

## Configured drive

Motor - DCX22S GB KL 12V  
Gearhead - GPX22 C 21:1

**Part number: B8447C3B75B9** Revision number 1

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



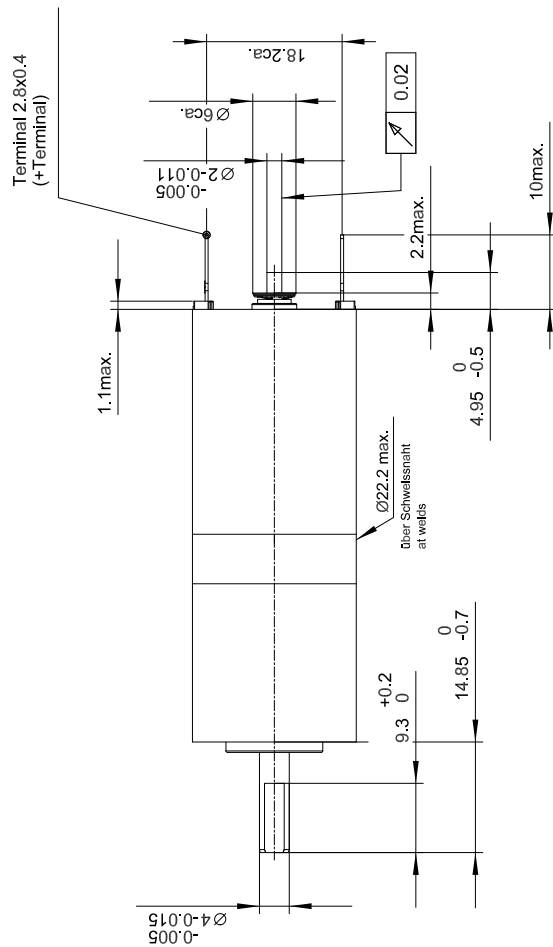
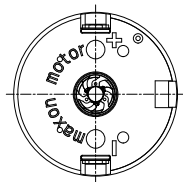
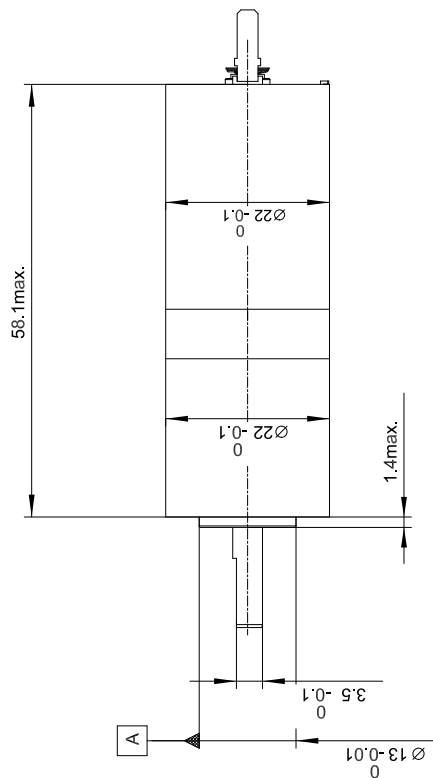
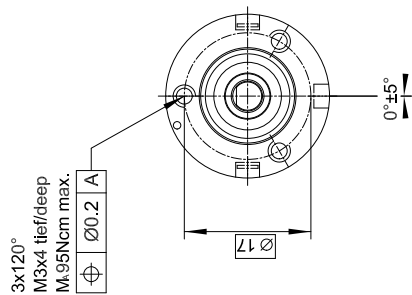
To open the integrated CAD file, please save this document and open it in Acrobat Reader. The STEP file is available after a double-click on the pin icon.



B8447C3B75B9.stp (STP AP 214)

Open configuration:

<https://www.maxongroup.com/maxon/view/configurator/&ConfigID=B8447C3B75B9>



Unit of measure: mm



ISO 5456-1

ISO 1101

ISO 965-1

ISO 2768-m

ISO 8015

Summary of your selected configuration

Total weight of the drive: 117 g

|                              |                        |
|------------------------------|------------------------|
| DCX22S GB KL 12V             |                        |
| Product detail               |                        |
| Commutation                  | Graphite brushes       |
| Nominal voltage              | 12                     |
| Motor bearings               | Preloaded ball bearing |
| Elec. connection, motor      |                        |
| Electrical connection, motor | Terminal               |
| Labeling                     |                        |
| Labeling                     | Your own text          |
| Your text                    | 12 v 21 - 1            |
| GPX22 C 21:1                 |                        |
| Product detail               |                        |
| Gearhead type                | CA                     |
| Reduction                    | 21                     |
| Number of stages             | 2                      |

## Legend for part designation

### EC-Motor:

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

### 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          |

### 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                |

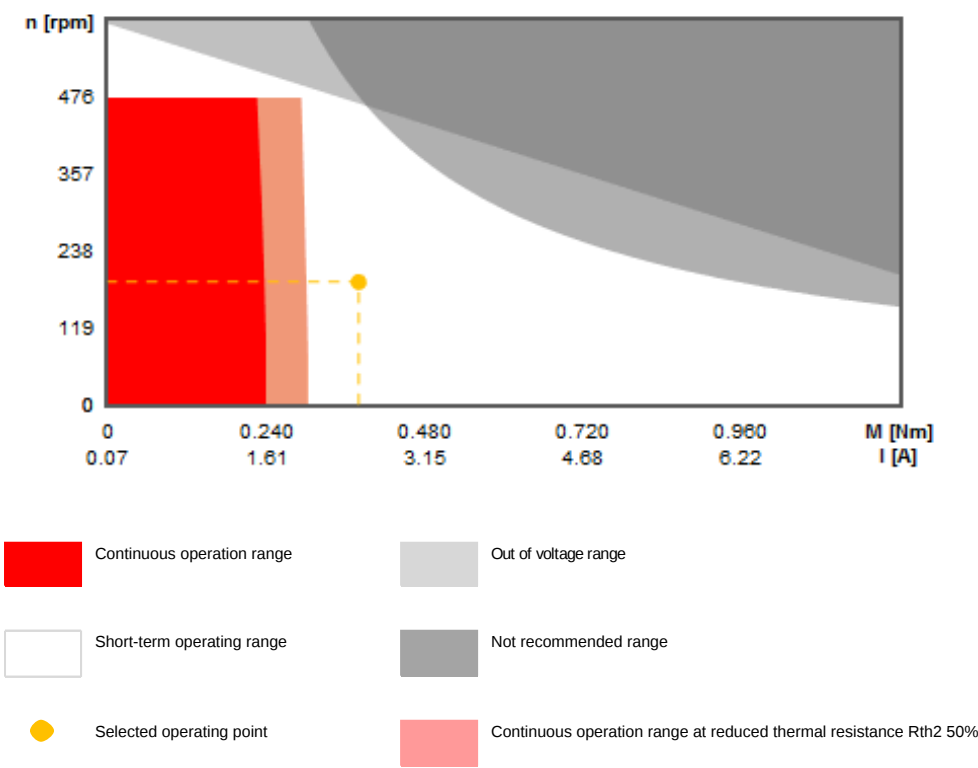
### Encoder/Sensor:

|       |                                             |
|-------|---------------------------------------------|
| 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                            |

### 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 |

Drive disposition



Combination details

Your entries

|                   |                       |
|-------------------|-----------------------|
| Available voltage | 12 V                  |
| Speed             | 190 min <sup>-1</sup> |
| Torque            | 0.38 Nm               |

Values of the drive at available voltage

|                          |                       |
|--------------------------|-----------------------|
| Available voltage        | 12 V                  |
| Max. speed at given load | 377 min <sup>-1</sup> |
| Max. continuous torque   | 0.25 Nm               |
| Max. continuous current  | 1.65 A                |

Required electrical data for your operating point

|                  |                       |
|------------------|-----------------------|
| Speed            | 190 min <sup>-1</sup> |
| Torque           | 0.38 Nm               |
| Required voltage | 6.41 V                |
| Required current | 2.49 A                |

## DCX22S GB KL 12V

### Product specification

#### Values at nominal voltage

|                                           |                         |
|-------------------------------------------|-------------------------|
| Nominal voltage                           | 12 V                    |
| No load speed                             | 12400 min <sup>-1</sup> |
| No load current                           | 71.7mA                  |
| Nominal speed                             | 10700 min <sup>-1</sup> |
| Nominal torque (max. continuous torque)   | 14.6 mNm                |
| Nominal current (max. continuous current) | 1.65 A                  |
| Stall torque                              | 108 mNm                 |
| Stall current                             | 11.8 A                  |
| Max. efficiency                           | 85.2 %                  |

#### Characteristics

|                              |                                         |
|------------------------------|-----------------------------------------|
| Max. output power continuous | 22.7 W                                  |
| Terminal resistance          | 1.02 Ω                                  |
| Terminal inductance          | 0.0576 mH                               |
| Torque constant              | 9.18 mNm A <sup>-1</sup>                |
| Speed constant               | 1040 min <sup>-1</sup> V <sup>-1</sup>  |
| Speed/torque gradient        | 116 min <sup>-1</sup> mNm <sup>-1</sup> |
| Mechanical time constant     | 6.12ms                                  |
| Rotor inertia                | 5.05 gcm <sup>2</sup>                   |

#### Thermal data

|                                      |                     |
|--------------------------------------|---------------------|
| Thermal resistance housing-ambient   | 16 KW <sup>-1</sup> |
| Thermal resistance winding-housing   | 7 KW <sup>-1</sup>  |
| Thermal time constant of the winding | 18.1 s              |
| Thermal time constant of the motor   | 528 s               |
| Ambient temperature                  | -40...100 °C        |
| Max. winding temperature             | 125 °C              |

#### Mechanical data

|                                    |                         |
|------------------------------------|-------------------------|
| Max. permissible speed             | 18000 min <sup>-1</sup> |
| 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        | 58.7 g                           |
| Motor length        | 31.7 mm                          |
| Typical noise level | 41 dBA (6000 min <sup>-1</sup> ) |

More information on the motor: <https://www.maxongroup.com/maxon/view/product/DCX22S01GBKL529?download=show>

## GPX22 C 21:1

### Product specification

#### Gearhead data

|                                        |                        |
|----------------------------------------|------------------------|
| Reduction                              | 21:1                   |
| Absolute reduction                     | 5175/247               |
| Number of stages                       | 2                      |
| Max. continuous torque                 | 0.90 Nm                |
| Max. intermittent torque               | 1.2 Nm                 |
| Direction of rotation, drive to output | =                      |
| Max. efficiency                        | 81 %                   |
| Average backlash no-load               | 1.1 °                  |
| Mass inertia                           | 0.501 gcm <sup>2</sup> |
| Max. transmittable power (continuous)  | 15 W                   |
| Max. short-time transferable output    | 19 W                   |

#### Technical data

|                                                    |                         |
|----------------------------------------------------|-------------------------|
| Output shaft bearing                               | Ball bearings           |
| Max. radial play, 5 mm from flange                 | max. 0.2 mm             |
| Axial play                                         | 0...0.2 mm              |
| Max. permissible radial load, 10 mm mm from flange | 100 N                   |
| Max. permissible axial load                        | 40 N                    |
| Max. permissible force for press fits              | 100 N                   |
| Max. continuous input speed                        | 10000 min <sup>-1</sup> |
| Max. intermittent input speed                      | 12500 min <sup>-1</sup> |
| Recommended temperature range                      | -40..100 °C             |

More information on the gearhead: <https://www.maxongroup.com/maxon/view/product/GPX22CAKLSL21D0CPLW?download=show>