

Actuators

Cartridge Cylinders

Ø 6-16 mm



CA - CAF Series

Pg. 15.3

Mini Cylinders ISO 6432

Ø 8-25 mm



Mini Series

Pg. 15.5

Mini Stainless Steel ISO 6432

Ø 16-25 mm



Mini Stainless Steel Series

Pg. 15.14

Limited Space

Ø 32-63 mm



A95 Series

Pg. 15.17

Compact Cylinders

Ø 12-100 mm



Q Series

Pg. 15.24

ISO 15552 Cylinders

Ø 32-125 mm



L Series

Pg. 15.37

ISO 6431 Cylinders

Ø 160-320 mm



E Series

Pg. 15.44

ISO 15552 Cylinders

Ø 32-125 mm



X Series

Pg. 15.46

Stainless Steel ISO 15552

Ø 32-125 mm



V Series

Pg. 15.51

Twin Rod Cylinders

Ø 32-100 mm



NHA Series

Pg. 15.54

Compact Cylinders

Ø 20-100 mm



W Series

Pg. 15.58

Cylinder Accessories

ISO 6431 - ISO 15552 - ISO 21287



Pg. 15.66

Guided Units

ISO 15552 - Ø 12-25 mm
ISO 6431 VDMA - Ø 32-100 mm



Pg. 15.76

Rodless Cylinders

Ø 16-63 mm



R Series

Pg. 15.85

Rotary Actuators

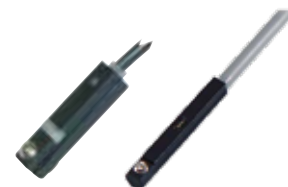
Ø 32-100 mm



XR Series

Pg. 15.96

Magnetic Position Sensing Switches



Sensor

Pg. 15.99

A collection of various AIGNEP pneumatic cylinders and actuators, including single-acting and double-acting models, arranged on a dark surface. One cylinder in the foreground has a label with the AIGNEP logo and technical specifications.

SERIES R - RODLESS CYLINDERS WITH INTERNAL GUIDING



TECHNICAL CHARACTERISTICS



Reference Standard

1907/2006
REACH

2011/65/CE
RoHS

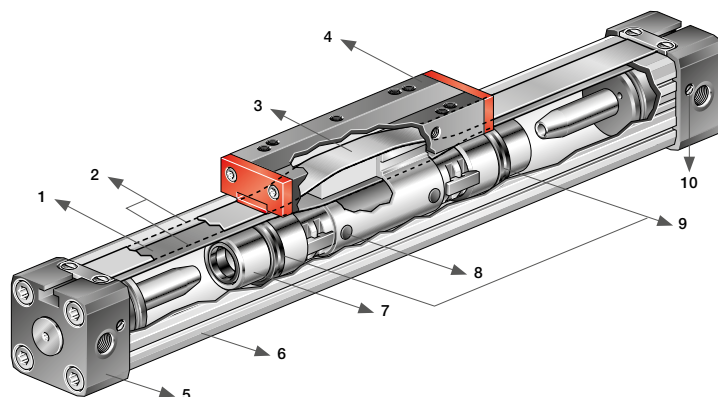
PED
2014/68/UE

SILICON
FREE



Component Parts and Materials

- 1 Inner sealing band
- 2 Magnet strip
- 3 Outer sealing band
- 4 Internally guided carriage (anodized aluminum)
- 5 Anodized aluminum end caps
- 6 Profile tube with slots for position sensing switches (anodized aluminum)
- 7 Piston
- 8 Magnets
- 9 NBR piston seals
- 10 Cushion adjustment screw



Pressures

0.5 bar (0.05 MPa) / 7.3 psi
8 bar (0.8 MPa) / 116 psi



Temperatures

- 10 °C / 14 °F
+ 80 °C / 176 °F



Media

Filtered and lubricated or non-lubricated compressed air.



Functions

Rodless cylinder - double acting cushioned magnetic.



Bores

from 16 to 63 mm



Strokes

Ø 16 From 100 to 4400 mm.
Ø 25-63 From 100 to 5700 mm.



Advantages

- Occupies 50% less space than a traditional cylinder
- Forces are generated equally from both pistons
- Strokes up to > 5700 mm
- Standard cushions come with 3 ports in each end cap
- Fast acceleration and high piston velocity
- Offers design flexibility
- Lubricated or non-lubricated air supply

* Note: Before changing operation from lubricated to non lubricated air the cylinder has to be disassembled, cleaned, newly greased and reassembled.



Recommended Sensors

DT



Sensor adapter - 016 / 25

DSTR025

Series

Ø (mm)

Stroke (mm)

R H
Rodless cylinder
cushioned - magnetic

0 1 6
Ø16
Ø25
Ø32
Ø40
Ø50
Ø63

Ø (mm)	Stroke (mm)
16	100 to 4400
25 - 63	100 to 5700



Forces and Moments

The tables below show the maximum values based on light, shock-free duty and at a speed of $v \leq 0.45$ m/sec. Maximum pressure 6 bar.

Avoid exceeding the values in dynamic operations, even for short periods of time.

Note: Resulting forces could lead to exceeding the values.

In case of undefinable situations the above maximum values should be reduced by 10–20 %.

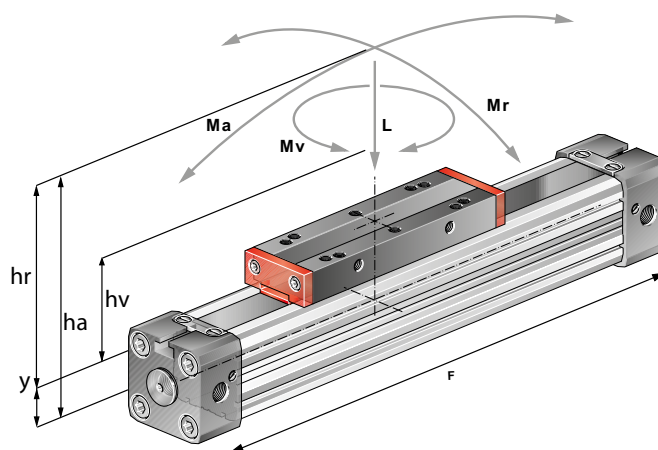
$$\frac{Ma}{Ma_{\max}} + \frac{Mr}{Mr_{\max}} + \frac{Mv}{Mv_{\max}} + \frac{L}{L_{\max}} \leq 1$$

Formulas

$$Ma = F \times ha$$

$$Mr = F \times hr$$

$$Mv = F \times hv$$



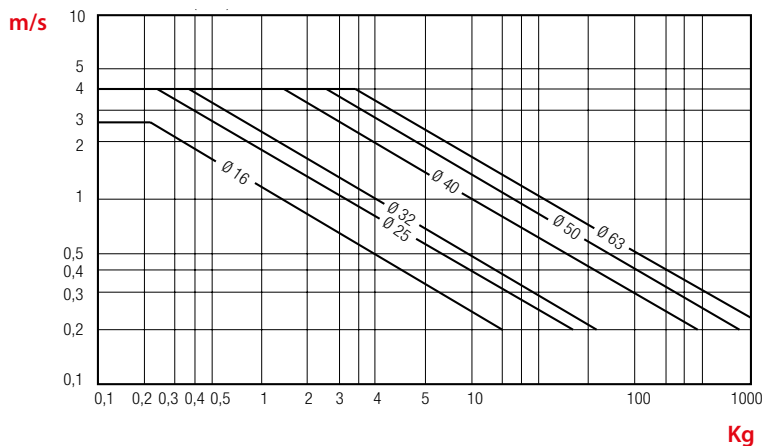
Forces and Torque

Cylinder		Force	Cushioning	Allowable load	Maximum allowable bending moments		Maximum allowable torque
		N - 6 bar	mm	N	Nm		Nm
				RH	RH		RH
Ø	Y	F	S	L	Ma axial	Mr radial	Mv central
16	9	110	15	120	4	0.3	0.5
25	14	250	21	300	15	1	3.0
32	18	420	26	450	30	2	4.5
40	22	640	32	750	60	4	8.0
50	28	1000	32	1200	115	7	15.0
63	36	1550	40	1650	200	8	24.0



Note:

- If the limits above are exceeded shock absorbers are required.
- For piston speeds of more than ≤ 1 m/s viton seals are recommended.
- For piston speeds ≤ 0.1 m/s (NBR), ≤ 0.2 m/s (FKM) slow speed lubrication is required.
- Maximum life will be achieved when piston speeds do not exceed 1 m/s.



m/s

Piston

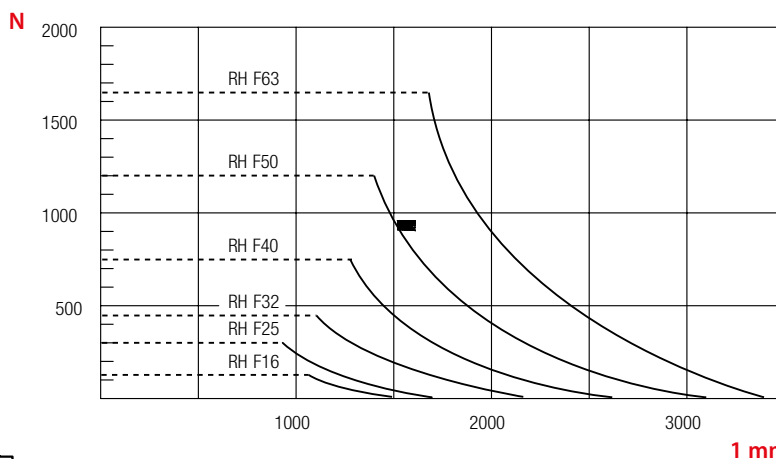
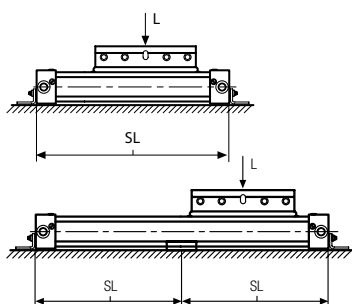
Kg

Mass



Deflection Graph

- Calculated deflections without support of 0.5 – 1 mm allow exceeding of supporting distance.
- Calculated deflections without support of 1 mm – maximum 1.5 mm require reduction of the supporting distance.



N

Load

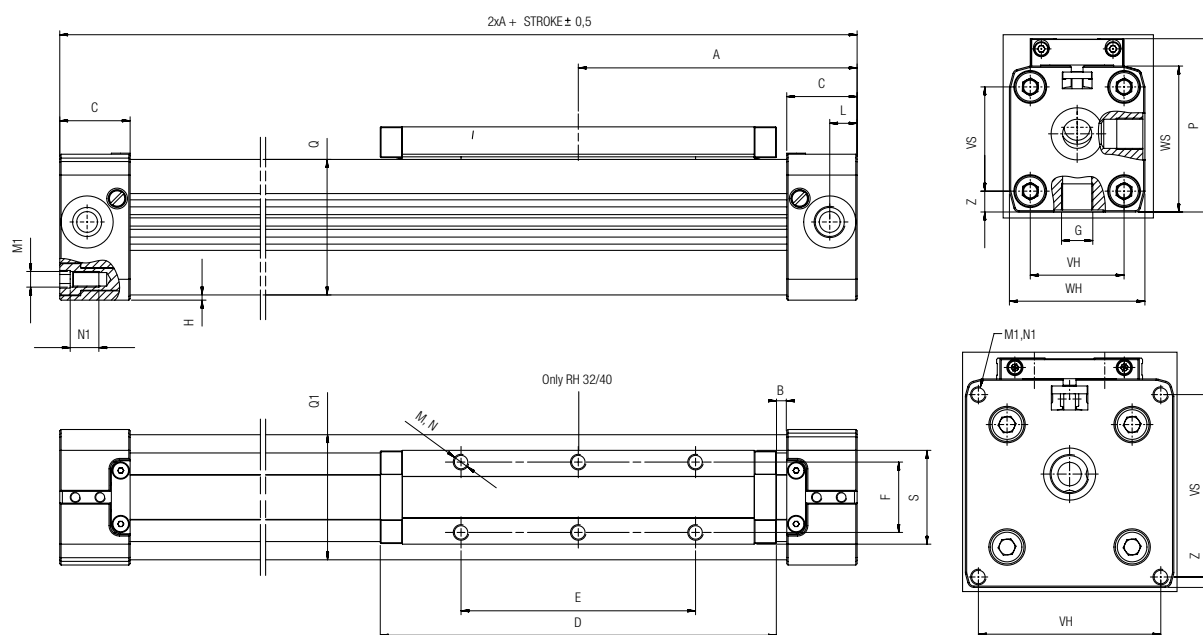
1 mm

Deflection

Distances SL of mounting with deflection 1 mm.

RH

RODLESS CYLINDER - CUSHIONED - MAGNETIC



Ø	A	B	C	D	E	F	G	H	L	M	M1	N	N1	P	QxQ1	S	VS	VH	WS	WH	Z
16	65	15.5	15	69	36	16.5	M5	1.0	5.5	M4	M3	7	7.0	36.5	24.5x25	22.0	18	18	27	27	4.5
25	100	21.0	23	111	65	25.0	G1/8	2.0	8.5	M5	M5	10	12	52.5	36x36	33.0	27	27	40	40	6.5
32	125	22.0	27	152	90	27.0	G1/4	2.0	10.5	M6	M6	7	14	66.5	52x51	36.0	40	36	56	52	8.0
40	150	44.0	30	152	90	27.0	G1/4	6.75	15.0	M6	M6	10	17	80.0	58.5x59	36.4	54	54	69	72	9.0
50	175	42.0	33.0	200	110	27.0	G1/4	0.5	11.7	M6	M6	6	18	88.0	77x78	56.0	70	70	80	80	4.0
63	215	47.5	50	235	155	36.0	G3/8	1.5	25.0	M8	M8	15	18	123.0	102x102	50.0	78	78	106	106	14.5

SERIES RHV - RODLESS CYLINDERS WITH "V" EDGE SLIDE SYSTEM



TECHNICAL CHARACTERISTICS



Reference Standard

1907/2006
REACH ✓

2011/65/CE
RoHS ✓

PED
2014/68/UE

SILICON
FREE



Pressures

0.5 bar (0.05 MPa) / 7.3 psi
8 bar (0.8 MPa) / 116 psi



Temperatures

- 10 °C / 14 °F
+ 80 °C / 176 °F



Media

Filtered and lubricated or
non-lubricated compressed air.



Functions

Rodless cylinder - double acting cushioned
magnetic.



Bores

from 25 to 50 mm



Standard Strokes

From 100 to 5700 mm



Advantages

- High load carrying capacity
- Heavy duty bearing housing
- Ground and hardened guide rail
- Low friction bearings
- Quiet and smooth running



Recommended Sensors

DT



Sensor adapter - 016 / 25

DSTR025

Series	Ø (mm)	Stroke (mm)
R H V	0 2 5	0 1 0 0
RHV Rodless cylinder cushioned - magnetic	025 032 040 050	From 100 to 5700 mm

Forces and Torque

Cylinder	A	B	C/D/E/F	G	H	I	Load forces max	Axial moments max Ma	Radial moments max Mr
							Moment forces max La. Lr. Lv	Torsion moments max Mv	
							N	Nm	
25	53.0	20.5	*	38.0	40.0	40.0	1400	50	14
32	64.0	26.0	*	55.5	58.0	58.0	3100	165	65
40	72.5	28.0	*	54.5	67.5	67.5	3100	250	90
50	88.5	28.0	*	58.5	67.5	67.5	3100	250	90

* Dimensions according design.



Forces and Moments

- The moments in the chart on the previous page ($M_{a \max}$, $M_{r \max}$, $M_{v \max}$) relate to the guided rail center. The load force L is the sum of all individual forces related to the common center of mass. The center of mass can be placed inside or outside the surface area of the carriage.
- Normally the carriage would experience a dynamic load which has to be considered while the necessary piston force (F) and load capacity of the ballguided system. Use the following formula when calculating:

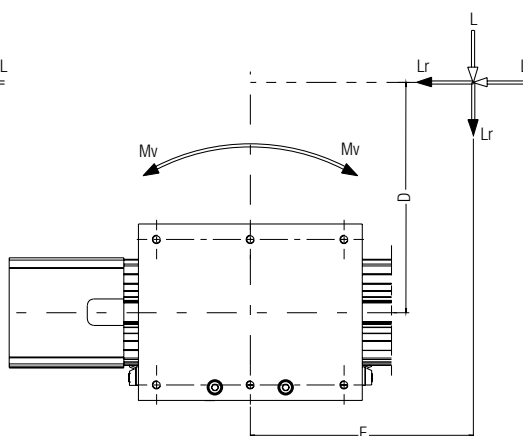
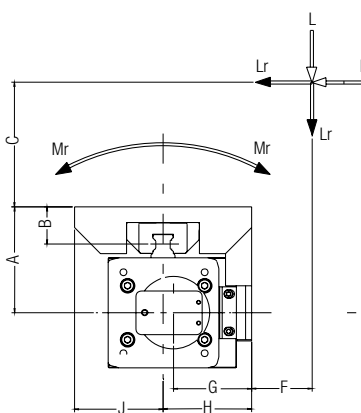
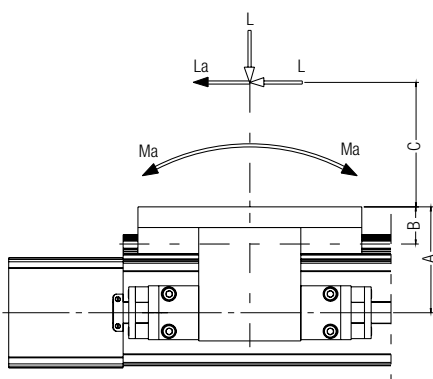
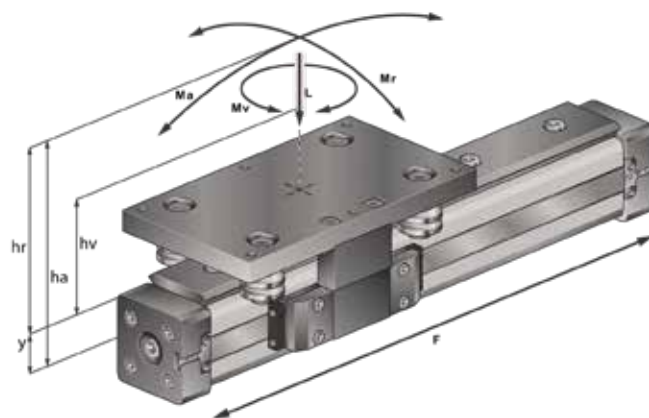
$$\frac{M_a}{M_{a \max}} + \frac{M_r}{M_{r \max}} + \frac{M_v}{M_{v \max}} + \frac{L}{L_{\max}} \leq 1$$

Formulas

$$M_a = F \times h_a$$

$$M_r = F \times h_r$$

$$M_v = F \times h_v$$



Deflection Graph

- Calculated flexures without a 0.5 – 1 mm support allow the exceeding of distances between the supports.
- Calculated flexures without a 1mm to a maximum 1.5 mm support require reduction of the distances between the supports.

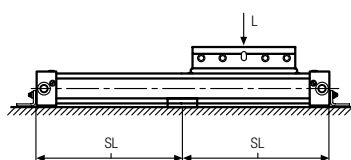
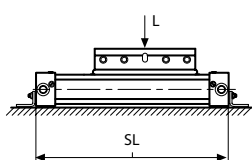
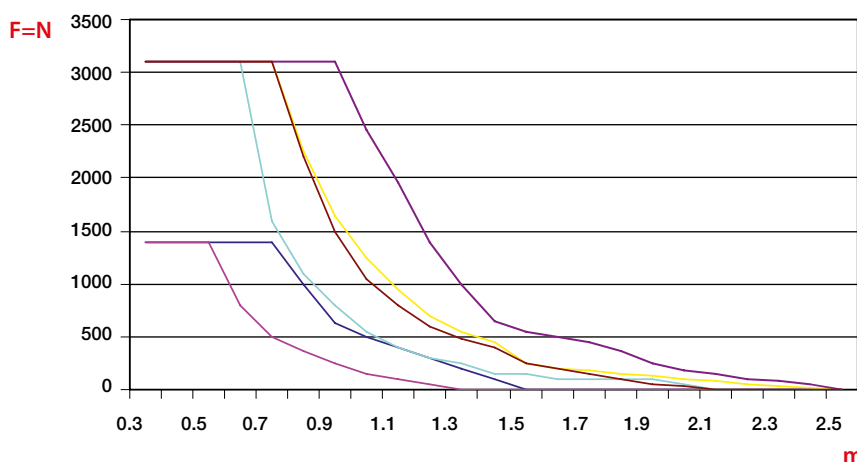
F=N

Load

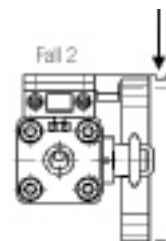
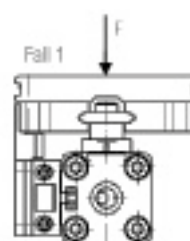
m

Distance SL

- RHV25/25 Fall 1
- RHV25/25 Fall 2
- RHV32/44 Fall 1
- RHV32/44 Fall 2
- RHV40/60 Fall 1
- RHV40/60 Fall 2

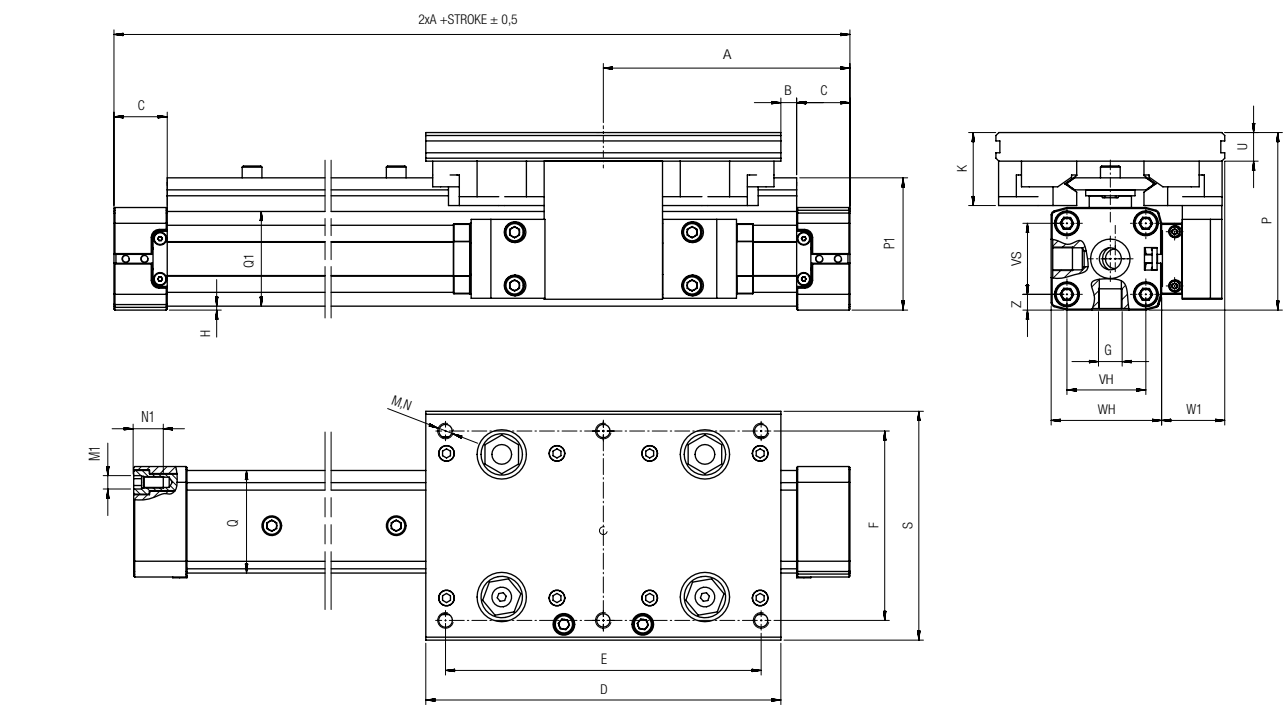


Distances SL of mounting with a flexure value of 1 mm.



RHV

RODLESS CYLINDER - CUSHIONED - MAGNETIC



Ø	A	B	C	D	E	F	G	H	K	M	N	M1	N1	P	P1	QxQ1	S	U	VH	VS	WS	W1	Z
25	100	9.5	23	135	120	65	1/8	2.0	29.5	M6	11	M5	10	74.0	56.8	36 x 36	80	11	27	27	40	22	6.5
32	125	8.0	27	180	160	96	1/4	2.0	37	M8	14.5	M6	14	90.0	64.5	52 x 48	116	14.5	40	36	56	32	8.0
40	150	0	30	240	216	115	1/4	6.75	39	M8	16.5	M6	17	108.5	84.0	58.5 x 59	135	16.5	54	54	69	34.5	9.0
50	175	22	33	240	216	115	1/4	1.0	39	M8	16.5	M6	18	122.0	97.5	77 x 78	135	16.5	70	70	80	31	5.0

SERIES RHL - RODLESS CYLINDERS - EXTERNALLY GUIDED



TECHNICAL CHARACTERISTICS



Reference Standard

1907/2006
REACH

2011/65/CE
RoHS

PED
2014/68/UE

SILICON
FREE


Pressures

0.5 bar (0.05 MPa) / 7.3 psi
8 bar (0.8 MPa) / 116 psi


Temperatures

- 10 °C / 14 °F
+ 80 °C / 176 °F


Media

Filtered and lubricated or
non-lubricated compressed air.


Functions

Rodless cylinder - double acting cushioned
magnetic.


Bores

from Ø 32 to Ø 63 mm



Standard Strokes

From 100 to 5700 mm



Advantages

- Ability to accept high loads and moments in all directions.
- High tolerance to shock loads and vibrations.
- Highly resistant to wear and corrosion.
- Quiet functioning.
- Guiding elements are interchangeable.



Recommended Sensors

DT



Sensor adapter - 016 / 25

DSTR025

Series

Ø (mm)

Stroke (mm)

R H L

RHL Rodless cylinder
cushioned - magnetic

0 3 2

032
040
050
063

0 1 0 0

From 100 to 5700 mm

Forces and Torque

Cylinder	Max. zul. Last L	Max. L a, L r, L v	Max. Ma	Max. Mr	Max. Mv
	N	N	Nm	Nm	Nm
32	760	760	39	15	39
40	1330	1330	99	35	99
50	1600	1600	170	58	170
63	2770	2770	315	105	317



Forces and Moments

- The moments in the chart on the previous page (M_a max, M_r max, M_v max) relate to the guided rail center. The load force L is the sum of all individual forces related to the common center of mass. The center of mass can be placed inside or outside the surface area of the carriage.
- Normally the carriage would experience a dynamic load which has to be considered while the necessary piston force (F) and load capacity of the ballguided system. Use the following formula when calculating:

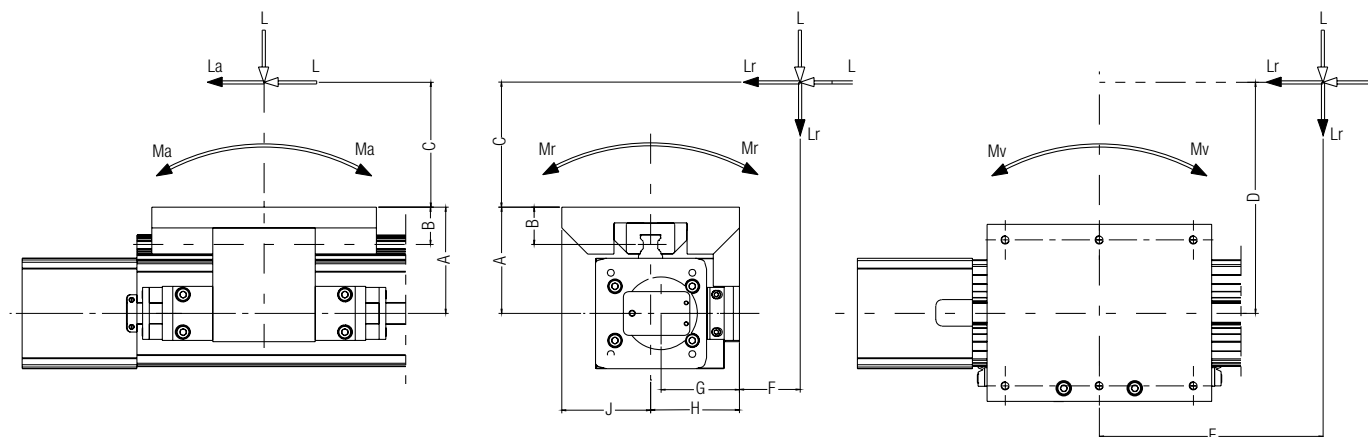
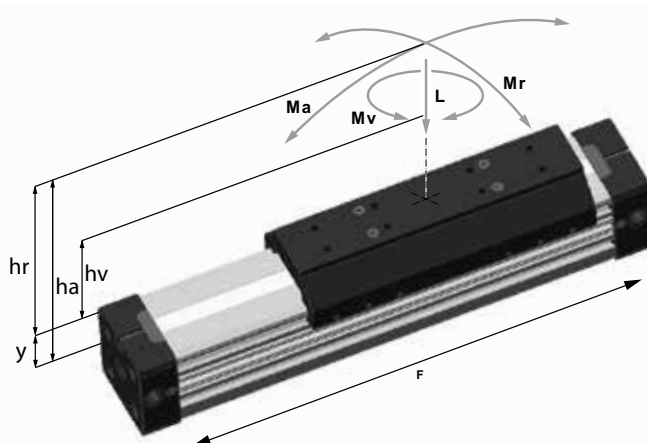
$$\frac{M_a}{M_{a_{\max}}} + \frac{M_r}{M_{r_{\max}}} + \frac{M_v}{M_{v_{\max}}} + \frac{L}{L_{\max}} \leq 1$$

Formulas

$$M_a = F \times h_a$$

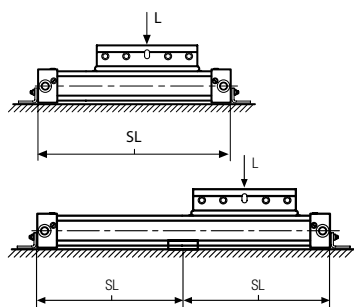
$$M_r = F \times h_r$$

$$M_v = F \times h_v$$



Deflection Graph

- Calculated flexures without a 0.5 – 1 mm support allow the exceeding of distances between the supports.
- Calculated flexures without a 1 mm to a maximum 1.5 mm support require reduction of the distances between the supports.

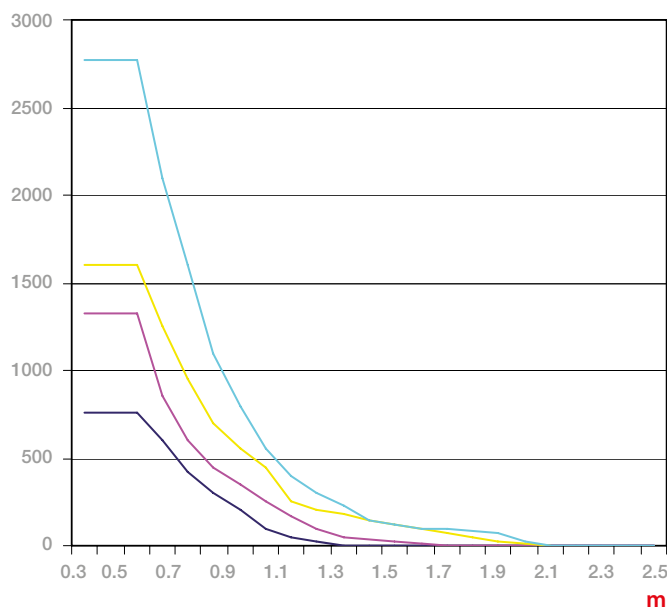


Distances SL of mounting with a flexure value of 1 mm.

— RHL32
— RHL40
— RHL50
— RHL63

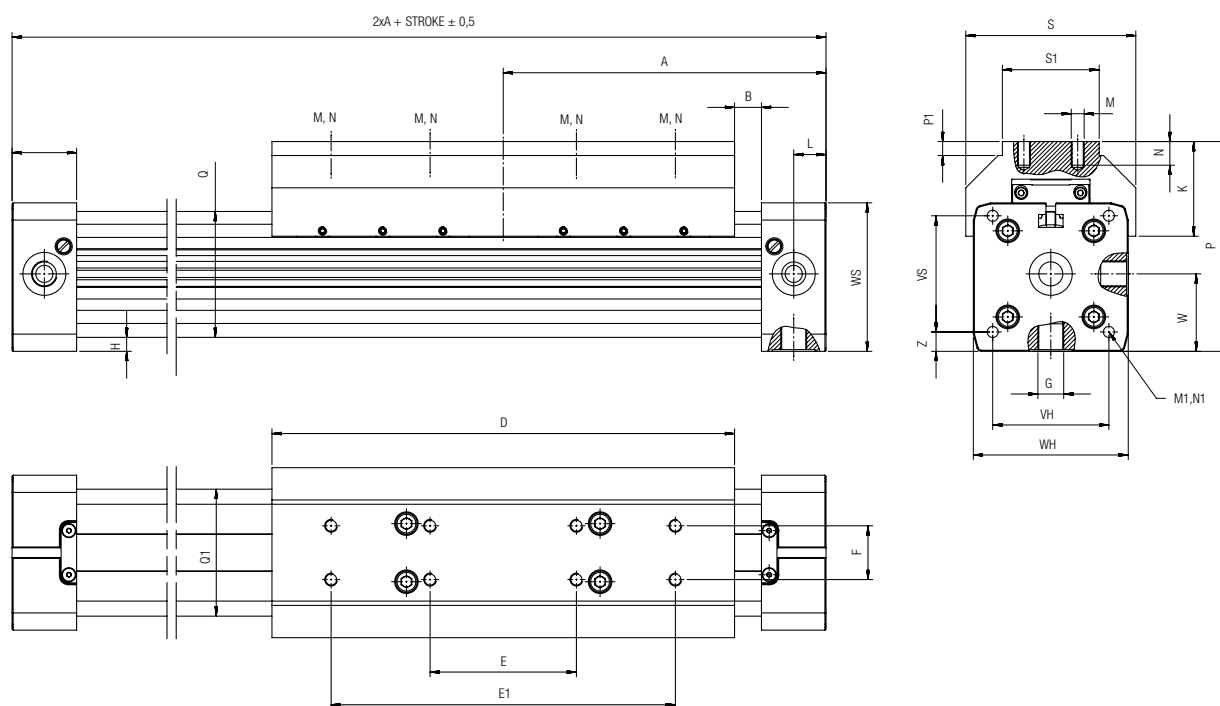
F=N

m

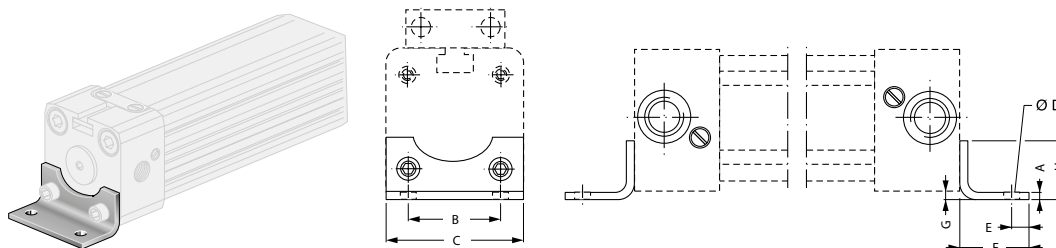


RHL

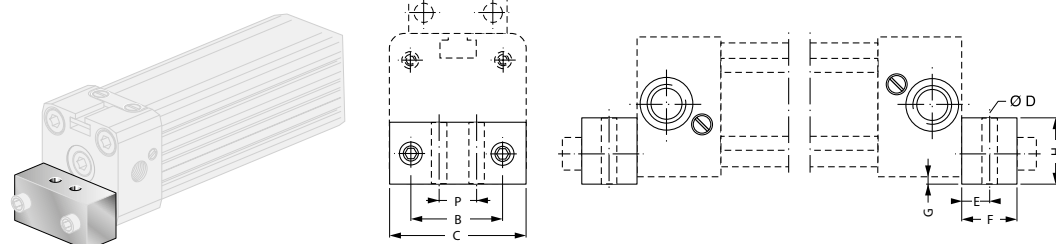
RODLESS CYLINDER - CUSHIONED - MAGNETIC



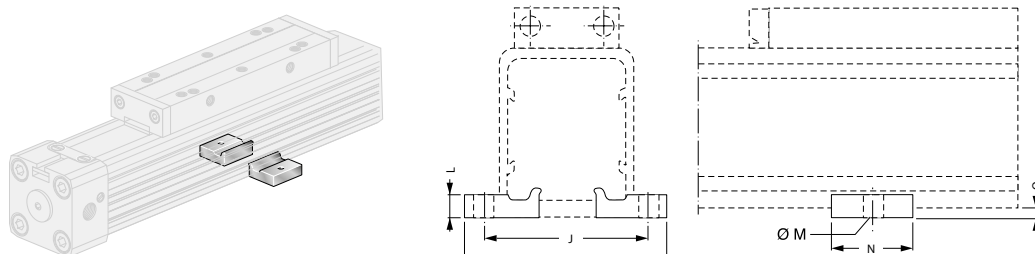
$\varnothing$	A	B	C	D	E	E1	F	G	H	K	L	M	N	M1	N1	P	P1	QxQ1	S	S1	VH	VS	W	WH	WS	Z
32	125	22	27	152	60	120	25	1/4	2.0	42.5	10.5	M5	10	M6	14	81.5	6.5	52x51	66	40	36	40	30	52	56	8
40	150	12.5	30	215	68	160	25	1/4	7.0	44	15	M8	10	M6	17	97.5	6.5	58.5x59	79	45	54	54	36	72	69	9
50	175	17.5	33	250	84	190	25	1/4	0.5	48.5	11.7	M8	10	M6	18	110	6.5	77x78	92	50	70	70	43.5	80	80	4
63	215	6.5	55	320	120	240	25	3/8	1.5	56	25	M8	14	M8	18	137	5.0	102x102	116	50	78	78	62.5	106	106	14.5

SERIES R ACCESSORIES
RCP
FOOT MOUNT
Ø 16-25 mm


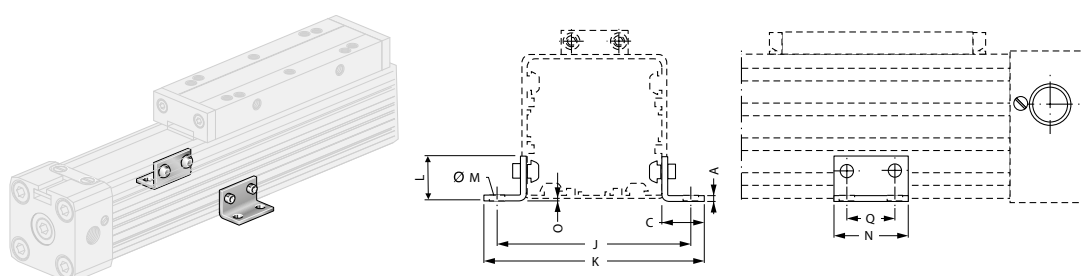
Part No.	Ø	A	B	C	D	E	F	G	H
RCP 016	16	1.5	18	26	3.6	4.0	14	1.5	12.5
RCP 025	25	2.5	27	40	5.5	6.0	22	2	18

RCP
FOOT MOUNT
Ø 32-63 mm


Code	Ø	B	C	D	E	F	G	H	P
RCP 032	32	36	51	6,5	8	24	4	20	20
RCP 040	40	54	71	9	11,5	24	2	20	30
RCP 050	50	70	80	9	12,5	25	1	25	45
RCP 063	63	78	105	11	15	30	2	40	48

RCN
INTERMEDIATE SUPPORT
BRACKET
Ø 16-25 mm


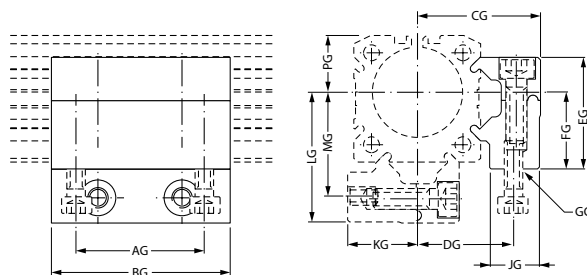
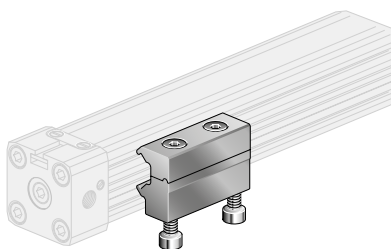
Part No.	Ø	J	K	L	M	N	O
RCN 016	16	41.5	53.5	5	Ø 5.5	20	3
RCN 025	25	48.5	60	6	Ø 5.5	20	4

RCN
INTERMEDIATE SUPPORT
BRACKET
Ø 32-63 mm


Part No.	Ø	A	C	J	K	L	M	N	O	Q
RCN 032	32	5	20	82	91	30	4.5	45	6	30
RCN 040	40	5	20	90	99	25	4.5	45	8.5	30
RCN 050	50	5	35	123	148	35	6.5	45	1	30
RCN 063	63	5	35	147	172	35	6.5	45	3.5	30

RCNG

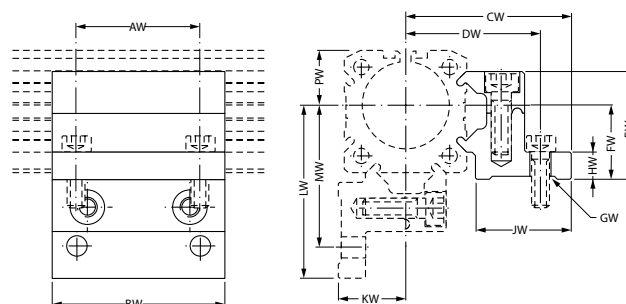
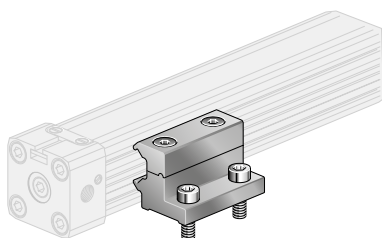
INTERMEDIATE SUPPORT BRACKET



Part No.	Ø	AG	BG	CG	DG	EG	FG	GG	JG	KG	LG	MG	PG
RCNG 016	16	18.0	30.0	27.5	18.4	21.0	15.0	M4	11.5	13.9	29.0	19.7	10.8
RCNG 025	25	36.0	50.0	34.5	27.0	31.3	22.0	M5	14.0	20.0	36.5	29.0	16.0
RCNG 032	32	36.0	50.0	41.8	34.2	39.0	30.0	M6	14.0	27.6	47.0	39.5	21.5

RCNN

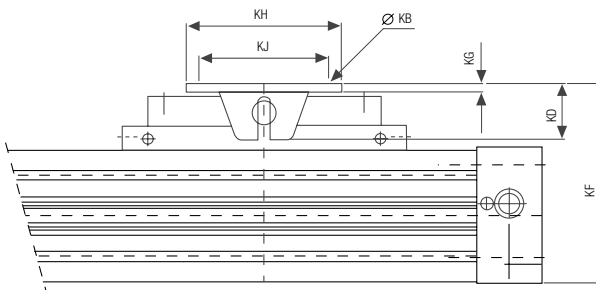
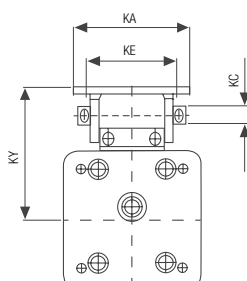
INTERMEDIATE SUPPORT BRACKET



Part No.	Ø	AW	BW	CW	DW	EW	FW	GW	HW	JW	KW	LW	MW	PW
RCNN 016	16	18.0	30.0	37.0	32.5	21.0	15.0	ø4.5	6.0	22.4	13.9	38.0	32.9	10.8
RCNN 025	25	36.0	50.0	47.5	40.0	31.3	22.0	ø5.5	10.0	26.0	20.0	49.5	42.0	16.0
RCNN 032	32	36.0	50.0	56.0	47.5	39.0	30.0	ø6.5	10.0	28.5	27.6	61.0	52.5	21.5

RCOL

ARTICULATED CARRIAGE



Part No.	Ø	KA	KB	KD	KE	KF	KG	KH	KJ	KY
RCOL 016	16	26	M4	10	10	46.5 - 47.5	3.0	28	20	33
RCOL 025	25	38	M5	19	16	71.5 - 73.5	3.5	40	30	51.5
RCOL 032	32	62	M6	28	25	94.5 - 96.5	6.0	60	46	66.5
RCOL 040	40	62	M6	28	25	108 - 110	6.0	60	46	73.5
RCOL 050	50	90	9	43.7	70	135 - 150	6.4	120	100	95 - 110
RCOL 063	63	90	9	43.7	70	155 - 170	6.4	120	100	102 - 117