

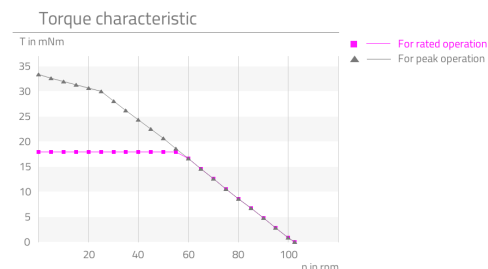


Attributes

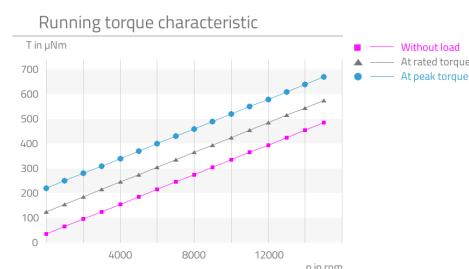
Highlights	Description
<ul style="list-style-type: none"> ▪ High repeatability ▪ Zero backlash at high torque capacity ▪ High axial load capacity ▪ Preloaded ball bearing ▪ Lifetime lubrication 	<p>With the MaalonDrive® SpecialBearing 8mm - type 1 micro positioning system, the output bearing is preloaded in the X-arrangement to ensure maximum axial stiffness. The system is driven by a stepper motor with 20 steps per rotation in an open loop control. Directly connected to the motor is the heart of the micro positioning system: a zero-backlash MaalonDrive® gear with a reduction ratio of 120:1. Preloaded ball bearings mounted on the output side allow the application to be directly connected.</p>

Technical parameter

P-019 Curve measured with 5x nominal voltage and load inertia $6 \cdot 10E-9$ kg/m² in $\frac{1}{4}$ micro steps.



P-029 Curve measured with 5x nominal voltage and load inertia $6 \cdot 10E-9$ kg/m² in $\frac{1}{4}$ micro steps.



Technical Supply Specifications: MaalonDrive® Special Bearing 8mm - Type 1



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Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	120 : 1	
P-004	Self-locking		yes	
P-008	Repeatability unidirectional		42 arcsec	
P-009	Repeatability bidirectional		20.9 arcmin	
P-010	Accuracy		21.8 arcmin	
P-011	Transmission accuracy		33.6 arcmin	
P-012	Resolution		0.15 °	
P-013	Torsional stiffness		2.67 $\frac{\text{Nm}}{\text{rad}}$	
P-014	Lost motion		20 arcmin	
P-015	Backlash		0 arcmin	
P-016	Rated torque	T	18 mNm	
P-017	Peak torque	T	37 mNm	
P-018	Momentary peak torque	T	92 mNm	
P-021	Rated input speed	n	15000 rpm	
P-022	Maximum input speed	n	21000 rpm	
P-023	Rated output speed	n	125 rpm	
P-024	Maximum output speed	n	175 rpm	
P-026	No-load starting torque	T	52.5 μNm	
P-027	No-load running torque	T	35 μNm	
P-028	Rated running torque	T	575 μNm	
P-034	Lifetime for rated operation		1000 h	
P-035	Radial backlash output shaft		0 μm	
P-036	Axial backlash output shaft		0 μm	
P-037	Radial stiffness	c	0.87 N/ μm	
P-038	Axial stiffness	c	18.5 $\frac{\text{N}}{\text{m}}$	
P-039	Max. radial load on output shaft (non-operating, constant load)	F	20 N	
P-040	Max. radial load on output shaft (non-operating, impulsive load)	F	5 N	
P-041	Max. radial load on output shaft (operating, constant load)	F	3 N	
P-042	Max. radial load on output shaft (operating, impulsive load)	F	3 N	
P-043	Max. axial load on output shaft (non-operating, constant)	F	64 N	
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	20 N	

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Nr.	Parameter	Symbol	Value	Hint
P-045	Max. axial load on output shaft (operating, constant load)	F	185 N	
P-046	Max. axial load on output shaft (operating, impulsive load)	F	66 N	
P-055	Moment of inertia	I	$282 \cdot 10^{-4}$ gcm ²	
P-056	Weight	m	6 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-30 °C	
P-058	Min. permissible ambient temperature (operating)	T	-20 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	130 °C	
P-060	Max. permissible ambient temperature (operating)	T	70 °C	

Additional technical data:

- output bearing configuration X-preloaded

Motor data: Stepper AM 0820-2R-A0.225

Nr.	Parameter	Symbol	Value	Hint
P-100	Motortype		Stepper	
P-102	Maximum speed of motor	n	21000 rpm	
P-103	Resonance frequency of motor	f	170 Hz	
P-105	Holding torque of motor (unpowered)	T	0.17 mNm	
P-109	Rated current of motor	I	225 mA	
P-111	Rated voltage of motor	U	2 V	
P-112	Phase resistance of motor	R	7.3 ohm	
P-113	Inductance of motor	L	1.4 mH	
P-114	Amplitude BEMF of motor	U	0.267 mV/rpm	
P-115	Full step angle of motor		18 °	
P-116	Angular accuracy of step of motor		±1.8 °	
P-117	Electrical time constant of motor	t	0.21 ms	
P-118	Max. coil temperature of motor	T	130 °C	
P-119	Thermal resistance of motor between coil and housing	R _{th1}	4.1 ^K /W	
P-120	Thermal resistance of motor between housing and air	R _{th2}	65.3 ^K /W	
P-121	Thermal time constant of the coil of the motor	τ _{w1}	3500 ms	
P-122	Thermal time constant of the housing of the motor	τ _{w2}	160000 ms	

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Nr.	Parameter	Symbol	Value	Hint
P-123	Insulation voltage of motor	U	200 V	

Material information

Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		Longtime PD2	
P-903	Lubrication of gear component set		Molykote BR 2 plus	
P-904	Lubrication of bearing motor		Synthetic light ester oil	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		1.4108 DIN EN	
P-911	Material of bearing motor		Stainless steel	
P-912	Material of gearbox output side		1.4305 DIN EN	
P-914	Material of motor housing		Anodized aluminum	

