



Intelligent Automation

MOTION i Pneumatic and Electric Drive Systems

simply the first

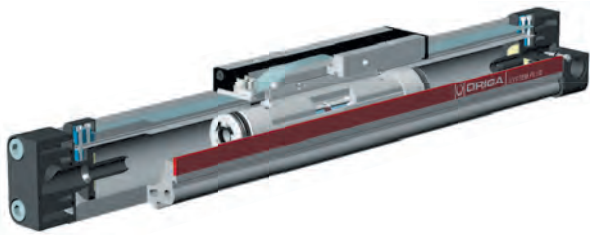


Rodless Cylinders
Linear Guides
Electric Actuators
Motors, Gearheads
Air Cylinders
Pneumatic Valves
FRLs, Fittings, Tube
Vacuum Equipment



ORIGA SYSTEM PLUS OSP-P

Pneumatic Drives
the ORIGINAL rodless cylinders



Stainless steel sealing system

- Low friction for longest seal life (8,000 km)
- Extreme temperatures (- 40°C to + 120°C)
- Widest operating speed range (0.005 m/s to 30 m/s)
- Suitable for extremely demanding environments

Broadest size range

- Diameters: 10, 16, 25, 32, 40, 50, 63, 80 mm
- Any length of stroke up to 10,000 mm (up to 41,000 mm on request)

Most choice of integrated options

Mountings, brakes, sensors, encoders, control valves, extended cushioning, shock absorbers, intermediate stops

...Simply the first modular guide options for the widest scope of applications



OSP-P Standard Internal Guide
Single, Tandem, Duplex, Low Cost



SLIDELINE Composite Plain Guide
Economic, Rigid, Moderate Speeds



POWERSLIDE V-Roller Guide
Robust, Harsh Environments



PROLINE Roller Guide
Smooth, Quiet, Highly Dynamic



STARLINE Recirculating Ball Bearing Guide
Precision, Highly Rigid, Variable Stops



HD Guide Heavy Duty, Twin Rail
Max. Precision, Loading, Rigidity, Stability

Special Versions



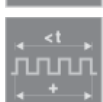
for use in EX-Areas



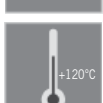
for clean room applications
certified to
DIN EN ISO 14644-1



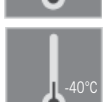
stainless steel version for
special applications



with special pneumatic
cushioning system for cycle
time optimization, for Ø 16 to
50 mm - on request



high temperature version for
temperatures up to +120°C



low temperature version for
temperatures down to -40°C



slow speed version
v = 0.005 – 0.2 m/s



high speed version
v_{max} = 30 m/s



cylinders with extremely long
strokes up to 41 m



Why does Origa offer the best Rodless Cylinders?

Action Force [N] values for D.25 mm

ORIGA 252 N

Competitors 205 - 230 N

Max. Stroke [mm]

ORIGA up to 41,000 mm

Competitors 5,000 - 8,000 mm

Min. Speed [m/s]

ORIGA 0.005 m/s

Competitors 0.1 m/s

Max. Speed [m/s]

ORIGA 30 m/s

Competitors 3 - 10 m/s

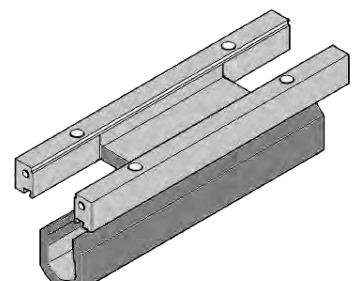
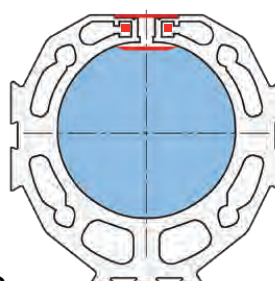
Temp. Range [°C]

ORIGA -40 to 120°C

Competitors -20 to 80°C

0

ORIGA Stainless Steel Sealing Bands



ORIGA SYSTEM PLUS OSP-E

Electric Drives

OSP-E..B Toothed Belt

High Speed



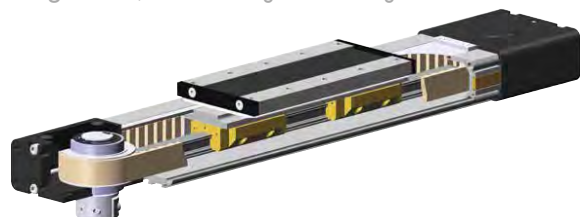
OSP-E..SB Ball Screw

High Force



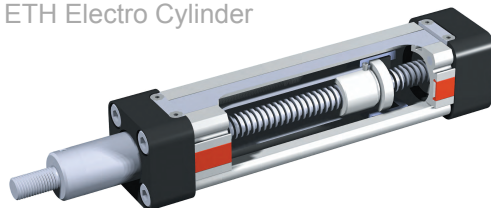
OSP-E..BH2 Belt Heavy Duty

Single Rail, Recirculating Ball Bearing Guide



OSP-E..SBR Rod Screw

ETH Electro Cylinder



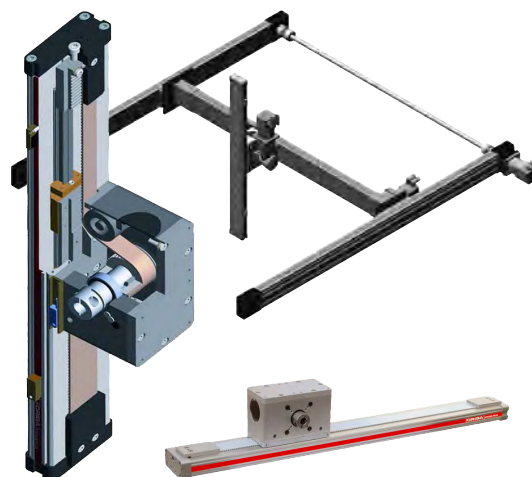
HMR High Moment Rodless

Double Rails, Recirculating Ball Bearing Guide



OSP-E..BV Belt Vertical

Vertical Lifting in Multi-Axis



HMR-B Belt

Fast & Positioning



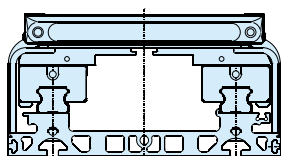
HMR-S Screw

Force & Precision



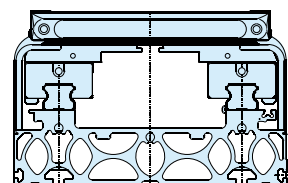
HMR Basic

Direct mounting on the machine bed



HMR Reinforce

Self-supporting systems



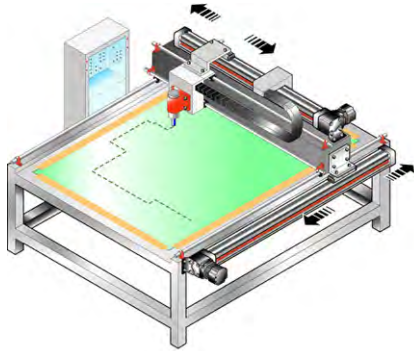
Multi-Axis Systems

XYZ: HMR, BH2, BV, OSP-E with Guide

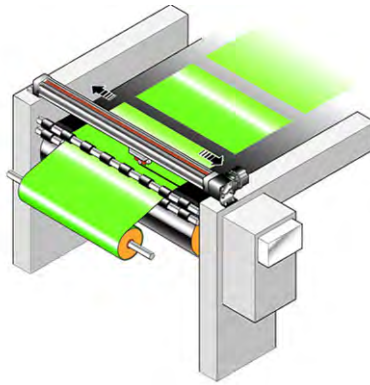


Applications for ORIGA

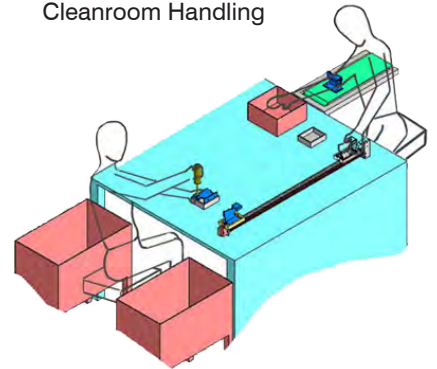
Profile Cutting



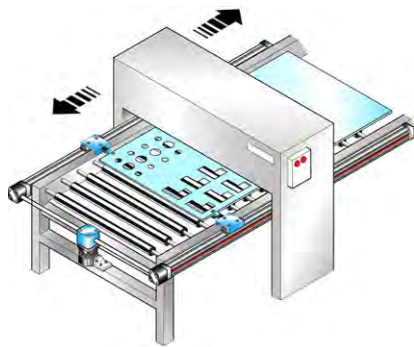
Slitting Machines



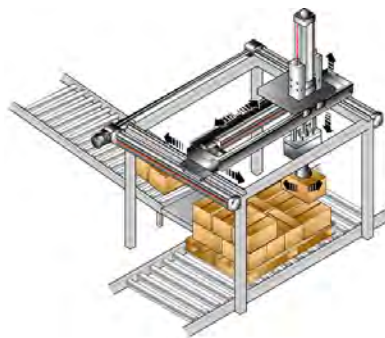
Cleanroom Handling



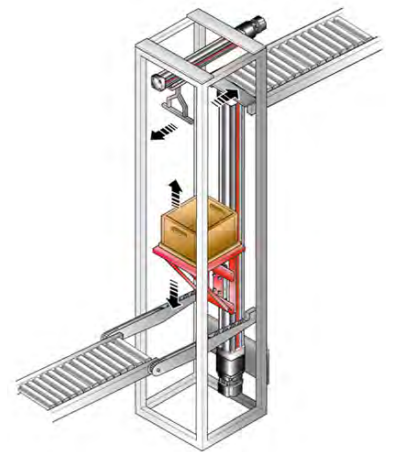
Punching Machines



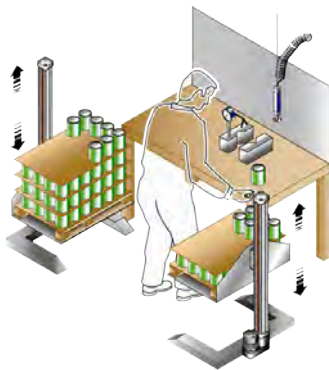
Palletizer, Auto Handling



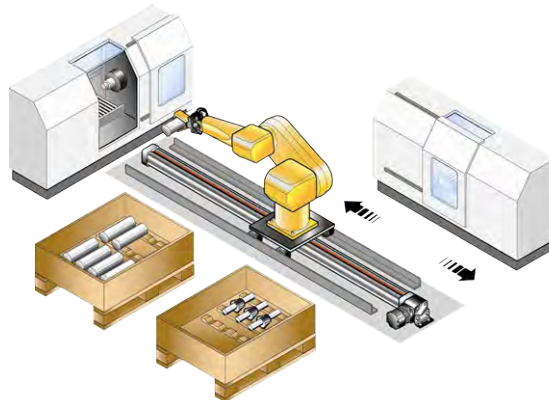
Material Handling



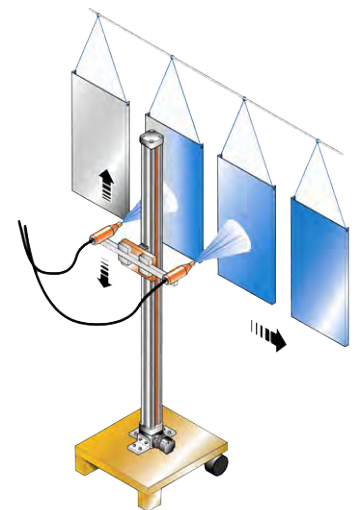
Ergonomic Workstations



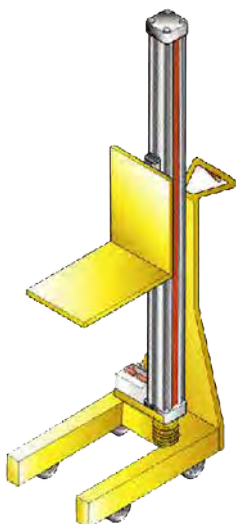
Robotic Installations



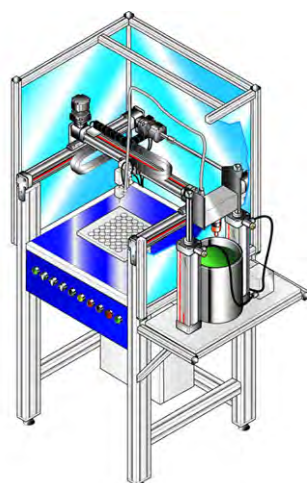
Spraying Equipment



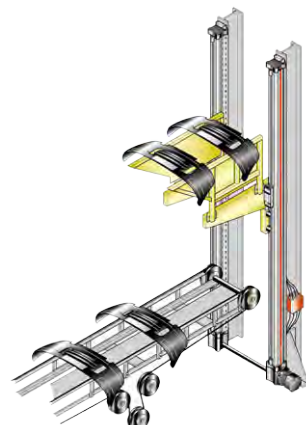
Mobile Lifting



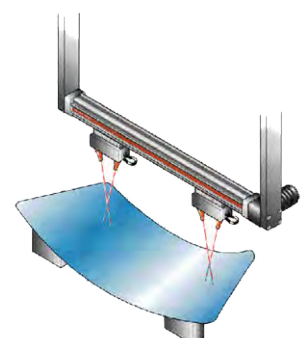
Auto Filling Machines



Parallel Operation

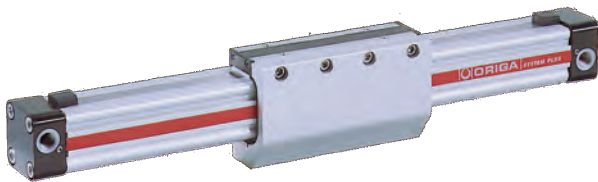


Bi-parting Operation



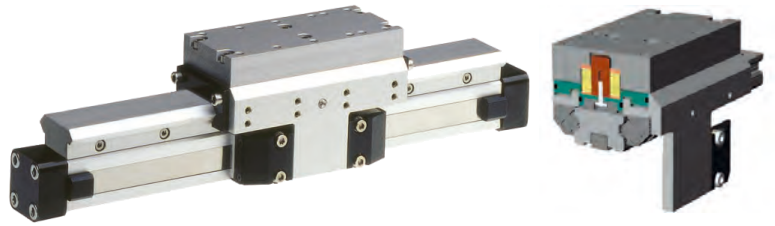
Active Brake

Brake by Compressed Air



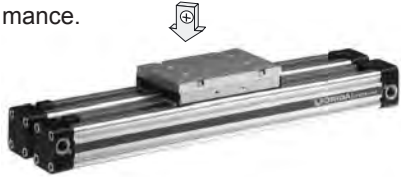
Passive Brake

Release by Compressed Air



DUPLEX CONNECTION

The duplex connection combines two OSP-P cylinders of the same size into a compact unit with high performance.



END-FACE AIR CONNECTION

To solve special installation problems.



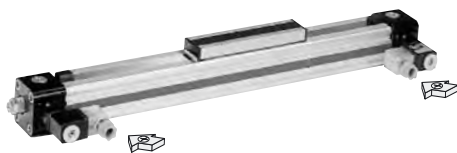
BOTH AIR CONNECTIONS AT ONE END

For simplified tubing connections and space saving.



INTEGRATED VOE VALVES

The complete compact solution for optimal cylinder control.



ACCESSORIES

PROXIMITY SENSORS TYPE RST AND EST

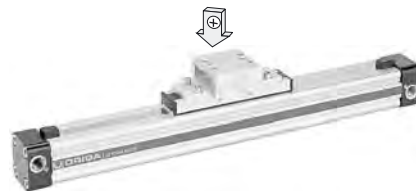
For electrical sensing of end and intermediate piston positions.



MOUNTINGS for OSP-P10 to P80

CLEVIS MOUNTING

Carrier with tolerance and parallelism compensation for driving loads supported by external linear guides.



END CAP MOUNTING

For end-mounting of the cylinder.



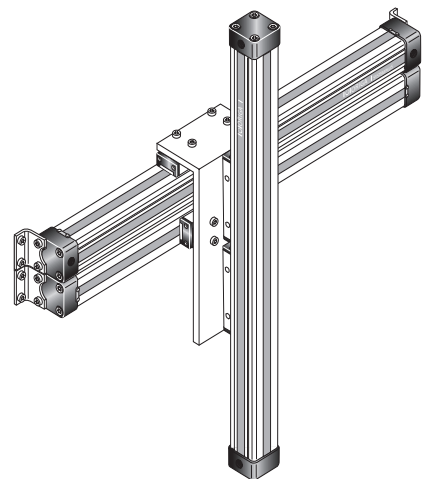
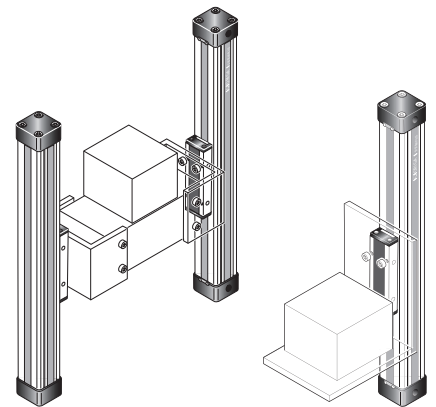
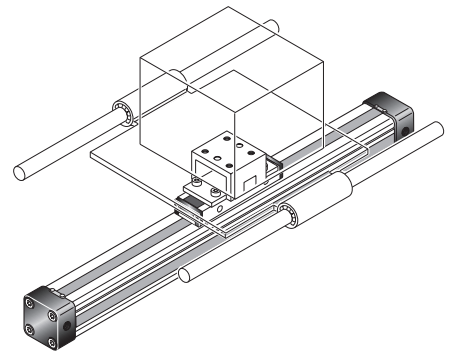
MID-SECTION SUPPORT

For supporting long cylinders or mounting the cylinder by its dovetail rails.



INVERSION MOUNTING

The inversion mounting, transfers the driving force to the opposite side, e. g. for dirty environments.



P1Z magnetic coupled

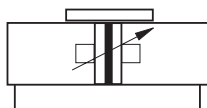


OSP-P Pneumatic Rodless Cylinder

ø 10-80 mm

OSP
ORIGA
SYSTEM
PLUS

Series OSP-P..

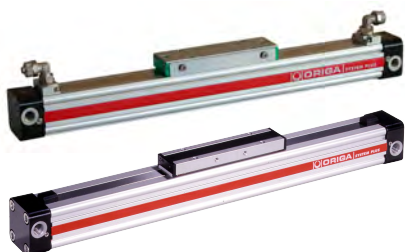


Standard Versions:

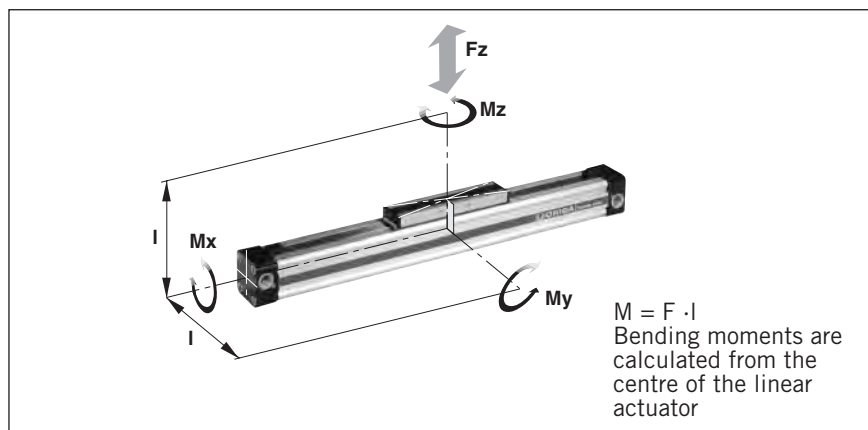
- Double-acting with adjustable end cushioning
- With magnetic piston for position sensing

Special Versions:

- with special pneumatic cushioning system (on request)
- Clean room cylinders (see data sheet 1.10.003E)
- ATEX-Version (Ex) (see data sheet 1.10.020E)
- Stainless steel screws
- Slow speed lubrication
- Viton® seals
- Both air connections on one end
- Air connection on the end-face
- Integrated Valves



- End cap can be rotated 4 x 90° to position air connection as desired
- Free choice of stroke length up to 40 meters (longer strokes on request)

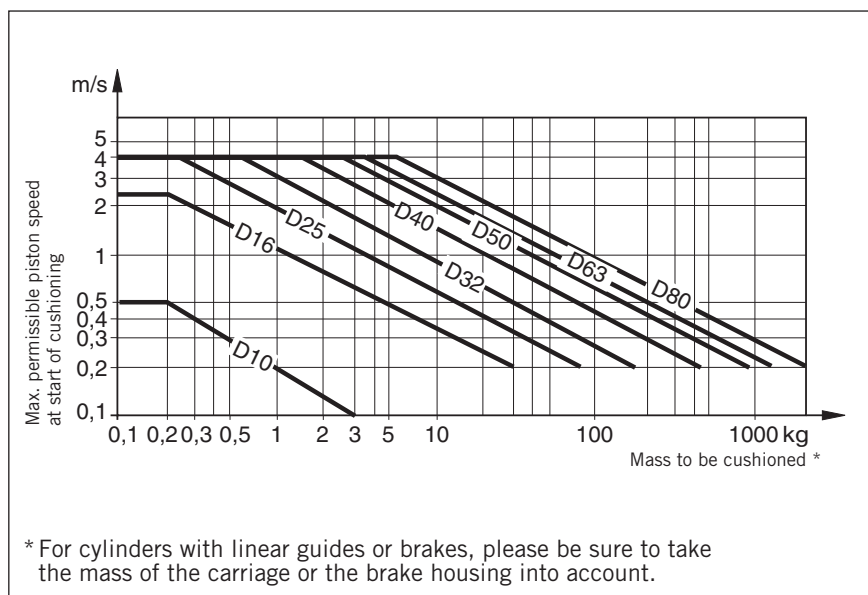


Cylinder-Series [mm Ø]	Theoretical Action Force at 6 bar [N]	effective Action Force F_A at 6 bar [N]	max. Moments			max. Load F [N]	Cushion Length [mm]
			M_x [Nm]	M_y [Nm]	M_z [Nm]		
OSP-P10	47	32	0.2	1	0.3	20	2.5 *
OSP-P16	120	78	0.45	4	0.5	120	11
OSP-P25	295	250	1.5	15	3	300	17
OSP-P32	483	420	3	30	5	450	20
OSP-P40	754	640	6	60	8	750	27
OSP-P50	1178	1000	10	115	15	1200	30
OSP-P63	1870	1550	12	200	24	1650	32
OSP-P80	3016	2600	24	360	48	2400	39

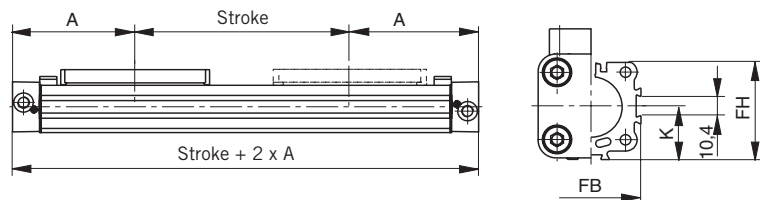
* A rubber element (non-adjustable) is used for end cushioning.

To deform the rubber element enough to reach the absolute end position would require a Δp of 4 bar!

Note: Load and moment data are based on speeds $v < 0.5$ m/s.

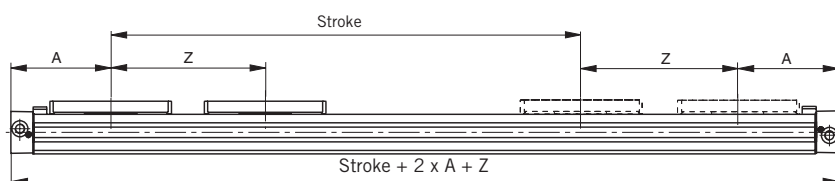


Dimensions of Basic Cylinder OSP - P16-P80



Cylinder Stroke and Dead Length A

- Free choice of stroke length up to 6000 mm in 1 mm steps.
- Longer strokes on request.

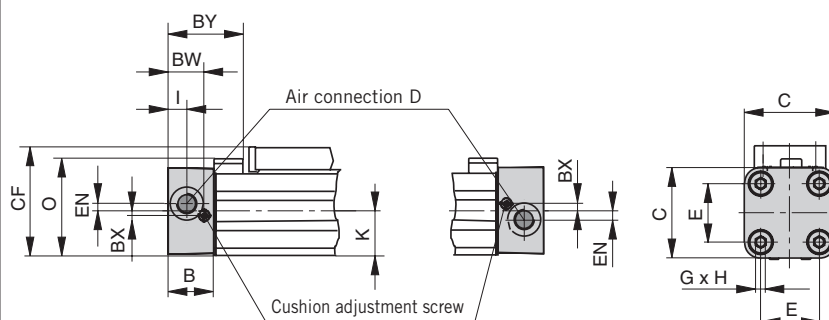


Tandem Cylinder

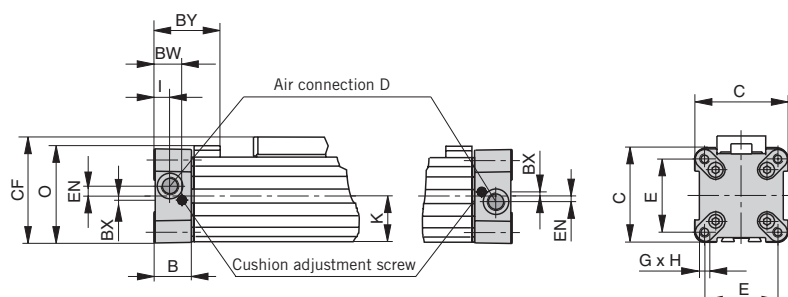
Two pistons are fitted: dimension "Z" is optional. (Please note minimum distance "Zmin").

- Free choice of stroke length up to 6000 mm in 1 mm steps.
- Longer strokes on request.
- Stroke length to order is stroke + dimension "Z"

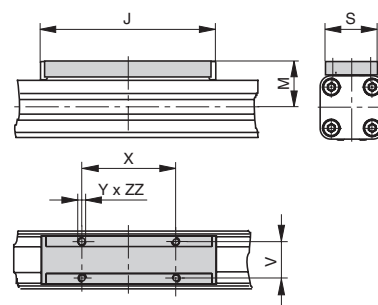
End Cap/Air Connection can be rotated 4 x 90° Series OSP-P16 to P32



End Cap/Air Connection can be rotated 4 x 90° Series OSP-P40 to P80



Carrier Series OSP-P16 to P80



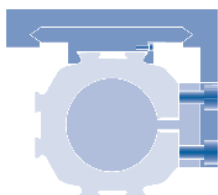
Dimension Table (mm)

Cylinder Series	A	B	C	D	E	G	H	I	J	K	M	O	S	V	X	Y	Z min	BW	BX	BY	CF	EN	FB	FH	ZZ
OSP-P16	65	14	30	M5	18	M3	9	5.5	69	15	23	33.2	22	16.5	36	M4	81	10.8	1.8	28.4	38	3	30	27.2	7
OSP-P25	100	22	41	G1/8	27	M5	15	9	117	21.5	31	47	33	25	65	M5	128	17.5	2.2	40	52.5	3.6	40	39.5	8
OSP-P32	125	25.5	52	G1/4	36	M6	15	11.5	152	28.5	38	59	36	27	90	M6	170	20.5	2.5	44	66.5	5.5	52	51.7	10
OSP-P40	150	28	69	G1/4	54	M6	15	12	152	34	44	72	36	27	90	M6	212	21	3	54	78.5	7.5	62	63	10
OSP-P50	175	33	87	G1/4	70	M6	15	14.5	200	43	49	86	36	27	110	M6	251	27	-	59	92.5	11	76	77	10
OSP-P63	215	38	106	G3/8	78	M8	21	14.5	256	54	63	107	50	34	140	M8	313	30	-	64	117	12	96	96	16
OSP-P80	260	47	132	G1/2	96	M10	25	22	348	67	80	133	52	36	190	M10	384	37.5	-	73	147	16.5	122	122	20

Plain Bearing Guide SLIDELINE

OSP
ORIGA
SYSTEM
PLUS

Series SL 16 to 80
for Linear-drive
• Series OSP-P



Features:

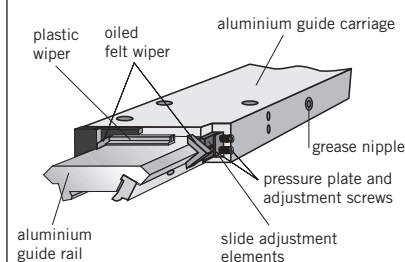
- ATEX-version (without brake) is also available (see data sheet no. 1.10.020E)
- Anodised aluminium guide rail with prism-shaped slideway arrangement
- Adjustable plastic slide elements – optional with integral brake
- Composite sealing system with plastic and felt wiper elements to remove dirt and lubricate the slideways.
- Corrosion resistant version available on request.
- Any length of stroke up to 5500 mm (longer strokes on request)

¹⁾ Only with integrated brake:
Braking force on dry oil-free surface
Values are decreased for lubricated slideways

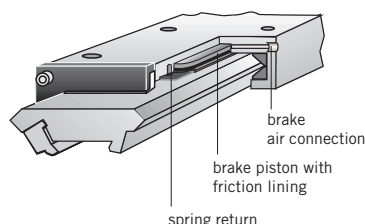
²⁾ Corrosion resistant fixtures available on request

Versions

for pneumatic linear drive:
Series OSP-P



Option – Integrated Brake

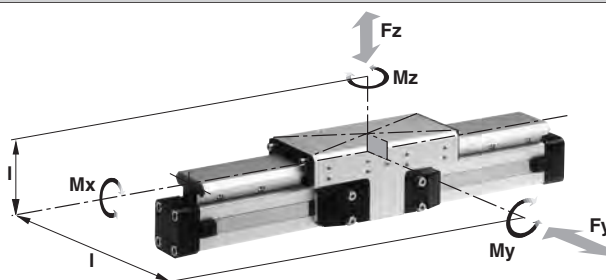


**Integrated Brake (optional)
for series OSP-P25 to OSP-P50:**

- Actuated by pressure
- Released by exhausting and spring return

For further technical data see also
linear drives OSP-P (1.10.002E)

Loads, Forces and Moments



Technical Data

The table shows the maximum permissible values for smooth operation, which should not be exceeded even under dynamic conditions.

The load and moment figures apply to speeds $v < 0.2$ m/s.

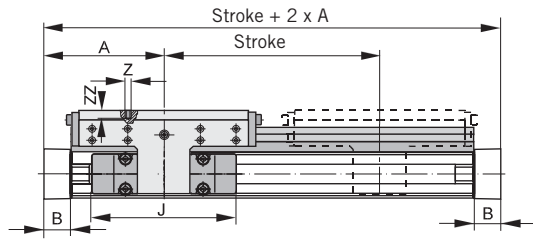
* Please note:

In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

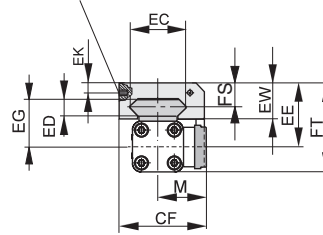
Series	For linear drive	Max. moments [Nm]			Max. loads [N]	Maximum braking force at 6 bar [N] ¹⁾	Mass of linear drive with guide [kg]		Mass * of guide carriage [kg]	Order No. SLIDELINE ²⁾ for	
		Mx	My	Mz	Fy, Fz		with 0 mm stroke	increase per 100 mm stroke		OSP-P without brake	OSP-P with brake
SL16	OSP-P16	6	11	11	325	–	0.57	0.22	0.23	20341	–
SL25	OSP-P25	14	34	34	675	325	1.55	0.39	0.61	20342	20409
SL32	OSP-P32	29	60	60	925	545	2.98	0.65	0.95	20196	20410
SL40	OSP-P40	50	110	110	1500	835	4.05	0.78	1.22	20343	20411
SL50	OSP-P50	77	180	180	2000	1200	6.72	0.97	2.06	20195	20412
SL63	OSP-P63	120	260	260	2500	–	11.66	1.47	3.32	20853	–
SL80	OSP-P80	120	260	260	2500	–	15.71	1.81	3.32	21000	–

Dimensions

Series OSP-P



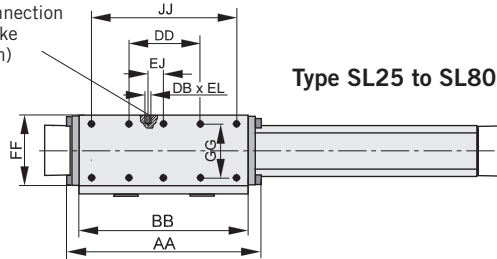
Air connection for brake (Option)



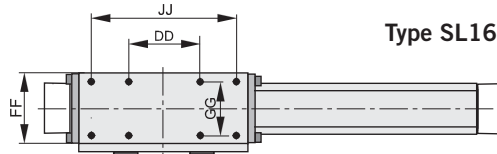
For further mounting elements and options see accessories.

For further information and technical data see data sheets for linear drives OSP-P (1.10.002E)

Air connection for brake (Option)



Type SL25 to SL80



Type SL16

Dimension Table (mm)

Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	ED	EE	EG	EJ	EK	EL	EW	FF	FT	FS	GG	JJ	ZZ
SL 16	65	14	69	31	M4	106	88	-	30	55	36	8	40	30	-	-	-	22	48	55	14	36	70	8
SL 25	100	22	117	40.5	M6	162	142	M5	60	72.5	47	12	53	39	22	6	6	30	64	73.5	20	50	120	12
SL 32	125	25.5	152	49	M6	205	185	M5	80	91	67	14	62	48	32	6	6	33	84	88	21	64	160	12
SL 40	150	28	152	55	M6	240	220	M5	100	102	77	14	64	50	58	6	6	34	94	98.5	21.5	78	200	12
SL 50	175	33	200	62	M6	284	264	M5	120	117	94	14	75	56	81	6	6	39	110	118.5	26	90	240	16
SL 63	215	38	256	79	M8	312	292	-	130	152	116	18	86	66	-	-	-	46	152	139	29	120	260	14
SL 80	260	47	348	96	M8	312	292	-	130	169	116	18	99	79	-	-	-	46	152	165	29	120	260	14

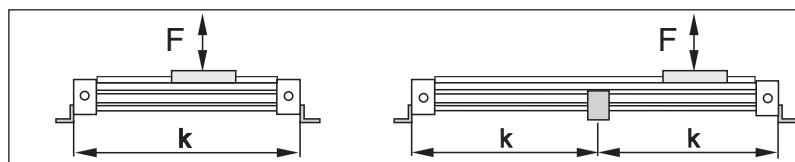
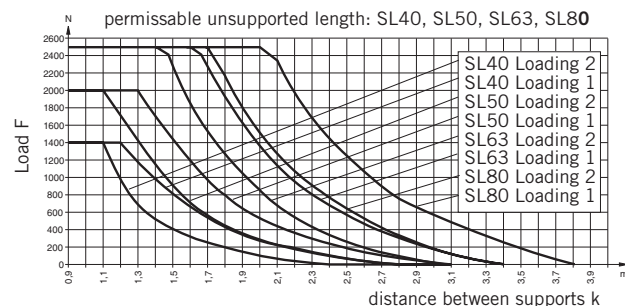
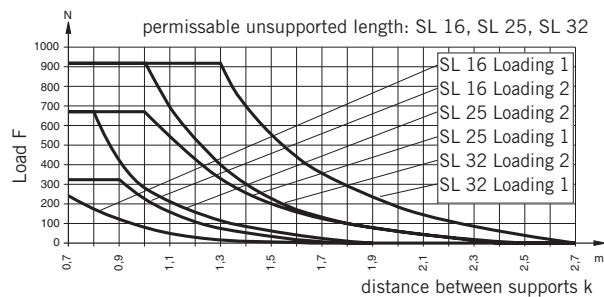
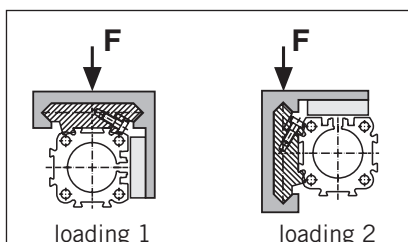
Mid-Section Support

(for versions see 1.45.005E)

Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.

Note:

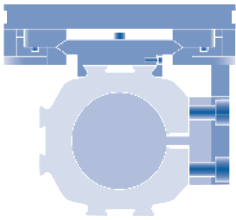
For speeds $v > 0.5$ m/s the distance between supports should not exceed 1 m.



Roller Guide POWERSLIDE



Series PS 16 to 50
for Linear-drive
• Series OSP-P

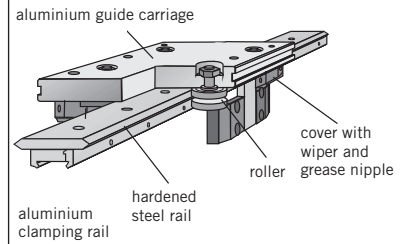


Features:

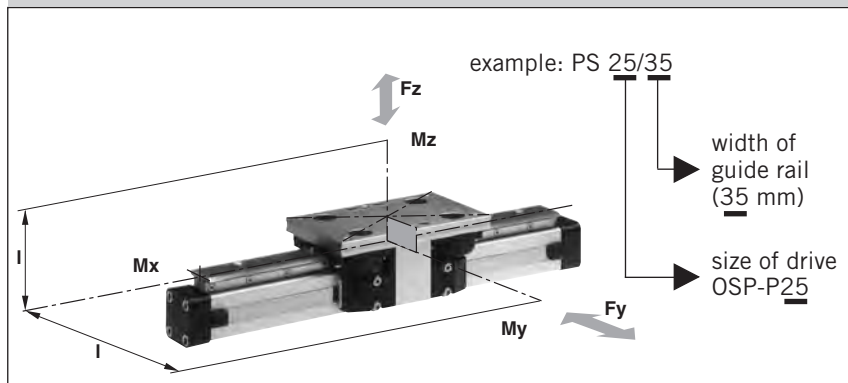
- Anodised aluminium guide carriage with vee rollers having 2 rows of ball bearings
- Hardened steel guide rail
- Several guide sizes can be used on the same drive
- Corrosion resistance version available on request
- Max. speed $v = 3$ m/s,
- Tough roller cover with wiper and grease nipple
- Any length of stroke up to 3500 mm, (longer strokes on request)

Versions

for pneumatic linear drive:
Series OSP-P



Loads, Forces and Moments



Technical Data

The Table shows the maximum permissible values for smooth operation, which should not be exceeded even under dynamic conditions.

For further information and technical data see data sheets for linear drives OSP-P (1.10.002E)

*Please note:

In the cushioning diagram, add the mass of the guide carriage to the mass to be cushioned.

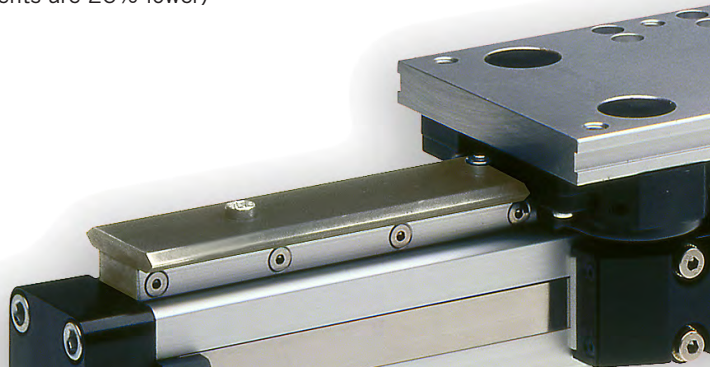
Series	For linear drive	Max. moments [Nm]			Max. load [N]	Mass of linear drive with guide [kg]		Mass * of guide carriage [kg]	Order-No. Powerslide for OSP-P ¹⁾
		Mx	My	Mz		with 0 mm stroke	increase per 100 mm stroke		
PS 16/25	OSP-P16	14	45	45	1400	0.93	0.24	0.7	20285
PS 25/25	OSP-P25	14	63	63	1400	1.5	0.4	0.7	20015
PS 25/35	OSP-P25	20	70	70	1400	1.7	0.4	0.8	20016
PS 25/44	OSP-P25	65	175	175	3000	2.6	0.5	1.5	20017
PS 32/35	OSP-P32	20	70	70	1400	2.6	0.6	0.8	20286
PS 32/44	OSP-P32	65	175	175	3000	3.4	0.7	1.5	20287
PS 40/44	OSP-P40	65	175	175	3000	4.6	1.1	1.5	20033
PS 40/60	OSP-P40	90	250	250	3000	6	1.3	2.2	20034
PS 50/60	OSP-P50	90	250	250	3000	7.6	1.4	2.3	20288
PS 50/76	OSP-P50	140	350	350	4000	11.5	1.8	4.9	20289

¹⁾ corrosion resistance version available on request (max. loads and moments are 25% lower)

1. Calculation of load factor L_F

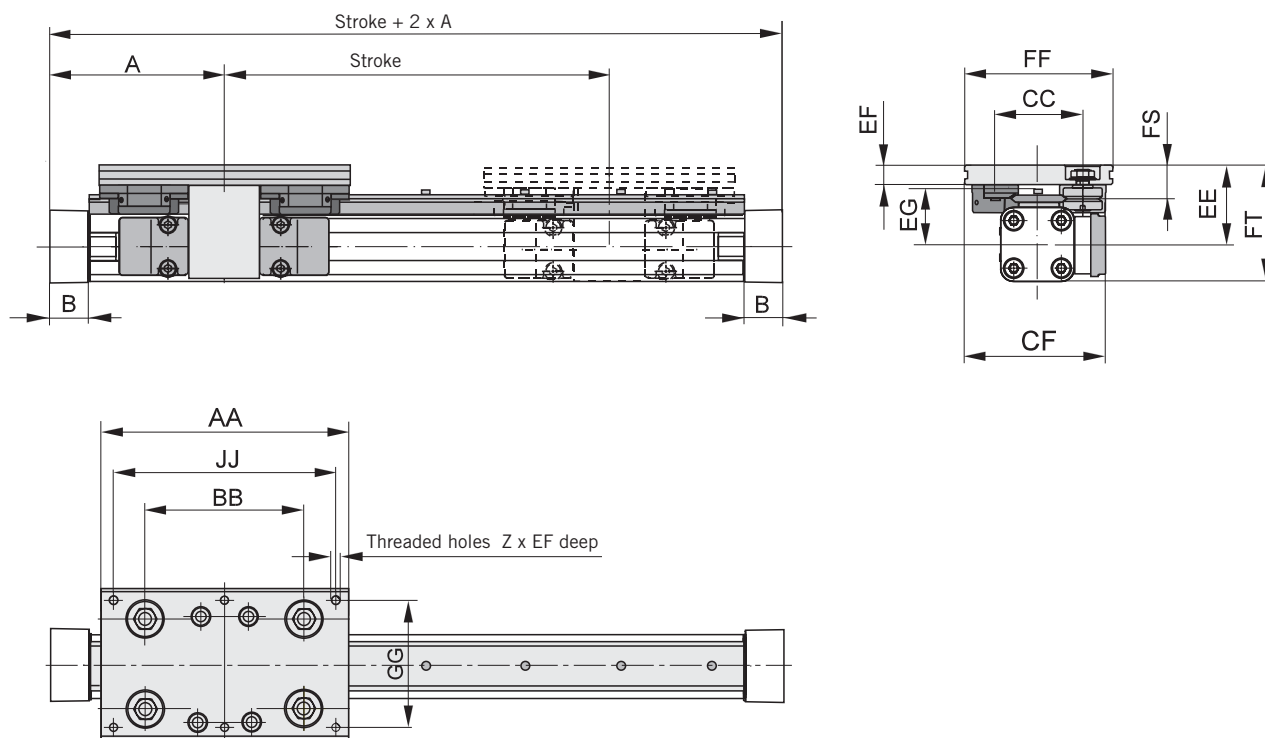
$$L_F = \frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} + \frac{F_y}{F_{y_{\max}}} + \frac{F_z}{F_{z_{\max}}}$$

with combined loads, L_F should not exceed the value 1.



Dimensions

Series OSP-P



Dimension Table (mm)

Series	A	B	Z	AA	BB	CC	CF	EE	EF	EG	FF	FS	FT	GG	JJ
PS 16/25	65	14	4xM6	120	65	47	80	49	12	35	80	21	64	64	100
PS 25/25	100	22	6xM6	145	90	47	79.5	53	11	39	80	20	73.5	64	125
PS 25/35	100	22	6xM6	156	100	57	89.5	52.5	12.5	37.5	95	21.5	73	80	140
PS 25/44	100	22	6xM8	190	118	73	100	58	15	39	116	26	78.5	96	164
PS 32/35	125	25.5	6xM6	156	100	57	95.5	58.5	12.5	43.5	95	21.5	84.5	80	140
PS 32/44	125	25.5	6xM8	190	118	73	107	64	15	45	116	26	90	96	164
PS 40/44	150	28	6xM8	190	118	73	112.5	75	15	56	116	26	109.5	96	164
PS 40/60	150	28	6xM8	240	167	89	122.5	74	17	54	135	28.5	108.5	115	216
PS 50/60	175	33	6xM8	240	167	89	130.5	81	17	61	135	28.5	123.5	115	216
PS 50/76	175	33	6xM10	280	178	119	155.5	93	20	64	185	39	135.5	160	250

Lubrication

For maximum system life, lubrication of the rollers must be maintained at all times.

Only high quality Lithium based greases should be used.

Lubrication intervals are dependant on environmental conditions (temperature, running speed, grease quality etc.) therefore the installation should be regularly inspected.

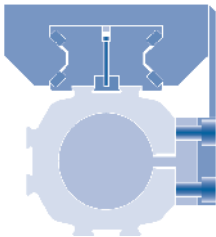
2. Service life calculation

- For PS 16/25, PS 25/25, PS 25/35, and PS 32/35
Service life [km] = $\frac{106}{(L_F + 0,02)^3}$
- For PS 25/44, PS 32/44, PS 40/44, PS 40/60 and PS 50/60:
Service life [km] = $\frac{314}{(L_F + 0,015)^3}$
- For PS 50/76:
Service life [km] = $\frac{680}{(L_F + 0,015)^3}$

Aluminium Roller Guide PROLINE



Series PL 16 to 50
for Linear-drive
• Series OSP-P



Features:

- High precision
- High velocities (10 m/s)
- Smooth operation - low noise
- Integrated wiper system
- Long life lubrication
- Compact dimensions - compatible to Slideline plain bearing guide
- Any length of stroke up to 3750 mm

Integrated Brake (optional) for Series OSP-P25 to OSP-P50:

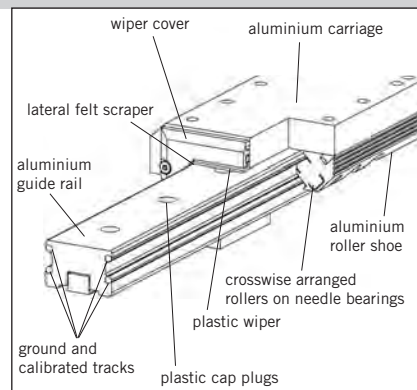
- Actuated by pressurisation
- Release by depressurisation and spring actuation

* Please note:

The mass of the carriage has to be added to the total moving mass when using the cushioning diagram.

Versions

for pneumatic linear drive:
Series OSP-P



Technical Data

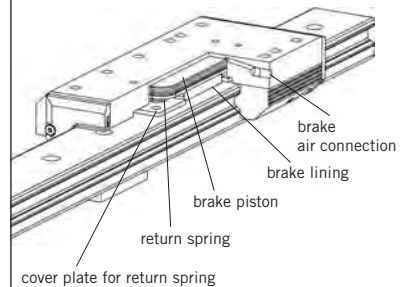
The table shows the maximal permissible loads. If multiple moments and forces act upon the cylinder simultaneously, the following equation applies:

$$\frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} + \frac{F_y}{F_{y_{\max}}} + \frac{F_z}{F_{z_{\max}}} \leq 1$$

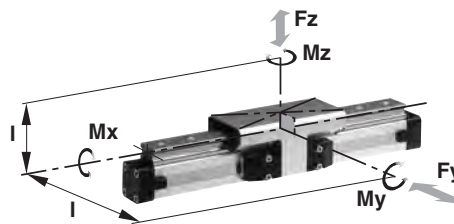
The sum of the loads should not exceed >1.
With a load factor of less than 1, service life is 8000 km

The table shows the maximum permissible values for light, shock-free operation, which must not be exceeded even under dynamic conditions.

Option – Integrated Brake



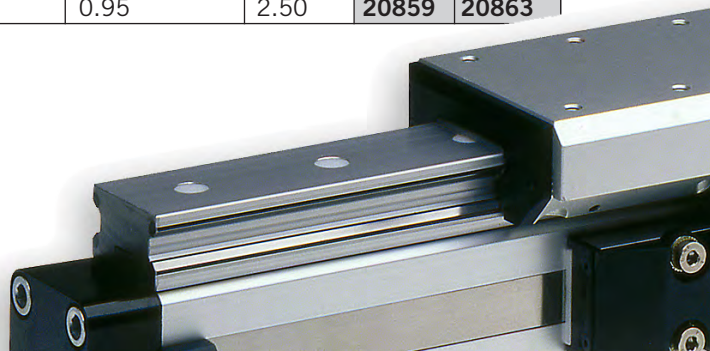
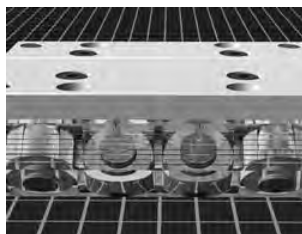
Loads, Forces and Moments



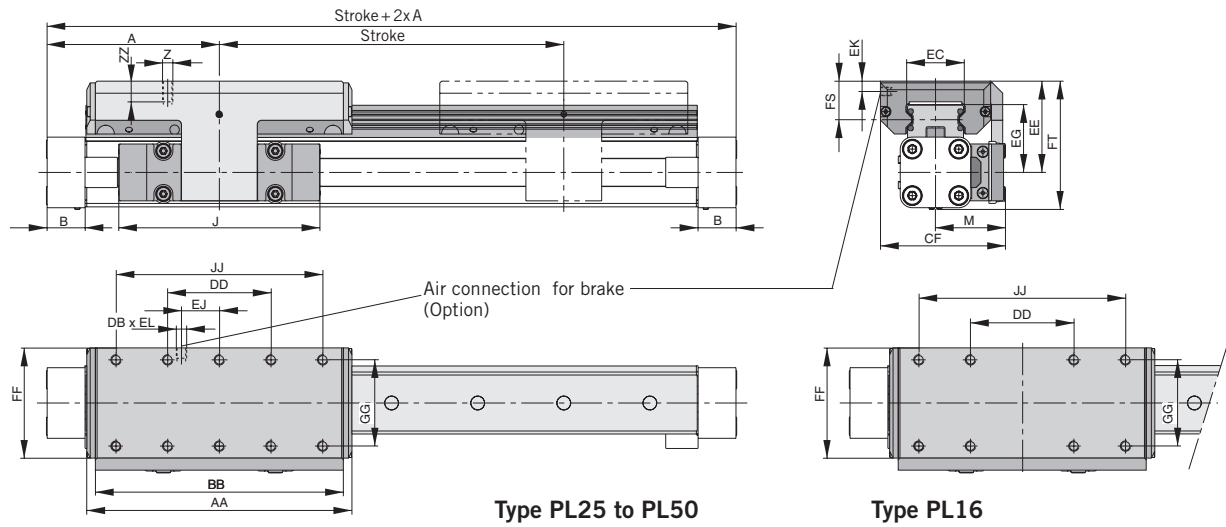
Series	For linear drive	Max. moments [Nm]			Max. loads [N]	Maximum braking force at 6 bar [N] ¹⁾	Mass of linear drive with guide [kg]		Mass * guide carriage [kg]	Order No. PROLINE for OSP-P	
		Mx	My	Mz	Fy, Fz		with 0 mm stroke	increase per 100 mm stroke		without brake	with brake
PL 16	OSP-P16	8	12	12	542	–	0.55	0.19	0.24	20855	–
PL 25	OSP-P25	16	39	39	857	on request	1.65	0.40	0.75	20856	20860
PL 32	OSP-P32	29	73	73	1171	on request	3.24	0.62	1.18	20857	20861
PL 40	OSP-P40	57	158	158	2074	on request	4.35	0.70	1.70	20858	20862
PL 50	OSP-P50	111	249	249	3111	on request	7.03	0.95	2.50	20859	20863

¹⁾ Only for version with brake:

Braking surface dry – oiled surface reduces the effective braking force.



Dimension Table (mm) Series OSP-P PL16, PL25, PL32, PL40, PL50



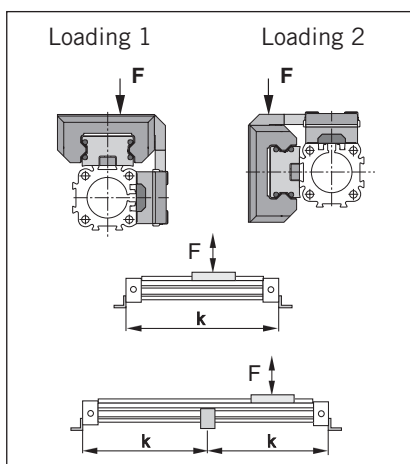
Dimension Table (mm) Series OSP-P PL16, PL25, PL32, PL40, PL50

Series	A	B	J	M	Z	AA	BB	DB	DD	CF	EC	EE	EG	EJ	EK	EL	FF	FS	FT	GG	JJ	ZZ
PL16	65	14	69	31	M4	98	88	-	30	55	23	40	30	-	-	-	48	17	55	36	70	8
PL25	100	22	117	40.5	M6	154	144	M5	60	72.5	32.5	53	39	22	6	6	64	23	73.5	50	120	12
PL32	125	25.5	152	49	M6	197	187	M5	80	91	42	62	48	32	6	6	84	25	88	64	160	12
PL40	150	28	152	55	M6	232	222	M5	100	102	47	64	50.5	58	6	6	94	23.5	98.5	78	200	12
PL50	175	33	200	62	M6	276	266	M5	120	117	63	75	57	81	6	6	110	29	118.5	90	240	16

Mid-Section Support

(For versions, see 1.45.005E)

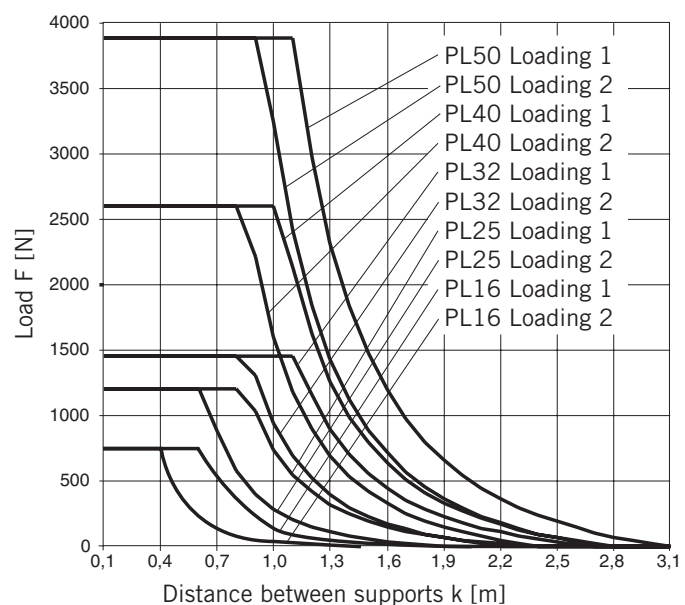
Mid-section supports are required from a certain stroke length to prevent excessive deflection and vibration of the linear drive. The diagrams show the maximum permissible unsupported length in relation to loading. A distinction must be drawn between loading 1 and loading 2. Deflection of 0.5 mm max. between supports is permissible.



Note:

For speeds $v > 0.5$ m/s the distance between supports should not exceed 1 m.

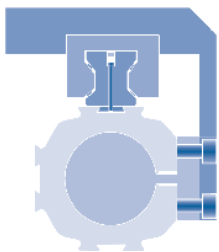
Permissible Unsupported Length PL16, PL25, PL32, PL40 und PL50



Recirculating Ball Bearing Guide STARLINE

OSP
— ORIGA
— SYSTEM
— PLUS

Series STL 16 to 50
for Linear Drive Series OSP-P

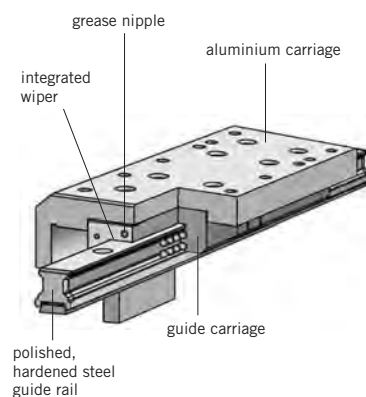


Features:

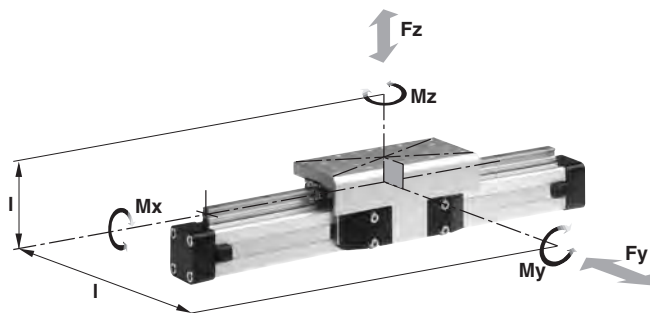
- Polished and hardened steel guide rail
- For very high loads in all directions
- High precision
- Integrated wiper system
- Integrated grease nipples
- Any length of stroke up to 3700 mm
- Anodized aluminium guide carriage – dimensions compatible with OSP guides SLIDELINE and PROLINE
- Installation height (STL16 - 32) compatible with OSP guides SLIDELINE and PROLINE
- Maximum speed
STL16: v = 3 m/s
STL25 to 50: v = 5 m/s

Versions

for pneumatic linear drive:
Series OSP-P



Loads, Forces and Moments



Technical Data

The table shows the maximum permissible loads. If multiple moments and forces act upon the cylinder simultaneously, the following equation applies:

$$\frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} + \frac{F_y}{F_{y_{\max}}} + \frac{F_z}{F_{z_{\max}}} \leq 1$$

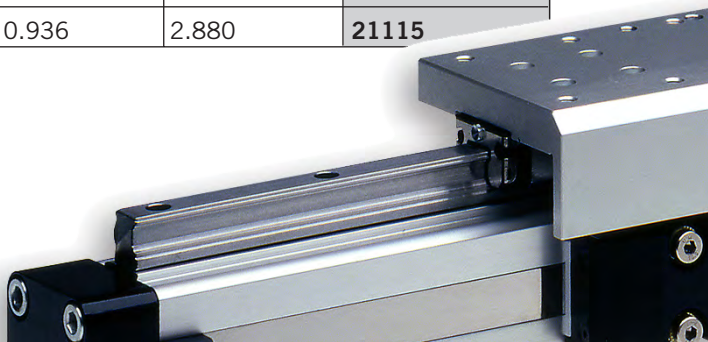
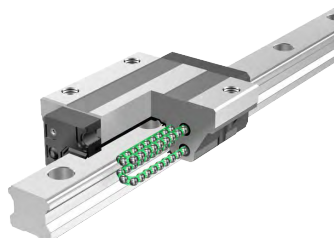
The sum of the loads should not exceed >1

The table shows the maximum permissible values for light, shock-free operation, which must not be exceeded even under dynamic conditions.

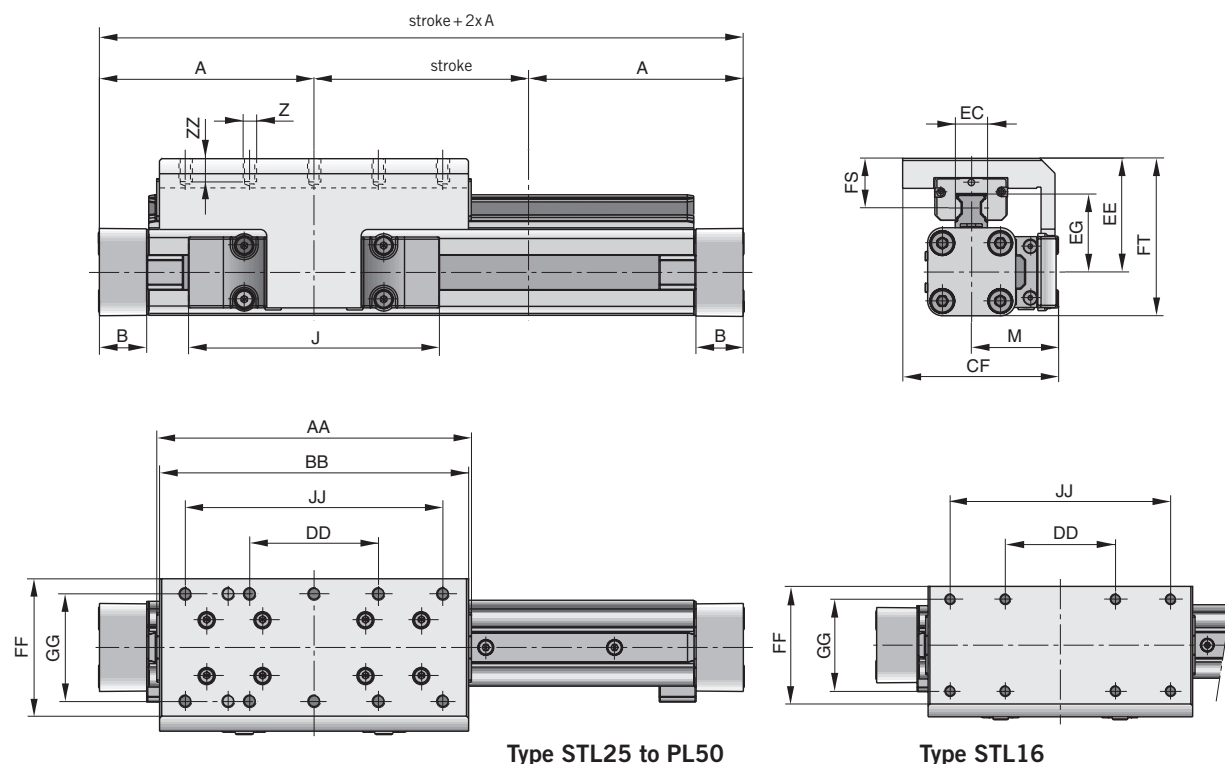
** Please note:

The mass of the carriage has to be added to the total moving mass when using the cushioning diagram.

Series	For linear drive	Max. moments [Nm]			Max. loads [N]		Mass of linear drive with guide [kg]		Mass ** guide carriage [kg]	Order No. STARLINE for OSP-P
		Mx	My	Mz	Fy	Fz	with 0 mm stroke	increase per 100 mm stroke		
STL16	OSP-P16	15	30	30	1000	1000	0.598	0.210	0.268	21111
STL25	OSP-P25	50	110	110	3100	3100	1.733	0.369	0.835	21112
STL32	OSP-P32	62	160	160	3100	3100	2.934	0.526	1.181	21113
STL40	OSP-P40	150	400	400	4000	7500	4.452	0.701	1.901	21114
STL50	OSP-P50	210	580	580	4000	7500	7.361	0.936	2.880	21115



Dimensions Series OSP-P STL16 to STL 50



Dimension Table (mm) Series OSP-P STL16 to STL50

Series	A	B	J	M	Z	AA	BB	CF	DD	EC	EE	EG	FF	FS	FT	GG	JJ	ZZ
STL16	65	14	69	31	M4	93	90	55	30	15	40	24.6	48	18	55	36	70	8
STL25	100	22	117	40.5	M6	146.6	144	72.5	60	15	53	36.2	64	23.2	73.5	50	120	12
STL32	125	25.5	152	49	M6	186.6	184	91	80	15	62	42.2	84	26.2	88	64	160	12
STL40	150	28	152	55	M6	231	226	102	100	20	72	51.6	94	28.5	106.5	78	200	12
STL50	175	33	200	62	M6	270.9	266	117	120	23	85	62.3	110	32.5	128.5	90	240	16

Variable Stop

The variable stop Type VS provides simple stroke limitation.

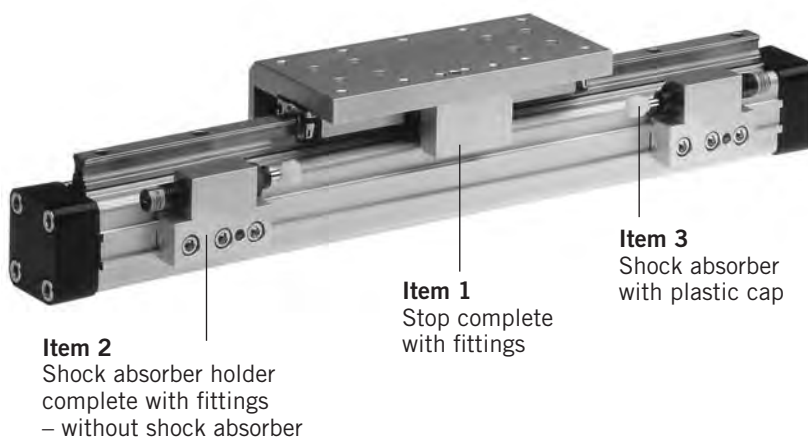
It can be retrofitted and positioned anywhere along the stroke length. For every cylinder diameter two types of shock absorber are available – see „Shock Absorber Selection“ below.

Mid-section supports and magnetic switches can still be fitted on the same side as the variable stop.

Depending on the application, two variable stops can be fitted if required.

Variable Stop Type VS16 to VS50

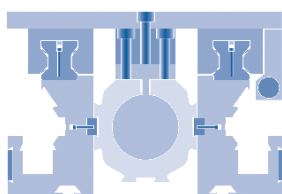
Arrangement with two variable stops



Heavy Duty- Guide HD

OSP
— ORIGA
— SYSTEM
— PLUS

Series HD 25 to 50
for Linear Drive Series OSP-P

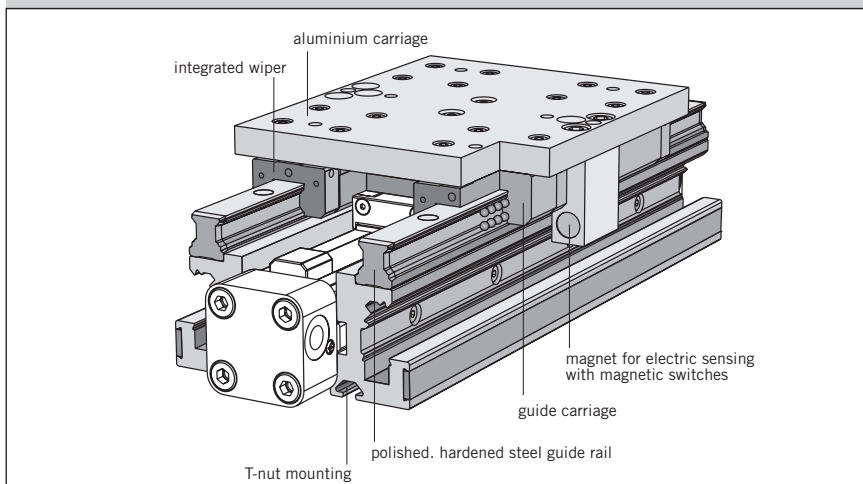


Features:

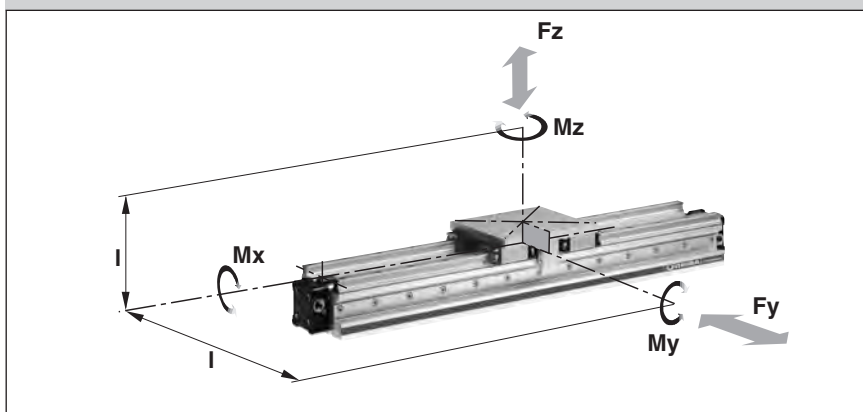
- Guide system:
4-row recirculating ball bearing guide
- Polished and hardened steel guide rail
- For highest loads in all directions
- Highest precision
- Integrated wiper system
- Integrated grease nipples
- Any lengths of stroke up to 3700 mm (longer strokes on request)
- Anodized aluminium guide carriage - dimensions compatible with OSP guide GUIDELINE
- Maximum speed $v = 5 \text{ m/s}$



Version with pneumatic linear drive series OSP-P



Loads, Forces and Moments



Technical Data

The table shows the maximum permissible loads. If multiple moments and forces act upon the cylinder simultaneously, the following equation applies:

$$\frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} + \frac{F_y}{F_{y_{\max}}} + \frac{F_z}{F_{z_{\max}}} \leq 1$$

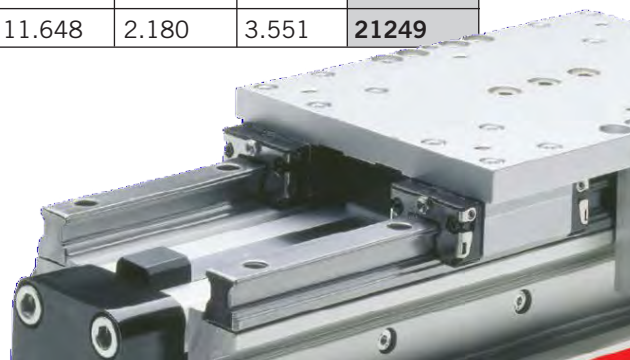
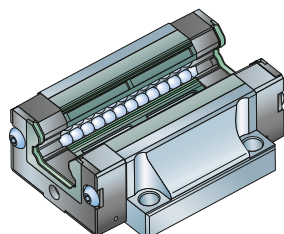
The sum of the loads should not >1

The table shows the maximum permissible values for light, shock-free operation, which must not be exceeded even under dynamic conditions.

* Please note:

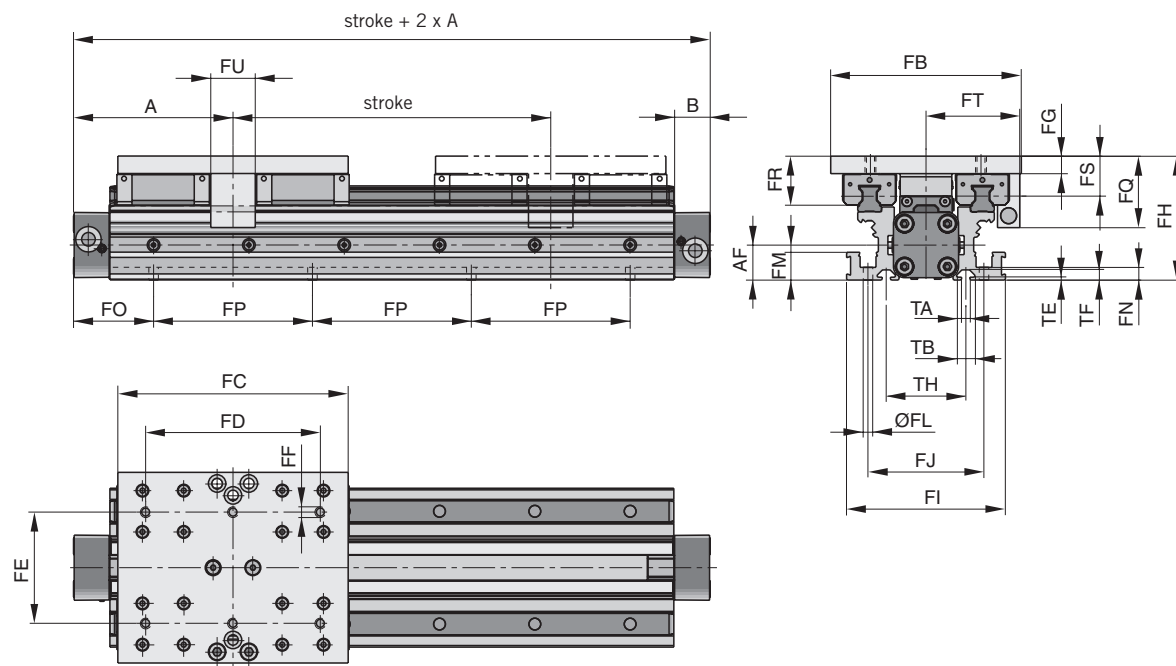
The mass of the carriage does not have to be added to the total moving mass when using the cushioning diagram

Series	for linear drive	Max. moments [Nm]			Max. loads [N]		Mass of the linear drive with guide [kg]		Mass * guide carriage [kg]	Order No. HD guide for OSP-P
		Mx	My	Mz	Fy	Fz	with 0mm stroke	increase per 100 mm stroke		
HD 25	OSP-P25	260	320	320	6000	6000	3.065	0.924	1.289	21246
HD 32	OSP-P32	285	475	475	6000	6000	4.308	1.112	1.367	21247
HD 40	OSP-P40	800	1100	1100	15000	15000	7.901	1.748	2.712	21248
HD 50	OSP-P50	1100	1400	1400	18000	18000	11.648	2.180	3.551	21249



Dimensions

Series OSP-P



Note:

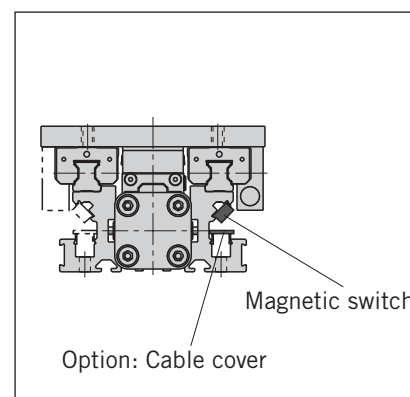
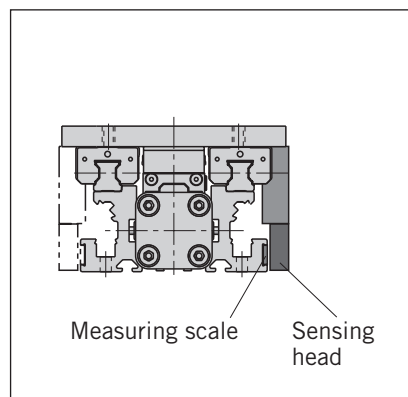
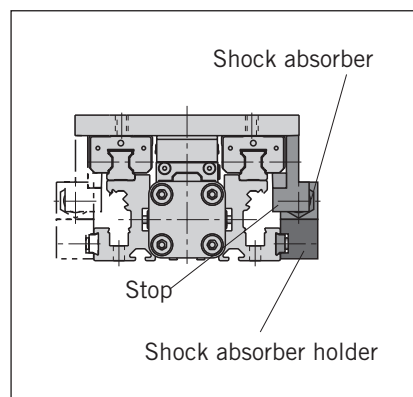
The HD heavy duty guide must be mounted on a flat surface for its entire length.

If T-grooves or T-bolts are used, the distance between them should not exceed 100 mm.

Dimension Table (mm)

Series	A	B	AF	FB	FC	FD	FE	FF	FG	FH	FI	FJ	ØFL
HD25	100	22	22	120	145	110	70	M6	11	78	100	73	6
HD32	125	25.5	30	120	170	140	80	M6	11	86	112	85	6
HD40	150	28	38	160	180	140	110	M8	14	108	132	104	7.5
HD50	175	33	48	180	200	160	120	M8	14	118	150	118	7.5

Series	FM	FN	FP	FQ	FR	FS	FT	FU	TA	TB	TE	TF	TH
HD25	17.5	8	100	45	31	25	59	28	5.2	11.5	1.8	6.4	50
HD32	17.5	8	100	45	31	25	63	30	5.2	11.5	1.8	6.4	60
HD40	22	10	100	58	40	31.5	76	30	8.2	20	4.5	12.3	66
HD50	22	10	100	58	44	35.5	89	30	8.2	20	4.5	12.3	76

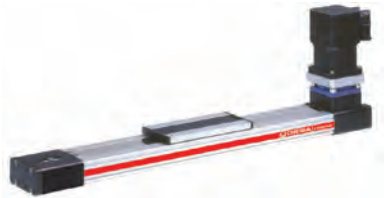


OSP-E..BH2

Linear Drive with Toothed Belt Integrated Recirculating Ball Bearing Guide

Size 20 to 50

OSP
— ORIGA
— SYSTEM
— PLUS

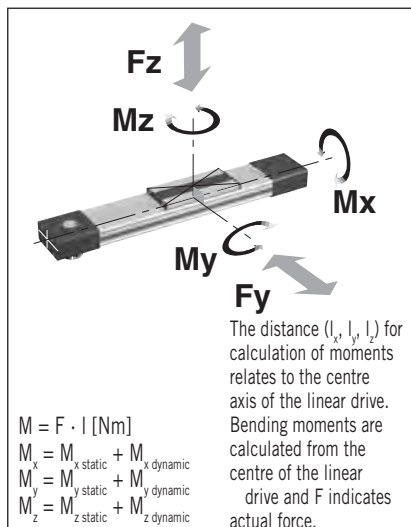


Standard Versions

- Toothed Belt Drive with integrated Recirculating Ball Bearing Guide
- Drive Shaft with clamp shaft or plain shaft
- Choice of motor mounting side
- Dovetail profile for mounting of accessories and the drive itself

Options

- Tandem version for higher moments
- Bi-parting version for synchronised movements
- Integrated planetary gearbox
- Drive shaft with
 - clamp shaft and plain shaft
 - hollow shaft with keyway
- Special drive shaft versions on request



Performance Overview

T1

Characteristics	Unit	Description			
Series		OSP-E20BHD	OSP-E25BHD	OSP-E32BHD	OSP-E50BHD
Max. speed	[m/s]	3 ¹⁾	5 ¹⁾	5 ¹⁾	5 ¹⁾
Linear motion per revolution of drive shaft	[mm]	125	180	240	350
Max. rpm on drive shaft	[min ⁻¹]	2000	1700	1250	860
Max. effective	< 1 m/s:	[N]	550	1070	1870
Action force	1-3 m/s:	[N]	450	890	1560
F _A at speed	> 3 m/s:	[N]	–	550	1030
No-load torque	[Nm]	0.6	1.2	2.2	3.2
Max. acceleration/deceleration	[m/s ²]	50	50	50	50
Repeatability	[mm/m]	±0.05	±0.05	±0.05	±0.05
Max. standard stroke length	[mm]	5760 ²⁾	5700 ²⁾	5600 ²⁾	5500 ²⁾

¹⁾ up to 10 m/s on request

²⁾ longer strokes on request

Maximum Permissible Torque on Drive Shaft Speed / Stroke

T2

OSP-E20BHD				OSP-E25BHD				OSP-E32BHD				OSP-E50BHD			
Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Moment [Nm]	Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]
1	11	1	11	1	31	1	31	1	71	1	71	1	174	1	174
2	10	2	11	2	28	2	31	2	65	2	71	2	159	2	174
3	9	3	8	3	25	3	31	3	59	3	60	3	153	3	138
4		4	7	4	23	4	25	4	56	4	47	4	143	4	108
5		5	5	5	22	5	21	5	52	5	38	5	135	5	89

Important:

The maximum permissible moment on the drive shaft is the lowest value of the speed- or stroke-dependent moment value.

Example above:

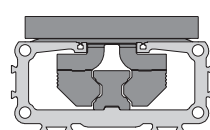
OSP-E25BHD, stroke 5 m, required speed 3 m/s from table T2
speed 3 m/s gives 25 Nm and stroke 5 m gives 21 Nm. Max. torque for this application is 21 Nm.

When sizing Bi-parting units: for ordering stroke see data sheet 1.15.002E-4.

Maximum Permissible Loads

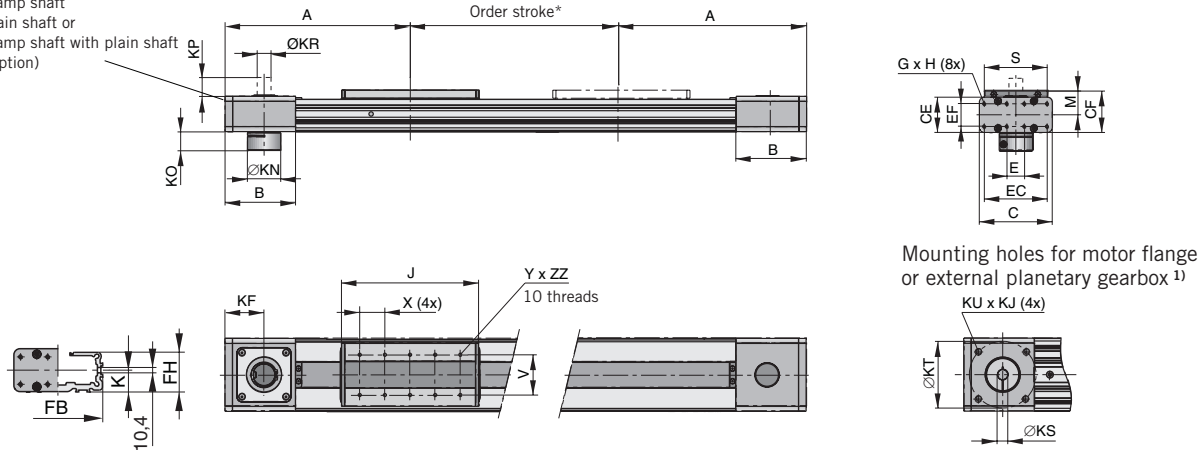
T3

Series	Max. applied load		Max. moments [Nm]		
	Fy[N]	Fz[N]	Mx	My	Mz
OSP-E20BHD	1600	1600	21	150	150
OSP-E25BHD	2000	3000	50	500	500
OSP-E32BHD	5000	10000	120	1000	1400
OSP-E50BHD	12000	15000	180	1800	2500



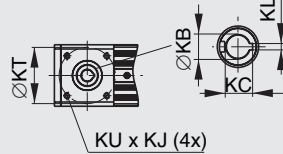
Linear Drive with Toothed Belt and integrated Recirculating Ball Bearing Guide – Basic Unit Series OSP-E..BHD

Drive Shaft versions with
- clamp shaft
- plain shaft or
- clamp shaft with plain shaft
(Option)



Hollow shaft with keyway (Option) Dimension Table [mm]

Series	KB*	KC	KL	KT	KU x KJ
OSP-E20BHD	12 ^{H7}	13.8	4	65.7	M6 x 8
OSP-E25BHD	16 ^{H7}	18.3	5	82	M8 x 8
OSP-E32BHD	22 ^{H7}	24.8	6	106	M10 x 12
OSP-E50BHD	32 ^{H7}	35.3	10	144	M12 x 19



1) Note:

The mounting holes for the coupling housing / motor flange / gearbox are located on the opposite side to the carrier (motor mounting standard). They also can be located on the same side as the carrier (motor mounting 180° standard).

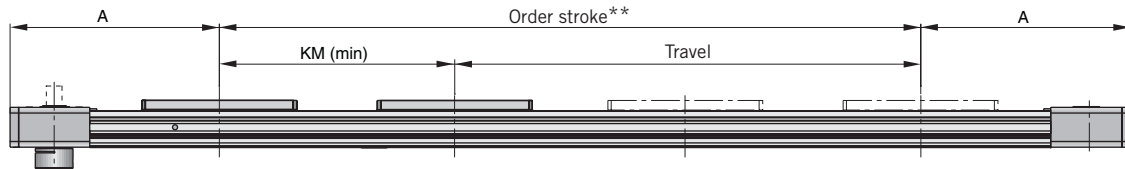
* Note:

The mechanical end position must not be used as a mechanical end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm.

Order stroke = required travel + 2 x safety distance.

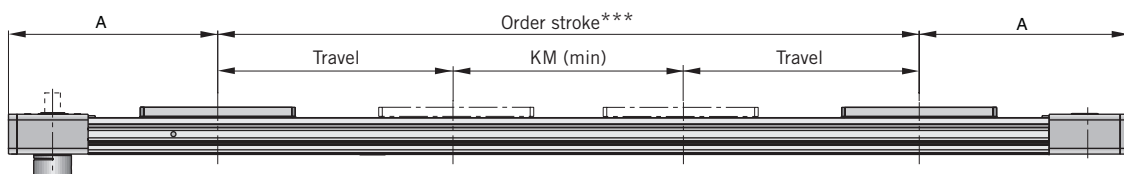
The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information please contact your local HOERBIGER-ORIGA representative.

Option – Tandem Series OSP-E..BHD



** Order stroke = required travel + KM min + 2 x safety distance

Option – Bi-Parting Series OSP-E..BHD



*** Order stroke = 2 x required travel + KM min + 2 x safety distance

Dimension Table [mm]

Series	A	B	C	E	GxH	J	K	M	S	V	X	YxZZ	CE	CF	EC	EF	FB	FH	KF	KM _{min}	KM _{rec.}	KN	KO	KP	KR	KS	KT	KUxKJ
OSP-E20BHD	185	76.5	73	18	M5x8.5	155	21.1	27.6	67	51	30	M5x8	38	49	60	27	73	36	42.5	180	220	27	18	25	12 _{H7}	12 ^{H7}	65.7	M6x8
OSP-E25BHD	218	88	93	25	M5x10	178	21.5	31	85	64	40	M6x8	42	52.5	79	27	92	39.5	49	210	250	34	21.7	30	16 _{H7}	16 ^{H7}	82	M8x8
OSP-E32BHD	262	112	116	28	M6x12	218	28.5	38	100	64	40	M6x10	56	66.5	100	36	116	51.7	62	250	300	53	30	30	22 _{H7}	22 ^{H7}	106	M10x12
OSP-E50BHD	347	147	175	18	M6x12	288	43	49	124	90	60	M6x10	87	92.5	158	70	164	77	79.5	354	400	75	41	35	32 _{H7}	32 ^{H7}	144	M12x19

(Other dimensions for KS and KB for special drive shafts on request – see order instructions.)

OSP-E..B

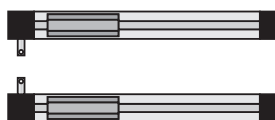
Linear Drive with Toothed Belt

Size 25, 32, 50



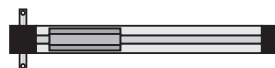
Standard Versions:

- Standard carrier with internal plain bearing guide
- Dovetail profile for mounting of accessories and the actuator itself
- Position of Drive Shafts

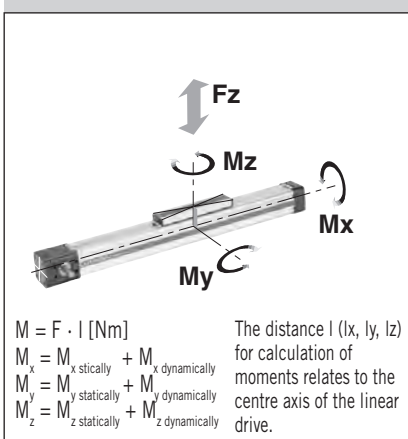


Options:

- Tandem-Version
- Bi-parting version for synchronized movements
- Drive shaft with double plain shaft



Forces, loads and moments



Combined Loads

If the linear drive is subjected to several forces, loads and moments at the same time, the maximum load is calculated with the equation shown here.

The maximum permissible loads must not be exceeded.

Performance Overview

Characteristics	Unit	Description		
Size		OSP-E25B	OSP-E32B	OSP-E50B
Max. speed	[m/s]	2	3	5
Linear motion per revolution, drive shaft	[mm]	60	60	100
Max. rpm drive shaft	[min ⁻¹]	2 000	3 000	3 000
Max. effective action force	< 1 m/s: [N]	50	150	425
	1- 2 m/s: [N]	50	120	375
F _A at speed	> 2 m/s: [N]	–	100	300
No-load torque	[Nm]	0.4	0.5	0.6
Max. acceleration/deceleration	[m/s ²]	10	10	10
Repeatability	[mm/m]	±0.05	±0.05	±0.05
Max. stroke length OSP-E..B	[mm]	3000	5000	5000
Max. stroke length OSP-E..B*	[mm]	2 x 1500	2 x 2500	2 x 2500

* Bi-parting version

Maximum Permissible Torque on Drive Shaft Speed / Stroke

T2

OSP-E25B				OSP-E32B				OSP-E50B			
Speed [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed. [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]	Speed. [m/s]	Torque [Nm]	Stroke [m]	Torque [Nm]
1	0.9	1	0.9	1	2.3	1	2.3	1	10.0	1	10.0
2	0.9	2	0.9	2	2.0	2	2.3	2	9.5	2	10.0
		3	0.9	3	1.8	3	2.3	3	9.0	3	9.0
						4	2.3	4	8.0	4	7.0
						5	1.8	5	7.5	5	6.0

Important:

The maximum permissible moment on the drive shaft is the lowest value of the speed- or stroke-dependent moment value.

Example above:

OSP-E32B stroke 2 m, required speed 3 m/s;

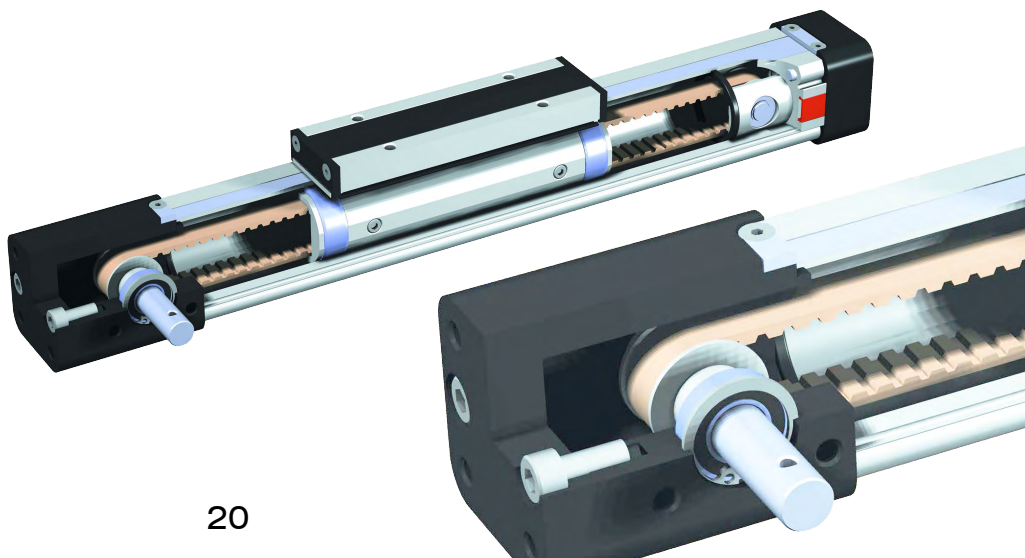
From table T2: speed 3 m/s gives 1.8 Nm and stroke 2 m gives 2.3 Nm.

Max. torque for this application is 1.8 Nm.

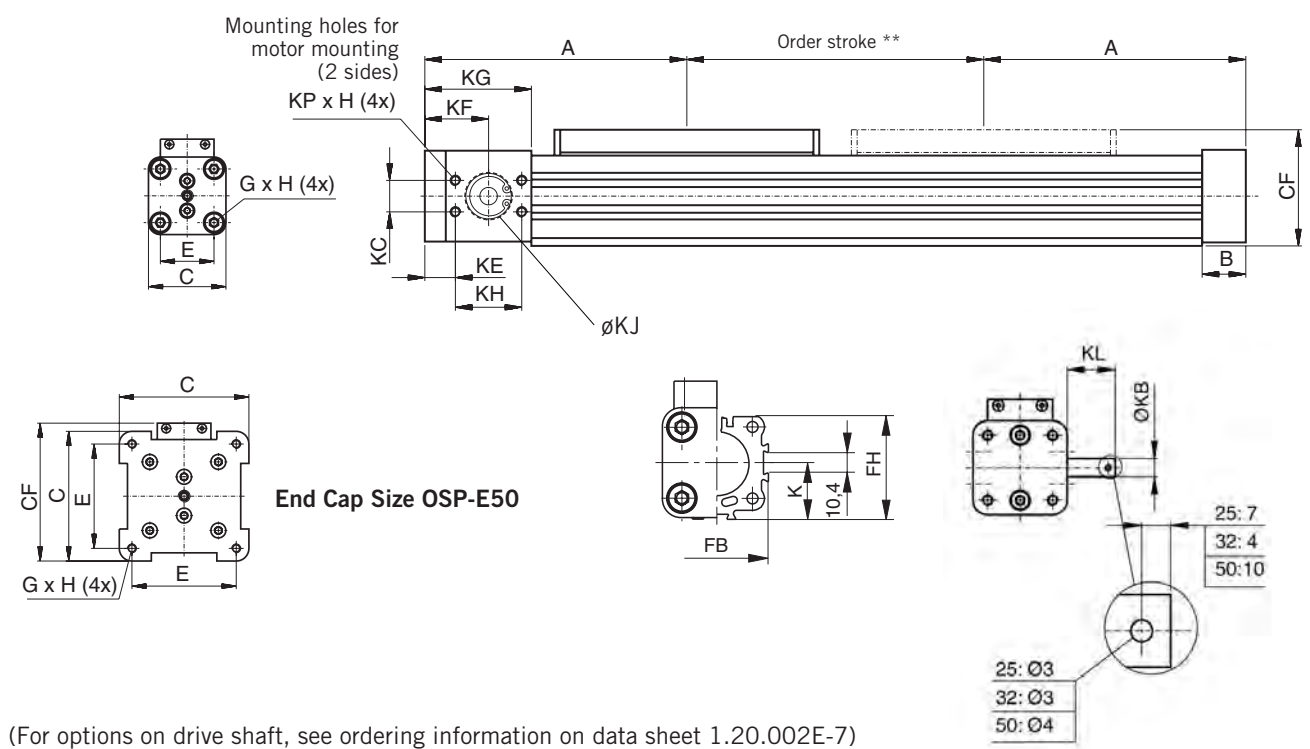
Maximum Permissible Loads

T3

Series	Max. applied load Fz [N]	Max. moments [Nm]		
		Mx	My	Mz
OSP-E25B	160	2	12	8
OSP-E32B	300	8	25	16
OSP-E50B	850	16	80	32
OSP-E..B Bi-partional	The maximum load F must be equally distributed among the two carriers.			



Linear Drive with Toothed Belt - Basic Unit Series OSP-E..B



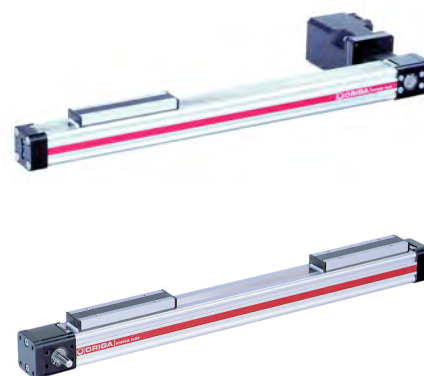
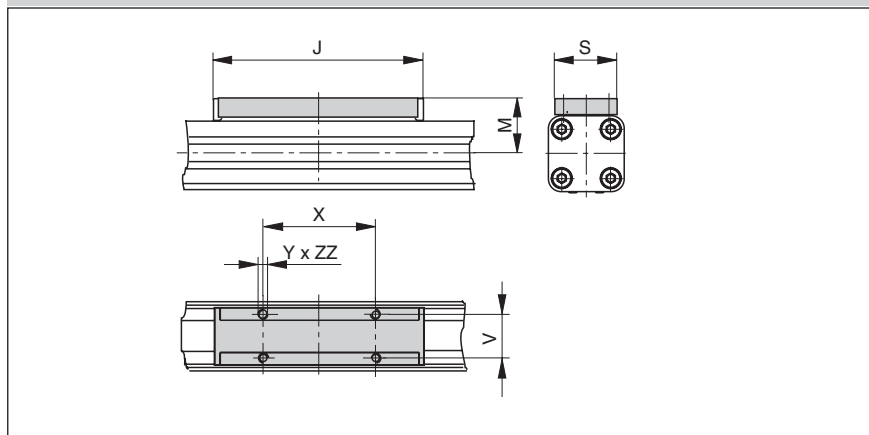
* Note:

The mechanical end position must not be used as a mechanical end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 100 mm.

Order stroke = required travel + 2 x safety distance.

The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems.
For further information please contact your local HOERBIGER-ORIGA representative.

Standard Carrier Series OSP-E..B



Dimension Table [mm]

Series	A	B	C	E	G x H	J	K	M	S	V	X	Y	CF
OSP-E25B	125	22	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5
OSP-E32B	150	25	52	36	M6 x 12	152	28.5	38	36	27	90	M6	66.5
OSP-E50B	200	25	87	70	M6 x 12	200	43	49	36	27	110	M6	92.5

Series	FB	FH	KB	KC	KE	KF	KG	KH	KJ	KL	KM _{min}	KM _{emp.}	KP x H	ZZ
OSP-E25B	40	39.5	10 _{j6}	15	22	37	57	30	19 ^{H7}	24	130	190	M5 x 10	8
OSP-E32B	52	51.7	10 _{j6}	18	17.5	36.5	61	38	26 ^{H7}	26	170	230	M6 x 12	10
OSP-E50B	76	77	16 _{h8}	32	23.5	48.5	85	50	40 ^{H7}	34	220	320	M8 x 12	10

OSP-E..SB

Linear Drive with Ball Screw

Size 25, 32, 50



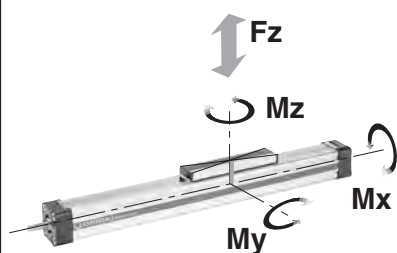
Standard Versions:

- Standard carrier with internal plain bearing guide
- Dovetail profile for mounting of accessories and the actuator itself
- Pitches of Ball Screw Spindle
 - Type OSP-E25 : 5 mm
 - Type OSP-E32: 5 , 10 mm
 - Type OSP-E50: 5 , 10 , 25 mm

Options:

- Tandem-Version
- Clean room-version, according to DIN EN ISO 14644-1
- Displacement Measuring System SFI-plus (Data Sheet 1.40.035E)

Forces, loads and moments



$$M = F \cdot l \text{ [Nm]}$$

$$M_x = M_{x \text{ statically}} + M_{x \text{ dynamically}}$$

$$M_y = M_{y \text{ statically}} + M_{y \text{ dynamically}}$$

$$M_z = M_{z \text{ statically}} + M_{z \text{ dynamically}}$$



Performance Overview

Characteristics	Unit	Description					
Series		OSP-E25SB	OSP-E32SB		OSP-E50SB		
Pitch	[mm]	5	5	10	5	10	25
Max. speed	[m/s]	0.25	0.25	0.5	0.25	0.5	1.25
Linear motion per revolution drive shaft	[mm]	5	5	10	5	10	25
Max. rpm, drive shaft	[min ⁻¹]	3 000	3 000		3 000		
Max. effective action force F _A	[N]	250	600		1 500		
Corresponding torque on drive shaft	[Nm]	0.35	0.75	1.3	1.7	3.1	7.3
No-load torque	[Nm]	0.2	0.2	0.3	0.3	0.4	0.5
Max. allowable torque on drive shaft	[Nm]	0.6	1.5	2.8	4.2	7.5	20
Repeatability	[mm/m]	±0.05	±0.05		±0.05		
Max. Standard stroke length	[mm]	1100	2000		3200		

Maximum Permissible Loads

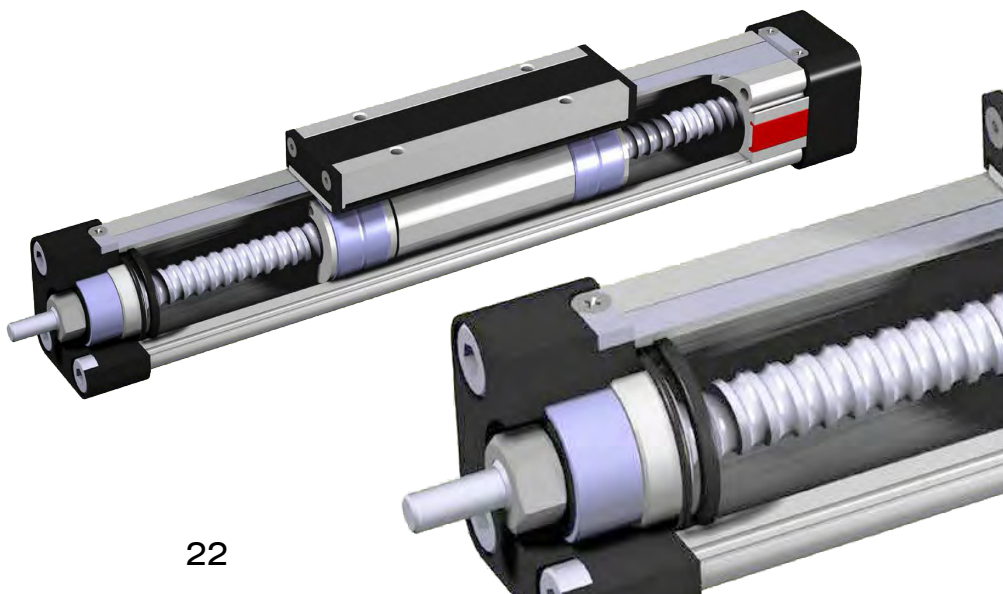
T3

Series	Max. applied load [N] F _z	Max. moments [Nm]		
		M _x	M _y	M _z
OSP-E25SB	500	2	12	8
OSP-E32SB	1 200	8	25	16
OSP-E50SB	3 000	16	80	32

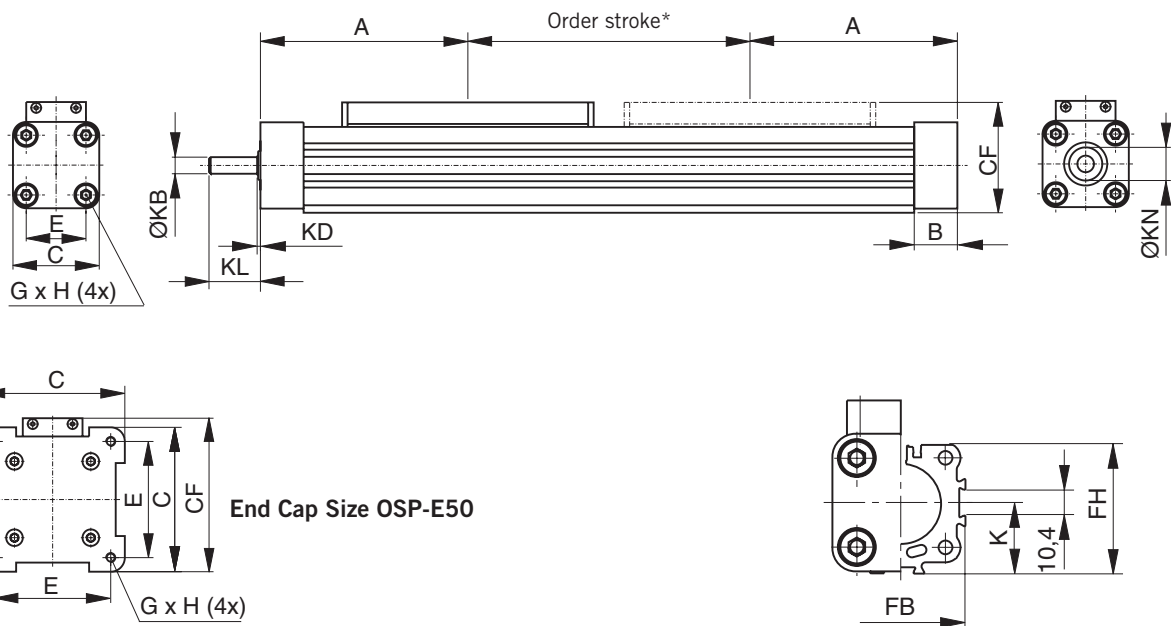
Equation for combined loads

$$\frac{F_z}{F_z \text{ (max)}} + \frac{M_x}{M_x \text{ (max)}} + \frac{M_y}{M_y \text{ (max)}} + \frac{M_z}{M_z \text{ (max)}} \leq 1$$

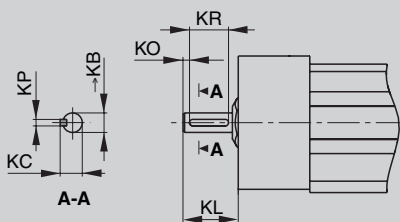
The total of loads must not exceed > 1 under any circumstances.



Linear Drive with Ball Screw Drive – Basic Unit Series OSP-E..SB



Plain shaft with keyway (Option)



Dimension Table [mm]

Series	ØKB _{h7}	KC	KL Opt.3	Opt.4	KO	KP ^{P9}	KR
OSP-E25SB	6	6.8	17	24	2	2	12
OSP-E32SB	10	11.2	31	41	5	3	16
OSP-E50SB	15	17	43	58	6	5	28

Option 3: Keyway

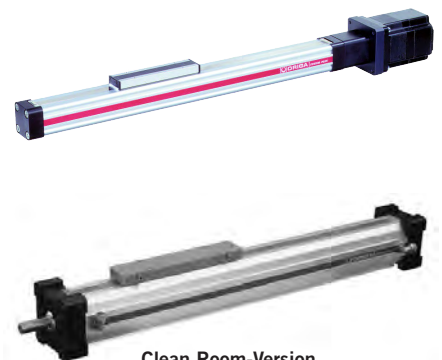
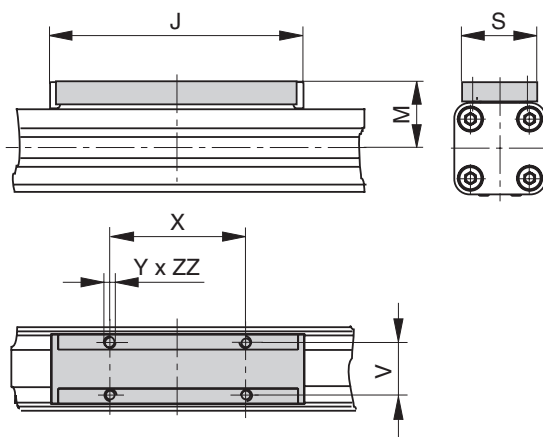
Option 4: Keyway long version

* Note:

The mechanical end position must not be used as a mechanical end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 25 mm.

Order stroke = required travel + 2 x safety distance.

The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information, please contact your local HOERBIGER-ORIGA representative.



Clean Room-Version
certified to DIN EN ISO 14644-1

Dimension table [mm]

Series	A	B	C	E	G x H	J	K	M	S	V	X	Y	CF	FB	FH	KB	KD	KL	KM _{min}	KN	ZZ
OSP-E25SB	100	22	41	27	M5 x 10	117	21.5	31	33	25	65	M5	52.5	40	39.5	6 _{h7}	2	17	120	13	8
OSP-E32SB	125	25.5	52	36	M6 x 12	152	28.5	38	36	27	90	M6	66.5	52	51.7	10 _{h7}	2	31	165	20	10
OSP-E50SB	175	33	87	70	M6 x 12	200	43	49	36	27	110	M6	92.5	76	77	15 _{h7}	3	43	235	28	10

ETH Electro Cylinders

Cylinder size type	Unit	ETH032			ETH050			ETH080		
		M05	M10	M16	M05	M10	M20	M05	M10	M32
Screw lead	[mm]	5	10	16	5	10	20	5	10	32
Screw diameter	[mm]	16			20			32		

Travels, speeds and accelerations

Available strokes ¹⁾	[mm]	continuous from 50-1000 & standard strokes			continuous from 50-1200 & standard strokes			continuous from 50-1600 & standard strokes		
Max. permissible speed at stroke =										
50-400 mm	[mm/s]	333	667	1067	333	667	1333	267	533	1707
600 mm	[mm/s]	286	540	855	333	666	1318	267	533	1707
800 mm	[mm/s]	196	373	592	238	462	917	267	533	1707
1000 mm	[mm/s]	146	277	440	177	345	684	264	501	1561
1200 mm	[mm/s]	-	-	-	139	270	536	207	394	1233
1400 mm	[mm/s]	-	-	-	-	-	-	168	320	1006
1600 mm	[mm/s]	-	-	-	-	-	-	140	267	841
Max. Acceleration	[m/s ²]	4	8	12	4	8	15	4	8	15

Forces

Max. axial traction/thrust force motor inline		[N]	3600	3700	2400	9300	7000	4400	17 800	25 100	10 600	
Max. axial traction/ thrust force depending on the motor speed n of parallel motor	n < 100 rpm	[N]		3280	2050		4920	2460		11 620	3630	
	100 < n < 300 rpm	[N]		2620	1640		7870	3930		1960	10 720	3350
	n > 300 rpm	[N]		1820	1140		5480	2740		1370		
Equivalent dynamic axial force at a service life of 2500 km		[N]	1130	1700	1610	2910	3250	2740	3140	7500	6050	

Transmissible torque / thrust force factor

Transmissible torque depending on the motor speed n of parallel motor	n < 100 rpm	[Nm]	6.5			9.7			22.8		
	100 < n < 300 rpm	[Nm]	5.2			7.7			22.8		
	n > 300 rpm	[Nm]	3.6			5.4			21.1		
Thrust force factor motor inline		[N/Nm]	1131	565	353	1131	565	283	1131	565	177
Force constant motor parallel		[N/Nm]	1018	509	318	1018	509	254	1018	509	159

Mass

Mass of basic unit with zero stroke (including cylinder rod)	[kg]	1.2	1.2	1.3	2.2	2.3	2.5	6.9	7.6	8.7
Weight of additional length (including cylinder rod)	[kg/m]	4.8			8.6			18.7		
Weight of cylinder rod with zero stroke	[kg]	0.06			0.15			0.59		
Weight of cylinder rod - additional length	[kg/m]	0.99			1.85			4.93		

Mass moments of inertia

Motor parallel without stroke	[kgmm ²]	8.3	8.8	14.1	30.3	30.6	38.0	215.2	213.6	301.9
Motor inline without stroke	[kgmm ²]	7.1	7.6	12.9	25.3	25.7	33.1	166.2	164.5	252.9
Parallel/inline motor per meter	[kgmm ² /m]	41.3	37.6	41.5	97.7	92.4	106.4	527.7	470.0	585.4

Accuracy: Repeatability (ISO230-2)

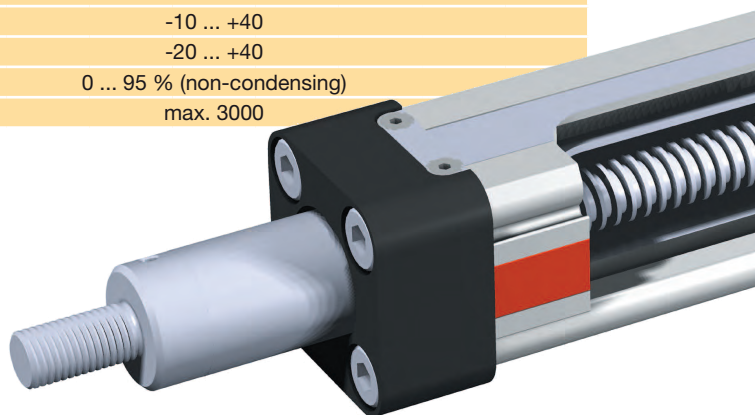
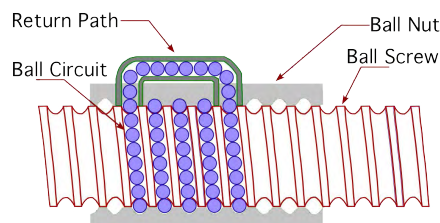
Motor inline	[mm]	±0.03								
Motor parallel	[mm]	±0.05								

Efficiency

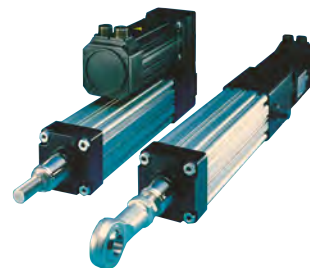
Motor inline	the efficiency includes all friction torques	[%]	90							
Motor parallel		[%]	81							

Ambient conditions

Operating temperature	[°C]	-10 ... +70								
Ambient temperature	[°C]	-10 ... +40								
Storage temperature	[°C]	-20 ... +40								
Humidity	[%]	0 ... 95 % (non-condensing)								
Location height range	[m]	max. 3000								

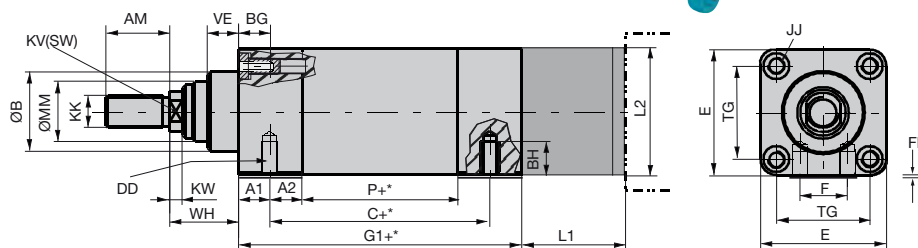


ETH Electro Cylinders



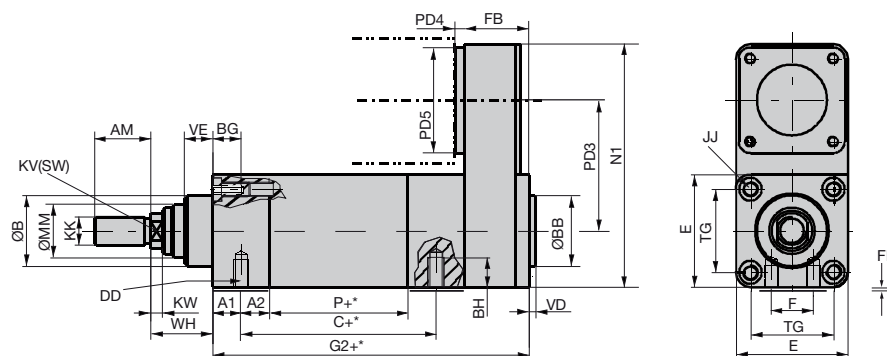
Electro Cylinder

prepared for inline motor mounting



Electro Cylinder

prepared for parallel motor mounting



+* =Measure + length of desired stroke.

Dimensions Standard / (IP-Version)

Cylinder size	Unit	ETH32			ETH50			ETH80		
Screw lead		M05	M10	M16	M05	M10	M20	M05	M10	M32
C	[mm]	93.5 (94.5)	103 (103.5)	106.5 (107.5)	99.5 (100.5)	105.5 (106.5)	117.5 (118.5)	141.5 (142.5)	159.5 (160.5)	189.5 (190.5)
G1	[mm]	133 (180.5)	142 (189.5)	146 (193.5)	154 (198.5)	160 (204.5)	172 (216.5)	197 (259.5)	215 (277.5)	245 (307.5)
G2	[mm]	180.5 (228.5)	189.5 (237.5)	193.5 (241.5)	194 (239)	200 (245)	212 (257)	257 (320)	275 (338)	305 (368)
P	[mm]	66	75	79	67	73	85	89	107	137
A1	[mm]	14 (60)			15.5 (58.5)			21 (82)		
A2	[mm]	17			18.5			32		
AM	[mm]	22			32			40		
BG	[mm]	16			25			26		
BH	[mm]	9			12.7			17.5		
DDMounting thread	[mm]	M6x1.0 ⁽¹⁾			M8x1.25			M10x1.5		
E	[mm]	46.5			63.5			95		
F	[mm]	16			24			30		
FF	[mm]	0.5			0.5			1.0		
JJ	[mm]	M6x1.0			M8x1.25			M10x1.5		
KK	[mm]	M10x1.25			M16x1.5			M20x1.5		
KV	[mm]	10			17			22		
ØMM	[mm]	22			28			45		
TG	[mm]	32.5			46.5			72		
KW	[mm]	5			6.5			10		
N1	[mm]	126			160			233.5		
FB	[mm]	47.5 (48)			40 (40.5)			60 (60.5)		
VD	[mm]	4			4			4		
ØBB	[mm]	30			40			45		
VE	[mm]	12			16			20		
WH	[mm]	26			37			46		
ØB	[mm]	30			40			60		

⁽¹⁾ Notwithstanding the current standards, you should provide thru holes with a diameter of at least 7 mm in any component you wish to fix with the front screws (with JJ= M6x1 thread).

Linear Drive Accessories

Ø 16-80 mm Clevis Mounting



For Linear-drive
• Series OSP-P

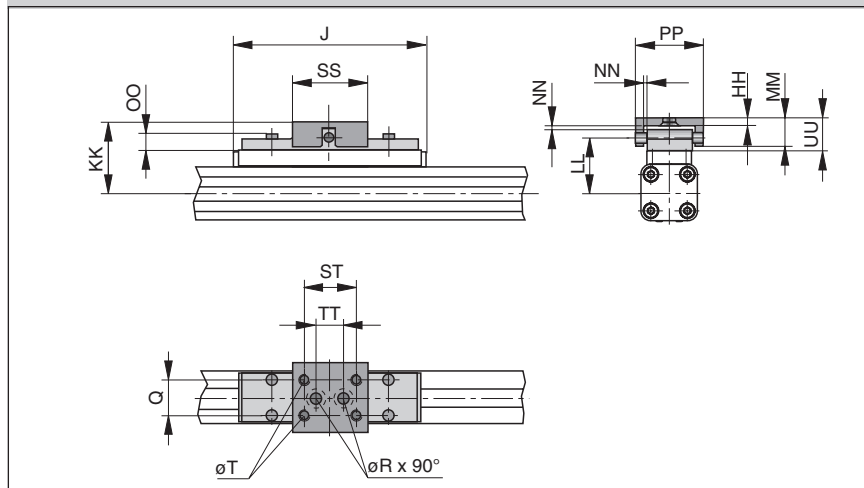
When external guides are used, parallelism deviations can lead to mechanical strain on the piston. This can be avoided by the use of a clevis mounting. In the drive direction, the mounting has very little play. Freedom of movement is provided as follows:

- Tilting in direction of movement
- Vertical compensation
- Tilting sideways
- Horizontal compensation

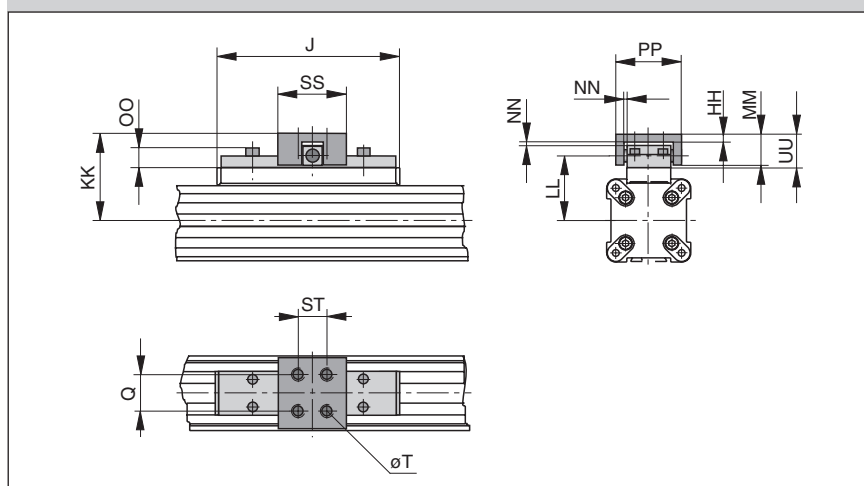
A stainless steel version is also available.



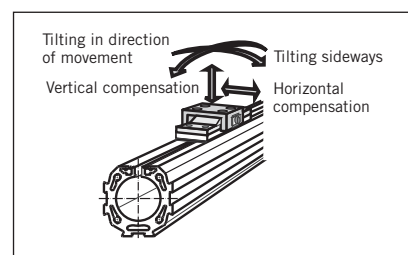
Series OSP-P16 to 32



Series OSP-P40 to 80



Please note:
When using additional inversion mountings, take into account the dimensions in data sheet 1.45.006E.

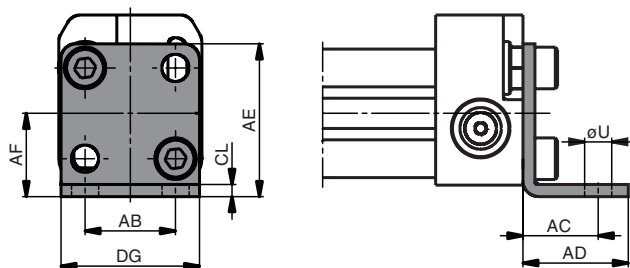


Dimension Table (mm)

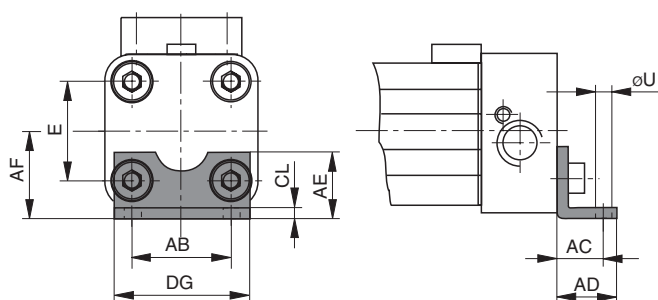
Series	J	Q	T	ØR	HH	KK	LL	MM	NN*	OO	PP	SS	ST	TT	UU	Order No.	
																Standard	Stainless
OSP-P16	69	10	M4	4.5	3	34	26.6	10	1	8.5	26	28	20	10	11	20462	20463
OSP-P25	117	16	M5	5.5	3.5	52	39	19	2	9	38	40	30	16	21	20005	20092
OSP-P32	152	25	M6	6.6	6	68	50	28	2	13	62	60	46	40	30	20096	20094
OSP-P40	152	25	M6	—	6	74	56	28	2	13	62	60	46	—	30	20024	20093
OSP-P50	200	25	M6	—	6	79	61	28	2	13	62	60	46	—	30	20097	20095
OSP-P63	256	37	M8	—	8	100	76	34	3	17	80	80	65	—	37	20466	20467
OSP-P80	348	38	M10	—	8	122	96	42	3	16	88	90	70	—	42	20477	20478

* Dimension NN gives the possible plus and minus play in horizontal and vertical movement, which also makes tilting sideways possible.

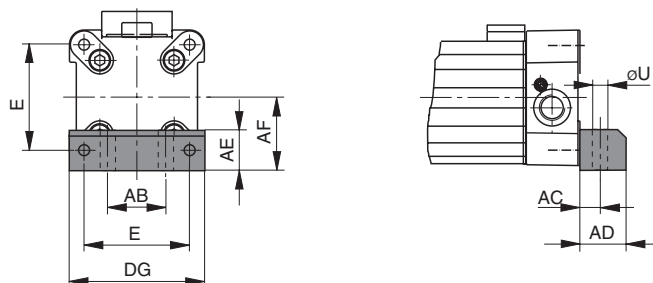
Series OSP-P10 : Type A1



Series OSP-P16 to 32: Type A1



Series OSP-P40 to 80: Type C1



Linear Drive Accessories ø 10-80 mm End Cap Mountings



For Linear-drive
• Series OSP-P

On the end-face of each end cap there are four threaded holes for mounting the actuator.

The hole layout is square, so that the mounting can be fitted to the bottom, top or either side, regardless of the position chosen for the air connection.

Material:
Series OSP-P10 – P32:
Galvanised steel.
Series OSP-P40 – P80:
Anodized aluminium.

The mountings are supplied in pairs.



Dimension Table (mm)

Series	E	ØU	AB	AC	AD	AE	AF	CL	DG	Order No. (* Type A1 Type C1	
OSP-P10	-	3.6	12	10	14	20.2	11	1.6	18.4	0 240	–
OSP-P16	18	3.6	18	10	14	12.5	15	1.6	26	20408	–
OSP-P25	27	5.8	27	16	22	18	22	2.5	39	2010	–
OSP-P32	36	6.6	36	18	26	20	30	3	50	3010	–
OSP-P40	54	9	30	12.5	24	24	38	–	68	–	4010
OSP-P50	70	9	40	12.5	24	30	48	–	86	–	5010
OSP-P63	78	11	48	15	30	40	57	–	104	–	6010
OSP-P80	96	14	60	17.5	35	50	72	–	130	–	8010

(* = Pair



Linear Drive Accessories

ø 10-80 mm Mid-Section Support



For Linear-drive
• Series OSP-P

Note on Types E1 and D1
(P16 – P80):

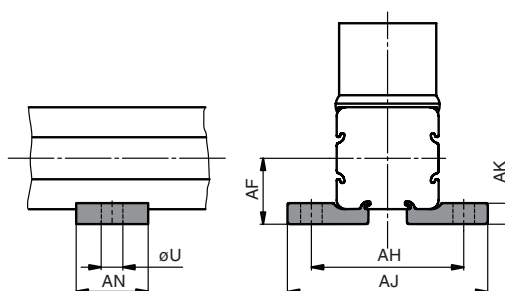
The mid-section support can also be mounted on the underside of the actuator, in which case its distance from the centre of the actuator is different.

For design notes, see data sheet
1.10.002E-2

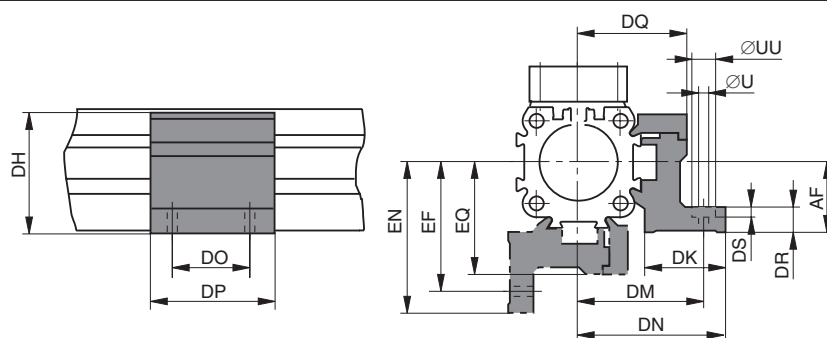
Stainless steel version on demand.



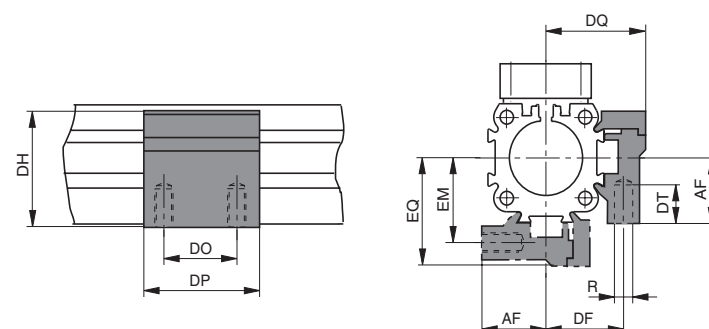
Series OSP-10, Type E1
(Mounting from above / below using a cap screw)



Series OSP-P16 to P80: Type E1
(Mounting from above / below using a cap screw)



Series OSP-16 to 80, Type D1
(Mountings from below with 2 screws)



Dimension Table (mm) Series OSP-P10

Series	U	AF	AH	AJ	AK	AN	Order No.	
							Type E1	Type D1
OSP-P10	3.6	11	25.4	33.4	3.5	12	0250	-

Dimension Table (mm) – Series OSP-P16 to P80

Series	R	U	UU	AF	DF	DH	DK	DM	DN	DO	DP	DQ	DR	DS	DT	EF	EM	EN	EQ	Order No.	
																				Type E1	Type D1
OSP-P16	M3	3.4	6	15	20	29.2	24	32	36.4	18	30	27	6	3.4	6.5	32	20	36.4	27	20435	20434
OSP-P25	M5	5.5	10	22	27	38	26	40	47.5	36	50	34.5	8	5.7	10	41.5	28.5	49	36	20009	20008
OSP-P32	M5	5.5	10	30	33	46	27	46	54.5	36	50	40.5	10	5.7	10	48.5	35.5	57	43	20158	20157
OSP-P40	M6	7	–	38	35	61	34	53	60	45	60	45	10	–	11	56	38	63	48	20028	20027
OSP-P50	M6	7	–	48	40	71	34	59	67	45	60	52	10	–	11	64	45	72	57	20163	20162
OSP-P63	M8	9	–	57	47.5	91	44	73	83	45	65	63	12	–	16	79	53.5	89	69	20452	20451
OSP-P80	M10	11	–	72	60	111.5	63	97	112	55	80	81	15	–	25	103	66	118	87	20482	20480

Coupling Housing

Motor Flange

Motor Coupling

Size 25, 32, 50



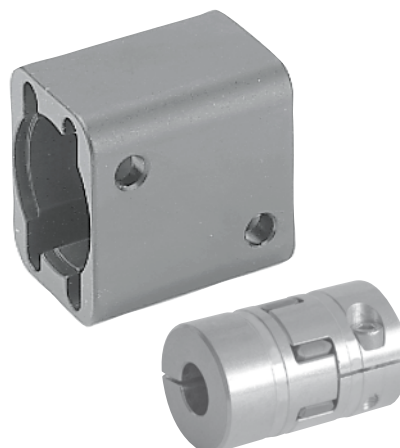
- **OSP-E..B**
Belt actuator with internal plain bearing guide

The coupling housing with suitable motor flange allows easy and inherently stable connection of the gear or the motor to the actuator.

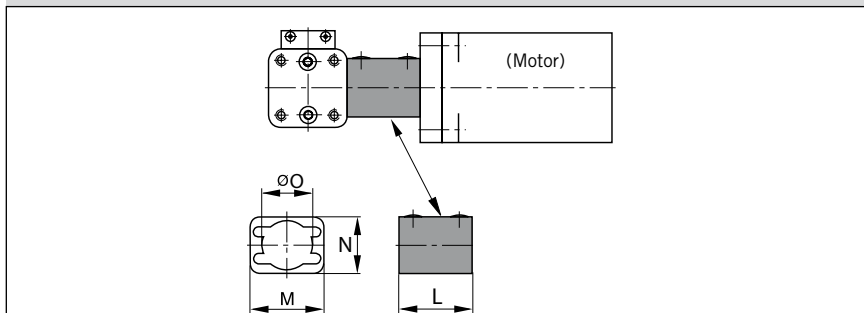
Hint:

Let us know the mounting dimensions of your motor. Upon request we will be pleased to check and manufacture a motor flange that will come up to your individual needs.

(Also see "motor flange for freely selectable mounting dimensions" page 126 ff)

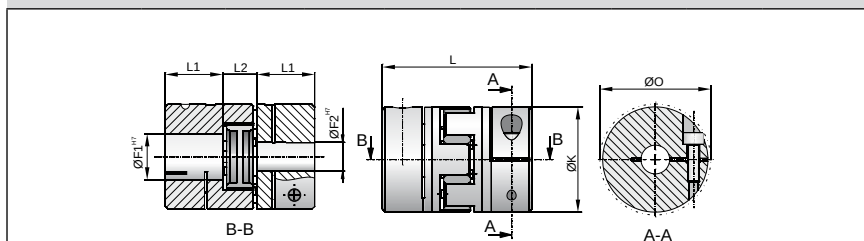


Coupling Housing (for gear or motor mounting)



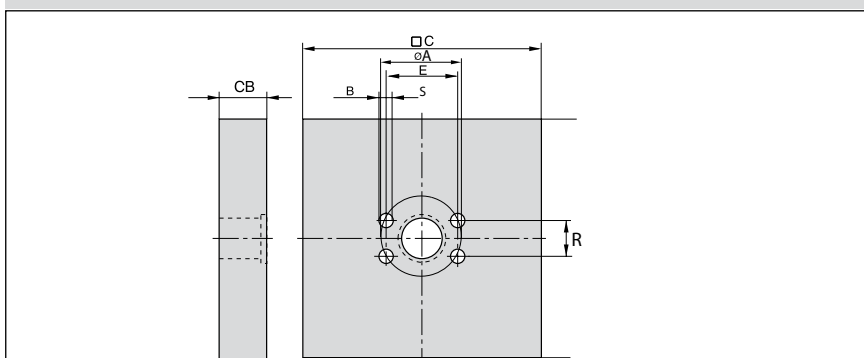
Series	Ø A	L	M	N	Ø O	Order No.
OSP-E25B	33,5	47	40	30	25	20606
OSP-E32B	42,0	49	49	38	33	20607
OSP-E50B	59,4	76	65	54	48	20608

Motor coupling



Series	Ø F ₁ ^{H7}	Ø F ₂ ^{H7}	Ø F ^{H7}	Ø K	L	L1	L2	Ø O	Order No.
OSP-E25B	10	4.0	4 - 11	20	30	10	10	23.4	12073
OSP-E32B	10	6.0	5 - 16	30	35	11	13	32.2	15197
OSP-E50B	16	9.5	8 - 24	40	66	25	16	46.0	10845

Universal Motor Flange



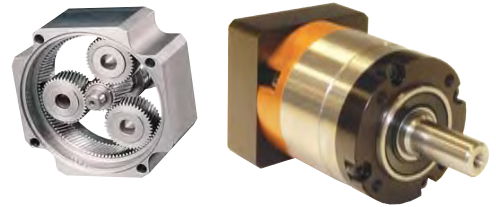
Series	□ C	CB	Ø L	Ø N	Ø O	P	R	S	Ø RS	Order No.
OSP-E25B	100	20	16	5.5	10	3.0	30.0	15.0	33.5	12050
OSP-E32B	100	20	22	6.6	11	4.0	38.0	18.0	42.0	12053
OSP-E50B	120	15	35	9.0	15	3.0	50.0	32.0	59.4	12056

Motorflange (finished)

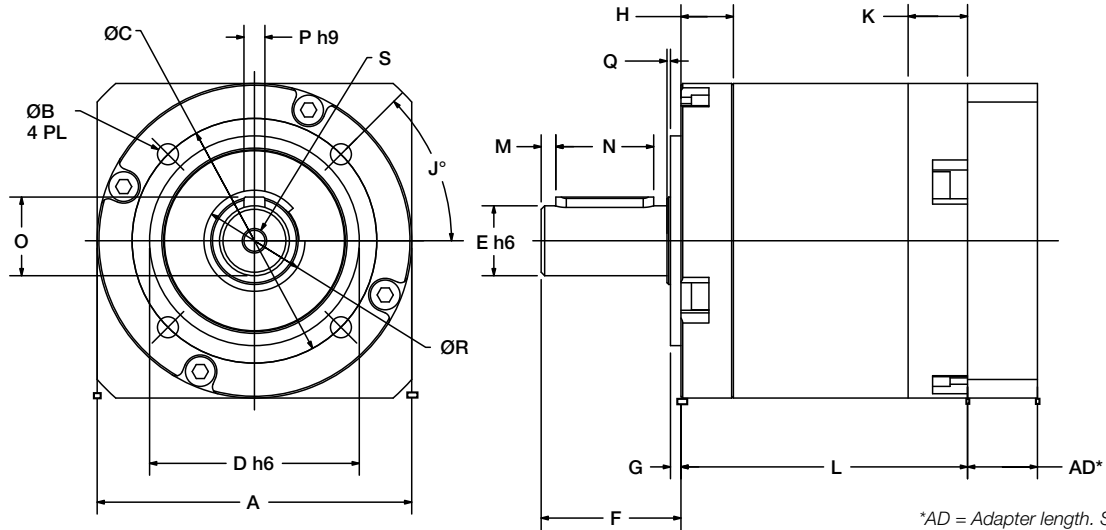
Series	Comment	Order No.
OSP-E25B	for PV40-TA / LP050 (with motor coupling 12080)	16076
OSP-E32B	for PV40-TA / LP050 (with motor coupling 10841)	16090
OSP-E32B	for PV60-TA / LP070 (with motor coupling 12980)	15930
OSP-E32B	for PS60 (with motor coupling 12980)	18272
OSP-E50B	for PV60-TA / LP070 (with motor coupling 12981)	16057
OSP-E50B	for PS60 (with motor coupling 12981)	18277

PV Series Gearheads

In-Line Planetary



Dimensions – Tapped Face (TA & TN)



*AD = Adapter length. See how to order page for mounting kit adapter lengths.

Metric Frame Sizes

		A		B	C		D		E		F		G		H		J	K	
		Body Diameter		Tap x Depth	Bolt Circle		Pilot Diameter		Output Shaft Diameter		Output Shaft Length		Pilot Thickness		Flange Thickness		Lead Angle °	Rear Thickness	
		mm	in		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		mm	in
▶	PV40TN	43	1.693	M4x7	34	1.339	26	1.024	10	0.394	26	1.024	1.5	0.059	10	0.394	45	11	0.433
	PV40TA	50	1.969	M4X10	44	1.732	35	1.378	12	0.472	25	0.984	3	0.118	10	0.394	90	11	0.433
▶	PV60TN	62	2.441	M5x10	52	2.047	40	1.575	14	0.551	35	1.378	2.5	0.098	12	0.472	45	16	0.630
	PV60TA	70	2.756	M5x10	62	2.362	52	2.047	16	0.630	36	1.417	5	0.197	16	0.630	90	16	0.630
	PV90TN	90	3.543	M6x11	70	2.756	60	2.362	20	0.787	40	1.575	3	0.118	15	0.591	45	17	0.670
	PV90TA	90	3.543	M6x12	80	3.150	68	2.677	22	0.866	46	1.811	5	0.197	18.5	0.728	90	17	0.670
	PV115TN	115	4.528	M10x16	100	3.937	80	3.150	25	0.984	55	2.165	4	0.157	20	0.787	45	23	0.906
	PV115TA	120	4.724	M8x20	108	4.252	90	3.543	32	1.260	70	2.756	6	0.236	28	1.102	90	23	0.906

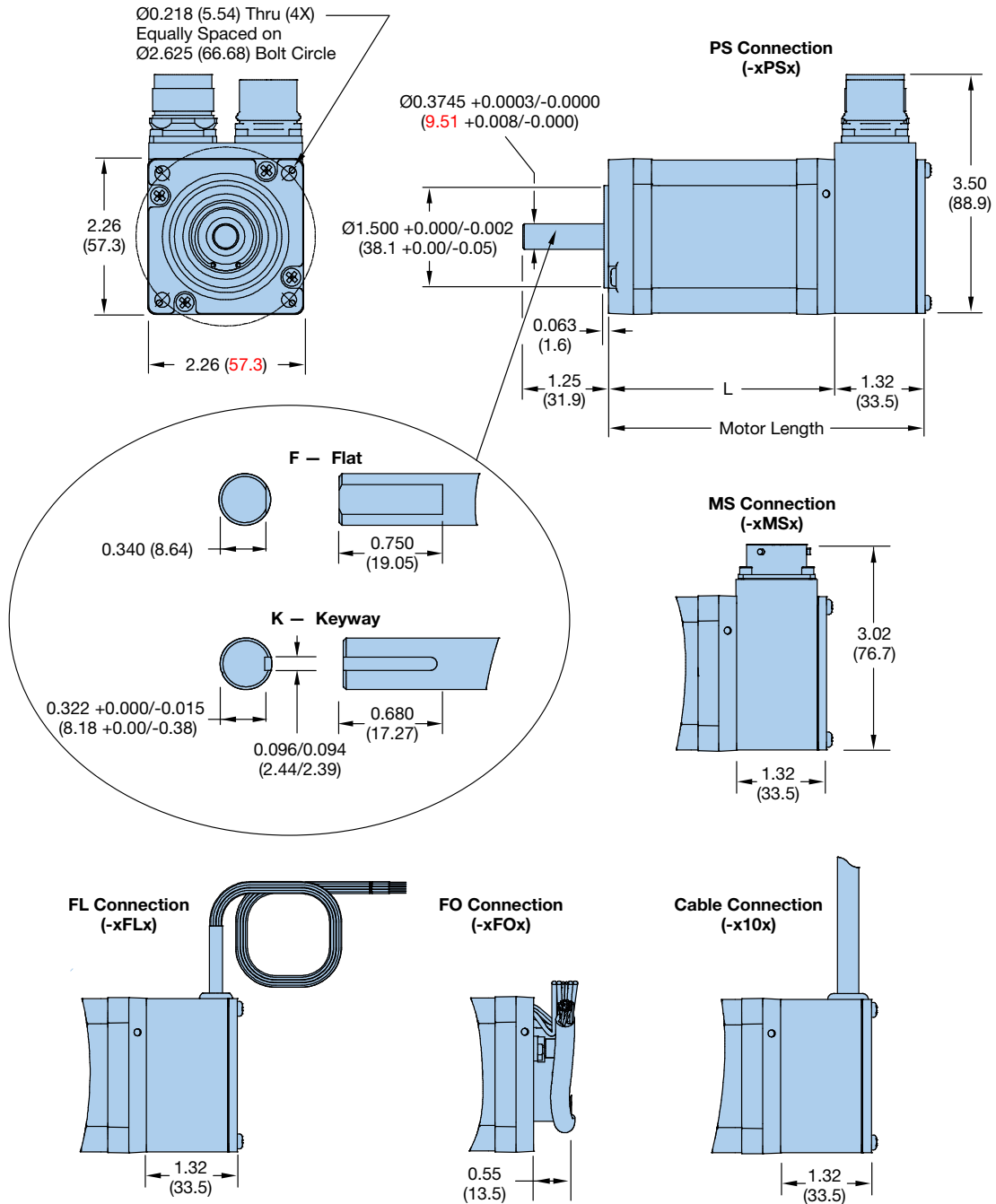
	Frame Size	L1		L2		M		N		O		P		Q		R		S
		Length (3 – 10 Ratios)		Length (15 – 100 Ratios)		Distance from Shaft End		Keyway Length		Key Height		Keyway Width		Shoulder Height		Shoulder Diameter		
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	Tap & Depth (end of shaft)
▶	PV40TN	48.5	1.909	63	2.480	3.1	0.122	16	0.630	10.2	0.402	3	0.118	0.6	0.024	11.633	0.458	M3X6
	PV40TA	48.5	1.909	63	2.480	1.3	0.051	16	0.630	13.5	0.531	4	0.157	3.5	0.138	17.831	0.702	M4x8
▶	PV60TN	63	2.480	83	3.268	2.71	0.107	25	0.984	16	0.630	5	0.197	2.5	0.098	19.939	0.785	M5x12
	PV60TA	67	2.638	87	3.425	2.21	0.087	25	0.984	18	0.709	5	0.197	3	0.118	28	1.102	M5x12
	PV90TN	82	3.228	105.5	4.154	4.197	0.165	28	1.102	22.5	0.886	6	0.236	1	0.039	25	0.984	M6x12
	PV90TA	85.5	3.366	109	4.291	3.197	0.126	28	1.102	24.5	0.965	6	0.236	5	0.197	38	1.496	M8x13
	PV115TN	102	4.016	136	5.354	5.2	0.205	40	1.575	28	1.102	8	0.315	1	0.039	35	1.378	M10x20
	PV115TA	110	4.331	144	5.669	4	0.157	50	1.969	35	1.378	10	0.394	1.8	0.071	40	1.575	M12x22

BE Servo Motors & Aries Controllers

BE233FJ-N10N 1.29 Nm, 4965 rpm, 0.237 kg.cm², 670W, 10 ft.
AR-08CE Aries Controllers, 750W (4.5A)



Inches (mm)



Motor Size	Dimension "L"		Motor Length (by Connection Type)*	
	Without Brake	With Brake	PS, MS, FL, Cable	FO
BE230	1.82 (46.2)	3.89 (98.9)	3.14 (79.7)	2.37 (60.1)
BE231	2.32 (58.9)	4.39 (111.5)	3.64 (92.4)	2.87 (72.8)
BE232	3.32 (84.3)	5.39 (137.0)	4.64 (117.8)	3.87 (98.2)
BE233	4.32 (109.7)	6.39 (175.3)	5.64 (143.2)	4.87 (123.6)

Motor length with brake adds 1.31 in (33.3 mm) to motor length. BE23 brake option is available as custom order only. Consult factory.

Piston Rod Cylinders Bellows Cylinders

Advanced cylinder concepts with outstanding performance define the ORIGA piston rod cylinder programme.

The resulting advantages are the basis for trouble-free operation – whether as individual components or in a combined system, meeting the demands of modern automation for high reliability and high economic efficiency. Special solutions can be developed for optimum efficiency in specific applications.

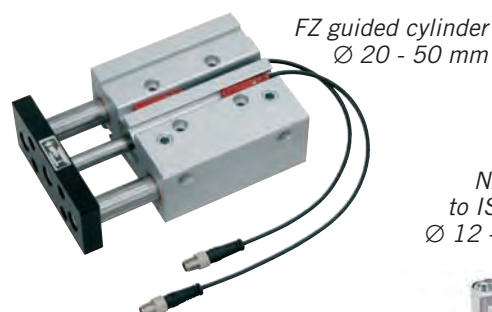


Consistent design of accessories for all cylinder series, e.g. swivel mountings, pivots, piston rod eyes, magnetic switches, etc.

*DZ tie rod cylinder
to ISO 15552 (ISO 6431)
Ø 125 - 320 mm*

*DZB blocking cylinder
mountings to ISO 15552
(ISO 6431)
Ø 32 - 125 mm*

ST stop cylinder



*FZ guided cylinder
Ø 20 - 50 mm*

*NZ cylinder
to ISO 21287
Ø 12 - 100 mm*

*SZ short stroke cylinder
Ø 12 - 100 mm*

*AZV non-rotating cylinder
mountings to
ISO 15552 (ISO 6431)
Ø 32 - 100 mm*

*AZ cylinder
to ISO 15552 (ISO 6431)
VDMA 24562
Ø 32 - 100 mm*

*R round cylinder
to ISO 6432 Ø 10 - 25 mm
R round cylinder Ø 32 - 63 mm*

*SP bellows cylinder
single, double, triple convolution*

HOERBIGER-ORIGA-Products for -Atmospheres

Equipment Group II Category 2GD

Piston Rod Cylinders:  II 2GD c T4 T135°C

Note on ordering:

When ordering the ATEX version of a cylinder, please add "ATEX" to the type designation and order no.

Example:

DZ 5125-0100 ATEX

PA 53540-0100 ATEX

Cylinders for EX-Areas ATEX versions



Formula	$F = p \cdot A \cdot R$
Symbol	Description
A p R	Piston area Pressure in bar Friction ca. 10%

¹⁾ Air consumption when charging in dm³/100 mm stroke. The tube volume must also be taken into consideration. The given figures relate to piston area A.

The figures for piston area B change proportionally with the piston areas A to B.

A = Piston area - piston side
B = Piston area - piston rod side



Piston Force and Air Consumption for Standard Cylinders

		Piston diameter (mm)																
		8	10	12	16	20	25	32	40	50	63	80	100	125	160	200	250	320
Piston area * (cm²)	A	0.5	0.8	1.1	2.0	3.1	4.9	8.0	12.6	19.6	31.2	50.0	78.0	122.7	201.0	314.1	490.8	804
	B	0.38	0.65	0.85	1.7	2.6	4.1	6.9	10.6	16.5	28.0	45.4	73.6	114.7	188.5	301.5	471.2	773
Approx. piston force (kN) at ... bar	1	0.0045	0.007	0.010	0.018	0.028	0.044	0.072	0.113	0.176	0.281	0.452	0.706	1.104	1.809	2.827	4.417	7.236
	2	0.0090	0.014	0.020	0.036	0.056	0.088	0.144	0.226	0.353	0.561	0.905	1.413	2.209	3.619	5.654	8.835	14.476
	3	0.0135	0.021	0.030	0.054	0.084	0.132	0.217	0.339	0.530	0.842	1.357	2.120	3.313	5.428	8.482	13.253	21.715
	4	0.0180	0.028	0.040	0.072	0.113	0.176	0.289	0.452	0.707	1.122	1.809	2.827	4.417	7.238	11.309	17.671	28.953
	5	0.0225	0.035	0.050	0.090	0.141	0.220	0.362	0.565	0.884	1.402	2.262	3.534	5.522	9.407	14.137	22.089	36.191
	6	0.0270	0.042	0.060	0.108	0.169	0.265	0.434	0.678	1.060	1.683	2.714	4.241	6.626	10.857	16.964	26.507	43.429
	7	0.0315	0.049	0.070	0.126	0.197	0.309	0.506	0.792	1.237	1.963	3.167	4.948	7.731	12.666	19.792	30.952	50.652
	8	0.0360	0.056	0.080	0.144	0.226	0.353	0.579	0.905	1.414	2.244	3.619	5.654	8.835	14.476	22.619	35.342	57.788
	9	0.0405	0.063	0.090	0.162	0.254	0.397	0.651	1.018	1.590	2.524	4.071	6.361	9.940	16.286	25.447	39.760	65.124
	10	0.0450	0.070	0.100	0.180	0.282	0.441	0.723	1.131	1.767	2.805	4.523	7.068	11.044	18.095	28.274	44.178	72.360
Approx. air consumption (dm3/100 mm stroke at ... bar1) Figures are valid for piston area A (see symbol)	1	0.010	0.016	0.02	0.04	0.06	0.09	0.18	0.30	0.46	0.71	1.20	1.90	2.65	4.60	6.90	10.80	16.50
	2	0.015	0.024	0.03	0.06	0.09	0.14	0.27	0.43	0.69	1.00	1.85	2.85	4.10	6.90	10.40	16.30	24.50
	3	0.020	0.032	0.04	0.08	0.12	0.19	0.36	0.58	0.92	1.40	2.45	3.80	5.50	9.20	13.90	21.80	32.50
	4	0.025	0.040	0.05	0.10	0.15	0.24	0.45	0.72	1.15	1.75	3.00	4.75	6.95	11.50	17.40	27.20	40.50
	5	0.030	0.048	0.06	0.12	0.18	0.29	0.55	0.86	1.40	2.10	3.65	5.70	8.40	13.80	20.90	32.70	48.00
	6	0.035	0.056	0.07	0.14	0.21	0.34	0.65	1.00	1.60	2.50	4.25	6.60	9.70	16.00	24.40	38.20	56.50
	7	0.040	0.064	0.08	0.16	0.25	0.39	0.73	1.15	1.80	2.85	4.85	7.60	11.15	18.30	27.90	43.70	64.50
	8	0.045	0.072	0.09	0.18	0.28	0.41	0.82	1.30	2.00	3.20	5.45	8.50	12.55	20.60	31.50	49.20	72.50
	9	0.050	0.080	0.10	0.20	0.31	0.49	0.90	1.45	2.30	3.55	6.10	9.50	14.00	22.90	35.00	54.60	80.50
	10	0.055	0.088	0.11	0.22	0.34	0.53	1.00	1.60	2.50	3.90	6.40	10.40	15.40	25.20	38.50	60.10	89.00

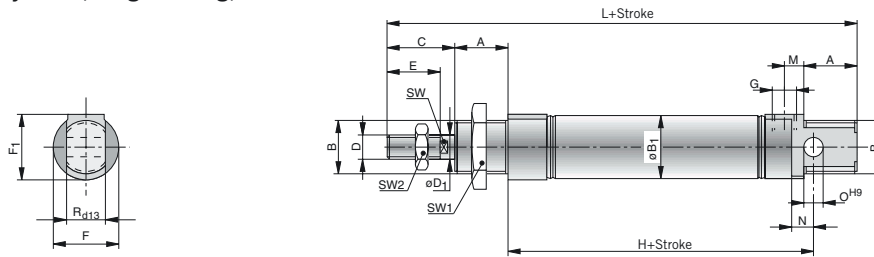


R - Round Cylinders

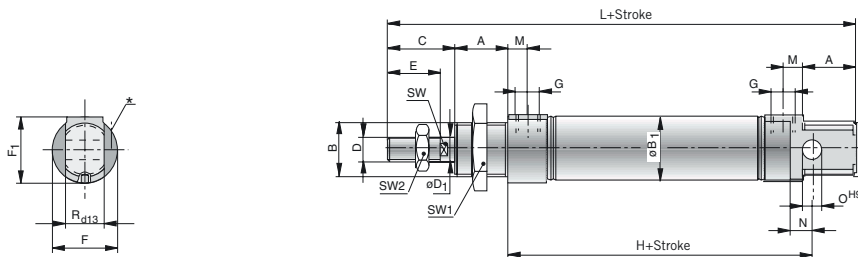
Ø 10-25 mm

to ISO 6432 and CETOP RP52P

Dimensions – Basic Cylinder, Single Acting, Ø 10 – 25 mm
Series R3...

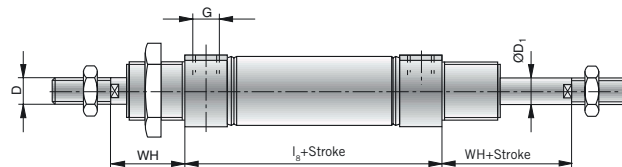


Dimensions – Basic Cylinder, Double Acting, Ø 10 – 25 mm
Series R5..., R6..., R1...



*From the connection side: adjustable end cushioning only for types R 5016, R 5020, R 5025

Dimensions – Basic Cylinder, Double Acting with through piston rod
Series RDU6...



for further dimensions see Series R5....

Dimension Table (mm) for Basic Cylinder, Series R..., RDU....

Cyl.Ø	A	B	ØB ₁	C	D	ØD ₁	E	F	F ₁	G	H + Stroke	l _s +Stroke
10	12	M12x1.25	11.3	16	M4	4	12	15	15	M5	48	44.5
12	17	M16x1.5	13.3	21	M6	6	16	20	20	M5	53	46
16	17	M16x1.5	17.3	21	M6	6	16	20 *	20*	M5	60	56
20	20	M22x1.5	21.3	24	M8	8	20	27	27	G1/8	71	66
25	22	M22x1.5	26.5	28	M10x1.25	10	22	27	27	G1/8	76	69

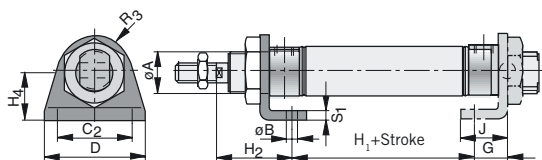
* for Type R5016: F = 22, F₁ = 21

Cyl.Ø	L+ Stroke	M	N	ØO ^{H9}	R _{d13}	SW	SW ₁	SW ₂	WH	WH +Stroke
10	84	5	6	4	8	–	19	7	16	16
12	101	5	9	6	12	5	24	10	22	22
16	111	5	9	6	12	5	24	10	22	22
20	130	8	12	8	16	7	32	13	24	24
25	141	8	12	8	16	9	32	17	28	28



Mountings – Series R..., RDU..., Ø 10 – 25 mm

Dimensions Mounting RA

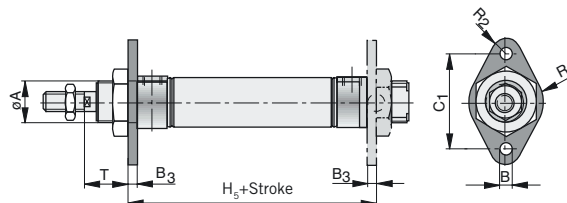


Material: steel, passivated

Dimension Table (mm) for Mounting RA

Cyl.- Ø	ØA	ØB	C ₂	D	G	H ₁ + Stroke	H ₂	H ₄	J	R ₃	S ₁
10	12	4.5	25	35	11	30	24	16	16	10	3
12	16	5.5	32	42	14	29	32	20	20	13.5	4
16	16	5.5	32	42	14	36	32	20	20	13.5	4
20	22	6.6	40	54	17	44	36	25	25	18	5
25	22	6.6	40	54	17	45	40	25	25	18	5

Dimensions Mounting RC

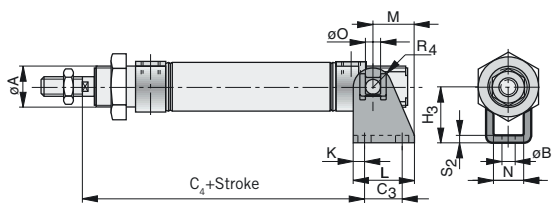


Material: steel, passivated

Dimension Table (mm) for Mounting RC

Cyl.- Ø	ØA	ØB	B ₃	C ₁	H ₅ + Stroke	R ₁	R ₂	T
10	12	4.5	3	30	52	12.5	5	13
12	16	5.5	4	40	58	15	6	18
16	16	5.5	4	40	64	15	6	18
20	22	6.6	5	50	78	20	8	19
25	22	6.6	5	50	79	20	8	23

Rear Trunnion Mounting RB



Material: steel, passivated

Dimension Table (mm) – for Mounting RB

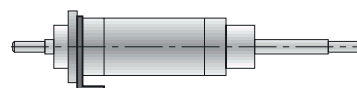
Cyl. Ø	ØB	C ₃	C ₄ + Stroke	H ₃	K	L	M	N	ØO	R ₄	S ₂
10	4.5	12.5	65	24	6.5	23	18	8.1	4	5	2.5
12	5.5	15	73	27	5	25	18	12.1	6	7	3
16	5.5	15	80	27	5	25	18	12.1	6	7	3
20	6.6	20	91	30	6	32	22	16.1	8	10	4
25	6.6	20	100	30	6	32	22	16.1	8	10	4

Mountings – Series RDU....

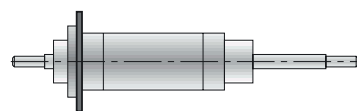
Mounting RA2... (2 brackets)



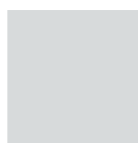
Mounting RA1.. (1 bracket)



Mounting RC...(1 flange)



Mountings - Accessories

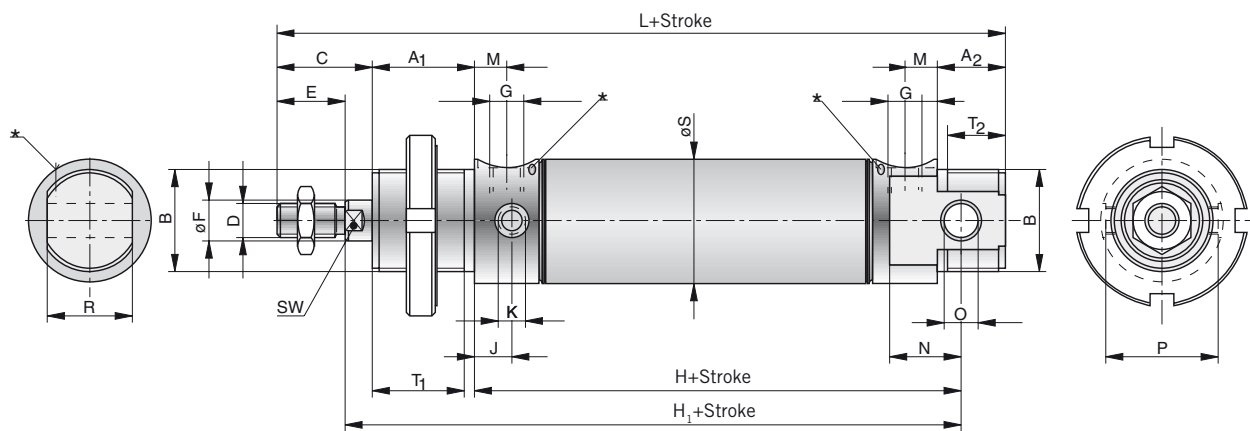


R - Round Cylinders

Ø 32-63 mm

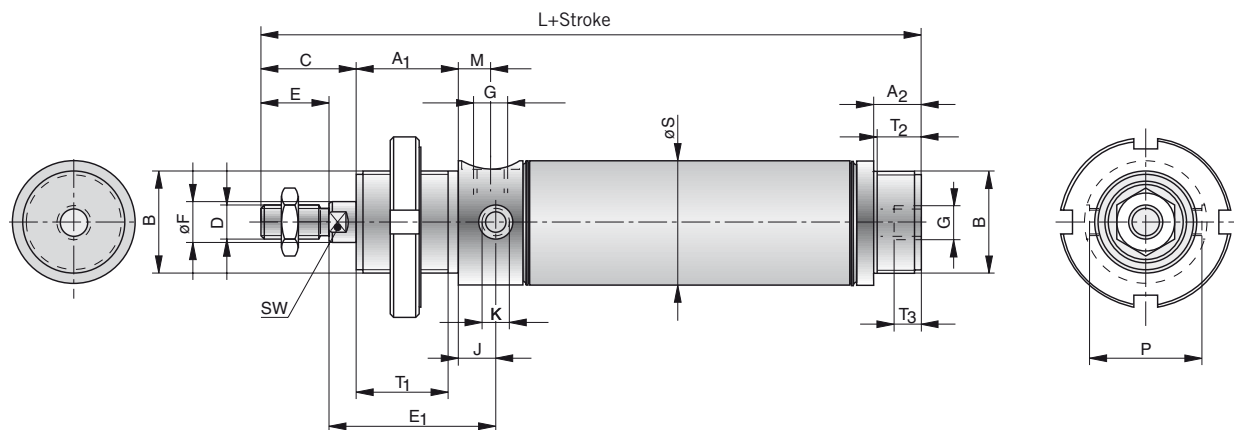
to ISO 6432

Dimensions – Basic Cylinder, Series R..., Ø 32 – 63 mm



* adjustable end cushioning only for series R 5000

Dimensions – Basic Cylinder, Series RK..., Ø 32 – 63 mm

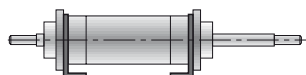


Dimension Table (mm) – Basic Cylinder, Series R..., RK..., RDU....

Cyl. Ø	A ₁	A ₂	A ₂	B	C	D	E	E ₁	ØF	G	H	H ₁ +Stroke	J	K	I ₈ +Stroke
32	30	19.5	14	M30x1.5	28	M10	20	49	12	G1/8	90.5	128.5	11	M8x1	83.5
40	35	21.5	16	M38x1.5	34	M12	24	57	16	G1/4	99.5	144.5	12	M10x1	89
50	38	25	18	M45x1.5	44	M16	32	63	20	G1/4	109.5	159.5	13	M12x1.5	93.5
63	38	24.5	18	M45x1.5	45	M16	32	64.5	20	G3/8	116.5	167.5	13.5	M14x1.5	101

Mountings – Series RDU... (with through piston rod), Ø 32 – 63 mm

Foot mounting
(2 mounting brackets)



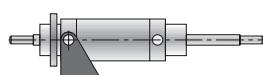
Material: steel, passivated

Foot mounting
Flange mounting



steel, passivated

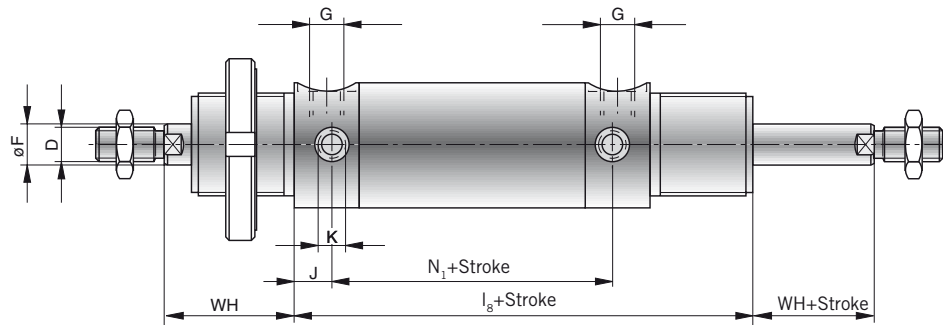
Trunnion
Mounting



steel, passivated



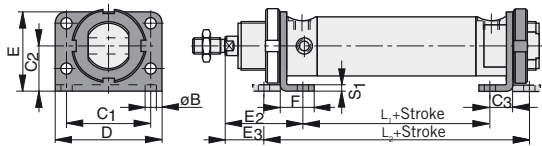
Dimensions – Basic Cylinder with Through Piston Rod, Series RDU..., Ø 32 – 63 mm



Cyl. Ø	L + Stroke R....	L + Stroke RK....	M	N	N ₁ + Stroke	O	P	R _{h12}	ØS	T ₁	T ₂	T ₃	SW	WH	WH + Stroke
32	160.5	138.5	9.5	21	61.5	10	33	25	35	27	16.5	8	10	38	38
40	181.5	156.5	11	24	65	12	42	30	43	32	17.5	12	14	45	45
50	205.5	179.5	11	27	67.5	14	52	35	54	35	21	12	17	50	50
63	215.5	186.5	12.5	28	74	16	62	35	67	35	20.5	12	17	51	51

Mountings – Series R..., RK..., Ø 32 – 63 mm

Foot Mounting Type RA-..



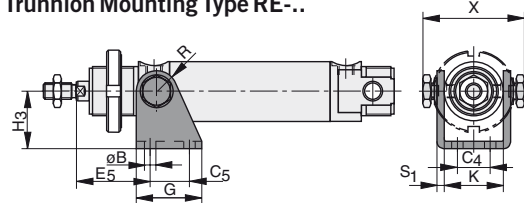
Material: steel, passivated

Dimension Table (mm)

Cyl. Ø	ØB	C ₁	C ₂	C ₃	D	E	E ₂	E ₃	F	L ₁ + Stroke	L ₂ + Stroke	S ₁
32	6.6	52	28	14	66	49	48	24	21	63 46.5*	111 94.5*	4
40	9	60	33	20	80	58	60	25	30	61 41.5*	131 111.5*	5
50	9	70	40	20	90	70	64	30	30	70.5 51.5*	138.5 119.5*	6
63	9	76	45	20	96	80	65	31	30	80 57.5*	148 125.5*	6

* Dimensions in the grey fields are valid for series RK....

Front Trunnion Mounting Type RE-..

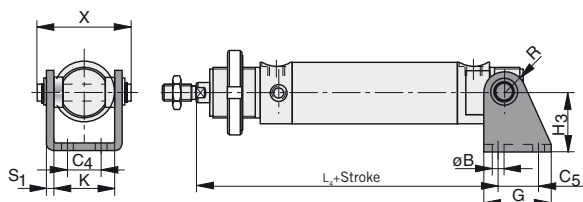


Material: steel, passivated

Dimension Table (mm)

Cyl. Ø	ØB	C ₄	C ₅	E ₅	G	H ₃	K	R	S ₁	X
32	6.6	20	24	45	40	35	36.1	12	4	60
40	9	28	30	54	50	40	45.1	13	5	75
50	9	36	34	59	54	45	55.1	14	6	89
63	9	42	35	63.5	65	50	70.1	16	6	109

Rear Trunnion Mounting Type RB-..



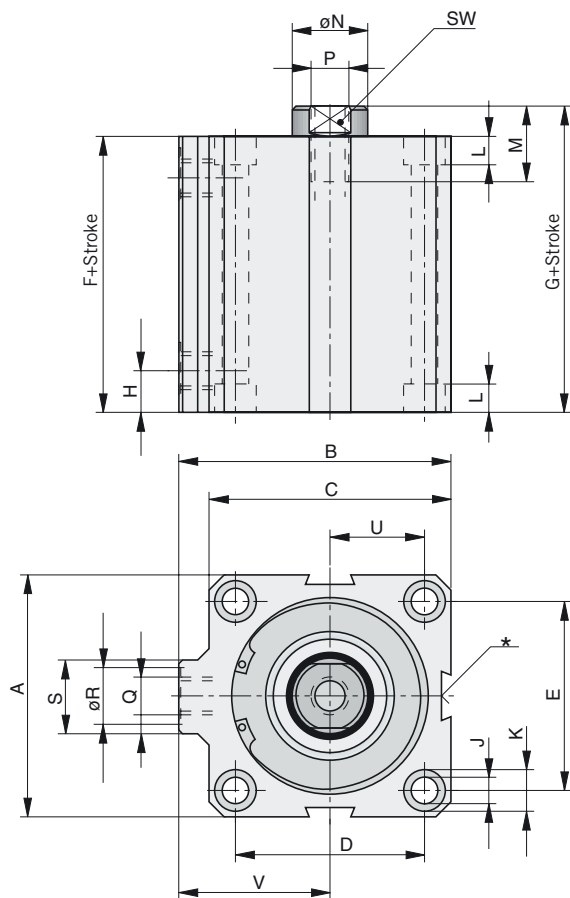
Dimension Table (mm)

Cyl. Ø	ØB	C ₄	C ₅	G	H ₃	H	K	L ₄ + Stroke	R	S ₁	X
32	6.6	20	24	40	35	8	36.1	124.5	12	4	58
40	9	28	30	50	40	10	45.1	141.5	13	5	70
50	9	36	34	54	45	10	55.1	155.5	14	6	86
63	9	42	35	65	50	15	70.1	166.5	16	6	100

SZ - Short Stroke Cylinders

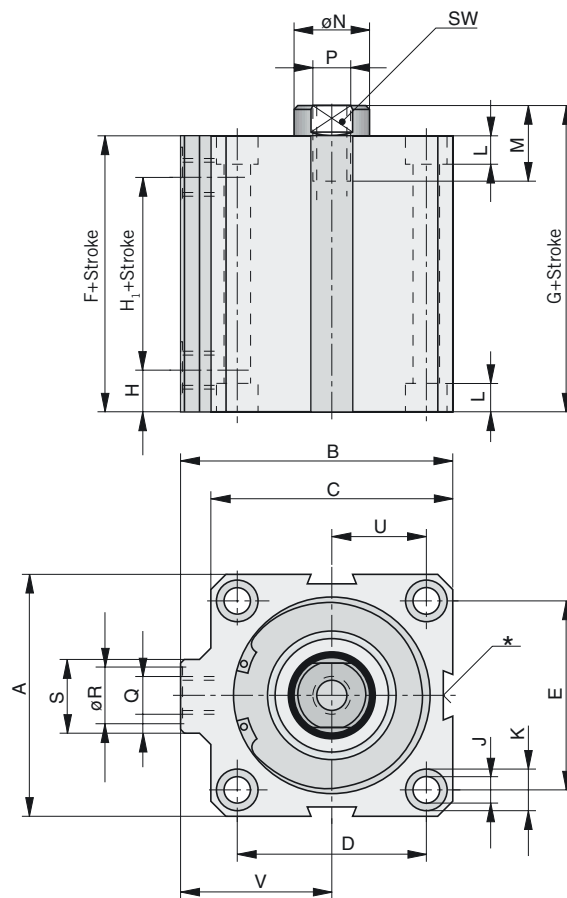
Ø 12-100 mm

Dimensions – Cylinder, Series SZ7..., Ø 12 – 100 mm



* are omitted for cyl. Ø12 to 20 mm

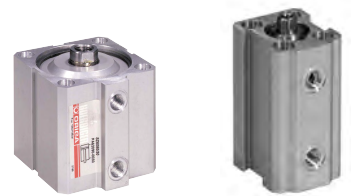
Dimensions – Cylinder, Series SZ6..., Ø 12 – 100 mm



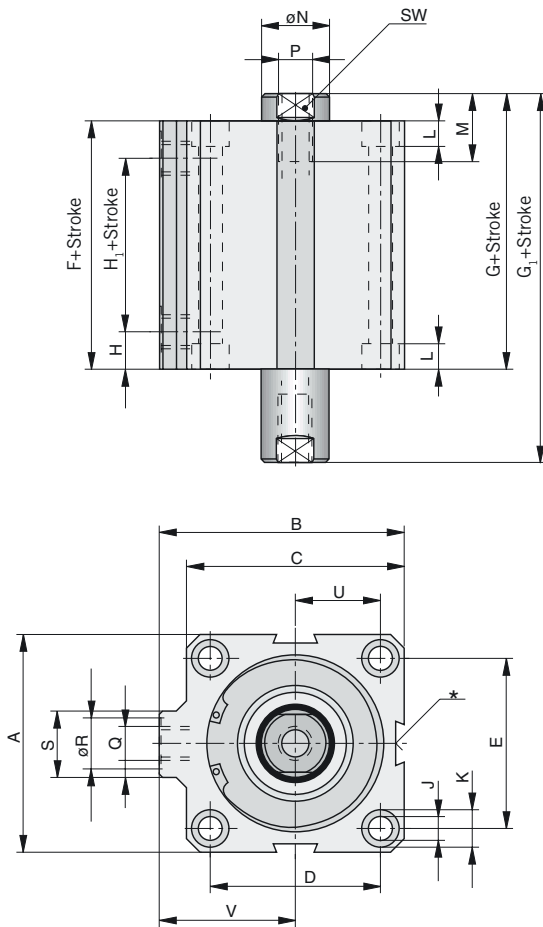
* are omitted for cyl. Ø12 to 20 mm

Dimension Table (mm) – Series SZ7..., SZ6..., SZD6..., SZV6...

Cyl. Ø	Stroke (mm) Series SZ7...	A	B	C	D	E	F + Stroke SZ7...	F + Stroke SZ6... SZD6...	G + Stroke SZ6... SZ7...	G ₁ + 2x Stroke SZD6...	H	H ₁ + Stroke SZ7...
12		23	27	25	17.4	13	34	34	38.6	43	10	14
16	5.10 25	28	30	28	20	20	34.5 44.5	34.5 44.5	40.1 50	45.5	10.3	14
20	5.10 25	32	34	32	22	22	36 46	36 46	42 52	48	11	14
25	5.10 25	37	44	39	28	26	38.5 48.5	38.5 48.5	45 55	51.5	11.6	15.5
32	5.10.25	45	52	48	36	32	39	39	45.7	52	11.5	16
40	5.10.25	55	59	55	41	41	42	42	48.1	55.5	12.4	17
50	10.25	64	72	64	50	50	45	45	52.8	61.5	13.5	18
63	10.25	80	88	80	62	62	52.5	52.5	60.7	69.5	15.5	21.5
80	10.25	94	104	94	73	73	57	57	66.5	76	16	25
100	10.25	117	125.5	117	90.5	90.5	58.5	58.5	69.7	80.5	15.6	27.5

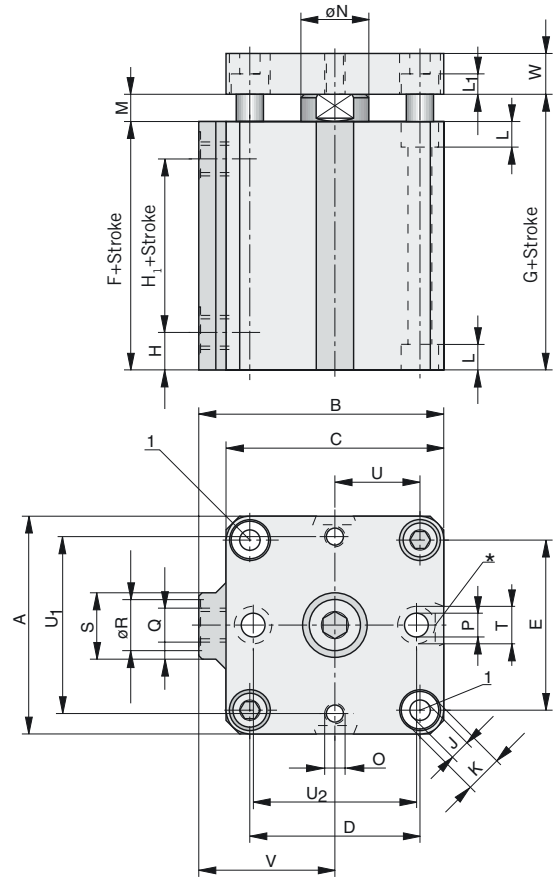


Dimensions – Cylinder, Series SZD6..., Ø 12 – 100 mm



* are omitted for cyl. Ø12 to 20 mm

Dimensions – Cylinder, Series SZV6..., Ø 20 – 63 mm



* is omitted for cyl. Ø 20 mm
¹⁾ Mounting holes for cylinder

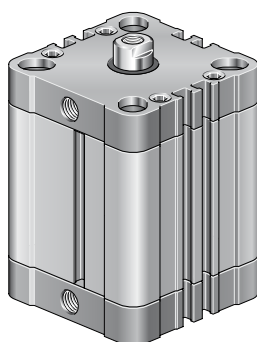
Cyl. Ø	ØJ	ØK	L	M	ØN	P	Q	ØR	S	U	V	SW
12	3.4	6	3.5	6	6	M3	M5	8	11	8.6	14.5	5
16	3.4	6	3.5	8	8	M4	M5	8	11	10	16	6
20	4.5	7.5	4.8	8	10	M5	M5	8	11	11	18	8
25	4.5	7.5	4.8	12	12	M6	G1/8	15	19	14	24.5	10
32	5.5	10	5.8	12	12	M8	G1/8	15	19	18	28	10
40	6.7	11	6.8	12	16	M8	G1/8	15	19	20.5	31.5	13
50	6.7	11	6.8	17.5	20	M10	G1/8	15	19	25	40	17
63	8.5	14	8.3	17.5	20	M12	G1/8	15	23	31	48	17
80	8.5	14	8.3	25	25	M16	G1/4	19	23	36.5	57	22
100	10.5	18	11	28	32	M20	G1/4	19	23	45.25	67	27

NS - Compact Cylinders

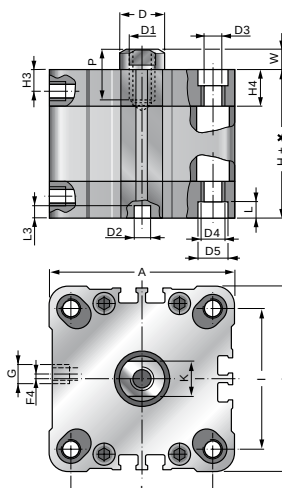
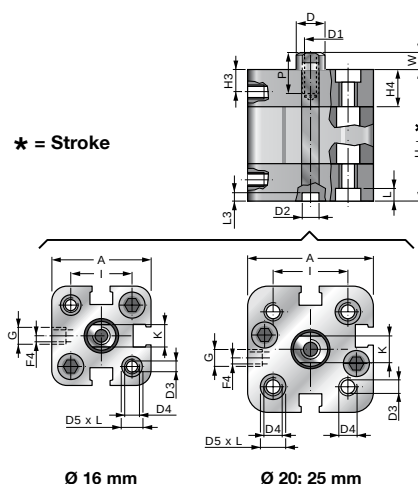
Ø 16-100 mm to ISO 21287 and UNITOP

NS6...-...-..

DOUBLE ACTING MAGNETIC CYLINDER



★ = Stroke



STANDARD ISO 21287

Ø	A	ØD	ØD2	ØD3	ØD4	ØD5	G	H3	H4	I	K	L	L3	W	F4	H	Code
16	29,2	8	6	3,3	M4	6	M5	7	12,8	18	6	3,5	2,2	4,5	0	37 (±0,5)	NS6016-...-I.
20	37	10	6	4,2	M5	7,5	M5	7	12,3	22	8	4,2	2,5	6	4	37 (±0,5)	NS6020-...-I.
25	41	10	6	4,2	M5	7,5	M5	7,5	13,5	26	8	4,2	2,5	6	3	39 (±0,5)	NS6025-...-I.
32	49,2	12	6	5,2	M6	9	G1/8	7,5	15	32,5	10	4,5	2	7	0	44 (±0,5)	NS6032-...-I.
40	57,2	12	6	5,2	M6	9	G1/8	7,5	15	38	10	4,2	2	7	0	45 (±0,7)	NS6040-...-I.
50	67	16	8	6,7	M8	10,5	G1/8	7,5	14,6	46,5	13	4,7	2,5	8	0	45 (±0,7)	NS6050-...-I.
63	80	16	8	6,7	M8	10,5	G1/8	8	15,5	56,5	13	5,2	2,5	8	0	49 (±0,8)	NS6063-...-I.
80	102,6*	20	8	8,5	M10	13,5	G1/8	9	17	72	17	5,2	2,5	10	0	54 (±0,8)	NS6080-...-I.
100	124*	25	8	8,5	M10	13,5	G1/4*	10	20	89	22	5,2	3	10	0	67 (±1,0)	NS6100-...-I.

STANDARD UNITOP

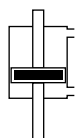
Ø	A	ØD	ØD2	ØD3	ØD4	ØD5	G	H3	H4	I	K	L	L3	W	F4	H	Code
16	29,2	8	6	3,3	M4	6	M5	7	12,8	18	6	3,5	2,2	4,5	0	38 (±0,5)	NS6016-...-U.
20	37	10	6	4,2	M5	7,5	M5	7	12,3	22	8	4,2	2,5	4,5	4	38 (±0,5)	NS6020-...-U.
25	41	10	6	4,2	M5	7,5	M5	7,5	13,5	26	8	4,2	2,5	5,5	3	39,5 (±0,5)	NS6025-...-U.
32	49,2	12	6	5,2	M6	9	G1/8	7,5	15	32	10	4,5	2	6	0	44,5 (±0,5)	NS6032-...-U.
40	57,2	12	6	5,2	M6	9	G1/8	7,5	15	42	10	4,2	2	6,5	0	45,5 (±0,7)	NS6040-...-U.
50	67	16	8	6,7	M8	10,5	G1/8	7,5	14,6	50	13	4,7	2,5	7,5	0	45,5 (±0,7)	NS6050-...-U.
63	80	16	8	8,5	M10	13,5	G1/8	8	15,5	62	13	5,2	2,5	7,5	0	50 (±0,8)	NS6063-...-U.
80	102,6	20	8	8,5	M10	13,5	G1/8	9	17	82	17	5,2	2,5	8	0	56 (±0,8)	NS6080-...-U.
100	124	25	8	8,5	M10	13,5	G1/4	10	20	103	22	5,2	3	10	0	66,5 (±1,0)	NS6100-...-U.

Thrust force Traction force Pressure range

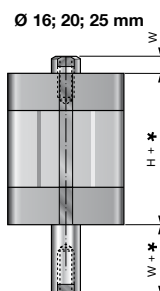
Ø	P= 6 bar	P= 6 bar	bar
16	121 N	91 N	1,6 - 10
20	188 N	142 N	1,5 - 10
25	295 N	248 N	1,2 - 10
32	482 N	415 N	1,1 - 10
40	754 N	687 N	0,9 - 10
50	1178 N	1058 N	0,8 - 10
63	1869 N	1750 N	0,7 - 10
80	3014 N	2829 N	0,6 - 10
100	4710 N	4420 N	0,5 - 10

NSD6...-...-..

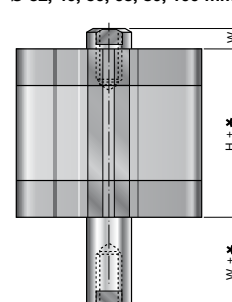
DOUBLE ACTING MAGNETIC THROUGH ROD CYLINDER



★ = Stroke



Ø 32; 40; 50; 63; 80; 100 mm



STANDARD ISO 21287

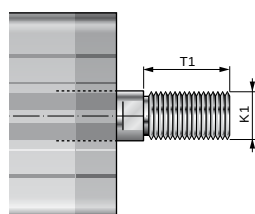
Ø	W	H	Code
16	4,5	37 (±0,5)	NSD6016-...-I.
20	6	37 (±0,5)	NSD6020-...-I.
25	6	39 (±0,5)	NSD6025-...-I.
32	7	44 (±0,5)	NSD6032-...-I.
40	7	45 (±0,7)	NSD6040-...-I.
50	8	45 (±0,7)	NSD6050-...-I.
63	8	49 (±0,8)	NSD6063-...-I.
80	10	54 (±0,8)	NSD6080-...-I.
100	10	67 (±1,0)	NSD6100-...-I.

STANDARD UNITOP

Ø	W	H	Code
16	4,5	38 (±0,5)	NSD6016-...-U.
20	4,5	38 (±0,5)	NSD6020-...-U.
25	5,5	39,5 (±0,5)	NSD6025-...-U.
32	6	44,5 (±0,5)	NSD6032-...-U.
40	6,5	45,5 (±0,7)	NSD6040-...-U.
50	7,5	45,5 (±0,7)	NSD6050-...-U.
63	7,5	50 (±0,8)	NSD6063-...-U.
80	8	56 (±0,8)	NSD6080-...-U.
100	10	66,5 (±1,0)	NSD6100-...-U.

NS6...-...-..M

THREADED MALE PISTON ROD VERSION



STANDARD ISO 21287

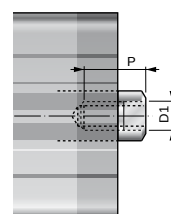
Ø	K1	T1
16	M6x1	12
20	M8x1,25	16
25	M8x1,25	16
32	M10x1,25	19
40	M10x1,25	19
50	M12x1,25	22
63	M12x1,25	22
80	M16x1,5	28
100	M16x1,5	28

STANDARD UNITOP

Ø	K1	T1
16	M8x1,25	20
20	M10x1,25	22
25	M10x1,25	22
32	M10x1,25	22
40	M10x1,25	22
50	M12x1,25	24
63	M12x1,25	24
80	M16x1,5	32
100	M20x1,5	40

NS6...-...-..F

THREADED FEMALE PISTON ROD VERSION



STANDARD ISO 21287

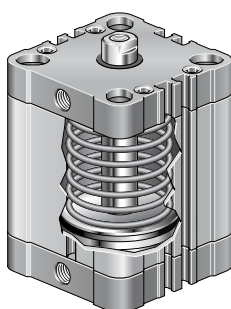
Ø	ØD1	P
16	M4	8
20	M6	10
25	M6	10
32	M8	12
40	M8	12
50	M10	16
63	M10	16
80	M12	20
100	M12	20

STANDARD UNITOP

Ø	ØD1	P
16	M4	8
20	M6	10
25	M6	10
32	M8	12
40	M8	12
50	M8	12
63	M8	14
80	M10	15
100	M12	20

NS7...-.....-..

SIMPLE ACTING FRONT SPRING

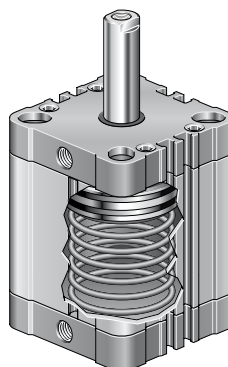
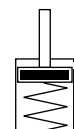


SPRING FORCE (N) STROKE 0 - 25 mm

Ø	F spring max (stroke 0 mm)	F spring min (stroke 25 mm)	H ISO 21287	H UNITOP
16	21	12	37 (±0,5)	38 (±0,5)
20	39	22	37 (±0,5)	38 (±0,5)
25	45	28	39 (±0,5)	39,5 (±0,5)
32	45	28	44 (±0,5)	44,5 (±0,5)
40	61	39	45 (±0,7)	45,5 (±0,7)
50	90	58	45 (±0,7)	45,5 (±0,7)
63	95	62	49 (±0,8)	50 (±0,8)
80	115	150	54 (±0,8)	56 (±0,8)
100	125	160	67 (±1,0)	66,5 (±1,0)

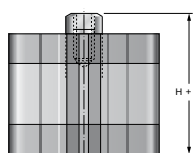
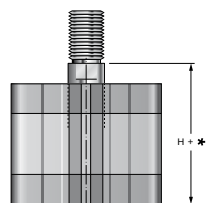
NS8...-.....-..

SIMPLE ACTING REAR SPRING

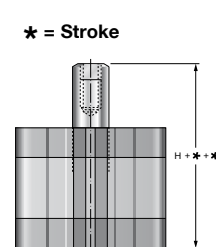
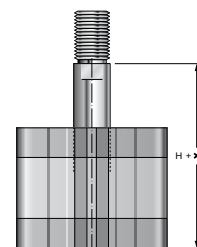


SPRING FORCE (N) STROKE 26 - 50 mm

Ø	F spring max (stroke 26 mm)	F spring min (stroke 50 mm)	H ISO 21287	H UNITOP
16	21	12	47 (±0,5)	48 (±0,5)
20	39	22	47 (±0,5)	48 (±0,5)
25	45	28	59 (±0,5)	59,5 (±0,5)
32	45	28	64 (±0,5)	64,5 (±0,5)
40	61	39	65 (±0,7)	65,5 (±0,7)
50	90	58	65 (±0,7)	65,5 (±0,7)
63	95	62	69 (±0,8)	70 (±0,8)
80	115	150	84 (±0,8)	86 (±0,8)
100	125	160	97 (±1,0)	96,5 (±1,0)



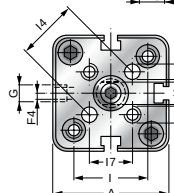
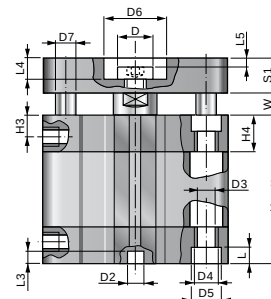
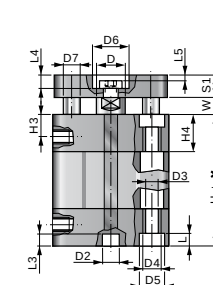
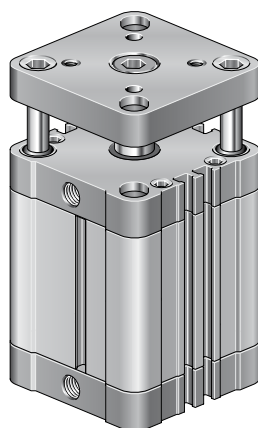
Bore	Standard stroke							
	5	10	15	20	25	30	40	50
16	•	•	•	•	•	•	•	•
20	•	•	•	•	•	•	•	•
25	•	•	•	•	•	•	•	•
32	•	•	•	•	•	•	•	•
40	•	•	•	•	•	•	•	•
50	•	•	•	•	•	•	•	•
63	•	•	•	•	•	•	•	•
80	•	•	•	•	•	•	•	•
100	•	•	•	•	•	•	•	•



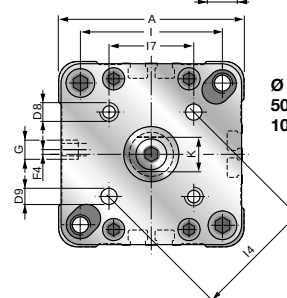
* = Stroke

NSV6...-.....-F

DOUBLE ACTING MAGNETIC CYLINDER NON ROTATING



Ø 16; 20; 25 mm



Ø 32; 40;
50; 63; 80;
100 mm

* = Stroke

	Ø	A	ØD	ØD2	ØD3	ØD4	ØD5	G	H3	H4	I	K	L	L3	W	F4	S1	W	H	Code
STANDARD ISO 21287	16	29,2	8	6	3,3	M4	6	M5	7	12,8	18	6	3,5	2,2	4,5	0	6	4,5	37 (±0,5)	NSV6016-.....-IF
	20	37	10	6	4,2	M5	7,5	M5	7	12,3	22	8	4,2	2,5	6	4	8	4,5	37 (±0,5)	NSV6020-.....-IF
	25	41	10	6	4,2	M5	7,5	M5	7,5	13,5	26	8	4,2	2,5	6	3	8	5,5	39 (±0,5)	NSV6025-.....-IF
	32	49,2	12	6	5,2	M6	9	G1/8	7,5	15	32,5	10	4,5	2	7	0	10	6	44 (±0,5)	NSV6032-.....-IF
	40	57,2	12	6	5,2	M6	9	G1/8	7,5	15	38	10	4,2	2	7	0	10	6,5	45 (±0,7)	NSV6040-.....-IF
	50	67	16	8	6,7	M8	10,5	G1/8	7,5	14,6	46,5	13	4,7	2,5	8	0	12	7,5	45 (±0,7)	NSV6050-.....-IF
	63	80	16	8	6,7	M8	10,5	G1/8	8	15,5	56,5	13	5,2	2,5	8	0	12	7,5	49 (±0,8)	NSV6063-.....-IF
	80	102,6*	20	8	8,5	M10	13,5	G1/8	9	17	72	17	5,2	2,5	10	0	14	8	54 (±0,8)	NSV6080-.....-IF
	100	124*	25	8	8,5	M10	13,5	G1/4*	10	20	89	22	5,2	3	10	0	14	10	67 (±1,0)	NSV6100-.....-IF

	Ø	A	ØD	ØD2	ØD3	ØD4	ØD5	G	H3	H4	I	K	L	L3	W	F4	S1	W	H	Code
STANDARD UNITOP	16	29,2	8	6	3,3	M4	6	M5	7	12,8	18	6	3,5	2,2	4,5	0	6	4,5	38 (±0,5)	NSV6016-.....-UF
	20	37	10	6	4,2	M5	7,5	M5	7	12,3	22	8	4,2	2,5	4,5	4	8	4,5	38 (±0,5)	NSV6020-.....-UF
	25	41	10	6	4,2	M5	7,5	M5	7,5	13,5	26	8	4,2	2,5	5,5	3	8	5,5	39,5 (±0,5)	NSV6025-.....-UF
	32	49,2	12	6	5,2	M6	9	G1/8	7,5	15	32	10	4,5	2	6	0	10	6	44,5 (±0,5)	NSV6032-.....-UF
	40	57,2	12	6	5,2	M6	9	G1/8	7,5	15	42	10	4,2	2	6,5	0	10	6,5	45,5 (±0,7)	NSV6040-.....-UF
	50	67	16	8	6,7	M8	10,5	G1/8	7,5	14,6	50	13	4,7	2,5	7,5	0	12	7,5	45,5 (±0,7)	NSV6050-.....-UF
	63	80	16	8	6,7	M8	10,5	G1/8	8	15,5	62	13	5,2	2,5	7,5	0	12	7,5	50 (±0,8)	NSV6063-.....-UF
	80	102,6	20	8	8,5	M10	13,5	G1/8	9	17	82	17	5,2	2,5	8	0	14	8	56 (±0,8)	NSV6080-.....-UF
	100	124	25	8	8,5	M10	13,5	G1/4	10	20	103	22	5,2	3	10	0	14	10	66,5 (±1,0)	NSV6100-.....-UF

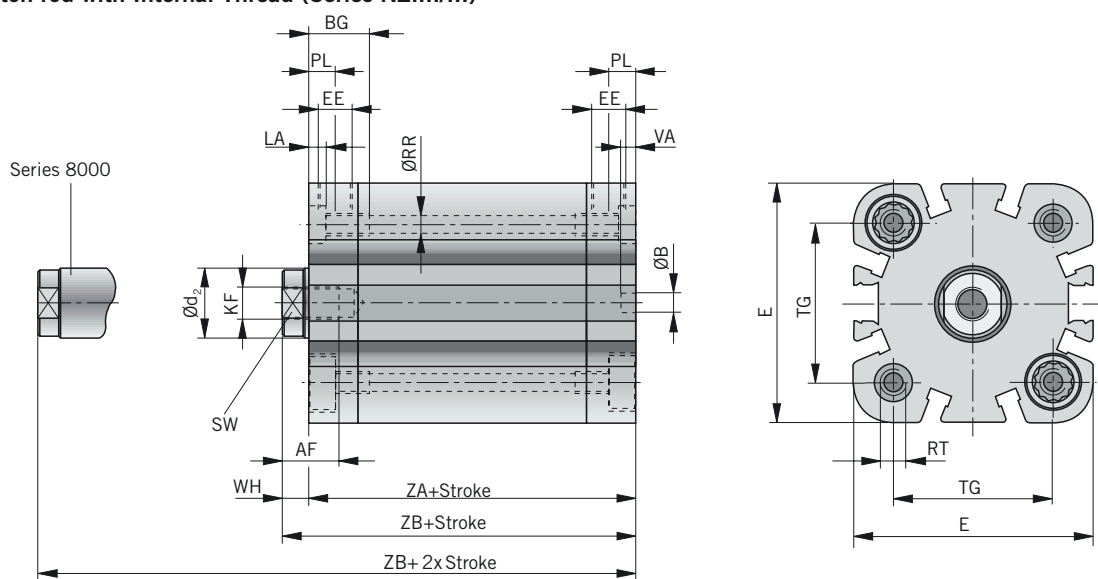
NZ - Compact Cylinders

Ø 32-100 mm

to ISO 21287

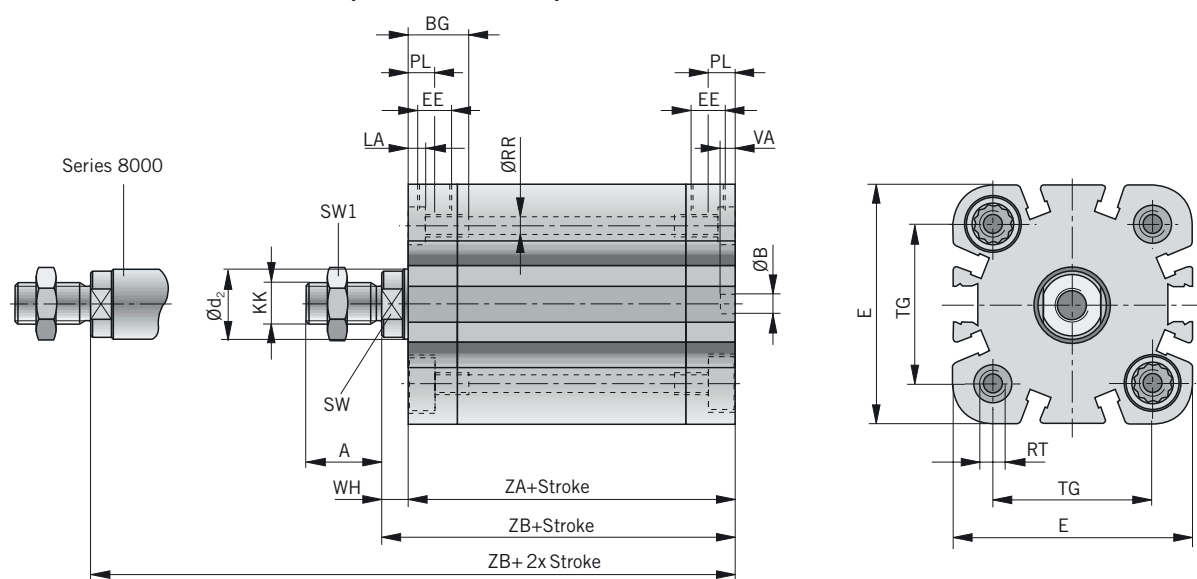
Dimensions – Basic Cylinder, Ø 32 – 100 mm

Version: Piston rod with Internal Thread (Series NZ..../...)



Dimensions – Basic Cylinder, Ø 32 – 100 mm

Version: Piston rod with External Thread (Series NZ..../...-AG)

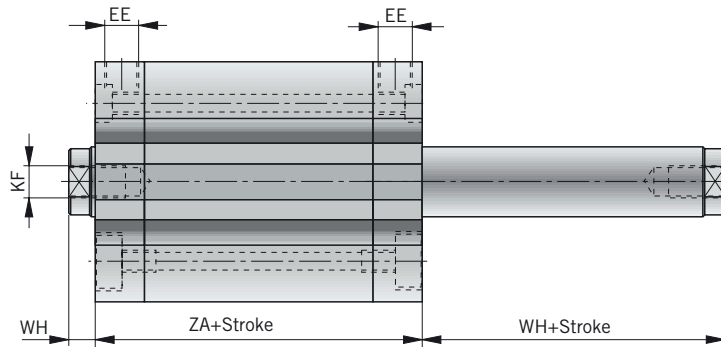


Dimension Table (mm) – Series NZ...., NZD...

Cyl. Ø	A	ØB ^{H9}	Ød ₂ ^{H9}	E	AF	BG	EE	KF	KK
32	19	6	12	50	13	14.5	G1/8	M8	M10x1.25
40	19	6	16	58	13	14.5	G1/8	M8	M10x1.25
50	22	6	20	70	16	14	G1/8	M10	M12x1.25
63	22	8	20	80	16	14.5	G1/8	M10	M12x1.25
80	28	8	25	96	20	15.5	G1/8	M12	M16x1.5
100	28	8	25	116	20	20	G1/8	M12	M16x1.5



Dimensions – Basic Cylinder with Through Piston Rod, Ø 32 – 100 mm
Version: Piston rod with Internal Thread (Series NZ..../...)



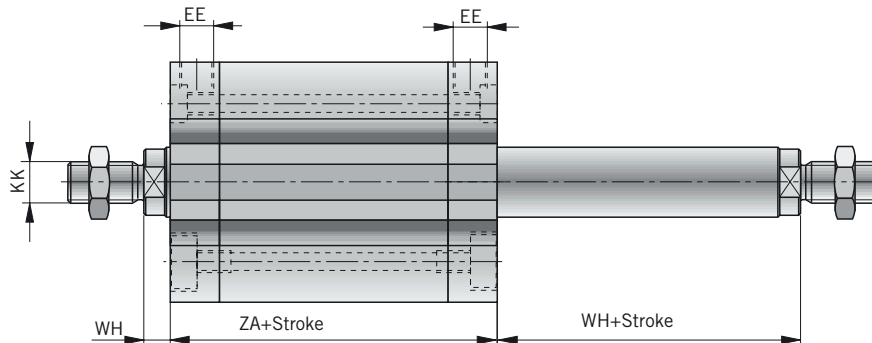
Ø32 mm, Ø40 mm



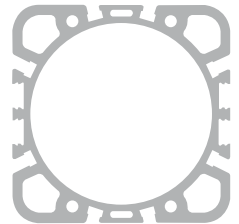
Ø50 mm, Ø63 mm



Dimensions – Basic Cylinder with Through Piston Rod, Ø 32 – 100 mm
Version: Piston rod with External Thread (Series NZ..../...-AG)



Ø80 mm, Ø100 mm



Cyl. Ø	LA	PL	TG	ØRR	RT	SW	SW1	VA	WH	WH+Stroke	ZA+Stroke	ZB+Stroke (*)
32	5	7.5	32.5	8.5	M6	10	17	4	7	7	44	51
40	5	7.5	38	8.5	M6	13	17	4	7	7	45	52
50	6	7.5	46.5	10.5	M8	17	19	4	8	8	45	53
63	6	7.5	56.5	10.5	M8	17	19	4	8	8	49	57
80	2	7.5	72	13.8	M10	19	24	4	10	10	54	64
100	2	10	89	13.8	M10	22	24	4	10	10	67	77

(* for Series NZ8000: ZB+2xStroke)

Special multi-position cylinder



AZL - Standard Cylinders

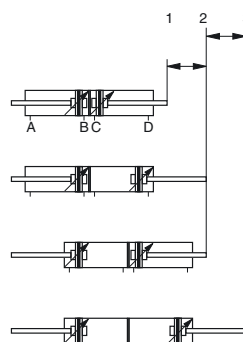
Ø 32-100 mm

to ISO 15552 (ISO 6431), VDMA 24562 and CETOP RP43P

Multiple Position Cylinder

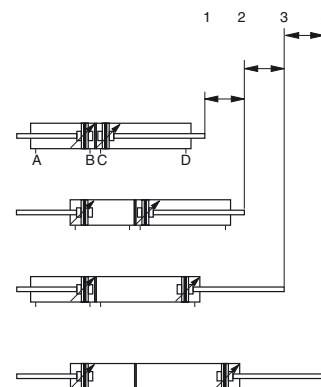
A three- or four-position cylinder consists of two separate cylinders whose piston rods extend in opposite directions. Depending on the control system and the division of the stroke length, this type of cylinder can provide up to four positions, with each position defined exactly by a stop. Note that when a piston rod end is fixed, the cylinder tube itself carries out the movement and therefore requires flexible air connections.

Arrangement for 3 positions



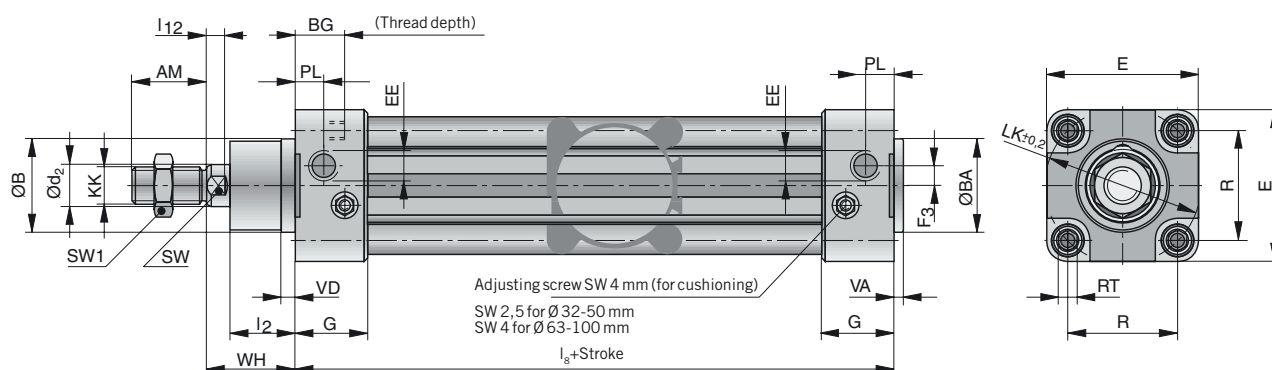
Two AZL cylinders of the same stroke length are connected together.

Arrangement for 4 positions



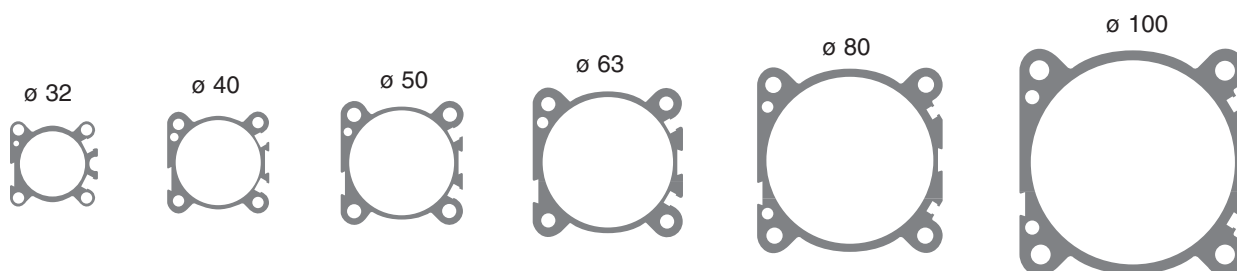
Two AZL cylinders of different stroke lengths are connected together.

Dimensions for Basic Cylinder, Series AZL..., Ø 32 – 100 mm



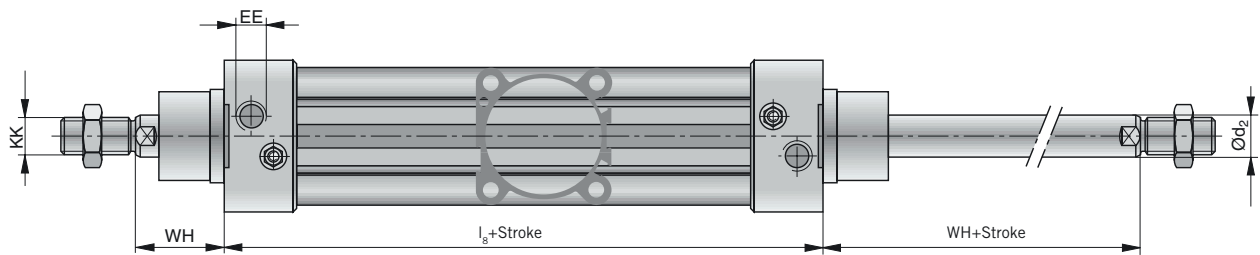
Dimension Table (mm) – Series AZL..., AZD..., AZZ...

Cyl. Ø	ØB _{d11}	Ød ₂	E	F ₃	G	I ₂	I ₈ +Stroke	I ₁₂	R	AM	ØBA _{d11}	BG
32	30	12	47	4.5	30.5	20	94	6	32.5	22	30	16
40	35	16	55	5.3	34	20.5	105	6.5	38	24	35	16
50	40	20	65	8.5	31	28	106	8	46.5	32	40	16
63	45	20	78	8	33	26	121	8	56.5	32	45	16
80	45	25	95	9	35.5	32.5	128	10	72	40	45	17
100	55	25	115	13	37	37.5	138	10	89	40	55	17

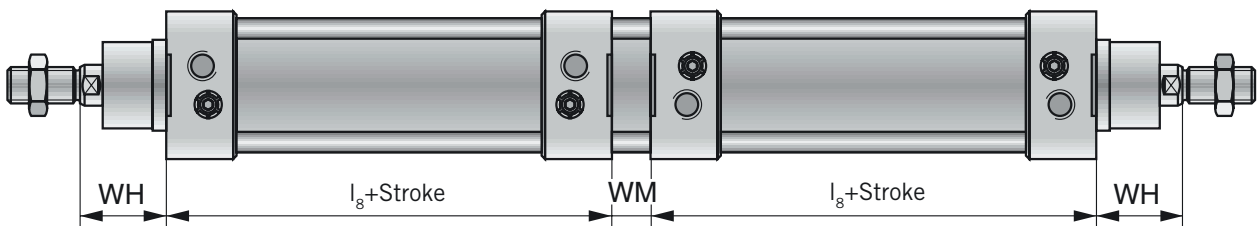




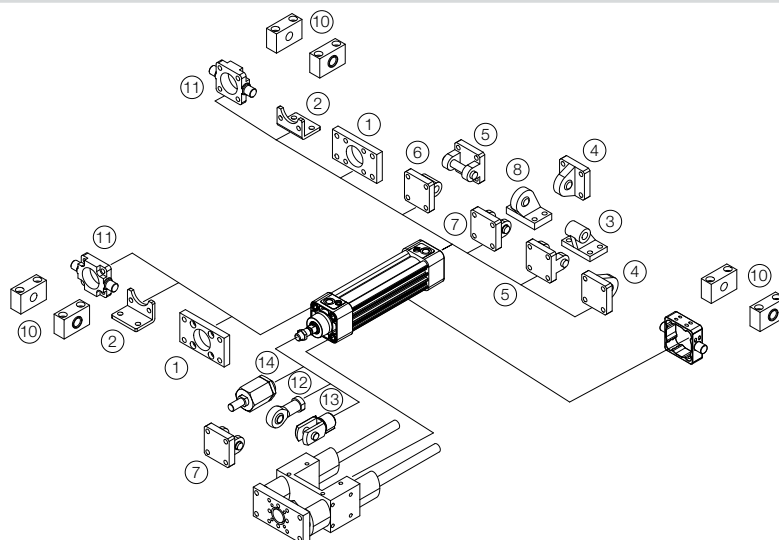
Dimensions – Basic Cylinder with Through Piston Rod, Series AZD....., Ø 32 – 100 mm



Dimensions – Multiple Position Cylinder, Series AZZ....., Ø 32 – 100 mm



Cyl. Ø	EE	ØLK	KK	PL	RT	SW	SW ₁	VA	VD	WH	WM
32	G1/8	46	M10x1.25	20	M6	10	17	4	5	26	12
40	G1/4	54	M12x1.25	14.5	M6	13	19	4	4.5	30	12
50	G1/4	66	M16x1.5	16	M8	17	24	4	6	37	15
63	G3/8	80	M16x1.5	16	M8	17	24	4	6	37	14
80	G3/8	102	M20x1.5	20.5	M10	22	30	4	6	46	18
100	G1/2	126	M20x1.5	19	M10	22	30	4	6	51	18



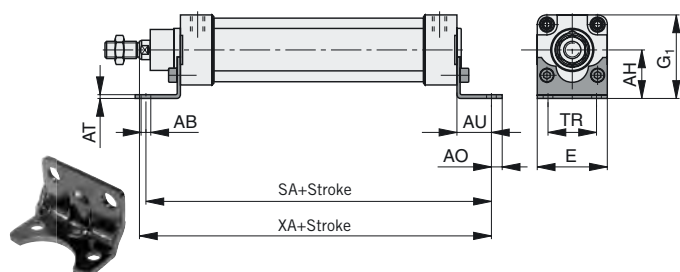
Mountings

Ø 32-100 mm

to ISO 15552 (ISO 6431), VDMA 24562 and CETOP RP43P

Mountings – Basic Cylinder, Series AZ....., AZD....., AZZ....., Ø 32 – 100 mm

Dimensions for Mounting A



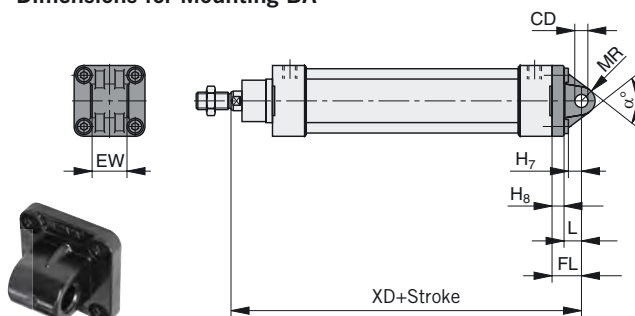
Material: steel passivated

Dimension Table (mm) – for Mounting A

Cyl. Ø	E	G ₁	AB	AH	AO	AT	AU	SA + Stroke	TR	XA + Stroke
32	47	55.5	7	32	8	4	24	142	32	144
40	53	62.5	9	36	10	4	28	161	36	163
50	65	77.5	9	45	10	5	32	170	45	175
63	75	87.5	9	50	10	5	32	185	50	190
80	95	110.5	12	63	14	6	41	210	63	215
100	115	128.5	14	71	15	6	41	220	75	230

Included in delivery: 2 foot brackets, 4 screws

Dimensions for Mounting BA



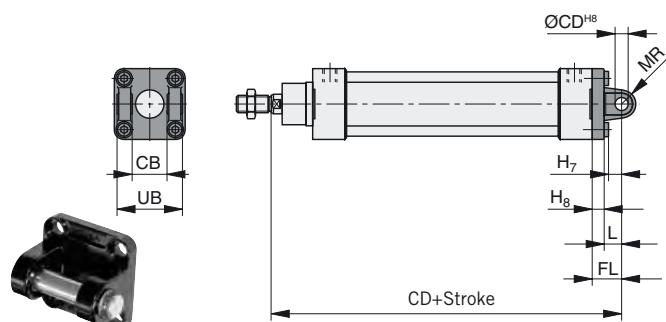
Material: cast aluminium

Dimension Table (mm) – for Mounting BA

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H8}	EW	FL	MR + Stroke	XD	α°
32	10	10	12	10	26	22	10.5	142	60
40	13	10	15	12	28	25	13	160	60
50	12	11	16	12	32	27	13	170	70
63	17	11	21	16	40	32	17	190	60
80	16	15	21	16	50	36	17	210	70
100	20.5	16	25	20	60	41	21	230	70

Included in delivery: 1 rear trunnion mounting, 4 screws

Dimensions for Mounting B



Material: cast aluminium

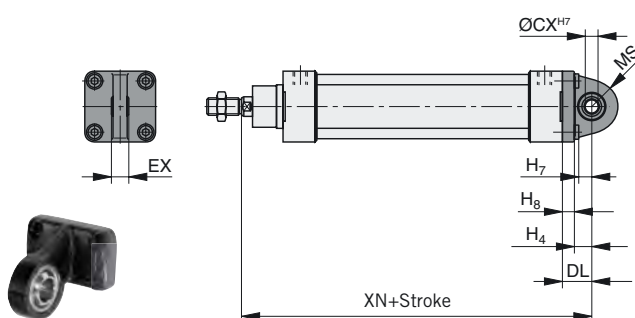
Dimension Table (mm) – for Mounting B

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H8}	CB	FL	MR	UB	XD + Stroke
32	10	10	12	10	26	22	9	45	142
40	13	10	15	12	28	25	11	52	160
50	12	11	16	12	32	27	12	60	170
63	17	11	21	16	40	32	15	70	190
80	16	15	22	16	50	36	16	90	210
100	20.5	16	25	20	60	41	20	110	230

Included in delivery: 1 rear trunnion mounting, 4 screws

Dimensions for Mounting BAS

(rear trunnion mounting with spherical bearing)

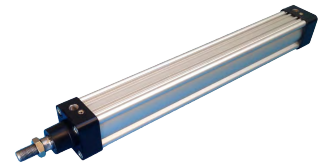


Material: cast aluminium

Dimension Table (mm) – for Mounting BAS

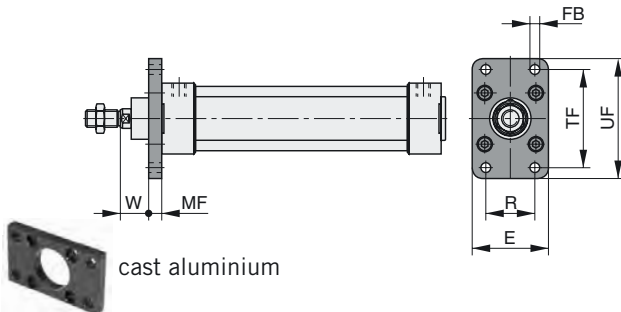
Cyl. Ø	H ₄	H ₆	H ₇	ØCX ^{H7}	DL	EX	MS	XN + Stroke
32	12	22	10	10	10	14	18	142
40	15	25	13	12	10	16	21	160
50	16	27	12	12	11	16	23	170
63	21	32	17	16	11	21	27	190
80	21	36	16	26	15	21	29	210
100	25	41	20.5	20	16	25	34	230

Included in delivery: 1 rear trunnion mounting with spherical bearing, 4 screws



Mounting – Basic Cylinder, Series AZ..., AZD..., AZZ..., Ø 32 – 100 mm

Dimensions for Mounting C



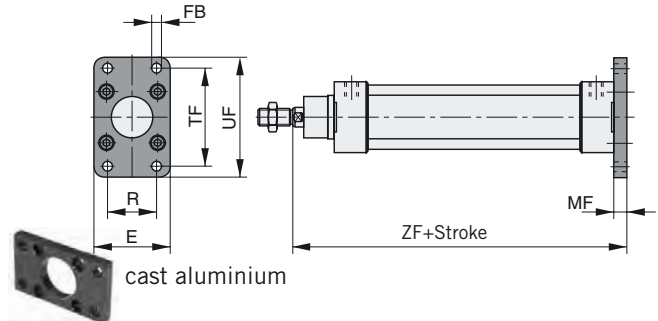
cast aluminium

Dimension Table (mm) – for Mounting C

Cyl. Ø	E	R	ØFB	MF	TF	UF	W
32	50	32	7	10	64	79	16
40	56	36	9	10	72	90	20
50	70	45	9	12	90	110	25
63	77	50	9	12	100	120	25
80	100	63	12	16	126	153	30
100	120	75	14	16	150	178	35

Included in delivery: 1 flange, 4 screws

Dimensions for Mounting D



cast aluminium

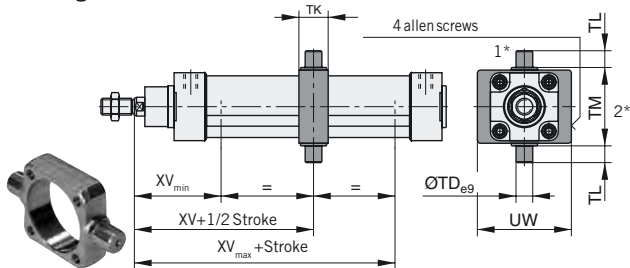
Dimension Table (mm) – for Mounting D

Cyl. Ø	E	R	ØFB	MF	TF	UF	ZF +Stroke
32	50	32	7	10	64	79	130
40	56	36	9	10	72	90	145
50	70	45	9	12	90	110	155
63	77	50	9	12	100	120	170
80	100	63	12	16	126	153	190
100	120	75	14	16	150	178	205

Included in delivery: 1 flange, 4 screws

Dimensions for Mounting EN, ISO 15552 (ISO 6431) only for series AZ (profile cylinder barrel version)

Flange dimensions to ISO 15552 (ISO 6431)



Material: aluminium, anodized

1* Mounting lugs in same direction as air connection (industrial standard version)

2* Mounting lugs offset 90° from air connection

Dimension Table (mm) – for Mounting EN

Cyl. Ø	ØTD _{e9}	TK	TL	TM	UW	XV _{min}	XV+ 1/2 Stroke	XV _{max} +Stroke
32	12	25	12	50	65	67	73	79
40	16	28	16	63	75	72	83	94
50	16	28	16	75	85	81	90	99
63	20	36	20	90	100	85	98	111
80	20	36	20	110	120	99	110	121
100	25	48	25	132	135	107	120	133

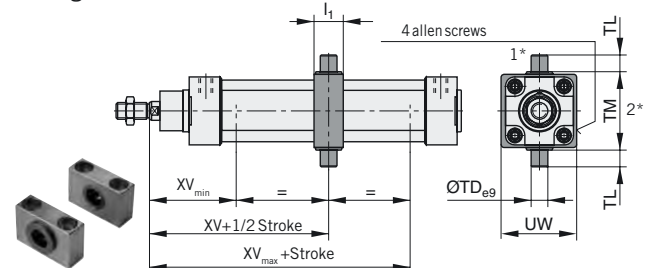
The trunnion mounting can be moved to any position between XV_{min} and XV_{max} after loosening the clamping screws.

Included in delivery: 1 rear trunnion mounting

With the EN mounting, the mounting slot for the magnetic switches is offset 90° from the air connection

Dimensions for Mounting EN, ISO 15552 (ISO 6431) only for series AZZ (tie rod version)

Flange dimensions to ISO 15552 (ISO 6431)



Material: SG cast iron, chromated

1* Mounting lugs in same direction as air connection (industrial standard version)

2* Mounting lugs offset 90° from air connection

Dimension Table (mm) – for Mounting EN

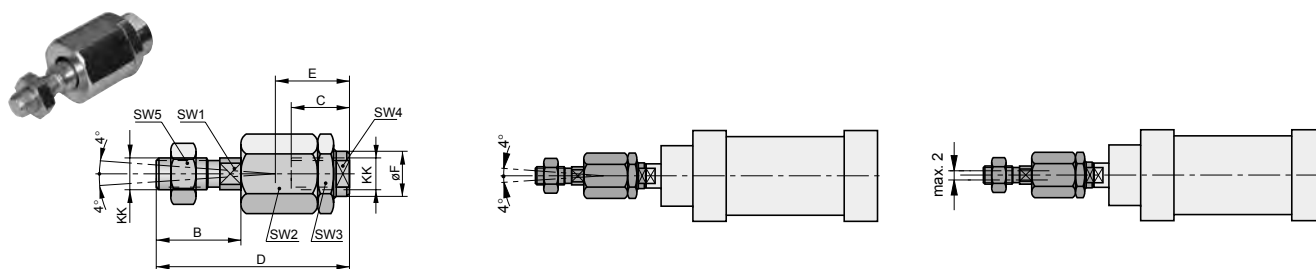
Cyl. Ø	l ₁	ØTD _{e9}	TL	TM	UW	XV _{min}	XV+ 1/2 Stroke	XV _{max} +Stroke
32	15	12	12	50	46	64	73	82
40	20	16	16	63	59	74	82.5	91
50	20	16	16	75	69	78	90	102
63	25	20	20	90	84	82.5	97.5	112.5
80	30	20	20	110	102	96.5	110	123.5
100	32	25	25	132	125	104	120	136

The trunnion mounting can be moved to any position between XV_{min} and XV_{max} after loosening the clamping screws.

Note on EN mounting: To avoid faulty switching, the magnetic switches should be fitted at least 10 to 20 mm away from the EN mounting, depending on cylinder diameter.

Included in delivery: 1 rear trunnion mounting

Compensating Coupling for Piston Rod



Material: steel

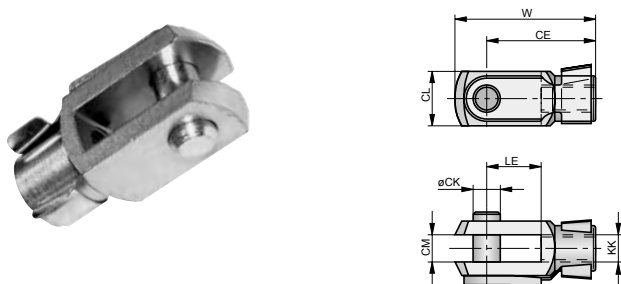
Angle compensation

Radial compensation of centre axis

Order Instructions, Dimension Table (mm), Weight

Order Instructions Type	Order No.	to Cyl.Ø	B	C	D	E	ØF	KK	SW1	SW2	SW3	SW4	SW5	Weight (kg)
AK-M 10x1,25	KY 1129	32	20	23	70	31	21,5	M10x1,25	12	30	30	19	17	0,218
AK-M 12x1,25	KY 1131	40	23	23	67	31	21,5	M12x1,25	12	30	30	19	19	0,207
AK-M 16x1,5	KY 1133	50,63	40	32	112	45	33,5	M16x1,5	19	41	41	30	30	0,637
AK-M 20x1,5	KY 1134	80,100	40	42	122	56	33,5	M20x1,5	19	41	41	30	30	0,711

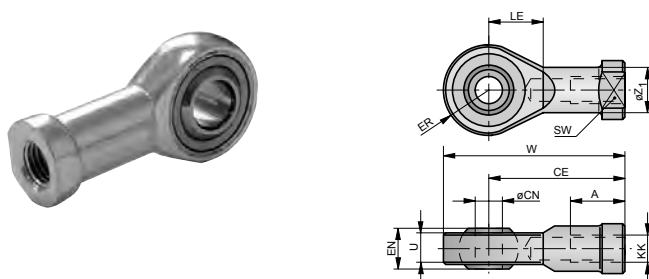
Piston Rod Clevis to ISO 8140 (CETOP RP102P)



Order Instructions, Dimension Table (mm), Weight

Order Instructions Type	Order No.	to Cyl.-Ø	ØCK	CE	CL	CM	KK	LE	W	Weight (kg)
GK-M10 x1,25	KY 6135	32	10	40	20	10	M10x1,25	20	52	0,08
GK-M12 x1,25	KY 6136	40	12	48	24	12	M12x1,25	24	62	0,125
GK-M16 x1,5	KY 6139	50,63	16	64	32	16	M16x1,5	32	83	0,30
GK-M20 x1,5	KY 6141	80,100	20	80	40	20	M20x1,5	40	105	0,52

Piston Rod Eye to ISO 8139 (CETOP RP103 P)



Order Instructions, Dimension Table (mm), Weight

Order Instructions Type	Order No.	to Cyl.-Ø	A	CE	ØCN	EN	ER	KK	LE	SW	U	W	ØZ ₁	Weight (kg)
GA-M10 x1,25	KY 6147	32	20	43	10	14	14	M10x1,25	15	17	10,5	57	15	0,072
GA-M12 x1,25	KY 6148	40	22	50	12	16	16	M12x1,25	17	19	12	66	17,5	0,107
GA-M16 x1,5	KY 6150	50,63	28	64	16	21	21	M16x1,5	22	22	15	85	22	0,21
GA-M20 x1,5	KY 6151	80,100	33	77	20	25	25	M20x1,5	26	32	18	102	27,5	0,38

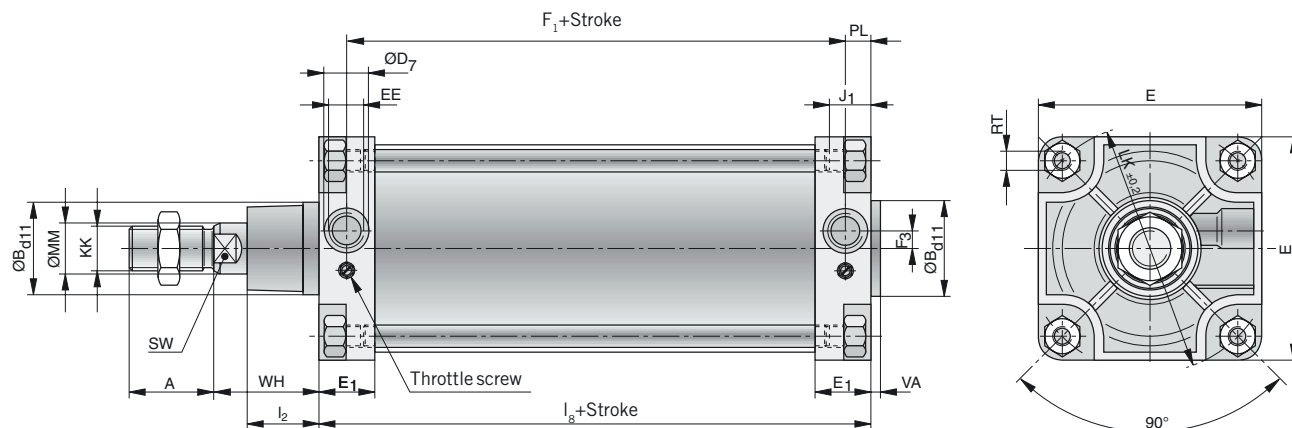
DZL - Standard Cylinders

Ø 125-320 mm

to ISO 15552 (ISO 6431) and CETOP RP53P



Dimensions – Basic Cylinder

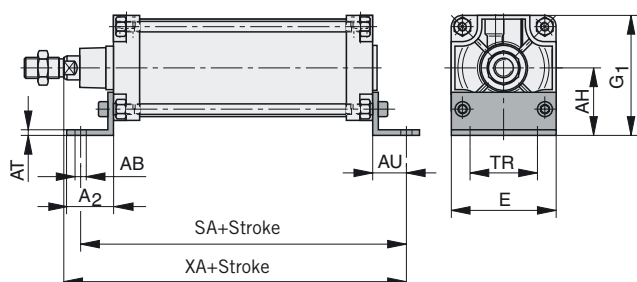


Dimension Table (mm) – for Basic Cylinder

Cyl. Ø	A	ØB _{d11}	ØD ₇	E	E ₁	F ₁ + Stroke	F ₃	J ₁ max.	I ₂	I ₈ + Stroke	EE	KK	ØLK	ØMM	PL	RT	SW	VA	WH
125	54	60	28	140	35	122	11	18	45	160	G1/2	M27x2*	156	32	19	M12	27	6	65
160	72	65	33	180	45	130	11	23	50	180	G3/4	M36x2	198	40	25	M16	36	6	80
200	72	75	33	220	45	130	11	23	60	180	G3/4	M36x2	248	40	25	M16	36	6	95
250	84	90	40	280	53	136	21	27	70	200	G 1	M42x2	311	50	32	M20	46	10	105
320	96	110	40	340	55	158	–	28	90	220	G1	M48x2	382	63	31	M24	55	10	140

* Standard piston rod thread M27x2 - on request M24x2 to CETOP RP53P can also be delivered

Dimensions for Mounting A

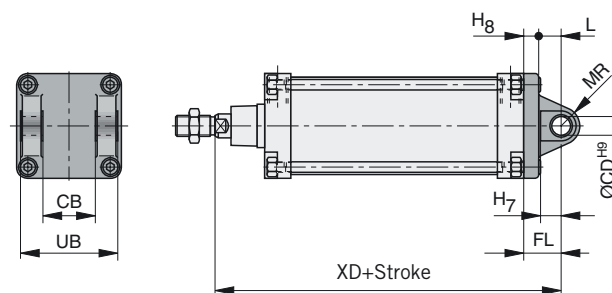


Material: steel, passivated

Dimensions Table (mm) – for Mounting A

Cyl. Ø	A ₂	E	G ₁	ØAB	AH	AT	AU	SA + Stroke	TR	XA + Stroke
125	60	140	160	16	90	8	45	250	90	270
160	80	180	205	18	115	8	60	300	115	320
200	100	220	245	22	135	9	70	320	135	345
250	110	280	305	26	165	12	75	350	165	380
320	130	353	370	35	200	23	85	390	200	425

Dimensions for Mounting B



Material: cast aluminium

Dimensions Table (mm) – for Mounting B

Cyl. Ø	H ₇	H ₈	L	ØCD ^{H9}	CB	FL	MR	UB	XD + Stroke
125	27,5	20	30	25	70	50	25	130	275
160	28,5	20	35	30	90	55	30	170	315
200	28,5	25	35	30	90	60	31	170	335
250	25	25	45	40	110	70	41	200	375
320	26	30	50	45	120	80	46	220	420

FSE Locking Unit Ø 32-125 mm

Series FSE..

Version:
with locking unit – locks if
pressure drops

**Cylinders see page 44, 45
and 49.**

Characteristics

Characteristics	Symbol	Unit	Description
General			
Description			Piston rod cylinder with locking unit
Series			AZF
Locking unit			locks if pressure drops
Material – Locking unit			
Cartridge			Aluminium, anodised
Housing			Aluminium, anodised
Clamping Jaw			Ms
Cyl. piston rod			Steel, high-alloy
FSE unlocking pressure		bar	≥4 bis 10
Cylinder diameter		mm	32 40 50 63 80 100 125
Pilot air connection		M5	M5 G1/8 G1/8 G1/8 G1/8
Locking force, static **)		N	600 1000 1500 2200 3000 5000 7000

for further information see standard cylinder on pages 44, 45 and 49

Weight (mass) kg

Description	Cylinder diameter						
	32	40	50	63	80	100	125
Locking unit	0.60	0.80	1.00	1.20	1.40	1.60	1.80
Basic cylinder *)	0.70	1.20	1.75	2.32	3.75	4.90	7.87

*) with 100 mm stroke and longer piston rod

**) Note:

The holding force quoted relates to a static load. If this load is exceeded, slippage can occur. Any dynamic forces occurring in operation must not exceed the static holding force. In clamped operating mode, if the load is fluctuating, the clamping unit is not free from play. The cylinder is not suitable for positioning tasks.

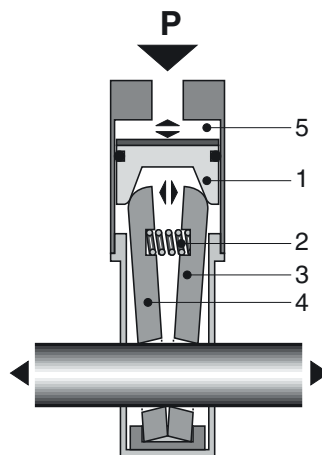
Actuation:

The clamping unit must only be released when both cylinder chambers are pressurised, otherwise there is danger of an accident from the jerky movement of the piston rod. Shutting off the compressed air supply at both ends with a 5/3 way valve provides adequate safety only for a short time.

Function

If the pressure drops the piston rod is locked by two tilting plates.

When the piston (1) is put under pressure it is pushed downwards, pressing the two tilting plates (3) and (4) together. The piston rod is then free to move. If the pressure drops in piston chamber (5), a spring pushes the two plates (3) and (4) apart, so that the wedge effect pushes the piston (1) upwards and the tilting plates lock the piston rod.



Important

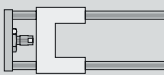
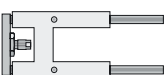
- The locking unit can only be mounted on the cylinder if it is held in its unlocked position either by air pressure or by a suitable screw.
- When the cylinder piston rod is locked it must not be rotated or subjected to external force.

Order Instructions – Locking unit (without cylinder), Series FSE-..., Ø 32 – 125 mm

Description	Symbol	for Cyl. Ø	Order Instructions	
			Type	Order-No.
		32	FSE 032	KC 8227
		40	FSE 040	KC 8228
		50	FSE 050	KC 8229
		63	FSE 063	KC 8230
		80	FSE 080	KC 8231
		100	FSE 100	KC 8232
		125	FSE 125	KC 8233



Overview

System	Fig.	Symbol	Series
Non-rotating Double acting without cushioning For contactless position sensing			FZG6... FZK6...
Linear guide, U-Form for cylinders to ISO15552, ISO6432 Ø 8-100 mm			FEUG..
Linear guide, H-Form for cylinders to ISO15552 Ø 32-100 mm			FEHG... FEHK...

FZ - Guided Cylinders

Series

FZG6... plain bearings

FZK6... ball bearings

Ø 20-50 mm

Linear Guides

Series

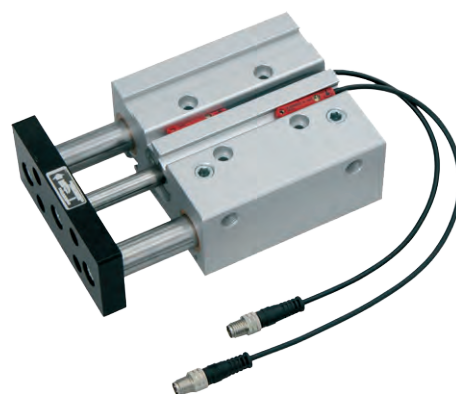
FEUG... plain bearings

FEHG... plain bearings

FEHK... ball bearings

Ø 8 – 100 mm

Profile sections Ø 20 , 32, 50 mm



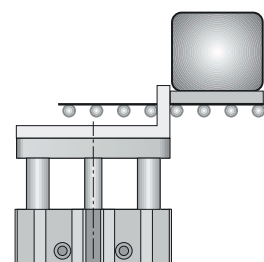
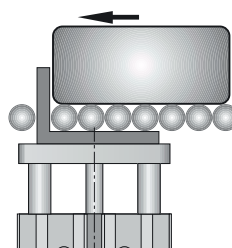
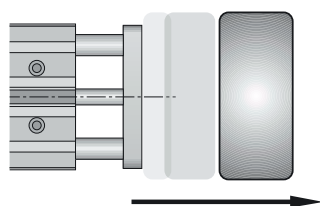
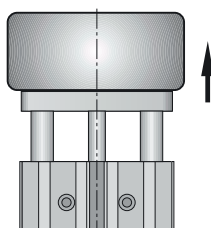
Application Examples

Lifting

Pushing

Stopping

Stopping with Stop Bracket



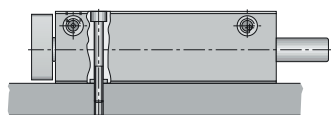
Mounting Possibilities

Flat mounting from above

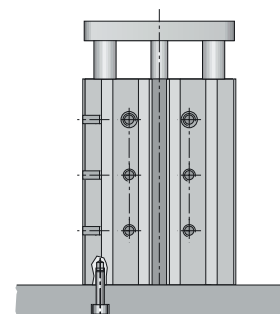
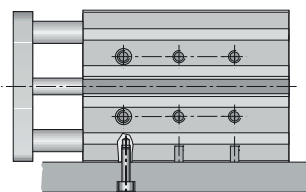
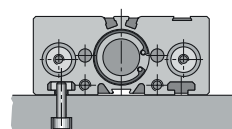
T-slot mounting

Side mounting

End face mounting



Flat mounting from below



Linear Drive Accessories Ø 10 – 320 mm Magnetic Switches



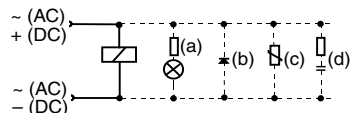
Type **RST**
EST

The next generation of T-slot switches is appealing due to its ease of attachment without the use of special tools. Due to the new electronics, the hysteresis is especially narrow, allowing for a highly accurate switching point.

Connection Examples

Load with protective circuits

- (a) Protective resistor for light bulb
- (b) Freewheel diode on inductivity
- (c) Varistor on inductivity
- (d) RC element on inductivity



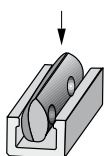
For the type ES, external protective circuits are not normally needed.

$$\text{Minimum response time} = \frac{\text{Switching distance}}{\text{Overrun speed}}$$

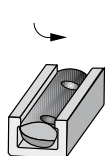


Characteristics		RST P8S-GR/GE P8S-GS/GC	EST P8S-GP/GQ P8S-GN/GM
Characteristics	Unit	Description	
Electrical Characteristics			
Switching output / -function		Reed NO/NC	PNP NO/NC NPN NO/NC
Electrical configuration		2-wire	3-wire
Display LED yellow		yes (not Reed NC)	
Operating voltage Ub	V	10 - 30 AC/DC	10 - 30 DC
Ripple of Ub	%	≤ 10	≤ 10
Voltage drop	V	≤ 3	≤ 2
Power consumption @ Ub = 24 V switched on, without load	mA	-	≤ 10
Permanent current	mA	≤ 500	≤ 200
Breaking capacity	W	≤ 6	-
Switchable capacity load @ 100 W @ 24 V DC	nF	100	-
Switching frequency	Hz	≤ 400	≤ 1,000
Time delay before availability (on/off)	ms	1.5 / 0.5	0.5 / 0.5
Repeatability	mm	≤ 0.2	≤ 0.2
Switching distance	mm	approx. 15	approx. 15
Hysteresis	mm	2	2
EMC following EN 60947-5-2		yes	yes
Lifetime		≥ 20 x10 ⁶ cycles	unlimited
Short-circuit protection		-	yes
Reverse polarity prot.		-	yes
Power-up pulse suppression		-	yes
Protection for inductive load		-	yes
ATEX - Certification		-	on request
Mechanical Characteristics			
Housing		PA12	
Cable type		PUR / black	
Cable cross section	mm ²	2 x 0.14	3 x 0.14
Bending radius fixed	mm	≥ 30	
Bending radius moving	mm	≥ 45	
Ambient			
Protection class to EN 60529	IP	68	
Ambient temperature range 1)	°C	- 30 to + 80	
Vibration to EN 60068-2-6	G	30, 11 ms, 10 to 55 Hz, 1 mm	
Shock to EN 60068-2-27	G	50, 11 ms	

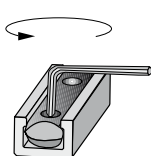
Insert
magnetic
switch



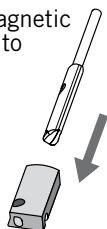
Rotate
magnetic
switch



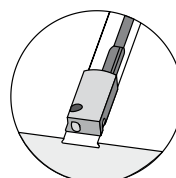
Secure
magnetic
switch



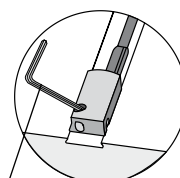
Insert magnetic
switch into
adapter



Insert adapter
into cylinder
dovetail slot

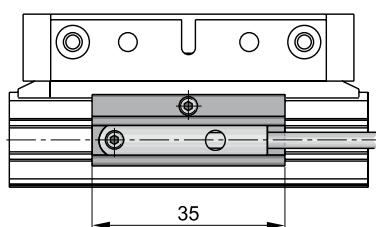
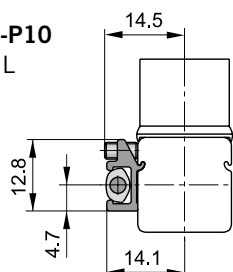


Tighten screw:
torque 1.5 Nm

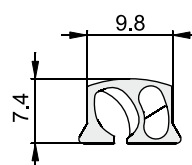
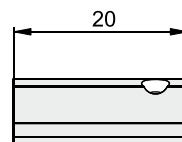


Size = 1,5 mm

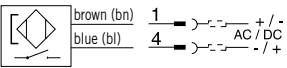
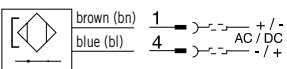
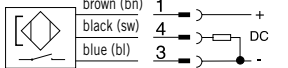
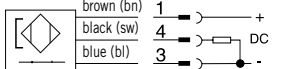
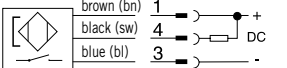
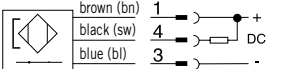
for OSP-P10
8872FIL

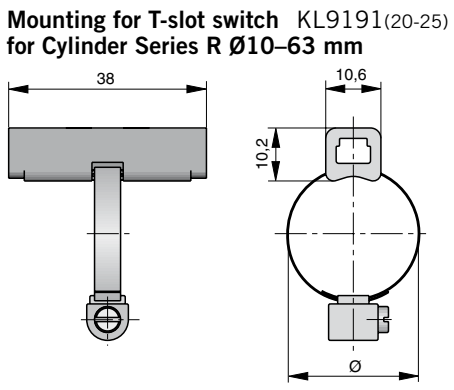


for OSP-P16-80 KL3333

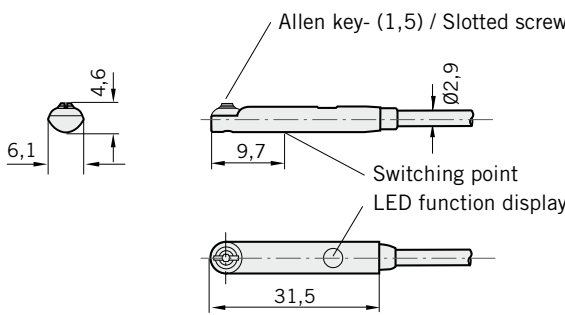


Note for OSP-P10: Switches can not be mounted directly opposite of the carrier !

Reed 2-pole normally open  normally closed 	PNP 3-pole normally open  normally closed 	NPN 3-pole normally open  normally closed 
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Dimensions (mm) - Type RST, EST - Series P8S



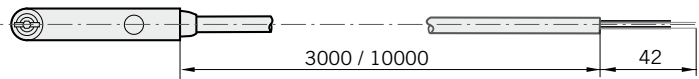
Allen key- (1,5) / Slotted screw

Switching point
LED function display

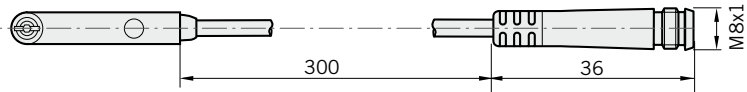
4 (out)
1(+) 3(-)

PIN assignment
(view of pins)
to DIN EN 50044

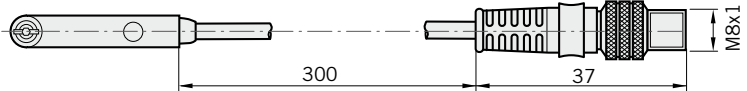
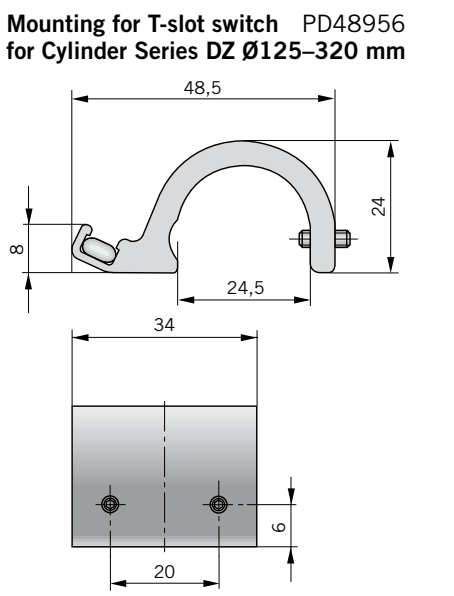
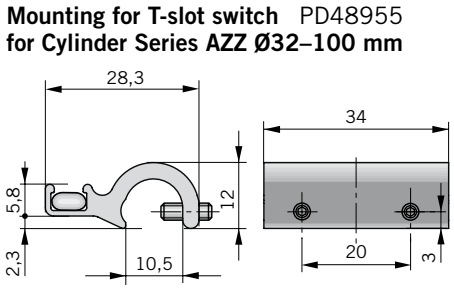
P8S-GxFAX, P8S-GxFFX, P8S-GxFDX, P8S-GxFRX cable with flying leads (PUR)
P8S-GxFLX, P8S-GxFOX, P8S-GxFTX, P8S-GxFKX cable with flying leads (PVC)



P8S-GxSHX, P8S-GxSNX cable with M8 Snap-in connector



P8S-GxCHX, P8S-GxCNX cable with M8 Screw connector

Order Number							
Magnetic Sensors for all ORIGA Products (except OSP-E..STR)					10-120 AC/DC	10-240 AC/DC	ATEX II 3GD*
	SNAP-in 0,3m	SCREW 0,3m	F.Leads 3m	F.Leads 10m	F.Leads 10m	F.Leads 10m	F.Leads 3m
Reed NO (2-wire)	P8S-GRSHX	P8S-GRCHX	P8S-GRFAX	P8S-GRFDX		P8S-GRFDX2	
Reed NC (2-wire, no LED)	P8S-GESNX	P8S-GECNX	P8S-GEFFX	P8S-GEFRX	P8S-GEFRX1		
PNP NO	P8S-GPSHX	P8S-GPCHX	P8S-GPFAX	P8S-GPFDX			P8S-GPFLX/EX
PNP NC	P8S-GQSHX	P8S-GQCHX	P8S-GQFAX	P8S-GQFDX			
NPN NO	P8S-GNSHX	P8S-GNCHX	P8S-GNFAX	P8S-GNFDX			P8S-GNFLX/EX
NPN NC	P8S-GMSHX	P8S-GMCHX	P8S-GMFAX	P8S-GMFDX			
Magnetic Sensors for OSP-E..STR (low sensitivity)							
Reed NO (2-wire), S-slot, flying leads, 5 m				KL3096			
Reed NC (2-wire), S-slot, flying leads, 5 m				KL3388			
PNP NO (3-wire), S-slot, M8 connector, 100 mm				KL3098			
Magnetic Sensor Set for OSP-E..BV							
2 sensors, Reed NC (2-wire), 1 mounting rail, 2 magnets				18210			
Connection Cables suitable for cable chain							
M8 Plug with 5 m cable				KL3186			
M8 Plug with 10 m cable				KL3217			
M8 Plug with 15 m cable				KL3216			

II 3G Ex nA op is IIC T4 Gc X
II 3D Ex tc IIIC T135° C Dc IP67 X



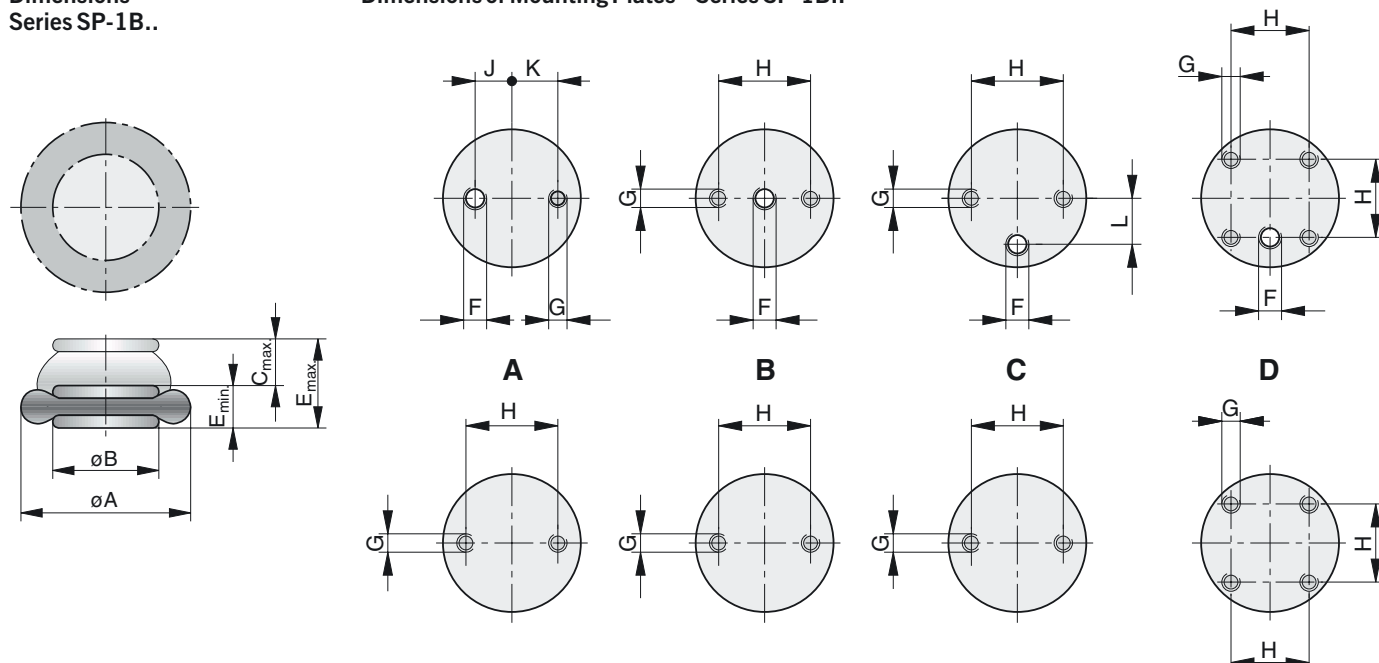
Bellows Cylinders

SP-1B...

Single convolution

Dimensions Series SP-1B..

Dimensions of Mounting Plates – Series SP-1B..



Dimension Table (mm) and Order Instructions

Type	Order-No.	Mounting plate	ØA at 8 bar	ØB	C _{max} **	E _{max} **	E _{min}	F	G*	H	J	K	L
SP-1B04	KY9500	A	150	88	55	105	50	G1/4	M8	22	9	11	–
SP-1B05	KY8401	B	165	110	45	95	50	G1/4	M8	44.5	–	–	–
SP-1B07	KY9501	C	205	135	80	130	50	G1/4	M8	54	–	–	27
SP-1B12	KY9502	C	250	160	100	150	50	G3/4	M8	89	–	–	38
SP-1B22	KY9590	C	350	229	110	170	60	G3/4	M12	157.5	–	–	73
SP-1B34	KY8010	D	420	288	110	170	60	G3/4	M8	158.8	–	–	–

* 15 deep

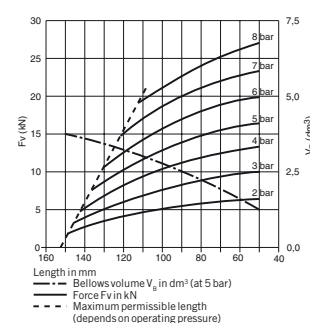
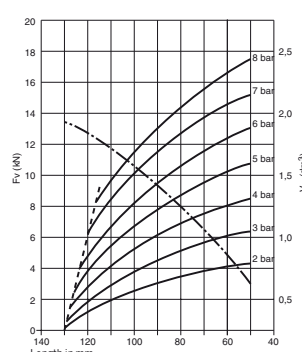
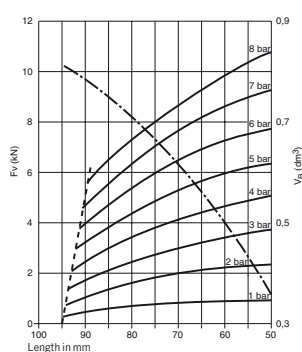
** These dimensions depend on the operating pressure: see force diagrams

Symbol	Ø mm (inches)	Port size	Max force (N) at 1 bar (0 stroke)	Max stroke mm	Type	Order code
	150	G1/4	1250	55	SP-1B04	KY9500
	165	G1/4	1350	45	SP-1B05	KY8401
	205	G1/4	1550	90	SP-1B07	KY9501
	250	G3/4	2800	100	SP-1B12	KY9502
	350	G3/4	5050	110	SP-1B22	KY9590
	420	G3/4	7600	110	SP-1B34	KY8010

Type: SP-1B05, Stroke: max. 45 mm

Type: SP-1B07, Stroke: max. 90 mm

Type: SP-1B12, Stroke: max. 100 mm

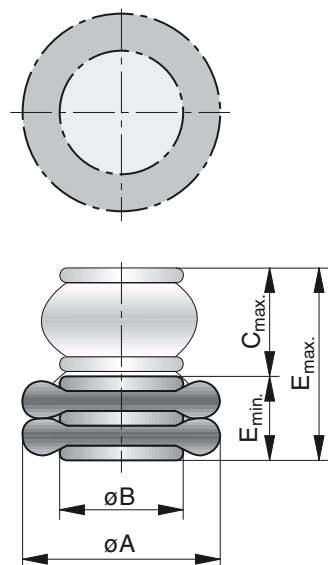


Bellows Cylinders

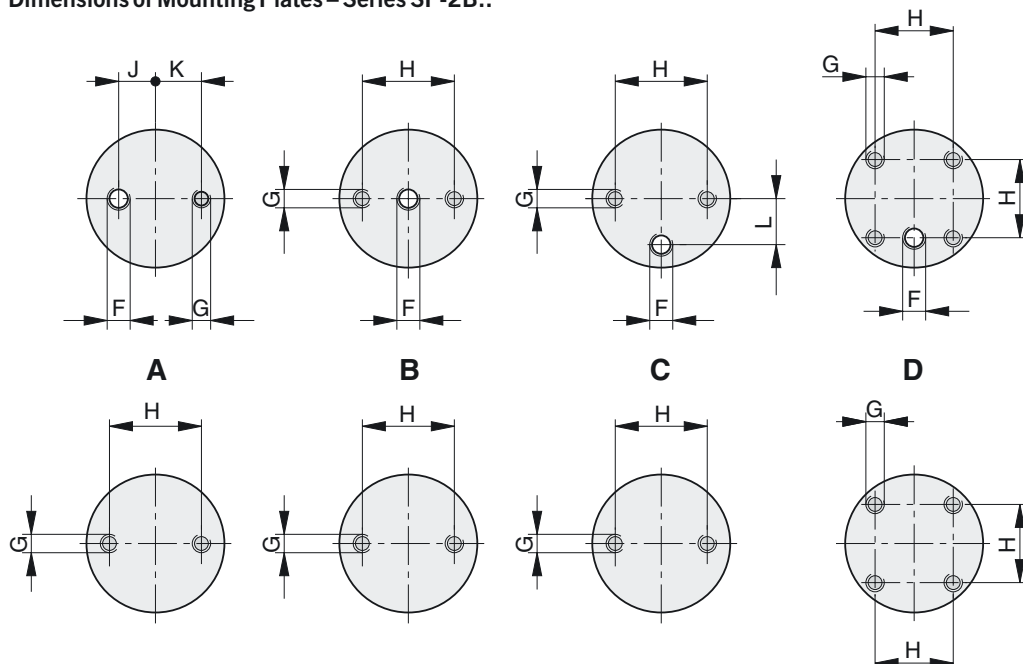
SP-2B...

Double convolution

Dimensions Series SP-2B..



Dimensions of Mounting Plates – Series SP-2B..



Dimension Table (mm) and Order Instructions

Type	Order-No.	Mounting	ØA at 8 bar	ØB	C _{max} **	E _{max} **	E _{min}	F	G*	H	J	K	L
SP-2B04	KY9612	A	165	82	110	190	80	G1/4	M8	22	9	11	-
SP-2B05	KY8011	B	165	110	80	160	80	G1/4	M8	44.5	-	-	-
SP-2B05A	KY8012	B	170	110	105	185	80	G1/4	M8	44.5	-	-	-
SP-2B07	KY9589	C	215	135	125	220	95	G1/4	M8	54	-	-	27
SP-2B12	KY9611	C	250	160	150	240	90	G3/4	M8	89	-	-	38
SP-2B22	KY9591	C	320	229	170	260	90	G3/4	M12	157.5	-	-	73
SP-2B34	KY8007	D	390	288	170	260	90	G3/4	M8	158.8	-	-	-

* 15 deep

** These dimensions depend on the operating pressure: see force diagrams

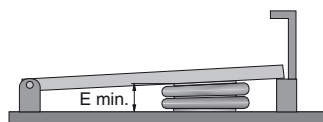
Symbol	Ø mm (inches)	Port size	Max force (N) at 1 bar (0 stroke)	Max stroke mm	Type	Order code
	165	G1/4	1250	110	SP-2B04	KY9612
	165	G1/4	1350	80	SP-2B05	KY8011
	170	G1/4	1750	105	SP-2B05A	KY8012
	215	G1/4	2200	125	SP-2B07	KY9589
	250	G3/4	3700	150	SP-2B12	KY9611
	320	G3/4	5000	170	SP-2B22	KY9591
	390	G3/4	8000	170	SP-2B34	KY8007

Maximum permissible pitch

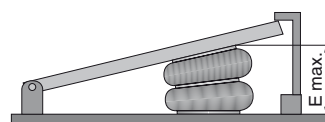
The pitch of the end plates must not exceed 30°.

Minimum permissible length (E_{min}) and maximum permissible length (E_{max}), must be observed.

Position at minimum
permissible length



Position at maximum
permissible length



5/2-Way Interference Sensing Module ISM-S / ISM-R

G1/8, G1/4

The interference sensing module was designed to automatically reverse the direction of a pneumatic cylinder, when it detects an obstruction. Loss of back pressure, caused by an obstruction, triggers the built-in pressure switch to shift the valve and retract the cylinder.

Applications:

- Doors
- Machine Guards
- Conveyor Transfer
- Pallet Handling
- Feed Systems
- Elevator Systems
- Variable Height Pick & Place

Characteristics

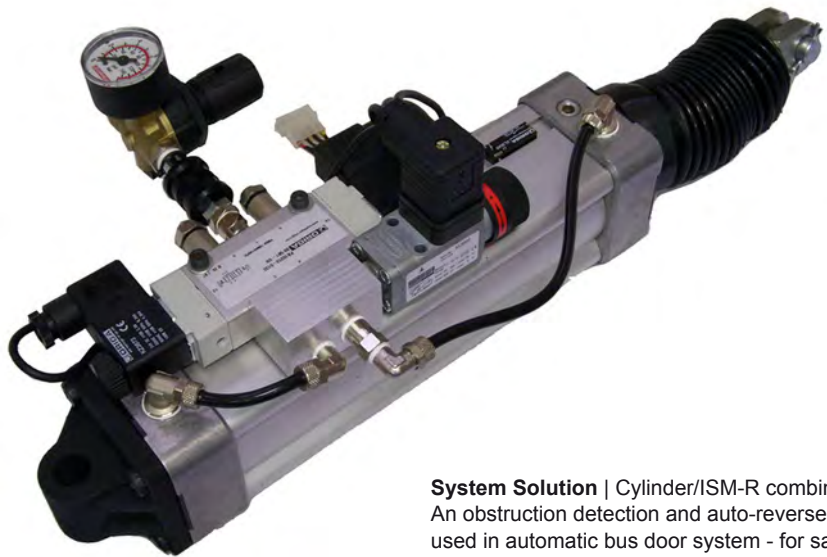
Characteristics	Symbol	Unit	Description
General Features			
Type			Spool valve
Mounting			2 Screws M6 (M4)
Tube connection			Thread
Connection size			G1/4, 11 deep
Weight (mass)		kg	0.65
Installation			In any position
Ambient temperature range **	T _{min/max}	°C	-10 to +60
Medium temperature range **	T _{min/max}	°C	-10 to +60
Medium			Filtered and oiled or filtered, unoiled compressed air
Lubrication *			None or oil mist lubrication
Pneumatic Characteristics			
Nominal pressure	p _n	bar	6
Operating pressure range	p _{min/max}	bar	1.5 – 8
Nominal flow	Q _N	l/min	1300
Actuation			
Electrical			Pilot operated
Voltage type			230/50, 110/50, 24/50, 24VDC, 12VDC

* We recommend the use of mineral oil type VG 32 to ISO 3448
 ** Note: Please consult us for operating temperatures below 0° C



- efficient interference recognition to protect components and installations
- Suited for rodless and rod-type cylinders
- available as movement stop (ISM-S) or stroke reversal (ISM-R)
- compact unit with pressure switch and valve
- ideal protection for doors, protective covers and transport systems

Interference Sensing Module – Type: ISM-S / ISM-R



System Solution | Cylinder/ISM-R combination
 An obstruction detection and auto-reverse capability used in automatic bus door system - for safety

IS Module ถูกออกแบบมาเพื่อ หยุด (ISM-S) หรือ ถอย (ISM-R) การทำงานของกระบอกลมโดยอัตโนมัติ เมื่อเกิดการชนกับสิ่งกีดขวาง เพื่อป้องกันอันตรายที่อาจเกิดขึ้นกับ คน อุปกรณ์ หรือ ระบบการทำงาน เช่น การเปิดปิด ประตูรถประจำทาง, ระบบ Guard ของเครื่องจักร, การป้อนและลำเลียงสินค้า, conveyor, ประตูลิฟท์, ฯลฯ



Characteristics

Characteristics	Symbol	Unit	Description
General Features			
Type			Spool valve
Mounting			2 Screws M6 (M4)
Tube connection			Thread
Connection size			G1/4, 11 deep
Weight (mass)		kg	0.65
Installation			In any position
Ambient temperature range **	$T_{min/max}$	°C	-10 to +60
Medium temperature range **	$T_{min/max}$	°C	-10 to +60
Medium			Filtered and oiled or filtered, unoled compressed air
Lubrication *			None or oil mist lubrication
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6
Operating pressure range	$p_{min/max}$	bar	3–8
Nominal flow	Q_N	l/min	1300
Actuation			
Pneumatic			Direct
Actuation pressure range	$p_{stmin/max}$		3–8

* We recommend the use of mineral oil type VG 32 to ISO 3448

** Note: Please consult us for operating temperatures below 0°C

5/2-Way Oscillating Valves Series S9

G1/4

Actuation:
– Pneumatic

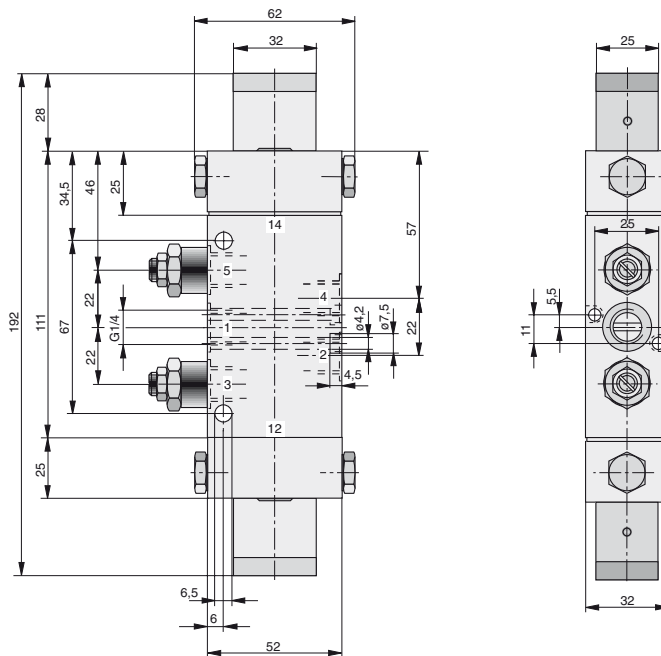
The oscillating valve generates oscillating movements such as e.g. shaking, hammering, plunging, feed motions etc.

Function:

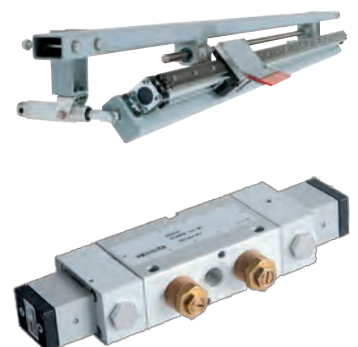
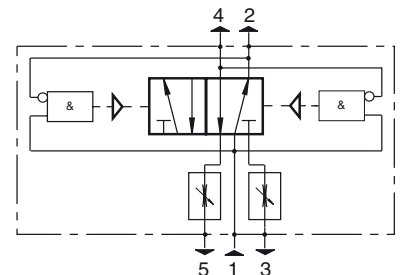
If compressed air is introduced into inlet port 1, the outlet ports 4 and 2 are alternately supplied with compressed air.

The speed of the operated cylinder and also the stroke frequency are adjusted with two exhaust air throttles.

Pneumatic oscillating – Type: S9 568/68-1/4-SO (PD34796)



Dimensions in mm



Oscillating Valve ก่อให้เกิดการเคลื่อนที่แบบ กลับไป-กลับมา เช่น การเขย่า กวน หรือ ปาดวัตถุที่ต้องการ, การทุบ หรือ บีบชิ้นงาน, ฯลฯ โดยไม่ต้องใช้ระบบไฟฟ้าเข้ามาช่วย --- เพียงแค่ป้อนลมเข้าที่รู "1" ของตัววาล์ว ลมก็จะออกที่รู "4" และ "2" สลับกันไปมา โดยอัตโนมัติ ไม่ว่าจะเป็นไปควบคุมกระบอกลมที่สั้นหรือยาว กระบอกลมก็จะเคลื่อนที่จนสุด stroke ทุกครั้ง และยังสามารถปรับตั้งค่าความถี่ของการสั่นได้อีกด้วย

HAFNER-Pneumatik



Patented "swimming O-ring"



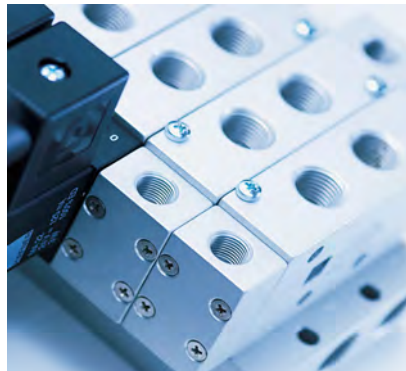
Roller and Stem valves



Panel and Lever valves



from M5 to G3/4", up to 6000 L/min



Manifold plates, IP67 on request



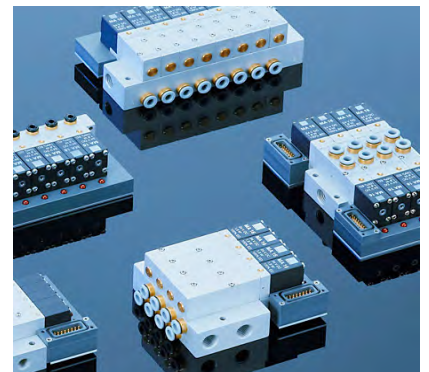
All the ports are in the plate



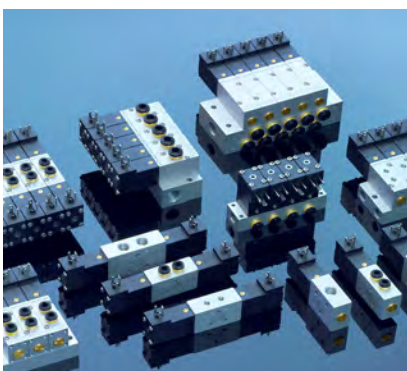
Sub-D 15 pins connector, IP65



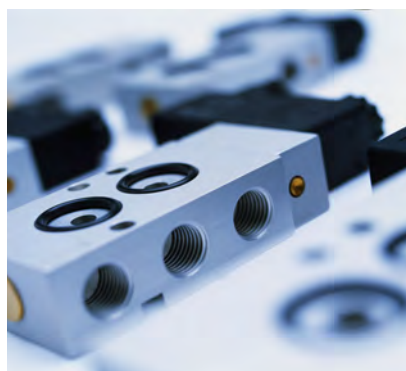
integrated Push-in fittings



Valve Terminals, 16 and 22 mm



Slim Line, 16 mm, 1.8 W / 3 VA

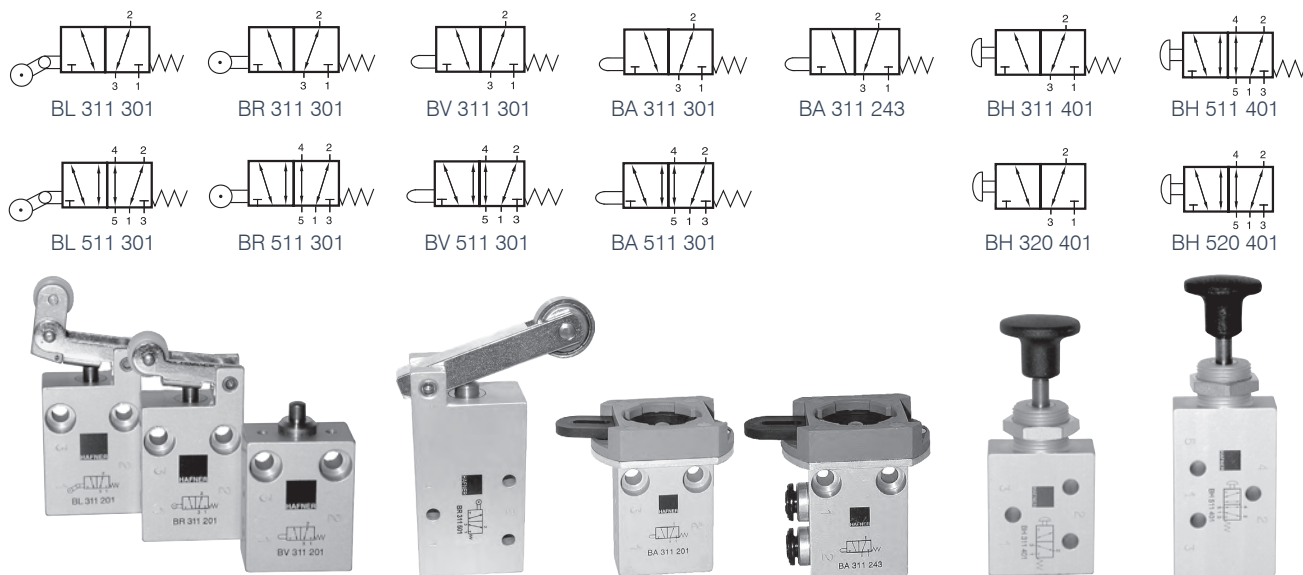


Namur interface, ATEX approved



Hafner-Pneumatik Krämer KG
Stuttgart, Germany

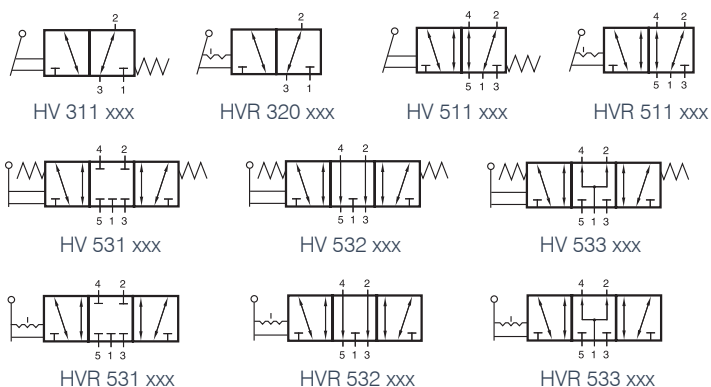
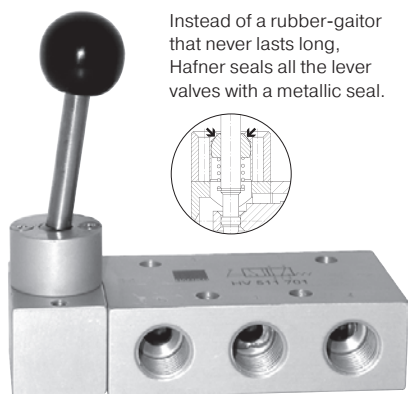
1. Mechanical Valves



2. Panel Valves

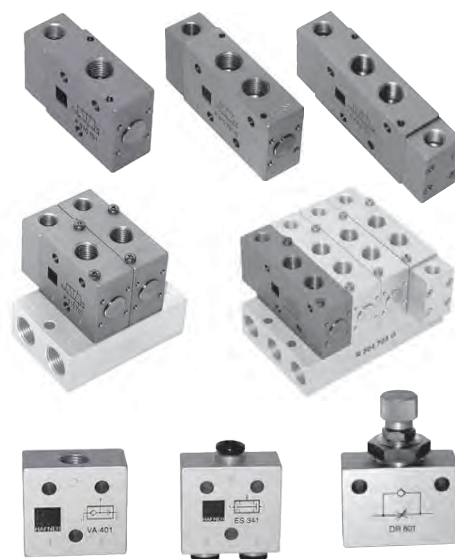
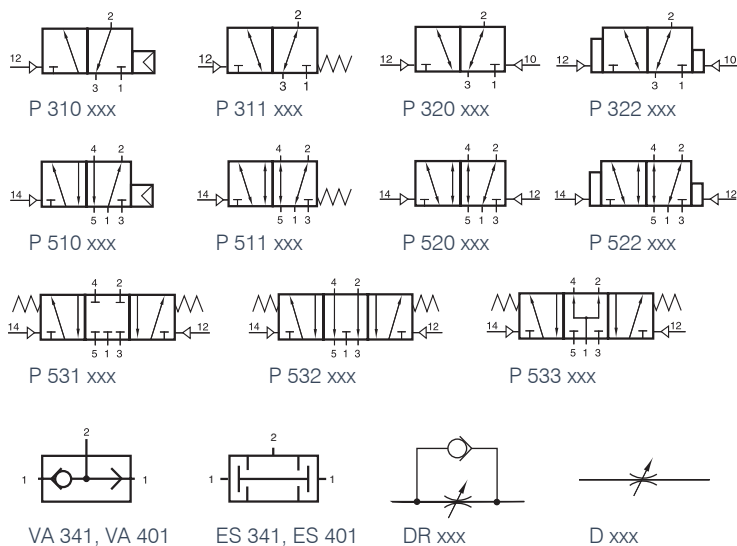


3. Lever Valves

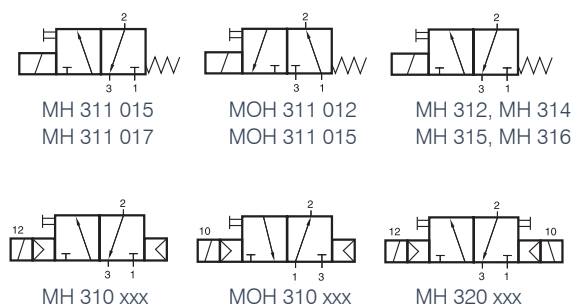


Type	Port size	Air flow	Operating press.	Actuating force	Weight
HV_ xxx 501	G 1/8"	650 l/min	1 - 10 bar	20 N	0,22 kg
HV_ xxx 701	G 1/4"	1250 l/min	1 - 10 bar	20 N	0,24 kg
HV_ xxx 801	G 1/4"	1450 l/min	1 - 10 bar	25 N	0,55 kg
HV_ xxx 101	G 3/8"	2250 l/min	1 - 10 bar	25 N	0,60 kg
HV_ xxx 121	G 1/2"	3000 l/min	1 - 10 bar	32 N	0,83 kg
HV_ xxx 181	G 3/4"	6000 l/min	1 - 10 bar	40 N	1,64 kg

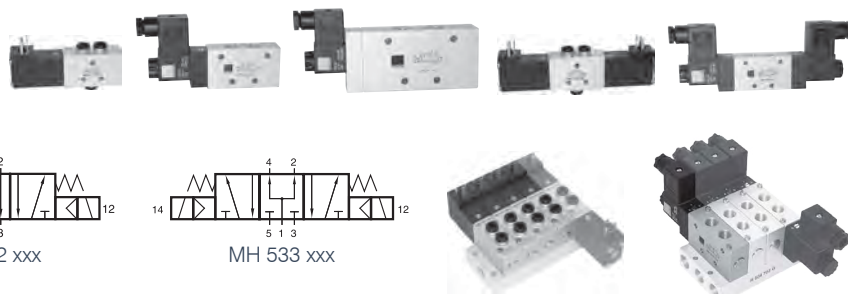
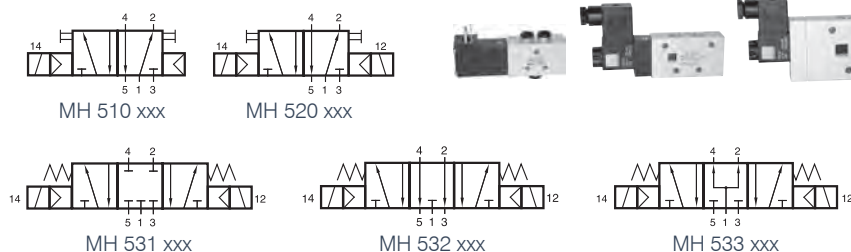
4. Pilot Actuated Valves



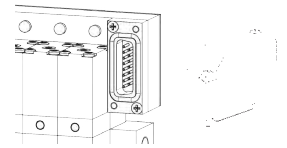
5.1 Solenoids Valves, 3-way



5.2 Solenoid Valves, 5-way



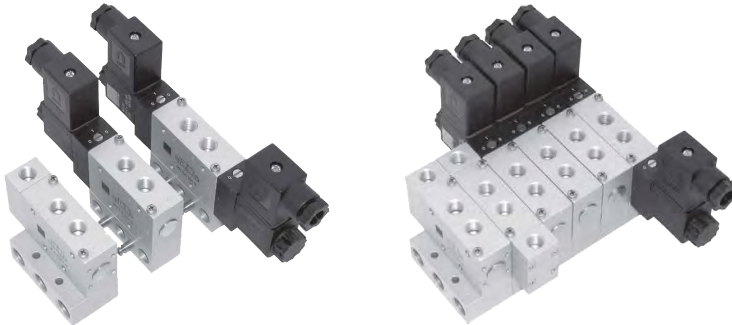
Type	Port size	Air flow	Operating press.	Actuating press.	Weight
XX xxx 501	G 1/8"	650 l/min	2 - 10 bar	3 - 10 bar	0,16 kg
XX xxx 701	G 1/4"	1250 l/min	2 - 10 bar	3 - 10 bar	0,18 kg
XX xxx 801	G 1/4"	1450 l/min	1,5 - 10 bar	3 - 10 bar	0,38 kg
XX xxx 101	G 3/8"	2250 l/min	1,5 - 10 bar	3 - 10 bar	0,42 kg
XX xxx 121	G 1/2"	3000 l/min	1 - 10 bar	3 - 10 bar	0,59 kg
XX xxx 181	G 3/4"	6000 l/min	1 - 10 bar	3 - 10 bar	1,18 kg



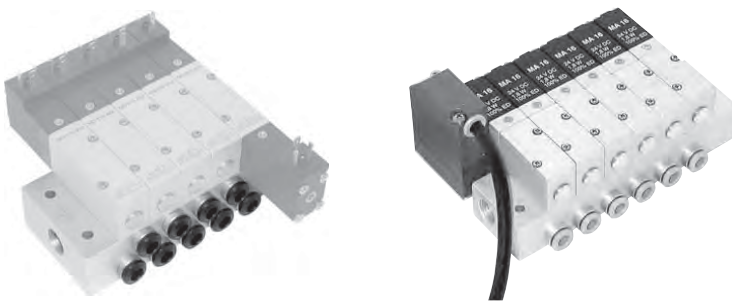
7. Sub-D 15 pins



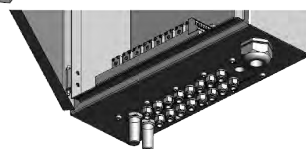
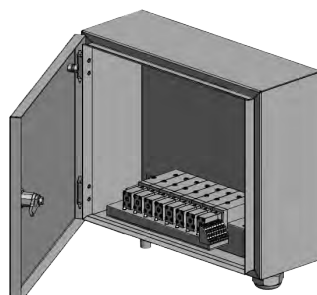
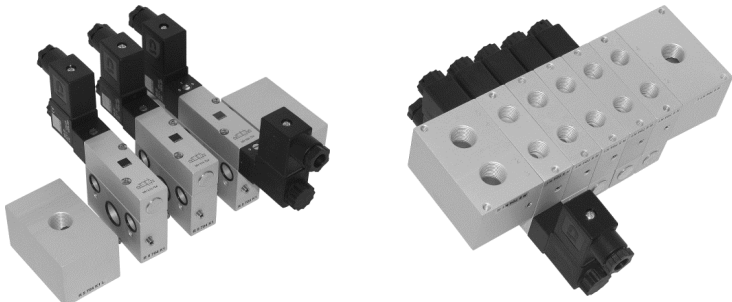
6.1 Modular Manifolds, Top-ports



6.2 Subbase Manifolds, Side-ports



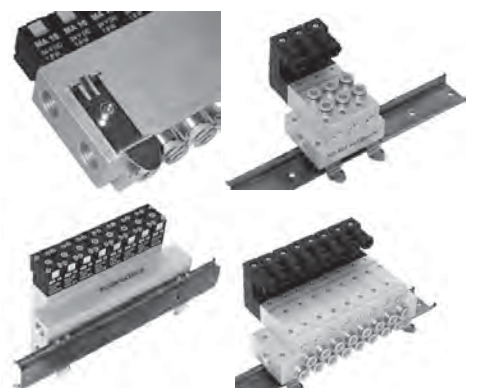
6.3 Cabinet Mounted, Bottom-ports



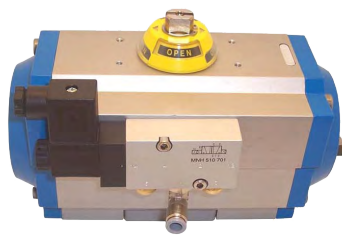
Cabinet Mounted Manifolds

ลดจำนวนอุปกรณ์ และขนาดตู้
ลดงานจุกจิก ลดเวลาประกอบ
ลดความเสี่ยงเรื่องลมรั่วภายในตู้

DIN-rail mounting clips



8. Namur Valves



MNH 510 701



HVN xxx xxx



DRN x xxx



PN xxx xxx

MNH xxx xxx

9. ATEX Ex



MA 22 EEx m IIC T4
II 2GD IP65 T135C



MA 30 EEx ia tD IIC T6
II 2GD IP65 T85C



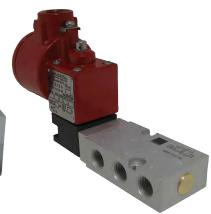
MA 22/30 EEx nA T5
II 3GD IP65 T100C



MA 52 EEx e mb IIC T6
II 2GD IP67 T85C

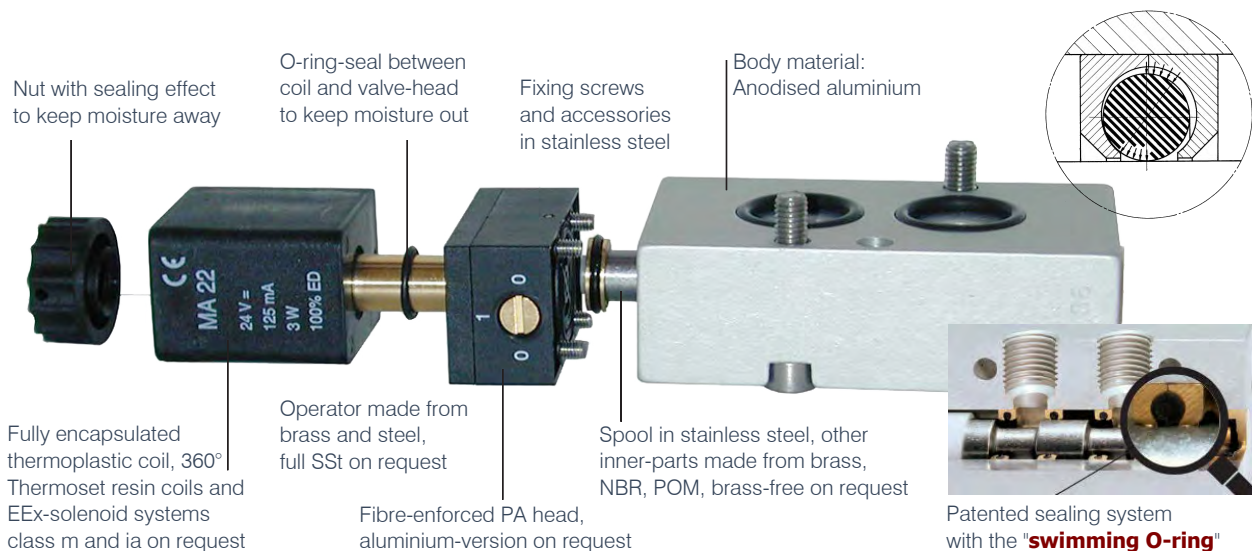


MA 36 EEx dm IIC T5
II 2GD IP66 T100C



MA 52 EEx d IIC T6
II 2GD IP66 T85C

10. Competitive Advantages and Special Options



Low Temp.
-50 °C



High Temp.
+80 °C



Stainless
Steel 316L



ATEX-Ex
Approval

ORIGA Standard Valves – a High Performance Programme

S9 valves. Robust and modular: as tough as they look, exceeding the norm in function and reliability.

Apart from the wide range of functions that are available, S9 valves are robust and reliable with high flow rates and low actuation forces. They are available with mechanical, electrical and pneumatic actuation systems.

S9 Standard Valves

- logic elements
- time delay
- oscillating valves
- two-hand actuation
- various special actuation systems



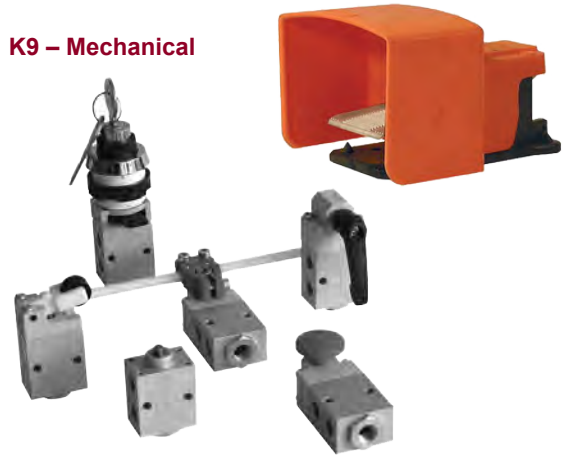
Port sizes	G1/8, G1/4, G1/2
Operating pressure range	0 - 10 bar (depending on version)
Temperature range	-10 to +60°C (depending on version)



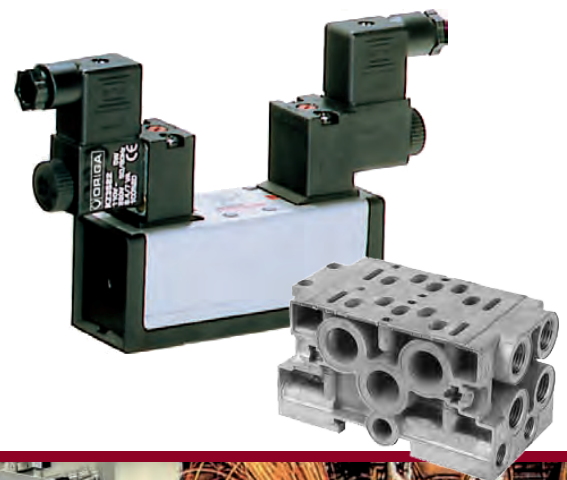
S29 – Piezo Valves, II 2GD EEx c IIC T6



K9 – Mechanical

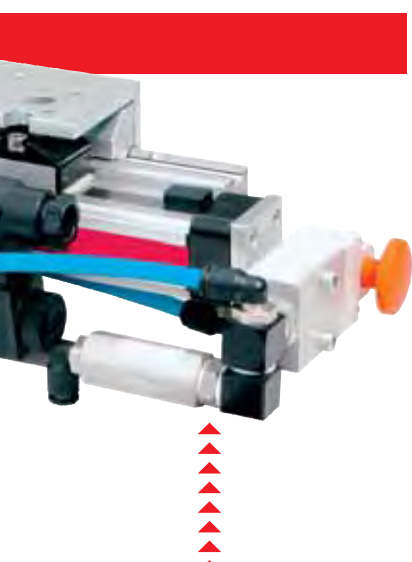


S20 – ISO 5599/1 size 1, 2, 3 and VDMA 01



The complete world of modern compressed air management

Modern automation technology would not be possible without efficient compressed air treatment. With the comprehensive **airfit** series HOERBIGER-ORIGA is an established leader for compressed air management systems.



airfit covers all requirements between G1/8 and G2. All market requirements are available including standard components, special solutions and fully integrated compressed air management systems.

airfit components are completely modular, enabling highly specialised system solutions for specific applications to be produced, even in the smallest of quantities.

- Stop valves
- Pressure control valves
- Filter water separators
- Oil mist lubricators
- Start/stop valves
- Microfilters
- Activated carbon filters
- Central lubricators
- Injection lubricators
- Prop. pressure regulators
- Comprehensive accessories ... in all connection sizes and with many options

airfit control
electric regulators



airfit also available as ATEX version

- with special functions
- with special pressure ranges (up to 45 bar and more)
- with special temperature ranges (-40 to +120° C)
- for special media e.g. oxygen, nitrogen, etc.



mobile pneumatic applications and industrial automation. Exceptional performance is guaranteed, even in the most arduous environmental conditions

- No electrical connection
- No additional sensors or control elements
- No wear and tear due to the absence of mechanically moving parts
- Practically silent
- No alteration of the air composition
- Flexible depending on drying purpose
- Fast response
- Up to 16 bar

Membrane dryer

airfit dry

The innovative membrane technology and especially the patented purge air control makes the membrane dryer **airfit dry**, one of the leading devices of its kind. As an ideal end-of-line solution, it is particularly suited for highly sensitive areas like medical technology, electronics, as well as



Microfilter MF - filtration efficiency 99.999%. Active carbon filter MC - residual oil content 0.003 ppm



Special devices upon customer request: valve maintenance combination unit

airfit light G1/8, G1/4
small, lightweight,
with an intelligent interior



airfit swing G1/8, G1/4, G3/8
the technically and economically
convincing solution



airfit A15 G1/2, G3/4
– for highest operating comfort
– with many individual components



airfit A25 G1 (G3/4)
a full one inch unit for the
harshest environments



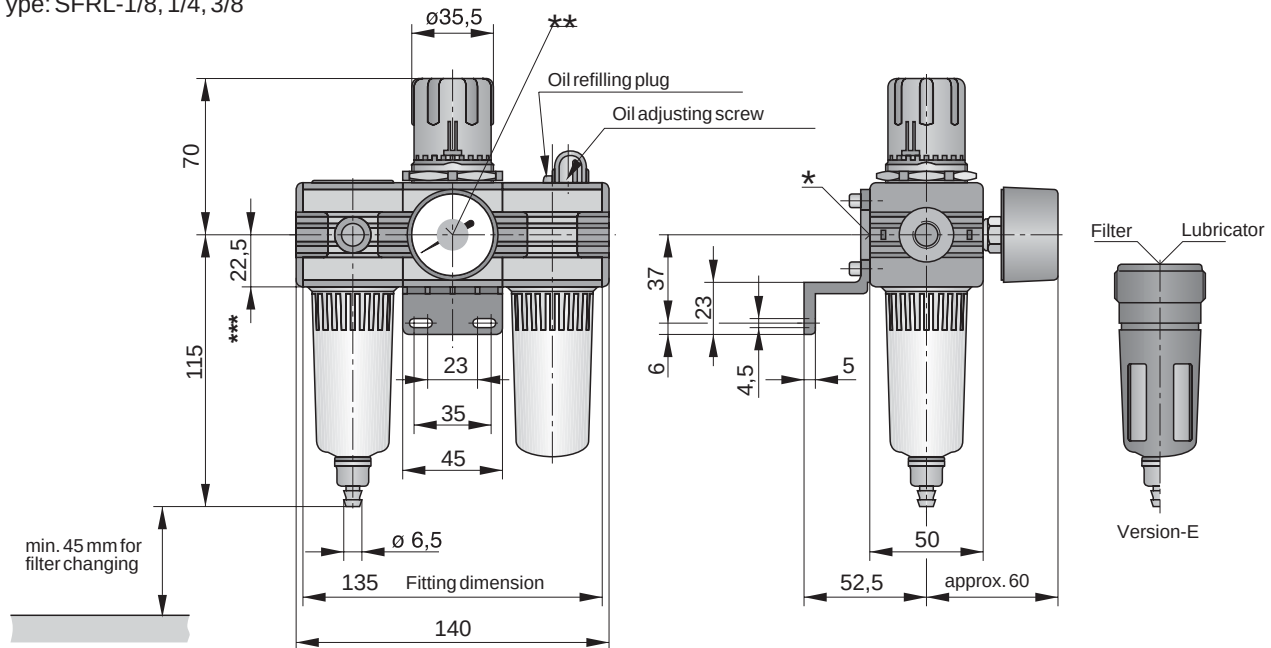
airfit airfit A50 G2 (G11/2)
Main line devices for pressurised
lifting gear in the offshore region,
blow moulding machines, etc.



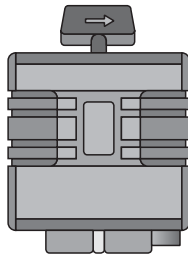
airfit Swing

G1/8, G1/4, G3/8

Type: SFRL-1/8, 1/4, 3/8

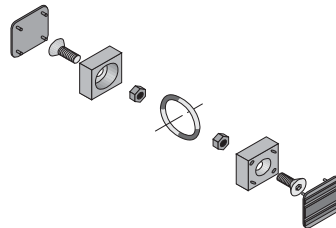


3/2 Way shut-off valve
Type: SDV-1/4X



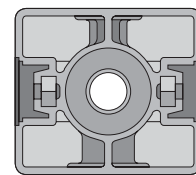
Order No.: PB 46749-001

Coupling kit



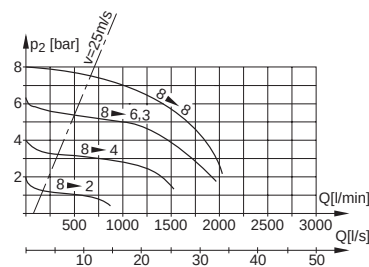
Order No.: PL 16959

Porting block kit, Type: SX
to provide unlubricated air.
For further details see 5.21.010E

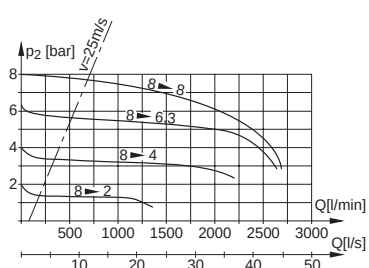


Order No.: PL 16969

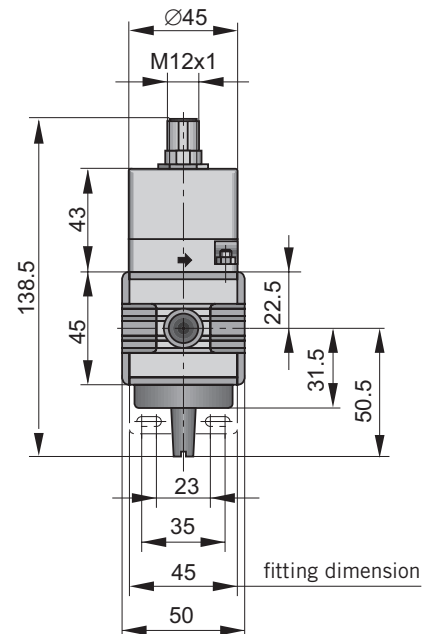
Type: SFRL-1/4



Type: SK-1/4



Type: SRE-1/4
Electronic Pressure Regulator



Characteristics Common to All airfit swing Units

Port sizes		G1/8, 1/4, 3/8 and NPTF
Operating pressure	$p_{1\min}$ bar	0
range, inlet	$p_{1\max}$ bar	16
Medium and ambient	$T_{\min}$ °C	0
temperature range	$T_{\max}$ °C	+ 50 at 10 bar (other temperatures on request)

Air Preparation Unit SFRL

comprising filter-water-separator, diaphragm pressure regulator and oil mist lubricator

Type		SFRL-1/8	SFRL-1/4	SFRL-3/8
Port size		G1/8	G1/4	G3/8
Weight (mass)	kg	0.95	0.95	0.95
Maximum	$Q_{\max}$ l/min	610	825	790
flow rate	m³/h	37	50	47

Air Preparation Unit SKL

comprising filter-regulator and oil mist lubricator

Type		SKL-1/8	SKL-1/4	SKL-3/8
Port size		G1/8	G1/4	G3/8
Weight (mass)	kg	0.75	0.75	0.75
Maximum	$Q_{\max}$ l/min	560	890	790
flow rate	m³/h	34	53	47

Filter-Regulator

Pressure regulator with filter-water-separator

Type		SK-1/8	SK-1/4	SK-3/8
Port size		G1/8	G1/4	G3/8
Pore size of				
filter element	µm	30 or 5 (marking)		
Condensate drainage		Manual, semiautomatic (with pressure relief) or fully automatic		
Weight (mass)	kg	0.35	0.35	0.35
Operating pressure	$p_{2\min}$ bar	0.5	0.5	0.5
range, outlet	$p_{2\max}$ bar	8 (4 or 15)	8 (4 or 15)	8 (4 or 15)
Maximum	$Q_{\max}$ l/min	790	2280	3200
flow rate	m³/h	47	137	192

Filter-Water-Separator, Dust Filter

Type SF	Filter-water-separator with centrifugal system and filter element
Type SFD	Dust filter with larger filter surface area for long service intervals, specially designed for use with dryers

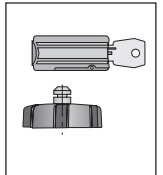
Type		SF-1/8	SF-1/4	SF-3/8	SFD-1/8	SFD-1/4	SFD-3/8
Port size		G1/8	G1/4	G3/8	G1/8	G1/4	G3/8
Pore size of							
filter element	µm	30 or 5 (marking)			1	1	1
Condensate drainage		Manual, semiautomatic (with pressure relief) or fully automatic					
Weight (mass)	kg	0.25	0.25	0.25	0.25	0.25	0.25
Maximum	$Q_{\max}$ l/min	990	1440	1520	1030	1340	1620
flow rate	m³/h	59	86	91	62	80	97

Pressure Regulator

Spring-loaded, fully compensated diaphragm pressure regulator with secondary venting.

Option: through- p_1

Type		SR-1/8	SR-1/4	SR-3/8
Port size		G1/8	G1/4	G3/8
Weight (mass)	kg	0.3	0.3	0.3
Operating pressure	$p_{2\min}$ bar	0.5	0.5	0.5
range, outlet	$p_{2\max}$ bar	8 (4 or 15)	8 (4 or 15)	8 (4 or 15)
Maximum	$Q_{\max}$ l/min	790	2850	3300
flow rate	m³/h	47	171	198



Oil Mist Lubricator

Oil mist lubricator with flow rate compensation

Type		SL-1/8	SL-1/4	SL-3/8
Port size		G1/8	G1/4	G3/8
Weight (mass)	kg	0.25	0.25	0.25
Maximum oil capacity	cm³	45	45	45
Maximum	$Q_{\max}$ l/min	1260	1830	1880
flow rate	m³/h	76	110	113



Economy Lubricator

Micromist lubricator with wick principle

Type		SEL-1/4-3	SEL-1/4-4	SEL-1/4-5
Port size		G1/4	G1/4	G1/4
Maximum oil capacity	cm³	45	45	45
Weight (mass)	kg	0.25	0.25	0.25
Minimum	$Q_{\min}$ l/min	100	200	300
flow rate	m³/h	6	12	18
Maximum	$Q_{\max}$ l/min	500	800	1000
flow rate	m³/h	30	48	60
Oil addition rate	mg/m³	5-30 depending on application		

Soft Start Valve

Poppet valve with adjustable throttle for slow pressure build-up

Type		SDA-1/4	SDA-3/8
Port size		G1/4	G3/8
Weight (mass)	kg	0.35	0.35
Operating pressure	$p_{2\min}$ bar	2	2
range, outlet	$p_{2\max}$ bar	16	16
Maximum	$Q_{\max}$ l/min	1500	1600
flow rate	m³/h	90	96

Stop Valve

3/2 way poppet valve with pneumatic or electrical actuation and exhaust silencer

Type		SDR-1/4 P (E)	SDR-3/8 P (E)
Port size		G1/4	G3/8
Weight (mass)	kg	0.5 (0.8)	0.5 (0.8)
Operating pressure	$p_{2\min}$ bar	2	2
range, outlet	$p_{2\max}$ bar	16 (10)	16 (10)
Maximum	$Q_{\max}$ l/min	1500	1600
flow rate	m³/h	90	96

3/2 Way Shut-Off Valve

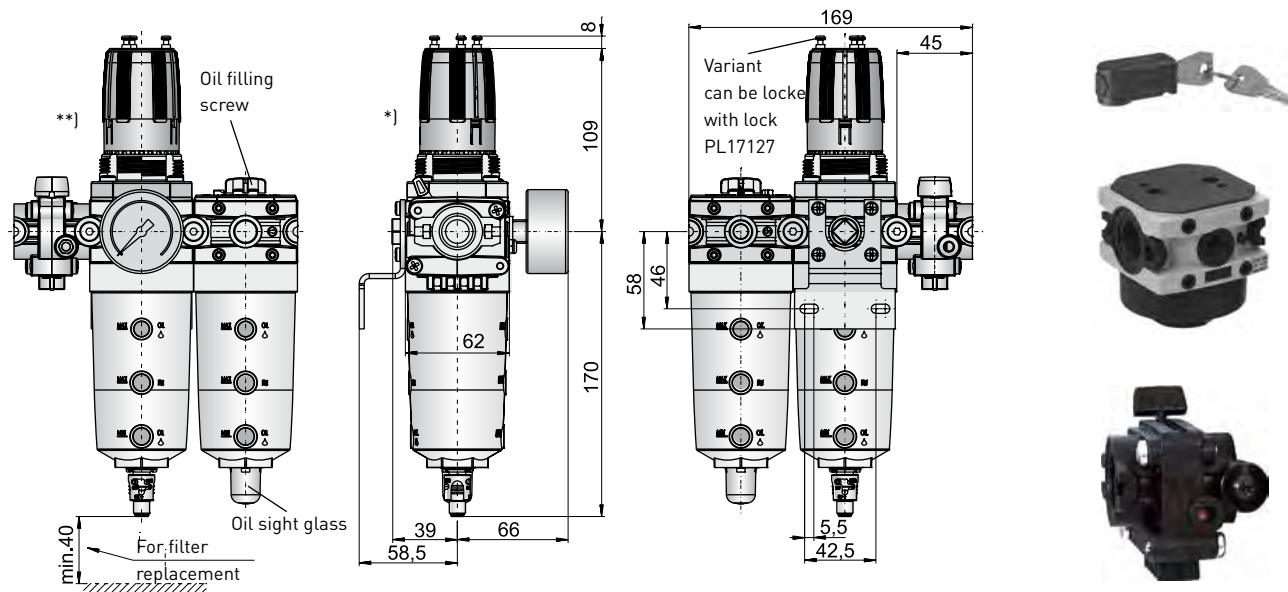
3/2 way shut-off valve, slide design

Type		SDV-1/4 XS	SDV-3/8 XS
Port size		G1/4	G3/8
Weight (mass)	kg	0.25	0.25
Maximum	$Q_{\max}$ l/min	4100	5300
flow rate	m³/h	246	318

airfit A15

G1/2, G3/4

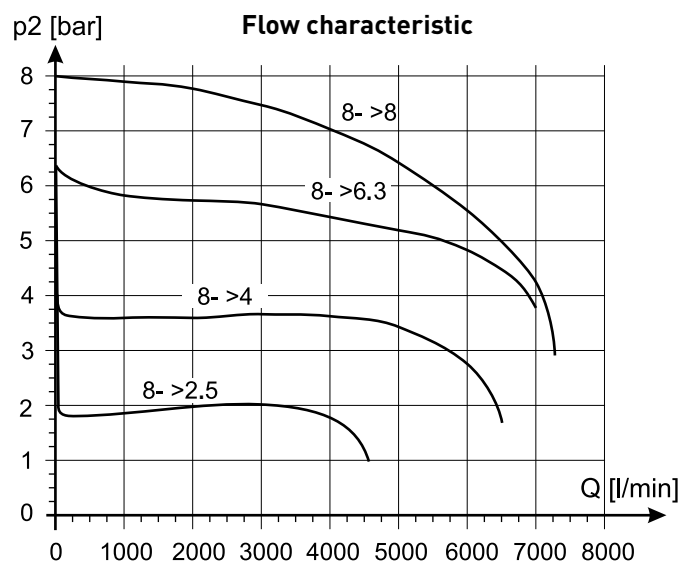
Air preparation unit, 2-piece with shut-off valve — model A15DVKL-1/2, -3/4



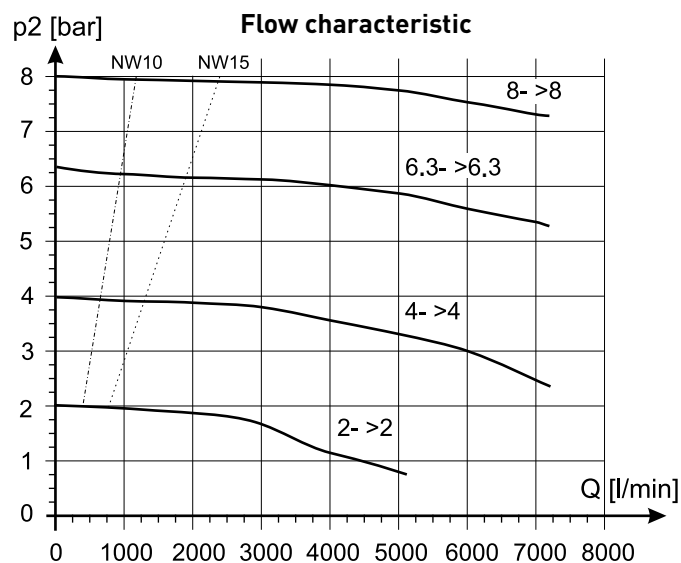
*] Locking screw is delivered unfitted

**] Double-sided pressure gauge connection G1/4

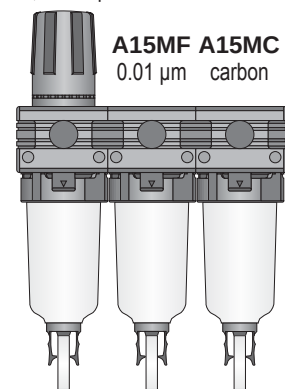
Combination device (filter regulator) — model A15K-1/2



Nano oil mist lubricator — model A15L-1/2

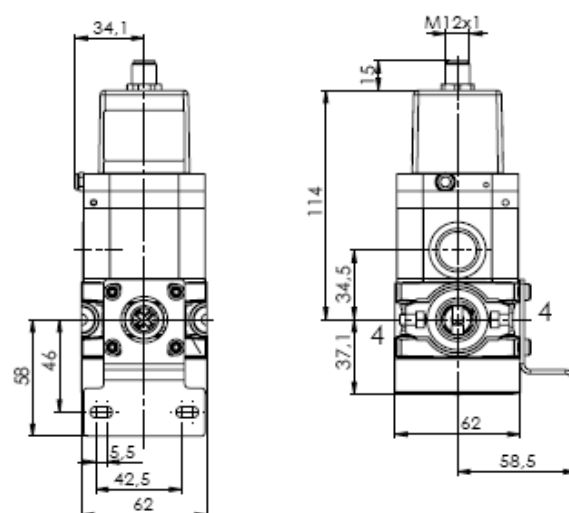


A15K
30, 5 or 1 μm



Flow direction →

Electronic Pressure Regulator — model A15RE-1/2



Specification	Symbol	Unit	Maintenance unit, 2-piece with shut-off valve	Maintenance unit, 2-piece	Combination device (filter regulator)	Filter water separator	Pressure regulator	Nano oil mist lubricator
Type			Comprising shut-off valve, filter regulator and nano oil mist lubricator, pressure gauge and mounting bracket	Comprising filter regulator and nano oil mist lubricator, pressure gauge and mounting bracket	With centrifugal system and filter insert, combined with membrane pressure regulator (spring tension controlled), with secondary ventilation, primary pressure compensation and quantity compensation, locking hand wheel	With centrifugal system and filter insert	Membrane pressure regulator (spring tension controlled) with secondary ventilation, primary pressure compensation and quantity compensation, locking hand wheel	Nano oil mist lubricator with constant mixture ratio
Type			A15DVKL-1/2 A15DVKL-3/4	A15KL-1/2 A15KL-3/4	A15K-1/2 A15K-3/4	A15F-1/2 A15F-3/4	A15R-1/2 A15R-3/4	A15L-1/2 A15L-3/4
Materials								
– Housing			High-tech polymer					
– Plastic container			High-tech polymer with polypropylene insert					
– Membrane			NBR	NBR	NBR	–	NBR	NBR
– Standard seals			NBR					
Connection size (Variant NPTF)			G1/2, G3/4 (NPT 1/2)					
Max. condensate volume		cm ³	60	60	60	60	–	–
Pore size of filter insert		µm	40 or 5	40 or 5	40 or 5	40 or 5	–	–
Condensate draining			Manual, semi-automatic (with pressure release) or automatic (level-dependent)				–	–
Mixture ratio		mg/m ³	5 or 25 - 50	5 or 25 - 50	–	–	–	5 or 25 - 50
Max. oil fill level		cm ³	90	90	–	–	–	90
Oil top-up			Manual, also possible during operation		–	–	–	Manual, also possible during operation
Installation position			Vertical, container downwards				Any	Vertical, container downwards
Medium and ambient temperature	T _{min}	°C	0 (to -40 on request)					
	T _{max}	°C	60					
Weight (mass)		kg	1.3	1.0	0.5	0.35	0.35	0.35
Pneumatic specifications								
Operating pressure range			0					
Input			16					
Operating pressure range			0.3 to 8					
Output			[0.3 to 16 on request] ³⁾					
Max. flow rate			3300 ¹⁾					
			198					
Most favorable operating range for lubricator ²⁾			1850					
			111					

¹⁾ at p₁ = 8 bar and p₂ = 6.3 bar and Δp = 1 bar

²⁾ at 6 bar and 25 m/s flow rate

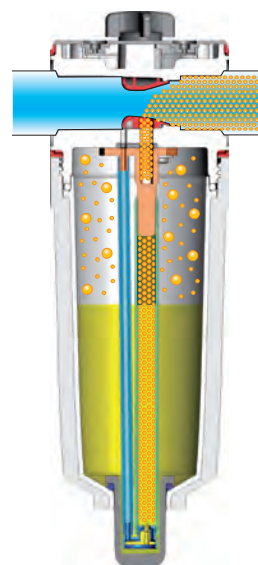
³⁾ by using special control springs, the pressure in the specified p₂ range can be adjusted accurately

⁴⁾ at p₁ = 8 bar and Δp = 1 bar



New Concept

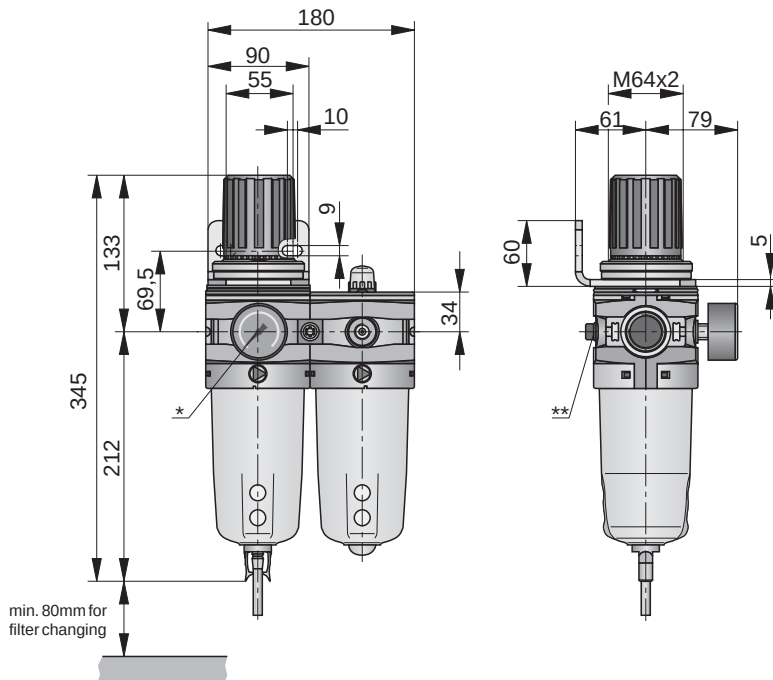
Nano Oil Mist, up to 40m
Self-Adjusting, 5 mg/m³



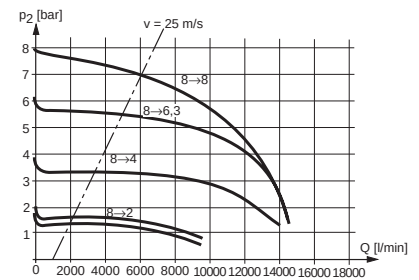
airfit A25

G3/4, G1"

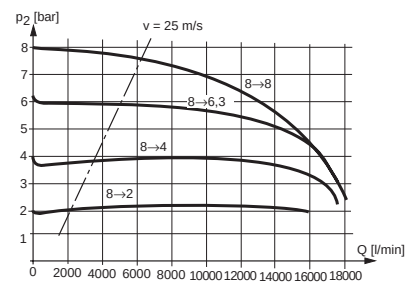
Type: A25KL-3/4-EMW
A25KL-1-EMW



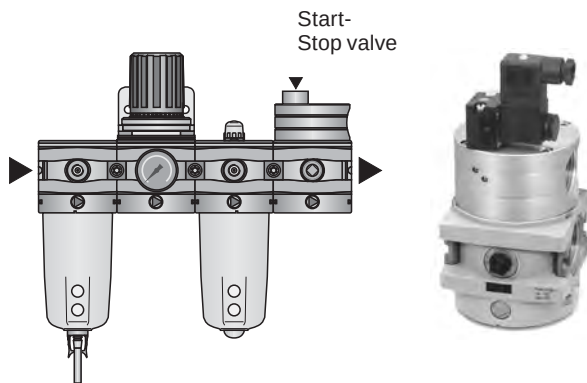
Type: A25FRL-1-EMW



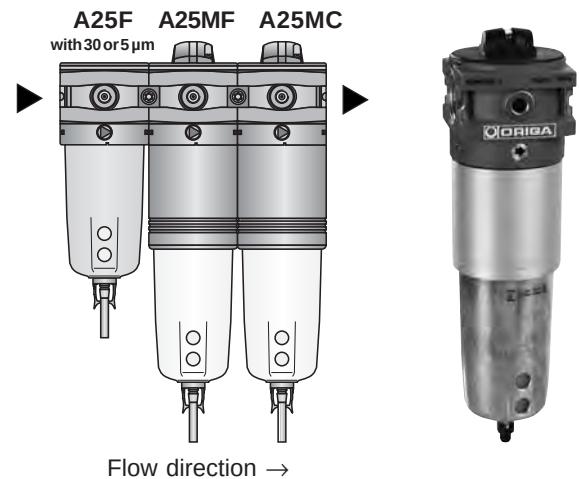
Type: A25K-1-E



Type: A25DS start/stop valve



Type: A25MF coalescing filter 0.01µm
Type: A25MC activated carbon filter



Type: A25RV proportional pressure regulator
Type: A25RE electronic pressure regulator



Characteristics Common to All airfit A25 Units

Port sizes		G3/4, 1 and NPTF
Operating pressure	$P_{1 \text{ min}}$ bar	0
range, inlet	$p_{1 \text{ max}}$ bar	17.5
Medium and ambient	T_{min} °C	- 10
temperature range	T_{max} °C	+ 50 (+60°C at 12.5 bar)

Air Preparation Unit A25FRL

comprising Filter-Water-Separator, Pressure Regulator and Oil Mist Lubricator

Type		A25FRL-3/4-EMW	A25FRL-1-EMW
Port size		G3/4	G1
Weight (Mass)	kg	3.3	3.3
Maximum	Q_{max} l/min	7900	12580
flow rate	m³/h	474	775

Air Preparation Unit A25KL

comprising Filter-Regulator and Oil Mist Lubricator

Type		A25KL-3/4-EMW	A25KL-1-EMW
Port size		G3/4	G1
Weight (Mass)	kg	2.8	2.8
Maximum	Q_{max} l/min	8600	14650
flow rate	m³/h	528	879

Filter-Regulator A25K

Pressure Regulator with Filter-Water-Separator

Type		A25K-3/4-E	A25K-1-E
Port size		G3/4	G1
Pore size of filter element	µm	30 or 5	30 or 5
Condensate drainage		manual, semiautomatic (with pressure relief) or fully automatic	
Weight (Mass)	kg	1.5	1.5
Operating pressure	$p_{2 \text{ min}}$ bar	0.5	0.5
range, outlet	$p_{2 \text{ max}}$ bar	12 (17.5)	12 (17.5)
Maximum	Q_{max} l/min	13200	19000
flow rate	m³/h	792	1140

Filter-Water-Separator, Dust Filter A25F, A25FD

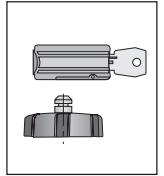
Type A25F Filter-water-separator with centrifugal system and filter element
Type A25FD Dust filter with larger filter surface area for long service intervals, specially designed for use with dryers.

Type		A25F-3/4-E	A25F-1-E	A25FD-3/4-E	A25FD-1-E
Port size		G3/4	G1	G3/4	G1
Pore size of filter element	µm	30 or 5	30 or 5	1	1
Condensate drainage		manual, semiautomatic (with pressure relief) or fully automatic			
Weight (Mass)	kg	0.9	0.9	0.9	0.9
Maximum	Q_{max} l/min	10400	11400		
flow rate	m³/h	624	684		

Pressure Regulator A25R, A25RV

Spring-loaded or pilot operated diaphragm pressure regulator with secondary venting

Type		A25R-3/4	A25R-1
Port size		G3/4	G1
Weight (Mass)	kg	1.2	1.2
Operating pressure	$p_{2 \text{ min}}$ bar	0.5	0.5
range, outlet	$p_{2 \text{ max}}$ bar	12 (17.5)	12 (17.5)
Maximum	Q_{max} l/min	14600	>20000
flow rate	m³/h	876	>1200



Oil Mist Lubricator A25L

Oil Mist Lubricator with flow rate compensation

Type		A25L-3/4-E	A25L-1-E
Port size		G3/4	G1
Weight (Mass)	kg	0.8	0.8
Maximum oil capacity	cm³	500	500
Maximum	Q_{max} l/min	16000	17700
flow rate	m³/h	960	1062



Start- / Stop Valve A25DS

Start/Stop Valve with pneumatic or electrical actuation

Type		A25DS-3/4	A25DS-1
Port size		G3/4	G-1
Weight (Mass)	kg	1.4	1.4
Operating pressure	$p_{2 \text{ min}}$ bar	2	2
range, outlet	$p_{2 \text{ max}}$ bar	17.5 (16)	17.5 (16)
Maximum	Q_{max} l/min	10500	12000
flow rate	m³/h	630	720

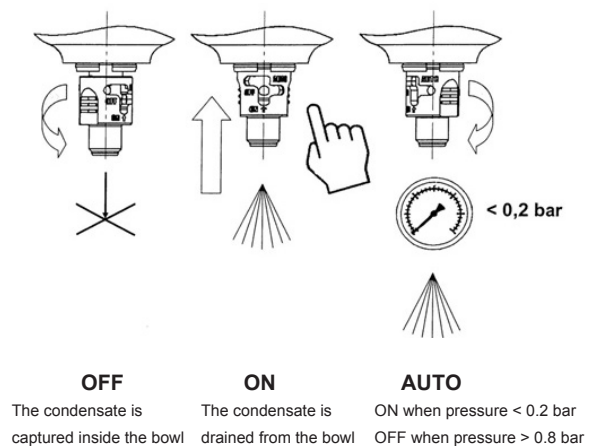
3/2 Way Shut-Off Valve A25DV

3/2 Way Shut-Off Valve

Type		A25DV-3/4	A25DV-1
Port size		G3/4	G1
Weight (Mass)	kg	1.2	1.2
Maximum	Q_{max} l/min	>20000	>20000
flow rate	m³/h	>1200	>1200



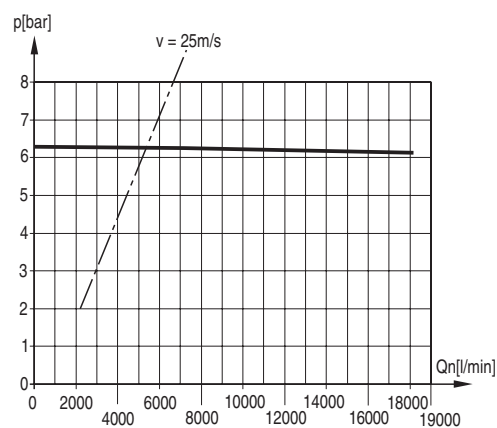
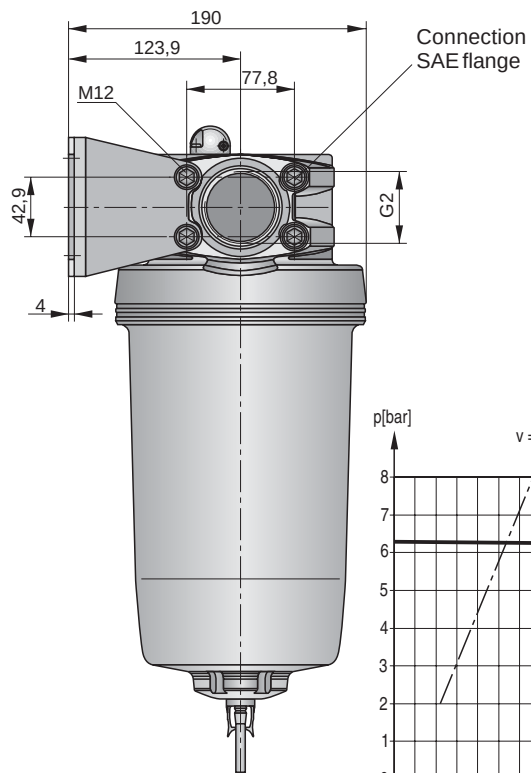
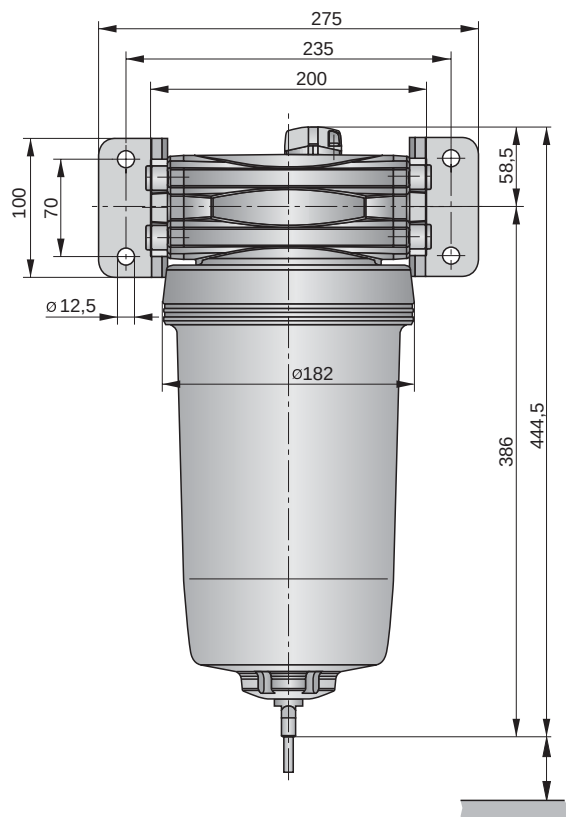
Condensate Drainvalve



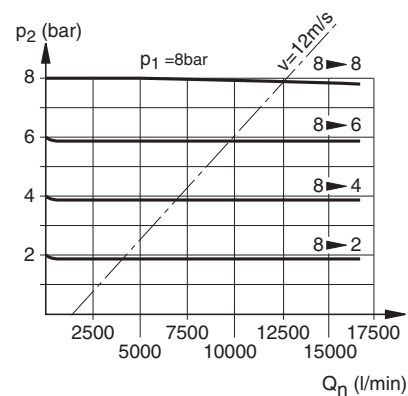
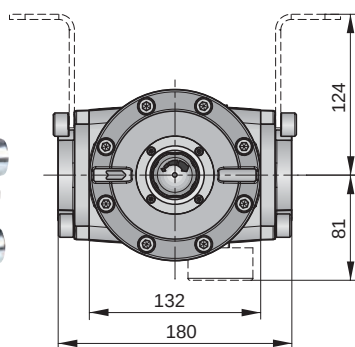
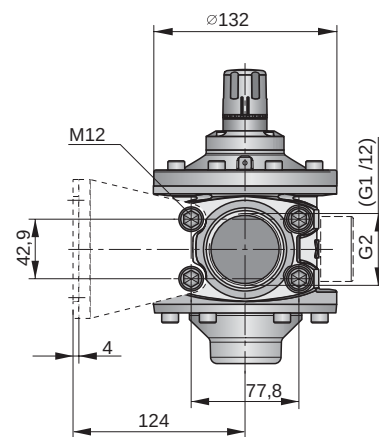
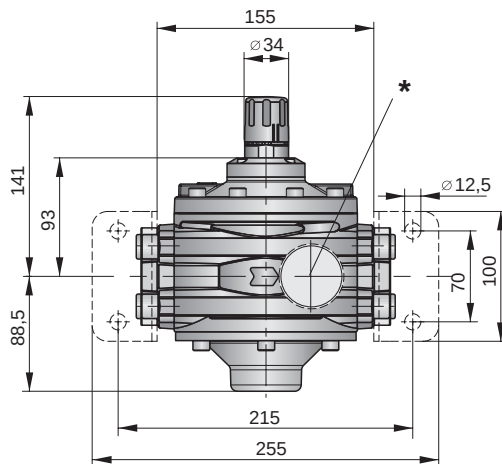
airfit A50

G1.1/2, G2"

Type: A50F-ADV



Type: A50R, A50RV



... and a comprehensive range of accessories
– in all sizes and with many options



Float-type AutoDrain



TimerDrain, Strainer, Ball Valve



Air Tank

Characteristics Common to All airfit A50 Units

Filter-Water-Separator

Weight (mass)	kg	A50F-1 1/2	A50F-2
		5.50	5.25

Pressure Regulator

Weight (mass)	kg	A50R-1 1/2	A50R-2
Port sizes	G	1 1/2	2
Maximum flow rate	Q		
	l/min	>40000	>40000
	m³/h	>2400	>2400
Operating pressure range, inlet	p _{1 min} bar	0	0
	p _{1 max} bar	17.5	17.5
Operating pressure range, outlet	p _{2 min} bar	0	0
	p _{2 max} bar	8(16)	8(16)

Micromist Lubricator

Port sizes	G	EL-25	EL-50
Weight (mass)	kg	10	18
Recommended flow rate	Q _{min} l/min	100	200
	Q _{max} l/min	5500	17000
Operating pressure range	p _{max} bar	10	10

Type: DV-1/2i automatic drain



airfit A04R 4 and 6 mm
pressure regulator for panel
mounting

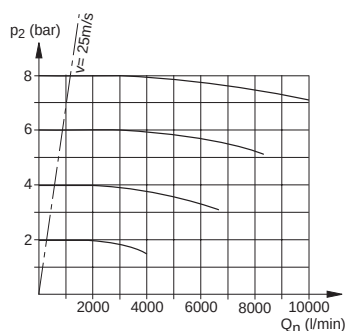


- minimum size
- high flow rates
- push-in connections
- DIN rail mounting

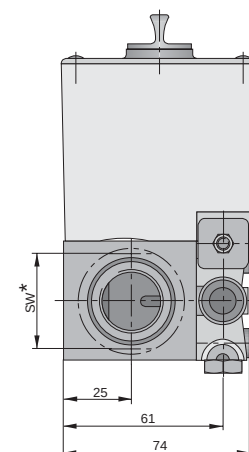
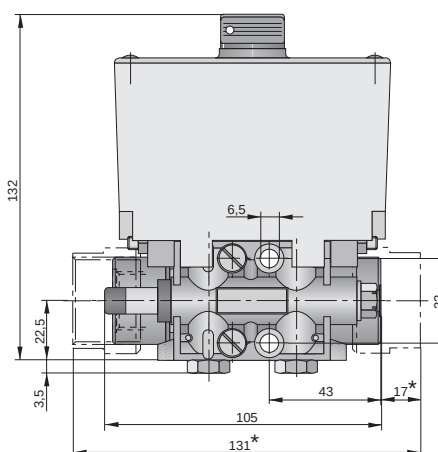
Injection Lubricator Combination G1/4-G1

Flow Characteristics: Type LUBI-08

Version with airflow sensor



Port size		G1/4	G3/8	G1/2	G3/4	G1
Weight (mass)	kg	0.65	0.65	0.65	0.75	0.80
Operating pressure range	p _{min} bar	3	3	3	3	3
	p _{max} bar	16	16	16	16	16
Recommended flow rate	Q _n l/min	550	850	1900	3500	5000
	m³/h	33	51	114	210	300

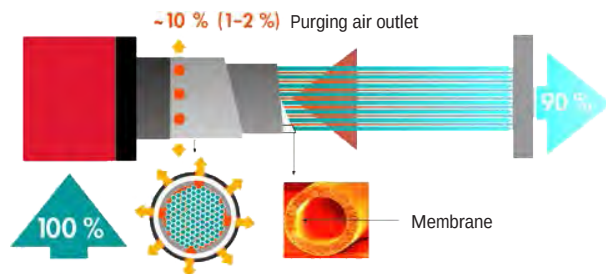


* only for LUBI-20 SW = 36
LUBI-25 SW = 41

airfit Dry

G1/2, G3/4

Advantages of the A15 Membrane Dryers



Dried compressed air is immediate

No electrical connection necessary

Suitable for hazardous areas



No CFC's/FC's

Compatible with the A15 series modular air preparation series



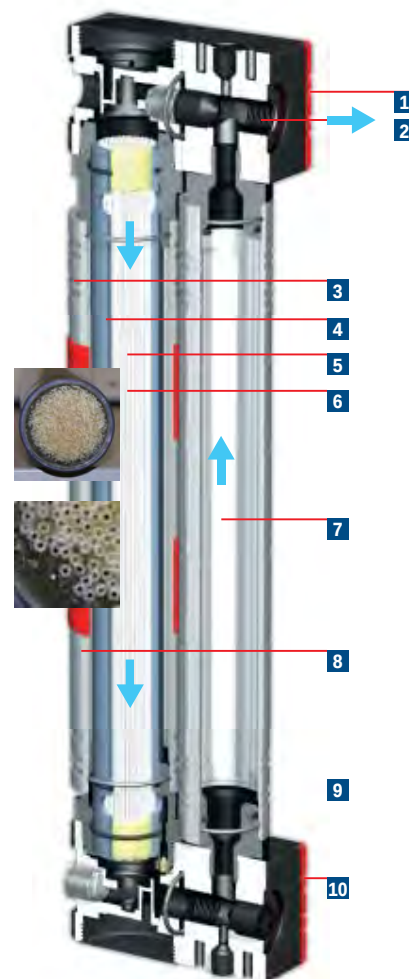
Low pressure drop

No moving parts

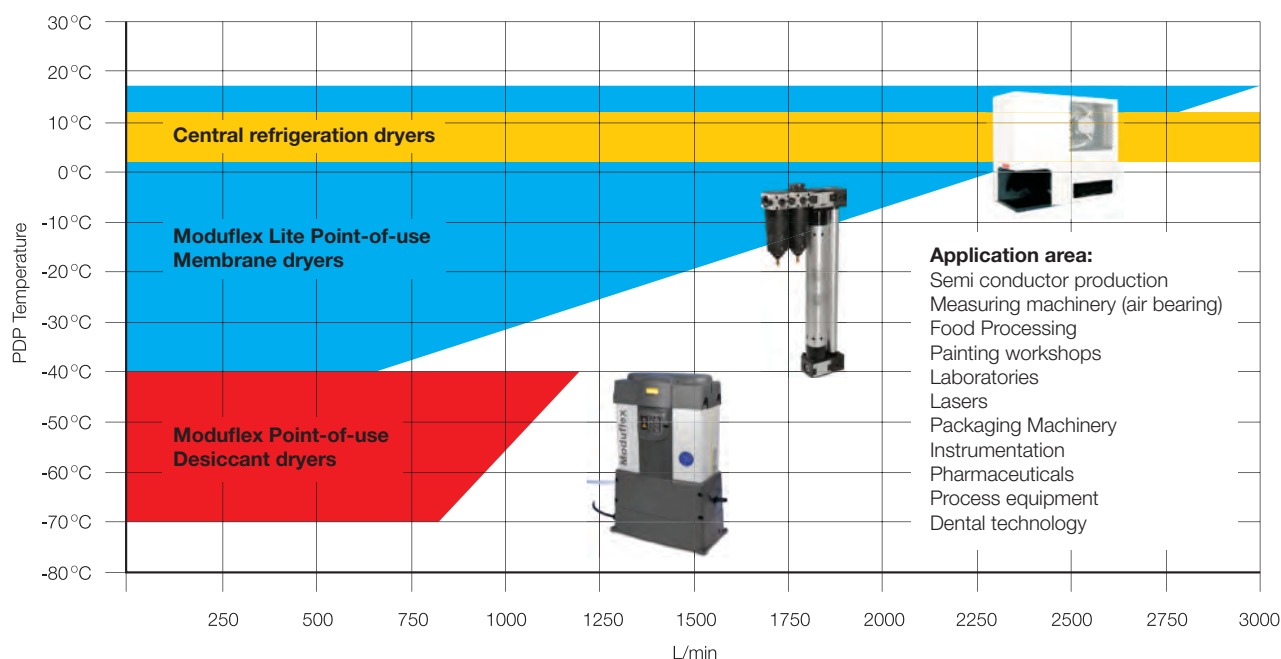
No drying medium required

Low purge air usage

Low operating costs



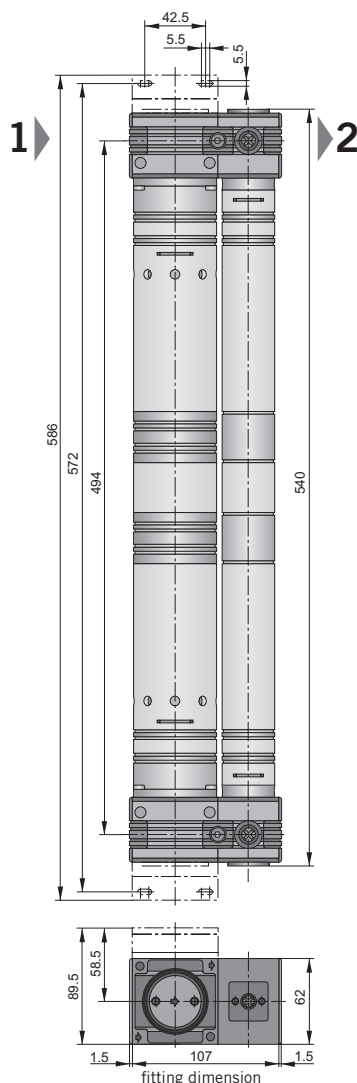
Dryer types with PDP reduction & flow values



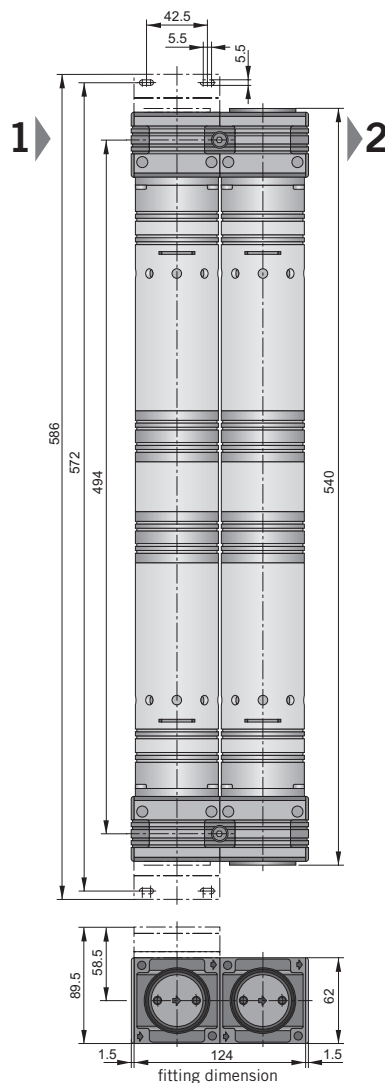
Technical Information

			Size 10	Size 15	Size 20	Size 25	Size 35	Size 50
Port size			G1/2	G1/2	G1/2	G1/2	G1/2	G1/2
Medium and Ambient temperature	$\vartheta_{\min}$	°C	+2	+2	+2	+2	+2	+2
	$\vartheta_{\max}$	°C	+60	+60	+60	+60	+60	+60
Weight (kg)			3.3	3.3	3.3	3.3	4.2	4.2
Operating pressure range	$P_{\min}$	bar	5	5	5	5	5	5
Input	$P_{\max}$	bar	16	16	16	16	16	16
Maximum flow	$Q_{\max}$	l/min	560	840	1120	1400	1960	2800
		m³/h	33.6	50.4	67.2	84	117.5	168
Nominal flow	$Q_{\max}$	l/min	167	250	333	417	583	833
		m³/h	10	15	20	25	35	50
Purging air requirement		%	ca. 10	ca. 10	ca. 10	ca. 10	ca. 10	ca. 10
Pressured drop	Δp	bar	0.02-0.05	0.02-0.05	0.02-0.05	0.02-0.05	0.06	0.12

**A15DM-10
A15DM-15
A15DM-20
A15DM-25**



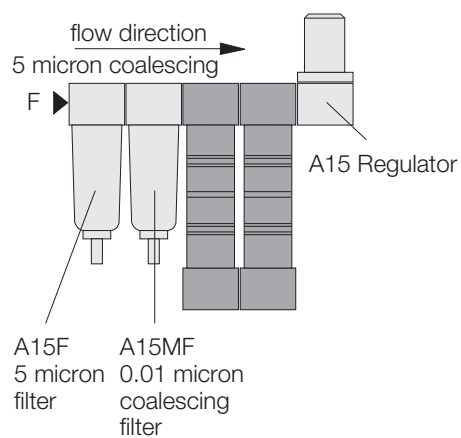
**A15DM-35
A15DM-50**



- Compact
- Immediate dry air delivery
- No electric power supply required
- Minimal purge air consumption
- Low pressure drop
- No change in air composition

Mounting Instructions

Recommended mounting sequence



Dimensions in mm

PRESSURE REGULATOR TYPE R121 -RP121

Diaphragm medium pressure regulator brass made. Flow rate 650 Nm³/h; outlet pressures from 0,2 to 50 bar. Maximum inlet pressure 50 bar for air and non corrosives gases. On request vent for the over pressure relieving only for air . Chromium-plated brass gauge G 1/4. Working temperature from -20°C to +60°C. Available version working with remote control.

Materials of construction:

- Corpo – Body: Ottone – Brass
- Campana – Bonnet: Ottone – Brass
- Parti interne – Inner parts: Ottone – Brass

MODELS AND PERFORMANCES:

Modello Model	P _e P _{in}	P _u P _{out}	portata max max flow	Attacchi entrata femmina Inlet connections female	Attacchi uscita femmina Outlet connections female
	[bar]	[bar]	[Nm ³ /h]		
R121 A1	30	0,2-1,5 bar	230	1/2" BSP	1/2" BSP
R121 B1		0,3-3 bar	336	1/2" BSP	1/2" BSP
R121 C1		0,8-8 bar	350	1/2" BSP	1/2" BSP
R121 E1		1,5-15 bar	425	1/2" BSP	1/2" BSP
R121 F1	50	1,5-15 bar	425	1/2" BSP	1/2" BSP
R121 G1		3-30 bar	550	1/2" BSP	1/2" BSP
R121 L1		5-50 bar	650	1/2" BSP	1/2" BSP
RP121E	30	1-15 bar	425	1/2" BSP	1/2" BSP
RP121F	50	1-15 bar	425	1/2" BSP	1/2" BSP
RP121L		3-50 bar	650	1/2" BSP	1/2" BSP



R121

PRESSURE REGULATOR TYPE R123 -RP123

Diaphragm medium pressure regulator brass made. Flow rate 2000 Nm³/h; outlet pressures from 0,2 to 50 bar. Maximum inlet pressure 50 bar for air and non corrosives gases. On request vent for the over pressure relieving only for air . Chromium-plated brass gauge G 1/4. Working temperature from -20°C to +60°C. Available version working with remote control.

Materials of construction:

- Corpo – Body: Ottone – Brass
- Campana – Bonnet: Alluminio – Aluminium
- Parti interne – Inner parts: Ottone – Brass

MODELS AND PERFORMANCES:

Modello Model	P _e P _{in}	P _u P _{out}	portata max max flow	Attacchi entrata femmina Inlet connections female	Attacchi uscita femmina Outlet connections female
	[bar]	[bar]	[Nm ³ /h]		
R123 A1	30	0,2-1,5 bar	400	1" BSP	1" BSP
R123 B1		0,3-3 bar	600	1" BSP	1" BSP
R123 C1		0,8-8 bar	1200	1" BSP	1" BSP
R123 E1		1,5-15 bar	1600	1" BSP	1" BSP
R123 F1	50	1,5-15 bar	1650	1" BSP	1" BSP
R123 G1		3-30 bar	1800	1" BSP	1" BSP
R123 L1		5-50 bar	2000	1" BSP	1" BSP
RP123E	30	1-15 bar	1600	1" BSP	1" BSP
RP123F	50	1-15 bar	1650	1" BSP	1" BSP
RP123L		1-50 bar	2000	1" BSP	1" BSP



R123

Spare parts kit: Diaphragm, main valve, gaskets, filter

Optionals: Bbracket, venting on bonnet

Pin 60 bar, non standard gaskets

Other Product Range

„From the real world, for the real world“ – the comprehensive accessories programme mirrors the decades of experience of our specialists, for even the smallest components contribute to the quick assembly and cost-effectiveness of the machine.

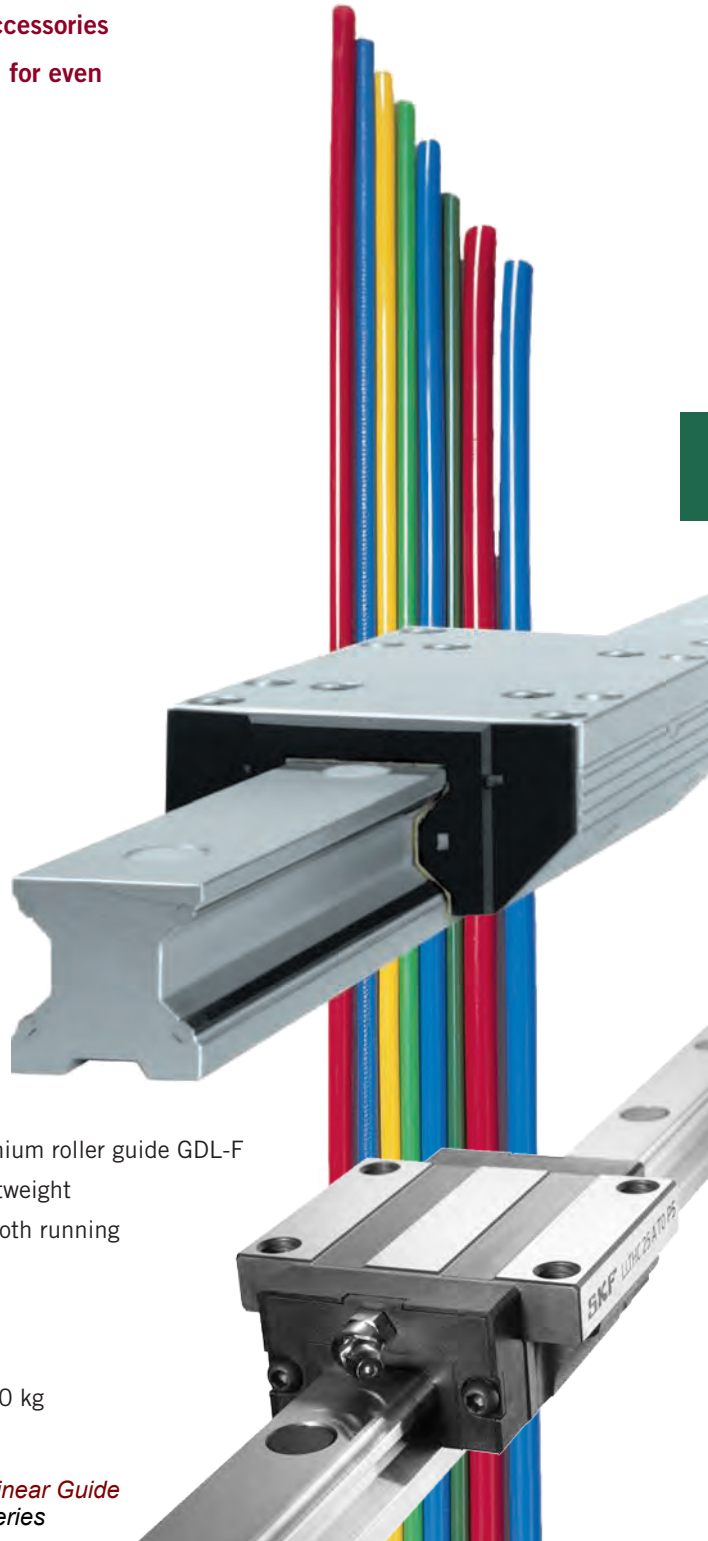
- shut-off and flow control valves
- silencers
- pressure switches
- pressure relief valves
- switch-off valves
- timers
- aluminium roller guides
- shock absorbers
- ball valves
- metal and plastic push-in fittings
- fittings and accessories
- push-in couplings
- push-in nipples
- valves with manual sliding sleeve
- tubing



Pressure switches
- N.O., N.C., SPDT

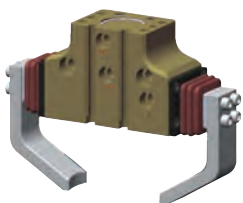


Shock absorber Series SA
– fixed or adjustable
– for effective masses from 1 to 64,000 kg



Aluminium roller guide GDL-F
– lightweight
– smooth running

*SKF Linear Guide
LLT Series*



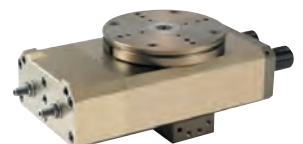
Parallel Grippers



Angular Grippers



Rail Bearing Slides



Rotary Actuators

Accessories made by professionals for professionals



PC



POC



PCF



PU



PGJ



PIJ



PTJ



PM



PL



PLB



PLE



PV



PLL



PH



PHW



PMF



PB



PBB



PBE



PE



PD



PX



PY



PP



PSU



PSC-A (cyl)



PSC-As (cyl)



PSC-Bs (vlv)

Materials
 -% Resin body & plastic ring
 -i Nickel-plated & plastic ring
 -m Nickel-plated body & ring



TC



TC-t



TC-s



TCF



TU



TM



TZ



TN



TL-t



TL-s



TLB



TLE



TLF



TV



TSC-As (cyl)



TSC-Bs (vlv)



TD



TB



TBB



TBE



TE

Options
 -A Meter-out control, cylinder
 -B Meter-in control, for valves
 -s Slotted or Swivel or Special
 -t Taper threaded



SCT



SCQ



SE



SEJ



SS



SEC



SEP



SP



SVE, SVE-s



SVL



SVL-s



SPL



SCO

Port Size

01 1/8	06 3/4
02 1/4	10 1"
03 3/8	12 1.1/4"
04 1/2	14 1.1/2"
	20 2"

"Full Service" ... the Active Service Concept



BI



BI-t



BC



BC



BC



BC-s



BU



BV



BL



BVM



BE



BB



BD



BDM



BEF



BEM



BZ



BZ1



BZM



BMFF



BPM



BPO



BPH



BPF



BN, BN-L



BN2



BNS-A (cyl)



BNS-As (cyl)



BSC-As (cyl)



BLE



BNW



BGJ



BRV-i



VU check v.



VU-europa



VS-mf



VS-ff



VM-i



Q.Exh. VSR-m



Q.Exh. VSR-i



center back



bottom port



SEU / VUS



07 regulator



pilot check v.



manifold



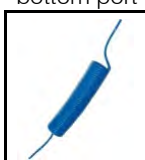
Y-strainer VY



VSR-diap.



PU, PA, PE



coiling tube



tube binder



tube cutter



tube insert



disconnect key



Cleanroom



anti-Static



anti-Spatter



PPS resin



PP resin



PP 304



CC



CL



push-in 304



push-in 316

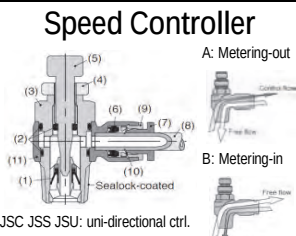
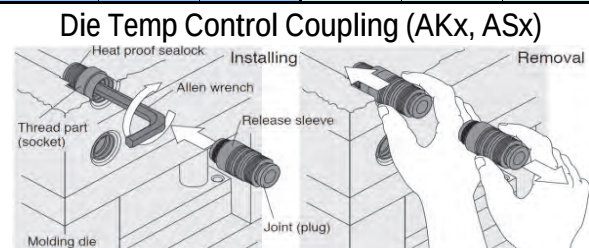


push-on 316

Ordering Example

PC 8-02 m
PSC 8-02 A
TC 8/6-02 s
TE 8/6

SCT 02
BI 01-02
BC (m)-(f)
BRV 02 i

Speed Controller 			JSC Elbow Speed Control. JNC Throttle			JSS Free Rotation Speed Control. JNS Throttle			JSU Union Straight Speed Control. JNU Throttle			HV 3/2-way Hand Valve (w/drain hole)		
GPC Pressure Gauge GPM Bulkhead GPJ Plug-in			RVCM Elbow Reg.+Gauge RVC w/o Gauge			RVS Straight Regulator w/o Gauge			RVUM Union Straight Reg.+Gauge RVU w/o Gauge			HBV Change Valve		
GPC15-M5 GPC15-01 GPC15-02	GPM4 GPM6 GPM8	GPJ4 GPJ6 GPJ8	RVCM4-M5 RVCM4-01 RVCM6-M5 RVCM6-01 RVCM8-02 RVCM8-01	RVC4-M5 RVC4-01 RVC6-M5 RVC6-01 RVC8-01 RVC8-02		RVS4-M5 RVS4-01 RVS6-M5 RVS6-01 RVS8-02 RVS8-01			RVUM4-4 RVUM6-4 RVUM6-6 RVUM8-6 RVUM8-8	RVU4-4 RVU6-4 RVU6-6 RVU8-6 RVU8-8		HBV6-6 HBV8-6 HBV8-8 HBV10-10 HBV12-10 HBV12-12		
Die Temp Control Coupling (AKx, ASx) 			AKC Straight Coms ASC Stop-Valve Built-in			AKL Elbow Coms ASL Stop-Valve Built-in			RHL Hi-Rotary Joint 900-1500 rpm					
LC Barb Straight LCN Compression			LH Barb Banjo LHN Compression			LB Barb Branch Tee			LU Barb Union Straight LG Unequal			RB Multi-Circuit Rotary Block		
LC-0320-M3 LC-0320-M5 LC-0320-01 LC-0425-M3 LC-0425-M5 LC-0425-M6 LC-0425-01	LC-0535-M5 LC-0640-M3 LC-0640-M5 LC-0640-M6 LC-0640-01	LCN-0320-M3 LCN-0320-M5 LCN-0320-01 LCN-0425-M5 LCN-0425-01 LCN-0640-M5 LCN-0640-01	LH-0320-M3 LH-0320-M5 LH-0425-M3 LH-0425-M5	LHN-0320-M5 LHN-0425-M5 LHN-0640-M5		LB-0320-M3 LB-0320-M5 LB-0425-M3 LB-0425-M5 LB-0640-M5	LB-FM3-M3 LB-FM5-M5		LU-0320 LU-0425 LU-0640	LG-0425-0320 LG-0640-0320 LG-0640-0425		RB4-M5 RB4-01 RB6-M5 RB6-M6 RB8-M5 RB8-M6		
Nickel-Plated Brass 			KL Brass Push-in Elbow KC Straight			KJSC Brass Elbow Speed Control. KJNC Throttle			NKC Brass Push-on Straight			NKL Brass Push-on Elbow		
			KL(C)4-M5 KL(C)4-01 KL(C)4-02 KL(C)6-M5 KL(C)6-01 KL(C)6-02 KL(C)6-03	KL(C)8-01 KL(C)8-02 KL(C)8-03 KL(C)10-01 KL(C)10-02 KL(C)10-03 KL(C)10-04	KL(C)12-02 KL(C)12-03 KL(C)12-04	KJSC4-M5 KJSC4-01 KJSC6-M5 KJSC6-01 KJSC6-02 KJSC6-03 KJSC8-01	KJSC8-02 KJSC8-03 KJSC10-02 KJSC10-03 KJSC10-04 KJSC12-03 KJSC12-04		NKC(L)0425-01 NKC(L)0425-02 NKC(L)0640-01 NKC(L)0640-02 NKC(L)0640-03 NKC(L)0850-01 NKC(L)0850-02	NKC(L)0850-03 NKC(L)0860-01 NKC(L)0860-02 NKC(L)0860-03 NKC(L)1065-02 NKC(L)1065-03 NKC(L)1065-04	NKC(L)1075-02 NKC(L)1075-03 NKC(L)1075-04 NKC(L)1280-02 NKC(L)1280-03 NKC(L)1280-04 NKC(L)1290-02	NKC(L)1290-03 NKC(L)1290-04 NKC(L)1611-03 NKC(L)1611-04 NKC(L)1613-03 NKC(L)1613-04		
SUS316 			SSL 316 Push-in Elbow SSC Straight			SSNC 316 Throttle Bi-Direction			NSC 316 Push-on Straight			NSL 316 Push-on Elbow		
			SSL(C)4-M5 SSL(C)4-01 SSL(C)6-M5 SSL(C)6-02 SSL(C)6-03 SSL(C)8-01 SSL(C)8-02	SSL(C)10-02 SSL(C)10-03 SSL(C)12-03 SSL(C)12-04 SSL(C)16-04		SSNC4-01 SSNC6-01 SSNC8-01 SSNC8-02 SSNC10-02 SSNC10-03 SSNC12-03	SSNC12-04 SSNC16-04		NSC(L)0420-01 NSC(L)0420-02 NSC(L)0425-01 NSC(L)0425-02 NSC(L)0640-01 NSC(L)0640-02 NSC(L)0640-03	NSC(L)0850-01 NSC(L)0850-02 NSC(L)0850-03 NSC(L)0860-01 NSC(L)0860-02 NSC(L)0860-03 NSC(L)1065-02 NSC(L)1065-03	NSC(L)1065-04 NSC(L)1075-02 NSC(L)1075-03 NSC(L)1075-04 NSC(L)1280-02 NSC(L)1280-03 NSC(L)1280-04 NSC(L)1290-02 NSC(L)1290-03 NSC(L)1290-04	NSC(L)1290-04 NSC(L)1611-03 NSC(L)1611-04 NSC(L)1613-03 NSC(L)1613-04		
Chemical 			PPL PP Push-in Elbow PPC Straight			PJSC PP Elbow Speed Control. PJNC throttle			APC PPS Push-in Straight			APL PPS Push-in Elbow		
			PPL(C)4-01 PPL(C)4-02 PPL(C)6-01 PPL(C)6-02 PPL(C)6-03 PPL(C)8-01 PPL(C)8-02	PPL(C)8-03 PPL(C)10-02 PPL(C)10-03 PPL(C)12-03 PPL(C)12-04		PJSC4-M3 PJSC4-01 PJSC6-M5 PJSC6-01 PJSC6-02 PJSC6-03	PJSC8-01 PJSC8-02 PJSC8-03 PJSC8-04 PJSC10-02 PJSC10-03 PJSC10-04	PJSC12-03 PJSC12-04	APC4-01 APC6-01 APC6-02 APC6-03 APC8-01 APC8-02 APC8-03	APC10-02 APC10-03 APC12-02 APC12-03 APC12-04		APL4-01 APL6-01 APL6-02 APL6-03 APL8-01 APL8-02 APL8-03	APL10-02 APL10-03 APL12-02 APL12-03 APL12-04	
Spatter-Proof 			PL-V Spatter-Proof Elbow PC-V Straight			JSC-V Spatter-Proof Speed Control.			PC-EG Anti-Static Straight			PL-EG Anti-Static Elbow		
			PL(C)4-M5V-0 PL(C)4-M6V-0 PL(C)4-01V-0 PL(C)4-02V-0 PL(C)6-01V-0 PL(C)6-02V-0 PL(C)6-03V-0	PL(C)8-01V-0 PL(C)8-02V-0 PL(C)8-03V-0 PL(C)10-01V-0 PL(C)10-02V-0 PL(C)10-03V-0 PL(C)10-04V-0	PL(C)12-02V-0 PL(C)12-03V-0 PL(C)12-04V-0	JSC4-M5V-0 JSC4-01V-0 JSC6-M5V-0 JSC6-01V-0 JSC6-02V-0 JSC6-03V-0 JSC8-01V-0	JSC8-02V-0 JSC8-03V-0 JSC8-04V-0 JSC10-02V-0 JSC10-03V-0 JSC10-04V-0	JSC12-03V-0 JSC12-04V-0	PC3-M5MEG PC4-M5EG PC4-M6EG PC4-01EG PC4-02EG PC6-M5EG PC6-M6EG	PC6-01EG PC6-02EG PC6-03EG PC8-01EG PC8-02EG PC8-03EG	PC10-02EG PC10-03EG PC12-03EG PC12-04EG	PL3-M5MEG PL4-M5EG PL4-M6EG PL4-01EG PL4-02EG PL6-M5EG PL6-M6EG	PL6-01EG PL6-02EG PL6-03EG PL8-01EG PL8-02EG PL8-03EG	PL10-02EG PL10-03EG PL12-03EG PL12-04EG

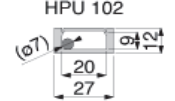
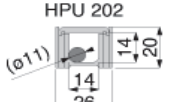
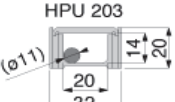
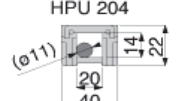
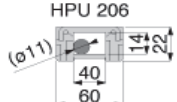
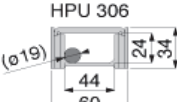
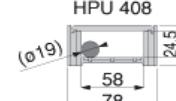
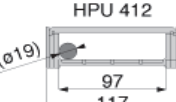
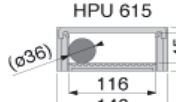
TUBE

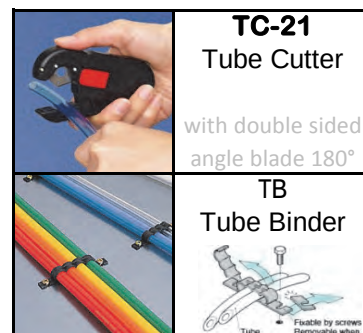
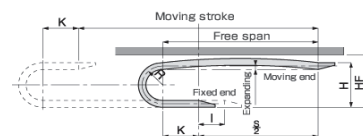
TUBE	Medium	Model	PN	Vac.	Temp.°C		Soft-Hard				Tube Size			Tube Color											
			bar	kPa	min	max	1	2	3	4	OD x ID (mm)			C	W	B	R	O	YB	Y	G	Bu	CB		
	Air	UB Polyurethane	8	-100	-15	60		O			UB0320	UB0850	UB1611												
	Water										UB0425	UB1065		O	O	O	O	O	O	O	O	O	O	O	
											UB0640	UB1280													
	Air	NA Nylon	15	-100	-15	90				O	NA0425	NA0860	NA1290		O	O	O	O	O	O	O	O	O	O	
	Water										NA0640	NA1075	NA1613												
	Heat Oil	NB Solf Nylon	10	-100	-15	90			O		NB0425	NB0860	NB1290		O	O	O	O	O	O	O	O	O		
	Hi-Pres.									NB0640	NB1075	NB1613													
	Air	UD Vacuum	4	-100	-15	50	O				UD0425	UD0860	UD1290	O											
										UD0640	UD1075														
	Air	UL Coiling Tube	8	-100	-15	60		O			UL03	UL06	UL10	O	O	O	O	O	O	O	O	O	O		
										UL04	UL08	UL12													
	Water	SFT Fluororesin	24								SFT0420	SFT0860	SFT1290												
	Chem	Teflon PFA	14	-100	-65	260				O	SFT0425	SFT1075	SFT1210	O											
			10								SFT0640	SFT1080	SFT1613												
	Air	SET Fluororesin	27								SET0420	SET0860	SET1290												
Water										SET0425	SET1075	SET1210	O		O										
	Chem	Teflon FEP	16	-100	-65	200				O	SET0640	SET1080	SET1613												
			10																						
	Air	SNT Polyamide									SNT0420	SNT0860	SNT1290												
Drinking										SNT0425	SNT1075	SNT1210		O											
	Water		15	-100	-15	90				O	SNT0640	SNT1080	SNT1613												
	Air	FB Spatter-Proof	10	-100	-15	90				O	FB0425	FB0860	FB1290			O									
Heat Oil										FB0640	FB1075														
	Air	UE Anti-Static	6	-100	-15	40		O			UE0320	UE0640	UE1065			O									
											UE0425	UE0850	UE1280												

Plarail chains Cable Conveyers

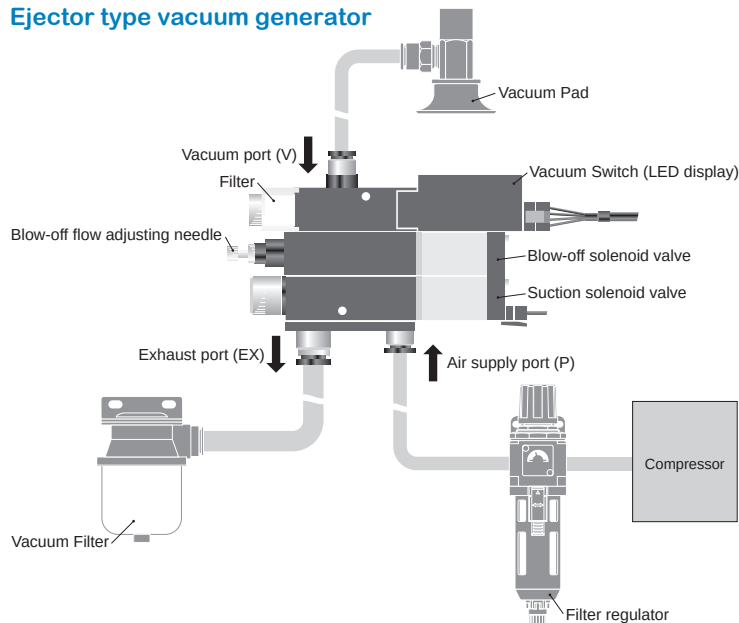


Cable, hose protecting and guiding device.

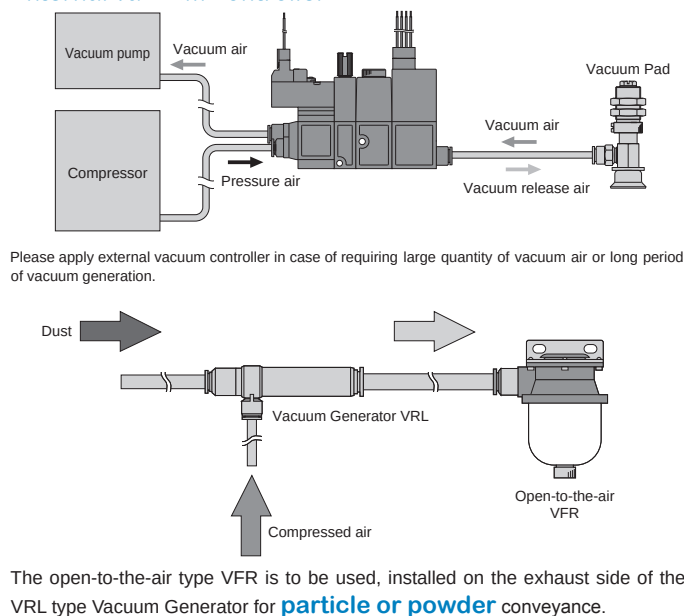
HPU102	HPU202	HPU203	HPU204	HPU206	HPU306	HPU408	HPU412	HPU615
Radius 19	25, 30, 45	30, 45	38, 50		50, 100, 150	50, 75, 100, 150, 200		75, 100, 150, 200
								



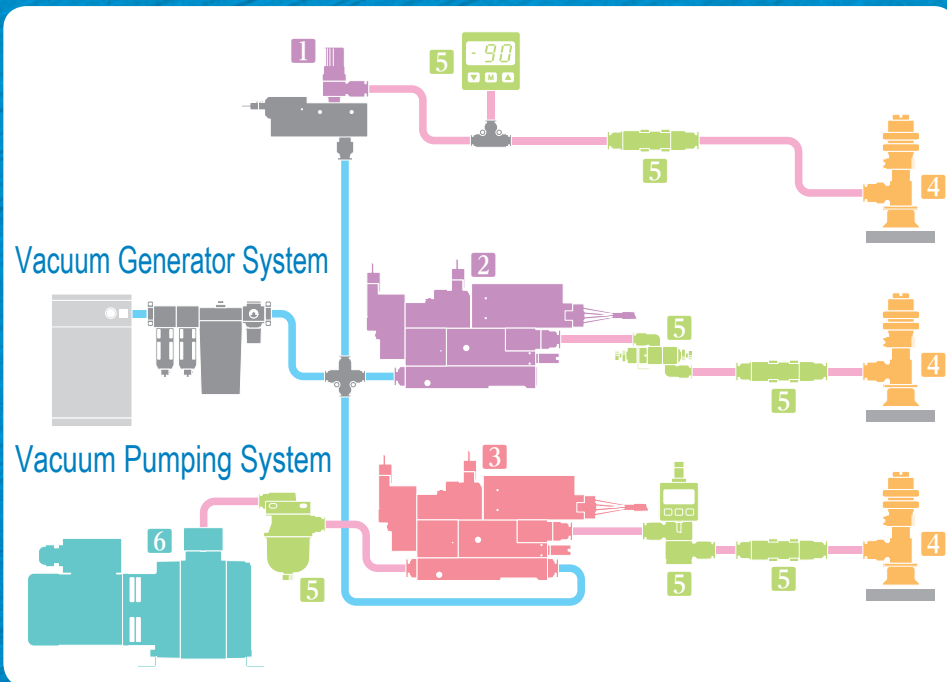
Ejector type vacuum generator



External vacuum controller



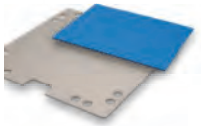
VACUUM



General Type



ชิ้นงาน หนา เรียบ



Deep Type



ชิ้นงาน โค้ง กลม



Small Type



ชิ้นส่วนอิเล็กทรอนิกส์



Bellow Type



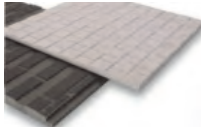
บรรจุภัณฑ์อาหาร



Sponge Type



ผิวหยาบ กระเบื้อง



Oval Type



เซมิคอนดักเตอร์ แผงวงจร



Soft Type



งานฉีด พื้นผิวเป็นรอยง่าย



Non-slip Type



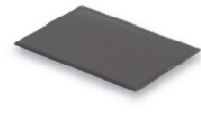
งานปั๊ม เปื้อนคราบน้ำมัน



Mark-free Type



ชิ้นงานพลาสติก จอ LCD



Ultra-thin Type

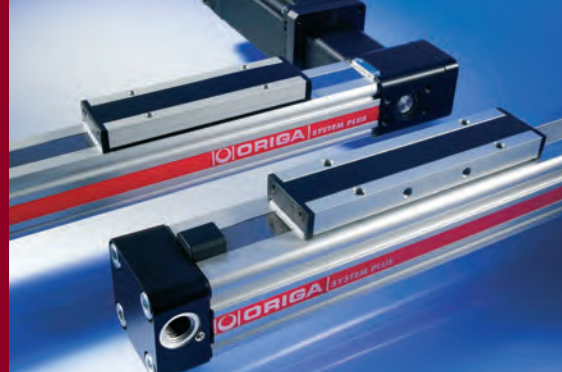
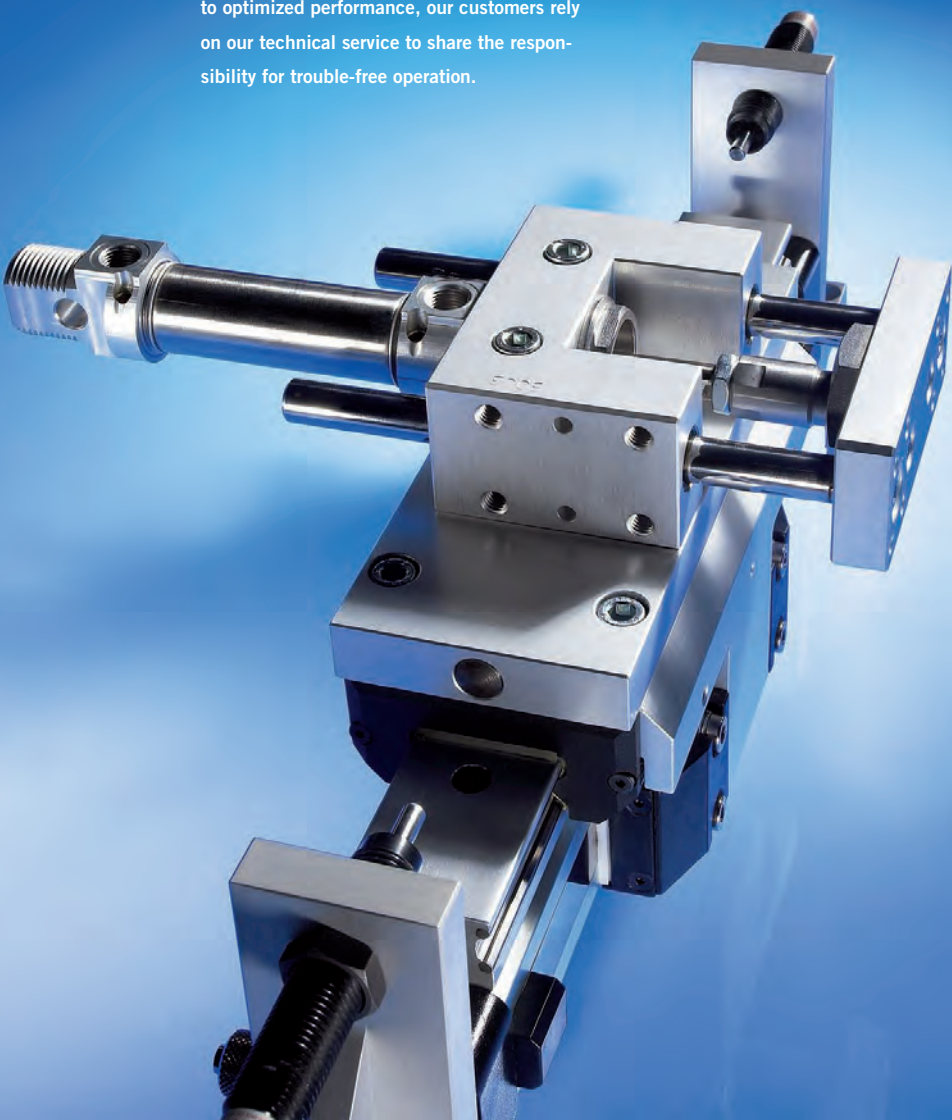


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