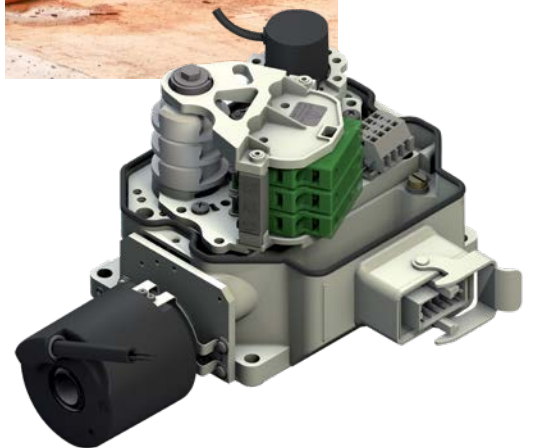


Geared Cam Limit Switches Light Cam[®] and Light Cam[®]M



 **Stromag**[®]
Altra Industrial Motion



**DISTRIBUIDOR
AUTORIZADO**

MEX (55) 53 63 23 31
QRO (442) 1 95 72 60

MTY (81) 83 54 10 18
ventas@industrialmagza.com

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.



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

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**



DISTRIBUIDOR
AUTORIZADO

MEX (55) 53 63 23 31
QRO (442) 1 95 72 60

MTY (81) 83 54 10 18
ventas@industrialmagza.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.

CONTENT

GEARED CAM LIMIT SWITCHES LIGHT CAM® and LIGHT CAM® M

General	4
Construction of the Geared Cam Limit Switches	4
Ordering example	5
Table 1: Gear for contacts 99 and 99 P with cam disc 40° Ø50	6
Table 2: Three-phase ac current	7
Cam Disc, Type, Protection, Approvals	8
Dimensional figure pedestal execution Light Cam®	9
Dimensional figure flange execution Light Cam®	10
Dimensional figure pedestal execution Light Cam® M	11
Dimensional figure flange execution Light Cam® M	12
Options and special executions	13

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.

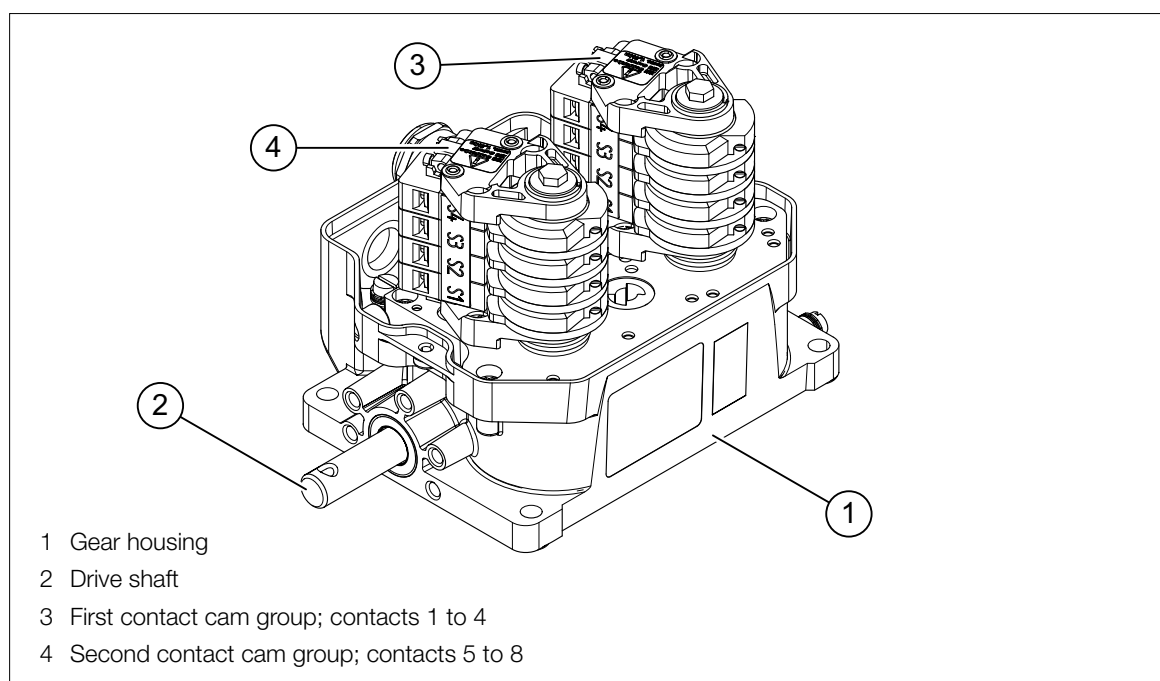
Classical applications of these limit switches are lifting, travelling and slewing gears of cranes, wind power stations, bucket elevators, etc.

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

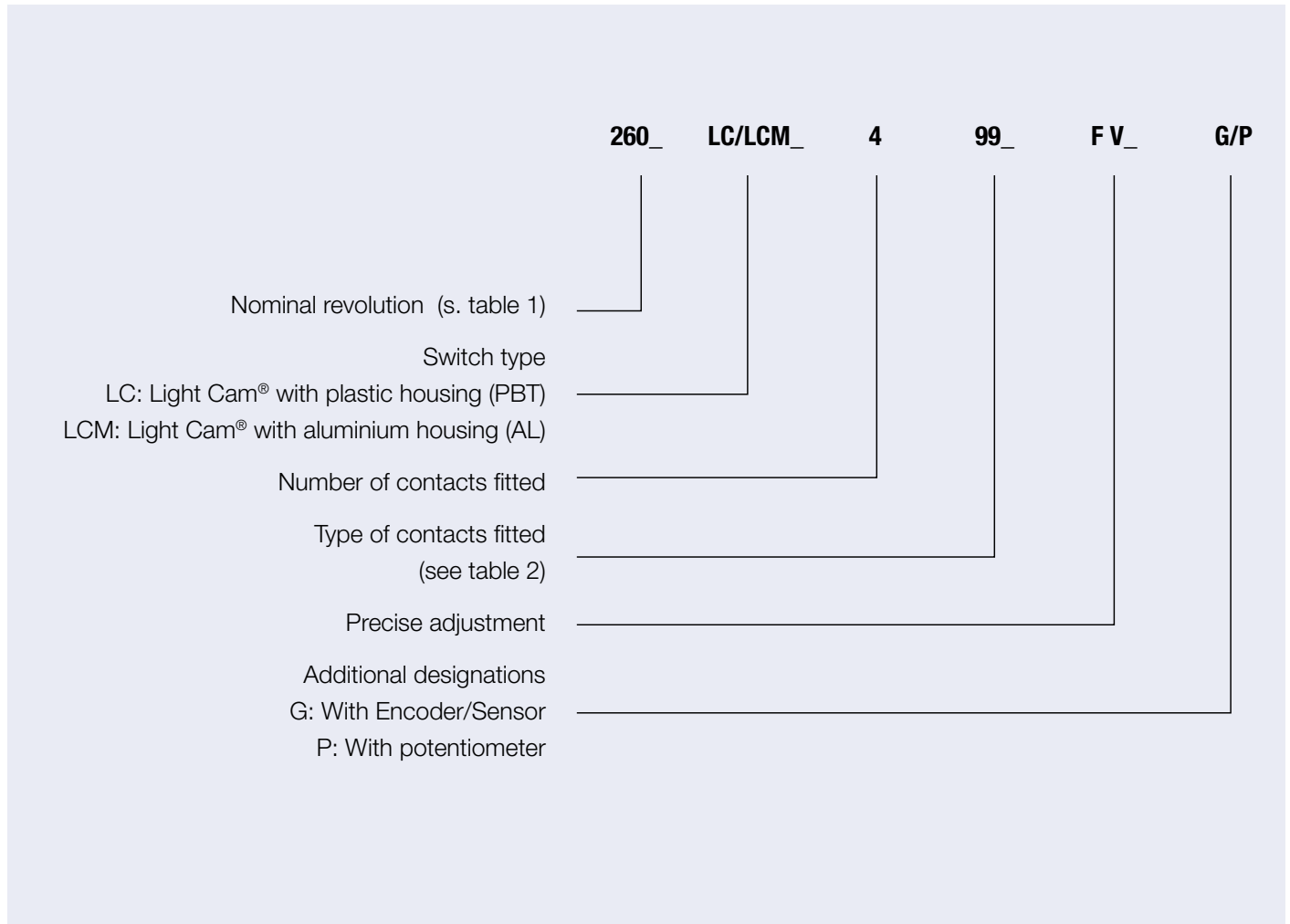
- Combined worm/spur gears for high gear reductions requiring less mounting space; different, precisely graduated gear reduction
- Cam discs with precise adjustment
- Utilisation of switching contacts for switching voltages of 250 VAC, gold contacts on request
- Available with
 - 4 contacts = 1 contact 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_G/P



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

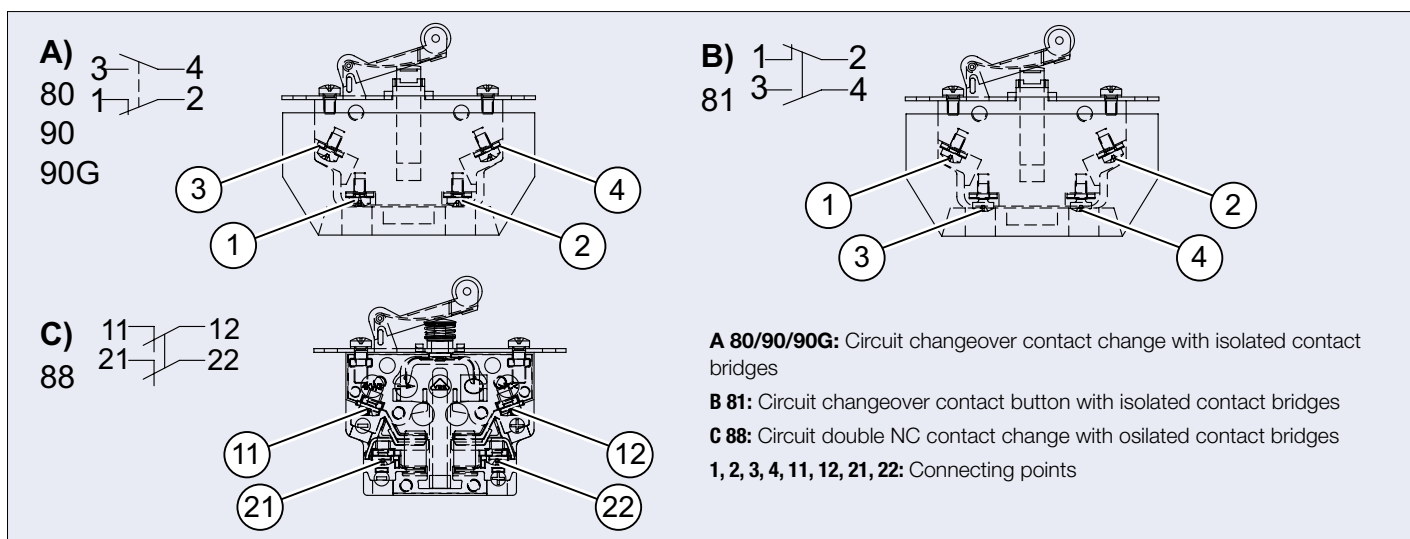
Gear: Table 1 for contacts 99 and 99 P with cam disc 40°Ø50

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

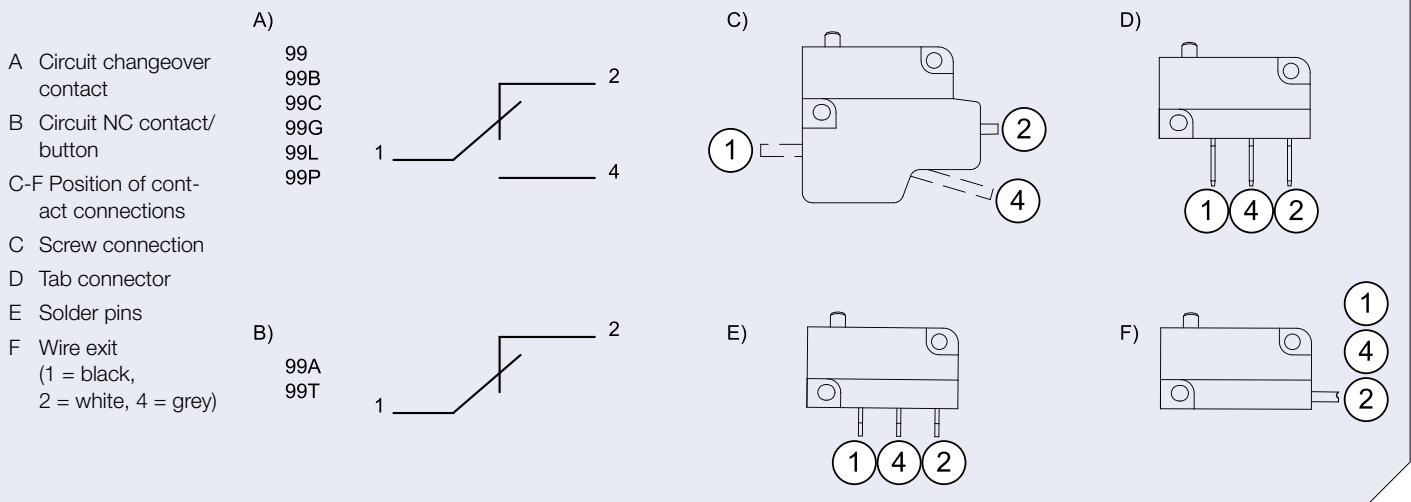
Table 2: Three-phase AC current

Designation	Switching contacts		Contact material		Control system		Function	Electrical data					Life circle	Temperature
	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_{th} Continuous thermal current	Short-circuit protection	U_i Rated insulation voltage		
80	•		•		•		•	3A	230V ¹⁾	10A	6A gR	400V	10x10 ⁶	-40°C – +85°C
81	•					•	•	3A			6A gR			
88		•		•	•		•	1,5A			10A gG		1,5x10 ⁶	-55°C – +85°C
90	•		•		•		•	1A			6A gG			
90G	•			•	•		•		0,25A	230V ¹⁾	2A gR	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



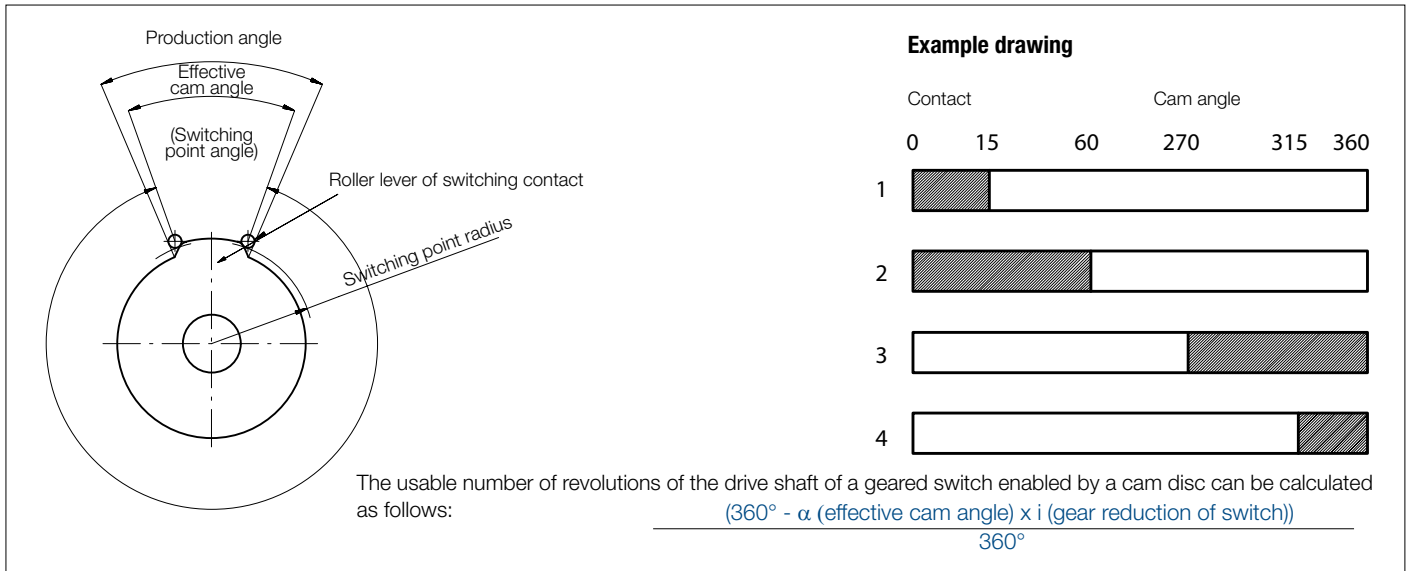
Geared Cam Limit Switch Light Cam® and Light Cam®M

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

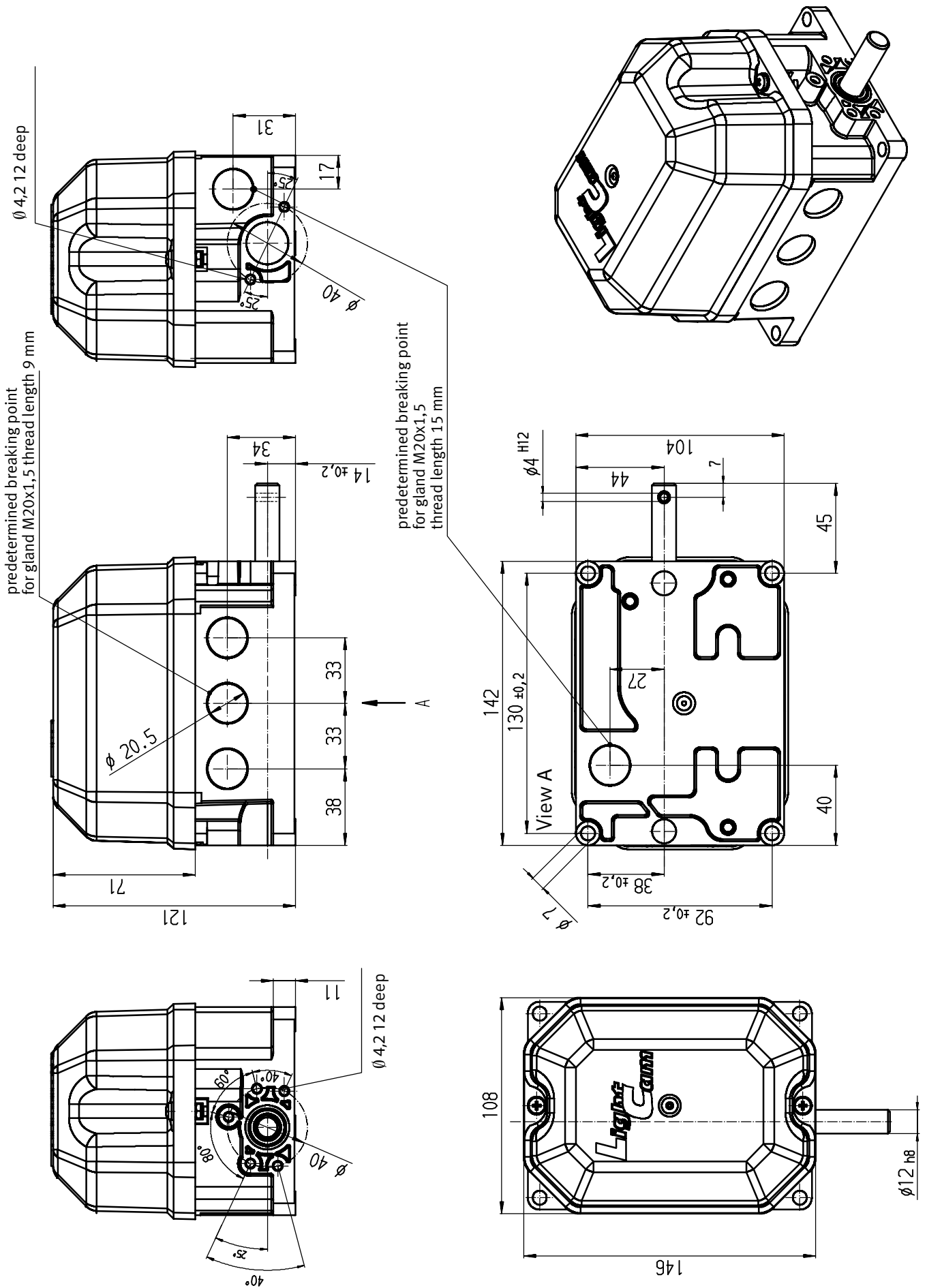
Incremental and absolute encoder assembly possible in- and outside

Easy and quick adjustment of cams

High Protection:	Light Cam®: IP 65 Light Cam®M: IP 66
------------------	---

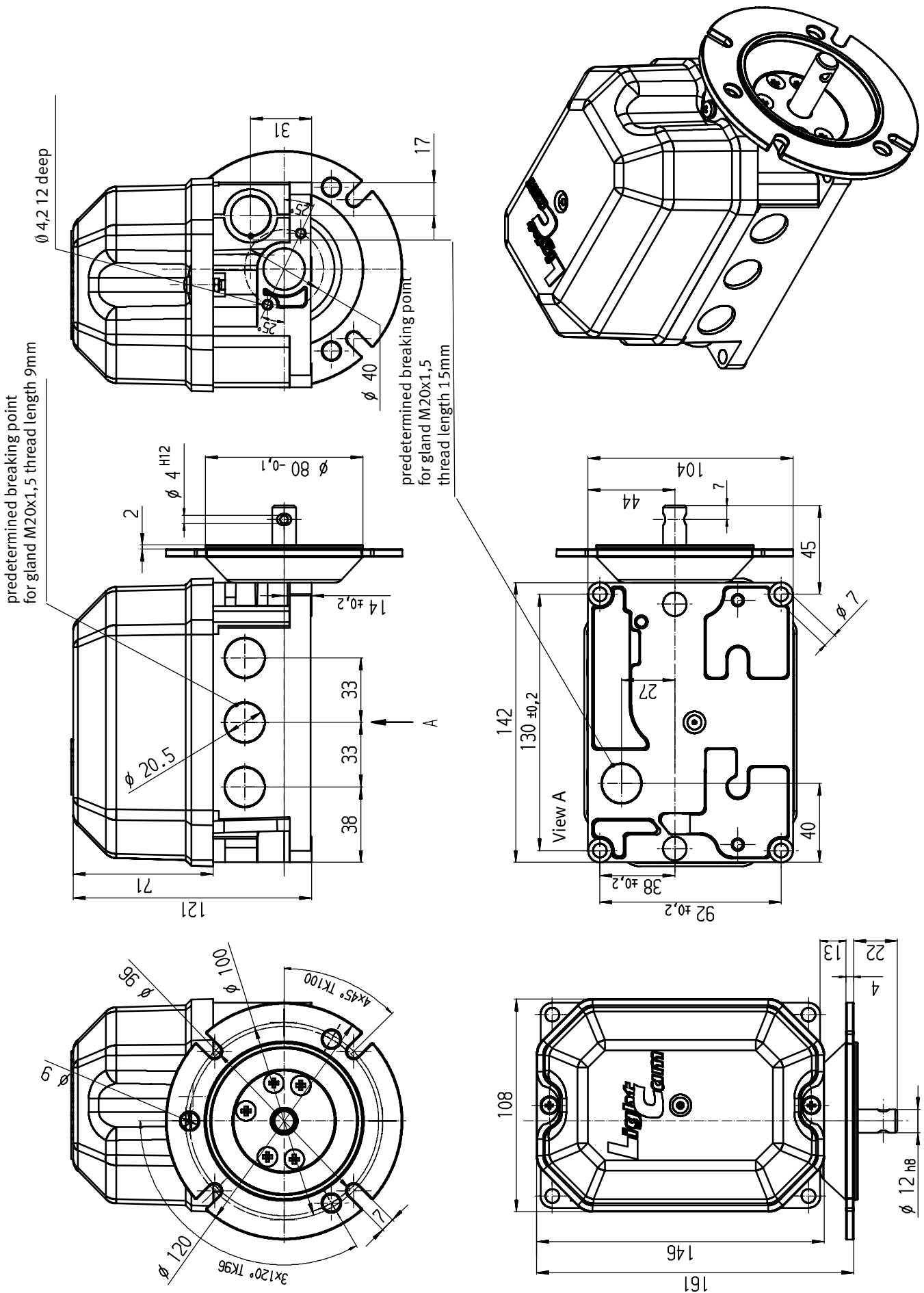
Geared Cam Limit Switch Light Cam® and Light Cam® M

Dimensional figure pedestal execution Light Cam®



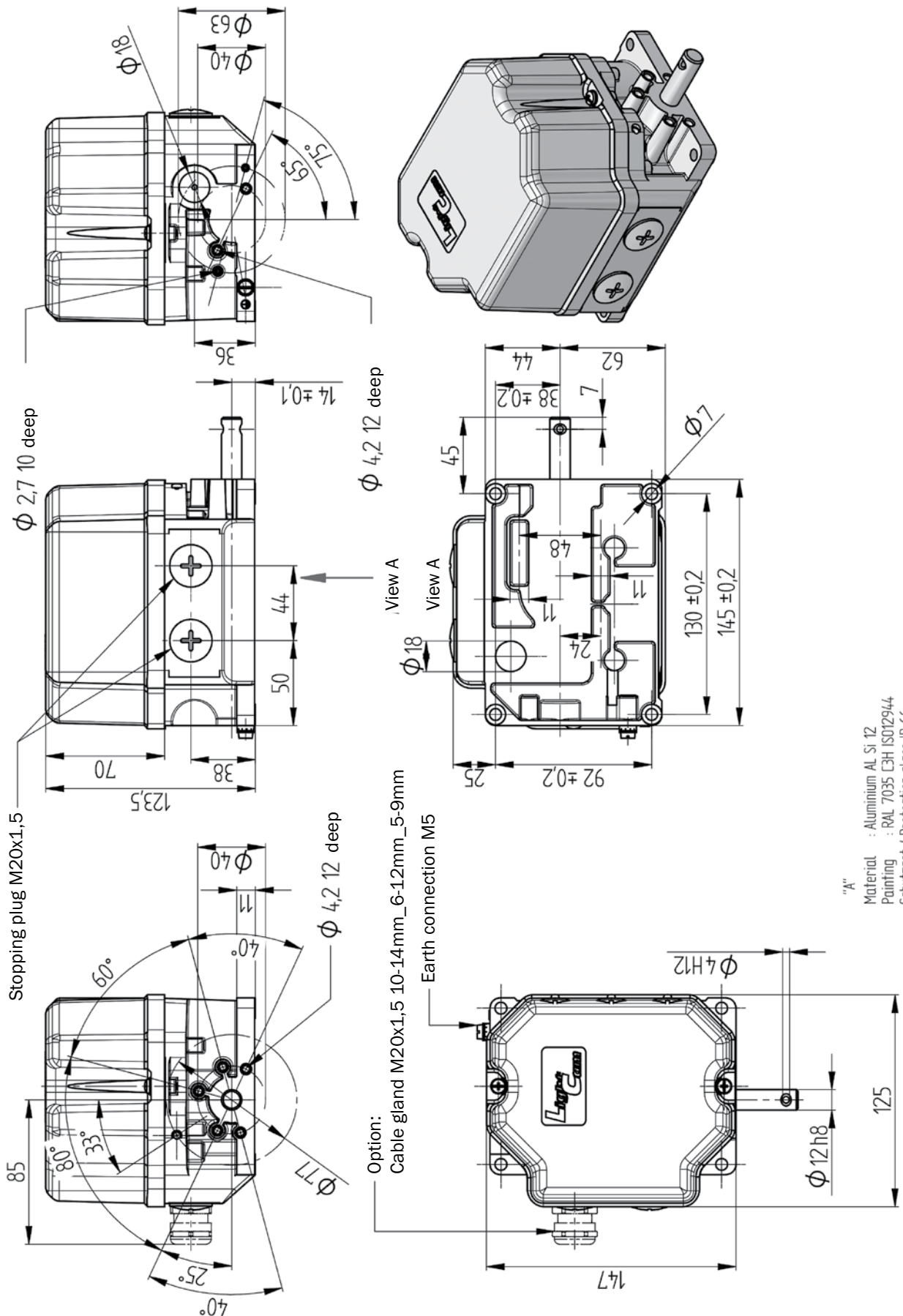
Geared Cam Limit Switch Light Cam® and Light Cam® M

Dimensional figure flange execution Light Cam®



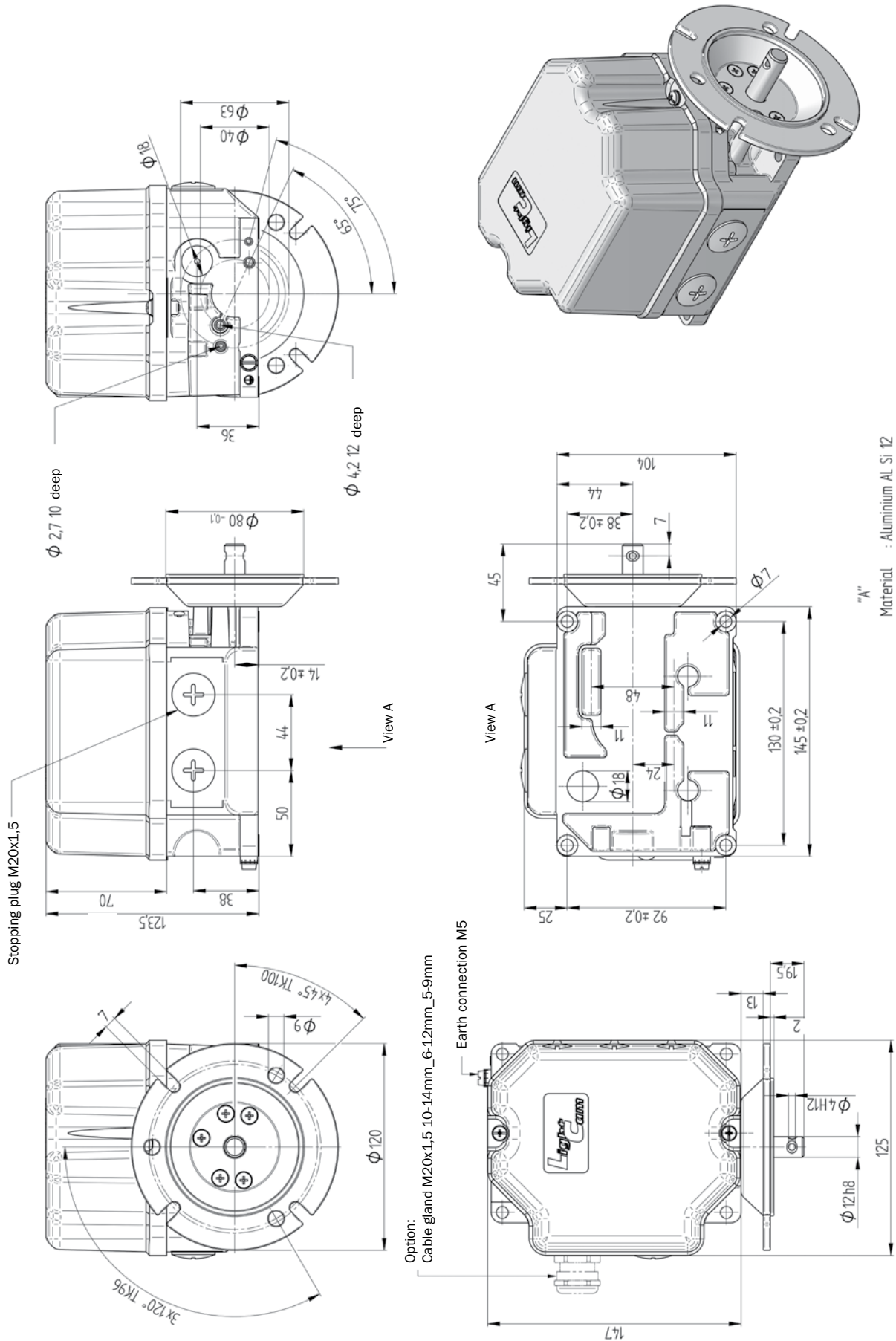
Geared Cam Limit Switch Light Cam® and Light Cam® M

Dimensional figure pedestal execution Light Cam® M



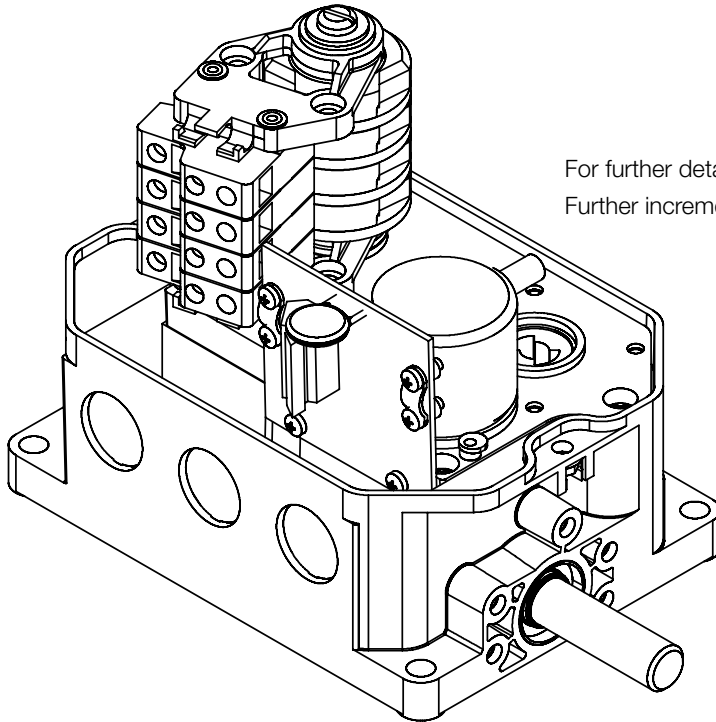
Geared Cam Limit Switch Light Cam[®] and Light Cam[®] M

Dimensional figure flange execution Light Cam[®] M



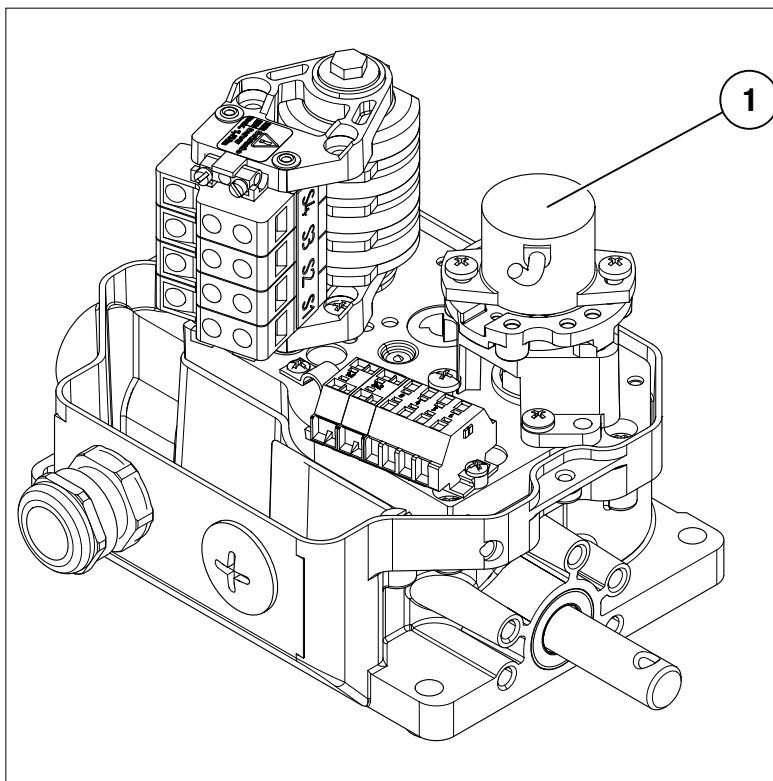
1. Mounting of incremental encoders

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



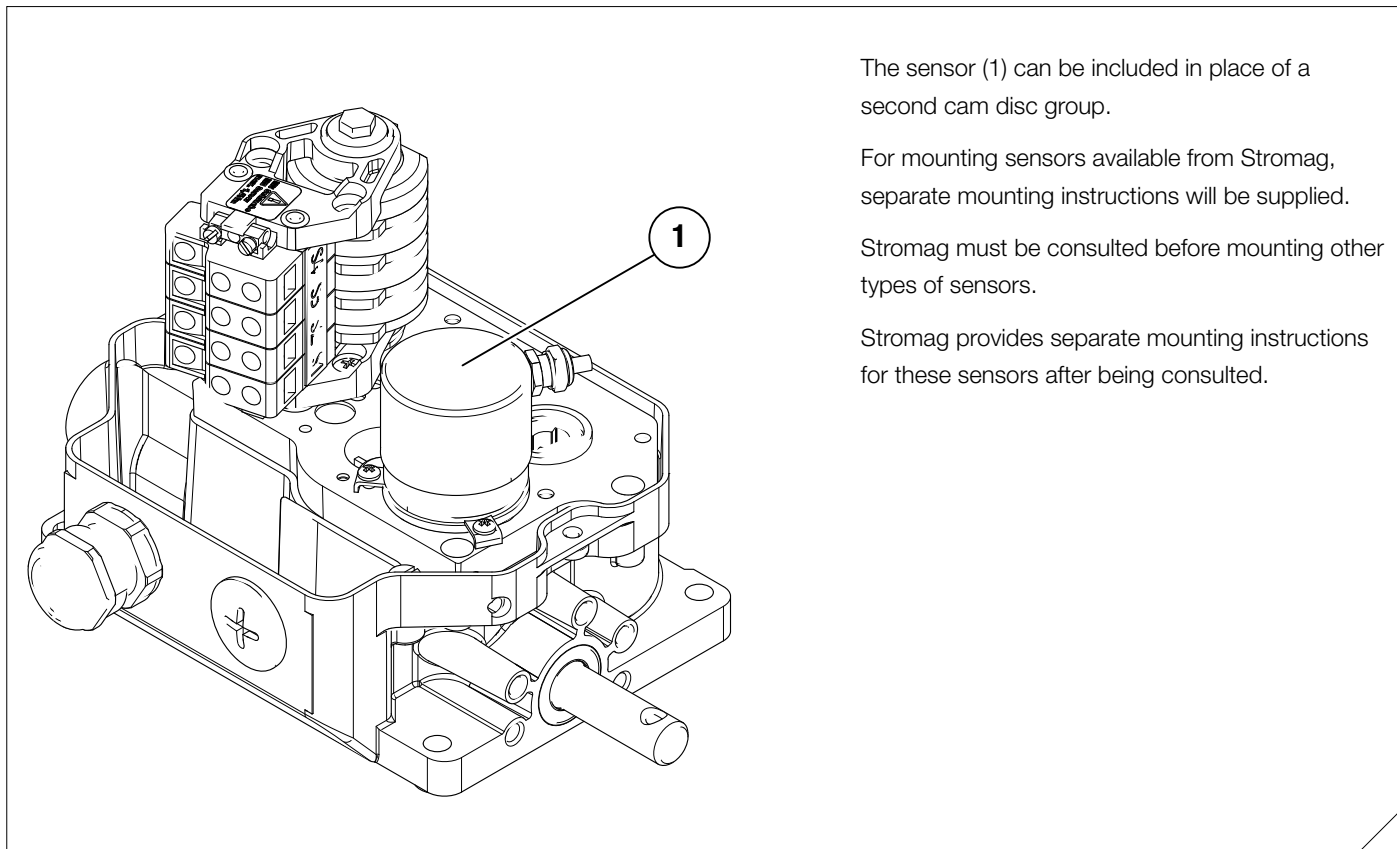
The Poti/Encoder (1) can be included in place of a second cam disc group.

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)



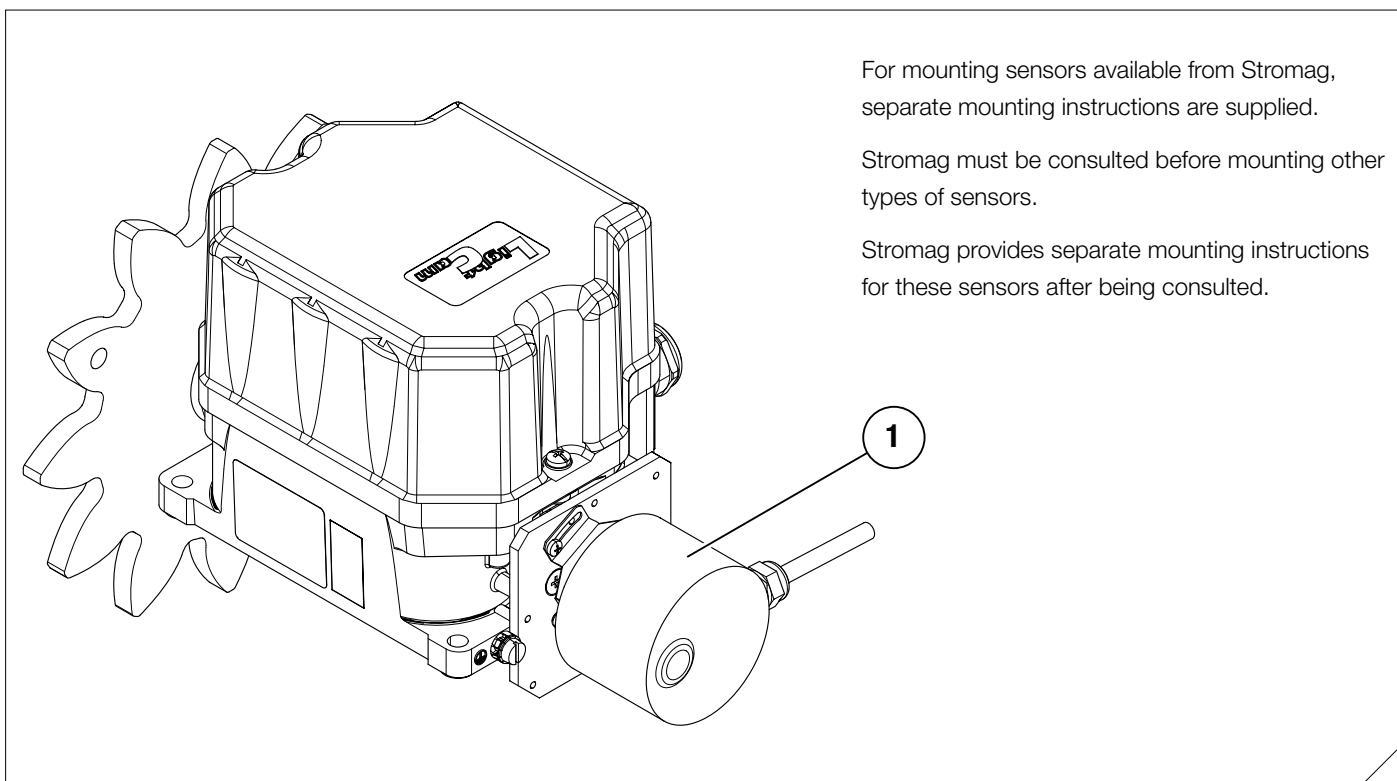
The sensor (1) can be included in place of a second cam disc group.

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

Stromag must be consulted before mounting other types of sensors.

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

ABSOLUTE ENCODER (MULTI-TURN) THROUGH DRIVE SHAFT



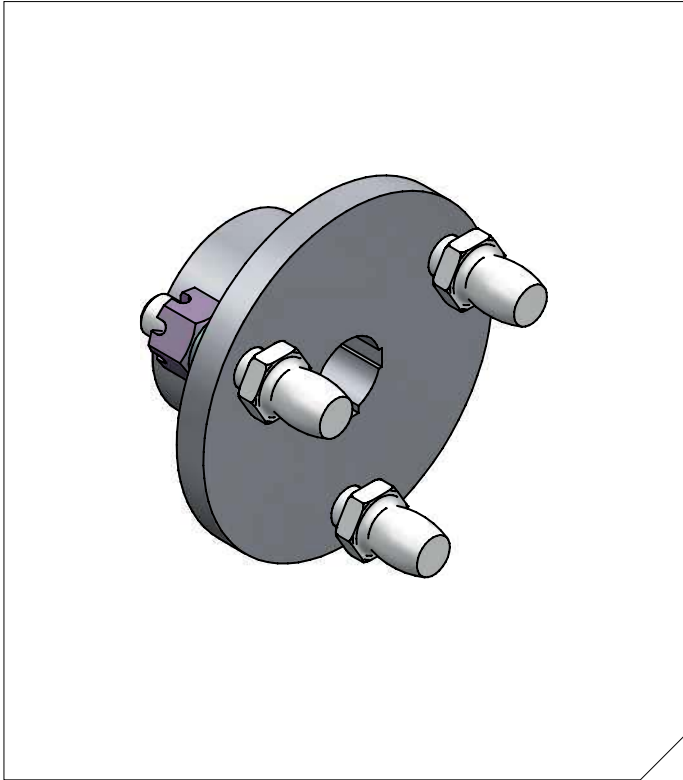
For mounting sensors available from Stromag, separate mounting instructions are supplied.

Stromag must be consulted before mounting other types of sensors.

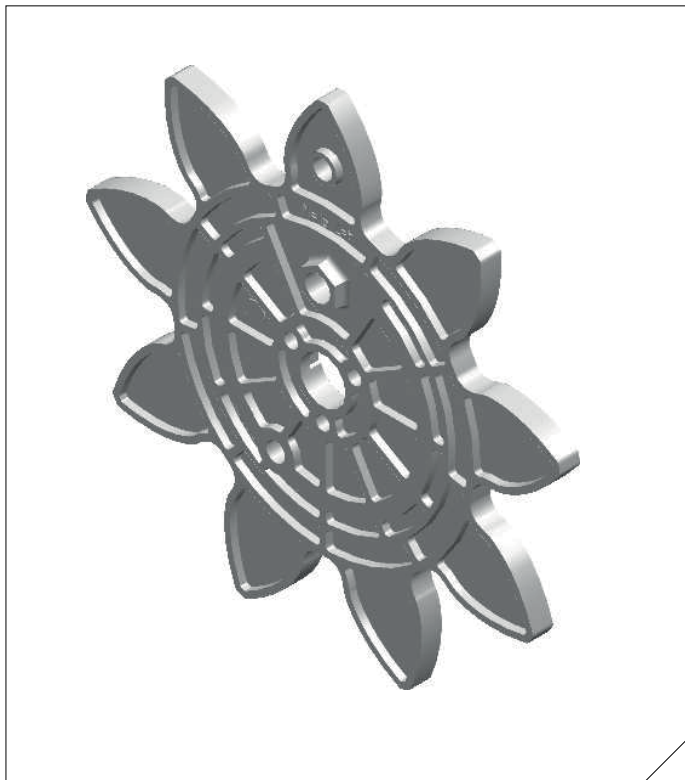
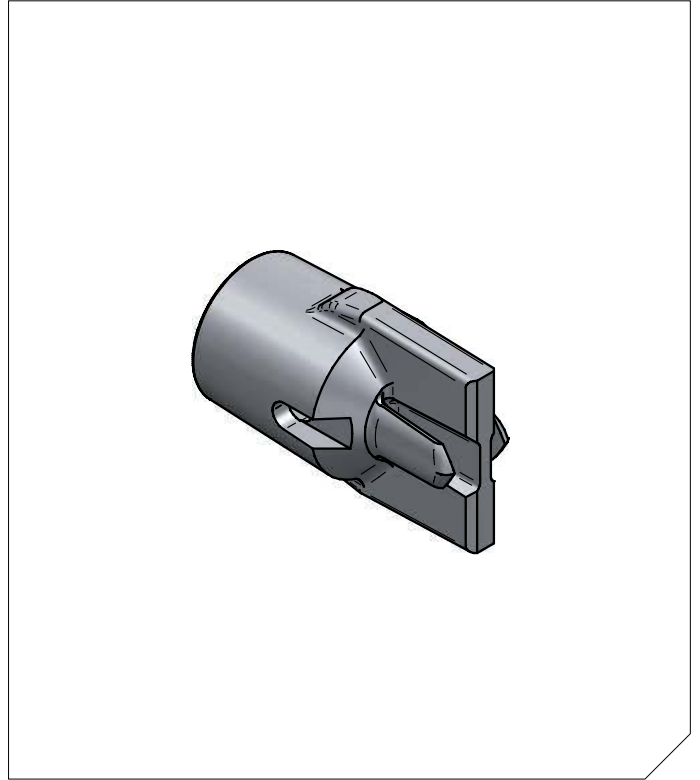
Stromag provides separate mounting instructions for these sensors after being consulted.

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

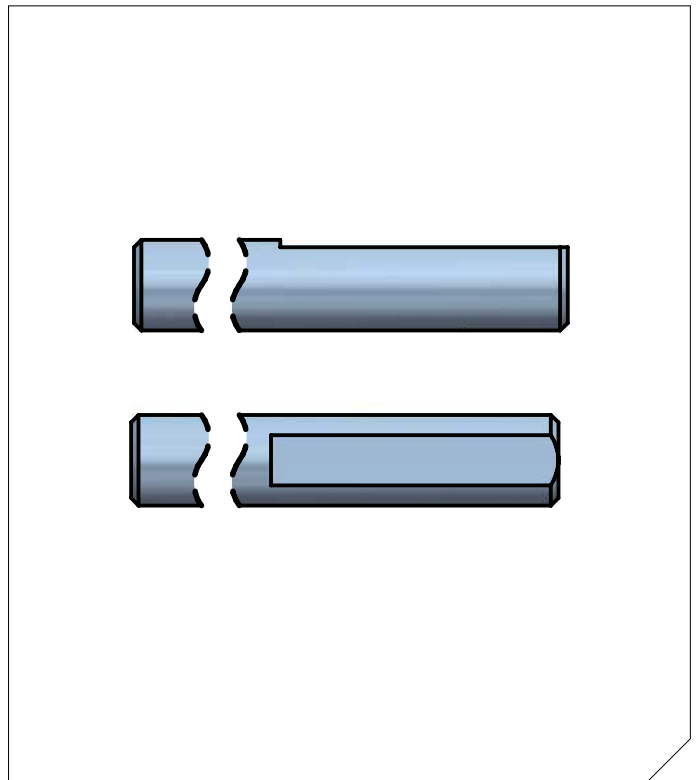
SPECIAL EXECUTIONS



Various options for drive flanges



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



Customer-specific shaft adaptations

Stromag Facilities

Europe

Germany

Hansastraße 120
59425 Unna - Germany
+49 (0) 23 03 102 0

*Clutches & Brakes, Couplings,
Geared Cam Limit Switches, Discs,
Wind Brakes*

Dessauer Str. 10
06844 Dessau-Roßlau - Germany
+49 (0) 340 2190 0

Electromagnetic Clutches & Brakes

France

Avenue de l'Europe
18150 La Guerche sur L'Aubois - France
+33 (0)2 48 80 72 72

Disc Brakes & Drum Brakes

Great Britain

Ampthill Road
Bedford, MK42 9RD - UK
+44 (0)1234 324347

*Electromagnetic Clutches & Brakes,
Industrial Caliper Brakes*

North America

USA

31 Industrial Park Road
New Hartford, CT 06057 - USA
860-238-4783

Electromagnetic Clutches & Brakes

300 Indiana Highway 212
Michigan City, IN 46360 - USA
219-874-5248

Couplings

2800 Fisher Rd.
Wichita Falls, TX
940-723-3400

*Geared Cam Limit Switches,
Industrial Caliper & Drum Brakes*

Asia Pacific

China

T40B -5, No. 1765 Chuan Qiao Road
Pudong 201206, Shanghai - China
Tel +86 21-60580600

*Clutches & Brakes, Electromagnetic
Clutches & Brakes, Couplings, Industrial
Caliper & Drum Brakes, Discs, Geared
Cam Limit Switches, Wind Brakes*

India

Gat No.: 448/14, Shinde Vasti, Nighoje
Tal Khed, Pune- 410 501
+91 2135 622100

*Clutches & Brakes, Electromagnetic
Clutches & Brakes, Couplings, Industrial
Caliper & Drum Brakes, Discs, Geared
Cam Limit Switches, Wind Brakes*

The Brands of Altra Industrial Motion

Couplings

Ameridrives
www.ameridrives.com

Bibby Turboflex
www.bibbyturboflex.com

Guardian Couplings
www.guardiancouplings.com

Huco
www.huco.com

Lamiflex Couplings
www.lamiflexcouplings.com

Stromag
www.stromag.com

TB Wood's
www.tbwoods.com

Geared Cam Limit Switches

Stromag
www.stromag.com

Electric Clutches & Brakes

Inertia Dynamics
www.idicb.com

Matrix
www.matrix-international.com

Stromag
www.stromag.com

Warner Electric
www.warnerelectric.com

Linear Products

Warner Linear
www.warnerlinear.com

Engineered Bearing Assemblies

Kilian
www.kilianbearings.com

Heavy Duty Clutches & Brakes

Industrial Clutch
www.indclutch.com

Twiflex
www.twiflex.com

Stromag
www.stromag.com

Svendborg Brakes
www.svendborg-brakes.com

Wichita Clutch
www.wichitaclutch.com

Belted Drives

TB Wood's
www.tbwoods.com

Gearing

Bauer Gear Motor
www.bauergears.com

Boston Gear
www.bostongear.com

Delroyd Worm Gear
www.delroyd.com

Nuttall Gear
www.nuttallgear.com

Overrunning Clutches

Formsprag Clutch
www.formsprag.com

Marland Clutch
www.marland.com

Stieber
www.stieberclutch.com

Neither the accuracy nor completeness of the information contained in this publication is guaranteed by the company and may be subject to change in its sole discretion. The operating and performance characteristics of these products may vary depending on the application, installation, operating conditions and environmental factors. The company's terms and conditions of sale can be viewed at <http://www.altramotion.com/terms-and-conditions/sales-terms-and-conditions>. These terms and conditions apply to any person who may buy, acquire or use a product referred to herein, including any person who buys from a licensed distributor of these branded products.

©2018 by Stromag LLC. All rights reserved. All trademarks in this publication are the sole and exclusive property of Stromag LLC or one of its affiliated companies.