

Configured drive

Motor - DCX22L GB KL 18V
Gearhead - GPX22UP 103:1
Sensor - ENX10 EASY 512IMP

Part number: B7CFD351189B Revision number 1

Orders are processed and shipped from Switzerland within 11 working days.

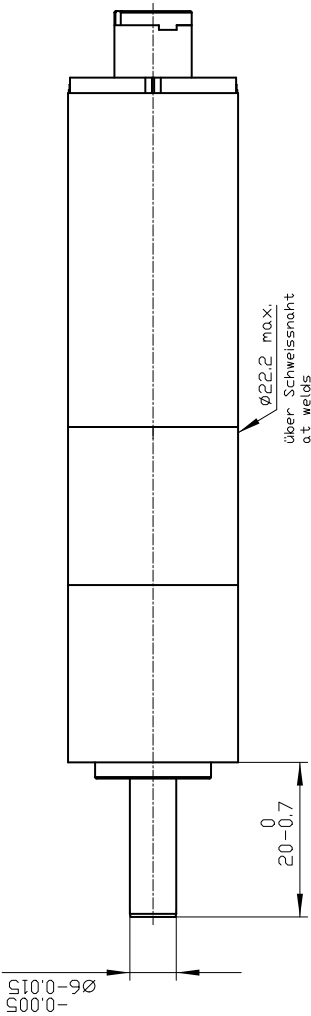
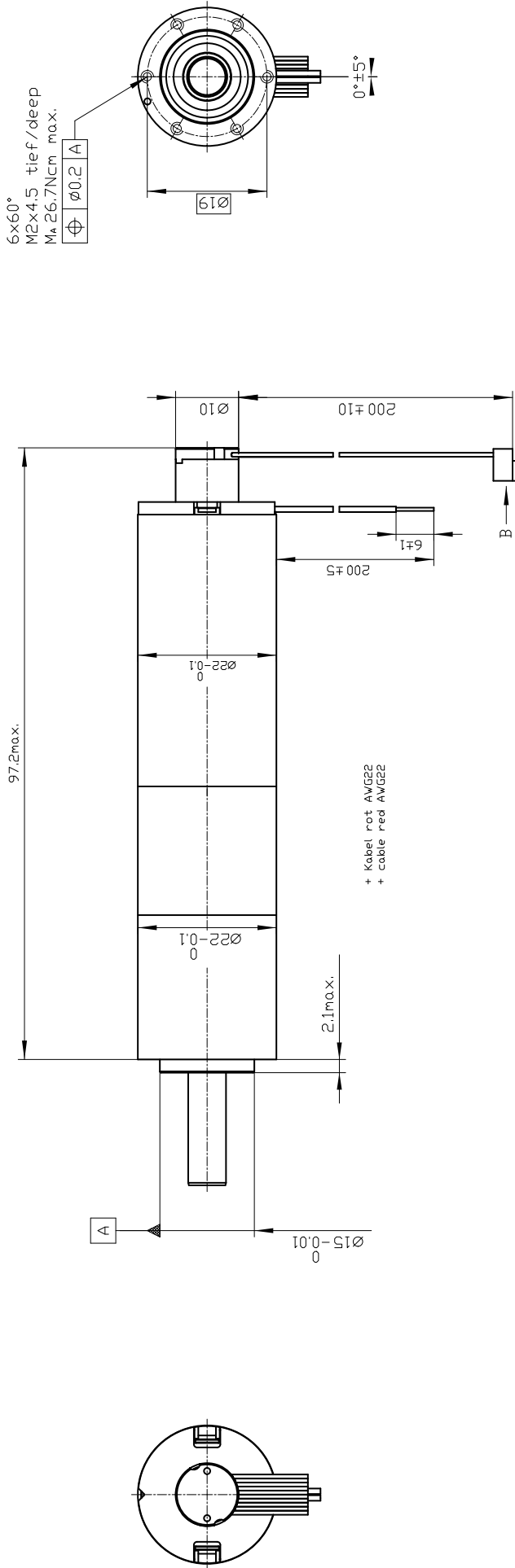
General Terms and Conditions: https://www.maxongroup.ch/maxon/view/content/terms_and_conditions_page



To open the integrated CAD file, please save this document and open it in Acrobat Reader. The STEP file is available after a double-click on the pin icon.

B7CFD351189B.stp (STP AP 214)

Open configuration: <https://www.maxongroup.com/maxon/view/configurator/?ConfigID=B7CFD351189B>



Anschluss nicht dargestellt/ terminal not shown

Unit of measure: mm



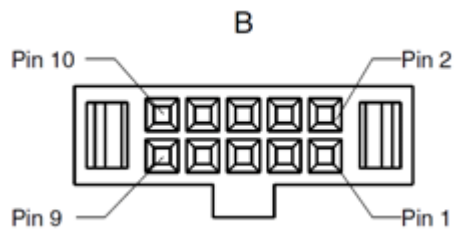
ISO 5456-1

ISO 1101

ISO 965-1

ISO 2768-m

ISO 8015



Connector type, encoder

1.27mm 10-pol

Pin 1	Do not connect
Pin 2	VCC
Pin 3	GND
Pin 4	Do not connect
Pin 5	Channel A \
Pin 6	Channel A
Pin 7	Channel B \
Pin 8	Channel B
Pin 9	Channel I \
Pin 10	Channel I

Summary of your selected configuration

Total weight of the drive: 191 g

DCX22L GB KL 18V

Product detail

Commutation	Graphite brushes
Nominal voltage	18 V
Motor bearings	Preloaded ball bearing

Elec. connection, motor

Elec. connection, motor	Cable
Cable length	200 mm

GPX22UP 103:1

Product detail

Gearhead type	Ultra Performance
Reduction	103
Number of stages	3

Gear shaft

Gear shaft	Configurable shaft
Shaft shape	straight
Shaft length	20 mm

ENX10 EASY 512IMP

Product detail

Counts per turn	512
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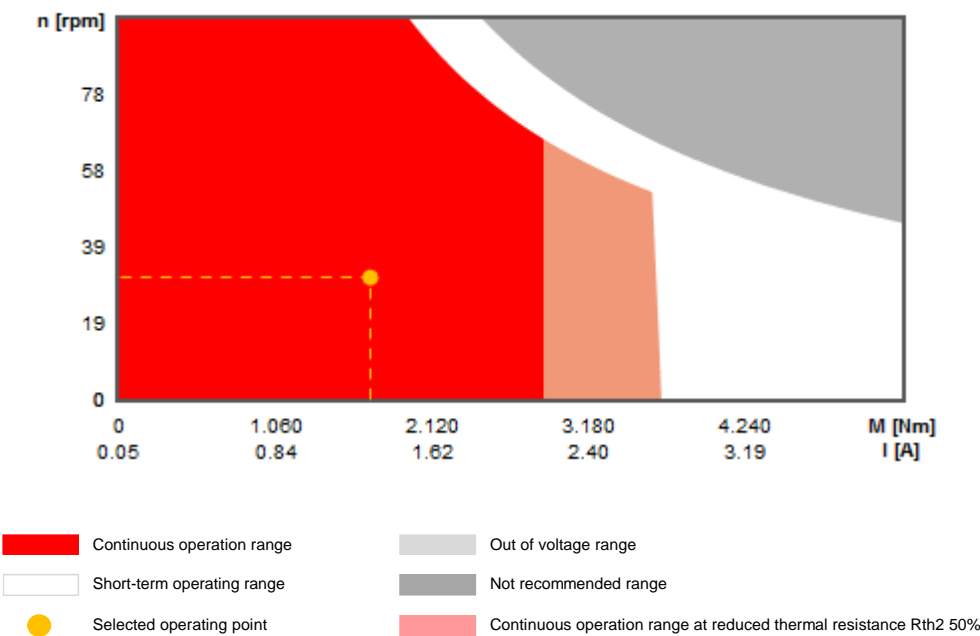
Elec. connection, sensor

Elec. connection, sensor	Configurable
Cable length	200 mm

Legend for part designation

EB	Precious metal brushes	GB	Graphite brushes	CLL	Spark suppression	BL	Brushless
A	Hall sensors	B	Sensorless	KL	Ball bearings	SL	Sintered bearings
GPX	Planetary gearhead	ENX	Encoder	ENC	Encoder	IMP	Pulses
ST	Number of stages	HP	High Power	S/M/L	Short/medium/long	HS	High Speed
STE	Sterilizable	INT	integ.	STD	Standard	SP	Speed
ABS	Absolute	LN	Reduced noise level	A	Standard	LZ	Reduced backlash
C	Ceramic bearing			STEC	Sterilizable, Ceramic bearing		

Drive disposition



Combination details

Your entries

Available voltage	18 V
Speed	31.07 min ⁻¹
Torque	1.7 Nm

Values of the drive at available voltage

Available voltage	18 V
Max. speed at given load	97 min ⁻¹
Max. continuous torque	1.97 Nm
Max. continuous current	1.51 A

Required electrical data for your operating point

Speed	31.07 min ⁻¹
Torque	1.7 Nm
Required voltage	5.8 V
Required current	1.31 A

DCX22L GB KL 18V



Product specification

Values at nominal voltage

Nominal voltage	18 V
No load speed	11800 min ⁻¹
No load current	54.6mA
Nominal speed	10800 min ⁻¹
Nominal torque (max. continuous torque)	32.2 mNm
Nominal current (max. continuous current)	2.26 A
Stall torque	386 mNm
Stall current	26.5 A
Max. efficiency	91.1 %

Characteristics

Max. output power continuous	49.6 W
Terminal resistance	0.68 Ω
Terminal inductance	0.0779 mH
Torque constant	14.6 mNm A ⁻¹
Speed constant	654 min ⁻¹ V ⁻¹
Speed/torque gradient	30.5 min ⁻¹ mNm ⁻¹
Mechanical time constant	3.13ms
Rotor inertia	9.82 gcm ²

Thermal data

Thermal resistance housing-ambient	13.6 KW ⁻¹
Thermal resistance winding-housing	4.57 KW ⁻¹
Thermal time constant of the winding	23.4 s
Thermal time constant of the motor	646 s
Ambient temperature	-40...100 °C
Max. winding temperature	125 °C

Mechanical data

Max. permissible speed	18000 min ⁻¹
Axial play	0...0.1 mm
Preload	2.5 N
Radial backlash	0.02 mm
Max. axial load (dynamic)	2.5 N
Max. force for press fits (static)	30 N

Static, supported shaft	440 N
Max. radial load 5 mm from flange	16 N
Measurement from the flange	5 mm

Further specifications

Number of pole pairs	1
Number of commutator segments	9
Motor weight	95.8 g
Motor length	46.7 mm
Typical noise level	44 dBA (6000 min ⁻¹)

Information about motor data: https://www.maxongroup.com/medias/CMS_Downloads/DIVERSES/12_049_EN.pdf

GPX22UP 103:1



Product specification

Gearhead data

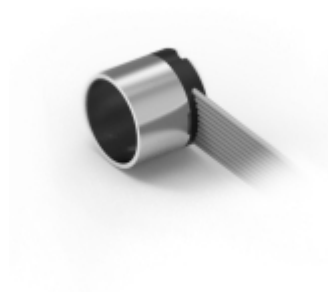
Reduction	103:1
Absolute reduction	371250/3610
Number of stages	3
Max. continuous torque	4.30 Nm
Max. intermittent torque	5.3 Nm
Direction of rotation, drive to output	=
Max. efficiency	90 %
Average backlash no-load	0.8 °
Mass inertia	0.6 gcm ²
Max. transmittable power (continuous)	20 W
Max. short-time transferable output	25 W

Technical data

Output shaft bearing	Wälzlager
Max. radial play, 5 mm from flange	max. 0.1 mm
Axial play	0...0.2 mm
Max. permissible radial load, 5 mm from flange	150 N
Max. permissible axial load	80 N
Max. permissible force for press fits	120 N
Max. continuous input speed	10000 min ⁻¹
Max. intermittent input speed	10000 min ⁻¹
Recommended temperature range	-40..100 °C

Information about gearhead data: https://www.maxongroup.com/medias/CMS_Downloads/DIVERSES/12_203_EN.pdf

ENX10 EASY 512IMP



Product specification

Sensor data

Counts per turn	512
Number of channels	3
Line Driver	RS422
Max. electrical speed	90000 min ⁻¹
Max. mechanical speed	30000 min ⁻¹

Technical data

Supply voltage Vcc	5 V ±10 %
Output signal	INC
Output signal driver	Differential / EIA RS 422
Output current per channel	-20...20 mA
State length	45...135 °el
Signal rise time/Signal fall time	20/20 ns
Min. state duration	125 ns
Direction of rotation	A before B CW
Index position	A low & B low
Index synchronously to AB	Yes
Index pulse width	90 °el
Typical current draw at standstill	22 mA
Max. moment of inertia of code wheel	0.05 gcm ²
Operating temperature range	-40...100 C°
Number of autoclave cycles	0

Datasheet: https://www.maxongroup.com/medias/CMS_Downloads/DIVERSES/ENXEASY_EN.pdf

EPOS4 Compact 50/5



Product specification

Motor

DC motors up to	W
EC motors up to	W

Sensor

Without sensor (DC motors)
Sensorless (EC motors)
Digital incremental encoder (2-channel, single-ended)
Digital incremental encoder (2-channel, differential)
Digital incremental encoder (3-channel, differential)
Digital Hall sensors (EC motors)
SSI absolute encoder
Analog incremental encoder (2-channel, differential)

Operating modes

Current controller
Speed controller (open loop)
Speed controller (closed loop)
Positioning controller

Electrical data

Operating voltage VCC	.. VDC
Logic supply voltage VC optional	.. VDC
Max. output voltage (factor * VCC)	*
Max. output current I _{max}	A
Max. duration of peak output current I _{max}	s
Continuous output current I _{cont}	A
Switching frequency of the power stage	kHz
Sampling rate, PI current controller	kHz
Sampling rate, PI speed controller (closed loop)	kHz
Sampling rate, PID positioning controller	kHz
Max. efficiency	%
Max. speed (DC motors)	min-1
Max. speed (1 pole pair), block commutation	min-1
Max. speed (1 pole pair), sinusoidal commutation	min-1
Built-in motor choke per phase	uH

Inputs

Hall sensor signals	
Encoder signals	
Max. encoder input frequency	MHz
Digitale Eingänge	

Functionality of digital inputs	
Analog inputs	
Resolution, range, circuit	
Functionality of inputs	
Potentiometers	
Functionality of the potentiometers	
DIP switch	
Functionality of the DIP switch	
Outputs	
Digital outputs	
Functionality of digital outputs	
Analog outputs	
Resolution, range	
Functionality of analog outputs	
Voltage outputs	
Hall sensor supply voltage	
Encoder supply voltage	
Auxiliary output voltage	
Output voltage (reference)	
Ambient conditions	
Temperature – operation	.. °C
Temperature – storage	.. °C
Temperature – extended range	
Humidity (non-condensing)	.. %
Mechanical data	
Weight	g
Dimensions (L x W x H)	x x mm
Mounting	