

Stromag Light Cam® Compact Geared Cam Limit Switches



Stromag

Founded in 1932, Stromag has grown to become a globally recognized leader in the development and manufacture of innovative power transmission components for industrial drivetrain applications. Stromag engineers utilize the latest design technologies and materials to provide creative, energy-efficient solutions that meet their customer's most challenging requirements.

Stromag's extensive product range includes flexible couplings, disc brakes, limit switches, an array of hydraulically, pneumatically, and electrically actuated brakes, and a complete line of electric, hydraulic and pneumatic clutches.

Stromag engineered solutions improve drivetrain performance in a variety of key markets including energy, off-highway, metals, marine, transportation, printing, textiles, and material handling on applications such as wind turbines, conveyor systems, rolling mills, agriculture and construction machinery, municipal vehicles, forklifts, cranes, presses, deck winches, diesel engines, gensets and stage machinery.



Altra Motion

Altra is a leading global designer and producer of a wide range of electromechanical power transmission and motion control components and systems. Providing the essential control of equipment speed, torque, positioning, and other functions, Altra products can be used in nearly any machine, process or application involving motion. From engine braking systems for heavy duty trucks to precision motors embedded in medical robots to brakes used on offshore wind turbines, Altra has been serving customers around the world for decades.

Altra's leading brands include **Ameridrives**, **Bauer** Gear Motor, **Bibby** Turboflex, **Boston** Gear, **Delevan**, **Delroyd** Worm Gear, **Formsprag** Clutch, **Guardian** Couplings, **Huco**, **Jacobs** Vehicle Systems, **Kilian**, **Kollmorgen**, **Lamiflex** Couplings, **Marland** Clutch, **Matrix**, **Nuttall** Gear, **Portescap**, **Stieber**, **Stromag**, **Svendborg** Brakes, **TB Wood's**, **Thomson**, **Twiflex**, **Warner** Electric and **Wichita** Clutch.



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Stromag Geared Cam Limit Switches

AT A GLANCE



STROMAG LIGHT CAM[®] COMPACT

BENEFITS INCLUDE

- Form fit gear
- Self locking design for the cam discs
- High gear ratio 74 for adjusting the cams
- Very small dimensions

Series Light Cam[®] Compact – Basic Limit Switch

Revision number: 3.1.7.1-01

Revision date: 14.02.2022

Features

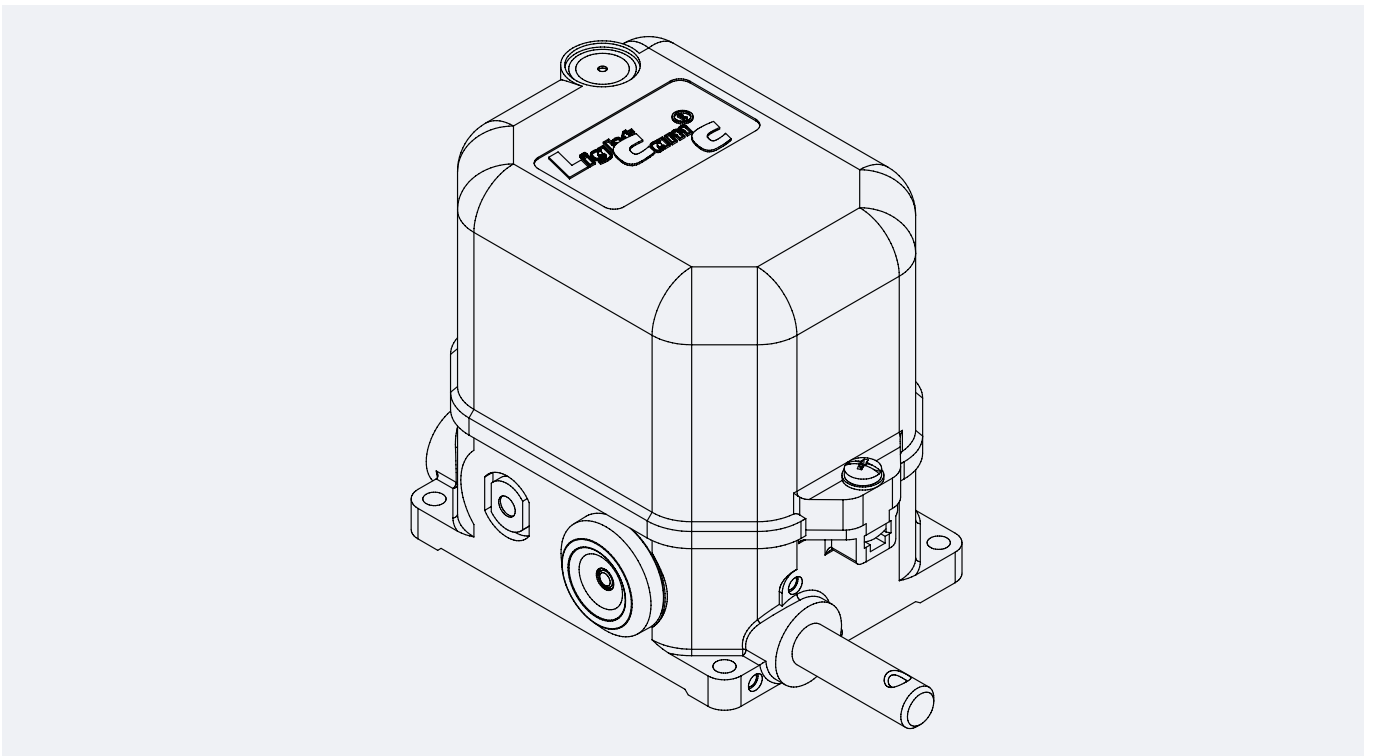
- Very small dimensions
- Combined worm / spur gear
- 2 or 4 switching contacts available

Application

- Crane & Hoists
- Stage

Additional information

- PBT synthetic housing, IP 66
- Ambient temperature -25° ... +60°C



Compact Worm Gear Limit Switches

Series Light Cam[®] Compact – Gear Data

Revision number: 3.1.7.2-01

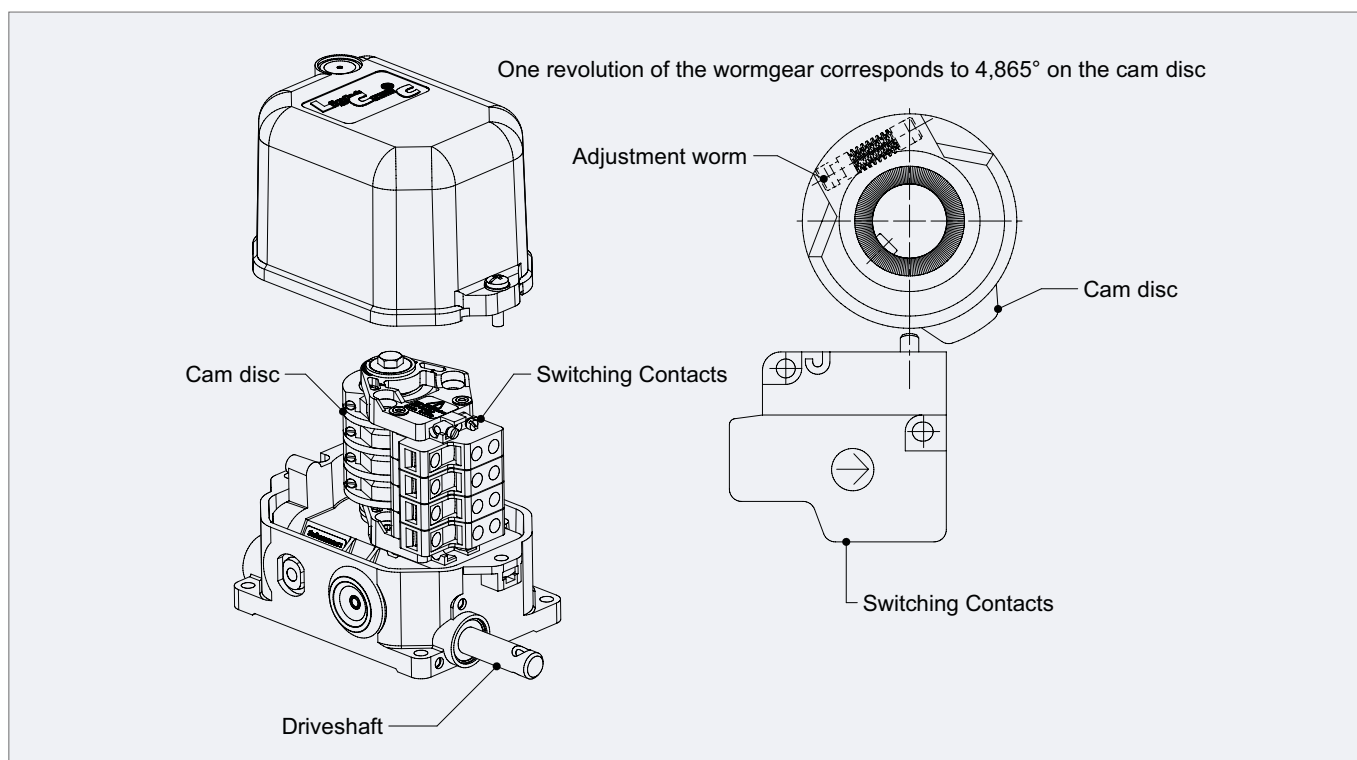
Revision date: 14.02.2022

Features

- Cam discs with fine adjustment and cam diameter of 42,5 mm
- Form fit gear design

Additional information

- Self-locking design for the cam discs
- Very precise adjustment via a self-locking adjusting worm with a high reduction ratio of 74:1



Gear table LCC for switches 99, 99A, 99G, 99T

| Nominal revolutions at 40° - cam disc | Ratio | Usable revolutions on drive shaft | Overrun revolutions on drive shaft | Switch back revolutions on drive shaft (average value) | | max. drive speed | min. drive speed | min. drive torque for switching 1 switch | max. drive torque for direct opening action 1 switch |
|---------------------------------------|-------|-----------------------------------|------------------------------------|--|----------|------------------|------------------|--|--|
| | | | | 99, 99G | 99A, 99T | | | | |
| [-] | [i] | [U] | [U] | [U] | [U] | [U/min] | [U/min] | [Nm] | [Nm] |
| 44 | 50,0 | 44,4 | 5,5 | 0,5 | 0,4 | 400 | 2,4 | < 0,2 | > 0,3 |
| 88 | 100,0 | 88,8 | 11,1 | 0,8 | 0,4 | | 4,9 | | |
| 132 | 150,0 | 133,3 | 16,6 | 0,9 | 0,4 | | 7,3 | | |
| 220 | 250,0 | 222,2 | 27,7 | 1,2 | 0,5 | | 12,2 | | |

Series Light Cam® Compact – Switching Contacts

Revision number: 3.1.7.3-01

Revision date: 14.02.2022

Features

- Switching contacts with positive opening
- For up to 10 million switching operations
- Push or snap action switching contacts
- Screw connection

Application

- Silver switching contacts for relays
- Corrosion-free, gold-plated switching contacts for smaller switching loads on request

Circuit diagram

Type of contact

| Switching contact | | | Contact material | | Switching system | | Connection | Functionality | | Electrical data | | |
|-------------------|-----------------------|----------------------|------------------|------------------------|--------------------|--------------------|--|---|--------------------------|---------------------------|--|---|
| Designation | Change-Over (NC / NO) | Normally closed (NC) | Silver | Gold (PLC-Application) | Snap-action switch | Push-action switch | screw terminals; 0,5 - 1,5 mm ² / AWG 22 ... 16 | Direct opening acc. to EN 60947-5-1 Annex K | Short circuit protection | Ratings acc. to IEC 60947 | Conventional thermal current I _{th} | Rated Insulation Voltage U _i |
| 99 | • | | • | | • | | • | • | 10A gG | AC-15: 1,5A, 230V | 10A | 250V |
| 99G | • | | | • | • | • | • | 2A gR | | | | |
| 99T | | • | • | | | • | • | • | 10A gG | DC-13: 0,5A, 60V | | |
| 99A | | • | | • | • | • | • | • | 2A gG | DC-13: 2,0A, 24V | | |

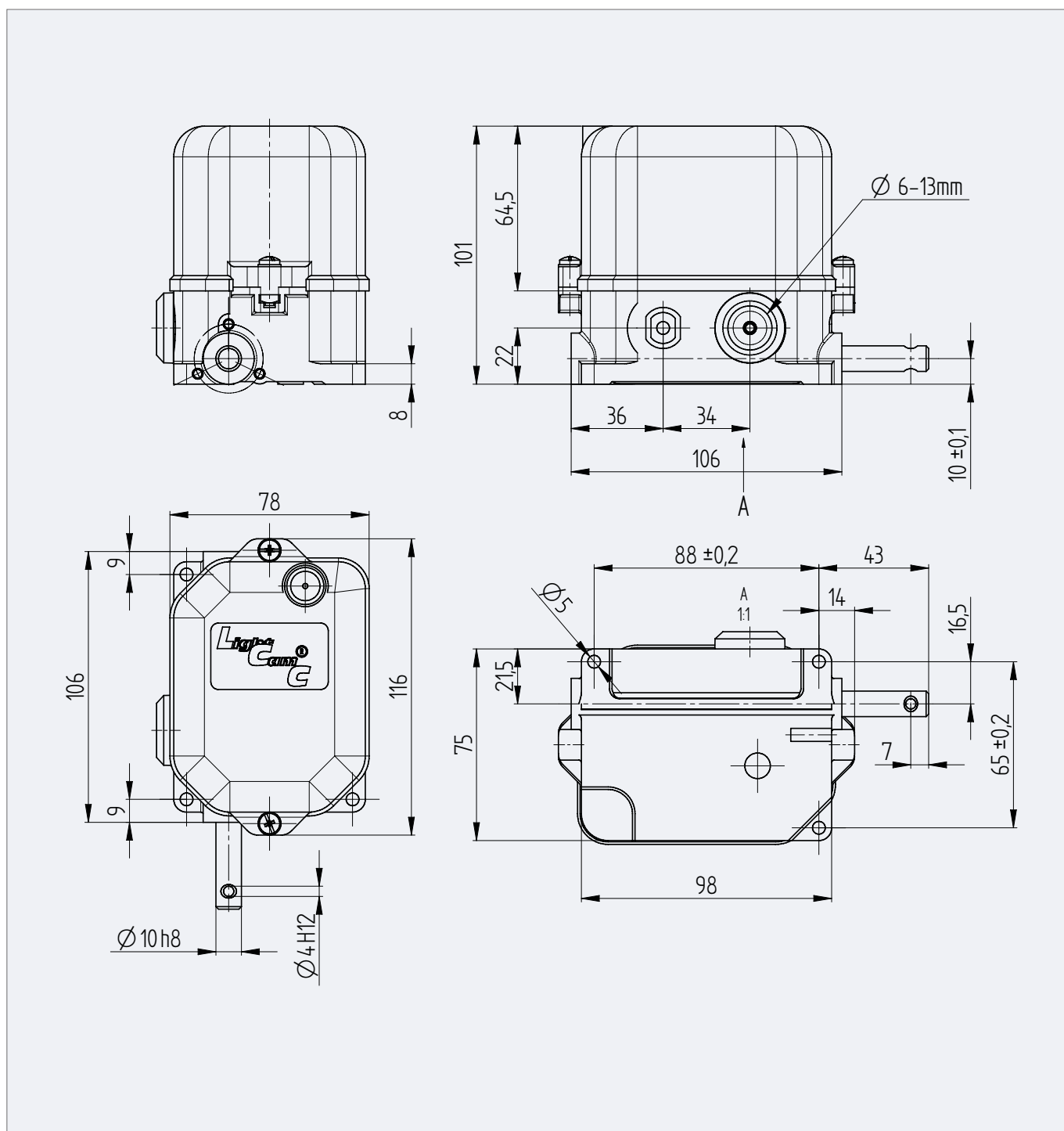
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Compact Worm Gear Limit Switches

Series Light Cam® Compact – XXX_LCC_XXX_AAA

Revision number: 3.1.7.4-01

Revision date: 14.02.2022



Series Light Cam[®] Compact – Customizable Cam Discs

Revision number: 3.1.7.5-01

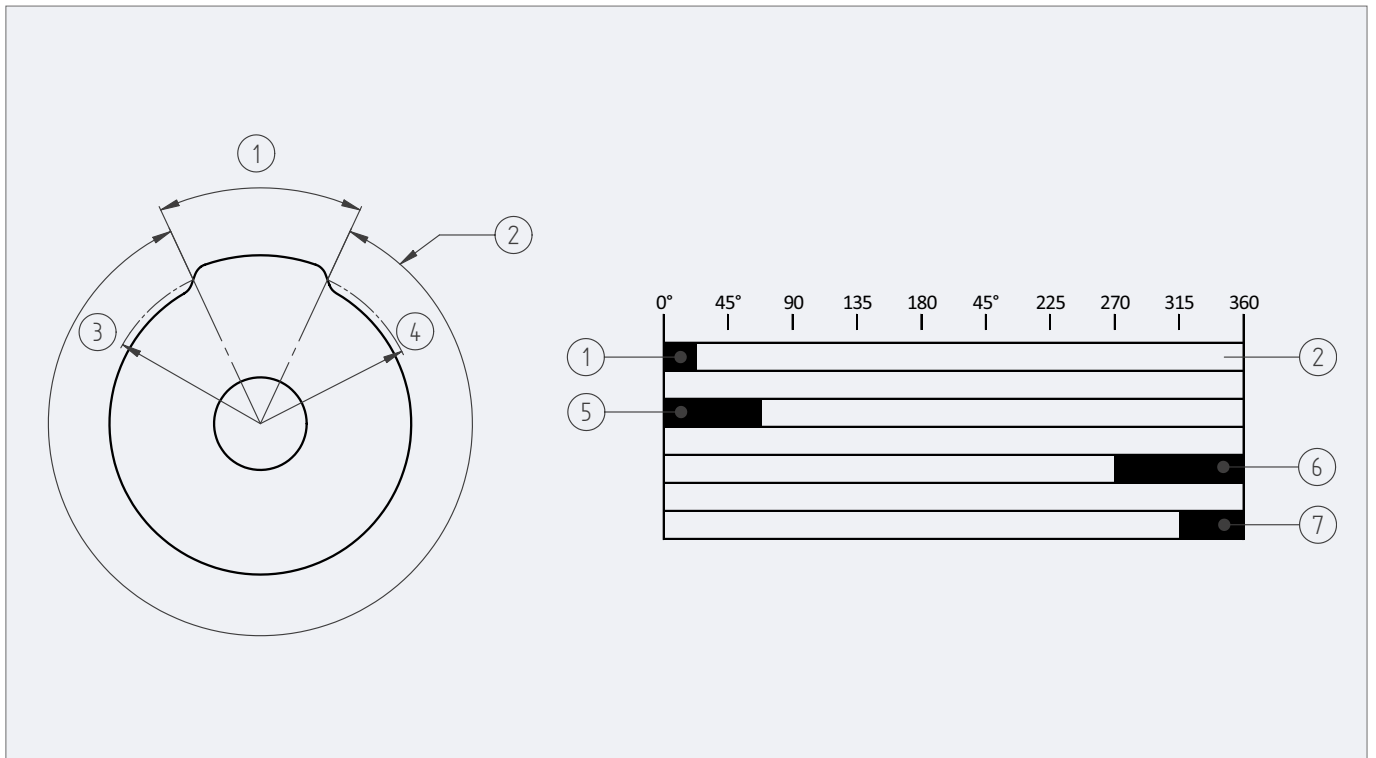
Revision date: 14.02.2022

Features

- 40 degree standard cam discs
- 15 and 60 degree cam discs free of charge on request
- Other cam angles on request against surcharge

Application

- For different switching programs cam discs with customized angles can be manufactured



- | | |
|---|--|
| 1 | Effective cam angle α [°] (=castor angle) |
| 2 | Effective cam angle β [°] |
| 3 | Switching point radius |
| 4 | Reset point radius |

- | | |
|---|-------------------------|
| 1 | Effective cam angle 15° |
| 5 | Effective cam angle 60° |
| 6 | Effective cam angle 90° |
| 7 | Effective cam angle 45° |

The cam discs are named after the effective cam angle. For cam discs of series Light Cam[®] Compact, this corresponds to the switching point angle on the switching point radius of the cam disc.

Standard cam angle for series Light Cam[®] Compact is 40°.

Any cam angles (15° up to 345°) can be supplied as a special design upon request.

The usable revolutions enabled by a cam disc on a Geared Cam Limit Switch drive shaft, result in the following:

$$U = i * \frac{\beta^\circ}{360^\circ} = i * \frac{(360^\circ - \alpha^\circ)}{360^\circ} = i * \left(1 - \frac{\alpha^\circ}{360^\circ}\right)$$

U = Usable revolutions

α = Effective cam angle [°]

β = Usable cam angle ($\beta = 360^\circ - \alpha$) [°]

i = gear ratio see gear table

Compact Worm Gear Limit Switches

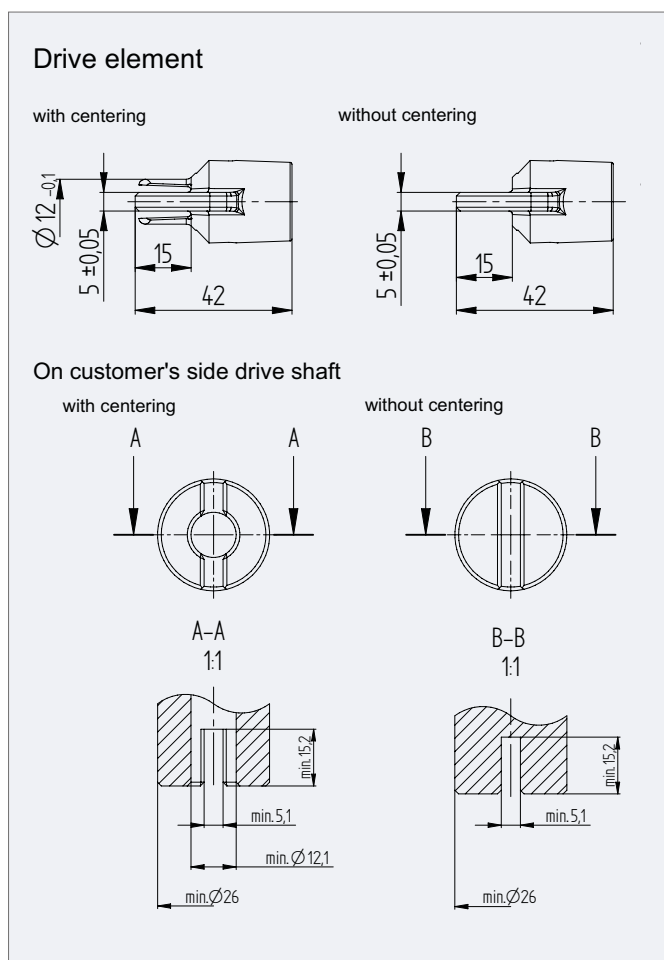
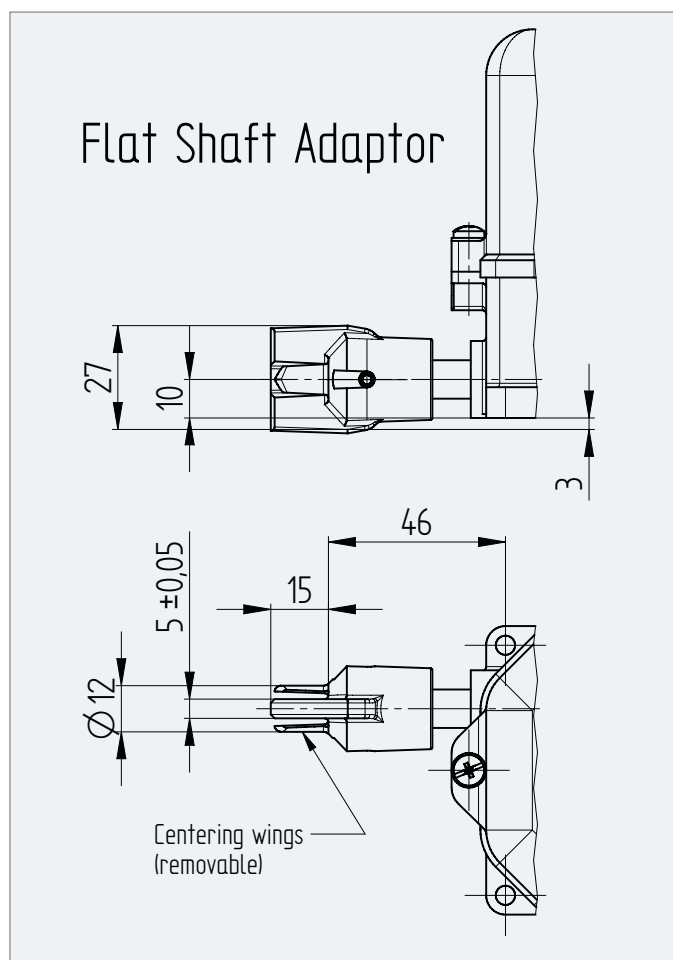
Series Light Cam® Compact – Drive Elements

Revision number: 3.1.7.6-01

Revision date: 14.02.2022

Features

- Simple connection to the machine shaft via the flat shaft adaptor

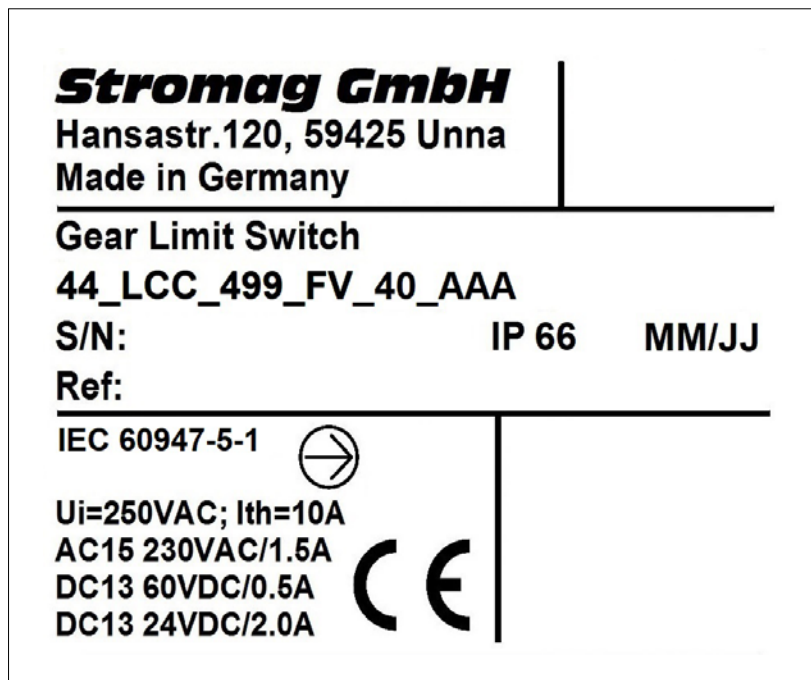


| General data | | |
|--|---------------|--------------------|
| Specification | Value | Remark |
| Weight | 0,009kg | |
| Material | PA6 schlagzäh | Synthetic material |
| Assembly Precision: Avoid misalignment between the driving shaft of the machine and the drive element of the product. | | |

Series Light Cam[®] Compact – LCC

Revision number: 3.1.7.7-01

Revision date: 14.02.2022



| | | |
|-----|---------------------------------|---|
| 44 | Nominal revolutions | See gear table |
| LCC | Series | Gear Limit Switch LCC |
| 4 | Quantity of switches | 2 or 4 |
| 99 | Type of switches | See available switches |
| FV | Type of cam discs | Precise adjustable |
| 40 | Effective cam angle [°] | all cam discs X customized, see sales text |
| A | Design | A with feet (B3) X customized, see sales text & additional data sheet |
| A | Cable entry / connection option | A sealing grommet Ø 6...13 mm B cable gland Ø 4...14 mm X customized, see sales text & additional data sheet |
| A | Drive option | A cross hole Ø 4H12 B drive element Flat Shaft Adaptor X customized, see sales text & additional data sheet |
| | Additional option | X customized, see sales text & additional data sheet |

