



> MaalonDrive®

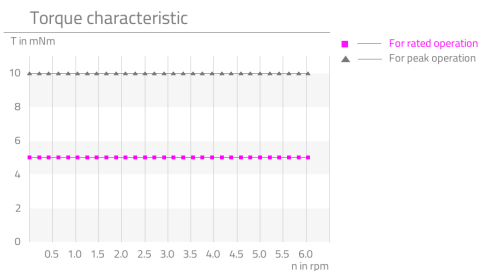
Space 10mm - Type 1

Attributes

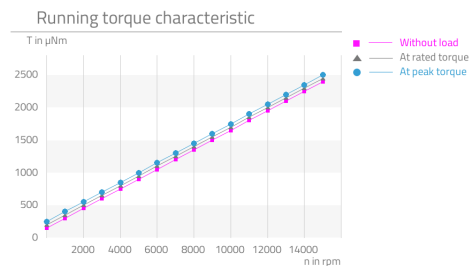
Highlights	Description
<ul style="list-style-type: none"> ▪ High repeatability ▪ Dry lubrication due to coatings ▪ Zero backlash with optimised fit between speed and resolution ▪ Suitable in wide temperature range ▪ Preloaded ball bearing 	<p>Thanks to the dry lubrication and the materials that are used, the extremely compact MaalonDrive® Space 10mm - type 1 is especially well suited for applications in extreme environmental conditions. Equipped with a zero-backlash MaalonDrive® with a reduction ratio of 160:1 and driven by a stepper motor with 20 steps per rotation, the micro positioning system can easily be controlled in an open loop control. The gearbox is equipped with a preloaded ball bearing on the output side to which the application can be directly connected.</p>

Technical parameter

P-019 Curve measured with nominal voltage and load inertia $6 \cdot 10E-9 \text{ kg/m}^2$ in $\frac{1}{2}$ micro steps.



P-029 Curve measured with nominal voltage and load inertia $6 \cdot 10E-9 \text{ kg/m}^2$ in $\frac{1}{2}$ micro steps.



Technical Supply Specifications: MaalonDrive® Space 10mm - Type 1



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Nr.	Parameter	Symbol	Value	Hint
P-001	Vacuum suitable		UHV	
P-003	Ratio	i	160 : 1	
P-004	Self-locking		yes	
P-008	Repeatability unidirectional		70.5 arcsec	
P-009	Repeatability bidirectional		41.35 arcmin	
P-010	Accuracy		13.35 arcmin	
P-011	Transmission accuracy		26.7 arcmin	
P-012	Resolution		0.1125 °	
P-013	Torsional stiffness		8.25 $\frac{\text{Nm}}{\text{rad}}$	
P-014	Lost motion		24 arcmin	
P-015	Backlash		0 arcmin	
P-016	Rated torque	T	5 mNm	
P-017	Peak torque	T	10 mNm	
P-018	Momentary peak torque	T	23 mNm	
P-021	Rated input speed	n	1000 rpm	
P-022	Maximum input speed	n	1000 rpm	
P-023	Rated output speed	n	6.25 rpm	
P-024	Maximum output speed	n	6.25 rpm	
P-026	No-load starting torque	T	225 μNm	
P-027	No-load running torque	T	150 μNm	
P-028	Rated running torque	T	1800 μNm	
P-034	Lifetime for rated operation		200 h	
P-035	Radial backlash output shaft		0 μm	
P-036	Axial backlash output shaft		0 μm	
P-037	Radial stiffness	c	11.32 $\text{N}/\mu\text{m}$	
P-038	Axial stiffness	c	40 $\text{N}/\mu\text{m}$	
P-039	Max. radial load on output shaft (non-operating, constant load)	F	135 N	
P-040	Max. radial load on output shaft (non-operating, impulsive load)	F	45 N	
P-041	Max. radial load on output shaft (operating, constant load)	F	32 N	
P-042	Max. radial load on output shaft (operating, impulsive load)	F	32 N	
P-043	Max. axial load on output shaft (non-operating, constant)	F	150 N	

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Nr.	Parameter	Symbol	Value	Hint
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	
P-045	Max. axial load on output shaft (operating, constant load)	F	380 N	
P-046	Max. axial load on output shaft (operating, impulsive load)	F	127 N	
P-055	Moment of inertia	I	$923 \cdot 10^{-4}$ gcm ²	
P-056	Weight	m	13 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-80 °C	
P-058	Min. permissible ambient temperature (operating)	T	-60 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	130 °C	
P-060	Max. permissible ambient temperature (operating)	T	70 °C	

Motor data: Stepper AM 1020-RV-V-3-16-01-1977 dry lubrication

Nr.	Parameter	Symbol	Value	Hint
P-100	Motortype		Stepper	
P-102	Maximum speed of motor	n	3000 rpm	
P-103	Resonance frequency of motor	f	140 Hz	
P-105	Holding torque of motor (unpowered)	T	0.2 mNm	
P-109	Rated current of motor	I	180 mA	
P-111	Rated voltage of motor	U	3 V	
P-112	Phase resistance of motor	R	16 ohm	
P-113	Inductance of motor	L	5.2 mH	
P-114	Amplitude BEMF of motor	U	0.867 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	0.32 ms	
P-118	Max. coil temperature of motor	T	130 °C	
P-119	Thermal resistance of motor between coil and housing	R _{th1}	3.9 ^k /W	
P-120	Thermal resistance of motor between housing and air	R _{th2}	53.8 ^k /W	
P-121	Thermal time constant of the coil of the motor	T _{w1}	3200 ms	
P-122	Thermal time constant of the housing of the motor	T _{w2}	200000 ms	
P-123	Insulation voltage of motor	U	200 V	

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Material information

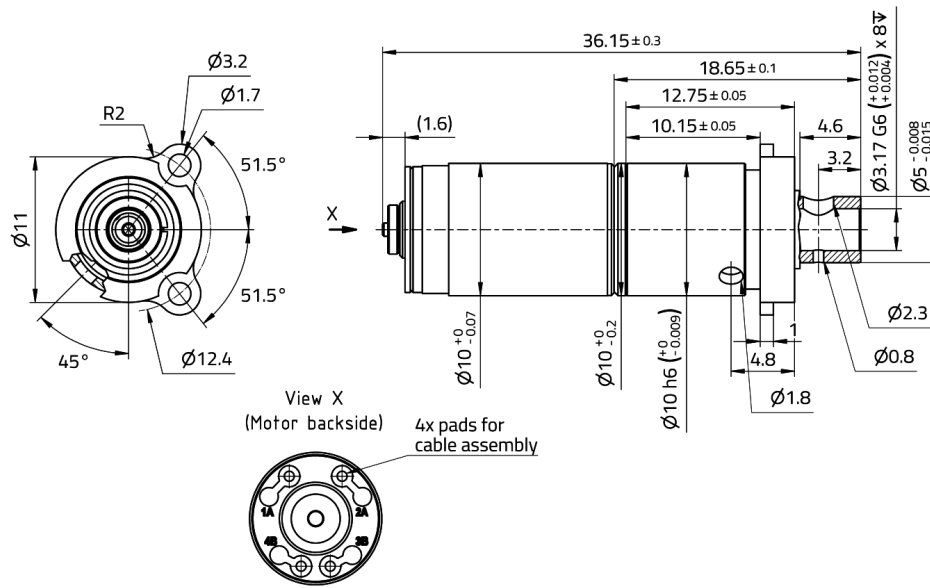
Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	
P-901	Lubrication of output bearing gearbox		DICRONITE®	
P-903	Lubrication of gear component set		DICRONITE®/ MoS2	
P-904	Lubrication of bearing motor		DICRONITE®	
P-908	Material of gear component set		NiFe	
P-909	Material of output bearing gearbox		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	

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Technical drawing



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