ATESTEO

Excellence in drivetrain testing

Data sheet

ML

Instrumentation Devices

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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, Voltage, Current, CAN bus, Alert			
Test signal	-	see test report			
Torque accuracy class per output type (related to Md_n)					
Frequency output / CAN	%	≤±0.10			
Voltage output	%	≤±0.10			
Linearity deviation including hysteresis related to Md_n #2					
Frequency / CAN, 0%...30%	%	≤±0.030			
Frequency / CAN, 30%...60%	%	≤±0.050			
Frequency / CAN, 60%...100%	%	≤±0.100			
Voltage output	%	≤±0.10			
Rel. standard deviation of the reproducibility according to DIN 1319, by reference to variation of the output signal (rel. to Md_n)					
Frequency output / CAN	%	≤±0.10			
Voltage output	%	≤±0.10			
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 / CAN	%	≤±0.10			
Voltage output	%	≤±0.10			
Temperature influence per 10K in the nominal temperature range on the zero signal (rel. to Md_n)					
Frequency output / CAN	%	≤±0.10			
Voltage output	%	≤±0.10			
Long-term drift over 48h at reference temperature					
Voltage output	mV	<1.0			

Technical data

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		
Frequency output	µs	10
Voltage output	µs	3,000
CAN	µs	1,000

Technical data

Type		ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400
Angular measuring system					
Pulses per rev	ppr	7,680			
Resolution	°	0.05			
Analogue voltage output	-	±10V 16 Bit			
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			

Technical data

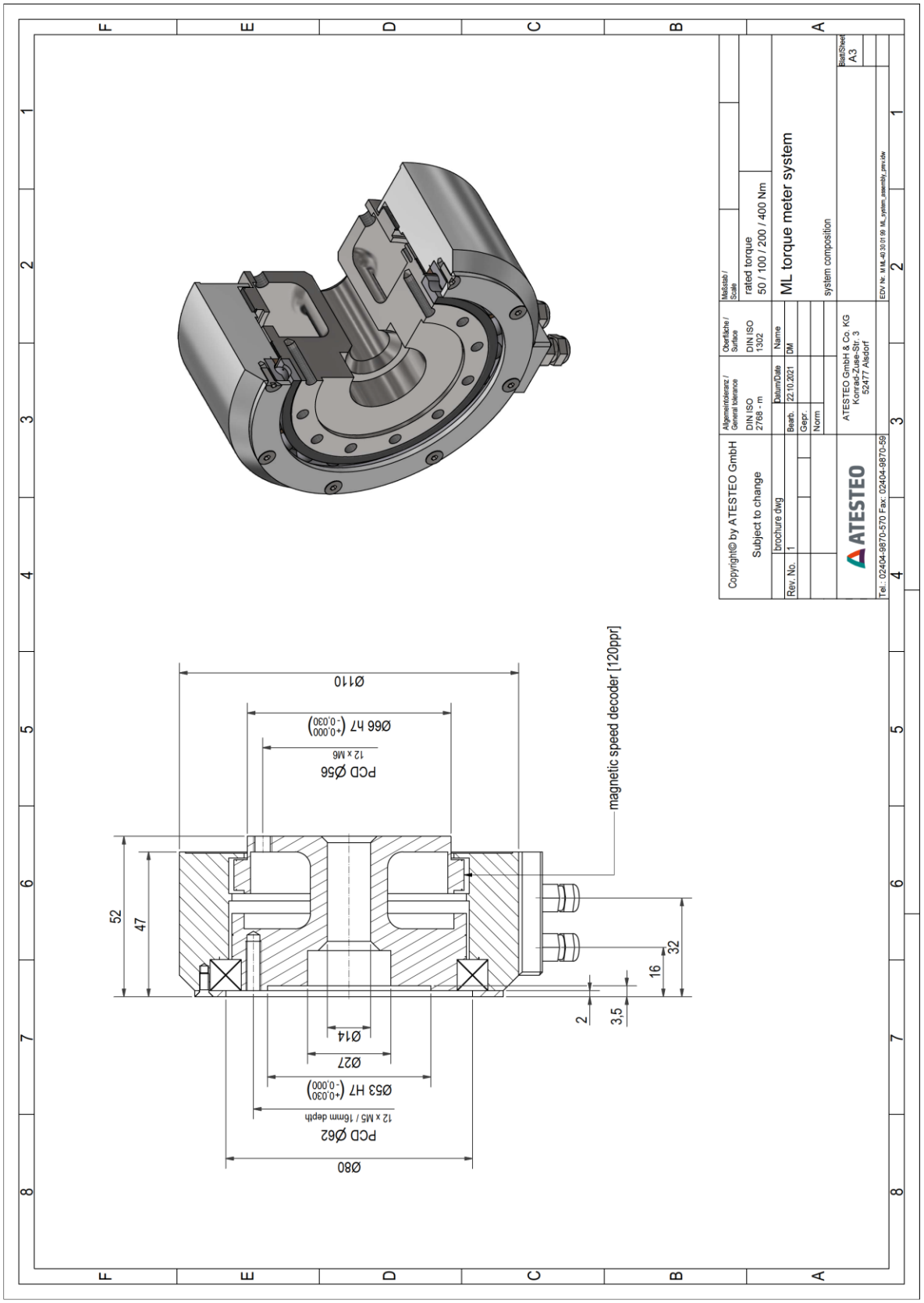
Type		ML			
Accuracy class	%	≤±0.10			
Rated torque (Md_n)	Nm	50	100	200	400
Weight approx.					
System	kg	1.30			
Power supply					
Nominal supply	V (DC)	N/A			
Supply range #6	V (DC)	9...36			
Max. current consumption in measuring mode	A	<0.70			
Max. current consumption in start-up mode	A	<2			
Nominal power consumption	W	<17			
Load resistance					
Frequency output	-	RS422			
Voltage output	kOhm	≥5			
Dynamic					
Frequency output	kHz	≤7.00			
Voltage output	kHz	≤1.00			
CAN output conversation rate	1/s	≤1000.00			
Miscellaneous					
CAN	-	2B			
Configuration interface	-	USB			
Material	-	Steel			
Measuring range (related to Md_n)	%	120			
Matching evaluation units	-	VETAS III			
Article number	-	10001175			

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 (stator)	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.
#5	Vehicle steering wheel	Applies only if adapter kit is used. The splines can be enlarged on demand for steering wheels with larger diameters.
#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.

Steering Wheel

Drawing



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