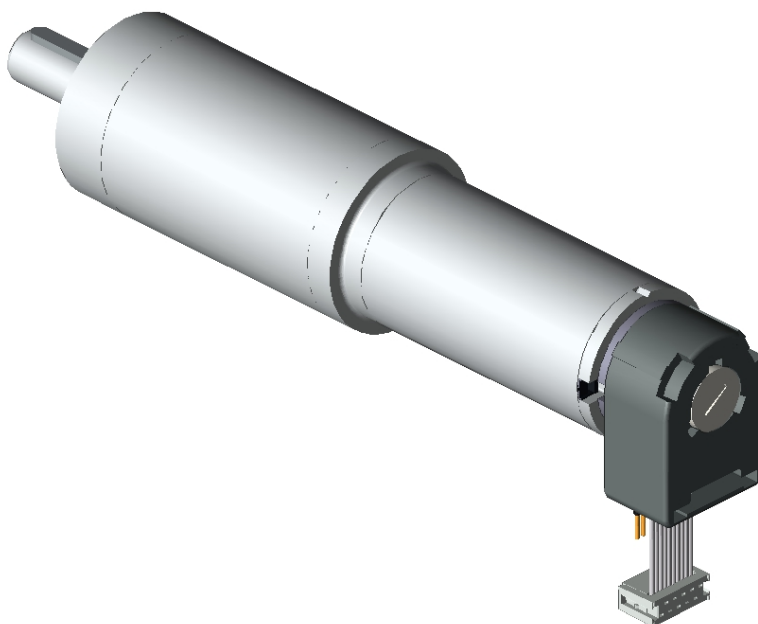


## Configured drive

Motor - DCX35L GB KL 18V  
Gearhead - GPX42UP 111:1  
Sensor - ENC 30 AEDL 5810 1024IMP

**Part number: B7E70FC706BE** Revision number 1

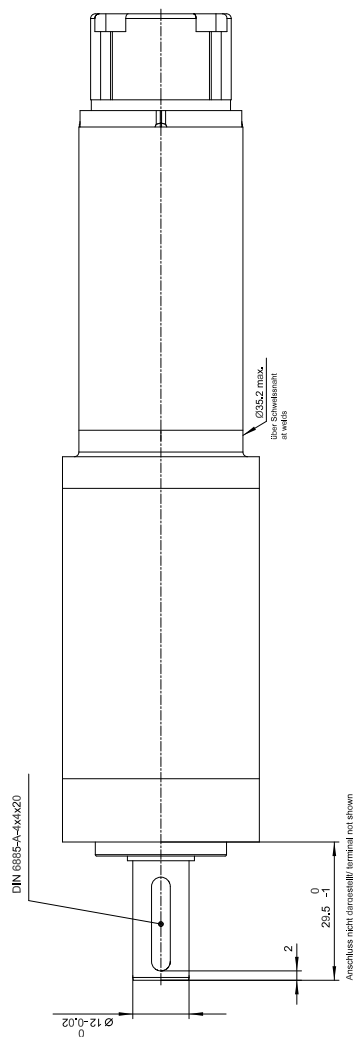
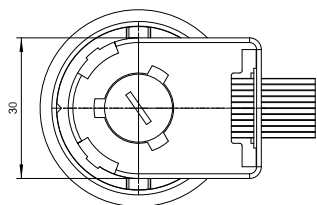
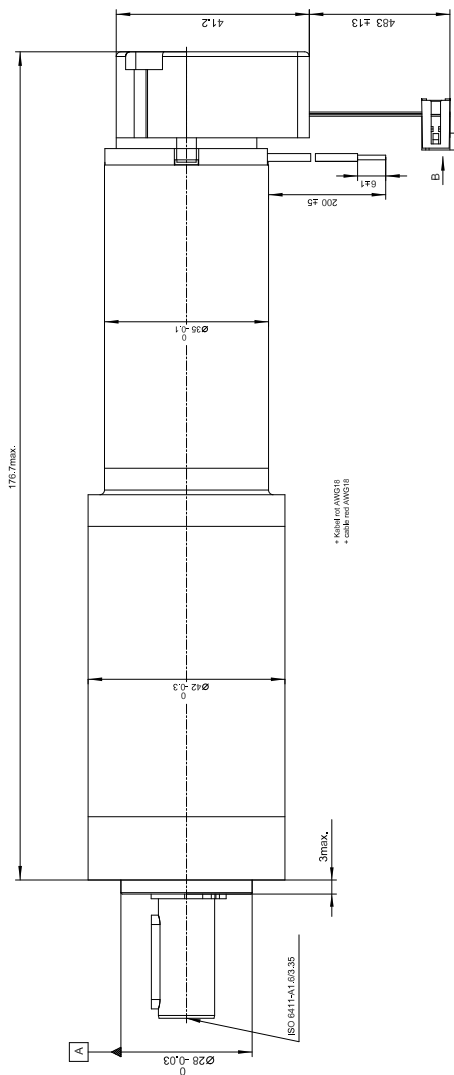
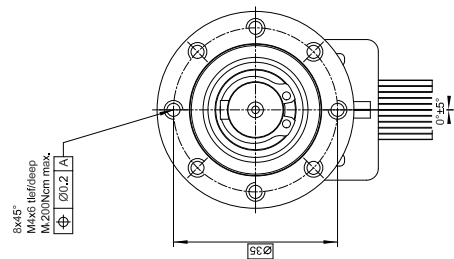
General Terms and Conditions [https://www.maxongroup.ch/maxon/view/content/terms\\_and\\_conditions\\_page](https://www.maxongroup.ch/maxon/view/content/terms_and_conditions_page)



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.

B7E70FC706BE.stp (STP AP 214)

Open configuration: <https://www.maxongroup.com/maxon/view/configurator/?ConfigID=B7E70FC706BE>



Unit of measure: mm



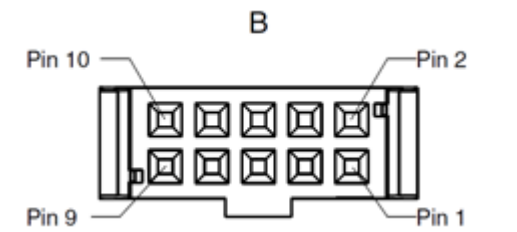
ISO 5456-1

ISO 1101

ISO 965-1

ISO 2768-m

ISO 8015



Connector type, encoder	
2.54mm 10-pol	
Pin 1	No connection
Pin 2	VCC
Pin 3	GND
Pin 4	No connection
Pin 5	Channel A \
Pin 6	Channel A
Pin 7	Channel B \
Pin 8	Channel B
Pin 9	Channel I \ (Index)
Pin 10	Channel I (Index)

## Summary of your selected configuration

Total weight of the drive: 1084 g

### DCX35L 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

### GPX42UP 111:1

#### Product detail

Gearhead type	Ultra Performance
Reduction	111
Number of stages	3

### ENC 30 AEDL 5810 1024IMP

#### Product detail

Counts per turn	1024
Cable type	Flachband TPE

## Legend for part designation

### EC-Motor:

A	Hall sensor version
B	Sensorless version
BL	Brushless
ECX	EC-motor (brushless)
FL	FLAT (type series name)
HP	High Power
HTQ	High Torque
HTQF	High Torque, fan-ventilated
KL	Ball bearings
PR	PRIME (type series name)
SP	SPEED (type series name)
SQ	SQUARE (type series name)
STD	Standard
STE	Sterilizable
STEC	Sterilizable, ceramic bearing
TQ	TORQUE (type series name)
M/L/XL	Medium / Long / Extra long

### DC-Motor:

CLL	Capacitor long life (spark suppression)
DC-max	DC motors (brushed)
DCX	DC motors (brushed)
EB	Precious metal brushes
GB	Graphite brushes
KL	Ball bearings
S/M/L	Short / Medium / Long
SL	Sintered sleeve bearings

### IDX Drive/Motor:

AB	Integrated brake
CO	CANopen interface
ENC	Encoder
ET	EtherCAT interface
IDX	Drive System
IO	I/O interface
P	Positioning-control
S	Speed-control
S/M/L	Short / Medium / Long

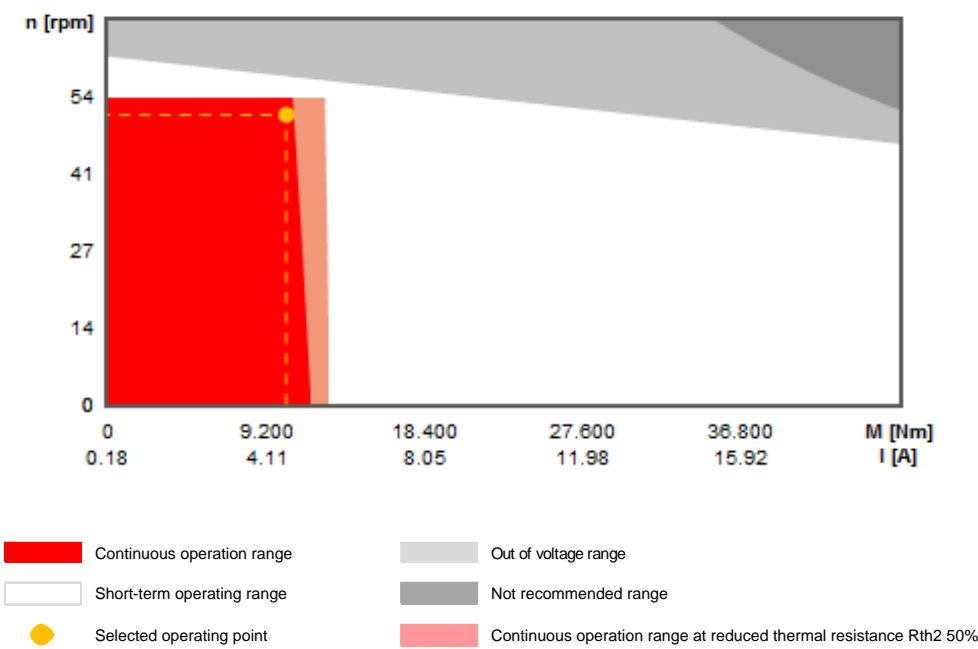
### Gearhead

A	Standard version
C	Ceramic version
GPX	Planetary gearhead
HP	High Power
LN	Reduced noise level
LZ	Reduced backlash
SP	SPEED (type series name)
ST	Number of stages
STE	Sterilizable
STES	Sterilizable, with sealing
UP	Ultra Performance

### Encoder/Sensor:

ABS	Absolute
BISSC	Bidirectional serial synchronous (protocol)
COMM	Commutation signals
EASY	(type series name)
EMT	(type series name)
ENX	Encoder
FFC	Flexible flat cable
GAMA	(type series name)
IMP	Pulses
INT	integrated
MAG	(type series name)
QUAD	(type series name)
RIO	(type series name)
SSI	Synchronous serial Interface (protocol)
XT	Extended version

Drive disposition



Combination details

Your entries

Available voltage	17 V
Speed	51 min <sup>1</sup>
Torque	10.351 Nm

Values of the drive at available voltage

Available voltage	17 V
Max. speed at given load	54 min <sup>1</sup>
Max. continuous torque	11.99 Nm
Max. continuous current	5.32 A

Required electrical data for your operating point

Speed	51 min <sup>1</sup>
Torque	10.351 Nm
Required voltage	15.11 V
Required current	4.62 A

## DCX35L GB KL 18V

### Product specification

#### Values at nominal voltage

Nominal voltage	18 V
No load speed	7200 min <sup>-1</sup>
No load current	177mA
Nominal speed	6640 min <sup>-1</sup>
Nominal torque (max. continuous torque)	120 mNm
Nominal current (max. continuous current)	5.32 A
Stall torque	1980 mNm
Stall current	84.8 A
Max. efficiency	88.1 %

#### Characteristics

Max. output power continuous	115 W
Terminal resistance	0.212 Ω
Terminal inductance	0.0774 mH
Torque constant	23.4 mNm A <sup>-1</sup>
Speed constant	408 min <sup>-1</sup> V <sup>-1</sup>
Speed/torque gradient	3.7 min <sup>-1</sup> mNm <sup>-1</sup>
Mechanical time constant	3.97ms
Rotor inertia	102 gcm <sup>2</sup>

#### Thermal data

Thermal resistance housing-ambient	6.98 KW <sup>-1</sup>
Thermal resistance winding-housing	2.1 KW <sup>-1</sup>
Thermal time constant of the winding	45.6 s
Thermal time constant of the motor	1030 s
Ambient temperature	-40...100 °C
Max. winding temperature	155 °C

#### Mechanical data

Max. permissible speed	12300 min <sup>-1</sup>
Axial play	0...0.1 mm
Preload	7 N
Radial backlash	0.02 mm
Max. axial load (dynamic)	7 N
Max. force for press fits (static)	22.6 N
Static, supported shaft	2510 N
Max. radial load 5 mm from flange	65.3 N
Measurement from the flange	5 mm

#### Further specifications

Number of pole pairs	1
Number of commutator segments	11

Motor weight	389.2 g
Motor length	70.4 mm
Typical noise level	48 dBA ( min <sup>1</sup> )

More information on the motor: <https://www.maxongroup.com/maxon/view/product/DCX35L01GBKL488?download=show>



## GPX42UP 111:1

### Product specification

#### Gearhead data

Reduction	111:1
Absolute reduction	357075/3211
Number of stages	3
Max. continuous torque	32.00 Nm
Max. intermittent torque	46 Nm
Direction of rotation, drive to output	=
Max. efficiency	90 %
Average backlash no-load	0.5 °
Mass inertia	10.7 gcm <sup>2</sup>
Max. transmittable power (continuous)	200 W
Max. short-time transferable output	250 W

#### Technical data

Output shaft bearing	Wälzlager
Max. radial play, 12 mm from flange	max. 0.06 mm
Axial play	0...0.2 mm
Max. permissible radial load, 12 mm from flange	750 N
Max. permissible axial load	200 N
Max. permissible force for press fits	500 N
Max. continuous input speed	6000 min <sup>-1</sup>
Max. intermittent input speed	6000 min <sup>-1</sup>
Recommended temperature range	-40..100 °C

More information on the gearhead: <https://www.maxongroup.com/maxon/view/product/GPX42UPKLSL0111CPLW?download=show>

## ENC 30 AEDL 5810 1024IMP

### Product specification

#### Sensor data

Counts per turn	1024
Number of channels	3
Line Driver	AM26C31QD
Max. electrical speed	14000 min <sup>1</sup>
Max. mechanical speed	30000 min <sup>1</sup>

#### 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	65...115 °el
Signal rise time/Signal fall time	10/10 ns
Min. state duration	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	60 mA
Max. moment of inertia of code wheel	0.6 gcm <sup>2</sup>
Operating temperature range	-40...85 C°
Number of autoclave cycles	0

More information on the encoder: <https://www.maxongroup.com/maxon/view/product/ENC30AEDL581001?download=show>