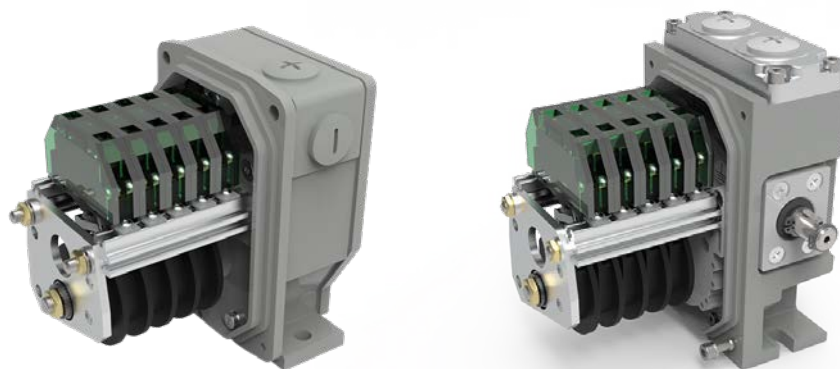




SERIES HGE / HEG

GEARED CAM LIMIT SWITCHES





DECADES OF EXPERIENCE

Across Industries and Applications



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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GEARED CAM LIMIT SWITCHES

AT A GLANCE



STROMAG SERIES HGE / HEG

BENEFITS INCLUDE

- HGE for tight installations (in axial directions)
- Drive of incremental and absolute encoders possible
- Up to 16 switches
- HEG up to 8 switches

Series HGE – Worm Gear Limit Switch

Revision number: 3.1.4.1-01

Revision date: 19.11.2019

Features

- Sea water resistant aluminum housing protection IP65
- Switch units on the left, on the right or on both sides possible

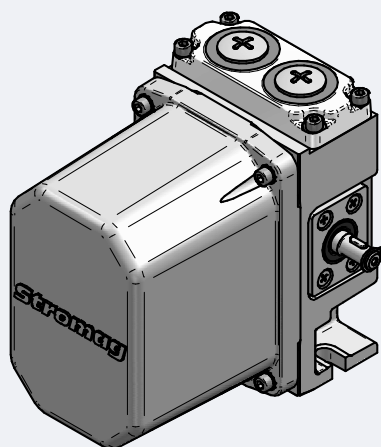
Application

- Crane
- Wind
- Steel works

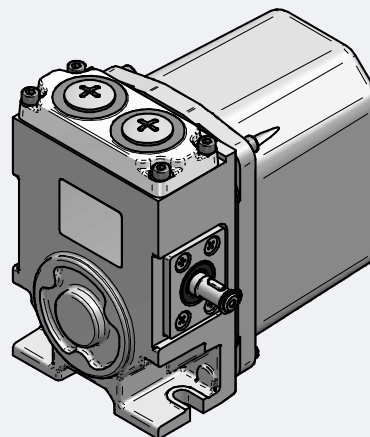
Additional information

- For tight installations (especially in axial direction)
- Assembly of incremental or absolute multiturn possible

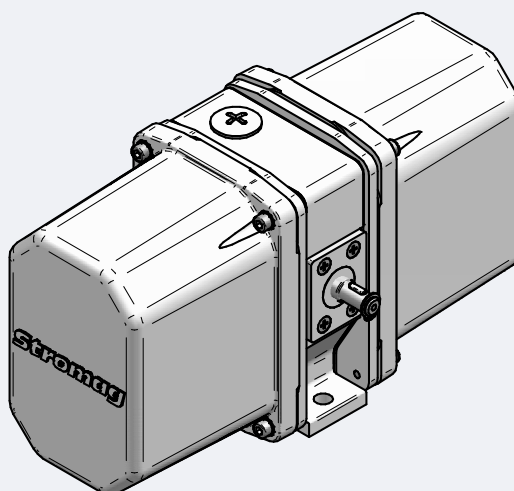
CL



CR



B



GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE – Gear Data

Revision number: 3.1.4.2-02

Revision date: 28.05.2024

Features

- Designed as worm or worm spur gear
- -All spur gears made of metal, worm gear made of friction-optimized synthetic material or metal.
- Lifetime lubrication

Additional information

- 345, 460 and 715 are special gears on request

Gear table, for switches 51, 52, 53, 54 with cam discs 40° FV50

Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 52	Overrun revolutions on drive shaft switch 52	Switch back revolutions on drive shaft (average value) switch 52	max. drive speed	min. drive speed switch 51, 52	min. drive speed switch 53, 54	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 52
[–]	[i]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
9.5	12.000	10.4	1.59	0.07	250	0.09	5.2	0.26	0.07
18	20.571	17.8	2.73	0.12	250	0.15	8.8	0.23	0.11
22	25.200	21.8	3.34	0.14	250	0.18	10.8	0.23	0.14
29	33.344	28.9	4.43	0.19	250	0.24	14.2	0.22	0.18
35	50.000	43	6.6	0.28	500	0.35	22	0.11	0.27
70	85.714	74	11.3	0.47	500	0.61	37	0.11	0.46
85	105.00	91	13.9	0.58	500	0.75	45	0.11	0.56
100	120.65	104	16.0	0.66	500	0.86	52	0.11	0.65
115	138.93	120	18.4	0.76	750	0.98	60	0.11	0.75
155	175.00	151	23.2	0.96	750	1.25	75	0.10	0.94
180	218.45	189	29.0	1.20	750	1.55	93	0.10	1.17
230	259.09	224	34	1.5	1,000	1.9	111	0.05	1.4
260	297.09	257	39	1.7	1,000	2.2	127	0.05	1.6
305	352.36	305	46	2.0	1,000	2.5	150	0.05	1.9
345	408.00	353	54	2.3	1,000	2.9	174	0.05	2.2
460	535.50	464	71	3.0	1,000	3.8	228	0.05	2.9
715	833.00	722	110	4.6	1,000	6.0	355	0.05	4.5

Series HGE – Gear Data

Revision number: 3.1.4.2.1-01

Revision date: 28.05.2024

Gear table, for switches 51, 52, 53, 54 with cam discs 40° FV70									
Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 52	Overrun revolutions on drive shaft switch 52	Switch back revolutions on drive shaft (average value) switch 52	max. drive speed	min. drive speed switch 5, 52	min. drive speed switch 53, 54	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 52
[r]	[i]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
9.5	12.000	10.5	1.42	0.05	250	0.06	3.5	0.28	0.04
18	20.571	18.1	2.43	0.08	250	0.10	6.0	0.25	0.07
22	25.200	22.2	2.98	0.09	250	0.13	7.3	0.24	0.08
29	33.344	29.3	3.95	0.12	250	0.17	9.7	0.23	0.11
35	50.000	44	5.9	0.18	500	0.25	15	0.12	0.15
70	85.714	75	10.0	0.31	500	0.42	25	0.11	0.26
85	105.00	92	12.4	0.38	500	0.51	31	0.11	0.32
100	120.65	106	14.2	0.43	500	0.58	35	0.11	0.37
115	138.93	122	16.4	0.50	750	0.67	41	0.11	0.42
155	175.00	154	20.7	0.63	750	0.85	51	0.11	0.53
180	218.45	192	25.8	0.78	750	1.05	63	0.11	0.66
230	259.09	228	30	1.0	1,000	1.3	75	0.05	0.79
260	297.09	261	35	1.1	1,000	1.5	86	0.05	0.90
305	352.36	310	41	1.3	1,000	1.7	102	0.05	1.1
345	408.00	359	48	1.5	1,000	2.0	118	0.05	1.3
460	535.50	472	63	2.0	1,000	2.6	155	0.05	1.7
715	833.00	734	98	3.0	1,000	4.1	241	0.05	2.5

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE – Gear Data

Revision number: 3.1.4.2.2-01

Revision date: 28.05.2024

Gear table, for switches 80, 81, 88, 90, 90G with cam discs 40° FV50											
Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 90, 90G	Overrun revolutions on drive shaft switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 88	max. drive speed	min. drive speed switch 80	min. drive speed switch 88	min. drive speed switch 90, 90G	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 90, 90G
[–]	[i]	[U]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
9.5	12.000	10.3	1.62	0.12	0.10	250	5.1	0.51	2.6	0.32	0.47
18	20.571	17.7	2.78	0.21	0.17	250	8.7	0.87	4.4	0.27	0.80
22	25.200	21.7	3.4	0.26	0.21	250	10.7	1.07	5.4	0.26	0.98
29	33.344	28.8	4.5	0.34	0.27	250	14.1	1.41	7.1	0.24	1.30
35	50.000	43	6.7	0.50	0.41	500	22	2.2	11	0.13	2.0
70	85.714	74	11.5	0.86	0.70	500	37	3.7	19	0.12	3.4
85	105.00	90	14.1	1.05	0.85	500	45	4.5	23	0.11	4.1
100	120.65	104	16.3	1.21	0.98	500	51	5.1	26	0.11	4.7
115	138.93	120	18.7	1.39	1.12	750	59	5.9	30	0.11	5.4
155	175.00	151	23.6	1.75	1.42	750	74	7.4	37	0.11	6.8
180	218.45	188	29.5	2.19	1.77	750	92	9.2	46	0.11	8.5
230	259.09	224	35	2.6	2.1	1,000	110	11	55	0.06	10.1
260	297.09	256	40	3.0	2.4	1,000	126	13	63	0.05	11.5
305	352.36	304	47	3.6	2.9	1,000	149	15	75	0.05	13.7
345	408.00	352	55	4.1	3.3	1,000	172	18	86	0.05	15.8
460	535.50	463	72	5.4	4.4	1,000	226	23	113	0.05	20.8
715	833.00	720	112	8.4	6.8	1,000	351	36	176	0.05	32.3

Series HGE – Gear Data

Revision number: 3.1.4.2.3-01

Revision date: 28.05.2024

Gear table. for switches 80, 81, 88, 90, 90G with cam discs 40° FV70

Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 90, 90G	Overrun revolutions on drive shaft switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 88	max. drive speed	min. drive speed switch 80	min. drive speed switch 88	min. drive speed switch 90, 90G	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 90, 90G
[-]	[i]	[U]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
9.5	12.000	10.5	1.41	0.08	0.10	250	3.5	0.35	1.8	0.38	0.29
18	20.571	18.1	2.42	0.13	0.17	250	6.0	0.60	3.0	0.31	0.50
22	25.200	22.2	2.97	0.16	0.21	250	7.3	0.73	3.7	0.29	0.61
29	33.344	29.4	3.93	0.21	0.27	250	9.6	0.96	4.8	0.26	0.81
35	50.000	44	5.9	0.32	0.41	500	15	1.5	7.2	0.14	1.3
70	85.714	75	10.1	0.54	0.70	500	25	2.5	13	0.13	2.1
85	105.00	92	12.4	0.66	0.85	500	31	3.1	16	0.12	2.6
100	120.65	106	14.2	0.76	0.98	500	35	3.5	18	0.12	3.0
115	138.93	122	16.4	0.87	1.12	750	40	4.0	20	0.12	3.4
155	175.00	154	20.6	1.09	1.42	750	51	5.1	26	0.11	4.3
180	218.45	192	25.8	1.36	1.77	750	63	6.3	32	0.11	5.3
230	259.09	228	30	1.7	2.1	1,000	75	7.5	38	0.06	6.3
260	297.09	262	35	1.9	2.4	1,000	86	8.6	43	0.06	7.2
305	352.36	310	41	2.2	2.9	1,000	102	11	51	0.06	8.5
345	408.00	359	48	2.6	3.3	1,000	118	12	59	0.06	9.9
460	535.50	472	63	3.4	4.4	1,000	154	16	77	0.05	12.9
715	833.00	734	98	5.2	6.8	1,000	240	24	120	0.05	20.1

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE – Housing Types Cxx

Revision number: 3.1.4.3-01

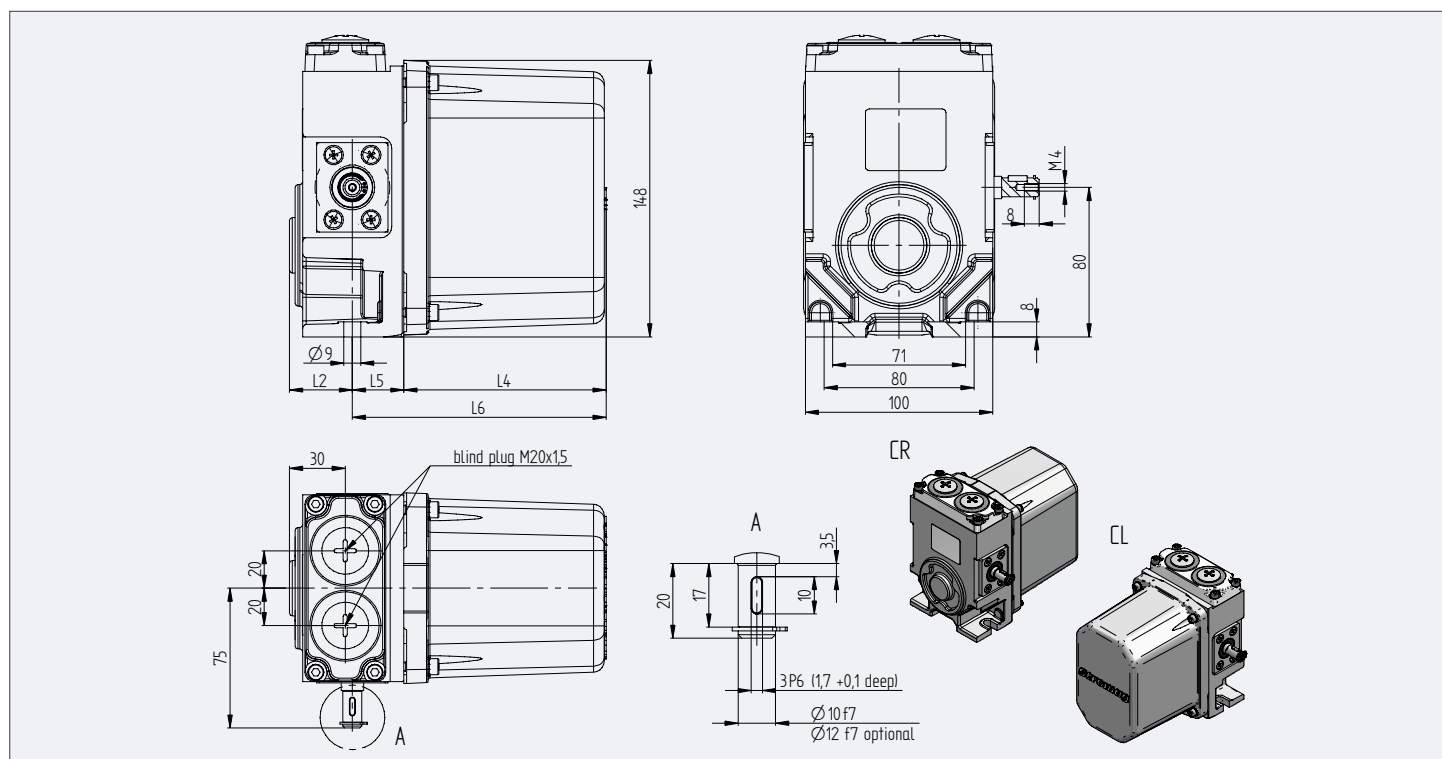
Revision date: 19.11.2019

Features

- Switch unit on the left or on the right side possible
- Max. of 8 switches possible for each side

Additional information

- Dimensional drawing for 345,460 and 715 on request



Switch size	Gear size	No. switching contacts	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	weight [kg]
C1R/C1L	max. 305	max. 5	-	33,5	-	108	27	135	2,80
C2R/C2L	max. 305	max. 8	-	34	-	138	27	165	3,25

Series HGE – Housing Types Bxx

Revision number: 3.1.4.4-01

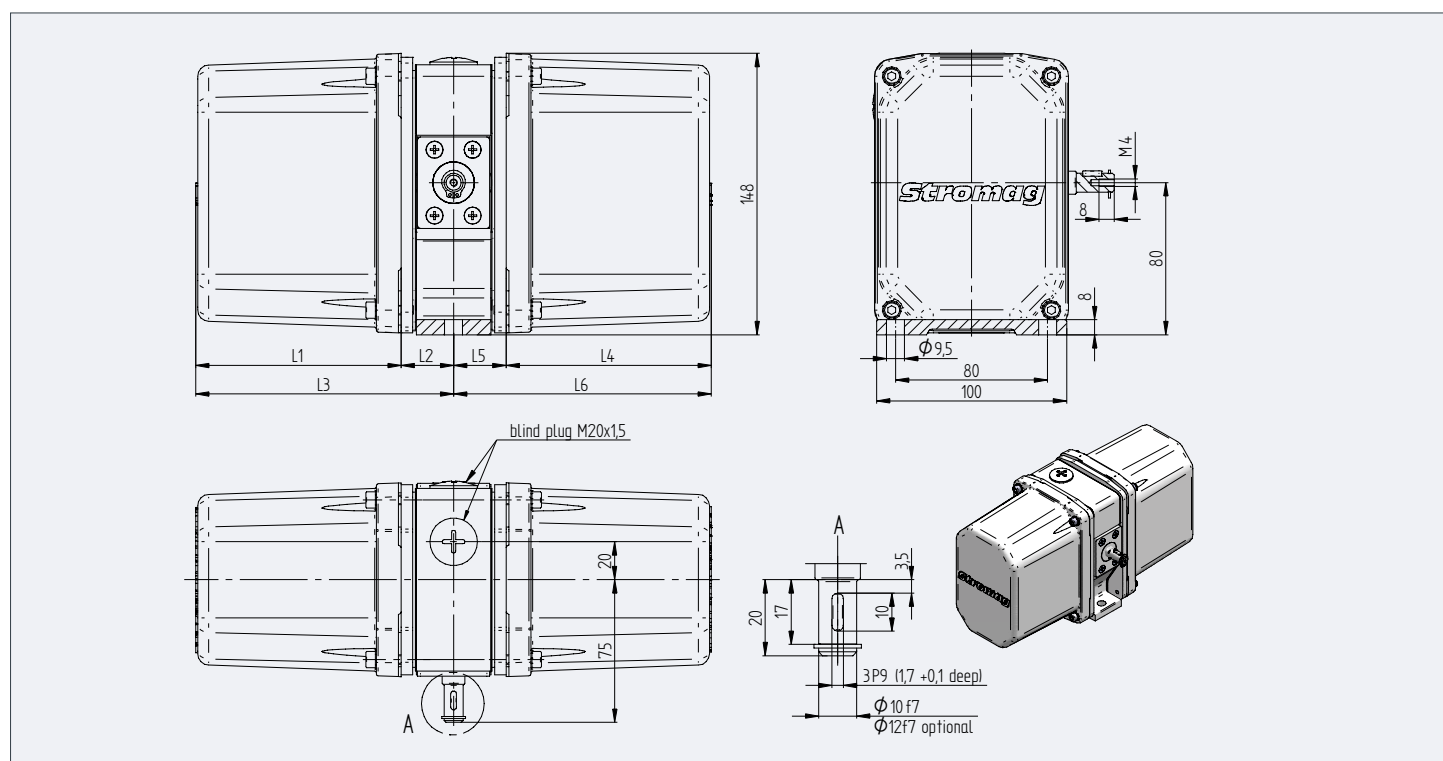
Revision date: 19.11.2019

Features

- Up to 16 switches possible,
max. 8 switches on each side

Additional information

- Dimensional drawing for 345, 460 and
715 on request



Switch size	Gear size	No. switching contacts	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	weight [kg]
B11	max. 305	max. 10	108	27	135	108	27	135	3,70
	>305		108	27	135	108	37	145	
B22	max. 305	max. 16	138	27	165	138	27	165	4,40
	>305		138	27	165	138	37	175	

GEARED CAM LIMIT SWITCHES

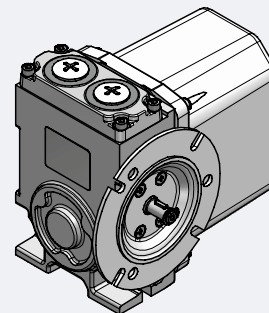
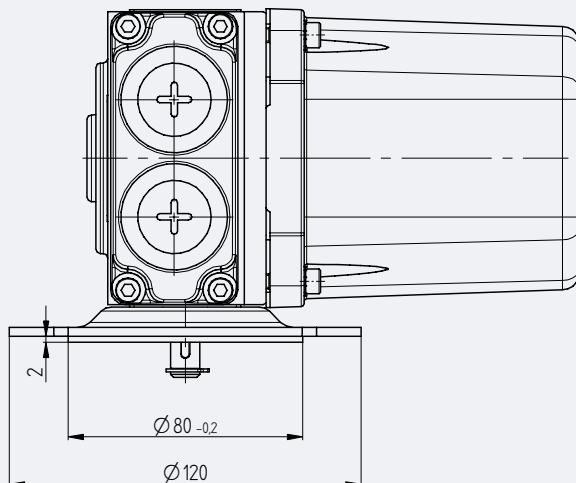
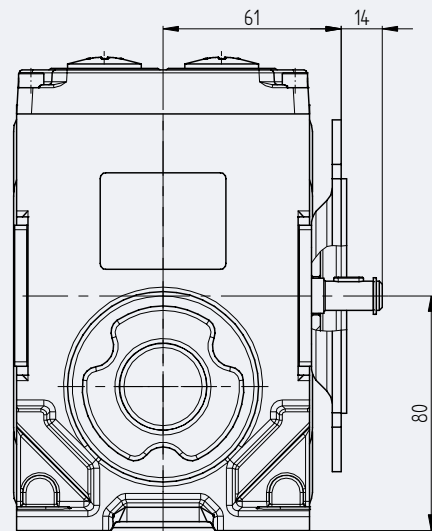
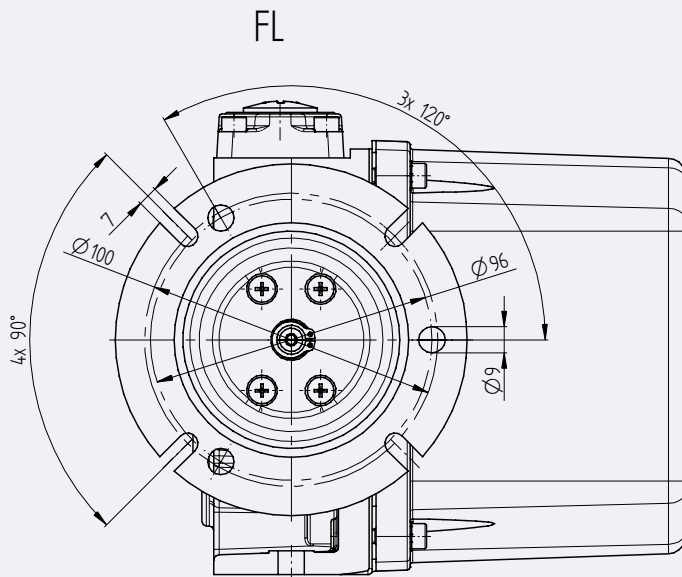
Series HGE / HEG

Series HGE – Option: Mounting Flanges FL, FL160

Revision number: 3.1.4.5-01

Revision date: 19.11.2019

Additional weight: 0,10 kg



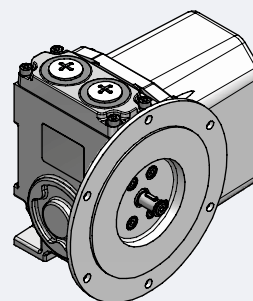
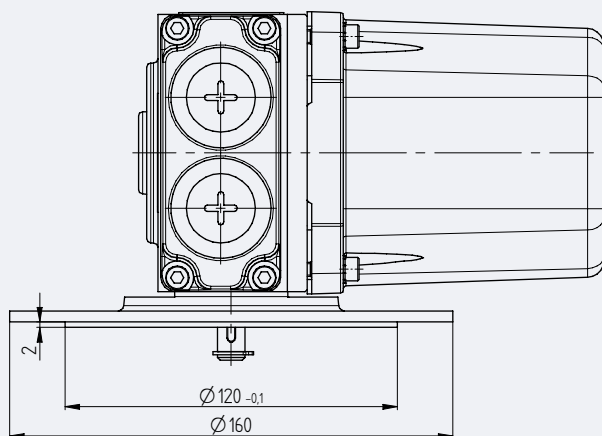
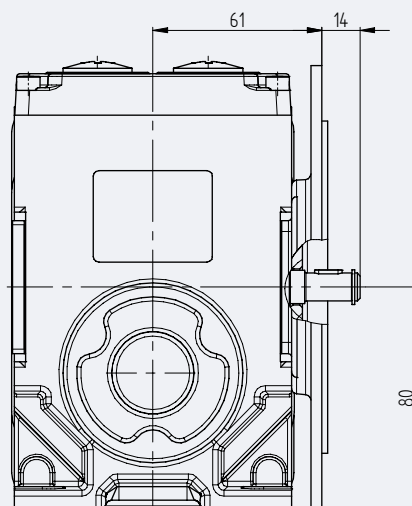
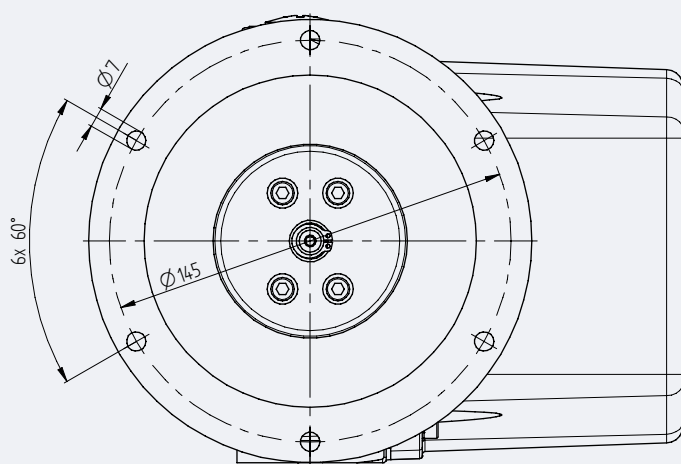
Series HGE – Option: Mounting Flanges FL, FL160

Revision number: 3.1.4.5-01

Revision date: 19.11.2019

Additional weight: 0,27 kg

FL160



GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE – Option: Encoder Preparation

Revision number: 3.1.4.6-01

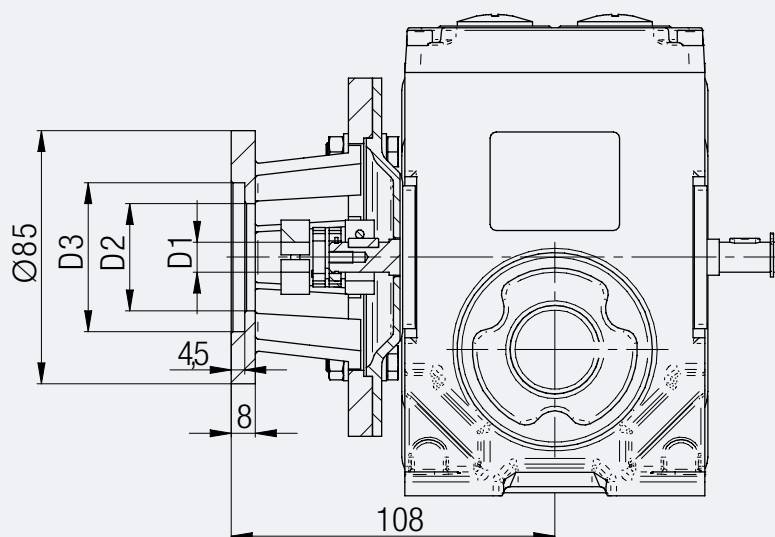
Revision date: 19.11.2019

Features

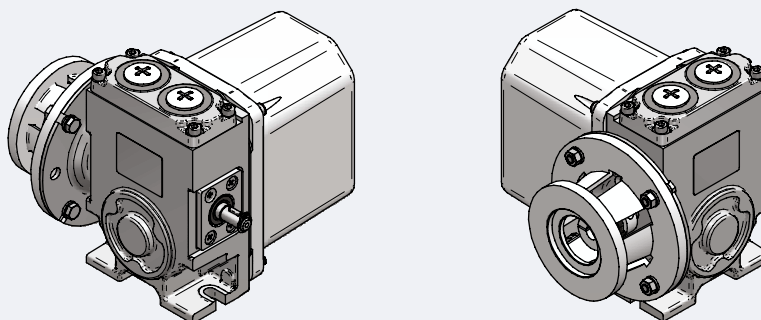
- Preparation for the installation of multi-turn encoders possible, driven by lead through drive shaft

Additional information

- Adaptor for encoders with centering of 36 or 50 mm, other centerings on request
- Connection to the encoder with special encoder coupling



Example: CR



D1 [mm]	D2 [mm]	D3 [mm]
Ø6	Ø36H7 or other	Ø50H7 or other
Ø8		
Ø10		
Ø12		

Series HGE – Option: Internal Encoder

Revision number: 3.1.4.6-01

Revision date: 19.11.2019

Features

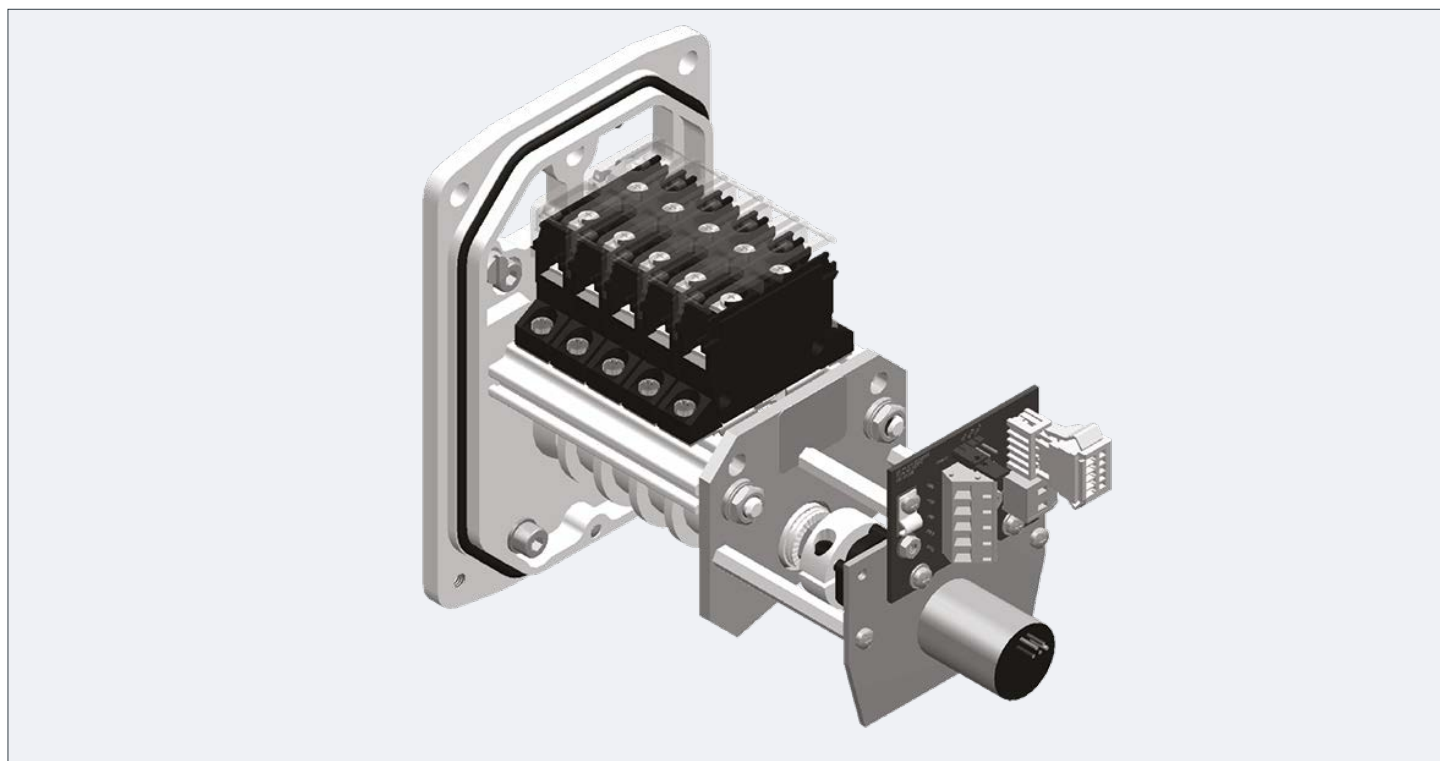
- Contactless measuring method
- Absolute value acquisition
- Long lifetime
- Turning synchronously with the cam discs

Application

- For simple measuring of absolute signals (voltage or current)

Additional information

- Programmable type CW or CCW
- Zero point setting



Type	Current	Voltage
Supply Voltage U _{BB}	18 to 35 VDC (RL = 500 W) 12 to 35 VDC (RL = 200 W)	18 to 35 VDC
Signal output	I _{out} : 4 to 20 mA (0°...360°)	U _{out} : 0.1 to 10 V (0°...360°)
Linearity	±0,1% to effective range	±0,1% to effective range
Hysteresis	max. 0,1°	max. 0,1°
Output charge	Load resistor 0...0,5 kW	Load resistor ≥ 10 kW
Rotary angle mech.	360° rotation possible	360° rotation possible
Temperature range	-40°C to +85°C	-40°C to +85°C
Weight	approx. 100 g	approx. 100 g

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HEG – Spur Gear Limit Switch

Revision number: 3.1.4.7-01

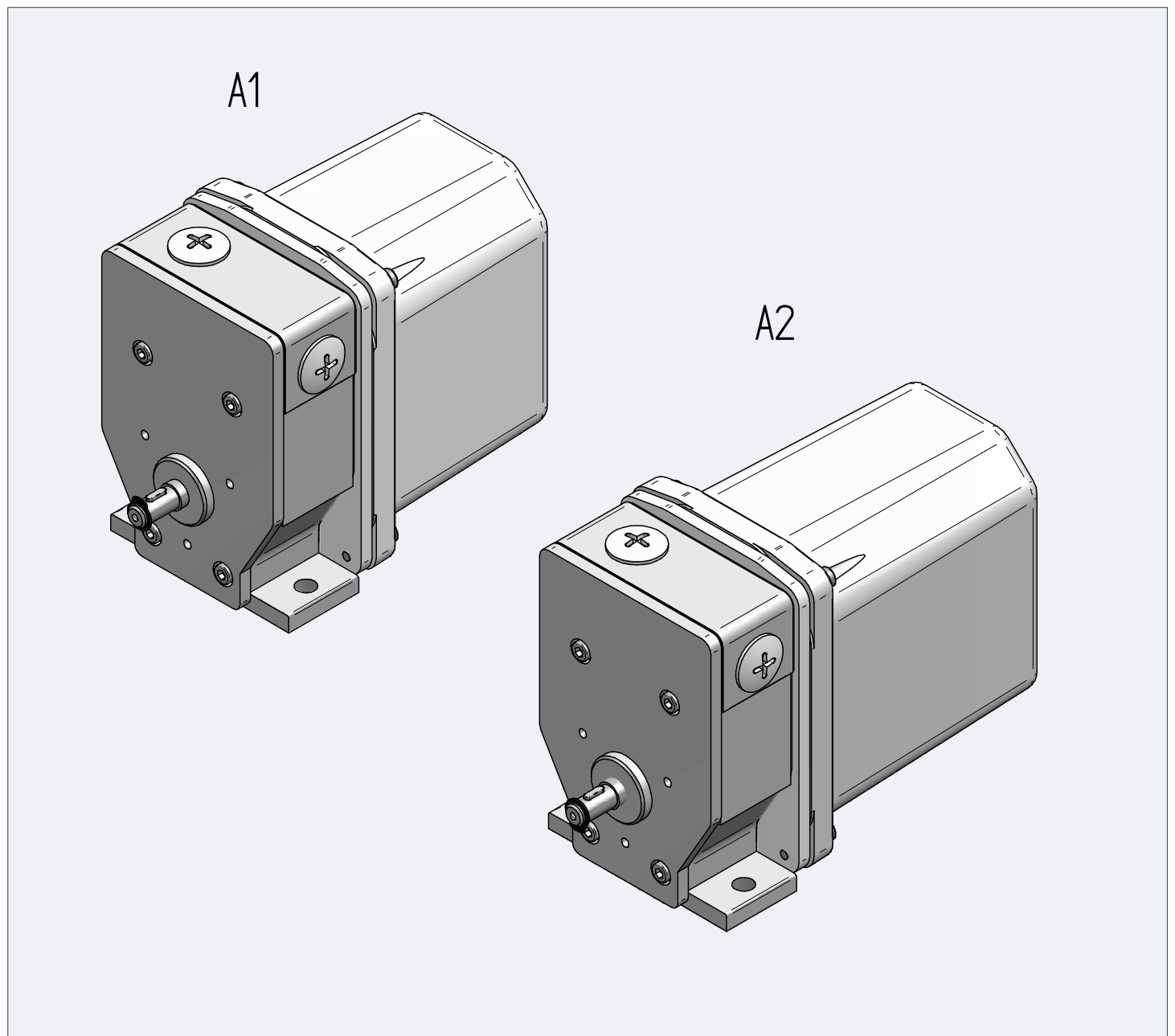
Revision date: 19.11.2019

Features

- Spur gear made of metal
- gear ratios <1 available
- Up to 8 switches possible

Application

- Crane
- Steel works



Series HEG – Gear Data

Revision number: 3.1.4.8-02

Revision date: 28.05.2024

Gear table, for switches 51, 52, 53, 54 with cam discs 40° FV50									
Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 52	Overrun revolutions on drive shaft switch 52	Switch back revolutions on drive shaft (average value) switch 52	max. drive speed	min. drive speed switch 51, 52	min. drive speed switch 53, 54	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 52
[-]	[i]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
0.15	0.200	0.17	0.02	0.01	50	0.01	0.09	3.6	0.01
0.2	0.250	0.21	0.03	0.01	50	0.01	0.11	2.9	0.01
0.28	0.333	0.28	0.04	0.01	50	0.01	0.15	2.2	0.01
0.38	0.444	0.38	0.05	0.01	50	0.01	0.19	1.7	0.01
0.5	0.600	0.52	0.07	0.01	150	0.01	0.26	1.3	0.01
1	1.000	0.86	0.13	0.01	150	0.01	0.43	0.87	0.01
1.1	1.333	1.15	0.17	0.01	150	0.01	0.57	0.71	0.01
1.5	1.800	1.56	0.23	0.01	150	0.02	0.77	0.57	0.01
2	3.000	2.6	0.39	0.02	250	0.03	1.3	0.42	0.02
2.5	4.000	3.4	0.53	0.03	250	0.03	1.8	0.37	0.03
3.5	5.000	4.3	0.66	0.03	250	0.04	2.2	0.33	0.03
6	9.000	7.8	1.19	0.05	250	0.07	3.9	0.27	0.05

Gear table, for switches 51, 52, 53, 54 with cam discs 40° FV70									
Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 52	Overrun revolutions on drive shaft switch 52	Switch back revolutions on drive shaft (average value) switch 52	max. drive speed	min. drive speed switch 51, 52	min. drive speed switch 53, 54	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 52
[-]	[i]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
0.15	0.200	0.17	0.02	0.01	50	0.01	0.06	5.2	0.01
0.2	0.250	0.22	0.02	0.01	50	0.01	0.08	4.2	0.01
0.28	0.333	0.29	0.03	0.01	50	0.01	0.10	3.2	0.01
0.38	0.444	0.39	0.05	0.01	50	0.01	0.13	2.4	0.01
0.5	0.600	0.52	0.07	0.01	150	0.01	0.18	1.9	0.01
1	1.000	0.88	0.11	0.01	150	0.01	0.29	1.2	0.01
1.1	1.333	1.17	0.15	0.01	150	0.01	0.39	0.95	0.01
1.5	1.800	1.58	0.21	0.01	150	0.01	0.52	0.75	0.01
2	3.000	2.6	0.35	0.02	250	0.02	0.9	0.53	0.01
2.5	4.000	3.5	0.47	0.02	250	0.02	1.2	0.45	0.02
3.5	5.000	4.4	0.59	0.02	250	0.03	1.5	0.40	0.02
6	9.000	7.9	1.06	0.04	250	0.05	2.6	0.31	0.03

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HEG – Gear Data

Revision number: 3.1.4.8-02

Revision date: 28.05.2024

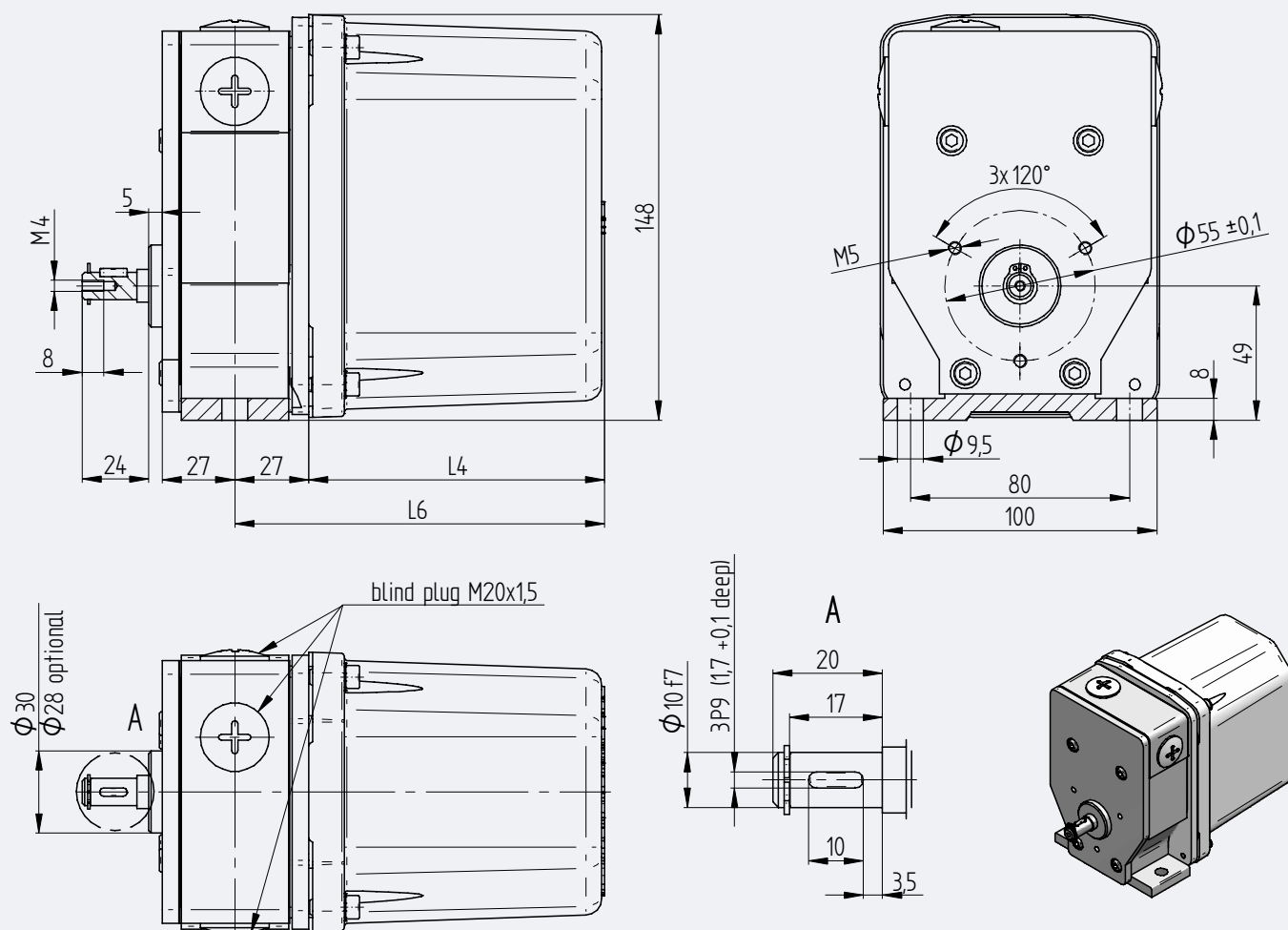
Gear table, for switches 80, 81, 88, 90, 90G with cam discs 40° FV50											
Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 90, 90G	Overrun revolutions on drive shaft switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 88	max. drive speed	min. drive speed switch 80	min. drive speed switch 88	min. drive speed switch 90, 90G	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 90, 90G
[-]	[i]	[U]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
0.15	0.200	0.17	0.02	0.01	0.01	50	0.08	0.01	0.05	7.6	0.01
0.2	0.250	0.21	0.03	0.01	0.01	50	0.09	0.02	0.06	6.1	0.01
0.28	0.333	0.28	0.04	0.01	0.01	50	0.12	0.02	0.08	4.6	0.02
0.38	0.444	0.38	0.06	0.01	0.01	50	0.16	0.02	0.10	3.5	0.02
0.5	0.600	0.51	0.08	0.01	0.01	150	0.22	0.03	0.13	2.7	0.03
1	1.000	0.86	0.13	0.01	0.01	150	0.37	0.05	0.22	1.7	0.04
1.1	1.333	1.15	0.18	0.02	0.02	150	0.49	0.06	0.29	1.3	0.06
1.5	1.800	1.55	0.24	0.02	0.02	150	0.66	0.08	0.38	1.0	0.07
2	3.000	2.5	0.40	0.03	0.03	250	1.1	0.13	0.64	0.69	0.12
2.5	4.000	3.4	0.54	0.04	0.04	250	1.4	0.17	0.85	0.57	0.16
3.5	5.000	4.3	0.67	0.05	0.05	250	1.8	0.22	1.1	0.49	0.20
6	9.000	7.7	1.21	0.09	0.08	250	3.3	0.38	1.9	0.36	0.35

Gear table, for switches 80, 81, 88, 90, 90G with cam discs 40° FV70											
Nominal revolutions	Ratio	Usable revolutions on drive shaft switch 90, 90G	Overrun revolutions on drive shaft switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 90, 90G	Switch back revolutions on drive shaft (average value) switch 88	max. drive speed	min. drive speed switch 80	min. drive speed switch 88	min. drive speed switch 90, 90G	max. drive torque for positive opening of 1 switch	max. revolutions between switching point and end of positive opening switch 90, 90G
[-]	[i]	[U]	[U]	[U]	[U]	[U/min]	[U/min]	[U/min]	[U/min]	[Nm]	[U]
0.15	0.200	0.17	0.02	0.01	0.01	50	0.06	0.01	0.03	11.0	0.01
0.2	0.250	0.22	0.02	0.01	0.01	50	0.08	0.01	0.04	8.8	0.01
0.28	0.333	0.29	0.03	0.01	0.01	50	0.01	0.01	0.05	6.7	0.01
0.38	0.444	0.39	0.05	0.01	0.01	50	13	0.02	0.07	5.1	0.02
0.5	0.600	0.52	0.07	0.01	0.01	150	0.18	0.02	0.09	3.8	0.02
1	1.000	0.88	0.11	0.01	0.01	150	0.29	0.03	0.15	2.4	0.03
1.1	1.333	1.17	0.15	0.01	0.01	150	0.39	0.04	0.20	1.8	0.04
1.5	1.800	1.58	0.21	0.02	0.02	150	0.52	0.06	0.26	1.4	0.05
2	3.000	2.6	0.35	0.02	0.03	250	0.9	0.09	0.44	0.92	0.08
2.5	4.000	3.5	0.47	0.03	0.04	250	1.2	0.12	0.58	0.74	0.10
3.5	5.000	4.4	0.59	0.04	0.05	250	1.5	0.15	0.72	0.63	0.13
6	9.000	7.9	1.06	0.06	0.08	250	2.6	0.26	1.3	0.44	0.22

Series HEG – Housing Types A1, A2

Revision number: 3.1.4.9-01

Revision date: 19.11.2019



Switch size	No. switching contacts	L4 [mm]	L6 [mm]	weight [kg]
A1	max. 5	108	135	2,80
A2	max. 8	138	165	3,25

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

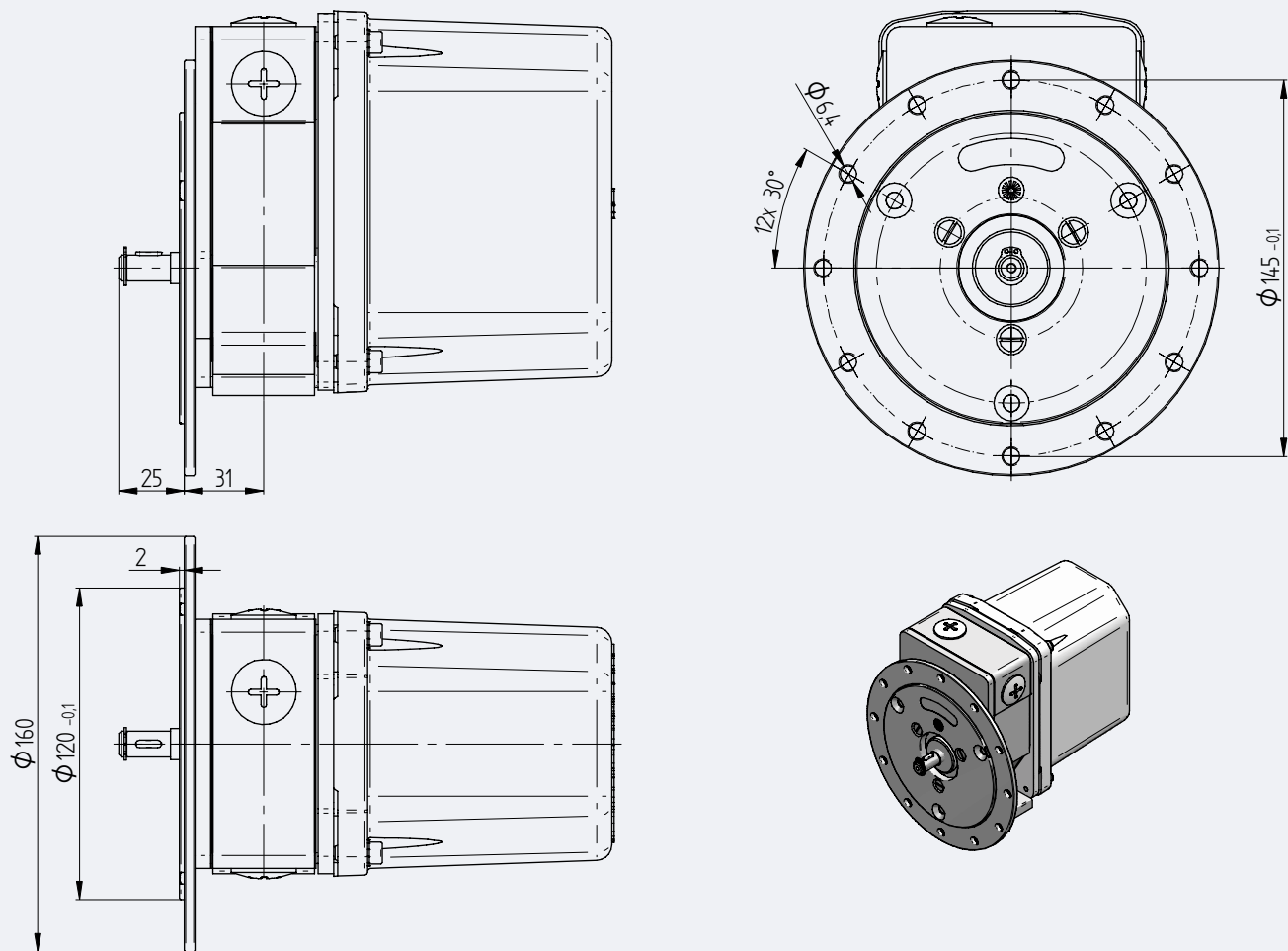
Series HEG – Option: Mounting Flange FL

Revision number: 3.1.4.10-01

Revision date: 19.11.2019

Additional weight: 0,25kg

FL



Series HGE, HEG – Available Switches

Revision number: 3.1.4.14-03

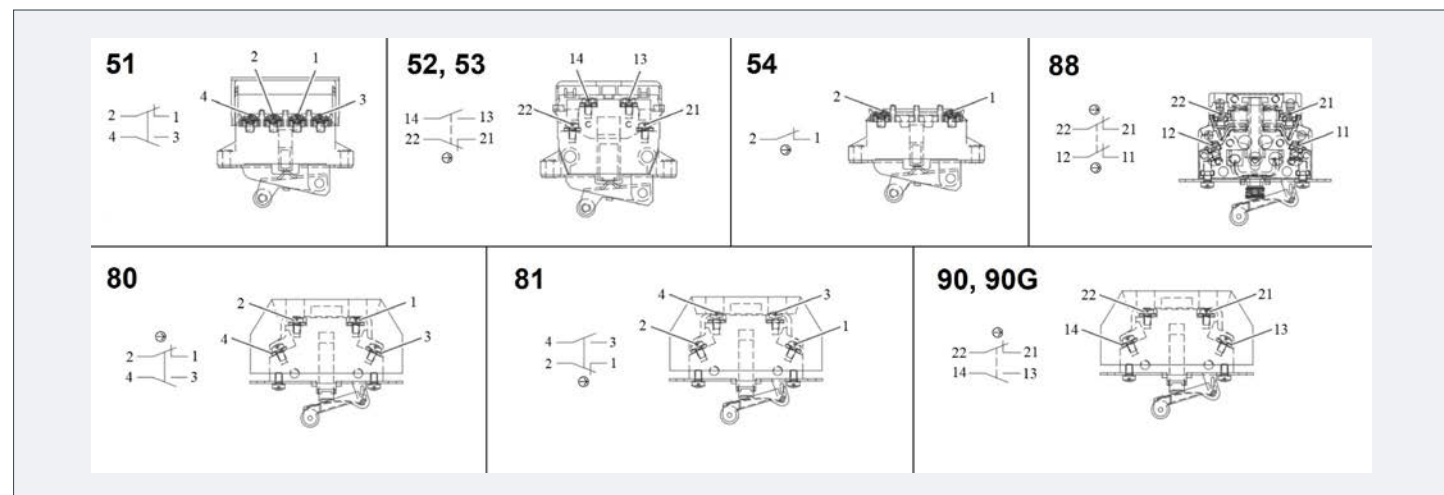
Revision date: 31.03.2022

Features

- Snap and push action switches available with silver or gold plated contact material
- Galvanic isolated elements available
- Positive opening contacts available

Application

- For relays or PLC



Switch			Contact material		Switching system		Connection	Electrical data					Additional data		
Designation	Circuit as a changeover	Circuit as an NC contact	Silver	Gold (PLC-Application)	Snap action switch	Push action switch	Screw terminals: 0,75 - 2,5 mm²/ AWG 14 ... 20	Utilization category acc. to IEC 60947	Conventional thermal current I _{th}	Rated Insulation Voltage U _i	Short circuit protection	Degree of Pollution	Mechanical Lifetime	Positive opening acc. to EN 60947-5-1 Annex K	Operating Temperature
51	•			•	•		•	AC-15: 230V, 2,5A DC-13: 24V, 4A	6A	250V	10A gL/gG	PD 2	30x106		-30°C ... +85°C *
52	•			•	•		•	AC-15: 230V, 2,5A DC-13: 24V, 6A	10A	250V	6A gL/gG	PD 3	1x106	•	-30°C ... +85°C
53	•			•		•	•	AC-15: 230V, 2,5A DC-13: 24V, 6A	10A	250V	6A gL/gG	PD 3	1x106	•	-30°C ... +85°C
54		•	•			•	•	AC-15: 230V, 2,5A DC-13: 24V, 1A	6A	250V	10A gL/gG	PD 2	30x106	•	-30°C ... +85°C *
80	•		•		•		•	AC-15: 230V, 3A DC-13: 110V, 1A	10A	400V	6A gG	PD 3	10x106	•	-40°C ... +85°C
81	•		•			•	•	AC-15: 230V, 3A DC-13: 110V, 1A	10A	400V	6A gG	PD 3	10x106	•	-40°C ... +85°C
90	•		•		•		•	AC-15: 230V, 1A DC-13: 110V, 0,5A	10A	400V	6A gR	PD 3	10x106	•	-40°C ... +85°C
90G	•			•	•		•	AC-12: 230V, 0,25A, DC-12: 110V, 0,25A	10A	400V	2A gG	PD 3	10x106	•	-40°C ... +85°C
88		•		•	•		•	AC-15: 230V, 1,5A DC-13: 24V, 1,5A	10A	400V	10A gG	PD 3	1,5x106	•	-40°C ... +85°C

• = applicable

* Up to +120°C in combination with high temperature type

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE, HEG – Cam Disc Types

Revision number: 3.1.4.15-01

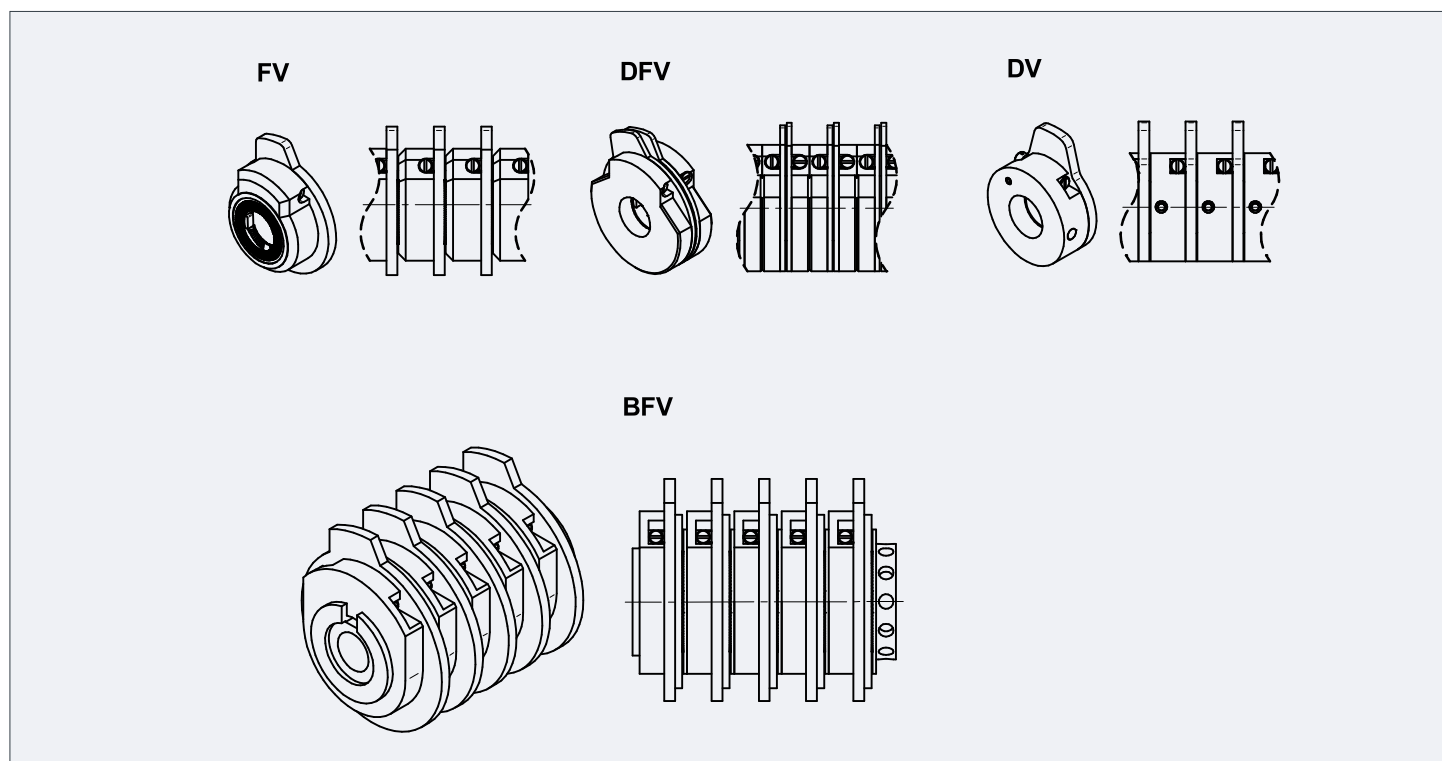
Revision date: 19.11.2019

Features

- Easy adjustable cam discs via self-locking worm, gear ratio of 74
- Large cam disc diameter for high switching point accuracy

Additional information

- FV for normal application
- DFV for flexible adjustment of the cam angle

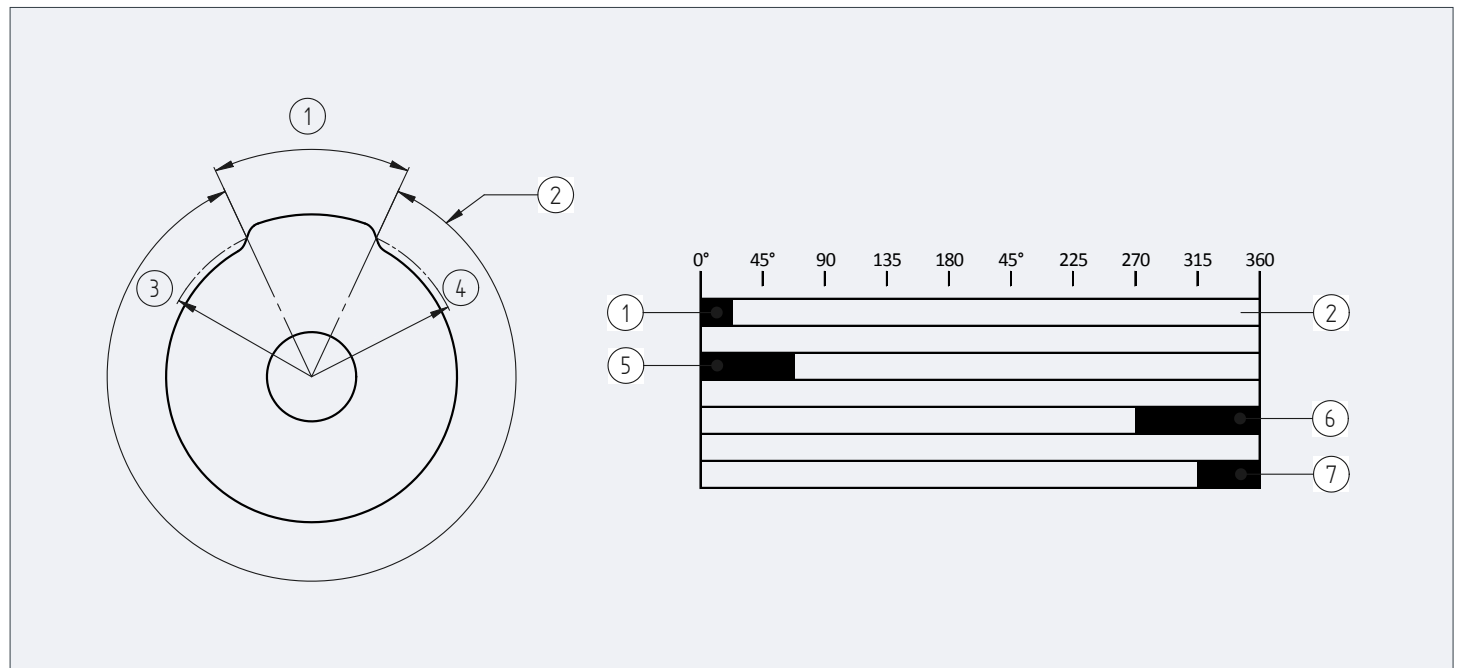


Cam Disc Types	Material	Diameter Cam Disk	Standard Cam Angle	Special Cam Angel	Gradation Cam Angle	precisely adjustable	block adjustment
FV50	synthetic	50mm	40°	other cam angles on request	1°	x	
DFV50	synthetic	50mm	40°		1°	x	
DV50	brass	50mm	40°		1°	x	
FV70	synthetic	70mm	40°		1°	x	
BFV70	synthetic	70mm	40°		1°	x	x

Series HGE, HEG – Customizable Cam Discs

Revision number: 3.1.4.16-01

Revision date: 19.11.2019



- A Cam angle diagram
- 1 Effective cam angle α (=castor angle)
- 2 Effective cam angle β
- 3 Switching point radius
- 4 Reset point radius

- B Application examples
- 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 due to the effective cam angle. The effective cam angle corresponds to the switching point angle on the switching point radius of the cam disc. Standard cam angle for series HEG, HEG, HHEV is 40°.

Any other cam angles (from 15° up to 345°) can be supplied as a special design upon request.
The usable revolutions enabled by a cam disc on the drive shaft, result in the following:

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

- U = Usable revolutions
- α = Effective cam angle
- β = Usable cam angle ($\beta = 360^\circ - \alpha$)
- i = gear ratio

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE, HEG – Option: Anti-Condensation-Heating

Revision number: 3.1.4.17-02

Revision date: 06.09.2022

Features

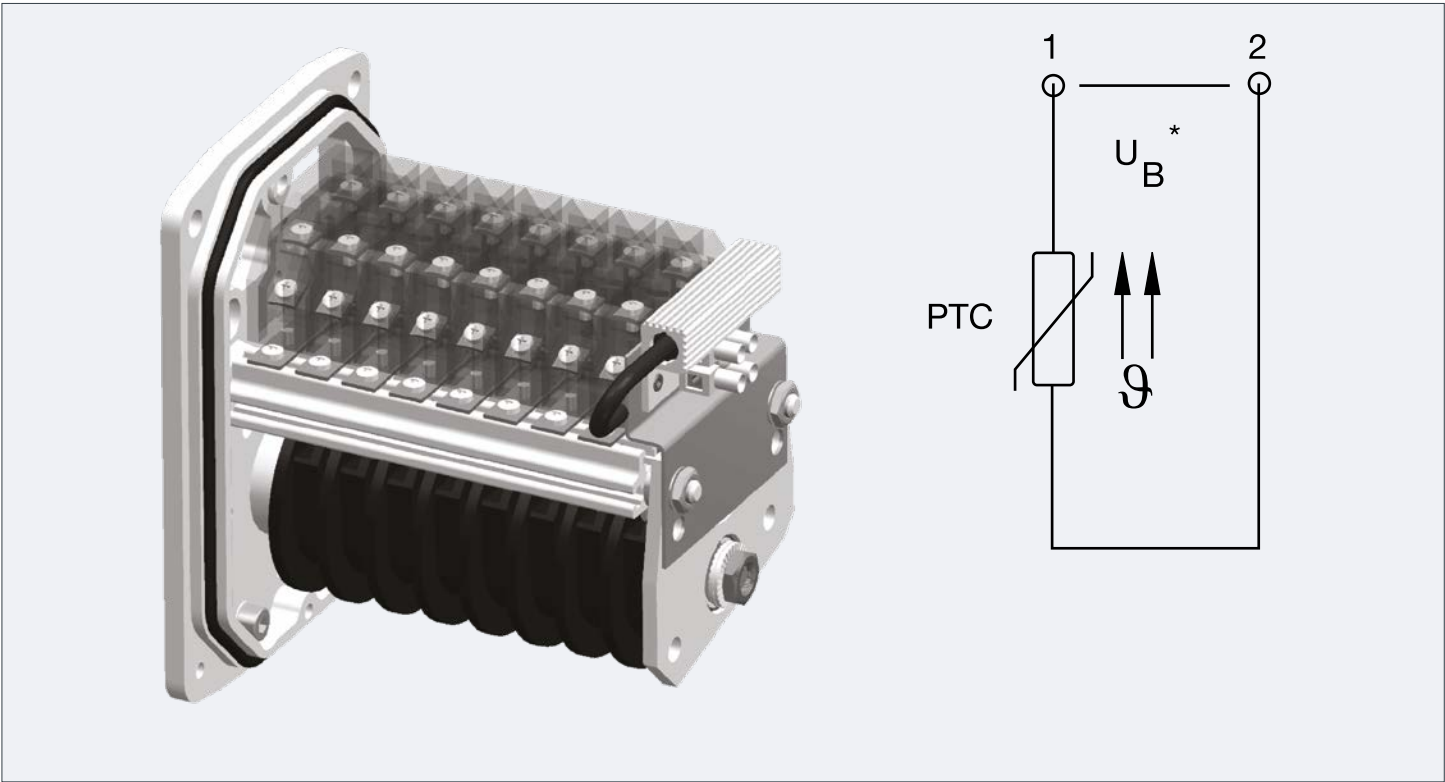
- Self-regulating PTC heating element

Application

- For anti-condensation to avoid water condensation within the geared cam limit switch

Additional information

- Additional safety for usage in low temperatures



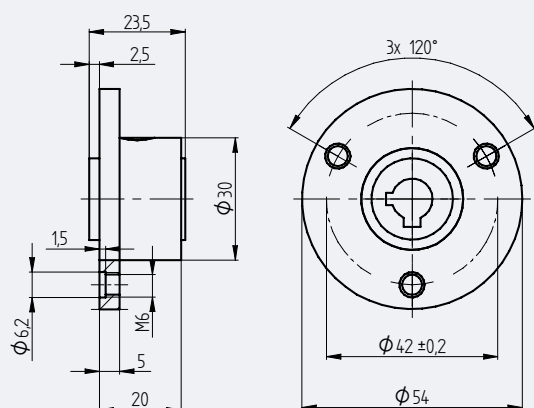
Design	H1	H2
Supply Voltage U _{BB}	12 – 30 V AC/DC	110 – 250 V AC/DC
Heat Output	4 W	3 W
PTC Cooling resistor (at 25 °C) R ₂₅	20 Ω ± 35 %	1500 Ω ± 35 %
PTC Reference temperature	50 °C	50 °C
Protection class (VDE 0100, 0160)	not required	II
Connecting cable	2 x 0,25 mm², Silicon cable	2 x 0,25 mm², Silicon cable
Radiator	Anodised aluminum	Anodised aluminum
Weight	approx. 40 g	approx. 40 g

Series HGE, HEG – Option Drive Flange F, F+M

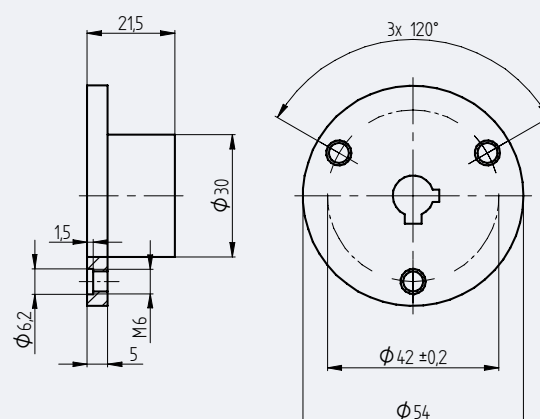
Revision number: 3.1.4.18-01

Revision date: 19.11.2019

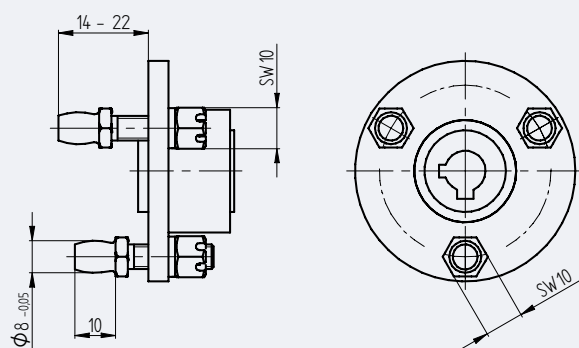
F, flexible



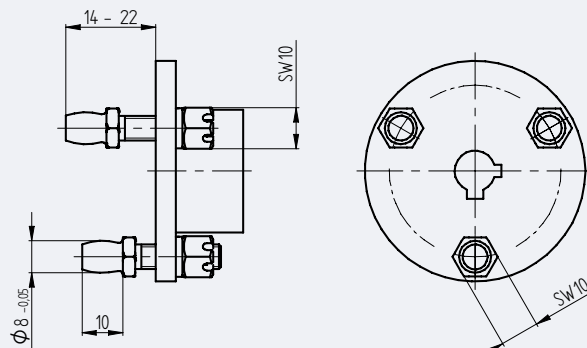
F, non-flexible



F+M, flexible



F+M, non-flexible



Flange	Type	Operating speed	Torsion angle (with a torque of 5 Nm)
F	flexible	$n_{\max} = 1000 \text{ rpm}$	$5 \pm 0.5^\circ$
F	non-flexible	$n_{\max} = 1000 \text{ rpm}$	0°
F+M	flexible	$n_{\max} = 1000 \text{ rpm}$	$5 \pm 0.5^\circ$
F+M	non-flexible	$n_{\max} = 1000 \text{ rpm}$	0°

GEARED CAM LIMIT SWITCHES

Series HGE / HEG

Series HGE, HEG – Key of Types

Revision number: 3.1.4.19-01

Revision date: 01.10.2024

Stromag GmbH	
Hansastr.120, 59425 Unna	
Made in Germany	
Gear Limit Switch	
XXXXXXXXXXXXXXXXXX	
S/N:	IPXX MM/JJ
Ref:	
IEC 60947-5-1	
Ui=250VAC; Ith=10A	
AC15 230VAC/1.5A	
DC13 60VDC/0.5A	
DC13 24VDC/2.0A	

HGE, HEG			
155	Nominal revolutions	HGE	9.5, 18, 22, 29, 35, 70, 85, 100, 115, 155, 180, 230, 260, 305, 345, 460, 715
		HEG	0.15, 0.2, 0.28, 0.38, 0.39, 0.4, 0.5, 0.6, 0.65, 1, 1.05, 1.1, 1.4, 1.5, 1.9, 2, 2.5, 3.5, 6
HGE	Series	HGE	Worm Gear Limit Switch HGE
		HEG	Spur Gear Limit Switch HEG
5	Quantity of switches	HGE	1 to 16 switches
		HEG	1 to 8 switches
90	Type of switches	51	Switch (changeover) with screw connections, contact material: Gold
		52	Switch (changeover) with screw connections, contact material: Gold 
		53	Switch (push action) with screw connections, contact material: Gold 
		54	Switch (push action) with screw connections, contact material: Silver 
		80	Switch (changeover) with screw connections, contact material: Silver 
		81	Switch (push action) with screw connections, contact material: Silver 
		90	Switch (changeover) with screw connections, contact material: Silver 
		90G	Switch (changeover) with screw connections, contact material: Gold 
		88	Switch (double action) with screw connections, contact material: Gold 
BFV70	Type of built-in cam discs	FV50	Synthetic Material, precisely adjustable, diameter 50mm
		DFV50	Synthetic Material, double cams, precisely adjustable, diameter 50mm
		DV50	Brass, precisely adjustable, diameter 50mm
		FV70	Synthetic Material, precisely adjustable, diameter 70mm
		BFV70	Synthetic Material, block adjustment, precisely adjustable, diameter 70mm
A1R	Type of housing	A1	1 to 5 switches
		A2	1 to 8 switches
		A1R	1 to 5 switches, right
		A2R	1 to 8 switches, right
		A1L	1 to 5 switches, left
		A2L	1 to 8 switches, left
		B11	1 to 5 switches, both sides
		B22	1 to 8 switches, both sides
		B12	1 to 5 switches, left / 1 to 8 switches, right
		B21	1 to 8 switches, left / 1 to 5 switches, right
G	Additional option	G	with encoder / sensor
		P	with potentiometer



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