	±0.1% / 10K [±0.0055% / °F]
Temperature range	–10...+60°C [14°F...140°F] (option H16: –10...+150°C [14°F...302°F])
Input resistance	350Ω
Supply voltage	1...12VDC
Overload protection	10 times the rated nominal force
Material	Stainless Steel

5 Torque Specifications

Bolt / Screw Size	Torque / Maximum
M4 Set Screw	2 Nm (1.5 ft/lb)
M4 Low Head Socket Cap Screw (S)	2.9 Nm (2.1 ft/lb)
M8 Bolt and Low Head Socket Cap Screw (S)	11 Nm (8 ft/lb)
M12 Bolt	100 Nm (73 ft/lb)

6 Mounting Bracket (optional)

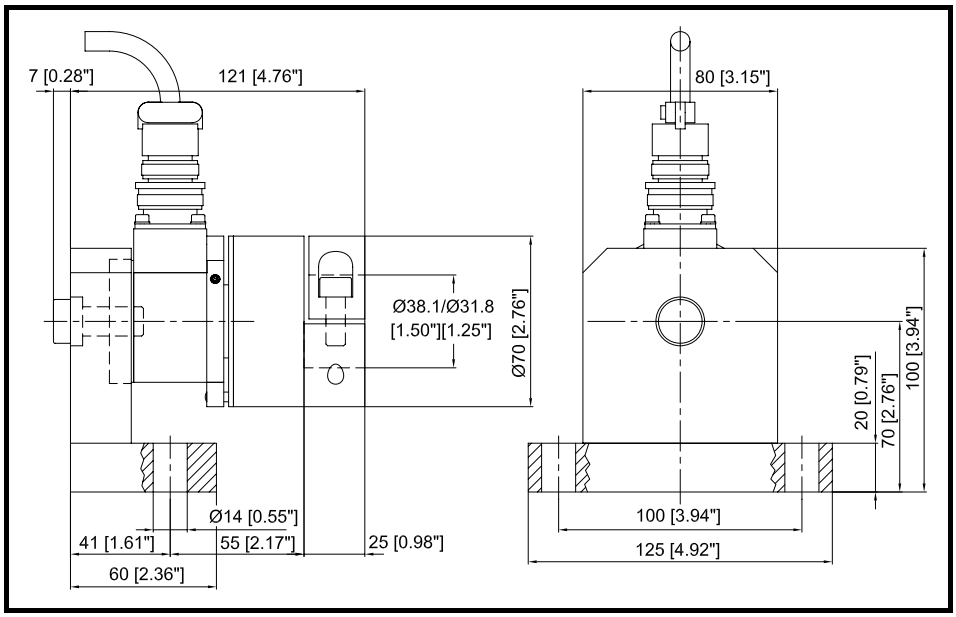

Fig. 4 A0508195

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