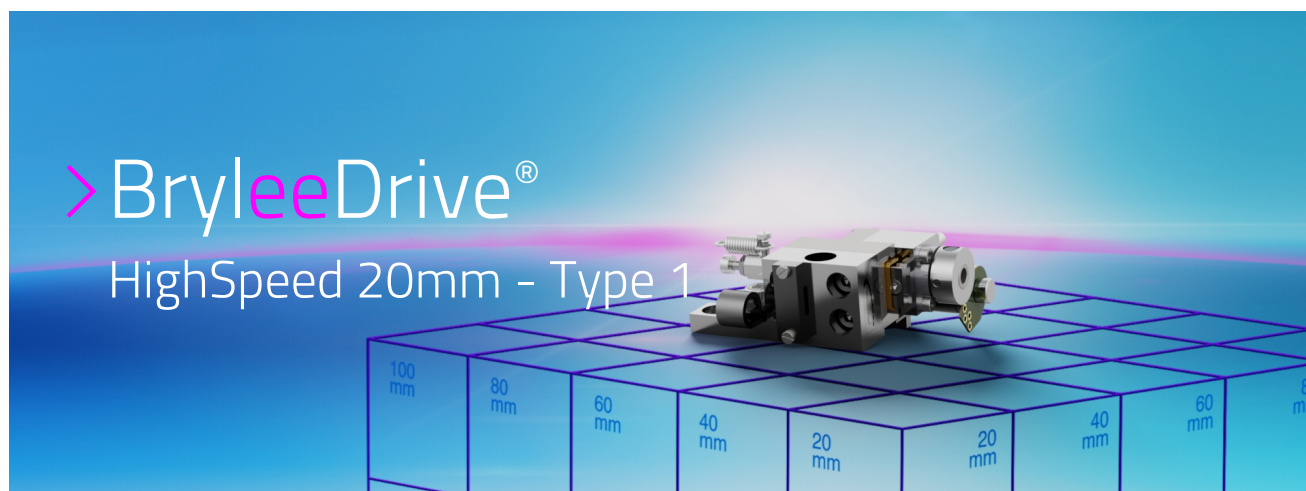




Attributes

Highlights	Description
▪ 1 linear and 1 rotational degree of freedom ▪ Extreme dynamic ▪ Custom designed tool holder ▪ Integrated tool fitting ▪ Integrated vacuum supply for tool	The BryleeDrive® HighSpeed 20mm - type 1 micro servo actuator, with its extensive configuration, is the ideal solution for precise and dynamic pick-and-place applications. The system combines a tool holder with clamping fixture in the output shaft, the index for referencing, a vacuum through-line for the tool, optical component detection as well as robust stepper motor technology all in a very small space. The entire drive system, which is integrated directly in the linear guide of the z-axis, saves space and, more importantly, weight. The motor side is also covered to reliably prevent interference with the vacuum in the supply line. At the heart of the micro positioning system is a zero-backlash MaalonDrive® gear with a reduction ratio of 160:1.

Technical Supply Specifications: BryleeDrive® HighSpeed 20mm – Type 1



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Technical parameter

The stated values are based on calculations and measurements by Micromotion GmbH, carried out according to the current state of the art. You can find our definitions at www.micromotion-drives.com.

For further information please contact sales@micromotion.de.

Global system

Nr.	Parameter	Symbol	Value	Hint
P-034	Lifetime for rated operation		1000 h	
P-056	Weight	m	Mass in X-direction: 30 g Complete mass: 50 g	
P-057	Min. permissible ambient temperature (non-operating)	T	-20 °C	
P-058	Min. permissible ambient temperature (operating)	T	0 °C	
P-059	Max. permissible ambient temperature (non-operating)	T	80 °C	
P-060	Max. permissible ambient temperature (operating)	T	60 °C	

Additional technical data:

- - Vacuum supply
- Optical control of the Pick Tools
- Home index at Pick Tool
- Integrated Z-axis
- No Chip Sensor (Photo Sensor)

Material information

Nr.	Parameter	Symbol	Value	Hint
P-900	RoHS compliant		yes	

Axis 1: rotational axis

Nr.	Parameter	Symbol	Value	Hint
P-003	Ratio	i	96 : 1	
P-004	Self-locking		yes	

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Nr.	Parameter	Symbol	Value	Hint
P-006	Hollow shaft		ja	
P-008	Repeatability unidirectional		48.75 arcsec	
P-009	Repeatability bidirectional		21.125 arcmin	
P-010	Accuracy		14.25 arcmin	
P-011	Transmission accuracy		28.5 arcmin	
P-012	Resolution		0.1875 °	
P-013	Torsional stiffness		8.25 $\frac{\text{Nm}}{\text{rad}}$	
P-014	Lost motion		12 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	6000 rpm	
P-022	Maximum input speed	n	18000 rpm	
P-023	Rated output speed	n	62.5 rpm	
P-024	Maximum output speed	n	187.5 rpm	
P-026	No-load starting torque	T	215 μNm	
P-027	No-load running torque	T	50 μNm	
P-028	Rated running torque	T	1190 μNm	
P-030	Efficiency for rated operation	η	87.72 %	
P-031	Efficiency for peak operation	η	83.33 %	
P-035	Radial backlash output shaft		0 μm	
P-036	Axial backlash output shaft		0 μm	
P-037	Radial stiffness	c	11.32 N/ μm	
P-038	Axial stiffness	c	40 N/ μm	
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 load)	F	150 N	
P-044	Max. axial load on output shaft (non-operating, impulsive load)	F	50 N	

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Nr.	Parameter	Symbol	Value	Hint
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	923.1 * 10 ⁻⁴ gcm ²	
P-061	Tool fitting		Ø3H5 9deep	
P-062	Connecting for vacuum supply		Ø2.5 5.3 long	

Motor data: Stepper AM 1020-2R-A-0.25-8-01-A1984

(Data are provided by the manufacturer or are based on the data sheets of the manufacturer)

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	140 Hz	
P-105	Holding torque of motor (unpowered)	T	0.2 mNm	
P-109	Rated current of motor	I	250 mA	
P-111	Rated voltage of motor	U	2 V	
P-112	Phase resistance of motor	R	8.3 ohm	
P-113	Inductance of motor	L	2.4 mH	
P-114	Amplitude BEMF of motor	U	0.6 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 °/W	
P-120	Thermal resistance of motor between housing and air	R _{th2}	53.8 °/W	
P-121	Thermal time constant of the coil of the motor	τ _{w1}	3200 ms	
P-122	Thermal time constant of the housing of the motor	τ _{w2}	200000 ms	
P-123	Insulation voltage of motor	U	200 V	

Technical Supply Specifications: BryleeDrive® HighSpeed 20mm – Type 1



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Material information

Nr.	Parameter	Symbol	Value	Hint
P-901	Lubrication of output bearing gearbox		Longtime PD2/ Molykote BR 2 plus	
P-902	Lubrication of input bearing gearbox		Longtime PD2/ Fomblin GRM60	
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-910	Material of input 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-913	Material of gearbox input side		1.4305 DIN EN	
P-914	Material of motor housing		Anodized aluminum	

Axis 2: linear axis for X-direction

Nr.	Parameter	Symbol	Value	Hint
P-005	Travel range	s	+4 / -4.5	

Data linear bearing

(Data are provided by the manufacturer or are based on the data sheets of the manufacturer)

Nr.	Parameter	Symbol	Value	Hint
P-601	Max. lateral force in y-direction (non-operating, constant load)	F	140 N	
P-602	Max. lateral force in y-direction (non-operating, impulsive load)	F	46.665 N	
P-603	Max. lateral force in y-direction (operating, constant load)	F	68.75 N	

Technical Supply Specifications: BryleeDrive® HighSpeed 20mm – Type 1



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Nr.	Parameter	Symbol	Value	Hint
P-604	Max. lateral force in y-direction (operating, impulsive load)	F	22.915 N	
P-605	Max. lateral force in z-direction (non-operating, constant load)	F	20 N	
P-606	Max. lateral force in z-direction (non-operating, impulsive load)	F	6.665 N	
P-607	Max. lateral force in z-direction (operating, constant load)	F	20 N	
P-608	Max. lateral force in z-direction (operating, impulsive load)	F	6.665 N	
P-609	Max. overturning around y-axis (non-operating, constant load)	T	550 mNm	
P-610	Max. overturning around y-axis (non-operating, impulsive load)	T	183.335 mNm	
P-611	Max. overturning around y-axis (operating, constant load)	T	550 mNm	
P-612	Max. overturning around y-axis (operating, impulsive load)	T	183.335 mNm	
P-613	Max. overturning around z-axis (non-operating, constant load)	T	400 mNm	
P-614	Max. overturning around z-axis (non-operating, impulsive load)	T	133.335 mNm	
P-615	Max. overturning around z-axis (operating, constant load)	T	400 mNm	
P-616	Max. overturning around z-axis (operating, impulsive load)	T	133.335 mNm	
P-620	Backlash of linear guiding in y-direction		0 µm	
P-621	Backlash of linear guiding in z-direction		0 µm	

Material information

Nr.	Parameter	Symbol	Value	Hint
P-906	Lubrication of linear bearing		Grease KP2K (DIN51502)	

Technical Supply Specifications: BryleeDrive® HighSpeed 20mm - Type 1



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Technical drawing

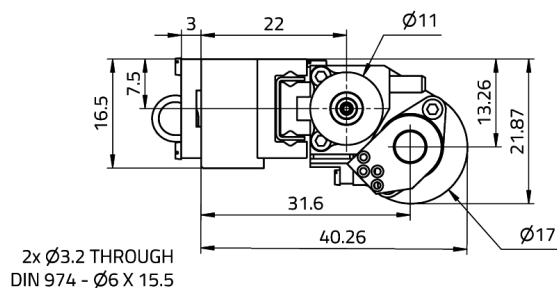
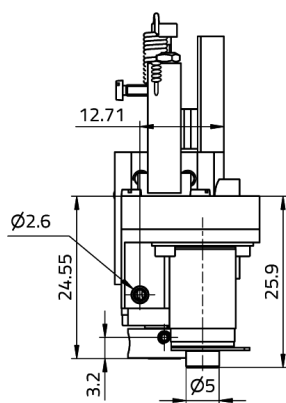
Detail Connector



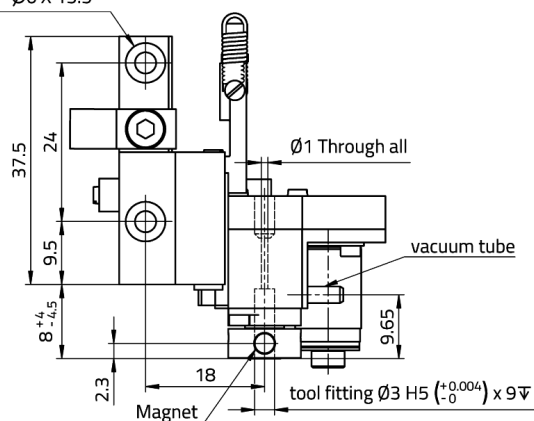
B- A-
B+ A+

connector:
Mini-Fit Jr.
female, 4-pole
Molex 39-01-2040

cable:
high flexible ribbon cable,
4 leads, AWG28,
length=280mm



2x Ø3.2 THROUGH
DIN 974 - Ø6 X 15.5



Magnet

vacuum tube



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