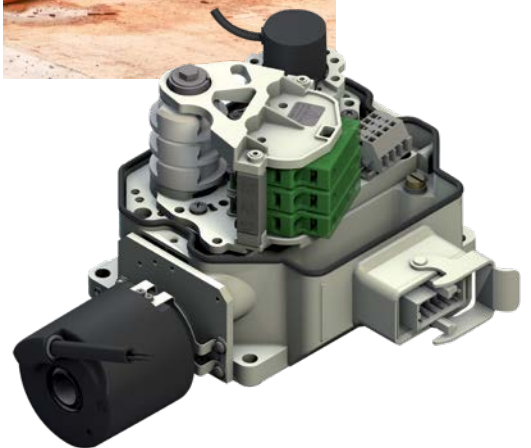


Geared Cam Limit Switches Light Cam[®] and Light Cam[®]M



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.



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Altra Industrial Motion

Altra is a leading global designer and manufacturer of quality power transmission and motion control products utilized on a wide variety of industrial drivetrain applications. Altra clutches and brakes, couplings, gearing and PT component product lines are marketed under the industries most well known manufacturing brands. Each brand is committed to the guiding principles of operational excellence, continuous improvement and customer satisfaction. Highly-engineered Altra solutions are sold in over 70 countries and utilized in a variety of major industrial markets, including food processing, material handling, packaging machinery, mining, energy, automotive, primary metals, turf and garden and many others.

Altra's leading brands include **Ameridrives**, **Bauer** Gear Motor, **Bibby** Turboflex, **Boston** Gear, **Delroyd** Worm Gear, **Formsprag** Clutch, **Guardian** Couplings, **Huco**, **Industrial** Clutch, **Inertia** Dynamics, **Kilian**, **Lamiflex** Couplings, **Marland** Clutch, **Matrix**, **Nuttall** Gear, **Stieber**, **Stromag**, **Svendborg** Brakes, **TB Wood's**, **Twiflex**, **Warner** Electric, **Warner** Linear and **Wichita** Clutch.

VISIT US ON THE WEB AT **ALTRAMOTION.COM**



CATALOG NO. D 143

This catalogue for limit switches series Light Cam® cancels and re-replaces all former editions.

We reserve the right to modify the dimensions and constructions.

Stromag products comply with the Quality Standard to DIN ISO 9001.

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Geared Cam Limit Switch Light Cam® and Light Cam® M

General

Stromag Light Cam® series geared cam limit switches are universal mechanical switching devices which present a large number of input shaft revolutions on the rotation angle of one single revolution of the cam discs.

The cam discs serve to operate the contacts. Stromag Light Cam® series geared cam limit switches are used wherever specific ranges of travel can be limited indirectly only by switching devices.

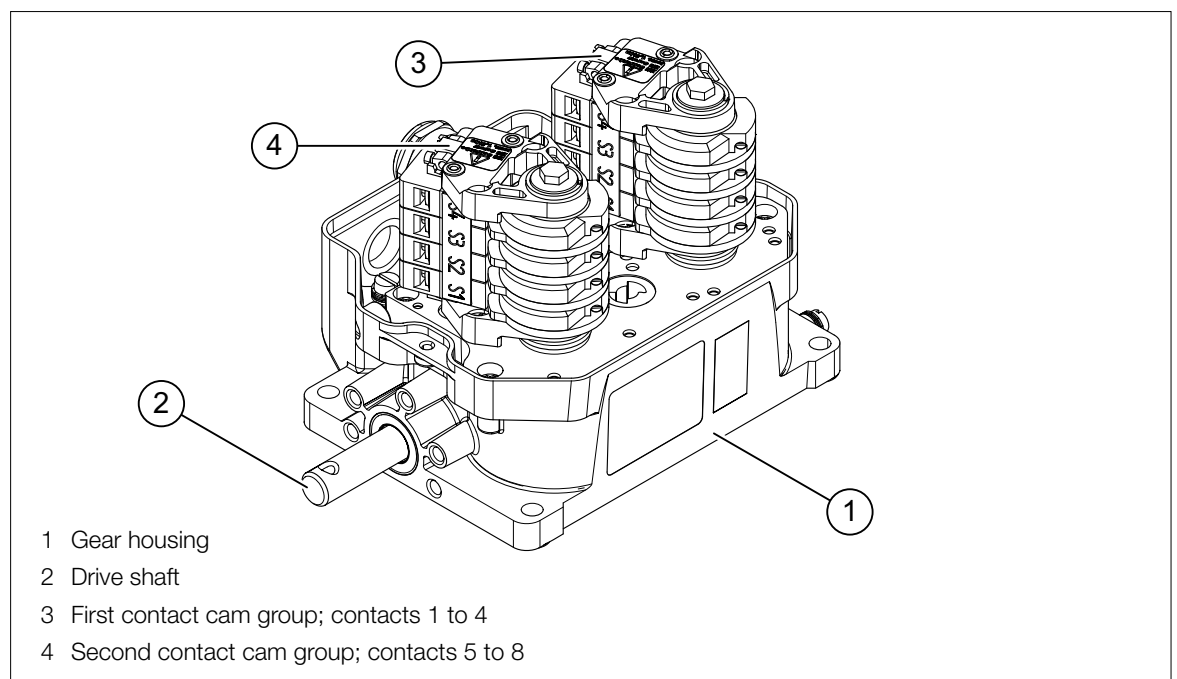
Classical applications of these limit switches are lifting, travelling and slewing gears of cranes, wind power stations, bucket elevators, etc.

Especially where a danger to persons exists and the **use of positive opening switching contacts is required according to EN 60947, part 5 – 1, IEC 947 – 5 – 1**, the use of geared cam limit switches is the most efficient alternative.

Benefits include

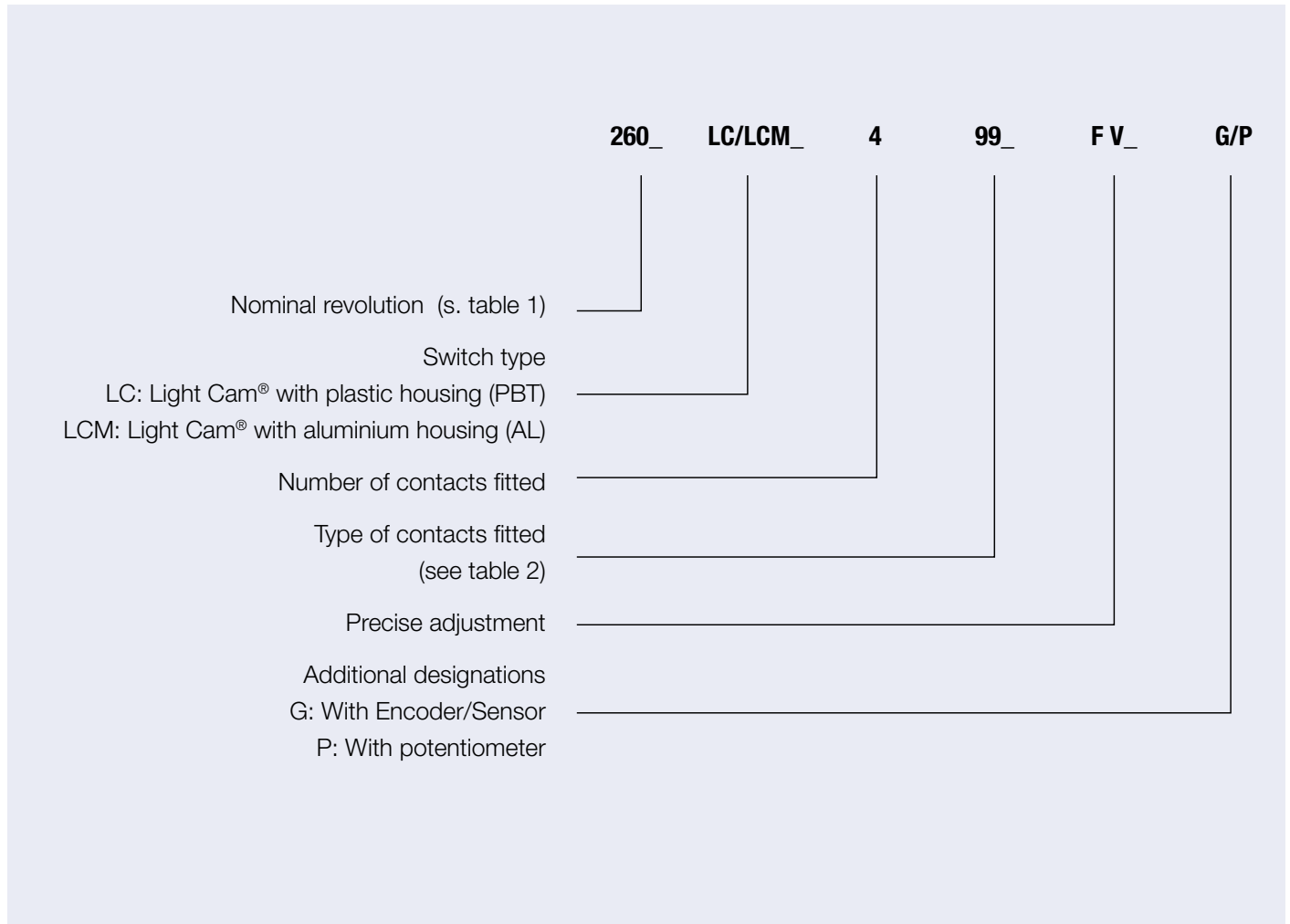
- Combined worm/spur gears for high gear reductions requiring less mounting space; different, precisely graduated gear reduction
- Cam discs with precise adjustment
- Utilisation of switching contacts for switching voltages of 250 VAC, gold contacts on request
- Available with
 - 4 contacts = 1 contact group
 - 8 contacts = 2 contact groups
- Utilisation of potentiometers is possible with gear intermediate speeds or with cam disc speed omitting one contact assy.

Construction of the geared cam limit switch



Geared Cam Limit Switch Light Cam® and Light Cam® M

Ordering example 260_LC/LCM_499_FV



SERIES	LIGHT CAM®/LIGHT CAM® M	
Type	260_LC/LCM_499_FV	
Numbers of usable revolutions	e.g. 135	s. table 1
Numbers of contacts	e.g. 4	Available with 4 or 8 change over contacts as well as 3 NC/NC or NC/NO alternativley contacts
Type of contacts	e.g. 99	s. contact table 2
Construction	Foot mounted	
Protection	IP 65/IP 66	Light Cam® IP 65 / Light Cam® M IP 66

Geared Cam Limit Switch Light Cam[®] and Light Cam[®]M

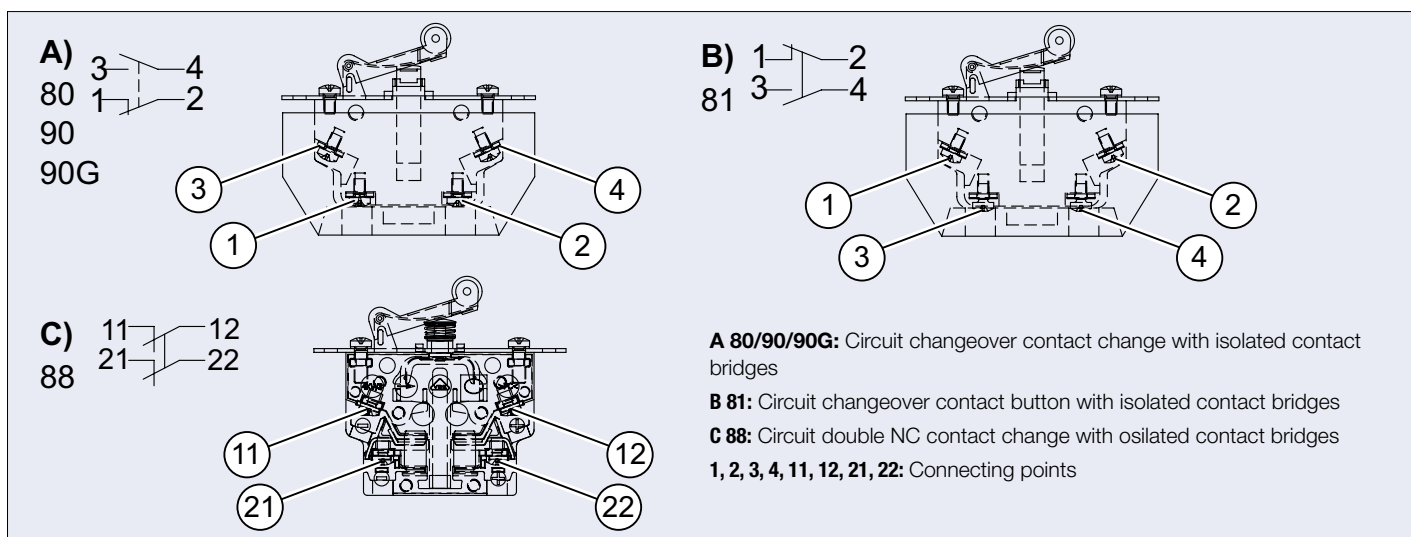
Gear: Table 1 for contacts 99 and 99 P with cam disc 40°/50

Nominal revolutions	Usable revolutions	Gear ratio i	1 rev. of the drive shaft = corresp. to an ang. motion of cam disc = °	Reset rev. at driving shaft +/- 1%		Gear system	max. drive speed ¹⁾
				Clockwise rotation ²⁾	Counter clockwise rotation ²⁾		
0,85	0,88	1,00	360	~0,03	~0,03	Straight bevel gear	200
1,85	1,88	2,11	170	~0,04	~0,04		
3,9	3,98	4,48	80	~0,05	~0,05		
6,0	6,03	6,78	53	~0,06	~0,06		
9,0	9,11	10,25	35	~0,07	~0,07		
15	15,1	16,99	21	~0,10	~0,10		
25	26,37	29,67	12	~0,15	~0,15		
29	29,8	33,53	10,7	~0,40	~0,40	Worm spur gear	600
53	53,3	60,00	6,00	~0,50	~0,50		
76	76	85,50	4,21	~0,60	~0,60		
95	95,4	107,37	3,35	~0,65	~0,65		
135	136	153,00	2,35	~0,80	~0,80		
180	185,6	208,77	1,72	~1,0	~1,0		
260	264,4	297,50	1,21	~1,3	~1,3		
360	361,7	406,87	0,89	~1,70	~1,75		
435	435,5	489,94	0,74	~2,00	~2,1		
515	515,4	579,79	0,62	~2,3	~2,4		
620	620,6	698,16	0,52	~2,7	2,80		
880	884,33	994,88	0,36	~3,7	~3,9		

1) For short-time operation higher driving speed possible on request

2) View of direction onto the shaft

ELECTRICAL PARAMETERS AND POSITION OF SWITCHING CONTACTS



Geared Cam Limit Switch Light Cam[®] and Light Cam[®]M

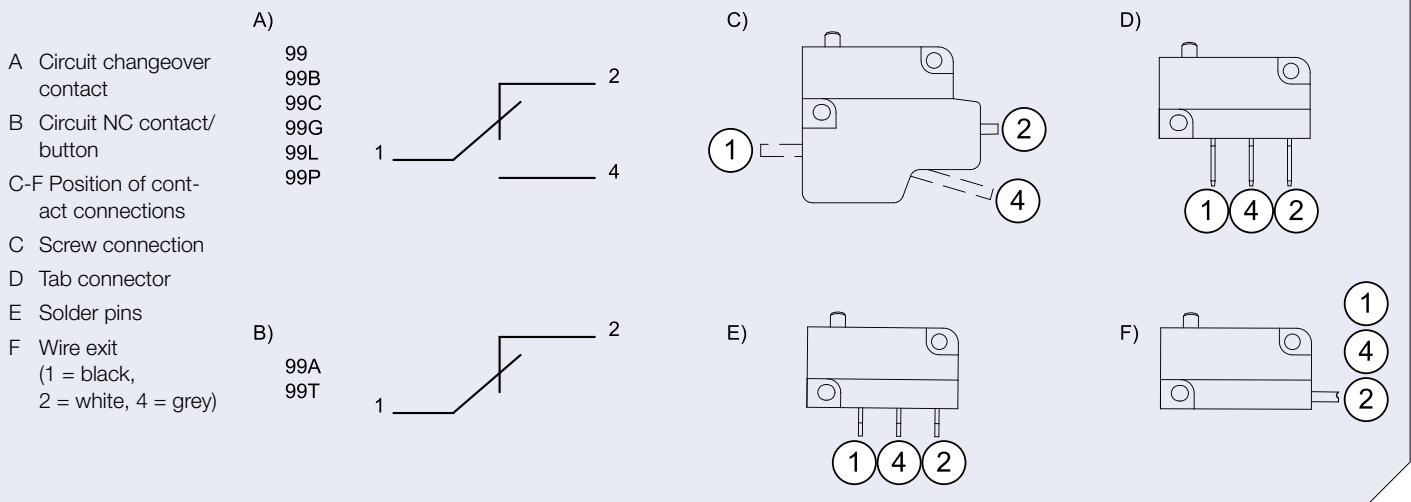
Table 2: Three-phase AC current

Switching contacts		Contact material		Control system		Function	Electrical data					Life circle	Temperature	
Designation	Circuit as changeover contact	Circuit as NC contact	Silver	Gold (PLC application)	Snap-action switch		Push action switch	Switching capacity connected load according to EN 60947-5-1 AC-15	Radio switching capacity according to EN 60947-5-1 AC-12	I_n Continuous thermal current	Short-circuit protection			U_i Rated insulation voltage
80	•		•		•		3A	230V ¹⁾		10A	400V	10x10 ⁶	-40°C – +85°C	
81	•				•	3A	6A gR							
88		•		•	•	1,5A	6A gR							10A gG
90	•		•		•	1A	6A gG							
90G	•			•	•		0,25A	230V ¹⁾	2A gR	250V	10x10 ⁶	-40°C – +85°C		
99	•		•		•	1,5A	230V	10A	10A gG					
99P	•		•		•				10A gG					
99G	•			•	•				2A gR					
99L	•		•		•				10A gG					
99T		•	•		•				10A gG					
99A		•		•	•				2A gR					
99B	•			•	•				2A gR					
99C	•		•		•				10A gG					

¹⁾ Values with ohmic load

²⁾ EN 60947-5-1

Kontaktdaten für Gleichstrom auf Anfrage



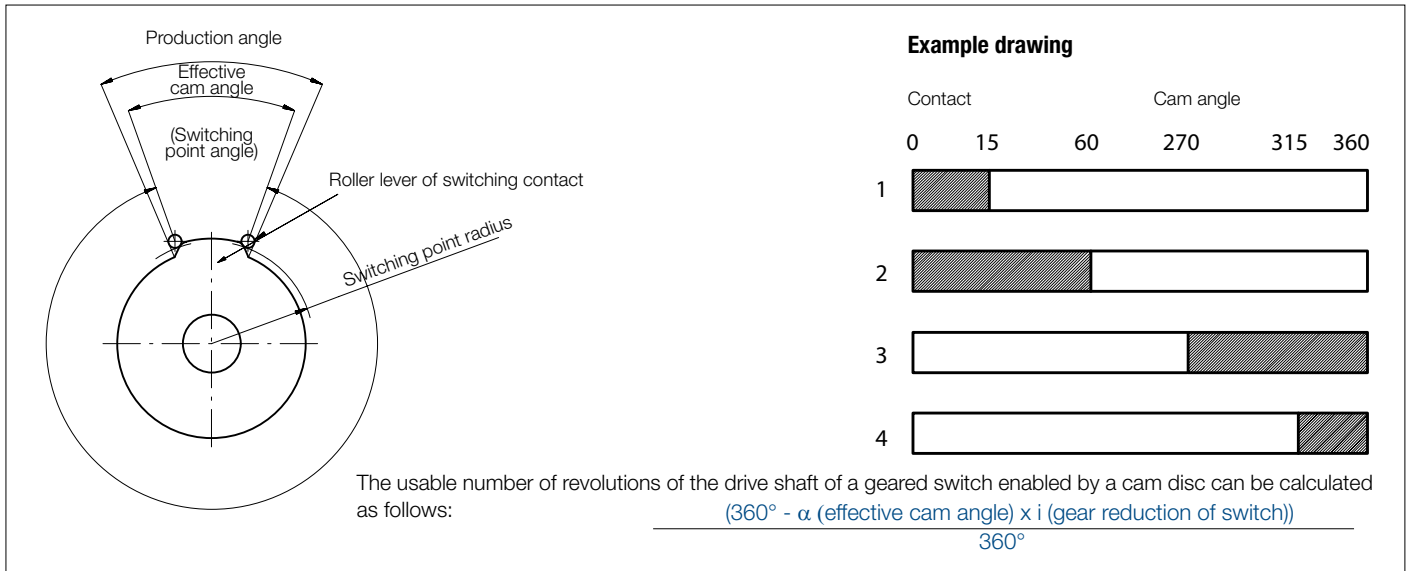
Geared Cam Limit Switch Light Cam® and Light Cam®M

Cam discs

The cam discs are provided with 40 contact cams as standard. On request cam discs with any other cam angle can be provided at extra charge. Special cam discs are already made in our works as per the customer's specification.

When not stating the cam angle on order placement, cam discs with a cam angle of 40 will be fitted.

For special cam discs with a firm program please provide a diagram similar to the below shown example drawing.



Construction

As a standard the Stromag Light Cam® series geared cam limit switches are always supplied in pedestal execution. Housing and feet form one piece; the feet cannot be removed.

As an option a flange can be screwed to the input side of the geared cam limit switch. The supplement FL80 or FL85 is added to the type designation.

Generally the fixing bores are provided for the two flange executions. They can be used optionally. The assembly dimensions are stated on the dimensional drawing (fixing pitch circle 96 or 100 mm is possible).

Protection

The housing has protection IP65 Light Cam® (IP 66 Light Cam®M) to DIN VDE 0470 – 1 / EN 60529. To improve the protection against water penetration, the cap is equipped with a protruding dropping edge, which also covers the sealing.

Approvals

CE, cUL, CSA, CCC

TECHNICAL DATA

Gear ratios from 1,0:1 to 1:1320

Up to 3 NC/NC or NC/NO or up to 8 change over switching contacts

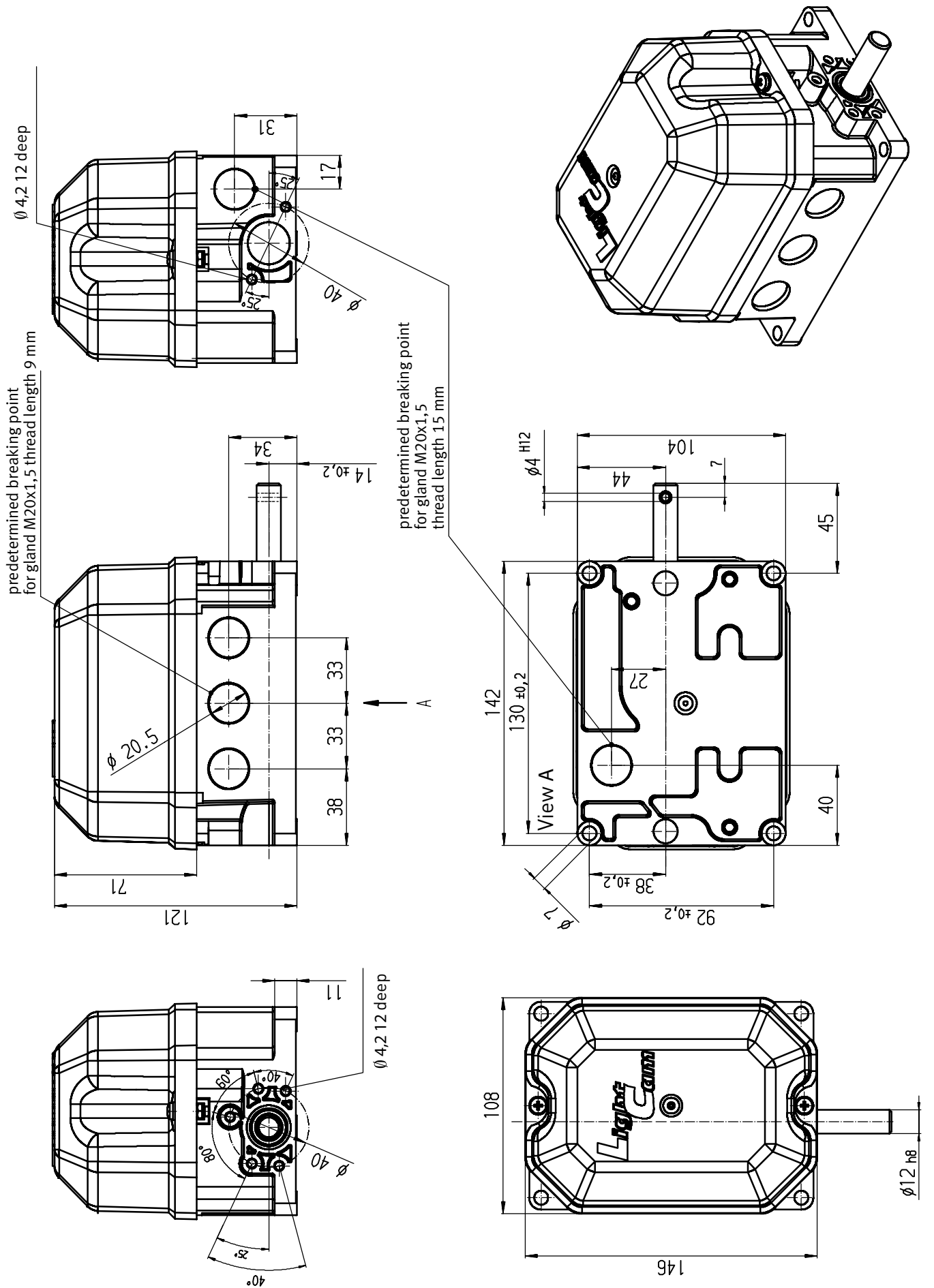
Incremental and absolute encoder assembly possible in- and outside

Easy and quick adjustment of cams

High Protection:	Light Cam®: IP 65 Light Cam®M: IP 66
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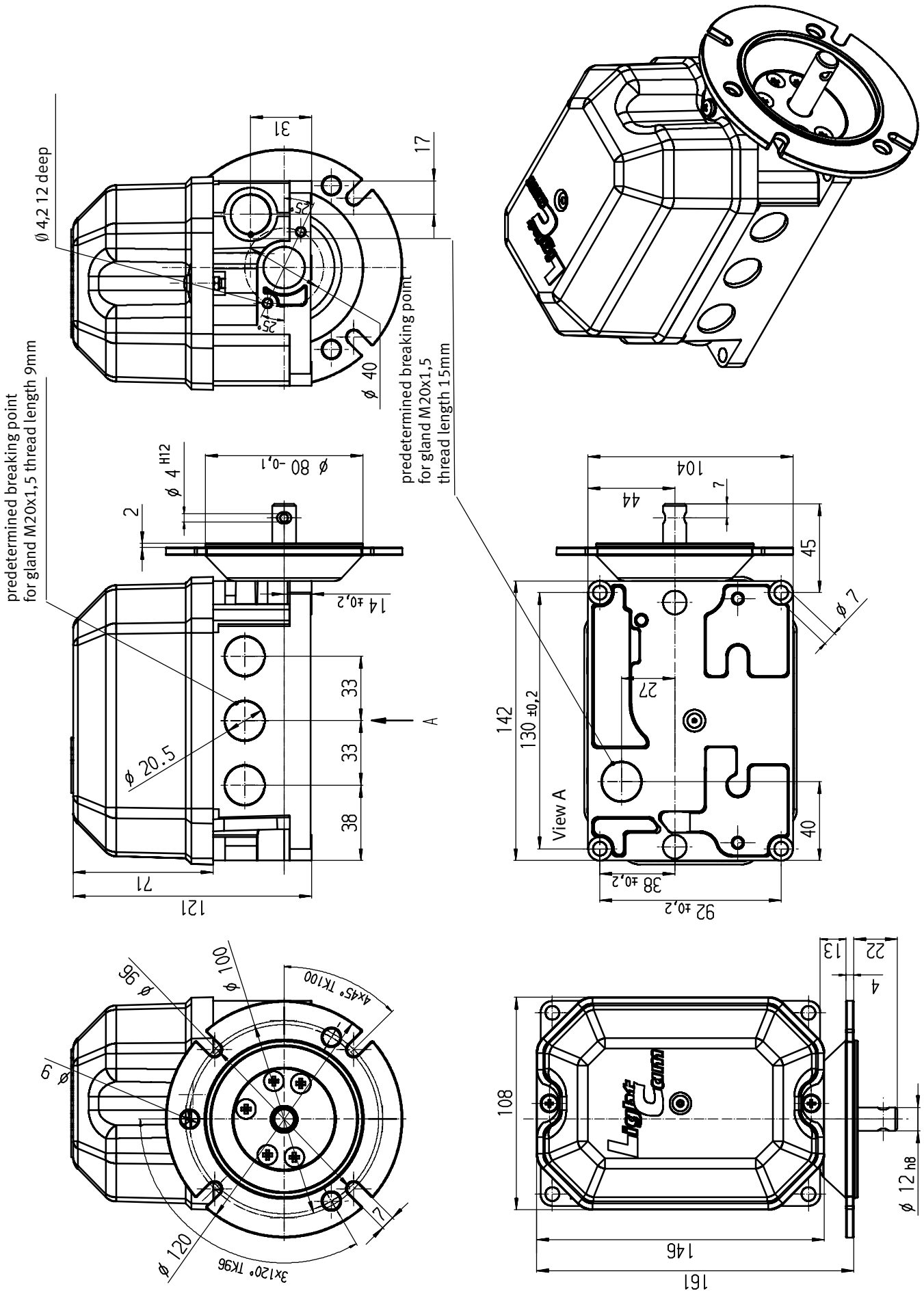
Geared Cam Limit Switch Light Cam[®] and Light Cam[®]M

Dimensional figure pedestal execution Light Cam[®]



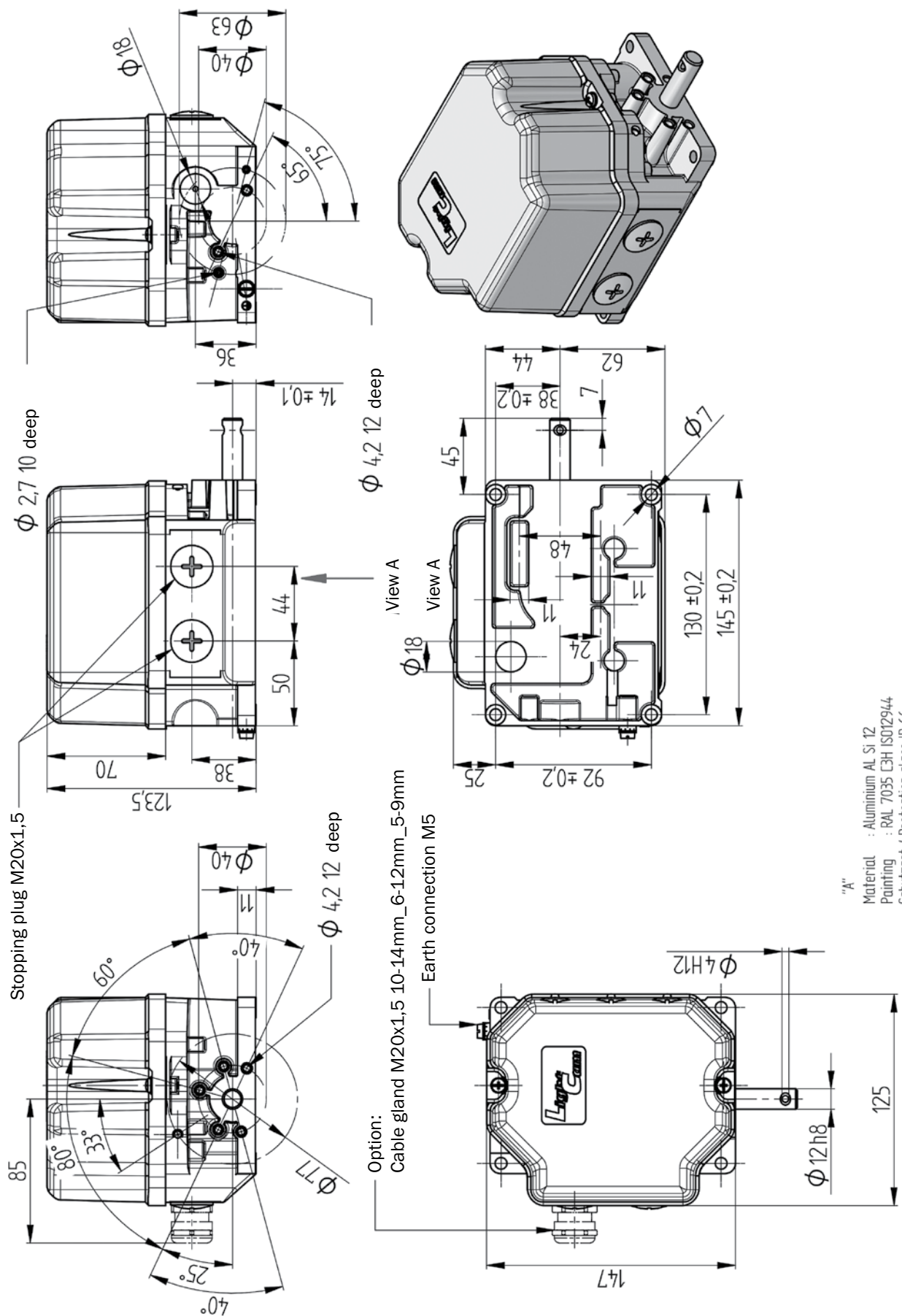
Geared Cam Limit Switch Light Cam® and Light Cam® M

Dimensional figure flange execution Light Cam®



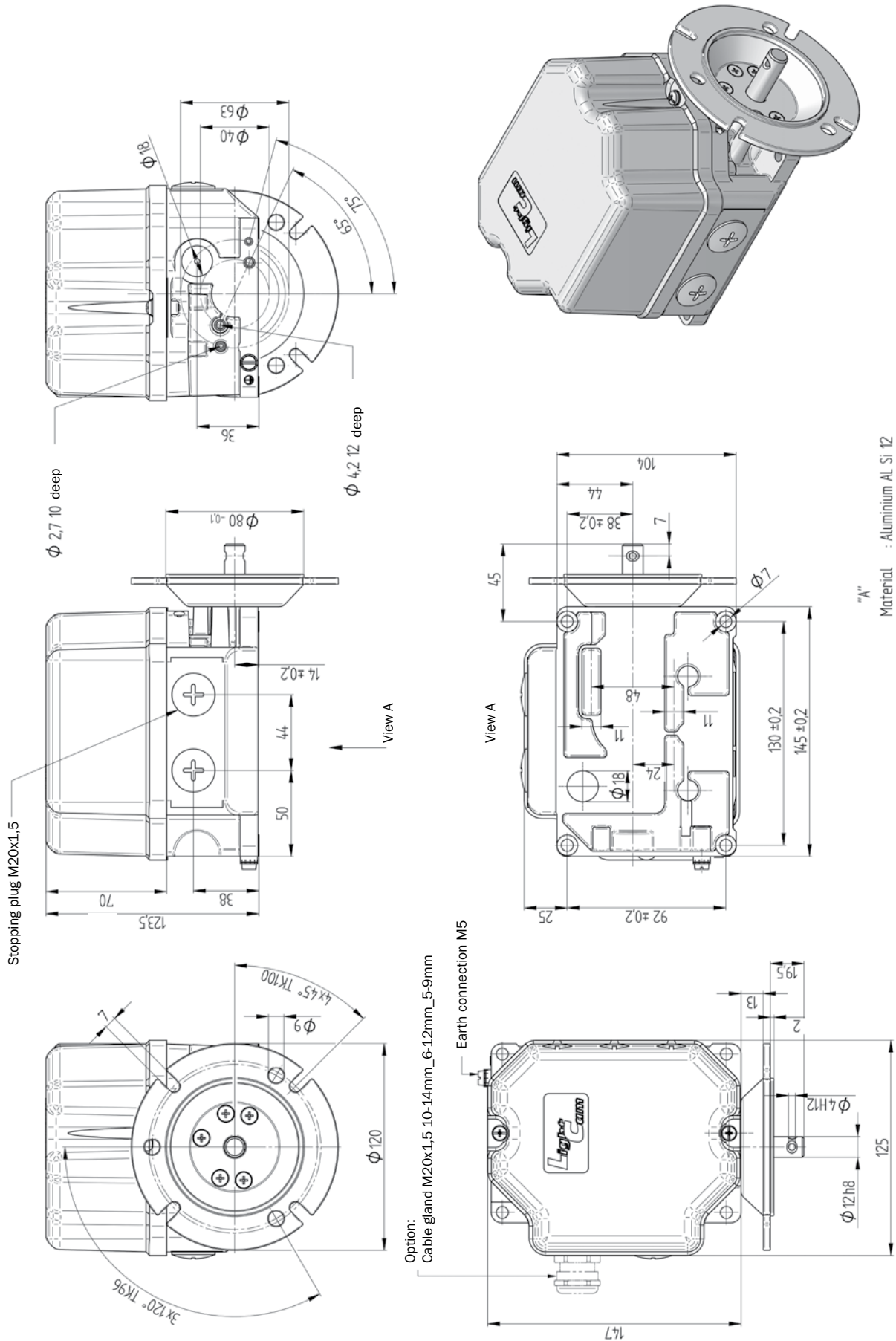
Geared Cam Limit Switch Light Cam[®] and Light Cam[®]M

Dimensional figure pedestal execution Light Cam[®]M



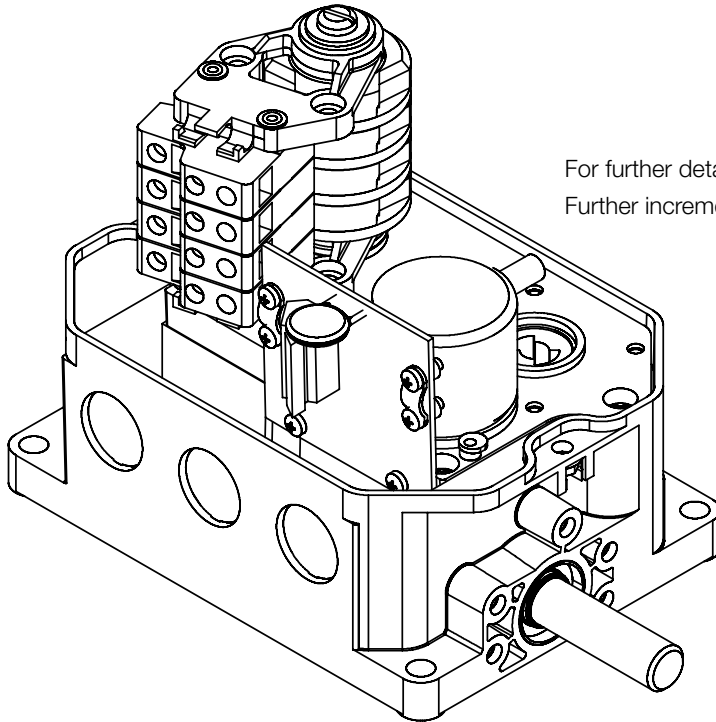
Geared Cam Limit Switch Light Cam® and Light Cam® M

Dimensional figure flange execution Light Cam® M



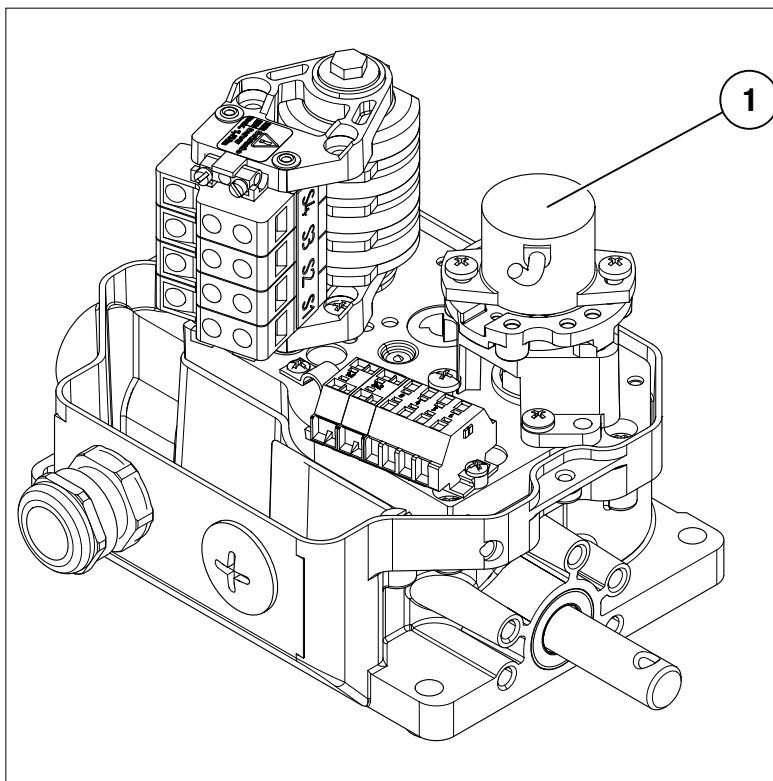
1. Mounting of incremental encoders

Instead of a contact block, the incremental encoder can be mounted. The input speed for the encoder complies with the speed of the input shaft of the geared switch. The encoder is connected through a printed circuit board with terminals. It is absolutely necessary to connect the encoder by screened cables.



For further details please inquire a complete data sheet.
Further increments on request.

POTI OR ENCODER ON ACTUATING



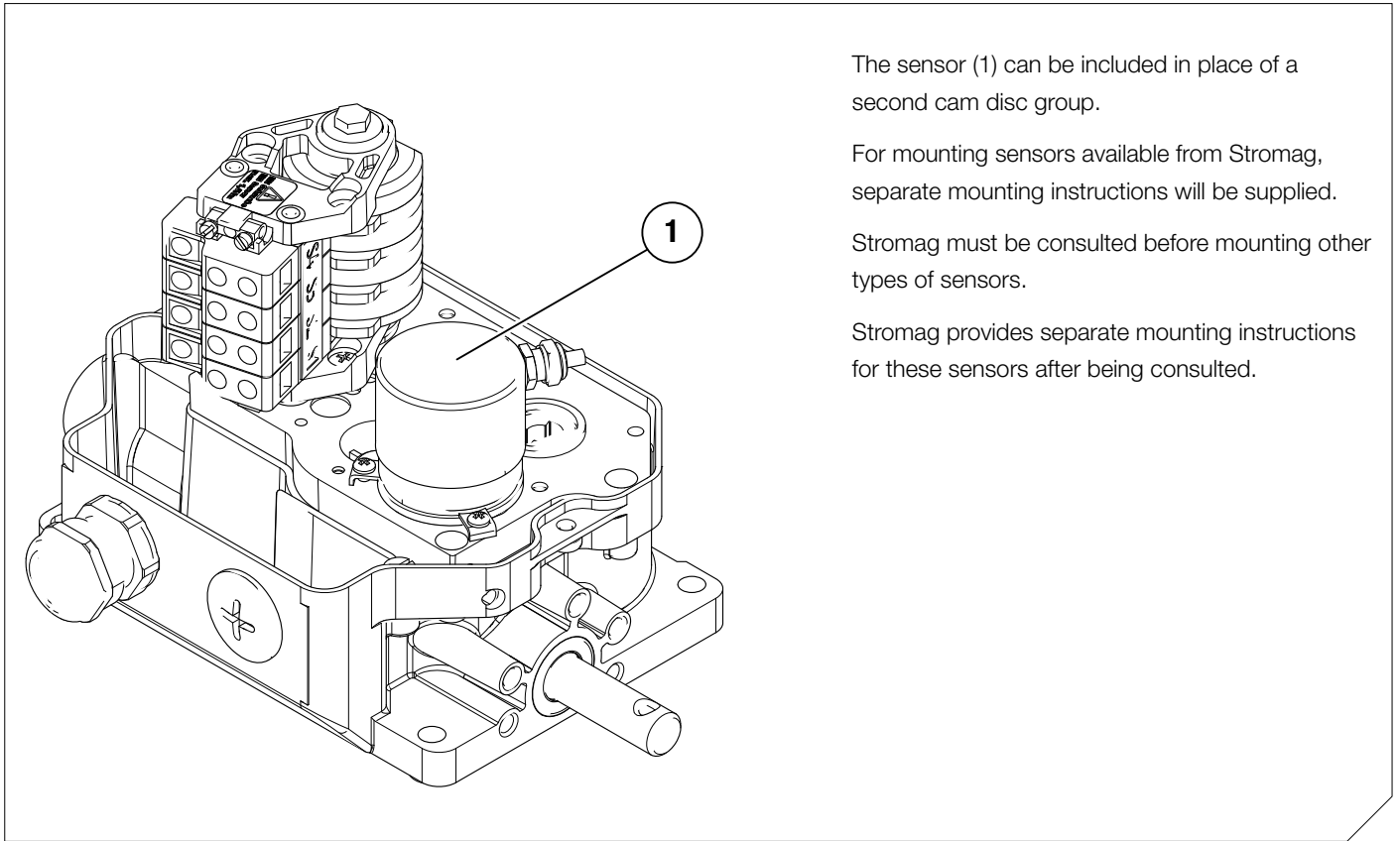
The Poti/Encoder (1) can be included in place of a second cam disc group.

For mounting sensors available from Stromag, separate mounting instructions are supplied. Stromag must be consulted before mounting other types of sensors.

Stromag provides separate mounting instructions for these sensors after being consulted.

Geared Cam Limit Switch Light Cam® and Light Cam® M

ABSOLUTE ENCODER ON DRIVE SHAFT (VIA MULTI-TURN GEAR STAGE)



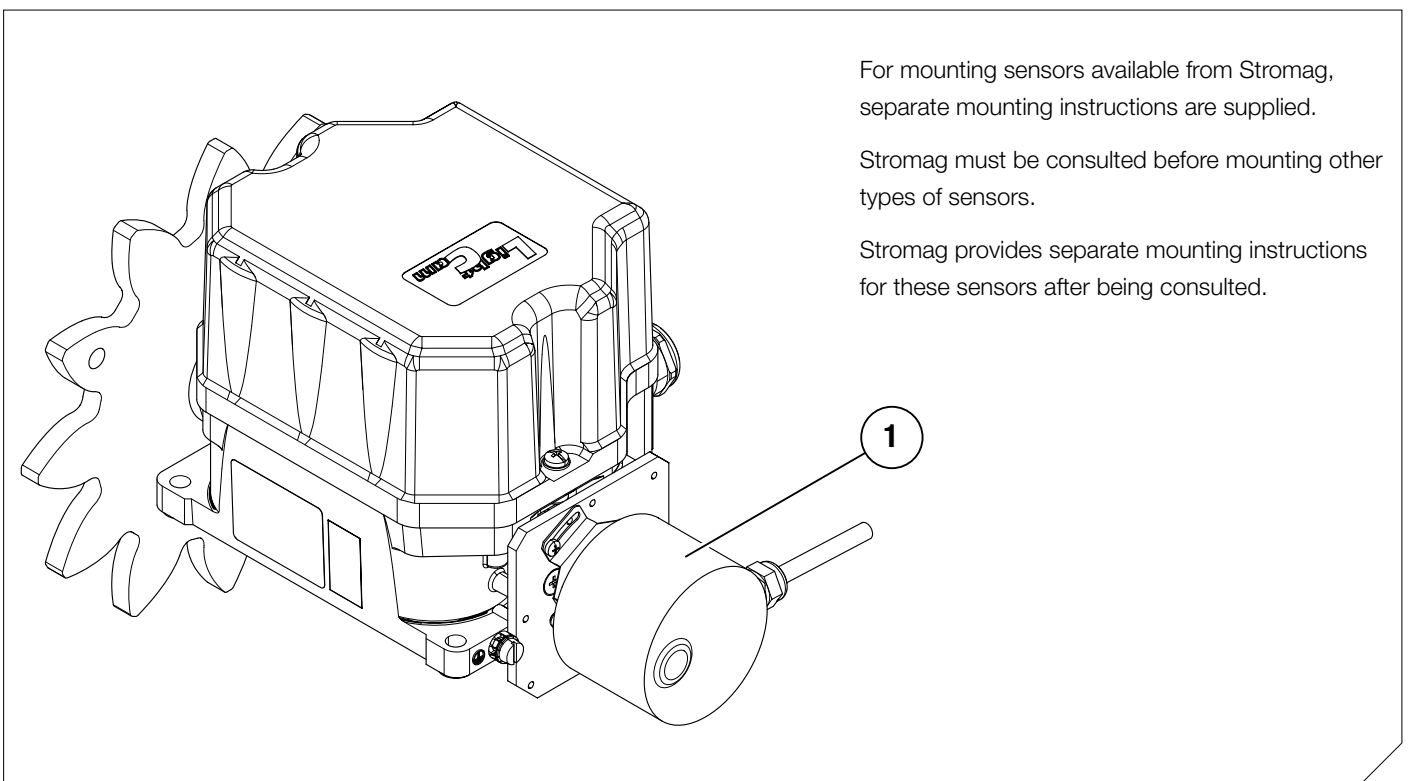
The sensor (1) can be included in place of a second cam disc group.

For mounting sensors available from Stromag, separate mounting instructions will be supplied.

Stromag must be consulted before mounting other types of sensors.

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ABSOLUTE ENCODER (MULTI-TURN) THROUGH DRIVE SHAFT

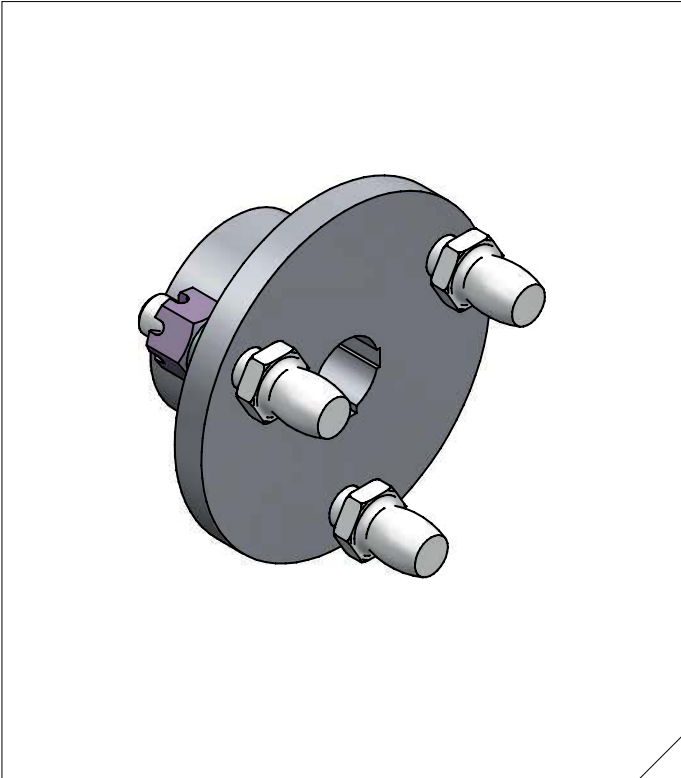


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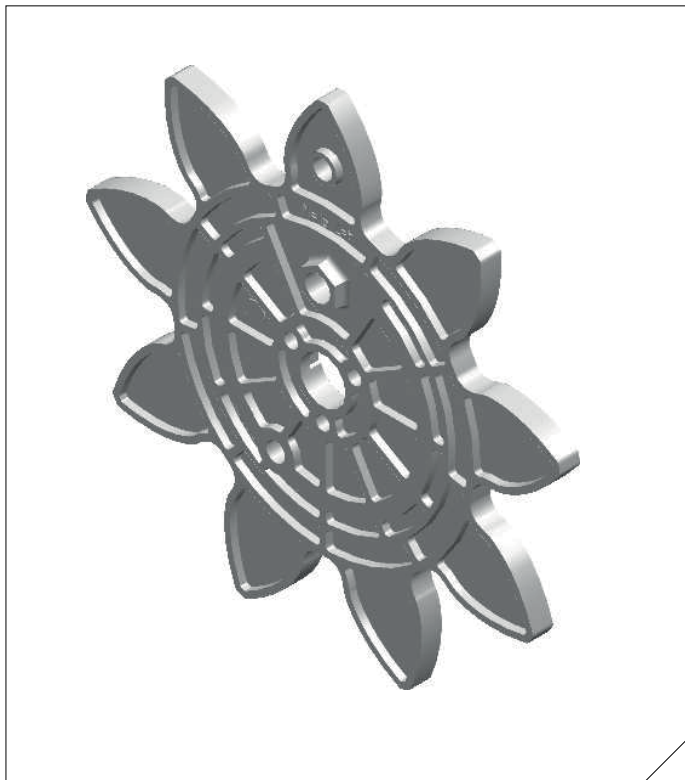
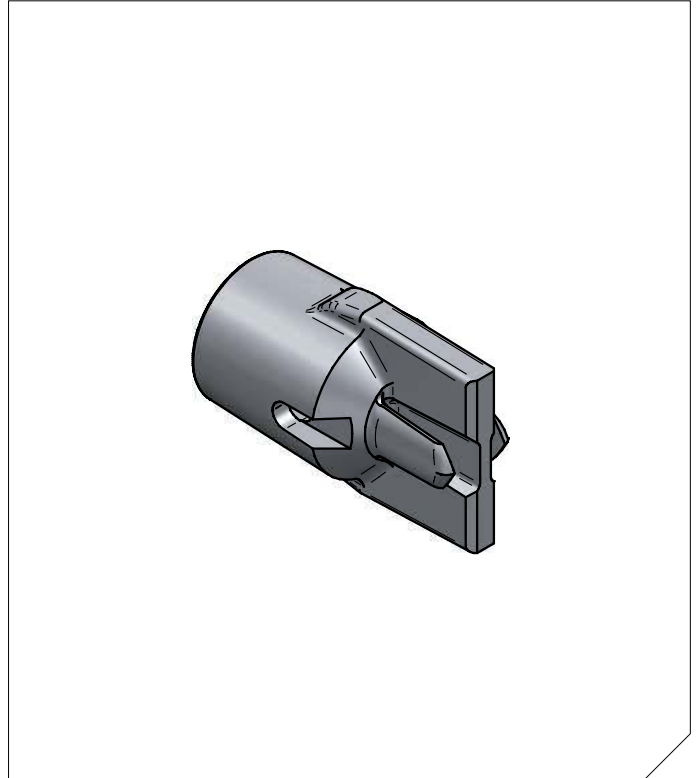
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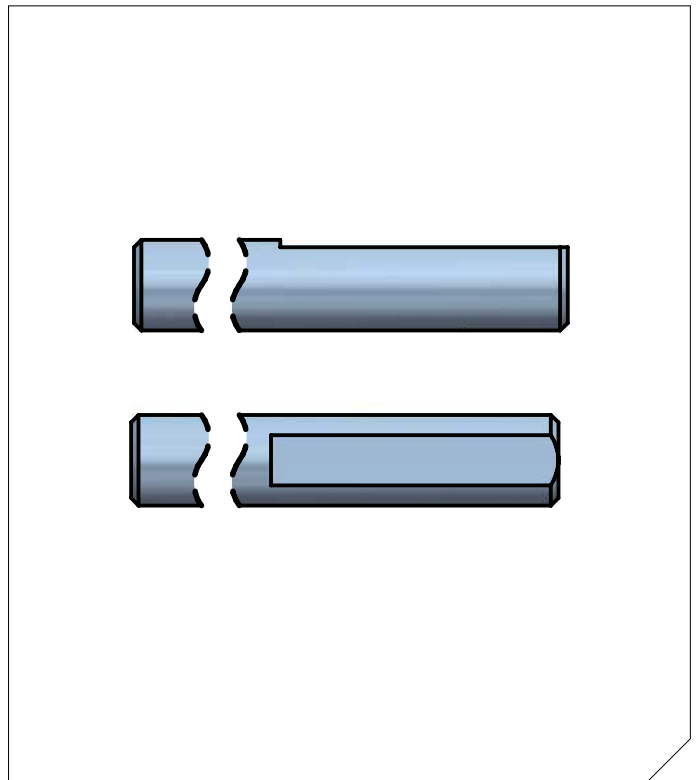
SPECIAL EXECUTIONS



Various options for drive flanges



Different types of gears with respect to modulus and number of teeth



Customer-specific shaft adaptations