ATESTEO

Excellence in drivetrain testing

Data sheet

ML

Technical data

Type	-	ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400

Torque measuring system					
Technology	-	Rotating			
Rated torque (Md_n) #1	Nm	50	100	200	400
Outputs	-	Frequency (TTL), Voltage, CAN bus			
Test signal	-	see test report			
Angular measuring system					
Pulses per rev	ppr.	7,680			
Resolution	°	0.050			
Analogue voltage output	-	±10V 16 Bit			
Max. rotation count	-	4.2			
Angular speed measuring system					
Resolution	°/s	0.10			
Analogue voltage output	-	±10V 16 Bit			
Torque accuracy class per output type (related to Md_n)					
Frequency output	%	≤±0.10			
CAN output	%	≤±0.10			
Voltage output	%	≤±0.15			

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Technical data

Type	-	ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400
Linearity deviation including hysteresis related to Md_n #2					
Frequency, 0%...30%	%	≤±0.030			
Frequency, 30%...60%	%	≤±0.050			
Frequency, 60%...100%	%	≤±0.100			
CAN, 0%...30%	%	≤±0.030			
CAN, 30%...60%	%	≤±0.050			
CAN, 60%...100%	%	≤±0.100			
Voltage output	%	≤±0.15			
Rel. standard deviation of the reproducibility according to DIN 1319, by reference to variation of the output signal (rel. to Md_n)					
Frequency output	%	≤±0.10			
CAN output	%	≤±0.10			
Voltage output	%	≤±0.15			
Temperature influence per 10K in the nominal temperature range on the output signal related to the actual value of signal span (rel. to Md_n)					
Frequency output	%	≤±0.10			
CAN output	%	≤±0.10			
Voltage output	%	≤±0.15			
Temperature influence per 10K in the nominal temperature range on the zero signal (rel. to Md_n)					
Frequency output	%	≤±0.10			
CAN output	%	≤±0.10			
Voltage output	%	≤±0.15			
Long-term drift over 48h at reference temperature					
Voltage output	mV	<1.0			

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Type	-	ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400

Nominal sensitivity (range between zero torque and rated torque)					
Frequency output	kHz	20			
Voltage output	V	5.0 / 10.0 / 2.5 / 5.0			
Output signal at zero torque					
Frequency output	kHz	60			
Voltage output	V	0.0 / 0.0 / 2.5 / 5.0			
Nominal output signal					
Frequency output at positive nominal value	kHz	80			
Frequency output at negative nominal value	kHz	40			
Voltage output at positive nominal value	V	5 / 10 / 5 / 10			
Voltage output at negative nominal value	V	-5 / -10 / 0 / 0			
Max. modulation range					
Frequency output	kHz	30...90			
Voltage output	V	-10.5...10.5			
Group delay time (main TCU)					
Frequency output	µs	N/A			
Voltage output	µs	N/A			
CAN bus	µs	N/A			

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Type	-	ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400
Temperature ranges					
Nominal temperature range *(System)*	°C	0...70			
Operating temperature range *(System)* #3	°C	-10...70			
Storage temperature range *(System)*	°C	-10...70			
Load limits #4					
Limit torque, related to Md_n	%	325	325	325	225
Breaking torque approx., related to Md_n	%	750	750	750	450
Requirements to application					
Maximum diameter of vehicle steering wheel (when using straight splines) #5	mm	372			
Maximum diameter of vehicle steering wheel (when using bended splines) #5	mm	355			
Minimum diameter of vehicle steering wheel (when using straight splines) #5	mm	190			
Minimum diameter of vehicle steering wheel (when using bended splines) #5	mm	200			

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Type	-	ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400

Weight approx.		
System	kg	1.30
Power supply		
Nominal supply	V	(DC) 12
Supply range #6	V	(DC) 9...36
Max. current consumption in measuring mode	A	<0.70
Max. current consumption in start-up mode	A	<2
Nominal power consumption	W	<17
Load resistance		
Frequency output	-	TTL
Voltage output	kOhm	≥5
Dynamic		
Frequency output	kHz	≤7.00
Voltage output	kHz	≤1.00
CAN output conversation rate	1/s	≤1,000.00
Miscellaneous		
CAN bus type	-	2B
Configuration interface	-	USB
Material	-	Steel
Measuring range (related to Md_n)	%	120
Compatible evaluation units (TCU)	-	VETAS3
Article number	-	10001175

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Remarks and information

Link no.	Topic	Remark
#1	Nominal torque	Based on customer requests, the measurement systems can optionally be optimized for not listed nominal torque values (intermediate ranges possible).
#2	Linearity	Values of Linearity deviation incl. Hysteresis can only be reached if positive and negative sensitivity values are used.
#3	Temperature range	No condensation allowed. Temperature related to housing ground point.
#4	Load limits	The given values are only valid if no other load occurs at the same time. If the loads in sum are 100%, the max. error will be 0.3% of the nominal torque. Limit and break torque are lower if other loads are applied (such as lateral forces).
#5	Vehicle steering wheel	Applies only if adapter kit is used. Thick steering wheels or special shapes can cause mounting issues. The splines and couplings can be custmomized on demand for steering wheels with larger diameters, thicker or special shapes.
#6	Supply voltage	The supply voltage range must be given at measurement system side. Long wires can reduce the voltage level from power supply to measurement system.

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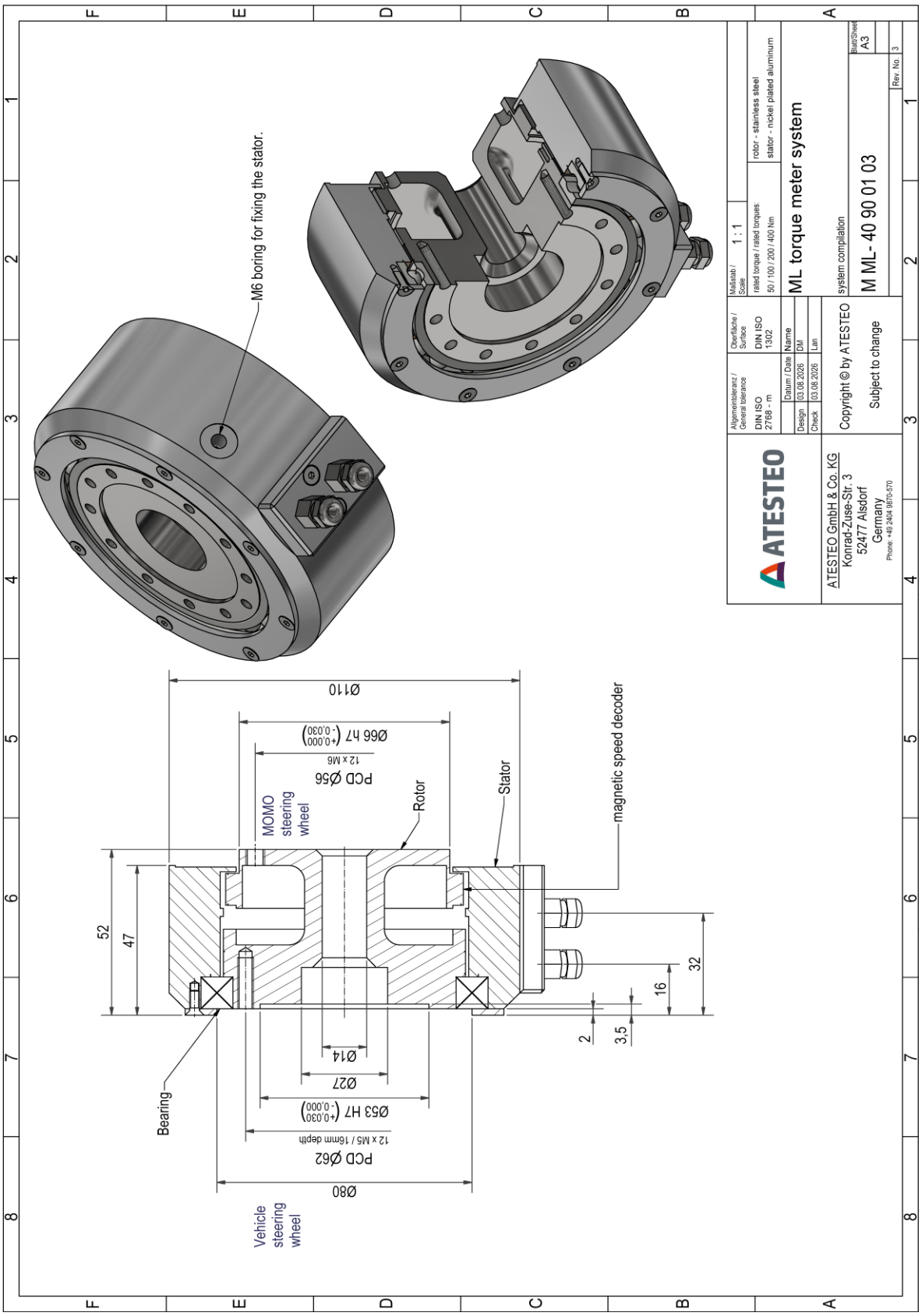
Drawing



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ATESTEO GmbH & Co. KG
Konrad-Zuse-Straße 3
52477 Alsdorf
Germany

Phone +49 (0) 2404 9870 - 0
Email info@atesteo.com

https://www.atesteo.com/en/

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