

Series RAK



AVENTICS™ Series RAK



Rotary wing drives, Series RAK

- angle of rotation max. 90 180 270 °
- Rotary wing drive, double-acting
- axis geometry single



Working pressure min./max.	See table below
Ambient temperature min./max.	See table below
Medium temperature min./max.	-5 ... 60 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 1 mg/m ³
Theoretical torque at	6 bar
Weight	See table below

Technical data

Part No.	Frame size	Compressed air connection	angle of rotation	Min. swivel times
		G		
2705010100	RAK - 1S	M5	90 °	0.03 s
2705010300	RAK - 1S	M5	180 °	0.06 s
2705120300	RAK - 2S	M5	30-180 °	0.08 s
2705130300	RAK - 3S	M5	30-180 °	0.08 s
2705140300	RAK - 4S	M5	30-180 °	0.1 s
2705150400	RAK - 5S	G 1/8	30-270 °	0.2 s
2705151400	RAK - 5D	G 1/8	30-90 °	0.2 s

Part No.	Working pressure min./max.	Ambient temperature min./max.	Maximum operating frequency	Weight
2705010100	2 ... 7 bar	-5 ... 80 °C	300	0.036 kg
2705010300	2 ... 7 bar	-5 ... 80 °C	180	0.036 kg
2705120300	2 ... 7 bar	-5 ... 80 °C	150	0.085 kg
2705130300	2 ... 7 bar	-5 ... 80 °C	150	0.17 kg
2705140300	2 ... 10 bar	-5 ... 80 °C	120	0.28 kg
2705150400	2 ... 10 bar	-5 ... 60 °C	90	0.51 kg
2705151400	2 ... 10 bar	-5 ... 60 °C	180	0.53 kg

Swivel time: The values indicated are for the max. angle of rotation., Sliding block included in the scope of delivery

Technical data

Frame size	RAK - 1S	RAK - 2S	RAK - 3S	RAK - 4S
Axis diameter	4 mm	5 mm	6 mm	8 mm
Max. permissible axial bearing load	3 N	4 N	4 N	25 N
Max. permissible radial bearing load	30 N	40 N	50 N	300 N
Interior volume	1.4 cm ³	4 cm ³	12 cm ³	21 cm ³
Repetitive precision	4 °	4 °	4 °	4 °

Frame size	RAK - 1S	RAK - 2S	RAK - 3S	RAK - 4S
Theoretical torque	0.15 Nm	0.38 Nm	1 Nm	2 Nm
Permissible kinetic energy	0.001 J	0.001 J	0.002 J	0.003 J
Version	Single vane	Single vane	Single vane	Single vane

Frame size	RAK - 5D	RAK - 5S
Axis diameter	10 mm	10 mm
Max. permissible axial bearing load	30 N	30 N
Max. permissible radial bearing load	400 N	400 N
Interior volume	34 cm ³	43 cm ³
Repetitive precision	4 °	4 °
Theoretical torque	10 Nm	4 Nm
Permissible kinetic energy	0.007 J	0.007 J
Version	Double vane	Single vane

Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

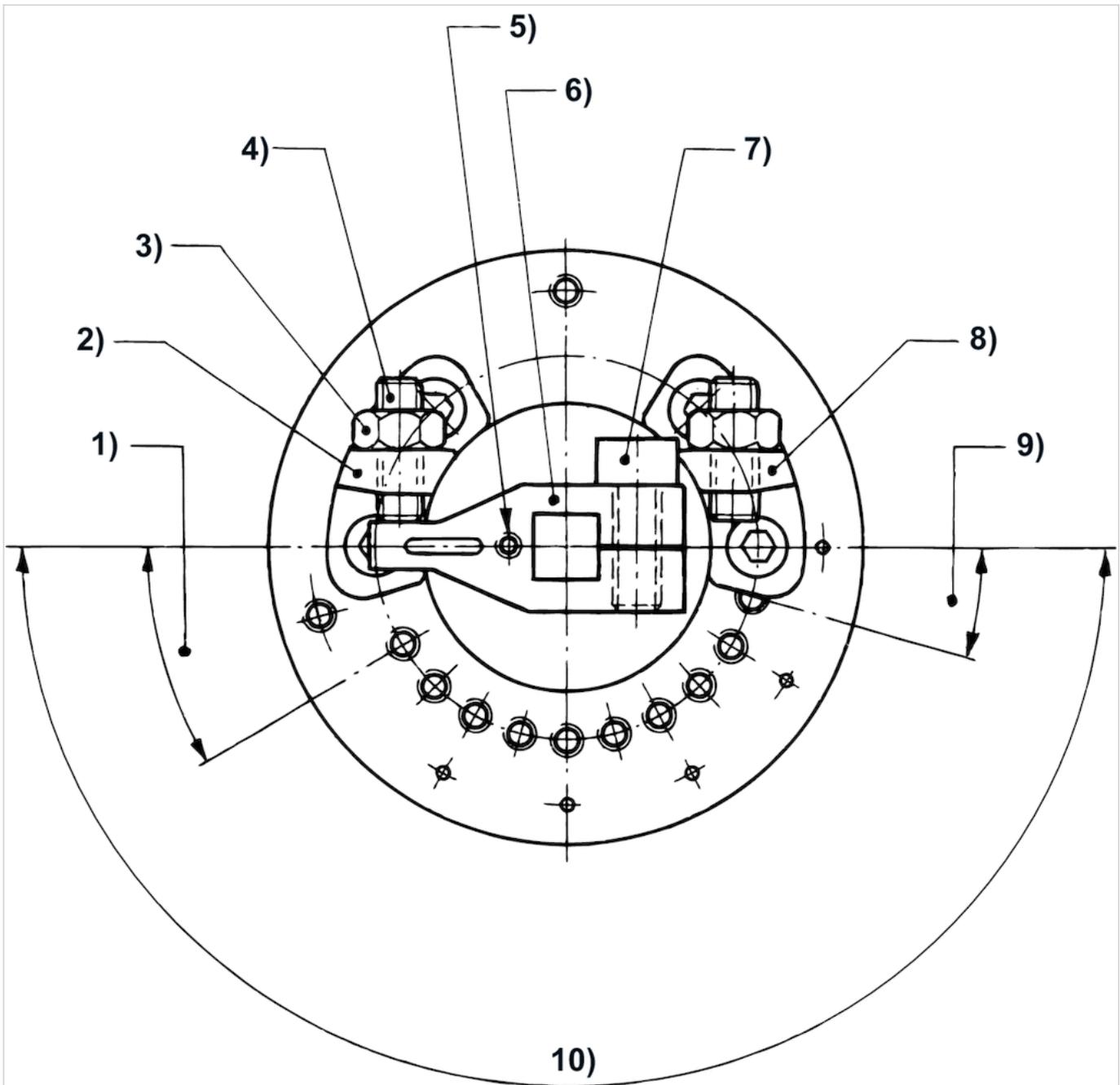
Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in the MediaCentre).

Technical information

Material	
Housing	Aluminum, anodized
Seal	Acrylonitrile butadiene rubber
Axis	Steel

Dimensions

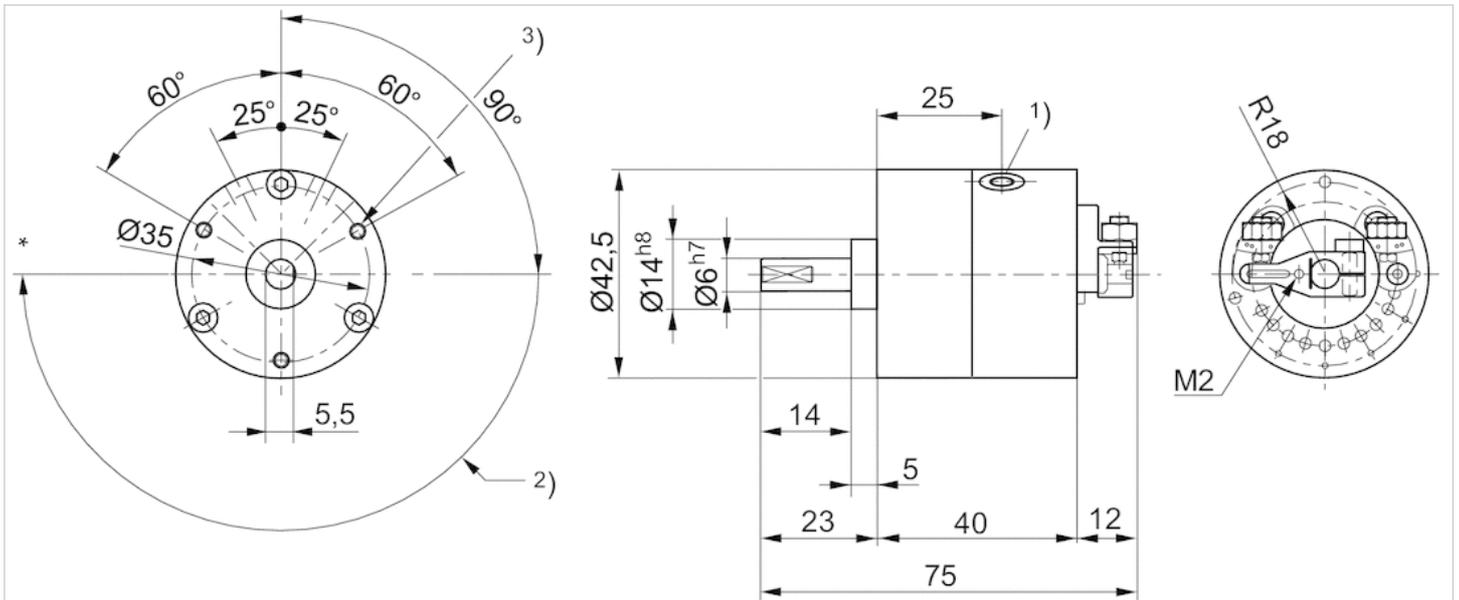
Adjustable stop, Mounted on 2S, 3S, 4S, 5S and 5D at delivery



- 1) Minimum angle setting 30°. 2) Reference point stopper. 3) Locknut. 4) Fine adjust screw. 5) Mounting hole for magnet. 6) Swivel arm. 7) Swivel arm fixation screw. 8) Angle setting stopper. 9) Stopper mounting pitch 15°. 10) Oscillating angle.

- 1) 2 x M5
- 2) Angle of rotation 30° to 180°
- 3) 3x M3, depth 6

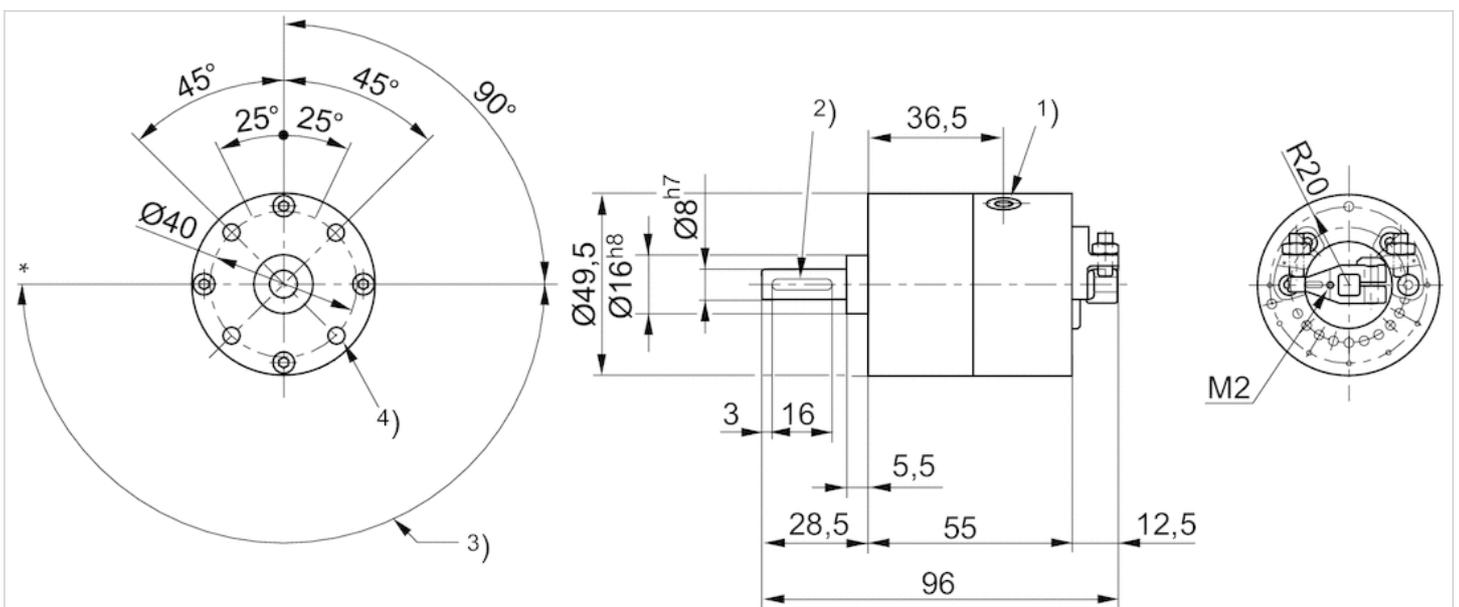
RAK - 3S, Adjustable angle of rotation



* Oscillating reference point

- 1) 2 x M5
- 2) Angle of rotation 30° to 180°
- 3) 3x M3, depth 6

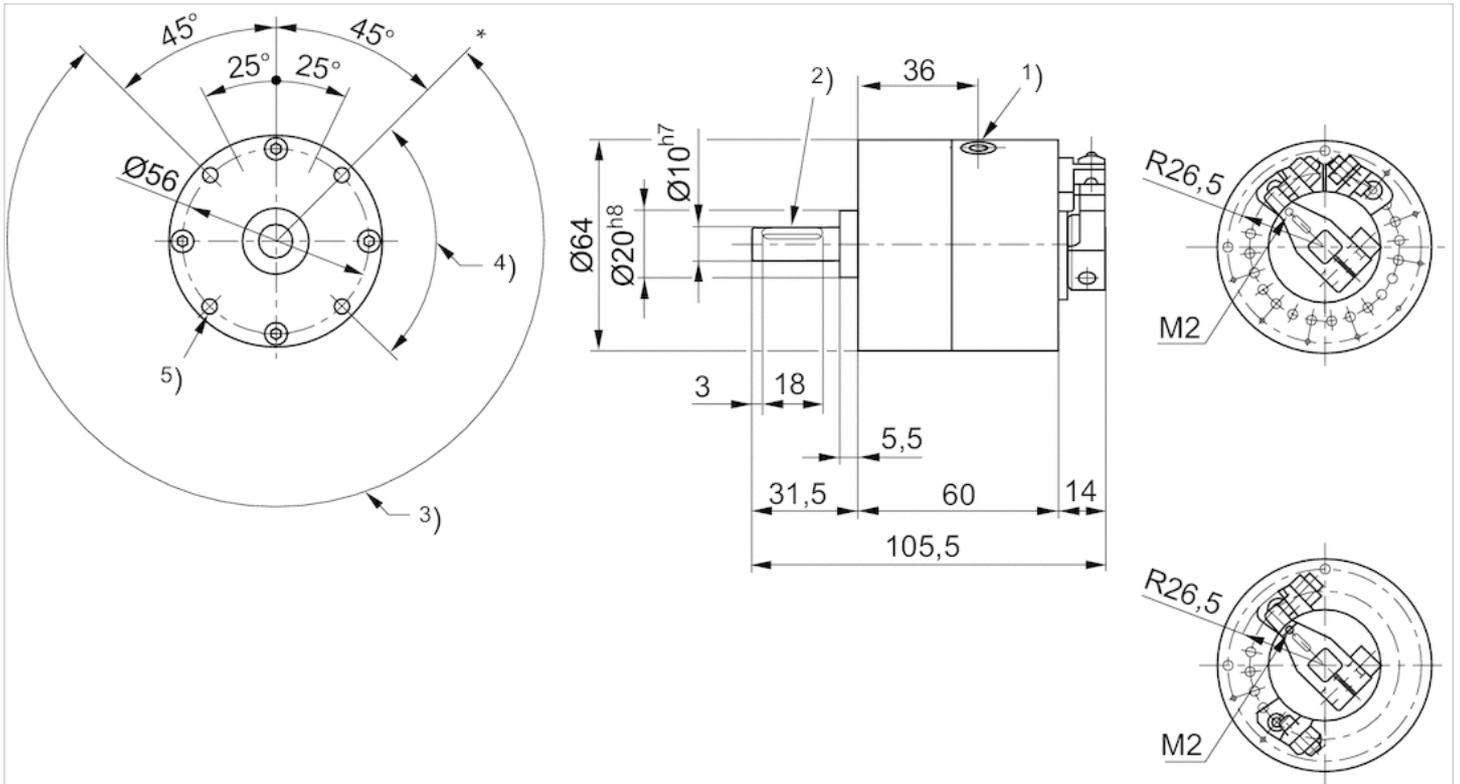
RAK - 4S, Adjustable angle of rotation



* Oscillating reference point

- 1) 2 x M5
- 2) Groove: 3x1.8
- 3) Angle of rotation 30° to 180°
- 4) 4x M5, depth 8

RAK - 5S, RAK - 5D, Adjustable angle of rotation

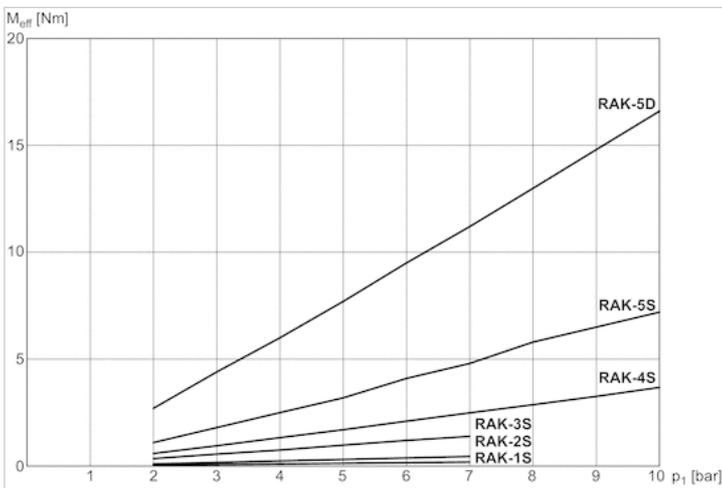


* Oscillating reference point

- 1) 2x G1/8
- 2) Groove: 4x2.5
- 3) Angle of rotation 30° to 270°
- 4) Angle of rotation 90°
- 5) 4x M5, depth 8

Diagrams

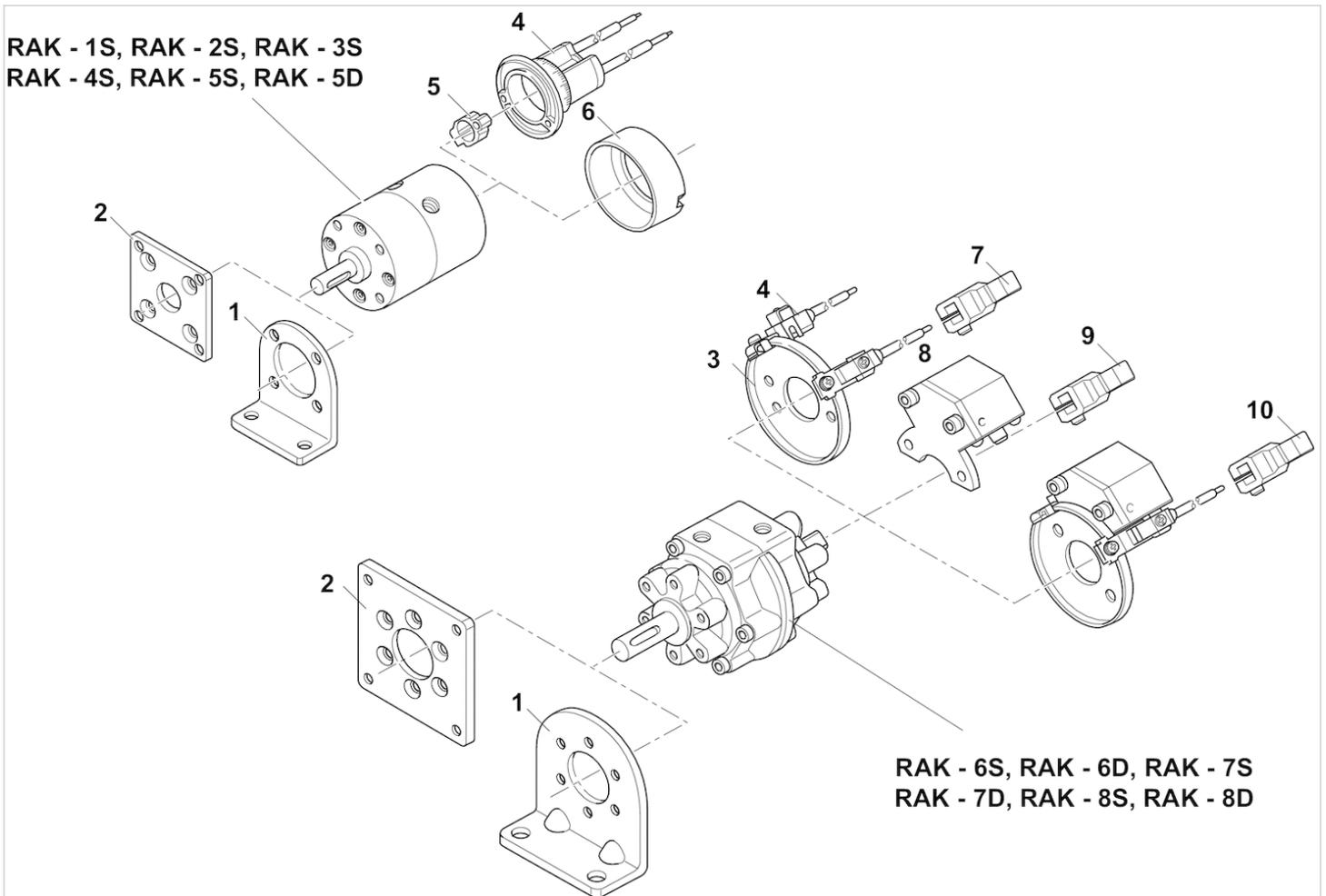
Effective torque



Meff: effective torque

Accessories overview

Overview drawing



- 1) foot mounting 2) flange mounting 3) mounting plate for sensor 4) sensor unit 5) Magnet 6) Protective cover
 7) swivel arm with magnet 8) hydraulic shock absorber 9) swivel arm without magnet 10) swivel arm with magnet

NOTE:

This overview drawing is only for orientation to indicate where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

Rotary wing drives, Series RAK

- angle of rotation max. 180 270 90 °
- Rotary wing drive, double-acting
- axis geometry single



Working pressure min./max.	2 ... 10 bar
Ambient temperature min./max.	5 ... 60 °C
Medium temperature min./max.	5 ... 60 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 1 mg/m ³
Theoretical torque at	6 bar
Weight	See table below

Technical data

Part No.	Frame size	Compressed air connection	angle of rotation	Min. swivel times
		G		
2705060300	RAK - 6S	G 1/8	180 °	0.16 s
2705062800	RAK - 6S	G 1/8	270 °	0.25 s
2705061100	RAK - 6D	G 1/8	90 °	0.08 s
2705070300	RAK - 7S	G 1/4	180 °	0.24 s
2705072700	RAK - 7S	G 1/4	270 °	0.36 s
2705071100	RAK - 7D	G 1/4	90 °	0.12 s
2705080300	RAK - 8S	G 3/8	180 °	0.32 s
2705081100	RAK - 8D	G 3/8	90 °	0.16 s

Part No.	Maximum operating frequency	Weight
2705060300	90	0.79 kg
2705062800	60	0.73 kg
2705061100	180	0.82 kg
2705070300	80	1.9 kg
2705072700	50	1.7 kg
2705071100	120	2 kg
2705080300	60	3.7 kg
2705081100	90	4.3 kg

Swivel time: The values indicated are for the max. angle of rotation., Scope of delivery: incl. parallel key

Technical data

Frame size	RAK - 6D	RAK - 6S	RAK - 7D	RAK - 7S
Axis diameter	12 mm	12 mm	17 mm	17 mm
Max. permissible axial bearing load	44.1 N	44.1 N	88.2 N	88.2 N
Max. permissible radial bearing load	588 N	588 N	1176 N	1176 N
Interior volume	42 cm ³	51 cm ³	127 cm ³	146 cm ³
Repetitive precision	3 °	3 °	3 °	3 °
Theoretical torque	13 Nm	6 Nm	42 Nm	18 Nm
Permissible kinetic energy	0.049 J	0.049 J	0.225 J	0.225 J
Version	Double vane	Single vane	Double vane	Single vane

Frame size	RAK - 8D	RAK - 8S
Axis diameter	25 mm	25 mm
Max. permissible axial bearing load	147 N	147 N
Max. permissible radial bearing load	1960 N	1960 N
Interior volume	244 cm ³	283 cm ³
Repetitive precision	3 °	3 °
Theoretical torque	83 Nm	35 Nm
Permissible kinetic energy	1.08 J	1.08 J
Version	Double vane	Single vane

Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .

The oil content of compressed air must remain constant during the life cycle.

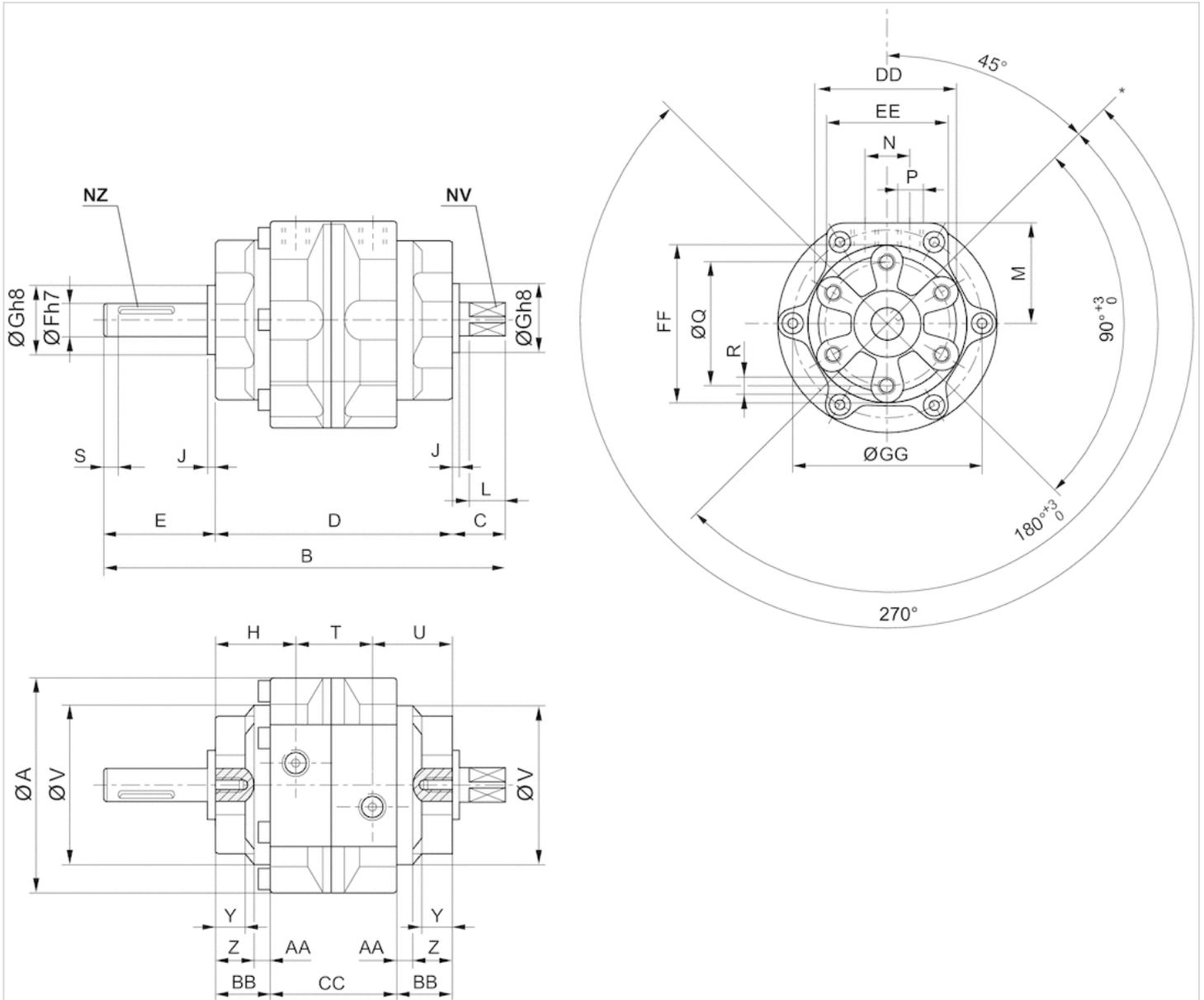
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Technical information

Material	
Housing	Aluminum, painted/powder-coated
Seal	Acrylonitrile butadiene rubber
Axis	Stainless steel

Dimensions

Dimensions



* Oscillating reference point

Dimensions

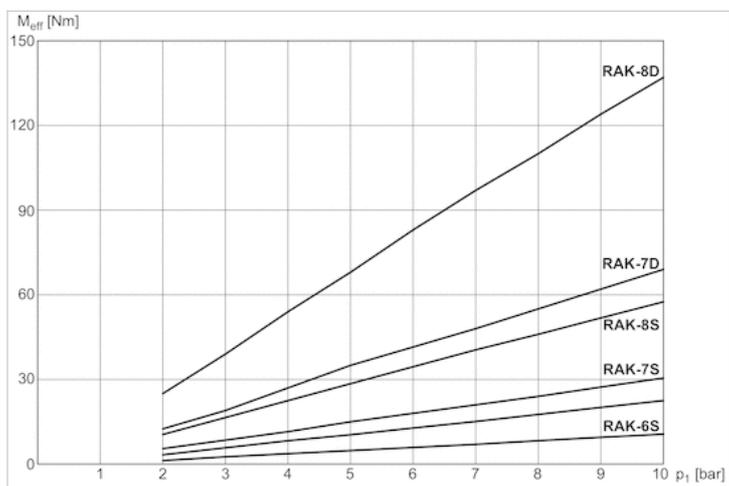
Part No.	Frame size	A	B	C	D	E	F	G	H	J	L	M	N	P	Q	R	S	T
2705060300	RAK - 6S	79	145	19.5	86	39.5	12	25	29	2.5	13	36	16	G 1/8	45	M6x1	5	28
2705062800	RAK - 6S	79	145	19.5	86	39.5	12	25	29	2.5	13	36	16	G 1/8	45	M6x1	5	28
2705061100	RAK - 6D	79	145	19.5	86	39.5	12	25	29	2.5	13	36	16	G 1/8	45	M6x1	5	28
2705070300	RAK - 7S	110	180	23.5	103	53.5	17	30	34.5	3	16	51	24	G 1/4	70	M8x1,25	5	34
2705072700	RAK - 7S	110	180	23.5	103	53.5	17	30	34.5	3	16	51	24	G 1/4	70	M8x1,25	5	34
2705071100	RAK - 7D	110	180	23.5	103	53.5	17	30	34.5	3	16	51	24	G 1/4	70	M8x1,25	5	34
2705080300	RAK - 8S	141.5	220	30	125	65	25	45	41.5	3.5	22	66	32	G 3/8	80	M10x1,5	5	-
2705081100	RAK - 8D	141.5	220	30	125	65	25	45	41.5	3.5	22	66	32	G 3/8	80	M10x1,5	5	-

U	V	Y	Z	AA	BB	CC	DD	EE	FF	GG	NV	NZ 1)
29	58	11	14	6	20	46	51	44	57	68	10	4x2,5x20
29	58	11	14	6	20	46	51	44	57	68	10	4x2,5x20
29	58	11	14	6	20	46	51	44	57	68	10	4x2,5x20
34.5	85.2	10.5	15.5	8	23.5	56	75	61	85	97	13	5x3x36
34.5	85.2	10.5	15.5	8	23.5	56	75	61	85	97	13	5x3x36
34.5	85.2	10.5	15.5	8	23.5	56	75	61	85	97	13	5x3x36
41.5	110	13	17.5	10	27.5	70	88.5	78	98.5	125	19	7x4x40
41.5	110	13	17.5	10	27.5	70	88.5	78	98.5	125	19	7x4x40

1) Groove: width x depth x length

Diagrams

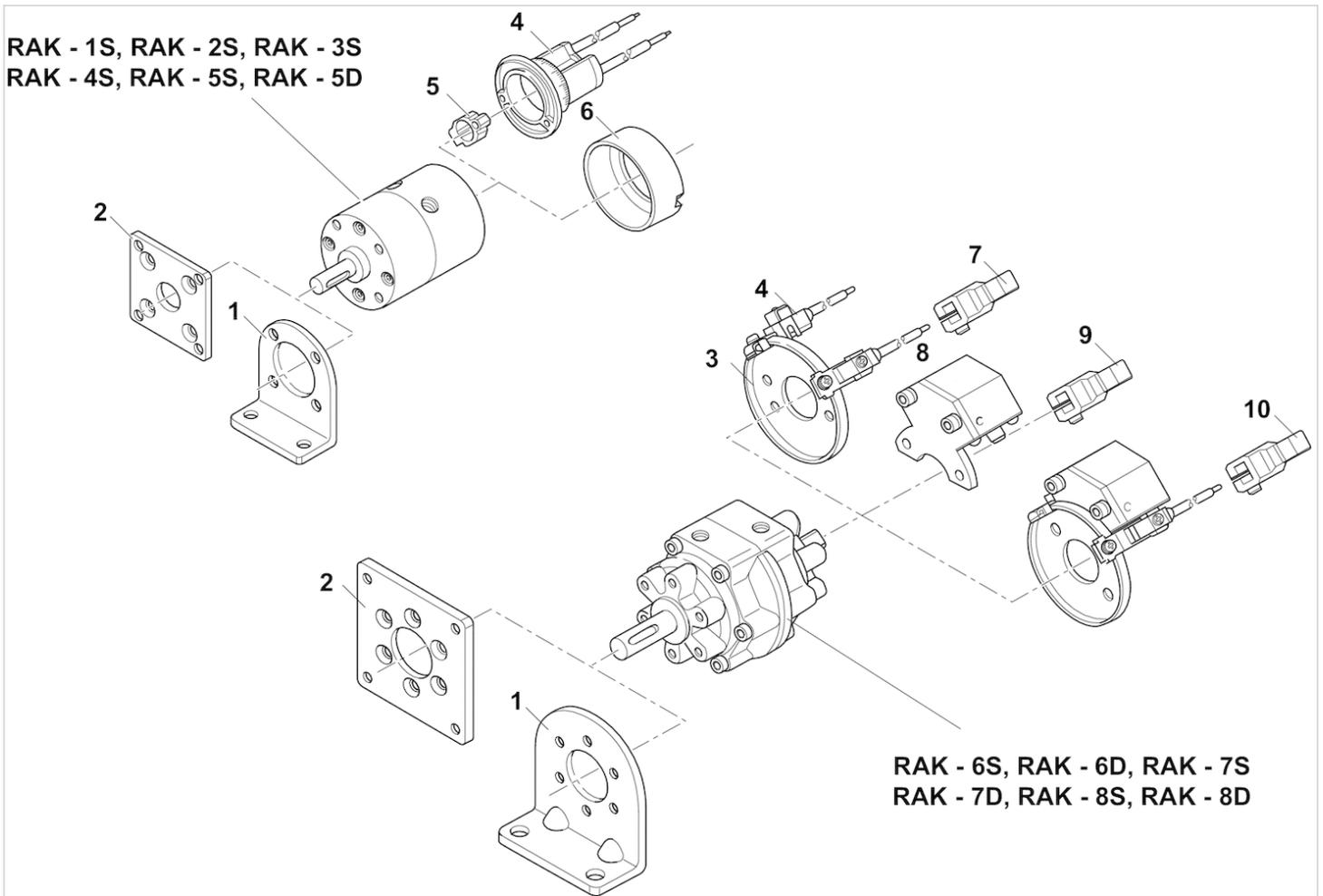
Effective torque



M_{eff}: effective torque

Accessories overview

Overview drawing



- 1) foot mounting 2) flange mounting 3) mounting plate for sensor 4) sensor unit 5) Magnet 6) Protective cover
 7) swivel arm with magnet 8) hydraulic shock absorber 9) swivel arm without magnet 10) swivel arm with magnet

NOTE:

This overview drawing is only for orientation to indicate where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

Foot mounting

- for series RAK - 1S RAK - 2S RAK - 3S RAK - 4S RAK - 5S, RAK - 5D



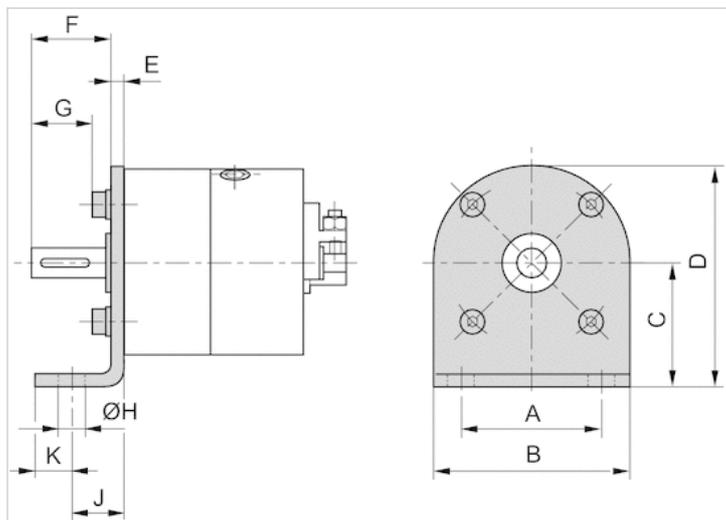
Technical data

Part No.
2706112000
2706122000
2706132000
2706142000
2706152000

Technical information

Material	
Material	Steel
	galvanized

Dimensions



Dimensions

Part No.	For series	A	B	C	D	E	F	G	H	J	K
2706112000	RAK - 1S	20	30	22	37	2	14	10.3	4.8	10	5
2706122000	RAK - 2S	26	36	25	43	2.6	16.4	12.7	4.8	11	7
2706132000	RAK - 3S	30	42	30	51	3.2	19.8	16.1	5.8	12	8
2706142000	RAK - 4S	36	49	34	58	3.6	25	18.7	6.5	15	10
2706152000	RAK - 5S, RAK - 5D	48	66	42	75	4.5	27	20.7	6.5	18	12

Flange mounting

- for series RAK - 3S RAK - 4S RAK - 5S, RAK - 5D



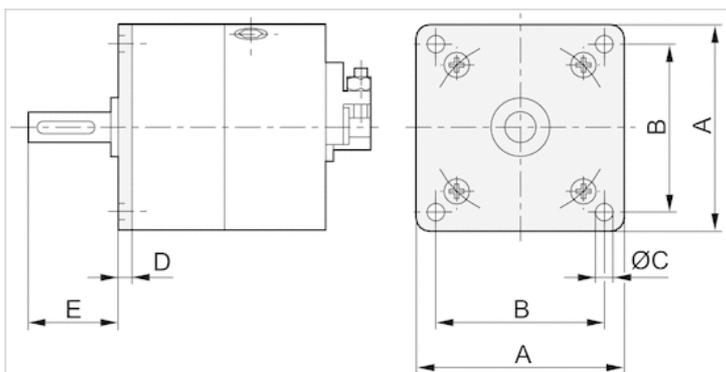
Technical data

Part No.
2706131000
2706141000
2706151000

Technical information

Material	
Material	Steel
	galvanized

Dimensions



Dimensions

Part No.	For series	A	B	C	D	E
2706131000	RAK - 3S	42	34	3.5	3.2	19.8
2706141000	RAK - 4S	50	41	5.5	3.6	24.9
2706151000	RAK - 5S, RAK - 5D	64	52	5.5	3.6	27.9

Protective cover

- for series RAK - 2S RAK - 3S RAK - 4S RAK - 5S, RAK - 5D



Weight

See table below

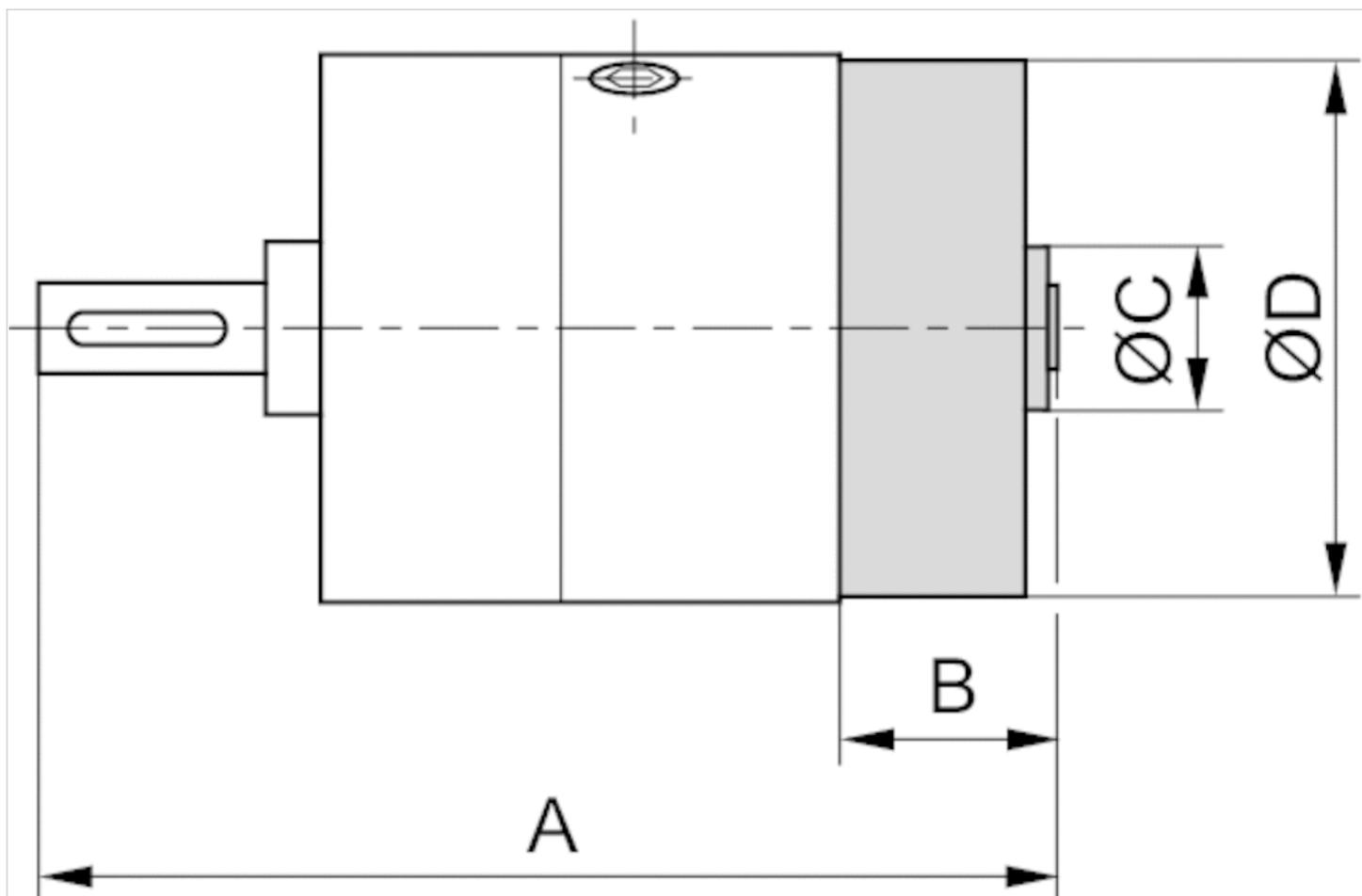
Technical data

Part No.	for series	Weight
2706320000	RAK - 2S	0.015 kg
2706330000	RAK - 3S	0.015 kg
2706340000	RAK - 4S	0.025 kg
2706350000	RAK - 5S, RAK - 5D	0.025 kg

Technical information

Material	
Housing	Plastic

Dimensions



Dimensions

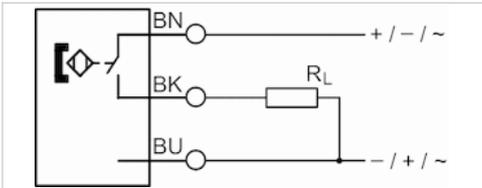
Part No.	For series	A	B	C	D
2706320000	RAK - 2S	65.7	20.7	19	35
2706330000	RAK - 3S	84.7	21.7	19	41
2706340000	RAK - 4S	106.2	22.7	19	49
2706350000	RAK - 5S, RAK - 5D	116.2	24.7	19	63

Sensors

- with cable
- electronic PNP
- Direct mounting for series RAK - 1S RAK - 2S RAK - 3S RAK - 4S RAK - 5S, RAK - 5D



Ambient temperature min./max.	5 ... 60 °C
Protection class	IP67
Power consumption	15 mA
Min./max. DC operating voltage	10 ... 30 V DC
Switching time on	1 ms
Switching time off	1 ms
Display	LED
Shock resistance	50 g / 11 ms
Cable length L	1 m
Cable color	Black



Technical data

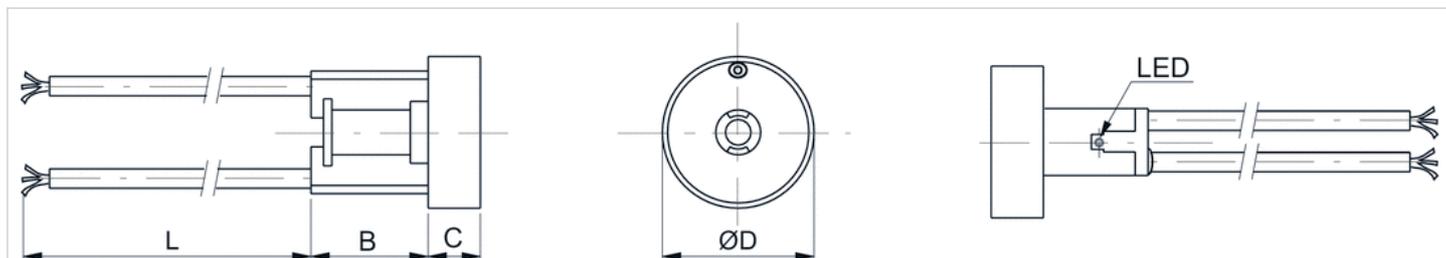
Part No.	for	Type of contact	Cable length L
3224010000	RAK - 1S	electronic PNP	1 m
3224020000	RAK - 2S	electronic PNP	1 m
3224030000	RAK - 3S	electronic PNP	1 m
3224040000	RAK - 4S	electronic PNP	1 m
3224050000	RAK - 5S, RAK - 5D	electronic PNP	1 m

Technical information

Material	
Housing	Polyamide
Cable sheath	Polyvinyl chloride

Dimensions

Dimensions



Dimensions

Part No.	B	C	ØD	L [mm]
3224010000	22	8.5	28	1000
3224020000	22	17.2	35	1000
3224030000	22	18.2	41	1000
3224040000	22	19.2	49	1000
3224050000	22	21.2	63	1000

Flange mounting

- for series RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D



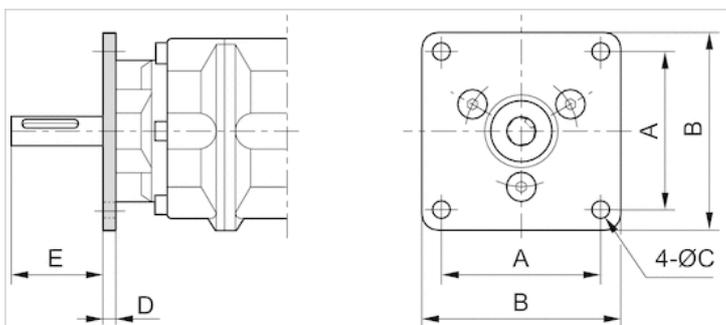
Technical data

Part No.
2706161000
2706171000

Technical information

Material	
Material	Steel galvanized

Dimensions



Dimensions

Part No.	A	B	C	D	E
2706161000	64	80	7	4.5	35
2706171000	88	110	9	6	47.5

Foot mounting

- for series RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D RAK - 8S, RAK - 8D



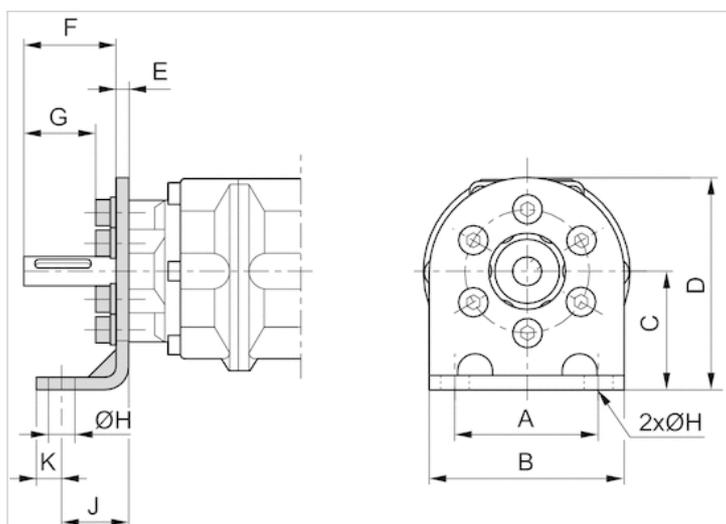
Technical data

Part No.
2706162000
2706172000
2706182000

Technical information

Material	
Material	Steel
	galvanized

Dimensions



Dimensions

Part No.	A	B	C	D	E	F	G	H	J	K
2706162000	55	75	45	82.5	4.5	35	27.5	11	25	10
2706172000	80	110	65	115	10	43.5	33.5	13	28	12
2706182000	100	140	80	135	12	53	40.5	15	32	13

Hydraulic shock absorber

- for RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D RAK - 8S, RAK - 8D



Ambient temperature min./max.

5 ... 50 °C

Medium

Oil

Weight

See table below

Technical data

Part No.	for series	Max. energy absorption/stroke	Max. energy absorption/hour
2706660000	RAK - 6S, RAK - 6D	2.94 Nm	1152 Nm
2706670000	RAK - 7S, RAK - 7D	9.81 Nm	4212 Nm
2706680000	RAK - 8S, RAK - 8D	19.61 Nm	8208 Nm

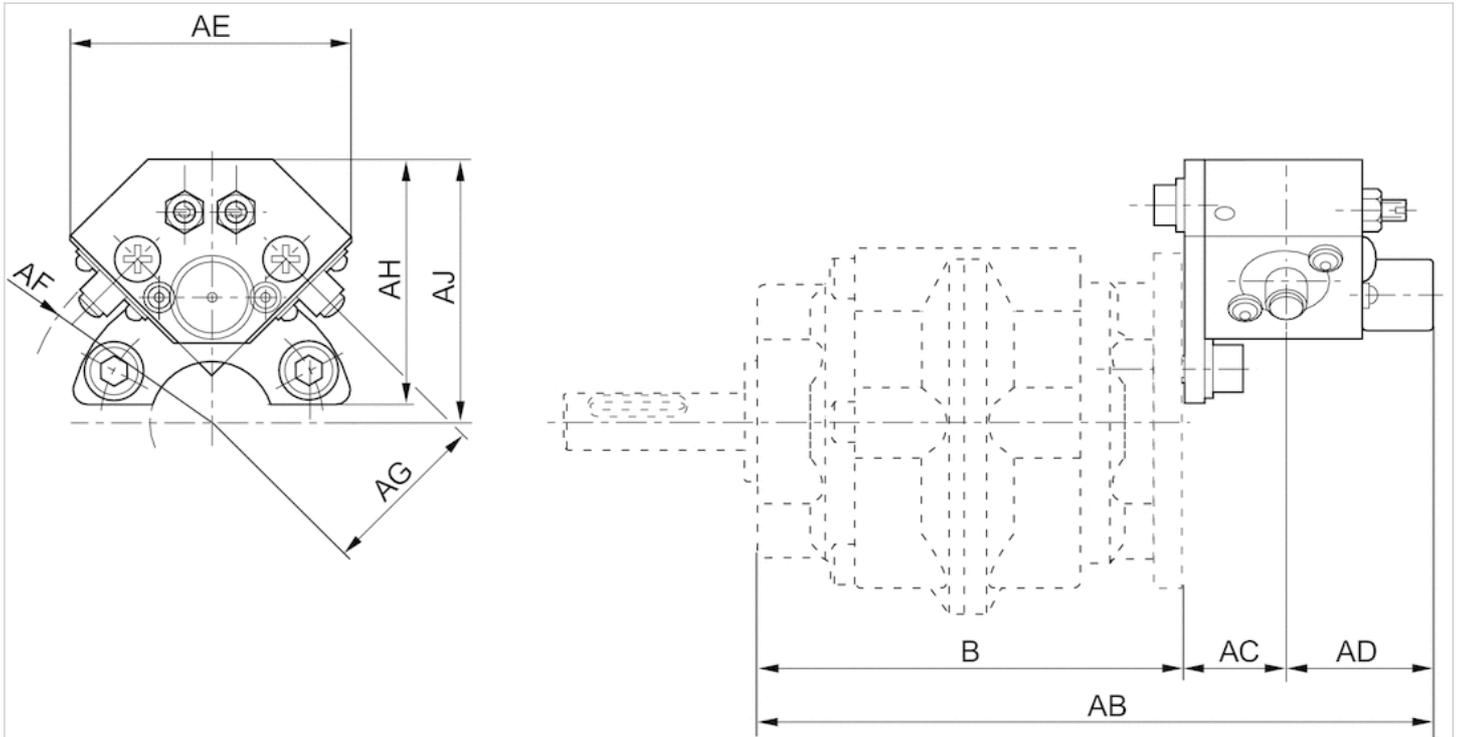
Part No.	Max. permissible mass moment of inertia	Max. angular velocity	Cushioning angle per piston	Weight
2706660000	0.098 kg cm ²	850 °/s	11 °	0.24 kg
2706670000	0.294 kg cm ²	750 °/s	12 °	0.42 kg
2706680000	0.588 kg cm ²	650 °/s	14 °	0.78 kg

Technical information

Material	
Cylinder tube	Aluminum, anodized

Dimensions

Dimensions



Dimensions

Part No.	AB	AC	AD	AE	AF	AG	AH	AJ	B
2706660000	136.5	20.5	30	56.6	38	34	50	54	86
2706670000	159.5	22.5	34	70.7	51	46	62	71.5	103
2706680000	187.5	25.5	37	91.9	68	62	87	96	125

Swivel arms without magnet, for 6S, 6D, 7S, 7D, 8S, and 8D

- for series RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D RAK - 8S, RAK - 8D



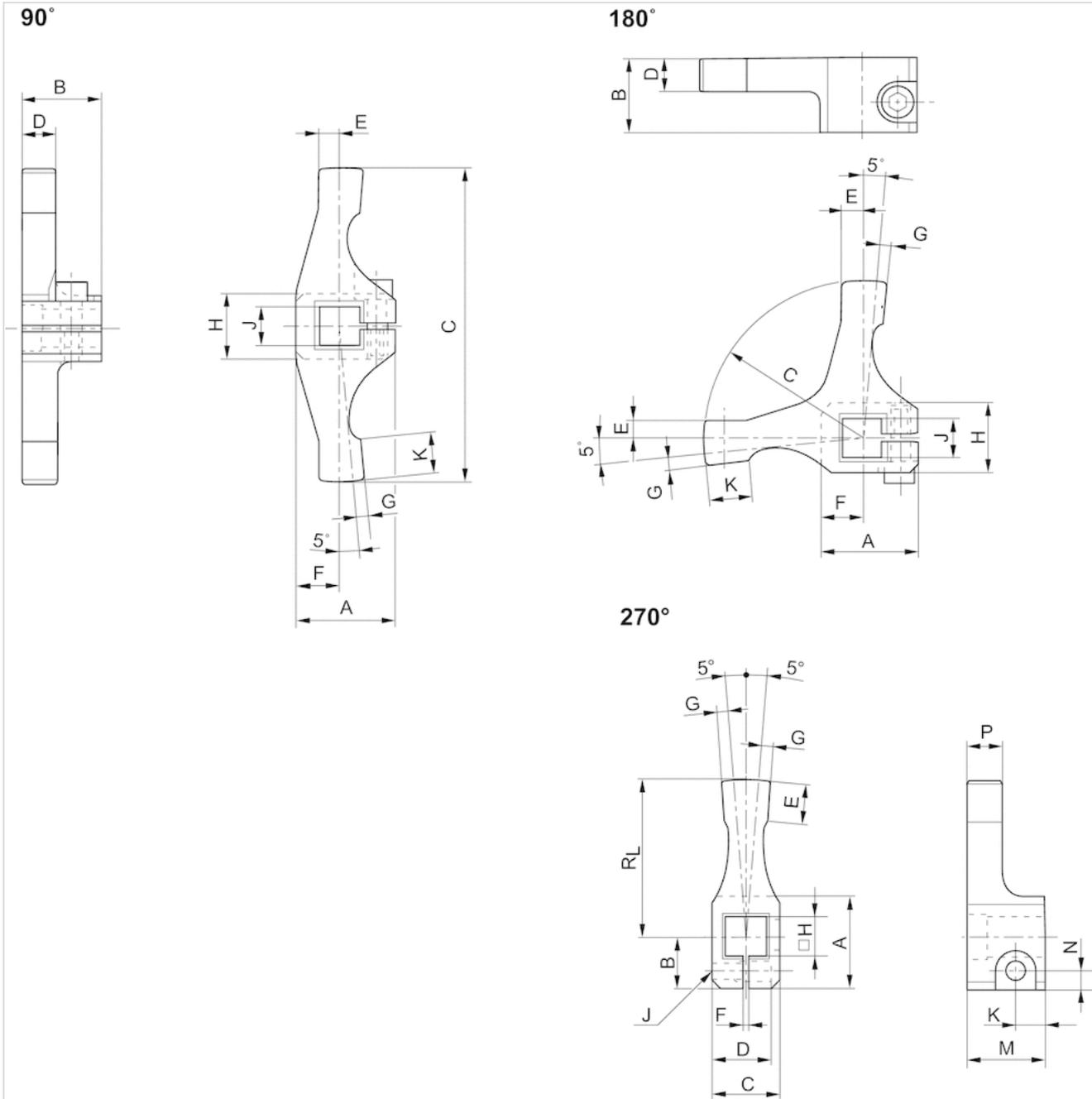
Technical data

Part No.	for series
2706260100	RAK - 6S, RAK - 6D
2706260300	RAK - 6S, RAK - 6D
2706270100	RAK - 7S, RAK - 7D
2706270300	RAK - 7S, RAK - 7D
2706280100	RAK - 8S, RAK - 8D
2706280300	RAK - 8S, RAK - 8D
R402004083	RAK - 7S, RAK - 7D

Technical information

Material	
Housing	Aluminum, anodized

Dimensions



Dimensions

Part No.	[°] 1)	A	B	C	D	E	F	G	H	J	K	L	M	N	P
2706260100	90	23	18	76	8	5	10	2.5	16	10	10	-	-	-	-
2706260300	180	23	18	38	8	5	10	2.5	16	10	10	-	-	-	-
2706270100	90	28	20	102	10	5	12	4	24	13	12	-	-	-	-
2706270300	180	28	20	51	10	5	12	4	24	13	12	-	-	-	-
2706280100	90	40	23.5	136	12	9	18	5.4	35	19	14	-	-	-	-
2706280300	180	28	20	51	10	5	12	4	24	13	12	-	-	-	-
R402004083	270	28	16	24	19.5	12	1.2	4.1	13	M6	9	51	20	5	10

1) angle of rotation

Swivel arms with magnet, for 6S, 6D, 7S, 7D, 8S, and 8D

- for series RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D RAK - 8S, RAK - 8D



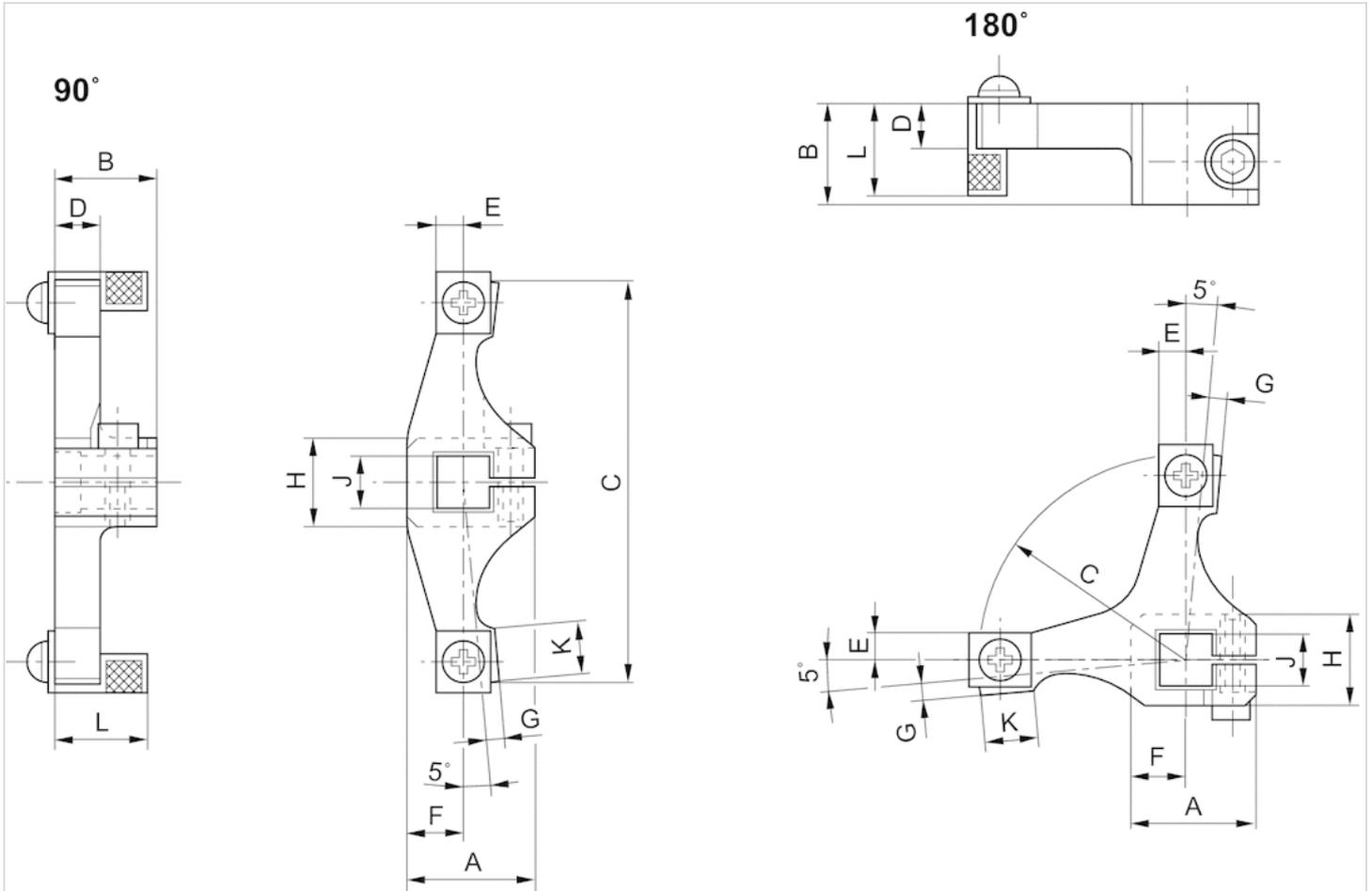
Technical data

Part No.	for series
3224165100	RAK - 6S, RAK - 6D
3224165300	RAK - 6S, RAK - 6D
3224175100	RAK - 7S, RAK - 7D
3224175300	RAK - 7S, RAK - 7D
3224185100	RAK - 8S, RAK - 8D
3224185300	RAK - 8S, RAK - 8D

Technical information

Material	
Housing	Aluminum, anodized

Dimensions



Dimensions

Part No.	[°] 1)	A	B	C	D	E	F	G	H	J	K	L
3224165100	90	23	18	76	8	5	10	2.5	16	10	10	17,2
3224165300	180	23	18	38	8	5	10	2.5	16	10	10	17,2
3224175100	90	28	20	102	10	5	12	4	24	13	12	19,2
3224175300	180	28	20	51	10	5	12	4	24	13	12	19,2
3224185100	90	40	23.5	136	12	9	18	5.4	35	19	14	21,2
3224185300	180	40	23.5	68	12	9	18	5.4	35	19	14	21,2

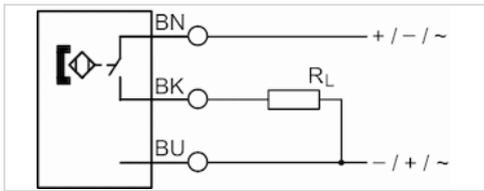
1) angle of rotation

Sensor

- with cable
- electronic PNP
- electronic PNP
- Direct mounting for series RAK - 6S, RAK - 6D, RAK - 7S, RAK - 7D, RAK - 8S, RAK - 8D



Ambient temperature min./max.	5 ... 60 °C
Protection class	IP67
Power consumption	20 mA
Min./max. DC operating voltage	10 ... 30 V DC
Switching time on	1 ms
Switching time off	1 ms
Display	LED
Shock resistance	50 g / 11 ms
Cable length L	1 m
Cable color	Black



Technical data

Part No.	for	Type of contact
3224103100	RAK - 6S, RAK - 6D, RAK - 7S, RAK - 7D, RAK - 8S, RAK - 8D	electronic PNP

Part No.	Cable length L	Function
3224103100	1 m	electronic PNP

BN = brown ↔ BK = black ↔ BU = blue

Sensor mounting

- for series RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D RAK - 8S, RAK - 8D



Ambient temperature min./max.

5 ... 60 °C

Weight

0.01 kg

Technical data

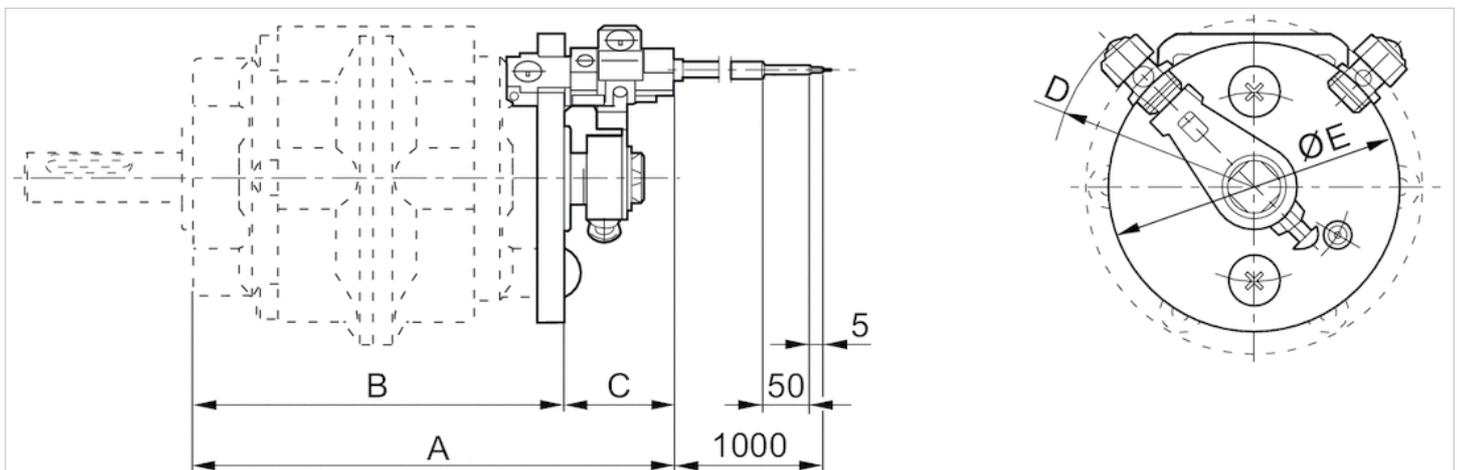
Part No.	Cylinders Ø		for series	Scope of delivery
	min.	max.		
3224160000	2.5 mm	10 mm	RAK - 6S, RAK - 6D	1 piece
3224170000	2.5 mm	10 mm	RAK - 7S, RAK - 7D	1 piece
3224180000	2.5 mm	10 mm	RAK - 8S, RAK - 8D	1 piece

Technical information

Material

Aluminum, anodized

Dimensions



Dimensions

Part No.	Cylinders Ø	For series	A	B	C	D	E
3224160000	2.5 mm	RAK - 6S, RAK - 6D	115	87.2	25.5	R47	69
3224170000	2.5 mm	RAK - 7S, RAK - 7D	131.7	104.2	27.5	R61	97
3224180000	2.5 mm	RAK - 8S, RAK - 8D	161.2	126.2	35	R69	113

Mounting plate

- for series RAK - 6S, RAK - 6D RAK - 7S, RAK - 7D RAK - 8S, RAK - 8D



Weight

See table below

Technical data

Part No.	for series	Scope of delivery	Weight
3224161000	RAK - 6S, RAK - 6D	1 piece	0.05 kg
3224171000	RAK - 7S, RAK - 7D	1 piece	0.1 kg
3224181000	RAK - 8S, RAK - 8D	1 piece	0.15 kg

Technical information

Material
Aluminum, anodized

Efficient pneumatic solutions, our program: cylinders and drives, valves and valve systems, air supply management



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